

# Odisha Power Sector At a Glance 2010

Public Participation for Improvement in Quality of  
Supply and Financial Viability of the Distribution  
Sector vis-a-vis Franchise Operation in Odisha



Together, Let us light up our lives

## **ORISSA ELECTRICITY REGULATORY COMMISSION**

Bidyut Niyamak Bhavan, Unit-VIII, Bhubaneswar - 751 012, INDIA

Ph. No. (0674)2393097 / 2396117 / 2393606 / 2395886

Fax : (0674) 2393306 / 2395781

E-mail : [orierc@rediffmail.com](mailto:orierc@rediffmail.com), Website : [www.orierc.org](http://www.orierc.org)

# *Disclaimer*

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While every care has been taken to ensure the accuracy of information published in this book, some errors or discrepancies might have crept in inadvertently and unintentionally. We request the readers to bring such errors / omissions to our notice such that necessary corrective action can be taken up.

Further the views and opinions wherever expressed here in this book are those of the authors but not of the organization they belong to.

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ଉପସ୍ଥାପନା : କେ ସି ବଡ଼, ସଦସ୍ୟ

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# Foreword

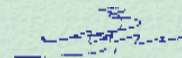
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The power distribution segment in Odisha has been struggling with persistent high losses which at present hovers around 39%. With such an unsustainable level of Aggregate Technical and Commercial loss, the distribution business is clearly unviable. The loss can be substantially reduced through upgradation of the sagging distribution network as well as by effective policing to prevent rampant theft of electricity, very often aided and abetted by unscrupulous employees of the distribution companies. Both would involve certain costs, leading to the improvement in quality of supply and viability of the sector which are inter-related. While there should be concerted efforts to improve the quality of power supply, investments required for such improvement are too vital to left to the vagaries of cash accruals by the DISCOMs. Therefore, the decision to pitch in with assistance, by the GoO, is a wise and timely decision. Obviously, such investments will not only enhance efficiency and quality of supply but substantially contribute to reduction of losses and thereby to gains in revenues. And over the years would lead to surpluses in the DISCOMs thus assisting in tariff stabilization and moderation. The various consumer categories must, however, look at paying for supplies on the basis of the cost of service, keeping in view the fact that no consumer would be unduly burdened or unduly subsidized. In other words, as mandated under the Electricity Act, 2003 and the National Tariff Policy, cross-subsidy amongst the consumers has to be kept within + 20% of the average cost of supply.

Our annual publication endeavours to give the details of reform, changes brought about during the post-reform period, the performance of distribution companies, the constraints faced by the power sector, and various other facets of the sector. The “Odisha Power Sector, 2010 – At a Glance” we hope, would provide an overview of the current status of the sector in the State. This is, however, not a definitive encyclopedia of what is happening or what ails the Sector. It is an attempt to present in a collated fashion some relevant facts that might help the reader to understand some of the trends in the sector.



**(B. K. Das)**

CHAIRPERSON, OERC







**Murlidhar C. Bhandare**  
GOVERNOR, ORISSA



November 24, 2010

## **M E S S A G E**

I am glad to learn that Odisha Electricity Regulatory Commission, Bhubaneswar is organising a state level Workshop on “Public Participation for Improvement in Quality of Supply and Financial Viability of the Distribution Sector vis-a-vis Franchise Operation in Odisha” and on this occasion “Odisha Power Sector at a glance - 2010” is going to be released. This annual publication, initiated by OERC is designed to disseminate various information on present status and issues confronting the power sector.

I am sure the participation of the representatives from the grass root level would make substantial value addition to the plans and programmes of the planners and the regulators of the power sector in the State. The corner stone of the Electricity Act, 2003 is competition and accordingly customers have a choice of supplier. Hence, the existing suppliers need to gear up their approaches and methodology to satisfy the customers and maintain good customer relation, redress their problems and also keep them aware of shutdown, breakdown etc. Without good customer care it is difficult to achieve financial sustainability.

One most important area of concern is the impact on environment arising out of increasing dependence on fossil fuel based power generation. Keeping in view the growing demand for electricity and its fall out on environment, our goal must remain to improve access to reliable, affordable, economically viable, socially acceptable and environmentally sustainable energy sources. We have no choice but to increase per capita energy consumption to provide to our citizen a minimum acceptable level of well being and welfare. We therefore, need to focus on technologies that can lead to cost effective sustainable energy solution.

I am sure the Workshop will deliberate on various issues of the power sector in the State and provide valuable inputs to OERC and the State Govt., to redefine their strategy to ensure improvement in quality of supply and financial viability of the distribution sector in the State.

I wish the workshop all success.

*Murlidhar Bhandare*  
(Murlidhar C. Bhandare)

**RAJ BHAVAN. BHUBANESWAR-751 008**

Tel : 91-674-2536111/2536222 Fax: 91-674-2536582. E-mail: govori@ori.nic.in Website: www.rajbhavanorissa.gov.in





**Sri Naveen Patnaik**  
CHIEF MINISTER, ORISSA



Telephone { (0674) : 2531100 (Off.)  
(0674) : 2591099 (Res.)  
Fax { (0674) : 2535100 (Off.)  
(0674) : 2590833 (Res.)  
E.Mail-cmo@ori.nic.in

D.O. No. 1260  
BHUBANESWAR  
Date : 29.11.2010

## **M E S S A G E**

I am extremely glad that Orissa Electricity Regulatory Commission, Bhubaneswar is organising a state level Workshop on “Public Participation for Improvement in Quality of Supply and Financial Viability of the Distribution Sector Vis-a-vis Franchise Operation in Orissa” and on this occasion “Orissa Power Sector at a glance - 2010” is being brought out to disseminate various aspects of the power sector in the State for the information and deliberation of general public. It is also heartening to know that OERC is involving the elected representatives of the Rural Local Bodies, Urban Local Bodies, Women’s’ Self Help Groups and other stakeholders in their commitment to seek the comments, opinions and suggestions from different stakeholders before coming to definite conclusion regarding amendments of the regulations and tariff setting etc.

On this occasion, it may be recalled that one of the main objectives of reform in electricity sector has been to improve the efficiency of the electricity supply chain from generation to end use consumption. The entire structure of the Electricity Act, 2003 is oriented towards improvement of efficiency, primarily by means of introduction of accountability and competition within the sector. The generation and transmission systems have seen considerable improvement in performance in recent years but the distribution system of the electricity sector remains the only segment that is yet to see radical improvement in efficiency.

A multi pronged approach that incorporates all areas of utilities performance improvement is the need of the hour. It surely has the potential to turn around the distribution segment of the sector besides resulting in other benefits. Such initiatives should be accorded high priority at the utilities level with dedicated teams both at management level and operation level so that there are no hindrances in implementation and there is complete commitment from top management to effect changes. Once this happens, the impact of reform shall be felt to a much great extent and benefits will trickle down to all stakeholders.

State Govt. on its part have already decided to provide budgetary support of Rs.1200 crore during 2010-11 to 2013-14 with equal amount of counter funding by the distribution companies. While State Govt, is committed to provide financial, administrative and moral support. to the distribution companies at different levels it is the distribution companies which have to take initiatives to reduce the loss and for improvement of the quality of supply so that the honest and paying consumers get the real benefit of the power sector reform in the State.

I wish the workshop all success.

(NAVEEN PATNAIK)





**Sri Prafulla Chandra Ghadai**

MINISTER, FINANCE & EXCISE, ORISSA



Phone : Office : 2536910  
PABX : 2175  
Res. : 25665686  
E-mail-finmin@ori.nic.in  
D.O. No. ....../ MF & E

BHUBANESWAR

Date : 27.11.2010

## ***MESSAGE***

I am delighted that Odisha Electricity Regulatory Commission, Bhubaneswar is organising a State Level Workshop on “Public Participation for Improvement in Quality of Supply and Financial Viability of the Distribution Sector vis-a-vis Franchise Operation in Odisha” and “Odisha Power Sector at a glance- 2010” is also being released on this occasion like previous years. While I appreciate and thank OERC for their commitment to elicit public opinion before deciding various issues in the power sector. This annual publication will be of immense help and guide for all the stakeholders and the opinion makers. I am sure OERC would continue their efforts in this regard in future also.

Improvement in quality supply of electricity and financial viability of the distribution licensees are interrelated. If the distribution companies are financially sound they are bound to improve quality supply of electricity to the consumers. On the other hand their financial viability will improve only when the consumers pay the cost of supply of electricity. Without recovering the cost of supply, it is difficult to ensure improvement in quality of supply to the consumers.

I am happy that OERC is organizing this Workshop to disseminate various critical issues of distribution sector to the elected representatives of the Rural Local Bodies, Urban Local Bodies, Women’s’ Self Help Groups and other stakeholders for their proper appreciation and valuable suggestions to improve the quality supply of electricity and simultaneously ensuring recovery of cost of supply to make the distribution sector financially viable for enabling them to provide better service to the consumers.

I wish the Workshop all success.

(P. C. GHADAI)





**Atanu Sabayasachi Nayak**  
MINISTER OF STATE (Ind. Charge)  
Energy, Orissa



Phone : Office : 0674 - 2536642 Tel/Fax  
EPABX : 2189  
Res. : (0674) 2570737

D.O. No. ....../MSE (I)  
Dated the 10.12.2010

## **MESSAGE**

I am glad to know that Odisha Electricity Regulatory Commission, Bhubaneswar is organising a state level Workshop on “Public Participation for Improvement in Quality of Supply and Financial Viability of the Distribution Sector vis-a-vis Franchise Operation in Odisha” and a booklet “Odisha Power Sector at a glance - 2010” is being published on the occasion.

Every consumer wants uninterrupted and stable power supply. Quality of power supply is possible only when OPTCL, the principal carrier of electricity through its transmission network transmits power at required voltage level and on the other the distribution companies also bring required power at the appropriate voltage level through their distribution network. Thus there is urgent need for proper maintenance, renovation, upgradation and expansion in the network of both OPTCL and distribution companies.

State Govt. have decided to provide required support to OPTCL to borrow from financial institutions for investment in upgradation and expansion of the distribution network. State Govt. on the other hand have also decided to provide budgetary support of RS.1200 crore to the distribution companies initially as a loan during the period 2010-11 to 2013-14 and the distribution companies are required to contribute equal amount as their counter part funding.

The most vital problem the power distribution companies face is the power theft and distribution loss which are unacceptably high in Orissa where distribution loss during 2009-10 was 37.24% and AT&C loss was 39.15% against the target of distribution loss 24.45% and AT& C loss of 25.96% approved by the Commission for the said year. For 2010-11 OERC has estimated the revenue requirement on the normative target of distribution loss of 22.22% and AT&C loss of 23.77%. Failure of the distribution companies to achieve the above normative loss level approved by the Commission will result in insufficient collection of revenue and will be ultimately a constraint for stable and quality supply of electricity.

Govt. have decided for investment of Rs.2400 crore jointly with the distribution companies in equal share during the period of four years and it is now necessary for the distribution companies to launch a broad attack on theft of electricity and Govt. would provide the required administrative support in their efforts.

I am sure that these critical issues along with other important facets of power sector would be discussed among the various stakeholders in the Workshop which would provide valuable input for all of us to work together to ensure better quality supply of electricity at a reasonable and affordable rate keeping in view the rising cost of generation and supply.

Atanu Sabayasachi Nayak





**B. K. Patnaik**  
CHIEF SECRETARY, ORISSA



Phone : (+91 674) 2536700/4300  
Fax : (+91 674) 2536660  
e-mail - csori@nic.in  
Bhubaneswar, the December.,2010

## ***MESSAGE***

I am glad to know that Odisha Electricity Regulatory Commission (OERC) is organizing a state level workshop on *Public Participation for improvement in Quality of Supply and Financial Viability of the Distribution Sector vis-a-vis Franchise Operation in Odisha*. A booklet on *Odisha Power Sector at a glance* is also being published on this occasion. Power Production, qualitative improvement in supply, saving of transmission loss and ensuring prospect sustainability are of vital importance for recent and future times. It is sin-qua-non for ongoing developmental process. Intensive awareness and wider public participation are felt need in this trail. I hope the Workshop and the Publication will provide scopes for effective communication and sharing between O.E.R.C and consumers.

I wish the workshop and the publication all success.

( B.K. Patnaik )



**Rabinarayan Senapati, IAS**  
DEVELOPMENT COMMISSIONOR  
AND  
SECRETARY, P& C DEPARTMENT



Phone : 0674-2536882(O)  
0674-2322617(O)  
0674-2536792(Fax)  
0674-2397530(R)  
e-mail-deplg@nic.in

Date : 19-11-2010

## **MESSAGE**

I am glad to know that Odisha Electricity Regulatory Commission, Bhubaneswar is organizing a state level Workshop on **“Public Participation for Improvement in Quality of Supply and Financial Viability of the Distribution Sector vis-a-vis Franchise Operation in Odisha”** and their annual publication **“Odisha Power Sector at a glance - 2010”** is going to be released. This publication will be extremely useful for the consumers, the power utilities, the academicians and the research scholars. This will also provide useful inputs for deliberations on strategies needed to address various problems affecting the power sector relating to quality of supply and recovery of cost.

I am sure the inputs from the elected representatives of the Rural Local Bodies, Urban Local Bodies, Women Self Help Groups and other stakeholders participating in the Workshop would be of immense use for the State Govt. as well as the OERC to redefine the goals and strategies to ensure better quality supply of electricity and at the same time ensure financial viability of the distribution sector.

I wish the workshop all success.

*R. N. Senapati*  
(R. N. Senapati)





Bhubaneswar

Date : 24-11-2010

**Shri J. K. Mohapatra, IAS**

PRINCIPAL SECRETARY TO GOVERNMENT  
FINANCE DEPARTMENT, ORISSA

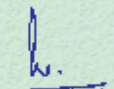
## **M E S S A G E**

I am happy to know that the Orissa Electricity Regulatory Commission (OERC) is organising a State level Workshop on “Public Participation for Improvement in Quality of Supply and Financial Viability of the Distribution Sector vis-a-vis Franchise Operation in Odisha”. On this occasion, the Commission is bringing out their publication “Orissa Power Sector at a Glance - 2010” which would be immensely useful not only to the utilities; but also to the citizens and the researchers/analysts as well.

Expected benefits of the Power Sector Reforms in the State would materialise only if the utilities bring in efficiency in operations, optimise costs, reduce commercial and technical losses, improve quality of service delivery in order to ensure greater customers’ satisfaction and take strong measures, whenever and wherever required, to make the consumers pay for the electricity used. Regrettably, at present out of every 100 units of electricity sold to the consumers in the State, only 63 units are billed and sale price of only 61 units is being realised. Obviously, this business model is unsustainable and unviable. The distribution segment would be financially and operationally viable only when the energy actually consumed is metered, billed and the electricity charges are collected in full. While the billing and collection efficiency of the distribution companies has to improve substantially; they also have to effectively tackle the malady of theft of electricity.

I do hope that the elected representatives for the Panchayati Raj institutions, Urban Local Bodies, Women’s Self Help groups and other stakeholders participating in the workshop would engage in an intense debate on all these issues with a view to evolving pragmatic, innovative and workable solutions to the challenges facing the distribution segment of the Power Sector.

I wish the Workshop all success.

  
(J. K. Mohapatra)





**Shri Pradeep Kumar Jena, IAS**  
COMMISSIONOR-CUM-SECRETARY  
DEPARTMENT OF ENERGY



Phone Office : 0674-2536960  
2396605  
Fax : 0674-2394950

Bhubaneswar  
Date. 26-11-2010

## **M E S S A G E**

Like in the previous years, Odisha Electricity Regulatory Commission, Bhubaneswar is organizing a state level Workshop on “Public Participation for Improvement in Quality of Supply and Financial Viability of the Distribution Sector vis-a-vis Franchise Operation in Odisha” and on this occasion their annual publication “Odisha Power Sector at a glance - 2010” is being released. This workshop and the annual publication will greatly help all the stakeholders, particularly, the consumers and the distribution companies to understand each others various problems and constraints.

With increase in consumption level by the existing consumers which at present is around 29 lakh and likely to increase to 70 lakh after completion of rural electrification under RGGVY and BGJY, the gap between demand and supply would increase. Comparatively cheaper source of power from hydro generation being limited and is solely dependant on timely rain fall greater resorts have to be made to fossil based generation. More amount of power would be met from comparatively costly sources of fossil based thermal power. This would result not only in increase the cost of supply but also increase in pollution of our environment. While the consumers expecting uninterrupted quality supply of power for 24 hours must also be ready and willing to pay the cost of supply of power which is determined by the cost of generation and rising cost of establishment, labour and material required for maintaining the distribution network. Hence, supply of quality power has to be accompanied with cost of supply of such power.

In view of the huge inefficiency in prevailing the overall operation of electricity industry, whether it is generation, transmission, distribution or utilization the addition of generation capacity will only result in huge drain on national resources. Without careful management, the electricity industry has a potential to become the worst abusers of our fragile environment and it can also lead to further socio-economic deterioration.

Electricity distribution business in the State has become unsustainable due to high Technical Loss and also equally very high Commercial Loss which mostly is on account of theft, by-passing, tampering, hooking and poor recovery due to poor billing and collection. While DISTCOMs are required to invest on system up-gradation, availability of resources have become a handicap. The CAPEX programme recently launched by State Govt. would take care of up-gradation efforts to a certain extent which can reduce the Technical Loss substantially. This alone is not going to severely reduce the adverse financial situation of the DISTCOMs as long as Commercial Loss is not reduced to bare minimum. This can happen only with effective enforcement, improving internal governance and vigilance, improving consumer behaviour and better consumer compliance through 100% metering and reading, 100% billing and 100% collection. This might face a serious impediment at the hands of the DISTCOMs considering the growth of consumer base which might see very steep rise in the next two years. While the current level of 30 lakh consumers are not being billed 100% and revenue recovery is not 100%, it will be still a greater challenge for DISTCOMs to extend service to 70 lakh consumers in a span of two years. This challenge can be effectively addressed through universal franchising or micro-privatisation at 33 KV feeder, 11 KV feeder or still at smaller levels i.e. level of distribution transformers. Introducing more franchising and giving responsibility of not only metering, billing & collection, but small O&M responsibilities could not only improve bottom lines of the DISTCOMs, but will improve consumer service which in turn will result in better client satisfaction. The consumer habits will see dramatic change when they pay dues on the basis of the actual energy consumption which may lead to avoiding unnecessary use of electricity and thus reduce the pollution and the cost of supply. Better revenue recovery by the DISTCOMs could not only make them economically viable but the sector will see continuous system up-gradation through plough back of surplus revenue.

  
(PRADEEP KUMAR IENA)



# ଓଡ଼ିଶାକୁ ଶକ୍ତି ଉତ୍ପାଦନ କ୍ଷେତ୍ରରେ ଅଗ୍ରଣୀ କରନ୍ତୁ

## ଆପଣଙ୍କ ଟ୍ରାନ୍ସଫର୍ମର କାର୍ଯ୍ୟକ୍ରିୟ ଅଧିକ ଭାରାହୀନ ହୁଏ ବା ପୋଡ଼ିଯାଏ

- \* ଅନୁମୋଦିତ ପରିମାଣଠାରୁ ଅଧିକ ବିଦ୍ୟୁତ୍ ବ୍ୟବହାର କଲେ ବା ଚୋରି ବିଦ୍ୟୁତ୍ ଉପଭୋଗ କଲେ, ଟ୍ରାନ୍ସଫର୍ମର ଉପରେ ଅତ୍ୟଧିକ ଚାପ ପଡ଼େ ।
- \* ଏହାଦ୍ୱାରା ଭୋଲଟେଜ୍ କମିଯାଏ ।
- \* ଟ୍ରାନ୍ସଫର୍ମର ମଧ୍ୟ ପୋଡ଼ି ଯାଇପାରେ ।
- \* ଟ୍ରାନ୍ସଫର୍ମର ପୋଡ଼ିଯିବା ଦ୍ୱାରା ସାଧୁ ଉପଭୋକ୍ତା ବିଦ୍ୟୁତ୍ ପାଇବାକୁ ବଞ୍ଚିତ ହୁଅନ୍ତି ।
- \* ସେମାନଙ୍କୁ ବିଦ୍ୟୁତ୍ ଚୋରିର ଆର୍ଥିକ ଭାର ବହନ କରିବାକୁ ପଡ଼େ ।
- \* ଏହାଦ୍ୱାରା ବନ୍ଧନ ସଂସ୍ଥାମାନଙ୍କର ରାଜସ୍ୱ କ୍ଷତି ଘଟେ ।
- \* ସର୍ବଶେଷରେ ବିଦ୍ୟୁତ୍ ଶୁଳ୍କ ବଢ଼ିଯାଏ ।

ଆପଣ ବିଦ୍ୟୁତ୍ ଚୋରୀ ବନ୍ଦକରିବାରେ ସାହାଯ୍ୟ ଓ ସହଯୋଗ କରି ଟ୍ରାନ୍ସଫର୍ମର ପୋଡ଼ିଯିବା କାରଣରୁ ଦିନ ଦିନ ଧରି ଅନ୍ଧାରରେ ରହିବାର ଦୁର୍ଦ୍ଦଶାରୁ ତ୍ରାହି ପାଇପାରିବେ ।

### ବନ୍ଧନକାରୀ ସଂସ୍ଥାର ଭୂମିକା :

- ୧) ଟ୍ରାନ୍ସଫର୍ମର ଠିକ୍‌ଭାବେ ରକ୍ଷଣାବେକ୍ଷଣ କରିବା ଉଚିତ୍ ।
- ୨) ପ୍ରତ୍ୟେକ ଦିନ ଫେରୁ କରେଣ୍ଟ ମାପିବା ଉଚିତ୍ ।
- ୩) ଯେତେବେଳେ ଟ୍ରାନ୍ସଫର୍ମର ଉପରେ ବୋଝ (ରେଟେଟ୍ କରେଣ୍ଟ) ୮୦ ପ୍ରତିଶତ ଅତିକ୍ରମ କଲେ, ତେବେ ବନ୍ଧନକାରୀ ସଂସ୍ଥା ଟ୍ରାନ୍ସଫର୍ମରର ଶକ୍ତି ବୁଦ୍ଧି କରିବା ଉଚିତ୍ ।
- ୪) ଟ୍ରାନ୍ସଫର୍ମର ତେଲ ପ୍ରତ୍ୟେକ ୬ ମାସରେ ଯାଞ୍ଚ କରିବା ଉଚିତ୍ ।
- ୫) ଯଦି ଟ୍ରାନ୍ସଫର୍ମରରେ ଥିବା ପିଲିକାଜେଲର ରଙ୍ଗ ବଦଳି ଯାଇଥାଏ, ସତେଜ ସଙ୍ଗେ ଟ୍ରାନ୍ସଫର୍ମରର ତେଲ ବଦଳେଇଦେବା ଉଚିତ୍ ।
- ୬) ଟ୍ରାନ୍ସଫର୍ମର ବା କଣ୍ଟକ୍ଟର ଶକ୍ତି ବୁଦ୍ଧି କରିବା ପାଇଁ ଯଥା ସମ୍ଭବରେ ଭୋଲଟେଜ୍ (ଭି.ଆର୍. କାଲକ୍ଚୁଲେସନ) ।
- ୭) ଅନୁମୋଦିତ ଭାବେ ବିଦ୍ୟୁତ୍ ବ୍ୟବହାର କରୁଥିବା ବା ବିଦ୍ୟୁତ୍ ଦେବାରେ ଖୁଲାସା କରୁଥିବା ଉପଭୋକ୍ତାମାନଙ୍କର ଯୋଗାଣ ତୁରନ୍ତ ବିଚ୍ଛିନ୍ନ କରନ୍ତୁ ।

### ବିଦ୍ୟୁତ୍ ଉପଭୋକ୍ତାମାନେ ଧ୍ୟାନ ଦିଅନ୍ତୁ :

- ୧) ଅନୁମୋଦିତ ଭାବେ ବିଦ୍ୟୁତ୍ ବ୍ୟବହାର କରନ୍ତୁ ନାହିଁ ।
- ୨) ବିଦ୍ୟୁତ୍ ଚୋରି ହେଲେ ପୋଲିସ୍ କିମ୍ବା ବନ୍ଧନକାରୀ ସଂସ୍ଥାମାନଙ୍କର ଅଧିକାରୀମାନଙ୍କୁ ଖବର କରନ୍ତୁ ।
- ୩) ଆପଣଙ୍କ (କନେକ୍ଟର ଲୋଡ଼) ଠାରୁ ଅଧିକ ବିଦ୍ୟୁତ୍ ବ୍ୟବହାର କରନ୍ତୁ ନାହିଁ ।
- ୪) ଯେତେବେଳେ ଆପଣଙ୍କର ବିଦ୍ୟୁତ୍ ଚାହିଦା ବଢ଼ିବ, ସେତେବେଳେ ଆପଣ ବିଦ୍ୟୁତ୍ ବନ୍ଧନ ସଂସ୍ଥାକୁ ଜଣାଇବା ଏବଂ ଆପଣଙ୍କର କଣ୍ଟାକୁ ଡିମାଣ୍ଡ ବୁଦ୍ଧି କରିବେ ।
- ୫) ଆପଣଙ୍କ ବିଦ୍ୟୁତ୍ ଦେୟ ଦେବାରେ ଖୁଲାସା କରିବେ ନାହିଁ ।
- ୬) ଆପଣଙ୍କ ଗ୍ରାମର ବା ପଡ଼ାର ବା ଅଞ୍ଚଳର ବିଦ୍ୟୁତ୍ ଦେୟ ଖୁଲାସାକାରୀମାନଙ୍କୁ ଯଥାଶୀଘ୍ର ଦେୟ ଭରିବାପାଇଁ ବାଧକରହୁ କାରଣ ଯେଉଁଠାରେ ବିଦ୍ୟୁତ୍ ଦେୟ ବାକିଥାଏ, ସେଠାରେ ଟ୍ରାନ୍ସଫର୍ମର ପୋଡ଼ିଗଲେ ନୂଆ ଟ୍ରାନ୍ସଫର୍ମର ବସାଇବାକୁ ବା ଟ୍ରାନ୍ସଫର୍ମର କ୍ଷମତା ବୁଦ୍ଧି ଆବଶ୍ୟକତା ପୂରଣ କରିବାପାଇଁ ଗୁରୁତ୍ୱ ଦିଆଯାଇନଥାଏ, ଯାହା ଫଳରେ ସେହି ଅଞ୍ଚଳର ସର୍ବୋଚ୍ଚ ଗ୍ରାହକମାନେ ଅସୁବିଧାରେ ସଜାଣି ହୋଇଥାନ୍ତି ।
- ୭) ନିର୍ଦ୍ଧାରିତ ଭୋଲଟେଜ୍ ଠାରୁ ଯଦି କମ୍ ହୁଏ, ତେବେ ବନ୍ଧନ ସଂସ୍ଥା ଅଧିକାରୀମାନଙ୍କୁ ଲିଖିତ ଆକାରରେ ଜଣାଇବେ ।
- ୮) ଟ୍ରାନ୍ସଫର୍ମର ପୋଡ଼ିଗଲେ ଅଧିକାରୀମାନଙ୍କୁ ଅବଗତ କରିବେ ।
- ୯) ଯଦି ବନ୍ଧନକାରୀ ସଂସ୍ଥା ଯଦିକି ଭୋଲଟେଜ୍ ଦେଉନାହିଁ ବା ସମସ୍ତସୀମା ଭିତରେ ପୋଡ଼ିଯାଇଥିବା ଟ୍ରାନ୍ସଫର୍ମର ପୁନଃସ୍ଥାପନ କରୁନାହିଁ, ତେବେ ଅଭିଯୋଗ ପ୍ରତିବିଧାନ ବିତରଣପୀଠରେ ଆପଣ ଅଭିଯୋଗ କରିପାରିବେ ।

## ଓଡ଼ିଶା ବିଦ୍ୟୁତ୍ ନିୟାମକ ଆୟୋଗ

ବିଦ୍ୟୁତ୍ ନିୟାମକ ଭବନ, ଯୁନିଟ୍-୮, ଭୁବନେଶ୍ୱର - ୭୫୧ ୦୧୨

ଫୋନ୍ : +୯୧-୬୭୪-୨୭୪-୨୭୯୭, ୨୭୯୭୦୯୭, ୨୭୯୭୧୮୦, ୨୭୯୭୨୦୬, ଫ୍ୟାକ୍ସ : +୯୧-୬୭୪-୨୭୪-୨୭୯୭୩୦୬, ୨୭୯୭୩୮୧

ଇ-ମେଲ : [orienc@rediffmail.com](mailto:orienc@rediffmail.com), [info@orienc.org](mailto:info@orienc.org)

ଡ.ଇ.ଆର.ସି. ଦ୍ୱାରା ଜନସାଧାରଣଙ୍କ ହିତରେ ଜାରୀ ।





# ବିଦ୍ୟୁତ୍ ବିଲ୍ କିପରି ପୈଠ କରିବେ ଏବଂ ପୈଠ ନକରିବାର ପରିଣାମ



## ବିଦ୍ୟୁତ୍ ବିତରଣ ସମ୍ପର୍କ ଭୂମିକା

- ପତ୍ରୋତ୍ତ / ପାଧାରଣ (ଡି.ପି.) ଉପଭୋକ୍ତାଙ୍କ ପାଇଁ ଉର୍ଦ୍ଧ୍ୱ ବିଲ୍ ୨ ମାସ ସମୟସୀମା ମଧ୍ୟରେ ବନ୍ଦନ କରାଯିବା ଉଚିତ୍ । ଅନ୍ୟ ସମସ୍ତ ଉପଭୋକ୍ତାଙ୍କୁ ମାସିକ ବିଲ୍ ପିଆସିବା ଉଚିତ୍ ।
- ୱର୍ ବିଲ୍ ଗୁଡ଼ିକୁ ମାସିକ ବନ୍ଦନ କରାଯିବା ଉଚିତ୍ ।
- ବିଲ୍ ଦେବା ପରିଚ୍ଛେଦ (Cycle) ଶେଷ ହେବାର ୧୦ ଦିନ ମଧ୍ୟରେ ବିଲ୍ ବନ୍ଦନ କରାଯିବା ଉଚିତ୍ ।
- ବିଲ୍ କୁ ଧାର୍ଯ୍ୟ ଚାଳିତା ପୂର୍ବରୁ ଡାକ / କୋଲିଅର / ପତ୍ର ବାହର ମାଧ୍ୟମରେ ଠିକ୍ ଭାବରେ ଉପଭୋକ୍ତା ନିକଟକୁ ପଠାଯିବା ଉଚିତ୍ ।
- ୬ଦିନର ମହୋତ୍ତର ଦେଇ ବିଲ୍ ବନ୍ଦନ ଦେବେ ଉପଭୋକ୍ତା ପ୍ରାଧିକୃତ ଏକେକ୍ସ ଠାରୁ ସ୍ୱାକ୍ଷର ଏବଂ ଚାଳିତା ସହ ପ୍ରାପ୍ତି ସ୍ୱାକ୍ଷର ପତ୍ର ଉପାଧିକାରୀ ଉଚିତ୍ ।
- ବିଦ୍ୟୁତ୍ ବିତରଣ ସଂସ୍ଥା ଦ୍ୱାରା ଅନୁମତି ପ୍ରାପ୍ତ ହେଲେ, ଆକାଶ ଯେଉଁ ଚେକ୍ କ୍ଲେଡ଼ିଟ୍ କାର୍ଡ୍ ଉପରେ ବିଲ୍ ପୈଠ ହୋଇପାରିବ
- ବିଲ୍ ରାଶି ପୈଠ ପରେ ଉପଭୋକ୍ତାଙ୍କୁ ଏକ ଉଦ୍ଦିଷ୍ଟ ପ୍ରଦାନ କରାଯିବା ଉଚିତ୍ ।
- ୱର୍ ବିଲ୍ ଶେଷରେ ବର୍ଦ୍ଧିତ ନାଗରିକଙ୍କୁ ଦେଇ ଉପଭୋକ୍ତାଙ୍କୁ ଦେଇ ପୈଠ କରିବା ସୁବିଧା ଯୋଗାଇ ଦେବା ଉଚିତ୍ ।
- ଦେଇ ଆବାସ କେନ୍ଦ୍ରଗୁଡ଼ିକରେ ଲମ୍ବା ଧାଡ଼ି ଏକାକାର ପାଇଁ ଅଧିକ ଖୋଲାଯିବା ଉଚିତ୍ ।
- ଉପଭୋକ୍ତାଙ୍କ ସୁବିଧା ନିମନ୍ତେ ଆବନାପୂର୍ଣ୍ଣ ଉପରେ ଆବରଣ, ଉତ୍ପାଦି ବ୍ୟବସ୍ଥା ଯୋଗାଇ ଦେବା ଉଚିତ୍ ।
- ଉପଭୋକ୍ତାମାନେ ଧାର୍ଯ୍ୟ ଚାଳିତା ମଧ୍ୟରେ ଦେଇ ପୈଠ କଲେ ଉପଭୋକ୍ତାଙ୍କୁ ପାଠଦେ ।
- ଦର୍ଦ୍ଦିତ / ଅକ୍ଷମ ପତ୍ରୋତ୍ତ ଉପଭୋକ୍ତାଙ୍କୁ ଦେଇ ବିଲ୍ ଅନୁସାରେ ପୈଠ କରିବାର ସୁବିଧା ମଞ୍ଜୁର କରାଯିବା ଉଚିତ୍ ।
- ବଦଳିତ ରାଶି ଆବାସ କେନ୍ଦ୍ରରେ ବିଲ୍ କୁ ଶ୍ରେଣୀର ଉପଭୋକ୍ତାଙ୍କ ପାଇଁ ବିଶ୍ୱି ସଂଖ୍ୟା ଧାର୍ଯ୍ୟ ଦେବା ଉଚିତ୍ ।
- କୌଣସି ପ୍ରକାର ତ୍ରୁଟି ଯିବା ବିବାଦକୁ ବିଦ୍ୟୁତ୍ ବିତରଣ ସଂସ୍ଥା ସର୍ବମୁଖ୍ୟ ଏବଂ ମାସ ସମୟସୀମା ମଧ୍ୟରେ ସମାଧାନ କରିବା ଉଚିତ୍ ।

- ଯଦି ବିଦ୍ୟୁତ୍ ବିତରଣ ସଂସ୍ଥା କୌଣସି ବିଲ୍ରେ ତ୍ରୁଟି ପାଆନ୍ତି ତେବେ ଉପଭୋକ୍ତାଙ୍କୁ ଏକ ସଂଶୋଧିତ ବିଲ୍ ଯୋଗାଇଦେବେ ।
- ଯଦି ଉପଭୋକ୍ତାଙ୍କ ଦ୍ୱାରା ଅଧିକ ରାଶି ପୈଠ କରାଯାଇଥାଏ ତେବେ ଏହାକୁ ପରବର୍ତ୍ତୀ ବିଲ୍ ଗୁଡ଼ିକରେ ସମୋଦୋଷନ କରାଯିବା ଉଚିତ୍ ।
- ବିଲ୍ ବନ୍ଦନ ଚାଳିତା ୬ ଦିନ ମଧ୍ୟରେ ଦେଇ ପ୍ରଦାନ ପାଇଁ ସଂଶୋଧନ ଚାଳିତା ଦର୍ଶାଯିବା ଉଚିତ୍ ।
- ଉପଭୋକ୍ତାଙ୍କୁ ଅଧିକ ପୈଠ ରାଶି ଉପରେ ମାସିକ ୧% ହୁଏ ପ୍ରଦାନ କରାଯିବା ଉଚିତ୍ ।
- ଯଦି କୁଲ ବିଲ୍ ନିର୍ଦ୍ଧାରିତ ସମୟସୀମା ମଧ୍ୟରେ ସଂଶୋଧନ କରାଯାଏ ତେବେ ଉପଭୋକ୍ତା ସୁଧ ପୈଠ କରିବାକୁ ବାଧ୍ୟ ନୁହେଁ ।
- ଯଦି ବିଦ୍ୟୁତ୍ ବିତରଣ ସଂସ୍ଥା ଦ୍ୱାରା କୌଣସି ବିଲ୍ ସଂଶୋଧିତ ହେବାର ଥାଏ, ତେବେ ଉପଭୋକ୍ତାଙ୍କୁ ବିଲ୍ ରାଶି ସହିତ ଅତିରିକ୍ତ ମୂଲ୍ୟ ୧୫ ଦିନ ମଧ୍ୟରେ ପ୍ରଦାନ କରିବା ପାଇଁ ନୋଟିସ୍ ଦେବା ଉଚିତ୍ ।
- ଧାର୍ଯ୍ୟ ଚାଳିତା ପରଠାରୁ ସୁଧ ଆବାରରେ ମାସିକ ୧% ହିସାବ କରାଯିବା ଉଚିତ୍ ।
- ଦେଇ ପ୍ରାପ୍ତି ପରେ ଉପଭୋକ୍ତାଙ୍କୁ ଏକ ଉଦ୍ଦିଷ୍ଟ ପ୍ରଦାନ କରାଯିବା ଉଚିତ୍ ।
- ଯଦି ବିଦ୍ୟୁତ୍ ବିଲ୍ ପୈଠ ନକରିବା ଦ୍ୱାରା କୌଣସି ଉପଭୋକ୍ତାଙ୍କ ବିଦ୍ୟୁତ୍ ସଂଯୋଗ ବିଚ୍ଛିନ୍ନ କରାଯାଇଥାଏ, ତେବେ ସମସ୍ତ ବଦଳିତ ରାଶି ପୈଠ କରିବା ପରେ ଶକ୍ତି ପୁନଃ ଯୋଗାଣ କରାଯିବା ଉଚିତ୍ ।

## ଉପଭୋକ୍ତାଙ୍କ ଭୂମିକା

- ବିଲ୍ରେ ଦର୍ଶାଯାଉଥିବା ସମୟସୀମା ମଧ୍ୟରେ ପୈଠକରିବା ଧାର୍ଯ୍ୟ ବିଦ୍ୟୁତ୍ ଦେଇ ଗ୍ରହଣ କେନ୍ଦ୍ର ବିଦ୍ୟୁତ୍ ବିତରଣ ସଂସ୍ଥାର ଗ୍ରହଣକର୍ତ୍ତା କେନ୍ଦ୍ର-ସେବା କେନ୍ଦ୍ର ଗୁଡ଼ିକରେ ବିଦ୍ୟୁତ୍ ବିଲ୍ ପୈଠ କରାଯାଇ ପାରିବ ।
- ଯଦି ବିଲ୍ରେ ଉଲ୍ଲେଖିତ ଧାର୍ଯ୍ୟ ବିଦ୍ୟୁତ୍ ଛୁଟିଦିନ ହୋଇଥାଏ, ତେବେ ତାର ପରବର୍ତ୍ତୀ ଧାର୍ଯ୍ୟ ବିଦ୍ୟୁତ୍ ଧାର୍ଯ୍ୟ ଚାଳିତା ରୂପେ ଗ୍ରହଣ କରାଯିବ ।
- ବିଦ୍ୟୁତ୍ ବିଲ୍ ନକର ବଦାଦେଇ ଗ୍ରାହକମାନଙ୍କୁ ତେକ୍ ବ୍ୟବହାର ତେକ୍ ଆବାରରେ ପୈଠ ହୋଇପାରିବ ।
- ଲାଇସେନ୍ସଧାରୀଙ୍କ ଦ୍ୱାରା ଅନୁମତି ପ୍ରାପ୍ତ ହେଲେ ବିଲ୍ ରାଶି ଆବାର ଯେଉଁ ଚେକ୍ କ୍ଲେଡ଼ିଟ୍ କାର୍ଡ୍ ଦ୍ୱାରା ମଧ୍ୟ ପୈଠ କରାଯାଇ ପାରିବ ।
- ଧାର୍ଯ୍ୟ ଚାଳିତା ସୁଖା ଉପଭୋକ୍ତା ତାଙ୍କର ବିଲ୍ ରାଶି ପୈଠ କରିବେ ।
- ଧାର୍ଯ୍ୟ ଚାଳିତା ସୁଖା ଉଚିତ୍ ଦେଇ ପ୍ରଦାନ ନକଲେ ବିଦ୍ୟୁତ୍ ପାଇଁ ଅତିରିକ୍ତ ଦେଇ ରାଶି ମାଗୁହେବ ।
- ଯଦି ତ୍ରୁଟିମୁକ୍ତ ଯିବା ବିବାଦକୁ ବିଲ୍ ହୋଇଥାଏ ତେବେ ଉପଭୋକ୍ତା ଅଧିକାରୀଙ୍କ ନିକଟରେ ଅଭିଯୋଗ ଦାଖଲ କରିପାରିବେ ।
- ଡିପିଏସ୍ (DPS) ପୈଠ କରିବା ପାଇଁ ଉପଭୋକ୍ତାଙ୍କୁ ନିଶ୍ଚିତ ସୁବିଧା ମଞ୍ଜୁର ହୋଇପାରିବ ନାହିଁ ।
- ବିଲ୍ ରାଶି ଅନୁସାରେ ପାଇଁ ବିଦ୍ୟୁତ୍ ବିଚ୍ଛିନ୍ନ ହୋଇଥିବା ଉପଭୋକ୍ତାମାନେ ତୁରନ୍ତ ଅନୁସନ୍ଧାନ ଚଳାଇବାକୁ ମୁକ୍ତ ନୁହେଁ ।

## ବିଦ୍ୟୁତ୍ ବିଲ୍ ପୈଠ ନକରିବାର ପରିଣାମ

- ଉପଭୋକ୍ତା ବିଲ୍ରେ ଉଲ୍ଲେଖିତ ଚାଳିତା ଉପରେ ଶକ୍ତିମୁକ୍ତ ପୈଠ କରିବାର ଅବସେନା କଲେ, ତାଙ୍କୁ ୧୫ ଦିନର ନୋଟିସ୍ ଦିଆଯିବା ସହିତ ବିଦ୍ୟୁତ୍ ସଂଯୋଗ ବିଚ୍ଛିନ୍ନ କରାଯିବ ।
- ଗ୍ରହଣକର୍ତ୍ତାଙ୍କୁ ପ୍ରଦାନ ସଂଯୋଗ ପାଇଁ ଅତିରିକ୍ତ ରାଶି ମାଗି କରିବାକୁ ପଡ଼ିବ ।
- ଯଦି କୌଣସି ଉପଭୋକ୍ତା ବିଲ୍ ରାଶି ଅନୁସାରେ ନିମନ୍ତେ ବିଦ୍ୟୁତ୍ ସଂଯୋଗକୁ ବିଚ୍ଛିନ୍ନ କରାଯିବ ତେବେ ପ୍ରମାଣ ଅବଧି ଶେଷ ହେବା ପରେ ସେମାନଙ୍କ ବିଦ୍ୟୁତ୍ ସଂଯୋଗ ବିଚ୍ଛିନ୍ନ କରାଯିବ ।
- ବଦଳିତ ରାଶି ଆବାର ନିମନ୍ତେ ବିଦ୍ୟୁତ୍ ବିତରଣ ସଂସ୍ଥା ସମସ୍ତ ପ୍ରକାର ଆକଳନ ଆବାର ପଛଟି ଗ୍ରହଣ କରିବା ପାଇଁ ଅଧିକାର ପ୍ରାପ୍ତ ।
- ଉପଭୋକ୍ତାମାନେ ସମୟ ଅନୁସାରେ ଦେଇ ପୈଠ ପାଇଁ ଉଦ୍ଦିଷ୍ଟ ଉପଭୋକ୍ତାଙ୍କୁ ଦର୍ଶିବେ ।
- ବଦଳିତ ରାଶିର ପରିମାଣ ଦୂର୍ଦ୍ଧି ପାଉନ ।
- ବିଦ୍ୟୁତ୍ ବିତରଣ ସଂସ୍ଥା ଗ୍ରାହକଙ୍କୁ ବିଦ୍ୟୁତ୍ ଶକ୍ତି କୁଣ୍ଡ ବାବଦରେ ପାରଣା ଦେବାରେ ଅକ୍ଷମ ହେବେ ।
- ଏହାର ଫଳସ୍ୱରୂପ ଗ୍ରାହକଙ୍କୁ ଶକ୍ତି ଉପାଦାନ ଗୁଡ଼ିକୁ ତାର ପାରଣା ଦେଇପାରିବ ନାହିଁ । ଶକ୍ତି ଉପାଦାନମାନେ ଗ୍ରାହକଙ୍କୁ ଶକ୍ତି ଯୋଗାଣ ବନ୍ଦ କରିବେ । ଭାବ୍ୟରେ ଶକ୍ତିର ବାଧ୍ୟତା ଓ ଯୋଗାଣ ମଧ୍ୟରେ ବଡ଼ ପାର୍ଥକ୍ୟ ଦର୍ଶି ପାରିବ ।
- ଉପଭୋକ୍ତା ମାନେ ବିଦ୍ୟୁତ୍ ନିକଟର ସମ୍ମୁଖୀନ ହେବେ । ଗ୍ରାହକଙ୍କୁ ବାହାରୁ ଖର୍ଚ୍ଚ ବହୁତ ଶକ୍ତି ଖର୍ଚ୍ଚ କରିବାକୁ ପଡ଼ିବ ।
- ଶକ୍ତି ପ୍ରସ୍ତୁତ୍ ବନ୍ଦିବ ।



## ଓଡ଼ିଶା ବିଦ୍ୟୁତ୍ ନିୟାମକ ଆୟୋଗ

ବିଦ୍ୟୁତ୍ ନିୟାମକ ଭବନ, ୟୁନିଟ୍-୮, ଭୁବନେଶ୍ୱର-୧୨

ଓଡ଼ିଆଭାଷି ଦ୍ୱାରା ନିର୍ଦ୍ଧାରିତ ପ୍ରକାଶିତ



# **CHAPTER - 1**

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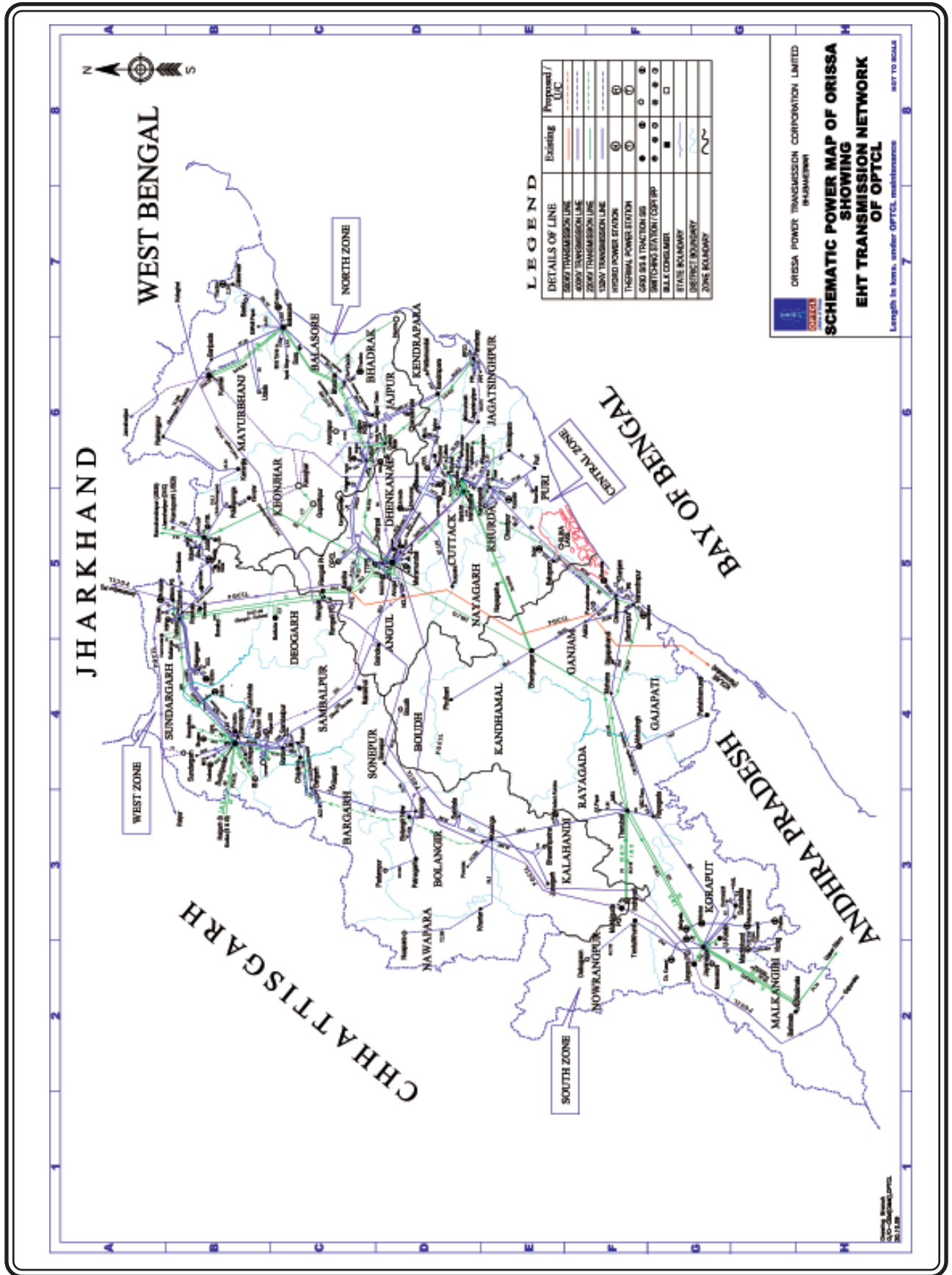
## **Status of Power Sector of Odisha *- A Snapshot***

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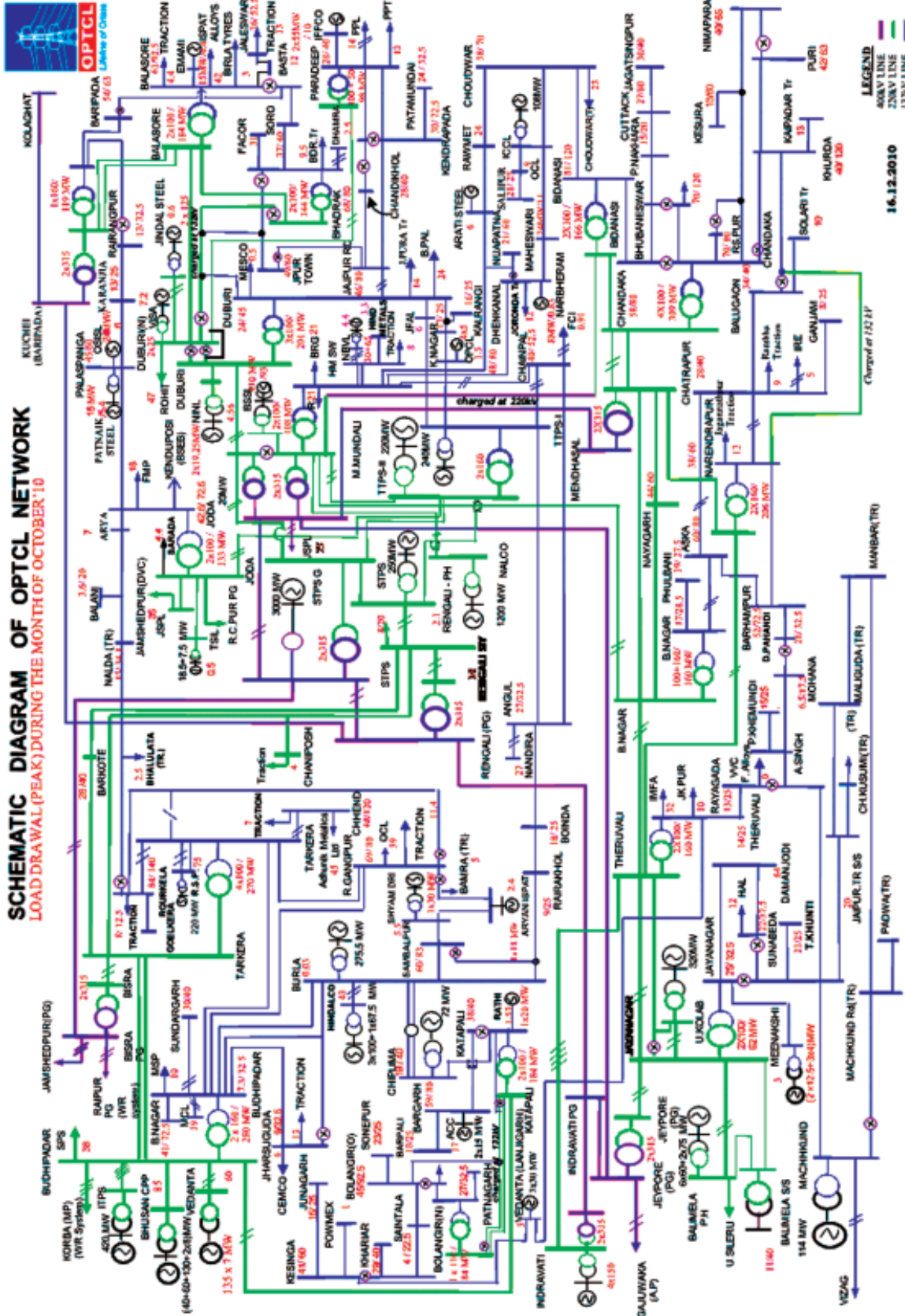








**SCHEMATIC DIAGRAM OF OPTCL NETWORK  
LOAD DRAVAL (PEAK) DURING THE MONTH OF OCTOBER '10**



**LEGEND**  
 400kV LINE  
 220kV LINE  
 132kV LINE

16.12.2010  
 Charged at 220kV

## 1. Some essential facts about Odisha

- Odisha is located on the eastern coast of India and has a coastline of 480 Km.
- Its geographical area covers 1,55,707 Sq.Km. (4.75% of geographical area)
- Recorded forest area – 58136.9 Sq. Km. (37.34% of the geographical area)
- Odisha has nearly 17% of the total mineral reserve of India, 98% of chromite, 92% of nickel, 51% of Bauxite and 33% of iron ore of the total deposits of the country are available in Odisha
- Population (2001) 3.68 crore (3.58% of country's population)
- Rural population 85%
- ST population 22.13% (8.20% of all India average)
- SC population 16.53% (16.20% of all India average)
- ST & SC together 38.66% (24.40% of all India average)
- Total No of villages 51,349 Nos.
- Inhabitant villages 47,529 Nos.
- Un-Inhabitant villages 3,820 Nos.
- No. of Gram Panchayat 6,234 Nos.
- No. of Municipality 35 Nos.
- No. of NAC 68 Nos.
- Per capita income at current price in 2009-10 Rs.32814/ (Rs.43749 of all India average) (21.40% below the national average in 2005-09 and 24.99% in 2009-10)
- Below poverty line 46.41% (2004-05) (27.5% of all India average)
- Rural 46.8% ( All India 28.3%)
- Urban 44.3% (All India 25.7%)
- Literacy rate 63.08% (male – 75.35% and female – 53.70%)
- All India literacy of Rate 63.38% (Male - 75.89% and female - 54.16%)
- Infant mortality rate per 1000 (2005)

Odisha	75
West Bengal	38
Andhra Pradesh	57
Tamilnadu	37
Utter Pradesh	73
Kerala	14
All India	55



- Human Development Indian (2001)
 

Odisha	0.404
All India	0.472
West Bengal	0.472
Andhra Pradesh	0.416
Tamilnadu	0.531
Utter Pradesh	0.388
Kerala	0.638
- Per capita consumption of electricity per year 2008-09 – 510Kwh
- (All India average 733 Kwh.)
- Village electrification as on 31.3.2010 68.56% (32590/47529)
- Total No of Consumers 29,43,478 (as on 31.03.2010)
  - No. of LT consumers 29,41,364
  - No. of HT consumers 2039
  - No. of EHT consumers 75
- No of Energy Police stations (34 Nos proposed/15 Operational)
- No of Ombudsman 2
  - (1 No. For CESU / 1 No. for NESCO/WESCO/SOUTHCO)
- No. of GRFs 12
- No. of Special Energy Court 5

## 2. Installed capacity in Odisha as on 31.3.2010 ( 4734 MW)

- Total installed capacity 4734 MW (Hydro 2331 MW + Thermal 2403 MW)
- State Hydro (OHPC) 2085 MW  
(Odisha share from Machhkund 57 MW + 2028 MW)
- Small Hydro 57 MW  
-----
- Sub total of State Hydro sector **2142 MW**
- State Thermal Power Stations 880 MW (1b thermal OPGC 420 MW+ Talcher Thermal NTPC 460 MW)
- IPPs (SEL& Arati) 650MW
- Sub total of State Sector **3672 MW** (Hydro 2142 MW + Thermal 1530MW)
- Central Sector 1062 MW (Thermal 873 MW + Hydro 189 MW)
- 
- Total Capacity **4734 MW** ( Hydro 2331 MW + Thermal 2403 MW)

**Availability of Power From Existing Stations**

GENERATING STATIONS	CAPACITY DETAILS (NOs. & MW)	Odisha Share			Ex-bus availability to GRIDCO (MU)	REMARKS	Actual for 2008-10
		%	MW	MU			
<b>STATE STATIONS</b>							
<b>HYDRO (OI IPC)</b>							
HIDAKUD	2*49.5-2*3242* 37.5(17+24) (Chiplima)	100.00	348	1,171.0	1,132.3	Design Energy less Auxiliary Consumption (40% @ 10%)	650.46
BAUMELA	6*60(2*75)	100.00	520	1,183.0	1,171.2		767.16
U.KOLAS	4*80	100.00	320	832.0	823.7		320.13
RENIGAL	5*50	100.00	250	525.0	520.8		520.63
INDRAWATI	4*155	100.00	600	1,562.0	1,012.7		1,414.75
Sub Total			2,028	5,675	5,619		3,770.13
MACHAKUND	(3*17.3*21.75)- 114.75 MW	50.00	57	162.5	259.6	Assuming Odisha share of 50% energy	205.93
<b>TOTAL HYDRO</b>			<b>2,085</b>	<b>5,839</b>	<b>5,879</b>		<b>4,056.06</b>
<b>SMALL HYDRO</b>							
SAMALSHIP (OPCL)	5*4	100.00	20	114	115	Design Energy less Auxiliary Consumption (40% @ 10%)	14.58
MEENAKSHI (ICP)	1*12.5-3*4	100.00	37	142	140		141.00
<b>TOTAL STATE HYDRO</b>			<b>2,142</b>	<b>6,194</b>	<b>6,192</b>		<b>4,211.75</b>
<b>THERMAL</b>							
IKIPS	2*210	100.00	420	7,848	7,654	Considering PLF of 80% and Aux. Consumption at 9.5% Considering PLF of 82% and Aux. Consumption at 10.5%	7,648.04
TTPA	2*110(1*60)	100.00	460	8,301	7,957		8,255.07
<b>IPPs</b>							
M/s Sterilite Energy	600.00		300	7,205	3,754	Considering PLF of 80% and Aux. Consumption at 10%	
Arati Steels	50.00		50	350	325	Considering PLF of 80% and Aux. Consumption at 10%	
<b>TOTAL STATE THERMAL</b>			<b>1,580</b>	<b>10,809</b>	<b>9,721</b>		<b>5,902.01</b>
<b>STATE TOTAL</b>			<b>3,672</b>	<b>16,997</b>	<b>15,953</b>		<b>10,113.76</b>



GENERATING STATIONS	CAPACITY DETAILS (NOS. x MW)	Odisha Share			Ex-bus availability to GRIDCO (MU)	REMARKS	Actual for 2009-10
		%	MW	MU			
CENTRAL STATIONS						Central transmission Loss (CTL) of 3.09% considered as per ABR Order for FY2010-11	
HYDRO							
CHUKHA	4 <sup>0</sup> 34-835 Availability to ER-270	15.79%	41	283.4	271.8	Based on Past trend and parameters taken in the ABR of GRIDCO for FY2010-11	269.48
TALA	3 <sup>1</sup> 170-1525	4.25%	43	151.0	145.2		136.89
TEESTA	3 <sup>1</sup> 170-510	20.59%	105	529.6	537.2	Design Energy of 2573 MU less Auxiliary Consumption (AC) @ 1.25% & CTL @ 1.09%	514.36
TOTAL CENTRAL HYDRO			189	964.1	924.2		920.53
THERMAL							
ESTES	3 <sup>2</sup> 200+2 <sup>4</sup> 500-1620	15.63%	216	1,623.2	1,453.0	PLF of 85% , Aux. Cons. at 6.34% & CTL @ 3.09%	1,265.00
TESP- I	2 <sup>1</sup> 500-1200	11.00%	116	2,067.0	2,175.5	PLF of 85% , Aux. Cons. at 6.5% & CTL @ 1.09%	2,191.15
TESP- II	4 <sup>1</sup> 500-2200	10.00%	200	1,486.2	1,346.4	PLF of 85% , Aux. Cons. at 6.4% & CTL @ 1.09%	1,481.85
KHISPA	4 <sup>0</sup> 270-840	15.24%	178	963.1	840.5	PLF of 85% , Aux. Cons. at 9.0% & CTL @ 3.09%	830.45
KHISPA - I	3 <sup>1</sup> 500-1500	0.60%	9	67.0	62.7	PLF of 85% , Aux. Cons. at 6.5% & CTL @ 1.09%	15.95
TOTAL CENTRAL THERMAL			873	6,508.4	5,860.1		5,655.40
SUB TOTAL CENTRAL SECTOR			1,062	7,464.7	6,794.2	% of State Hydro to Total availability	6,575.73
TOTAL (CENTRAL STATE)			4,734	24,461.5	22,636.9	31.2%	16,689.49
ESF & Co Connection							2,907.04
LI Over Drawal							1,257.76
Power Banking & Trading							125.83
TOTAL							21,040.17

### 3. State Demand and Energy Procurement

(Energy in MU)

	2007-08	2008-09	2009-10	2010-11 (Projected)
Energy Requirement	18,315	20,519	21,136	24,795
Energy Supplied	18,500	20,214	20,955	22,970
Deficit/Surplus (-)	1.8%	1.3%	0.9%	7.4%

(Demand in MW)

	2007-08	2008-09	2009-10	2010-11 (Projected)
Peak Demand	3,142	3,052	3,138	3,850
Peak Demand met	2,905	2,987	3,120	3,916
Deficit/Surplus (-)	7.5%	2.4%	2.1%	-1.7%

Source :CEA LGBR

- Average demand 2215 MW & 19398MU (for 2008-09) ,  
2354 MW & 20624MU (for 2009-10)
- As per 17th EPS, the energy requirement of Odisha is estimated to be 27149 MU and peak demand to be 4459 MW by 2011-12
- Odisha has signed MoU with 27 Independent Power Producers (IPPs) for setting of power plants in Odisha with a proposed capacity of 32420 MW.
- Out of which Odisha will get a share of 5637 MU

### 4. Power Procurement from CGPs Including Co-generation

- \* Supply of surplus power by CGPs/Co-generation/ SHEP:

Total installed Capacity: (Grid Connected) 4454 MW

No of CGPs supplying surplus power: to GRIDCO 27 Nos.

- \* Availability of power from CGPs: 300 MW Average

- \* Power procured from CGPs: As given in table below:

Year	CGP(MU)	Co-Gen (MU)	Total (MU)	Average Rate Rs./KWH
2005-06	475.34	75.31	550.65	2.27
2006-07	628.42	165.72	794.14	2.58
2007-08	382.60	354.45	736.05	2.88
2008-09	712.40	479.02	1191.42	2.29
2009-10	2295.48	671.62	2967.10	3.28
2010-11 (Approved)	1051.00	529.00	1580.00	3.27



\* **Rate of procurement of power:**

**From : 01-11-2009**

CGP: Rs. 3.10/3.40/3.70/4.05 per Unit

Co-generation: Rs. 3.20/3.40/3.70/4.05 per Unit

**From : 10-11-2010 to 31.03.2011**

**Both for CGP and Co-generation:**

100% Supply to GRIDCO Rs. 2.75/3.10/3.25 per Unit

60% Supply to GRIDCO Rs. 2.75/3.00/3.20 per Unit

**5. Power Transmission (OPTCL)**

- \* Started operation from 2005-06
- \* Loss incurred during first three years due to inadequate tariff
- \* Regular in servicing loan to Fls/ Banks
- \* Vision Document Released
- \* 10-year Transmission Planning completed
- \* Project financing from PFC/REC – No constraints
- \* Manpower recruitment is in process

**Existing Sub-Stations & Transmission Lines**

Voltage Level	No. of Stations	Aggregate S/S Capacity in MVA	Tr. Line in Ckt. Km.
400 kV	3	2102.5	521.935
220 kV	19	4583.5	5517.425
132 kV	75	3161.5	5207.585
<b>Total</b>	<b>97</b>	<b>9847.5</b>	<b>11246.946</b>

**New Sub-stations Planned/Completed/Under Execution**

Voltage Level	PLANNED	COMPLETED	UNDER EXECUTION	TO BE TAKEN UP
400 kV	5	1	1	3
220 kV	16	3	4	9
132 kV	26	7	9	10
<b>TOTAL</b>	<b>47</b>	<b>11</b>	<b>14</b>	<b>22</b>

***This needs development of massive evacuation systems to ensure full utilization of the generation capacity and meet the deficit scenario outside the state.***

\* The approved vrs actual transmission loss for the last five years is given below.

	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
Approved (%)	4.00	4.00	3.90	4.50	4.00	4.00	3.90	3.80
Actual audited (%)	4.60	5.04	4.24	4.52	4.28 (upto Oct,09)	3.89 (upto Sep,10)		

#### **System Upgradation**

- \* A 10 year planning for system requirement completed by optcl
- \* Comprehensive transmission planning for intra-state requirement has been finalised
- \* PGCIL has been entrusted for comprehensive inter-state evacuation planning
- \* Further, meetings/workshops are arranged from time to time by GRIDCO/OPTCL for discussion on the issue

#### **400 kV System Strengthening under Regional Scheme [PGCIL]**

400kV Sub-Station at Bolangir ,Keonjhar,Jatni (Uttara)

LILO of 400 kV CTU line at DUBURI 400 kV Grid S/S

#### **Inter-State State Transmission Initiatives**

About 12,000 MW is programmed to be evacuated to outside Odisha\Eastern Region.

Following Transmission System are programmed for Inter-State evacuation.

- \* 765 kV pooling station at Jharsuguda.
- \* 765 kV polling station at Angul
- \* 765 kV polling station at Dhenkanal
- \* 2 x 765 kV SC line interconnecting Jharsuguda, Angul & Dhenkanal

#### **6. Harnessing of power from Renewable Energy Sources:**

The Orissa Renewable Energy Development Agency (OREDA), is the nodal agency assigned with the responsibility for the promotion and implementation of Renewable energy sources in the state. As per the estimation of OREDA, the Renewable Energy potential in the State of Odisha is around 2500 MW (excluding solar). The WISE has estimated that at least 5000 MW of solar power can be harnessed in the State at present.

#### **RE power potential of Odisha**

Sr No	Source	Potential (MW)
1	Wind Energy	1700
2	Biomass Power	350
3	Micro/ Mini /Small hydro	360
4	Municipal Solid / liquid waste	20
5	Solar	5000



## Policy for development of Renewable energy sources in the State

Policy for development of renewable energy sources in the State is being formulated by the State Govt. The State Regulatory Commission has only to determine the tariff for various renewable energy technologies and advise the State Govt. and concerned agencies for development RE sources in the State and also fix the RPO. The extract of the Commission's latest Orders on pertaining to the tariff of various renewable energy sources are given below:

### i) Commission's Order dated 09.09.2009 vide Case No. 62,96,97& 98 of 2009 on generic tariff of Solar PV projects.

The Commission had fixed generic tariff for Solar PV projects proposed to be set up in Odisha by March, 2010 as given below.

For the 1st to 12th years : Rs.15.00/KWh

For the 13<sup>th</sup> to 25<sup>th</sup> years : Rs.7.50/KWh

The above tariff is generic in nature and all incentives/subsidies received by the developers from MNRE/ Gol/ GoO shall be factored into the same.

### ii) OERC tariff Order for Rooftop PV and Small Solar Generation Programmes (RPSSGP) scheme

The Jawaharlal Nehru Solar Mission have also suggested policy and regulatory framework for the rooftop solar PV and other small solar power plants, connected to LT/11 KV grid, to replace conventional power and diesel-based generators.

**The Commission has declared the tariff Rs.18.52 per kWh for the solar power projects under Rooftop Power and Stand alone Small Grid-connected Power Plant (RPSSGP) scheme in its dtd.09.07.2010.**

### iii) OERC order on levelized generic tariff for various Renewable sources of power in Odisha

The Commission in its order dated 14.09.2010 in Case No. 37/2008 have approved following levelized generic tariff for various renewable sources applicable for the projects to be commissioned during the Control period from 2010-11 to 2012-13. The Commission may however review the generic tariff for Solar PV and Solar Thermal annually owing to the changing Capital Cost benchmark.

\* The levelized generic tariff for various renewable sources of energy having "Single part tariff" is approved as in the following table:

Particular	Levelised Total Tariff (for the control period 2010-11 to 2012-13) (Rs./kWh)	Benefit of Accelerated Depreciation (if availed) (Rs./kWh)	Net Levelised Tariff (upon adjusting for Accelerated Depreciation benefit) (if availed) (Rs./kWh)	Tariff Period (Years)
Wind Energy	5.31	(0.83)	4.48	13
S-HP projects of 5 to 25 MW capacity	3.64	(0.55)	3.09	13
S-HP projects below 5 MW capacity	3.91	(0.60)	3.31	33
Solar PV	17.80	(3.03)	14.77	25
Solar Thermal	14.73	(2.41)	12.32	25

- \* The levelized generic tariff for various renewable sources of energy having “Single part tariff with two components “ is approved as in the following table:

Particular	Levelized fixed component of Tariff (Rs./kWh)	Variable(Fuel ) Component of tariff for FY 2010-11	Effective tariff for FY 2010-11	Benefit of Accelerated depreciation (if availed) (Rs./kWh)	Net Tariff (Rs./kWh)
Biomass	1.95	2.14	4.09	(0.21)	3.88
Non-fossil fuel based co-generation	2.25	2.14	4.41	(0.28)	4.13

Note:

1. For Biomass projects the tariff approved above including levelized fixed component and variable (fuel component) for FY 2010-11 has been shown. The approved tariff year-wise for entire tariff period i.e.13 years is shown in the output table at Appendix-3 of the detailed Order.
2. For Non-fossil fuel based co-generation projects the above approved tariff including levelized fixed component and variable (fuel component) for FY 2010-11 has been shown. The approved tariff year-wise for entire tariff period i.e.13 years is shown in the output table at Appendix-4 of the detailed Order.

**iv) Development of Grid Connected Small/Mini/Micro Hydel Projects in the State of Odisha – Practice Direction of the Odisha Electricity Regulatory Commission.**

After interaction with the various agencies and concerned Govt. Departments, OERC has issued practice direction on 08.10.2010 for smooth progress and development of Small/Mini/Micro Hydel Projects in the state in order to comply with the Renewable Purchase Obligation (RPO) in Odisha.

**Renewable & Co-Generation Purchase Obligation**

- i) The OERC while disposing off the petition filed by M/s Greenpeace India Society (Case No 151 of 2004) on 23.04.2005 had issued an order directing the electricity supplier utility / GRIDCO to purchase 200 MU from the renewable energy sources in Odisha during FY 2006-07. Later on, the Commission has passed an order on 20 August 2005 (case No 14 of 2005) and ruled that the supplying licensee should purchase 3% power from renewable energy sources including the fossil fuel based cogeneration projects in the state during FY 2007-08, the purchase should be increased at the rate of 0.5% per year in the subsequent years so as to reach 5% by the year 2011-12.
- ii) Recently, OERC in its order dt 30.09.2010 vide Case No.-59/2010 has issued Regulations fixing the RPO in the State of Odisha.

Every Obligated Entity shall purchase not less than 5% of its total annual consumption of energy from co-generation and renewable energy sources under the RPO Regulations from 2011-12 onwards with 0.5 percentage increase every year thereafter, till 2015-16 or as reviewed by the Commission even earlier, if any. Accordingly, the year and source wise RPO would be as below:



Year-wise target	Minimum quantum of purchase in percentage (in terms of energy consumption in the State in KWH)			
	Renewable		Co-generation	Total
	Solar	Non-solar		
2009-10 [Actual]	-	0.80	3.45	4.25
2010-11	-	1.0	3.50	4.5
2011-12	0.10	1.20	3.70	5.0
2012-13	0.15	1.40	3.95	5.5
2013-14	0.20	1.60	4.20	6.0
2014-15	0.25	1.80	4.45	6.5
2015-16	0.30	2.00	4.70	7.0

\* The Commission, vide in order dated 18-11-2010, has designated OREDA as State Designated Agency for accreditation and recommending the renewable energy projects for registration and to undertake to function under OERC (Renewable and Co-Gen purchase obligation and it's compliance) Regulation 2010.

## 7. Operationalization of Open Access in Odisha

### OERC Regulations for Open Access:

Odisha Electricity Regulatory Commission has notified the following Regulations for introduction of Open Access to the Intra-State Transmission and Distribution System in the State of Odisha:-

- Odisha Electricity Regulatory Commission (Terms and Conditions for Open Access) Regulation, 2005 effective from 6<sup>th</sup> June, 2005.
- Odisha Electricity Regulatory Commission (Determination of Open Access Charges) Regulation, 2006 effective from 6<sup>th</sup> June, 2006.
- Amendment of Odisha Electricity Regulatory Commission (Terms and Condition for Open Access) Regulation, 2005 vide Notification dtd. 13<sup>th</sup> June, 2006 as proposed by Odisha Legislative Assembly.

### Orders and Documents on Open Access

Besides the above Regulations OERC has approved the following orders / documents to facilitate Open Access in the State of Odisha.

- Open Access documents have been approved by OERC which contains formats for Open Access Agreements, Payment Criteria, Security Mechanism etc. for availing Open Access.
- OERC has already issued three Open Access charges order in FY-2008-09, 2009-10 and 2010-11 determining transmission charges, wheeling charge and Cross-Subsidy surcharge for the relevant years. The open access charges order for Fy-2010-11 was issued on 24.06.2010 which will be effective from 01-04-2010.

### Application fee for Open Access customers

As per Regulation 12 (1) (a) (iii) of Odisha Electricity Regulatory Commission (Terms and Conditions for Open Access) Regulation, 2005 and as amended in OERC Notification dtd. 13<sup>th</sup> June 2006, the application for Long-Term Open Access (LTOA) shall be submitted to the Nodal Agency being accompanied by a non-refundable application fee Rs.One lakh per MW for transmission access and Rs. 50,000 per 500 KW for distribution access payable in the name and in the manner to be decided by the Nodal Agency.

As per Regulation 12 (2) (a) (iv) of Odisha Electricity Regulatory Commission (Terms and Conditions for Open Access) Regulation, 2005, the application for Short-Term Open Access (STOA) shall be submitted to SLDC being accompanied by a non-refundable application fee of rupees five thousand payable in the name and in the manner to be decided by SLDC.

#### **Nodal Agencies to facilitate Open Access**

As Regulation 7 of Odisha Electricity Regulatory Commission (Terms and Conditions for Open Access) Regulation, 2005, the Nodal Agencies for arranging Long-Term Open Access (LTOA) and Short-Term Open Access (STOA) transactions in the State of Odisha are as under:

- a) *The nodal agency for arranging long-term open access shall be OPTCL - the STU if the transmission system is used; otherwise the nodal agency shall be the respective distribution licensee within whose area the point of drawl is situated.*
- b) *For short-term open access transactions, the nodal agency for receiving and processing applications shall be the State Load Despatch Centre (SLDC). The SLDC shall, however, allow short-term open access transactions only after consulting the concerned transmission and/or distribution licensee(s) whose network(s) would be used for such transactions:*

*Provided that for short-term open access transactions involving only intra-state transmission with duration of less than one week, the SLDC may not consult the concerned transmission licensee for permitting such transactions.*

- \* SLDC is the Nodal Agency for all Short-Term Open Access transaction. OERC has taken several steps to ring-fence SLDC as per Pradhan Committee Report. Accordingly, the Commission has issued two tariff orders for SLDC approving their ARR and Tariff application for FY 2009-10 and 2010-11 respectively.

#### **Present status of Open Access**

- \* All the STOA applications for inter-State Open Access have been allowed.
- \* One intra-State application for STOA (OCL to OISL) has been allowed by SLDC.
- \* Maximum 375 MW of power has been allowed through Inter-State Short-Term Open Access in favour of M/s. Vedanta Ltd. in the year 2009-10.
- \* At present, two nos of Inter-State Open Access transactions are in force wherein M/s. Nav Bharat Ventures Ltd. & M./s Vedanta are allowed 54 MW & 15 MW of power respectively to send outside the State.
- \* No application is pending with SLDC. Generally the status of the applications is conveyed to the applicant within three days by SLDC as per the Regulation.
- \* Generally, STOA applications have been denied by SLDC for non-compliance of information and other provision of Indian Electricity Grid Code (IEGC) and Odisha Grid Code (OGC).
- \* There are two other long term captive consumers such as M/s IMFA and NALCO which have been availing Long Term Open Access prior to Orissa Power sector Reform i.e. before April,1996.
- \* SLDC has received 315 nos of application during FY 2009-10 and consent had been accorded for 301 nos of application and remaining 14 nos of applications are rejected due to non-compliance of information.

#### **Charges leviable on Open Access customers**

As per Regulation 4 of Odisha Electricity Regulatory Commission (Determination of Open Access Charges) Regulation, 2006 effective from 6<sup>th</sup> June, 2006 the following Open Access Charges are to be paid by Open Access customers for use of Intra-State transmission and / or distribution system in the State of Odisha:-



**Information related to Intra State Open Access Charges**

S. No	Particulars	2008-09		2009-10		2010-11	
		LTOA	STOA	LTOA	STOA	LTOA	STOA
1	Transmission Charges	5040/100W/day	1260/MW/cup	4918/MW/day	1230/100W/day	5643/MW/day	1410/MW/day
	Transmission Loss of % in Kind which will be deducted from the energy input	4.5%	4.5%	4.0%	4.0%	4.0%	4.0%
2	Wheeling Charges(Paise/Kwh) Name of D SCOMs CESJ NIL SCOC WESOC SOJTHOC	Same as Short Term OA	74.0 64.0 52.0 85.0	Same as Short Term OA	73.62 64.18 50.72 81.27	Same as Short Term OA	72.50 69.58 56.87 97.72
	Wheeling Loss of % in Kind which will be deducted from the energy input	0%	0%	0%	0%	0%	0%
3	Overriding Charge (SLDC Charges.)	Incurred in Transmission charge	Rs. 1000/- per day	Rs. 2000/-/MW Month	Rs. 2000/- per day or part thereof	Given below	Rs. 2000/- per day or part thereof
4	Reactive Energy Charges (Provisional)	5.50 paisa/KVAh	5.50 paisa/KVAh	5.75 paisa/KVAh	5.75 paisa/KVAh	5.0 paisa/KVAh	5.0 paisa/KVAh
5	Cross Subsidy St. charge	Given below	Given below	Given below	Given below	Given below	Given below
6	Additional surcharge	NIL	NIL	NIL	NIL	NIL	NIL
7	Interconnection Charges	NIL	NIL	NIL	NIL	NIL	NIL
8	Standby Charges	NIL	NIL	NIL	NIL	NIL	NIL
9	Parallel Operation Charges	NIL	NIL	NIL	NIL	NIL	NIL
10	Other Charge	Meter Rent as applicable	Meter Rent as applicable	Meter Rent as applicable	Meter Rent as applicable	Meter Rent as applicable	Meter Rent as applicable
11	Connectivity Charges	NIL	NIL	NIL	NIL	NIL	NIL
12	OA Application Registration Fee	1 Lakh/VW for transmission OA and Rs.50,000 per 500 KW for distribution OA.	Rs.5000.00	1 Lakh/VW for transmission OA and Rs 50,000 per 500 KW for distribution OA.	Rs.5000.00	1 Lakh/VW for transmission OA and Rs 50,000 per 500 KW for distribution OA.	Rs.5000.00
13	OA agreement Fee						

**Surcharge for FY 2010-11**

**Surcharge for HT Consumers (P/Kwh)**

Load Factor %	100%	90%	80%	70%	60%	50%	40%	30%	20%
CESU	95	105	116	131	151	168	183	209	260
NESCO	57	66	78	93	113	130	145	171	222
WESCO	71	80	92	106	126	144	159	184	235
SOUTHCO	142	152	163	178	198	215	231	256	307

**Surcharge for EHT Consumers (P/Kwh)**

Load Factor %	100%	90%	80%	70%	60%	50%	40%	30%	20%
CESU	179	188	199	214	233	250	265	291	342
NESCO	141	150	161	176	195	212	227	253	304
WESCO	142	151	162	177	196	213	228	254	305
SOUTHCO	246	255	266	281	300	317	332	358	409

**Surcharge for FY 2009-10**

**Surcharge for HT Consumers (P/Kwh)**

Load Factor %	100%	90%	80%	70%	60%	50%	40%	30%	20%
WESCO	51	59	69	82	99	121	136	162	212
NESCO	64	72	81	94	111	131	149	174	225
SOUTHCO	111	119	129	142	159	181	197	222	273
CESU	85	93	103	115	132	155	170	196	246

**Surcharge for EHT Consumers P/Kwh)**

Load Factor %	100%	90%	80%	70%	60%	50%	40%	30%	20%
WESCO	101	110	120	133	151	176	191	216	267
NESCO	125	134	144	157	175	200	215	240	291
SOUTHCO	185	194	204	217	235	260	275	300	351
CESU	154	162	173	186	204	228	244	269	320

**Surcharge for FY 2008-09**

**Surcharge for HT Consumers (P/Kwh)**

Load Factor %	100%	90%	80%	70%	60%	50%	40%	30%	20%
WESCO	47	54	64	77	94	116	132	157	208
NESCO	69	77	87	100	117	139	154	180	231
SOUTHCO [Revised]	108	116	125	138	155	178	193	218	269
CESU	84	92	102	115	132	154	170	195	246

**Surcharge for EHT Consumer (P/Kwh)**

Load Factor %	100%	90%	80%	70%	60%	50%	40%	30%	20%
WESCO	98	106	117	130	148	173	188	213	264
NESCO	130	139	149	162	180	205	220	245	296
SOUTHCO	185	194	204	217	235	260	275	300	351
CESU	154	162	173	186	204	228	244	269	320



A linear approach for determining the exact rate in steps of 1% between 20 to 30 or 30 to 40 etc. can be worked out. For Load Factor below 20%, the surcharge at 20% shall apply.

#### The details of Annual & Monthly Charges of SLDC for 2010-11

Sl. No.	Particulars	Unit	Approved for 2010 -11	
			Per annum	Per month
1	ARR of SLDC	Rs. lakh	776.85	64.74
2	Intra-State transmission licensee to pay SOC to SLDC	Rs. lakh	62.15	5.18
3	Generating Stations & Sellers to pay SOC & MDC to SLDC (Rs. per MW calculated considering generation capacity of 40X11.50 MW)	Rs. lakh	357.35 (Rs.8930.44 per MW)	29.78 (Rs.744.20 per MW)
4	Distribution Licensees & Buyers to pay SOC & MDC to SLDC	Rs. lakh	357.35	29.78
	(i) CESU	Rs. lakh	113.83	9.49
	(ii) NESCO		90.82	7.57
	(iii) WESCO		110.71	9.23
	(iv) SOUTHCO		41.99	3.50

#### 8. Harnessing of power from Captive & Co-Generating Power Stations

The National Electricity Policy and National Tariff Policy stipulate that generation from Captive Power Plants should be encouraged and the capacity of the existing generation should be fully exploited/ utilized to meet the growing demand of power in the country. OERC floated a consultative paper on the Pricing of Surplus Power from CGPs and this was widely published seeking suggestions/opinions from different stakeholders. Commission also took a public hearing. After taking into account the provisions of the Electricity Act, 2003, the National Electricity Policy, National Tariff Policy, suggestions/ feedbacks received from various quarters, the Commission have finalized the principle for pricing of the surplus power from CGPs and the order has been issued on 14.03.2008.

A) The salient features of the Policy for pricing of the surplus power from CGPs on Dt 14.03.2008 are as follows:-

##### a. Firm Power

- \* Those captive generators who give a commitment for supply of power for a period of more than 3 months & upto 1 year shall be considered as supplier of firm power of electricity form their Captive Generating Plants.
- \* The firm supplies may be procured form CGPs by GRIDCO/ Distribution Licensees through the Competitive Bidding route as per provision under Section-63 of Electricity Act, 2003.
- \* To avoid cartelization of a few large CGPs artificially boosting the pricing of surplus power from CGPs, the Commission has capped that the acceptable cost determined through the competitive bidding route should be **within 10% of the maximum of cost of generation which can be certified by reputed firm of CAs** to be appointed & approved by the Commission for consumption by State Utilities.
- \* The State Utilities are free to purchase Power at a higher rate than 110 % of the cost of generation through the competitive route for purpose of trading.
- \* CGPs selling power to GRIDCO will have the indirect advantage of saving in transmission charge and transmission loss which at 2007-08 level will be around 34 to 35 paise/ unit.

**b. Non-firm Power:**

- \* Those of the captive generators who are capable of giving day ahead schedule but are not in a position to give supply continuously for a period upto three months shall be treated as non-firm supplier of electricity. As an example, if a CGP is in a position to give its day ahead schedule for 21 days, 35 days, 40 days etc. during a period of three months shall be considered as non-firm supplier of electricity in a block period of 3 months.
- \* Non-firm supplier of electricity has to declare at the beginning of the period of three months about the volume of energy that they would be supplying to the state grid. In case of failure to supply the declared volume, they may have to pay penalty at double the rate so that the supplier will be in a position to provide power to the consumers even by purchase of high cost power if need arises. This rate has to be decided through the process of competitive bidding. They shall have to go through the process of competitive bidding under Section 63 of the Act where the State utilities may accept this power **paying upto a maximum of 75% of the lowest cost of firm power** determined through bidding for 'firm supply' of electricity from the CGPs.

**c. Inadvertent Power:**

- \* Other than the firm and non-firm power as stated above, any kind of injection by the Captive Generating Plants to the State Grid will be treated as purely inadvertent injection of power to the Grid. In other words power injected by the Captive Generators without giving day ahead schedule would be treated as inadvertent injection of power and would be **priced equal to the pooled cost of hydro power** of the State.

d. However, there shall be no payment for any kind of injection firm, non-firm or inadvertent at frequency of 50.4 HZ or more as a matter of grid discipline.

e. But subsisting contracts have to be dealt according to the terms of their agreements who are not covered under the ambit of this order.

f. The CGPs are, however, at liberty to sell their power or avail Open Access as envisaged in the Act. If the CGPs are given the facilities like land at concessional rate, water supply and other benefits by the state for setting up the industries and have entered or will enter into an agreement for sale of their surplus power to the state, then the enforcements of the contractual provisions have to be addressed by the state.

g. Once the pricing of the surplus power from the CGPs to be sold to GRIDCO which is a State Govt. designated agency is determined through transparent bidding process, this has to be placed before OERC for taking into account the same while determining the ARR for the relevant year/ years. There is no need or scope for approval for fixation of price by any other authority for supply of surplus power from CGPs to GRIDCO meant for supply to DISTCOs.

h. The Captive Generating Plants are free to sell their power through Open Access if they do not want to participate in a bidding process for determination of tariff for sale of power inside Odisha to GRIDCO.

i. The Commission has also decided to review the present order on Pricing of Surplus Power from CGPs at appropriate time based on feedbacks from different stakeholders and consistent with the legal provisions prevalent at that point of time.

**B)** Subsequently during January, 2009, GRIDCO Ltd. had filed an applications before the Commission and stated that due to current Power shortage scenario GRIDCO was procuring high cost UI Power & power available from IEX to meet the State demand. GRIDCO further stated that the CGPs / industries intend to sell their

surplus power at a reasonably incentivised price so as to sustain themselves during global melt down period. After going through the records and submission made by GRIDCO and the representative of CGPs and keeping in view the current difficult situation now being faced by the State as well as the recession being experienced by manufacturers and the economy, the Commission considers it fit and appropriate at this stage to pass an interim order to enable harnessing of the available idle/bottled up capacity of CGPs at a reasonable price and keep the principal producing units in a sustainable mode while at the same time not burdening the users of electricity who are also hit badly by the recession. The Commission fixed the procurement price of CGPs in its interim order Dt.29.02.2009 vide Case No-6 to 20 of 2009 as under.

- \* For supply of power by the CGPs/Co-generating plants to GRIDCO for sale to DISTCOs meant for consumption by the consumers in the State, the procurement price of firm power from the CGPs will be **Rs.3.00/KWh with effect from 01.3.2009.**
- \* However, to encourage co-generation as is mandated under the Electricity Act, 2003 the power generated by co-gen. plants may be given an incentive and shall be paid **@ Rs.3.10 per/KWh with effect from 01.3.2009.**
- \* In order to encourage the CGP/Co-generating plants to fully utilize their bottled up capacity for generation of captive power/Co-generation power and to enable GRIDCO to access power from different sources including CGPs/Co-generating plants for meeting the demands in the State and making available a good quantum of power for trading, GRIDCO should offer a remunerative price to the CGPs in respect of power used for trading. Keeping in view the prevailing rate in the power exchanges, UI rate and price quoted in the bidding it would be just and equitable for GRIDCO and the CGPs and Co-generating plants to have an **indicative rate of Rs.3.50 per KWh for procuring surplus power meant for trading.** This is merely an indicative price suggested by the Commission. However, individual CGPs/Co-generating plant and GRIDCO, if they so like, may enter into further negotiation for an agreed price above this indicative rate. However, the procurement price by GRIDCO from the Captive Generating Plants/Co-generating plants for the purpose of trading should not unduly vary from the indicative price of Rs.3.50 per KWh now being suggested by us as an interim measure. This is necessary for the benefit of the consumers of the State because the profit earned by GRIDCO from the trading will be taken as 'other receipt' to meet its revenue requirement and bridge the gap in the ARR. After bridging of the gap in the ARR, the balance of surplus gained on account of trading of CGPs/Co-generation power may be shared with the CGPs/Co-generation plants at the year end.

- C) In view of the scarcity situation prevailing in the State for supply of electricity in the State arising out of low generation of hydro power and other factors, the Commission on 15.10.2009 reviewed the working arrangement approved by the Commission for sale of surplus power by the CGP to GRIDCO. It was felt necessary to review the position because there is urgent necessity for accessing more power from the CGPs to meet the deficit situation to some extent.

The State is facing serious deficit of power availability because of low generation of power from hydro sources and the generation from hydro sources may also be further reduced as the water is to be saved in the reservoir to meet the requirement of irrigation during Rabi season. The cost of power procured through UI or power exchange is more than Rs.4.00 per Kwh on the average. It is an admitted fact that there is increase in coal price from time to time and the problem faced by the CGP in procurement of coal is genuine one. In order to ensure supply of surplus power from the Captive Generating Plants to the grid when the State is facing acute power shortage, it is necessary to incentivise the generation from the Captive Generating Plant through full utilisation of their capacity.



- \* The Commission in its order dt.28.10.2009 stipulates the price of CGPs power w.e.f. 01.11.2009 as under.

Supply Quantum per Month	Power purchased from CGPs	Power purchased from Co - Generating Plants
Supply upto 36 MU per month (~ 5 MW Avg. and below)	Rs.3.10 per KWh	Rs.3.20 per KWh
Incremental energy above 36 MU/month and upto 36 MU/month (~ above 5 MW and upto Avg. 50 MW)	Rs.3.40 per KWh	Rs.3.40 per KWh
Incremental energy above 36 MU/month and upto 72 MU/month (~ above 50 MW and upto Avg. 100 MW)	Rs.3.70 per KWh	Rs.3.70 per KWh
Incremental energy beyond 72 MU/month (above ~ 100 MW)	Rs.4.05 per KWh	Rs.4.05 per KWh

- \* The CGPs who draws power from the grid for either emergency or back-up power shall be charged at 105% of the maximum rate at which they are paid for their surplus power or the rate prescribed vide para 447 of the RST order dt.20.3.2009 for the year 2009-10 in case No.66, 67, 68 & 69 of 2008, whichever is higher. Accordingly, the agreement between the CGP and GRIDCO should contain such a stipulation.
- \* The modified CGP pricing stipulated as above will be **applicable w.e.f. 01.11.2009** and will continue until further order.

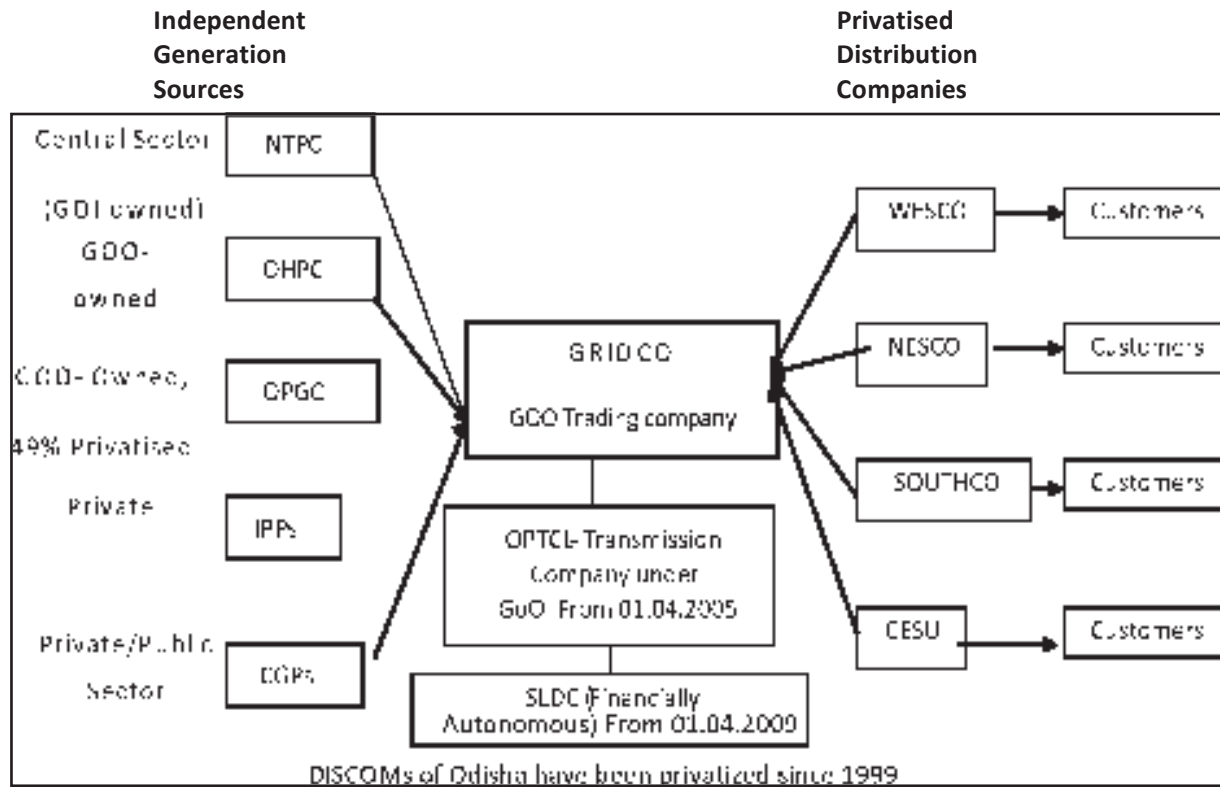
D) Due to crash of UI price as well as the short-term trading price in Power Exchanges, GRIDCO had filed before the Commission to reduce the rate of surplus power of Captive/Co-generation Plants. The Commission heard the matter on dt.09.11.2010 vide case No. 117& 118 of 2010. After considering the present price of power through UI and the Power Exchange along with the difficulties of GRIDCO and the Captive/Co-generating Plants, the Commission directs and stipulates the rates for Captive/Co-generation Plants supplying their surplus Firm Power to GRIDCO w.e.f. 10.11.2010 as under:

Supply Quantum per Month	Supplying 100% surplus Firm Power to GRIDCO	Supplying 60% & above surplus Firm Power to GRIDCO and balance export through Open access.
Supply upto 7.3 MU per month (~ 10 MW Avg. and below)	Rs.2.75 per KWh	Rs.2.75 per KWh
Incremental energy above 7.3 MU/month and upto 36 MU/month (~ above 10 MW and upto Avg. 50 MW)	Rs.3.10 per KWh	Rs.3.00 per KWh
Incremental energy beyond 36 MU/month (above ~ 50 MW)	Rs.3.25 per KWh	Rs.3.20 per KWh
Any injection over the implemented schedule at a frequency of 50.20 Hz and above	Free Power to State Grid	Free Power to State Grid
who would supply inadvertent power/ infirm power within the Operating Frequency Band of 49.50 to 50.18 HZ	paid at the pooled cost of State hydel power which is 62.51 Paise/KWh for FY 2010-11	paid at the pooled cost of State hydel power which is 62.51 Paise/KWh for FY 2010-11

- \* The revised tariff for surplus power from Captive/Co-generation Plants mentioned above is applicable w.e.f. 10.11.2010 and will continue till 31.03.2011.

## Distribution

### CORPORATE STRUCTURE OF THE ELECTRICITY SECTOR IN ODISHA



### Overall Performance of DISCOMs

	1999 00	2007 08		2008 09		2009 10 [Provisional]		2010 11 [Provisional]	
	Actual [Aud]	OERC Approval	Actual [Aud]	OERC Approval	Actual	OERC Approval	Actual	OERC Approval	Actual upto Sept.2010
<b>A. DISTRIBUTION LOSS (%)</b>									
CESU	11.89%	29.30%	11.18%	29.97%	10.31%	26.70%	19.43%	25.37%	17.59%
NESCO	42.35%	25.20%	21.17%	25.97%	24.57%	23.00%	22.52%	19.46%	22.72%
WESCO	44.17%	25.00%	36.15%	23.00%	35.55%	27.50%	34.68%	19.93%	37.97%
SOUTHCO	11.37%	30.10%	15.49%	30.40%	17.78%	27.07%	16.07%	17.87%	17.77%
ALL ODISHA	43.91%	27.10%	37.48%	27.00%	37.50%	24.45%	37.24%	22.22%	37.54%
<b>B. COLLECTION EFFICIENCY (%)</b>									
CESU	69.72%	92.50%	94.0%	93.00%	91.80%	98.00%	97.00%	98.50%	91.47%
NESCO	79.37%	97.30%	91.16%	93.07%	92.50%	90.00%	95.27%	96.00%	81.39%
WESCO	82.69%	99.20%	92.91%	96.80%	95.96%	98.00%	98.69%	98.20%	88.69%
SOUTHCO	76.79%	94.50%	94.05%	94.00%	94.71%	98.00%	93.87%	98.50%	83.10%
ALL ODISHA	77.19%	94.10%	93.41%	95.40%	92.08%	98.00%	96.96%	98.00%	88.78%
<b>C. AT &amp; CLOSS (%)</b>									
CESU	61.58%	34.96%	44.99%	32.84%	45.29%	27.77%	41.19%	29.86%	42.91%
NESCO	53.07%	30.71%	35.65%	29.75%	39.78%	21.54%	35.75%	30.53%	43.75%
WESCO	52.43%	29.20%	40.03%	27.99%	27.03%	24.07%	19.74%	21.51%	44.21%
SOUTHCO	54.20%	34.58%	42.75%	34.98%	30.82%	29.36%	30.13%	29.27%	53.57%
ALL ODISHA	56.71%	31.40%	41.60%	30.38%	41.89%	25.96%	39.15%	29.77%	44.86%

LT PERFORMANCE OF DISCOMS (Based on Performance Review Data)									
	1999-00	2007-08		2008-09		2009-10 (Provisional)		2010-11 (Provisional)	
	Actual (Aud)	DERC Approval	Actual	DERC Approval	Actual	DERC Approval	Actual	DERC Approval	Actual upto Sept.2010
<b>A. LT LOSSES (%)</b>									
CESU	50.49%	54.40%	51.18%	56.00%	52.00%	55.04%	51.97%	53.40%	50.11%
NESCO	62.23%	51.10%	58.21%	44.90%	59.41%	59.19%	55.85%	53.40%	54.94%
WESCO	60.67%	52.00%	65.35%	46.70%	65.65%	55.86%	67.40%	55.40%	67.55%
SOUTHCO	43.85%	33.20%	54.44%	55.40%	57.12%	29.50%	56.22%	29.40%	54.52%
ALL ODISHA	55.11%	42.30%	57.94%	40.30%	58.05%	54.04%	56.26%	29.40%	55.04%
<b>B. COLLECTION EFFICIENCY IN LT (%)</b>									
CESU	69.72%	92.00%	88.15%	85.00%	84.53%	90.00%	96.51%	96.00%	83.3%
NESCO	79.37%	94.00%	71.05%	85.00%	72.51%	90.00%	77.43%	99.00%	79.9%
WESCO	82.33%	93.00%	77.91%	86.00%	75.41%	98.00%	76.01%	98.00%	64.9%
SOUTHCO	78.75%	97.00%	88.71%	94.00%	89.10%	98.00%	97.77%	98.00%	76.3%
ALL ODISHA	77.19%	94.10%	83.09%	95.40%	80.63%	96.00%	87.62%	98.00%	73.0%
<b>C. AT &amp; CLOSS FOR LT (%)</b>									
CESU	65.47%	59.65%	58.65%	70.70%	59.58%	56.74%	53.65%	50.87%	58.76%
NESCO	70.05%	57.00%	70.42%	47.10%	70.52%	54.50%	65.80%	50.01%	73.02%
WESCO	67.19%	58.92%	72.99%	48.50%	74.78%	57.14%	71.49%	50.81%	75.69%
SOUTHCO	59.77%	57.7%	55.61%	37.40%	61.79%	50.51%	59.50%	50.87%	65.51%
ALL ODISHA	65.35%	45.70%	65.05%	43.05%	66.18%	55.36%	61.68%	50.81%	66.80%

### Rural Electrification

- \* In Odisha all the districts have been included under RGGVY, out of 30 districts, 4 districts like Angul, Nayagarh, Ganjam and Gajapati were covered under the Xth Plan and remaining 26 districts have been covered under the XIth Plan. Under the scheme 16533 un-electrified/de-electrified villages, 29202 nos partially electrified villages, 40706 nos of un-electrified habitations, 32,11,880 nos of BPL households will be covered for electrification. Total sanctioned amount of the scheme is Rs.3626.10 crore out of which 90% is grant and 10% is loan to the State Govt.
- \* Till 30<sup>th</sup> September, 2010 an amount of Rs.2436.90 crore has been released in favour of the CPSUs out of which Rs. 252.80 Crore is towards loan to the State Govt and rest is grant. The achievement upto September, 2010:
  - a) Village unelectrified/deelectrified:- 9164
  - b) Village partially electrified :- 10,219
  - c) BPL kits installed:- 12,86,985

(Source Rural Electrification Corporation)

- \* Odisha has more than 80% rural households without electricity.
- \* In Odisha around 21% households is yet to be electrified.

SOURCE : Rural Electrification Corporation Cross-subsidy in Tariff



## Cross-subsidy in Tariff

1. OERC has been entrusted by the Electricity Act, 2003 with functions like Determination of Tariff and monitoring quality of supply. Section 62 of the said Act empowers OERC to determine tariff for 15 categories of consumers like Domestic, Commercial, Small Scale Industries, Large Industries, Power Intensive Industries etc. now existing in the State as laid down in Regulation 80 of OERC Distribution (Conditions of Supply) Code, 2004. All these consumers fall into three broad categories depending on the nature and voltage of supply namely, LT, HT and EHT. In the pre-Reform regime i.e. before 1996-97, tariff fixation depended on nature and purpose of supply. In the post-Reform regime, tariff is being determined based on voltage and cost of supply. This means any ideally consumer has to pay a tariff for consumption of electricity at least at a rate equivalent to cost of supplying electricity to that consumer, but due social and economic compulsions, some categories of consumers, like domestic and agricultural consumers pay lower tariff, being cross-subsidized by other categories.

The State had inherited a tariff structure since the OSEB regime wherein LT tariff has been lower as compared to its cost. That is because all small consumers like domestic consumers etc. fall under this category. In case of HT and EHT consumers, tariff was higher than the cost of supply. In other words in the OSEB regime, HT and EHT consumers were cross-subsidizing LT consumers. In the post-Reform regime with the creation of OERC, tariff has been rationalized and efforts have been made in successive tariff orders to move towards cost-based tariff. That means all consumers have to gradually pay tariff as per cost of supply.

In terms of Section 61(g) of Electricity Act, 2003 the appropriate Commission shall be guided by the objective that the tariff progressively reflects the efficient and prudent cost of supply of electricity and also reduces cross-subsidies in the manner specified by the Commission. Para 8.3.2 of Tariff Policy enjoins that *for achieving the objective that tariff progressively reflects the cost of supply of electricity, the SERC would notify road map within 6 months with a target that latest by the end of year 2010-11 tariffs are within  $\pm 20\%$  of the "average cost of supply"*.

2. The National Electricity Policy also envisages existence of some amount of cross-subsidy. As per para 1.1 of National Electricity Policy, the supply of electricity at reasonable rate to rural India is essential for its overall development. Equally important is availability of reliable and quality power at competitive rates to Indian Industry to make it globally competitive and to enable it to exploit the tremendous potential of employment generation. Similarly, as per para 5.5.2 of the National Electricity Policy, a minimum level of support may be required to make the electricity affordable for consumers of very poor category. Consumers below poverty line who consume below a specified level, say 30 units per month may receive special support in terms of Tariff which are cross-subsidized. Tariff for such designated group of consumers will be at least 50% of the "average (overall) cost of supply".
3. Section 62 of the Electricity Act, 2003 empowers OERC to determine tariff for retail sale of electricity. While doing so, the Commission is to be guided by National Electricity Policy and Tariff Policy under the provision of Section 61 (i) of the said Act. The term cross-subsidy has not been defined in the Electricity Act, 2003, the National Electricity and the Tariff Policy. None of them also provide for methodology for computing cross-subsidy. The amount of cross-subsidy received /contributed by various consumer categories is dependent on the way the cost of supply is calculated. Such calculation may be:
  - \* Average cost of supply
  - \* Cost of supply voltage wise
  - \* Cost of supply to various consumer categories

Depending upon the mode of calculation adopted, the cross-subsidy differs. However, the Clause 8.3 of the Tariff Policy requires tariff to be within  $\pm 20\%$  of the *average cost of supply* by 2010-11. Again as per para

5.5.2 of the National Electricity Policy, the Tariff for consumers of BPL category should be at least 50% of the *average (overall) cost of supply*. From conjoint reading of the above provisions of National Tariff Policy and Electricity Policy, the cost of supply can be construed to mean the average cost of supply by the Licensee at different voltage taken together.

4. Some consumer groups argue in favour of determination of cost of supply by consumer category-wise. But, voltage-wise cost determination is the first step in determining the consumer-wise cost of supply. For voltage-wise cost determination, it is important that the accounting system of the Licensees are oriented towards capturing costs voltage-wise at the point of origin as and when these are incurred. The Commission has also emphasized the requirement for segregation of network cost in terms of voltage level (LT, HT & EHT). This has not been possible due to various reasons- such as determination of voltage-wise and consumer category-wise technical and non-technical losses, essential for determining cost of supply. In the absence of 100% working meters at the level of consumers and distribution transformer, it is quite impossible to determine the exact percentage of loss both at technical and commercial level. The distribution network of Odisha is such that it is technically not possible to segregate the common cost between different voltage levels. The accounting system of the DISCOMs may also be required to establish a basis for allocating common costs to all the voltage level which they have not been able to do till date. The submission of DISCOMs regarding cost allocation during tariff filing does not have technical or commercial data support. There will be a conjectural element in the determination of cost of supply in spite of all scientific rigours, especially because the distribution and transmission network are un-segregated. Because of such conjectural element estimates of cost of supply would differ from one stakeholder to another. Therefore, it would be prudent to accept the average overall cost of supply for the whole State as envisioned in Tariff Policy and National Electricity Policy for computation of cross subsidy. However the Commission has proposed an amendment to Regulation 7(c)(iii) of OERC (Terms and Condition of determination of Tariff ) regulations 2004 regarding computation of Cross subsidy as follows;

*“For the purpose of computing Cross-subsidy payable by a certain category of consumer, the difference between average cost-to-serve of all consumers of the State taken together and average tariff applicable to such consumers shall be considered.”*

5. Odisha has been following uniform Retail Tariff Model since the OSEB days. That means the electricity tariff of a particular category of consumer is same throughout Odisha irrespective of the DISCOMs to which he/she belongs. Although the Commission has differentiated consumers on certain factors such as load factor, power factor etc. as enumerated in the law but has not differentiated on the basis of geographical position. This has been necessitated due to lack of socio-economic uniformity of the State. Thus a domestic or BPL (Kutir Jyoti) consumer in CESU area pays the same tariff as a domestic or BPL (Kutir Jyoti) consumer of NESCO area.
6. Since FY 2005-2006 the Commission has embarked on a process of rationalization of tariff structures and has reduced the categories of consumers to three on supply voltage basis, namely EHT, HT and LT (except the sub- categories (1) Kutir Jyoti, (2) Domestic, (3) Irrigation pumping (4) Allied Agricultural Activities, (5) Allied agro-Industrial Activities and (6) General Purpose) each category being given the same uniform retail supply tariff for the entire State. The Commission has abandoned categorization of consumers on socio-economic grounds as such principle militates against rationalization of tariff but despite rationalization, the Commission has still provided cross-subsidy based tariff to the aforesaid six categories except General Purpose due to necessity for making electricity affordable for consumers of poor category as envisaged in National Electricity Policy. The cross-subsidy for the aforesaid five categories of LT consumers comes partly from “General Purpose” subcategory of LT consumers. This rationalization process follows the objective mentioned in the Preamble of the Act. The process is irreversible and the present tariff continues the process.

7. The power purchased for the requirement of the consumers of the State is managed by GRIDCO from different sources inside and outside the State. The power is pooled at GRIDCO's end and is supplied to the DISCOMs at different Bulk Supply Prices fixed by the Commission. The differential BSP has been essential due to adoption of uniform retail supply tariff in the State as different DISCOMs have different consumer mix and incidental revenue earning capability. As already pointed out above, for retail tariff the "average cost of supply" is worked out on the basis of pooled power purchase cost of GRIDCO for the whole State following principles laid down in Tariff Policy and National Electricity Policy, and the cost of distribution for the whole State is added thereto. Cross-subsidy is derived from the excess/deficit of this State-wide retail tariff so calculated above / below the said average cost of supply. The State-wide retail tariff here is the tariff for each of the three categories of consumers namely EHT, HT and LT. This complies with Regulation 7 (c) (iii) of the OERC (Terms and Conditions for Determination of Tariff), Regulations, 2004, enacted earlier than the Tariff Policy. The provisions state:

*"For the purpose of computing cross-subsidy the difference between cost-to-serve that category and the average tariff realization of that category shall be considered".*

In the context of the present rationalized tariff the word "category" in the above provision denotes EHT, HT and LT but "cost-to-serve that category" as per the aforesaid method of calculation from pooled power purchase cost, would turn out to be the same figure for each such category. It is noteworthy that the above provision is not region-specific, i.e. cost-to-serve is not to be calculated region-wise for distribution areas of NESCO, WESCO, SOUTHCO and CESU.

8. Regarding the extent of cross-subsidy existing at various voltage levels, let us examine how far the Commission have kept cross subsidy within  $\pm 20\%$  of the average cost of supply as mandated in para 8.3.2 of Tariff Policy in their Tariff Order for FY 2010-11.

Year	Level of Voltage	Average cost of supply for the State as a whole (P/U)	Tariff (P/U)	Cross-Subsidy (P/U)	Percentage of Cross-subsidy above/below or cost of supply
(1)	(2)	(3)	(4)	5 = (4) - (3)	(6)
2009-10	EHT	263	295.05	32.05	(+) 12.18
	HT		308.68	45.68	(+) 17.36
	LT		179.99	(-) 83.01	(-) 31.56
2010-11	EHT	327.37	379.93	52.00	(+) 15.88
	HT		383.68	56.31	(+) 17.20
	LT		219.21	(-) 108.16	(-) 33.03

\* Cross Subsidy paid /received by EHT Industries.

Year	Average/ Approved Cost of Supply (Paise/Unit)	Tariff paid by Other EHT Industries at 80% Load Factor (Paise/Unit)	Cross-Subsidy Paid(+) / Received (-) by other EHT Industries at 80% Load Factor (Paise/Unit)
2005-06	274	279.30	5.3
2006-07	295	279.30	15.7
2007-08	295	295.00	0.0
2008-09	277	295.00	18
2009-10	263	295.00	32
2010-11	327.37	379.93	52.2



Section 61 (c) of Electricity Act, 2003 envisages that while determining tariff the Commission shall be guided by the factors which would encourage competition, efficiency, economical use of resources, good performance and optimum investment. Therefore, the industries which function efficiently are expected to utilize their production capacity and consequently attain the load factor of 80% or above. Accordingly, the tariff of HT and EHT industries at 80% load factor has been taken for determining the level of cross-subsidy in the table above.

The recommendation of the Tariff Policy suggests that the Commission should aim at reducing the cross-subsidy to operate within a band of  $\pm 20\%$  of the cost of supply. The purpose of prescribing a band is to leave discretion with the Commission to fluctuate cross-subsidy within the band due to unforeseen causes like changes in Govt. policy, changes in mix of generation sources, necessary purchases of power from un-scheduled sources, etc.

#### **Plan of Action for Reduction of cross-subsidy**

9. As regards the plan of action to reduce the cross-subsidy over a period of time as envisaged in Section 61(g) of the Electricity Act, 2003 and Tariff Policy. it may be stated that in respect of industries under HT & EHT category are paying cross-subsidy within (+) 20% of the average cost of supply as shown in the above table. The objective of the Tariff Policy has been achieved with regard to HT and EHT categories. In case of consumers under LT category the existing cross-subsidy is within (-) 33% of the average cost of supply. The cost of supply at LT level is high because of higher distribution loss in that voltage level. The cost of supply at LT level can be reduced by arresting the distribution loss. Huge investment is required for technical upgradation of distribution network and enforcement of anti-theft measures to be taken by licensees supported by Govt. agencies to curb the loss at LT level. Since, these consumers under LT category constitutes low end consumers such as Kutir Jyoti, Domestic, Agriculture etc. sudden rise of tariff may create a tariff shock for such consumers. As there is no subsidy from the State Government under Section 65 of the Act the Commission has endeavoured to raise tariff of LT category gradually to achieve the objective of the Tariff Policy. Section 61 (d) of the Electricity Act, 2003 provides that while determining tariff Commission is to safeguard the interest of the consumers and at the same time ensure the recovery of the cost of electricity in a reasonable manner. In this context Section 61 (g) is to be read conjointly with Section 61 (d) so that recovery of cost of electricity can be ensured simultaneously with safeguarding the interest of consumers. The Commission as Regulator has onerous task of balancing the interest of various stakeholders while determining tariff and dealing with the issue of cross-subsidization.

#### **Odisha Power Sector Reform Highlights**

- \* Odisha is the first State in the country which initiated power sector reform in the State with enactment of the Odisha Electricity Reform Act, 1995 which came into force w.e.f. 1.4.1996
- \* Odisha Electricity Regulatory Commission was established under Section 3(i) of the OER Act, 1995 much before the Electricity Regulatory Commission Act, 1998 and the Electricity Act, 2003.
- \* OERC became functional w.e.f. 1.8.1996 with joining of three Members.
- \* Generation was separated from transmission and distribution with formation of Grid Corporation of Odisha Limited (GRIDCO) w.e.f. 20.4.1995.
- \* Subsequently distribution function has been separated from GRIDCO w.e.f.1.4.1999 and at present the distribution of electricity has been entrusted to separate four private distribution companies.
- \* Transmission has been separated from bulk supply and trading activity of GRIDCO from 1.4.2005.
- \* At present OPTCL is functioning as State Transmission Utility and SLDC but for the 1st time Commission has issued separate Annual Revenue Requirement in tariff for SLDC starting for the year 2009-10.

- \* Odisha is the only State where no subsidy is being provided by the Govt. of Odisha to the power sector since 1.4.1996. Before 1.4.1996 the annual subsidy was of Rs.250 crore on the average.
- \* It is the only State where no budgetary support is being provided by the State Govt. to the distribution companies whereas in other States the level of subsidy varies from 1000 crore to more than 5000 crore.
- \* In Delhi where distribution has been privatized the private distribution companies started with a clean balance sheet, the existing liabilities were assigned to a holding company. But in case of Odisha the assets and liabilities were transferred to the distribution companies. (Liabilities as on 31.03.2009 – Rs.1657.40 crore)
- \* In Delhi provision of transitional financing Rs.3450 crores which helped the private company which needed cushion and comfort levels to the sagging distribution companies.
- \* In contrast the distribution companies in Odisha had no transitional financial support. The Kanungo Committee recommended transitional support of Rs.3240 crore on 02.11.2001 but this has not been acted upon.
- \* On the contrary the existing assets were upvalued. The old assets value of Rs.1103 crore of GRIDCO were also upvalued by 1194 crore. Similarly the OHPC assets were upvalued by Rs.767.20 crore. However, the upvaluation of assets of GRIDCO and OHPC have been held under hold by govt. till date.
- \* The actual T & D loss in 1998-99 before privatisation in 1999-2000 was about 51.2% against the assessed level of 29.2%.
- \* **Reduction of AT&C loss from 60.90% in 1998-99 to 39.15% in 2009-10.** Though the Transmission and Distribution (T&D) loss in Odisha during the period of OSEB was being reported in the region of 23% over a number of years these figures did not take into account the losses taking place owing to non-billing, non-collection and theft of electricity. The audited accounts of OSEB, however, pointed out a different set of figure. The T & D loss was increasing from year to year but gradually declined after the distribution was privatized w.e.f 1.4.1999.
- \* The T & D loss which had reached a level of 51.02% in 1998-99 has been decreased to 46.68% in 1999-00 and 40.33% in 2008-09 and 39.93% in 2009-10.
- \* The collection efficiency has increased from 79.92% in 1998-99 to 92.98% in 2008-09 and 96.96% in 2009-10.
- \* From 1999-00 the concept of Distribution loss and Aggregate Technical and Commercial (AT&C) loss has been introduced in place of T & D loss.
- \* The Distribution Loss has declined from 43.91% in 1999-00 to 37.50% in 2008-09 and 37.24% in 2009-10. The AT & C loss was 56.7% in 1996-97, 58.8% in 1997-98 and 60.90% in 1998-99. The AT&C loss has declined from 56.71% in 1999-00 to 41.89% in 2008-09 and 39.15% in 2009-10.
- \* Thus while the T&D loss was increasing during OSEB period, the Distribution loss as well as AT & C loss have declined from 1999-2000, though at a slow speed. Hence, it can be said that loss level has declined in terms of T & D loss, Distribution loss as well as AT&C loss after the distribution of electricity was privatised w.e.f. 1.4.1999. The comparative position may be seen from the Table given below:-

Year	T & D Loss	Distribution Loss	Collection Efficiency	AT & C Loss	All India AT&C Loss
1990-91	45.30%		87.48%	52.10%	
1991-92	44.80%	-	92.02%	49.2%	
1992-93	45.01%	-	91.01%	40.5%	
1993-94	41.57%	-	86.15%	49.7%	
1994-95	46.59%	-	84.97%	54.6%	
1995-96	46.94%	-	92.12%	51.1%	
1996-97	49.47%	-	85.72%	56.7%	
1997-98	49.24%	-	81.17%	58.8%	
1998-99	51.02%	-	79.92%	60.90%	
1999-2000	46.68%	43.91%	77.19%	56.71%	
2000-01	46.90%	44.01%	78.72%	55.92%	
2001-02	50.19%	47.47%	75.55%	60.31%	
2002-03	43.78%	40.75%	82.45%	51.15%	32.54%
2003-04	43.21%	40.75%	85.49%	49.35%	34.78%
2004-05	41.59%	39.21%	91.00%	44.68%	34.33%
2005-06	47.37%	39.59%	91.58%	44.68%	33.02%
2006-07	41.67%	38.57%	92.37%	43.25%	30.59%
2007-08	41.13%	37.48%	93.41%	41.60%	29.24%
2008-09	40.33%	37.50%	92.98%	41.89%	28.44%
2009-10	39.93%	37.24%	96.96%	39.15%	NA
2010-11 (Upto sept, 10)	39.97%	37.54%	88.28%	44.86%	
2010-11 (Approved)	25.33%	22.22%	98.00%	23.78%	
2011-12 (Approved Business Plan)	24.75%	21.70%	99.00%	22.48%	
2012-13 (Approved Business Plan)	24.19%	21.20%	99.00%	21.99%	

#### Direct accrual of Revenue to the State exchequer

\* Before power sector reform in Odisha was undertaken from 1.4.1996, the subsidy to power sector on the average was Rs.250 crore per annum and this has been withdrawn from 1.4.1996. If the subsidy would have continued it would have been more than Rs.1000 crore by 2009-10 per annum. This has helped keeping the revenue deficit of Odisha on a declining path.

\* In 2006-07 alone different State Governments have provided the following subsidy to their power sector.

Andhra Pradesh -	Rs.1973 cr.	Rajasthan -	Rs.700 cr.
Tamil Nadu -	Rs.1330 cr	(Electricity	Duty is also retained)
Gujurat-	Rs.1767 cr.	Jharkhand -	Rs.392 cr.
Uttar Pradesh -	Rs.3105 cr.	Delhi -	Rs.92 cr.
Punjab -	Rs.1845.81 cr.		



- \* In the disinvestment process form OPGC of Rs.603.20 crore was utilized as general resources for State budget. OPGC was operating at PLF 55.14% in 1996-97 which has increased to 90.18% in 2006-07, 82.60% in 2007-08 and 88.7% in 2008-09. It has generated about 2433.29MU in 2009-10 and likely to generate 2853.53 MU in 2010-11 it is now paying dividend of Rs. 75 crores on the average per annum and by now it has paid Rs.611.24 crore to the State Govt.
- \* OHPC have invested Rs.377 core from its own internal resources and by borrowing and have completed the then incomplete Upper Indravati Project on 19.4.2001. Its installed capacity is 600 MW. Its generation has increased from 1736 MU in 2000-01 to 2948 MU in 2007-08 and 2221 MU in 2008-09.(1414.75 MU in 2009-10 and 1942.38 MU estimated in 2010-11)
- \* The revenue from sale of TTPS to NTPC in 1995 has fetched 356.00 crore to the State. TTPS which was operating at less than 30% PLF is now operating at PLF of 90% and its installed capacity is 460 MW. This power is being totally available for State consumption. Its generation has increased from 1320.82 MU in 1996-97 to 3114.63 MU in 2007-08.(3339.19MU in 2008-09 and 3255.97MU in 2009-10 and 2957.32MU estimated for 2010-11)
- \* Revenue from disinvestment from distribution companies of Rs.159.00 crore have been utilized to reduce the liabilities of GRIDCO.
- \* The sell proceeds of TTPS of Rs.356 crore has been utilized by GRIDCO to meet its past liabilities
- \* Collection of electricity duties has increased from Rs.121.35 crore in 1995-96 to Rs.359.38 crore in 2008-09 and Rs 459.96cr in 2009-10
- \* As a result of withdrawal of budgetary support to the power sector from 1996-97 together with disinvestment and other fiscal measures the State consolidated fund has been enriched and Odisha has been converted from a revenue deficit State to a revenue surplus state.
- \* Revenue deficit in 1999-00 was Rs.2574.19 crore (-6% of GSDP) and Odisha has been converted to a revenue surplus of Rs.481.19 crore in 2005-06 and it has increased to Rs.3419.89 crore in 2008-09 (+2.80% of GSDP) and Revenue surplus of Rs.1138.62Cr in 2009-10 (+0.75% of GSDP).
- \* The fiscal deficit 3836.43 crore in 1999-00 (-8.94% of GSDP) has been reduced to 584.03 crore in 2008-09 (-0.48% of GSDP)and Rs2265.37Cr in 2009-10 (-1.5% of GSDP).
- \* This is not a small achievement considering various constraints/difficulties the power sector has passed through in Odisha.

#### **Road Ahead**

- \* The Area of concern – High AT&C Loss 39.15% for all consumers taken together and 61.67% for LT consumers during FY 2009-10
- \* Though Odisha has gained in term of financial benefits in the power sector, power sector distribution continues to be plagued by high level of Aggregate Transmission and Commercial (AT&C) loss. The AT&C loss of 56.7% in 1999-00 has been marginally reduced to 39.15% during FY 200910 which is unsustainable compared to the sustainable level of 15%. (CESU – 41.2%, NESCO – 35.73%, WESCO – 35.74% and SOUTHCO – 50.16%)
- \* In order to make the power sector sustainable, the AT&C loss is to be reduced to 15% which can be done by strong pro-active administrative support from the State Govt. and by investment in the distribution segment for up-gradation and modernization of the old distribution network.

- \* High AT&C loss and high incidence of power theft continue to be the areas of concern. The State Govt. in the meantime has already established 8 Energy Police Stations and has notified establishment of another 29 Police Stations. Five Special Courts for trial of energy related cases have been designated.
- \* Making distribution segment of the power industry efficient and sustainable is the key to the success of power sector reform.
- \* Franchisee operation has started in all the four Discoms.
- \* Electricity is the one of the most important basic human needs and key input for all-round economic growth of the State. The per capital electricity consumption in Odisha is 510 Kwh per year against All India average of 733.54 Kwh (2008-09). The target to be achieved by GoI is 1000 Kwh per year by the end of 11th Plan.
- \* Hence Govt needs to pay urgent attention to sustainable development of the power sector in the State govt. by playing a proactive role.
- \* Electricity is the basic human need and a key input for all economic activities. It is the primary responsibility of State Govt. to provide the basic infrastructure like Roads, Electricity, Irrigation etc.

#### **Odisha Experience**

- \* Odisha did the experiment in power sector and all other states have gained from the experiment and experience of Odisha in power sector. Despite various constraints, the power sector in Odisha has achieved a commendable success when compared with other States where their State govt. continue to provide budgetary support of substantial amount.
- \* Going by the past experience State Govt has been advised to participate actively in the day to day development of power sector in the State.
- \* The present system of managing or treating the power sector in the State on an 'arms-length' basis needs to be changed to a 'hand-shake' basis.
- \* State Govt. have started taking initiative by deciding to private budgetary support of Rs.1200.00 crore to the four distribution companies during 2010-11 to 2012-13. The distribution companies are also to provide Rs.1200/00 crore towards their counterpart funding.

# **CHAPTER - 2**

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## **Annual Revenue Requirement & Tariff Proposal by the Licensees for the FY 2011-2012**

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**LICENSEES PROPOSAL VIS-A-VIS COMMISSIONS APPROVAL  
OF ANNUAL REVENUE REQUIREMENT**

A. GHPC	PROPOSAL FOR 2011-12			COMMISSIONS APPROVAL FOR 2010-11			ACTUAL FOR 2010-11 (Up to September 2010)			PROPOSAL FOR 2011-12		
	Energy (MU)	Avg. Rate (Rs./U)	Cost (Rs. Cr.)	Energy (MU)	Avg. Rate (Rs./U)	Cost (Rs. Cr.)	Energy (MU)	Avg. Rate (Rs./U)	Cost (Rs. Cr.)	Energy (MU)	Avg. Rate (Rs./U)	Cost (Rs. Cr.)
Total GHPC Stations	5,37,234	72.27	47,255	5,01,674	62.40	31,286	2,76,530	74.37	1,75,17	5,01,674	72.27	48,336
Machband	262.90	21.56	5.75	262.90	21.86	5.76	147.00	21.58	3.26	262.90	22.26	5.78
Total GHPC (incl. Machband)	5,38,174	72.29	48,744	5,08,174	62.61	38,754	2,81,666	80.58	1,78,42	5,08,174	72.47	48,78
<b>B. GRIDCO</b>												
Generator	Energy (MU)	Avg. Rate (Rs./U)	Cost (Rs. Cr.)	Energy (MU)	Avg. Rate (Rs./U)	Cost (Rs. Cr.)	Energy (MU)	Avg. Rate (Rs./U)	Cost (Rs. Cr.)	Energy (MU)	Avg. Rate (Rs./U)	Cost (Rs. Cr.)
GHPC and Machband	5,37,234	60.2	32,342	5,38,174	62.5	33,74	2,81,664	60.6	1,75,4	5,38,174	62.5	33,7
DPSC	2,45,15	127.7	31,21	2,48,35	125.0	31,03	1,47,11	122.8	2,45,15	2,48,35	127.7	31,21
TPC & TPC	1,857.7	211.5	392.8	2,877.0	171.4	493.0	1,751.0	174.8	303.7	2,875.4	212.2	611.1
Other (PP, OP, S, O, Gen)	9,495.6	288.9	2,750.5	2,228.0	202.5	450.9	5,322	304.5	1,604	9,128.8	281.0	2,565
Transmission	900.0	806.0	725.5	900.0	205.6	184.5	1,37.5	298.8	41.2	900.0	816.0	736.5
<b>TOTAL STATE</b>	<b>16,470.2</b>	<b>188.1</b>	<b>2,522.9</b>	<b>14,218.8</b>	<b>145.2</b>	<b>2,044.8</b>	<b>7,816.7</b>	<b>189.2</b>	<b>1,822.8</b>	<b>17,178.1</b>	<b>188.7</b>	<b>3,166.9</b>
Cost of Generation (incl. Fuel, Depreciation, O&M, etc.)	6,32,100	240.0	1,517.1	5,46,418	222.4	1,207.0	2,511.5	212.7	1,107.1	6,35,310	245.0	1,567.5
<b>TOTAL POWER PURCHASE</b>	<b>21,790.1</b>	<b>410.0</b>	<b>4,296.1</b>	<b>21,003.0</b>	<b>174.8</b>	<b>3,668.9</b>	<b>11,078.4</b>	<b>201.0</b>	<b>2,257.3</b>	<b>21,819.4</b>	<b>217.5</b>	<b>5,012.4</b>
Estimated Cost (Rs. Cr.)			443.1			524.4			77.6			626.4
Revenue (incl. power purchase, distribution, etc.)			545.2			371.2			36.5			505.4
Revenue Requirement (Rs. Cr.)			1,488.4			4,282.4			2,771.8			8,810.1
Total Revenue (incl. power purchase, etc.) (Rs. Cr.)			1,777.7			5,475.5			2,177.8			3,777.7
Gap (Rs. Cr.)			2,580.8			2,082			658.9			2,787.0
Risk Supply Tariff (Rs./U)		252.8			172.5			158.7			232.8	
<b>C. OPTCL &amp; SLDC</b>												
Particulars	OPTCL'S PROPOSAL FOR 2011-12			COMMISSIONS APPROVAL FOR 2010-11			ACTUAL FOR 2010-11 (Up to September 2010)			OPTCL PROPOSAL FOR 2011-12		
	OPTCL Transmission Cost (Rs. Cr.)	SLDC cost (Rs. Cr.)	TOTAL (Rs. Cr.)	OPTCL Transmission Cost (Rs. Cr.)	SLDC cost (Rs. Cr.)	TOTAL (Rs. Cr.)	OPTCL Transmission Cost (Rs. Cr.)	SLDC cost (Rs. Cr.)	TOTAL (Rs. Cr.)	OPTCL Transmission Cost (Rs. Cr.)	SLDC cost (Rs. Cr.)	TOTAL (Rs. Cr.)
Proposed Cost	757.1	4.6	761.7	778.6	4.6	783.2	747.1	4.6	751.7	757.1	4.6	761.7
Present Cost (Reference Cost)	36.7	2.0	38.7	63.0	2.0	65.0	16.2	1.9	18.1	36.7	2.2	38.9
Cost of Total Revenue (incl. Distribution, etc.) by cost	480.2	8.4	488.6	141.4	1.3	142.7	30.7	2.7	33.4	480.2	8.4	488.6
Net Transmission Cost	1,448.6	14.9	1,463.5	480.9	7.8	488.7	269.2	1,573.7	11.7	1,463.5	14.9	1,478.4
Revenue Available	1,448.6		480.9			269.2	1,573.7		11.7	1,463.5		480.9
GAP	Nil		(100)				135		Nil		Nil	Nil
Transmission (T) (Energy Handled - 21906 MU)	88.72		28.50				(Energy Handled - 20464 MU)			88.58		(Energy Handled - 22516 MU)

**DISCOMs PROPOSAL VIS-A-VIS OERC APPROVAL OF ANNUAL REVENUE REQUIREMENT**

	2009-10 (Actual)	Proposal for FY 2010-11	Approval for FY 2010-11	2010-11 (Actual up to Sept 10)	Proposal for FY 2011-12
<b>CESU</b>					
Energy Purchase (MU)	6,232.67	7,421.60	6,420.00	6,623.41	7,066.37
Energy sale to Consumer(MU)	5,775.13	4,174.50	4,791.26	2,261.34	5,212.11
Distribution Loss %	39.1%	44.3%	25.7%	37.6%	31.6%
Collection Efficiency %	97.1%	95.0%	96.0%	91.5%	99.0%
AT & C Loss %	41.2%	47.1%	25.9%	42.9%	35.2%
ARR (Rs. Cr.)	-	1,796.9	1,549.4	-	2,457.5
Avg. Tariff (P/%)	-	256.7 *	325.7	-	471.49 **
<b>NESCO</b>					
Energy Purchase (MU)	4,705.25	5,673.30	5,122.00	2,510.73	5,666.75
Energy sale to Consumer(MU)	3,170.17	3,985.10	4,175.31	1,694.36	4,113.11
Distribution Loss %	32.5%	29.3%	16.5%	32.9%	27.7%
Collection Efficiency %	95.2%	97.0%	98.0%	84.4%	98.0%
AT & C Loss %	35.7%	30.5%	20.1%	43.3%	29.1%
ARR (Rs. Cr.)	-	1,673.5	1,351.4	-	2,125.2
Avg. Tariff (P/%)	-	277.8 *	325.3	-	516.58 **
<b>WESCO</b>					
Energy Purchase (MU)	5,261.56	6,573.00	6,244.00	5,143.25	6,500.00
Energy sale to Consumer(MU)	4,080.90	4,530.00	4,000.84	1,973.86	4,455.18
Distribution Loss %	34.7%	25.0%	19.9%	37.2%	31.3%
Collection Efficiency %	98.1%	97.5%	98.0%	88.9%	98.0%
AT & C Loss %	35.8%	30.6%	21.5%	44.2%	32.7%
ARR (Rs. Cr.)	-	1,952.80	1,655.10	-	2,250.40
Avg. Tariff (P/%)	-	297.8 *	327.70	-	499.39 **
<b>SOUTHCO</b>					
Energy Purchase (MU)	2,280.33	2,530.00	2,358.00	1,260.61	2,850.00
Energy sale to Consumer(MU)	1,107.02	1,445.30	1,709.15	650.09	1,220.41
Distribution Loss %	48.0%	42.8%	27.8%	47.8%	57.3%
Collection Efficiency %	95.3%	97.0%	96.0%	86.1%	96.0%
AT & C Loss %	50.2%	44.5%	29.3%	55.6%	56.2%
ARR (Rs. Cr.)	-	1,382.0	1,72.6	-	1,052.0
Avg. Tariff (P/%)	-	269.2 *	277.2	-	570.20 **
<b>ALL ORISSA</b>					
Energy Purchase (MU)	19,484.81	21,884.10	20,154.00	10,546.90	23,014.12
Energy sale to Consumer(MU)	17,227.99	14,598.95	15,676.58	5,587.64	15,011.84
Distribution Loss %	37.2%	35.6%	22.2%	37.5%	34.8%
Collection Efficiency %	97.0%	96.8%	96.0%	86.3%	96.0%
AT & C Loss %	39.2%	37.8%	23.8%	44.9%	35.1%
ARR (Rs. Cr.)	-	6,513.4	5,009.4	-	7,075.1
Avg. Tariff (P/%)	-	254.2 *	320.6	-	524.5 **

NB : \* As proposed by the Licensees in consideration of bridging the gap with Govt. subsidy

\*\* As submitted by the Licensee

# ORISSA ELECTRICITY REGULATORY COMMISSION

BIDYUT NIYAMAK BHAVAN, UNIT – VIII

BHUBANESWAR – 751 012

PBX: (0674) 2393097, 2396117,

E-mail: [orierc@rediffmail.com](mailto:orierc@rediffmail.com),

Website: [www.orierc.org](http://www.orierc.org)

No. JT(FN)-175/02/

Dt. 27.12.2010

To

The Commissioner-cum-Secretary to Govt.,  
Deptt. of Energy, Govt. of Orissa  
Bhubaneswar.

**Sub: Suggestions/Views/Comments of the State Government on various issues involving tariff setting for the year 2011-12 including Subsidy/ Subvention and other important matters having a direct bearing on fixation of tariff for the year 2011-12.**

Sir,

With reference to the subject noted above, I am directed to say that the Licensees have filed their Annual Revenue Requirement and proposed Tariff for the year 2011-12 on or before 30.11.2010 and the same are under scrutiny by the Commission. Public notices have been issued for inviting suggestions/comments from different stakeholders. After receipt of the comments/suggestions from the general public hearing would be conducted by the Commission in the 1<sup>st</sup> week of February, 2011 and the Tariff Order of the Commission is likely to be issued on or before 20.03.2011.

2. Since Electricity is one of the most critical infrastructures for overall development of the State and the State Govt. is one of the most important stakeholders, the Commission would like to have the benefit of comments/suggestions/views/opinions of the State Govt. before finalizing the tariff for the year 2011-12 in respect of OHPC, Gridco, OPTCL and the four distribution companies. The important issues are outlined in subsequent paragraphs for specific comments/suggestions/views/opinions of the State Govt. on those matters:-
3. **Tariff for the Kutir Jyoti / BPL Category of Consumers**– The consumers coming under Kutir Jyoti / BPL families at present are paying a monthly minimum fixed charge for the 1<sup>st</sup> KW or part thereof @ Rs.30/- per month with the stipulations that the monthly consumption is up to 30 unit per month. This has remained unchanged since pre-privatisation period despite manifold increase in power procurement cost. The cost of supply is of the order of Rs.327.37 paise per unit for the year 2010-11 and after taking into account rise in cost of generation, transmission, salary, pension, operation & maintenance etc., the cost of supply may increase substantially for the year 2011-12. In that case there is urgent need for enhancement of the present rate of tariff for Kutir Jyoti/ BPL category of consumers. In this connection it may be noted that para 5.5.2 of the National Electricity Policy, 2005 stipulates that tariff for such designated group of consumers will be at least 50% the average (overall) cost of supply and this provision was to be reexamined after five years. With increase in the number of BPL families (2007-08 – 21703 which is to increase to 40 lakh by 2011-12) with the implementation of Rural Electrification Programme under RGGY and BGGY it is difficult to keep the cross subsidy within +20% of the average cost of supply as mandated under Section 61(g) of the Electricity Act,

2003 read with para 8.3.2 of the Tariff Policy, 2006. After taking into account the increase in the cost of supply and increase in BPL families coming under Rural Electrification by manifolds during the past few years, there is a case for increase in the present rate of tariff for Kutir Jyoti/ BPL category of consumers for the year 2011-12.

Further for Kutir Jyoti/BPL category of consumers consuming more than 30 units per month fixed monthly charge of Rs.30/ is not applicable to them and in that case the tariff applicable to LT category of domestic consumers has to be paid by the BPL/Kutir Jyoti category of consumers. In fact, it has been brought to the notice of the Commission that a large number of Kutir Jyoti/BPL category of consumers actually consumes more than 30 unit per month and accordingly the fixed charge of particular amount is not applicable to them as the consumption is limit is being exceeded by them. The views of the State Govt. may be furnished on this aspect also.

**4. Tariff for Irrigation Pumping and Agriculture/ Allied Agriculture Activities /Allied Agro-Industrial Activities–**

a) The Tariff for the year 2010-11 for Irrigation Pumping and Agriculture/ Allied Agriculture Activities / Allied Agro-Industrial Activities is as follows:-

Sl. No.	Category of Consumers	Voltage of Supply	Energy Charge (p/kWh)	Monthly Fixed Charge for first KW or part (Rs.)	Monthly Fixed Charge for any additional KW or part (Rs.)	Rebate (P/kWh)/ DPS
1	Irrigation Pumping and Agriculture	LT	110.00	20	10	10
2.	Allied Agricultural Activities	LT	120.00	20	10	10
3	Allied Agro-Industrial Activities	LT	320.00	80	50	DPS/ Rebate
4.	Irrigation Pumping and Agriculture	HT	100.00			10
5.	Allied Agricultural Activities	HT	110.00			10
6.	Allied Agro-Industrial Activities	HT	310.00			DPS/ Rebate

b) The tariff for the Irrigation Pumping and Agriculture has remained unchanged since 2001-02 while for Allied Agricultural Activities the rate continues since 2009-10. When the average cost of supply approved for the year 2010-11 is Rs.3.27 per unit the above concession rate was fixed for the said year. Since the cost of supply is likely to increase substantially the tariff for Irrigation Pumping and Agriculture/ Allied Agriculture Activities /Allied Agro-Industrial Activities is also likely to increase proportionately. In this connection it may be noted that Section 65 of the Electricity Act, 2003 mandates that if the State requires the grant of any subsidy to any consumer or class of consumers in the tariff determined by the State Commission under Section 62, the State Govt. shall pay the subsidy in advance and in such manner as may be specified.

c) Further, attention is drawn to the clause 5.5 (Recovery of Cost of Services & Target Subsidies) of National Electricity Policy which is reproduced below:



*“5.5.4 The State Governments may give advance subsidy to the extent they consider appropriate in terms of section 65 of the Act in which case necessary budget provision would be required to be made in advance so that the utility does not suffer financial problems that may affect its operations. Efforts would be made to ensure that the subsidies reach the targeted beneficiaries in the most transparent and efficient way.”*

- d) If the Govt. intends to give any subsidy to Agriculture, Allied Agricultural activities, Allied Agro Industrial activities, any other consumers or class of consumers the same may be intimated to the State Commission for tariff design for the year 2011-12.

5. **Cross – subsidy in Tariff.**

- a) Section 61(g) of Electricity Act 2003 stipulates that the appropriate Commission shall be guided by the objective that the tariff progressively reflects the efficient and prudent cost of supply of electricity and also reduces cross-subsidies in the manner specified by the Commission. Para 8.3.2 of Tariff Policy enjoins that *for achieving the objective that tariff progressively reflects the cost of supply of electricity, the SERC would notify road map within 6 months with a target that latest by the end of year 2010-11 tariffs are within  $\pm 20\%$  of the “average cost of supply”*.
- b) The National Electricity Policy also envisages existence of some amount of cross-subsidy. As per para 1.1 of National Electricity Policy, the supply of electricity at reasonable rate to rural India is essential for its overall development. Equally important is availability of reliable and quality power at competitive rates to Indian Industry to make it globally competitive and to enable it to exploit the tremendous potential of employment generation. Similarly, as per para 5.5.2 of the National Electricity Policy, a minimum level of support may be required to make the electricity affordable for consumers of very poor category. Consumers below poverty line who consume below a specified level, say 30 units per month may receive special support in terms of Tariff which are cross-subsidized. Tariff for such designated group of consumers will be at least 50% of the “average (overall) cost of supply”.
- c) **Section 62 of the Electricity Act, 2003 empowers OERC to determine tariff for retail sale of electricity. While doing so, the Commission is to be guided by National Electricity Policy and Tariff Policy under the provision of Section 61 (i) of the said Act.**

In the absence of clear cut definition of cross subsidy in the Electricity Act, 2003 or the National Electricity Policy for the purpose of computing cross subsidy the Commission has incorporated a provision in the OERC (Terms and Conditions for Determination of Tariff), Regulations, 2004, vide Regulation 7 (c) (iii) which states as under:-

***“For the purpose of computing cross-subsidy the difference between cost-to-serve that category and the average tariff realization of that category shall be considered”.***

- d) **Since it is not possible or feasible to calculate the cost of supply for a particular category of consumer for the purpose of computing cross subsidy payable by certain category of consumers, the difference between the average cost to serve to all consumers of the State taken together and the average tariff applicable to such consumers is being considered by the Commission. Based on this principle while the LT category of consumers have been subsidized by 31.56% in 2009-10 this has increased to 33.03% in 2010-11. While the EHT and HT consumers were subsidizing 12.18% and 17.36% respectively in 2009-10 this has increased to 15.85% in case of EHT consumers and 17.20% in case of HT consumers in 2010-11. The Section 61(g) of the Electricity Act, 2003 read with para 8.3.2 of Tariff Policy stipulates that the cross subsidy should be within  $\pm 20\%$  by end of 2010-11. Hence in order to comply with the provisions of the Electricity Act, 2003 there is a need to reduce the existing level of cross subsidy.**

**This implies that there is need to enhance the tariff for LT category so that the tariff for LT category remains within -20% whereas the EHT & HT consumers tariff remains +20%. The Commission would, therefore, like to have the comments/views of the State Govt. on the need for appropriate enhancement of the tariff for LT consumers so as to achieve the objective of keeping the cross subsidy within  $\pm 20\%$ .**

**6. Keeping in abeyance the upvaluation of assets, moratorium of debt services etc.**

- a) Based on the recommendation of the Commission, State Govt. in their notification No.R&R-I-15/2009/81, En, dt. 06.01.2010 have extended the concession and stipulations as indicated below:
  - i) The bonds issued by GRIDCO and OHPC, to the State Govt. consequent upon revaluation of assets shall not carry any interest for a further period of five years from FY 2006-07 to FY 2010-11.
  - ii) The additional equity share, allotted to the State Govt. based on revaluation of assets, should not earn any Return on Equity for a further period of five years from FY 2006-07 to FY 2010-11.
  - iii) Both GRIDCO/OPTCL and OHPC would be entitled to depreciation on the revalued (pre-92) assets.
  - iv) Both GRIDCO/OPTCL and OHPC shall repay the principal amount of the loan amount actually taken from the State Govt. along with the interest as per the terms and conditions of loan other than those attributable to the revaluation of assets.
  - v) The State Govt. investment actually made in Upper Indravati Project, excluding the normative equity, should yield return to the State Govt. with effect from FY 2010-11 after clearance of loan liabilities of PFC. However, interest at the rate of 7% should be charged and paid on this investment from FY 2006-07 onwards.
  - vi) Return on Equity on the old Hydro Power Plants may be allowed to OHPC, in respect of new projects commissioned after 01.04.1996.
- b) Since there was some omissions and commission and addition of new stipulations in the notification dt.06.01.2010, in deviation of the notification dt.29.01.2003 read with notification dt.06.05.2003, the Commission in their letter No.3235 dt.27.01.2010 has suggested for amendment of the notification dt.06.01.2010 of the State Govt.
- c) Since the Kanungo Committee had recommended keeping in abeyance the up-valuation of assets, moratorium on debt servicing etc. till the sector as a whole turn- around and since the benefits of proposed investment by State Govt. and DISCOMs would be felt only after few years, the Commission have already advised the State Govt. to take the following steps vide their letter No.DIR(T)-344 / 2008 (Vol-III) -4440 dated 19.7.2010.:
  - i) GRIDCO/OPTCL and OHPC would be entitled to depreciation on the assets prior to revaluation, calculated at pre-92 norms notified by Govt. of India, as per the direction of Hon'ble High Court of Orissa.
  - ii) Moratorium on debt servicing by GRIDCO and OHPC to the State Govt. would be allowed till the power sector turns-around except the amount in respect of loan from the World Bank to the extent the State Govt. is required to pay to the Govt. of India.
  - iii) GRIDCO & OHPC shall not be entitled to any RoE till the sector become viable on cash basis. The State Govt. investment actually made in Upper Indravati Project, excluding the normative equity, should yield return to the State Govt. with effect from FY 2010-11 after clearance of loan liabilities of PFC. However, interest at the rate of 7% should be charged and paid on this investment from FY

2006-07 onwards. Return on Equity on the old Hydro Power Plants may be allowed to OHPC, in respect of new projects commissioned after 01.04.1996.

- d) The above concessions/Govt. support, indicated in para-6(c) are subject to the following stipulations:
- i) The State owned utilities viz. OHPC, GRIDCO and OPTCL earning accounting/book profit are made to utilize the same for capital investment, servicing of Govt. loan and payment of dividend.
  - ii) The Private Distribution Companies are to service the State Govt. loan relating to World Bank and APDRP assistance passed on to them through an enforceable mechanism approved by OERC.
- e) The Commission would like to request the State Govt. to issue the amended notification as suggested above so that this would appropriately reflected while determining the Annual Revenue Requirement of the distribution licensees for the year 2011-12. In the absence of specific communication in this regard by 31.01.2011 the Commission would assume the extension of the benefit notified on 29.01.2003 and 06.5.2003 till the sector as a whole turns around as outlined in para 6(c) and 6(d) above. This may be confirmed.

#### 7. Mandatory purchase from Renewable sources

Sec.86(1)(e) of the Electricity Act, 2003 read with para 6.4 of the National Tariff Policy notified on 6<sup>th</sup> June, 2006 mandates the State Electricity Regulatory Commission to fix a minimum purchase of total consumption for purchase of energy from renewable sources such as mini/small/hydro/solar, wind/ biomass/waste-heat process etc.

Accordingly, OERC has notified the OERC (Renewable & Co-generation Purchase Obligation and its compliance) Regulations, 2010 on 30<sup>th</sup> September, 2010. Accordingly, the Commission has fixed minimum quantum of purchase in percentage for Orissa as indicated below:

Year-wise target	Minimum quantum of purchase in percentage (In terms of energy consumption in the State in KWH)			
	Renewable		Co-generation	Total
	Solar	Non-solar		
2009-10 (Actual)	-	0.80	3.45	4.25
2010-11	-	1.0	3.50	4.5
2011-12	0.10	1.20	3.70	5.0
2012-13	0.15	1.40	3.95	5.5
2013-14	0.20	1.60	4.20	6.0
2014-15	0.25	1.80	4.45	6.5
2015-16	0.30	2.00	4.70	7.0

In case the actual purchase from Renewable sources falls below the percentage specified above, the obligated entity are required to purchase the Renewable certificates at higher cost. This implies that the energy to the extent of requirement is to be purchased apart from higher cost over and above the Renewable Purchase Certificates. This would result in higher tariff implication on the consumers.

In order to reduce the impact of tariff on consumers on account of failure to achieve the prescribed minimum percentage of energy from Renewable sources, the State Govt. is required to take proactive steps to exploit all the mini and small hydro sources in a systematic manner. As per the data furnished by EIC (Elect.)-cum-PCEI, Orissa, State Technical Committee (STC) has cleared 14 nos. of hydro projects as indicated below:

Sl No.	Name of the SHE Project/ Installed capacity	Capacity
1	Saptadhara	{18 MW}
2	Jeypore Main Canal	{6 MW}
3	Kharagpur	{10 MW}
4	Bargarh Head Regulator	{9 MW}
5	Dumajhori	{15 MW}
6	Lower Baitarani	{24 MW}
7	Tentuligurna	{15 MW}
8	Salandi Dam Toe	{9 MW}
9	Saheed Lakshman Nayak	{24 MW}
10	Hatipathar	{11 MW}
11	Jalapat Dam Toe	{18 MW}
12	Lower Mechhkund	{20 MW}
13	Salimi	{12 MW}
14	Sindhiguda	{15 MW}
Total		200 MW

- \* DPR of the above 14 projects have already been approved and techno-economic clearance have accorded by STC but pending at the approval stage of construction drawing.
- \* Besides this, PFRs of 15 projects already approved by STC. Developers have already submitted their DPR & TEC but pending at STC for approval.

The Commission, in the meantime has given practice direction to Energy Deptt. , W.R. Deptt., and others to take proactive steps to maximize generation from renewable sources particularly from mini and small hydro sources. The Commission feels that there is inordinate delay in granting final clearance of the small hydro projects and delay in exploiting the small and mini hydro sources would result in higher impact on tariff, arising out of purchase of Renewable purchase certificate due to failure in achieving the prescribed percentage of Renewable energy. Action taken by Govt. may be indicated.

#### 8. Capacity Addition :

With increase in the present level of consumption by the existing consumers and with increase in the number of consumers, the consumption of electricity would increase manifold. The mismatch between demand and supply is going to increase. Action taken on addition of capacity by OPGC and the Joint Venture Company formed by OHPC & OMC (OTPCL) along with the status of MoU signed with 27 IPPs and ultra mega projects may be indicated. As per MoUs signed with 27 IPPs, Odisha is likely to avail around 5637 MW out of total proposed 32,420 MW. Exact capacity addition likely to be made during 2011-12 may be indicated.

#### 9. Revised Design Energy of the Hydro Stations of OHP

OHPC have submitted from time to time that there has been substantially reduction in their design energy in different hydro stations because of silting and other reasons. OHPC have also conducted a study of design energy through a consultant namely SPARC. The summary of the Revised Design Energy and proposed revised energy of different hydro stations are as indicated below:



Sl No.	Name of the Hydro Electric Project	Design Energy in the DPR Stage	Design Energy in the current study	Remarks
1.	Jpper Kolab	832 MU	643.86 MJ	22.61% reduction
2.	Jpper Indravati	1967 MU	1713.87 MU	13.16% reduction
3.	Balimela	1183 MU	928.56 MJ	21.51% reduction
4.	Rengali	525 MU	669.06 MJ	27.61% increase
5.	Hirakud	1174 MU	957.43 MU	18.45% reduction
It consists of PS Burla HPS Chiplima			601.27 MU 356.16 MU	

#### Energy Charge and Capacity Charge for 2010-11

Name of the Power Stations	Annual Fixed Cost (Rs. Crore)	Capacity Charge (Rs. Crore)	Energy Charge (Rs.. crore)	ECR with existing DE {P/U}	ECR with revised DE {P/U}
Rengali H <sup>2</sup>	35.91	17.955	17.955	34.545	27.07
UKH-P	27.37	13.688	13.688	16.584	21.43
Balimela HEP	68.40	34.20	34.20	29.201	37.20
Hirakud HEP	60.64	30.32	30.32	44.775	50.94
Chiplima HEP	22.79	11.395	11.395	23.498	32.37
UHP	146.82	71.235	71.235	37.793	43.46

If the revised design energy of the hydro stations as suggested by OHPC is accepted the tariff for hydro stations would have increased by considerable amount on account of reduced design energy excluding the rise in cost of operation etc. The views of the State govt. may be furnished regarding the desirability or otherwise of accepting the proposed revised design energy of the hydro stations.

#### 10. Exploiting the Captive sources:

There is a good amount of surplus energy available with CPP in the State and their contribution for State consumption has been increased from 454.87 MU in 2008-09 to 2967.09 MU in 2009-10 and during 2010-11, they have supplied 1888 MU upto September, 2010. In the meantime, Commission has reduced the cost of purchase of power from CGPs from 01.11.2010. In case there is hydro failure and the state is required to resort to purchase from CGPs for consumption in the State, the indicative price may be suggested by Govt. for taking appropriate decision by the Commission while finalizing the tariff for 2011-12.

#### 11. O&M expenditure for maintenance of assets created under RGGVY and BGJY:-

Energy Department vide their letter No.R&R-II-1/2010-1577 dt.23.02.2010 have stated that as per para-N of the Agreement, Govt. of Orissa shall be the owner of the assets created on implementation of the individual projects as posed by the DISCOMs under RGGVY with the concurrence of the Govt. of Orissa. Govt. has authorized the DISCOMs to operate and maintain these assets to effect power supply in the project area and derive consequential benefit out of the assets created under the project.

As regards the assets created under BGJY, Govt. has clarified that all the assets created under BGJY shall be handed over by the executing agency to the respective DISCOMs for maintenance. Regarding ownership of the assets after they are charged and handed over through a signed document, the said matter has not yet been decided. As the DISCOMs are to derive the consequential benefit from the assets, they are to meet the O&M expenditure for maintenance of the assets. Govt. have also further clarified that the DISCOMs cannot claim the O&M expenses from the Govt. for the maintenance of assets created under RGGVY or BGJY.

It is desirable that the assets created under RGGVY and BGJY are transferred to the DISCOMs. They should be authorized to mortgage these assets to the financial institutions for enabling them to obtain loan for

counterpart funding for upgradation of the distribution system wherever needed. With regard to the consequential benefit assumed to accrue to the DISCOMs under RGGVY and BGJY, it has been pleaded by the DISCOMs that the loss in LT being more, per unit input realization in case of LT consumers even far below than the BST (CESU – 138.76 p/u upto September’10 against BST of 178.50 p/u including transmission charges, in case of NESCO 81.89 p/u upto September’10 against BST of 216.50 p/w, in case of WESCO 72.78 p/u upto September’10 against BST of 215.50 p/u, in case of SOUTHCO 106.23 p/u upto September’10 against BST of 115.50 p/u)

With addition of more number of consumers under RGGVY and BGJY, the loss level is likely to further increase instead of tangible benefit being accrued to the DISCOMs. It is, therefore, suggested that wherever practicable, the asset should be transferred to the DISCOMs and they should also be authorized to mortgage for obtaining loan from the financial institutions and they should be declared the owner of the assets as soon as possible.

## 12. Performance Parameter – Normative target of loss reduction:

The Commission is allowing Annual Revenue Requirement (ARR) for DISCOMs based on normative level of distribution loss, collection efficiency and AT&C loss. But the DISCOMs have alleged that since the actual Distribution loss is substantially higher than the normative target fixed by the Commission, they are not able to mop up the required revenue to meet the cost of additional power purchase over the approved amount, O&M expenditure and other essential expenditure. They submit that reduction of Distribution loss and AT&C loss should be with reference to the level actually achieved in 2009-10 and/or 2010-11. But the Commission is of the opinion that the ARR has to be estimated on the normative level fixed in the Business Plan as indicated below:

**Distribution loss, Collection efficiency and AT&C loss (in %)**

	Actual for 2009-10	Approved for 2010-11 (in %)	Actual during 2010-	Target fixed as per Business Plan for 2011-2012 (in %)
<b>Distribution Loss</b>				
CESU	39.43	25.37	37.6	24.0
NESCO	32.52	18.16	32.3	18.10
WESCO	34.68	19.93	37.2	19.70
SOUTH CO	48.02	27.82	47.8	26.50
<b>All Orissa</b>	<b>37.74</b>	<b>22.22</b>	<b>37.5</b>	<b>21.70</b>
<b>Collection Efficiency</b>				
CESU	97.09	98	91.17	99
NESCO	95.21	98	84.39	99
WESCO	98.38	98	88.85	99
SOUTH CO	95.90	98	85.11	94
<b>All Orissa</b>	<b>96.96</b>	<b>98</b>	<b>88.28</b>	<b>94</b>
<b>AT&amp;C Loss</b>				
CESU	41.20	26.86	42.91	24.76
NESCO	35.73	23.09	43.25	19.22
WESCO	35.74	21.53	44.21	20.50
SOUTH CO	51.76	29.27	55.58	27.24
<b>All Orissa</b>	<b>39.15</b>	<b>23.77</b>	<b>44.86</b>	<b>22.48</b>

## 13. Default in payment of Electricity Dues by the State Govt., Urban Local Bodies, Rural Local Bodies, PSUs including Cooperatives:

Though Finance Deptt. in their Itr No.36938(4)dt.26.08.2010 and Itr. No.36933 dt.26.08.2010 have issued letters to all departments including Public Enterprises Deptt., Co-operation Deptt., H&UD Deptt. And

Panchayati Raj Deptt. that no opportunity should be given to the DISCOMs to disconnect the line after 30<sup>th</sup> September, 2010 and all-out efforts should be made to clear outstanding dues on priority, the arrear outstanding as on 01.04.2010 has increased from Rs.410.31 Crore to Rs.438.78 crore as on 30.09.2010. It is reported that when the DISCOMs issue show-cause notice for disconnection of power supply to ULBs, Health, Educational institutions, Water Supply Scheme, pumping set etc., the District administration very often prevail upon DISCOMs not to disconnect power supply on the plea of public discontentment. The Govt. Deptts., various local bodies and autonomous organisations of the State Govt. should be ideal honest consumers and pay their electricity dues in time. Instructions may be issued to the district administration not to intervene and rather provide necessary assistance to the DISCOMs to ensure that up-to-date electricity dues are paid by the Govt. deptts., ULBs, RLBs including essential service organisations like health, water supply, police etc. The possibility of putting pre-paid meters by the Govt. departments and the organizations under their control may be examined and views of State Govt. may be indicated.

#### **14. Effective functioning of the Energy Police Stations:**

The line of command and control of the Energy Police Station is currently an integral part of the general Police Administration as a result of which their special role gets diluted, amidst the competing needs of general law and order and crime control. They need to stand apart from the general run of police administration and act on a dedicated basis in tandem with the DISCOMs who are distributing and supplying electricity. The West Bengal model where a very senior police officer at the level of an IG works with the West Bengal State Electricity Distribution Company Ltd. and is responsible for theft prevention, detection prosecution and liaison with the police. West Bengal though has only one DISCOM for the entire State while we have four DISCOMs. We would, therefore, consider having one senior officer working with the Deptt. of Energy and being responsible for theft prevention and detection in all the four DISCOMs. He could supervise and monitor the working of all the Energy Police Stations and ensure their effective functioning. As an officer of the State's police administration, he could liaise easily with the police and act as a bridge between the Electricity Utilities and the Police. If we can reduce the AT&C losses to a reasonable level and prevent theft fully, it would not only mean huge revenue gains for the DISCOMs but also fairly large increases by way of Electricity Duty for the State Govt.

The Commission would like to know the exact steps taken by the State Govt. to act on the advice of the Commission indicated above from time to time.

#### **15. CAPEX Programme:**

Energy Deptt. in their notification No.9230/En. dt.21.10.2010 have indicated that out of Rs.2400 crore are to be invested for Distribution upgradation during 2010-11 to 2013-14, Rs.300 crores is to be provided during 2010-11 and Rs.600 crores during 2011-12. There is a budget provision of Rs.205 crores during 2010-11 and in that case the total amount to be provided during 2010-11 should be increased to Rs.675 crores. The amount of fund to be provided during 2011-12 by the State Govt. may be indicated for the DISCOMs. Besides this, it is understood that the State Govt. have decided to provide Rs.300 crores as viable gap funding @ Rs.60 crores per annum to the OPTCL for construction of Grid S/Ss and associate transmission lines in backward and inaccessible areas to improve in quality of supply, particularly to solve the problem of low voltage in different parts of the State. The exact amount and the nature of State budgetary support to be provided to OPTCL during 2011-12 may be spelt out.

#### **16. Implementation of Intra-state Availability Based Tariff (ABT)**

- i) OERC (Intra-State ABT) Regulations, 2007 was published in Odisha Gazette on 14.2.2008 for implementation of Intra State ABT from the same date. Intra State ABT would mean GRIDCO would draw power from the generators of the grid based on its submission of schedule of prior to be drawn one day ahead. Similarly the distribution companies should restrict to their drawl as per the day ahead schedule submitted to GRIDCO. This would avoid over drawl by GRIDCO from the grid and also over

drawl by the distribution companies. But the same has not yet been actually implemented due to various reasons. In the meantime the Commission have organized a number of mock exercises for the distribution companies, GRIDCO, OPTCL and SLDC to sensitize them regarding the need for implementation of Intra State ABT in order to avoid the over drawl from GRIDCO and consequently higher financial implication for the distribution companies arising out of over drawl of energy compare to the amount allowed in the ARR of the respective distribution companies.

- ii) If the ABT would have implemented in practice in financial term for the period 29.3.2010 to 29.8.2010, the implication would have been as follows:-

CESU to pay to GRIDCO	–	Rs.125.03 crore
SOUTHCO to pay to GRIDCO	-	Rs. 10.33 crore
NESCO to get from GRIDCO	-	Rs.26.98 Crore
WESCO to get from GRIDCO	-	Rs.109.64 Crore
GRIDCO were to pay to four Distribution companies a net amount of	-	Rs.11.26 Crore.

- iii) In order to avoid the over drawl and consequently to avoid payment of higher amount on the over drawl amount of energy by the distribution companies it is necessary for implement of ABT without any further delay. The drawl schedule by GRIDCO and consequently by the distribution companies would be as per the availability of generation and there should be in proportion to the amount approved in their ARR. Consequently distribution companies have to restrict their power supply to different areas keeping in view the amount of power to be allocated for drawl based on the availability of power. This will discipline the distribution companies as well as GRIDCO and would avoid piling of outstanding dues of distribution companies payable to GRIDCO on account of over drawl of power at the end of the financial year and the dues are to be settled on weekly basis. The amount on account of over drawl would be adjusted as first charge along with BST. The Commission is contemplating to implement the intra state ABT from 01.4.2010.

- iv) The Commission would like to have the views/comments of the State Govt. on this regard.

17. There is a mismatch between supply and demand of power in the State and accordingly the State may face unavoidable situation of rationing/regulating the power supply. In response to the staff paper circulated by the Commission, suggestions have been received from certain quarters that high end consumers like industries and other institutions opting to avail uninterrupted power supply should pay higher tariff because GRIDCO have to purchase costly power to ensure uninterrupted power supply to such consumers. This higher tariff may be in the shape of reliable power surcharge or power market surcharge as has been adopted in Pune and in some other states. This would mean having different tariff for different category of consumers and different areas also. Commission would like to know the views and comments of the State Govt. on these proposal/suggestions received from the high end consumer groups.
18. Views/Comments/Suggestions of the State Government on various issues outlined in the preceding paragraphs may be communicated latest by 31.01.2011 for due consideration by the Commission while finalizing the tariff design for the year 2011-12.

Yours faithfully,  
**SECRETARY**



# **CHAPTER - 3**

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## **Performance Review of the Licensees**

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PERFORMANCE OF DISCOMs AT A GLANCE

	Distribution Loss LT			Distribution Loss Overall		
	2009-10	2010-11		2009-10	2010-11	
	Actual	OERC Approval	Actual Up to Sept.2010	Actual	OERC Approval	Actual Up to Sept.2010
CESU	51.97%	29.40%	50.10%	39.43%	25.37%	38%
NESCO	55.83%	29.40%	54.94%	32.52%	18.46%	32.8%
WESCO	62.49%	29.40%	62.56%	34.68%	19.93%	37.2%
SOUTHCO	56.22%	29.40%	54.52%	48.02%	27.82%	47.8%
ALL ORISSA	56.26%	29.40%	55.04%	37.24%	22.22%	37.5%
	AT&C Loss LT			AT&C Loss Overall		
	2009-10	2010-11		2009-10	2010-11	
	Actual	OERC Approva	Actual Up to Sept.2010	Actual	OERC Approval	Actual Up to Sept.2010
CESU	53.65%	36%	58%	41.20%	27%	43%
NESCO	65.80%	31%	73%	35.73%	20%	43%
WESCO	71.49%	31%	76%	35.74%	22%	44%
SOUTHCO	59.39%	31%	65%	50.16%	29%	56%
ALL ORISSA	61.67%	31%	67%	39.15%	24%	45%
COLLECTION PER INPUT-LT(Paise Per Unit)						
	(2009-10)			(2010-11)		
	Target for 2009-10 in Paise	Achieved for 2009-10	% of Target Realised FY 2009-10	Target for FY 2010-11 in Paise	Achieved UP TO Sept 2010	%of Target Realised
CESU	131.02	110.39	84.25%	174.90	138.76	79.34%
NESCO	120.05	81.06	67.52%	143.20	81.89	57.19%
WESCO	94.95	66.4	69.93%	130.40	72.78	55.81%
SOUTHCO	135.09	115.02	85.14%	143.70	106.23	73.92%
ALL ORISSA	118.73	95.36	80.32%	154.76	104.61	67.59%
BSP Orissa+ Trans Price	142.70			193.75		
COLLECTION PER INPUT-OVERALL(Paise Per Unit)						
	(2009-10)			(2010-11)		
	Target for 2009 10 in Paise	Achieved for 2009-10	% of Target Realised FY 2009-10	Target for FY 2010-11 in Paise	Achieved up to Sept 2010	%of Target Realised
CESU	201.72	176.47	87.48%	236.73	214.87	90.77%
NESCO	192.07	180.17	93.81%	260.69	208.84	80.11%
WESCO	203.13	201.73	99.31%	257.15	212.37	82.59%
SOUTHCO	169.44	137.36	81.06%	196.07	155.13	79.12%
ALL ORISSA	196.32	180.89	92.14%	244.37	205.56	84.12%

**OVERALL PERFORMANCE OF DISCOMS**

	1999-00		2007-08		2008-09		2009-10 (Provisional)		2010-11 (Provisional)	
	Actual (Aud)	DERG Approval	Actual (Aud)	OERC Approval	Actual	OERC Approval	Actual	OERC Approval	Actual upto Sept.2010	
<b>A. DISTRIBUTION LOSS (%)</b>										
CESU	44.88%	29.90%	47.48%	29.90%	40.34%	28.20%	28.43%	29.31%	37.58%	
NESCO	43.35%	26.00%	37.17%	26.00%	34.57%	23.00%	22.57%	18.78%	32.75%	
WESCO	47.17%	26.00%	35.15%	26.00%	32.56%	22.50%	34.58%	13.33%	37.20%	
SOUTHCO	41.34%	26.40%	45.45%	33.70%	47.75%	27.52%	45.07%	27.92%	47.75%	
ALL ORISSA	43.91%	27.10%	37.48%	27.00%	37.50%	24.45%	37.24%	22.22%	37.54%	
<b>B. COLLECTION EFFICIENCY (%)</b>										
CESU	69.72%	62.00%	54.05%	95.00%	57.80%	99.00%	57.09%	99.00%	97.47%	
NESCO	79.37%	64.00%	55.16%	95.00%	52.50%	99.00%	55.24%	99.00%	54.30%	
WESCO	83.35%	68.00%	52.51%	99.60%	55.86%	99.00%	55.56%	99.00%	59.95%	
SOUTHCO	79.75%	64.00%	64.65%	94.00%	64.21%	99.00%	65.69%	99.00%	95.10%	
ALL ORISSA	77.19%	64.10%	63.41%	95.40%	62.98%	98.00%	66.98%	98.00%	68.28%	
<b>C. AT &amp; C LOSS (%)</b>										
CESU	61.39%	34.50%	44.56%	32.44%	42.27%	27.71%	47.19%	29.93%	43.97%	
NESCO	55.34%	26.42%	25.06%	29.21%	25.46%	24.54%	25.17%	29.39%	42.25%	
WESCO	54.43%	26.00%	40.29%	27.55%	27.27%	24.25%	25.14%	21.32%	44.27%	
SOUTHCO	34.22%	24.50%	40.17%	34.39%	50.00%	29.32%	50.76%	29.27%	55.51%	
ALL ORISSA	56.71%	31.40%	41.60%	30.36%	41.89%	25.96%	39.15%	23.77%	44.86%	

**LT PERFORMANCE OF DISCOMS (Based on Performance Review Data)**

	1999-00		2007-08		2008-09		2009-10 (Provisional)		2010-11	Actual upto Sept.2010
	Actual (Aud)	DERG Approval	Actual	OERC Approval	Actual	OERC Approval	Actual	OERC Approval		
<b>A. LT LOSS (%)</b>										
CESU	53.73%	34.40%	52.18%	35.00%	52.00%	35.04%	57.57%	33.73%	50.11%	
NESCO	62.25%	51.10%	55.21%	47.00%	55.40%	32.15%	55.83%	33.73%	54.84%	
WESCO	60.94%	62.00%	55.50%	49.70%	55.55%	35.95%	52.49%	29.10%	62.55%	
SOUTHCO	43.35%	53.20%	54.44%	33.70%	57.12%	23.50%	55.22%	29.10%	54.52%	
ALL ORISSA	55.11%	42.30%	57.94%	40.30%	56.06%	34.04%	56.26%	29.40%	55.04%	
<b>B. COLLECTION EFFICIENCY IN LT (%)</b>										
CESU	69.72%	62.00%	60.56%	95.00%	64.55%	99.00%	65.51%	99.00%	99.2%	
NESCO	79.37%	64.00%	71.56%	95.00%	71.51%	99.00%	77.45%	99.00%	55.5%	
WESCO	83.35%	68.00%	77.61%	99.60%	75.42%	99.00%	75.01%	99.00%	64.5%	
SOUTHCO	79.75%	64.00%	80.21%	94.00%	85.10%	99.00%	82.17%	99.00%	73.2%	
ALL ORISSA	77.19%	64.10%	63.09%	95.40%	66.63%	99.00%	67.62%	99.00%	73.9%	
<b>C. AT &amp; C LOSS FOR LT (%)</b>										
CESU	65.47%	29.50%	50.27%	39.20%	55.26%	33.24%	52.27%	39.91%	58.22%	
NESCO	70.35%	14.00%	41.42%	47.00%	41.52%	34.53%	51.80%	30.87%	73.02%	
WESCO	67.18%	13.00%	47.80%	48.10%	47.48%	37.14%	47.40%	30.87%	75.88%	
SOUTHCO	40.72%	27.20%	55.81%	37.40%	57.10%	30.87%	55.59%	30.87%	65.27%	
ALL ORISSA	65.35%	15.70%	65.05%	43.05%	65.18%	35.36%	61.58%	30.81%	65.80%	

- NB : I) AT& C Loss for LT(OERC approval) has been calculated based on overall collection efficiency data.  
 II) The Overall collection percentage for 1999-00 has been assumed as LT Collection Efficiency for FY 1999-00 for Calculating AT & C Loss



## OVERALL PERFORMANCE OF DISCOMS

OVERALL PERFORMANCE OF DISCOMS													
	OSEB						GRIDCO						
	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99				
T & D Loss %	45.9%	44.7%	45.32%	41.69%	46.05%	46.00%	43.47%	43.24%	41.02%				
Collection Efficiency %	87.48%	87.71%	81.21%	83.19%	84.19%	87.11%	85.11%	81.15%	79.87%				
AT & C Loss %	87.1%	86.2%	89.17%	88.65%	84.67%	87.41%	86.65%	86.00%	86.00%				
<b>DISCOMs</b>													
	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10 (Actual)	2010-11 (est. WPI)	2010-11 (approved)
<b>Distribution Loss %</b>													
Grid	47.39%	44.9%	47.57%	45.37%	39.73%	37.4%	37.92%	41.57%	41.77%	43.37%	39.77%	37.8%	37.5%
-EBTC	43.39%	44.44%	51.00%	41.32%	43.69%	36.40%	37.33%	35.22%	31.17%	34.67%	32.52%	32.76%	33.46%
WESCO	44.17%	49.20%	46.44%	46.20%	59.02%	36.98%	37.90%	43.30%	43.13%	43.02%	44.99%	37.20%	36.29%
COLLECTOR A & C LOSS	41.87%	42.07%	47.17%	34.17%	42.49%	40.90%	37.37%	43.3%	45.74%	47.59%	46.37%	47.8%	47.8%
Collection Efficiency %	43.61%	44.61%	47.47%	43.75%	40.75%	38.21%	36.96%	36.57%	37.16%	37.80%	37.24%	37.51%	37.21%
EBL	69.72%	74.07%	77.17%	73.93%	62.07%	57.07%	63.94%	62.97%	64.32%	61.03%	67.32%	67.47%	66.30%
EBTIC	79.97%	82.12%	74.34%	81.43%	65.47%	36.02%	30.21%	45.74%	63.13%	62.03%	65.24%	64.99%	66.30%
WESCO	43.33%	43.33%	47.44%	35.74%	47.33%	47.10%	36.96%	37.3%	37.91%	43.29%	36.36%	36.5%	36.40%
COLLECTOR A & C LOSS	36.79%	32.77%	39.26%	35.37%	36.33%	34.70%	36.24%	37.37%	37.37%	37.17%	34.97%	34.10%	34.10%
A & C LOSS A & C Loss %	77.1%	70.7%	75.51%	82.1%	85.38%	81.0%	87.50%	82.07%	83.71%	82.80%	86.86%	88.2%	88.2%
EBL	61.69%	58.04%	65.37%	64.46%	53.67%	57.12%	61.17%	47.56%	44.39%	45.23%	41.23%	42.07%	40.66%
EBTIC	65.07%	61.9%	36.74%	67.46%	61.63%	62.6%	65.94%	44.15%	36.36%	39.46%	36.1%	36.1%	36.1%
WESCO	43.49%	44.44%	52.17%	42.37%	43.33%	37.9%	37.37%	39.84%	43.37%	47.67%	37.77%	34.7%	37.3%
COLLECTOR A & C LOSS	34.27%	32.07%	32.30%	49.27%	49.27%	40.22%	40.20%	45.97%	45.72%	43.03%	63.15%	36.07%	36.07%
ALL DISCOMs	36.71%	36.22%	36.37%	31.1%	49.35%	44.88%	44.36%	43.25%	41.80%	41.80%	39.1%	44.88%	44.7%
<b>LT PERFORMANCE OF DISCOMS</b>													
* Based on Performance Review List													
	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10 (Actual)	2010-11 (est. WPI)	2010-11 (approved)
<b>Distribution Loss %</b>													
EBL	53.48%	56.44%	54.57%	63.13%	49.99%	47.96%	47.76%	63.10%	63.13%	62.03%	61.97%	56.1%	56.40%
EBTIC	62.39%	61.9%	36.14%	55.34%	62.7%	40.60%	36.17%	54.54%	54.31%	59.46%	55.34%	54.4%	54.4%
WESCO	49.67%	46.6%	37.26%	55.57%	43.47%	36.4%	36.17%	67.9%	63.07%	65.67%	62.7%	57.6%	56.10%
COLLECTOR A & C LOSS	49.07%	46.20%	40.37%	45.91%	43.99%	47.07%	46.33%	62.27%	64.45%	67.25%	63.22%	54.02%	56.40%
A & C LOSS Collection Efficiency %	56.1%	56.0%	57.96%	53.38%	54.87%	54.22%	56.0%	57.45%	57.94%	58.07%	55.23%	56.0%	56.40%
EBL	69.72%	76.26%	90.37%	63.97%	72.42%	76.70%	82.27%	65.97%	65.03%	64.63%	63.51%	65.9%	66.30%
EBTIC	79.97%	78.98%	65.14%	66.17%	73.74%	76.27%	76.42%	65.95%	72.03%	72.61%	72.43%	63.9%	66.30%
WESCO	43.33%	47.44%	35.74%	46.34%	47.33%	47.10%	36.96%	37.3%	37.91%	43.29%	36.36%	36.5%	36.40%
COLLECTOR A & C LOSS	36.79%	34.44%	37.17%	35.37%	36.33%	34.70%	36.24%	37.37%	37.37%	37.17%	34.97%	34.10%	34.10%
A & C LOSS Collection Efficiency %	77.1%	66.89%	66.56%	65.09%	69.07%	77.22%	80.58%	82.04%	83.09%	80.88%	87.82%	73.9%	66.56%
EBL	65.49%	63.77%	71.2%	65.17%	61.19%	66.7%	64.14%	55.77%	55.37%	59.97%	53.37%	49.3%	51.7%
-EBTC	73.07%	76.20%	90.73%	73.07%	73.22%	36.67%	36.70%	72.27%	73.42%	73.02%	63.03%	73.02%	30.27%
WESCO	67.1%	69.07%	84.10%	73.00%	79.61%	74.40%	74.07%	73.17%	72.00%	74.76%	71.40%	76.69%	30.27%
COLLECTOR A & C LOSS	49.7%	47.1%	36.74%	45.34%	61.33%	41.7%	36.94%	56.0%	54.31%	61.24%	54.34%	46.1%	36.4%
ALL DISCOMs	58.1%	57.46%	56.5%	74.8%	60.07%	58.0%	64.0%	65.0%	65.0%	66.0%	64.67%	56.0%	56.0%

**COMPUTATION OF AT&C LOSS**

	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10 (Est.)	2010-11 (Est.)	2010-11
<b>CESU</b>	Spl. Aud	Spl. Aud	Spl. Aud	Spl. Aud	Spl. Aud	Spl. Aud	Spl. Aud	Spl. Aud	Spl. Aud	Prof. Rec.	Prof. Rec.	Prof. Rec.	Approval
Purchase of power (M.)	5,51.14	4,022.2	4,156.47	4,002.47	3,529.54	3,549.84	4,125.0	4,022.61	5,309.61	6,072.1	6,022.67	6,022.41	1,420 X
Billing (M.)	1,960.74	1,747.72	2,473.24	2,117.79	2,770.96	2,287.34	1,752.76	2,514.56	3,247	3,377.76	3,777.7	3,774.37	1,74.26
Distribution loss(%)	44.88%	48.82%	48.81%	47.02%	39.75%	41.48%	47.25%	45.69%	41.48%	40.24%	38.43%	37.52%	35.37%
Inv. Revenue (M.)	70.77	50.29	218.91	857.51	477.15	387.07	1,015	257.81	346.82	61.46	1,115.44	811.15	1,580
Outlook (M. + Disc)	292.84	251.29	452.52	562.29	651.48	542.02	621.78	1,24.95	362.01	342.22	1,702.22	772.22	1,101.12
Replacement (M.)	282.04	262.22	1,072.2	262.12	2,11.29	287.22	2,207	1,20.02	297.21	302.22	287.22	372.22	1,22.27
Collection efficiency(%)	68.72%	74.01%	71.17%	79.87%	82.07%	68.08%	82.24%	82.81%	86.07%	81.50%	87.08%	81.47%	78.00%
AT & C LOSS (M.)	61.08%	62.84%	35.07%	64.45%	50.07%	51.12%	45.17%	47.08%	46.66%	45.28%	41.20%	42.81%	28.68%
<b>NESCO</b>	Aud	Aud	Aud	Aud	Aud	Aud	Aud	Aud	Aud	Aud	Prof. Rec.	Prof. Rec.	Approval
Purchase of power (M.)	2,267.61	1,447	2,727.67	2,267.75	2,775.78	2,267.67	3,477.77	2,267.67	1,561.67	1,747.76	2,707.77	2,517.77	1,277.76
Billing (M.)	1,241.80	1,241	1,020	1,018	1,040.80	1,040.78	1,477.77	2,267.67	1,040.78	1,020.77	1,117.77	1,040.78	1,180
Distribution loss(%)	45.33%	44.44%	51.00%	47.38%	43.88%	38.70%	37.20%	33.22%	34.17%	34.57%	32.32%	32.72%	10.18%
Inv. Revenue (M.)	287.52	342.22	212.22	362.22	2,22.22	422.22	2,22.22	1,22.22	287.52	272.22	282.22	282.22	1,22.22
Outlook (M. + Disc)	242.07	272.27	232.62	307.72	212.22	422.22	2,22.22	2,22.22	242.07	272.27	282.22	282.22	1,22.22
Avg Revenue (M.)	242.22	272.27	272.62	272.22	212.22	287.52	272.22	272.22	242.22	272.27	282.22	282.22	1,22.22
Collection efficiency(%)	78.87%	82.12%	74.84%	81.42%	80.47%	80.08%	82.24%	82.74%	88.18%	82.50%	86.24%	84.87%	78.00%
AT & C LOSS (M.)	35.04%	34.32%	25.57%	29.22%	21.88%	27.08%	23.74%	20.79%	25.88%	24.28%	21.72%	21.22%	20.08%
<b>WESCO</b>	Aud	Aud	Aud	Aud	Aud	Aud	Aud	Aud	Aud	Aud	Prof. Rec.	Prof. Rec.	Approval
Purchase of power (M.)	2,267.61	1,447	2,727.67	2,267.75	2,775.78	2,267.67	3,477.77	2,267.67	1,561.67	1,747.76	2,707.77	2,517.77	1,277.76
Billing (M.)	1,040.80	1,040	1,020	1,018	1,040.80	1,040.78	1,477.77	2,267.67	1,040.78	1,020.77	1,117.77	1,040.78	1,180
Distribution loss(%)	44.17%	42.22%	48.44%	38.22%	35.02%	38.88%	37.20%	38.88%	38.18%	32.58%	34.64%	37.22%	10.88%
Inv. Revenue (M.)	412.22	422.22	422.22	612.22	612.22	722.22	722.22	722.22	412.22	422.22	422.22	422.22	1,22.22
Outlook (M. + Disc)	287.52	272.27	232.62	307.72	212.22	422.22	2,22.22	2,22.22	287.52	272.27	282.22	282.22	1,22.22
Avg Revenue (M.)	272.27	272.27	272.62	272.22	212.22	287.52	272.22	272.22	272.27	272.27	282.22	282.22	1,22.22
Collection efficiency(%)	80.22%	78.12%	79.84%	85.42%	87.87%	81.70%	82.24%	82.74%	89.18%	82.50%	86.24%	84.87%	78.00%
AT & C LOSS (M.)	32.64%	31.94%	27.10%	27.32%	28.28%	24.86%	21.75%	22.22%	28.83%	27.25%	23.74%	24.22%	21.22%
<b>SOUTHCO</b>	Aud	Aud	Aud	Aud	Aud	Aud	Aud	Aud	Aud	Aud	Prof. Rec.	Prof. Rec.	Approval
Purchase of power (M.)	1,422.22	1,022.22	1,222.22	1,022.22	1,222.22	1,222.22	1,222.22	1,222.22	1,222.22	1,222.22	1,222.22	1,222.22	1,222.22
Billing (M.)	1,040.80	1,040	1,020	1,018	1,040.80	1,040.78	1,477.77	2,267.67	1,040.78	1,020.77	1,117.77	1,040.78	1,180
Distribution loss(%)	41.84%	42.02%	40.47%	39.14%	42.42%	40.00%	41.27%	48.88%	46.49%	42.78%	49.02%	47.72%	27.62%
Inv. Revenue (M.)	212.22	212.22	212.22	212.22	212.22	212.22	212.22	212.22	212.22	212.22	212.22	212.22	212.22
Outlook (M. + Disc)	187.52	187.52	187.52	187.52	187.52	187.52	187.52	187.52	187.52	187.52	187.52	187.52	187.52
Avg Revenue (M.)	212.27	212.27	212.62	212.22	212.22	212.22	212.22	212.22	212.27	212.27	212.22	212.22	212.22
Collection efficiency(%)	70.72%	62.32%	79.22%	83.32%	80.18%	100.70%	82.24%	82.74%	87.18%	82.50%	86.24%	84.87%	78.00%
AT & C LOSS (M.)	34.20%	32.12%	32.88%	29.22%	40.22%	40.22%	42.28%	48.88%	48.02%	42.28%	49.14%	48.64%	29.22%
<b>ALL CRISSA</b>	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2009-10	2010-11
Purchase of power (M.)	2,200.7	1,807.47	1,700.80	1,100.90	1,907.02	1,200.42	2,400.70	1,5110.74	17,222.01	2,771.21	19,424.21	10,642.73	22,154.00
Billing (M.)	5,600.27	6,077.75	7,270.47	6,730.75	7,777.44	7,540.62	7,477.75	9,203.47	10,707.02	11,777.07	17,777.02	6,537.07	1,770.47
Distribution loss(%)	43.8%	44.01%	47.47%	47.72%	40.75%	38.7%	32.20%	38.67%	37.43%	32.20%	37.34%	37.54%	35.59%
Inv. Revenue (M.)	1,727.77	1,017.77	1,010.14	1,012.47	1,010.75	2,010.75	1,010.40	2,010.74	1,010.74	1,020.74	1,020.74	2,010.74	1,200.74
Outlook (M. + Disc)	1,360.27	1,017.77	1,202.22	1,012.47	1,010.75	1,010.74	1,010.74	1,010.74	1,010.74	1,020.74	1,020.74	2,010.74	1,200.74
Avg Revenue (M.)	207.02	262.22	282.22	262.22	262.17	287.52	2,22.22	1,22.22	287.52	302.22	287.52	372.22	1,22.22
Collection efficiency(%)	74.19%	71.72%	78.88%	82.42%	86.46%	91.04%	91.58%	92.87%	96.41%	92.58%	94.94%	89.22%	88.00%
AT & C LOSS (M.)	68.7%	65.82%	50.81%	61.15%	48.50%	44.88%	44.28%	48.20%	41.80%	41.58%	39.10%	44.84%	28.77%
Total Revenue = Billing In Cr. + Misc. revenue(Meter Rent & DPs) - Discount to consumers													

**L.T.PERFORMANCE OF CESU FOR FY 2010-11(upto September,2010)**

**2008-09 2009-10 2010-11**

**Rate of Bulk supply Bill (Incl. Transmission) P/U 122.50 122.50 180.50**

**Divisions are arranged in descending order of AT & C Loss in LT.**

**Considering HT Loss @ 8%**

Sl. No.	Name of Division	Energy LT (KWh)		Energy Loss (MWh)		Billing Cor. Bill (Cr.)		Collection Received (Cr.)	Collection Payment %		AT & C Loss (%)		LT Collection in Input P.U. in 2010-11 upto Sept.10	LT Collection in LT Input P.U. in 2008-09	LT Collection in LT Input P.U. in 2009-10
		LT	LT	LT	LT	HT Loss (%)	LT		HT Loss (%)	LT	HT Loss (%)	HT Loss (%)			
<b>QERC TARGET (APPROVED)</b>															
		2879.3	863.3	1,048.7	4,791.3	25.4%	1,550.8	1,510.8	98.0%	98.0%	30.8%	26.9%	104.7		
<b>ACTUAL</b>															
1	A.F.F. Ambajewi	190.05	47.50	26.67	145.77	71%	98.0%	145.77	71%	71%	70.7%	70.0%	98.0	76.0	27.7
2	T.S.B. Chitape	796	477.62	58	472.48	67%	107.07	472.48	71%	71%	77.4%	81%	78.0	76.0	67.1
3	A.C.D. Jajurathapur	97.25	-	38.4	38.4	39%	16.82	38.4	39%	39%	38.1%	38.0%	39.0	28.0	50.0
4	D.E.D. Dhanwad	29.29	12.06	27.24	124.05	25%	27.25	27.24	25%	25%	79.0%	55.8%	74.0	70.0	65.5
5	C.E.D. Gulab	230.60	22.79	27.06	25.93	67%	38.95	30.78	75%	59%	72.9%	69.2%	75	73.4	61.4
6	A.E.D. Hingapur	46.27	1.7	44.25	45.62	98%	26.82	45.62	74%	74%	74.4%	75.8%	70.7	57	62.6
7	A.F.F. Angli	43.24	0.67	23.22	36.31	54%	26.69	23.24	77%	50%	72.3%	79.1%	36.4	31.7	71.5
8	A.F.F. Jalpur	70.86	-	0.76	70.31	99%	12.81	7.7	6%	74%	70.1%	72.0%	72.7	78.8	71.6
9	K.E.D. Mangalpur	14.1	0.29	15.47	15.25	94%	0.02	13.7	42%	83%	88.8%	11.0%	86.0	84.0	67.0
10	N.E.D. Puri	382.23	-	8.71	382.47	100%	30.34	12.28	100%	100%	88.2%	83.1%	148.2	142.1	91.4
11	P.G.P. Pradiap	196.29	74.24	19.62	122.25	59%	30.01	41.40	74%	54%	57.8%	51.2%	38.4	35.9	83.3
12	B.E.D. Bhatpur	190.60	19.4	32.5	24.95	33%	18.21	16.67	72%	54%	38.9%	34.8%	38	105.7	85.8
13	K.E.D. Khatapur	7.72	0.22	36.09	36.32	100%	21.24	11.42	72%	72%	52.0%	57.7%	35.2	109.4	72.5
14	K.F.F. Khand	236.87	24.5	27.02	149.02	74%	42.77	5.25	32%	32%	52.0%	47.1%	3.7	115.1	64.1
15	A.F.F. Bhatpur	37.71	-	0.75	37.72	100%	18.64	11.28	70%	70%	76.0%	71.1%	11.2	111.7	85.6
16	C.O.D.-I. Dubess	180.15	11.86	33.82	131.77	89%	34.75	11.29	42%	40%	46.1%	48.0%	108.2	102.8	151.8
17	C.O.D.-I. Cutback	37.31	-	5.26	112.01	33%	43.22	40.79	100%	100%	41.0%	42.4%	2.02	162.2	162.0
18	B.E.D. Bhatnema	192.60	22.86	28.62	141.66	28%	35.25	5.22	34%	35%	50.7%	51.1%	228.0	212.8	364.0
19	B.E.D.-II. Bhatnema	228.70	24.97	51	159.46	27%	48.72	24.70	37%	38%	20.7%	25.8%	247.7	225.7	194.7
20	B.E.D.-II. Bhatnema	74.60	42.83	37.6	157.02	6%	21.62	6.27	27%	27%	11.4%	9.3%	254.6	269.8	272.0
<b>ACTUAL TOTAL CESU</b>		3,623.4	692.8	444.4	1,123.0	60.1%	664.97	778.6	84%	81%	68.2%	62.8%	129.7	122.0	106.4

**L.T.PERFORMANCE OF NESCO FOR FY 2010-11(upto September,2010)**

2008-09 2009-10 2010-11

Rate of Bulk supply Bill (Incl. Transmission) P/U 146.0 151.0 218.5

Divisions are arranged in descending order of AT & C Loss in LT .

Considering HT Loss @ 8%

Sl. No.	Name of Division	ENERGY (Incl. HT Loss) (Assuming HT Loss @ 8%)		Energy Sup. (MWh)		LOSS (%) (Assuming HT Loss @ 8%)	Avg RST Bill. Rs. in C.U.	Billing to Consumer (Rs.)	Collection Received (Rs.)	Collection Efficiency (%)		AT & C LOSS (%)		LT Collection (In LT Input) up to Sept 10)	LT Collection (In LT Input) P/U up to 2009-10	LT Collection (In LT Input) P/U for 2010-11
		TOTAL	HT	LT	HT					LT	LT	OVERALL	LT			
<b>ACTUAL</b>																
1	NET TRANSMISSION	1,620.7	750.0	1,794.6	4,176.3	28.4%	1,118.16	1,382.9	1,385.3	88.0%	80.9%	30.0%	20.1%	143.2	143.2	
1	NET TRANSMISSION	5.22	0.46	5.68	26.64	54.2%	17.62	2.47	6.80	45%	45%	65.2%	75.2%	4.4	42.0	30.1
2	DEE DINDIGUL	11.85	3.37	15.22	39.45	38.8%	40.77	8.11	2.12	38%	41%	84.1%	84.1%	7.1	55.8	40.1
3	DEE KARAIKUDI	14.49	3.24	17.73	38.44	51.2%	20.85	9.53	5.11	30%	51%	65.5%	65.5%	26.7	53.8	46.4
4	DEE SIVAKAM	113.24	3.88	117.12	226.73	26.2%	82.57	71.64	30.45	84%	84%	75.5%	40.5%	79.5	60.8	67.3
5	DEE TIRUPATI	11.77	11.77	23.54	14.1	30.7%	8.61	4.76	7.70	61%	61%	76.2%	76.2%	26.1	76.4	51.6
6	DEE TIRUPATI	36.01	36.01	72.02	36.11	38.8%	30.82	8.11	5.14	38%	38%	30.1%	30.1%	38.1	55.6	41.7
7	DEE BANGALORE	34.79	1.22	36.01	45.25	49.4%	20.82	9.41	6.71	63%	63%	75.8%	75.8%	86.4	70.4	60.9
8	DEE ANJURU ROAD	480.72	70.62	551.34	416.23	36.2%	100.82	181.02	46.31	62%	62%	74.2%	22.3%	9.2	79.2	62.7
9	DEE BANGALORE	10.18	10.18	20.36	10.76	32.7%	11.07	4.71	3.73	69%	69%	74.2%	37.1%	24.1	67.3	51.5
10	DEE MADURAI	7.823	5.11	12.93	38.14	38.8%	16.31	11.15	7.61	50%	51%	64.2%	64.2%	31.2	61.2	46.1
11	DEE MADURAI	37.12	0.12	37.24	45.25	37.2%	19.04	9.48	19.27	81%	81%	70.2%	57.9%	97.1	77	61.9
12	DEE RAJAHMUNDRAM	234.75	176.03	410.78	323.23	50.2%	52.32	79.61	37.43	74%	74%	7.2%	0.2%	94.2	77.7	62.9
13	DEE CAROLINE	117.61	8.85	126.46	31.03	25.4%	30.07	21.69	15.42	49%	49%	80.2%	80.2%	26.1	53.5	44.1
14	DEE RAJAHMUNDRAM	488.22	222.24	710.46	444.23	48.4%	148.32	167.21	477.23	58%	58%	86.2%	26.2%	11.9	53.2	36.7
15	DEE BANGALORE	115.92	5.74	121.66	58.23	35.2%	28.14	24.67	31.29	63%	63%	46.2%	34.9%	187.2	177.2	162.3
<b>ACTUAL TOTAL NESCO</b>		2,318.7	862.9	3,181.6	1,095.4	32.7%	530.30	623.9	326.2	60%	64%	73.0%	43.2%	61.9	61.1	67.0

- NB: i) Billing to the consumer is less than Bulk Supply bill.  
 ii) Collection includes arrear realisation.  
 iii) There has been overall 22.20% rise in RST for FY 2010-11 over RST of FY 2009-10.



**L.T.PERFORMANCE OF WESCO FOR FY 2010-11(upto September,2010)**

2008-09 2009-10 2010-11

Rate of Bulk supply Bill (Incl. Transmission) P/U 178.25 175.00 217.50

Divisions are arranged in descending order of AT & C Loss in LT.

Considering HT Loss @ 8%

Sl. No.	Name of Division	Energy Input (TAU) (Assuming HT Loss 0%)		Energy Sold (TAU)		Loss (%) (Assuming HT Loss 0%)			Billing to Consumer (Cr.)	Collection Received (Cr.)	Collection Efficiency (%)		AT & C LOSS (%)	LT Collection to LT input PU for 2009-10	LT Collection to LT input PU for 2008-09	
		J	LT WL	BH	HI	LI	HT	LI			HT	LI				HT
<b>QERC TARGET APPROVED</b>																
		2309.1	8244.0	13683.0	15663.0	27683.0	45663.8	29.4%	15.9%	1,388.07	1,806.7	96.0%	30.8%	21.6%	130.4	
<b>ACTUAL</b>																
1	Subdiv. Sirpur (West)	113.4	113.4		33.6	33.6	33.6	33.6%	33.6%	215	215	84	23.8%	21.1%	25.7	
2	S.E.D. Nuzvid	710	7990		177	70	1997	75.8%	75.6%	910	554	56.8	49.6%	54.6%	427	
3	S.E.D. Bapatla	13640	20700	2460	1370	6700	6710	71.2%	62.4%	6270	2722	66.8	31.2%	30.0	404	
4	Subdiv. Subbaraj	11775	13339		305	411	414	66.1%	66.8%	575	1111	57	21.8%	21.5	571	
5	S.E.D. Sankarapur	760	8166		379	434	2730	67.8%	69.8%	743	526	56.8	79.7%	77.6%	46.8	
6	S.E.D. Sundararam	740	11280		2672	2246	210	69.9%	74.9%	740	1340	73.8	79.9%	76.4%	649	
7	S.P. Sankarapur	1760	18704	100	2641	6708	887	55.7%	51.6%	1100	1184	83	26.9%	26.9	62.5	
8	Subdiv. Binnampet	857	857		319	107	1187	65.2%	65.4%	587	420	71	25.4%	27.4	60.5	
9	S.E.D. Jhitarajukota	14807	96376	38730	2779	6126	42610	66.9%	79.7%	17430	14030	56.8	74.4%	71.8	60.9	
10	T.T. Thangath	215	11401	1188	301	1780	507	61.7%	57.8%	1188	1120	57.4	67.8%	69.5	51.5	
11	Subdiv. Desurthi	2610	4366		1910	306	239	63.8%	46.7%	740	636	76.8	72.6%	52.6%	70.0	
12	S.E.D. Bhimaviparai (B)	2610	7700	200	412	3036	2714	65.1%	62.8%	1600	600	9.8	71.8%	76.8	60.1	
13	T.T. Thangath	17810	74841	10710	2641	8338	1407	55.7%	57.7%	10710	10710	43	43.7%	10.4%	39.0	
14	S.E.D. Sankarapur (West)	517	16306	300	271	418	617	45.4%	51.8%	138	248	34	63.7%	67.4	65.0	
15	S.E.D. Rajaguru	7810	76076	36070	9584	9582	6840	66.8%	71.3%	36234	36234	54.8	63.8%	11.3%	107.1	
<b>ACTUAL TOTAL WESCO</b>		<b>1560.8</b>	<b>8143.1</b>	<b>7259</b>	<b>699.8</b>	<b>584.2</b>	<b>1973.9</b>	<b>62.6%</b>	<b>67.2%</b>	<b>751.3</b>	<b>667.5</b>	<b>65%</b>	<b>75.7%</b>	<b>44.2%</b>	<b>72.8</b>	<b>59.8</b>

**NB:** Billing to the consumer is less than Bulk Supply bill.

There has been overall 22.20% rise in RST for FY 2010-11 over RST of FY 2009-10.

**L.T.PERFORMANCE OF SOUTHCO FOR FY 2010-11(upto September,2010)**

2008-09 2009-10 2010-11  
 91.00 91.00 113.50

Rate of Bulk supply Bill (Incl. Transmission) P/U

Divisions are arranged in descending order of AT & C Loss in LT.

Considering HT Loss @ 8%

Sl. No.	Name of Division	Energy Invol (MWh)		One-way Ssd (MWh)		Energy (MWh)		Energy Invol (MWh)	Energy Invol (MWh)	Energy Invol (MWh)	Energy Invol (MWh)	Energy Invol (MWh)	Energy Invol (MWh)	Billing to Consumer (IC)		Collection Efficiency (%)		AT & C Loss (%)		Collection to LT (MWh)	Collection to LT (MWh)	Collection to LT (MWh)
		LI	PIBAL	BRI	F	LI	PIBAL							LI	PIBAL	LI	PIBAL	LI	PIBAL			
ACTUAL																						
1	ACC, Avila	167.63	177.77	-	2.64	-6.59	49.63	71.05	27.8%	280.77	245.6	473.8	240.6	484.9	88.0%	98.0%	80.0%	29.3%	57.1	58.6	617	
2	BRELL, B-nangan	105.94	118.52	0.38	0.38	35.41	35.82	67.0%	13.49	3.93	10.11	7.15	7.37	72%	73%	70.3%	79.3%	63.7	64.4	673		
3	BEF, Balinghri	24.11	25.17	1.44	1.44	6.12	9.14	69.4%	2.75	2.64	5.44	4.9	2.07	2.07	100%	100%	100%	19.4%	19.3	19.3		
4	DEED, Daadh	73.47	81.53	-	1.16	11.06	13.06	55.1%	3.67	3.67	4.36	3.31	2.94	2.94	99%	99%	100%	31.1%	30.7	30.7		
5	DEED, Duccuduh	89.69	95.1	0.48	0.48	37.66	38.18	63.2%	13.02	13.45	10.77	6.32	5.65	6.32	6.32	6.32	73.3%	75.4	73.7	737		
6	DEED, Chitropur	19.67	23.82	1.26	1.26	16.92	19.09	51.0%	1.12	2.47	3.41	2.96	2.92	2.92	100%	100%	100%	40.1%	39.8	39.8		
7	DEED, Kowangan	39.54	41.03	-	1.18	1.39	19.63	30.1%	3.33	3.65	1.38	1.51	1.81	1.81	100%	100%	100%	63.1%	63.7	63.8		
8	DEED, Juyayoc	83.8	89.17	64.86	67.0	15.15	18.67	49.0%	21.81	17.81	24.1	11.63	10.67	10.67	76%	76%	76.3%	83.3%	83.0	107		
9	DEED, Balinghri	49.22	53.64	0.23	0.23	2.38	22.0	52.0%	3.69	3.49	6.96	5.01	3.62	3.62	100%	100%	100%	62.0%	61.4	61.6		
10	DEED, Balinghri	33.71	35.17	-	0.54	16.1	15.07	48.6%	3.65	3.81	2.36	2.26	2.26	2.26	100%	100%	100%	81.1%	81.6	81.6		
11	DEED, Curupur	22.65	24.87	-	0.46	16.87	11.17	61.0%	3.82	3.82	5.58	4.86	3.91	3.91	100%	100%	100%	68.6%	68.0	68.6		
12	DEED, Balinghri	89.34	102.02	6.22	6.22	31.66	68.18	59.0%	1.28	17.7	15.24	14.24	15.02	15.02	100%	100%	100%	62.0%	61.6	61.6		
13	DEED, Balinghri	53.44	57.65	14.01	14.01	2.16	10.11	40.0%	17.17	14.17	8.6	12.17	12.17	12.17	100%	100%	100%	40.1%	39.7	39.7		
14	DEED, Balinghri	47.6	51.65	16.16	16.16	3.21	6.07	30.0%	3.62	13.15	10.37	4.81	15.18	15.18	100%	100%	100%	46.0%	45.0	45.6		
ACTUAL TOTAL SOUTHCO		938.7	1,260.6	126.4	104.7	436.3	608.0	64.0%	143.07	130.7	229.8	99.7	196.6	196.6	76%	86%	60.3%	60.6%	106.2	102.2	96.1	

NB: Billing to the consumer is less than Bulk Supply bill.  
 There has been overall 22.20% rise in RST for FY 2010-11 over RST of FY 2009-10.

## PERFORMANCE OF DISTCOS (ALL ORISSA)

	2006-07	2007-08	2008-09	2009-10	2010-11 (upto Sept,2010)				
					CESU	NESCO	WESCO	SOUTHCO	ALL ORISSA
<b>BULK SUPPLY</b>									
DEMAND (MM) (OERC APPROVAL)	2,336.79	2,634.63	2,802.67	3,335.90	372.33	730.00	974.33	377.00	3,050.00
ACTUAL DEMAND (MM)	2,335.49	2,857.31	2,907.57	2,991.05	1,135.40	737.25	962.17	397.95	3,107.03
<b>Energy Input (MU)</b>	<b>14,883.0</b>	<b>16,863.0</b>	<b>17,620.0</b>	<b>18,921.0</b>	<b>4,420.0</b>	<b>6,422.0</b>	<b>6,244.0</b>	<b>2,368.0</b>	<b>20,154.0</b>
Energy Input (MU)	15,118.25	17,213.80	17,777.52	18,484.61	3,523.41	7,575.73	7,143.25	1,253.51	10,548.90
Loss (MU) (OERC)	2,997.35	2,575.53	2,702.00	2,789.51	330.96	557.00	637.06	113.27	2,038.31
Payment to GRIDCO (M)	2,132.39	2,975.97	2,757.53	2,826.94	547.77	557.00	613.07	145.27	1,957.11
% payment	104.6%	103.8%	102.1%	105.2%	98.0%	100.0%	89.6%	101.4%	98.0%
<b>SALE TO CONSUMERS (MU)</b>									
F-T	2,959.12	3,951.94	4,455.24	4,417.09	593.32	800.32	729.88	125.53	2,410.84
I-I	2,720.35	2,999.32	2,672.22	3,109.27	411.11	265.87	689.31	134.36	1,474.80
L-T	1,999.10	1,937.95	4,287.63	4,794.64	1,122.35	280.74	334.17	423.91	2,702.20
TOTAL	9,288.23	10,759.61	11,732.47	12,228.00	2,281.34	1,894.35	1,973.88	858.09	8,587.84
OERC APPROVAL	8,865.00	12,707.58	12,856.40	14,295.45	4,791.0	4,176.3	4,998.6	1,709.2	15,676.6
% of HT Sale	32%	36%	38%	36%	31%	51%	37%	15%	37%
% of IT Sale	29%	28%	25%	26%	20%	16%	33%	16%	22%
% of LT Sale	38%	39%	39%	38%	60%	34%	30%	68%	41%
<b>LOSS (%)</b>									
HT & IT	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%
I-I	57.45%	57.94%	58.08%	56.29%	53.11%	54.94%	62.00%	54.52%	55.04%
L-T & LT	47.33%	49.23%	49.22%	48.16%	45.53%	45.74%	48.43%	53.12%	48.66%
OVERALL	38.57%	37.48%	37.50%	37.24%	37.59%	32.78%	37.20%	47.79%	37.54%
OERC APPROVAL	32.81%	27.11%	27.04%	24.46%	26.37%	18.46%	19.93%	27.82%	22.22%
<b>BILLING TO CONSUMERS (CR.)</b>									
I-I	939.56	1,216.99	1,163.77	1,753.75	263.37	326.25	307.61	55.95	972.88
L-T	937.33	1,321.99	1,032.53	1,970.32	197.45	727.85	289.53	43.43	631.63
L-T	303.73	359.33	1,056.61	1,170.61	373.34	177.47	174.88	133.73	851.98
TOTAL	2,744.84	3,199.48	3,689.68	3,794.58	661.16	629.52	751.31	229.78	2,465.77
<b>COLLECTION RECEIVED (CR.)</b>									
F-T	833.45	1,214.24	1,424.35	1,480.30	275.55	305.26	287.87	55.39	920.87
I-I	932.92	1,314.19	1,032.89	1,976.92	199.74	717.10	271.11	43.43	618.30
L-T	739.32	735.95	857.52	1,023.74	312.33	703.25	173.54	33.72	628.80
TOTAL	2,562.30	3,026.21	3,366.16	3,591.96	778.68	626.21	667.53	196.64	2,167.86
<b>COLLECTION EFFICIENCY (%) Approved</b>									
F-T	93%	103%	95%	102%	99.5%	92.5%	92.0%	93.5%	94.6%
I-I	96%	99%	100%	100%	93.1%	86.1%	100.3%	93.2%	87.6%
L-T	92%	93%	87%	93%	93.3%	59.5%	64.9%	78.3%	72.9%
HT & IT	93%	91%	90%	94%	93.3%	74.5%	86.7%	93.5%	84.5%
OVERALL	83.3%	84.6%	83.8%	87.0%	81.47%	64.39%	80.38%	86.10%	80.20%
<b>AT &amp; C LOSS (%)</b>									
I-I	55.38%	55.35%	66.12%	61.67%	55.25%	73.02%	75.60%	55.31%	66.20%
L-T	53.37%	52.73%	54.40%	51.47%	52.94%	62.37%	50.31%	62.27%	56.02%
OVERALL	42.88%	40.89%	41.31%	39.15%	42.91%	43.25%	44.21%	55.57%	44.88%
OERC APPROVAL	38.64%	37.41%	30.39%	25.96%	26.88%	20.09%	21.53%	28.27%	23.77%

**CONSUMER STATUS OF THE DISTCOS AS ON 30th SEPTEMBER,2010**

	CESU	NESCO	WESCO	SOUTHCO	TOTAL
No. of Circles	5	3	4	7	21
No. of Divisions	20	16	15	24	75
No. of Subdivisions	64	43	50	52	215
No. of Sections	150	116	202	133	731
<b>No. of consumers</b>					
EHT	11	21	23	11	79
HT	1,067	346	619	175	2,199
L	1,211,050	656,619	567,065	659,832	3,099,393
<b>Total</b>	<b>1,212,518</b>	<b>659,019</b>	<b>587,707</b>	<b>679,819</b>	<b>3,101,673</b>
<b>FEEDER METERING</b>					
No. of 33 KV feeders (excluding GRIDCO inter-feeder)	111	64	88	112	375
No. of 33 KV feeder metering	111	63	88	112	374
No. of 11 KV feeders	600	426	484	425	1,345
No. of 11 KV feeder metering	609	36	489	425	1,539
No. of 33/11 kv transformer	347	264	260	221	1,094
No. of 33/11 kv transformer metering position	31	Nil		23	114
No. of distribution transformers (11 KV & 33 KV)	11,641	15,656	19,175	15,339	63,153
No. of distribution transformer metering position	8,632	369	12,338	9,236	31,135
Length of 33 KV Line (km)	2,803.61	1,141.00	1,160.03	2,775.13	1,600.15
Length of 11 KV Line (km)	18,008.60	17,446.00	22,741.00	17,266.54	75,462.14
Length of LTKV Line (km)	6,678.50	1,915.00	16,666.00	11,371.87	49,350.77
<b>METERING POSITION</b>					
Total number of meters	1,175,200	589,997	577,680	630,247	3,099,397
No. of working meters	1,068,004	499,671	537,016	580,009	2,603,035
Percentage of working meters (%)	91%	70%	92%	91%	91%
No. of defective meters	1,10,760	160,326	49,664	61,100	377,381
Replacement of defective meters		32,342	23,006	12,751	89,429
Number of transformers replaced	17,076	4,977	45,430	10,116	77,594
Revenue raised (Rs. Cr.)		5.05	3.52	1.52	12.99
New meters installed (3 ph)	-	916	1,237	531	2,711
New meters installed (1 ph)	71,628	49,162	26,727	36,789	194,396
No. of EHT meters tested	-	7	10	11	26
No. of HT meters tested	-	143	274	171	599
No. of transformers burnt	1,160	957	1,593	773	1,930
Cost incurred (Cr)	3.60	1.67	2.20	1.20	9.37
Length of conductor stolen (km)	51.10	16.90	-	1.00	39.30
Cost incurred (Cr)	0.660	0.180	-	0.000	1.254
No. of Grievances received		457	4,303	1,200	5,932
Disposed through CH? including RJUL Appeal	-	466	3,900	1,079	5,485
No. of Hooks Detected	3	3939	1427	524	5640
No. of Hooks removed and of Hooks Detected	3	473	0	13	466
No. of Connection Regularised		2,271	1,353	431	4,097
Amount Billed (Cr)	-	-	-	0.3800	3.353
Amount Collected (Cr)	-	-	-	0.2170	3.2110
NO. of FIR Logged	-	63	1	91	130
No. of Illegal consumers prosecuted/Arrested in Court	-	4	-	-	4



## AGGREGATE TECHNICAL AND COMMERCIAL LOSS

Financial Year	Power Generation & Purchase (MU)	Power Sold (MU)	Billing efficiency (%)	Transmission & Distribution Loss (%)	Billing (Cr₹)	Collection (Rs Cr₹)	Collection efficiency (%)	AT&C LOSS (%)
1975-76	3,371.60	2,795.77	81.76%	15.24%	48.77	40.37	82.78%	30.4%
1976-80	2,773.79	2,087.82	61.70%	16.30%	48.47	47.83	100.47%	16.5%
1980-81	3,157.99	2,606.81	81.35%	15.15%	58.05	60.77	59.30%	26.9%
1981-82	3,672.27	2,908.10	81.27%	15.13%	25.82	83.17	27.25%	20.1%
1982-83	3,273.64	2,690.04	82.00%	17.30%	31.09	86.12	96.74%	20.5%
1983-84	3,057.14	2,043.13	67.01%	17.80%	130.68	106.03	50.56%	27.4%
1984-85	4,347.52	3,595.36	82.03%	17.57%	115.74	122.75	102.51%	15.9%
1985-86	4,322.17	3,315.05	75.88%	23.32%	170.67	149.72	57.71%	33.0%
1986-87	4,897.23	3,832.37	78.09%	23.31%	216.77	207.57	92.40%	29.1%
1987-88	5,636.30	4,087.74	75.60%	24.30%	246.70	230.08	90.75%	26.6%
1988-89	5,537.00	4,150.77	75.00%	21.80%	252.31	235.26	59.69%	32.3%
1989-90	5,704.83	4,337.70	76.03%	23.37%	232.46	207.81	59.52%	37.3%
<b>OSEB</b>								
1990-91	6,444.02	3,525.10	54.70%	45.30%	348.04	304.47	57.45%	52.1%
1991-92	7,331.15	4,017.57	55.21%	47.79%	377.31	347.74	22.00%	49.0%
1992-93	7,100.47	3,904.06	54.98%	46.02%	432.07	337.07	91.91%	49.5%
1993-94	7,026.47	4,577.43	56.44%	41.36%	585.38	504.33	68.75%	49.7%
1994-95	8,493.40	4,535.38	53.41%	48.69%	718.47	608.25	54.97%	54.8%
1995-96	9,752.27	5,172.29	53.05%	45.85%	587.85	527.52	22.70%	57.1%
<b>GRIDCO</b>								
1996-97	9,650.65	4,076.65	50.30%	49.47%	1,788.33	1,016.07	65.72%	56.7%
1997-98	10,324.30	5,240.46	50.76%	49.34%	1,440.72	1,189.01	51.77%	58.5%
1998-99	10,571.00	5,172.00	45.88%	51.02%	1,326.82	1,108.31	79.90%	60.9%
<b>DISCOMS</b>								
	Power Purchase (MU)	Power Sold (MU)	Billing efficiency (%)	Distribution Loss (%)	Billing (Cr₹)	Collection (Rs Cr₹)	Collection efficiency (%)	AT&C LOSS (%)
1999-00	9,992.18	5,803.36	58.09%	43.91%	1,421.75	1,097.33	77.19%	58.7%
2000-01	10,858.17	6,050.25	55.69%	47.01%	1,614.87	1,277.22	78.70%	55.9%
2001-02	10,990.35	5,773.10	52.53%	47.47%	1,710.72	1,292.07	75.54%	60.3%
2002-03	11,382.93	6,737.76	59.25%	40.75%	1,930.04	1,502.01	60.45%	57.1%
2003-04	11,538.55	7,073.11	59.05%	40.75%	2,009.85	1,718.05	55.49%	49.3%
2004-05	12,488.46	7,530.59	60.79%	39.21%	2,752.62	1,368.01	21.00%	47.7%
2005-06	13,467.75	8,144.60	60.40%	39.60%	2,394.49	2,183.71	91.55%	44.7%
2006-07	13,119.94	9,098.40	61.40%	36.37%	2,737.74	2,515.03	90.37%	43.5%
2007-08	17,273.57	10,781.09	62.52%	37.48%	3,216.95	3,005.07	93.41%	47.8%
2008-09	12,771.82	11,730.17	62.60%	37.60%	3,622.82	3,349.75	22.95%	47.9%
2009-10	13,464.87	12,227.99	62.76%	37.24%	3,704.57	3,597.36	96.96%	39.2%
2010-11 (upto Sep., 12)	10,576.90	6,557.57	60.46%	37.54%	2,755.77	2,167.85	58.25%	47.9%
SOURCE: Audited accounts and audit report of OSEB, GRIDCO, DISCOMS, Performance review								

**TRANSMISSION & DISTRIBUTION LOSS OF ORISSA**

	Approved Transmission Loss	Actual Tr Loss (Audited)	Actual Dist Loss (Audited)	T&D Loss (Calculated)	Collection Efficiency	AT & C Loss	AT & C Loss (incl TR Loss)
1	2	3	4	5	6	7 = 1-(1-Actual Dist Loss) X Collection Efficiency)	8 = 1-(1-Actual T & D Loss) X Collection Efficiency)
1999-00	4.02%	7.33%	43.87%	45.58%	77.18%	56.71%	52.54%
2000-01	3.70%	5.17%	44.27%	40.80%	79.72%	55.92%	59.27%
2001-02	4.15%	5.17%	47.47%	50.19%	75.59%	50.31%	52.35%
2002-03	3.85%	5.17%	45.75%	43.78%	52.45%	51.15%	53.54%
2003-04	3.55%	4.15%	45.75%	43.21%	55.45%	49.35%	51.45%
2004-05	4.00%	3.92%	39.27%	41.59%	51.00%	44.00%	49.55%
2005-06	4.00%	4.90%	39.55%	42.37%	51.59%	44.00%	47.22%
2006-07	4.00%	5.04%	39.57%	41.67%	52.37%	43.26%	46.72%
2007-08	5.00%	7.27%	37.45%	40.13%	63.47%	41.60%	44.25%
2008-09	4.50%	4.52%	37.50%	40.33%	52.55%	41.89%	44.57%
2009-10 (Provisional)	4.00%	4.11%	37.24%	39.93%	56.55%	39.15%	41.75%
2010-11 (Provisional: upto Sept'10)	4.00%	3.80% (upto Sept'09)	37.54%	39.97%	53.23%	44.86%	47.57%
2010-11 (DERC Approval)	4.00%		22.22%	25.33%	59.00%	23.70%	29.52%
2011-12 (Business Plan Approval)	3.90%		21.02%	24.79%	69.00%	22.78%	25.57%
2012-13 (Business Plan Approval)	3.00%		21.23%	24.19%	59.00%	21.99%	24.55%



**VARIOUS PARAMETERS OF APPROVAL IN BUSSINESS PLAN**

	2007-08	2008-09	2009-10	2009-10	APPROVED IN BUSSINESS PLAN				
	Actual-Aud.	Actual-Aud.	Approved in ARR	Actual-prov.	2008-09	2009-10	2010-11	2011-12	2012-13
<b>PURCHASE OF POWER (MU)</b>					Actual for 2008-09	Estimate by OERC for 2009-10	Estimate by OERC for 2010-11		
CE SU	5,203.5	5,672.6	5,045.0	6,232.7	5,672.6	6,377.3	5,420.0	7,772.2	7,868.7
NESCO	4,854.9	4,515.0	4,295.0	4,705.3	4,515.0	4,783.6	5,122.0	5,465.0	5,769.5
WESCO	5,377.1	5,378.5	5,430.0	6,261.6	5,378.5	6,385.5	5,744.0	5,720.0	6,500.0
SOJTHCO	1,970.9	2,175.8	2,161.0	2,285.3	2,175.8	2,216.8	2,368.0	2,848.0	3,063.0
ALL ORISSA	17,212.5	18,771.8	16,921.0	19,484.8	18,771.8	19,863.2	20,154.0	22,755.2	23,520.7
<b>SALE OF POWER (MU)</b>									
CE SU	3,045.1	3,384.30	4,454.87	3,775.10	4,010.5	4,700.1	4,731.2	5,930.3	6,058.4
NESCO	3,203.8	2,973.71	3,299.45	3,775.14	3,385.0	3,683.4	4,175.5	4,459.4	4,770.5
WESCO	3,734.8	4,268.25	4,383.51	4,589.30	4,793.9	4,848.8	4,990.6	5,598.2	5,407.2
SOJITHCO	1,077.5	1,135.21	1,557.59	1,787.52	1,513.9	1,669.5	1,709.7	2,093.3	2,295.5
ALL ORISSA	10,761.1	11,732.5	14,295.5	12,228.0	13,694.3	15,002.2	15,676.5	17,817.8	18,533.3
<b>DISTRIBUTION LOSS (%)</b>					Approved Distribution Loss				
CE SU	41.48%	40.34%	29.30%	39.43%	29.30%	20.30%	25.37%	24.00%	23.00%
NESCO	31.17%	34.57%	23.00%	32.52%	25.50%	23.00%	15.46%	15.40%	10.35%
WESCO	30.13%	32.55%	22.50%	34.68%	25.00%	22.50%	19.83%	19.70%	19.60%
SOJITHCO	45.40%	47.70%	27.92%	40.02%	30.42%	27.32%	27.82%	28.50%	25.50%
ALL ORISSA	37.48%	37.50%	24.45%	37.24%	27.05%	24.47%	22.22%	21.70%	21.20%
<b>COLLECTION EFFICIENCY (%)</b>					Approved Collection Efficiency				
CE SU	94.05%	91.80%	98.00%	97.09%	95.0%	98.0%	95.0%	95.0%	99.0%
NESCO	93.15%	92.50%	98.00%	95.21%	95.0%	98.0%	98.0%	98.0%	93.0%
WESCO	92.91%	93.84%	98.00%	98.38%	95.6%	98.0%	95.0%	95.0%	99.0%
SOJITHCO	94.35%	94.21%	98.00%	95.60%	94.0%	98.0%	98.0%	98.0%	96.0%
ALL ORISSA	93.41%	92.96%	98.00%	96.96%	95.4%	96.0%	98.0%	99.0%	99.0%
<b>AT &amp; C LOSS (%)</b>					Approved AT & C Loss				
CE SU	44.38%	45.23%	27.75%	41.73%	32.04%	27.77%	28.86%	24.76%	23.77%
NESCO	35.88%	38.48%	24.54%	35.73%	29.23%	24.54%	20.06%	19.22%	19.73%
WESCO	40.65%	37.83%	27.05%	35.74%	27.55%	24.35%	21.53%	20.50%	20.40%
SOJITHCO	48.73%	50.80%	29.35%	50.16%	34.55%	25.35%	29.26%	27.24%	25.25%
ALL ORISSA	41.60%	41.89%	25.96%	39.15%	30.40%	25.98%	23.77%	22.48%	21.99%



COMPARISON OF VARIOUS PARAMETERS OF APPROVAL IN BUSSINESS PLAN DT.28.02.2005 (Case No. 115/2004) VRS ARR & ACTUAL

2001-02 (Board meeting Actual)	2002-03		2003-04		2004-05		2005-06		2006-07		2007-08	
	Approved In BP	WPK Actual	Approved In BP	Act.M (A.M)	Approved In BP	Approved In ARR	Actual (A.M)	Approved In ARR	Approved In BP	Approved In ARR	Actual (A.M)	Approved In ARR
<b>PURCHASE OF POWER (MU)</b>												
11900	4150.7	4150.7	3150.5	3150.5	3150.5	3150.5	3150.5	3150.5	3150.5	3150.5	3150.5	3150.5
11900	3850.0	3850.0	3850.0	3850.0	3850.0	3850.0	3850.0	3850.0	3850.0	3850.0	3850.0	3850.0
11900	3450.74	3450.74	3450.74	3450.74	3450.74	3450.74	3450.74	3450.74	3450.74	3450.74	3450.74	3450.74
11900	3050.59	3050.59	3050.59	3050.59	3050.59	3050.59	3050.59	3050.59	3050.59	3050.59	3050.59	3050.59
ALL ORISSA	10,927.1	11,361.1	11,361.0	11,361.0	12,469.9	12,469.2	12,499.9	13,188.1	13,188.1	13,063.1	13,063.1	13,063.1
<b>SALE OF POWER (MU)</b>												
11900	2170.49	2170.49	2170.49	2170.49	2170.49	2170.49	2170.49	2170.49	2170.49	2170.49	2170.49	2170.49
11900	1970.30	1970.30	1970.30	1970.30	1970.30	1970.30	1970.30	1970.30	1970.30	1970.30	1970.30	1970.30
11900	1760.13	1760.13	1760.13	1760.13	1760.13	1760.13	1760.13	1760.13	1760.13	1760.13	1760.13	1760.13
11900	1550.55	1550.55	1550.55	1550.55	1550.55	1550.55	1550.55	1550.55	1550.55	1550.55	1550.55	1550.55
ALL ORISSA	6,214.02	6,732.07	7,126.10	7,126.10	7,837.6	7,837.6	7,837.6	8,181.0	8,181.0	8,181.0	8,181.0	8,181.0
<b>DISTRIBUTION LOSS (%)</b>												
11900	40.2	40.0	38.2	38.2	38.0	38.2	38.2	38.0	38.0	38.0	38.0	38.0
11900	41.1	41.1	41.1	41.1	41.1	41.1	41.1	41.1	41.1	41.1	41.1	41.1
11900	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1	39.1
11900	37.1	37.1	37.1	37.1	37.1	37.1	37.1	37.1	37.1	37.1	37.1	37.1
ALL ORISSA	40.2	40.7	40.8	40.8	40.8	40.8	40.8	40.8	40.8	40.8	40.8	40.8
<b>COLLECTION EFFICIENCY (%)</b>												
11900	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8	70.8
11900	70.5	70.5	70.5	70.5	70.5	70.5	70.5	70.5	70.5	70.5	70.5	70.5
11900	70.4	70.4	70.4	70.4	70.4	70.4	70.4	70.4	70.4	70.4	70.4	70.4
11900	70.3	70.3	70.3	70.3	70.3	70.3	70.3	70.3	70.3	70.3	70.3	70.3
ALL ORISSA	70.6	70.7	70.7	70.7	70.7	70.7	70.7	70.7	70.7	70.7	70.7	70.7
<b>AT &amp; C LOSS (%)</b>												
11900	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
11900	50.2	50.2	50.2	50.2	50.2	50.2	50.2	50.2	50.2	50.2	50.2	50.2
11900	50.1	50.1	50.1	50.1	50.1	50.1	50.1	50.1	50.1	50.1	50.1	50.1
11900	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
ALL ORISSA	50.6	51.7	51.7	51.7	51.7	51.7	51.7	51.7	51.7	51.7	51.7	51.7

(\* ) NB: AT & C Loss of All ORISSA has been calculated based on average collection efficiency of Distcos

**REVIEW OF PERFORMANCE OF GRIDCO FOR THE YEAR 2010-11 (upto Sept,2010)**

A. EXPENDITURE	2010-11	
	Approved by OERC (Rs. Cr)	ACTUAL (upto Sept,10) (Rs. Cr)
Power Purchase Cost for Current Year	2 636.85	2,387.26
Employees Cost	4.97	2.45
A/G Cost	3.41	2.08
ERLDC Charges	1.32	
Interest & Finance Charges	184.69	173.12
Past Power Purchase Dues	4.89	
carry forward of previous losses	266.39	132.68
Principal Repayment	99.87	
<b>TOTAL Expenditure</b>	<b>4,242.44</b>	<b>2,701.77</b>

**B. SALE OF POWER**

Source	ESTIMATE BY OERC FOR 2010-11			ACTUAL FOR 2010-11 (upto Sept,2010)					
	Sale (MU)	Avg. Rate /MU	Amount Billed (Rs Cr)	SMD (MVA)	Sale (MU)	Rate /MU	Amount Billed (Rs Cr)	Payment Received Incl. rebate (Rs. In Cr.)	Balance to be Received (Rs in Cr.)
CLSD	6,423.30	187.00	1,201.94	1 113.17	3,333.70	188.40	575.76	571.17	3.99
NLSGD	3,122.30	195.00	598.79	733.28	2,519.76	195.01	491.25	487.94	3.45
WLSGD	6,244.30	194.00	1,211.04	949.78	3,140.43	194.27	613.88	608.51	2.15
SOL - IGD	2,389.30	90.00	213.12	339.78	1,233.51	90.00	110.43	112.37	3.79
<b>TOTAL DISTCOs</b>	<b>20,154.00</b>	<b>170.25</b>	<b>3,436.19</b>	<b>3,185.4</b>	<b>10,554.45</b>	<b>169.65</b>	<b>1,790.60</b>	<b>1,780.23</b>	<b>10.87</b>
TRADING					17.99	617.91	11.17	11.11	3.33
Share in CPPs	13.00	57.600	5.10		114.48	616.06	68.35	68.55	3.33
J1					494.32	501.71	242.34	242.34	3.33
Return of Power Banking (PTD & NoVN)					234.35				
<b>SUB TOTAL</b>	<b>10.00</b>		<b>5.10</b>		<b>850.75</b>	<b>867.09</b>	<b>312.80</b>	<b>312.30</b>	<b>0.00</b>
Receivable from DISCOs Inss. Receipt									
<b>GRAND TOTAL</b>	<b>20,154.00</b>		<b>3,436.29</b>		<b>11,405.20</b>	<b>164.35</b>	<b>2,102.80</b>	<b>2,082.63</b>	<b>10.37</b>
<b>C. GAP (Rs. Crore)</b>			<b>-808.15</b>				<b>-598.67</b>		

**POWER PURCHASED FROM DIFFERENT SOURCE BY GRIDCO**

SOURCE	ACTUAL FOR 2009-10			ESTIMATED BY OERC FOR 2010-11			ACTUAL FOR 2010-11 (Upto Sept, 2010)					
	Drawal (MU)	Avg. Rate PIU	Cost as per Generator (Rs Cr)	Drawal (MU)	Avg. Rate PIU	Cost (Rs Cr)	Drawal (MU)	Rate PIU	Cost as per Generator (Rs Cr)	Bill Passed by GRIDCO (Rs Cr)	Payment /Adjustment made to Generator (Rs Cr)	Balance to be paid (Rs in Cr.)
I. ratur	359.48	57.74	50.50	377.16	56.54	52.63	445.86	79.51	35.45			
Chaitani				485.10	46.03	77.70	130.77		9.61			
Balimeda	167.12	72.10	50.31	171.17	50.41	60.41	350.00	53.37	34.73			
Rongoli	529.83	55.03	29.17	519.75	39.09	35.61	187.98	85.31	15.03			
J. Kalsab	390.13	10.31	16.03	325.68	35.17	27.52	216.51	15.79	6.85			
Total DHPC (OI)	2,355.38	58.98	161.07	3,676.86	58.49	215.06	1,631.78	54.53	105.30			
MAGI AKUND	265.93	15.83	3.97	232.50	21.95	5.70	147.85	21.93	5.25			
INDRAVATI	1,414.75	35.89	132.73	1,942.36	75.99	143.62	336.72	34.70	70.87			
TOTAL DHPC	4,056.06	73.43	297.83	5,881.74	62.51	267.65	2,616.95	58.58	179.42			0.00
IDTPG	2,646.04	159.85	422.92	2,853.53	149.04	425.50	1,272.28	152.47	224.47			0.00
TTPS	3,255.97	170.09	559.95	2,957.32	171.38	503.67	1,593.07	174.93	256.29			0.00
IPR (SFI)				646.73	745.04	157.38	46.07					
CSFs	2,255.40	219.42	631.23	1,041.00	225.00	541.50						
Co-Generation	371.31	312.29	208.74	526.00	330.00	174.57	1,288.74	359.00	677.86			0.00
Renewable	155.98	291.03	6.31	300.00	305.00	91.50	137.92	300.07	11.21			0.00
TOTAL STATE	19,080.85	173.21	2,265.72	14,218.82	145.22	2,064.81	7,815.71	180.61	1,411.57			0.00
GSTPS	1,286.00	301.41	581.59	1,464.49	302.57	443.12	736.21	375.05	255.99			0.00
KP-STPS-I	560.45	270.82	184.23	610.63	275.31	231.47	355.69	314.99	112.35			0.00
KP-STPS-II	30.85	270.63	9.73	50.77	279.64	15.98	70.76	326.61	73.06			0.00
SIPB	2,137.15	190.02	416.38	2,145.54	207.07	444.29	1,025.39	275.17	294.91			0.00
TSTPS - I	1,487.85	195.33	289.45	1,318.39	218.01	291.48	735.09	276.95	186.69			0.00
Total NTPC	5,655.40	226.58	1,291.40	5,860.77	243.53	1,427.30	2,876.08	307.21	883.57			0.00
CHUKKA	389.30	163.97	44.17	277.79	193.34	49.83	100.31	179.76	33.03			3.62
TALA	150.33	169.83	26.00	145.17	239.13	30.56	114.86	234.82	25.63			2.24
TFFS-TA	574.06	176.78	90.67	507.19	186.47	94.67	357.74	155.04	50.17			57.07
TOTAL C.S.	6,575.73	219.92	1,442.19	6,784.93	236.12	1,602.04	3,541.51	282.65	1,001.06			19.04
U. Co-Drawal (KBB & I-8)	1,257.73	313.24	400.27				410.94	146.95	61.40			0.00
Power Darking (PTC & No.M.)	04.21	14.37	1.21				88.96	20.51	2.05			2.05
Trading (Sanc & IFX)	41.52	31.67	13.18						0.00			-
HGCIL In. Charge		10.51	121.70						0.00			-
GRAND TOTAL	21,040.17	201.72	4,244.27	21,000.75	174.60	3,696.05	11,076.12	200.49	2,476.00			13.04

## INSTALLED CAPACITY & NORMATIVE ENERGY AVAILABILITY OF ODISHA

GENERATING STATIONS	CAPACITY DETAILS (NOS. x MW)	Orissa Share			Ex-bus availability to GRIDCO (MU)	REMARKS	Actual for 2009-10
		%	MW	MU			
<b>STATE STATIONS</b>							
<b>HYDRO (OHPC)</b>							
H RAKJ	2*45.5=91.0+57.0/3=19.0 (Chaplinia)	100.00	372	1171.0	1162.3		659.45
BALIMELA	8*30=240	100.00	510	1183.0	1171.2	Design Energy less available Consumption (40% @ 1%)	757.15
J KOLAS	4*80	100.00	320	532.0	323.7		399.13
KANDALI	6*50	100.00	240	525.0	473.8		529.63
K.DRAWATI	4*150	100.00	600	1582.0	1542.4		1,414.75
<b>Sub Total</b>			<b>2,028</b>	<b>5,676</b>	<b>5,618</b>		<b>3,770.13</b>
MACHAKIND	(3*14+3*21.2)=14.7/3MW	30.00	57	282.5	258.8	Assuming Unse drawal of 40% Energy	265.00
<b>TOTAL HYDRO</b>			<b>2,085</b>	<b>5,939</b>	<b>5,879</b>		<b>4,036.06</b>
<b>SMALL HYDRO</b>							
SMALL S.I.P.(OPCL)	5*4	100.00	20	114	113	Design Energy less available Consumption (40% @ 1%)	14.89
MEENAKSHIHEE PEF	2*12.5=25	100.00	37	142	140		141.30
<b>TOTAL STATE HYDRO</b>			<b>2,142</b>	<b>6,194</b>	<b>6,132</b>		<b>4,211.75</b>
<b>THERMAL</b>							
DTPS	2*210	100.00	420	2543	2,684	Considering TFR of 4% and Aux. Consumption at 5%	2,645.04
TTPS	2*110=220	100.00	460	3,201	2,957	Considering TFR of 4% and Aux. Consumption at 5%	3,258.97
<b>IPPs</b>							
M/s Starline Energy	600.00		600	4,305	3,764	Considering FL of 40% and Aux. Consumption at 5%	
Arsl Steels	50.00		50	350	315	Considering TFR of 40% and Aux. Consumption at 5%	
<b>TOTAL STATE THERMAL</b>			<b>1,630</b>	<b>10,803</b>	<b>9,724</b>		<b>5,902.01</b>
<b>STATE TOTAL</b>			<b>3,672</b>	<b>16,997</b>	<b>15,653</b>		<b>10,113.76</b>
<b>CENTRAL STATIONS</b>							
Central Transmission Loss (C.T.L) 0.18% Banking Loss (BL) per ARR Order for FY2010							
<b>HYDRO</b>							
CHUKHA	4*34=336 Availability @ CR 375	15.12%	41	283.3	271.2	Based on Parameters and Performance as per ARR Order for FY2010	259.35
TALA	5*170=1020	4.25%	45	151.3	145.0		136.89
TEESTA	5*170=850	20.52%	105	2716.7	507.2	Design Energy less available Consumption (40% @ 1%) @ 0.25	514.05
<b>TOTAL CENTRAL HYDRO</b>			<b>189</b>	<b>964.4</b>	<b>924.2</b>		<b>920.33</b>
<b>THERMAL</b>							
RSTPS	3*300=900+600	10.63%	74	1,623.2	1,463.8	FL of 40% Aux. Cons. at 5% & C.T.L @ 0.18%	1,298.00
TSTPS - I	2*500=1000	31.80%	212	2,367.2	2,145.8	TFR of 5% Aux. Cons. at 5% & C.T.L @ 0.18%	2,121.15
TSTPS - II	4*500=2000	10.00%	200	1,489.0	1,349.4	FL of 40% Aux. Cons. at 5% & C.T.L @ 0.18%	1,451.85
KHS IPS -	4*220=880	15.24%	128	803.1	740.0	TFR of 5% Aux. Cons. at 5% & C.T.L @ 0.18%	650.45
KHS IPS - I	3*300=900	0.60%	9	67.0	60.7	FL of 40% Aux. Cons. at 5% & C.T.L @ 0.18%	30.35
<b>TOTAL CENTRAL THERMAL</b>			<b>873</b>	<b>6,600.4</b>	<b>5,880.0</b>		<b>5,666.40</b>
<b>SUB TOTAL CENTRAL SECTOR</b>			<b>1,062</b>	<b>7,464.7</b>	<b>5,794.2</b>		<b>6,575.73</b>
<b>TOTAL (CENTRAL+STATE)</b>			<b>4,734</b>	<b>24,461.6</b>	<b>22,636.9</b>		<b>16,689.49</b>
CCP & Co-Generator							2,951.09
J Over Drawal							1,257.75
Power Banking & Trading							125.00
<b>TOTAL</b>							<b>21,040.17</b>

**DETAILS OF TRANSMISSION PROJECT DURING F.Y-2007-08, 2008-09 , 2009-10 & 2010-11**

Sl. No.	Name of the Project with scope of work	Organ. work under No. & Date	Schedule date of completion	Revised date of completion	Expected date of completion	Estimated cost of the project (Rs. In Cr.)	Revised cost of the project (Rs. In Cr.)	Actual expenditure incurred for execution of the project till completion (Rs. In Cr.)
1	2	3	4	5	6	7	8	9
<b>Year 2007-08 Transmission Projects Completed</b>								
1	220 KV Buchhadra-Barda D.C.T. (16.39 Km.)	TR/2007/001 dt.15.04.08	03/2008			22.13		20.12 + 2.75 (Inv.) = 22.87
2	220 KV Barga, 132 KV Barga Substation, Bargarh	TR/2007/002 dt.15.04.08	03/2008			24.94		22.38 + 1.23.38 (Inv.) = 23.61
3	110 KV Barga substation (110 KV Barga Main substation) Bargarh (1.24 Km)	TR/2007/001 dt.15.04.08	03/2008			0.44		0.40
4	110 KV Barga substation (110 KV Barga Main substation) Bargarh (1.75 Km)	TR/2007/002 dt.15.04.08	03/2008			0.47		0.44
5	110 KV Barga substation (110 KV Barga Main substation) Bargarh (1.24 Km)	TR/2007/001 dt.15.04.08	04/2008			3.58		2.92
6	220 KV Barga (up to 400/220 KV substation) at Mandhata							
7	220 KV Barga (up to 400/220 KV substation) at Mandhata							
8	220 KV Barga (up to 400/220 KV substation) at Mandhata							
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99	220 KV Barga (up to 400/220 KV substation) at Mandhata							
100	220 KV Barga (up to 400/220 KV substation) at Mandhata							



Year 2010-11 Transmission Projects under execution								
1	230 KV D.C. line from Barabati to Talangir (Completed)	PNL/WS/TR 2/30/2008 D...5.9.08	09/2008	10/2008	00/2009	74.32	16.0%	50.15 15.58 (Inv.)=65.73
2	132 KV line from JNM04 to 230 KV transformer at Chand S/S (Completed)	4800 E.025.7.05 100.6 D...2.6.1.08	01/2007	12/2007	05/2009	4.40		4.40
3	132 KV line from JNM04 to 40 KV transformer at Chand S/S (Completed)		01/2007	-	00/2009	1.44		0.00
4	230 KV D.C. line from Anantapur with associated line (Completed)	3250 01.18.1.02	06/2010		05/2010	28.65		1.625
5	230 KV D.C. line from Bikaner to L. Nagar	PNL/WS/TR-1447 06.10.2008	08/2008	07/2009	11/2009	17.75	(Percentage)	29.51 11.76 +10.75 (Inv.) =20.76
6	2x12.5 MVA 132/33 KV Transformer at Akhauri Switching Station along with associated line	50.85, 50.00 06.05.7.05	01/2008		11/2009	7.70		
7	400 KV D.C. line from Meram. Indri to Dubut	01.04.01.01.01 18.01.2008	01/2008	08/2009	08/2011	48.00		131.45
8	230 KV D.C. line from Bikaner to L. Nagar	19.06.2008 08.24.2.09	-	-	12/2010	15.05		
9	400 KV D.C. line from Meramhasal to Bikaner	05.01.25.9.95	10/2006	12/2004	08/2010	17.39		
10	132 KV Mancheswar-Badagda S.C. line with 400 KV tower	PNL/WS/TR- 06/2008 D...5.9.08 11.02.2008 5.11.25.08.1	08/2008	06/2008	10/2009	16.00	(Percentage)	5.30
11	400 KV D.C. line at Dubut	PNL/WS/TR-1447 06.10.2008 18.01.2008	01/2008	08/2007	11/2009	Package	17.0%	
12	230 KV D.C. line from J. Nagar to Bikaner with associated line	W.O. No. 1237.5 12.01.01.19.10	01/2007	-	11/2007	1.00		-
13	2x40 MVA, 2x20 MVA S/S at Buni with associated line	10.05.7.09 + 10.11.09	11/2011		11/2011	28.74		
14	112 KV Pimpri-Chandrapur line	W.O. No. 1237.5 12.01.01.19.10	01/2007	-	11/2007	8.70		
15	2x40 MVA, 132/33 KV S/S at Kalunga with 112 KV equipment including Badliwada-Tarapur 132 KV line	W.O. No. 7013.5 03.11.01.25.10.10	09/2007	-	01/2009	7.90		
16	230 KV D.C. line from J. Nagar to Bikaner with associated line	Du	09/2011		05/2012	29.05		
17	2x10 MVA, 2x5 MVA S/S at J. Nagar with associated line	W.O. No. 1237.5 12.01.01.19.10	08/2008		08/2012	07.59		
18	2x10 MVA, 2x5 MVA S/S at J. Nagar with associated line	W.O. No. 1237.5 12.01.01.19.10	09/2008		05/2012	6.48		
19	2x12.5 MVA, 132/33 KV S/S at Neopura with associated line	Agreement with PSCLD on 15.12.2008	01/2007	-	01/2007	0.00		
20	2x11 MVA, 132/33 KV S/S at Dehgan with associated line	Agreement with PSCLD on 14.12.2008	01/2007	-	01/2007	0.00		
21	2x12.5 MVA, 132/33 KV S/S at Pachampur with associated line	Agreement with PSCLD on 15.12.2008	06/2012		05/2012	27.57		
22	2x12.5 MVA, 132/33 KV S/S at Ruchindri with associated line	Agreement with PSCLD on 15.12.2008	01/2007	-	01/2007	0.00		
23	2x12.5 MVA, 132/33 KV S/S at Bhuvaneshwari with associated line	Agreement with PSCLD on 15.12.2008	06/2012		05/2012	19.59		
24	2x12.5 MVA, 132/33 KV S/S at Boudi with associated line	Agreement with PSCLD on 15.12.2008	01/2007	-	01/2007	0.00		

**POWER PURCHASED FROM DIFFERENT CAPTIVE & CO-GENERATION STATIONS BY GRIDCO**

All Figs. In MU

Sl No	Particulars	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
	<b>CGPs</b>										
1	KALCO	224.55	342.11	402.88	429.32	403.63	322.25	421.62	129.52	80.28	14.57
2	KCL	123.90	113.53	22.22	21.22	66.24	32.93	19.11	3.22	42.57	187.36
3	INDSI	9.09	10.17	7.97	0.04	0.03	27.03	31.36	31.77	49.77	90.87
4	RSP	2.03	8.77	2.16	31.22	72.36	61.22	29.10	24.73	14.24	20.55
5	KMFA					17.76	11.73	7.14		176.00	730.77
6	Vendanta (Jharsuguda)	-	-	-	-	-	-	-	-	29.27	697.10
7	BHUSAN(Burhianbar)							115.05	169.17		97.76
8	Bhusan (Bar.)									35.38	
9	Kath'									0.38	18.53
10	Mahabir Ferro Alloys									0.15	31.47
11	Saw Industries										
12	OSIS ,Paharpur									4.80	
13	Dinabandhu										75.04
14	Maheswar'										3.56
15	Jinda										2.99
	<b>Sub-total</b>	<b>366.57</b>	<b>474.53</b>	<b>526.89</b>	<b>622.31</b>	<b>580.67</b>	<b>475.34</b>	<b>623.43</b>	<b>381.59</b>	<b>712.39</b>	<b>2,295.43</b>
<b>Co-Generating Stations</b>											
1	NML	-	-	15.22	41.42	23.23	71.06	71.17	88.55	76.33	71.07
2	ARJUNSTEEL						1.82	85.67	84.29	177.39	116.71
3	IAA							1.06	112.44	126.11	126.17
4	Vendanta (Angitah)							0.75	17.45	10.77	18.96
5	BHUSAN (S & S)						2.12	7.59	42.74	58.80	137.25
6	SMC Power Gen. Ltd									32.80	46.87
7	Fatmah Stee									15.12	36.13
8	Action Ispt & power										20.81
9	Arvin Isp										79.88
10	VISA Stee									1.97	8.60
11	Shyam DRI Ltd								8.83	31.22	28.78
12	IFCO								0.22		24.15
	<b>Sub-total</b>	<b>-</b>	<b>-</b>	<b>15.99</b>	<b>41.42</b>	<b>23.93</b>	<b>75.01</b>	<b>165.72</b>	<b>354.45</b>	<b>479.91</b>	<b>671.61</b>
	<b>TOTAL</b>	<b>366.57</b>	<b>474.53</b>	<b>542.88</b>	<b>663.73</b>	<b>604.60</b>	<b>550.35</b>	<b>794.15</b>	<b>736.04</b>	<b>1,192.30</b>	<b>2,967.09</b>

### GRIDCO DRAWAL FROM CGPS & CO-GENERATION PLANTS (PROVISIONAL)

Sl. No.	Name of CGPs & Co-generation Plants	Installed Capacity (MW)	2006-07 (Audited)		2007-08 (Audited)		2008-09 (Audited)		2009-10 (Provisional)	
			Energy (MU)	Avg. Rate Rs./KWH	Energy (MU)	Avg. Rate Rs./KWH	Energy (MU)	Avg. Rate Rs./KWH	Energy (MU)	Avg. Rate Rs./KWH
<b>CGPs</b>										
1	BALCO	1,000.00	421.52	1.47	129.52	1.41	93.29	1.36	14.57	3.31
2	BCL	100.00	19.15	0.94	3.28	0.94	42.97	2.80	187.06	3.09
3	INDA (INDIA CO)	167.50	11.53	0.77	11.77	0.66	1,122	2.15	90.87	3.14
4	BSP	220.00	59.10	0.54	24.73	0.70	14.34	0.75	50.98	0.70
5	NBVL	83.00	2.14	0.91			179.00	2.40	260.77	8.00
6	Vecenta (Harsang, del)	1,215.00					29.27	2.11	267.00	3.49
7	ISL	203.00			23.12	1.27	293.01	2.50	874.03	3.09
8	P.T.SAX (S&P)	160.00	115.05	2.16	160.17	1.98	35.38	2.00	97.57	1.16
9	Bathi Siro & Traver	20.00					0.55	1.55	19.52	8.00
10	Siroo Manohir Ferro Alloys	12.00					0.15	6.56	61.42	8.09
11	Mansour	24.00							2.99	3.11
12	Umabandhu	10.00							3.00	3.09
13	OSM, Palasa Energy	16.00							25.04	3.13
14	SCAW Ind. Andhra	7.00					4.50	1.55		
15	CCU for Steel	14.00								
	<b>Sub Total</b>	<b>3,832.50</b>	<b>628.42</b>	<b>1.50</b>	<b>381.60</b>	<b>1.74</b>	<b>712.40</b>	<b>2.30</b>	<b>2,295.48</b>	<b>3.19</b>
<b>Co-Generation Plants</b>										
1	NIN	43.50	71.17	2.02	88.55	1.60	75.33	2.50	71.07	3.13
2	APAT STEEL	40.00	85.55	2.05	84.09	2.06	127.59	1.54	115.21	8.06
3	TATA EPONOX	26.00	1.09	0.75	112.44	2.26	129.11	2.64	125.17	2.98
4	S&C Power	33.00					32.79	2.00	40.87	3.21
5	II. CO, Arundeeep	110.00			0.28	2.07			24.12	3.10
6	Steel Wheel Train	50.00					1.17	0.93	3.50	3.05
7	VEGANT (Anjiparth)	00.00	0.75	0.40	17.45	1.67	13.52	1.14	19.06	8.10
8	S-YAM DA	20.00			2.29	2.02	81.02	2.13	26.78	8.09
9	BHUSA (S&E)	110.00	7.39	0.45	42.74	1.20	58.90	2.10	167.83	8.80
10	Acton Steel	37.00							20.81	3.19
11	Arjun Steel	8.00							20.88	3.22
12	Falgaik Steel (Nalaganga)	13.00					15.19	1.11	55.12	8.10
	<b>Sub Total</b>	<b>621.50</b>	<b>165.72</b>	<b>1.95</b>	<b>354.45</b>	<b>2.02</b>	<b>479.91</b>	<b>2.27</b>	<b>671.61</b>	<b>3.12</b>
	<b>TOTAL</b>	<b>4,454.00</b>	<b>794.14</b>	<b>1.59</b>	<b>736.05</b>	<b>1.88</b>	<b>1,192.31</b>	<b>2.29</b>	<b>2,967.09</b>	<b>3.18</b>

**PERFORMANCE OF FRANCHISE IN CESU FOR FY 2009-10 & FY 2010-11(upto 9/2010)**

Sl. No.	Name of Sub-Division	Period	No. of Consumers	Avq. No. of Money Receipts generated	% of Money Receipts Generated	Energy Input (MU)	Energy Sold (MU)	Energy LOSS (%)	Basic Line Revenue Target (Rs. Lakh)	Billing to Consumer (Rs. Lakh)	Collection Received (from Current) (Rs. Lakh)	Collection Efficiency (%)	AT & C LOSS (%)	Realized in LT Input PU
1	Pun-I, Sub-Division by CE&COGRIDCO Rehd. Emp. Association (Revenue based)	2009-10	7,207	13,223	75.8%	87.55	37.54	57.1%	830.6	1,177.56	889.43	75.8%	87.5%	101.5
		2010-11 (4/10 to 09/10)	7,565	12,281	89.7%	77.14	51.47	55.2%	477.5	637.67	553.91	86.9%	69.7%	153.2
2	Pun-II, Sub-Division by Mis Pall Mills Pratihara (Collection based)	2009-10	5,274	4,213	45.5%	22.39	7.86	55.8%	755.7	134.70	74.31	36.5%	88.8%	32.6
		2010-11 (4/10 to 09/10)	6,106	4,723	48.7%	12.94	4.45	35.8%	86.7	137.64	35.47	44.0%	84.7%	45.2
3	Angul Sub-Division by M/s Sachinindia Consulting Pvt. Ltd. (Collection based)	2009-10	29,151	14,552	55.8%	123.60	41.03	55.8%	265.6	1,237.64	722.13	58.3%	80.8%	56.4
		2010-11 (4/10 to 09/10)	23,999	14,132	59.5%	72.48	24.77	35.0%	484.0	918.20	364.19	61.2%	79.0%	77.9
4	Dhenkanal Sub-Division by M/s SRK Solutions Pvt. Ltd. (Collection based)	2009-10	23,214	13,537	59.8%	121.29	41.87	55.6%	232.6	1,355.65	663.34	60.1%	78.3%	54.3
		2010-11 (4/10 to 09/10)	24,227	15,332	54.5%	69.33	24.04	35.5%	461.2	735.87	483.39	61.5%	78.8%	70.2
5	Mimapaada Section - I & II by Social organization (Collection based)	2009-10	3,766	10,391	72.6%	73.87	14.85	35.6%	308.2	360.25	131.91	47.3%	80.7%	41.5
		2010-11 (4/10 to 09/10)	4,759	9,375	53.5%	24.43	8.82	34.5%	70.4	242.32	159.43	62.1%	78.8%	64.7
6	Nischintkuli Sub-Division by Consumer forum Oriskania (Collection based)	2009-10	7,752	5,197	37.2%	10.36	9.02	49.3%	79.7	119.01	70.25	59.0%	61.7%	69.7
		2010-11 (4/10 to 09/10)	7,803	4,677	59.2%	7.72	3.64	53.8%	52.0	79.45	50.47	63.4%	68.8%	60.0
7	Pallihara Sub-Division by M/s Susama (Rohopatra) (Revenue based)	2009-10	6,512	4,110	59.8%	20.73	7.14	35.8%	730.3	177.00	75.24	45.7%	84.0%	57.7
		2010-11 (4/10 to 09/10)	7,749	4,051	29.5%	13.73	4.60	54.3%	74.7	143.73	60.37	42.6%	24.8%	44.5
8	Jugasinglipur Sub-Division by M/s BZEH (Input based)	2009-10	23,470	9,135	29.5%	57.31	31.14	34.2%	65 P.U	797.62	492.33	51.0%	87.5%	46.0
		2010-11 (8/10 to 09/10)	21,106	9,746	49.1%	16.36	9.03	32.2%	65 P.U	162.60	70.35	36.7%	85.5%	45.9

**PERFORMANCE OF SHGs IN CESU FOR FY 2009-10 & FY 2010-11(upto 9/2010)**

Sl. No.	Name of Sub-Division/Division	No of SHG	Avg. Collection/Month (Rs Lakh) (Before SHG)	Total Collection (Rs Lakh)	Avg. Monthly Collection (Rs Lakh)	Avg Monthly Growth (Rs lakh)	Growth (%)	Collection for Sept,10 (Rs Lakh)	Avg Monthly Growth (Rs lakh)	Growth (%)	Remarks
1	Bhaour, NED Nayagarh (from Oct 09 to Sept 09)	19	6.07	115.23	6.00	3.53	58%	15.27	3.17	151%	
2	Dasappa la, NFD Nayagarh (Started during Aug. 2010)	17	6.18	14.45	7.22	0.97	12%	7.66	0.62	6%	2 nos of SHGs has not started the work due to
3	Chandapada & Kantilo, NLD Nayagarh (Started during May, 2010)	22	9.05	59.56	11.91	2.83	31%	14.26	5.17	57%	
4	Ocupagar, NFD Nayagarh (Started during Sept. 2010)	17	7.72					12.74	0.22	2%	
5	Nuegajon, NLD Nayagarh (Started during Sept. 2010)	20	9.68					3.01	-6.57	-69%	6 nos of SHGs is yet to start the work
	<b>TOTAL</b>	<b>95</b>	<b>45.54</b>					<b>52.91</b>	<b>7.37</b>	<b>12%</b>	



**PERFORMANCE OF FRANCHISE IN NESCO FOR FY 2009-10 & FY 2010-11 (upto 9/2010)**

Sl. No.	Name of Sub-Division	Period	No. of Consumer	Avg. No. of Money Receipt Generated	% of Money Receipt Generated	Energy Input (MU)	Energy Sold (MU)	LOSS (%)	Agreed Input Rate PU	Billing to Consumer (Rs.Lakh)	Collection Received (from Current) (Rs.Lakh)	Collection Efficiency (%)	AT & C LOSS (%)	Realisation to LT Input PU
1	Jaipur Town Sub-Division by M/s ENZEN (Input based)	2009-10	16,819	13,411	67.7%	94.05	96.21	67.2%	57.0	694.76	631.22	75.0%	67.6%	74.0
		2010-11 (4/10 to 08/10)	26,323	13,663	51.7%	41.32	45.33	50.9%	65.0	751.61	330.30	43.6%	71.2%	79.8
2	Dharmasala Sub-Division by M/s ENZEN (Input based)	2009-10	20,642	13,411	65.0%	94.20	37.50	60.2%	68.0	945.46	756.05	80.3%	68.0%	80.6
		2010-11 (4/10 to 08/10)	21,089	16,200	72.1%	42.04	47.54	56.6%	85.0	675.45	371.18	67.7%	73.2%	86.7
3	Khaiza Sub-Division by M/s Akanksha Power & Infrastructure Pvt. Ltd. (Input based)	2009-10	16,377	3,875	24.3%	12.01	17.97	31.1%	97.0	352.51	66.17	27.6%	64.5%	46.9
		2010-11 (4/10 to 08/10)												

**PERFORMANCE OF FRANCHISE IN SOUTHCO FOR FY 2009-10 & FY 2010-11 (upto 9/2010)**

Sl. No.	Name of Sub-Division	Period	No. of Consumer	Avg. No. of Money Receipt Generated	% of Money Receipt Generated	Energy Input (MU)	Energy Sold (MU)	LOSS (%)	Agreed Input Rate PU	Billing to Consumer (Rs.Lakh)	Collection Received (from Current) (Rs.Lakh)	Collection Efficiency (%)	AT & C LOSS (%)	Realisation to LT Input PU
1	Ramkha Sub-Division by M/s ENZEN (Input based)	2009-10	14,501	7,367	54.5%	46.55	15.57	56.4%	61.0	375.76	267.55	77.7%	74.7%	61.6
		2010-11 (4/10 to 08/10)	15,130	7,676	50.7%	20.75	7.06	50.2%	79.0	227.90	130.22	64.5%	70.7%	62.6
2	Dharmasala Sub-Division by M/s ENZEN (Input based)	2009-10	24,466	12,451	50.9%	64.78	25.17	31.1%	68.0	926.36	364.10	67.5%	73.6%	59.5
		2010-11 (4/10 to 08/10)	25,762	12,855	49.9%	26.61	11.57	31.8%	83.0	256.30	174.15	53.2%	77.6%	53.6

**PERFORMANCE OF FRANCHISE IN WESCO FOR FY 2009-10 & FY 2010-11(upto 9/2010)**

Sl. No.	Name of Sub-Division	Period	No. of Consumer	App. No. of Money Receipt Generated	% of Money Received Generated	Budget Input (MM)	Budget Sold (MM)	LOSS (%)	Agreed mark Rate P/U	Billing to Consumer (Million)	Collection Received (From Consumer)	Collection Efficiency (%)	R* & C LOSS (%)	Rate before P to T Input P/U	Final amount to be of P/U
1	Fetragant Sub-Division by M/S DMCN (Revenue based)	2009-10	10,275	4,178	41.2%	29.73	29.70	99.9%	68.0	125.57	125.56	99.9%	79.96	68.7	141.02
		2010-11 (3/10 to 09/10)	10,423	10,426	99.9%	5.62	4.99	88.8%	76.7	248.22	249.24	100.0%	79.7%	66.0	121.25
2	Kulabaji Sub-Division by M/S DMCN (Revenue based)	2009-10	10,276	4,177	41.2%	47.07	47.10	100.0%	76.0	427.77	227.06	53.1%	73.7%	66.0	129.70
		2010-11 (3/10 to 09/10)	10,555	4,558	43.2%	5.20	7.03	135.2%	50.0	312.24	124.14	39.7%	75.4%	67.0	97.02
3	Building Feeder by Salcom Enterprises (Revenue based)	2009-10	1,560	415	26.6%	1.23	1.24	100.0%		27.74	27.37	99.3%	75.0%	103.7	127.02
		2010-11 (3/10 to 09/10)	2,771	1,277	46.1%	1.43	2.07	145.5%		60.70	31.25	51.4%	69.0%	62.7	111.00
4	Aravali Feeder by Salcom Enterprises (Revenue based)	2009-10	1,727	1,727	100.0%	11.73	11.74	100.0%		19.17	17.07	89.1%	81.0%	76.0	137.77
		2010-11 (3/10 to 09/10)	2,405	2,404	99.9%	1.71	1.74	102.0%		25.76	5.66	22.0%	64.0%	66.1	145.02
5	Semi Feeder by Salcom Enterprises (Revenue based)	2009-10	1,222	1,222	100.0%	1.21	1.24	102.0%		66.37	41.46	62.4%	77.0%	66.0	129.16
		2010-11 (3/10 to 09/10)	1,724	1,724	100.0%	1.01	1.02	101.0%		12.06	12.01	100.0%	77.0%	102.1	111.07
6	Gandhi Feeder (Revenue based)	2009-10	15,117	4,157	27.5%	29.72	27.02	90.9%		424.24	367.14	86.5%	77.9%	55.5	149.14
		2010-11 (3/10 to 09/10)	16,225	6,500	40.1%	22.57	1.21	5.4%		477.25	1,77.89	37.3%	64.0%	52.6	127.12
7	Gandhi & Bikaner Feeder by K.S. Techno (Revenue based)	2009-10	2,727	700	25.7%	22.73	1.77	7.8%		127.35	42.95	33.7%	81.0%	71.7	277.54
		2010-11 (3/10 to 09/10)	1,724	1,724	100.0%	3.43	2.37	69.4%		75.27	57.27	76.1%	87.0%	61.1	275.27
8	Kangra Sub-Division by K.S. Techno (Revenue based)	2009-10	1,316	527	40.1%	1.22	1.72	141.0%		120.22	62.02	51.6%	72.0%	66.0	126.14
		2010-11 (3/10 to 09/10)	1,227	527	43.0%	1.27	1.25	98.4%		70.71	37.98	53.6%	67.0%	101.0	127.10
9	Ludhiana by K.S. Techno (Revenue based)	2009-10	1,280	1,281	100.0%	1.96	1.73	88.0%		124.22	109.96	88.5%	67.0%	56.0	126.92
		2010-11 (3/10 to 09/10)	1,281	1,277	99.7%	1.21	1.01	83.0%		86.70	61.37	70.8%	67.0%	36.0	125.25
10	Bikaner Feeder by K.S. Techno (Revenue based)	2009-10	1,254	54	4.3%	7.04	1.07	15.2%		22.70	17.44	77.3%	75.0%	55.5	112.04
		2010-11 (3/10 to 09/10)	1,277	717	56.3%	1.03	7.7	74.7%		50.00	24.02	48.0%	75.0%	61.1	75.37
11	Dumraon by K.S. Techno (Revenue based)	2009-10	1,258	546	43.4%	1.43	2.47	172.8%		50.11	24.94	49.6%	75.4%	57.1	122.04
		2010-11 (3/10 to 09/10)	1,220	122	10.0%	1.42	1.04	73.0%		21.22	12.21	57.5%	77.0%	17.0	113.21
12	Rudra by K.S. Techno (Revenue based)	2009-10	2,270	1,272	56.0%	1.147	1.77	154.3%		121.27	27.46	22.7%	74.0%	56.0	134.17
		2010-11 (3/10 to 09/10)	1,221	1,220	100.0%	1.07	1.22	114.0%		61.27	50.62	82.6%	77.0%	61.6	125.26
13	Gurgaon by K.S. Techno (Revenue based)	2009-10	1,221	1,227	100.5%	12.17	1.22	10.0%		121.27	12.14	10.0%	61.0%	1.21	126.70
		2010-11 (3/10 to 09/10)	1,227	1,270	103.5%	1.47	1.7	115.6%		70.77	1.14	1.6%	89.0%	11.0	72.1
14	Dabra by K.S. Techno (Revenue based)	2009-10	1,228	408	33.3%	35.72	2.20	6.2%		277.25	107.8	38.9%	87.9%	27.1	247.24
		2010-11 (3/10 to 09/10)	1,255	481	38.3%	1.77	1.47	82.5%		22.22	12.47	56.1%	87.0%	21.7	57.24
15	Chandigarh by K.S. Techno (Revenue based)	2009-10	2,240	1,191	53.2%	12.06	7.27	60.3%		211.1	121.24	57.4%	72.0%	66.1	122.02
		2010-11 (3/10 to 09/10)	1,227	1,191	97.0%	2.49	1.72	69.1%		120.27	41.77	34.7%	72.0%	67.7	125.70

# **CHAPTER -4**

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## **A White Paper on Power Sector of Odisha**

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## A WHITE PAPER ON POWER SECTOR

### The Status of Orissa Power Sector before the year of Reform

1. The Orissa State Electricity Board (OSEB) was established in 1961 under the Electricity (Supply) Act of 1948. On its formation, the transmission assets of the Government of Orissa were transferred to the Board which also took over the distribution systems and small generating plants of the various privately owned Electricity Companies in the state. The Electricity Department of the State Govt. continued to execute major generation projects with associated extra high tension (EHT) transmission lines and substations, which on completion, were being transferred to the Board as asset loans. A State owned Orissa Power Generation Corporation Ltd. (OPGC) was created on 14<sup>th</sup> November 1984 to take up the construction and operation of a thermal generating station using Ib valley coal. OSEB played a major role in the growth of the State's power sector. However, by the early 1990s it became clear that several things were seriously wrong with the Board. Inadequate investment in the sector, poor management, dismal performance of OSEB's own thermal station, mounting technical and commercial losses, skewed tariff, poor customer care, increasing gap between demand and availability of energy were all symptoms of the deepening malaise in the Electricity Board.
2. A matter for serious concern was the growing transmission and distribution (T&D) losses which had a crippling impact on the finances of the Board. Statistics put out by the Board and even the Central Electricity Authority / Planning Commission reported Orissa's T&D losses in the region of 23% over a number of years. But these figures did not take into account the losses taking place owing to non-billing, non-collection and theft of electricity. The under statement of T&D losses was not unique to Orissa.

The audited accounts of OSEB, however had been pointing out a different set of figures depicted in the following table:

**Table -1**

Year	Generation/ purchase (MU)	Sales (MU) as per revenue return	T&D Loss %
1990-91	5444.018	3525.103	45.30
1991-92	7331.146	4047.539	44.80
1992-93	7100.414	3904.078	45.01
1993-94	7826.412	4573.428	41.57
1994-95	8493.307	4536.332	46.59
1995-96	9762.238	5178.894	46.94

The Planning Commission in its Power and Energy Division Annual Report of April 2000 on the Working of State Electricity Boards and Electricity Departments, reported that while the T&D losses for the country as a whole varied between 19.8% in 1992-93 and 24.5% in 1996-97, in the case of Orissa, the losses were as under:

**Table -2**

Year	T&D Loss (%age)
1992-93	23.5
1993-94	21.4
1994-95	23.8
1995-96	46.9
1996-97	49.47



A footnote to the report explains that the sudden jump is due to “the realistic assessment of T&D losses in the power system after restructuring of OSEB. Similar position can be observed in case of Haryana and Andhra Pradesh who also opted for power sector reforms”.

3. Another nagging problem was growing power shortages. These started being felt from the mid-1980s and by the early 1990s, the shortages had become acute; the peak shortage shooting up from 24% in 1991-92 to 37% in 1993-94, exceeding the national average. Government of Orissa had to issue statutory notifications regulating the supply, distribution and consumption of electricity by consumer groups. Industries suffered power cuts ranging from 25% to almost 70% of their requirement depending upon vagaries of the monsoon. Rotational area load shedding for consumers was irritatingly common. The worsening situation compelled industries who could access funds, to go in for captive generating plants; those who could not, suffered irreparable production losses. It was only with addition of capacity at Orissa Power Generation Corporation (OPGC) from August 1994 that restrictions ceased to be imposed.
4. The poor performance of OSEB’s only thermal power station at Talcher (TTPS) was another distressing feature. The plant suffered from mismanagement. It had a work force far in excess of requirement, high auxiliary consumption and extremely poor plant load factor (PLF).

**Table –3**  
**PLF %**

Year	India	Orissa
1990-91	53.90	33.90
1991-92	55.10	30.00
1992-93	57.10	31.50
1993-94	61.00	35.50
1994-95	60.00	29.00

5. With generation projects being executed under the Government and growing emphasis on village electrification, by far the major part of the investment in the power sector went into those areas, starving the transmission and sub-transmission segments. A review of investments in the power sector disclosed that as much as 88% of the total investment was being made in the generation and rural electrification segments leaving a meager 12% for transmission and system improvement. Almost all EHT lines and sub-stations were loaded fully without any standby capacity. As a result, supply had to be curtailed or shut down even for routine maintenance. Preventive maintenance had often to be deferred for this reason. Technical losses, particularly in the HT and LT distribution segments grew and reached the unacceptably high level of 23% by 1994-95 as under :

33KV Lines	6.22 %
33/11 kV substations	0.85%
11 kV lines	6.7%
11/0.4 kV substations	1.72 %
LT lines	7.46 %
<b>Total</b>	<b>22.95%</b>

6. Over the years, the tariff set by OSEB (as indeed practically all other Boards in the country) got progressively skewed, with industries bearing a disproportionately heavy burden of costs. The beneficiaries were the LT group of consumers who met only a significantly lower portion of the cost. Despite the pattern of cross-

subsidy which was heavily weighted against industry, the overall tariff did not cover the entire cost. For example, in 1992-93, OSEB tariff covered only 78 % of the cost and in 1993-94, it worsened to 71%.

7. The Cadre of engineers with OSEB was all along held by the Government of Orissa; the only state where the Board did not have its own cadre of engineers. Coupled with the continuing financial strain, there was virtually no effort towards innovation. The use of Aerial Bunched Cables, LT-less distribution, energy audit to identify areas of large T&D losses, streamlining meter-reading, billing and collection procedures were neglected. The expansion of the LT network permitting easy theft of electricity, compounded the problem. There was no system of timely writing off of bad debt; "receivables" came to be as high as 190 days' average revenue.
8. A number of steps had been taken by the Government over the years to strengthen OSEB's revenue collection and theft reduction. Theft of line material had assumed alarming proportions and this led to the enactment of the Orissa Electric Supply Line Material (Unlawful Possession) Act in 1988. Amendments were carried out in pre-existing law to provide for electricity dues being recovered under the Orissa Public Demand Recovery Act. A dedicated Magisterial Court was established to expeditiously dispose of electricity theft cases, and a special police organization was set up for this purpose, headed by a very senior Police Officer. None of these steps however produced the desired results.
9. Under Section 59 of the Electricity (Supply) Act 1948, the Board was required to fix its tariff in such a way that after meeting all expenses properly chargeable to revenues and after taking into account subsidies from Government, it should have a surplus of at least 3% of the value of the net fixed capital of the Board in service at the beginning of the year. Till 1970s, the State Government was able to make the requisite subventions to the Board but things started changing for the worse. The progressively increasing burden of subsidy could not be met by the Government and the unpaid amounts due to OSEB went up to Rs.334 Crores by 1994. Clearly, the Government was unable to meet its statutory obligations under the Electricity (Supply) Act.
10. It was in this background that the Government decided on a comprehensive reform and restructuring of the power sector which started in the year 1996. In the meantime 14 years since has passed after the initiation of Reform. Let us examine the present status from which we will have a fair idea of the power sector of Orissa today.

#### **Benefits of power sector reform**

#### **11. Reduction of AT&C loss from 60.90% in 1998-99 to 39.15% in 2009-10.**

Though the Transmission and Distribution (T&D) loss in Orissa during the period of OSEB was being reported in the region of 23% over a number of years these figures did not take into account the losses taking place owing to non-billing, non-collection and theft of electricity. The audited accounts of OSEB, however, pointed out a different set of figure. The T & D loss was increasing from year to year but gradually declined after the distribution was privatized w.e.f 1.4.1999.

- \* The T & D loss which had reached a level of 51.02% in 1998-99 has been decreased to 46.68% in 1999-00 and 40.33% in 2008-09 and 39.93% in 2009-10.
- \* The collection efficiency has increased from 79.92% in 1998-99 to 92.98% in 2008-09 and 96.96% in 2009-10.
- \* From 1999-00 the concept of Distribution loss and Aggregate Technical and Commercial (AT&C) loss has been introduced in place of T & D loss.
- \* The Distribution Loss has declined from 43.91% in 1999-00 to 37.50% in 2008-09 and 37.24% in 2009-10. The AT & C loss was 56.7% in 1996-97, 58.8% in 1997-98 and 60.90% in 1998-99. The AT&C loss has declined from 56.71% in 1999-00 to 41.89% in 2008-09 and 39.15% in 2009-10.

- \* Thus while the T&D loss was increasing during OSEB period, the Distribution loss as well as AT & C loss have declined from 1999-2000, though at a slow speed. Hence, it can be said that loss level has declined in terms of T & D loss, Distribution loss as well as AT&C loss after the distribution of electricity was privatised w.e.f. 1.4.1999. The comparative position may be seen from the Table given below:-

**Table - 4**

Year	T & D Loss	Distribution Loss	Collection Efficiency	AT & C Loss	All India AT&C Loss
1990-91	45.31%	-	87.48%	52.10%	
1991-92	44.80%	-	92.02%	49.2%	
1992-93	45.01%	-	91.91%	49.5%	
1993-94	41.57%	-	86.15%	49.7%	
1994-95	46.59%	-	84.97%	54.6%	
1995-96	46.94%	-	92.12%	51.1%	
1996-97	49.47%	-	85.77%	56.7%	
1997-98	49.24%	-	81.17%	58.8%	
1998-99	51.02%	-	79.92%	60.90%	
1999-2000	46.68%	43.91%	77.19%	56.71%	
2000-01	46.90%	44.01%	78.72%	55.92%	
2001-02	50.19%	47.47%	75.55%	60.31%	
2002-03	43.78%	40.75%	82.45%	51.15%	32.54%
2003-04	43.71%	40.75%	85.49%	49.35%	34.78%
2004-05	41.59%	39.21%	91.00%	44.68%	34.33%
2005-06	42.37%	39.59%	91.58%	44.68%	33.02%
2006-07	41.67%	38.57%	92.37%	43.25%	30.59%
2007-08	41.13%	37.48%	93.41%	41.60%	29.24%
2008-09	40.33%	37.50%	92.98%	41.89%	28.44%
2009-10	39.93%	37.24%	96.96%	39.15%	NA
2010-11 (upto Sept,10)	39.97%	37.54%	88.78%	44.86%	
2010-11 (Approved)	25.33%	22.72%	98.00%	23.77%	
2011-12 (Approved Business Plan)	24.75%	21.70%	99.00%	22.48%	
2012-13 (Approved Business Plan)	24.19%	21.20%	99.00%	21.99%	

12. **The Growing Power Shortage arrested and improved-The peak shortage of 24% in 1991-92 has declined to 2.48% in 2008-09 and 7.1% in 2009-10.**

During OSEB period the power shortage was increasing from year to year. Problem of power shortage was felt from the mid 80's and by end of early 90's the shortage had become acute. The peak shortage had shot up from 24% in 1991-92 to 37% in 1993-94, exceeding the national average. This problem has been solved. After 1999-00 there has been no statutory power cut except in May-June due to low water level in the reservoir. Power surplus was continuing till FY 2007-08. Due to decline in rain fall, there was marginal deficit during 2008-09. While the peak demand deficit was 2.48%, the energy deficit was 1.4% during 2008-09 and during 2009-10 the peak demand was 3491 MW and shortage has been contained at 7.1% and energy deficit has been contained at 0.9%. The position is likely to improve with generation by some of the Independent Power Producers (IPPs) as well as the installation and operation of Ultra Mega Power Projects.

### 13. The benefit of non-revision of tariff for nine years and lower tariff rate in the sector

Another important significant achievement of power sector is that tariff has remained constant on an average from 2001-02. There was overall tariff rise of 28.5% during 1993-94, 15.73% during 1994-95, 17.47% during 1995-96, 17% during 1996-97, 10.33% during 1997-98, 9.30% during 1998-99, 4.50% during 1999-2000, 10.23% during 2000-01 and the average tariff has remained constant from 2001-02 till 2009-10 and during 2010-11 the average tariff increase is 22.20% over the average tariff of 2009-10. When compared, the tariff rise with the increasing Whole Sale Price Index from 1995-96 it will be seen that there is actual decline in tariff by more than 30%. With the rise in cost of coal and oil, equipments, transformers, cables together with rise in salary and pension the cost of generation and procurement cost has increased. Further, the hydro power as a ratio of total State demand has also declined from 56.67% in 2004-05 to around 21.63% in 2009-10. Since there has been no substantial addition of hydro generation and more and more reliance is being placed on high cost thermal power there has to be tariff raise from year to year basis in order to ensure payment of cost of power and to take up minimum repair and renovation work of the distribution network.

Incidentally it may be noted out that the tariff in Orissa is one of the lowest in the country. In 2008-09 for an embedded consumer of 5 MW at 11 KV (33 KV in some cases) while average tariff was 490 paise per Kwh in Karnataka, 390 paise in Maharashtra, 340 paise in Kerala, 337 paise in Chhatisgarh, 255-287 paise in Andhra Pradesh, 245-330 paise in West Bengal, tariff in Orissa was 245-290 paise per Kwh..

### 14. Direct accrual of Revenue to the State exchequer

\* Before power sector reform in Orissa was undertaken from 1.4.1996, the subsidy to power sector on the average was Rs.250 crore per annum and this has been withdrawn from 1.4.1996. If the subsidy would have continued it would have been more than Rs.1000 crore by 2009-10 per annum. This has helped keeping the revenue deficit of Orissa on a declining path.

\* In 2006-07 alone different State Governments have provided the following subsidy to their power sector.

Andhra Pradesh -	Rs.1973 cr.	Rajastan -	Rs.700 cr.
Tamil Nadu -	Rs.1330 cr	(Electricity Duty is also retained)	
Gujurat-	Rs.1767 cr.	Jharkhand -	Rs.392 cr.
Uttar Pradesh -	Rs.3105 cr.	Delhi -	Rs.92 cr.
Punjab -	Rs.1845.81 cr.		

\* In the disinvestment process form OPGC of Rs.603.20 crore was utilized as general resources for State budget. OPGC was operating at PLF 55.14% in 1996-97 which has increased to 90.18% in 2006-07, 82.60% in 2007-08 and 88.7% in 2008-09. It has generated about 2433.29MU in 2009-10 and likely to generate 2853.53 MU in 2010-11 it is now paying dividend of Rs. 75 croes on the average per annum and by now it has paid Rs.611.24 crore to the State Govt.

\* OHPC have invested Rs.377 core from its own internal resources and by borrowing and have completed the then incomplete Upper Indravati Project on 19.4.2001. Its installed capacity is 600 MW. Its generation has increased from 1736 MU in 2000-01 to 2948 MU in 2007-08 and 2221 MU in 2008-09.(1414.75 MU in 2009-10 and 1942.38 MU estimated in 2010-11)

\* The revenue from sale of TTPS to NTPC in 1995 has fetched 356.00 crore to the State. TTPS which was operating at less than 30% PLF is now operating at PLF of 90% and its installed capacity is 460 MW. This power is being totally available for State consumption. Its generation has increased from 1320.82 MU in 1996-97 to 3114.63 MU in 2007-08.(3339.19MU in 2008-09 and 3255.97MU in 2009-10 and 2957.32MU estimated for 2010-11)

- \* Revenue from disinvestment from distribution companies of Rs.159.00 crore have been utilized to reduce the liabilities of GRIDCO.
- \* The sell proceeds of TTPS of Rs.356 crore has been utilized by GRIDCO to meet its past liabilities
- \* Collection of electricity duties has increased from Rs.121.35 crore in 1995-96 to Rs.359.38 crore in 2008-09 and Rs 459.96cr in 2009-10
- \* As a result of withdrawal of budgetary support to the power sector from 1996-97 together with disinvestment and other fiscal measures the State consolidated fund has been enriched and Orissa has been converted from a revenue deficit State to a revenue surplus state.
- \* Revenue deficit in 1999-00 was Rs.2574.19 crore (-6% of GSDP) and Orissa has been converted to a revenue surplus of Rs.481.19 crore in 2005-06 and it has increased to Rs.3419.89 crore in 2008-09 (+2.80% of GSDP) and Revenue surplus of Rs.1138.62Cr in 2009-10 (+0.75% of GSDP).
- \* The fiscal deficit 3836.43 crore in 1999-00 (-8.94% of GSDP) has been reduced to 584.03 crore in 2008-09 (-0.48% of GSDP) and Rs2265.37Cr in 2009-10 (-1.5% of GSDP).

#### 15. Electrification

- \* As on 31.03.2010 out of 47525 numbers of villages in the State 29735 nos. have been electrified which constitutes about 62.6% of total villages. (All India villages electrified as on 31.08.2010 84.9%).
- \* About 21% of the households is un-electrified i.e. yet to be electrified.
- \* Per capita consumption of electricity per year is 510 KWH against all India average is 704.2 KWH (2007-08 report)

#### Consumer Profile

16. There has been substantial increase in the number of consumers from year to year basis. The total number of consumers as on 31.03.1999 was 14,24,640. This has increased to 27,50,935 as on 31.03.2009 and rise to 29,43,478 as on 31.03.2010. With implementation of village electrification under RGGVY and BGJY the number of consumers likely to increase to 68, 00,000 by 2011-12.

**Table – 5**  
**All Orissa Consumer Profile (Nos.)**

DISCOMs	31.3.1999	31.3.2008	31.3.2009	31.3.2010 Performance Review
CISU	554610	1011267	1068520	1143500
NESCO	251703	578241	660621	607677
WESCO	295415	491530	527345	569147
SOUTHCO	322912	520478	562716	623154
<b>Total</b>	<b>1424640</b>	<b>2610516</b>	<b>2819205</b>	<b>2943478</b>

Source: Tariff Filing



**Table – 6**  
**All Orissa Consumer Profile (Nos.) (Voltage-wise)**

Voltage Level	31.3.2008	31.3.2009	31.3.2010
LT	2606589	2813687	2941364
HI	3856	5447	7039
EHT	71	71	75
<b>Total</b>	<b>2610516</b>	<b>2819205</b>	<b>2943478</b>

Source: Performance Review

**17. Transmission Lines and Substations**

The State has following categories of transmission lines and EHT sub-stations as on 30.09.2009.

400 KV lines (Ckt Km.)	-	446.103
220 KV lines (Ckt Km.)	-	5165.375
132 KV lines (Ckt Km.)	-	5007.915

The State has 91 nos. of EHT sub-stations and switching stations under OPTCL

**18. Installed capacity in the State(excluding CGP)——4734MW**

- \* State Hydro (including Mini Hydro)-2085 MW
- \* State Thermal including IPPs - 1530 MW
- \* Central Allocation-1062 MW (Central Hydro189 MW + Central Thermal 873MW)
- \* CGP Capacity as on 31.03.2009——3989MW
- \* Surplus of CGP power (including COGEN) supplied to the State GRID during 2009-10——2631.50MU

**19. Distribution loss, Collection efficiency and Aggregate Technical and Commercial Loss**

**a) Distribution Loss**

High distribution loss and Aggregate Technical and Commercial loss are the main challenges faced by the Power Sector in the State. Before privatization of distribution of electricity in the State from 1.4.1999 the distribution loss was 51.02% during 1998-1999 and this has been reduced to 37.50% by end of 2008-09. Against the target of distribution loss of 24.45% approved for 2009-10, the actual distribution loss is of the order of 37.24% during 2009-10. For 2010-11 the distribution loss target has been fixed at 22.22%.

As per the Business Plan the distribution loss target for 2011-12 has been fixed at 21.70% and for 2012-13 at 21.20%.

**b) Collection Efficiency**

The collection efficiency was 79.12% during the year 1998-99 which has increased to 92.98% during the year 2008-09. The Collection efficiency achieved is 96.96% against the target of 98.00% during the year 2009-10. Similarly, the target for collection efficiency for the year 2010-11 has been fixed at 98%. As per the Business Plan this has been further fixed at 99% for 2011-12 and 2012-13.

**c) AT & C Loss**

The AT&C loss was 60.9% in 1998-99 which has been reduced to 56.71% in 1999-2000, 41.89% for the year 2008-09 and 39.15% for 2009-10 against the target of 25.96%. The AT&C loss has been targeted at 23.77 % during the year 2010-11.

As per the Business Plan the AT&C loss has been fixed at 22.48% for 2011-12 and 21.99% for 2012-13.

**d) Summary of the distribution loss, collection efficiency and AT&C loss :-**

**Table - 7**

Year	Distribution Loss	Collection Efficiency	AT& C Loss
1998-99	51.07%	79.77%	60.9%
1999-2000	43.91%	77.19%	56.71%
2007-08	37.48%	93.41%	41.60%
2008-09	37.50%	92.98%	41.89%
2009-10 (Approved by OERC)	29.45%	98.00%	25.96%
2009-10	37.74	96.96	39.15%
2010-11 (Approved by OERC)	22.22%	98.00%	23.77%
2011-12 (As per the Business Plan)	21.70%	99%	22.48%
2012-13 (As per the Business Plan)	21.20%	99%	21.99%

20. Though there has been reduction in distribution loss as well as AT&C loss and improvement in collection efficiency from the level of 1998-99 when the distribution business was carried out by GRIDCO as a composite function, the present level of distribution loss as well as AT&C loss is a matter of great concern for sustainable development of the power sector in the State. When the distribution loss is 37.50% during the year 2008-09 it means that out of 100 units energy supplied only 62.50 units are being billed. The rests 37.50 units are not being billed due to loss in the system and also due to theft.

- \* Similarly when AT&C loss is 41.89% it means that out of 100 units supplied, electricity charges for only 58.11 units are being collected and electricity charges for 41.89 units are not being available for distribution companies.
- \* Out of about 42% of AT&C loss, the loss ascribed to technical loss may be of the order of 15% to 20% and the rest 17% to 22% is due to theft of electricity.
- \* While investment is needed for system improvement in order to prevent the technical loss, strong administrative support is needed from Govt. to deal with criminals who are indulging in the theft of electricity in various ways. This is basically governance issue which the State has to take initiatives to deal with the unscrupulous consumers which are being aided and abetted by the employees of distribution companies. States like Andhra Pradesh, Maharashtra, West Bengal, Tamilnadu have launched a broad attack on theft of electricity by monitoring the antitheft drive from the highest level of the govt.
- \* Mere opening of energy police stations and without making it fully functional and without day to day supervision and monitoring by a senior police office in the rank of an Additional DG or at least in the rank of IG will not yield any visible result.
- \* OERC time and again have advised the State govt. and the distribution companies to take action in these directions. It is the strong political will which will successfully deal with the menace of theft of electricity which is the cancer of the power sector as observed by Hon'ble Prime Minister Dr. Manmohan

Singh. According to him we must have to come down heavily on theft of electricity as it is seriously affecting the financial viability of the sector as a whole and the effect on our economy may well prove disastrous.

## 21. ACCOUNTING PROFIT & LOSS OF POWER SECTOR OF ORISSA AS A WHOLE

Table - 8

(Rs. In Crore)

	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
NPFC	10.15	12.14	12.24	12.24	12.40	12.27	12.17	12.27	12.19	12.12	12.41	12.12	12.12
OHFC	30.85	37.79	35.21	30.56	27.44	3.37	41.52	6.7	64.08	22.06	30.93	127.10	20.77
GRIDCO	294.59	319.11	372.01	17.71	45.24	70.7	598.00	417.77	357.78	2.22	230.06	100.07	50.14
OPICL										-2.74	-10.6	-15.27	-18.5
CESU				121.3	85.01	115.13	65.47	95.11	179.27	29.29	95.38	52.35	14
NISSCO				-40.55	-10.50	-10.50	-10.41	-10.41	-10.54	71.17	12.07	21.14	21.17
WESCO				60.5	100.3	120.75	51.05	44.77	29.56	23.04	31.83	33.95	10.50
SOUTHCO				49.01	54.24	75.36	107.4	71.77	97	35.74	79.19	27.78	17.05
Total	-140.54	-100.17	-40.6	-134.01	-39.70	-289.08	-76.87	262.81	164.98	111.26	340.11	508.11	77.73

### Investment for System Improvement

22. Besides strong police action for launching anti theft drive, investment is required for replacement of the ageing distribution network. The Sovan Kanungo Committee had recommended Rs.3240 crores in the year 2001 and at present it would be not less than Rs.5000 crore when inflation is taken into account. In case of Delhi, Govt. had provided Rs.3450 crore as transitional support besides keeping the liabilities with a holding company and transferring assets to the private distribution companies with a cleaned up Balance Sheet. As a result of unqualified govt. support there has been not only financial turn around of the distribution companies in Delhi but there has been substantial improvement in the quality of supply and also AT&C loss has been reduced from 53% to 12%. Keeping this in view Orissa Electricity Regulatory Commission in its order dated 20.3.2010 while approving the Business Plan have advised the State Govt. and Distribution companies to invest at least Rs.5000 crores for system improvement in order to improve the quality of supply and to reduce the Technical loss. While the State Govt. through GRIDCO being 49% of share holder should invest at least Rs.2450 crore, the four distribution companies should invest balance Rs.2550 crore. Unless investment is made by the State Govt. as well as the distribution companies and unqualified govt. support is provided to deal the menace of crime the present level of theft of electricity, it would not be possible for sustainable development of power sector and to improve the quality of supply to the consumers at an affordable rate.

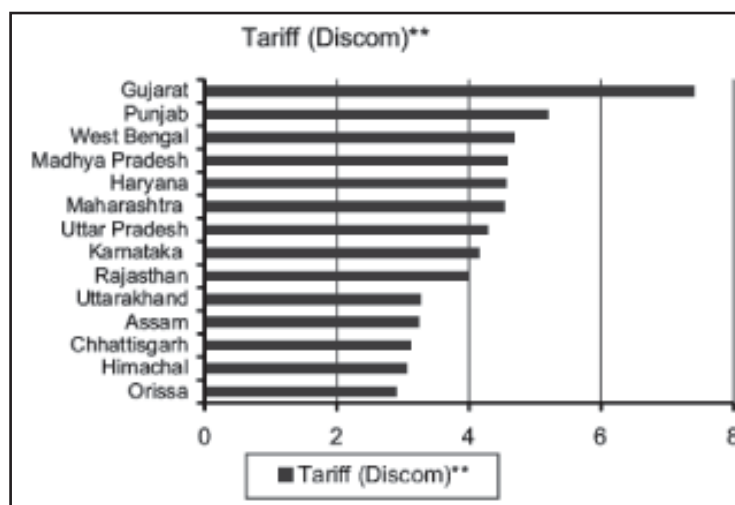
### Tariff

23. Further, it may be noted that retail tariff in case of Orissa is one of the lowest as may be seen from Economic Survey, 2008-09 laid in the Parliament. The table and graph below explains the position.

Table- 9

### Comparative Tariff for a consumer at HT level for 5 MW load in various States

State	Tariff (Paise per Kwh)
Orissa	245-290
Maharashtra	390
Kerala	340
Karnataka	490
Chhattisgarh	337
Andhra Pradesh	255-287
West Bengal	245-330



24. During the period of OSEB – GRIDCO, there was regular revision of tariff on year to year basis. But after 2000-01 there has been no revision of tariff on the average in Orissa. This is a greatest benefit the power sector reform was provided to the State. When the tariff rise was 28.5% during the year 1993-94, 15.73% in 1994-95, 17.47% in 1995-96, 17% in 1996-97, 10.33% in 1997-98, 9.3% in 1998-99, 4.5% in 1999-2000 and 10.23% in 2000-01 there has been no rise in tariff thereafter. Recently the average tariff rise during 2010-11 is 22.20%. If we compare wholesale sale price index (WPI) the tariff rise from 1995-96 to 2009-10 has rather declined by 30.46%.

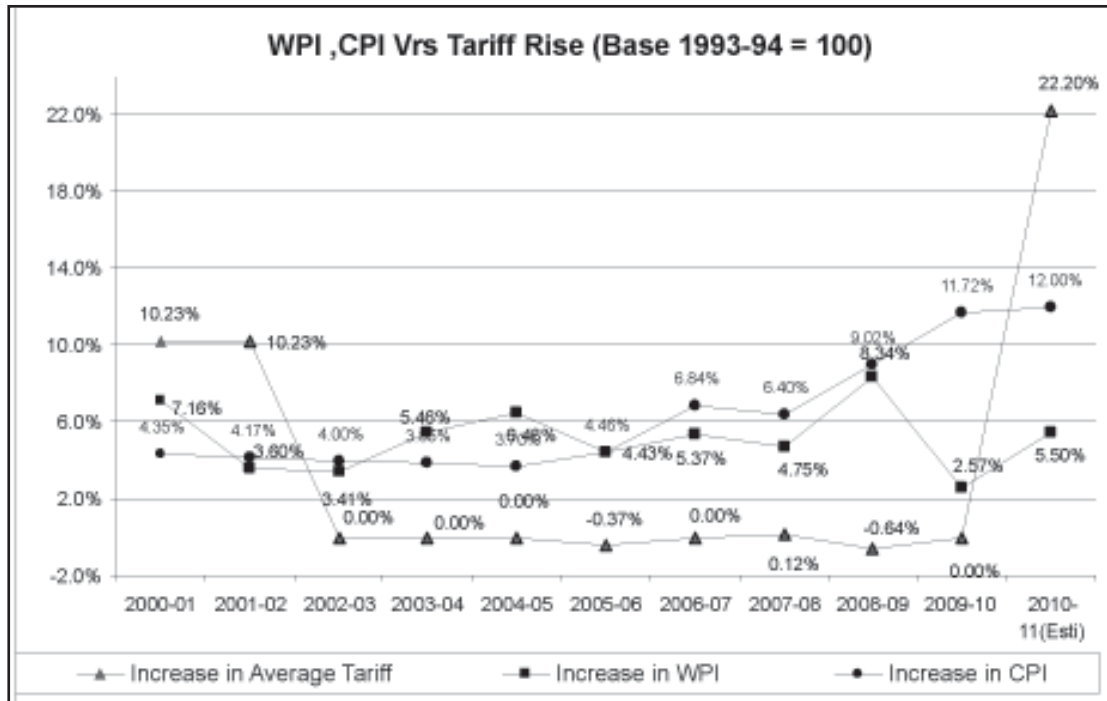
**Table -10**

**Tariff Rise vis-a-vis Inflation (Wholesale Price Index)**

1993-94 – 28.58% (State Govt.)

1994-95 – 15.73% (State Govt.)

Year	Increase in Average Tariff	Increase in WPI	Increase in CPI
1995-96	17.17% (State Govt.)	19.30%	
1996-97	17.00% (State Govt.)	6.45%	
1997-98	10.13%	4.80%	
1998-99	9.30%	6.81%	
1999-00	4.50%	3.02%	
2000-01	10.23%	7.16%	4.35%
2001-02	0.00%	3.60%	4.17%
2002-03	0.00%	3.41%	4.00%
2003-04	0.00%	5.46%	3.85%
2004-05	0.00%	6.48%	3.70%
2005-06	-0.37%	4.13%	4.16%
2006-07	0.00%	5.37%	6.84%
2007-08	0.12%	4.75%	6.40%
2008-09	-0.64%	8.34%	9.02%
2009-10	0.00%	2.57%	11.72%
2010-11	22.20%	5.50% (assumed)	17.10% (assumed)



25. Every year there is increase in receipt and expenditure in the State budget to meet the growing demand of various requirements. Similarly there has been increase in the cost of materials like distribution transformers, conductors, transformer oil etc. besides the increase in salary and pension of the employees. When with the rise in cost of inputs, the sale price of paddy, rice and other essential commodities has been increasing from year to year basis the cost of generation and supply of electricity has also been increasing from year to year basis. Since the tariff fixation is done under regulated regime tariff increase has not been allowed for last 9 years as a result the distribution utilities are facing financial crunch. The OERC has consistently taken a stand not to increase the tariff for last nine years on the ground that effective step should be taken by the licensee to reduce the present high level of distribution and AT&C loss at the first instance. The Commission has not diluted its stands and is fixing the target of reduction of distribution and AT&C loss on a normative basis. In other words Commission has not been guided by distribution loss of 37.50% and AT&C loss of 41.89% for 2008-09 while fixing the distribution loss at 24.4% and AT& C loss at 26.00% for 2009-10 and accordingly has not allowed tariff rise for 2009-10. For 2010-11 the average tariff rise of 22.20% has been allowed mainly because of increase in the cost of generation, transmission and procurement price of GRIDCO together with increase in salary and pension of the employees. But however, the Commission has not reduced the target of distribution loss nor the Aggregate technical and commercial loss for 2010-11. While the distribution loss for 2009-10 was fixed at 24.45% and the licensee projected it at 35.38% for 2010-11. The Commission has approved the distribution loss at 22.20% for 2010-11. Similarly the AT& C loss approved for 2009-10 was 25.96% and the licensee has projected the AT&C loss of 37.59% for 2010-11. But the Commission has approved the AT&C loss at 27.77%. Based on the distribution loss at 22.20%, AT&C loss at 23.77% approved for 2010-11, the Commission has determined the tariff. If the high distribution and AT&C loss would have been accepted by the Commission, there would have been substantial hike in tariff for 2010-11. In order to avoid the tariff shock the Commission has fix a reduced level of distribution loss and AT&C loss without accepting loss level projected by the distribution licensee. While fixing the tariff Commission has ensured that there is no increase in tariff for domestic consumers consuming up to 100 units per month and BPL family 30 units per month. There is no tariff hike for consumers belonging to category of agriculture, irrigation and allied agricultural activities.



26. The summary of the distribution loss, collection efficiency, AT&C loss from the year 2008-09 to 2012-13 are indicated in the table given below:

**Table - 11**  
**Distribution Loss, Collection Efficiency & AT&C Loss (in %)**

	Actual for 1999-2000	Actual for 08-09 (Audited)	Approved 09-10	Actual for 2009-10 **	2010-11 (Proj. by licensee)	2010-11 Approval	2011-12 (Approval) Business Plan	2012-13 (Approval) Business Plan
			Overall		Overall		Overall	
<b>Distribution Loss</b>								
CESU*	44.89	40.34	26.30	39.43	44.28	25.37	24.0	23.00
NESCO	43.35	34.57	23.00	32.52	28.30	18.46	18.40	18.35
WESCO	44.17	33.55	22.50	34.68	28.45	19.93	19.70	19.60
SOUTHCO	41.84	47.78	27.92	48.02	42.76	27.82	26.50	25.50
All Orissa	43.91	37.50	24.45	37.24	35.38	22.22	21.70	21.20
<b>Collection Efficiency</b>								
CESU*	69.72	91.80	98.00	97.09	95.00	98.00	99.00	99.00
NESCO	79.37	92.50	98.00	95.24	97.00	98.00	99.00	99.00
WESCO	83.36	93.86	98.00	98.38	97.50	98.00	99.00	99.00
SOUTHCO	78.75	94.21	98.00	95.90	97.00	98.00	99.00	99.00
All Orissa	77.19	92.98	98.00	96.96	96.58	98.00	99.00	99.00
<b>AT C Loss</b>								
CESU*	61.58	45.23	27.78	41.20	47.06	26.86	24.76	23.77
NESCO	55.04	39.48	24.54	35.73	30.45	20.09	19.22	19.17
WESCO	53.46	37.63	24.05	35.74	30.24	21.53	20.50	20.40
SOUTHCO	54.20	50.80	29.36	50.16	44.47	29.27	27.24	26.25
All Orissa	56.71	41.89	25.96	39.15	37.59	23.77	22.48	21.99

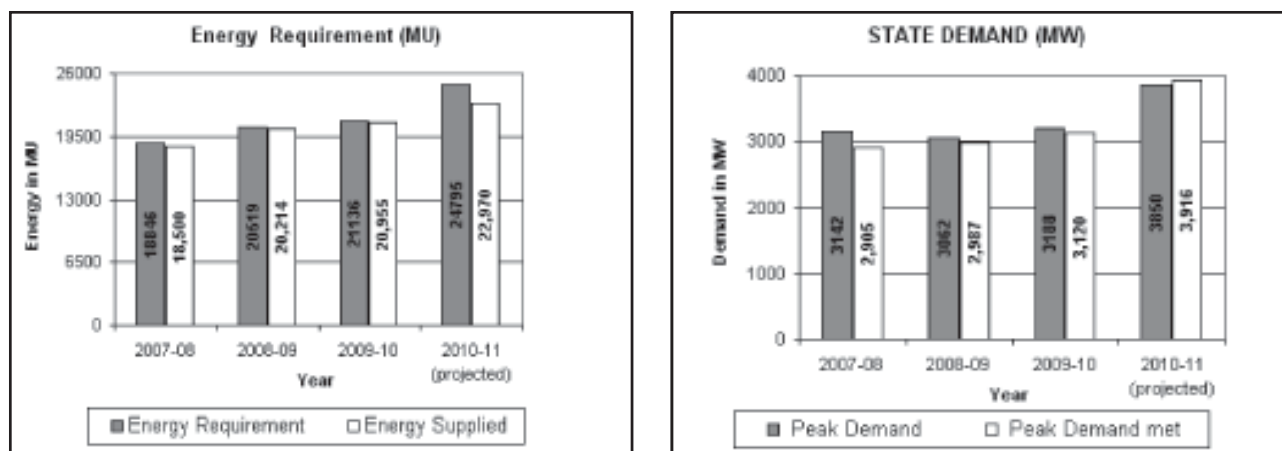
(\*In case of CESU the figure for 2008-09 has been taken from Performance Review data)

(\*\* The data for FY 2009-10 has been adopted from Performance Review of the licensees)

#### **Power Availability and Power Regulation**

27. During 2009-10 against the peak demand of 3100 MW the actual availability of power during January 2010 was 1930 MW only. The shortfall was about 1170 MW. This was being met partly by over drawing from Eastern grid for about 650 MW and by drawing from CGPs around 450 MW. While the Commission has approved the Bulk Supply price for 2009-10 at 122.15 paise per unit for GRIDCO, GRIDCO has purchased power from different generators at an average cost of 185.02 paise up to September 2009 and that has increased to 202 paise per unit during January 2010. It was incurring loss of 150 crore per month. To tide over the situation, power scheduling has been imposed according to which the HT & EHT industries have been directed to reduce their contract demand by 25% and 15% respectively. Similarly power regulation has been imposed for 1 hour each in morning peak and evening peak in Bhubaneswar and district Headquarters. Similarly power Regulation has been imposed for 3 hours in other urban areas and 4 hours in rural areas. Because of little bit improvement in generation of hydro power, power restriction has been relaxed to some extent. In Maharashtra, Andhra Pradesh, Tamil Nadu and other States power restriction is a regular feature. In Orissa there was no power regulation till 2008-09. With the increase in number of consumers and consumption level and the decline in hydro generation together with increase in the cost of generation of power, the power restriction has become a necessity.

28. With the rise in number of consumers and increase in consumption level by various consumer groups due to rapid industrialization and launching of rural electrification work under RGGVY and BGJY the gap between demand and supply has been increasing. During 2008-09 when the average peak demand of energy was 3062 MW, the availability was 2987 MW, the peak demand deficit being 2.4% and for the year 2009-10 the Peak Demand was 3188MW the availability was 3120 MW, the Peak demand deficit being 2.1%. Similarly, when the energy requirement was 20519 MU energy available during 2008-09 was 20214 MU, the energy deficit being 1.5% and for the year 2009-10 the Energy requirement was 21136MU energy available was 20955MU the deficit being 0.9%(Source CEA). The graph below shows the Gap between energy requirement and availability and Peak demand & met for the period from 2007-08 to 2010-11 (Projected by CEA).



(Source LGBR of CEA)

29. Further, since there has been no addition to hydro generation after Indravati Hydro Station was commissioned on 19.01.2001, more reliance is being placed on comparatively costly thermal power. This is evident from the fact that when state hydro generation was 56.71% of the total state demand in 2004-05, it has reduced to 31.04% in 2008-09 and below 30% in 2009-10. Even if hydro generation was maintained at 2004-05 level, its share in total requirement in 2008-09 would have been 37.73% instead of 31.04% from 56.71% in 2004-05. It shows that there has been no addition of capacity in hydro sector in spite of demand rise of around 50%.

(Table 12).

	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
State demand in MU	12499.45	13483.75	15119.93	17212.51	18771.82	19480.85
State hydro generation for sale	7087.87	5234.48	7357.58	7885.81	5826.12	4712.86
% of state hydro to total state demand	56.71	38.82	48.66	45.81	31.04	21.63

#### Standard of Service and Quality of Supply

30. During the period of OSEB and GRIDCO the usual apathy of government structure was being experienced by the consumers. It was hoped that with privatization of distribution of electricity from 1999-2000, the standard of service would improve as well as there would be re-orientation in the outlook and behaviors of the employees of the distribution companies to the consumers. The employees of the erstwhile OSEB/GRIDCO who are continuing in the distribution sector are yet to change their outlook and approach to the consumers.

31. It is seen that the broken poles and lines are not replaced. Transformers are frequently burnt and not replaced in time. There is frequent interruptions and low voltage problem. It is seen that the Executive Engineers are not regularly visiting the field and very often they are not aware of what is happening in the field. They behave in a bureaucratic manner instead of taking pride in keeping their system in a better condition to ensure quality supply of power to the consumers on whose revenue they are thriving.
32. During the past few years, OERC has allowed Escrow relaxation for operation and maintenance of distribution network the details of which is given below. It is not understood why the periodic maintenance of the lines and substations are not being taken up.

Table - 13

(Rs. in crore)

R&M Expenses	2006-07		2007-08		2008-09		2009-10		2010-11
	Appr.	Actual	Appr.	Actual	Appr.	Actual	Appr.	Actual [as per escrow relaxation]	Appr.
WESCO	24.25	12.44	32.82	12.37	25.06	17.90	27.01	22.59	34.77
NESCO	24.48	12.88	24.43	13.00	25.87	20.86	27.88	27.40	37.22
SOUTHCO	17.35	5.54	18.38	5.50	10.08	7.79	20.73	21.39	26.11
CESU	41.31	22.09	43.64	25.11	41.87	32.76 (Escrow)	40.46	39.22	51.19
<b>Total:</b>	<b>107.39</b>	<b>52.95</b>	<b>119.27</b>	<b>55.98</b>	<b>112.48</b>	<b>79.31</b>	<b>116.08</b>	<b>110.60</b>	<b>149.29</b>

The DISCOMs should fully utilize the R&M expenditure approved by the Commission and should take effective steps for timely repair and maintenance of the Distribution network. They must collect enough revenue in order to enable GRIDCO to release fund for R&M expenditure as approved by the Commission.

33. The Commission has also conducted enquiry engaging independent expert teams to ascertain the status of maintenance of lines and S/Ss as well as the Grid S/Ss through out the State. Technical deficiencies noticed, the short-term and long-term measures required and the time limit thereof were discussed in the meeting with the DISCOMs as well as the expert teams, who have presented their findings. The DISCOMs were required to take action on short-term measures and long-term measures for timely repair and maintenance of the Distribution network.
34. The Distribution Utilities must realize that the consumers are central to the growth of their business and without giving them satisfactory service they can not expect any help, co-operation and goodwill from the consumers. While the thieves of power, be it the consumers or the employees, should be treated as thieves, the honest consumers must be properly looked after. They should be treated with respect and all dignity. There should be reorientation in our thinking and approach while dealing with the consumer grievances. We must remember that if you plan good customer care, you will reap a sustained good business for years to come. We should be honest and sincere in taking care of the consumers but not merely propagating to have done this or that for the consumers. In this connection one may recall what Mahatma Gandhi has said –
- “An error does not become truth by reason of multiple propagation nor does truth become error because nobody sees it”.**
35. The Distribution Utilities must have a clear vision for ensuring satisfactory service to the consumers at an affordable and competitive price. One must realize that visions of the future are better than dreams of the

past. If power sector to succeed, we must have to take adequate care of the consumers in improving the quality of service. In this connection we may recollect what Mahatma had said about the importance of consumers /customers.

According to him:

- \* **A customer is the most important visitors in our premises.**
- \* **He is not dependent on us. We are dependent on him.**
- \* **He is not an interruption to our work. He is the purpose of it.**
- \* **He is not an outsider to our business. He is a part of it.**
- \* **We are not doing a favour by serving him.**
- \* **He is doing us a favour by giving us the opportunities to do so.**

36. In the words of Mahatma Gandhi, consumer is the kingpin for success or failure of any organization. Hence, if the utilities want to thrive in their business of distribution of electricity they must take proper care of the consumers in their day to day activities because without consumer they do not have any business. It is the quality of service to the consumers on which the distribution utilities will thrive.
37. At present the distribution system in Orissa is plagued by deep-rooted legacy problems of high AT&C losses triggered by rampant theft and technical issues, corruption, dilapidated networks, inadequate metering, poor recovery of dues, lack of consumer orientation and poor operational and financial management. The distribution companies are required to revamp their internal administration and fix accountability at different levels to ensure quality supply of power and to improve the standard of performance. Therefore, the new mantra for the distribution companies should be "Reduce Cost, Be more efficient, Be consumer responsive or Perish".

#### **Proactive Steps taken by OERC**

38. Deeply concerned and worried with poor maintenance of the distribution network as well as the transmission network, Commission had constituted independent technical enquiry team to conduct spot visit and report the remedial measures for upgradation and maintenance of the distribution network and transmission network. The committee had visited different circles and found out the various deficiencies in maintenance of distribution substations and grid substations. The short term and long term measures have been recommended and those have also been presented before the officials of OPTCL and distribution companies to take timely action to remove these deficiencies. In the mean time OPTCL and distribution companies have taken steps for replacement of transformers, conductors besides ensuring routine maintenance work of the substations and grid substations.

#### **39. Transmission System Upgradation**

OERC had engaged the teams of independent experts to enquire in to O&M of OPTCL system. The major findings of the enquiry teams are as follows:-

- \* Provision of PLCC/SCADA is completely neglected in most of the Grid S/S OPTCL should provide SCADA interface in all 220 KV Grid S/S.
- \* Very old ABCBs, MOCBs, BOCBs specifically at Rayagada, Kesinga and Theruvali Grids may be replaced immediately.
- \* As 220kV and 132 kV network & the associated grid S/Ss of the system is the backbone of the transmission system, a regular planned maintenance and timely augmentation of lines and substations with proper protection system in place are required to minimize breakdowns and extend uninterrupted power supply to DISCOMs. Further a system can be so designed that it can meet the contingency maintenance.

- \* OPTCL should maintain its network in a proper manner and plan out the strategy starting from procurement to timely maintenance. OPTCL has been directed to replace the circuit breakers wherever required in a phased manner and should be completed within next one year.
- \* Modern way of management and planning is required by OPTCL for a healthy transmission system to extend quality & reliable power to DISCOMs. Hence, for better flexibility of the transmission system, OPTCL should set up a team consisting of professionally experts in each O&M circle to attend any type of problem in the grids under that circle.
- \* There should be regular review by the GM of EHT (O&M) circle regarding functioning of each O&M Division under his control at least once in each quarter and the review report with all the problems along with the suggestions/remedial measures should be sent to the Corporate office of OPTCL for appropriate action.
- \* OPTCL should carryout regular patrolling of all the feeders. The weak points identified during regular patrolling should be replaced during the prearranged shutdown to avoid longer interruptions owing to breakdowns/faults. Regular/Periodical patrolling of all lines must be ensured. Review/analysis of each interruption should be made and planning strategy should be developed for proper operation and maintenance of the transmission system
- \* Alternative source of supply should be made available at all grid substations to avoid total power failure in the region due to fault in the single source of supply. All EHT Grid S/S should operate in a ring arrangement.
- \* Civil maintenance of control rooms, quarters & buildings etc. are badly neglected causing damage to structures and equipments, hence the Commission directed OPTCL to review the works of Civil Works Divisions and repair and maintenance works should be done immediately to avoid further deterioration.
- \* Transformers should be off-loaded at erection sites instead at Central Store to avoid time & cost over run. The Commission directed that the civil construction and the dispatch schedule of the equipment should be properly planned for the purpose.

In addition to the above, the present poor condition of transmission system can be ascribed to poor maintenance, long delay in execution of projects and monitoring performances of various elements of system.

40. OPTCL as per clause 10 read with clause 23.1 of Transmission License condition submits its investment proposal above Rs.10 cr. to the Commission for any new project undertaken by them. The Commission during the year 2007-09 had given investment approval for new Grid substation and Transmission lines in 26 nos of cases. The carrying cost and the principal amount of any loan actually availed by OPTCL for the approved project is allowed by the Commission in their ARR of the respective year. Commission always encourages licensees including OPTCL to introduce new technology in their business for better consumer service and smooth business operation. The prudent investment in this regard shall definitely be allowed to them through tariff. It is not prudent to artificially hike the transmission charges on the higher projection of loan. It is always done basing on the actual loan already availed and likely amount to be availed by making realistic assessment. The Commission has taken expeditious steps to approve the investment proposal of OPTCL as and when it is submitted. But, it is noted that there is inordinate delay in execution of the projects as a result there has been abnormal rise in cost. This is a serious area of concern for the power sector as a whole.

#### **Distribution System Upgradation**

41. In the tariff order for the year 2008-09, the Commission had directed installation of at least 3000 distribution transformers of different capacities out of which 1000 was to be installed by CESU and rest 2000 by Reliance managed three distribution companies namely NESCO, WESCO and SOUTHCO. By now (till December, 2009) they have replaced / upgraded 3330 number of transformers as per the report furnished to the Commission. The distribution companies normally complained regarding inadequacy of fund available with them and



difficulties in getting fund by way of relaxation of escrow account by which all their revenue receipt are credited. Commission has taken steps to ensure release of fund from escrow account for operation and maintenance work as a result GRIDCO has released Rs110.60 crore (WESCO-Rs.22.59 cr., NESCO-Rs.27.40 cr., SOUTHCO-Rs.21.39 cr, CESU-Rs.39.22 cr) for operation and maintenance work during the year 2009-10 against approved R&M expenditure of Rs.116.08 crore (WESCO-Rs.27.01 cr., NESCO-Rs.27.88 cr., SOUTHCO-Rs.20.72 cr, CESU-Rs.40.46 cr). During FY 2008-09 GRIDCO had released Rs.106.48 cr., (WESCO-Rs.32.12 cr., NESCO-Rs.27.19 cr., SOUTHCO-Rs.14.41 cr, CESU-Rs.32.76 cr) against Rs.112.48 crore (WESCO-Rs.25.66. cr., NESCO-Rs.25.87 cr., SOUTHCO-Rs.19.08 cr, CESU-Rs.41.87 cr) approved by the Commission for R&M expenditure.

42. Commission in the tariff order for 2010-11 had directed for installation /upgradation along with replacement of burnt transformers, load balancing, earthing, installation checking, provision of breakers, boundary walls with gates in all distribution S/Ss, DT metering and energy audit etc. Each DISCOM is required to take up repair and renovation specially in respect of following items of work during 2010-11 in order to improve the quality of supply giving priority to rural areas.
- Upgrade or install 1000 new distribution transformers
  - Complete the energy audit of each distribution transformer by the end of 2010-11.
  - Load balancing in 3-phases of DTR - 2000 nos.
  - Conversion of single phase to 3-phase line - 150 KMs.
  - Provision of 11 KV Crt. Breaker – 20% of substations
  - Provision of boundary wall and gate around distribution sub-stations – 20% of substations.
  - Provision of stringing AB cables – 300 KMs.
43. The fund required for such minimum special repair/renovation of distribution network is to be met out of the R&M expenditure approved for the year 2010-11 as well as from the collection of arrear outstanding as on 01.04.2010. Based on the flow of revenue, GRIDCO will relax the Escrow account in order to enable the Distribution Company to take up the minimum special repair/ renovation work as indicated above.
44. **Capital Expenditure in the Electricity Network in the State after Reform**

**Table - 14**

**Capital Expenditure of DISCOMs /GRIDCO/OPTCL (Rs. Crore)**

Year	CESU	NESCO	WESCO	SOUTHCO	GRIDCO/ OPTCL
1996-97					187.97
1997-98					211.75
1998-99					142.83
1999-00	96.46	43.31	45.56	49.70	263.15
2000-01	92.72	41.51	32.49	24.54	274.85
2001-02	71.08	37.06	16.76	24.84	156.92
2002-03	111.44	39.90	30.52	25.80	168.73
2003-04	50.65	33.72	19.93	17.33	160.57
2004-05	56.44	30.59	39.94	20.58	99.4
2005-06	-89.37	26.69	27.55	19.71	63.61
2006-07	23.34	23.92	21.37	12.55	108.64
2007-08	57.99	41.39	15.31	6.46	103.91
2008-09	44.98	76.71	54.71	9.30	91.69
<b>Total</b>	<b>515.73</b>	<b>394.80</b>	<b>304.19</b>	<b>210.86</b>	<b>2054.07</b>

The Capital Expenditure of DISCOMs after the privatization has been Rs.1425.58 cr till date. This expenditure has been incurred from World Bank Fund, consumer contribution etc. The DISCOMs have not invested anything from their own sources as of now. It is to be noted here that GRIDCO had been in charge of distribution business after the reform till 1998-99. The transmission business was separated from GRIDCO and was taken over by OPTCL from FY 2005-06.

#### **Quality supply of power to rural areas in Gujarat**

45. For improving quality supply of power to rural areas we should learn from Gujarat from its proactive role in developing infrastructure including electricity. Jyoti Gram Yojana was a unique initiative introduced by Gujarat Government to make available three phase quality power supply for 24 hours to all the 18000 villages and also 9700 suburbs attached to the villages of Gujarat for non-agricultural activities. While ensuring improved quality power supply to agriculture implemented in a record time of just 30 months. Jyoti Gram Yojana has made positive impact on the State's rural economy. All the villages were covered under the scheme with an expenditure of Rs.1291 crore out of which Rs.1110 crore came from Govt. of Gujarat.
46. Electricity being a key infrastructure for overall economic growth and improving the standard of living, State Govt. needs to take proactive action in facilitating development of a robust distribution network and transmission facilities. Timely completion of Grid sub-stations and associated 220/132 KV transmission lines in backward areas like Nuapada, Kalahandi, Kesinga, Boudh, Dabugaon, Deogarh, Kuchinda, Padmapur etc as approved by the Commission will go a long way in solving the chronic low voltage problem in those areas.

#### **Business Plan for 2008-09 to 2012-13**

47. Based on the filings by the four distribution companies and after hearing and discussion with GRIDCO, OPTCL and the officials of distribution companies the Commission have approved business plan for the four distribution companies in its order dated 20.3.2010. Commission has emphasized immediate need for reduction of present level of high distribution as well as Aggregate Technical & Commercial Loss. Commission has directed that while the distribution loss was 37.50% at the end of 2008-09 should be reduced to 21.20% by the end of 2012-13. It has also been directed for reduction of AT&C loss from 41.89% to at the end of 2008-09 to 21.99% by end of 2012-13. (Distribution Company-wise target of distribution of loss has been indicated in Table-11.
48. The distribution loss reduction target can be achieved only if investment is made for repair and renovation of the aging distribution network and system upgradation. Regarding loss ascribed to theft of electricity it has to be curbed by unqualified govt. support through strong police action to book the culprits who are indulging in the theft of electricity being aided and abetted by some of the disorderly employees of the distribution companies. The Kanungo committee in its report submitted in 2001 had recommended transitional support of Rs.3240 cores for system upgradation to reduce the loss and by now with inflation this would be equivalent to roughly Rs.5000 crore. Accordingly, Commission has directed that distribution companies and State Govt. should jointly invest Rs.5000 crore for system upgradation. While State Govt. being 49% share holder through GRIDCO should contribute Rs.2450 crore and the distribution companies should contribute Rs.2550 crore in proportion to the ratio of their consumers in respective years (CESU – 39%, NESCO – 21%, WESCO – 19.50%, SOUTHCO – 20.50%).

**Table-15**

**Investment by DISCOMs & Government**

**(Rs in Crores)**

Description	Ratio of consumers	Investment by DISCOMs	Investment by Govt.	Total
CESU	39.00%	995	955	1950
WESCO	19.50%	497	478	975
NESCO	21.00%	535	515	1050
SOUTHCO	20.50%	523	502	1025
<b>TOTAL</b>	<b>100.00%</b>	<b>2550</b>	<b>2450</b>	<b>5000</b>

49. GRIDCO should take steps to allow the DISCOMS (WESCO, NESCO and SOUTCHO) to create, first charge over the immovable asset as security to REC/PFC on the assets added after 31.3.2001. This works out to Rs.413.23 crore. Upto 31.3.2008 excluding assets created out of World Bank loan (Rs.532.04 crore – Rs.118.81 crore)
50. Both GRIDCO and DISCOMs shall mutually identify the assets created after 31.3.2001 for Rs.413.23 crore upto 31.3.2008 that are to be hypothecated against the loan to be availed from the financial institutions such as REC & PFC. The assets created during 2008-09 and that may be created thereafter can also be hypothecated.
51. The State govt. may allow DISCOMs to pledge the assets created for Rs.254.83 crore out of World Bank loan, to the financial institutions such as REC, PFC to avail loan for capital works.
52. The Reliance managed DISCOMS have been directed to make provision for the GRIDCO power Bond of Rs.400 crore in their Balance sheet till the matter is decided by Supreme Court.
53. State Government may commit at least Rs.2450 cr. to be infused for capital investment during FY 2010-11 to 2012-13 for system improvement of distribution network of the four distribution companies. These Reliance managed company on their part must bring in at least Rs.1556 crore (Rs.2550 cr. – Rs.994 cr. by CESU) as additional equity/loan from different sources including internal resources towards capital investment during the period 2010-11 to 2012-13 for system improvement works. CESU must also arrange Rs.994 crore from different sources including internal resources for system improvements in proportion to the loan capital/equity investment to be made by State Govt./ GRIDCO during 2010-11 to 2012-13.
54. The budgetary support by the State Govt. should be in such a manner that it should have the least impact on tariff. If capital investment is made in the shape of equity the return on equity would be @ 16% in the annual revenue requirement. If capital investment is provided as a loan carrying the usual rate of interest @ 12%, this would have a direct bearing on the tariff. Govt. therefore should provide a minimum budgetary allocation of Rs.2450 crore during the period 2010-11 to 2012-13 through a subordinate and interest free loan. This would soften the impact on the finances of the DISCOMs as they would not be required to pay the interest. The impact on the consumer would be negligible as the interest-free subordinated loan repayment will come up only after all other senior bank and FI loans have been fully serviced and this will enable the DISCOMs to service them later with ease. The budgetary support of Rs.2450 crore should be allocated to the DISCOMs in proportion to the number of consumer of the DISCOMs as on 01.04.2009 (i.e. CESU 39%, NESCO 21%, WESCO 19.5% and SOUTHCO 20.50%). On the other hand the four DISCOMs must bring in loan capital of Rs.2550 crore towards their 51% share in proportion to the loan capital to be invested by State Government through GRIDCO in the respective DISCOMs.

55. There should not be direct release of fund to DISCOMs for capital expenditure or special repair and renovation of distribution network. This should be routed through a separate account to be opened by GRIDCO and progress of CAPEX Schemes is to be monitored through a committee consisting of Secretary, Energy Department, CMD, GRIDCO, EIC, Electricity, MD/CEO of DISCOMs subject to overall supervision of OERC. The committee should fix the time line for release of fund and completion of the projects as per the time schedule fixed GRIDCO and DISCOMs should strictly adhere to those time schedule.

**56. Capacity Addition**

- 1) The State is set to face a shortfall of 1825 million units (MUs) of power in 2010-11 according to the Load Generation Balance Report (LGBR) prepared by the Central Electricity Authority (CEA). As against the overall demand of 24,795 MUs in this fiscal, the power availability will be 22,970 MUs, thereby creating a deficit of 7.4 per cent. However, in terms of peak energy requirement, Orissa will be in a surplus position in the current financial year. The total peak power availability in the State will be 3916 MW compared to the peak demand of 3850 MW, a surplus of 66 MW. If there is failure of monsoon, or if there is no normal rainfall, the projected Peak Demand will be reduced to deficit. It is apprehended.
- 2) In the eastern region, Bihar is the only state apart from Orissa which will grapple with power shortfall during 2010-11. Bihar will face a power deficit to the extent of 15.7 per cent. Other states in the region like West Bengal, Jharkhand and Sikkim will be in a surplus position. The eastern region, as a whole, will have an overall energy requirement of 98,451 MUs and the availability will be 101,707 MUs, a surplus of 3256 MUs in 2010-11. On a pan-India basis, the power deficit has been projected at 10.6 per cent. Out of the total power demand of 876,856 MUs, the power availability will be 784,006 MUs, a deficit of 92,849 MUs. The CEA report has projected a power deficit for all the State except Delhi, West Bengal, Sikkim and Jharkhand. The country, as a whole, is projected to face a peak power deficit of 12.1 per cent in this fiscal. The country is set to witness a capacity addition of 21,441 MW during 2010-11 which consists of 18,755 MW of thermal power, 1466 MW of hydro power and 1220 MW of nuclear power. The assessment of gross energy generation in the country during 2010-11 has been carried out by CEA taking into consideration the past operation performance of the thermal plant, their vintage, maintenance schedule of the generating units, partial and forced outages and availability of fuel.
- 3) With decline in rainfall and increase in the numbers of consumers and consumption of electricity due to industrialization, extension of electrification under RGGVY and BGJY, the State has started facing power deficit, the peak demand deficit and energy deficit during 2008-09 was 2.48% and 1.4% respectively. The peak demand deficit was 7.1% and 0.9% during 2009-10 respectively. However as indicated in Para 38(l) even if there is normal rainfall, the energy deficit will be 7.4%. The Commission during 2009-10 in order to incentivise the generation by the captive power plants has fixed the price of surplus power of captive generators starting from Rs.3.00 to Rs.4.05 per kWh depending on the quantum of injection, the average being increased from 224.76 paise per unit in 2008-09 to 319.42 paise per unit in 2009-10. The price of energy procured from co-generation has increased from the average rate of 230.11 paise per unit during 2008-09 to 312.29 paise per unit in 2009-10. As a result of this CGPs have increased their supply from 1197.22 MU in 2008-09 to 2967.09 MU during 2009-10, thus, greatly contributing to reduce the gap between demand and supply.
- 4) Govt. of Orissa have signed Memoranda of Understanding (MoU) with as many as 27 Independent Power Producers (IPPs) to secure its long-term supply but the State's power deficit position is set to continue at least till the end of the current fiscal. In the 1<sup>st</sup> stage Orissa Govt. had inked MoUs with 21 Nos. IPPs earlier with total installed capacity of 26300 MW to generate thermal power. Again the State Govt. has signed MoU with 5 nos. of IPPs on 09.04.2010 to generate additional 4800 MW of thermal power. Orissa Government has also entered into MoU with M/s JSL to set up 2 x 660 MW TPP at Luni in

Dhankanal district in the first week of May, 2010. Orissa is likely to get around 5636.90 MW out of total 32420 MW from these 27 IPPs if implemented. OPGC has decided to start 3<sup>rd</sup> and 4<sup>th</sup> Unit of Ib thermal plant 1320 (2 x 660) MW capacity out of which State would get 660 MW sometime in January, 2012. OHPC and OMC have formed a joint venture namely Orissa Thermal Power Corporation Ltd. (OTPCL) whose capacity would be 2000 MW out of which Orissa would get 1000 MW likely in the year 2014-15. Govt. of India has given in principle approval to set up an UMPP of 4000 MW in Sundargarh district. The Central Government is also exploring possibilities of setting up of another two Coastal Ultra Mega Power Projects.

## 57. Areas of concern-

### i. High AT & C loss and strong administrative support by the State Govt.

- \* Even if there is higher generation or capacity addition, there can not be perceptible improvement in quality of supply or standard of service unless the unsustainable level of AT & C loss which is of the order of 42% now is drastically reduced at a much greater speed than have been hitherto done. According to the Business Plan Order of the Commission target loss reduction can be achieved by Strong administrative and police action to launch a broad attack on theft of electricity for which proactive steps are to be taken by the State Govt. to provide leadership. Anti theft measures have paid rich dividend in States like Maharashtra, Andhra Pradesh, West Bengal, Gujarat etc, where initiatives were taken on theft of electricity by monitoring the antitheft drive from the highest level of the Govt.

### ii. Investment for system upgradation of distribution network

- \* In parallel to strong police action on theft of electricity, investment of at least Rs.5000 cr should be made in time both by State Government (Rs.2450 cr) and distribution companies (Rs.2550 cr) to improve the quality of supply and reduce distribution loss as outlined in the Business Plan, 2008-13, the summary of which has been indicated in para 47 to 55 above read with Table-11 & 15.

- iii. In the meantime, Govt. in Energy Deptt. in their letter No.1-06/2010 (pt.)-7991 dtd.09.09.2010 has intimated that initially Rs.2400 crore is proposed to be invested during the period from 2010-11 to 2013-14 as per the break up given below:

(Rs. in crore)

	2010-11	2011-12	2012-13	2013-14	Total
<b>State Govt. [Out of Which]</b>	<b>300.00</b>	<b>400.00</b>	<b>250.00</b>	<b>250.00</b>	<b>1200.00</b>
a. FC Grant	0.00	200.00	150.00	150.00	500.00
b. SS (*) to FC grant	0.00	66.67	50.00	50.00	166.67
c. Loan to GUJICO for counterpart funding to FC grant	0.00	66.67	50.00	50.00	166.67
d. State's own contribution	300.00	66.66	11.00	0.00	366.66
<b>DISCOMs (Out of Which)</b>	<b>0.00</b>	<b>200.00</b>	<b>400.00</b>	<b>600.00</b>	<b>1200.00</b>
a. Counterpart DISCOM share for FC grant	0.00	66.67	50.00	50.00	166.67
b. DISCOMs contribution	0.00	133.33	350.00	550.00	1033.33
<b>Total CAPEX:</b>	<b>300.00</b>	<b>600.00</b>	<b>650.00</b>	<b>850.00</b>	<b>2400.00</b>

(\*) SS – State Share



- \* Out of Rs.2400 crore envisaged to be spent under CAPEX for upgradation and renovation of the Distribution network over a period of four financial years i.e. 2010-11 to 2013-14, Govt. of Orissa will provide Rs.1200 crore and DISCOMs will invest Rs.1200 crore from their own source or through market borrowing. Rs.1200 crore of budgetary support by the State Govt. would consist of as follows:
- Grant of Rs.500 crore from 13<sup>th</sup> FC is to be initially passed on as loan with 0% interest
  - Rs.166.67 crore of matching State share against 13<sup>th</sup> FC grant as loan with 0% interest.
  - Rs.166.67 crore of Loan to GRIDCO for 1/3<sup>rd</sup> counterpart funding to FC Grant with 4% interest to be passed on to DISCOMs with same terms and conditions.
  - Rs.366.66 crore as budgetary support in shape of soft loan with 4% interest.

iv. However, besides the upgradation of distribution network, upgradation of power transformers and associated lines of 220/132/33, 132/33 KV Grid sub-stations where overloading is experienced is to be taken up on priority basis on a war footing. Otherwise even if there is no mismatch between demand and supply of power for the state as a whole, the consumers in those areas would continue to suffer from low voltage and rotational load shedding in order to avoid the break down and collapse of transmission lines. The 132/33 kV grid substations of OPTCL which are experiencing over loading are as follows:-:

Supply received by CESU

- Nuapatna (Dhenkanal district)
- Balugaon
- Salepur
- Jagatsinghpur
- Ranasinghpur

Supply received by SOUTHCO

- Sunabeda
- Tentulikhunti
- Bhanjanagar

Supply received by WESCO

- Kesinga
- Junagada
- Khariar
- Sonepur

Supply received by NESCO

- Soro
- Bhadrak (including Chandbali)
- Joda

OPTCL furnished the copy of letter vide No.3560 dtd.25.3.2009 and 9464 dtd.11.9.2009 wherein it has been mentioned that govt. has released Rs.23.05 cr. and Rs.5.00 cr. respectively to OPTCL in shape of equity share capital towards execution of new transmission projects in the backward districts of the state. Govt. has released the Share Capital contribution of Rs.100Cr during 2008-09 to 2010-11.

2008-09 -Rs.23.05Crore

2009-10 -Rs. 5.00Crore

2010-11 -Rs.71.94Crore

**Total —Rs. 100.0 Crore**

Besides State Govt have already decided to provide Rs. 300.0 crore during 2011-12 to 2015-16 @ Rs.60.0 Crore per annum as viable Gap funding for up gradation and expansion of transmission capacity in the under developed areas in order to solve the low voltage problem and improve quality of supply.

- v. **Conservation of Energy** : There is urgent need to conserve energy and avoid wastage and unnecessary use of electricity. Higher consumption of energy would call for higher generation which in turn would add to pollution. Hence it is argued that the pricing of electricity supply should take into account not only the cost of supply but also the cost of degradation of environment. If the cost of supply is Rs.4/- per unit the cost of environment degradation arising out of associated problem of rehabilitation, degradation of forest, pollution of water etc. would be Rs.7/- per unit. Hence it is argued that higher pricing of electricity would lead to economic use of energy and prevent wastage or unnecessary use of energy which will ultimately reduce the gap between demand and supply. The research paper published by Indira Gandhi Institute of Development Research, Mumbai (By Sajal Ghosh) on “Electricity consumption and economic growth in India” indicates that higher consumption of electricity has no long-term direct relationship with economic growth. Economic growth leads to higher consumption of electricity but higher consumption of electricity does not necessarily lead to economic growth. Hence, what is needed is economic and efficient use of the available energy which will reduce the demand supply gap, reduce pollution and prevent degradation of environment
- vi. Since electricity duty is levied as a percentage of the electricity charges the State loses electricity duty on 42 MUs of energy out of 100 MUs supplied to the consumers. As per the Annual Revenue Requirement (ARR) estimated for 2010-11, 1% AT&C loss reduction in monetary term will amount to about 50 crore per annum. If the present level of 42% loss is reduced to 15% the power sector ultimately would have the benefit of 1350 crore per annum compared to the present level of revenue being collected by the distribution companies in the State. If electricity duty is assumed on the average at 5% then the State will gain electricity duty for about Rs.67.5 crore or say Rs.68 crore per annum. At present the level of collection of electricity duty is Rs.459 crore (2009-10) compared to more than Rs.2000 crore in many States like Gujarat, Maharashtra, Tamilnadu, Andhra Pradesh. Hence, it is in the interest of the State revenue the State Govt. should take initiative in launching a broad attack on theft of electricity. Like any other crime, theft of electricity is a crime and is a cognizable offence.
- vii. Anti-theft measure to be supervised and monitored by a senior level servicing police officer at the level of I.G.
  - \* Mere investment in the distribution network would not achieve the desired result of loss reduction unless it is accompanied by strong administrative and police action to check theft of electricity by some unscrupulous consumers being aided and abetted by some of the employees of the distribution companies. Unruly behaviour and unpleasant situation are being faced by the employees of the distribution companies while going for disconnection of power supply or collection of revenue in case of default in payment of the electricity. This governance issue should be addressed effectively through strong administrative support by the State Govt. at different levels. Otherwise improvement in supply of power due to investment on system upgradation/renovation would not be accompanied by improvement in collection of revenue unless unlawful behaviour of some of the consumers/unauthorised consumers are severely dealt with. In this connection the Commission has brought to the notice of the State Govt. from time to time regarding the urgent need for making all the notified 34 energy police stations fully operational and effective. The specially designated courts for the trial of all electricity offences also suffer from the inadequate men and materials. This also needs to be addressed on priority basis.

- \* The line of command and control of the Energy Police Station is currently an integral part of the general Police Administration as a result of which their special role gets diluted, amidst the competing needs of general law and order and crime control. They need to stand apart from the general run of police administration and act on a dedicated basis in tandem with the DISCOMs who are distributing and supplying electricity.
  - \* It may further be noted that in West Bengal a very senior police officer at the level of an IG works with the West Bengal State Electricity Distribution Company Ltd. (WBSEDCL) and is responsible for theft prevention, detection prosecution and liaison with the police. West Bengal though has only one DISCOM for the entire State while we have four (4) DISCOMs. GoO, therefore, may consider having one senior officer working with the Dept of Energy and being responsible for theft prevention and detection in all the four (4) DISCOMs. He could supervise and monitor the working of all the Energy Police Stations and ensure their effective functioning. As an officer of the State's police administration, he could liaise easily with the police and act as a bridge between the Electricity Utilities and the Police. If we can reduce the AT&C losses to a reasonable level and prevent theft fully, it would not only mean huge revenue gains for the DISCOMs but also fairly large increases by way of Electricity Duty for the State Govt.
  - \* Theft is the most important cause for a humungous amount of the commercial losses, more often than not in connivance with the unscrupulous employees of the DISCOMs. This is a situation of unsustainable burden on the honest and paying consumers, overloading of lines and transformers, break down of supply, load shedding, increases in tariffs, indifferent service standards and huge problems in billing and collection. While the DISCOMs must systematically set about the curbing of losses by system upgradation and proper billing and collection, they need to be aided by the State and the machinery of the police in prevention and detection of theft, with penal action against the thieves. The DISCOMs need to be backed to the hilt by the State administration in curbing such losses. However, it is the primary responsibility of the concerned DISCOMs to take initiative for availing administrative support from the State Govt. No amount of Govt. support would succeed unless the DISCOMs are committed to bring about improvement through internal vigilance and strong administrative action against the unscrupulous employees and dishonest consumers who connive with each other for theft of electricity.
- viii. Government and its organization should be model consumers. They must pay their bills in time and in full. The DISCOMs have informed that the outstanding dues payable by Govt., Govt. aided agencies and various semi-government institutions are around Rs.388.79 crore (CESU – Rs.138.60 cr. + NESCO - Rs.77.61 cr. + SOUTHCO – Rs.71.62 cr. + WESCO – Rs.100.96 cr.) as on 01.4.2010. These arrears are rather huge and reflects poorly on the Govt.

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# *Articles*

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## ISSUES AND CHALLENGES OF POWER DISTRIBUTION SECTOR IN ODISHA

*K. C. Badu, I.A.S.(Retd.),  
Member, OERC*

The power distribution companies in Odisha are a classic example of Public Private Partnership (PPP). In other words it is a partnership of both the Government and the private sector. There have been many success and some failures in the power sector reform in Odisha. Success, because without any budgetary support from State Govt. and without capital investment by the majority shareholders, the tariff has remained more or less the same for the last nine years despite substantial rise in price indices.

2. The State Consolidated Fund has also greatly benefited by way of withdrawal of subsidy and direct accrual of revenue including utilisation of proceeds of disinvestment and sale for budgetary purpose without ploughing back to the power sector. Reform has been dubbed a failure by some because the AT&C loss has not been reduced significantly. It has come down from 60.90% in 1998-99 and 56.9% in 1999-00 to 39.15% in 2009-10. A lot is also desired for improvement of standard of service. While the Regulator has its own role to play and should be played transparently and firmly, the public-private partnership should also move smoothly and together to make the power sector achieve its objectives of creating avenue for participation of private sector in the electricity industry, promoting competition, efficiency, protecting interests of consumers, rationalization of electricity tariff, ensuring transparent policies regarding subsidies etc.
3. In Odisha, Power sector reform has been in force for almost a decade and a half since 1996-97. During the last 15 years of reforms much has been achieved. Distribution has been privatized but contrary to apprehension, the system has not collapsed nor have power tariffs become unaffordable. The Odisha Electricity Regulatory Commission has continued to monitor & supervise the transmission & distribution companies and has ensured tariffs at affordable levels. Open public hearings are held to fix energy tariffs, regulations have been notified to cover all areas of operation of power utilities, minimum standards are mandated Grievance Redressal Fora & Ombudsmen have been appointed to redress electricity related grievances & special courts have been set up to prosecute power theft and bring down commercial loss.
4. The sector has achieved self sufficiency and in spite of continuing requirement for funds to modernize & expand T&D systems, there is no subsidy or outflow from the Government Treasury to the sector. On the other hand while there was substantial hike in tariff annually during pre-reform period ranging from 29% in 1994-95 to 17% in 1995-96, the tariff hike declined from 17% in 1996-97 to 10% in 2001-02 during post-reform period and the tariff has remained more or less the same from 2001-02 till 2009-10 despite substantial increase in price index. If we compare the wholesale price index (WPI), the tariff from 1995-96 to 2009-10 has rather declined by 30.46%. All these are not small achievements. Only in 2010-11 after 9 years, there has been tariff hike of 22.20% on the average.

* 07.9.93	–	28.58%
* 06.7.94	–	15.73%
* 05.01.95	–	17.47%
* 21.5.96	–	17%
* 01.4.97	–	10.33%,
* 01.12.98	–	9.3%,
* 01.02.2000	–	4-5%,
* 01.02.2001	–	10.23%
* For 2001-02 to 2009-10	–	Nil

5. Though there is much needed to be done to improve the standard of performance of the distribution companies, yet they have thrived despite the constant tariff since 2000-01. A much needed tariff hike was finally allowed by the Commission in 2010-11 but in view of the low paying capacity of a majority of Odisha's domestic consumers, the first slab was kept unchanged. Tariff in Odisha is one of the lowest in the country. While almost all State Govts. continue to provide large amounts of budgetary support by way of subsidy or capital investment there has been no budgetary support from the State Govt. since 1996-1997 to 2009-10.
6. Before 1996-97, the average annual subsidy was of the order of Rs.250 crore, being provided to erstwhile OSEB and by now in term of present inflation this should have been 1000 crores. Govt. utilised the disinvestment proceeds of Rs.603.20 crore from OPGC whereas the sale proceeds of TTPS for Rs.356 crore and disinvestment of Rs.159.00 crore in the distribution companies have been utilised by GRIDCO to meet its liabilities. On the other hand, the State Govt. is getting Electricity Duty of Rs.360.00 crore approximately (Rs.459.96 crore in 2009-10) and Rs.75.00 crore towards dividends per annum. OPGC has paid Rs.613.75 crore towards dividend to State Govt. from 1996-97 to 2008-09 (paid in 1997-98 to 2009-10). In other words while the State Consolidated Fund has benefited from the power sector reform by way of direct accrual of revenue for about Rs.435.00 crore per annum on the average, there has been no flow of funds into the sector. However after 14 years, State Govt. for the first time have made a budget provision of Rs.205 crore in 2010-11 for upgradation of distribution network in order to assist the distribution companies to improve the quality of supply.
7. The OERC has framed a number of regulations to fulfill its statutory obligations and has taken a proactive approach in empowering the customer. However, a number of issues & challenges still remain in effecting the legal framework and providing safe, reliable & efficient service & quality of power to consumers at a reasonable cost. The most important is the issue of capital expenditure and investments in both transmission and distribution. Electricity is a technology oriented industry and mere legislation cannot sweep this crucial issue under the carpet. There should be a mechanism to ensure that the requisite investments are brought in by the Licensees or are suitably mandated by Regulatory orders so as to upgrade systems to the required level of efficiency. Whether this is through subsidy or market mobilization of Debt and Equity is something which the SERCs need to work out in association with the Utilities and the Government.
8. The twin challenges faced by the power sector in Odisha are the high level of AT&C loss which hovers around 39.15% and the standard of service provided by the distribution companies. The tariff for many years remained fixed and the consumers on the other hand want better service. These conflicting issues need to be resolved soon. Good quality of goods and services would demand appropriate price for the same.
9. The next important need would be to address attitudes among utility staff & consumers which are still not attuned to the new system even after more than a decade of reform. While the state has inherited the old staff of the OSEB, power distribution is nevertheless managed by the private companies. Now far greater degree of professionalism & sensitization to consumer needs is essential than exists today and needs to be inculcated. The management has been changed but not the employees nor their overall attitude in the new dispensation.
10. While the distribution companies have to take proactive steps to provide improved service to the consumers, the consumers have a role to play. The honest consumers must organise to meet the challenges of unauthorised abstraction of electricity by some of the unscrupulous consumers. Without active participation and involvement of consumers it is difficult for the distcoms to ensure improved quality of service.
11. On the other hand, the recovery of the cost of supply of electricity from the concerned consumers is to be ensured in order to provide quality service to them. To make the regulatory framework to succeed, it is necessary that consumers be brought into the system as a comprehensive element. This would not only

solve the problems related to quality of supply but also make the consumer realise the need for discipline on their part in terms of payment of bills, uses of energy efficient gazettes, non-tampering of meters etc.

12. Consumers still exist in an old paradigm where power was a public good to be distributed free or at nominal cost. With this attitude it is not surprising that while consumers are willing to shell out the extra Rupees needed for other essentials, they continue to abstract power in an illegally open fashion. This trend must be curbed. The answer to both these problems perhaps lies in proper education & orientation. The mass media should be utilized to orient these two major stakeholders to the reality and their cooperation should be secured at all costs.
13. Another area of weakness is quality of service & lack of adherence to standards. Recovery of revenue should go hand in hand with improved service. Unless minimum statutory standards are followed by the utilities, they cannot expect the average consumer to follow the rules & pay up. A bonafide and alert consumer will demand better service and would be in a position to get it from the courts. However, enforcement ought to be the last resort and self regulation is the best answer for utilities. The GRFs & Ombudsmen need to be further empowered to ensure that Standards are met and compensation/penalty dispensed where the licensees fail to provide.
14. Last but not the least, the regulator is the key player in making this system work. It is heartening to see that the Odisha Electricity Regulatory Commission has taken the initiative in many areas to protect consumer interest and make the industry viable. It must be noted that they were pioneers and had no experience to fall back on. Yet they have by and large fulfilled their mandate. However, much remains to be done. Perhaps a more rigorous monitoring of performance and a extensive public education campaign can empower consumer & put pressure on utilities to cut losses and provide better service.
15. While there is certainly the need to take aggressive administrative and financial measures to reduce the present unsustainable levels of AT&C losses there is also the imperative need for Govt. to participate actively in the day to day development of the power sector in the State. After experimenting with private distribution companies for almost one decade, we can no longer carry on with a “business as usual” approach. A serious rethinking and reorientation of our approach is essential.
16. The present system of managing or treating the power sector in the State on an ‘arms-length’ basis needs to be changed to a ‘hand-shake’ basis. The State would be missing a great opportunity in fostering the rapid economic development of the State if not done now. It is a robust power sector which is the key to attracting investments to the State. Therefore, the State govt. must come forward readily and work along side the distribution companies rather than take distance and aloof approach in the day to day function of the power sector which is not desirable.
17. In Delhi the privatisation of distribution has succeeded mainly because the private distribution companies started with a clean balance sheet, without taking over the liabilities and further there has been a transitional support of Rs.3450 crore which helped the private company which needed cushion and comfort levels to the sagging distribution network. In contrast the distribution companies in Odisha had no transitional financial support. The Kanungo Committee recommended transitional support of Rs.3240 crore on 02.11.2001 but this has not been acted upon. However, State Govt. have initiated action during current financial year 2010-11 by making initial budget provision of Rs.205 crore to assist the distribution companies for upkeep and maintenance of distribution network. This is a part of the Capex programme of Rs.2400.00 crore for a period of 4 years starting from 2010-11 to 2013-14 launched by Hon’ble Chief Minister on 22.11.2010. (2010-11 – Rs.300.00 crore, 2011-12 – Rs.600.00 crore, Rs.2012-13 – Rs.650.00 crore and 2013-14 – Rs.850 crore. While State Govt. would provide Rs.1200.00 crore (Rs.2010-11 – Rs.300.00 crore, 2011-12 – Rs.400.00 crore, 2012-13 – Rs.250.00 crore & 2013-14 – Rs.250.00 crore) the distribution companies would provide Rs.1200.00

crore during the same period towards their counter part funding (2011-12–Rs.200.00 crore, 2012-13–Rs.400.00 crore, 2013-14 – Rs.600.00crore). Rs.1200.00 of budgetary support by the State Govt. would consists of Rs.566.67 crore with 0% interest and Rs.533.33 crore with 4% interest. If the distribution companies achieve AT&C loss reduction of 3% per annum the loan of Rs.566.67 crore would be converted to grant.

Further, in order to improve the quality of supply of power particularly the low voltage, the State Govt. have already provided Rs.100.00 crore to OPTCL as share capital (Rs.2008-09 – Rs.23.06 crore, 2009-10 – Rs.5.00 crore and 2010-11 – Rs.71.94 crore) and have also decided to provide Rs.300.00 crore as viable gap funding at the rate of Rs.60.00 crore per annum for 5 years from 2011-12 to 2015-16 for construction of Grid substations and transmission lines in interior and backward areas.

18. The distribution companies, on the other hand, after taking over the distribution business must take initiatives on their own interests instead of banking upon the State to assist them every now and then. They must show keen interest and come forward and govt. would facilitate their effective functioning by providing strong administrative and moral support.
19. The consumers at the same time must realize their duties and responsibility while claiming improved service from the distribution companies, they must have to pay the cost of supply. There is always a room for higher tariff for high end consumers in the domestic sector since tariff for energy is not economically priced. All consumers are not paying the price for the energy they consume and there is a tendency to waste energy if it is given at a subsidized rate. If anything is given free or at cheaper cost, the value is not realised. It must be remembered that energy efficiency and energy conservation are the most important virtual energy supply sources that India possesses. According to the Report of the Expert Committee on Integrated Energy Policy formulated by Planning Commission, nearly 25000 Megawatt of energy could be saved through energy efficiency measures in the electricity sector alone. Low tariffs and ignorance add to the neglect of conservation. Root cause of global warming and its adverse effect is the overuse and abuse of energy and resources. In Odisha proper energy conservation would free around 402 MW of power (2082 MU) for more productive use over and above reducing the warming of the climate.
20. While the State Govt., the Regulator and consumers expect the distribution companies to ensure uninterrupted supply of quality power at an affordable price, the peculiar problem faced by the distribution companies is realization of the cost of supply from Govt. departments, Urban Local Bodies, Police organizations and other influential consumers etc. which has to be addressed on urgent basis. As on 01.04.2010 about Rs.400 crores is outstanding against various Govt. departments, urban local bodies and public sector undertakings (State Govt.- Rs.203 crore, urban local bodies – Rs.108 crore, PSUs – Rs.80 crore). Section-56 of the Electricity Act, 2003 and Regulation-100 of OERC Distribution (Conditions of Supply) Code, 2004 empowers the DISCOMs to disconnect power supply in case of default, in paying electricity dues. However, because of the interference and intervention by the district administration and veiled threats against the DISCOMs, in the matter of disconnection of power supply to ULBs, the Police, Hospitals, Water Supply, etc., the DISCOMs are practically not in a position to take any action in the matter. This is a matter of serious concern. Firstly they do not pay and then they threaten the DISCOMs with all kinds of dire consequences if they take steps for disconnection. This kind of arm twisting of the DISCOMs is having a deleterious effect on the finances of the DISCOMs. Other consumers point their fingers at these Govt. Depts. and organizations, quote their examples and do not pay their bills. Their song is that, if Govt. Depts. are defaulters and their connections are not disconnected for default, then there is no earthly reason as to why the law should be enforced only against them. Thus, the malaise spreads, seriously impacting the revenues of the DISCOMs and consequential cascading effects on repair, maintenance and inability to pay for power purchases, leading to sickness and eventual break-down of the system as a whole. The behaviour and attitude of all arms of the Govt. should be exemplary. It does not behove Govt. Depts. to be seen as defaulters and consumers who do not pay for services. Unless Govt.

Departments, Urban Local Bodies, PRIs, Co-operatives, Public Enterprises become regular payers of electricity dues, as per their consumption it would be extremely difficult on the part of the DISCOMs to take effective steps against other/all consumers in a transparent and non-discriminatory fashion.

21. The challenge before power sector in Odissa is, therefore, the urgent need for the State Govt. and the Odisha Electricity Regulatory Commission to jointly take a proactive action to resolve the various issues. Govt. should provide administrative support and play its role as effective facilitator for the success of the power sector. Financial support for 3 to 4 years is also needed from State Government; which the State Govt. have already initiated as indicated in Para-17.
22. While the role of government should be restricted to policy making and provide required administrative and moral support to the various stakeholders of the power sector, the Regulatory Commission has to increase and expand the present level of involving and associating the consumers in their various decision making in the matter of protecting the interest of the consumers.
23. While there is urgent need to ensure sustainable improvement in the quality of supply, the consumers on their part must realize that if power is stolen by someone in their neighbourhood it is they who would suffer in terms of quality and quantity of power. Hence, the State Govt., the Power Producing companies, the Distribution Licensees, the consumers at large must have to work in harmony to ensure that power sector reform grows from strength to strength in Odisha and the benefit of this accrues to the consumers at large.
24. At the end it must be realised that the consumer is the kingpin for success or failure of any organization. Hence if utilities want to thrive in their business of distribution of electricity, they must take proper care of the genuine and honest consumers in their day to day activities because without such honest consumers they do not have any business. It is the quality of service to the genuine and honest consumers on which the distribution utilities will thrive. Hence the distribution companies are required to revamp their internal administration and fix accountability at different levels to ensure quality supply of power and improve standard of performance. Though in the transfer scheme, it has been stipulated that the service condition of the employees shall not be inferior to what was before transfer, it does not mean that to protect their financial benefit and service condition, the DISCOMs will incur loan or State Govt. will give subsidy or grant to protect their service condition. It is they, who are required to earn for their service benefits from the business of distribution of electricity, they are doing in their area of operation. At present, the loss is so high and the actual cash collection is so low that it is not sufficient to meet the salaries, R&M expenses after meeting the current BST and there has been default in payment of old BST and other past dues. They should collect enough revenue which should meet the cost of power supply by GRIDCO, the arrear BST dues, the O&M cost, salary expenses etc. They should collect sufficient amount of revenue, so that after meeting the required expenditure, DISCOMs would earn profit which has been included in the ARR approved by the Commission in shape of Return on Equity. If they increase the collection and reduce the loss, the Management of the DISCOM would definitely share a part of the profit by way of incentive to the employees. There has to be a relationship of trust between the employees of the management. It needs to be realized that no amount of outside support can succeed unless the utilities conduct themselves with greater sense of responsibilities.
25. Power sector would succeed if the utilities bring in efficiency, cut costs, reduce loss and ensure greater consumer satisfaction. It would also require strong enforcement to ensure that consumers of electricity pay for its use. The new mantra for the power sector is therefore, "Reduce cost, Be more efficient, Be consumer responsive or Perish".

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***Opinions, comments, views etc. expressed in this article are of the author only and should not be ascribed to those of OERC.***



# AVAILABILITY BASED TARIFF (ABT) - ITS RAMIFICATIONS IN ODISHA POWER SECTOR

*Bijoy Kumar Misra,  
Member, OERC  
Nagendra Nath Mahapatra  
Senior Consultant, OERC*

## 1. Background:-

Indian Power Sector witnessed in late 80s and in 90s a chaotic/volatile system condition often subject to very low frequency during peak load hours with frequency going down to 48 Hz and below many hours a day indicating a situation of low generation compared to more system demand and high frequency during off-peak hours with frequency going up to 51.5 to 52 Hz indicating a situation of insufficient backing down of generation compared to low system demand. In Eastern Region (ER), the high frequency was predominant and the system frequency even touched 53 Hz and more a number of times.

In late 80s, Govt. of India (GOI) had examined for over a period of 5 years the reform of the tariff structure of Bulk Power with the object of introducing better System Operation and Grid Discipline through commercial incentives (Bonus) and disincentives (Fines). For this purpose, GOI engaged international consultants like ECC Inc. to comprehensively study the Indian Power System and recommend a suitable Tariff Structure. ECC report submitted to GOI in 1994 recommended the introduction of 'ABT' in Indian Power Sector. GOI then constituted a National Task Force (NTF) at Central level headed by Chairman, Central Electricity Authority (CEA) and Regional Task Forces (RTFs) headed by Chairman of respective Regional Electricity Boards (REBs). After detailed deliberation in RTFs and thereafter at NTF, Ministry of Power (MOP) GOI framed the Draft Notification on ABT dated 7th April 1999 but it remained in Draft stage due to functioning of Central Electricity Regulatory Commission (CERC) w.e.f. 15.05.1999 as per Electricity Regulatory Commission Act. 1998.

CERC started a suo moto hearing of all the stakeholders on implementation of ABT and vide its Landmark Order dtd. 04.01.2000 issued necessary guidelines on implementation of Inter-State ABT in Indian power sector, where for the first time a three- part tariff was introduced viz. capacity charge linked to availability, energy charge linked to scheduled energy and deviation from schedule being settled through an innovative instrument called UI at a rate dependent on system frequency.

NTPC and a number of State Power Utilities had filed Review Petitions in CERC and Writ Petitions in a number of High Courts challenging CERC Order dtd 04.01.2000 on implementation of Inter-State ABT. After protracted litigations and hearings, CERC issued final order based on which the Inter-State ABT was introduced in the five regions as stated in Table below:

**TABLE-1**

Region	Date of Implementation
Western (WR)	01.07.2002
Northern (NR)	01.12.2002
Southern (SR)	01.01.2003
Eastern (ER)	01.04.2003
North-Eastern (NER)	01.11.2003

## 2.0. Definition and Evolution of Availability based Tariff:

2.1 Tariff in the Power Sector is defined as the rate of charge per Kilowatt hour of Energy supplied to a consumer/beneficiary. The tariff is generally framed/ designed so as to ensure attractive return on capital investment in a power project over a certain period of time (Annual Tariff & Multi Year Tariff).

2.2 **Availability based Tariff (ABT)** is a three part tariff consisting of Capacity Charge, Energy Charge & Unscheduled Interchange (UI) Charge.

### \* **Capacity Charge**

\* The payment of the fixed cost to the generating company is linked to the availability of the plant i.e its capability to deliver MWs, on a day-ahead basis.

\* The total annual fixed charges payable to the generating capacity depends on the cumulative average availability (MW delivery capability) of the plant over the year. In case the cumulative average availability actually achieved over the year is higher than the normative plant availability, the generating company gets a higher payment. In case, the cumulative average availability achieved is lower, the payment is also lower.

\* Hence, the name is appropriately termed as “**Availability Tariff**”. The fixed charges are the first element/ component of “**Availability Based Tariff**” and are termed as “**Capacity Charge**”.

### \* **Energy Charge**

\* The second component/element of “Availability Based Tariff” is the “energy charges” which comprises of the variable Cost (i.e fuel cost) of the power plant for generating energy as per the given schedule in 96 time blocks (in each 15 minute time block) for the day ahead.

\* It is specifically mentioned here that “**energy charge**” is not based on actual generation and plant output but on scheduled generation (Exp: If a Power plant delivers 400 MW against the schedule to supply 350 MW, the energy charges will be paid for scheduled generation of 350 MW but not on actual generation/ delivery of 400 MW and the excess generation (50 MW) would get paid at a rate or penalty to be paid dependent on system frequency prevailing at the time).

### \* **Unscheduled Inter Change (UI) Charge**

\* The third component of the “Availability Based Tariff” is payment for “Unscheduled Interchange (UI)” which takes care of payment for deviation from the schedule at a rate dependent on system frequency.

## 3.0. Inter-State ABT

3.1. Frequency-linked Inter-State ABT at the regional level has generated enough confidence amongst stakeholders in last 8 years and has resulted in significant improvement in Grid Discipline and real time trading. The third component of ABT i.e. UI which in a time block of 15 minutes for a generating station or a seller means its total actual generations minus its scheduled generation and a beneficiary or buyer means the actual drawal minus its scheduled drawal, has facilitated grid discipline during the interim period maintaining the system frequency more than 95% of the time of the day in the operating band of 1.5 Hz (49-50.50 Hz) initially from the year 2003 till 2009 and subsequently contracted to 1.10 Hz (49.2-50.30 Hz) up to 2<sup>nd</sup> May, 2010, but that also failed to satisfy the Power System Engineers as well as the Regulators.

3.2. Therefore, CERC vide Notifications dated 28.04.2010 approved to implement the following UI rate w.e.f. 3<sup>rd</sup> May, 2010 till further order which is now in force and is shown in Table-2 below:

**TABLE - 2**

Av. Frequency of time block	UI rate (Paise/Kwh) Linear in 0.02 Hz step
	w.e.f 03.05.2010
(i) 50.20 Hz and above	0.00
(ii) Below 50.20 Hz & upto 49.70	@15.50
(iii) Below 49.70 Hz & upto 49.50	@47.00
(iv) Below 49.50 Hz & upto 49.20	@873.00 plus penalty
(v) Below 49.20 Hz	@873.00 plus with stringent penalty conditions

3.3. CERC while approving for further contracting the operating frequency band to 0.7 Hz (49.5-50.20 Hz) w.e.f. 03.05.2010, prescribed the following disincentives/ penalties for the users for any deviation from the schedule and stiff penalties for violation below 49.5 Hz to 49.2 Hz and below as mentioned here under:

- \* The additional UI Charge for each time block between grid frequency below 49.50 Hz and upto 49.20 Hz shall be 40% + 873 p/Kwh i.e. @1222.20 p/Kwh.
- \* The additional UI Charge for under injection of electricity for each time block between grid frequency below 49.50 Hz and upto 49.20 Hz shall be 20% + 873 p/Kwh i.e. @1047.60 p/Kwh.
- \* The additional UI Charge for over drawal of electricity for each time block when grid frequency below 49.20 Hz shall be 100% + 873 p/Kwh i.e. @1746 p/Kwh.
- \* The additional UI Charge for under injection of electricity for each time block when grid frequency below 49.20 Hz shall be 40% + 873 p/Kwh i.e. @1222.20 p/Kwh.
- \* The additional UI Charge for under injection of electricity for each time block when grid frequency is within 49.50 Hz to 49.20 Hz for the generating stations utilising coal/lignite/gas supplied under Administered Price Mechanism (APM) shall be 20% + 403 p/Kwh i.e. @483.60 p/Kwh.
- \* The additional UI Charge for under injection of electricity for each time block when grid frequency below 49.20 Hz for the generating stations utilising coal/lignite/gas supplied under Administered Price Mechanism (APM) shall be 40% + 403 p/Kwh i.e. @564.20 p/Kwh.

**3.4. Benefits of Inter-State ABT**

- \* Facilitates grid discipline
- \* Facilitates merit order operation (economic generation)
- \* Facilitates bilateral trading in both capacity and energy.
- \* Facilitates Auto Power trading/deem trading through UI.
- \* Benchmarks the Trading Price with the grid frequency varying from Rs.17.46/ KWh to zero price compelling the Power Engineers to recognize the hours of high demand / low demand in Electricity Market as well as in the Grid to plan the day ahead schedule/drawal accordingly to avoid stiff penalty.

**3.5. Impact of Inter-State ABT in Odisha Power Sector**

- \* GRIDCO through UI deem-traded and earned revenue of Rs 1808.67 Cr. during the period from FY 2003-04 to FY 2010-11 as shown in Table-3 below:

**TABLE - 3**  
**Revenue earned by GRIDCO through UI**

Financial Year	Amount Received (Rs. in Cr.)
2003-04	169.60
2004-05	57.94
2005-06	48.48
2006-07	182.92
2007-08	951.05
2008-09	174.19
2009-10	(-)263.51
2010-11 (from 29.03.2010 to 31.10.2010)	186.00
<b>Total</b>	<b>1803.67</b>

- \* CERC vide their ABT Orders dated 04.01.2000 and 15.12.2000 permitted for free trading of power between the beneficiaries / states within and outside the Region. Pursuant to the provisions of ABT Orders issued by CERC as well as the provisions of Electricity Act, 2003, GRIDCO successfully traded the surplus power in the last eight years and earned revenue of Rs.3559.89 cr. as stated in Table-4 below :

**TABLE - 4**  
**Revenue Earned/ amount paid by GRIDCO through Trading**

FY	Energy traded (In MU)	Revenue earned (In Rs. Cr.)
2003-04	2639.76	568.09
2004-05	4527.00	1071.44
2005-06	2188.00	728.38
2006-07	1818.00	866.00
2007-08	690.49	302.09
2008-09	35.011	74.44
2009-10	(-)140.72	(-)12.39
2010-2011 (April to Oct, 10)	18.22	11.84
<b>Total</b>	<b>11,875.75</b>	<b>3559.89</b>

- \* In post-ABT regime, Odisha adopting prudent commercial practices and taking advantage of its vast Hydro Resources earned revenue to the tune of Rs 5370 Crs. through trading and deemed trading through UI during last eight years.

#### 4. Intra-State ABT:

- 4.1. Electricity Act, 2003 stipulates that Indian power sector should be guided by National Electricity Policy (NEP) and Tariff Policy. Para 5.7.1 (b) of NEP states that ABT regime introduced by CERC at the national level has had a positive impact and had also enabled a credible settlement mechanism for intra-day power transfer from licensees with surpluses to licensees experiencing deficits. The State Electricity Regulatory Commissions (SERCs) were advised to introduce ABT regime at the state level within one year (i.e. by February, 2006). In Para 6.2 of Tariff Policy, it is stipulated that the availability based tariff may be introduced at the State level by April, 2006.
- 4.2. Based on the aforesaid guidelines of NEP and Tariff Policy, for introduction of Intra-State ABT in States, OERC prepared a draft Regulation entitled OERC (Intra-State ABT) Regulations, 2006 and floated the same in the Commission's website on 26.10.2006 for inviting opinions/suggestions from the Stakeholders within 30 days.

- \* Suggestions were received from the following Stakeholders on the aforesaid draft Regulation:
- \* Orissa Power Transmission Corporation Limited (OPTCL)
  - \* Orissa Hydro Power Corporation Limited (OHPC)

- \* Orissa Power Generation Corporation Limited (OPGC)
- \* Utkal Chamber of Commerce & Industry Limited (UCCI)
- \* Confederation of Captive Power Plants, Orissa (CCPPO)
- \* Department of Energy, Govt. of Orissa (GOO)
- \* Through due consultation process and considering the views of stakeholders, OERC vide Notification dated 17.12.2007 finally issued OERC (Intra-State ABT) Regulation, 2007 and sent on 17.12.2007 to Director, Printing, Stationery & Publication, Orissa for publication in Orissa Gazette.
- \* The aforesaid Regulation was published in the extraordinary Orissa Gazette on **14.02.2008** and from that date OERC (Intra-State ABT) Regulation, 2007 was applicable to the whole of the State of Odisha.

4.3. Based on the preparedness required for implementation of Intra-State ABT by SLDC/DISCOMS / Transco/ Generators/Grid Coordination Committee, OERC vide Lr. No. 1190 dtd. 13.07.2007 issued a Road Map for implementation of Intra-State ABT in Odisha as indicated below:

Agency	Preparedness Required	Milestones Proposed by OERC
OPTCL	(a) Construction and functioning of Grid Co-ordination Committee as per OGL.	31.07.2007
	(b) Metering at the Interface points of OPTCL and DISCOMs.	15.08.2007
	(c) Metering at the interface points of OPTCL and Generators.	15.08.2007
	(d) Meter reading and data collection arrangements for preparation of weekly LT and reactive energy bills.	31.08.2007
DISCOMs	(a) Establishment of ALDLs to coordinate the area of operation and day-ahead real time scheduling, with SLDC.	31.07.2007
	(b) Preparation of day-ahead schedules for each 15 - minute time block on day-ahead basis.	15.08.2007
	(c) Ability of DISCOMs to monitor and control load on real time basis as per OGC including provision of ART compliant meters for consumers of 3 MVA and above included in the Distribution networks.	15.08.2007
Generators	(a) To establish a model Cell to prepare availability schedules for 15 - minute time block on day ahead basis for each power station.	15.08.2007
	(b) Dispatch the aforesaid data to SLDC in time as per OGC.	15.08.2007
	(c) Adherence to the final schedules of generation communicated by SLDC.	15.08.2007
SLDC	(a) Model agency for the purpose of overall co-ordination for implementation of Intra State ABT and operations there under.	31.07.2007
	(b) Strengthening infrastructure, deployment of manpower power for online monitoring and all such operations relating to Intra State ABT.	31.07.2007
	(c) Model agency for billing and settlement of all charges relating to Short Term Open Access customers.	31.07.2007
	(d) Collection of data from the generators and DISCOMs on day-ahead basis, communication with ERLDC or Centre Power availability, finalization of day-ahead schedules and intimation to all stakeholders for final implementation.	15.08.2007
	(e) Revision of Schedules during intra-day transaction and intimation of such revised schedules to all stakeholders.	31.08.2007
	(f) Model entity for preparation of monthly State Energy Accounting, weekly LT and reactive energy accounting (both provisional and final) for implementation by stakeholders.	01.09.2007 to 31.10.2007
	(g) Mock demonstration for two months to be organized by SLDC.	
	(h) Discussion of problems encountered during Mock Demonstration and finding solution.	During November 2007
Final Implementation	Final implementation of Intra-State ABT in Orissa from	01.01.2008



- 4.4. OERC vide letter No. 1808, dtd. 18.08.2008 asked all the licensees, OPTCL, CESU, WESCO., NESCO & SOUTHCO and the generators OHPC, OPGC as well as to SLDC to file the status with regard to implementation of Intra-State ABT to the Commission by 27.08.2008. As no response was there from licensees of the aforesaid letter of the Commission, OERC vide Letter no. 2770 dated. 29.12.2009 issued Notice to the licensees, generators and SLDC to show cause by 15.01.2009 as to why a proceeding under Section 142 of the Act should be initiated for violation of the direction of the Commission. In response to the Notice of the Commission all the licensees and SLDC submitted their status of preparedness for implementation of Intra-State ABT in the State which did not satisfy the Commission.
- 4.5. The implementation of Intra-state ABT as per OERC Regulations, 2007 vis-a-vis the submissions in January, 2009 on the preparedness of Licensees and that of SLDC were reviewed by OERC in July, 2009 and OERC observed that the Intra-state ABT could not be implemented in the State by the Distribution Licensees as well as by SLDC due to the following reasons:-
- \* Distribution System Operation and Control Centers (DSOCCs) of DISCOMs were not fully operational for online monitoring and operation of Intra-State ABT.
  - \* SLDC was also not geared up and had not established Energy Accounting and Settlement System Centre (EASSC) for preparation of both provisional and final monthly Energy Account, weekly UI & weekly Reactive Energy Account.
  - \* On-line Schedule vs. Drawal data in 15-minute mode was not made available in SLDC website.
- 4.6. The OERC as a facilitator had conducted three Meetings in the Conference Hall of the Commission on 18.07.2009, 17.09.2009 and 25.11.2009 where the problems/difficulties relating to implementation of Intra-State ABT were discussed thread bare in the presence of the representatives of the various stake holders, i.e. DISCOMs , GRIDCO, SLDC & OPTCL and almost all issues were resolved.
- 4.7. As per the direction of OERC, the “Mock Exercise” of Intra-State ABT (Phase-I) was started in hourly mode with effect from 20.07.2009 and after availability of 15-minute on-line data in OERC website in November, 2009, the “Mock Exercise” of Intra-State ABT (Phase-I) was started in 15-minute mode with effect from 01.12.2009.
- 4.8. OERC conducted full day “Mock Workshop” on 23.12.2009 and again on 05.05.2010 for implementation of Intra-State ABT (Phase-I). During the period of “Mock Workshop”, an effective inter-action between each DISCOM and SLDC was made as regards to their command area; points of injections of power to each DISCOM, points of Intra- DISCOM transfer and its energy accounting etc. The consensus decisions emerged in the “Mock Workshop” held on 23.12.2009 for effective implementation of Intra-State ABT were as under:-
- \* Intra-State ABT may have to be implemented in two phases. Under Phase-I, Intra-State ABT will be only implemented amongst GRIDCO and 4 DISCOMs. After successful operation of Intra-State ABT (Phase-I) for a minimum period of six months; the Phase-II will be launched including State Generators and State Captive Generating Plants.
  - \* All the DISCOMs should fully strengthen their DSOCCs for implementation of Intra-State ABT on 24x7 hours for real time operation mode deploying the required manpower and infrastructure.
  - \* All the Distribution System Operation Control Centers (DSOCCs) should arrange to display the Schematic Diagrams showing from the from the Exchange Metering Points of OPTCL Network to Distribution Network up to 11 KV feeders of the respective DISCOM.

- \* All the 33 KV Feeders except the feeders supplying to Process Industries, District HQs and State Capital should be grouped under Category 'A', Category 'B' and Category 'C' and are to be provided with UFR at graded settings of frequency and the same may be intimated to OPTCL for initiating the appropriate action for installation of such UFRs on priority.
- 4.9. OERC had initiated a suo-motu petition on 02.06.2010 for implementation of Intra-State ABT (Phase-I) in real time mode with commercial settlements in the State of Odisha under Regulation 18 of OERC (Intra-State ABT) Regulation, 2007 as the performance of DISCOMs and that of GRIDCO under Intra-State ABT (Phase-I) "mock-mode" for the period from 15.01.2010 to 28.03.2010 and from 29.03.2010 to 29.08.2010 has portrayed a WIN-WIN scenario for all the stake holders. OERC heard the suo-motu petition on 16.06.2010 & again on 08.12.2010 where the following issues were again raised by DISCOMs, OPTCL & SLDC for resolution of the same before final implementation of Intra-State ABT (Phase-I) in real time mode.
- \* Allocation of PPA of each Central & State Generator to DISCOMs.
  - \* Allocation of day-ahead scheduling by SLDC in proportion to either as per Demand (SMD) in MVA or as per Bulk Energy in MU approved in the RST Order of the Commission for FY 2010-11
  - \* Implementations of Intra-State ABT in full/at one go duly including the State Generators and the State Captive Generating Plants or implementation in phases.
  - \* DSOCCs are not fully geared up to operate on 24X7 hours basis in absence of SCADA connectivity with all Primary Sub-stations, 33 KV and 11 KV feeders and in absence of dumb terminals for accessing the drawal at OPTCL interface points as well as the drawal; of EHT consumers connected with OPTCL System.
  - \* Energy Accounting Settlements System Center (EASSC) has not been established by SLDC for preparation of monthly State Energy Account (SEA) and weekly UI accounts based on 15-minute data.
  - \* OERC website data is historic one (past 15-minute data) and that too based on RTUs connected with auto transformers only.
- 4.10. OERC vide its Interim Order issued on 14.07.2010 addressed all the issues and asked SLDC-the nodal agency as per Intra-State ABT Regulation, 2007 and Member Secretary Grid Coordination Committee as per Regulation 11.2 (2) of Odisha Grid Code, 2006 for discussion and resolution of all the pending operational and commercial issues associated with implementation of Intra-State ABT (Phase-I) .
- 4.11. SLDC conducted a Meeting on 10.08.2010 on commercial implementation of Intra-state ABT (Phase-I) and discussed and resolved the following issues:
- \* Scheduling of DISCOM drawal
  - \* Display of Real Time drawal
  - \* Invoicing of Weekly UI charges Payable/Receivable by DISCOMs
  - \* Development of a Standard Operational Manual for implementation of Demand Regulation in case of low availability scenario
- 4.12. Implementation of Intra-State ABT (Phase-I) with commercial implication was discussed in 7<sup>th</sup> Meeting of Grid Coordination Committee (GCC) on 24.09.2010 where DISCOMs opposed the implementation as they were not equipped with requisite infrastructure. Member Secretary, GCC requested the DISCOMs to come up with the definite time schedule and to place the same in the 8<sup>th</sup> Meeting of GCC to be held on 29.12.2010.

4.13.OERC vide letter No. 5549 dated 14.12.2010 again asked Member Secretary, GCC to discuss and decide the following issues/points in 8<sup>th</sup> Meeting of GCC to be held on 29.12.2010 relating to implementation of Intra-State ABT (Phase-I) in real time mode with commercial implication:-

- \* SLDC website should be in readiness to make available to all the stake holders the existing available data in SLDC at present in 15-minute mode.
- \* Finalisation of user-friendly formats. These formats with the existing available data are to be downloaded from SLDC website.
- \* Establishment of communication link between SLDC Server with PCs of DSOCs of DISCOMs so that dumb terminals can download the data.
- \* Finalisation of Agency/Agencies for retrieval of weekly meter data from all interface points of OPTCL/DISCOMs to supply to SLDC for preparation of weekly UI Account.
- \* Establishment of Energy Accounting Settlement System Centre (EASSC) under SLDC

#### 4.14. Commercial implication of Intra-State ABT (Phase-I) in “mock mode”

4.14.1. Performance of DISCOMs & GRIDCO under Intra-State ABT (Phase-I) Vs. performance of GRIDCO under Inter-State ABT during the period from 15.01.2010 to 28.03.2010 is as under based on the 15 Minute data available in OERC website:

##### **Under Intra-State ABT (Phase-I) arrangement**

- \* CESU has to pay to GRIDCO Rs. 15.35 Cr.
- \* SOUTHCO has to pay to GRIDCO Rs. 17.52 Cr.
- \* NESCO has to pay to GRIDCO Rs. 20.61 Cr.
- \* WESCO will get from GRIDCO Rs. 3.00 Cr.
- \* GRIDCO will receive from 4 DISCOMs a net amount of Rs. 50.48 Cr.

##### **Under Inter-State ABT arrangement**

- \* GRIDCO has already got from ER Pool Rs. 12.44 Cr.
- \* Net receipt of GRIDCO under both the arrangement is Rs. 62.92 Cr.

4.14.2. Performance of DISCOMs & GRIDCO under Intra-State ABT (Phase-I) Vs. performance of GRIDCO under Inter-State ABT during the period from 29.03.2010 to 29.08.2010 is as under based on 15 Minute actual data provided by EBC of GRIDCO to SLDC:

##### **Under Intra-State ABT (Phase-I) arrangement**

- \* CESU has to pay to GRIDCO Rs. 125.03 Cr.
- \* SOUTHCO has to pay to GRIDCO Rs. 10.33 Cr.
- \* NESCO will get from GRIDCO Rs. 26.98 Cr.
- \* WESCO will get from GRIDCO Rs. 119.64 Cr.
- \* GRIDCO will pay to 4 DISCOMs a net amount of Rs. 11.26 Cr.

##### **Under Inter-State ABT arrangement**

- \* GRIDCO has already got from ER Pool Rs. 210.67 Cr.
- \* Net receipt of GRIDCO under both the arrangement is Rs. 199.41 Cr.

4.14.3.The commercial performance of DISCOMs during the period under review under Intra-State ABT arrangement indicates that both WESCO & NESCO are very much benefited, SOUTHCO can improve with a little bit of lowering its drawal but CESU is required to tighten its belt as CESU’s drawal is always more than the day ahead schedule. GRIDCO is equally benefited under both Intra-State ABT (Phase-I) & Inter-State ABT regime as GRIDCO will receive more and more from ER Pool if the DISCOMs will adhere to the day ahead schedule under Intra-State ABT (Phase-I) arrangement.

#### 4.15. Commercial Settlement

4.15.1. Under Inter-State ABT arrangement, the UI amount payable/receivable is prepared on weekly basis and is settled as First Charge provisionally by the stake holders i.e. generators and the beneficiary State Power Utilities on the receivables of NTPC, NHPC, POWERGRID etc. It is a zero sum game. The final settlement of UI account is held quarterly under RLDC.

4.15.2. OERC through an additional petition on 25.11.2010 sought the opinions/suggestions from the stake holders i.e. GRIDCO & DISCOMs to offer their views on procedure for settlement of UI account as First Charge on receivables of GRIDCO, OPTCL & SLDC either weekly through a separate account or through existing escrow arrangement on monthly basis. As in the State of Odisha, all the revenues of DISCOMs collected in a month are being escrowed to the account of GRIDCO, GRIDCO during the hearing on 08.12.2010 agreed to file the procedure of commercial settlement of the UI amount amongst the stakeholders by end January, 2011.

#### 4.16. Benefits of Intra-State ABT

4.16.1. Implementation of Intra-State ABT will facilitate

- \* To bring further grid discipline in Odisha Power Sector.
- \* To harness spare capacity bottled up within the state-from Merchant Power Plants (MPPs), Independent Power Plants (IPPs), Captive Generating Plants (CGPs) etc.
- \* To promote merit order operation within the state.
- \* To enable GRIDCO, DISCOMs and other market participants to mitigate UI charges amongst them within the State.
- \* To usher a credible commercial settlement mechanism at the end of every week /every month and there will be no year-end over-drawal settlement amongst the stakeholders.
- \* To promote trading within the state and evolve real time trading price.

#### 5.0. Conclusion:-

The Inter-State ABT at the regional level has generated enough confidence amongst participants/stakeholders in credible commercial settlement and has resulted in significant improvement in Grid discipline and real time trading. Odisha was pioneer in Power Sector Reforms in the country and has already notified OERC (Intra-State ABT) Regulation, 2007 which is in force since 14.02.2008 but in implementation of Intra-State ABT, Odisha has lagged behind Rajasthan & Delhi as both have already implemented Intra-State ABT in their States and have improved their operations. Odisha has already earned more than Rs 1800 Cr. since the introduction of Inter-State ABT in 2003 in Eastern Region and during FY 2010-11 (from April to Oct, 2010) has earned about Rs 200 Cr. Intra-State ABT which is expected to be introduced in Odisha during FY 2011-12 will usher further Grid discipline in the State and will enable Odisha for better financial gain under Inter-State ABT arrangement and the entire Odisha Power Sector will be benefited in the long run.

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# PEOPLE'S PARTICIPATION IN POWER REGULATION IN ODISHA

*Er. P.K. Swain*  
*Secretary, OERC*

People's participation however is the bedrock of democracy. That is why the Preamble of our Constitution says, "We the people of India.....do hereby enact adopt and give to ourselves this Constitution". This basic principle of good governance stands good for all sectors of the economy.

A key sector of any developing economy such as ours is the power sector. Electricity lights our homes and powers industry. Unfortunately, in many developing countries service quality remains unreliable — even for those who can afford to pay high prices. Expanding access to the 1.6 billion people worldwide who live without electricity, and improving the quality and reliability of electricity supply are urgent socio-economic priorities.

In general, while framing electricity policy and planning, very little information about the basis for new policy initiatives is shared with the public. Opportunities for public participation in policy processes remain quite limited, and when consultations are conducted, input received is not always recorded or seriously considered by policymakers. The integrity and capabilities of executive agencies need to be improved. Conflicts of interest and political interference undermine the independence of the electricity executive in practice.

Policymakers, regulators, citizens, and the international community are grappling with the challenges of providing access to reliable and affordable electricity, and addressing major environmental challenges including climate change. Good governance is necessary to address the many challenges of sustainable energy.

There are significant legal provisions for transparency, public participation, and accountability in independent regulatory bodies in India. But effective regulation requires more than just the right rules, and it is vital to operationalize provisions for access to information and public involvement.

Orissa is the forerunner of power reform in the country. The Orissa Electricity Reform Act passed in 1996 has adopted five basic principles of good governance, namely,

- Maintaining Autonomy
- Promoting Accountability
- Encouraging Participation
- Fostering Transparency
- Predictability

The Electricity Act, 2003 incorporated many of the principles and processes of good governance initiated by the Govt. of Orissa. The stated objects of the Act include protecting interest of consumers, ensuring transparency and decentralizing management of distribution through local self government bodies & user associations. Section 13 of the Act provides for franchisee operation in distribution to encourage public participation in power distribution and as per section 14 they are exempted from having license for distribution.

Sections 42 (5,6, 7 & 8) and 181 provide for the establishment of Grievances Redressal Forum by the distribution licensees and appointment of Ombudsman by the SERC to redress consumer grievances.

Section 57 of the Act provides for a minimum standard of performance for the licensees to be specified in consultation with "licensees and persons likely to be affected". Compensation shall be paid for violation of standards.



Section 59 lays down that information regarding the level of performance achieved by Utilities including number of cases and quantum of compensation paid should be provided to the Commission and published at least once a year.

Sections-80, 81, 87 & 88 lay down objects and norms for appointment of a Central and State Advisory Committee to advise the Central & State Electricity Regulatory Commission respectively on major issues of policy and matters relating to quality of service provided, protection of consumer interest and overall standards of performance of utilities. Both these Committees have on board representatives of consumers and NGOs.

Section 166 of the Act provides for constitution of Coordination Forums by the Central Government and the State Government at Central, State and District level. The Fora will ensure smooth and coordinated development of the Power System in the Centre, State and district level respectively. At the district level the coordination forum will review the quality of power supply and consumer satisfaction and promote Energy efficiency and conservations.

The OERC has enacted Regulations & adopted operational procedures and guidelines in consonance with the above provisions. The OERC Conduct of Business Regulations provides for open public hearings where all interested parties are heard by the Commission which then passes reasoned orders in writing. There is wide communication of the Commission orders through public notice. Consumer Counsel from among leading NGOs working in the power sector have been appointed for all four Distcoms by the Commission to represent consumer interest during tariff hearings.

A State Advisory Committee with representatives from all stake holders including consumers is consulted while making key decisions. The SAC meets once every quarter to deliberate on various issues and a number of its recommendations have been adopted by the Commission in its orders.

In consonance with the mandate of the Electricity Act 2003, the Commission has emphasized people's participation in loss reduction through operation of franchise system in its tariff orders 2006-07, 2007-08, 2008-09, 2009-10 & 2010-11. In keeping with the Commission orders the four DISCOMs in the State have engaged franchisees in loss prone area.

As per the mandate of the Act, the OERC framed a regulation called the OERC Grievance Redressal Forum and Ombudsman Regulation, 2004 and subsequently twelve GRFs and two Ombudsmen were appointed for redressal of grievances of electricity consumers of the State. A Co-opted Member representing a consumer group who is normally a member of SAC has been appointed by the Commission as its representatives in each of the GRFs.

A State Co-ordination Forum with the Chairperson and Members of the OERC as Members has been established in the State and has met in the OERC premises to discuss important issues of policy regarding the power sector.

The Commission has also appointed a number of other consultative committees such as Monitoring Committee on Standards of Performance and Loss Reduction with representatives from the SAC.

Under its Distribution License conditions, the Commission has approved a Consumer Right Statement. The Commission also has a fully updated and interactive website where consumers can access all relevant information. As mandated under the RTI the Commission provides the public full access to all data and records in the interest of transparency and accountability.

The Commission is committed to encouraging and fostering people's participation in the regulatory processes. This is the need of the future and key to sustainability of power sector reforms.

References:

Preamble, Constitution of India

Orissa Electricity Reform Act, 1995

Electricity Act 2003

Empowering People, A Governance Analysis of Electricity, by the Prayas Energy Group

# QUALITY OF POWER SUPPLY AND STANDARD OF PERFORMANCE

**Bijoy K. Sahoo**  
**Director(Engg.), OERC**

## **A) Quality of Power Supply**

One of the major objectives of the Electricity Act, 2003 is to safeguard the interests of consumers amongst other objectives of developing the electricity industry in a holistic fashion. Section 57 of the Electricity Act, 2003 empowers the SERCs (the Commission) to specify Standards of Performance of a Licensee

Accordingly, in exercise of powers under Sections 57, 58 and 59 read with Section 181 (za) and (zb) of the Electricity Act, 2003 and all powers enabling it in that behalf, and after consultation with the Licensees, the Orissa Electricity Regulatory Commission had framed the Regulation regarding the Licensees Standards of performance called *Orissa Electricity Regulatory Commission (Licensees Standards of performance) Regulations, 2004* comprising:

- a) *Schedule-I: The Guaranteed Standards of Performance –being the minimum standards of service to be achieved.*
- b) *Schedule-II: The Overall Standards of Performance – which licensee seek to achieve in discharge of obligations.*
- c) *Schedule-III - is the compensation payable to consumer for failure to meet Guaranteed Standards specified in Schedule-I.*

In the aforesaid Regulations as regards to the voltage variations under quality of power supply it has been specified as below:

The Licensee shall maintain the voltages at the point of commencement of supply to a consumer within the limits stipulated hereunder, with reference to declared voltage:

- a) In the case of Low/Medium Voltage, +6% and -6%;
- b) In the case of High Voltage, +6% and -9%; and,
- c) In the case of Extra High Voltage, +10% and -12.5%.

Or as amended by the authority from time to time.

As regards to frequency the A.C supply should have frequency variation of 3% on both upper and lower side from the declared frequency of 50 Hz. As per CEA's recent Grid Standard Regulation, the frequency of the grid should be maintained within 49.2 to 50.3 Hz.

These types of standards were earlier also there under the regime of OER Act, 1995. In fact, the Performance Standards adopted in OERC were generated in line with the OFFER (Predecessor to OFGEM) the Regulator in U.K.

## **B) Standard of Performance:**

The Commission has framed OERC (Licensees Standards of Performance) Regulations, 2004. According to that the Licensees are required to provide quality service to the consumers as listed below:

1. Restoration of Power Supply:

The normal fuse off complaints should be resolved within six hours in the urban areas and twenty-four hours in rural areas. The line break down complaints should be resolved within twelve hours in the urban areas and twenty-four hours in rural areas. The major line break down complaints should be resolved within twenty-four hours in the urban areas and forty-eight hours in rural areas. The distribution transformer failure complaints should be resolved within six hours in the urban areas and twenty-four hours in rural areas.

2. Voltage unbalance/variation:

The voltage should be improved within 15 days if no expansion/enhancement is required in the network. In case of voltage improvement attributable to 11 KV system up-gradations, the matter should be resolved within 120 days and 180 days in case of 33 KV. If the reason is due to problem in EHT system, the licensee is required to intimate the reason to the consumer within 7 days. Simultaneously, the DISTCO should pursue the matter with the transmission licensee to recheck logical conclusion of the matter.

3. Meter problem:

The licensee is required to inspect and check the correctness of the meter within 7 days of the complaint. If the meter belongs to the licensee and the meter is complained to be defective by the consumer the licensee should rectify/replace within 30 days. If the meter is burnt due to no fault of the consumer, the licensee should replace within 30 days. If the burning of the meter is due to the consumer, the licensee should issue notice within 7 days and replace the meter within 15 days after recovering the cost.

4. New Connection:

Within 3 days of receipt of application, licensee is required to give 3 days notice for fixation of supply point. Within 7 days of fixation of the supply point, the consumer is to be intimated the estimated amount and security deposit. In no case, the applicant should be given power supply beyond 30 days. If the power supply can not be extended within 30 days due to requirement of up-gradation of S/S and lines, the Standards of Performance Regulation has provided extra time for such provision.

5. Billing Complaint:

The billing complaints should be resolved within 30 days.

6. Reconnection following disconnection due to non payment of bills :

Reconnection should be made within four working hours of receipt of production of proof of payment.

7. Schedule Outage:

The schedule outage should not exceed 12 hours in a day and in any case it should not be taken beyond 6 P.M. during summer and 5 P.M. during winter. All schedule outages for maintenance purpose should be done after taking proper work permit. The work permit normally to be taken by 6 A.M. or later and the work permit to be returned on the same day by 5 P.M. If necessary, the work permit could be taken again on next day. The line should not be charged unless work permit is duly returned.

If the licensee fails to provide service within stipulated time, it is required to pay compensation to the affected consumer as per the Schedule-III of the Regulation.

For ensuring appropriate quality of supply and to maintain the above standard, the licensee is therefore required to watch overloading of the system and regularly interact with the TRANSCO and GENCOs and/or Traders to procure power without hindrance. This is as per the license conditions. The lines and S/Ss should be periodically up-graded according to requirement and future capacity growth.

The standards of performance specified in the Regulation shall remain suspended during Force Majeure conditions such as war, mutiny, civil commotion, riot, flood, cyclone, lightning, earthquake or such other force and strike, lockout, fire affecting the Licensee's installations and activities.

The Commission may by a general or special order issued for the purpose, and after hearing the Licensee and such representatives of the affected consumer group as the Commission consider it to be appropriate, release the Licensee from the liability to compensate the consumers for any default in the performance of any standard, if the Commission is satisfied that such default is for reasons other than those attributable to the Licensee and further that the Licensee had otherwise duly made efforts to fulfill his obligations.

**C) Recent Activities in this Regard:**

Since, the Commission has noted that the quality of power supply to the consumers are allegedly poor and there is frequent complaints from the consumers about the poor Standard of Performance, the matter was discussed in the SAC Meeting and a Monitoring Committee was formed with three members of SAC, two officials from OERC, Govt. Representative and the senior officials from the Transmission and Distribution utilities. The Committee has adopted one section each of the DISTCOs for turning them around into model sections. With the above objectives the committee members visited the sections to have a first hand assessment of the present status. The DISTCOs have submitted their requirements for the sections adopted by the Committee and whose performances were found to be below par.

The prima facie observation of the Committee Members during the aforesaid visits to each of the DISCOM sections as follows:

- \* Maintenance of proper record and register as required under various statutory standards/regulations & reporting procedure etc. Adoption of proper maintenance procedures/schedules etc.
- \* Providing adequate public/consumer awareness through pamphlets/displays etc. at the sections/ consumer office and /or collection centres which serve as primary consumer interface point.
- \* Proper public intimation about planned outages, in co-ordination with OPTCL, wherever possible.
- \* Availability of accessories at section level in order to cater to full commissioning and maintenance of equipments at section/sub-station level.
- \* Requirement of adequate delegation of power (including financial) at section and sub-division level.
- \* General O&M shortcomings like jumper connection, conductor size & clearances, long lines without sectionalisation/segregation, lack of AB switches, Breakers etc.
- \* Procedural delay/completion in resolution of billing complaints, new connection etc. wherever present.
- \* Improvement in billing & Collection, with proper consumer and DT/feeders, metering etc. (for energy audit) with adequate anti-hooking/theft measures and proper assessment of consumer loads to be adopted for improving revenue with loss reduction, simultaneously improving quality of service through reduced loading on transformer /conductor and improve voltage.
- \* Address staff issues like provision of adequate skilled staff with proper communication and mobility arrangement, training in technical, commercial and service matter etc for proper motivation and effective interaction with Consumers.

All the above issues, which do not require any major investment, are required to be attended at the earliest before attending to the capital intensive measures connected with network quality improvement.

General observations of the Report prepared by the Committee are as below:

- \* Consumer service with utilities staffs appears to be satisfactory.
- \* Consumer mix of **Balikuda, Kanisi** and **Badagaon** of CESU, SOUTHCO & WESCO are similar with one type of problem, where as **Kamarda** section of NESCO presents different problem with predominantly agricultural loads.
- \* As per the decision arrived during the said visits, detailed requirement of each section to turn around them into model sections in six months time were submitted by the relevant DISCOM officials, which mainly consist of the following :
  - \* Renovation of primary sub-station involving provision of 33 KV breakers, 11 KV breaker in outgoing feeder, new earthing,, up-gradation of S/S (if any) including improvement in access/security etc.
  - \* Strengthening of HT network involving augmentation of conductor size, AB switches/ DP arrangement, Interposing, guarding, provision of capacitor (wherever required) etc.
  - \* Distribution Transformer addition/augmentation as per requirement.
  - \* LT network strengthening, conductor up-gradation including mostly AB cabling, sectionalisation/ short feeders etc.
  - \* Manpower augmentation, orientation and training programmes
  - \* Mobile operation & maintenance group on temporary experimental basis
  - \* Improved metering, billing and collection measures alongwith periodic consumer interface programme, liaisoning, improvement with police authorities
  - \* Exercising option of franchisee operation for improved revenue etc.
  - \* Infrastructural development programme at the section level/office, fuse call centres/staff quarters etc.

Other observations of the committee are as below :

- \* Sometimes Distribution faults seem to be reflected back on OPTCL system, the DISCOMs and OPTCL should make proper relay and protection co-ordination.
- \* The DISCOMs should ensure that they comply with CEA. Technical Standards for construction of electric lines (Part-B – 33 KV and below).
- \* DISCOMs should think over providing independent feeders for essential loads of 5 MVA and above.
- \* Separate rural feeders should be provided, where-ever required.
- \* Routing of lines through prohibited/reserve forest should be avoided as far as practicable.
- \* For Balikuda, Kanisi and Badagaon section having predominantly semi urban and industrial consumers etc., to improve reliability and security of supply, improved use of auto reclosures, ring manned units (RMUs), fault passage indicator (inc conjunction with sectionalisation) etc. can be explored as per techno-economic consideration on experimental basis.
- \* For Kamarda Section having predominantly agricultural loads, rural feeders, supplying to agriculture / irrigation loads can be separated from other loads. Insulating paints in coastal area on the line materials in bad conditions should be tried to prevent corrosion and theft.



- \* The DISCOMs were requested vide letter No.5233 dt.04.11.10 to make presentations on the following. The full committee was to vet and agree on the report for recommendation and action plan.
  - \* Proposed Action plan (including requirements) – to be consolidated in nature.
  - \* Pert /CPM – Time chart & modality for implementation
  - \* Modality of review /monitoring of periodic progresses in implementation (including whether any 3rd party support is required in such works i.e. say field monitoring, quality of jobs etc.
  - \* Devising ‘On Line’ MIS (i.e. with OERC & discuss website link and /or other suggestions, if any.)
  - \* Modalities for final assessment on completion of assignment, through field visits etc.

It has been advised that while attempting to turn around the sections into model one, there should be no attempt to incur extravagant expenditure on material, manpower or other resources so as to reap maximum benefit out of least possible cost. The DISCOMs have been advised to look into the area of distribution automation, improved staff mobility & communication and new technological interventions with aim to optimize manpower. They were also requested to fill up the vacant posts with technically qualified manpower and resort to temporary outsourcing wherever required and to review the final requirement after completion of the exercise.

Since, no baseline data on tangible parameter which will be measured at the beginning and end of the exercise (i.e., to access the success/efficacy of the exercise, including setting targets therein) like (say):

- \* tail end voltages
- \* average interruption duration, frequency etc.(reliability indices SAIDI, SAIFI, MAIFI)
- \* Average new connection time and complaint resolution time.
- \* Distribution transformer rate etc.,

the DISCOMs have been advised to maintain such records for monitoring purpose.

As regards, to timeline and periodic progress monitoring thereof with design of online MIS, JD (IT), OERC has prepared sample formats. The Progress Review Method is to be finalised in a week after interaction with the Utility Officers.

The utilities have been asked to submit their requirements for the sections looking into the above observations of the Committee. The inputs from OPTCL and SOUTHCO have been received. The Committee shall go ahead with the job on quality of supply and Standard of Performance after analyzing the submissions to be made by the utilities shortly.

Further, the Commission had instituted the Technical Enquiry of the Utilities’s system by independent experts. The licensees are following up with the reports of the Enquiry Committees for necessary compliances and the Commission is also periodically reviewing the matter from time to time.

## **Safety**

The primary responsibility to deal with the accident and safety matters lie with the Electrical Inspector. It is seen that electrical accidents have become an order of the day and requires urgent attention of utilities especially in view of the poor dilapidated condition of their network. The accidents are occurring in the households due to negligence by the consumers. This is also happening at public places due to various reasons like non-adherence to safety standards by the utilities, improper inspection and rectification of defects of electrical system in the place of large public gatherings. The electrical network runs through forest area to cater to the load centres. The trajectory and geographical topography of the forest lands makes it almost

impossible to maintain appropriate clearances from the ground. This is also leading to electrocution of animals. It is, therefore, responsibility of all concerned to make the electrical installations properly inspected by the appropriate authority and fault rectified. The Commission on its part is enlightening the consumers about the importance of electrical safety. The Commission has further taken suo mutto cognizance of the accident cases and has ordered for imposition of penalties on the officers of the licensee. The Govt. should provide adequate support to the utilities to turn the overhead system into underground cables specially in the forest areas. The exercise of safety is a continuous one and the Commission shall continue to do its part in the matter.

### **Energy Conservation**

The energy Conservation Act of the Govt. is in force. The EIC-Electricity of Govt. of Orissa has been designated as the State Designated Agency for Energy conservation purpose and accordingly he is issuing guidelines from time to time in this regard. The Commission on its part is going to specify the Demand Side Management Regulation which is under process.

#### **In context of the above, major internal action plan of the Engineering Division for time to come is as below :**

- \* Transmission Planning & Long Term Demand Forecast for the State of Orissa.
- \* Annual System Performance of OPTCL.
- \* Annual Guaranteed and Overall Performance of the Distribution Licensees.
- \* Monitoring the recommendations of the Technical Enquiry Committees constituted to know the Status of Maintenance of Power House, Grid Substations, Distribution Substations and various Transmission & Distribution Elements.
- \* Amendment/Up-dating of Orissa Grid Code, after analyzing the proposal either by Grid Co-ordination Committee or by the orders of the Commission after following the due procedure.
- \* Periodic amendment of OERC (Conditions of Supply) Code, 2004/ Standard of Performance Regulation.
- \* Monitoring the implementation of the recommendations made by the Working Group constituted for "Technical Loss Reduction".
- \* Analysis of Electrical Accidents and issue of specific guidelines on receipt of Consumer Complaints in order to improve power supply situation in various Licensee's area.
- \* CEA, CERC, FOR, Assembly Questions, Parliament Questions, Press Releases.
- \* Input to Tariff Order.
- \* General Consumer Complaints.
- \* Monitoring of License Fees.
- \* Technical visit to licensee area, S/S and Electrical Installation.
- \* Input to finalise the Case Orders.
- \* Distribution and Transmission Standards.
- \* Energy Conservation and DSM.
- \* Renewable Energy Certificate Mechanism

## SCHEDULE OF COMPENSATION AND MANNER OF PAYMENT

Service area	Compensation payable to affected consumer	Manner of payment
<b>Normal Fuse-off</b>		
Urban Areas	Rs.100 in each case of default	Automatic
Other Areas		
<b>Line Breakdowns</b>		
Urban Areas	Rs.100 to each affected consumer	To be Claimed
Other Areas		
<b>Distribution Transformer failure</b>		
Urban Areas	Rs.200 to each affected consumer	To be Claimed
Other Areas		
<b>Period of scheduled outages</b>		
Maximum duration in a single stretch	Rs.200 to each affected consumer	To be Claimed
Restoration of supply		
<b>Voltage Variations</b>		
No expansion/enhancement of network is involved	Rs.200 to each affected consumer	Automatic
Up gradation of distribution system is required	Rs.500 to each affected consumer	
<b>Harmonics</b>		
LIII connections	To be decided by the Commission at appropriate time.	
HT connections		
<b>Meter Complaints</b>		
Inspect and check correctness	Rs.100 in each case of default	To be Claimed
Replace slow, creeping or stuck up meters	Rs.100 in each case of default	Automatic
Replace burnt meters if cause not attributable to consumer	Rs.200 in each case of default	Automatic
Replace burnt meters in all other cases		

<b>Application for new connection/additional load</b>		
<b>Connection feasible from existing network</b>		
Release of supply	Rs.100 for each day of default	Automatic
<b>Network expansion/enhancement required for providing g connection</b>		
Release of supply – Low Tension (including agriculture)	Rs.100 for each day of default	To be Claimed
Release of supply – High Tension 11 KV supply	Rs.500 for each day of default	To be Claimed
Release of supply – Extra High Tension services	Rs.500 for each day of default	Automatic
Erection of Substation required for release of supply	Rs.1000 for each day of default	Automatic
<b>Transfer of ownership and conversion of service</b>		
Title transfer of ownership	Rs.100 for each day of default	Automatic
Change of category	Rs.100 for each day of default	Automatic
Conversion from LT1-ph to LT 3-ph		
Conversion from LT to HT and vice-versa	Rs.200 for each day of default	Automatic
.....		
Resolution of complaint	Rs.50 for each day of default	Automatic
<b>Reconnection of supply following disconnection</b>		
Urban Areas	Rs.100 for each case of default	Automatic
Other Areas		

**RECOMMENDATION OF THE ENQUIRY AND DIRECTIONS/ORDER OF THE COMMISSIONS FOR INSTALLATION AND UP-GRADATION OF TRANSFORMER, S/S AND OTHER IMPORTANT MATTERS**

	OPTCL	DISTCO'S	
Establishment of OPTCL alongwith the area of jurisdiction	Deficiencies to be sorted out	Establishment of S/S alongwith area of jurisdiction	Deficiencies to be sorted out
EHT(O&M) Division, Jayanagar		SOUTHCO	Capacity of 33/11 kv S/Ss mentioned in the detailed report needs upgradation exceeding demand of urban areas upto 100000. Interline voltage regulation of 11 kv, 33kv and 70KV to be checked. All the S/Ss should have proper protection arrangements functional VCBs and other associated equipments.
Jayanagar 220/132 KV grid	Replacement MOCBs with SF <sub>6</sub> breakers. Adequate T&P should be available. Augmentation of S/S is required.	JED,Jeypore MED,Malkangiri	Two 22/11 kv S/S in the outskirts of Jaypore, (elderly near Jeypore-Koraput Road), Another 33/11 kv S/S at Jamabour with associated lines from proposed Wardaour 33/11KV S/S. One power house S/S to be separated from Rural area. New 11 kv feeder from Koraput 33/11 kv S/S as compensation for 18 kv overhead. One additional transformer each at old power house Jeypore - Koraput and Jamabour is required. 33/11 kv S/S at JESKOP, Dasnaour, Holsing, Wardaour. All the S/Ss should have proper protection arrangement and functional VCBs. Where maintained S/S at Jaypore Old Gas Gland needs immediate attention.
Balinela 220/33 KV grid		MED,Malkangiri	One 33/11 kv S/S at Podia Worst maintained S/S at Malkangiri needs immediate attention.
Subabera, 33/11 KV grid	33/0.4 KV transformer to be installed for station supply. Replacement MOCBs with SF <sub>6</sub> breakers. Tr No. II leakage to be stopped. Augmentation of S/S is required.	NED, Nabarangpur	Undersized conductors of 33 KV line in between Nabarangpur and Umerkote(60KM) needs replacement. Station batteries of primary S/Ss are to be replaced. New 33/11 KV S/S at Wardaour & Chandan and All the S/Ss should have proper protection arrangement and functional VCBs.
Tentulkhuti, 33/11 KV grid	Existing 2X 2.5 MVA transformer should be upgraded. Augmentation of S/S is required. Installation of new 33/11 kv S/S at Dabugon.	NED, Nabarangpur	Presence of 11 kv S/S VCBs at Pansandoli, Kosagumda, Tamalkhandi, Nabarangpur 33/11 kv S/Ss, 33/11 KV S/S at Bagar & Jharagumda (Nabarangpur & Umerkote) receive power through long lines from Tentulkhuti grid. Six hundred kv of primary S/Ss are to be replaced. Present primary S/S at Pansandoli may be shifted to a different nearby suitable location. All the S/Ss should have proper protection arrangement and functional VCBs.
<b>EHT(O&amp;M) Division, Theruballi</b>			
Theruballi 220/33 KV grid	Old Air circuit breakers to be replaced. Old Oilkva MOCBs to be replaced.	GED, Guntur	VCBs in Guntada, Parakur, Guntur, Umraba, Gudim 33/11 KV S/S are to be installed.
Rayagada, 33/33/11 KV grid		RED, Rayagada	VCBs in Siliput, Sarama, Kospur, Biswan, Batak, Munipada, Hatim, Niguda, Dargasa, Jajim, Hula 33/11 kv S/S are to be replaced. 33/11 kv installations along with control room need to be shifted to a suitable location outside the grid premises.
Parlakhamundi, 33/33 KV grid		PKED, Parlakhamund	VCB in Parlakhamund(D) 33/11 kv S/S to be installed. Transformer oil which is installed outside the S/S area has to be kept inside. Provision of 33/0.4 KV section transformer at Garamtha 33/11 KV S/S.



132 kV Switching Station, Akhusingh	Installation of 132/33 KV S/S at Akhusingh. Stolen lower members between Rayagada and Akhusingh needs replacement.		
EHT(O&M) Division, Berhampur	Relay coordination between GPTCL & SOLTICO should be done regularly.		
Berhampur, 132/33/11 KV grid	Another 132 kV Bay by acquiring land by side of the existing S/S and diverting 33 KV line. Upgradation of 20 MVA transformer.	SED-I, Berhampur	33 KV S/S in between Padmapur & Mohana, feeding from Akhusingh and another 1 between Parlakhrumani & Mohana. 11 KV load of water works feeder and old Berhampur feeder may be shifted to Ambagaca 33/11 KV S/S. New 33/11 KV S/S at Karheipuri near KHA by tapping from existing Beligam Khalikata line. Chikiti load from Berhampur 216 circle from Berhampur S/S to Digapahandi S/S. New 33/11 KV S/S at Kukudakhand.
Harendrapur, 220/132/33 KV grid	Another Auto transformer may be added.	GED-II, Berhampur	Upgradation of 33/11 KV S/S at Ambapua, naghty 11 kv feeders Ask Road in City locality, City Hospital feeder, Tata Bazar feeder, Tulashnagar feeder & Gusehni Jagam feeder should be bifurcated or reoriented to minimise interruption. The VCBs of Luchi S/S should be operational. One 33/11 KV S/S Chandipur/Genda is connecting to Harendrapur Grid.
Chatrapur, 132/33 KV grid	MOCBs to be replaced with 5% oil VCBs. Transformer upgradation is required. Tap changers to be operative from remote.	GNED, Chatrapur	Dedicated feeder from Chatrapur grid to Chatrapur 33/11 KV S/S. Khardajelli feeder of Humma S/S, Kotala feeder of Khalante S/S, Padmasagar feeder of Digapahandi S/S, Kusapada feeder of Chikiti S/S should be reoriented. Compound wiring painting and total cabling work of all 33/11 KV S/S are to be taken up.
Parjam, 132/33 KV grid	Provision of LA on 132 KV side.		A new 11 KV feeder may be drawn from gan,an 33/11 KV S/S to take some loads of lengthy and overloaded (Kamrupuli 11 KV feeder of Humma 33/11 KV S/S).
Balugaon, 132/33 KV grid	Spare battery sets to be available.		Shalkote feeder load may be partly transferred to Humma. Upgradation of Ambapua S/S.
Digapahandi, 132/33 KV grid	Spare battery sets to be available Tap changers to be operative from remote.	GED, Digapahandi	New 33 KV line to Chikiti from Digapahandi to be completed. Diversion of entire load of Chikiti feeder from Digapahandi Grid. 33/11 KV S/S at Dechali in between Digapahandi & Chikiti and one at Suranjy area.
Mohana, 132/33 KV grid	Bus coupler arrangement on 132 KV side along with the provision of breaker at incomer. Spare battery sets to be available. Tap changers to be operative. Provision of LA on 132 KV incomer.		Station Transformer to be installed at Mohana 33/11 KV S/S. Provision of VCBs & LAs at Mahanagar, Cheligada & Khajupada S/S.

EHT(O&M) Division, Bhanjanagar

<p>Bhanjanagar, 132/33 KV grid</p>	<p>220 KV BHDL make MOCBs to be replaced with SF<sub>6</sub> breakers. Upgradation of the S/S is required.</p>	<p>KAHO, Bhanjanagar</p>	<p>CS Nagar feeder feeding Balisira may be diverted to Aska Grid.VCBs in Ja Singh, Disingi, K.P.H; Polguntha, Inganath Prasad, Duguda, Gaipadar, Surada, Dhansote under SVED, Bhanjanagar should be available &amp; operational.</p>
<p>Aska, 132/33 KV grid</p>	<p>Damaged cable trench cover to be changed Provision of One battery set.</p>	<p>AED, Aska</p>	<p>Upgradation of Balugam grid VCBs for Kodala and Polasara feeder One 33 KV VCB for transformer and 33 KV VCB for transformers in Polasara</p>
<p>Phulbani, 132/33 KV grid</p>	<p>33 KV MOCBs to be replaced with VCBs. Rays are to be replaced. Provision of One battery and installation of 132/33 KV S/S at Bouch One 132/33 KV S/S at Nuagam(near Balliguda) to improve voltage profile in Kaliguda, Tumudibandha, Darinigibaci &amp; Raikia area.</p>	<p>PCD, Phulbani, SoED, Boudha</p>	<p>33/11 KV S/S at Katagani or Chakada S/S are to be attended urgently. VCBs at manmuda, Jansu, Chakraaga, Dangiadi under 4th S, Boudha should be available and operational.VCBs in Tumudibandha, Nuagam, Tikabali, Sankarhol, Kataga &amp; Raikia under 4th, Phulbani should be available &amp; operational.Compound wall, painting and metal spreading works of all 33/11 KV S/S are to be taken up.</p>

**RECOMMENDATION OF THE ENQUIRY AND DIRECTIONS/ORDER OF THE COMMISSIONS FOR INSTALLATION AND UP-GRADATION OF TRANSFORMER, S/S AND OTHER IMPORTANT MATTERS**

	OPTCL	DISTCO'S	
Establishment of OPTCL alongwith the area of jurisdiction	Deficiencies to be sorted out	Establishment of S/Ss alongwith area of jurisdiction	Deficiencies to be sorted out
EHT(D&M) Division, Jaipur Road		NESCO	
New Duberi 100/220 KV grid			
Duburi 220/132 KV grid			Provision of additional earthing in Dupuri 33/11 KV S/S & VCB on incoming side.
Jaipur Town, 132/33 KV grid	Upgradation of 20 MVA transformer to 40 MVA. 2nd 132 kv Ckt. to avoid longer interruption.BOCBs to be replaced with VCBs	Jaipur Town Electrical Division, Jaipur Road Electrical Division, ACD,Anandpur, KED,Keonjhar.	33 KV VCBs at Panikollu to be replaced. Old lines of kapila & Singhaur feeder should be changed.
Jaipur Road 132/33 KV grid	Upgradation of 20 MVA transformer to 40 MVA. Direct supply at 132 kv from PGCL grid. 2 nos. of BOCBs in 132 kv & 2 nos. of BOCB in 33 KV to be replaced with VCBs.		Linking line from Anandpur grid to Hatadahi and Orall to be completed. Damaged VCBs of 33/11 kv S/S at Karmahadpur may be replaced.Provision of VCBs in feeders of Jaska S/S. Upgradation of Conductor sizes in Kaima feeder is required Transformer upgradation in Anha S/S is required Provision of VCBs in Khatobardha S/S.Provision of 25 KV VCBs in DALS S/S,damaged MG switches & HG fuses of Kuchha S/S to be replaced.
Kalarangl. 132/33 KV grid	Secure 132 KV Ckt. to avoid longer interruption.BOCBs to be replaced with VCBs.		
EHT(D&M) Division, Balesore	Citic S/S at Ujala should be completed.		
Koanra, 220/132 KV grid	Upgradation of 12.5 MVA transformer to 40 MVA. Conversion of Ajuhai Barizada S/C line to D/C line.	BHE, Balesore CED, Balesore	Inter connection of Balesore/Kasta feeder may be planned Provision of Breakers in Chandipur 33/11 KV S/S transformer.VCBs of Gopalgaon S/S should operate from remote.New 11 KV line about 10 KMS from Odangi S/S with installation of 5 nos. of 11/0.4 KV DTs in place of 33/0.4 KV DTs.New 11 KV feeder to Ransutha of 5 KM from Jagannapur S/S to 4-pole structure at Hulbath in 33/11 KV S/S at Karamal on 11 kv Ajuhai feeder. Most of the damaged poles of Ajuhai feeder need replacement.

<p>Jaleswar, 132/33 kV grid</p>	<p>Alternate 132 kV supply should be available. Daripada Jaleswar Ring should be completed. Second feeder from PGCL to Jaleswar should be considered. Upgradation of 12.5 MVA transformer to 20 MVA.</p>	<p>JED, Jaleswar, BEC, Basta</p>	<p>Changing of 35 MM<sup>2</sup> AAC to 232 MM<sup>2</sup> Trun Grid to Siba Karsaria. 55 MM<sup>2</sup> to 200 MM<sup>2</sup> AAC in 33 kV Basta feeder one 3.15 MVA transformer at H.adi. A new 33/11 kV S/S at Olende-sarapan for Haladipada Upgradation of Jaleswar 33/11 kV S/S 3.15 to 5 MVA &amp; 1.5 to 3.15 MVA). Feeder of Raighat to be upgraded to 5 MVA. 33 kV MCCB (2nos.) to be repaired with upgradation of 11 kV feeder conductors to 60 MM<sup>2</sup>. 33 kV conductors should be replaced with 750 MM<sup>2</sup> AAC from Halasore to Halapa. 35 kV VCB for I/C Feeder/transformer II/Basta. O/G at Raighat 33/11 kV S/S. 33 kV incoming feeder conductor to Kurumma 33/11 kV S/S to be changed to 100 MM<sup>2</sup>. Oil/WMI meter of transformers at Basta S/S are to be replaced, 33 kV breaker available in old Demurda feeder to be installed for the incoming feeder with provision of isolator at Kurumma.</p>
<p>Suru, 132/33 kV grid</p>	<p>Upgradation of 20 MVA transformer to 40 MVA. Direct supply at 132 kV from PGCL grid.</p>	<p>SEC, Suru</p>	<p>Upgradation of Gopalpur, Kabanaga, Durgam and Dupada S/S's required. New 33/11 kV S/S at Sarangadia and 11 kV Feeder from Suro College Chalk to Mangapur.</p>
<p>Daripada, 132/33 kV grid</p>	<p>BOCBs and old MCCBs to be replaced with SF<sub>6</sub> or VCB's.</p>	<p>BEC, Daripada REC, Raingarpu UED, Jaleswar</p>	<p>New 2 x 3.15 MVA S/S at Murgabadi. New 11 kV feeder (2.8 KM) for separation of Industrial feeder. Interlinking of 33 kV feeder from Stadium S/S to Chancha 33/11 kV S/S through Madhuhari. 33 kV conductor to Shyamakurunta need upgradation. One 33/11 kV S/S at Menta. 11 kV link line from Moharpur to Khirpura. Construction of 14 KM, 33 kV line from Koshale to Suliapada. Establishment of 1 X 1.5 MVA 33/11 kV S/S at Suliapada. One at Chendua and one at sarekara.</p>
<p>Raingarpu, 132/33 kV grid</p>	<p>Upgradation of 12.5 MVA transformer to 20 MVA. Establishment of 2 X 12.5 MVA, 132/33 kV S/S at Udala</p>		<p>33/11 kV S/S at Kastipeda may be shifted to a suitable location as the area is coming under road expansion zone. Upgradation of In Capacity from 1.6 MVA to 3.15 MVA in Badam Sahar S/S, and complete overhauling of 33 kV feeder from Badam Sahar to Kamraj under BE-1, Raingarpu. Construction of new S/S &amp; 33 kV line (2.8 KM) from S. S. S. to Gangartuma. Upgradation of Thakurkurda S/S from 1X1.6 MVA to 2X1.6 MVA.</p>

Bhadra < 220/132/33 grid	220 KV 2nd circuit and 2nd transformer to be commissioned. 132/33 KV transformer capacity to be increased.		33 KV Bhadrak, Urel and Chandai would be bifurcated. Upgradation of Tihidi, Isipua, Chandai, Basuapur and Dhamera S/S is required. New 33/11 KV S/S at Betaligan, Bahala & Chhava sing with associated 33 KV line under B.L.D. Bhadra OLTC of Transformer 1 to be repaired. Up-gradation of Bihapata S/S. Conductor uprating from 86 MM <sup>2</sup> to 242 MM <sup>2</sup> of Dhananagar feeder from Bhadrak Grid and Dhandarpokhari Feeder from 33/11 KV S/S Chhava.
EHT(O&M) Division, Joda			
Joda 220/132/33 KV grid	Generator of suitable capacity may be installed. All BOCB & MOCB to be replaced with SF6 breakers. RCB protection is necessary for both Auto transformer (110/132 MVA) is necessary. 132/33 KV 12.5 MVA transformer should be replaced with 20 MVA.	EHT, Koonjhar,	Temporarily constructed 33/11 KV S/S, Joda to be shifted to a new location. Few S/S in Champua need replacement. 33 KV line to Saharpada from Patna S/S to be completed with all protection arrangement. Uprating of conductor size of 33 KV Tumunga feeder from 55 MM <sup>2</sup> to 100 MM <sup>2</sup> . New 11 KV feeder under Dandi S/S is required to separate town feeder from rural feeder.
Koani, 132/33 KV grid			
Kalda, 132/33 KV grid			
Palsonga, 132/33 KV grid	Generator of suitable capacity may be installed. All BOCB & MOCB to be replaced with SF6 breakers. 132/33 kv 20 MVA transformer should be replaced with 40 MVA.		33/11 KV S/S at Harishchandpur & Dhanikote are getting power supply from Palsonga grid. Uprating of 33 KV conductor from 86 MM <sup>2</sup> to 242 MM <sup>2</sup> from Palsonga grid to Koonjhar and 33 KV Dhanikote feeder from Koonjhar to Dhanikote from 55 MM <sup>2</sup> to 100 MM <sup>2</sup> . NESCO should complete associated 33 KV lines to evacuate power from Anandpur grid S/S.



**RECOMMENDATION OF THE ENQUIRY AND DIRECTIONS/ORDER OF THE COMMISSIONS FOR INSTALLATION AND UP-GRADATION OF TRANSFORMER, S/S AND OTHER IMPORTANT MATTERS**

Establishment of OPTCL alongwith the area of jurisdiction	Deficiencies to be sorted out	Establishment of S&S alongwith area of jurisdiction	Deficiencies to be sorted out
EHT(O&M) Division, Burla		WBAGG	At 22 kv bus, there should be provided long length lines of recall wire.
Sambalpur, 220KV grid	To reduce the pressure on Sambalpur grid in Sambalpur area, the installation of 110 kv substn in the area 100 KV substns shall be constructed near Sambalpur area. The substns shall be supplied in between Farad and Durgapal area of Sambalpur area. It is essential that the substns proposed should take power from Sambalpur grid which will provide alternate source of power to Sambalpur town. One number 40 MVA transformer should be added. 22 KV full bending feeder needs to be operated from 110 supply.	STP, Sambalpur	22KV KV S&S at (1) Para-band (near collector) S&S, (2) Dhanraj Veneswar area (3) Jagannath (Power draw from Farad area) (4) Sargadh (near Farad) along from Durgapal and Veneswar Feeder) are proposed. (5) A 22KV KV substns of Sambalpur town area shall be constructed with 250 MVA substn. For emergency supply of the line or feeder. All bare conductor L lines of Sambalpur area should be provided in 40 cables/terminals for underground cabling in Sambalpur area. 22KV S&S shall be installed City Railway Station area, Barbandh area or Charing. One section 1.1 MVA transformer to be installed at 110/22 kv sub-stn.
Sambalpur, 220 KV grid	Augmentation of 220 KV and 110 KV substn is required considering the future loads.		
Languga, 220KV grid	New 100/22 KV grid sub station with 200 MVA to 200/110 MVA should be installed. Old MOGE to be replaced with 220 KV supply from the grid sub station should be abandoned.	PTD, Jhargana	22KV KV substns and take off supply to 35 KV and overhead distributor network should be provided. 22KV KV S&S at Durgapal area supply from Sambalpur grid. 25 MVA is proposed. 22KV KV S&S at Sambalpur 22 KV S&S (Sambalpur area) 25 KV provided.
Durgapal, 100/22 KV grid	Top charging of the transformers are to be operational. Transformer No. 1 to be lifted. L&H feeder and all loading to be avoided. 100/110 KV system should be replaced with 220/25 KV system.	CLD, Jhargana	New 200/5 MVA transformer at Durgapal and 200/110 MVA at Durgapal. Additional transformer at Barbandh (5 MVA) and Guadar (10 MVA) is required.
Dhankali, 220KV grid			
Budhbad, 220/110 KV grid	One L&H section should be lifted at Durgapal. For maintenance of grid a transformer at Budhbad area and near the sub-stn and S&S at Durgapal.	K&B, Bhubaneswar	Additional 1.1 MVA transformer at Budhbad (S&S) & Kothucha (200/110 MVA, 22 KV S&S at Durga area) and Barbandh area.
EHT(O&M), Boudkela			
Boudkela, 220KV grid	Technical committee of Boudkela area should be constituted.		
Boudkela, 220KV grid	33 KV lines of Boudkela-Sambalpur, Sambalpur-Jhargana, Sambalpur-Kharguda and Sambalpur-Jhargana are proposed.	REB, Boudkela	Upgradation of line of Budkela to 220 KV (near at Polara, Rajmunda, Para, Gaudara) at Budkela. The portion of 11 KV lines shall be upgraded to 33 KV. All cables are to be replaced. All cables of 22KV KV lines to be changed. Length feeder maintained. In the case shall be supported by A.C. substns.
Boudkela, 220/110 KV grid	It is desirable to have alternate source of L supply in the area. One 500 KV and 110 KV supply. Adequate spares at store should be available.		
Kajrapur, 220KV grid	110 KV Bus conductor to be upgraded to three conductor from double. Augmentation of the sub-stn is required for future loads. 200/110 & 100/110 MVA can be added elsewhere after the completion.	K&B, Rajnagar	Additional 1.1 MVA transformer at Gaudara and 200/110 KV transformer at Rajnagar, Kirta, Barbandh to be upgraded from 10 to 2 to 5 MVA and Kirta area. Sambalpur area 200/110 MVA & 200/110 MVA 22KV KV S&S at Lakshminagar along from Sambalpur area.
Chand, 220KV grid	Sufficient spares to be available in the stores.	CLD, Boudkela	Chand and Kirta Rajnagar area supplies power from the streets of Chand and S&S. Work for availability and safety should be taken up quickly for separating supply to the feeders.
Sukmagadh, 220KV grid	New grid/primary sub stations are to be constructed at Chand and Kirta. Lines connecting Chand to ones to accommodate the upcoming demands.	S&S, Sukmagadh	A 200/5 MVA, 22KV KV S&S at Chand Road of Chand and S. Kirta area. In Chandkela area. Replacing of feeder line from Sambalpur Grid to Sukmagadh. 22KV KV S&S at Sukmagadh. 200/110 MVA to be upgraded to 200/110 MVA and Chand S&S to 220/110 MVA.

EHT (Q&M), Belangir			
Belangir 132KV KV grid	22KV Units (Mannur) are to be changed. 22KV KV S/S to be replaced with 33KV S/S. 22KV KV S/S work to be completed. 132 & 33KV cables should be laid from Belangir to Belangir. 132KV KV transformer, 132KV KV S/S at Belangir and Bouch and other substations.	SEI, Tengg	All 33KV & 11 KV cables are to be made functional. Conductor at Chirupai/Rampur 33 KV feeder to be upgraded to 122 KV. 33KV KV substation at Chirupai and Bouch and Belangir should be damaged. S/S are to be added.
Tengg 132KV KV grid	170 MVA transformer to be replaced with a 100 MVA one. All other cables should be available to attend applications.	TTD Report	23 & 11 KV cables are to be made functional by Belangir. Padmasubrahmanya. Feeder from 33KV KV DUBB MVA S/S at Jangamunda or Khana. To Murukha 33 KV feeder. 33KV KV S/S at Tilaraka. B. Belangir. Additional 100 MVA at Belangir.
Sarapur 132KV KV grid	Supply of 20 MVA transformer (20/11 KV) MVA along with 2nd 132 KV line are to be provided. All other cables (22L) cables should include one spare safety cable to be laid as a modified feeder. 3.	SEI, Sarapur	protective devices for road feeder should be provided in addition to other feeders. 100 MVA Transformer should be added. 33 KV feeder from Belangir to Chirupai with 33KV KV S/S at Chirupai, 33 KV feeder from Sarapur to Belangir with 33KV KV S/S at Sarapur & 33 KV feeder from Belangir to Sarapur with 33KV KV S/S at Sarapur.
Sarapur 132KV KV grid	Relaying of 33KV KV S/S through Belangir and one or 1000 MVA transformer. Modification of conductors (22L) cables should be made available to attend applications.	SEI, Sarapur, TTTD, Tengg	33KV KV cable at Khana which is between Belangir and Tilaraka should be of 122KV KV at Belangir town are proposed. 33KV KV S/S at Tilaraka (near Sarapur) and Belangir (22KV KV) between Sarapur and Belangir and 33KV KV S/S at Belangir (Belangir) and Belangir (22KV KV) are proposed. Tilaraka 100 MVA to be upgraded to 200 MVA. Belangir and Belangir 11 KV feeders are to be upgraded to 100KV. New substation at Belangir and Belangir between Chirupai and Belangir.
EHT (Q&M), Kasinga			
Kasinga 132KV KV grid	220 KV line to be replaced from Belangir and a 220/33 KV S/S may be constructed either at Belangir or Kasinga. 132KV KV S/S at Belangir and Kasinga. 132KV KV S/S at Kasinga and Belangir. 132KV KV S/S at Kasinga.	SEI, Belangir	Additional 100 MVA Transformer should be added. Belangir Borda & Sarwarapur S/S. 33KV KV S/S at Belangir. 33KV KV feeder from Belangir to Kasinga and 33KV KV feeder from Belangir to Kasinga.
Jangam 132KV KV grid	Renewal condition & required. Replacement of damaged 132 KV circuit breakers.	SEI, Belangir	Additional 100 MVA Transformer should be added. Belangir Borda & Sarwarapur S/S. 33KV KV S/S at Belangir. 33KV KV feeder from Belangir to Kasinga and 33KV KV feeder from Belangir to Kasinga.
Belangir 132KV KV grid	Condition of all conductors of peaks and a separate protection system should be provided. Circuit breakers to be replaced.	TTD Report	Long 33 KV cables are to be attached. A new 33KV KV S/S at Jangamunda or Khana. To Murukha 33 KV feeder. 33KV KV S/S at Borda. Borda with 33KV KV S/S at Borda.
Belangir 132KV KV grid	Condition of all conductors of peaks and a separate protection system should be provided. Circuit breakers to be replaced.	SEI, Belangir	Condition of 33KV KV line to be checked. A new 33KV KV substation at Belangir constructed by WBSCD in Belangir. 33KV KV S/S at Belangir. 33KV KV feeder from Belangir to Belangir should be constructed. 33KV KV line from Belangir to Belangir and a 33KV KV S/S at Belangir.

**RECOMMENDATION OF THE ENQUIRY AND DIRECTIONS/ORDER OF THE COMMISSIONS FOR INSTALLATION AND UP-GRADATION OF TRANSFORMER, S/S AND OTHER IMPORTANT MATTERS**

DPTCL		DISTCDS	
Establishment of OPTCL alongwith the area of Jurisdiction	Deficiencies to be sorted out	Establishment of S/Ss alongwith area of Jurisdiction	Deficiencies to be sorted out
EHT(D&M) Dvn.,BBSR,		CESU	
<p>Mancheswar 142/23 KV grid</p> <p>Chandara 250/132/23 KV grid</p> <p>Ransinghpur, 132/23 KV, grid</p>	<p>Sharing of load at Mancheswar is required.</p> <p>A transfer bus to handle different incoming and buses conveniently may be added.</p> <p>Sharing of use of Ransinghpur pic S/S is required.</p>	<p>B.L.D.D., BBSR,</p> <p>R.P.D.D., BBSR,</p> <p>B-D, BBSR,</p>	<p>The frequency of rings as envisaged (Ring-I-Mancheswar-Jeera Colony-Salid Nagar-Basulgarh, Ring-II-Chenaka-Ut-1-B-Ut-1-B-Ut-1-C-Ut-1-D, Ring-III-Sija-Di-Matari, Pasapada-Laxmisingar, Ring-IV-Chandaka-Kaxier-Nayapalli, Ring V-Sija-Ka-Ka, Naagar-Bharatpur-Datamunda) should be operational with provision of protection and over current relay 33 KV take off arrangement from 132/23 KV S/S at Jeera and Pasakbaha should be altered. New HT/Mast/structure beam should be created. O.T. for installation of HT S/S transformers.</p>
Nimopara, 13/23 KV grid,		N-D, Nimopara.	Up gradation of Uthara, Nimopara and Satarang <i>s/s</i> . erection of new 33/11 KV S/S at Niharanta(400) and sagavunda near Gola(400).A termination 33 KV supply from Puri to Konark should be planned.
Puri 132/23 KV grid		PLU, Puri	Sakaligapa & Dehang 33/11 KV S/S to be upgraded. 11 KV line in Puri to be re-routed to 33 KV. Each 33/11 KV S/S should have line loading. All 33/11 KV S/S in Puri should have 3.15 KV/Amperes max. Conductor C74 should be upgraded. OTRs should be provided at 33/11 KV S/Ss.Provision of LA in all 33/11 KV S/S.
Nayagarh 220/23 KV grid		NFD, Nayagarh	Up gradation of Khondara feeder and up gradation of Hinggan, Nayagarh and Itanah <i>s/s</i> s are required. A 11 KV conductors should be upgraded to 100 VM <sup>2</sup> . Provision of LAs in Daspa & Nayagarh S/S.
Chatra 13/23 KV grid		CFD, Khurda	Up gradation of 33 KV S/S at Chunda town, Beoagar, LL, Khurda and Tangra required. New 11/11 KV S/S at Raipurpur, Chabour, Gopalpur and Pitapali's required. Oil power transformers are to be sited outside the pic S/S
Debagarh 132/23 KV, grid		DED, Balasore	New 33/11 KV S/S at Bhisraour is required
EHT(O&M) Dvn,Choudwar			
Jirnasri 220/112/33 KV pic S/S	3rd 100 MVA auto transformer at Jirnasri needed.	CLU, Cuttack	2nd 11 KV circuit from Choudwar-Chatia through Tangra. New 33/11 KV S/S at Deh-Bandala along Process at PMR District, Cuttack (No.321 at 106.5007) for up-gradation of existing 33/11 KV S/S should be implemented.

Chandrapur 132/33 KV grid S/S	11 KV system to be installed. 132 KV MCCB to be replaced.		Up-gradation of 5 MVA transformer at Kalinga S/S. 4 nos of 33/11 KV S/S of suitable capacity in Bidarasi-ODA area may be permitted. New 2X5 MVA S/S at Madanmatra, Satimatra, sector-2 Bidarasi and a. O&M premises near OMP Sagar should be permitted. 2nd 33 KV circuit from Bidarasi grid to 33/11 KV S/S at sector-6 should be constructed and linked with sector-2 S/S. Another 33/11 KV 5 MVA, Urasmatra. Kalinga S/S Replacement of single phase transformers with 3 phase ones.
KUL 132/33 KV grid S/S		CUD-I, Cuttack	
Cuttack 132/33 KV grid S/S	132 KV MCCB to be replaced w/d suitable VCB and SF <sub>6</sub> breakers	CUD-II, Cuttack	New 33 KV lines of length 10.500 KM. Up-gradation of 12 nos of 100 GVA transformer to 250 KVA and 13 nos of 250 GVA transformer to 500 KVA.
Jagatsinghpur 132/33 KV grid S/S	Construction of 132 KV Paradeep-Jagatsinghpur line and 2nd circuit from Cuttack-Jagatsinghpur on existing DC tower	IHD, Jagatsinghpur	33/11 KV S/S at Nahangari, Huesatra and Neougar. 33 KV 2nd circuit from Jagatsinghpur grid to 33/11 KV S/S at Belkuda and Titu. Existing capacity of Jagatsinghpur, Salikuda and Titu 33/11 KV S/S should be augmented.
Salipur 132/33 KV grid S/S	Construction of 132 KV Kereswara-Saipur line and 2nd circuit from Cuttack-Saipur on existing DC tower	S-D, Saipur	New 33/11 KV S/S at Linkara and Saunara. Interconnector between Salipur grid with Choudwar grid by new 33 KV line from Saipur grid to 33/11 KV S/S at Bahagran. Interconnector between Saipur and Kendrapada grid by interlinking 33/11 KV S/S Dandou with Kaminakali.
Huapatis 132/33 KV Grid S/S	DCCB/MCCB should be replaced w/d SF <sub>6</sub> /VCBs.	AED, Matsyaghai	33/11 KV S/S at Sunudighata and Kamalar Po.
Chasalkhola 132/33 KV grid S/S			
Paradeep 132/33 KV grid S/S		KFD-II, Matsyaghai	33/11 KV S/S at Dhumudai & Chasalkhola. Augmentation of Paradeep, Kalinga and Matsyaghai 33/11 KV S/S.
Kendrapada 132/33 KV grid S/S		KFD-I, Kereswara	2nd 33 KV circuit from Kereswara grid to 33/11 KV S/S. Kendrapada New S/S at Chhaparia, Chatera, Chasuda, Tipra, Blainwa, Olavan and Glosimal. Up-gradation of Kendrapada, Damp, Induwa and Pattanawa 33/11 KV S/S.
Pattanmunda 132/33 KV grid S/S	Up-gradation of existing 20 MVA transformer to 40 MVA	KUD-II, Matsyaghai	New S/S at Jhuchudra, Chasua. Up-gradation of Paradeep, Kajang and Matsyaghai 33/11 KV S/S. Defective LV's in nos. of the 33/11 S/S under CED-II needs replacement.
PHI (O&M), Choinpal			
Choinpa 132/33 KV grid S/S	Replacement of salaras etc MCCB/MCCB with SF <sub>6</sub> /VCBs	LD, Choinpal	The construction of 2.8 KM new 33 KV line from O-PC to join the nearest cut point of OHPG-Choinpal 33 KV feeder. 11 KV Barawal Kalai Feeder should be upgraded to 100 MVA <sup>2</sup> 33 KV incoming busbars to be provided at Choinpal 33 KV S/S.

Angul 132/33 KV grid S/S	Transformation capacity to be enhanced	AED, Angul	Jarpada 1.6 MVA transformer should be up-graded to 3.15 MVA. 1.6 MVA transformer at Chendipada to be up-graded to 3.15 MVA transformer. 33 KV breakers at industrial estate, RCMS and Chendipada to be commissioned. Overall condition of Athamalix S/S needs to be improved.
Kamakshyanagar 132/33 KV grid S/S	Incoming breakers and tap changers are to be operational from remote. Replacement of		
Dhenkanal 132/33 KV grid S/S	Replacement of BOCB/MOCB with SF6 /VCBs. Up-gradation of the S/S is required.	DFD, Dhenkanal	Short 33 KV spur to be drawn for Goda and other mines. Kalarangi-Goda 33 KV line to be constructed. 5 MVA transformer at College structure S/S, Dhenkanal to be up-graded to 8 MVA. 33/11 KV S/S at Dhaishnaka i should be completed. Up-gradation of Lincoln Road S/S from 1.6 MVA to 3.15 MVA. Dayanahi structure needs complete renovation.
Meramundali 400/22/132 KV grid S/S	220 KV bus bar protection relay to be in working conditions. Separate L&MK sub-division with adequate staffs and equipments should be created for the maintenance of this grid S/S.		
Boina 132/33 KV grid S/S			

# MENACE OF DISTRIBUTION LOSS AND SUSTAINABILITY OF POWER SECTOR – WAY FORWARD

*Dr Madhu S Panigrahi,  
Director (Tariff), OERC*

The issues involved in efficient distribution of electricity which were not so much of a point for discussion a decade back, have of late started drawing maximum attention because of growing concern that the power sector in general and distribution sector in particular might go sick because of inefficient operation of the Distribution Sector. With growing industrialisation and urbanisation and adoption of the concept of inclusive growth, appropriate planning for power sector has become all the more important. Historically, rigorous planning has been done for addition of generation capacity and expansion of the transmission network. However, the distribution systems have generally grown more or less in an un-planned manner resulting in high technical and commercial losses in addition to poor quality of power supply. Efficient operation and maintenance of distribution system is the need of the hour. This has been hampered due to non-availability of system topological information and information relating to current status of the distribution components such as distribution transformers, feeders, etc. Lack of efficient tools for operational planning and advanced methodology for quick fault detection, isolation and service restoration are some of the other reasons. All these lead to increase in system losses, poor quality and reliability of power supply in addition to the increased peak demand and poor return in terms of revenue earnings. Keeping the above contributions to higher losses and poor quality of supply in mind, it becomes necessary to improve the operation of the distribution system through system upgradation, routine maintenance and monitoring of the system.

The distribution system is generally considered to include high-voltage (33 kV and below) power lines, electrical substations and pole-mounted transformers, medium / low-voltage/ (400/ 230 V) distribution network. The development of distribution system poses new challenges in the changing world, where levels of electrification need to be increased and electricity served reliably for sustainable economic and social development. Technological development and adequate regulations are required at the distribution level to respond to new energy challenges and the restructured environment. There is a need for a change in the way distribution systems are designed, planned, operated, and managed for both developed and developing countries in general and for our country in particular. All changes should ultimately ensure optimal and economic service to the consumers of electricity. While the basic parameters remain the same, the challenges to be met are substantially different. Unfortunately, several persistent problems with distribution systems have lingered for many decades. They did not receive the attention they deserved under the regulated environment when compared to generation and transmission. Very little attention was paid to the planning, design, operation, and management of these non-bulk systems. Performance optimization for efficiency, regulation, and other measures was not adequately addressed.

Ideally, losses in an electricity system should be around 3% to 6%. In developed countries, it is as high as 10%. However, in developing countries the percentage of active power losses is around 20%. The electric utilities are currently interested in reducing the loss levels in order to become more competitive, since the electricity prices are a direct function of the system loss levels. There are historical, geographical, economic and political reasons behind the chaotic distribution system that we have inherited. As a nation we have one of the highest T&D losses in the world and Odisha has performed at a level lower than the national average. A lot of things have to be undone and mind sets changed before the Distribution System looks forward to cater to the growing needs of industrialization and urbanization. The present status, in spite of 15 to 16 years of reforms, is far from satisfactory and the distribution companies in Odisha and similar states are reeling under loan liability and are far from being



comfortable. However, a silver lining for a better future is the gradually developing awareness on three very important issues, one, that there has to be substantial investment to raise the bottom line of the distribution system, second, advanced new technology must be introduced to make the reforms sustainable, third, the sector has to be operated professionally with private public participation (PPP). The AT&C losses on an average are around 39% in the State which has to be brought down to 15%. An investigation into the actual quantum of AT&C Loss in Orissa reveals that during 1990-91 and 2009-10 the actual AT&C loss stood at Rs.20,491.36 cr. Had we achieved the most desired target of AT & C of 15%, the quantum of AT&C loss would have come down to Rs.6,611.36 cr. which would mean a saving of Rs.13,880 cr. during the period under review. There are feeders where the AT&C losses are in excess of 70% and other places where reduction to 15% is possible with minimal effort. On the whole the Distribution system does not meet the base line minimum requirements in following important aspects:-

- i) Voltage regulation
- ii) Power quality
- iii) Power availability
- iv) Power reliability
- v) Affordable, Equitable & Rationalized Tariff
- vi) Desired Collection Efficiency
- vii) Desired Billing Efficiency

It has been demonstrated in many countries that T&D losses can be brought down below 10% by careful planning and monitoring and power can be reliably delivered at affordable price. Giving an allowance of 5% more for spatially distributed loads and subsidy etc, a total AT&C loss of 15% is achievable, and some of the States have already achieved it in India. The Central Govt. has taken a few reform measures that have started showing positive results. The APDRP, R-APDRP and RGVVY schemes are some of the initiatives that have helped in reduction in ultimate loss levels. Billing efficiency and collection efficiency have improved. In fact some of the states have started looking forward to modernize the system further and completely automate it. If the progress made internationally and at national level is critically examined, the way ahead for the Distribution Sector looks full of promises. What is required is a systematic and scientific transformation supported by a strong Government will and public support. The way ahead can be promising if certain basics in Electrical Engineering are remembered, quality equipments are put in place, maximum benefit from IT availed, modern technology introduced and project management and vigilance are tightened.

In its mid-term review report of the 11<sup>th</sup> Five Year Plan, the Planning Commission has observed that the weakest part of the power sector remains in distribution which has been incurring huge losses. The Planning Commission in the said review has observed that while T&D losses at the national level were expected to decline from 29% in 2006-07 to 27% in 2007-08, AT & C losses were reported to be over 30%. This has led to high financial losses of DISCOMs across the country which is estimated at Rs.30,000 cr. The difference varies considerably across the states. Among the major states, Andhra Pradesh, Tamilnadu, Punjab and Himachal Pradesh have reported AT&C losses below 20%. However, in States like Orissa, Madhya Pradesh, Assam, Haryana, Rajasthan, Uttar Pradesh, Uttarakhand, Karnataka and Maharashtra, AT & C losses have been reported to be over 30%. The state utilities are incurring huge losses due to the unsustainable level of technical and commercial losses due to pilferage and inefficiencies in metering, billing and collection of revenue. The 13<sup>th</sup> Finance Commission has estimated that these losses would be around Rs.68,643 cr. in 2010-11 which would escalate to Rs.116089 cr. in 2014-15. This would be the result on account of the unsustainable levels of AT&C loss which is caused by redundant networks, pilferage and theft, inefficient metering and inadequacies in billing & collection and not allowing the DISCOMs to recover their requisite cost of supply and a high level of cross-subsidization among various classes of consumers. Statistics

presented by CEA during a Conference on the Roadmap to the 12<sup>th</sup> Five Year Plan last year are equally eloquent. Out of 56 distribution utilities in the country, 33 have AT&C losses of more than 30%, 10 are in the 20 to 30% loss category and 13 are in the below 20% range. States like Bihar, Orissa, Uttar Pradesh are lagging behind as far as reduction of loss levels is concerned. High tariffs and low recovery of cost of power supplied is one of the characteristic features of the distribution business in India. It has been observed by the Planning Commission in its mid-term review report that despite India having one of the highest levels of tariffs in the World, its distribution utilities are unable to achieve full cost recovery because of very high levels of distribution losses. Although the average tariff in FY 2009-10 increased to Rs.3.37 per unit from Rs.2.87 per unit in FY 2005-06, the average cost of supply rose to Rs.4.16 per unit from Rs.3.60 per unit during the same period, resulting in a gap of around 89 paise in FY 2009-10. Chairperson of NTPC, Shri R.S. Sharma has warned that such increasingly higher level of losses if continued and no solution is found for their reduction, it will be difficult to maintain the interest of investors in the generation and transmission sectors too.

### Technical and Commercial Losses

The transmission and distribution losses occur on account of technical and commercial reasons. The losses occurring on account of technical factors are known as technical losses. The losses occurring on account of non-technical factors or commercial factors are known as commercial losses.

### Technical Loss

Electrical power losses in distribution systems vary with numerous factors depending on system configuration, such as level of losses through transmission and distribution lines, transformers, capacitors, insulators, etc. Power losses can be divided into two categories, real power loss and reactive power loss. The resistance of lines causes the real power loss, while reactive power loss is produced due to the reactive elements. Normally, the real power loss draws more attention for the utilities, as it reduces the efficiency of transmitting energy to customers. Nevertheless, reactive power loss is obviously not less important. This is due to the fact that reactive power makes it possible to transfer real power through transmission and distribution lines to customers. The total real and reactive power losses in a distribution system can be calculated using equation 1 and 2.

$$P_{\text{loss}} = \sum_{i=1}^{n_{br}} |I_i|^2 r_i \quad (1)$$

$$Q_{\text{loss}} = \sum_{i=1}^{n_{br}} |I_i|^2 x_i \quad (2)$$

Where  $n_{br}$  is total number of branches in the system and  $|I_i|$  is the magnitude of current flow in branch  $i$ ,  $r_i$  and  $x_i$  are the Resistance and reactance of branch  $i$ , respectively. Different types of loads connected to distribution feeders also affect the level of power losses.

The distribution network is the terminal stage of power system and ends with the retail consumers. The problems which may be found in the distribution network affect both consumers and utilities. One of these problems is the problem of voltage drop that must be reduced to keep the voltages at load points within standard limits. The voltage drop problem may arise when using lateral radial feeders with long distance or feeding large loads. Therefore, the solution at different nodes of the system must be controlled. Voltage control means actually reactive power control. Consequently, controlling the reactive power and regulating the node voltages result in a reduction of power loss which is of great concern to utilities. To enhance the voltage and to control the reactive power, the distribution systems are equipped with a lot of voltage controlling devices such as network restructuring, DG implementation, tap-change Transformers, voltage regulators, shunt/series capacitors etc.

As is well known, technical loss is caused due to poor distribution system and take place in the following locations as given below in tabular form.

#### Location of Technical Loss

Line losses	<ul style="list-style-type: none"> <li>➤ Loss in conductors/cables where lower size conductors are used. This causes sags and temperature rise in conductors which further aggravate the loss,</li> <li>➤ Loss in higher loaded phase wires due to unbalanced loading,</li> <li>➤ Loss due to current in neutral for cases of unbalance where neutral wires of lower size are used (like 3 ½ core cables, and neutral wires of size lower than phase wires),</li> <li>➤ Loosening of strands (in multi-strand conductors like AC SR, AAC, AAA, etc.).</li> </ul>
Loss in mid-span joints (or any joint) and at terminations	<ul style="list-style-type: none"> <li>➤ Contacts of joints due to improper installation and looseness,</li> <li>➤ Contacts of joints due to inadequate surface area of contact.</li> </ul>
Loss in transformers (typically DTs)	<ul style="list-style-type: none"> <li>➤ Loose connections at bushings,</li> <li>➤ Bend in jumpers at connectors where the strands are not tightly held,</li> <li>➤ High no-load loss depending on type of core used,</li> <li>➤ High no-load loss in repaired transformers, where the core has not been properly tightened,</li> <li>➤ No load loss in case a large number of lightly loaded DTs,</li> <li>➤ High copper loss for transformers operating at sub-optimal loading, which is not commensurate with the designed optimal loading,</li> </ul>
Loss in service cables and connections	<ul style="list-style-type: none"> <li>➤ Undersized service cables,</li> <li>➤ Loss in joints of service cables at the poles/junction boxes,</li> <li>➤ Use of inappropriate fasteners without spring washers at the crimped joints,</li> </ul>
Loss due to high impedance faults	<ul style="list-style-type: none"> <li>➤ Tree touching, creepers, bird nesting,</li> <li>➤ Insulator breakages and cracking on surface of the insulator.</li> </ul>
Loss in re-wired fuses/jumpers	<ul style="list-style-type: none"> <li>➤ Loose connections,</li> <li>➤ Inadequate size of fuse wires – often a source of hot spots.</li> </ul>

As per TERI the factors contributing to High Technical losses are as follows:

- \* Inadequate investment in transmission and distribution particularly sub-transmission and distribution. While the desired investment ratio between generation and T&D should be 1:1, during the period 1956-1997 it decreased to 1:0.45. Low investment has resulted in overloading of the distribution system without commensurate strengthening and augmentation.
- \* Haphazard growth of sub-transmission and distribution system with the short-term objective of extension of power supply to new areas.
- \* Large scale rural electrification through 11 KV and LT lines.
- \* Too many stages of transformations.
- \* Improper load management
- \* Inadequate reactive compensation
- \* Poor quality of equipment used in agricultural pumping in rural areas, cooler, air-conditioners and industrial load in urban areas.

## Commercial Loss

Commercial losses are caused by pilferage, theft, defective meters and errors in meter reading and in estimating un-metered supply of energy. The places where non-technical losses take place are given below:

### Location of Non-technical Loss

Loss at consumer end meters	<ul style="list-style-type: none"> <li>✘ Poor accuracy of meters,</li> <li>✘ Large errors in CTs/PTs,</li> <li>✘ Voltage drop in PT cables,</li> <li>✘ Loose connections in PT wire terminations,</li> <li>✘ Overburdened CT.</li> </ul>
Tampering/bypass of meters	<ul style="list-style-type: none"> <li>✘ Where meters without tamperproof/tamper deterrent/tamper evident meters are used,</li> <li>✘ Poor quality sealing of meters,</li> <li>✘ Lack of seal issue, seal monitoring and management system,</li> <li>✘ Shabby installation of meters and metering systems,</li> <li>✘ Exposed CTs/PTs where such devices are not properly securitised.</li> </ul>
Pilferage of energy	<ul style="list-style-type: none"> <li>✘ From overhead "bare" conductors,</li> <li>✘ From open junction boxes (in cabled systems),</li> <li>✘ Exposed connections/joints in service cables,</li> <li>✘ Bypassing the neutral wires in meters.</li> </ul>
Energy accounting system	<ul style="list-style-type: none"> <li>✘ Lack of proper instrumentation (metering) in feeders and DTs for carrying out energy audits,</li> <li>✘ Not using meters with appropriate data logging features in feeder and DT meters,</li> <li>✘ Lack of a system for carrying out regular (monthly) energy accounting to monitor losses,</li> <li>✘ Errors in sending end meters, CTs and PTs,</li> <li>✘ Loose connections in PT wires (which results in low voltage at feeder meter terminals),</li> <li>✘ Energy accounting errors (by not following a scientific method for energy audits).</li> </ul>
Errors in meter reading	<ul style="list-style-type: none"> <li>✘ Avoiding meter reading due to several causes like house locking, meter not traceable, etc.</li> <li>✘ Manual (unintentional errors) in meter reading,</li> <li>✘ Intentional errors in meter reading (collusion by meter readers),</li> <li>✘ Coffee shop reading,</li> <li>✘ Data punching errors (at MRI end by meter readers),</li> <li>✘ Data punching errors by data entry operators,</li> <li>✘ Lack of validation checks,</li> <li>✘ Lack of management summaries and exception reports on meter reading.</li> </ul>
Errors in bills	<ul style="list-style-type: none"> <li>✘ Errors in raising the correct bill,</li> <li>✘ Manipulation/changes made in meter reading at billing centres – lack of a system to assure integrity in data,</li> <li>✘ Lack of system to ensure bills are delivered.</li> </ul>
Receipt of payment	<ul style="list-style-type: none"> <li>✘ Lack of system to trace defaulters including regular defaulters,</li> <li>✘ Lack of system for timely disconnection,</li> <li>✘ Care to be taken for reliable disconnection of supply (where to disconnect).</li> </ul>

There are several factors which contribute to huge commercial loss occurring in our country which are as follows:

- \* Theft/pilferage of power by existing consumers.
- \* Illegal connection from distribution line by non-customers.
- \* Incorrect estimation of energy consumption in respect of un-metered connections.
- \* Defective metering.
- \* Meter reading errors.
- \* Tardy billing and poor revenue collection.
- \* Lack of accountability.
- \* Defects in CT and PT circuitry

### Distribution Loss Targets & Achievements in Orissa

With the unbundling of the OSEB and formation of GRIDCO in 1996, the erstwhile GRIDCO had formulated a loss reduction programme along with load forecast and generation planning. The total loss (T & D) in 1995-96 was projected at 46.4% comprising of 25.5% non-technical and 20.9% technical losses. For the year 1997-98, the technical losses were expected to be brought down to the level of 20% and non-technical losses to the level of 15% so that the total T&D losses would be estimated at around 35%. At that time, the Commission considered 35% as an appropriate figure for T&D losses for the year 1997-98. For the year 1998-99, the Commission maintained the bench-mark T&D loss level at 35%. Subsequently, the Commission pronounced its First and Second Business Plans where the various loss parameters were clearly defined and laid down. The actual distribution loss and AT&C loss levels achieved by DISCOMs are presented below:

#### Actual Distribution Loss and AT&C Loss (in %)

Licenseses		00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11 (Appr.)
CESU	Dist. Loss	44.89	49.91	49.04	49.76	47.49	47.96	45.57	47.48	49.34	49.45	24.47
	AT&C Loss	38.94	63.57	54.48	50.57	52.22	43.18	47.58	44.96	43.23	41.20	23.86
NESCO	Dist. Loss	44.44	51.00	47.39	48.66	59.40	47.08	35.77	31.77	34.37	42.37	19.46
	AT&C Loss	34.38	63.57	52.25	51.85	42.03	43.24	40.75	35.88	39.48	33.73	20.09
WESCO	Dist. Loss	43.20	45.47	38.29	39.02	36.38	37.80	36.35	36.13	33.55	37.68	19.93
	AT&C Loss	34.94	57.18	47.30	46.30	41.66	41.73	39.93	40.05	37.63	33.74	21.53
SOUTHCO	Dist. Loss	42.52	40.47	39.24	42.75	40.50	41.07	43.39	45.49	47.78	48.02	27.82
	AT&C Loss	32.10	52.80	48.23	48.27	40.22	43.80	40.61	48.73	50.80	50.16	23.27
All Orissa	Dist. Loss	44.02	47.47	40.75	40.75	39.21	39.60	38.57	37.18	37.50	37.24	22.22
	AT&C Loss	35.92	60.41	51.75	49.35	44.69	44.89	43.24	41.60	41.89	39.15	24.77

These achievements are much below the targets set by OERC in its Business Plans as well as in successive Tariff Orders. The situation is still worse if one looks at the distribution losses achieved by the DISCOMs at LT side of distribution alone which is summarized as under:

### Distribution Loss at LT Level (in %)

	01-02	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10
<b>CESU</b>	51.3	49.6	46.1	47.1	49.7	33.2	53.8	33.24	51.97
<b>NESCO</b>	65.1	58.8	62.1	60.6	59.2	39.5	59.3	39.40	55.83
<b>WESCO</b>	53.3	58.6	53.4	65.0	65.5	35.0	60.3	65.63	62.49
<b>SOUTHCO</b>	46.7	45.0	50.2	47.8	49.6	32.4	54.9	37.63	56.22
<b>ALL ORISSA</b>	57.6	53.1	54.9	54.4	55.8	37.5	58.2	38.63	58.25

#### Based on Filing of Licensees)

The transmission and distribution losses in the country on an average is 25.47% whereas in case of Odisha it is as high as 39.93% in 2009-10 against the norm fixed by OERC at 24.45%. Similarly, the Aggregate Technical and Commercial (AT & C) losses on an average in the country is 28.44% but in case of Odisha this is as high as 39.15% in 2009-10 which is much higher than the target fixed by OERC at 25.96%. This is a serious concern for the State, the licensees and the consumers at large.

Ideally, the technical and commercial losses should be reduced to 15% to make the sector viable. The drastic reduction of losses both, transmission and distribution and AT&C losses is the single most essential measure for turning around the power sector. The various elements involved in the management of distribution losses may be classified under the categories of governance, commercial and technical issues. For effective control of AT&C losses, the State and State power utilities will be required to initiate action on all three fronts. OERC would ensure that the utilities work jointly with the State Government in these directions.

#### 1. Measures for Loss Reduction

There are useful measures which can be adopted for reduction of technical and commercial distribution losses. These include the following:

##### a) Distributed Local Generation:

Distributed Generation is very useful to supply power in rural and remote places where the long distribution lines result in high losses. Adoption of local generation dispenses with the construct grid or transmission network. Further, the cost of laying transmission lines in rural areas cannot be recovered due to low return. Distributed Generation can help to reduce congestion on the power lines and strengthen local area transmission and distribution reliability. It also reduces the likelihood and impact of large-scale power outages while smoothing output fluctuations from individual power systems.

##### b) Technical Measures:

- \* Reduction of LT Line Length
- \* Upgradation of voltage level
- \* Use of capacitors in lines at the consumer end for improvement of power factor
- \* Load balancing
- \* Upgradation of transmission voltage by conversion of 11 KV to 33 KV
- \* Laying of 33 KV express feeders for high density urban loads.
- \* Reconductoring of lines
- \* Introduction of 132/33 KV substations
- \* Introduction of power factor incentive and time-of-day tariff
- \* Systematic Planning, design and operation of distribution system



**c) Commercial Measures:**

- \* Installation of LT- less distribution transformer of smaller capacity
- \* Service connection through cables
- \* Limiting extension of LT lines to a few spans
- \* Limiting the size of the distribution transformer to 25/63 KVA
- \* Locating distribution substations in appropriate places
- \* Using aerial bunched conductor
- \* Pole scheduling
- \* Load census
- \* Conversion of LT to 11 KV line.
- \* No power supply without a correct meter
- \* Use of high accuracy static meters
- \* Effective monitoring through energy audit
- \* Introduction of computerized billing system with an in-built reporting system
- \* Simplification of the procedures for temporary connections
- \* Introduction of "Tatkal" scheme
- \* Fixing accountability for the field staffs
- \* Creating public awareness about the impact of theft on electricity tariff
- \* Creating public awareness about the legal consequences of theft of electricity
- \* Creation of Franchisee, flying squads and Special Task Force for detection of theft
- \* Introduction of Availability Based Tariff
- \* Demand side management
- \* Information Technology applications and distribution automation
- \* Employee and consumer Training
- \* Creation of renewable energy sources
- \* Metering, Billing and Innovative methods for Revenue Protection

**2. Measures Undertaken for Reduction of Distribution Loss**

**a) Central Government Initiatives**

The Ministry of Power had suggested a six-level intervention strategy in order to create a healthy distribution sector which is as under:

- i) National level**
  - Policy formulation, technical guidelines and standards, APDRP assistance.
- ii) State level**
  - Tariff fixation, corporatization, subsidies and budgetary support.

- iii) SEB level
  - Restructuring, increased accountability, development of MIS, T&D loss reduction.
- iv) Distribution circle level
  - Reducing outages, improving reliability.
- v) Feeder level
  - 11 KV feeders as business units
- vi) Consumer level
  - Mandatory metering, Discipline of disconnection for non-payment and Stringent Penalties for theft.

The Ministry of Power also has suggested District Level Distribution Improvement Plan in which all the districts in the country would have a detailed distribution improvement plan. Further, strengthening of sub-transmission & distribution network has also been suggested which involves three broad areas of action viz. commercial, technical and manpower restructuring.

- i) Commercial action includes tamper proof metering at all levels of transformation and for all the consumers; operationalising energy accounting up to feeder level; de-centralised computerised billing & collection; development of MIS and proper duties & responsibilities up to the line man.
- ii) Technical action involves conversion of the existing distribution network into a high voltage distribution system (HVDS) which covers reduction of LT lines; taking high voltage line up to the load centre and supplying power through smaller capacity energy efficient distribution transformation; reconductoring of over loaded lines; power factor correction; Geographic Information System(GIS) mapping; pole-wise consumer information etc.
- iii) Restructuring the manpower involves review of the manpower right from the Superintending Engineers to the line men and fixing proper duties, responsibilities and accountability at each level.

The MOP while providing financial assistance under APDRP, felt necessary that the reform process was to be further incentivised and ,therefore, it was proposed that reward to SEBs/ Utilities should be evolved based on actual reduction in cash loss and accordingly a Cash Incentive Scheme was introduced. Expert Committee on State Specific Reforms headed by Shri Deepak Parikh also recommended a one for two matching grant incentive based on cash loss. Among the other measures suggested by the MOP are Energy Audit, Demand Side Management, Supervisory Control and Data Acquisition (SCADA), GIS Based Mapping, Customer indexing and asset coding.

Further, technological reforms may be brought in by introducing High Voltage Distribution System (HVDS), spot billing, Customer Analysis Tool (CAT), Geographic Information System (GIS), customer care, installation of electronic meters at sub-transmission and distribution level, replacement of faulty meters, computing Aggregated Technical and Commercial (AT&C) losses, consumer indexing, improving billing and payment mechanism, introducing an LT less distribution system, improving quality of power, setting up customer care centres, training employees etc.

## **Amendment of Electricity Act, 2003 (Sections 126, 127, 135 and 150)**

By amendment of Electricity Act, 2003 in May 2007, the Govt. of India has brought in a set of stringent measures to arrest theft of power and punish heavily those indulging in offenses relating to electricity. The amended Act in Section 126 provides for enhanced penalty for unauthorized use of electricity. More Power has been vested on the Assessing Officer for assessment of unauthorized use of electricity. Under Section 127, the amendments brought in have enhanced the deposited amount by the aggrieved party in order to file appeal before the Appellate Authority. Under the amended Section 135, more stringent penalty has been provided for those offenders indulging in second and subsequent offences in electricity which include debarring the consumer from getting supply of electricity for a minimum period of three months which could be extended to 2 years. The amended Section 150 of the Act has provided more power to the general police for investigating crimes related to electricity.

### **b) State Government Initiatives**

#### **\* Legal Measures:**

The Electricity Act, 2003 has provided a legal framework to arrest the rising trend in distribution loss involving the following measures:

#### **\* Establishment of Special Courts (Sections 153 to 157)**

Govt. of Orissa has established five such special courts in different places of various zones of electricity distribution in the State. Judicial Officers in the rank of Additional District/Sessions Judge are the presiding officers of these courts. These courts have the power of a Sessions Court and provide speedy trial of electricity offences.

#### **Ø Energy Police Stations**

Govt. of Orissa has also established 15 special Energy Police Stations which are manned by police personnels from the Home Department. These dedicated police stations investigate offences relating to electricity under the Electricity Act, 2003. Another 19 such police stations shall be established by March 31, 2011.

### **c) Measures taken by OERC**

The OERC has issued necessary regulations, codes, licenses and practice directions for smooth operation of the DISCOMs. Development of Regulatory Information Management System (RIMS) has been undertaken. Introduction of voluntary disclosure scheme for unauthorized consumers has encouraged many consumers to be regularized. Intra-State ABT Regulation is also in the final stage so that Intra-State ABT is expected to be implemented soon. The Commission has been insisting on energy audit, spot billing, spot collection, monitoring and fixation of accountability at all levels for reduction of T&D loss. Further, the licensees have been asked to complete consumer / feeder / transformer (C-F-T) metering for correct assessment of technical losses. In spite of high level of metering in the post-reform era, the loss level continues to remain high. To address this, the Commission has directed introduction of franchisees by involving Panchayat and other institutions seeking participation of the general consumers. A Monitoring Committee on Loss Reduction has been formed by OERC in order to go to the details of loss reduction measures undertaken by the DISCOMs and identify sample areas where these ideal measures can be put into best practice for satisfactory reduction of loss levels so as to achieve the OERC targets. The Commission shall continue to vigorously monitor the loss reduction trajectory so that all functionaries of the licensees are made accountable for their performance.

### **d) Licensees' Initiatives**

The financial viability of DISCOMs is dependent on reduction of transmission and distribution loss. The various methods adopted/to be adopted by the DISCOMs for reduction of distribution loss are discussed below:

**i) Energy Audit**

Energy Audit from 33 KV feeder side to Distribution Transformer (DT) level have to be carried out regularly to fix the distribution loss level which would form the benchmark for future loss reduction strategy.

**ii) Use of HVDS**

LT distribution system is to be replaced with High Voltage Distribution System (HVDS) wherever possible.

**iii) Use of AB cable**

To ward off unauthorized tapping / hooking of LT distribution lines aerial bunched cable have to be utilized in all places.

**iv) Metering / Pillar box metering**

As per Electricity Act, 2003 no supply should be given without a correct meter. Pillar box metering has to be utilized to avoid unauthorized tampering and bypassing of consumer meters. It has been made easier since introduction of CEA (Installation and Operation of Meters) Regulations, 2006.

**v) Improvement of Power factor**

Consumers have to be encouraged to improve their power factor by incentivising them through tariff. This measure leads to relatively less drawl of power hence low distribution loss.

**vi) Spot billing**

Though adoption of spot billing does not reduce distribution loss directly it supplements energy audit. Spot billing system introduced by DISCOMs is yielding positive results. It improves billing and helps identification of ghost consumers leading to reduction of distribution loss.

**Consumers' Role**

Consumers may be trained/educated for perfect Demand-Supply Management of energy where by they can shift the use of energy to off-peak hours, follow energy conservation methods, make efficient choice and utilization of electric appliances etc. It is a fact that electricity saved is electricity generated and that it is cheaper and easier to save electricity than to generate it. Therefore, loss reduction may be attempted through people's participation in the entire system. It is reported by distribution companies that 97% of the consumers have been provided with meters out of which 87% are working. In spite of such high level of metering there has been no perceptible reduction in distribution loss. Hence consumers, the licensees and the State Govt. should come together to find a solution possible in line with the framework envisaged in Section 5 of Electricity Act, 2003 for bulk purchase of power and management of local distribution in rural areas, through panchayat institutions, user associations, co-operative societies, non-Govt. organizations or franchisees.

The present unsustainable levels of theft make further investments in the generation and distribution sectors unviable and unattractive. Energy conservation measures also become meaningless. Power theft needs to be treated as a national scourge and curbed with determination. It must be recognized that this is basically a governance issue rather than technical or commercial one. Without this resolve, other measures such as Special Courts and Police Stations, 100% consumer metering, staff and informer award scheme would also prove to be 'meaningless'.

**CAPEX Programme & Loss Reduction**

It is a thumb rule of the power sector that if one invests Rs.2/- in generation then Re.1/- each should be invested in transmission and distribution network. However, given the poor financial health of the power sector and the

ever growing demand for electricity, the distribution sector has been getting the lowest priority. This is more or less true even after the unbundling of the SEBs into separate companies in generation, transmission and distribution segments. In order to address the problem of low investment, the Accelerated Power Distribution Reform Programme (APDRP) was launched in the early part of the last decade as a centrally sponsored scheme. However, the scheme had limited impact as there was no compulsion for the State Governments to achieve physical targets for getting financial aid under the scheme.

Schemes such as APDRP, R-APDRP and RGGVY, and BGJY were supposed to take care of the ailments of the distribution sector. However, so far they have had a limited impact. Due to the inherent lacunae in APDRP scheme, it was decided to restructure the scheme during the 11<sup>th</sup> plan and a revised APDRP known as R-APDRP was launched in July, 2008. One of the major problems plaguing the distribution sector is the absence of accurate figures on the power supplied and the cost recovered in many areas of the country. Therefore, all the planning and decisions for the sector are taken in a fairly adhoc manner. The R-APDRP scheme attempts to address this by putting emphasis on metering, energy audit and the implementation of MIS and GIS systems in distribution networks. The scheme is divided into two parts, Part-A aims at metering the energy supplied in a particular area and Part-B is the actual network strengthening programme. As many of the states are yet to complete the projects under Part-A, actual investment in distribution sector is yet to begin in those states. Therefore, it is expected that R-APDRP will have a limited impact in the current five year plan. As far as Orissa is concerned, DISCOMs have been deprived of Govt. of India assistance through APDRP as they are private companies which have added to their woes.

The State's Distribution Network needs to be expanded to keep pace with the projected trajectory of growth targets and demand-supply position during XI & XII Plans. As is already observed, unplanned growth in the distribution system has caused substantial rise in the magnitude of distribution loss across the globe. Already the Govt. of India has made Plans to add 3,253,773 Ckt – Km of Distribution lines and 2,14,000 MVA of Transformer Capacity during XI Plan at an estimated cost of Rs.2,87,000 crore in order to meet the growing requirement of power as well as to expand RE Work. The Govt. of Orissa had undertaken an ambitious plan to electrify about 20,113 villages by 2009 and to effect power supply to balance 80% of rural as well as urban households by 2012. Out of a total of 47525 villages in Orissa, 29735 villages (62.6%) have been electrified as on 31.03.2010. As on that date 71% of the households had been electrified and 21% remain to be electrified.

The State of Orissa has inherited an old and fragile distribution network from the erstwhile OSEB. In the post reform period, the Commission has passed several tariff orders and two orders on Business Plans wherein it has been expected that the owner of the DISCOMs would come forward to infuse fresh capital for system improvement involving renovation of existing distribution system and its upgradation. Besides that the Commission has been approving good quantum of funds in various Retail Supply Tariff orders from year to year for operation and maintenance purposes. But all the pious hopes of the Commission have been belied. The DISCOMs have failed to infuse any fund till date citing various reasons. The Commission considering the different allegations pertaining to quality of supply had engaged different technical teams to enquire into the state of affairs of the distribution network. These enquiry reports indicate that the distribution network is currently in a dilapidated condition and requires urgent attention. With relaxation of escrow account the DISCOMs have started taking some O&M work in recent years as may be seen from the following table:

(Rs. crore)

R&M Expenses	2006-07		2007-08		2008-09		2009-10		2010-11
	Appr.	Actual	Appr.	Actual	Appr.	Actual	Appr.	Actual (as per escrow relaxation)	Appr.
WESCO	14.25	12.44	32.82	12.37	25.66	17.90	27.01	22.59	34.77
NESCO	24.48	12.88	24.43	13.00	25.87	20.86	27.88	27.40	37.22
SOUTHCO	17.35	5.54	18.38	5.50	19.08	7.79	20.73	21.39	26.11
CESU	41.31	22.09	43.64	25.11	41.87	32.76 (Escrow)	40.46	39.77	51.19
<b>Total:</b>	<b>107.39</b>	<b>52.95</b>	<b>119.27</b>	<b>55.98</b>	<b>112.48</b>	<b>79.31</b>	<b>116.08</b>	<b>110.60</b>	<b>149.29</b>

Taking into account the substantial investment required for system upgradation, the Commission in their second Business Plan Order of DISCOMs dtd.20.03.2010 had suggested the following to DISCOMs and Govt. of Orissa with regard to capital investments in DISCOMs as under:

78. *Before power sector reform was undertaken w.e.f. 01.04.1996, the State Government was providing subsidy of around Rs.250 crore per annum on the average. If the State had continued to give subsidy to the power sector and resorted to borrowings and debt to expand the sector, the revenue deficit of the Govt. would not have been brought under control and a surplus would not have been achieved at the pace at which it has actually been achieved. The State has indeed benefited considerably from the power sector reforms. But the continued indifference to the sector since then does not bode well for the power sector which is now facing the results of this neglect. The entire electricity network is in a state of near collapse and requires massive support, if the Govt. is keen about continued growth and development. The Regulatory Commission has attempted to achieve some stability in the tariff regime, despite the fact that there has been a general rise in prices all-round. The price of electricity has remained constant for the last 9 years. Though this has been beneficial to the consumers, it has not been of much help to the DISCOMs. With AT&C losses not showing much improvement, the continued trend of a steady tariff would not enable the DISCOMs to ensure increased repair and maintenance of an aged network and maintain quality supply.*

The Kanungo Committee in its report submitted in 2001 had recommended transitional support of Rs.3240 cr. for system upgradation to reduce the loss and by now with inflation this would be equivalent to roughly Rs.5000 crore. Accordingly, Commission has directed in their second Business Plan Order (2008-09 to 2012-13) that distribution companies and State Govt. should jointly invest Rs.5000 crore for system upgradation. While State Govt. being 49% share holder through GRIDCO should contribute Rs.2450 crore and the distribution companies should contribute Rs.2550 crore in proportion to the ratio of their consumers as indicated below:

#### Investment by DISCOMs & Government

(Rs Crore)

Description	Ratio of consumers	Investment by DISCOMs	Investment by Govt.	Total
CESU	39.00%	995	955	1950
WESCO	19.50%	497	478	975
NESCO	21.00%	535	515	1050
SOUTHCO	20.50%	523	502	1025
<b>TOTAL</b>	<b>100.00%</b>	<b>2550</b>	<b>2450</b>	<b>5000</b>



The Commission expected that depending on the achievement of loss reduction target from the initial investment of Rs.2400 cr. as envisaged at present by Govt. vide their letter No.7991 dtd.09.09.2010 the quantum of investment may be increased to Rs.5000 cr. as stipulated in the Business Plan order in view of requirement of substantial investment in the distribution network which has been hitherto neglected.

Further, the Commission clarified that the present and the future capital expenditure for system upgradation by State Govt. and the four DISCOMs towards their matching counterpart funding should be over and above the normal O&M expenditure being incurred or to be incurred by the distribution companies as per the approval of the Commission in the respective ARR of the relevant years. The O&M expenditure should not be taken as counterpart funding by the DISCOMs for capex programme which the State Govt. has come up recently to substantially upgrade and expand the ailing distribution network.

After considering the suggestion of the Commission, the Govt. of Orissa have accorded in-principle approval to the followings works:

**Scope of the proposed Capital Expenditure Programme:**

- i) Replacement of LT conductors by AB cables in theft prone areas.
- ii) Installation of Pillar Box Metering system.
- iii) Up-gradation and Replacement of Transformers (star rated) to cater to additional load.
- iv) Up-gradation of 33/11 KV sub-stations.
- v) Installation/replacement of Vacuum Circuit Breakers (VCBs)
- vi) Replacement of faulty insulators, AB switches etc. replacement of existing weak LT/HT poles.
- vii) Installation of new 33/11 KV and 11/0.4 KV substations.
- viii) Re-conductoring in case of old lines with conductor of optimum size.
- ix) Conversion of single-phase into 3-phase system.
- x) New HT lines both 33 and 11 KV.
- xi) Extension of HVDs.
- xii) Installation of metering cubicles.
- xiii) Earthing of Substations.
- xiv) Installation of lighting Arrestors.
- xv) Installation of capacitor banks.
- xvi) Installation of online monitoring and automatic billing system through AMR.
- xvii) IT application in distribution management.
- xviii) Complete Distribution Transformer Metering/feeder metering for energy audit purpose.
- xix) Provision of boundary wall, fencing and control room etc. around the sub-station to ensure safety of the equipment and human lives and other such things.

In addition to the above heads of expenses, consumer metering would be taken up by the DISCOMs as a composite activity in areas where system up-gradation is being taken up in order to reduce loss. This would then form a part of DPR of the specified area where investment is proposed.

**Funding mechanism:**

The Govt. of Orissa vide Lr. No.R&R-I-06/2010(pt)/7991, dtd.09.09.2010 has communicated to all DISCOMs that an estimated amount of Rs.2,400 cr. will be spent under this Scheme over the period of four financial years i.e. FY 2010-11 to FY 2013-14, out of which Govt. of Orissa will provide Rs.1,200 cr. and DISCOMs will invest Rs.1,200 cr. from their own source /or through market borrowing which is shown in the following table:

**Year-wise CAPEX****(Rs. crore)**

Financial Year	2010-11	2011-12	2012-13	2013-14	Total
State Govt. (out of which)	300.00	400.00	250.00	250.00	1200.00
a. FC Grant	0.00	200.00	150.00	150.00	500.00
b. SS to FC Grant	0.00	56.67	50.00	50.00	166.67
c. Loan to GRIDCO for counterpart funding to FC Grant	0.00	56.67	50.00	50.00	166.67
-----	300.00	66.66	0.00	0.00	366.66
<b>DISCOMs (out of which)</b>	<b>0.00</b>	<b>200.00</b>	<b>400.00</b>	<b>600.00</b>	<b>1200.00</b>
a. Counterpart DISCOMs share for FC Grant	0.00	56.67	50.00	50.00	166.67
b. DISCOMs contribution	0.00	133.33	350.00	550.00	1033.33
<b>Total CAPEX</b>	<b>300.00</b>	<b>600.00</b>	<b>650.00</b>	<b>850.00</b>	<b>2400.00</b>

Out of the State Govt. support of Rs.1200 crore.

- Grant of Rs.500 crore from 13<sup>th</sup> FC is to be initially passed on as loan with 0% interest.
- Rs.166.67 crore of matching State share against 13<sup>th</sup> FC grant as loan with 0% interest.
- Rs.166.67 crore of Loan to GRIDCO for 1/3<sup>rd</sup> counterpart funding to FC grant with 4% loan.
- Rs.366.66 crore as budgetary support in shape of soft loan with 4% interest.

Loan of Rs.666.67 crore bearing 0% interest (Sl. a & b) may be considered for conversion into grant after full utilization of the loan for the specified purpose and achievement of loss reduction target of 3% per annum.

The allocation to different DISCOMs will normally be in the proportion to the number of consumers of the DISCOMs as on 01.04.2009 (i.e. CESU 39%, NESCO-21%, WESCO – 19.5% and SOUTHCO-20.5%) as stipulated in the Business Plan approved by the OERC in their order dtd.20.03.2010. However, the Monitoring Committee may accord more priority on disbursement in a particular year within the overall limit depending upon successful execution of project and mobilization of counterpart funding. DISCOM-wise breakup of capital expenditure as understood to have been envisaged by the GoO is furnished below:

**Year-wise CAPEX proposed by the State Govt.****(Rs. Crore)**

Financial Year	2010-11	2011-12	2012-13	2013-14	Total
CLSJ	117.00	234.00	253.50	331.50	936.00
WESCO	58.50	117.00	126.75	165.75	468.00
NLSCO	63.00	126.00	136.50	178.50	504.00
SOUTHCO	61.50	123.00	133.25	174.25	492.00
Total of DISCOMs	300.00	600.00	650.00	850.00	2400.00

The Commission in its Order dtd.20.08.2010 in Case No. 109, 110 & 111/2010 have accorded in-principle approval for capital investment of Rs.2005.45 cr. for the Reliance Managed DISCOMs (WESCO-Rs.664.74 cr., NESCO-Rs.679.99 cr. & SOUTHCO-Rs.660.72 cr.). The Commission had directed the DISCOMs to submit the detailed project report with cost benefit analysis and its impact on tariff. Subsequent to the filing of the three DISCOMs, the Commission vide order dtd.10.11.2010 approved capital expenditure for 2010-11 and 2011-12 as follows:

(Rs. Crore)

Financial Year	2010-11	2011-12	Total
WESCO	68.51	117.00	185.51
NESCO	75.38	113.62	189.00
SOUTHCO	67.25	123.00	190.25
Total of three DISCOMs	211.14	353.62	564.76

Further, the Commission in its Order dtd.06.10.2010 in Case No.134/2010 has approved the Capex of Rs.1092.72 cr. for CESU as indicated below:

INVESTMENT SUMMARY				
ABSTRACT OF INFRASTRUCTURE DEVELOPMENT & LOSS CONTROL ACTIVITIES		ESTIMATED COST (Rs crore)		
		Package 1	Package 2	TOTAL
[1]	New Primary substation	65.17	41.84	107.01
[2]	Upgradation of primary substation	57.38	40.10	97.48
[3]	Breakers (33 KV/ 11 KV)	10.02	6.45	17.37
[4]	Distribution transformer	77.85	94.06	171.91
[5]	Reconductoring of OH line conductor (33 KV/11 KV)	66.73	39.60	106.33
[6]	New O- line (33 KV+11 KV)	50.21	77.46	127.67
[7]	Energy accounting (Consumer metering + System metering)	42.59	27.24	69.83
[8]	A.B. Cable & HVDS (LT loss System)	86.07	119.62	205.69
[9]	IT including centralized auto billing information flow through PMS/ SCADA etc. and Utility	38.53	15.09	54.27
[10]	Special R&M of sub-station	19.05	16.01	35.66
[11]	System Quality, Reliability & Safety	62.15	37.35	99.50
<b>Total:</b>		<b>576.65</b>	<b>516.07</b>	<b>1092.72</b>

The year-wise investments for CESU on different heads as detailed above is outlined in the following table.

(Rs. Crore)

Financial year	2010-11	2010-12	2012-13	2013-14	TOTAL
Total Capex	204.17	252.64	275.35	360.61	1092.77

While approving the investment of Rs.1092.72 cr. for CESU, the Commission has stated that this would have impact on tariff in as much as CESU has to service the loan to State Govt. and GRIDCO. However, the tariff impact would be reduced if they achieve the target of AT&C loss reduction which will enable them to claim conversion of loan to grant as stipulated by the State Govt. Hence, CESU must take timely action for implementation of the CAPEX from time to time by sticking to the pre-determined time schedule and placing appropriate experienced

officers in place for day to day supervision and monitoring. The result of investment can be quantified only after the base line data are firmly worked out with due and proper care and scrutiny.

Although the Commission has approved Rs.1092.72 cr. for CESU and Rs.2005.45 cr. for Reliance Managed DISCOMs towards capital expenditure for system improvement and upgradation, at present the State Govt. is contemplating for an investment plan involving infusion of Rs.1200.00 cr. by them and another Rs.1200.00 cr. by the DISCOMs totaling to Rs.2400.00 cr. as stated in the foregoing paragraphs. The guidelines/procedure outlined by Energy Dept. in their Lr. No. R&R-I-06/2010-9230/En dtd. 21.10.2010 in the matter of project formulation and implementation, procurement of materials, third party verifications etc. shall be followed by the DISCOMs while adopting the capital expenditure plan.

Further, the Commission has stressed and reiterated that mere investment in the distribution network would not achieve the desired result of loss reduction unless it was accompanied by strong administrative and police action to check theft of electricity by some unscrupulous consumers being aided and abetted by some of the employees of the distribution companies. Unruly behaviour and unpleasant situation are being faced by the employees of the distribution companies while going for disconnection of power supply or collection of revenue in case of default in payment of electricity dues. This governance issue should be addressed effectively through strong administrative support by the State Govt. at different levels. Otherwise improvement in supply of power due to investment on system upgradation/renovation would not be accompanied by improvement in collection of revenue unless unlawful behaviour of some of the consumers/unauthorised consumers is severely dealt with. In this connection the Commission has brought to the notice of the State Govt. from time to time regarding the urgent need for making all the notified 34 Energy police stations fully operational and effective. The specially designated courts for the trial of all electricity offences also suffer from the inadequate men and materials. This also needs to be addressed on priority basis.

The line of command and control of the Energy Police Station is currently an integral part of the general Police Administration as a result of which their special role gets diluted, amidst the competing needs of general law and order and crime control. They need to stand apart from the general run of police administration and act on a dedicated basis in tandem with the DISCOMs who are distributing and supplying electricity.

With all the efforts as cited above, if the licensees reduce the AT&C losses to a reasonable level and prevent theft fully, it would not only mean huge revenue gains for the DISCOMs but also fairly large increases by way of Electricity Duty for the State Government.

Theft is the most important cause for a humungous amount of commercial losses, more often than not in connivance with the unscrupulous employees of the DISCOMs. This is a situation of unsustainable burden on the honest and paying consumers, overloading of lines and transformers, break down of supply, load shedding, increase in tariffs, indifferent service standards and huge problems in billing and collection. While the DISCOMs must systematically set about the curbing of losses by system upgradation and proper billing and collection, they need to be aided by the State and the machinery of the police in prevention and detection of theft, with penal action against the thieves. The DISCOMs need to be backed to the hilt by the State administration in curbing such losses. However, it is the primary responsibility of the concerned DISCOMs to take initiative for availing administrative support from the State Govt. No amount of Govt. support would succeed unless the DISCOMs are committed to bring about improvement through internal vigilance and strong administrative action against the unscrupulous employees and dishonest consumers who connive with each other for theft of electricity.

The other important aspect is that Government themselves must be model consumers. They must pay their bills in time and in full. The DISCOMs have informed that the outstanding dues payable by Govt., Govt. aided agencies and various semi-government institutions are around Rs.388.79 crore (CESU – Rs.138.60 cr. + NESCO - Rs.77.61 cr. + SOUTHCO – Rs.71.62 cr. + WESCO – Rs.100.96 cr.) as on 01.4.2010. These arrears are rather huge and reflect poorly on the Govt.

In addition to strong administrative support by the State Govt. at different levels and timely implementation of various upgradation and renovation work by the distribution companies there is also need for continuous flow of fund. This has to be ensured. There may be some initial difficulties in achieving 3% reduction of AT & C loss per annum in the first year because of delay in preparatory work and putting administrative support in place. While there should be sincere efforts to achieve the annual target of loss reduction, conversion of loan to grant may be considered on achievement of AT & C loss reduction of 3% per annum on the average for the period of 2 to 3 years. If there is some slippages in achieving the full target in the initial year this would be made good in the subsequent years and release of fund should not be withheld on the ground of some slippages in the initial year because it will ultimately affect the quality of supply and consequently achievement of reduction of AT & C loss target envisaged for the project period. The Commission has made it clear that truing up exercise would be allowed by the Commission based on the normative target fixed by the Commission in the ARR of the respective years but not on the annual target of AT & C loss reduction in the project area expected by State Govt. with reference to the investment envisaged. It is hoped that the massive capital expenditure plan currently mooted by the State Govt. would go a long way in achieving the targeted reduction in AT&C loss in order to make the distribution system financially viable and sustainable.

### **Best Practices**

Successful distribution companies who have been able to reduce loss in a short period have acted on the following lines:-

- \* Sending a message to the consumer that a new dynamic management has taken over and they can expect all-round improvements in quality of supply.
- \* Collecting feedbacks from consumers and increasing their visibility at site.
- \* Easing out payment modes and going for one time settlement of long pending arrears.
- \* Giving top priority to trouble call management and showing visible improvements in attending to those calls.
- \* Going for a mission of meter replacement program, training the customers and appointing a third party testing agency to assure customer on the accuracy of the meters
- \* Bringing a visible change by changing the formats for billing, new connections.
- \* Giving concessions to consumers who pay promptly. Some Discoms introduced pre-paid metering in pockets and some asked consumers to read their own meters and pay on a voluntary basis.
- \* All collection centers were made air conditioned with assurance that a customer will not wait for more than 5 minutes for bill payment.
- \* Electricity company staff were given uniforms and telephone numbers of staff engaged for grievance redressal were displayed in offices and buildings
- \* Dual metering system was introduced in industries with one meter outside industry premises.
- \* A DIG level person was placed in charge of Power theft detection and prevention.
- \* All VIP areas and public places which were defaulters were brought under control by personal contacts and persuasion.
- \* A modernization program was taken up starting with meter replacements, asset management, GIS mapping, customer indexing, substation renovation, introducing SCADA, and DSM.
- \* The APDRP funding was utilized fully.

- \* A system improvement plan was drawn on month to month basis and was closely monitored. Equipments were imported in large quantities where indigenous suppliers failed to meet the schedule.
- \* A third party inspection team identified renovation and replacement requirements covering all the feeders and this was made on the basis of remaining life assessment and compatibility point of view for IT implementation.
- \* Some DISCOMs paid attention to end use equipment efficiency and promoted CFL bulbs, free replacement of pumps, and introduced KVA based metering.
- \* DISCOMs introduced reliability based system planning which ensures no longer than a few seconds power disconnection. Reliability was assured by introducing ring main distribution and three way breakers.
- \* Many DISCOMs achieved their success by delegating responsibility to Franchisees and NGOs, particularly for billing and collections.
- \* On technical front AB cables and HVDS was introduced. AB cables brought down the thefts and HVDS brought down the losses.
- \* State Govt. came to the rescue of DISCOMs by paying the agricultural subsidy components promptly and also advancing bank loans.
- \* DISCOMs recorded their success story and presented them in forums, which encouraged them to do better.
- \* The forward-looking DISCOMs had industry-academic interaction and supported R&D projects.
- \* They conducted seminars and workshops and organizations like SCOPE gave lectures under the DRUM program. This was a source of continuing education for the staff.
- \* DISCOMs sent their staff to Management schools for special courses in Distribution.
- \* DISCOMs reported their success in computerized inventory management, auditing, trouble call management, billing efficiency improvement, and end use equipment efficiency improvement.
- \* The most spectacular improvement came from replacement of meters and introducing AMR and AMI.
- \* Financing of system improvement projects can be through ESCROW route. Banker, consultants and equipment manufacturers can join hands to demonstrate impact of new technology and recover their cost.
- \* Investors in renewable energy can generate power for a micro grid system and sell their surplus to the grid. Even rooftop solar power surplus can be fed to the grid and consumers can be suppliers at certain times during a day.
- \* Distribution companies can sell their shares to consumers and thus consumers can be stake holders in the company.

### **The Agenda for the DISCOMs**

Following are few points that may be in the agenda for taking the distribution sector ahead:

- \* The Distribution system covers a large area with thousands of equipments that are difficult to keep track without computerization. Hence an asset management exercise with the help of GIS and creation of a data base shall be made as a first step. This exercise has been made in many states and records have been straightened. This is done by a third party with expertise in the area.
- \* The next is to get consumer indexing done and all consumers with their unique identification, their meter numbers and record of payments etc. linked so that a consumer-wise history can be maintained.



- \* System modification would start with a prima-facie comparison of calculated values of voltage regulation, losses of what is existing, with values observed in the field. This shall be done as a planning exercise. There shall be scientific load forecasting done based on which the system up-gradation shall be planned.
- \* In order to maintain an information data bank and control the network without human intervention, a SCADA system shall be introduced and a Management Information Support System(MIS) shall be put in place.
- \* To handle a large system, Information Technology has a solution to connect central/nodal station to other stations and vice versa through satellites or optical fiber links. Computerized billing, trouble call management, computation of indices like SAIDI and SAIFI for all cities and towns has to be in place to improve power quality assessment.
- \* Load control through Demand side Management (DSM) is to be in place to reduce peak load losses. DSM is a means of involving the public in the system and has far reaching consequences. It is a challenge to the management of the distribution system and in a competitive environment it would play a key role.
- \* Way ahead, one can visualize a reliable system with multiple options to feed a load with the help of fast load change over switches and a distributed system with installation of renewable energy sources like solar, biomass, and wind. The dependability on grid power is expected to reduce with introduction of renewable and green energy which will help the energy sector.
- \* Modern Power Electronics applications, such as DVRs and DSTATCOMS can be kept in stations to improve Power Quality. These devices normally pay back their initial cost in 2 to 3 years. Unified Power Quality Controllers and active filters are now available to maintain very high standards of quality. Quality power brings reduction in losses and customer satisfaction.
- \* The billing and payments procedures may be further simplified to make it easier for the public to pay. In fact it is possible to improve level of automation in distribution to such standards that no one will find any one struggling to put things in order. The best managed distribution system will be the one that would go unnoticed.
- \* Customer shall be made to understand and motivated to participate in managing the Distribution system through franchisee arrangements. This can be achieved through training programs and making the customer a stake holder in operating the distribution business.
- \* Reliable and cheap power supply will help entrepreneurs to invest in rural sector and help in improving rural economy.
- \* Way ahead the distribution system has to be integrated with the upstream sub stations which would be IEC 61850 compatible. Protocol aspects have to be taken into account from the time meters are procured.
- \* The distribution sector may also go for open access and renewable energy sources and ABT may be implemented to bring in grid discipline. This would further need a higher level of automation.
- \* Energy conservation is equivalent to generation of cash and profit. It would assume greater significance after the basic issues are sorted out.
- \* It is believed that commercial losses are largely due to neglect of the sector and once quality of power is improved and vigilance function is passed on to the public, the commercial losses would come down. An automated information system can detect all kinds of pilferages and book the culprit. The legal system would cooperate with the customer and the distribution licensee equally to give justice to both.
- \* The Electricity Act of 2003 emphasized the importance of 100% metering. It realized that no audit was possible without proper metering and therefore no improvement was possible without 100% metering. A decision

was taken to introduce static meters. These meters are far more efficient and have a large number of advanced features like KVA metering, time of day metering, pre-paid metering, over load features, anti tamper features, communication features etc. Faulty meters, absence of meters, tampering, and un authorized hooking are behind the large AT&C losses and this can be handled by making the meters and system operation smarter. Smart operation refers to quick information collection and speedy remedial action for which the distribution company has to be IT savvy.

- \* People themselves with a sense of collective responsibility best run distribution system operation. Electrical demands continue to grow and so is the demand for Network expansion . In such a system there is necessity for continuous investment to maintain quality norms. The planning has to be a rolling plan, which has to financially support itself by way of loss reduction.
- \* Way ahead, it is superior technology, automation, and a sound management system that will reduce the pilferage and technical losses. It may look expensive in the beginning but the returns are rewarding.

In a nut shell the following guide lines prevail, and there is no short cut to success:-

- \* Stick to the basics to improve the network performance.
- \* Plan ahead your system to be ready for the growing load.
- \* Maintain the equipments.
- \* Do not compromise on quality while procuring.
- \* Fix priorities in sorting out issues, and let commercial reasoning decide the priorities.
- \* Information is the key, have a good MIS in place.
- \* Involve the public.
- \* Educate and train the public.
- \* Respect technology and accept it with an open mind.
- \* Ethical working is the key to a win-win situation and is sustainable.

The Way ahead can be a truly professionally managed Distribution system that can fully support the economic growth of Orissa and the Nation as a whole. Such a distribution system can help in reducing the overall loss levels while making the system financially viable and sustainable.

*Note :- Views expressed are personal.*

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# CASE STUDY: PRIVATIZATION OF DISTRIBUTION BUSINESS IN ODISHA

**Priyabrata Pattnaik**  
**Jt. Director(Tariff), OERC**

## **Back ground**

*The Orissa State Electricity Board (OSEB) was established 1961 under the Electricity (Supply) Act, 1948. Its financial performance had been weak. However, till 1990-91 OSEB manage to carry on its business with the help of Govt. subsidies. But after 1990-91, the financial burden increased significantly and the unpaid amounts of OSEB went upto Rs.334 Crore by 1994. The peak shortage went up from 24% in 1991-92 to 37% in 1993-94. Also, T&D losses were 46.95% in 1995-96. There was no increase in tariffs from FY 1989-90 to FY 1991-92, which added to the inability of OSEB to recover its costs.*

*Due to the gravity of the situation, the Government of Orissa (GoO) recognized the need for reforms in the State Power sector. Accordingly, OSEB was bifurcated into Orissa Hydro Power Corporation (OHPC) & Grid Corporation of Orissa Limited (GRIDCO) & 4 DISCOMs which were subsequently privatized. The process involved sale of 51% of equity in each of DISCOMs GRIDCO later became a trading company while the transmission function was vested with Orissa Power Transmission Corporation Limited (OPTCL).*

## **Steps taken by GoO for Privatization of Distribution Function**

- I) The OER Act: The Orissa Electricity Reform (OER) Act was passed in November 1995 by which, the Orissa Electricity Regulatory Commission (OERC) was established and its functions were defined.*
- II) First Phase: OSEB was bifurcated into Orissa Hydro Power Corp. (OHPC) & Grid Corp of Orissa limited (GRIDCO). GRIDCO was further unbundled into one transmission and four distribution companies viz. Central Electricity Supply Company(CESCO), North Eastern Electricity Supply Company(NESCO) Western Electricity Supply Company (WESCO), Southern Electricity Supply Company (SOUTHCO).*
- III) Second phase & Model of Privatization: It was decided that the process would involve sale of 51% of equity in each of the DISCOMs. Upto 10% of the shares in each DISCOM was made available out of GRIDCO's retained stake for the benefit of employees of DISCOMs. International competitive bidding (ICB) route was followed for 51% disinvestment to select a private investor.*
- IV) Transfer of Assets: The GoO transferred the transmission & distribution assets to GRIDCO and hydro assets to OHPC.*

*The revaluation of assets raised the historic value of GRIDCO's transmission & Distribution assets by over 200% & of OHPC's assets by over 300%. The transfer was structured in such a way that the dues of GoO to GRIDCO were offset against the upvaluation amount. Power bills and unpaid subsidies of Rs.340 Crore and power purchase liability of Rs.318.7 Crore was transferred to GRIDCO. Thus, GRIDCO also took over the unpaid receivables together with the related provision for bad and doubtful debts.*

**Privatisation Progress** - *Through a transparent bidding process, involving several bidders, 51% of the equity in each of WESCO, NESCO and SOUTHCO was acquired by M/s BSES (Currently Reliance Infrastructure Ltd.) in April 1999, while 51% of equity of CESCO was acquired by AES Ltd. in Sept 1999. The investors acquired the shares of Rs.114.70 Crore for Rs.158.50 by paying a premium of Rs.43.8 crore, without any return on equity till date as detailed below:*

Private Companies equity share	-	51%
GRIDCO equity share	-	39%
Employee Trust equity share	-	10%

Private companies purchased 51% of share capital of the distribution companies at premium as follows:

**Share Holding Pattern of DISCOMs**

Company	Value of 51% share capital (Cr.)	Sold at premium (Cr.)
CESCO	37.08	42
SOUTHCO	19.2	28.30
WESCO   NESCO	58.42	88.20

Hence against Rs.114.70 crore of 51% equity GRIDCO received Rs.158.50 crore.

**Pre Reform Scenario-***The DISCOMs inherited technically weak age old system with*

- \* *High T&D Loss (50 to 52%)*
- \* *Low Collection efficiency*
- \* *Aggregate AT&C Loss at 65%. (i.e. for every 100 units of energy received, only 35 units were collected) leading to accumulation of large receivables. Accounting systems were manual and billing was done by several agencies on which there was little or no control*
- \* *Quality of supply was unreliable*

*Reform process was taken up since performance of the then OSEB was in bad shape and it was expected that the major steps of the sector reform, as above, would provide the much needed impetus to the sector providing quality power at affordable price to the electricity consumers of Orissa.*

**NORTH EASTERN ELECTRICITY SUPPLY COMPANY OF ORISSA LTD.**

*NESCO was handed over the distribution network by the Government of Orissa in the year 1999 based on the international competitive bidding. At the time of the privatization the AT&C loss levels were high and the Company was incurring losses. However, over the years the AT&C losses were reduced from the level of 55.04% in 1999-2000 to 35.56% in the year 2009-10. The other reliability parameters like transformer failure rate, consumer metering etc. have shown marginal improvement.*

*The company incurred losses since incorporation i.e. 1999-00 and the financial turnaround achieved in 2005-06. There has been a regular profit since 2005-06. The PAT for the year 2007-08 is Rs.35.36 crore and for 2008-09 is Rs.0.05 crore. However NESCO is saddled with cumulative losses of Rs.457 crores up to the year ending 2008-09.*

**WESTERN ELECTRICITY SUPPLY CO. OF ORISSA LTD.**

*WESCO was handed over the distribution network by the Government of Orissa in the year 1999 based on international competitive bidding. At the time of the privatization, the AT&C loss level were high and the Company was incurring losses. However, over the years the AT&C losses have reduced from the level of 55.14% in 1999-2000 to 37.06% in the year 2009-10. The company incurred losses upto the year 2005-06 and the financial turn around achieved in 2006-07. There was a loss of Rs.51 Crore in 2007-08, the company showed a PAT of Rs.13 Crs. in 2008-09. However WESCO is saddled with cumulative losses of Rs.626 Crores up to year ending 2008-09.*

**SOUTHERN ELECTRICITY SUPPLY CO. OF ORISSA LTD.**

*SOUTHCO was handed over the distribution network by the Government of Orissa in the year 1999 based on international competitive bidding. AT&C losses have not shown major reduction since privatization. The loss levels*

were at 54.2% during 1999-00 which is reduced to 49% during in the year 2009 10. The other reliability parameters like transformer failure rate, consumer metering etc. have not improved.

The company is incurring losses since the privatization. There was a loss of Rs.38 Crore during 2008-09 with carry forward loss of Rs.643 Crore from previous years.

### **Issue in Restructuring & privatization**

- \* **Reform Model:** Given the severe managerial, financial and operational problems of OSEB, privatization without restructuring and related regulatory reforms was ruled out as unfeasible. Hence, vertical separation was envisaged. So a total of four DISCOMs were created so as to discourage monopoly and induce competition. Initially, GRIDCO was made solely responsible for centralized procurement of bulk power for DISCOMs, under a single buyer model. GRIDCO Ltd. (Formerly Grid Corporation of Orissa Limited now called GRIDCO) is a Deemed Trading Licensee under the 5<sup>th</sup> Proviso to Section 14 of the Electricity Act, 2003 and is carrying out the business of bulk supply of electricity to the four Electricity Supply Companies (hereinafter called DISCOMs) by utilizing the transmission network of OPTCL. GRIDCO continues to procure all forms of power from different generators for the DISCOMs and supplies the same to them. GRIDCO also supplies emergency power to Captive Generating plants (CGPs) and trades the surplus power available, if any, from time to time. Under the existing Bulk Supply Agreements between the DISCOMs and GRIDCO, the DISCOMs are obliged to purchase power from GRIDCO at a price to be determined by the Commission. This Price incidentally happens to be the Bulk Supply Price at which GRIDCO supplies power to the DISCOMs. Later on the decentralization was done and DISCOMs have been allowed to purchase power from other sources over and above the GRIDCO supply. Recently in FY 2010-11 Intra-State trading license has been granted to M/s Global Energy Ltd. to trade upto 600 MU of power
- \* **Bulk Supply Tariff and Retail Supply Tariff:** Prior to privatization, tariff revision was frequent resulting in an overall the tariff rise of 17% during FY 1996-97, 10.33% in FY 1997-98 and 9.3% in FY 1998-99, 4.50% during 1999-2000 and 10.23% during 2000-01. The average Retail Supply Tariff has remained constant from 2000-01 till 2009-10 and during 2010-11 the average tariff increase was 22.20% over the average tariff of 2009-10. When compared, the tariff rise with the increasing Wholesale Price Index 1995-96 (base year), it will be seen that there is actual decline in tariff by more than 30% in real terms.
- \* **T&D losses:** The T&D losses that were assumed at the time of privatization to be 34.5%, were actually 49.7% (Staff Appraisal Report of the World Bank). OERC based their Tariff order considering 35% T&D losses, leading to an additional T&D loss of 15% being absorbed by DISCOMs as losses. The projection made in Staff Appraisal Report of the World Bank regarding losses could not be achieved due to non materialization of zero loss EHT sales. As the reform process could not deliver the desired results, the Govt. of Orissa set up a high power committee to advise for mid-course corrective measures. The high power committee set up by Govt. of Orissa called Souvan Kanungo Committee accepted overall distribution loss of all the DISCOMs as 42.21% (base line) as on 31.03.2001 on the basis of submissions made by the DISCOMs. Thereafter, the DISCOMs of Orissa filed their actual (baseline) distribution loss (2002-03) before the Commission during first Business Plan hearing in Case No. 115/2004 for the period 2003-04 to 2007-08. The Commission accepted the baseline data of loss submitted by the DISCOMs and fixed target for the DISCOMs to achieve the loss level in the first Control Period. But in none of the years DISCOMs achieved the targeted distribution loss though they improved the collection efficiency as desired. The higher than targeted T&D losses are one of the most important reasons for the current situation in Orissa wherein the private distribution companies are unable to pay GRIDCO and hence have caused shadow on the overall reform exercise. The non-metered/defective meter supply to most agricultural load and domestic consumers made it impossible to estimate the true extent of the losses. T&D loss, distribution loss and collection efficiency of the DISCOMs of the State are given below:



Year	T & D Loss	Distribution Loss	Collection Efficiency	AT & C Loss	All India AT&C Loss
1990-01	45.30%	-	87.48%	52.10%	
1991-92	44.80%	-	97.07%	49.7%	
1992-93	45.01%		91.91%	49.5%	
1993-94	41.57%	-	86.15%	49.7%	
1994-95	46.50%	-	84.07%	54.6%	
1995-96	46.94%	-	97.17%	51.1%	
1996-97	49.47%		85.72%	56.7%	
1997-98	49.24%	-	81.17%	58.8%	
1998-99	51.02%	-	79.02%	60.90%	
1999-2000	46.68%	43.91%	77.19%	56.71%	
2000-01	46.90%	44.01%	78.72%	53.92%	
2001-02	50.19%	47.47%	75.35%	60.31%	
2002-03	43.78%	40.75%	82.45%	51.15%	32.54%
2003-04	43.71%	40.75%	85.44%	49.35%	34.78%
2004-05	41.59%	39.21%	91.00%	44.68%	34.33%
2005-06	42.37%	39.59%	91.38%	44.68%	33.02%
2006-07	41.67%	38.57%	92.37%	43.25%	30.59%
2007-08	41.13%	37.48%	93.41%	41.60%	29.24%
2008-09	40.33%	37.51%	97.98%	41.89%	28.44%
2009-10	39.93%	37.24%	96.96%	39.15%	NA
2010-11 (Approved)	-	22.22%	98.00%	23.77%	
2011-12 (Approved Business Plan)	-	21.71%	99.01%	22.48%	
2012-13 (Approved Business Plan)	-	21.21%	99.01%	21.99%	

- \* **Exit of AES from CESCO:** While AES was acquiring CESCO, it was assured that GRIDCO would allow CESCO cash accommodation upto Rs.174 crore. This amount, along with interest was to be repaid after 1<sup>st</sup> September, 2002. There was a dispute between M/s AES and the State Government over financing the required working capital over and above this amount. AES provided letter of comfort to GRIDCO promising assistance to CESCO management in raising funds for working capital, which never happened. GRIDCO took CESCO to court for violation of escrow arrangement as, instead of paying fully for the bulk supply bill, CESCO was diverting part of the money for payment of salaries. OERC intervened and directed CESCO to do its job of distribution properly. In July, 2001, AES sought GRIDCO's permission to sell its stake in CESCO to a third party or to GRIDCO. However, this was against the shareholder's agreement which provided for a lock-in-period of five years ending on 31<sup>st</sup> March, 2004. CESCO's over dues to GRIDCO on power purchase had reached Rs.577 crore including the initial cash accommodation of Rs.174 crore. AES Management abandoned its responsibility from CESCO and disappeared. OERC appointed an Administrator to run CESCO. Subsequently, under Section 19 of Electricity Act, 2003 OERC revoked the license of CESCO w.e.f. 01.04.2005. After revocation of the license, the Commission initiated the process for sale of utility of the licensee u/s 20 of the said Act.
- \* But, the Commission's effort did not fructify. As a result, OERC decided to formulate a scheme u/s 22 of the Electricity Act, 2003 for operation and management of the Central Electricity Supply Utility (CESU). A

management board nominated by OERC was constituted consisting of experts in power sector and the Government nominee which came into effect from 08.09.2006 with renaming of CESCO as CESU under the said scheme. CESU is still being managed by a Management Board constituted/re-constituted from time to time.

- \* **Employees related issues:** It was decided that GRIDCO will have a cadre of its own rather than on deputation from the State Govt. The transfer scheme also stipulates that on privatization, the services of employees of DISCOMs will not be less beneficial than to GRIDCO.
- \* The State Government appointed a high power Committee to look into the problems and to suggest corrective measures. Important recommendations made by the Committee were as under:-
  - a. The State Govt. through DFID and World Bank to mobilize a sum of Rs.3240 Crore to meet the cash gap in the period from FY 2001-02 to FY 2005-06.
  - b. The up valuation of assets kept in abeyance till the sector turns around or 2005-06 whichever is earlier.
  - c. With measures as above, there will be no tariff increase till FY 2004-05. In FY 2005-06 the tariff may be raised on an average to 17.92% so that the system comes to balance.
  - d. Reduction of distribution loss at the rate of 5.5% per year taking the FY 01-02 as the base level year (being 48.81% for CESU, 51% for NESCO 46.44% in WESCO, 40.47% in SOUTHCO)
  - e. Collection of the distribution companies to be increased to 85% by FY 04-05.
- \* The Government of Orissa could not mobilize Rs.3240 Crore to meet the cash gap during the period 2001-06 because of its own poor financial health. However, up-valuation of assets was kept in abeyance which helped to arrest the otherwise needed increase in tariff by 48 paise, 38paise, 35 paise, 35 paise and 31 paise per unit for the year 2006-07, 2007-08, 2008-09, 2009-10 and 2010-11 respectively. It enabled all the four Distribution Companies to pay 100% BST bills to GRIDCO, meet the employee's salaries and wages, meet to some extent O&M expenses and NTPC bond interest etc. The overall distribution loss level has come down from 43.91% in 1999-2000 to 37.24 % in 2009-10. Collection efficiency has improved from 77.19% in 1999-2000 to 96.96% during the same period.

#### Profit and Loss of DISCOMs

##### Profit and Loss of DISCOMs (In Rs. Crores)

Year	NESCO	WESCO	SOUTHCO	CESU
2005-06	{+}23.17	{-}22.94	{-}33.89	{-}28.58
2006-07	{+}12.05	{+}31.82	{-}79.15	{-}114.69
2007-08	{+}22.17	{-}49.70	{-}25.80	{-}85.36
2008-09	{-}2.22	{+}10.59	{-}37.66	{-}125.09
2009-10	{-}30.51	{-}29.58	NA	NA

(+)Profit (-) Loss

##### Cumulative Loss as on 31.03.2009 (In Rs. Crore)

DISCOMs	Cumulative Loss (1999-00 to 2008-09)
NESCO	{-} 626.07
WESCO	{-} 457.74
SOUTHCO	{-} 643.23
CESU	{-} 1032.56
<b>TOTAL</b>	<b>{-} 2779.00</b>

## Investment by Privatized DISCOMs

### Capital Expenditure of DISCOMs /GRIDCO/OPTCL (Rs. Crore)

Year	CESU	NESCO	WESCO	SOUTHCO	Total DISCOMs	GRIDCO/ OPTCL
1996-97						187.97
1997-98						231.75
1998-99						147.88
1999-00	96.46	43.31	45.56	49.70	235.03	263.15
2000-01	92.72	41.51	32.49	24.54	191.26	274.85
2001-02	71.08	37.06	16.76	24.84	149.74	156.92
2002-03	111.41	39.90	30.52	25.80	207.66	168.73
2003-04	50.65	33.72	19.98	17.38	121.73	160.57
2004-05	56.41	30.59	39.94	20.58	147.53	99.1
2005-06	-80.37	26.60	27.55	19.71	-15.42	63.61
2006-07	23.34	23.02	21.37	12.55	81.18	108.64
2007-08	57.90	41.30	15.31	6.46	121.15	103.01
2008-09	44.98	76.71	54.71	9.30	185.7	91.69
<b>Total</b>	<b>515.73</b>	<b>394.80</b>	<b>304.19</b>	<b>210.86</b>	<b>1425.58</b>	<b>2054.07</b>

- \* The Capital Expenditure of DISCOMs after the privatization has been Rs.1425.58 cr till date. This expenditure has been incurred from World Bank Fund, consumer contribution etc. The DISCOMs have not invested anything from their own sources as of now. It is to be noted here that GRIDCO had been in charge of distribution business after the reform till 1998-99. The transmission business was separated from GRIDCO and was taken over by OPTCL from FY 2005-06. There has been substantial increase in the number of consumers from year to year basis in recent times.

### Government support

- \* The Govt. of Orissa, of late, has decided for investment of Rs.2400 cr. for system improvement in the power distribution sector during the period of four years starting from 2010-11 to 2013-14 out of which the State Govt.'s share would be Rs.1200 cr. and rest will be borne by DISCOMs through borrowing. The details of the source of investment is given below:

### Year wise CAPEX Programme

(Rs. in cr.)

Financial Year	2010-11	2011-12	2012-13	2013-14	Total
State Govt. (out of which)	300.00	400.00	250.00	250.00	1200.00
a. FC Grant	0.00	200.00	150.00	150.00	500.00
b. SS to FC Grant	0.00	66.67	50.00	50.00	166.67
c. Loan to GRIDCO for counterpart funding to FC Grant	0.00	56.57	50.00	50.00	166.67
d. State's own contribution (with loan with 4% interest)	300.00	56.56	0.00	0.00	366.66
<b>DISCOMs (out of which)</b>	<b>0.00</b>	<b>200.00</b>	<b>400.00</b>	<b>600.00</b>	<b>1200.00</b>
a. Counterpart DISCOMs share for FC Grant	0.00	66.67	50.00	50.00	166.67
b. DISCOMs contribution	0.00	133.33	350.00	550.00	1033.33
<b>Total CAPEX</b>	<b>300.00</b>	<b>600.00</b>	<b>650.00</b>	<b>850.00</b>	<b>2400.00</b>

The State Govt. has also directed that if the DISCOMs fail to reduce AT&C loss at least by 3% per annum then Rs.566.67 cr. out of state contribution of Rs.1200 cr. would not be converted to grant and would be treated as loan.

### Brief Comparison of Orissa and Delhi Reforms

\* Orissa is the first Indian State to undergo reforms. It is the first State to unbundle its operations and privatize its distribution sector. The Delhi reform process drew on the experience of the reform process undertaken in the State of Orissa. The following Table compares the various issues that were faced during the process in Orissa and subsequently in Delhi:

Issues	Orissa	Delhi
Government commitment	<ul style="list-style-type: none"> <li>➤ No Financial support during transition phase</li> <li>➤ Utilisation of proceeds received from Privatization of distribution sector in other areas</li> </ul>	<ul style="list-style-type: none"> <li>➤ Government committed to the success of reforms</li> <li>➤ Clear policy Directions for 5 years</li> <li>➤ Committed support of Rs.3450 crore</li> </ul>
Prevalent Loss levels	<ul style="list-style-type: none"> <li>➤ Actual loss was far higher than reported loss</li> <li>➤ Difficulty in segregating technical and commercial losses</li> </ul>	<p>Concept of A &amp; C losses to:</p> <ul style="list-style-type: none"> <li>➤ Reduce scope for baseline data errors</li> <li>➤ Provide a more realistic figure for losses.</li> <li>➤ Provide control to the investors since it was approved by the Regulator</li> </ul>
Funding support	<ul style="list-style-type: none"> <li>➤ Commercial lenders showed lukewarm response in providing the debt support</li> <li>➤ Approved Revenue Cap of Rs.515 Crore before triaging up</li> </ul>	<ul style="list-style-type: none"> <li>➤ Assistance sought from the Government for funds under the APDRP, TTC sanctioned schemes, etc.</li> <li>➤ Holding structure assures guaranteed returns which facilitates commercial loan availability</li> </ul>
Government Financial Support	<ul style="list-style-type: none"> <li>➤ No support in spite of recommendation from various committee and consequential notification</li> <li>➤ Rs. 3240 Crs deficit as highlighted by Karungo Committee recognized by D-RS.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Govt. committed Rs. 3450 crore as transition support to avoid tariff shock to the consumers. This support was provided to TRANSCO to meet the gap between the RSI and the actual power purchase cost.</li> </ul>
Pre-privatization liabilities	<ul style="list-style-type: none"> <li>➤ Non Segregation of serviceable and un-serviceable liabilities</li> </ul>	<ul style="list-style-type: none"> <li>➤ Government created a relatively clean balance sheet by retaining non-serviceable liabilities in the Holding Company</li> <li>➤ Only serviceable liabilities transferred to DISCOMS</li> </ul>
Receivables	<ul style="list-style-type: none"> <li>➤ Unrealistically high</li> <li>➤ Entire doubtful &amp; Bad debts not allowed by Regulator</li> <li>➤ To be considered for triaging up.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Limited to last month's receivables</li> <li>➤ Past receivables to the account of Holding Company, the DISCOMS were authorised to collect the past receivables (20% incentive on amount collected)</li> </ul>
Regulatory Involvement	<ul style="list-style-type: none"> <li>➤ No prior involvement</li> </ul>	<ul style="list-style-type: none"> <li>➤ Full involvement from the beginning.</li> <li>➤ Indicated amenability to reform process.</li> <li>➤ Policy Directives accepted in RSI Order.</li> <li>➤ Recognition of DISCOM involvement in RSI Order</li> </ul>

Audited Accounts	<ul style="list-style-type: none"> <li>➤ Audited Accounts not available</li> <li>➤ Led to post takeover problems with the Statutory Bodies</li> <li>➤ Unrealistic levels of recoverable</li> <li>➤ Highly undermined / suppressed terminal liabilities as on 31.03.2000</li> </ul>	<ul style="list-style-type: none"> <li>➤ Audited Accounts not available, however, clean Balance Sheets assured to DISCOMS</li> <li>➤ Business valuation approach mitigates risk of asset valuation</li> <li>➤ Stores &amp; spares, loans to personnel, etc. to be based on actual audit</li> </ul>
Asset Valuation	Assets re-valued at higher levels prior to bidding process by over Rs.2000 Cro	<ul style="list-style-type: none"> <li>➤ To ensure sustainable level of profitability, assets valued through business valuation based on revenue earning potential</li> </ul>
Criteria for Privatisation	DISCOMs privatised on the basis of equity premium quoted by bidders	<ul style="list-style-type: none"> <li>➤ Equity given at par</li> <li>➤ Privatisation based on commitment towards reduction in AT&amp;C losses</li> </ul>

- \* Analysis of Orissa and Delhi experience reveal that in Orissa the AT&C loss level has come down from 56.71% to 39.15% over a period of eleven years since 1999, Delhi has achieved reduction of more than 30% over a period of 7 years after privatization in 2002. 1% loss reduction in Delhi is equivalent to about Rs.140 crores per annum whereas in Orissa it is Rs.50 crores. With regard to the investment, Orissa DISCOMs have invested nothing since privatization except their equity participation whereas Delhi DISCOMs have invested about Rs.6000 Crores. On the eve of privatization in Delhi, the maximum Demand was 2750 MW which has increased touching a figures of 4400MW and is being met with a very high degree of reliability whereas in Orissa the maximum demand has risen to 3188 MW in 2009-10 from 1652 MW in the year 1998-99 without comparable reliability. Similarly, the energy supplied in 1998-99 was 11466.969 MU whereas energy supplied in 2009-10 was 20955 MU in Orissa. This speaks of the success story of Delhi reform process.

#### Lessons from Orissa Reform Experience

- \* **Political Will:** Political will and Commitment to reforms is the foundation for the success of reforms.
- \* **Government support:** A clear commitment of financial support from the Government is also quite essential. The key lesson is that the Govt. gives continued post-privatization support and also ensures adequate anti-theft measures, ensuring that Govt. departments pay their electricity bills regularly etc.
- \* **Asset Valuation model:** The asset valuation undertaken by GoO had a flaw that the assets were 'up-valued' i.e the fixed assets of OSEB were revalued at their estimated depreciated replacement cost before being transferred to the new companies. The old assets value of GRIDCO was Rs.1103 cr. which was upvalued by Rs.1194 cr. during unbundling of OSEB. Similarly, the OHPC assets were upvalued by Rs.767.20 cr. during the same time. As upvaluation of assets had considerable impact on the tariff, Govt. of Orissa kept in abeyance the upvaluation till date as per the recommendation of Sovan Kanungo Committee and OERC. Therefore, the so called upvaluation has no impact on the commercial viability of these DISCOMs. Hence, it is important that asset valuation should be done in a way so as to make the companies look attractive to potential investors.
- \* **Baseline data & assumptions:** The Baseline data on performance parameters such as losses, bill collection should be accurately assumed/ calculated. In case of Orissa, they were later proved as incorrect. Loss levels adopted for approving the tariff application in FY 98 was estimated at 34.8% whereas actual loss levels for FY 97 was 49.47%. As a result, tariffs were set on assumed losses which led to under recoveries in cost and distribution companies in the absence of any subvention from the state government became cash deficit from day one. Later the Commission accepted the submission of DISCOMs regarding their actual baseline loss level for FY 2002-03 and fixed loss reduction trajectory accordingly. But the DISCOMs failed to stick to the trajectory due to various reasons such as lack of investment by them and Govt. support etc.

- \* **Financial health of utilities:** The experience in Orissa shows that while it is desirable for the regulatory framework to drive utilities towards improving their efficiency, it is important to ensure that the financial health of utilities is not adversely affected. This will defeat the very purpose of reforms, which aims at creating financially viable entities in all segment of the sector. But in Orissa the situation is different and no subsidy has been given. The private utilities have also not been able to infuse funds.
- \* **Lack of Investment System:** System improvement alone shall not do (system up-gradation provides technical support and leads no doubt to reduction of technical losses) unless IT initiative and Energy Audit activities which are a pre-requisite for electricity distribution industry are adopted simultaneously to curb commercial losses provide better consumer services , customer care etc. It may be noted that R-APDRP, Gol's initiative for IT and energy audit etc. have not been extended to Orissa DISCOMs as they are privatized. All these would necessitate high cost loan to fund the projects but in turn shall have cascading unhealthy bearing on the finances unless the same is passed on to the consumers through the retail tariff hike which would be unaffordable as well as unbearable.

**Tariff:** Prior to privatization, tariff revision were frequent resulting in an overall tariff rise of 17% during FY 97, 10.33% in FY 98 and 9.3% in FY 99. Thereafter since FY 2001-02, the retail tariff has remained constant till 2009-10. In 2010-11 there was a hike of 22.20% over the previous year. As per the estimate, if the impact of inflation were taken into account, in real terms, the effective real rise in tariff would be to the tune of (-) 30%. There has been no increase in retail tariff for almost nine years in succession. Bulk Supply Tariff is hiked to 50% in case of NESCO, 26% for WESCO 28.57% in case of SOUTHCO and 54.68% in case of CESU, where as Retail Tariff has not been hiked in that proportion for 2010-11 as it shall be unaffordable by the consumers.

Learning from the experience of Orissa Reform, other State Governments who have gone for reforms have been paying huge amount towards subsidy during transition period apart from writing off large amount of State Government dues payable by the utilities. Additionally, servicing of liabilities and losses accumulated prior to the date of reform has been taken over by the respective State Governments. Reform process in State like Delhi was supported by the State administration. Past liabilities were retained in one holding company and DISCOMs are handed over assets with zero liabilities.

#### **Benefits of Power Sector Reform in Orissa**

- \* **Reduction of AT&C loss from 60.90% in 1998-99 to 39.15% in 2009-10.**

Though the Transmission and Distribution (T&D) loss in Orissa during the period of OSEB was being reported in the region of 23% over a number of years these figures did not take into account the losses taking place owing to non-billing, non-collection and theft of electricity. The audited accounts of OSEB, however, pointed out a different set of figures. The T & D loss was increasing from year to year but gradually declined after the distribution was privatized w.e.f 1.4.1999.

- \* The T & D loss which had reached a level of 51.02% in 1998-99 has been decreased to 46.68% in 1999-00 and 40.33% in 2008-09 and 39.93% in 2009-10.
- \* The collection efficiency has increased from 79.92% in 1998-99 to 92.98% in 2008-09 and 96.96% in 2009-10.
- \* From 1999-00 the concept of Distribution loss and Aggregate Technical and Commercial (AT&C) loss has been introduced in place of T & D loss.
- \* The Distribution Loss has declined from 43.91% in 1999-00 to 37.50% in 2008-09 and 37.24% in 2009-10. The AT & C loss was 56.7% in 1996-97, 58.8% in 1997-98 and 60.90% in 1998-99. The AT&C loss has declined from 56.71% in 1999-00 to 41.89% in 2008-09 and 39.15% in 2009-10.



\* Thus while the T&D loss was increasing during OSEB period, the Distribution loss as well as AT & C loss have declined from 1999-2000, though at a slow speed. Hence, it can be said that loss level has declined in terms of T & D loss, Distribution loss as well as AT&C loss after the distribution of electricity was privatised w.e.f. 1.4.1999.

\* **The Growing Power Shortage arrested and improved-The peak shortage of 24% in 1991-92 has declined to 2.48% in 2008-09 and 7.1% in 2009-10.**

During OSEB period the power shortage was increasing from year to year. Problem of power shortage was felt from the mid 80's and by end of early 90's the shortage had become acute. The peak shortage had shot up from 24% in 1991-92 to 37% in 1993-94, exceeding the national average. This problem has been solved. After 1999-00 there has been no statutory power cut except in May-June due to low water level in the reservoir. Power surplus was continuing till FY 2007-08. Due to decline in rain fall, there was marginal deficit during 2008-09. While the peak demand deficit was 2.48%, the energy deficit was 1.4% during 2008-09 and during 2009-10 the peak demand was 3491 MW and shortage has been contained at 7.1% and energy deficit has been contained at 0.9%. The position is likely to improve with generation by some of the Independent Power Producers (IPPs) as well as the installation and operation of Ultra Mega Power Projects.

\* **The benefit of non-revision of tariff for nine years and lower tariff rate in the sector**

Another important significant achievement of the power sector is that tariff has remained constant on an average from 2001-02. There was overall tariff rise of 28.5% during 1993-94, 15.73% during 1994-95, 17.47% during 1995-96, 17% during 1996-97, 10.33% during 1997-98, 9.30% during 1998-99, 4.50% during 1999-2000, 10.23% during 2000-01 and the average tariff has remained constant from 2001-02 till 2009-10 and during 2010-11 the average tariff increase is 22.20% over the average tariff of 2009-10. When compared, the tariff rise with the increasing Whole Sale Price Index from 1995-96 it will be seen that there is actual decline in tariff by more than 30%. With the rise in cost of coal and oil, equipments, transformers, cables together with rise in salary and pension the cost of generation and procurement cost has increased. Further, the hydro power as a ratio of total State demand has also declined from 56.67% in 2004-05 to around 21.63% in 2009-10. Since there has been no substantial addition of hydro generation and more and more reliance is being placed on high cost thermal power there has to be tariff rise on year to year basis in order to ensure payment of cost of power and to take up minimum repair and renovation work of the distribution network.

Incidentally it may be noted out that the tariff in Orissa is one of the lowest in the country. In 2008-09 for an embedded consumer of 5 MW at 11 KV (33 KV in some cases) while average tariff was 490 paise per Kwh in Karnataka, 390 paise in Maharashtra, 340 paise in Kerala, 337 paise in Chhatisgarh, 255-287 paise in Andhra Pradesh, 245-330 paise in West Bengal, tariff in Orissa was 245-290 paise per Kwh..

\* **Direct accrual of Revenue to the State exchequer**

\* Before power sector reform in Orissa was undertaken from 1.4.1996, the subsidy to power sector on the average was Rs.250 crore per annum and this has been withdrawn from 1.4.1996. If the subsidy would have continued it would have been more than Rs.1000 crore by 2009-10 per annum. This has helped keeping the revenue deficit of Orissa on a declining path.

\* In the disinvestment process form OPGC of Rs.603.20 crore was utilized as general resources for State budget. OPGC was operating at PLF 55.14% in 1996-97 which has increased to 90.18% in 2006-07, 82.60% in 2007-08 and 88.7% in 2008-09. It has generated about 2433.29MU in 2009-10 and likely to generate 2853.53 MU in 2010-11 it is now paying dividend of Rs. 75 croes on the average per annum and by now it has paid Rs.611.24 crore to the State Govt.

- \* OHPC have invested Rs.377 crore from its own internal resources and by borrowing and have completed the then incomplete Upper Indravati Project on 19.4.2001. Its installed capacity is 600 MW. Its generation has increased from 1736 MU in 2000-01 to 2948 MU in 2007-08 and 2221 MU in 2008-09.(1414.75 MU in 2009-10 and 1942.38 MU estimated in 2010-11)
- \* The revenue from sale of TTPS to NTPC in 1995 has fetched 356.00 crore to the State. TTPS which was operating at less than 30% PLF is now operating at PLF of 90% and its installed capacity is 460 MW. This power is being totally available for State consumption. Its generation has increased from 1320.82 MU in 1996-97 to 3114.63 MU in 2007-08.(3339.19MU in 2008-09 and 3255.97MU in 2009-10 and 2957.32MU estimated for 2010-11)
- \* Revenue from disinvestment from distribution companies of Rs.159.00 crore have been utilized to reduce the liabilities of GRIDCO.
- \* The sale proceeds of TTPS of Rs.356 crore has been utilized by GRIDCO to meet its past liabilities
- \* Collection of electricity duties has increased from Rs.121.35 crore in 1995-96 to Rs.359.38 crore in 2008-09 and Rs 459.96cr in 2009-10
- \* As a result of withdrawal of budgetary support to the power sector from 1996-97 together with disinvestment and other fiscal measures the State consolidated fund has been enriched and Orissa has been converted from a revenue deficit State to a revenue surplus state.
- \* Revenue deficit in 1999-00 was Rs.2574.19 crore (-6% of GSDP) and Orissa has been converted to a revenue surplus of Rs.481.19 crore in 2005-06 and it has increased to Rs.3419.89 crore in 2008-09 (+2.80% of GSDP) and Revenue surplus of Rs.1138.62Cr in 2009-10 (+0.75% of GSDP).
- \* The fiscal deficit 3836.43 crore in 1999-00 (-8.94% of GSDP) has been reduced to 584.03 crore in 2008-09 (-0.48% of GSDP) and Rs2265.37Cr in 2009-10 (-1.5% of GSDP).

# FRANCHISEE - A NEW DAWN IN POWER SECTOR

*Aditya K. Samantaray,  
Dy. Director(T/Eco), OERC*

## BACKGROUND

India was entering into 21<sup>st</sup> century when Indians were dreaming of attaining 10 % growth in GDP. On the contrary the power sector was reeling under darkness due to steady deterioration in the financial health of SEBs. The gap between unit cost of supply, unit revenue generated and the annual loss of SEBs had reached to an unsustainable level of over Rs 33,000 crores in the country. Under such crippling financial condition of the SEBs the reform in the power sector was felt unavoidable. The prime objectives of electricity reform were to:

- a) De-license Generation
- b) Introduce trading in electricity and develop a market platform based on demand and supply of electricity.
- c) Unbundle State Electricity Boards to end distribution monopoly and to manage distribution business in public-private participating mode.
- d) Encourage use of renewable energy and distributed generation to manage a harmonious mix in the supply system.
- e) Introduce competition in supply and sale of electricity by opening up generators to feed nook and corner of the nation through Open Access.

Hence the Electricity Act 2003 for power sector reform was passed by the Indian parliament on 5<sup>th</sup> May 2003 and came into force from 10.06.2003.

2. Power today is a bare necessity for growth of the nation. There exists a co-relationship between growth of generation and GDP. The major hurdle in achieving 10% GDP growth by 2012 is to provide electricity at every door step of the nation. At present only 55% households in India have access to electricity. To add to the woe it has been observed that the electricity industry in India has among the highest tariffs in the world and is not assured of the quality of supply. Research on effective utilization of energy states that, while 30% of energy loss in the country is due to poor efficiency in plant load factor in various regions of the country, 70% of the energy loss in the sector is due to theft of electricity only. Even as on today the distribution companies are continuing with high AT&C losses ranging between 10 to 60% in various States of the nation. Various models have been tried out to curtail this huge wastage of electricity in the sector.
3. Orissa is a pioneer State in electricity reform in India. To adopt reform in the electricity sector, the Orissa Electricity Reform (OER) Act, 1995 was enacted by the State Legislative Assembly. In pursuance to the Act the erstwhile Orissa State Electricity Board (OSEB) was restructured and two separate entities namely Grid Corporation of Orissa and Orissa Hydro Power Corporation were created. In the 2<sup>nd</sup> phase Reform, Govt. of Orissa transferred the distribution assets of GRIDCO to create distribution companies w.e.f. 26.11.1998 namely CESCO, NESCO, WESCO & SOUTHCO. To encourage private participation in distribution business, 51% share three DISCOMs namely NESCO, WESCO & SOUTHCO was disinvested to Reliance Energy w.e.f. 01.04.1999. The management of CESCO was handed over to AES Corporation, USA on 01.09.1999. Thereafter, the role of private sector in distribution business started in Orissa. It is worthy to note that the matter was transferred in pursuance to the Orissa Electricity Reform (Through of Assets liability, proceedings and Resources of GRIDCO to distribution companies) Rules, 1998 and hence the culture of Govt. style functioning continued to prevail

in the system. However, in spite of Post Reform hurdles the prime benefits of Electricity Reforms include reduction of overall distribution loss of 54.20 % in FY1999-00 (during pre-reform era) to 39.15 % (during FY 2009-10). This was feasible due to differentiation of monopolistic function in power sector and imparting accountability on various entities of the sector during post reform era. However much could not be achieved due to the following reasons:

- \* Govt style functioning of privatized distribution company employees.
  - \* Lack of infusion of capital fund to impart technology and upgradation in the supply network system.
  - \* Lack of political support to curtail loss and theft.
4. For survival of the power sector distribution loss is required to be brought down to a sustainable level of 20% in the country. This can not be done with out involvement of public in the process. To fulfill the above objective as well as to ensure further accountability in the sector with participation of private sector section 4, 5, 6 of the Act have envisaged rural distribution management by involving Co-Operative Societies and non-Govt organizations. To facilitate the objectives Section 14 of the Act further provides licensees free generation and distribution in rural areas. To fulfill the objectives as envisaged in the act, above agencies are motivated to function as franchisees for distribution licensees for a specific area of operation.

#### **FRANCHISEE MODELS**

5. After recognizing the need for franchising in both urban and rural areas with the prime objective of reducing AT&C losses and increased customer satisfaction, the necessity for streamlining the activity in a methodical and integrated manner is felt to ensure proper understanding between various stakeholders i.e the Regulators, Utilities and Franchisees. In order to avail the benefit of private sector efficiency in the management of distribution system, introduction of PPP model in distribution sector by franchisee route is preferred over awarding distribution areas to private companies which involves political fall out associated with the privatization of a State owned utility. Involvement of franchisee assures minimum revenue to the utility and also minimizes work load of the utilities thereby minimizing manpower deployment. It must be kept in mind that those franchisees in latter course of time can be involved in distributed generation during the next stage of development in power sector.

There may be five basic models in the area of management of local distribution of electricity.

6. **Model A: Revenue Franchisee – Collection based:**

This kind of franchisee may be developed with the responsibility being limited to billing, revenue collection, complaints redressal, facilitating release of new service connection and keeping vigil on the status of distribution network in the franchise area for providing appropriate feedback to the utility. Such Collection Franchisee would be appointed for an area and be given a target for revenue collection every month. (Which depends on the baseline collection in the area).The remuneration methodology involves:

- i) Paying the franchisee margins (which will be a percentage of collections) on achievement of the target,
- ii) Levy of penalty for not achieving the target and
- iii) Incentives for exceeding the target

The drawback in this model is that the franchisee is not a partner in loss reduction process and hence such franchisee model is not accountable and beneficial for the utility. However, such franchisee model can be used in remote rural areas and can be operated by even uneducated and non-technical people.

**7. Model B: Revenue Franchisee – Input based.**

In such models, the input energy into the area covered by the franchisee is measured by the utility and the target for revenue collection is set, based on the collections made as a percentage of input energy supplied to the consumers. The higher the realization, higher will be the remuneration received by the franchisee. The advantage of this model compared to model A is that the franchisee also becomes a partner in loss reduction process and tries to reduce theft in the system beyond the point of metering by the utility. The point of metering may be a 11 KV feeder or a distribution transformer.

**8. Model – C : Input based Franchisee**

This model is similar to the Revenue Based Model – with one significant difference that the franchisee will also buy the electricity from the utility and shall pay the energy charges to the utility at a pre-determined rate. The energy supplied / purchased will be as

shown in the 11 kV metering unit. The franchisee will have to collect revenues from the consumers by raising bills so as to have sustainable commercial operation.

**9. Model – D : Operation & maintenance franchisee**

In this model, in addition to the franchisee operation indicated in model C above, the utility may also hand over the operation and maintenance of 11 kV & LT feeders including distribution transformers to the franchisee based on monthly retainer basis or at an adjusted energy purchase price (of the utility), factored appropriately considering O & M cost of the franchisee.

**10. Model – E : Rural Electric Co-operative Societies**

This approach calls for the State to authorize the creation of traditional electric cooperative society that is organized, owned and operated by its members. The society owns the distribution utility assets and is responsible for all utility functions including operations and maintenance, metering, billing and collections, accounting and finance, procurement, stores and system planning and expansion.

The operations of the co-operative society include:

- \* Organizing the community and recruitment of members.
- \* It owns the distribution system and carries any debt on the assets.
- \* Is responsible for all facets of managing and operating the utility.
- \* Purchases power from the state power utility.

**11. The Franchisee Organization**

In line with the guidelines issued for “Rajiv Gandhi Grameen Vidyutikaran Yojana”, organizations like Users’ Association, Non-Government Organizations (NGOs) duly registered as societies or individual entrepreneurs may take up franchisees in the above models except the model “Rural Electric Cooperative Society” (Model-E) which is necessarily for “Cooperatives” only

**GUIDE LINE FOR FRANCHISE DEVELOPMENT.**

12. While implementation of RGGVY scheme REC the funding agency for the scheme has issued certain guide lines regarding the appointment and operating terms and conditions of the franchisee which are as discussed below:

**Qualification of Franchisees**

Before appointment of a franchisee in a certain area, a utility must ensure that the agency is meeting the following criteria.

**13. For Model A & B (Revenue Collection based)**

NGOs and User Associations, who are actively involved during last three years in any social upliftment programme in the intended franchisee area or in the district / state with proven credibility as certified by the district officer (DM/DC) of the District Electricity Committee, may qualify as franchisee. In the case of individual entrepreneurs, the individual should possess adequate financial health supported by banker's certificate, conclusively establishing possession of financial resources equivalent to at least two months' revenue collection. His application should also be endorsed by the concerned Panchayat Samiti of the franchise area.

**14. For Models- C & D (Input based and O & M Franchisee)**

NGOs, Users' Association (UA) and individual entrepreneur: Criteria as in (a) above. In addition, such organizations and individual should have satisfactory financial and operational capability characterized by:

- \* Proven achievement of completion of development programme, involving outlay of not less than annual revenue collection / projected revenue realization of franchisee area.
- \* Recommendation of district authorities / District Electricity Committees of the franchisee area in support of their candidature.
- \* Should have (or have the ability to source) at least five skilled / semi-skilled (individual) work personnel on full time basis.
- \* In the case of individual entrepreneur, he should also meet this criteria, alongwith establishing credentials for the type of business operations associated with the electrical industries for which the work force was employed.

**15. Determination of Tariff**

Tariff determination by franchisee for distribution of electricity to its consumers may be based on the following options:

**Option-I**

To follow the existing tariff of the Utility for various category of consumers for its own consumers and seek fixation of appropriate Bulk Supply Tariff (BST) from the State Power Utility for purchase of power keeping in view the sustainability of commercial operation of the franchisee. They have to submit representative business plan for such fixation of tariff.

**Option-II**

Considering the affordability of the consumers as also willingness to pay price of electricity:

- a) Less than the prevailing tariff of the State Power Utility.
- b) More than the prevailing tariff of the State Power Utility.

For determining the BST for the franchisee, following need to be considered:

- a) Consumer mix of the area to be served by the franchisee.
- b) Likely quantum of load to be catered to within franchisee area.
- c) Commercial viability of the franchisee.



## FRANSHISE EXPERIENCE IN THE COUNTRY SO FAR

### 16. PPP Model

Thus the distribution franchisee model in public-private partnership (PPP) initiative has emerged as a solution to the problems affecting the power sector and has become a means to break the vicious circle of high AT&C loss, low investment, low consumer satisfaction and in turn low realization. The first input and investment based distribution franchisee has been implemented in Bhiwandi circle of Maharashtra with exemplary success. As a result utilities, private sector players and State Government are pursuing this model aggressively and trying to replicate in several areas. Revenue models with suitable margin can be suitably designed so that the franchisees can invest in the existing infrastructure, reduce loss and which in turn can recover their investment with appreciable return. Thus franchisee model can be beneficial to all stakeholders say consumers, licensees and franchisees as given below:

Consumers	Licensees	Franchisees
<ul style="list-style-type: none"> <li>• Improved service</li> <li>• Better availability and quality of supply</li> <li>• Increased satisfaction</li> </ul>	<ul style="list-style-type: none"> <li>• Reduction of loss</li> <li>• Improved collection efficiency</li> <li>• Higher recovery cost</li> </ul>	<ul style="list-style-type: none"> <li>• Financial return</li> <li>• Long-Term access to consumer based</li> </ul>

### 17. The Experience of Bhiwandi

The success of franchisee model in Bhiwandi circle can be felt for the table below:

Parameter	December, 2005	End of 2008-09
AT&C Loss	58%	24%
Transformer Failure Rate	10%	7.5%
SAIFI	17.63%	13.5
SAIDI	23.56%	3.55%

Following the exemplary success of franchisee model in Bhiwandi, Maharashtra, the distribution utility of Maharashtra is planning to handover its entire area of operation to franchisee. The area of the licensees will be divided into rural and urban regions. Separate expression of interest will be asked for handing over the urban areas of franchisees. Simultaneously about 50 nos. of 11 kV rural feeders will also be asked to manage by franchisee with a subsidized price. In the process of privatization SPANCO has emerged as winner to manage Nagpur city. The involvement of 11 bidders for Nagpur circle like CESC, A to Z, Indu Project, Vijay Chemical, CGL, SMS, Spanco, GTL, Tata Power, Reliance, India Bulls shows the interest of private sector in the franchisee business. Most recently Crompton Greaves was awarded three major divisions in Nagpur by Maharashtra. Other states are also not far behind in awarding franchises. Recently Uttar Pradesh appointed Torrent Power as distribution franchisee for Agra and Kanpur distribution circle. The process for appointment of franchisee for urban areas of Patna is already underway. Madhya Pradesh and Rajasthan have also shown their expression of interest for appointment of distribution franchisee in various urban areas of the State. Meanwhile Spanco has undertaken franchise in Naraina Zone in Delhi cant area, Chhola and Chandbarh in Bhopal. Electrical equipment maker Indu Asian Fusegear Ltd. has secured two contracts aggregating Rs.50 Crore from Electricity Board of Madhya Pradesh for distributing power in Jabalpur town for a period of three years.

### 18. The success story at Assam

Franchisee operation in Assam is quite successful even in rural areas. For that the Assam State Electricity Board identified Single Point Power Supply Scheme (SPPS) for implementation of franchisee. SPPS is an

arrangement of supplying power to an agent /franchisee at DTR for distributing the same to consumers, allowing a space for loss, billing and collection of revenue on a common basis. The SPPS through franchisee was first introduced in Digboi in Upper Assam where in all sub-division where more than 70% of the locality belongs to rural areas. The results were very positive in the areas in respect of revenue, collection and containing theft. The scope of both franchisee and ASES is as given below:

RESPONSIBILITY OF THE FRANCHISEES	RESPONSIBILITY OF DISCOMs
<ol style="list-style-type: none"> <li>1. Prepare statement of all the premises and submit to ASLU/DISCOMs.</li> <li>2. To build up adequate infrastructure.</li> <li>3. To keep track of all records.</li> <li>4. To receive electricity in bulk.</li> <li>5. Collection of monthly meter reading, preparation and serving of bills.</li> <li>6. Collection of revenue from consumers.</li> <li>7. Make monthly payment to ASEB for supply of energy.</li> <li>8. Disconnection to defaulting consumers.</li> <li>9. To collect arrear dues prevailing on the date of taking over..</li> </ol>	<ol style="list-style-type: none"> <li>1. Provide bulk supply electricity to agency's area.</li> <li>2. Installation of meter for DTR and consumer metering.</li> <li>3. Provide service connection to new applicants.</li> <li>4. To maintain distribution lines and substation.</li> <li>5. To issue bills (at single point) to the agency on monthly basis.</li> <li>6. Receive monthly revenue from the agency.</li> <li>7. Receiving monthly revenue from the agency.</li> </ol>

19. The performance of SPPS operation in ASEB is as tabulated below:

Name of the DISCOM	Name of the Subdivision	Month	Total no. of consumers	No. of franchisees	No. of consumers handed over to Franchisee	Employment generated	AT & C losses
LAEDCL	Dhubri ESD	March'05	10323		Nil		35%
		March'08	13183	201	1627	792	27%
UAEDCL	Margherita ESD	March'05	9075		Nil		38%
		March'08	10298	246	2067	829	24%
CAEDCL	Nagaon ESD-II	March'05	14071		Nil		38%
		March'08	15830	234	4615	593	21%

20. FRANCHISEE EXPERIENCE IN ORISSA

All the four DISCOMs of Orissa are pursuing implementation of franchisee in their respective areas. The franchisees models which are operative in Orissa includes Input-Based, Revenue Based, Input cum Revenue based Hybrid Model and Collection based Micro Franchisees. The number of Franchisees achieved by the four DISCOMs operating in Orissa compared to the target set by Orissa Electricity Regulatory Commission as on 30<sup>th</sup> Sept. 2010 is as given below:

	Macro-Franchisee		Micro-Franchisee	
	Target	Achievement	Target	Achievement
C.FSU	8	6	95	100
NLSCO	6	nil	80	4
WLSCO	6	nil	75	2 sub divisions
SOUTHCO	6	nil	70	nil

The performance of the franchisees is as summarized below.

## 21. Input-based Franchisee

Franchisee Operation in Orissa has started since 01.11.2003 in Western Electricity Supply Company (WESCO), the DISCOMs responsible for supply of electricity in the western part of the state. WESCO is the first company that has come forward to hand over 13 Nos. of feeder to franchisees to operate with input –com-Revenue based models by local and relatively new entrants in this field. In Orissa, Enzen is the only national player operating from April, 2008 and presently, in all the four DISCOMs of Orissa. It is operating with one sub-division namely Jagatsinghpur in CESU area, two sub-divisions namely Jajpur and Dharmasala in NESCO area, Rambha & Khalikot in SOUTHCO area, Patnagarh and Kantabanji in WESCO area. The performance of Enzen so far in the State of Orissa is satisfactory which can be found out from the table below:

	Year of Beginning	Consumers at the start of Operation	Consumers as on 31/03/10	AT & C loss at the beginning of Operation	AT & C loss as on 31/03/10	Agreed In Put Rate at the beginning of the Operation	Agreed in Put Rate as on 31/3/10	Transformer Failure Rate during 1st year of Operation	Transformer Failure Rate during 2010
<b>CESU</b>									
Jagat Singh Pur	2010	22546	22546	74%	74%	0.53	0.53		
<b>NESCO</b>									
Jajpur	2008	17908	22152	81%	63%	0.47	0.51	83	43
Dharmasala	2008	17431	23152	81%	59%	0.61	0.66	74	38
<b>WESCO</b>									
Patnagarh	2008	14224	21137	78%	69%	0.62	0.68	70	65
Kantabanji	2008	7661	11079	84%	73%	0.48	0.49	54	31
<b>SOUTHCO</b>									
Rambha	2008	12906	17122	79%	66%	0.55	0.60	80	64

## 22. Implementation of Micro franchisee

All the four DISCOMs of Orissa are pursuing the implementation of Micro Franchisee in their area of distribution. CESU is most aggressive in this matter. It has so far handed over more than 100 micro franchisees to operate distribution business to Women SHGs, NGOs, and private entrepreneurs with power sector background. It is a matter of great satisfaction that women are coming forward aggressively to accept Micro franchisee as a better mean of doing business. According to them micro franchise is a better business compared to any form of business available at village level. The performance of Micro Franchisee in CESU area is also quite encouraging which is shown as below:

Area	Average Collection of last Year	Collection of present month	Growth	Percent age of Growth	Total Collection Current Year	Growth	% of growth
Bhapur Division, NED Nayagarh	5,07,200.00	15,23,768.00	9,16,568.00	151%	1,15,22,869	42,36,469.00	63%
DASAPALLA	8,18,400.00	7,66,445.00	-51,955.00	-6%	14,43,314.00	-193486.00	-13%
Khandapada, Kantilo	9,08,500.00	14,25,719.00	5,17,219.00	57%	59,55,841.00	14,13,341.00	24%
ODAGAON	12,51,800.00	12,74,282.00	22,482.00	2%			
NUAGAON	9,67,900.00	3,00,730.00					

23. Apart from CESU other DISCOMs have also shown special interest in Micro franchisee operation. WESCO has handed over entire Paikamal and Bhiden sub-division to two numbers of agencies namely Awahan an NGO and Kshal Self Help Groups. Initially those micro franchisees are taking over on the basis of specified binders of a section and allowed to operate with revenue based model. Simultaneously they are also imparted with the training for handling of Billing machines, so that billing also can be taken up by them. Considering their performance, their area of operation will be extended to other areas to cover up specified DTRs. After some more experience they will be changed over to input based operational mode. The promotional structure of these franchisees has been designed to encourage entrepreneurship in the state.

**24. FRANCHISEE ANALYSIS BY TERI**

With an objective to carryout an evaluation process of the franchisee system and to get an insight into the success factors and critical issues pertaining to different franchisee models in different states, TERI (The Energy and Resources Institute) has prepared a project report for the Ministry of Power. The RGGVY has been launched by Govt. of India with an objective to promote the access of electricity to 1.5 lakh un-electrified villages and to about 2.34 crore BPL households of the country so as to achieve the deadline of 100% rural electrification by 2012. As per the policy guideline under RGGVY, franchisee has to put in place before release of 2<sup>nd</sup> installment by Rural Electrification Corporation. TERI designed a model to carry out a study on three franchisee models such as Rural electricity cooperative societies of Andhra Pradesh, Micro feeder Franchisee (MFF) performance in Karnataka and Input based franchisees in Orissa. The objective, responsibilities and revenue structure of these franchisees are as given below:

State Type	Andhra Pradesh RECS	Karnataka MFF	Orissa IBF
Objective	<ul style="list-style-type: none"> <li>• Cost effective and quick rural electrification</li> <li>• Proper service delivery</li> <li>• Enhance local participation</li> </ul>	<ul style="list-style-type: none"> <li>• To increase local participation</li> <li>• To improve services rendered to rural consumers</li> <li>• To decrease losses</li> </ul>	<ul style="list-style-type: none"> <li>• Decrease of losses</li> <li>• Better services to consumers</li> </ul>
Responsibilities	Entire operation of licensee	Meter reading, billing, revenue realization	AT & C loss reduction without undertaking major O&M activities
Present Status	4 RECS operating	Covers 19797 villages	Operating in all DISCOMs other than CESU
Incentive/Penalty	AT & C losses dependent	Revenue realization dependent	Achieving AT & C loss reduction target

**The key observations that were made in these models are as given below:**

The following observations were made from the sample study conducted in various regions of the Model considered by TERI.

**25. Ankapalli Rural Electricity Cooperation Society Model (ARECs)**

- \* Higher degree of ownership and involvement..
- \* Shram Dan under taken by villagers for establishment of network
- \* Make payment mechanism simpler and encouraged door step payment
- \* Establishment of consumer service centre at every sub-divisions
- \* All feeders agreed upon by parties segregated for rural areas.
- \* Encouragement to electricity dependent business like poultry farming, jaggery production etc.

26. MMF Model in Karnataka

- \* Regular bill receipt and make payment possible
- \* One person for the village in touch with utility officials.
- \* Decreased theft due to increased vigil by MMF.
- \* Assured job for one person of gram panchayat
- \* Differential tariff of 10 paise between rural and urban consumers is inadequate and causes resistance to payment.
- \* Absence of HT consumers for franchisee making financial viability poor.

27. Input-based franchisee in Orissa

- \* Franchisees are hesitant to invest due to small contract period of five years.
- \* Poor condition of distribution system increasing losses and low tailend voltage.
- \* Difference in fixation of base line and target for realization thereafter.

28. **Conclusion and Recommendation of TERI**

Basing on above observations as well as feed back from the consumers TERI recommended the following for improvement of franchisee operation in the nation.

- a. Franchisee with adequate support from utility only can decrease the losses of the area.
- b. State Govt. should notify DDG (Decentralized Distribution Generation) policy as per para 3.3 and 3.4 of Rural electrification policy of Govt. of India. The State Govt. should identify the potential of setting up such projects and prepare bankable DPRs.
- c. Revision of contract duration for MMF and IBF to minimum 3 years and ten years respectively.
- d. Build a strong coherent mechanism to strengthen bond between franchisees and utilities.
- e. Remote areas should be handled by WSHHG and cooperatives based on revenue models.
- f. Inclusion of High-value consumers for improving revenue sustainability of the franchisees.

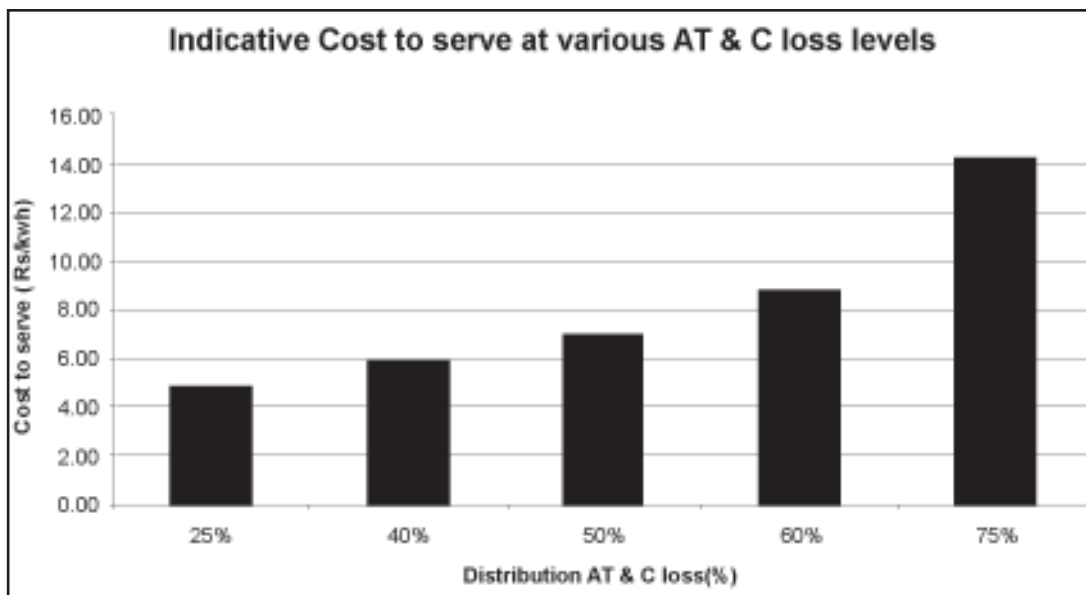
29. **THE ROAD AHEAD FOR FRANCHISEES**

There is no doubt that Rural Electricity Distribution business is the back bone of power system of our country. Around 70% of our population lives in villages. The required GDP growth of 10% by 2012 cannot be achieved without equitable participation from rural areas. To make it viable entrepreneurship in rural areas needs to be strengthened. The objective of electricity at every household of the country is linked to the following:

- \* Industrial development of the nation
- \* Empowered Educational system
- \* Higher economic activity
- \* Higher employment generation
- \* Reduced migration to cities

30 To meet the above, Govt. of India created REC during 1969 and initiated Kutir Jyoti Programme in 1988-89 to provide a single point connection (60 W) to all BPL households of the country. The accelerated rural electrification program (AREP) in 2002 and Rural Electricity Supply Technology Mission (REST), 2002 and

finally RGGVY in 2005 were launched. One of the prime objectives of RGGVY is development of Decentralized Distribution Generation system (DDG) in rural areas. DDG is automatically linked to Renewable Energy Generation and implementation of smart grid. Renewable Energy is the future power concept of the world and is the need of the present power sector. It is a well established fact that off grid power generation is cost effective, environment friendly and can address the huge T&D loss that major power utilities are facing. The objective of IREDA and CASE is to give financial and technological support to firms setting up renewable energy projects. Renewable energy has the potential to address the acute power need of rural India. As much of the renewable energy potential lies in rural India, the focus needs to be diverted to distributed generation. Considering the high T&D loss in rural electricity distribution the cost of power to rural India at various loss levels are as given in the future below.



31. From the above research as presented by **Ernst and Young** the cost of RE is quite competitive. This can be compared from the following table showing RE price allowed by CERC as per it's RE generic price regulation 2009.

Category	Zone	Price (Rs.)
Non fossil based co-gen	Haryana	5.65
Bio-mass	Haryana	5.47
Solar PV		17.11
Solar Thermal		12.54
Small Hydrn		4.35
Wind	Zone-I	5.26

32. This shows that the cost of solar power is quite competitive even at this stage in rural feeders with AT & C loss of 60-70 %. This fact is further strengthened from the drastic improvement and induction of newer technology in utilization of solar energy leading to the reduction in the cost of solar energy. It should be kept in mind that as per the action plan of Government of India the share of Renewable in Energy sector will be 5 % by 2010 and it will keep on increasing incrementally by one percent every year so as to attain 15 % by 2015 and 20 % by 2020. In view of the above the entrepreneurship in distribution franchisee can be expedited and encouraged to take up more and more challenges ahead. Since the average cost of RE power is equivalent to the Rural Power with AT & C loss of 40 % the franchisees in turn can be involved in RE generation to feed their area of operation.





The distributed generation and localized distribution of electricity can be clubbed together to make a smart grid entity and which in turn can be linked to the State Grid. With RE being linked to the geographical condition of the region, at the time of deficiency the franchisee can draw power from state grid and at the time of surplus it can supply power to then state grid making the power supply system stable.

# **PROMOTION OF RENEWABLE ENERGY SOURCES IN ODISHA - A STEP FORWARD**

*Ashok Kumar Jagadev  
Dy. Director (T/Engg.), OERC*

Energy plays a vital role for socio-economic development of a state and the nation as a whole. Odisha is considered one of the most economically backward states in India despite of being rich in natural resources and vast potential for power generation. Now, the state is witnessing rapid industrialization and development. Its energy need has risen significantly over the last few years and will further rise in coming decades. Presently, the average demand for energy in the state is about 2500 MW and peak demand is about 3200 MW. In the next 2-3 years, the average demand is likely to increase by another 1500 MW. This additional demand is mainly due to industrial growth and government plan for extending power supply to non-electrified areas in the state. To meet the growing energy needs, Govt. of Odisha has acted aggressively for more power generation in the state by signing MoU with Independent Power Producers and installation of large thermal power plants by central & state PSUs. Once this generation capacity is established, the present mix of power in the state will be largely pre-dominated by thermal (coal based) power.

Now, the great concern world over including India is carbon dioxide emission, which causes Global Warming. Due to the global warming we all will face a major ecological imbalance resulting in severe ecological crises such as, sudden rise in sea level due to melting of glaciers, shift and swing in weather and above all effects on the health of living beings. The major source of carbon dioxide emission is from the use of fossil fuels i.e. coal, natural gas and oil, for power generation. Further, the reserves and supply of fossil fuels are depleting, which may exhaust in a few decades. Therefore, keeping in view, the menace of global warming and limited storage of fossil fuel, there is an urgent need for harnessing power from various Renewable Energy (RE) sources of the State.

## **RENEWABLE ENERGY POTENTIAL IN ODISHA**

Odisha has a huge potential for generation of electricity from RE sources such as wind, solar, biomass, small hydro and co-generation etc. The Orissa Renewable Energy Development Agency (OREDA), under Science and Technology Department is the nodal agency assigned with the responsibility for the promotion and implementation of RE sources in the state. However for Small/Mini/Micro Hydel projects, the Energy Department is the Administrative Department. The Science and Technology Department has already notified the policy guidelines for power generation from RE sources on 3<sup>rd</sup> December, 2005. Similarly the Energy Department has also notified revised policy guidelines on 23<sup>rd</sup> June, 2003 for execution of mini/micro/small hydro electric projects by private developers, which is now under the process of further revision to facilitate smooth implementation of such projects in the state.

As per the estimation of Orissa Renewable Energy Development Agency (OREDA), the Renewable power potential of Odisha is about 2500 MW (excluding solar). The World Institute of Sustainable Energy (WISE) has estimated the utilisable waste land of about 1225 Sq km at the high solar density sites in the state and assessed the solar power potential of about 5000 MW in the state by the use of 10% of this utilisable waste land.

### Renewable Power Potential in Odisha

Sl. No	Source	Potential (MW)
1	Wind Energy	1700
2	Biomass Power	350
3	Micro/ Mini /Small hydro	360
4	Municipal Solid / liquid waste	20
5	Solar	5000

A number of RE projects from different sources are in the pipeline and at various stages of development in Odisha

#### Wind Energy

Wind projects are the most laggards of all the renewable sources of energy in Odisha. The Gross wind energy potential of Odisha has been estimated at 1700 MW, but the technically feasible wind energy potential is about 800 MW at present. The land requirement for 10 MW wind power project installation is about one Sq km.

During 1982-86 Indian Institute of Tropical Meteorology (IITM) under MNRE had conducted Wind Resource Assessment Survey and declared 6 (six) sites namely Chandipur, Chatrapur, Damonjodi, Gopalpur, Paradeep and Puri feasible for installation of Wind Power Projects with Mean wind power density of 315 W/sqm, 264 W/sqm, 250 W/sqm, 265 W/sqm, 289 W/sqm and 214 W/sqm respectively. Since the study was conducted long back, the project developers can not now rely on this result due to climatic change over the period. Therefore, OREDA has now allotted 16 sites for assessment study of Wind Power potential in the state as mentioned below:

Sl No	Location	Name of the District	Name of Agency
1	Dhamara	Bhadrak	M/s. Suzlon Infrastructure Ltd., Hyderabad
2	Chatrapur	Ganjam	
3	Nabarangapur	Nabarangpur	
4	Puri	Puri	
5	Damanjodi South	Koraput	
6	Damanjodi North	Koraput	
7	Chandipur	Balasore	
8	Paradeep	Jagatsingpur	
9	Ushakothi	Sambalpur	M/s.Regan Power Tech.Ltd., Chennai
10	Giriliguma	Kalahandi	
11	Kaipadar	Khurda	
12	Kanas	Puri	
13	Ladingimal	Kandhamal	
14	Daitari	Keonjhar	M/s.Odisha Mining Corporation, Bhubaneswar
15	Gandhamardhan	Keonjhar	
16	Khandadhar	Sundargarh	

After completion of assessment studies the data will be sent to C-WET for vetting following which formal steps will be taken to harness wind power from the vetted sites. However, at present M/s Suzlon Infrastructure Ltd, Hyderabad has submitted a proposal to harness wind energy of 49.5 MW each at Damonjodi in Koraput district and Khandiguda in Nabarangpur district. However, the Detailed Project Report has not yet been submitted by the firm.

#### Solar Energy

Solar Power, a clean renewable resource with zero emission, has a very good potential in Odisha with sunny days of more than 250 days in a year. Many developers have come forward to set up Solar power projects in the State.

Under Jawaharlal Nehru Solar Mission for Rooftop PV and Small Solar Generation Programme, 8 numbers of developers have been selected to set up 1 MW Solar PV power plant each in Odisha as confirmed by IREDA. Further, project proposals from 32 numbers of project developers have been cleared by STC for implementation of total 409 MW power plants (284 MW Solar PV and 125 MW Solar Thermal) in different districts of the State. The list of developers and proposed location is illustrated in the following tables.

**List of the selected Developers to set up 1 MW Solar PV Power Plant each in Odisha under RPSSGP Scheme of JNSM**

Sl No	Name of the Company	Site Address
1.	Pan Time Finance Company Pvt Ltd, Mumbai	Village: Benta, GP: Tangi, Block: Tangi, Dist: Nayagarh
2.	Jay Iron & Steel Ltd, Bourkela	Village: Janpada, GP: Govindpur, Block: Bamra, Dist: Sambalpur
3.	M/s Abacus Holding Pvt Ltd, Kolkata	Village: Ainlachhat, GP: Chadheipanka, Block: Jhunda, Dist: Sonapur
4.	M/s Shri Mahavir Ferro Alloys Pvt Ltd, Sundergarh	Village: Tankajodi, Block: Bonai, Dist: Sundergarh
5.	MGM Minerals Ltd, Bhubaneswar	Village: Patrapada, GP: Tangi, Block: Tangi, Dist: Khurda
6.	Molisati Vinmay Pvt Ltd, Bhubaneswar	Village: Ranja, GP: Danara, Block: Barkote, Dist: Deogarh
7.	M/s Rajratna Energy Holdings Pvt Ltd, Hyderabad, AP	Village: Sodepali, GP: Sodepali, Block: Bolangir, Dist: Bolangir
8.	M/s S N Mohanty, Barbil	Village: Patapur, GP: Kunderi Padar, Block: Baranga, Dist: Cuttack

**List of Solar Power Projects Cleared By STC**

Sl. No	Name of the Company	Proposed Capacity (MW)	Proposed Technology	Proposed Location
1	M/s Solitaire Energies Pvt Ltd	5MW	Solar PV	Jharsuguda
2	Sahara India Power Corporation Ltd	5MW	Solar PV	Dhenkanal
3	M/s Sunark Solar Pvt Ltd	5MW	Solar PV	Puri
4	RSB Energy Pvt Ltd	5MW	Solar PV	Cuttack
5	M/s SRLI Infrastructure Finance Ltd	5MW	Solar PV	Bolangir
6	M/s Enzen Global Solutions Pvt Ltd	5MW	Solar PV	Khurda
7	M/s Lanco Solar Pvt Ltd	5MW	Solar PV	Cuttack
8	M/s Photon Solar Systems India Pvt Ltd	9MW	Solar PV	Rayagada
9	M/s Alex Solar Pvt Ltd, Kolkata	5MW	Solar PV	Nabarangapur
10	M/s Apollo Renewable Energy Pvt Ltd	5MW	Solar PV	Khurda
11	M/s Malaxmi Infra Ventures (India) Pvt Ltd	10MW	Solar PV	Khurda
12	M/s DUET India Infrastructure Pvt Ltd	60MW	Solar PV	Nabarangapur, Kurapul, Phulbani, Bolangir, Dhenkanal & Sambalpur
13	Sun Edision Energy India Pvt Ltd	20MW	Solar PV	Bolangir
14	M/s Cambridge Energy Resources Pvt Ltd	5MW	Solar PV	Ganjam
15	M/s Abacus Holding Pvt Ltd	5MW	Solar PV	Nabarangapur
16	M/s Green Projects Pvt Ltd	10MW	Solar PV	Khurda

17	M/s Green Oute (India) Technologies Pvt Ltd.	5MW	Solar PV	Kalahandi
18	Sun Edision Energy India Pvt Ltd	5MW	Solar PV	Bolangir
19	M/s Skyzen Infrabuild Pvt Ltd	5MW	Solar PV	Khurda
20	MGM Minerals Ltd	5MW	Solar PV	Khurda
21	M/s Khaya Solar Projects Pvt Ltd	10MW	Solar PV	Puri
22	M/s Diwakar Solar Projects Pvt Ltd	10MW	Solar PV	Sambalpur
23	M/s Sabita Solar Projects Pvt Ltd	10MW	Solar PV	Malkangiri
24	M/s Bhanu Solar Projects Pvt Ltd	10MW	Solar PV	Bolangiri
25	M/s Omega Solar Projects Pvt Ltd	10MW	Solar PV	Jharsuguda
26	Raajratna Energy Holdings Pvt Ltd	10MW	Solar PV	Dhenkanal
27	M/s Konark Kanti Energy Pvt Ltd	5MW	Solar PV	Dhenkanal
28	M/s Sunark Solar Pvt Ltd	20MW	Solar PV	Khurda
29	Nurock Infrastructure (P) Ltd	10MW	Solar PV	Khurda
30	Great Eastern Power Projects Pvt Ltd	5MW	Solar PV	Nayagarh
31	M/s GRD Power Pvt Ltd	25MW	Solar Thermal	Khurda
32	M/s ACME Tele Power Ltd	100MW	Solar Thermal	Kalahandi/ Bolangir

The maximum potential towards the development of Renewables is envisaged under the Solar projects. The projects include both Grid connected and Roof top projects. OERC has already announced generic tariff for both the types of projects which are comparable to the best in the country. The role of Government of Odisha is therefore important in facilitating the process by granting requisite clearances and to put them on fast track for developers to set up their plants. Land required for 1 MW Solar PV power Plant is 5 Acres and 1 MW Solar Thermal power Plant is 7 Acres.

### Biomass Energy

The source of biomass in Odisha is predominantly from paddy husk. Though total Biomass power potential in the state has been assessed to the tune of 350 MW, OREDA has now assessed the possible power generation of 303 MW at present from rice husk with a blending of 15% coal and 15% other biomass. OREDA has now planned to harness this potential through private developers with installation of biomass power plants covering all the 30 districts of the State. Nine numbers of project developers have already signed implementation agreement to start the project and two more developers have already qualified and yet to sign the implementation agreement. Total installed capacity of these 11 projects is 138 MW covering 16 districts in the state. Apart from this, the project proposal of four more projects with installed capacity of 45 MW has been scrutinized and to be placed before State Technical Committee (STC) for approval and further 14 numbers of developers have submitted fresh applications for installation of Biomass power plants of about 150 MW in remaining districts of the State. The list of the projects and the location of districts are indicated in the following tables.

#### List of Developers signed Implementation Agreement for setting up of Biomass Power Projects

Sl No.	Name of Developer	Capacity of the Plant	Locations	Current Status
1.	M/s Shalivahan Green Energy Ltd, Andhra Pradesh	20 MW	Dhenkanal & Cuttack	STC cleared, mplementation agreement signed.
2.	M/s Prasad Bio-Energy Pvt. Ltd., Srikakulam, AP	10 MW	Rayagada	STC cleared, mplementation agreement signed.
3.	M/s. Andhavarapu Bio-Energy IP; Ltd., Srikakulam, AP	10 MW	Nabarangpur	STC cleared, mplementation agreement signed.

4.	M/s AVN Power Projects (P) Ltd., Srikakulam, AP	10 MW	Kalahandi	STC cleared, implementation agreement signed.
5.	M/s. Starlight Energy Ltd., Nuapada	15 MW	Nuapada	STC cleared, implementation agreement signed.
6.	M/s. Satya Bio Power (India) Pvt. Ltd., Srikakulam, AP	10 MW	Ganjam	STC cleared, implementation agreement signed.
7.	M/s. Rashmee Power Pvt.Ltd., Dhubaneswar, Khurda	10 MW	Boudh, Sonapur and Kandhamal	STC cleared, implementation agreement signed.
8.	Techno Electric and Engineering Co., Kolkata	10 MW	Baragarh	STC cleared, implementation agreement signed.
9.	M/s. Rake Power Ltd., Secunderabad, AP	23 MW	Deogarh, Jharsuguda and Sundergagh	STC cleared, implementation agreement signed.
10.	M/s. Jayalakshmi Bio-Energy IP Ltd., Srikakulam, AP	10 MW	Nayagarh	STC cleared, Commitment fees deposited, but IA has not yet been signed.
11.	M/s. Swarnajyoti Agro and Exports Ltd., Secunderabad, AP	10 MW	Sambalpur	STC cleared, Commitment fees deposited and applied partly deposited and applied for time extension.
	<b>Total</b>	<b>133 MW</b>	<b>16 District Covered</b>	

**Biomass Power Project Proposals to be placed before the STC**

Sl No.	Name of Developer	Capacity of the Plant	Locations
1.	M/s. Indra Powergen Pvt., Ltd., Chhatisgarh	15 MW	Bolangir
2.	M/s. Abinash Developers Pvt. Ltd., Chhatisgarh	10 MW	Bhadrak
3.	M/s. Mahavir Ferro Alloys Pvt., Ltd., Sundargarh	10 MW	Keonjhar
4.	M/s. Mahavir Ferro Alloys Pvt., Ltd., Sundargarh	10 MW	Jajpur
	<b>Total</b>	<b>45 MW</b>	

**Fresh Applications received for setting up of Biomass Power Projects in the vacant Districts of Odisha**

District	Name of the Developer	Capacity
Sambalpur	M/s Ravi Metallick	15 MW
Bargarh	Indur Green Power Pvt Ltd,	10 MW
	Green Horse Power Pvt Ltd,	10 MW
	e-Gateway India Pvt Ltd,	10 MW
Puri / Khurda Combined	Hi-Tech Green Glow Pvt. Ltd	10 MW
Khurda	Om Green Power and Infrastructure Pvt Ltd,	5 MW
Mayurbhanj	Emergent Ventures India Pvt Ltd,	12 MW
Mayurbhanj / Balasore Combined	Site Infra Pvt. Ltd, Hyderabad	22 MW
Balasore	M/s Visaka Thermal Power Pvt Ltd.	10 MW
	Indravati Energies Pvt Ltd.	6.6 MW



Boriguma (Koraput)	Pretam Power Project Pvt. Ltd.	10 MW
Garabandha(Gajapati)	Satyasa Green Power Pvt. Ltd.	10 MW
Jagasingpur and Kendrapara Combined	M/s Abellan Clean Energy Ltd.	10 MW
Jagasingpur	Perpetual Energy Systems Ltd.	10 MW
	<b>Total</b>	<b>150.6 MW</b>

Biomass projects need to be encouraged in the rural areas where Bio fuels are adequately available. This also gives the farmers to generate additional revenues by selling their agricultural waste products. Government of Odisha therefore needs to tap this potential in a big way by clearing these projects for all round development.

### Micro/Mini/Small Hydro Power Projects

Odisha has a very good potential for micro/mini/small hydro projects. As per the existing guidelines of the State Govt. the hydel projects upto 25 MW comes under renewables, which is further categorizes as under:

- a) Micro Hydro Electric Schemes – Total Installed Capacity upto 100 KW.
- b) Mini Hydro Electric Schemes – Total Installed Capacity above 100 KW upto 2000 KW (2 MW).
- c) Small Hydro Electric Schemes – Total Installed Capacity above 2 MW upto 25 MW.

OREDA of its own has implemented two Grid connected hydel projects i.e. Badaghagara Micro Hydel Project of 2 x 20 KW in Keonjhar District in the year 1987 and Sunei Mini Hydel Project of 110 KW in Mayurbhanj District in the year 2007. Now, only three small hydro projects of 57 MW are in operation in the State from the year 2009 i.e. Middle Kolab SHEP (25 MW) and Lower Kolab SHEP (12 MW) of M/s Meenaskhi Power Ltd. and Samal Barrage SHEP (20 MW) of M/s Orissa Power Consortium Ltd. Many project developers have come up with the proposals for setting up of small hydro projects in the state. The DPRs of 14 Projects of 206 MW have already been approved and Techno Economic Clearance (TEC) accorded by STC and pending at the stage of approval of construction drawings. The list of these projects is given in the table below.

#### List of Small Hydro Projects for which TEC has been Accorded

Sl No.	Name of the SHEPs	Installed capacity
1	Suptadhura	18 MW
2	Jeypore Main Canal	6 MW
3	Charagpur	11 MW
4	Burgarh and Regulolui	9 MW
5	Dumajhori	15 MW
6	Lower Baitarani	24 MW
7	Tentuliguma	15 MW
8	Salandi Dam Toe	9 MW
9	Saheed Lakshman Nayak	25 MW
10	-atipathar	10 MW
11	Ialaput Dam Toe	18 MW
12	Lower Machhikund	20 MW
13	Salimi	12 MW
14	Sindhiguda	15 MW
	<b>Total</b>	<b>206 MW</b>

Out of the above list, 12 projects can be taken up for implementation immediately with a little effort by the associated agencies. Only two projects i.e. Jalaput Dam Toe (18 MW), an inter state river project, is now sub-judice in AP High Court and execution of Kharagpur project (10 MW) has been stopped by the Govt. of Odisha due to technical reasons.

Apart from the above, Pre-Feasibility Reports (PFR) of 15 Projects with capacity of 165 MW have been approved by STC and DPRs have already been submitted by the developers and pending with STC for approval of DPR and TEC. There are further 6 projects of 39.4 MW for which DPRs have been approved and TEC is to be accorded by STC as listed below. These Dam Toe/ Canal drop projects can be harnessed with a minimum cost and time.

Sl No.	Name of the SHEPs	Installed capacity	Remarks
1	Balinala	20 MW	Captive to M/s Jayashree Chemicals Ltd.
2	Gouda Gollu	6 MW	do
3	Padma	6 MW	- do -
4	Kanpur Dam Toe	9 MW	Captive to M/s Power Electrical & Minerals
5	Iambira Dam Toe	2.4 MW	Captive to M/s Iambira Power Ltd.
6	Orng Durr Toe	2 MW	PP

There are many other project proposals for which in-principle approval of PFR has been accorded by STC, but the developers are yet to submit DPRs.

OERC has already issued generic tariff for projects below 5 MW and projects of 5 MW to 25 MW capacities. The Government of Odisha should expedite with the agencies such as EIC (Elect.), Deptt. of Energy & Deptt. of Water Resources, Developers and STC members for facilitating setting up of the plants.

#### **INTERVENTION OF OERC FOR DEVELOPMENT OF RE SOURCES**

As per the Electricity Act, 2003, promotion of cogeneration and generation of electricity from RE sources have been made the explicit responsibility of the SERCs. According to Clause 6.4 of Tariff Policy and provisions of section 86(1)(e) of the Act, the Appropriate Commission shall fix a minimum percentage for purchase of energy from renewable sources taking into account availability of such resources in the State. The Orissa Electricity Regulatory Commission (OERC) has already initiated regulatory process for promotion and development of renewable energy sources in the State.

#### **OERC Tariff Order for Rooftop and Small Solar PV Power Generation**

The Jawaharlal Nehru Solar Mission have also suggested policy and regulatory framework for the rooftop solar PV and other small solar power plants, connected to LT/11 KV grid, to replace conventional power and diesel-based generators. The Commission in its order dtd.09.07.2010 has declared the tariff of Rs.18.52 per kWh for Rooftop and Stand alone Small Grid-connected solar PV Power Plants under this scheme.

#### **OERC Order on Levellized Generic Tariff for various RE sources in Odisha**

Earlier, OERC vide its order dated 9<sup>th</sup> September 2009 had fixed the generic tariff for Solar PV projects proposed to be set up in Odisha by March 2010 as given below.

For the 1st to 12th years : Rs.15.00/KWh

For the 13<sup>th</sup> to 25<sup>th</sup> years : Rs.7.50/KWh

The above tariff was the ceiling tariff and both GRIDCO as well as the developers were free to negotiate for an agreed tariff within the above ceiling rate. Further, all the incentives/subsidies received by the developers from MNRE/ GoI/ GoO was to be factored into the same.

Now, the Commission in its order dated 14.09.2010, have approved levelled generic tariff for various RE sources applicable for the projects to be commissioned during the control period from 2010-11 to 2012-13. The Commission may however review the generic tariff for Solar PV and Solar Thermal projects annually owing to the changing Capital Cost benchmark. The relevant extract of the order is as under:

i) *The levelled generic tariff for various renewable sources of energy having "Single part tariff" is approved as in the following table:*

<b>Particular</b>	<b>Levelled Total Tariff (for the control period 2010-11 to 2012-13) (Rs./kWh)</b>	<b>Benefit of Accelerated Depreciation (if availed) (Rs./kWh)</b>	<b>Net Levelled Tariff (upon adjusting for Accelerated Depreciation benefit) (if availed) (Rs./kWh)</b>	<b>Tariff Period (Years)</b>
Wind Energy	5.32	(0.83)	4.48	13
SHP projects of 5 to 25 MW capacity	3.64	(0.55)	3.31	13
SHP projects below 5 MW capacity	3.92	(0.60)	3.31	35
Solar PV	17.80	(3.03)	14.77	25
Solar Thermal	14.73	(2.41)	12.32	25

ii) *The levelled generic tariff for various renewable sources of energy having "Single part tariff with two components" is approved as in the following table:*

<b>Particular</b>	<b>Levelled fixed component of Tariff (Rs./kWh)</b>	<b>Variable (Fuel) Component of tariff for FY 2010-11</b>	<b>Effective tariff for FY 2010-11</b>	<b>Benefit of Accelerated depreciation (if availed) (Rs./kWh)</b>	<b>Net Tariff (Rs./kWh)</b>
Biomass	1.95	2.14	4.09	(0.21)	3.88
Non-fossil fuel based Co-generation	2.26	2.14	4.40	(0.28)	4.12

Note:

1. For Biomass projects the tariff approved above including levelled fixed component and variable (fuel component) for FY 2010-11 has been shown. The approved tariff year-wise for entire tariff period i.e.13 years is shown in the output table at Appendix-3.
2. For Non-fossil fuel based co-generation projects the above approved tariff including levelled fixed component and variable (fuel component) for FY 2010-11 has been shown. The approved tariff year-wise for entire tariff period i.e.13 years is shown in the output table at Appendix-4.

- \* The above tariff is applicable for the RE projects commissioned during the 3 years Control Period starting from 2010-11 and shall continue to be applicable for the RE projects for the entire duration of the Tariff Period.
- \* The Commission has directed that the nodal agencies responsible for development of RE projects in Odisha (OREDA/EIC, Electricity as the case may be) to expedite issuance of clearance to the pending viable renewable projects and the project proposals submitted during the control period.

- \* The Commission has also directed GRIDCO to sign Power Purchase Agreements with the renewable project developers soon after the projects get clearance from STC. The signing of PPAs has to be expedited keeping in view the OERC directive/Regulation relating to RPO obligations as amended from time to time.
- \* The impact of additional power purchase cost arising out of meeting the RPO obligation shall be factored in to the ARR of GRIDCO each year.
- \* The Commission shall take into consideration any incentive or subsidy offered by the Government of India/State Govt. including accelerated depreciation benefit if to be availed by the developer for the RE power plants and such benefits shall be passed on to the consumers of the State.

**Practice Direction Issued by OERC for Development of Grid Connected Small/Mini/Micro Hydel Projects in the State.**

After interactions with the various agencies and concerned Govt. Departments, the Commission has categorized the pending project proposals of the private developers to set up Small/Mini/Micro Hydel Projects in the State in to following categories.

- A) DPRs of 14 Projects already approved and TEC accorded by STC – Pending at the approval stage of Construction Drawings.
- B) PFRs of 15 Projects already approved by STC. Developers have already submitted DPRs to STC and the same have been circulated to the Members of STC – Pending at STC for approval of DPR and TEC.
- C) Projects for which in-principle approval PFR has been accorded by STC, but the Developers are yet to submit DPRs – Pending with Developers.
- D) PFRs submitted by the Developers to STC – Pending for in-principle approval of STC and signing of MoU with Govt.
- E) Rest of the feasible Projects for which Survey & Investigation are to be carried out and to be prepared either by EIC (Elect.) and/or outsourced Agency – Govt. should address Revised Hydro Policy and prepare a Road Map.

Taking into account the views, of all concerned agencies and Govt. Departments, the Commission has issued a practice direction on 08.10.2010 for smooth progress and development of these Small/Mini/Micro Hydel Projects in the state in order to comply with the Renewable Purchase Obligation (RPO) and meet the growing demand of the State.

**Renewable Purchase Obligation (RPO) in the State**

The National Action Plan on Climate Change (Clause 4.22) provides the direction for implementing RPO.

- \* At National level for the year 2010, target for RE Purchase may be set at 5% of total grid purchase, to be increased by 1% each year for 10 years. SERCs may set higher target than this minimum at any point in time.
- \* Appropriate authorities may issue certificates, those procure renewable power in excess of the national standard. Such certificates may be tradable, to enable utilities falling short to meet their RPO.
- \* Penalties as may be allowed under the relevant State Regulations may be levied, if utilities are still falling short in RPO.

Based on a study conducted by FOR Secretariat, CERC has advised Central Govt. for different percentage of Renewable Purchase Obligation (RPO) in different States considering wide variation in resources in different States for incorporation in Tariff Policy.

Earlier, OERC while disposing of the petition filed by M/s Greenpeace India Society (Case No 151 of 2004) on 23.04.2005 had issued an order directing the electricity supply utilities / GRIDCO to purchase 200 MU from the renewable energy sources in Odisha during FY 2006-07. Later, the Commission had passed an order on 20 August 2005 (case No 14 of 2005) and ruled that the supplying licensee should purchase 3% power from renewable energy sources including the fossil fuel based cogeneration projects in the state during FY 2007-08 and such purchase should be increased at the rate of 0.5% per year in the subsequent years so as to reach 5% by the year 2011-12.

Recently, OERC has notified Renewable and Co-generation Purchase Obligation and its Compliance Regulations, 2010 on 30<sup>th</sup> September, 2010 which shall come into force from the date of publication in the Official Gazette. As per the Regulations, every Obligated Entity shall purchase not less than 5% of its total annual consumption of energy from co-generation and RE sources from 2011-12 onwards with 0.5 percentage increase in every year thereafter, till 2015-16 or as reviewed by the Commission even earlier, if any. Provided that out of the RPO so specified in the year 2011-12, 0.10% shall be procured from solar energy source and shall be increased at a rate of 0.05% every year thereafter, till 2015-16 or as reviewed by the Commission even earlier, if any. The year-wise and source-wise RPO target fixed by OERC is given below:

Year	Minimum quantum of purchase in percentage (in terms of energy consumption in the State in KWH)			
	Renewable		Co-generation	Total
	Solar	Non-solar		
2010-11	-	1.0	3.50	4.5
2011-12	0.10	1.20	3.70	5.0
2012-13	0.15	1.40	3.95	5.5
2013-14	0.20	1.60	4.20	6.0
2014-15	0.25	1.80	4.45	6.5
2015-16	0.30	2.00	4.70	7.0

Subject to the terms and conditions contained in these Regulations, the Certificates issued under the Central Electricity Regulatory Commission (Terms and Conditions for recognition and issuance of Renewable Energy Certificate for Renewable Energy Generation) Regulations, 2010 shall be the valid instruments for the discharge of the mandatory obligations set out in these Regulations for the obligated entities to purchase electricity under RPO.

The Co-generation and renewable energy sources excepting roof-top Solar PV and bio-gas sources shall be connected to the State Grid at a voltage level of 132 KV or 33 KV or 11 KV subject to technical suitability determined by the licensee.

The OERC, vide its order dtd. 18.11.2010 has designated OREDA as State Agency for accreditation and recommending the RE projects for registration and to undertake functions under the OERC (Renewable and Co-generation Purchase Obligation and its Compliance) Regulations, 2010.

#### **Tariff Impact of Renewable Purchase Obligation (RPO)**

In order to meet RPO, the impact on the overall tariff has been assessed considering the generic tariff fixed by the OREC for RE sources. The impact on overall tariff is estimated for the period from 2010-11 to 2012-13 (end of the 2<sup>nd</sup> Business Plan control period of DISCOMS) as shown in the table below:

	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
RPO Trajectory (%)	0.5	0.5	0.5	0.5	0.5	0.5
RPO Level (%)	4.5	5.0	5.5	6.0	6.5	7.0
Impact (Paise/Unit)	2.12	2.71	3.52			

It is discernible from the above table that the impact of meeting RPO is minimal and it ranges from 2 paise to 3.5 paise per unit between 2010-11 and 2012-13. In other hand, if the obligated entity fails to meet the RPO, it has to purchase renewable certificates at higher cost in addition to drawing energy at marginal cost to meet the demand of power.

### **Off-Grid Renewables in the State**

Odisha had 10 nos. of Wind Power Plants of 55 KW each on Puri Sea Beach under Danish collaboration. The plants were in operation for a small period and then taken out of service due to technical snag. Under UNDP scheme, OREDA has implemented 18 nos. of off-Grid Solar Power Plants of 2 KW each in Komna Block of Nuapara District during the year 2003. Further with the assistance of OREDA, 4 nos. of rice mills have developed their captive power plants with Co-generation using Bio-mass fuel. Those are M/s. Maa Durga Rice Mill, Tangi, Cuttack (1.2 MW) and M/s. Sabitri Rice Mill, Karanjia, Mayurbhanj (460 KW) both in the year 2008 and M/s. Jayalaxmi Rice Mill, Tangi, Cuttack (350 KW) and M/s. Lath Rice Mill, Baragarh (465 KW) both in the year, 2009.

There are about 4,000 villages in the State, which need to have power from RE sources as these villages cannot be connected by grid. The state government has announced to provide electricity to a minimum of 2,000 villages by March 2012 by utilizing solar or other type of RE sources.

### **CONCLUSION**

Through Odisha is blessed with plenty of renewable energy resources and pioneer state in the reform and restructuring of the power sector, the state now lags behind in harnessing the renewable energy as well like rest of its economy. The huge potential and lucrative tariff of renewable energy have attracted many project developers to set up various renewable power plants in the state. But the existing RE policy of the State Government is not so conducive for smooth implementation of the projects, for which a lot of project proposals have remained in papers. Hence, there is an immediate need for revision of the existing RE policy on the state on the vital issues like clearance of DPR, land acquisition, financial incentives and grid connectivity etc.

Only the government policy and regulatory framework is not enough for implementation of RE projects in the state. In addition, co-operation of the local people of project sites is very much essential. Therefore, a public awareness about the benefits of harnessing power from RE sources should be created by the Government, Project Developers, NGOs, Voluntary Organizations, Technocrats, Intellectuals and local People's Representatives of the state. RE generation not only helps in meeting the growing demand of power, it also creates employment opportunities at all levels, especially in rural areas and also saves the depleting reserves of fossil fuels for the future generation and above all makes the environment clean and green with least carbon dioxide emissions. Time has now come to think about energy security and its future crisis, and the only alternative is energy efficiency and sustainable development for tapping energy from various renewable sources in the state.



## OPTCL – AT A GLANCE

**Hemant Sharma, IAS**  
**MD, OPTCL**

OPTCL, the sole deemed transmission licensee operating in the State of Orissa, has been discharging its functions mandated under the Electricity Act, 2003, Rules and Regulations framed thereunder as well as the policy guidelines envisaged in the National Electricity Policy, Tariff Policy with the vision to rank as one among the leading Transmission Utilities in India; transmitting quality, reliable and secured power with minimum transmission loss at a competitive price.

The present peak demand of the state is about 3300 MW. As per the long-term demand forecast, the peak demand at the end of 11<sup>th</sup> plan period i.e during 2011-12 would be around 4459 MW. The forecast estimates that the peak demand figure will touch about 6363 MW at the end of 12<sup>th</sup> plan period i.e during 2016-17. Although the existing transmission infrastructure is comfortably handling present peak demand of 3300 MW, providing quality power supply defined in terms of voltage, frequency, reliability and security standards to every nook and corner of the state is a prime task yet to be achieved. A number of IPPs have signed MoUs with the State Government to install power plants in Orissa. It is hopefully estimated that at the end of 12<sup>th</sup> plan period, the quantum of power generated by these IPPs would be about 20000 MW and Orissa would be required to avail its 25 % share to the tune of 5000 MW through OPTCL's transmission system.

Keeping in view the above objectives, OPTCL has initiated proactive actions starting from planning stage to operation & maintenance for putting in place a robust transmission system for uninterrupted power supply in its area of operation so as to continuously sustain its proven track record of being the lifeline of Orissa.

### TRANSMISSION PLANNING

#### A) Long-Term Transmission Plan for 11th Plan Period

Integrated Transmission Planning of OPTCL network for 11<sup>th</sup> plan period has been prepared taking the system peak demand of 4459MW (including 968 MVA load of RGGVY & BGJY) and additional generation of 1264 MW as state share from following 4nos. upcoming IPPs.

Sl. No.	Name of IPPs	Location of Project	Installed Capacity	Orissa State Share (25%)
1	Sterlite Energy (P) Ltd.	Jharsuguda	2400MW	600MW
2	GMR Energy (P) Ltd.	Dhenkanal	1050MW	263MW
3	KVK Nilachal (P) Ltd.	Athagarh	600MW	150MW
4	Monnet Ispat & Energy (P) Ltd.	Angul	1005MW	251MW
TOTAL			5055MW	1264MW

The proposed infrastructure additions to meet the peak demand of 4459 MW are as follows.

- i) 400KV Grid S/S- 5nos. (Keonjhar, Lapanga, Duburi, Bolangir & Uttara)
- ii) 220KV Grid S/S-17nos. [Karadgadia, Paradeep, Puri, Cuttack, Bhadrak, Nuagaon, Dhenkanal (new), Kuanmunda, Kesinga, Barbil, Uttara, Keonjhar, Banai, Laxmipur, Dhamara and Hindol Road including Bolangir (new) already commissioned].

- iii) 132KV Grid S/S-32nos. [Koraput, Nawrangpur, Baliguda, Nilagiri, Marsaghai, Sakhigopal, Tangi, Purusottampur, Nuapada, Dabugaon, Chandpur, Padmpur, Kuchinda, Bhawanipatna, Boudh, Banki, Kalunga, Barbil, Karadgadia, Uttara, Dhenkanal (new), Kuanrmunda and Dhamara including Barpali, Karanjia, Udala, Basta, Phulnakhara, Badagada, Anandpur, Bolangir (new) and OCL (switching station) already commissioned].
- iv) Reactive power compensation by installing shunt capacitor of 760MVAR in different Grid S/S of OPTCL.
- v) Associated Transmission Lines

**B) Long-Term Transmission Plan for 12th Plan Period**

Besides planning for 11<sup>th</sup> plan period, OPTCL has also carried out the integrated transmission planning of its network for the 12<sup>th</sup> plan period taking the system peak demand of 6363MW and additional generation of 4669 MW (1264 MW from 4 nos. upcoming IPPs during 11<sup>th</sup> plan period + 3405 MW from 11 nos. upcoming IPPs during 12<sup>th</sup> plan period). Following 11 nos. of IPPs are expected to be commissioned during the 12<sup>th</sup> plan period.

Sl. No.	Name of IPPs	Location of Project	Installed Capacity	Orissa State Share [25%]
1	NavaBharat Power Pvt. Ltd.	Dhenkanal	1050MW	262.5MW
2	Jindal India Thermal Power Ltd.	Angul	1200MW	300MW
3	Lanco Babandh Power Pvt. Ltd.	Dhenkanal	2640MW	660MW
4	Visa Power Ltd.	Athagarh	1100MW	275MW
5	Bhusan Energy (P) Ltd.	Angul	2100MW	510MW
6	CESC Ltd.	Dhenkanal	1000MW	250MW
7	Tata Power Company Ltd.	Marthapur, Cuttack	1000MW	250MW
8	Essar Power (Orissa) Ltd.	Angul	1000MW	250MW
9	Mahanadi Abban Power Co.	Talcher, Angul	1030MW	257.5MW
10	IND BIHARAT Energy Ltd.	Jharuguda	700MW	175MW
11	Aarati Steels Ltd.	Ghantikhali, Cuttack	1100MW	275MW
<b>TOTAL</b>			<b>13,620 MW</b>	<b>3405 MW</b>

In addition to the projects proposed in 11<sup>th</sup> plan period, the following infrastructure additions have been envisaged to meet the peak demand of 6363MW.

- i) 132/33KV Grid S/S at Olaver & Titlagarh.
- ii) 400/220 Grid S/S at Kuanrmunda, Joda, Khuntuni & Berhampur.
- iii) Reactive power compensation by installing Shunt Capacitor of 200MVAR at Duburi and Bhadrak region and 150MVAR at Berhampur region.
- iv) Associated Transmission Lines  
400KV lines -3nos. D/C lines - 592 kms.  
400KV LILO lines- 2nos. & 132KV LILO lines- 2nos.

**C) Proposal for power evacuation from upcoming IPPs through 400 KV Ring System**

In the mean time 33nos. of IPPs have planned to set up their power plant in Orissa including the above 15nos. It is expected that at the end of year 2020 the quantum of power generated by those IPPs will be to the tune of 46,070MW and Orissa ought to avail its state share of 25%.

OPTCL has also initiated necessary action for evacuation of state share power from upcoming IPPs through 400KV ring system. The proposal of 400KV ring system has already been apprised to CEA and for the feasibility of the scheme the comprehensive study work has been assigned to M/s PRDC Ltd. Bangalore. It will facilitate the state to evacuate the surplus power and to utilize the required power effectively and transmit this power through available downstream network.

The study report presents the technical feasibility of the 400KV sub-stations proposed by OPTCL by the end of 12<sup>th</sup> plan period as below.

**i) Capacity Addition**

23975 MW is the capacity addition of 17nos. IPPs and IbTPS (OPGC) expected to be commissioned by 12<sup>th</sup> plan period of which 6531 MW is Orissa state share. Another 1393 MW has also been considered as CGP share.

**ii) System Demand**

DISCOM wise peak demand of OPTCL system forecasted for 12<sup>th</sup> plan period has been considered in the studies (CESU- 1933 MW, NESCO- 1737 MW, SOUTHCO- 828 MW, WESCO- 1865 MW: Total- 6363 MW).

- \* 8 nos of 400 kV sub-stations have been observed to be feasible to carry out the evacuation of state share of power considering future load growth and industrial development in and around the proposed areas.
- \* Out of the 8 nos of sub-stations, 3 nos of sub-stations are proposed to carry out the evacuation of state share power namely at Lapanga, NISA (Boinda) & Khuntuni.
- \* 5 nos of sub-stations have been proposed considering the future load growth and industrial development in and around the proposed areas namely at Kuanmunda, Joda, Dhamara, Paradeep and Berhampur.
- \* 18 nos of 400 kV transmission lines including LILLO lines have been proposed for 400 kV ring system in OPTCL network.
- \* To avoid overloading of lines, it is suggested that Quad Moose conductors instead of Twin Moose be used for high transfer corridors. Commissioning of the sub-stations and their respective link lines can be planned in a phased manner so that maximum utilization of the existing network can be made.

**PROJECT IMPLEMENTATION**

In consonance with the requirement of long-term planning studies as narrated above and to eradicate the low voltage problem persisting in different parts of the State, it has become imperative to strengthen the transmission system through addition of several new transmission lines and sub-stations during 11th five year plan and beyond. There is a technically and economically justified requirement for implementation of these additional system reinforcements in the transmission network to meet the growing demand.

The main thrust and emphasis as well as the fundamental requirements in respect of proposed additional transmission schemes are laid down below:

- a) Improvement of system voltage profile at various points of the transmission net work.
- b) To minimize interruption of power supply to consumers.
- c) Enhance security / reliability of power system.
- d) Enhance quality and supply standards of system.
- e) Strengthening of transmission system.
- f) Availability of alternate power supply.
- g) Enable OPTCL to receive an economic return.

- h) Reduce overloading of important sections.
- i) Reduce the overall transmission system losses.
- j) Meet the future load demand of the State.

During the year 2009-10, OPTCL has commissioned 14 nos of important projects. Also during 2010-11 (up to September 2010), 10 projects have been commissioned (Details at **ANNEXURE-1**). With the present pace of project implementation capability, OPTCL would be able to complete record number of ongoing projects during the year 2010-11. Similarly, efforts are being put to boost construction activities in respect of other ongoing projects planned to be completed beyond 2010-11 for completion within schedule by overcoming the following impediments causing time and cost overrun:

- a) Right of Way problem at sites.
- b) Inadequate law and order support from Govt. machineries.
- c) Forest clearances.
- d) Corridor clearance.
- e) Delay due to court cases.
- f) Acute shortage of manpower.
- g) Delay in issuance of project licence by ELBO to the executing agencies.
- h) Delay in electrical inspection.

There are 17 nos of ongoing projects, 30 nos projects in pipeline and 12 nos projects under new projects category (Details at **ANNEXURE-2**).

The abstract of CAPEX plan up to 2012-13 for completion of ongoing projects, projects in the pipeline and other new projects is tabulated below.

Sl. No.	Item	Estimated cost [Rs. Cr.]	Expenditure up to 31.3.2008 [Rs. Cr.]	Phasing of expenditure (Rs. Cr.)				
				08-09	09-10	10-11	11-12	12-13
A	Ongoing projects	779.32	345.12	41.68	20.34	218.14	124.00	45.21
B	Projects in Pipe - line	1271.92	11.11	0.35	1.31	217.94	503.76	385.11
C	Other New Projects	598.10	0.00	0.00	0.00	27.25	149.12	201.77
D	<b>Grand Total</b>	<b>2649.34</b>	<b>345.13</b>	<b>42.03</b>	<b>21.65</b>	<b>463.33</b>	<b>776.88</b>	<b>633.09</b>

#### **OPERATION & MAINTENANCE (O&M)**

The duties and responsibilities vested in OPTCL do not cease only with creation of transmission assets. Operation and Maintenance of those for availing benefit of their services for a longer period even more than the useful life span, calls for adoption of advanced maintenance practice manuals. Specially, maintenance of very old aged assets commissioned during late fifties, during sixties and seventies inherited by way of transfer from OSEB/GRIDCO is a matter of great challenge. OPTCL has evolved maintenance manuals/practices and initiated proactive maintenance practices in place of routine maintenances with the result that the availability of its transmission system remains well above 98% over the years.

In tandem with new projects under construction or in the pipeline, capacity upgradation of existing sub-stations and lines is being undertaken as per priority. All these projects on completion will ensure a robust transmission network with adequacy to handle bulk power flow expected in the system and will provide redundancy support as

well. These apart, initiatives like installation of shunt capacitors for improvement of voltage profile in low voltage pockets, replacement of ageing equipments as per the Master Maintenance Plan are also afoot. The augmentation measures mentioned above are elaborated below.

#### A) Up-gradation of sub-station capacities

With the twin objectives of meeting the load growth and achieving flexibility in maintenance of transformers, installation of additional transformers with associated bays as well as upgradation of existing transformers are being carried out since April, 2009 at 59 sub-stations with an aggregate capacity addition of 2692.5MVA (Details at ANNEXURE-3). The projects are scheduled to be completed within FY 2011-12. Meanwhile, the capacity up-gradation at Bhadrak, Budhipadar and Paradeep grid sub-stations have been completed during the period Apr'09 – Jun'10. The details are furnished below.

Sl. No.	Name of Substation	Existing Capacity (MVA)	Augmented Capacity (MVA)	Capacity Addition (MVA)
1	Bhadrak	2x10	2x10-1x12.5	12.5
2	Budhipadar	1x20	1x20-1x12.5	12.5
3	Paradeep	1x100	1x100-1x50	50

#### B) Upgradation of lines

Based upon the load flow profile and ageing of lines, as a first step 8 nos of transmission lines of OPTCL system have been identified on priority for replacement of existing ACSR Zebra / Panther conductors with higher ampacity AL59 / ACCR (Aluminium Conductor Composite Reinforced) conductors. The proposed conductors are capable of carrying 30% / 100% extra power respectively as compared to the conventional conductors. The details are furnished below.

Sl. No.	Name of the Feeder	Route Length (kms)	Year of Comm.	Peak Load (MW)	% of Loading	Existing Conductor Type	Proposed Conductor
1	220kV Budhipadar - Tarkera DC	100	1995	400	111%	Zebra	AL59
2	132kV Tarkera - Chhend DC	6.165	1999	130.00	81%	Panther	ACCR
3	132kV Burla PH - Budhipadar DC	59.38	1958	120.00	75%	Panther	AL59
4	132kV Chandaka - Mancheswar Ckt-II	5.66	1979	84.00	105%	Panther	ACCR
5	132kV Chandaka - Ranasinghpur	74.78	1997	70.00	88%	Panther	ACCR
6	132kV Chandaka - Nimapara (Up to Badapada LIL)	30	1997	76.00	95%	Panther	ACCR
7	132kV Chandaka - Khurda	36.5	1969	84.00	105%	Panther	AL59
8	132kV Bhanjanagar - Aska DC	32.93	1984	160.00	100%	Panther	AL59

#### C) Installation of Capacitor Banks

Looking at the present scenario, 33 kV Shunt Capacitor Banks with an aggregate capacity of 275MVAR have been planned for installation at 20 nos of grid sub-stations for compensation of Reactive Power draws by DISTCOMS with consequential improvement of voltage profile. The details are furnished below.

Sl. No.	Name of Grid S/S	MVAR to be installed
1	Balasore	15
2	Balugann	10
3	Berhampur	10
4	Bhadrak	15
5	Boinda	10
6	Cuttack	10
7	Duburi (Old)	10
8	Jagatsinghpur	15
9	Jajpur Town	20
10	Jaleswar	10
11	Kendrapara	20
12	Khurda	20
13	Nimapara	10
14	Pattamundai	15
15	Polasponga	10
16	Puri	20
17	Rairakhol	10
18	Ranasinghpur	20
19	Sonepur	10
20	Sunabeda	15
	<b>Total</b>	<b>275</b>

#### D) Master Maintenance Plan

- i. In line with the 5-year Master Maintenance Plan (2008-09 to 2012-13) submitted to the Hon'ble Commission, replacement of old & outlived equipments, augmentation of busbars & jumpers, replacement of faulty insulators, clamps & connectors, strengthening of line & switchyard earthing systems etc. are being carried out by OPTCL in a phased manner.
- ii. During the period Apr'09 – Jun'10, 6 nos. of 220kV, 65 nos. of 132kV and 50 nos. of 33kV old / defective breakers have been replaced with new ones.
- iii. Maintenance Manual prepared by OPTCL in line with the best maintenance practices being followed by state and national level transmission utilities has been circulated to all field offices to optimise routine and preventive maintenances of switchyard equipments and lines.
- iv. Conventional relays are being replaced with IEDs (Intellegent Electronic Devices).
- v. Sophisticated test equipments like Automatic Tan-delta Kits, Thermo Vision Cameras, Automatic Relay Testing Kits, and Dissolved Gas Analysers etc. have been procured for in house testing activities. Other equipments like Frequency Response Analysers, Circuit Breaker Analysers, Event Loggers, On-line Filtration Machines are being procured.
- vi. These apart, Diagnostic Analysis and Condition Monitoring of Transformers & CTs have been conducted at 14 nos. of grid sub-stations through M/s Central Power Research Institute (CPRI), Bangalore.



## **E) Other Initiatives**

Other initiatives of OPTCL for enhancing quality of power supply include the following.

- i. Installation of Energy Audit Meters at 600 Metering Points has been planned to determine the transmission loss.
- ii. OPTCL is implementing SAS (Sub-station Automation System) at 400kV Mendhasal, Meramundali & New Duburi, 220kV Bidanasi and 132kV Phulnakhara sub-stations for Remote & Local level automation.
- iii. An award scheme has been implemented for the Best maintained sub-stations & lines to create a sense of competition among field staff.
- iv. 6 nos. of grid sub-stations viz. Mendhasal, Meramundali, Chandaka, Budhipadar, Bidanasi & Ranasinghpur have been chosen for ISO 9001:2008 certification.

## ANNEXURE - 1

## TRANSMISSION PROJECTS COMMISSIONED DURING 2009-10

SL. NO.	NAME OF THE PROJECT	DATE OF COMMISSIONING
1	1 no. 220/132/33 kV 100 MVA transformer at 220/132kV Paradeep grid S/S 2nd 220/132/33 kV 50MVA auto -transformer at Paradeep grid S/S	16.05.2009 23.09.2009
2	1x12.5MVA 132/33kV grid S/S at Karanjia with associated transmission line (23 kms.). 2nd 12.5MVA 132/33 kV transformer at Karanjia grid S/S	06.07.2009 19.09.2009
3	1x20 MVA 132/33 kV grid substation at Phulnakhara grid S/S	24.07.2009
4	132kV Uttara-Sijua S/C line on DC tower (8.94 kms) (anti -theft charged)	15.09.2009
5	132 kV Barapalli LILO 132 kV Bargarh Bolangir line (5 kms.)	05.09.2009
6	2nd 100 MVA 220/132/33 kV auto -transformer at Bhadrak grid S/S	20.09.2009
7	3 nos. of 132 kV feeder bay extension at Hind Metals switching station	16.11.2009
8	Hirakud LILO 132 kV Burla Sambalpur line (8 kms.)	17.01.2010
9	2x12.5MVA 132/33kV grid S/S at Barpalli	18.01.2010
10	315 MVA 400/220/33 kV ICT -1 & 2 at Mendhasal grid S/S and 400 kV DC line from Meramundali to Mendhasal (100.151 kms.) ( 1 ckt. charged at 400 kv)	31.01.2010
11	132 kV Badagada -Uttara S/C line on DC tower (12.25 kms.)	23.03.2010
12	2x12.5MVA 132/33kV grid S/S at Basta with associated line (0.92 km.)	30.03.2010
13	1x20 MVA 132/33 kV grid S/S at Badagada (Bhubaneswar)	30.03.2010
14	12.5 MVA 132/33 kV transformer at 220/132/33 kV Bolangir grid S/S	30.03.2010
<b>TRANSMISSION PROJECTS COMMISSIONED DURING 2010 -11 (TILL SEPTEMBER'10)</b>		
1	220kV DC line from Burla to Bolangir (117.847 kms.) (1 ckt. charged at 220 kv)	20.01.2010
2	1st 110 MVA auto-transformer at 220/132 kV grid S/S at Bolangir (New)	11.05.2010
3	3rd 40MVA 132/33kV transformer at Chhend grid S/S	28.05.2010
4	220 kV Kuchel -Balasore Ckt. II charged at 220 kV	13.06.2010
5	2nd 12.5 MVA transformer at 2x12.5 MVA,132/33 kV Basta grid S/S	14.06.2010
6	220 kV Narendrapur -Mendhasal Ckt. -II charged at 220 kV	12.07.2010
<b>TRANSMISSION PROJECTS COMMISSIONED DURING 2010 -11 (TILL SEPTEMBER'10)</b>		
7	132 kV Jajpur Road-Anandpur line (30 kms.) & one 132 kV feeder bay at Jajpur Road grid S/S	12.07.2010
8	Additional 40 MVA 132/33 kV transformer at Bidanasi grid S/S	20.07.2010
9	40 MVA 132/33 kV transformer at Badagada grid S/S	16.09.2010
10	2x12.5 MVA 132/33 kV grid S/S at Anandapur	26.09.2010 30.09.2010

**ANNEXURE - 2**  
**A DETAILS OF ONGOING PROJECTS UNDER TRANSMISSION PROJECT & CONSTRUCTION WING OF OPTCL**

Sl. No.	Name of the Project with scope of work	Status of Project	Status of Implementation	Estimated cost (Rs. in crores)	Expenditure upto 31.03.08 (crores)	Phasing of expenditure Rs. Crores				
						08-09	09-10	10-11	11-12	12-13
1	400 KV IB- Meramundali DC line [2.25 kms.]	V/S Sterilis Energy Ltd has agreed to complete the restoration work of the line.	To be comm. started during 2011-13	215.77	107.77	---	0.57	50	50	28.33
2	132 KV Maneheswar-Baugada S.C. line [1.3 kms.]	60 % work completed. Balance work was off-loaded from LMC and awarded to M/s. A.K.Das Associates.	To be comm. started during 2010-11	5.1	2.02	0.66	0.62	2.60	0	0
3	400/220KV Substation at Duburi (New) :- 400KV Bay/4 nos., 220KV Bay/10 nos., [2x33.5MVA, tr.]	220 KV Switchyard has been completed. 400 KV Substation will be charged after completion of Meramundali-Bidnasil [31 kms.] line.	To be comm. started during 2010-11	42.67	35.14	0.05	0.91	6.27	---	0
4	400 KV DC Line from Meramundali to Mandhasal [102.451 kms.]	Work completed & one line is charged at 400KV on 31.01.10.	Comm. started	72.68	56.01	0.03	---	4.04	---	---
5	220 KV DC Line from Mandhasal to Bidnasil [31 kms.]	Work in progress.	Comm. started 220KV [1-400KV line]	17.30	13.48	0.65	0	3.28	---	---
6	400KV DC line from Meramundali to Duburi [60 kms.]	Work in progress.	To be comm. started during 2011-11	141.48	110.34	38.86	0.01	1.61	---	---
7	Installation of 2x12.5 MVA transformers at existing 11/22 KV Akhisingi sub-station.	Work in progress.	To be comm. started during 2010-11.	6.55	---	1.6	2.25	2.71	---	---
8	2x40 VVA, 220/33 KV S/S at Bonai with associated transmission line [2.826 kms.]	Work in progress.	To be comm. started during 2011-12.	28.74	---	0.003	0.09	20	2.66	0
9	2x20 VVA, 132/33 KV S/S at Barbil with associated transmission line [1.5 kms.]	Work in progress.	To be comm. started during 2011-12.	1.4	---	---	0.552	12	3.4	0
10	132KV in 210 KV tower - Bidnasil - Cutback D.C. line [10.47 kms.]	Work in progress.	To be comm. started during 2011-12.	16.72	1.95	---	0.28	12	2.75	0
11	132 KV S.C. line on D.C. tower from Paradeep grid S/S to Jagatsingpur grid S/S [46.673 kms.] with 2 nos. feeder line extension [one at each end].	Work in progress.	To be comm. started during 2011-12.	16.74	0.54	0.05	---	10	6.05	0

PROJECTS BEING EXECUTED BY PGCIL																		
12	2X12.5 MVA, 132/33 KV S/S at Nuapada with associated transmission line 72.283 kms.	Work in progress.	34.84	---	---	---	---	3.53	25	3.63	1.45							
13	2X12.5 MVA, 132/33 KV S/S at Dabugon with associated transmission line 70.753 kms.	Work in progress.	25.374	---	---	---	---	2.6	25	5.77	2.6							
14	2X12.5 MVA, 132/33 KV S/S at Padampur with associated transmission line 45.512 kms.	Work in progress.	27.57	---	---	---	---	2.91	25	5.85	2.8							
15	2X12.5 MVA, 132/33 KV S/S at Kuchinda with associated transmission line 70.358 kms.	Work in progress.	27.365	---	---	---	---	2.6	25	5.77	2.6							
16	2X12.5 MVA, 132/33 KV S/S at Bhawanipatna with associated transmission line 6.62 kms.	Work in progress.	19.503	---	---	---	---	1.99	22	3.60	2							
17	2X12.5 MVA, 132/33 KV S/S at Boudh with associated transmission line 50.732 kms.	Work in progress.	33.53	0.06	---	---	---	3.38	29	9.63	3.4							
<b>TOTAL -A- (RUPES IN CRORES)</b>			<b>779.321</b>	<b>345.12</b>	<b>41.68</b>	<b>20.34</b>	<b>218.14</b>	<b>124</b>	<b>45.21</b>									

**B. DETAILS OF PROJECTS IN PIPE-LINE UNDER TRANSMISSION PROJECT AND CONSTRUCTION WING OF OPTCL**

Sl. No.	Name of the Project with scope of work	Status of Project	Status of Implementation	Estimated cost (Rs. in crores)	Expenditure upto 31.03.08 (crores)	Phasing of expenditure in Crores				Rs.
						08-09	09-10	10-11	11-12	
1	2x12.5 MVA, 132/33 KV S/S at Punushettampur with associated transmission line [2.5 Kms.]	Work to be commenced.	To be commissioned during 2012-13.	14.91	0.004	---	0.007	4.93	7	3
2	2x12.5 MVA, 132/33 KV S/S at Chandpur with associated transmission line [2.51 Kms.]	Work to be commenced.	To be commissioned during 2012-13.	15.512	---	---	---	5	8	3.812
3	2x20 MVA, 132/33 KV S/S at Banki with associated transmission line [10.80 Kms.]	Work to be commenced.	To be commissioned during 2012-13.	21.159	---	---	0.05	6	12	3.12
4	2x16.5 MVA, 132/33 KV S/S at Kalunsi with associated transmission line [6 Kms.]	Work to be commenced.	To be commissioned during 2012-13.	80.07	---	0.35	0.02	25	40	15.57
5	2x12.5 MVA, 132/33 KV S/S at Kalunsi with associated transmission line [6 Kms.]	Work to be commenced.	To be commissioned during 2012-13.	17.93	---	---	0.11	5	7	5.72
6	2x12.5 MVA, 132/33 KV S/S at Udiela with LULU arrangement of Halakoti - Bapida lines [30 Kms.]	Work to be commenced.	To be commissioned during 2012-13.	27.12	---	---	0.03	8.00	15	4
7	2x10 MVA, 220/112 KV S/S at Gopinathpur near Nuagaon (Kodaha) with associated lines.	Work to be commenced.	To be commissioned during 2012-13.	29.93	---	---	---	10	14.93	5
8	2x100 MVA & 2x20 MVA, 220/112/33 KV S/S at Lapanga with associated transmission lines	Work to be commenced.	To be commissioned during 2012-13.	64.83	---	---	1.03	20	32	11.83
9	2x100 MVA, 220/132/33 KV S/S at Kuanmunda with LULU arrangement of existing 220KV Budhipudur - Lanka DVC lines (108 VV)	Work to be commenced.	To be commissioned during 2012-13.	67.59	---	---	---	15	35	17.59
10	2x100 MVA, 220/112 KV Grid S/S at Cutback with 2 nos. 220 KV feeder connection at Hida vasi S/S with linking arrangements at both end.	Work to be commenced.	To be commissioned during 2012-13.	32.67	---	---	---	7	20	7.67





19	2x315 MVA, 420 KV Grid S/S at Lapanga in Sarvaipur Dist. Work on 110 KV line of 11.7430 KV R/S at Rajpur line (20 Kms.) and both S/S at 1B-7a/7b at Miranpur. 400 KV line at Laksar (15 KV) a.t.	Work to be commenced	To be commissioned during 2011-14	167.18					20	60	60
20	Construction of 2x130 MVA, 220/132/33 KV C.U. S/S at Pratapsalimbar. 3x cables with insulator 220 KV C.U. line of proposed 220 KV Cutack-Jajuli line.	Work to be commenced	To be commissioned during 2011-14	52.75				5	20	25	
21	Construction of 2x20 KV, 12/20 KV Grid S/S at Baliguda in district of Puri with construction of 55 Kms 1x2 KV line from Phulani to Baliguda and 1 no. 132 KV feeder key extension at Phulani. [4x kms]	Work to be commenced	To be commissioned during 2011-14	26.18				4	3	7	
22	Construction of 2x20 MVA, 220/33 KV Grid S/S at Nanasinghpur in district of Cutack with construction of 61.4 Kms 220 KV DC line for LLO arrangement of 1 ckt. of existing 220 KV Bhanjaragar-Meranundali DC line.	Work to be commenced	To be commissioned during 2011-14	23.00				5	10	50	
23	150 KV HVDC line from 12/20 KV Grid S/S at Salipur to 22/23 KV Grid S/S at Kantapara. (80 E. no.)	Work to be commenced	To be commissioned during 2011-14	13.71				3	5	4.43	
24	Construction of 2 nos. 220 KV feeders from 22/23/42 KV Grid S/S of CPCL at Jayanagar to 400/220 KV Grid S/S of PGCIL at Jayanagar having the length of approx. 8 Kms. With 2 nos. of 220 KV bus extension at each end.	Work to be commenced	To be commissioned during 2011-12	14.46				2	5	1.48	
25	Conversion of 42 KV SC line to 42 KV DC line from PGCIL Grid S/S, Kuchel to 15/42 KV Grid S/S, Baripada	Work to be commenced	To be commissioned during 2011-12	7.38				3	5	5.00	

26	Construction of 132 KV DC line from Daripada PGCIL (Kuchel) Grid S/S to Jaleswar Grid S/S with 2 nos. 132 KV Bay extension at Daripada PGCIL (Kuchel) & Jaleswar. [B20ME]	Work to be commenced	To be commissioned during 2012-13	32.32	--	--	--	0.35	1.312	217.94	503.76	386.1
27	Construction of one no. 220 KV line from proposed 220/132 KV Grid S/S of OHFC at Outback to proposed 400/220 KV Grid S/S at Uttara (Jatni) with two nos. of 220 KV Bay extension at each end.	Work to be commenced	To be commissioned during 2013-14	39.81	--	--	0.5	10	20			
28	Construction of 132 KV - LU arrangement of 132 KV S.C.I. from Marantra to Avati Steel to 132/99 KV Grid S/S. Vajapeta change of material feeder bay extension at NJPPT1A.	Work to be commenced	To be commissioned during 2012-13	5.03	--	--	1	4	1.03			
29	Construction of one no. 132 KV DC line from proposed 220/132 KV Grid S/S at Pratapsan to existing 132/99 KV Grid S/S at Phulmakhara along with 2 nos. of feeder bay extension at Phulmakhara.	Work to be commenced	To be commissioned during 2013-14	59.3	--	--	1	10	30			
30	Provision of 132 KV system and 400/220 KV Grid S/S at Mendhasal.	Work to be commenced	To be commissioned during 2013-14	27.67			0.37	5	10			
<b>TOTAL - B. (RUPEES IN CRORES)</b>												
				1271.921	0.005	0.35	1.312	217.94	503.76	386.1		

**C. OTHER NEW TRANSMISSION SUB-STATIONS AND LINES TO BE UNDERTAKEN BY OPTCL**

Sl. No.	Name of the Project with scope of work	Status of Project	Status of Implementation	Estimated cost [Rs. in crores]	Expenditure upto 31.03.08 (crore)	Phasing of expenditure in Rs. Crore				
						08-09	09-10	10-11	11-12	12-13
1	2x160MVA/220/132 KV S/S at Dhankanal (New) with connectivity by means of J.O of Merambada - Daburi 220 KV line.	Work to be commenced.	To be commenced during 2013-14	5.1	--	--	--	5	7.0	--
2	Construction of 2x31.5 MVA, 400/220/33 KV, 2x40 MVA, 2/20/34 KV S/S at Khuntul with 110 KV S/S at Khuntul with J.O of 400 KV transmission line & J.O of 400 KV transmission line from Dhankanal to J.O of 400 KV DC line to J.O of 400 KV DC line to J.O of 400 KV DC line to be connected with 2x31.5 S/S.	Work to be commenced.	To be commenced during 2014-15	24.718	--	--	5	30	50	--
3	Construction of 2x31.5 MVA, 400/220 KV, 1x20 MVA, 220/33 KV S/S at Nisha near Angal with construction of 400 KV DC line for J.O of 400 KV to Merambada line for restoration.	Work to be commenced.	To be commenced during 2014-15	52.25	--	--	5	30	50	--
4	Construction of 2x50 MVA, 220/33 KV S/S at Chendipada with 220 KV DC line on multi-tower tower from proposed substation at Akasa to Chendipada.	Work to be commenced.	To be commenced during 2013-14	43.01	--	--	3	15	20	--
5	Construction 132/33 KV air c/s/S at Chatahara with associated line.	Work to be commenced.	To be commenced during 2014-15	34.52	--	--	--	10	10	--
6	220KV connectivity from Ultra to Puri - 4x1 C/s	Work to be commenced	To be commenced during 2012-13	25.07	--	--	5	15	5.07	--
7	220KV connectivity from Puri to Puri - Ultra - 4x1 C/s	Work to be commenced	To be commenced during 2013-14	2.78	--	--	1.5	1.24	--	--

7	132 KV connectivity from Joda to Barbil – 25 KMs.	Work to be commenced	To be commissioned during 2012-12	3.75	--	--	--	3.75	6	--
8	132 KV connectivity from Kuanmunda to Chhend – 15 KMs	Work to be commenced	To be commissioned during 2012-13	5.85	--	--	--	1	3	1.55
9	132 KV connectivity from Phulbani to Boudh – 17 KMs	Work to be commenced	To be commissioned during 2012-13	16.33	--	--	--	--	6.33	10.00
10	132 KV connectivity from Jangraha to Dabugach – 75 KMs	Work to be commenced	To be commissioned during 2012-13	30.72	--	--	--	--	12.72	18.00
11	132 KV connectivity from Bhandrak to Anandpur – 50 Kms	Work to be commenced	To be commissioned during 2012-13	19.5	--	--	--	--	8.5	11.00
12	Construction of 2 <sup>nd</sup> Ckt. from Loc. No. 15 of 132 KV Chandaika Mimapada S.C. line to Nimsipadi Grid with one no. 132 KV Bev Extn.	Work to be commenced	To be commissioned during 2012-12	3.61	--	--	--	2	1.61	--
<b>TOTAL C</b>				598.10	0.00	0.00	0.00	27.25	149.12	201.77
<b>D : GRAND TOTAL (A-B-C) (RS. IN CRORES)</b>				2649.342	345.125	42.03	21.65	463.33	776.88	633.1

## UPGRADATION OF SUB-STATIONS CAPACITIES

Sl. No.	Name of sub-station	Existing Capacity (MVA)	Augmented Capacity (MVA)	Capacity Addition (MVA)
1	Angul	2x20	1x40+2x20	40
2	Aska	2x40	2x40+1x12.5	12.5
3	Balasore	2x100	2x160	120
		2x40+1x12.5	2x40+1x20	7.5
4	Balugaon	2x20	1x40+2x20	40
5	Bargarh	2x10	3x10	10
6	Baripada	2x31.5	1x40+2x31.5	40
7	Barkote	2x20	1x40+1x20	20
8	Berhampur	1x40+1x20+1x12.5	2x40+1x20	27.5
9	Bhadra c	2x100	1x160+2x100	160
		2x40+1x12.5	3x40	27.5
10	Bhanjanagar	1x16+1x12.5	1x40+1x16+1x12.5	40
11	Bidenasi	2x100	1x160+2x100	160
12	Bainda	2x12.5	1x40+2x12.5	40
13	Bolangir	2x10	2x40+1x20	20
14	Brajrajnagar	3x20+1x12.5	1x40+3x20	27.5
15	Budhipadar	1x20+1x12.5	1x40+1x20+1x12.5	40
16	Chainpal	2x20+1x12.5	1x40+2x20	27.5
17	Chandaca	2x40	3x40	40
18	Chandichol	2x20	3x20	20
19	Chatrapur	2x20	2x20+1x12.5	12.5
20	Choudwar	1x40+1x20+1x10	2x40+1x20	30
21	Cuttack	2x40	3x40	40
22	Dhenkanal	2x10	2x40+1x20	20
23	Digapahandi	1x20+1x12.5	2x20+1x12.5	20
24	Duguri	1x40	2x40	40
25	Jagatsinghour	2x20	3x20	20
26	Jajpur Road	1x40+2x20	2x40+1x20	20
27	Jajpur Town	1x40+1x20	2x40+1x20	40
28	Jayanagar	1x20+1x12.5	2x20+1x12.5	20
29	Joda	2x100	3x100	100
		3x20+1x12.5	1x40+3x20	27.5
30	Junagar	2x12.5	1x40+1x20+1x12.5	47.5
31	Kalarangi	2x12.5	3x12.5	12.5
32	Kamakhyannagar	2x12.5	1x40+2x12.5	40
33	Karanjia	2x12.5	1x40+2x12.5	40

**UPGRADATION OF SUB-STATIONS CAPACITIES**

Sl. No.	Name of sub-station	Existing Capacity (MVA)	Augmented Capacity (MVA)	Capacity Addition (MVA)
34	Katapalli	2x100	3x100	100
		2x20	1x40+2x20	40
35	Kesinga	2x20	1x40+2x20	40
36	Khariar	2x20	1x40+1x20	20
37	Meramundali	2x100	1x160+2x100	160
		1x12.5	2x12.5	12.5
38	Narendrapur	2x160	2x160+1x100	100
		1x40+1x20	2x40+1x20	40
39	Nimapara	3x12.5	1x40+2x12.5	27.5
40	Nuapatna	1x20+1x12.5	1x40+1x20+1x12.5	40
41	Paradeep	2x20	2x20+1x12.5	12.5
		1x100+1x50	1x160+1x100+1x50	160
42	Paralakhemundi	2x12.5	3x12.5	12.5
43	Patnagarh	1x20+1x12.5	1x20+2x12.5	12.5
44	Pattamundai	1x20+1x12.5	1x20+2x12.5	12.5
45	Polasponga	3x20	2x40+1x20	40
46	Puri	2x31.5	1x40+2x31.5	40
47	Rairangpur	1x20+1x12.5	1x20+2x12.5	12.5
48	Rajgangpur	2x40	3x40	40
49	Ranasinghpur	2x40	3x40	40
50	Rayagada	2x12.5	3x12.5	12.5
51	Rengali	1x20	2x20	20
52	Salipur	2x12.5	1x40+2x12.5	40
53	Sambalpur	2x31.5+1x20	1x40+2x31.5	20
54	Sonepur	2x12.5	1x40+2x12.5	40
55	Soro	2x20	1x40+2x20	40
56	Sunabeda	2x12.5	3x12.5	12.5
57	Sundargarh	2x20	1x40+2x20	40
58	Tentulikhunti	2x12.5	3x12.5	12.5
59	Therubali	2x12.5	3x12.5	12.5
			<b>Total</b>	<b>2692.5</b>



# SLDC AS AN INDEPENDENT SYSTEM OPERATOR (ISO)

*S. K. Das*  
*GM(System Support) SLDC*

## **INTRODUCTION:**

With the introduction of the reform process, the operation of the power system became a complex system with diverse stakeholders such as Generating Utilities, Transmission Utilities, Distribution Companies, Consumers, Manufacturers, Power Traders, Financial Institutes, Government Authority, Regulatory Body and many others. Any decision may involve considerable formal and informal interaction with stakeholders making the power system operation a multi disciplinary task. This needs the System Operator for an overall understanding of all related areas in addition to the technical aspects.

Load Despatch Center plays a vital role for handling of different but related sets of flows such as:

- \* Flow of energy across the grid.
- \* Exchange of information about power flows and the status of elements it moves across.
- \* The flow of money between producers, marketers, transmission owners, buyers and others.

which are critical for optimization of energy resources. Thus, Load dispatching is an overarching distinct and specialized activity.

Electricity Act 2003 enhances the scope of power sector reforms, which introduced several provisions with respect to new developments in the sector. The spirit of the Electricity Act 2003 is to ensure independence of System Operation.

Section 31 & 32 of the Electricity Act, 2003 contemplate SLDC as an independent apex body to ensure integrated operation of the power system in the State. SLDC has been empowered by Section 33 of the Electricity Act 2003 to give such directions and such supervision and control as may be required for ensuring integrated grid operations and for achieving maximum economy and efficiency in the operation of power system in the State. These are all highly responsible, technical and non-commercial statutory functions conceived by the Electricity Act, 2003 and are entrusted to SLDC to be carried out as an independent apex body.

Under the reform process, the power sector activities in India are developing at a fast pace. Load Despatching became a “critical activity” for uninterrupted and reliable power supply; a “facilitator” for an efficient electricity market; an “optimizer” of precious power generating resources; an “instrument” for equitable and fair use of the available transmission infrastructure and an “indispensable link” between the managers, administrators, planners and regulators on one end and physical system on the other end. The Load Despatch Centres would play a major role in facilitation and deployment of renewable energy sources and consider minimizing emission despatch as an objective function. Thus strengthening of Load Despatch Centres in India would yield substantial gains to stakeholders.

Ideal System Operation involves operational planning, protection co-ordination, design of safety net, assessment of transfer capability, generation / transmission facility outage co-ordination, frequency control, voltage control, issuing switching instructions, managing congestion in the transmission system, arming and disarming of System Protection Schemes, restoration of equipment post disturbances, grid disturbance analysis and such related activities for ensuring reliability of the power system.

Precision and timely decisions are vital in System Operation. A minor technical snag or a human error may lead to human casualty, equipment damage and / or blackout of an area, resulting in severe social, economic and political

implications. Thus, “ Situational Awareness” (SA), presence of mind, fast decision-making and prompt action are essential for preventing supply interruptions or loss of resource optimization opportunities.

The complexity in System Operation has increased due to increase in system size, increase in the number of stakeholders and growing demand for electrical energy. In future the challenges before the System Operators would increase with the introduction of Distributed Generation (DG), increased sources of renewable energy etc. Future grids are expected to be “ Intelligent Grids” with self-healing properties and tomorrow’s operator would be designing & operating such grids. These developments would lead to a significant increase in the challenges to be faced by system operators.

#### **EXISTING GRID OPERATORS:**

The National Load Dispatch Center (NLDC) located at New Delhi is the nodal agency for coordination of all Regional Load Dispatch Centers (RLDCs). The RLDCs located at Kolkata, Shilong, New Delhi, Mumbai & Bangalore are the apex bodies for regional grid operation and State Load Dispatch Centers (SLDCs) located in the respective State capital are apex bodies at the state level grid operation.

#### **Need for an Independent System Operator**

Prior to 1990, when National Grid did not exist and the grid was mostly limited to load and generation centers, the task of operation of the grid was simpler and was being performed by the Central Electricity Authority. In the year 1989 when the cabinet decided to create a separate CPSU namely National Power Transmission Corporation (later renamed as Power Grid Corporation of India Limited) for transmission lines, it also approved transfer of Regional Load Dispatch Centers (RLDC’s) to this CPSU. PGCIL was handed over the task of grid operation in 1994 with the SRLDC as the first one to be transferred. It was done to facilitate modernization of system operation infrastructure by the PGCIL under Unified Load Dispatch and Communication (ULD&C) Scheme. After the enactment of Electricity Act 2003, it has been envisaged that there will be competition among generation, transmission and distribution companies and private investment will be an important component for future development. Policies and guidelines have been put in place to attract private investment into transmission of electricity. A prerequisite of any such effort is that there should be a level playing field both in fact and perceived as such. PGCIL is a Central Public Sector Undertaking with the mandate for construction of transmission lines. It is a commercial organization, which makes a profit from operating the transmission system. Since it is envisaged that private companies will also construct and own transmission lines in future (one joint venture company is already doing so), therefore one of the owners of transmission lines namely, the PGCIL, also operating the national grid system raises a picture of a player being also the referee. Any action on the part of the system operator is likely to be suspect in the eyes of other owners of transmission lines, because the operator also happens to be one of the owners. So in order to create a level playing field and to ensure fairplay, it has become imperative that the operation of grid system should be handed over to some agency other than the Powergrid. The Electricity Act 2003 also envisages that the work related to load dispatch can be entrusted by the Government to a separate entity like a corporation. The PGCIL, which is the notified CTU or Central Transmission Utility would continue to carry out this role as envisaged under the Electricity Act 2003.

#### **Choice of Agency for Load Dispatch Activity**

As has been discussed above, the operation of a national grid system comprises regional load dispatch centers and state load dispatch centers and the hierarchy down the line. System operation has become a vital task as far as the stability, reliability and efficient and economic transmission of electricity is concerned. Load Dispatch Centers are also crucial in ensuring open access of transmission. It is also becoming a more and more specialized job and therefore there is a need to hand over the task of operation of the national and regional grid system to an independent specialized agency especially created for this task. Any of the existing agencies within the Ministry of Power cannot be given this job since the very nature of specialization of operations and independence of the

operator. CEA, which was handling this task in the years prior to 1994, but is not considered suitable to take over this function because of the following reasons.

1. It is a purely government body and does not have the flexibility of a public sector undertaking.
2. The job of operation has become much more specialized in the last decade and CEA does not have that specialization of modern system operation functions.
3. CEA is involved in transmission tariff fixation and raising demand from the state utilities through its Regional Boards, as the secretariat to Regional Power Committees (RPC), as well as it is the technical advisor for the Ministry of Power and it is also an advisor for the CERC on grid standards and grid connectivity issues. CEA has functions like issuing standards to grid connectivity to be followed by all the users of transmission lines. Therefore CEA too, may not be perceived as an independent agency for system operation in the eyes of private players in the transmission sector.

### **Formation of Independent System Operating Agency (National & Regional Level)**

A wholly owned Government of India Corporation with the responsibility to carry out all functions as an Independent System Operator has already been established and named as the Power System Corporation (POSCO) with its headquarters at New Delhi.

Functions of the POSCO are as follows.

1. To supervise and control all aspects concerning operations and manpower requirement of RLDC's and NLDC. All the employees and executives working with RLDC's and NLDC will be from the cadres of POSCO.
2. To act as the apex organization for human resources requirement of NLDC and RLDC's.
3. To ensure planning and implementation of infrastructure required for smooth operation and development of National and Regional Load Dispatch Centre.
4. To coordinate, monitor and supervise the smooth functioning of NLDC and all the RLDC's.
5. Nodal agency for Accounting, Billing and collection of Transmission charges for the different Transmission Service Providers.
6. To perform any other function entrusted to it by the Ministry of Power.

In line with the above the role of State Load Despatch Centre (SLDC) can be thought of for operating the State grid in coordination with the various Stake Holders in the State.

### **FUNCTIONS OF LOAD DESPATCH CENTRE:**

Under ABT regime, the role of balancing the demand and generation side of power is vested with the RLDCs in the regional level and SLDC in the state level. As such some of the system requirements at the grid for the successful implementation of ABT will be:

- a) **Improving transmission systems & congestion management:** A unique nature of electricity as a commodity is that it needs to be generated just in time for consumption. With addition and modernization of different power resources adding the total generating capacity, transmission is soon going to present one of the major bottlenecks in the smooth operation of our power systems. It will be the responsibility of the grid operator to ensure that such a scenario is averted. Merely adding of transmission capacity to the existing infrastructure may prove inadequate. It will be equally imperative to smoothly and efficiently manage the system with proper simulation tools, load-balancing features etc. to ensure that the bottleneck in transmission is removed and that all the available energy is efficiently delivered to the needy consumers.

- b) **Demand forecasting systems:** SLDC is vested with the role of coordination between consumers and generators regarding the demand and generation schedule for each day split into 15-minute intervals. Since UI charges are payable by the generator or consumer, it may seem that the onus of forecasting more lies with these parties (especially consumers). However to ensure that the spirit and objective of ABT is not thwarted, it would indeed be important to predict as accurately as is possible the demand in different Distribution area. Variations as a result of climate, festivals and other events also need to be taken into consideration.
- c) **Communication and information systems:** It is the responsibility of the SLDC to communicate the 15-minute generation and consumption schedule to each party. It is also the role of the SLDC to convey any unforeseen change in such a schedule. ABT envisages that the UI charges will get suspended for specific periods in the event of an unforeseen disruption in the grid for which responsibility cannot be pinned down on any particular generator or consumer. It is very important that the disruption and revised schedule is communicated in a timely fashion to all the concerned parties failing which the credibility of the whole system may soon get pulled into the question. This aspect requires the grid operator to have excellent communication and information infrastructure in place.
- d) **Metering and billing system:** Under ABT specifications it is the responsibility of the SLDC to ensure adequate metering capabilities for proper implementation of the tariff structure. Under the revised structure, specialized energy meters that can keep track of 15-minute energy aggregates as well as frequency for each 15-minute interval need to be implemented to take care of the normal energy charges and the UI charges. Telemetry capabilities (with associated hardware and software solutions) also need to be put in place to ensure accurate and timely completion of the exercise. The alternate of manual reading of meters will prove too extensive, time consuming and likely to be error prone and may jeopardize the credibility of the ABT regime.
- e) **Real Time Grid Operation:** It is the responsibility of the SLDC for smooth operation of the State grid with equitable loading of its transmission element and to avoid congestion in any of the transmission elements by suitably monitoring the power flow & generation. Besides the above, providing quality & reliable power supply to each consumer by properly monitoring the electrical parameters is the prime responsibility of the grid operator.

#### **GRID SECURITY:**

The State grid has a vast network of transmission lines at different voltage level. In recent years, the number of transactions and quantity of power flows on the transmission grid has increased significantly. At the same time, quality of Power flow becomes poor. To improve the quality of power supply and maintain the grid security, the impact of transmission will be significant. The System Operator has to play a major role for congestion management by developing a robust monitoring mechanism for which Information exchange system has to be strengthened.

Congestion in a power network is turned up due to system operating limits. To relieve congestion in a deregulated power market, the system operator pays to market participants, Generators and Distribution Licensees, to alter their active powers considering their bids. After performing congestion management, the network may be operated with a low security level because of hitting some flows their upper limit and some voltages their lower limit.

The preventive measures adopted by SLDC for improvement of grid security are as follows

1. Power System Planning: Maintaining database for long term power system planning
2. Reliability Standards: Improving reliability standard by monitoring generation & power flow in the network
3. Control Area Obligations: Insisting on Distribution Licensees to comply with the obligations as provided in the Code, Act etc.
4. Grid Code: Conducting familiarization programme for the Users of the System

5. Protection Coordination: Disturbance analysis and offering suggestions for protection co-ordination.
6. Maintenance Scheduling: Preparation of annual outage planning / maintenance scheduling in coordination with RLDC, Generators, Transmission Licensee & Distribution Licensee and monitoring on real time basis.
7. Load Generation Balance: Preparation of annual / monthly / daily load-generation balance report for real time operation.
8. Black start procedures, Mock drills: Preparation of black start procedure / switching operation for mock drill.
9. Continuous learning: Deputation of Executives for training
10. Assessment of Transfer Capability Limits: Computation of ATC & TTC for real time operation.
11. Resource scheduling: Generation scheduling for State generators and drawal scheduling for DISCOMs
12. System Monitoring by experienced personnel: Real time monitoring by experienced & skilled high-level executives.
13. Contingency analysis: Analysis of system contingency by conducting real time load flow study and Post-dispatch schedule.
14. Power System Performance Review and reporting: Preparation of Daily / Weekly / Monthly / Annual System Performance Report

#### **GRID DISCIPLINE:**

The root causes of grid indiscipline are due to:

- \* Absence of tools and guidelines
- \* Lack of sufficient generation capacity

The remedial measures to address this issue are:

- \* Adherence to drawal schedule by Distribution Licensees
- \* The Distribution Licensees need to undertake extensive load research to evaluate the magnitude and characteristics of current load and future load addition. Load research cannot only increase accuracy of load forecast, but also assist in formulation of demand side management measures.
- \* A significant systemic tool like Energy Management System (EMS), has features addressing short term unit commitment, economic load dispatch and settlements.
- \* Implementation of Intra State ABT.
- \* However for this to be effective additional statutory powers to the regulator and the load dispatcher may be necessary.

#### **SYSTEM STABILITY:**

A stable power system is such a system which shall remain stable in case of outage of any system element without affecting the generation & power delivered to the Customers. The State Load Despatch Centre gives such directions and exercises such supervision and control as may be required for ensuring stability of grid operations and for achieving the maximum economy and efficiency in the operation of the power system in the State. Under section 29(4) of the Electricity Act, 2003, the Regional Power Committee in the region may, from time to time, agree on matters concerning the stability and smooth operation of the integrated grid and economy and efficiency in the operation of the power system in that region.

The following functions, which go to facilitate the stability and smooth operation of the system, are identified for the RPC:

- a) To undertake Regional Level operation analysis for improving grid performance.
- b) To facilitate inter-state / inter-regional transfer of power.
- c) To facilitate all functions of planning relating to inter-state / intrastate transmission system with CTU / STU.
- d) To coordinate planning of maintenance of generating machines of various generating companies of the region including those of interstate generating companies supplying electricity to the Region on annual basis and also to undertake review of maintenance programmed on monthly basis.
- e) To undertake planning of outage of transmission system on annual / monthly basis.
- f) To undertake operational planning studies including protection studies for stable operation of the grid.
- g) To undertake planning for maintaining proper voltages through review of reactive compensation requirement through system study committee and monitoring of installed capacitors.
- h) To evolve consensus on all issues relating to economy and efficiency in the operation of power system in the region.

However, the State Load Despatch Centre, Orissa is actively participating in all the above-mentioned activities of ERPC and complying all the directions issued by ERPC for maintaining grid security & stability.

#### **CONCLUSION :**

The role of the system operator is that of the load dispatch, load management, grid management, energy accounting, settlement and clearing. A clear implication of non-discriminatory open access is that the system operator has to be truly independent in ownership as well control from the market participants.

Another key requirement for the system operator would be to design and implement information system on the lines similar to those implemented in other developed countries such as the 'open access same-time information system' (OASIS) that would be used for settlements, energy accounting, trading, load dispatch and executive information. SLDC as an ISO is an independent agency responsible for administering transmission system operations and electricity markets.

To maintain System Stability, the CEA planning criterion / standard is to be adopted by the STU. Suitable System Protection Schemes should be planned by the STU in consultation with SLDC / RLDC / Users of the System. However, in spite of several constraints, the State Load Despatch Centre is discharging its responsibilities with best possible efforts.

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## **OHPC—THE FUTURE AHEAD**

*Santosh Kumar Pattanayak, IRAS  
Director (Finance & HRD), OHPC*

Almost fifteen years have passed since the Orissa Reforms Act, 1995 facilitated the birth of Orissa Hydro Power Corporation with an avowed objective of harnessing new hydro power potential of the State in addition to generating hydro power from its existing projects. Walking down the memory lane, one could easily trace back the voyage of OHPC to 1<sup>st</sup> April' 1996, the day on which four hydro power projects, namely Hirakud Power System (HPS), Balimela Hydro Electric Project (BHEP), Upper Kolab Hydro Electric Project (UKHEP), Rengali Hydro Electric Project (RHEP) came to its fold with the transfer of assets & liabilities from the erstwhile OSEB and the Govt. of Orissa. Besides, the Upper Indravati Hydro Electric Project (UIHEP), during its construction stage then also became part of its domain and jurisdiction. Around the same time, the workforce drawn from the fold of GoO and erstwhile OSEB joined hands to redefine the future of hydro power generation in the State.

Being the first state owned generation utility in the country, OHPC had to negotiate many obstacles and challenges to carve out a niche for itself. Right through its voyage during a short span of 15 years, the Corporation has added 790 MW of additional installed capacity through uprating of four units ( Units # 1,2,3 & 4) for 40 MW at Hirakud Power System (HPS), commissioning of 600 MW Upper Indravati Hydro Electric Project (UIHEP) and adding up two new units of 75 MW each in the Balimela Hydro Electric Project ( BHEP), thus reaching its present installed capacity of 2062 MW including 30% share in Machhkund Hydro Electric Project, a Joint Venture Project of Govt. of Andhra Pradesh and Govt. of Orissa. At present, OHPC functions with 6 (six) independent PH units including Chiplima Hydro Electric Project (CHEP) which was carved out of the Hirakud Power System in June'2009. A separate dam maintenance unit of Upper Indravati Hydro Electric Project also operates with its set up at Khatiguda.

For long, OHPC has been a source of sustenance to the Orissa Power Sector. No one can deny its stellar role in providing electricity at one of the cheapest rates in the country to the State Grid because of which people of Orissa are able to avail electricity at an affordable cost. OHPC also ensures the grid discipline under ABT regime of the Eastern Regional grid by providing peak power support to the system. A good water year always brings cheers not only to OHPC but also to other power utilities at large in the State including GRIDCO, OPTCL and DISCOs, as each of them gains substantially from the generation of surplus hydro power over and above the design energy of the reservoirs. As it happened in the year 2007-08, OHPC could rope in a profit of Rs.121.39 crores because of record generation of 8059 MU. However, the maximum gain was availed by GRIDCO who could successfully trade the secondary hydro energy of 2115 MU to their advantage while wiping out their long standing deficit of nearly Rs.1700 crores carried over the years since inception. No wonder, why GRIDCO could not repeat the feat subsequently thereafter due to two successive bad water years.

While the vision of the Corporation is to be a leading power utility in the energy sector through diversified energy portfolio with due care and concern to the environment; its main objectives aim at maintaining high level of production at least cost backed by increasing efficiency of working at all levels through intensive training and motivation. Having identified the thrust areas for diversified growth, OHPC is now poised to leap forward by embracing new projects. With missionary zeal and visionary objective, OHPC has envisaged setting up of twelve new projects through joint venture with an estimated installed capacity of about 1700 MW. In the first phase, three run-of-the- river projects viz. Sindol-I,II & III on river Mahanadi having energy potential upto 300 MW will be taken up through joint venture with NHPC, the process for which is now under finalization. The proposed joint venture company will have debt equity ratio of 70:30 with equity participation of 51% and 49% from NHPC and OHPC respectively. In addition, action has also been initiated for setting up new interstate river projects through

a separate joint venture with APGENCO. Two of the projects viz. Balimela Dam Toe ( 2 x 30 MW) & Jalaput ( 2 x 6 MW), which have recently been cleared by the Governments of Andhra Pradesh & Orissa are soon to be taken up under joint partnership of APGENCO & OHPC.

Also spreading its wings to thermal power, OHPC has been an active partner in two joint venture projects namely Orissa Thermal Power Corporation Ltd. (OTPCL) & Baitarani West Coal Company Ltd. (BWCCCL) since their formation in January' 2007 and June'2008 respectively. OTPCL is all set to roll out its 2000 MW thermal power plant in partnership with Orissa Mining Corporation Ltd. (OMC) at a location near Dhenkanal with guaranteed fuel supply arrangement from two captive coal blocks namely Baitarani West (OHPC) & Mandakini-B (OMC). BWCCCL a joint venture of OHPC, GPCL and KSEB has made satisfactory progress to open up a new mine in the Talcher Coal Field, having 602 MT capacity with an average annual production of 15 MT, which will be equally shared by the three JV partners.

Maintenance of the Power House assets, some of which have already outlived their utility like at HHEP, CHEP & BHEP has been the most daunting task before the OHPC management and workforce. Even though, some of these units are performing beyond the level of expectation despite long years of wear & tear, it is high time to take up the renovation, modernization and uprating (R,M&U) of the said units in a planned and phased manner. OHPC has already scheduled the R, M & U works for the old units at Burla (Unit# 5 & 6) and Balimela (Unit # 1,2,3,4,5 &6) without interfering much on the plant availability and yearly generation. The Machhkund Hydro Electric Project (MHEP) under the management control of APGENCO is also due for renovation and modernization. Both APGENCO & OHPC have jointly decided to go ahead with the R,M & U works for its six units in phases. The other PH units at Upper Kolab and Rengali which have been in operation since the late eighties, are also nearing the end of their useful life. As the reliability of the BHEL make units are now put to test due to irregular breakdown & trouble shooting thereon, plans are afoot to take them under R,M&U in phases for long-term sustainability of the projects. As such, the two pronged strategy on the project front i.e. to take up new projects while taking care of the existing ones, are expected to fetch good return on the financial investment without putting substantial burden on the energy tariff fixed by OERC on yearly basis.

Many may not be aware of the fact that water conductor system inclusive of intake point of the reservoir, surge shaft, pressure tunnel, valve house & penstock is crucial for the efficient operation of the PH units. Since transfer of these assets to OHPC in the year 1996, no major maintenance works have been taken up for the water conductor system in most of the three project locations. Of late, however, OHPC has initiated an action plan in coordination with DOWR to take up the refurbishment and repair work to the deteriorating systems. The state agencies like Orissa Construction Corporation (OCC) and Industrial Development Corporation (IDCO), having requisite expertise on such specialized nature of work are being engaged to kick start the process. Recently, one such initiative taken by OHPC at its Chiplima unit has already started giving results wherein successful installation of a Trash Rack Cleaning Machine (TRCM) on its forebay dam has improved the PH generation substantially. Thus the long-standing problem of weeds choking the trash racks of the three units at Chiplima has been solved with the adoption of a new and innovative technology.

Being fully aware of the global climatic changes and their associated effects including erratic monsoon rainfall, OHPC has accorded top priority to sustainable development, and hence committed to produce clean and green energy keeping in view the need for preserving and conserving the environment for the future generation. To start with, the untapped potential of mini & small hydel projects in the State needs to be explored fully and embraced gracefully on turn-key outsourced mode. The short gestation period coupled with minimum impact to the ecosystem and environment will make the implementation process rather easy as compared to the medium & large hydro projects. Besides, technological advancement in the near future would also open up a vista of opportunities for OHPC to harness and tap renewable energy including wind and solar. A lot more will however depend on the policy frame work of the Centre and State wherein a level playing field might open up new avenues for OHPC to compete and bag new renewable energy projects.

Apart from following the new Corporate Governance practices both in letter and spirit, the manual for which has recently been published by the Deptt. of Public Enterprises, GoO, OHPC has set its next goal to be one of the few “Mini Ratnas” of the State PSUs. Fortunately, the Board of Directors of the Company has taken many historic decisions in the recent past to put OHPC on a progressive track. The IT roadmap for the organization has been charted out, which will be setting new benchmarks in the industry. A robust communication network on Multi Protocol Label Switching (MPLS) technology connecting all the units including the Corporate Office will soon become a reality. Such an initiative is bound to improve the productive efficiency of OHPC through a host of IT based services, like video-conferencing, internet telephony, SCADA, ERP, surveillance security etc. In order to rationalize the requirement of existing manpower for their optimum utilization, it has also been contemplated to take up the manpower review in the right earnest through a professional consultant agency. The other HR initiatives which are in the pipeline, envisages rationalization of cadre structure, recruitment of quality manpower, creation of new project cell with induction of civil and mechanical engineers, development of new performance appraisal system linked to performance based incentive structure, implementation of voluntary retirement Scheme etc.

The sound financial position of the Corporation always makes OHPC comfortable in taking recourse to prudential fund management and project investment decisions. The employees too are suitably compensated financially in terms of allowances, awards and incentives for their direct or indirect contribution to the productivity of the organization. The OHPC Pension & PF Trust Fund, adequately funded by the Corporation and managed professionally by a committed bunch of Trustees provide the much needed succor to the retired employees by arranging regular payment of their pension and other settlement dues. A cabinet decision is in the offing that will pave the way for OHPC to be the first Corporation in the State to issue IPOs through National Stock Exchange. This will also provide a definite edge to OHPC in raising public money for funding its new projects on anvil.

Having set its future goals in tandem with the vision & objectives, OHPC also leads by example in setting new standards and benchmarks in shouldering Corporate Social Responsibility with a humane and holistic objective of reducing the socio-economic disparity and regional imbalance. It has left no stone unturned in contributing sensibly towards peripheral infrastructure development projects in remote villages and the surrounding Power House areas. In addition, the Corporation has relentlessly pursued development in the field of education, livelihood, health care, income generation to the project affected families. During the current financial year, OHPC has already committed itself to contribute a grant of Rs. 2.5 crores (approx.) to cover the CSR (Corporate Social Responsibility) activities in all six projects including Khatiguda.

Notwithstanding the achievements and accomplishments and several constraints and bottlenecks in the present system of working, the future ahead for OHPC definitely looks promising. Nevertheless, the ultimate outcome of the many initiatives on the roll out now will depend on the proactive and positive involvement of OHPC management and the key decision support system of the Government backed with political will. Behind all these efforts will always remain a strong, dedicated and cohesive workforce of three thousand plus to chart out the destiny of OHPC for the future.

## OPGC - PRESENT ROLE AND FUTURE PLANS

*M. R. Mishra  
Company Secretary, OPGC*

Orissa Power Generation Corporation Ltd. (OPGC) was incorporated on 14th November 1984 as a wholly owned subsidiary of Govt. of Orissa (GoO) to promote the growth of thermal power generation capacity within the state.

In the pursuit of its objective, OPGC established **IB Thermal Power Station** having two units of 210 MW each in the Ib valley area of Jharsuguda District in the State of Orissa. These Units have become operational since 1994 (1st Unit) and 1996 (2nd Unit) respectively. The entire generation from IB Thermal Power Station is committed to GRIDCO, at present a State owned utility; on the basis of a long term Power Purchase Agreement. There are seven mini hydro Units out of which three are in operation and remaining units are being revived.

As a part of the reform in the energy sector of the state, 49% of the equity was divested in favour of a Strategic investor i.e. AES Corporation, USA in early 1999.

OPGC with its present ownership structure is unique of its kind in the country and has excellent track record of plant performance and earnings.

The project site is located at Banharpali in the District of Jharsuguda, Odisha, which is at an approximate latitude of 21<sup>o</sup>, 42' N and longitude of 83 52'E. ITPS site is located on an undulating terrain, but has been graded to flat terrain at elevation of 199.5m above the sea level.

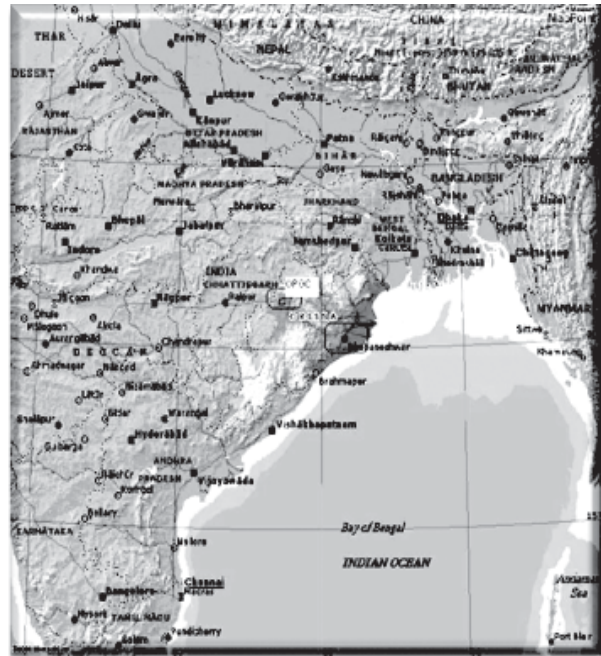
The location of the thermal power plants at the pit heads of coal mines and their proximity to the main reservoir at Hirakud facilitates easy supply of coal and water respectively. This gives the company the distinct advantage of low cost of inputs leading to low cost generation.

Coal from mines is brought by dumpers up to Ubuda loading platform where coal is loaded to bottom discharge wagons of OPGC. Further transportation from loading platform to power station is by broad gauge railway line adopting a Semi "Merry-Go-Round (MGR) system. The MGR route is 10.7 Kms. for loaded run and 12.7Kms.for empty run.

A firm Coal supply agreement between OPGC and Mahanadi Coalfield Limited was signed on 17<sup>th</sup> of Nov-09. Prior to this there was only a fuel linkage. OPGC has a plan to import 1,00,000MT of imported coal to meet its resource quality requirements.

OPGC has been following world class system and practices like ISO Certifications, Behavioral based Safety, Zero Tolerance Policy P2P, CAPEX, APEX, SAP, Operational Risk Assessment, Engineering Standards, KPI & Deliverables, Business Continuity Processes, Technical Risk Assessment & Ten year Budget plan.

People development has been the key focus area for OPGC .Moving towards lean manning, retaining skilled human resources, people development and satisfaction, market based compensation, Variable Pay Incentives are initiatives for better man management.



Up-gradation of C&I and Electrical Control systems, Control Room Up gradation, Coal Washing and blending and installation of boiler tube leak detection system will help OPGC keep pace with its competitors in near future.

OPGC has established itself as a cost effective generator through Improved resource optimization, capital costs vs sustained performance, reduction in contract services and sourcing economies.

Better availability of asset information and streamlining of maintenance processes led to significant improvement in plant performance over last decade in terms in terms of availability, PLF and specific fuel consumption. Additionally, we benefitted with fast & accurate maintenance information retrieval, predictive analysis and performance measures, effective materials management & spares inventory control.

OPGC follows best operating practices like trips minimized through changeover of equipment and checking up availability of standby equipment, review of parameter excursions and implementation of RCA and trip committee recommendations.

Average ash generated per day is to the tune of 3500 tonnes. Disposal of ash is done to self owned ash ponds (A & B), arrangement is also made for dry ash disposal for ash utilization for low lying area

OPGC has state of the art fire protection system for various applications like hydrants, automatic high velocity spray, turbine bearing fire protection system, automatic CO2 flooding system for control room (replacing HALON in phases).

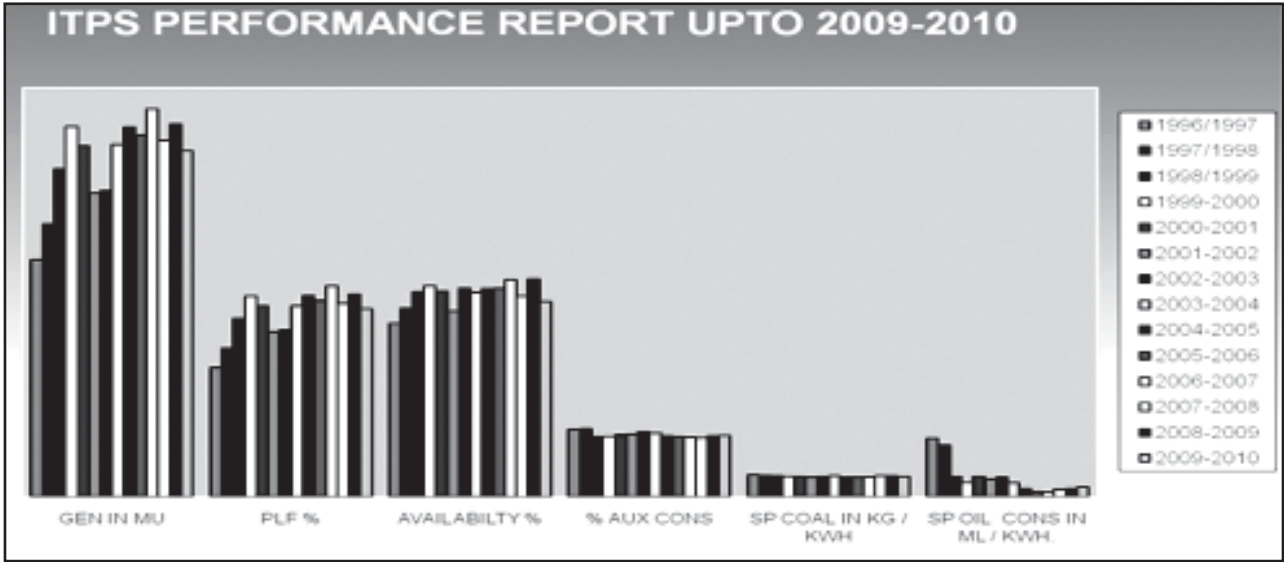
Continuous improvement projects are taken up through APEX and Quality Circles activities.

The company has established internal control standards and procedures to ensure that assets are protected and properly used and that financial records and reports are accurate and reliable.

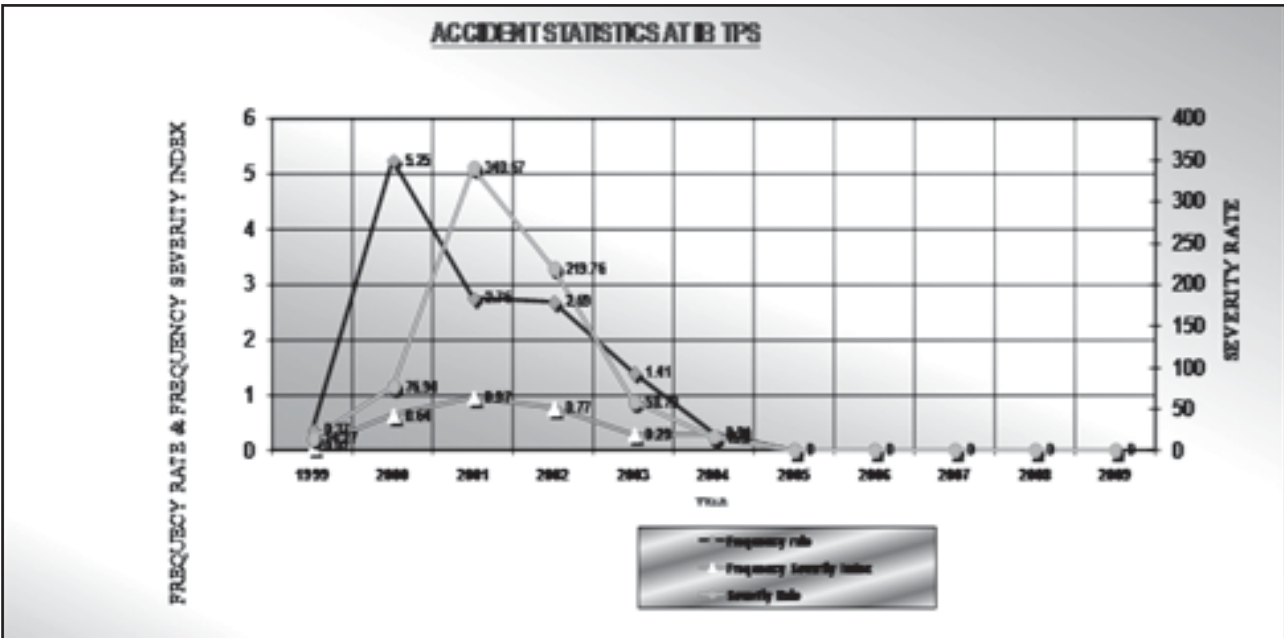
Today OPGC has firmly established its credentials as a successful power generating company both technically & commercially by providing safe, clean & reliable power.

FINANCIAL YEAR	GENERATION IN MU	PLF %	AVAILABILITY %	% AUX CONS	SP COAL IN KG / KWH	SP OIL CONS IN ML / KWH
1996-1997	2028.777	55.14	74.05	11.56	0.942	4.971
1997-1998	2333.502	61.42	80.75	11.55	0.912	4.401
1998-1999	2803.925	76.21	87.71	10.23	0.881	1.739
1999-2000	3168.368	85.82	90.34	10.26	0.856	1.214
2000-2001	3001.584	81.59	87.89	10.58	0.847	1.697
2001/2002	2598.808	70.64	79.23	10.69	0.844	1.518
2002/2003	2621.134	71.24	89.16	11.06	0.850	1.673
2003/2004	3010.478	81.8	87.44	10.94	0.872	1.199
2004/2005	3165.417	86.04	89.06	10.34	0.834	0.652
2005/2006	3094.781	84.12	89.31	10.23	0.842	0.399
2006/2007	3017.81	90.18	92.78	10.15	0.827	0.383
2007/2008	3047.187	82.6	85.72	10.11	0.875	0.62
2008/2009	3190.634	86.72	92.97	10.34	0.883	0.666
2009/2010	2961.114	80.40	83.57	10.44	0.862	0.04





The management constantly endeavours to create a safer work place through strong commitments of its employees as well as contractor workmen with the message "Safety is our way of life" and every work force has a right to work in a safe work place.



The Company has won many state as well as national level awards and recognition.

**EHS Awards received by OPGC:**

- \* Pollution Control Appreciation Award-2002 from State Pollution Control Board, Orissa in recognition of the effective pollution control measures taken and for adoption of Excellent Environment Management practices.
- \* State Safety (Best Environment Management) Award from Directorate of Factories and Boilers, Govt. of Orissa for the year 2002-03.



- \* Pollution Control Excellence Award-2003 from State Pollution Control Board, Orissa in recognition of the effective pollution control measures taken and for adoption of Excellent Environment Management practices.
- \* Received State Best Safety Award from Directorate of Factories and Boilers, Govt. of Orissa for First Position in “Longest Accident Free Period during Yr.2004”.
- \* Runners Award for Best EHS Management for the year 2004-05 from CII, Orissa Chapter.
- \* Greentech Safety Gold Award in thermal power sector for the year 2004- 2005, 2006, 2007 & 2008.
- \* Greentech Environment Excellence Gold Award in thermal power sector for the year 2003-04, 2004-05, 2006 and 2007 for best environmental management.
- \* Best practices in EHS Management for the year 2007 from CII, Orissa Chapter.
- \* 1<sup>st</sup> prize in lowest weighted accident rate for year 2006.
- \* Best practices in EHS Management award(1<sup>st</sup>) for the year 2009 from CII, Orissa Chapter
- \* Shrestha Surakshaya Puraskar 2009 from National Safety Council of India

### **OPGC capacity addition plan**

#### **Power Plant**

OPGC is now pursuing capacity addition of 1320 MW (2 X 660 MW, Supercritical Units), to be located at the existing power plant site at Banharpali, Jharsuguda. Land for the main plant and its accessories are already in possession. Water intake is available from Hirakud Reservoir, which is situated adjacent to the project location. In addition, the project has already secured environment clearance and aviation clearance. The project is in process of seeking long term open access.

Out of 1320 MW, 50% of the power shall be supplied to GRIDCO at regulated tariff. Of the remaining 50% capacity, balance power is proposed to be sold through long/short term contracts. Power to be sold to GRIDCO from the proposed capacity addition, shall be evacuated through transmission facility provided by OPTCL. Power to be sold outside the state will be evacuated by securing open access from PGCIL.

The EPC bidding process for the main plant is scheduled to be started shortly. Financial Closure is scheduled for Q2 2011, for which financing agreements with lenders are under review. Construction is expected to commence from Q2 / Q3 2011 and COD of the plant is estimated to be achieved in Q 2/3 2015.

#### **Fuel Source**

OPGC has been allocated captive coal blocks at Manoharpur under Sundergarh district of Orissa. Of the blocks, Manoharpur is fully explored and Dip side is regionally explored. The coal blocks have a combined estimated reserve of 531 MT. Mining plan for Manoharpur has been approved by MoC. It is proposed to mine 8 MT per annum of coal, for the additional capacity. Land acquisition, forest clearance, environment clearance and issue of mining lease are in progress for the coal blocks.

The coal blocks are proposed to be mined by engaging a mine operator.

OPGC has also applied for a tapered linkage to bridge any gap between COD of Power Plant and full capacity operation of captive coal mine.

**Coal transportation**

Coal shall be transported from the coal mine to plant site through a dedicated railway corridor of around 47.5 kms. The proposed alignment runs across two districts, of which around 35.5 km falls within Jharsuguda and 12 km falls within Sundergarh district. Development of the railway corridor is being done with the assistance of RITES Ltd. Some of the key permits like in principle clearance from SEC Railway for construction of Rail Flyover on Bombay Howrah main line and laying Railway line in MCL owned land, have been obtained. Land acquisition, forest clearance and other permits are in progress.

The plant will have higher reliability on account of certainty of fuel supply (captive mine), both in terms of quantity and quality of coal. Further, the fact that it will be built on the most advanced technology available as on date, will ensure improved reliability and efficiency of the plant. This will add up to a reliable power supply situation within the state.

# THE PROSPECTS OF FRANCHISEE OPERATIONS IN INDIA – A CASE STUDY IN ODISHA

*P. K. Sahoo, Principal Head (Operations)  
Enzen Global Solutions (P) Ltd.*

## **BACKGROUND:**

The Indian Power sector is typically characterized by huge inefficiencies, heavy AT & C (Aggregated Technical & Commercial) Losses) and shortage of power. The generation augmentation requires lead time besides huge capital investment. To have quicker gains, the need of the hour is to reduce losses which technically reflect as improved power availability. This demand side management principle would improve in terms of quality of power supply and the financial health of the Licensees Companies. The Ministry of Power has planted a newer concept to trigger this resolution. Thus is born the Distribution Franchisee. The enactment of Electricity Act 2003 has given the teeth to the intent. The Distribution Franchisee Model in the Power sector is essentially a turnaround service model designed to improve the efficiencies in the power sector.

## **Provision in Electricity Act 2003 & Objectives of the Franchisee**

“A franchisee may be defined as an individual, group or business entity, who is granted a special right or privilege to conduct a business and especially to exercise the power of another empowered entity such as to market its goods or services in a particular territory under the entity’s trade mark, trade name or service mark and that often involves the use of rules and procedures designed by the parent entity and services and facilities provided by it (parent entity) in return for fees, royalties or other suitable compensation.”

Electricity Act 2003 provides in section 14 the enabling framework to help evolve franchisee models for power distribution.

*The Appropriate Commission may, on application made to it under section 15, grant any person licence to any person -*

- a) to transmit electricity as a transmission licensee; or*
- b) to distribute electricity as a distribution licensee; or*
- c) to undertake trading in electricity as an electricity trader, in any area which may be specified in the license:*

*The provision 7 of the section 14 further empowers such licensees to undertake distribution of specific areas within the area of licensee through any person / company, which says,*

*Provided also that in a case where a distribution licensee proposes to undertake distribution of electricity for a specified area within his area of supply through another person, that person shall not be required to obtain any separate licence from the concerned State Commission and such distribution licensee shall be responsible for distribution of electricity in his area of supply “*

The main objectives of the franchisee interventions are to:

1. Minimize aggregate technical and commercial losses in the specified area.
2. To bring about improvement in metering, billing and collection domains.
3. To reduce receivable component in outstanding arrears.
4. To enhance consumers satisfaction by way improving quality of service.

### **Types of Franchisees Models in India:**

The franchisee models are framed to safe guard the interests of the licensee, its stake holders in the short term / medium term and to achieve the objectives. The limitations of the franchisee are kept in mind and techno - commercially viable solutions are built into the contracts.

The three models in the area of management of distribution of electricity are:

\* **Model 1** : Revenue Franchisee - Collection based ( also micro franchisees)

Collection based revenue Franchisee was developed with the intended role limited to billing, revenue collection, complaint redressal, and keeping vigil on the status of distribution network in the franchise area for providing appropriate feedback to the licensees.

The Collection Franchisee is appointed for an area and is given a target for revenue collection every month (which depends on the baseline collections in the area). The period of such franchisee are relatively short, may be one year and with provisions for renewing by similar periods.

The remuneration methodology involves:

- \* Paying the Franchisee margins (which will be a percentage of collection) on achievement of the target,
- \* a levy of penalty for not achieving the target and
- \* Incentives for exceeding the target.

The advantage of this franchisee model is that the margin given can be lower than the current cost of collections - leading to savings.

The disadvantage in this system is that the Franchisee is not a partner for loss reduction and for improving quality of power supply – since his/her remuneration is linked to the collections made.

\* **Model 2** : Input Based Franchisee ( ALSO IBF)

This model is an improved version of the Revenue Based Model – with one significant difference that the franchisee will buy the electricity from the licensee and shall pay the energy charges to the licensee at a pre-agreed rate based on current level of realization. The energy supplied/purchased will be as measured in the 11 KV metering unit. The franchisee will have to collect revenues from the consumers by raising bills following the methods approved by the appropriate Commission, to have sustainable commercial operation.

The period of such franchisees is short term only.

This model is further developed into two types,

1. With leased ownership and responsibility for Operations & Maintenance of distribution network and
2. Without leased ownership and responsibility for Operations & Maintenance of distribution network

In the type (1), the assets of the licensee would be leased to the franchisee for the period of the contract, based on monthly retainer basis or at an adjusted energy purchased price (of the utility), factored appropriately considering O&M cost of the franchisee. The franchisee will be responsible for maintaining the assets like 11 KV feeders, LT lines and the Distribution transformers in the specified area as per the standards approved by the Commission in addition to the commercial operation. This Model enables the licensee to withdraw the technical staff from the specified area and this is beneficial to the Licensees to reduce the manpower.

In the type (2) the operation and maintenance parameters will be absent. The licensee would have to maintain his assets as before.

The additional advantage of these types as compared to that of collection Franchise is that the Franchisee also becomes a partner in loss reduction and tries to reduce the theft in the system.

The disadvantage of these types is that the franchisee would maintain the systems at the cost of the licensee and would be just like a bulk consumer in the area. The improvement of quality of power supply would be within the scope of the licensee's operation, which the franchisee may provide requirements of such network expansion / augmentation in the specified area.

As the licensee needs to provide the major materials and also invest in CAPEX, non-availability of the same in time will create problems for the franchisee, which in turn will affect the performance as well as customer service. Dependency on the routine R&M materials is a big constraint for the franchisee.

\* **Model 3** : Asset Owned / CAPEX based Franchisee (Also IBF – Capex)

This model is further improved version of the Input based franchisee model. In this model the franchisee will own the asset on lease from the licensee.

The period of such contracts will be Long term, may be beyond ten to fifteen years.

The challenges faced in this model are that, the majority of Distribution Infrastructure would be aged / saturated, some of the areas would be commercially underperforming and scope of improvement may not be evident. Hence the licensee would expect that the franchisee invest upfront for Network & Technological Up-gradation to improve Services to the consumers with no additional burden on Consumers as investments do not directly impact ARR. By upfront investment of network and with new management faster AT&C Loss reduction would occur.

The disadvantage is that this model will be like Cherry Picking - Investors would be interested for Big cities/Towns only; not in any rural or semi urban areas.

The advantage of this model to the licensee is that the franchisee would not only be completely responsible for the operation and maintenance of the assets in the specified area for the specified period, but also for the necessary improvement with capex and to be accountable for meeting the objectives. Total distancing from all activities is ensured to enable the franchisee to implement any technological innovation in the modes of consumer service to enhance the satisfaction levels. The franchisee would also be free to work without relying on the licensee.

### **What does the franchisee look for?**

A franchisee is a new comer to the specified area and would be looking for financial gains in addition to meeting the objectives set out in the contract.

The following factors will have a great impact on achieving the set objectives as well as to make the business sustainable –

- \* A Good consumer mix to achieve efficiency gains
- \* A fairly longer period of contract
- \* Pass through of subsidies
- \* Operate as Business partner rather than Multiple Consumers & Vendors

### **A case study in Odisha**

#### **Power Sector Reform in Odisha – Overview**

Odisha is the Pioneer and the first state to begin the power sector reforms in India. Reforms were initiated in 1993 and with almost 16 years of reform experience, Odisha continues to be one of the most keenly observed state in the power sector. As a first step to initiate reforms, the power distribution sector in Odisha was divided into four distribution companies. Later three of these companies were privatized (with 49% share retained by the State

Government of Odisha) and were being administered initially by BSES subsequently by M/S Reliance. There were marked differences in the technical, commercial and financial performances in these companies. .

### **Role of Odisha Electricity Regulatory Commission**

Being the first Electricity Regulatory Commission to be set up, in the country, Odisha Electricity Regulatory Commission (OERC) has played a pioneering role in introduction of regulation in the energy sector of the country. It has taken proactive steps to bring in improvements in the power sector. The latest tariff order passed by the Commission pertains to 2009-10. The tariff orders are issued after detailed discussions with all the stakeholders. OERC has also put in place the Multi Year Tariff policy so as to bring in an element of certainty in tariff setting process. OERC's directions such as introducing merit order principles for the purchase of power, appointment of Ombudsman have been implemented in the interests of consumers. The Commission has also issued regulations mandated under the Electricity Act, 2003, including those regarding Standards of Performance for distribution licensees, open access and the State Electricity Grid Code.

OERC, having been in existence for the longest time amongst all Regulatory Commissions, the regulatory approach to tariff setting and other processes are well evolved.

### **The Power Distribution Franchisee Operation in Odisha**

With an ardent desire to improve operational & commercial efficiencies of the licensees, to improve the quality of services and to enhance customer satisfaction, Enzen is appointed as franchisee in 7 specific Sub-divisions under NESCO, WESCO, SOUTHCO & CESU for input-based power distribution franchisee model. Enzen purchases energy as input units at a pre-agreed rate from the licensees and sells it to consumers as per prevailing tariff rate and collects the energy bill amount from consumers. Enzen is also responsible for the operation and maintenance of the local distribution system within the specified area of the franchise.

The remuneration is the revenue collection from the area less the input cost paid to licensee towards power purchase and maintenance cost incurred to supply uninterrupted quality power to the consumer.

### **The consumers handled by Enzen in each Discoms are as below:**

Sl No	Name of the DISCOM	Nos of Consumers [ as on Sept'10]
1	NESCO	46,256
2	SOUTHCO	47,578
3	WESCO	32,986
4	CESU	24, 109
TOTAL		1,50,929

### **Performances of Enzen over almost 30 months of operation:**

The initial period in Odisha operation was extremely testing. First of all there was nature's fury as snapping of conductors, uprooting of poles and failures of Distribution transformers greeted Enzen. On the other hand the loads were constantly increasing in summer months. But these challenges were met successfully with evolved and enabled managerial capabilities and proactive planning. One customer care center was set up and operated round the clock. The efforts were effectively pitched with separate teams resolving the commercial woes of the consumers and arresting the loss of assets through strengthening the preventive maintenance mechanism. System improvement plan was devised to enhance 11 KV feeder and distribution transformer capacities, facilitate reduction in losses and to meet future load growth. An effective Communication strategy was implemented for the consumers by actively involving the local media. While the primary focus was in educating the consumers on their

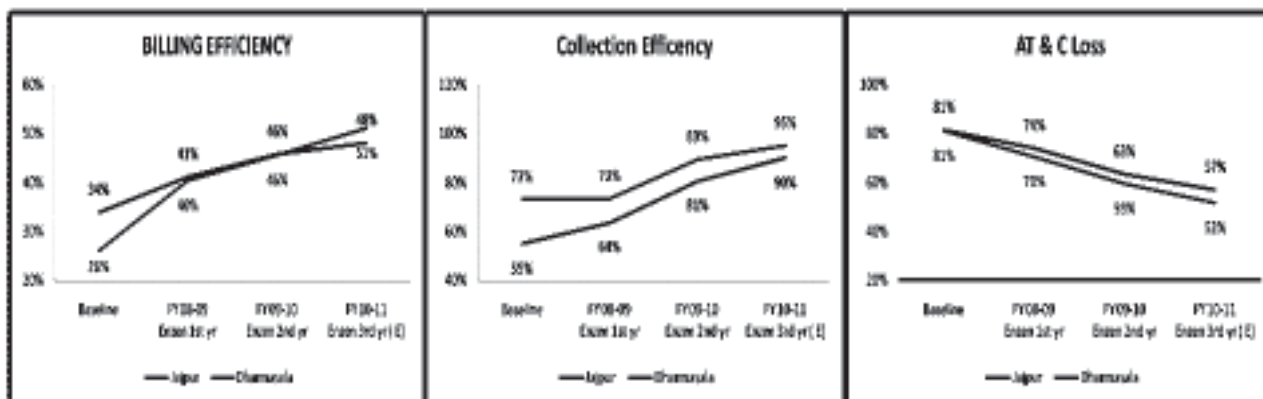


responsibilities and rights towards the company , stress was also given to making the consumers aware of their consumption and best practices in supply and service conditions. Open opportunities were extended to the consumers to regularize direct connection cases and every new connection was supported with a CFL bulb of 16W. Thus the promotional methods that were introduced influenced the consumer behavior towards energy conservation.

The improvements achieved in these areas are assessed by:

- \* Trend of reducing AT&C losses
- \* Improved customer care services
- \* Improve metering, billing and revenue collection
- \* Enhanced customer satisfaction by improving quality and reliability of service
- \* Localization and reduction of inefficiencies
- \* Reduction of DTR failure and upkeep of distribution assets.

### IMPROVEMENTS IN NESCO



#### SUCCESS STORY:

The reasons for the above success line have been through:

- \* Focused attention in the specified area
- \* Constant Guidance from personnel with vast experience in various facets of the power sector.
- \* Introduction of best practices from our experience in the licensees sector in the UK.
- \* Re-engineering of the business environment of the distribution and maintenance set up.
- \* Automation of the business model
- \* Data mining and analysis of the consumer and billing data for monitoring and identification of focus areas and customer categories, spotting trends and taking effective corrective actions.
- \* Regular preventive maintenance for improved power availability and quality.
- \* Close monitoring of each project through dedicated Programme Monitoring Office at the corporate office.
- \* Improved Metering, Billing and Collection systems through the introduction of automated Revenue Management Systems, spot billing, checking of meters using meter calibrators. etc

Our conviction that we need to have an immediate demonstrative or visible effect to give us credence and stimulate and encourage further progress, has led us to take efforts to improve the line infrastructure in the areas we serve, thereby not only changing the general appearance of the area, but also preventing possible accidents through open power lines etc.

The two pictures below shown the before and after appearance of a pole in a busy market (Chandikhole in NESCO) after Enzen took over.



Pole condition Before Pole Top Metering



After Pole top Metering

#### **OPERATION NOBLE:**

On a pilot basis we have started Combing operation on Fatepur feeder(11kV feeder) in SOUTHCO with a target to achieve overall improvement for the particular feeder. After completion the billing efficiency improved from 50% to 90 %. We achieved this target by focusing mainly on :

- \* Complete verification of consumers
- \* Meter change wherever required
- \* Install meters for no meter consumers
- \* Calibration of all 3 phase meters
- \* Verification of disconnected consumers
- \* De hooking of unauthorized consumers
- \* 100% meter with proper sealing
- \* Calibration of LI Points

Based on the success of this Operation Noble, efforts were made to replicate the same model in more feeders to achieve the objective of reduction in AT&C Losses. However due to constraints of meters and other materials this could not be achieved.

#### **Areas of Concern for Franchisee**

Despite a favourable trend in the above parameters, Enzen feels that the key performance indicators could have been better if the following were ensured:

- \* Supportive measures/authority to control electricity thefts, pilferages,
- \* Quick resolving of bill disputes

- \* Speed in releasing new connection, proactive enrolling unauthorized consumer through regularization camps
- \* Adequate investment in Network by licensees mostly delay in implementing Capex plan & Slow progress on transformer upgrades
- \* Control on unregulated/unmetered supplies to the consumers
- \* Reliability of power supply
- \* High aggregate technical and commercial losses in the sector
- \* Effective Energy audit infrastructure
- \* Strong administrative support
- \* Positive and pro active support from Discom staff.
- \* Pro active and cooperative stint to review Baseline Data accuracy and transparency in all transactions

**Reach out the customer**

Enzen believes that the consumer should feel its presence in other spheres of the specified area. As part of the corporate social responsibility initiative, Enzen conducted flood- relief camps and distributed relief supplies including food, candles, medicines, clothes, blankets and other necessities. Also arranged health check up & Blood donation camps at different times for the betterment of the people. Through different programmes it created awareness on Energy Conservation, safety issues & consequences of stealing energy and Go Green campaign on environmental issues. Enzen by all its efforts made the consumers feel the warmth & believe that Enzen is here not only for business purpose but intends to serve the people & society as well.



Flood Relief at Jajpur



Health check-up & Blood Donation Camps

## The Way Ahead

Our Future plans focus on:

- \* Regulatory compliances-
  - \* In line with the objectives of improvement in Quality of service & Reduction in loss along with customer satisfaction , enzen will take steps to ensure the compliance to the regulatory guidelines on
    - \* Standards of performance
    - \* Consumers right to information
    - \* Consumer grievance redressal procedure
    - \* Electricity Supply Code.
    - \* Metering, billing and collection
- \* Bilateral compliances –
  - \* Payment of all dues on time
  - \* Setting dates for joint reconciliation meets
- \* Social compliances –
  - \* Communication against theft of energy
  - \* Awareness about safety
  - \* Energy conservation needs and modes to be implemented
- \* Corporate compliances –
  - \* Spreading ownership drives amongst consumers to treat the energy as national wealth.
  - \* To ensure that the consumer feels the change of lines of command.
  - \* To blow a wind of change in all the villages by mass campaigns.

Given the huge inefficiencies in the system, the tremendous AT & C Losses in the power sector and the growing power shortage, the Ministry of Power has been rolling out Power Sector reforms in the country. The Power Distribution franchisee model is being promoted as part of the process. The Franchisee Model seems to be the perfect all round Win-Win remedial recipe for the ills in the Power sector. As an early mover in the field and already the largest DMS franchisee player in the country, Enzen, is poised to grow by leaps and bounds in the near future.

### **Why do people Steal Electricity?**

Theft of electricity has some kind of endemic character.

- \* The motivation to steal electrical power is the temptation not to pay for the service, or more often to pay less.
- \* Another reason for electricity theft is direct hooking/tapping from the LT Line and lack of surveillance from the licensee. This often happens in slums and in rural areas.
- \* It may also happen that the supply had been stopped by licensees because of previous electricity theft/non-payment and the “victim” cannot live without electricity, but equally cannot pay for it.

The attitude of a large component of the population is that “if other people do it and are not caught, then why should we not resort to the same measures?” This attitude results in ever-mounting losses.

**What contributes most for the high Commercial Loss?**

Commercial Losses are caused mostly due to non assessment or under assessment of actual consumption. The following factors contribute most for non technical losses in power distribution –

- \* Theft by direct tapping, etc.
- \* Pilferage by manipulating or bypassing of meters.
- \* Non-reading of meters.
- \* Non-performing and under-performing meters.
- \* Wrong application of multiplying factors.
- \* Defects in CT and PT circuitry.

<i>Non - Technical / Commercial Loss Factor</i>	
Loss at consumer end / Meters	<ul style="list-style-type: none"> <li>▪ Poor accuracy of meters,</li> <li>▪ Shabby installation of meters and metering systems</li> <li>▪ Poor quality sealing of meters,</li> <li>▪ Errors in CTs/PTs- Loose/wrong Connections/Overburden CTs</li> <li>▪ Bypassing the neutral wires in meters.</li> <li>♦ Lack of seal issue, seal monitoring and management system,</li> </ul>
Pilferage of energy	<ul style="list-style-type: none"> <li>▪ Tapping from over head "bare" conductors (direct hooking)</li> <li>♦ Exposed connections/joints in service</li> </ul>
Errors in meter reading	<ul style="list-style-type: none"> <li>▪ From open junction boxes (in cable system)</li> <li>▪ Avoiding meter reading due to several causes like house locked, meter not traceable, etc.</li> <li>♦ Intentional errors in meter reading (collusion by meter readers) / Table Reading etc.</li> <li>♦ Lack of validation checks, exception reports on meter reading and summary reports etc.</li> <li>♦ Manual (unintentional errors) in meter reading/data punching etc.</li> </ul>
Errors in bills	<ul style="list-style-type: none"> <li>▪ Errors in raising the correct bill.</li> <li>♦ Lack of updating billing changes advise on time</li> <li>▪ Manipulation/changes made in meter reading at billing centers / at local office levels.</li> <li>▪ Lack of system to ensure bills are delivered.</li> <li>▪ Wrong calculation of MF and category tariff etc.</li> </ul>
Errors in Collection	<ul style="list-style-type: none"> <li>▪ Lack of system to trace defaulters including regular defaulters,</li> <li>▪ Lack of system for timely disconnection (collusion by Bill Collector)</li> <li>♦ Care to be taken for reliable updating of receipt amount</li> </ul>
Energy accounting System	<ul style="list-style-type: none"> <li>▪ Lack of proper metering in feeders and DTs for carrying out energy audits</li> <li>▪ Lack of a system for carrying out regular (monthly) energy accounting to monitor losses</li> <li>▪ Energy accounting errors (by not following a scientific method for energy audits).</li> </ul>

## **INVOLVING WOMEN SELF HELP GROUPS (WSHGs) AS FRANCHISEES IN RURAL POWER SECTOR - An initiative of CESU**

*Manoj Kumar Singh  
General Manager (AT&C)*

**The concept** of women SHG is based on the idea of developing the capacity of women so that they can gain economic independence, social security & dignity, and actively participate in the affairs that affect their lives. SHGs represent a unique platform for self reliance, empowerment and development of women.

A SHG is a group of about 10 to 20 women who come together to form savings and credit organisation for improving their overall economic condition. The platform boosts their confidence and they take up small enterprises to generate more money for their economic wellbeing. SHGs also network themselves into federations for institutional and financial stability.

The Government of Orissa has launched “Mission Shakti” as one of its empowerment initiatives for women. The programme has pioneered the formation and strengthening of SHGs since its inception on 8<sup>th</sup> March 2001. The year 2001 was observed as the year of women’s empowerment. The “Mission Shakti” programme has mobilised formation of around 3.86 lakh active SHGs involving around 50 lakh women in the state and has successfully facilitated Bank- SHG linkage. The Reserve Bank of India recognises women SHGs as bankable clients and has advised the Commercial Banks to consider lending to the SHGs as a part of their rural credit operations. The Micro – financial assistance provided by the banks has helped the SHGs to scale up their activities to generate more money. The SHGs are coming up with different type of ventures. They are also involved in the implementation of government programme in different sectors. This linkage with banks, institutions and government machinery leverages empowerment of SHGs thereby enhancing the capacity of women to play a bigger, wider and more meaningful role in the society.

In its mission towards empowerment of women, the Govt. of Orissa has involved the Women SHGs in various projects and programmes like Mid Day Meal Scheme, Public Distribution System, Targeted Rural Initiative for Poverty Termination (TRIPTI), Shakti Gaon Programme, Total Sanitation Campaign, National Rural Livelihood Mission etc. Women SHGs are successfully converging with the the Government Departments in implementation of the programmes. Involvement of the Women SHGs has also made these programmes corruption free, transparent and successful. A way forward in this direction is the initiative of CESU in ‘Involving Women SHGs in Managing Rural Power Distribution’. This is first of its kind in the state of Orissa.

The Electricity Act of 2003 empowers the DISCOMs to delegate their operational responsibility in their area of operation to the individuals and agencies like User Associations, Panchayati Raj Institutions, NGOs, Cooperative Societies, SHGs etc. Considering the need and importance of empowerment of women, CESU contemplated involving women SHGs as franchisees for managing rural power distribution where the AT & C loss is much higher compared to the urban areas. In order to draw the road map for involving women SHGs as franchisees, CESU organised a consultation workshop on 23.08.2008 in which all the stakeholders including OERC, Mission Shakti of Government of Orissa and the Employees Association of CESU actively participated. The resultant outcome was CESU’s decision to start two pilot projects involving women SHGs as franchisees in the RGGVY (Rajiv Gandhi Gramya Vidutya Yojana) areas of Nayagarh & Angul district. The objective of this initiative was not only to empower rural women but also to reduce AT&C loss and achieve growth in business by way of partnership with WSHGs. The idea was to reduce power theft, increase accountability and better quality service leading to consumer satisfaction.



CESU has put in place pre-emptive guidelines focusing on the following aspects for successful implementation of this franchising model:

- a) Sensitization of utility executives & its field staff to make them clearly understand this franchisee model through interactive sessions;
- b) IEC( Information, Education and Communication) activities for awareness generation among various Women Self Help Groups (WSHGs) to make them understand their scope and opportunity to work as franchisee under this model ;
- c) Engagement of NGOs, Shakti Shayikas , SHG Federations, Anganwadi Workers,CDPOs to create awareness among WSHGs;
- d) Selection of suitable WSHGs through transparent selection process;
- e) One Month Training Programme of SHGs ( class room & field training);
- f) Designing suitable & attractive remuneration structure;
- g) Designing simple agreement format which clearly defines their roles ,responsibility & remuneration structure;
- h) Review and Monitoring Mechanism ;
- i) Provision to fine tune the guidelines from time to time basing on the experience gained and lessons learnt.

#### **Selection and sensitisation of WSHGs:**

All the SHGs of a Gram Panchayat are made aware about their scope and opportunity to work as distribution franchisee of CESU through local Anganwadi workers, monthly meeting of SHGs conducted by CDPOs and through a number of interaction sessions conducted by CESU in coordination with NGOs, Shakti Shahayikas & SHG Federation. The date, time and venue of the screening test is given wide publicity through affixture of notice in the Notice Board of local GP office, Anganwadi Centres, Schools and one conspicuous place of each village. A three member Screening Committee comprising of the concerned Junior Manager, representative of a NGO or SHG Federation or Shakti Shahayikas who are engaged for scouting these SHGs and a representative of BDO or CDPO shortlists 3 SHGs for one GP based on the selection criteria fixed by CESU. The shortlist recommended by the Screening Committee is then placed before the Selection Committee comprising of the concerned Executive Engineer, SDO/ AMC / Junior Manager & BDO or CDPO or their representative. This Committee selects one SHG to work as distribution franchisee for a GP area.

The WSHGs are selected based on points they score on the following criteria:

- \* Gradation of SHG as per Government list (60%)
- \* Registration No. (3%)
- \* Qualification of members (at least two member must be able to read & write in English or must have passed + 2 and above) (3%)
- \* Age of SHG (3%)
- \* Activities undertaken by SHG for at least last two years (3%)
- \* Amount of Saving (3%)
- \* Linkage with Bank (which bank & when) (3%)
- \* Amount of loan taken by the SHG (3%)
- \* Awards received by SHG (3%)
- \* Amount of money available at Bank as on date (for Security purpose) (3%)
- \* Rotational Leadership (3%)
- \* Managerial Capability (10%)

### **Scope of work**

The WSHG as a franchisee carry out the following activities in the Franchised Area:

1. Collection of both current and arrear electricity dues from the consumers with the responsibility to meet the financial target set;
2. Meter reading, billing & bill distribution (using SBMs) for all the consumers in its area;
3. Coordination with CESU for replacement of defective meters by new ones ;
4. Mobilisation of prospective consumers into billing fold through persuasion and motivation;
5. Helping intending consumers to get new connection;
6. Creating awareness against power theft and reporting the power theft cases to the CESU authorities for appropriate action;
7. Coordination with CESU in resolving the complaints of consumers ;
8. Collection of revenue from all the LT (low tension) consumers on deposit of requisite security amount. The revenue collected is to be deposited in CESU office either on the same day or the next working day.

Distribution Transformer is the basic unit of a franchise area. A WSHG is selected for a group of DTs in one Gram Panchayat area. These DTs are metered to measure the input energy to the area under a SHG group. CESU provides attractive and economically viable terms and conditions to the operating women SHGs to make the operation sustainable and free of collusive and corrupt practices.

### **Remuneration Structure**

Franchisee gets remuneration based on the collection it makes from its area against the Base Line Collection Target (BLCT). The BLCT is set by taking into account the Average Collection per Month (ACPM) of the immediate past twelve months. For the first year, the BLCT is the 120% of ACPM & from the second year onwards, the BLCT increases by 20% over the 1<sup>st</sup> year's BLCT . This trend continues till the collection efficiency of the franchisee reaches 95%. When a franchisee achieves 95% collection efficiency it attains the stage of sustainability. With the revision of Retail Supply Tariff (RST) by OERC, the BLCT also undergoes revision accordingly. Activity wise remuneration structure set up for the women SHG is as below:

1. Rs.3 per Consumer for meter reading & bill distribution activities;
2. Rs.3 per Distribution Transformer meter reading;
3. Monthly incentive of 6% over the revenue collected during the month;
4. Additional incentive of 8% on incremental revenue collected beyond the BLCT & up to 125% of the BLCT. Incentive @10% of the incremental revenue collected over and above 125% of the BLCT;
5. Rs.100 per Consumer brought into billing fold through consumer mobilisation;
6. 20% of the arrear amount realised in LDC (Long Disconnected Cases).
7. Rs.1000 per Arrest based on the complaint lodged in the confidential cell of CESU against dishonest consumers leading to arrest for power theft.
8. Reward of 10% of the penal amount collected against unauthorized consumption.

### **Penal Structure**

The attractive and rewarding remuneration structure is combined with a penal structure with the sole objective to recharge the SHGs with right business orientation, hard work and commitment to the set targets. In case of failure on the part of the franchisee to achieve the BLCT , an amount @6% of the Shortfall Amount is deducted from its monthly incentive as penalty. The Shortfall Amount is the difference between the BLCT & Actual Collection of the franchisee for that month. As the WSHGs are oriented and motivated to take up this new venture as an

empowerment drive, CESU considers the initial 3 months of franchisee operation by the WSHGs as stabilisation period and therefore consciously exempts imposition of penalty on the WSHGs during the first three months of franchisee operation.

### Capacity Building

Most of the members of SHG are women with low academic background and little technical knowledge. Therefore, requisite training is imparted for their skill formation and capacity building before they start franchisee operation.. A **three days training programme** has been designed by CESU with the objective to familiarize the WSHGs with the rules, regulations, forms and registers concerning franchisee operation in the power distribution sector . The designed training modules covers basics of electricity, functioning of power distribution company, electricity distribution business, different models of franchisee, understanding the process of metering, billing, collection, safety & accident prevention, customer service , hands on training on the use of SBMs . This classroom and hands on SBM training is followed by field training for 15 days on different modules like meter reading through spot billing machines (SBMs), collection, MRT squad operations for meter checking & disconnection of hooking consumers, Compliant Camps etc. CESU has organised 18 nos. of Training Camps under the National Franchisee Training Programme& trained 831 participants (including WSHGs, User Associations, NGOs) till Nov'2010.

Financial Year	MONTH	NO. OF TRAINING PROGRAMMES	NO. OF PARTICIPANTS
		Franchisee	Franchisee
2009 – 10	April		
	May		
	June	1	40
	July		0
	August		0
	September	1	41
	October	1	44
	November	0	0
	December	1	43
	January	2	97
	February	1	41
	March	3	148
<b>FY09-10 TOTAL</b>		<b>10</b>	<b>457</b>
2010 – 11	April		
	May	1	46
	June		
	July	1	40
	August	2	84
	September	2	121
	October	1	40
	November	1	34
<b>FY10-11 TOTAL</b>		<b>8</b>	<b>374</b>
<b>Grand Total</b>		<b>18</b>	<b>831</b>

## Performance Evaluation

CESU has piloted engagement of women SHGs as franchisee in Nayagarh & Angul District. In these two districts, 278 nos. of WSHG have been selected & imparted with both class room & field training. Out of the trained WSHGs, 153 nos. of WSHG have already started franchisee operation in Nayagrh district. The following table shows details of WSHGs operating under different sections of CESU.

WSHGs Working in Nayagarh District				
District	Sections	No. of SHGs	No. of Consumers	Month of Starting Franchisee Operations
Nayagarh	Bhapur	19	13225	Oct 09
Nayagarh	Khandapada	22	7015	May 10
Nayagarh	Dasapalla	17	6917	Aug'10
Nayagarh	Bolgarh	7	4128	Oct 10
Nayagarh	Gania	8	6514	Oct 10
Nayagarh	Itamati	27	18318	Oct 10
Nayagarh	Nuagaon	20	12478	Oct 10
Nayagarh	Odaagaon	17	10545	Sept'10
Nayagarh	Sarankul	16	12457	Oct 10
<b>TOTAL</b>		<b>153</b>	<b>91647</b>	

WSHGs Selected & Trained in Anugul District				
District	Sections	No. of SHGs	No. of Consumers	Expected Starting Date
Angul	Kishorenagar	21	8544	Jan'11
Angul	Alhamalik	24	14153	Jan'11
Angul	Kaniha	21	14270	Jan'11
Angul	Chendipada	36	14504	Jan'11
Angul	Talcher	8	6531	Jan'11
Angul	Banrpal	15	12275	Jan'11
<b>TOTAL</b>		<b>125</b>	<b>70340</b>	

The performance of the 19 nos. of SHG under Bhapur section that started operation since October 2009 meets the level of satisfaction. Their performance during the last 12 months shows growth rate of 62% in the average. They are showing remarkable achievement and are collecting Rs.9.81 lakh in average per month against the monthly average collection of Rs.6.07 lakh by the Utility staff prior to WSHG engagement. Rest of the WSHGs engaged are yet to match up to the level of efficiency and achievement of their Bhapur counterparts. The average collection growth of all the 153 nos. of SHG taken together (from their respective starting date till the end of Oct'2010) is 10% compared to the position prior to the engagement of SHGs. They are now collecting Rs.85 lakh per month in the average against the monthly average collection of Rs.77 lakh by the Utility staff prior to SHG engagement. This is definitely an encouraging situation. The WSHGs have shown their potential to achieve greater heights. CESU is closely monitoring the performance of the WSHGs, motivating and guiding them to match up with the performance of their Bhapur counterparts by the year end. The Bhapur group of WSHGs are being encouraged and guided to achieve and set higher standards for others to follow. CESU is encouraging healthy competition among WSHGs and creating favourable conditions for them to grow and excel as franchisees in the power distribution sector.

### **Looking forward to A Qualitative Transformation**

The higher dispersion of population coupled with lower revenue potential renders revenue collection activities in rural areas non remunerative. Rampant hooking goes unabated in remote villages located far off from Section Office or Sub- Division office in the absence of regular and close surveillance. The cost of collection also goes up with the remoteness and inaccessibility of the village. On account of these inhibiting factors, business efficiency in power distribution sector necessitates partnership with the local community .The women force of the community act as the watchdog of morality, honesty, commitment, unity and hard work. These qualities in them inspire CESU to bank on them and to reinforce them to work as agents of change for revamping the power sector. Empowered with right training and orientation, the WSHGs have started showing their mettle in curbing power theft, improving billing & collection efficiency and enhancing consumer satisfaction by adding value to the service rendered. They have carved out a niche for themselves as the harbingers of positive change ushering in a win-win situation for both the WSHGs and the Utility in the power sector. These WSHGs if nurtured, respected, and co-ordinated in proper perspective can leverage the operational and commercial efficiency of the utilities to great heights and will emerge as an indomitable force to reckon with in all fields be it business, economy, society or politics.

## **WESCO – An Overview**

*B. K. Pattnaik  
Vice President, WESCO*

The power sector in many parts of the world has been going through reform process which resulted in radical changes in the utility structure, legal and regulatory set-up in late 1980's. In our country, the reform process started in early 1990's. Fortunately our state Orissa is the first state to initiate the power sector reform process. The basic objectives of the reform process were:

1. Establishment of independent regulatory commission
2. Structural unbundling of vertically integrated OSEB
3. Private participation in generation and distribution business
4. Cost plus tariff regime in entire segment of the power sector

With the above objective and in line with Orissa Electricity Reforms Act-1995, Western Electricity Supply Company of Orissa Limited (WESCO) was incorporated as a Public Limited Company on November 19, 1997 to carry out the distribution and retail supply business of electricity in the entire western region of Orissa. It is the holder of Distribution and Retail Supply License (licensee no. 4/99) and to carry out the business of distribution and retail supply of electricity in nine revenue districts of Orissa comprising of Sundargarh, Sambalpur, Jharsuguda, Baragarh, Deogarh, Sonpur, Bolanghir, Kalahandi and Nuapada District.

WESCO distributes electricity to all category of consumers i.e. domestic, general purpose, small / medium / large industrial or agricultural consumers. The supply of electricity to each and every consumer in the state is one of the most challenging operations as it involves, forecasting the demand of energy accurately and subsequently purchasing the same in bulk quantity for providing power supply to all consumers under the jurisdiction of WESCO.

As electricity is no more a luxury item now-a-days, in fact it is a vehicle of economic development and it has a cascading effect on the over-all economy. The power distribution set up has complex infrastructure which carries the energy received from sub stations through the HT and LT line network to the consumer's premises. In order to operationalize this distribution business, WESCO has huge human resource to operate the system round the clock. Due to various technical and commercial losses, the economic conditions of WESCO was seriously affected. In the last 8-10 years, there is a steep rise in bulk supply price and no change in retail supply price which badly affects the financial health of the company.

WESCO is in constant endeavour to achieve turn-around from a cash- strapped to cash surplus company and various initiatives are being undertaken to minimize the T & D and AT & C losses. The year-wise T&D Loss and AT&C losses are shown in Table-1 and Table-2.



Table-1

REDUCTION IN T & D LOSS			
YEAR	INPUT (M.U.)	BILLING (M.U.)	T & D LOSS (%)
1999-00	2688.129	1500.831	41.2%
2000-01	2867.768	1628.892	43.2%
2001-02	2979.287	1595.785	46.1%
2002-03	3354.741	2070.257	38.3%
2003-04	3784.180	2307.714	39.0%
2004-05	4051.000	2577.249	36.4%
2005-06	4188.250	2605.274	37.8%
2006-07	4670.560	2972.123	36.1%
2007-08	5377.093	3434.614	36.1%
2008-09	6378.151	4238.216	33.6%
2009-10	6262.332	4080.903	34.7%

Table-2

AT & C LOSS REDUCTION (%)				
Year	Distribution Loss (%)	Collection Efficiency (%)	AT & C Loss (%)	OERC Target (%)
1999-00	44%	82%	54.2%	
2000-01	43%	80%	54.5%	
2001-02	46%	80%	57.1%	
2002-03	38%	85%	47.3%	
2003-04	39%	88%	46.2%	
2004-05	36%	92%	41.4%	40.611%
2005-06	38%	94%	41.5%	36.57%
2006-07	36%	95%	39.7%	37.73%
2007-08	36%	95%	39.1%	28.011%
2008-09	34%	96%	36.5%	28.011%
2009-10	35%	98%	35.7%	24.5%

In spite of this financial crunch, Wesco has developed itself as an efficient and reliable electricity network to meet the requirement of its diverse group of consumers. To provide single window service, it has set up Customer Care Centre at Sambalpur and is going to establish Commercial Call Centers in major cities like Rourkela, Bargarh, Bhawanipatna and Bolanghir to deal with consumer related services.

## **Achievement of WESCO during FY 2008-09**

### **1. Infrastructer Developoment For Quality of Supply**

- \* Upgradation of 29 nos. of Power Transformers to strengthen the system including newly purchased Power Transformers.
- \* Re-conditioning and oil filtration of 48 nos. of Power Transformers has been completed
- \* Installation of New 121 nos. of Distribution Transformers to meet the addition load demand
- \* Upgrading 247 nos. existing Distribution Transformers with new ones.
- \* Upgrading 72 nos. existing transformers with availability of upgradation of existing transformers.
- \* Phase Balancing for 1067 nos. of Distribution Transformers has been completed
- \* New/Re-Earthing of 267 nos. of Sub-stations completed.
- \* Phase conversion has been completed in 72 nos. of locations.
- \* 8 nos. of 33 KV and 17 nos. of 11 KV VCBs have been installed.
- \* 98 nos. of Automatic Power Factor Correctors have been installed.
- \* Boundary wall and gate for 261 nos. of 11/0.4 KV Sub-stations (250KVA, 315KVA & 500KVA) has been completed.
- \* Barbed wire fencing for 1060 nos. of 11/0.4 KV Sub-stations (25KVA, 63KVA & 100KVA) has been completed.
- \* Other items like LA, AB switches, HG fuses and Pin Insulators have been replaced to improve the reliability.

### **2. IT Implementation:**

- \* Online Meter Management System (MMS) has been introduced in WESCO
- \* One no of Customer Care Centers is operating in Sambalpur
- \* AMR System billing for High-value Consumers.
- \* Energy bill details of respective consumers in the web site of the company

### **3. Grievance Redressal Forum**

For quick disposal of consumer grievances, three Grievance Redressal Forums have been operating at Burla, Rourkela and Bolangir. During FY 2008-09, 944 no cases are redressed and only 92 Cases are pending which was redressed in next financial year.

### **4. Franchisee Activity**

For increase in the revenue realization and reduction of unauthorized usage of electricity , local enterprenures are engaged in 10 areas for franchisee operation in Bolangir, Sonpur and Kalahandi West Divisions.

## **Achievement of WESCO From FY 2009-10**

### **1. Infrastructer Development For Quality of Supply**

- \* Up-gradation of 12 nos. of Power Transformers to strengthen the system.
- \* Reconditioning and filtration of 28 nos. of Power Transformers.

- \* Addition of 269 nos of DTRs under S.I. scheme,
- \* 2149 nos. of DTRs under BGJY scheme and
- \* 2081 nos. of DTRs under RGGVY scheme and
- \* Up-gradation of 258 nos. of Distribution Transformers
- \* Phase Balancing of 544 nos. of Distribution Transformers.
- \* New/Re-Earthing of 322 nos. of Sub-stations.
- \* Phase conversion of 38 nos. of cases.
- \* Installation of 9 nos. of 33 KV and 15 nos. of 11 KV VCBs.
- \* Boundary wall and gate for 334 nos. of Sub-stations has been completed
- \* 2522 km of 11 kv and 2153 km of LT lines have been newly added to the network.
- \* 200 nos. of Automatic Power Factor Controllers have been installed at Bargarh and Sambalpur District
- \* 738 Nos. Lighting Arresters, 402 Nos. AB switches, 215 Nos. HG fuses etc. have been installed.

## **2. Grievance Redressal Forum**

During FY 2009-10, 1330 no cases are redressed and only 199 Cases are pending due to system constraint and complied in next financial year.

## **3. Franchisee Activity**

Like the last financial year, the franchisee activity has been carried out during the FY 2009-10. Input based franchisee has been introduced in two sub-divisions under Titilagarh division. M/s Enzen Global Soluation Pvt. Ltd. was engaged as franchisee for the said two subdivisions e.g. Patnagarh and Kantabanjhi subdivisions.

## **4. IT Implementation:**

Like the last financial year, the IT implementation has been carried out during the FY 2009-10. Some major innovative projects undertaken for the betterment of consumer service are introduction of bill payment in e-seva / SAHAJ centres.

## **Achievement of WESCO in FY 2010-11 (Upto Sept'2010)**

### **1. Infrastructer Development For Quality of Supply**

- \* Upgradation of three Power Transformer to maintain steady power supply
- \* Up-gradation of 33 nos. of Distribution Transformers.
- \* Addition of 80 nos of DTRs under S.I. scheme
- \* Phase Balancing of 296 nos. of Distribution Transformers.
- \* New/Re-Earthing of 261 nos. of Sub-stations.
- \* Phase conversion of 56 nos. of cases.
- \* Installation of 33 nos. of 11 KV VCBs.
- \* 43678 nos. of meter replacement /new installation

## **2. Replacement of Defective meters**

Encouraging the use of electro-static meters which are tamper resistant so that different energy theft methods like magnetic interference, phase reversal, on neutral disturbance etc. in place of the age old electromechanical meters has resulted in decrease of interference with meter by unscrupulous consumers.

WESCO has already taken initiative to achieve 100% consumer metering as per its proposal in the Business Plan, which will enable it to raise bills on the basis of actual energy consumption. For that, M/s Secure Meters Ltd. and other Franchisees have been entrusted to complete the assignment within the specified time.

## **3. Grievance Redressal Forum**

During FY 2010-11 (upto sep-10), 503 no. of cases has been redressed.

## **4. Franchisee Activity**

In order to bring greater PPP (Public-Private Participation) for overall improvement and sustainable development for Orissa Power sector in a responsible manner and in line with the mandate of the Electricity Act'2003 and the direction of the Hon'ble Commission, WESCO is exploring the possibilities of franchisee operation in areas where there is high T & D loss. To reduce that, NGO and Women Self Help Groups are encouraged to participate in franchisee activity.

The areas where franchisee activities has been awarded so far are as follows,

1. AWHAN an NGO start franchisee operation From October-2010 in Paikamal Subdivision having consumer base of 7000 consumers.
2. Koshal Self Help Group an SHG start franchisee operation From November, 2010 in Bheden Subdivision having consumer base of 8000 consumers.
3. Nine no of Women SHG are engaged as Microfranchisees.

## NESCO – It's Past & Present

*S. K. Singh*  
CEO, NESCO

North Eastern Electricity Supply Company of Orissa Limited (NESCO) is the holder of Distribution and Retail Supply License (3/99) and carrying out the business of distribution and retail supply of electricity in the five districts of North Eastern Orissa i.e. Balasore, Bhadrak, Jajpur, Keonjhar and Mayurbhanj.

It is the power distribution companies who provide electricity to all categories of users be they domestic, non domestic, small / medium / large industrial or agricultural consumers. The supply of electricity to each and every consumer in the state is one of the most challenging operations as it involves on one side, forecast of demand of energy accurately and subsequent purchase of the same and on other side, distribute quality supply to all consumers spread across its area on a 24x7 basis. Electricity is no more an item of luxury. In fact it is a vehicle of economic development. The power distribution set up has a large & complex distribution network infrastructure which carries the energy from the power sub stations (33/11 KV) through the HT and LT lines up to the consumer's premises and in order to operationalize this DISCOM has huge human capital that work round the clock. Due to various reasons, the technical and commercial losses that occur in the supply of electricity effect the financial health of the DISCOM severely.

As on 2000-01, NESCO had 6nos. of EHT, 284nos. of HT and 311512nos. of LT consumers, which has gone upto 23nos. of EHT, 333nos. of HT and 607321nos. of LT consumers as on 31<sup>st</sup> March 2010.

As on 1999-00, NESCO had 1832.62Km of 33KV line, 11256.34Km of 11KV lines, 13983Km LT line & AB Cables and by March 2010, the Discom has 2131 Km 33KV line, 16821Km of 11KV line and 28943.40Km of LT line. The no. of 33/11KV transformers has gone up from 104 nos. (713.4MVA) as on 2000-01 to 264nos.(876.85MVA) and Distribution Transformers have gone up from 9735 to 25658nos.

The demand has gone up from 360.34MVA in 1999-2000 to 730MVA. The EHT sale has increased from 452.35MU in 1999-00 to 1534.107MU in 2009-10. LT sale and HT sale has increased from 492.87MU to 1009.86MU and 333.68MU to 631.175MU respectively.

Through sustainable effort and teamwork NESCO has been able to bring down its loss level from 43.36% in the yr 1999-00 to 32.5% in the yr 2009-10.

The Collection efficiency, T&D loss and AT & C loss of NESCO from 1999-2010 are given hereunder

<b>NESCO</b>			
<b>Billing Efficiency, Collection Efficiency, T &amp; D Loss and AT &amp; C Loss</b>			
Year	Collection Efficiency	T & D Loss	AT & C Loss
1999-2000	79.00%	43.36%	55.21%
2000-2001	79.36%	44.10%	55.79%
2001-2002	74.10%	51.00%	63.69%
2002-2003	82.89%	41.19%	51.40%
2003-2004	87.14%	43.67%	50.90%
2004-2005	97.26%	39.41%	41.06%
2005-2006	91.82%	37.08%	42.21%
2006-2007	91.57%	33.23%	48.84%
2007-2008	96.02%	31.17%	33.91%
2008-2009	93.83%	34.58%	38.60%
2009-2010	95.53%	32.52%	35.50%

In spite of all financial crunch, Nesco is developing itself into an efficient and reliable electricity network to meet the requirement of its diverse group of consumers. To provide single window service, it has set up Customer Care Centres at Balasore and is going to establish another four commercial call centers to deal with all kinds of bill and meter related complaints. For attending the consumer grievances two grievance redressal forums are functioning one at Balasore and another at Jajpur Road. NESCO has already taken initiative to bring IT to its system . Various steps taken by NESCO during 2008-09 & 2009-10 are briefed hereunder:

### **Achievement of NESCO during FY'08-09**

#### **2. Power Transformers:**

- \* Upgradation of 49 nos. of Power Transformers to strengthen the system including newly purchased Power Transformers (6 Nos. 8MVA + 12 Nos. 5MVA) .
- \* 6 nos. of New 8 MVA transformers have been installed at Badbil, Soro, Chorda, Jurudi, Joda & Jajpur Town for upgradation of 5 MVA Power Transformers.
- \* 12 nos. of new 5 MVA transformers have been installed at Sargaon, Jaleswar, Kamarda, Jamsuli, Asurali, Dhamnagar Chhak, Dhamnagar, Sujanpur, Keonjhar, Ram Chandrapur, Betnoti, & Kantabani for upgradation of 3.15 MVA Power Transformers.
- \* The remaining 31 nos. of Power Transformers have been augmented with replaced transformers.
- \* Re-conditioning and filtration of 78 nos. of Power Transformers has been completed.

#### **3. Distribution Transformers:**

Upgradation of 480 nos. of Distribution Transformers by:

- \* Installation of new 161 nos. of Distribution Transformers.
- \* Upgrading 247 nos. existing Distribution Transformers with new ones.
- \* Upgrading 72 nos. existing transformers with availability of upgradation of existing transformers.

#### **3. Phase balancing of transformers:**

- \* Phase Balancing for 767 nos. of Distribution Transformers has been completed
- \* New/Re-Earthing of 171 nos. of Sub-stations completed.
- \* Phase conversion has been completed in 36 nos. of locations.

#### **4. For Improving Safety and Quality of Supply:**

- \* 13 nos. of 33 KV and 27 Nos. of 11 KV VCBs have been installed.
- \* 15 km of 33 KV and 8 km of 11KV new line added to the system network.
- \* Upgradation of 8 km of 33KV & 8 km of 11KV conductor.
- \* 90 Nos. of Automatic Power Factor Correctors have been installed.
- \* Boundary wall and gate for 161 Nos. of 11/0.4 KV Sub-stations (250KVA, 315KVA & 500KVA) have been completed.
- \* Barbed wire fencing for 560 Nos. of 11/0.4 KV Sub-stations (25KVA, 63KVA & 100KVA) have been completed.
- \* Other items like LA, AB switches, HG fuses have been installed.



**5. Action taken in regard to Theft of Electricity:**

- \* Composite Metering arrangement for 90 sets, each set containing 10 nos. of meters, has been installed in Balasore & Bhadrak.
- \* 92 Km of bare conductor has been replaced by Aerial Bunched cables.
- \* 228 Nos. of Automatic Meter Reading (AMR) arrangements have been introduced for our HT consumers.
- \* 347 Nos. of Check meters have been installed for various industrial consumers.
- \* 4622 Nos. of unauthorized consumption cases detected during FY'2008-09.

**6. IT Implementation:**

- \* Online Meter Management System (MMS) has been introduced in NESCO
- \* Two nos. of Customer Care Centers are operating in Balasore & Bhadrak.

**Achievement of NESCO From April-09 to Mar-10**

**1. Power Transformers :**

- \* Up-gradation of 23 nos. of Power transformers to strengthen the system.
- \* Reconditioning and filtration of 28 nos. of Power Transformers.

**2. Distribution transformers :**

- \* Addition of 269 nos of DTRs under S.I. scheme,
- \* 2149 nos. of DTRs under BGJY scheme and
- \* 2081 nos. of DTRs under RGGVY scheme and
- \* Up-gradation of 258 nos. of Distribution Transformers.

**3. Phase balancing of transformers:**

- \* Phase Balancing of 544 nos. of Distribution Transformers.
- \* New/Re-Earthing of 322 nos. of Sub-stations.
- \* Phase conversion of 38 nos. of cases.

**4. For Improving Safety and Quality of Supply:**

- \* Installation of 9 nos. of 33 KV and 15 nos. of 11 KV VCBs.
- \* Boundary wall and gate for 334 nos. of sub-station has been completed
- \* 26 Km of 33 kv line have been up-rated and 86 km 33 kv line added to the network.
- \* 2522 km of 11 kv and 2153 km of LT lines have been newly added to the network.
- \* 200 nos. of Automatic Power Factor Controllers have been installed at Balasore, Bhadrak, Jajpur road and Jajpur Town.
- \* 738 nos. Lighting Arresters, 402 nos. AB switches, 215 Nos. HG fuses etc. have been installed.
- \* No. of electrical accidents reduced to 29 in comparison to 59 of the same period of last year.

### Achievement of NESCO in FY 2010-11 (Upto Sep'2010)

**1. Power Transformers :**

- \* 3nos. of new 1.6MVA Power Transformers have been installed at Baisinga, Kostha, Takatpur 33/11KV Substations.
- \* Up-gradation of 4 nos. of Power Transformers to strengthen the system, 1.6MVA to 3.15MVA 2nos. at Manitree and Sukinda 33/11KV s/s., 3.15MVA to 5MVA at Aruha s/s. , 5MVA to 8MVA at Basudevpur s/s.

**2. Distribution transformers :**

- \* Addition of 80 nos of DTRs under S.I. scheme,
- \* Up-gradation of 33 nos. of Distribution Transformers.

**3. Phase balancing of transformers:**

- \* Phase Balancing of 296 nos. of Distribution Transformers.
- \* New/Re-Earthing of 171 nos. of Sub-stations.
- \* Phase conversion of 20 nos. of cases.

**4. For Improving Safety and Quality of Supply:**

- \* Installation of 23 nos. of 11 KV VCBs.
- \* 28 Km of 11KV line upgraded .
- \* 44649 nos. of meter replacement /new installation
- \* 58 Km of bare conductors has been replaced by Aerial Bunched cables.

**Strengthening of Vigilance Activity:**

Dedicated vigilance cells have been incorporated in Balasore, Bhadrak, Baripada and Jajpur Road Electrical Circle since July 2009 in NESCO. The cells are operating with the joint effort of retired police personnels recruited for NESCO and our executives.

The performance of the Vigilance cell is given hereunder:

PERFORMANCE OF VIGILANCE WING FROM (APRIL -SEPTEMBER)'10							
Name of the Month	Name of the Circle	No of Checkings	No of Penalties	No of disconnections	No of F.I.R	Accused arrested & forwarded to court	Amount Realised against Disconnection.
<b>Apr-10</b>	Balasore	16	2	1	1	—	600000.00
	Bhadrak	25	15	5	--	—	13886.00
	Jajpur Road	45	—	84	--	—	318454.00
	Baripada	17	—	40	1	—	4650.00
	Keonjhar	--	—	--	--	—	--
<b>Total</b>		<b>103</b>	<b>17</b>	<b>130</b>	<b>2</b>	<b>0</b>	<b>941990.00</b>
<b>May-10</b>	Balasore	41	18	8	1	2	69468.00
	Bhadrak	104	14	10	1	—	16800.00
	Jajpur Road	109	6	75			384549.00
	Baripada	123	74	11		—	88530.00
	Keonjhar	14	14	--	--	—	15124.00
<b>Total</b>		<b>394</b>	<b>126</b>	<b>104</b>	<b>5</b>	<b>2</b>	<b>574471.00</b>

Name of the Month	Name of the Circle	No of Checkings	No of Penalties	No of disconnections	No of F.I.R	Accused arrested & forwarded to court	Amount Realised against Disconnection.
Jun-10	Balasure	136	31	17	4	2	79000.00
	Bhadrak	193	26	23	--	--	44450.00
	Jajpur Road	145	1	87			255222.00
	Baripada	212	42	74	19	--	88530.00
	Keonjhar	31	31	--	1	--	--
<b>Total</b>		<b>717</b>	<b>131</b>	<b>201</b>	<b>24</b>	<b>2</b>	<b>467202.00</b>
Jul-10	Balasure	169	28	4	3	--	51450.00
	Bhadrak	147	12	55	3		89458.00
	Jajpur Road	150	12	63	--	--	116332.00
	Baripada	120	36	1	--	--	--
	Keonjhar	73	52	9	8	--	--
<b>Total</b>		<b>659</b>	<b>140</b>	<b>132</b>	<b>14</b>	<b>0</b>	<b>557240.00</b>
Aug-10	Balasure	237	37	9	8	--	--
	Bhadrak	35	15	68	1	--	108286.00
	Jajpur Road	120	12	134			519114.00
	Baripada	88	46	--	--	--	33336.00
	Keonjhar	37	37				
<b>Total</b>		<b>517</b>	<b>147</b>	<b>211</b>	<b>9</b>	<b>0</b>	<b>680696.00</b>
Sep-10	Balasure	80	29	2	0	--	--
	Bhadrak	105	14	39	4		132338.00
	Jajpur Road	237	18	130	--	--	189381.00
	Baripada	84	40	8	1	--	--
	Keonjhar	48	48	--	--	--	--
<b>Total</b>		<b>563</b>	<b>149</b>	<b>179</b>	<b>14</b>	<b>0</b>	<b>321719.00</b>
<b>Grand Total from [ APR-SEP]'10</b>		<b>2953</b>	<b>563</b>	<b>746</b>	<b>59</b>	<b>4</b>	<b>2862622.00</b>

### 8. Replacement of Defective meters

Encouraging the use of static meters which are tolerant to different energy theft methods like magnetic interference, phase reversal etc. in place of the age old electromechanical meters has resulted in decrease of interference with meter by unscrupulous consumers.

NESCO has already taken initiative to achieve 100% consumer metering as per its proposal in the Business Plan 2008-09 to 2012-13, which will enable it to raise bills on the basis of actual energy consumption instead of raising the bills on assessed basis, which is being done for the un-metered consumers or consumers having defective meters. M/s Secure Meters , M/s. N-Soft, M/s. Leela & M/s. Sheetal have been entrusted this task . Their performance till Nov'2010 is given hereunder

Sl. No.	Name of the agency	No. of meters installed
1	M/s. Secure Meters Ltd.	23584
2	M/s. N Solt	1843
3	M/s. Leela Enterprises	24808
4	M/s. Sheetal	21
	<b>Total</b>	<b>50256</b>

## 9 - Franchise Activity

In order to play a catalytic role in the development of the power sector in responsible manner and in consonance with the mandate of the Electricity Act 2003 and the direction of the Hon'ble Commission, NESCO is exploring franchisee operation both in Input based model as well as Collection based model in areas with high loss levels.

The franchisee awarded so far are:

- \* M/s. Enzen Global Solutions Pvt. Ltd engaged for Jajpur Town, Dharmasala Sub-division and Panikoili section on input based mode with part of O&M
- \* M/s. Akanksha Power & Infrastructure Pvt. Ltd. engaged for Khaira Sub-division on input based mode with part of O&M
- \* M/s. Gramunnati awarded collection based franchisee for Dehurda section .
- \* M/s. Sea Shore Securities Ltd. for Betnoti Sub-division- yet to sign the agreement
- \* Maa Kantimangala SHG for Jijharpur feeder under Tihidi section
- \* Maa Ambica Shakti SHG for Sargan with a consumer base of 2459 and
- \* Maa Basanti SHG for Srijang with a consumer base of 2394 under Balasore Circle.
- \* Further M/s. Sheetal and M/s. KLG Systel have been entrusted the work of Spot billing.

## SOUTHCO – MARCHING AHEAD

*Er. Tapan Kumar Mishra*  
*Vice President, SOUTHCO*

### Profile of SOUTHCO:

A Brief profile of SOUTHCO is as under:

### Demographic and Technical:

SI No	Parameters	Particulars
1	Area	17000 Sq. KM
2	Consumers	6.60 Lakhs
3	33 KV line	2775.16 KM
4	11 KV line	17266.54 KM
5	11 line	11371.87 KM
6	33/11 KV Sub station	124 No's
7	Distribution Transformers	15336 No's
8	Districts Covered	Ganjam, Gajapati, Kandhamal, Boudh, Nawarangapur, Rayagada, Koraput, & Malkanagiri

### Organizational:

SI No	Parameters	Nos
1	No of D&M Circles	6
2	No of D&M Divisions	18
3	No of D&M Subdivisions	53
4	No of D&M Sections	136

### Commercial:

SI No	Parameters	Particulars
1	No of EHT Consumers	11
2	No of HT consumers	176
3	No of LT consumers	659632
4	Annual INPUT in MU for FY 2009 -10	2285.33
5	Billing (Rs. in Lakhs)	34551.00
6	Collection (Rs. in Lakhs)	33132.00
7	Distribution Loss	48.02 %
8	Collection efficiency	95.89 %
9	AT&C Loss	50.16 %

\* Majority of the consumers are belonging to LT category.

\* The total no of working meters about 5.92 Lakhs which is 91% of the total metered consumers

### R&M and System Improvement Efforts Taken:

In order to provide the quality power supply to the consumers and to minimize the low voltage problem, Southco has taken many steps during the FY 2009-10 & FY 2010-11 (Apr-10 to Sep-10) under R&M and System Improvement Schemes by spending Rs 11.28 Crores in R&M through own funding and Rs 9.65 Crores by availing Loan from REC.

- \* SOUTHCO installed new transformers and also upgraded transformers wherever needed including power transformers for providing better voltage and reducing burning of transformers due to over loading.
- \* The phase balancing carried out to prevent the transformer burning and improving voltage. Wherever required 1 ph line is being converted to 3 phase lines.
- \* SOUTHCO has installed VCBs on 33 KV and 11 KV side respectively.
- \* SOUTHCO has already installed 451 nos of AMR against the large and high value consumers.
- \* **Installation of LT distribution boxes:** All the new transformers are provided with the proper size of LT distribution boxes.
- \* During FY 2009-10 Southco constructed 33 KV line of 26.5 KM by investing Rs 80. 45 Lakhs
- \* SOUTHCO has taken steps for consumer servicing and sustainability in revenue and power supply improvement by awarding two Sub-divisions of Ganjam North Divisions comprising of 35000 nos of consumers to Franchisee on Input Based Assured Revenue with O&M.
- \* **Rural Electrification:** During the FY 2009-10 and till Sep-10, 2441 villages have been charged under RGGVY Scheme and 1173 villages under BGJ Scheme.

**Initiatives Taken by SOUTHCO:**

- \* T&D losses have come down and collection efficiencies have been improved in comparison to the period prior to 1999.
- \* SOUTHCO is paying the current BST bill in full, meeting its employee cost and cost related to need based R&M expenses over and above the BST bill.
- \* Billing functions have been computerized and centralized limiting the human intervention. Spot billing is being carried out in 16 Divisions on monthly basis covering around 5.58 lakhs of consumers.
- \* SOUTHCO has added following assets in addition to the consumer meters for the last 10 years as detailed below:

Sl No	Particulars	Nos/Kms
1	HVDS   LT less S/S   & New Distribution S/S	2313
2	11 kv line (KM)	2584.7
3	LT line with AB cable (km)	894.6
4	33 KV line (Kvls)	268.5
5	New 33/11 KV S/S	8
6	Upgradation of 33/11 KV S/S	88
7	Up-gradation of Distribution S/S	1165

**Constraints:**

- \* SOUTHCO is predominant with high LT consumers mix with respect to other Discoms and contributes 80% of total drawl as LT consumption with very few HT and EHT consumers.
- \* Due to the above, Tariff setting for BST and approving ARR of SOUTHCO is becoming difficult for the Hon'ble Commission.
- \* Southco is having negative net worth and unable to raise loans from Financial Institutions for Strengthening the Assets.
- \* No subsidy is provided by the State Govt to the Distribution sector for making it viable.
- \* Revenue collection is escrowed to GRIDCO for servicing pre privatization liabilities.
- \* Negative GAP in ARR approved for Southco since the date of privatization till FY 2007-08.
- \* Little money made available for spending under R&M expenses till FY 2007-08.



### **Roadmap to Improve quality of Supply:**

In order to improve the quality of supply SOUTHCO is taking up for following measures in the coming years.

- \* To strengthen the net work system SOUTHCO shall infuse investment of Rs 4.89 crore by way of loan from REC out of project cost of Rs.8.52 crore for procurement and installation of over head conductors, LT XLPE Cables, Static Energy Meters, Single Phase & Three Phase Distribution Transformers and Circuit Breakers.
- \* For the FY 2010-11 & FY 2011-12 Southco has submitted an investment proposal of Rs 67.25 crore & Rs.123 Crore to the Hon'ble OERC for approval and sanction by Govt of Orissa for System Improvement.
- \* In addition to the above SOUTHCO is also planning to implement IT tools for improvement of the system of Rs 45.36 Crore for quality of supply by way of automation and customer services.
- \* SOUTHCO is in the path of structural change to segregate the O&M and commercial functions to have better accountability of employees towards customer services.
- \* SOUTHCO has submitted a Capital Investment plan of Rs. 492 Crore funded by State Govt. & counter part funding of SOUTHCO to be invested for the period ending FY 2013-14. Further investment of Rs.7.92 Crore under Additional Central Assessment Scheme and Rs.9.33 Crore from Japan Govt under Japanese Development Study and Technical Corporation Programmer for FY 2011-12 has been planned under System Improvement Scheme.

### **Implementation of Loss Reduction Strategies:**

SOUTHCO has projected AT&C loss reduction trajectory of 6.34% i.e 43.82 % for FY 2011-12 as against AT & C loss of 50.16% of FY 2009-10.

To Implement the Loss reduction trajectory SOUTHCO shall take following steps in a time bound manner:

- \* All the sub-division under SOUTHCO shall be ranked in terms of AT&C losses. Further, analysis shall be done at Sub-division level for trend of losses during last 5 years. The sub-division having higher losses shall be given special focus and be closely monitored during the control period.
- \* The mapping of distribution losses up to feeder level by way of consumer indexing and energy audit shall help in identifying the feeders having higher distribution losses. It will enhance the accountability and accordingly the loss reduction targets shall be specified for each of the responsible staff.
- \* SOUTHCO is also attempting to achieve 100% consumer metering which will enable it to raise bills on the basis of actual energy consumption instead of raising the bills on assessed basis, which is being done for some of the un-metered consumers or consumers having defective meters.
- \* At transformer level, SOUTHCO will carry out input-output analysis in terms of energy input and revenue output so as to identify the areas of high commercial losses. The vigilance teams of the SOUTHCO shall carry out massive theft detection program so that commercial losses could be minimized.
- \* The up-gradation work for old distribution transformers, cables, capacitor etc shall be under taken for minimizing the technical losses. Further the capital expenditure under SI and other scheme narrated above shall help in reduction of distribution losses.
- \* For curbing the commercial loss if any at HT and EHT, AMR meters are being installed at industrial units. Further, use of energy audit meters, XLPE Cables, deployment of security guards for guarding the energy audit meter at strategic location covering industrial consumers, daily reading of Industrial Consumer's billing meter and audit meter, carrying out vigilance through mobile squad at odd hours in night by Loss Control Cell squad shall help in reducing the distribution losses at HT and EHT level.
- \* Establishment of Energy Police Stations and special Court by the GoO with adequate Staff including enforcement activities by the Police personnel.

*Tariff setting should be done redetermining the loss levels along with timely inflow of CAPEX fund in order to achieve the targeted AT&C loss for viability and sustainability in the Distribution Business.*

# DEVELOPING MARKET IN ELECTRICITY SECTOR

*Sanjeev Das*  
*Secretary, CCPPO*

With passage of time and enough see-saw, power sector has seen the emergence of markets. Starting from wholesale to retail every single market mechanism has gone into a lot of evolution thus creating gross pool and net pool models of market emergence.

Wholesale electricity markets were initially organised as tight or gross pool like that in Chile and United Kingdom. In a gross pool, transactions are mediated through the pool whereas in net pool, only imbalances are mediated centrally through the market. The bilateral contracts provide the basis of a net pool and such contracts are facilitated through power exchange.

While most of the markets world over operate at gross pool, U.K. has moved over to a bilateral contract driven market under new electricity trading arrangements. Nordpool is also a voluntary pool and hence can be classified as a net pool. Most of the other markets in U.S., South America, Australia and Phillipines are organised as gross pools. The advantages of a gross pool are that the spot pricing formation is more robust and these prices are important signals of marginal cost and utility of electricity. Hence the cost for gross pool is stronger than the net pool. Extensive use of such contracts also reduces incentives to gain the market.

## **Capacity markets and energy only markets**

As already experienced in India, with ABT mechanism, ABT is not a robust solution to the objectives of creating incentives for capacity addition and simultaneously preserving market in dispatch. An alternative of ABT would be to tie up existing capacity and energy contracts between generators and distribution companies as they exist and create a market on gross pool basis with separate capacity and energy markets and price emergence for both. This would allow the existing contracts to be used for effective prices to be paid by distribution companies but would also allow emergence of spot markets for capacity and energy. The distribution companies should tie up the capacity before they requisition for energy. In case of no tie up, they have to pay for capacity as well as energy simultaneously. An alternative to that would be to not make it mandatory for all the capacity or the energy to come on to the market but to allow even only an “imbalance” market based on bids and offers. Both the options would necessitate moving away from frequency and pre-fixed prices towards price discovery mechanism which is happening in power sectors today. Both the options would require greater control on system operators and players in the sector.

In India despite recognising the importance of two part tariff in dispatch and scheduling generators, currently the trades take place on combined tariffs. While bulk of the scheduling/dispatch decisions are based on variable cost, the traded power actually gets to be scheduled on total cost basis. The new bid on merchant power plants coming up under the new policy frame work (Case 1 and Case 2), are also likely to be scheduled on total cost basis or contracted energy charges under long term PPAs rather than on real time bid basis. In any case there is no bidding to reveal “true marginal cost on real time basis”.

## **Independent System Operator and its role**

For any kind of competition to emerge at the wholesale level, the transmission net work has to be owned and managed by the players who have no commercial interest in the competitive market. The same is true for distribution net work for competition at the consumer level. To achieve the above, in the context of competition,

the system operator is not allowed any other interest in the sector, but is allowed full control on the operation of net work subject to regulatory oversight. The idea of independent system operator and open access has been the key to promotion of competition in an unbundled electricity sector. Any such independent system operator requires complete control over the net work, and should be able to issue binding instructions to dispatchable entities, even though it may not have commercial interest. In India, the system operators are only involved in scheduling and dispatch decisions and do not have similar control. More importantly they are not truly independent of the entities who have commercial interest like distribution companies, bulk supply licensees due to historical reasons.

### **Market Power**

One of the major concerns of policy makers and others in India is the possibility of exercise of market power by the generators by quoting a very high prices of marginal plants in case very few generators are competing in the spot market. While quoting high is not likely if there is enough competition, this danger lurks in case the marginal balance likely to be scheduled can be judged correctly and if demand side response is weak. The exercise of market power is less likely if there are enough capacities and players and also if most of the capacities are on long term financial contracts. In the latter case, in the context of a gross pool, where every generator has to bid, the incentive to game is considerably reduced as the gains from gaming and setting high spot prices are low. The incentives are very high if bilateral long term financial contracts are not allowed. Another way to lessen this problem would be to specify the price cap as in the case of Australian markets. How high this price cap should be, given prices in elasticity of demand, is a call to be taken by the policy makers and regulators.

### **Wholesale and retail market inter linkage**

A major problem witnessed during the Californian crisis was related to the lack of required linkage between wholesale and retail markets. If the high wholesale prices are not allowed to be passed through by the regulations to the retail level the distribution utilities are destined to become bankrupt in case the wholesale price remains high.

At least larger users should face the price of using electricity at any given point of time for the markets to adjust on the demand side as well, and therefore the demand side bidding is important so that this is protected from the changes in supply - demand situation as the prices of electricity are determined by the cost of supply and not value of electricity in India.

### **Transmission pricing and investment**

We are all aware that transmission pricing has been a huge determinant in our system as we lack the required infrastructure to calculate the movements of electrons although a lot of research is on in IIT, Bombay and today we are almost on the verge of having transmission prices being made effective in India in the coming year. Historically, one of the problems cited in the context of un-bundling the sector and making generation competitive is that unlike a vertically integrated utility which can jointly optimise the investment in generation and transmission, there is no equivalent frame work for investment decision in an unbundling sector. Optimal allocation for generation depends on transmission network capacity and configuration and an optimal transmission network depends on the generation, allocation and capacities assuming load centres are given.

The nodal pricing mechanism in such case would signal the need to remove the congestion but would also signal locating generation plants closer to the nodes having higher price due to congestion. In case global optimum for generation and transmission requires a new location and transmission network expansion to that location, a central planner is required and the markets are not expected to achieve such optimum or optimisation on their own. Currently the losses are pooled which may discourage loss increasing flows and may not also encourage loss reducing flows.

## **The Way forward**

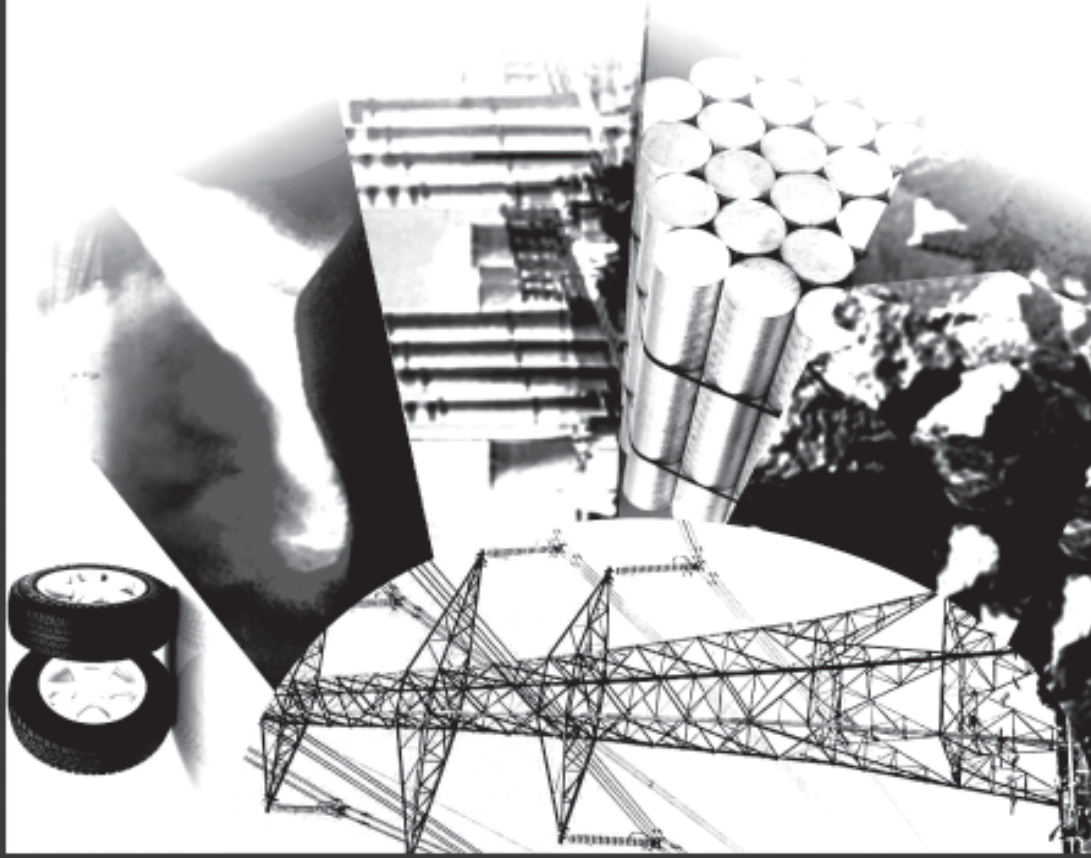
The broad issues which need to be addressed for development of market are as follows :

1. ABT based Management of Imbalance does not ensure the long and medium term response of the system to overcome consistent imbalance in one direction i.e. shortage. ABT cannot provide a vehicle to link “competition in the market”, to “competition for the market” through competition for dispatch.
2. There is no bidding for revealing “True Cost” on real time basis.
3. An alternative to ABT to tie up existing capacity and energy contracts between the generators and distribution companies as they exist and create a market on gross pool basis with separate capacity and energy markets and price emergence for both.
4. In gross pool, the distribution companies should tie up the capacity before they requisition for energy. In case they have not tied up, they have to pay for capacity as well as energy simultaneously but separately.
5. An exercise of market power in a bid and offer based real time, spot market as opposed to ABT based imbalance market is likely if there are enough capacities and players and also if most of the capacity is on long term financial contracts.
6. For the market to respond to real time prices the wholesale price need to be passed on to the end consumers at least to larger consumers through TOD meters and TOD tariff.
7. The real time markets would also require real system operator support in determining congestion and security constraints and the transmission price needs to be such that they reflect marginal loss and congestion charges if there is any congestion in the system.

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and crossing milestones of success every year .....

### *Pledging*

- Reliable and quality supply to the consumers
- Modernization of Distribution network
- Electrification of villages
- Value addition to customer service
- Speedy redressal of consumer disputes
- Regular and correct Billing
- Priority to Customer Satisfaction
- Training and motivation of employees

### **Performance Highlights**

- New Lines and sub-stations installed. Existing transformers upgraded and lines augmented.
- 33 /11 kv feeders and distribution transformers metered.
- Spot billing extended to more and more areas covering 2.72 lacs consumers .
- Automated Meter Reading System for high value consumers in and AMR for feeder metering planned.
- Distribution Franchisee Operation developed in license area covering 2316 villages and 85,876 consumers. Micro Franchising encouraged involving local NGOs and WSHG .
- Customer Care Centres modernized with IT intervention.

### **Our Commitment**

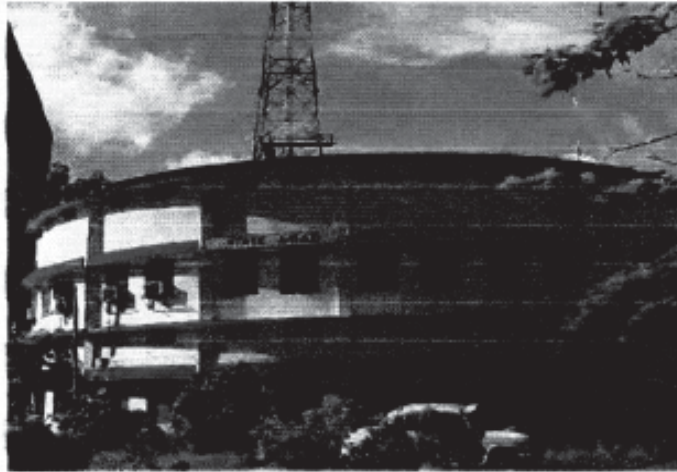
*Standing at the threshold of New Year-2011, we reiterate our commitment to translate our vision for a brighter and prosperous Western Orissa in to reality.*

**WESCO**

**WESTERN ELECTRICITY SUPPLY COMPANY  
OF ORISSA LIMITED**

CORPORATE OFFICE – BURLA, DIST.-SAMBALPUR-768017

with best compliments from :



24 x 7 SLDC NEVER SLEEPS

**SLDC is the apex body to ensure integrated operation of the power system in the State. The main responsibilities of SLDC are:**

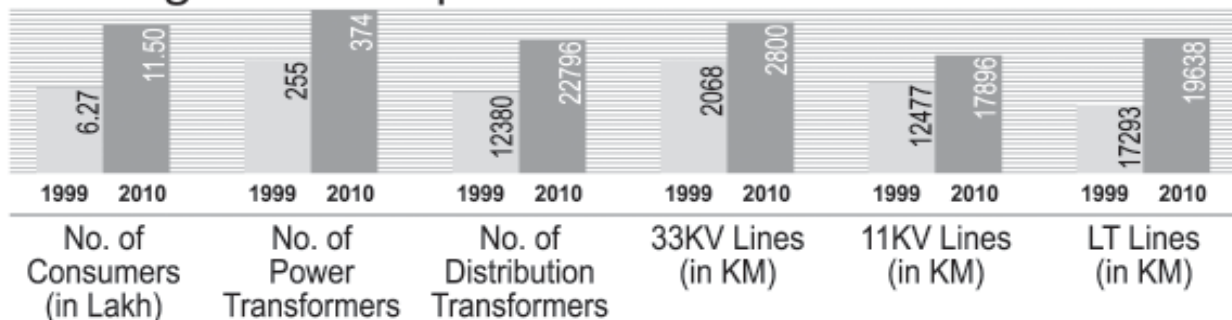
- Monitoring of system parameters and security
- To ensure the integrated operation of the power system in the State
- System studies, planning and contingency analysis
- Analysis of tripping/ disturbances and facilitating immediate remedial measures
- Daily scheduling and operational planning
- Facilitating bilateral and inter-state exchanges
- Computation of energy despatch and drawal values
- Augmentation of telemetry, computing and communication facilities

**STATE LOAD DESPATCH CENTRE  
ORISSA POWER TRANSMISSION CORPORATION LIMITED  
BHUBANESWAR**



# GROWING Concept is the Symbol of PROGRESS

Our growth comparison between 1999 and 2010



## GROWTH IN CUSTOMERS SERVICE PLATFORMS

- Simplified New Connection Form
- Doorstep disputeless billing through SBM
- Bill payment through Jana Seva Kendra & ECS system.
- Daily Grievance Cell at Head Office.
- Every 7th day of each month is the Grievance Day in each division.
- 24x7 operation of Electricity Call Centre connected with 155333/0674- 2391110.
- GRF at Cuttack, Dhenkanal, Paradip, Khurda and Bhubaneswar.
- Ombudsman at Bhubaneswar.



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**Achievements:**

- \* NESCO has been able to bring down its loss level from 43% in the yr 1999-00 to 32% in the yr 2009-10.
- \* The AT &C loss has been brought down to 35% from 55% during 1999-00.
- \* Providing single window service by setting up Customer care centre at Balasore
- \* Two grievance redressal forums are functioning one at Balasore and another at Jajpur Road.
- \* NESCO has taken initiative to bring IT to its system. Automatic meter reading modem has been provided in all the potential industrial consumers for billing.
- \* Input based assured revenue model of Franchisee with a part of O & M has been introduced in Jajpur Town, Dharmasala & Khaira sub-divisions.
- \* Women Self-Help group "Maa KantiMangala" & NGO "Gramunnati" has been awarded with collection based franchisee for Tihidi & Dehurda area.
- \* Addition & Up gradation of 527 nos of distribution transformers in FY 09-10.
- \* Barbed wire fencing & Boundary wall for 850 nos. of distribution substations
- \* Strengthening of Vigilance Activities by opening two new Energy Police Stations at Baripada and Rairangpur.

**For the overall improvement, for this financial year NESCO has set following target:**

- \* Addition & Up gradation of 1000 nos of distribution transformers.
- \* Stringing of 300 KM of AB-cable.
- \* Installation of 20 nos of 33KV and 25 nos of 11KV Breakers
- \* Barbed wire fencing & Boundary wall for 1200 nos. of distribution substations
- \* Overhauling of 30 nos of Power Transformers.
- \* Replacement of single-phase defective meters through outside agencies.
- \* Adoption of new IT concept "**HAMESHA ON - Complete Power Theft Prevention & Distribution Automation Technology**" & "**Feeder Management System**".
- \* An investment plan of Rs. 118 cr. has been prepared for System Improvement & Loss Reduction.

However, all its effort can be materialized with the support and consciousness of our Consumers.

**NORTH EASTERN ELECTRICITY SUPPLYCOMPANY OF ORISSA LIMITED**  
**Corporate Office: Januganj, Balasore-756019,Orissa,Fax No. 06782-263259**





## **SOUTHCO marching towards excellence.....**

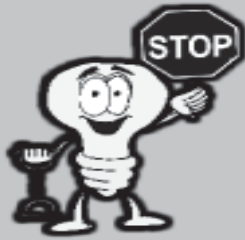
### **Ensuring**

- \* Reliable and quality supply to the consumers
  - \* Installation of VCBs, Load Balancing & Addition of new lines & Sub Station including Primary Sub Station
  - \* Renovation of Earthing system , Bifurcations of lengthy 11 KV feeders & Periodic inspection of LT feeders
- \* Modernization of Distribution network
  - \* Upgradation of 33/11 KV Substations, 33 & 11 KV lines and Commissioning of new Distribution Substations
  - \* Augmentation of Distribution lines & realignment of Load Center
  - \* Installation of AB Cables in place of LT overhead lines
- \* Electrification of villages under RGGVY, BGJY & Biju Sahar Jyoti scheme.
- \* Speedy redressal of Consumer Disputes
- \* Regular and correct Billing including Spot billing served to the consumers
- \* Installation of AMRs for monitoring of High Value consumers
- \* IT intervention in surveillance, Collection and Meter Management
- \* High priority and Value added service to customers through implementation of Franchisee
- \* Opening of Computerised Collection Center at the Sub Divisional level and providing facilities of deposit of energy bills at Jana Seva Kendras of GoO
- \* Training and motivation of employees
- \* Safety standards by imparting Safety Training at section level
- \* Educating the employees as well as to the customers for energy conservation

### **Performance Highlights towards Customer Satisfaction:**

- \* 100000 connections already provided to BPL beneficiaries under Kutir Jyoti scheme under village Rural Electrification Scheme
- \* 8513 nos of villages and 9968 nos of Hamlets to be covered under Rural Electrification covering about 871000 nos of consumers
- \* Huge capital investment under System Improvement Scheme
- \* Construction of 450 nos of New substation & 475 nos of Sub-station up gradation
- \* Replacement of Bare conductor through AB cable in theft prone areas
- \* Replacement of defective meters and bringing to the outside of the premises of the consumers to avoid bypass of the meters
- \* Implementation of HVDS under CAPEX programme
- \* Delivery of the Customer bill at the Spot through Spot billing for 6.50 lakhs of consumers
- \* Operation of Franchisee through PPP model in two Sub-divisions namely Rambha & Khalikote
- \* Planning for coverage of Micro Franchisee involving WSHGs/PRI/Villga Committee at the DTR level
- \* Speedy redressal of grievances of the Customers through CHP and Grievances redressal forums established at Berhampur & Jeypore/Rayagada
- \* Automatic Meter Reading System planned for consumers above 10 KW
- \* Opening of E-Seva for quick redressal of consumer complaints
- \* Construction of new 33/11 KV and 11/0.4 KV sub-station and upgradation of Transformers
- \* Creation of additional 7 Sections, 8 Sub Divisions, 4 Divisions & 1 Circle in order to provide better Customer services
- \* Organisation of Bidyut Mela for providing tatkal service at different level

**ENERGY SAVED IS ENERGY GENERATED  
JOIN HANDS FOR BETTER TOMORROW**



# ବିଦ୍ୟୁତ୍ ଅପରାଧ କ'ଣ ଓ ସେଥିପାଇଁ କି ପ୍ରକାର ଶାସ୍ତି ରହିଛି ?

ଅପରାଧ	ଶାସ୍ତି
ବିଦ୍ୟୁତ୍ ଚୋରି (ଚୁକ୍ତିବନ୍ଧ ଦାବୀ ୧୦ କିଲୋଓ୍ଵାର୍ ପର୍ଯ୍ୟନ୍ତ)	୧ମ ଥର ପାଇଁ ଦଣ୍ଡ - ଜୋରିମାନା ଯାହାକି ଏହି ଚୋରିଜନିତ ଆର୍ଥିକ ଲାଭର ତିନିଗୁଣରୁ କମ୍ ହେବ ନାହିଁ । ୨ୟ ଓ ପରବର୍ତ୍ତୀ ଦଣ୍ଡ - ଜୋରିମାନା ଯାହାକି ଏହି ଚୋରିଜନିତ ଆର୍ଥିକ ଲାଭର ଛଅଗୁଣ ।
ବିଦ୍ୟୁତ୍ ଚୋରି (ଚୁକ୍ତିବନ୍ଧ ଦାବୀ ୧୦ କିଲୋଓ୍ଵାର୍ ଉର୍ଦ୍ଧ୍ଵ)	୧ମ ଥର ପାଇଁ ଦଣ୍ଡ - ଜୋରିମାନା ଯାହାକି ଏହି ଚୋରିଜନିତ ଆର୍ଥିକ ଲାଭର ତିନିଗୁଣରୁ କମ୍ ହେବ ନାହିଁ । ୨ୟ ଓ ପରବର୍ତ୍ତୀ ଦଣ୍ଡ - ଜୋରିମାନା ଯାହାକି ଏହି ଚୋରିଜନିତ ଆର୍ଥିକ ଲାଭର ଛଅଗୁଣ ଏବଂ କାରାବାସ ଯାହାକି ଛଅମାସରୁ କମ୍ ହେବ ନାହିଁ । ଏହା ୫ ବର୍ଷ ପର୍ଯ୍ୟନ୍ତ ମଧ୍ୟ ବୃଦ୍ଧି କରାଯାଇ ପାରେ । ଦଣ୍ଡିତ ହେଲେ ସର୍ବନିମ୍ନ ୩ ମାସ ବା ସର୍ବୋଚ୍ଚ ୨ ବର୍ଷ ପର୍ଯ୍ୟନ୍ତ ବିଜୁଳି ଦିଆଯିବ ନାହିଁ ।
ବିଦ୍ୟୁତ୍ ଲାଇନ୍ ଓ ସାମଗ୍ରୀ ଚୋରି	୩ ବର୍ଷ ପର୍ଯ୍ୟନ୍ତ କାରାବାସ କିମ୍ବା ଅର୍ଥଦଣ୍ଡ କିମ୍ବା ଉଭୟ ।
ମିଟରରେ ବା ଲାଭସେନ୍ସଧାରୀଙ୍କ କାର୍ଯ୍ୟରେ ହସ୍ତକ୍ଷେପ	୩ ବର୍ଷ ପର୍ଯ୍ୟନ୍ତ କାରାବାସ କିମ୍ବା ୧୦,୦୦୦ଟଙ୍କା ପର୍ଯ୍ୟନ୍ତ ଅର୍ଥଦଣ୍ଡ କିମ୍ବା ଉଭୟ ମଧ୍ୟ ହୋଇପାରେ ଏବଂ କ୍ରମାଗତ ଅପରାଧ ପାଇଁ ଦୈନିକ ୫୦୦ ଟଙ୍କା ଜୋରିମାନା ହେବ ।
ଦାୟିତ୍ଵ ହୀନ ତଥା ନିୟମିତ ଭାବେ ବିଦ୍ୟୁତ୍ ଅପବ୍ୟୟ ବା କାର୍ଯ୍ୟ ପ୍ରତି କ୍ଷତି	୧୦,୦୦୦ ଟଙ୍କା ପର୍ଯ୍ୟନ୍ତ ଅର୍ଥଦଣ୍ଡର ବ୍ୟବସ୍ଥା ରହିଛି ।
ସର୍ବ ସାଧାରଣଙ୍କ ନିମନ୍ତେ ଥିବା ବିଜୁଳି ବତୀ ଲିଭାଇଲେ	୨,୦୦୦ ଟଙ୍କା ପର୍ଯ୍ୟନ୍ତ ଅର୍ଥଦଣ୍ଡର ବ୍ୟବସ୍ଥା ରହିଛି ।।



OERC ଦ୍ଵାରା ସର୍ବସାଧାରଣଙ୍କ ହିତରେ କାରି  
**ଓଡ଼ିଶା ବିଦ୍ୟୁତ୍ ନିୟାମକ ଆୟୋଗ**

ଆସନ୍ତୁ ନିଜନିଜ ଆମ କୀର୍ତ୍ତବ୍ୟ ଆଲୋଚିତ କରିବା

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# **APPENDICES**

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**B. K. DAS**  
CHAIRPERSON

**D.O. No.CHP/2010/4933**  
**Dt. : 17.9.2010**

**Dear Shri**

May I thank you indeed very much for sparing your valuable time to meet with me and exchanging views on certain issues of concern to the Electricity Sector.

As I had mentioned in the context, Aggregate Technical and Commercial Losses continue to be a matter for considerable disquiet, particularly theft of electricity which requires some amount of concerted and aggressive action. While the DISCOMs certainly need to do their bit by checks, inspections, automated meter reading and various applications of IT, police action by arrests and prosecution has a considerable salutary effect on the general environment of theft prevention. Of the thirty four (34) Energy Police Stations that have been sanctioned, only fifteen (15) are operational and that too, not fully. The inadequacy of personnel and infrastructures has not quite helped in making them fully operational and effective. The specially designated Courts for the trial of all electricity related offences also suffer from the inadequate availability of men and materials.

The line of command and control of the Energy Police Station is currently an integral part of the general Police Administration as a result of which their special role gets diluted, amidst the competing needs of general law and order and crime control. They need to stand apart from the general run of police administration and act on a dedicated basis in tandem with the DISCOMs who are distributing and supplying electricity.

I would suggest in this connection the West Bengal model where a very senior police officer at the level of an IG works with the West Bengal State Electricity Distribution Company Ltd. (WBSEDCL) and is responsible for theft prevention, detection prosecution and liaison with the police. West Bengal though has only one DISCOM for the entire State while we have four (4) DISCOMs. We would, therefore, consider having one senior officer working with the Dept. of Energy and being responsible for theft prevention and detection in all the four (4) DISCOMs. He could supervise and monitor the working of all the Energy Police Stations and ensure their effective functioning. As an officer of the State's police administration, he could liaise easily with the police and act as a bridge between the Electricity Utilities and the Police.

If we can reduce the AT&C losses to a reasonable level and prevent theft fully, it would not only mean huge revenue gains for the DISCOMs but also fairly large increases by way of Electricity Duty for the State Govt.

Theft is the most important cause for a humungous amount of the commercial losses, more often than not in connivance with the unscrupulous employees of the DISCOMs. This is a situation of unsustainable burden on the honest and paying consumers, overloading of lines and transformers, break down of supply, load shedding, increases in tariffs, indifferent service standards and huge problems in billing and collection. While the DISCOMs must systematically set about the curbing of losses by system upgradation and proper billing and collection, they need to be aided by the State and the machinery of the police in prevention and detection of theft, with penal action against the thieves. The DISCOMs need to be backed to the hilt by the State administration in curbing such losses.

The other important aspect is that Government themselves must be model consumers. They must pay their bills in time and in full. The DISCOMs have informed that the outstanding dues payable by Govt., Govt. aided agencies and various semi-government institutions is around Rs.388.79 crore as on 01.4.2010. These arrears are rather huge and reflects poorly on the Govt.

Lastly, a matter regarding the Commission's own working environment and infrastructure. I have been trying for the last four years to have a piece of land for our own office, which we do not have ever since the Commission was established in 1996. The current space is not only inadequate but belongs to a licensee under OERC. If the land shown to us by the Director of Estates, near Khandagiri is made available to us, or any other piece of land measuring around three acres we could have not only an office building but some residential accommodation to obviate the necessity of depending upon govt. accommodation. A proposal for the above is currently with the Govt. and we would request an early decision on the same.

Thanking you very much and with Regards.

Yours sincerely,

Sd/-

**(B. K. DAS)**

To,

Shri B.K. Patnaik, IAS  
Chief Secretary &  
Chief Development Commissioner  
Orissa, Bhubaneswar.



From :  
B. K. DAS  
CHAIRPERSON

D.O. No.OERC-Engg.-2/2006/  
Dt. : 08.7.2010

Dear

**Sub: Regular payment of electricity dues by different Government establishments, Urban Local Bodies, Panchayati Raj Institutions, PSUs, Co-operatives, Autonomous organizations etc.**

This Commission has brought to the notice of the Government from time to time the persistent default in payment of electricity dues by various Govt. departments, ULBs, PRIs, Co-operatives, Autonomous organizations, under the control or superintendence of the State Govt. No perceptible improvement is noticeable in the behaviour of the Govt. Depts. and Govt. controlled entities in payment of electricity dues in time. As per the information furnished by the four DISCOMs, a sum of Rs.388.79 crore is outstanding as on 01.4.2010 against various Govt. Depts., ULBs, PRIs, PSUs, Cooperatives, etc. as per the broad break-up given below:

(Rs. in crore)

Name of the DISCOM	Outstanding against Govt. Dept.	Outstanding against ULBs	Outstanding against PSUs	Total
CESU	99.01	35.50	4.09	138.60
NESCO	28.45	27.99	21.17	77.61
SOUTHCO	42.71	18.91	10.00	71.62
WESCO	32.50	25.84	42.62	100.96
<b>Total</b>	<b>202.67</b>	<b>108.24</b>	<b>77.88</b>	<b>388.79</b>

- Section-56 of the Electricity Act, 2003 and Regulation-100 of OERC Distribution (Conditions of Supply) Code, 2004 empowers the DISCOMs to disconnect power supply in case of default, in paying electricity dues. However, because of the interference and intervention by the district administration and veiled threats against the DISCOMs, in the matter of disconnection of power supply to ULBs, the Police, the Judiciary, Hospitals, Water Supply, etc., the DISCOMs are practically not in a position to take any action in the matter. This is a matter of serious concern. Firstly they do not pay and then they threaten the DISCOMs with all kinds of dire consequences if they take steps for disconnection. This kind of arm twisting of the DISCOMs is having a deleterious effect on the finances of the DISCOMs. Other consumers point their fingers at these Govt. Depts. and organizations, quote their examples and do not pay their bills. Their song is that, if Govt. Depts. are defaulters and their connections are not disconnected for default, then there is no earthly reason as to why the law should be enforced only against them. Thus, the malaise spreads, seriously impacting the revenues of the DISCOMs and consequential cascading effects on repair, maintenance and inability to pay for power purchases, leading to sickness and eventual break-down of the system as a whole. The behaviour and attitude of all arms of the Govt. should be exemplary. It does not behave Govt. Depts. to be seen as defaulters and consumers who do not pay for services. Unless Govt. Departments, Urban Local Bodies, PRIs, Co-operatives, Public Enterprises become regular payers of electricity dues, as per their consumption it would be extremely difficult on the part of the DISCOMs to take effective steps against other/all consumers in a transparent and non-discriminatory fashion.
- It may possibly be necessary as in the past for the Finance Dept. to issue appropriate instructions to the District Treasury Officer, Special Treasury Officer and Sub-Treasury Officer to insist upon a certificate on the body of the bills that they present at the Treasury that the outstanding electricity dues have been paid

in full and no amount is outstanding for payment towards electricity charges. In the absence of such a certificate, the bills of various establishments of Govt. Depts. and various ULBs, PRIs (Panchayat Samitis, Zilla Parishads) should not be entertained. Besides, Govt. in the Finance Dept. may not only consider the provision of adequate funds under electricity charges to enable the concerned Depts. to pay their electricity bills in time, but also to consider islanding and earmarking funds towards electricity dues, under all devolutions and grants-in-aid or budgetary support to ULBs, PRIs, Co-operatives and such other institutions who receive funding support or grants and devolutions from the Govt.

4. It is expected that Govt. Depts. and organizations under the control of the State Govt. should be model consumers, so that the other consumers would also emulate them and pay their dues in time. Your advice to all Govt. organizations to clear their outstanding electricity dues immediately in addition to paying the monthly electricity dues in time as per the date line indicated in the electricity bill served on the consumers would go a long way in propping up the sector. If the arrears of electricity dues are not cleared by the end of August and if there is default in paying monthly bills, DISCOMs would have no option but to disconnect power supply and we in the Commission would request Govt. to provide the necessary administrative support to meet the fall out of such a situation. I request you to please look into this personally and resolve the matter so that any unpleasant situation of disconnections is avoided.

Yours sincerely,

Sd/-  
**(B.K. Das)**

To

Shri T.K. Mishra, IAS  
Chief Secretary, Orissa,  
Bhubaneswar

Copy forwarded for information and necessary action to:

1. Shri B.K. Pattnaik, IAS, Principal Secretary to Chief Minister, Orissa, Bhubaneswar.
2. Shri J.K. Mohapatra, IAS, Principal Secretary to Finance Dept., Orissa, Bhubaneswar.
3. Dr. A.K. Panda, IAS, Principal Secretary to H&UD Dept., Orissa Bhubaneswar.
4. Shri S.N. Tripathy, IAS, Principal Secretary to Panchayati Raj Dept., Orissa, Bhubaneswar.
5. Dr. Mona Sharma, IAS, Commissioner-cum-Secretary, Co-operative Dept., Orissa, Bhubaneswar.
6. Shri P.K. Jena, IAS, Commissioner-cum-Secretary, Dept. of Energy, Orissa, Bhubaneswar.

Sd/-  
**Secretary**

Copy for information to:

The CEO, CESU, IDCO Tower, 2<sup>nd</sup> Floor, Bhubaneswar/Vice-President, WESCO, Burla, Sambalpur/Vice-President, SOUTHCO, Courtpetta, Berhampur/CEO, NESCO, Januganj, Balasore.

Sd/-  
**Secretary**

# GOVERNMENT OF ORISSA

## FINANCE DEPARTMENT

No. 36938(4) / Date : 26.8.10

**From**

**Sri J. K. Mohapatra, IAS**  
Principal Secretary to Government

**To**

**Principal Secretaries,**  
Public Enterprises Department /  
Co-operation Department  
Commissioner-cum-Secretaries to Govt.  
Housing & Urban Development Deptt. /  
Panchayati Raj Department.

**Sub : Reconciliation and payment of outstanding dues of CESU, WESCO, NESCO and SOUTHCO by urban Local Bodies, Panchayati Raj Institutions, Public Sector Undertakings and Co-operatives by 30<sup>th</sup> September, 2010.**

Sir,

I am directed to say that the Secretary, Orissa Electricity regulatory Commission (O.E.R.C) in Letter No. 4007 dated 27.05.2010 and Chairperson, (O.E.R.C.) in his D.O. Letter No. 4372 dated 08.07.2010 addressed to the Chief Secretary, Orissa have brought to the notice of the State Government that an amount of RS.108.24 Crores are outstanding against Urban Local Bodies as on 1<sup>st</sup> April, 2010 and that there is persistent default in payment of Electricity Dues by Urban Local Bodies, Panchayati Raj Institutions and Cooperatives.

2. The Chairperson, O.E.R.C. has observed that Government Departments and Organizations under the control of the State Government should be model consumers so that other consumers would also emulate them and pay their dues in time. He has further requested the State Government in Finance Department to issue suitable advisory to all Departments for timely payment of Electricity Dues and enforce it through islanding and earmarking funds out of devolutions, grant-in-aid or budgetary support to ULBs, PRIs, PSUs & Cooperatives.
3. The following arrangements may therefore, be put in place for clearance of the electricity dues by the Urban Local Bodies, Panchayati Raj Institutions, Public Sector Undertakings and Co-operatives.
4. The H & UD Department may issue necessary instructions to the Unban Local Bodies and Panchayati Raj Department'may instruct all Panchayati Raj Institutions to reconcile and clear the outstanding electricity dues till 31.03.2010, before 30<sup>th</sup> September at the latest. While releasing funds to the Local Bodies, H&UD Department and Panchayati Raj Department may earmark a certain amount towards electricity dues and before release of the subsequent installment, the concerned Local Bodies should furnish a certificate that the electricity' dues are being paid regularly and there is no default on their part in payment of electricity dues including the past arrear. In the absence of such a certificate the next installment due may not be released by the Administrative Department/Controlling Officers.

5. In case of Public Sector Undertakings and Co-operatives, appropriate instruction may be issued by Public Enterprises Department and Co-operation Department to the concerned Administrative Departments to insist on a certificate regarding up to date payment of the arrear and current electricity dues by the PSUs and Co-operatives while releasing budgetary support to the PSUs/Cooperatives. They may also be requested to earmark a certain amount out of the budgetary support towards payment of Electricity dues if the PSUs, Cooperatives have large outstanding arrear dues.
6. No opportunity should be given to the DISTCOs to disconnect the line after 30<sup>th</sup> September, 2010 and all-out efforts should be made to clear outstanding dues on priority.

Yours faithfully

**Prinicipal Secretary to Govt.**

Memo No. 36939 / F, Date 26.8.10

Copy forwarded to the Secretary. OERC, Bhubaneswar for information and necessary action.

Under Secretary to Govt.

Memo No. 36940 / F, Date 26.8.10

Copy forwarded to the C.E.O., CESU / WESCO/ NESCO/ SOUTHCO for information and necessary action.

Under Secretary to Govt.

Memo No. 36941 / F, Date 26.8.10

Copy forwarded to all Officers / Branches of Finance Department for information and necessary action

Under Secretary to Govt.

# GOVERNMENT OF ORISSA FINANCE DEPARTMENT

No. 36933(225)/F, Date 26.8.10

**From**

**Sri J. K. Mohapatra, IAS,**  
Principal Secretary to Government

**To**

**All Principal Secretaries**

Commissioner-cum-secretaries  
Secretaries to Government/  
All Heads of Department.

**Sub: Reconciliation and payment of outstanding dues of WESCO, NESCO and SOUTHCO by Government Offices within 30<sup>th</sup> September, 2010.**

Sir,

I am directed to say that the Secretary, Orissa Electricity regulatory Commission (O.E.R.C) in Letter No.4007 dated 27.05.2010 and Chairperson, O.E.R.C. in his D.O. Letter No. 4372 dated 08.07.2010 addressed to the Chief Secretary, Orissa have brought to the notice of the State Government that an amount of RS.202.67 crore and RS.77.88 crore are outstanding against Government Departments and PSUs as on 1<sup>st</sup> April,2010.

2. The Chairperson, O.E.R.C. has observed that Government Departments and Organizations under the control of the State Government should be model consumers so that other consumers would also emulate them and pay their dues in time. He has further requested the State Government in Finance Department to issue suitable advisory to all Departments for timely payment of Electricity Dues and enforce it through the Treasuries as was done earlier.
3. In this context, it is pertinent to mention that in Finance Department circular No. 49427(225)/F dated 09.10.2009 were directed to project their full requirements for provision of funds in the B.E. 2010-11 towards payment of electricity charges. During the pre-budget scrutiny, it was also ensured that full allocation for payment of electricity dues is made available on the basis of requirements furnished by the Departments. In view of this, there should be no scope for complaint regarding inadequate budget provision for payment of electricity dues. There is a provision of RS.99.92 Crore in the Budget Estimate for 2010-11 for payment of electricity dues by various Government Offices.
4. In the Circular issued by this Department (vide No.33613/F dated 02.08.2010) on Regulation of Expenditure out of the Annual Budget for the year 2010-11, it has been stipulated in para 3(iii) that Statutory dues viz. Sales Tax (VAT & CST), Municipal Tax, Compensation for Land Acquisition etc. as well as Electricity Dues and Rents, Rates and Taxes both amount and arrears should be cleared on the basis of provision made in the Budget after due verification and scrutiny and rebate wherever available should be availed. If any delayed payment surcharge is levied, it would be the personal responsibility of the concerned Heads of Office/DDO.
5. Keeping in View, the provision of funds in the B.E. for 2010-11 and the suggestion of the OERC, the following Time Table is prescribed for reconciliation and full payment of the arrear electricity dues of Government Offices under all Departments of Government.
  - i) The Administrative Department/ Controlling Officers are to provide funds to the Drawing & Disbursing Officers/Heads of Offices in the month of August, 2010 after ascertaining their requirement for payment of arrear and current electricity dues.
  - ii) The concerned Heads of Offices/DDOs will reconcile their outstanding electricity dues with the Divisional Officers of CESU, WESCO, NESCO and SOUTHCO and ensure clearance of undisputed arrear electricity dues by 30<sup>th</sup> September, 2010 and furnish a certificate signed by the DDO along-with the

salary bill for the month of October, 2010 that their arrear outstanding electricity bills upto March, 2010 have been settled failing which the salary bills in respect of their establishment for the month of October, 2010 shall not be entertained in the Treasuries.

- iii) In respect of institutions and organizations where there are big residential colonies adjoining the main office building, such as Irrigation colonies attached to multi-purpose projects, residential colonies, hostels attached to educational institutions and medical colleges etc. separate bills for consumption made by persons residing in such colonies are to be issued by the DISTCOs after segregation of the supply of electricity between Government buildings and individual houses/hostels. Government are not liable to pay for electricity consumption by the residents of such colonies/hostels.
- iv) Bills on account of contract demands are to be immediately reviewed to ensure that they are in line with actual consumption. New contracts, if necessary, have to be executed with the Distribution Companies.
- v) All Heads of Offices/DDOs under the Administrative Departments are also to ensure that, bills are raised as per meter reading and all the establishments have accurate working meters and electricity consumption is as per the norms prescribed in Finance Department Letter NO.WF-II-60/2002(pt)/1182(45)/F dated 07.01.2003.
- vi) In case, any Head of Office/DDO face any difficulty in reconciliation of the outstanding dues with the Divisional Officers of the DISTCOs, the matter should be reported to Energy Department/Ombudsman of the concerned DISTCO/OERC.
- vii) No opportunity should be given to the DISTCOs to disconnect the line after September, 2010 and all-out efforts should be made to clear outstanding dues on priority.

These instructions may kindly be brought to the notice of the Sub-ordinate Offices under your control.

Yours faithfully

**Principal Secretary to Government**

Memo No. 36934 / F, Date 26.8.10

Copy forwarded to the Secretary. OERC, Bhubaneswar for information and necessary action.

Under Secretary to Govt.

Memo No. 36935 (170) / F, Date 26.8.10

Copy forwarded to all treasury Officers / Special Treasury Officers / Sub - Treasury Officers for information and necessary action.

Under Secretary to Govt.

Memo No. 36936 (5) / F, Date 26.8.10

Copy forwarded to the C.E.O., CESU / WESCO / NESCO / SOUTHCO for information and necessary action.

Under Secretary to Govt.

Memo No. 36937 (100) / F, Date 26.8.10

Copy forwarded to all Officers / Branches of Finance Department for information and necessary action

Under Secretary to Govt.



Important

**Government of Orissa  
Department of Energy**

No. 5557 / in., Dated Bhubaneswar the 22.06.2010  
P & R -1-43/2010

**From :**

Sri Pradeep Jena, I.AS.  
Commissioner-cum-Secretary to Govt.

**To**

The M.D., WESCO & NESCO and  
Director, SOUTHCO,  
N1/22, IRC Village, Bhubaneswar.

-----  
The Vice-President,  
SOUTHCO, Courtpeta, Berhampur

-----  
The Vice-President,  
WESCO, Burla, Dist. Sambalpur

-----  
The CEO,  
NESCO, Januganj, Dist. Balasore

-----  
The Chairman,  
CESU Management Board, CESU  
2<sup>nd</sup> Floor, IDCO Tower, Bhubaneswar

-----  
The CEO,  
CESU, 2<sup>nd</sup> Floor, IDCO Tower, Bhubaneswar .

**Sub: Follow-up action on the decisions taken in the workshop on “Strategy for reduction of loss in the distribution sector” held on 26.05.2010.**

Sir,

I am to say that one Workshop was held on 26.5.2010 at 10.30 AM in which all the Executive Engineers, Superintending Engineers of the four distribution companies were present along with the M.D. Reliance Managed distribution companies, Chairman, CESU Management Board, CEO, CESU, Vice President, SOUTHCO & WESCO and CEO, NESCO, M.D., OPGC & other officials of Distribution Companies & State Government.

2. Hon’ble Minister, Energy inaugurated the function and expressed serious concern of the State Govt. regarding unsustainable level of AT&C loss.’ Hon’ble two Members of OERC present in the workshop also shared their views as to how the distribution companies can improve their performance substantially even with the existing constraints. Based on the feed back received from OERC regarding the performance of distribution companies, the presentation made by Shri B. C. Jena, Chairman, CESU Management Board, Shri Vivek Biswal, MD. OPGC and the submissions made by M.D., WESCO and NESCO and Director SOUTHCO, Vice President, SOUTHCO and WESCO, CEO, CESU, CEO, NESCO and Executive Engineers of the four distribution companies, it was decided that while reduction of technical loss is to be addressed by system improvement through

investment both by the distribution companies and the State Govt., the loss due to illegal consumption of electricity by various means by the unscrupulous consumers, some times, aided and abetted by some of the employees of the distribution companies is to be tackled by improving the internal administration, internal vigilance and monitoring. While the distribution companies have to comply with various performance parameters, stipulations and instructions issued by OERC from time to time, govt. accepts that distribution companies have to achieve overall reduction of at least 6% AT&C loss for all type of consumers taken together and at least 10% AT&C loss in case of LT category during 2010-11. This is the non-negotiable minimum target, which Govt. expects from each distribution companies to achieve during 2010-11.

3. The various action points on which the distribution companies have to take time bound action have been indicated in the Annexure.
4. It is requested that the activities of Superintending Engineers, Executive Engineers, Sub-Divisional Engineers, and Junior Engineers may be monitored at your level on day-to-day basis so that at the end of the month there is substantial improvement compared to the previous month. This would help in achieving the annual target as outlined in the Annexure. While Govt. will provide necessary support and assistance to deal with indisciplined behaviour of some of the consumers and the employees, if any, required initiatives have to be taken by the distribution companies to reduce the loss, improve the quality of supply and to develop consumer friendly attitude at different level by the distribution companies.

A copy of the above letter may please be communicated by the V.P./C.E.O. of the Distribution Companies to the Superintending Engineers & Executive Engineers for their guidance and follow up action.

Encl: Annexure

Yours faithfully,

Commissioner-cum-Secretary to Govt.

Memo No. 5559 / En.dt. 22.06.2010

Copy forwarded to the Secretary, OERC for information.

Commissioner-cum-Secretary to Govt.

Memo No. 5559 / En.,dt. 22.06.2010

Copy forwarded to The Chairman-cum-Managing Director, OPTCL, Janpath, Bhubaneswar. He is requested to ensure timely completion of gird substations and transmission lines and to ensure enhancement of power transformers at different areas in order to solve the lowvoltage problem.

commissioner - cum Secretary to Govt.

## Annexure

### **Compliance required on the action point emerged in the Workshop held on 26.05.2010 with the Executive Engineers and other Senior officers of the Distribution Companies.**

- 1) The Orissa Electricity Regulatory Commission has fixed various performance parameters for the DISCOMs, the Commission have also issued instructions and directions during the course of their performance review. Besides this, the DISCOMs have been directed by the Commission to take up O&M work on priority basis based on the report furnished by the Enquiry Team appointed by the Commission. The DISCOMs should take expeditious and time-bound steps to comply with the directions of the Commission issued from time to time and comply with the stipulations contained in the Tariff Order for FY 2010-11.
- 2) While all attempts shall have to be made by the DISCOMs to improve their performance in different parameters as fixed by the Commission, the Govt. expects that all the DISCOMs individually have to reduce the overall AT&C loss at least by 6% and AT&C loss in case of LT consumers at least 10% during 2010-11. These targets are non-negotiable and is the minimum. The DISCOMs would fix the target for the Circles, Divisions, Subdivisions and Sections accordingly.

#### **CESU:**

- 3) During 2009-10, against the BST price of 122.50 paise/unit (including Transmission charges) for CESU, the LT collection to LT Input is as low as 66.5 paise for TED, Chainpal, 67.1 paise for NED, Nimapara, 72 paise for JED, Jagatsingpur and overall being 122.00 paise/unit for CESU as a whole after taking all the 20 Divisions into account. The BST for 2010-11 in case of CESU is 180.50 paise. All attempts should be made by CESU to achieve LT collection to LT input, which should be at least equal to 180.50 paise.

#### **NESCO:**

- 4) The BST for NESCO for 2009-10 was 151.00 paise/unit, whereas the LT collection to LT Input for 2009-10 was as low as 42.6 paise for AED, Anandpur, 58.6 paise for JTED, Jajpur Town, 68.4 paise for UED, Udala, the average being 81.1 paise for all the 14 Divisions of NESCO taken together. NESCO must take steps to ensure LT collection to LT Input which should be at least equal to BST rate of 218.5 paise/unit fixed for 2010-11.

#### **WESCO:**

- 5) The BST for WESCO for 2009-10 was 175 paise/unit, whereas the LT collection to LT Input for 2009-10 in case of BWED, Baragarh (West) was 40.4 paise followed by 43.4 by BED, Baragarh, 49.3 paise for NED, Nuapada, 49.9 paise for SNED, Sonepur and 66.4 paise on the average for all the 15 Divisions taken together. The BST rate (including Transmission charges) for WESCO has been fixed at 217.50 paise/unit for 2010-11. WESCO must try to ensure the LT collection to LT Input, which should be at least equal to the BST rate of 217.50 paise during 2010-11.

## **SOUTHCO:**

- 6) The BST for SOUTHCO for 2009-10 was 91.00 paise/unit including Transmission charges. The LT collection to LT Input during 2009-10 was 56.90 paise/unit in case of AED, Aska followed by 64.4 paise by BNED, Bhanjanagar, 73.7 paise by GSED, Digapahandi and the average being 102.20 paise/unit for all the 14 Divisions taken together. The BST rate for 2010-11 in case of SOUTHCO has been fixed at 113.50 paise/unit. Since SOUTHCO has ensured LT collection to LT Input at 102.20 paise as against the BST of 91.00 paise/unit during 2009-10, SOUTHCO must achieve LT collection to LT Input during 2010-11 which should not be less than 150 paise.
- 7) Though apparently there is higher loss in LT because of system configurations like long lines etc., the consumption is quite substantial in Urban areas, particularly by the high end consumers like Hotels, Shopping Malls, Commercial Establishments, Private Engineering Colleges, Medical Colleges, Nursing Homes etc. All DISCOMs must take aggressive and systematic steps for load verification and detection of unauthorized abstraction of electricity through by-passing the meters or other illegal means in respect of all such high-end users in Urban areas. While the AT&C loss reduction in Urban areas would be sufficiently more than 6%, the overall AT&C loss reduction during 2010-11 shall not be less than 6% in any case after taking into account the consumption both in Rural and Urban areas.
- 8) Very often, it has been reported at different Fora that there is active connivance of some of the employees of the DISCOMs for encouraging illegal abstraction of electricity by by-passing of meters, hooking and other methods. The Vigilance officers posted in DISCOMs and the Energy Police Stations should be fully and effectively utilized for detection of all such unauthorized connections and illegal abstraction of electricity. Immediate and exemplary disciplinary action should be taken based on the enquiry reports already submitted by the Vigilance officers. Similarly, the DISCOMs must take exemplary action on the report of the Vigilance officers and the Energy Police Stations when submitted in future. What is needed is prompt and exemplary action on the report of the Energy Police Stations and Vigilance officers. The performance of the HR Wing should be reviewed by the CEO/VP on regular basis, so that there is no delay in taking action on the report of the Energy Police Stations and the Vigilance Wing.
- 9) The Energy Police Stations and Vigilance officers should be fully and effectively utilized. Daily target should be given to them for detection of unauthorized abstraction of electricity through by-passing the meters, hooking and by other means. Monitoring should be done at the level of CEO as well as by the SEs at the Circle level and the Executive Engineers at the Division level.
- 10) Verification of meters of the employees of DISCOMs:  
  
It is said that charity begins at home. DISCOMs must take steps to ensure 100% verification of correctness of meter reading, its functioning, whether there is bypassing meters etc. in respect of all its employees starting from the top to the line man/ helpers. The MRT and vigilance staffs should be entrusted with the job with close supervision.
- 11) Supply of electricity comes under Essential Services. Stringent action should be taken against the indisciplined employees, who are indulging in different illegal activities, obstructing the day to day collection of revenue

and maintenance of distribution network. Wherever needed, Govt. shall not hesitate to invoke the provisions of Maintenance of Essential Services Act. In the public interest, in order to ensure financial viability of the power sector as a whole for the benefits of the honest and genuine consumers.

- 12) While Govt. would like to invest in distribution network to ensure better quality of supply to the consumers and to reduce loss through system upgradation, the DISCOMs must also arrange fund on their own as stipulated in the Business Plan approved by the Commission for 2008-09 to 2012-13.
- 13) Besides capital investment, the distribution companies must ensure 100% collection of the current dues and substantial amount of the arrear dues outstanding as on 1.4.2010 in order to enable them to fully utilize the amount approved under R & M for 2010-11 in the ARR (WESCO 34.77 core, NESCO – 37.22 crore, SOUTHCO- 26.11 Crore & CESU 51.19 crore).
- 14) Govt. of India is providing grant to the extent of 90% under RGGVY Scheme for rural electrification work in the State. One of the mandate for implementation of RGGVY is that Franchisee operation should be introduced in those areas where Rural Electrification has been taken up under RGGVY. If Franchisee is not introduced, grant would be converted to loan and, in that case, the burden would be passed on to the DISCOMs and this ultimately would be borne by the consumers. Hence, it is the primary responsibility of the DISCOMs to cover more and more areas under Franchisee operation. This franchisee operation may be done by Women Self-Help Group, NGO, Registered Clubs, Panchayats or other professional organizations etc. During 2010-11, each Division must introduce at least 5 franchisee in rural areas including the areas covered under RGGVY. Besides this, the DISCOMs must take steps to introduce franchisee in 6 urban/semi-urban areas in their area of operation during 2010-11 at macro level. It shall be the primary responsibility of the Divisions to ensure that all co-operations and facilities are provided to the Franchisee for their effective functioning.
- 15) The distribution of electricity has been privatized w.e.f. 01.4.1999. Though in the Transfer Scheme, it has been stipulated that the service condition of the employees shall not be inferior to what was before transfer, it does not mean that to protect their financial benefit and service condition, the DISCOMs will incur loan or State Govt. will give subsidy or grant to protect their service condition. It is they, who are required to earn for their service benefits from the business of distribution of electricity, they are doing in their area of operation. At present, the loss is so high and the actual cash collection is so low that it is not sufficient to meet the salaries, R&M expenses after meeting the current BST and there has been default in payment of old BST and other past dues. They should collect enough revenue which should meet the cost of power supply by GRIDCO, the arrear BST dues, the O&M cost, salary expenses etc. They should collect sufficient amount of revenue, so that after meeting the required expenditure, DISCOMs would earn profit which has been included in the ARR approved by the Commission in shape of Return on Equity. If they increase the collection and reduce the loss, the Management of the DISCOM would definitely share a part of the profit by way of incentive to the employees. There has to be a relationship of trust between the employees of the management. It needs to be realized that no amount of outside support can succeed unless the utilities conduct themselves with greater sense of responsibilities.

- 16) Govt. shall provide appropriate administrative/police support to the employees of the DISCOMs at the field level in order to ensure effective functioning by the employees without any fear and favour. At the same time, the Executive Engineers, Superintending Engineers must keep close liaison with the Collector, SP of the concerned districts, the DIG / IG and RDC at the Divisional Head Quarters. Similar liaison should also be kept at the Sub-divisional and Police Station level. The MD, CEO/Vice-president and other senior officers of the DISCOMs while visiting field should also call on concerned Collectors, SPs, DIG/IG and RDC as the case may be seeking their help and guidance to their field staff as and when required.
- 17) Power sector would succeed if the utilities bring in efficiency, cut costs, reduce loss and ensure greater consumer satisfaction. It would also require strong enforcement to ensure that consumers of electricity pay for its use. The new mantra for the power sector is therefore, "Reduce cost, Be more efficient, Be consumer responsive or Perish".



# GOVERNMENT OF ORISSA DEPARTMENT OF ENERGY

## NOTIFICATION

No. 9230 / En., Bhubaneswar, dated the 21st Oct., 2010

**Sub: Capital Expenditure (CAPEX) Programme for the Distribution Companies of Orissa.**

Orissa is the pioneer in the country to bring reform in the power sector by enacting 'The Orissa Electricity Reforms Act-1995' & establishing Orissa Electricity Regulatory Commission (OERC). The objective of reform was to encourage private sector participation in electricity generation, supply and distribution, in order to supplement Government's inadequate resources for development of the power sector. In the process of reform the erstwhile OSEB was unbundled and generation, transmission and distribution has been entrusted to separate entities. At present the distribution system has been entrusted to three Private Companies name;ly- WESCO, NESCO & SOUTHCO and one utility namely Central Electricity Supply Utility(CESU) .

The entire electrical network was as old as 30-35 years by the time it was privatised in 1999. Most of the electrical networks are now almost 45 years old. After reform and restructuring of electricity sector in 1996 Government subsidy has been withdrawn and no transitional support has been given to the sector. As a result there has been no infusion of funds to the distribution sector leaving the distribution networks in a dilapidated condition.

Since the period of reform, the consumer base has doubled from 13 Lakh consumers in 1999 to 26 lakh in 2008-09 & the input drawl of energy has increased from 10,000 MU in 1999-2000 to 20,000 MU in 2008-09. But there has been hardly any up-gradation & addition to the existing distribution asset during this period to keep pace with increased demand.

In pursuance of National Electricity Policy & National Tariff Policy to provide power to all households by 2012, Govt. launched a massive programme under RGGVY scheme and State Govt. also launched a similar programme under BGJY & BSJY scheme to cover hamlets & urban slums not covered under RGGVY . After implementation of these massive electrification programs in the coming two years around 54 (Fifty Four) Lakh households including 36 (Thirty Six) lakh BPL households will be electrified and added to the existing consumer base of 26 lakhs, thereby increasing to 80 (Eighty) lakhs which is more than three times the existing base. The existing feeder network at 33KV level would be grossly inadequate to meet the huge additional load.

Unless there is a substantial investment in Capital Expenditure for system improvement it will be extremely difficult for the distribution sector to cater to the fast growing demand of the state and to arrest the high Technical and Commercial Loss. Any investment proposal is quite feasible as each 1% (one percent) reduction in AT&C loss would mean additional generation of about RS.50 crore revenue per annum.

The Sovan Kanungo Committee on review of Power Sector Reforms had recommended financial support of RS.3240 crore. The Orissa Electricity Regulatory Commission (OERC) while approving the Business Plan of the DISCOMs for the period 2008-09 to 2012-13 has envisaged a total investment of Rs.5000 crore by FY 2013 by both Government of Orissa & DISCOMs.

Government of Orissa had placed a proposal before 13<sup>th</sup> Finance Commission for availing grant for up-gradation of standard of services in transmission and distribution in power sector by investment in the distribution networks. The Finance Commission after carefully examining the issues agreed to provide Rs.500 crore for improvement of distribution sector as grant on the condition that the remaining Rs.500 crore is to be contributed by the State Government, GRIDCO and the DISCOMs in equal proportion.

After careful consideration of the demand for investment in distribution sector, the State Cabinet in their 10<sup>th</sup> meeting held on 05.10.2010 has approved the investment proposal of Rs. 2400 crore in distribution sector which includes the grant of Finance Commission, State budgetary support and counterpart funding by the DISCOMs with the following guidelines to be followed in execution of the scheme.

## 2. Scope of the Programme :

The focus of the scheme shall be on System Improvement, establishment of reliable system, reduction of AT & C loss to a sustainable level and improvement of quality of supply to the consumers of the State.

The project coverage includes renovation/modernization of existing & installation of new 33/11 KV primary substations and 11/0.4 KV distribution substations, re-conductoring of lines at 33 KV and below, load bifurcation, feeder separation, HVDS (11 KV) lines, aerial bunched conductoring in theft prone areas, replacement of electromagnetic energy meters with tamper proof electronic meters, installation of capacitor banks, energy audit, IT system implementation, Mobile service centers, distribution substation automation with SCADA system, ring fencing of different project areas and such other measures for attaining the above objective.

## 3. Funding mechanism :

3.1.1 The scheme envisages investment of Rs. 2400 crore to be spent under this Scheme over the period of four financial years i.e. FY 2010-11 to FY 2013-14, out of which Govt. of Orissa will provide RS.1 ,200 crore and DISCOMs will invest RS.1 ,200 crore from their own source/ or through market borrowing as per the following table:

3.1.2

### Year wise CAPEX Programme

(Rs. in Crore)

Financial Year	2010 - 11	2011 - 12	2012 - 13	2013 - 14	Total
State Govt (out of which)	300.00	400.00	250.00	250.00	1200.00
a. FC Grant	0.00	200.00	150.00	150.00	500.00
b. SS to Grant	0.00	66.67	50.00	50.00	166.67
c. Loan to GRIDCO for counterpart funding to FC Grant	0.00	66.67	50.00	50.00	166.67
d. State's own contribution	300.00	66.66	0.00	0.00	366.66
<b>DISCOMs</b> (out of which)	0.00	200.00	400.00	600.00	1200.00
a. Counterpart DISCOMs share for FC Grant	0.00	66.67	50.00	50.00	166.67
b. DISCOMs contribution	0.00	133.33	350.00	550.00	1033.33
<b>Total Gapex</b>	<b>300.00</b>	<b>600.00</b>	<b>650.00</b>	<b>850.00</b>	<b>2400.00</b>

Out of the State Government Support of RS.1200 crore;

- Grant of RS.500 crore from 13th FC is to be initially passed on as loan with 0% interest.
- RS.166.67 crore of matching State share against 13th FC grant as loan with 0% interest.
- RS.166.67 crore of Loan to GRIDCO for 1/3rd counterpart funding to FC Grant with 4% interest.
- Rs. 366.66 crore as budgetary support in shape of soft loan with 4% interest.

3.1.3 Loan of Rs.666.67 crore, bearing 0% interest ( SL.3.1.2"a" & "b") may be considered for conversion in to grant after full utilization of the loan for the specified purpose and achievement of loss reduction target of 3% p.a.

#### **4. Mode of Disbursement and Repayment:**

- 4.1 GoO shall release funds to GRIDCO and GRIDCO in turn shall pass on the same to Distribution Companies on on-lending basis i.e. with the same terms and conditions based on which the funds are released to GRIDCO by the State Government.
- 4.2 The loan will be released in two equal instalments every year. The second instalment of State Government support in each year except for the first year i.e. 2010-11 will be released only if the AT & C loss reduction target in the previous year is achieved and DISCOMS have arranged counterpart fund for the Capex.
- 4.3 The repayment of loan shall be secured through payment security mechanism of escrow on receivables of DISCOMS from sale of power.
- 4.4 The loan will have a moratorium period of 05 (Five) years for repayment of principal as well as Interest. The loan would be repaid by DISCOMS through GRIDCO in 15 (Fifteen) Years starting from the 6th year i.e. from the subsequent year following the expiry of the moratorium period.
- 4.5 The legal documents for State Government support will be made through two sets of agreement viz. one loan agreement between State Government & GRIDCO and another sUBsidiary loan agreement between GRIDCO & each DISCOM.

#### **5. Project Formulation and implementation:**

- 5.1 The DISCOMS shall prepare Detailed Project Repqrts (DPRs) for each of the project area and shall file before OERC for approval. At the same time a copy of the DPR shall be forwarded to Nodal Agency who shall place the same before the Monitoring Committee for sanction of the funds. DISCOMS shall implement projects sanctioned under this programme through a fair efficient and transparent process strictly within the time schedule to ensure quality and timely completion of the project.

#### **6. Nodal Agency:**

- 6.1 GRIDCO will act as 'Nodal Agency' for the implementation of the programme under the overall guidance of the Department of Energy, Govt. of Orissa. It will coordinate with agencies involved, such as Deptt. of Energy, GoO, Deptt. of finance, GoO, DISCOMS and Monitoring Committee in the matter of sanction of the DPRs, release of funds, monitoring end use of loan and recovery of principal & interest through a suitable ESCROW mechanism.
- 6.2 It shall appoint a team of officers/ consultants/agencies with requisite experience and expertise to monitor the quality of the project implimentation.
- 6.3 It shall appointment Third Party Independent Evaluation Agencies (TPIE) for verification and validation of base-line data and subsequent verification of AT&C loss figure during the implementation of the programme.
- 6.4 GoO shall provide a grant for an amount equal to 0.5% of the total financial assistance (Le. Rs. 6.00 crore) to Nodal Agency i.e. GRIDCO to meet the expenses relating to project monitoring, quality checking, verification of baseline data, evaluation of performance etc. This grant amount shall be over and above the financial assistance to DISCOMS.

#### **7. AT & C Loss Reduction Target:**

The DISCOMS shall be required to achieve the AT & Closs reduction target of minimum of 3% p.a. in the project area during the implementation period. The Detail Project Report (DPR) may specify the year wise AT & C loss reduction target calculated @3% per year for the total project period on cumulative basis.

## **8. Conversion of Loan to Grant:**

In order to incentivize the DISCOMs to perform efficiently & effectively Rs.666.67 crore, zero interest bearing loan shall be convertible to grant on prorata basis subject to achievement of AT&C loss reduction target of 3% per annum and after full utilisation. The loan of Rs.666.67 crore carrying zero percent interest consists of Rs.500 crore FC grant & Rs.166.67 crore, State Government Counter part funding to Fc grant. The conversion would take place over a period of five years. The first year would be the year starting after one year following the year of disbursement of each tranche of loan. The conversion will be proportionate to the ratio of actual percentage of reduction of annual AT & C loss vis-a-vis annual target reduction of AT & C loss at the end of each financial year.

## **9. Monitoring Committee.**

In order to oversee the implementation of the project in a systematic manner as per the Schedule, a monitoring committee will be constituted by GoO mainly comprising of the following members.

1.	Commissioner-cum-Secretary, Department of Energy, GoO	Chairman
2.	Representative of Finance Deptt. GoO	Member
3.	Representative of P & C Deptt. GoO	Member
4.	Managing Director of GRIDCO	Member
5.	Chief Electrical Inspector ( T& D)	Member
6.	MD/CEO of WESCO, NESCO, SOUTHCO & CESU	Member
7.	Finance Advisor of Deptt. of Energy	Member
8.	Additional/Joint Secretary, Deptt. Of Energy	Member Convener

The Committee will meet as frequently as required or at least once in a month and take stock of progress of work and sort out the bottlenecks in implementing the project, if any.

## **10. Third Party Monitoring and Evaluation for performance:**

- 10.1 Nodal Agency shall appoint Third Party Independent Evaluating Agencies (TPIEA), for monitoring/evaluation of the following aspects of performance of DISCOMs.
- 10.2 Distribution company shall ring fence each identified project area at the beginning of the programme. Thereafter, annual AT & C loss figures of project areas/utility as a whole during the implementation of the project shall also to be evaluated by them on annual basis during the implementation of the project.
- 10.3 The representatives of Third Party Organizations having expertise in inspection of materials relating to power sector shall make joint inspection with DISCOMs Officer(s), of the materials/ equipments during the process of manufacturing/pre-dispatch stage, on receipt of the materials equipments at site/store as well as during execution of the project.

## **11. Loan agreement, Subsidiary Loan Agreement,1 Procurement Guideline, Standard Bidding Documents & Technical Specifications:**

The Loan agreement between GoO & GRIDCO and Subsidiary Loan agreement between GRIDCO & each DISCOM, Procurement Guideline, Standard Bidding Documents, Technical Specification and such other relevant guideline(s)/document(s) as may be required for effective implementation of the scheme will be issued by the Energy Department from time to time.

**12. Procurement Committee:**

The DISCOMs shall follow a transparent procurement process as per the prescribed procurement guideline. Each DISCOM shall have a Procurement Committee comprising of MD/CEO/UP, Head of Finance wing, Head of Technical wing, a Nominee director of GRIDCO to the DISCOM board or their authorized representative and a representative of GoO in Energy Department, who shall follow the procedure for procurement of materials and award of contracts.

**Commissioner-cum-Secretary to Govt.**

Memo No.9231 / dt. 21.10.2010

Copy forwarded to the Director, Printing, Stationary & Publication, Orissa, Government Press, Mudhupatna, Cuttack for publication of Notification in next issue of Orissa Extra Ordinary Gazette and to supply 50 (fifty) copies of the Notification to this Department.

Additional Secretary to Govt.

Memo No.9232 / dt. 21.10.2010

Copy forwarded to the Managing Director, GRIDCO/OPTCL, Bhubaneswar for information and necessary action.

Additional Secretary to Govt.

Memo No.9233 / dt. 21.10.2010

Copy forwarded to the Secretary, Orissa Electricity Regulatory Commission, Bhubaneswar for information and necessary action.

Additional Secretary to Govt.

Memo No.9234 / dt. 21.10.2010

Copy forwarded to the PS to Hon'ble Minister, Energy for information and necessary action.

Additional Secretary to Govt.

Memo No.9235 / dt. 21.10.2010

Copy forwarded to the CEO, CESU / VP, WESCO/SOUTHCO / CEO, NESCO MD, WESCO, NESCO & Director, SOUTHCO for information and necessary action.

Additional Secretary to Govt.

Memo No.9236 / dt. 21.10.2010

Copy forwarded to the All Departments All Heads of Collectors for information and necessary action.

Additional Secretary to Govt.

MOST URGENT

Department of Energy  
Govt. of Orissa

No.R&R-I-06/2010 10568 /, Bhubaneswar dt. 25/11/2010

From:

Sri Pradeep kumar Jena, I.A.S.  
Commissioner-cum-Secretary to Govt.

To

The M.D., WESCO & NESCO and  
Director, SOUTHCO,  
N/22, IRC Village, Bhubaneswar.

-----  
The Vice-President,  
SOUTHCO, Courtpeta, Berhampur

-----  
The Vice-President,  
WESCO, Burla, Dist. Sambalpur

-----  
The CEO,  
NESCO, Januganj, Dist. Balasore

-----  
The Chairman,  
CESU Management Board, CESU  
2<sup>nd</sup> Floor, IDCO Tower, Bhubaneswar.

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The CEO,  
CESU, 2<sup>nd</sup> Floor, IDCO Tower, Bhubaneswar.  
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**Sub: Follow-up action on the decisions taken in the workshop on "Capital Expenditure (CAPEX) project of Rs.2400 crore for system improvement in the power distribution sector" inaugurated and launched by Hon'ble Chief Minister on 22.11.2010 at 10.30 AM in Hotel New Marion, Bhubaneswar.**

Sir,

I am to say that the Capex programme for investment of Rs.2400 crore for system improvement in the power distribution sector during the period of four years starting from 2010-11 to 2013-14 was inaugurated and launched by Hon'ble Chief Minister, Odisha on 22.11.2010 at 10.30 in Hotel New Marion, Bhubaneswar. Hon'ble Minister, Energy and Principal Secretary (Finance) Shri J. K. Mohapatra, IAS were present as the Guest of Honour. The undersigned, the Managing Director, OPTCL/GRIDCO, Chairman-cum-CEO, CESU, Managing Director, WESCO & NESCO and Director, SOUTHCO, Vice-



Presidents, WESCO, NESCO and SOUTHCO, all Superintendent Engineers, Executive Engineers also attended the inaugural session as well as technical session which followed the former. Among others, two Hon'ble Members, Orissa Electricity Regulatory Commission were also attended the Workshop and gave their valuable suggestions and feedback.

2. The background of launching of the Capex programme for four years for investment of Rs.2400 crores was outlined by the undersigned in details both at the inaugural session and in the technical session. The financing of the Capex programme would be as under:-

(Rs. in crore)

Financial Year	2010-11	2011-12	2012-13	2013-14	Total
<b>A. State Govt.</b>					
FC Grant(as loan with 0% interest	0.00	200.00	150.00	150.00	500.00
SS to FC grant (as loan with 0% interest)	0.00	66.67	50.00	50.00	166.67
Loan to GRIDCO for counterpart funding to FC grant (as loan with 4% interest)	0.00	66.67	50.00	50.00	166.67
States own contribution (as loan with 4% interest)	300.00	66.66	0.00	0.00	366.66
<b>Total Govt. Fund</b>	<b>300.00</b>	<b>400.00</b>	<b>250.00</b>	<b>250.00</b>	<b>1200.00</b>
<b>B. DISCOMs</b>					
Counterpart DISCOM share for FC grant	0.00	66.67	50.00	50.00	166.67
DISCOMs contribution	0.00	133.33	350.00	550.00	1033.33
<b>Total Counterpart Fund</b>	<b>0.00</b>	<b>200.00</b>	<b>400.00</b>	<b>600.00</b>	<b>1200.00</b>
<b>Total CAPEX (A +B)</b>	<b>300.00</b>	<b>600.00</b>	<b>650.00</b>	<b>850.00</b>	<b>2400.00</b>

3. During the workshop it was clearly emphasized and reiterated that after a long time the State Govt. is stepping in to invest Rs,2400 crore for upgradation of distribution network with a view to reduce the AT&C loss at least 3% per annum and to improve the quality of supply in the State. The Principal Secretary (Finance) have in unambiguous and categorical terms have emphasized that the Capex Programme is designed to be an outcome investment and it is necessary for the distribution companies to ensure its implementation in the right earnest to see that the benefit expected from the investment is actually achieved and this has to be ensured through intensive monitoring at different levels. During the inaugural as well as technical session the Hon'ble Minister, Energy has also highlighted various issues and difficulties being faced by the consumers in different areas and the need for prompt response from the officers of the distribution companies at different levels starting from the Executing Head to the Line man. If the distribution companies fail to achieve the desired level of reduction of AT&C loss @ 3% per annum in

the project areas the DISCOMs would lose the opportunity of being assisted in future by the State Govt. and on the other hand it will burden the consumers by way of interest payment and repayment of the principal to State Govt. and the financial institutions because out of Rs.1200 crore of State contribution, Rs.566.67 crore would not be converted to grant in case the distribution companies fail to achieve the AT&C loss reduction of 3% per annum.

4. State Govt. have decided to operationalise all the 34 Energy Police Stations before 31.3.2011. Action is also being taken to monitor the functions of the Energy Police Stations and anti theft activities by a Senior Police Officer to be earmarked in the Office of the DG. It is the primary responsibility of the DISCOMs to launch a broad attack on all types of theft of electricity and the employees of the distribution companies themselves must show an example by ensuring correct metering of the energy consumed by themselves and paying the bills in time.

5. The important points that emerged in the inaugural as well as technical session has been summarized in the annexure for follow up action and compliance by the distribution companies at different level. Action taken in this regard should be reported to the Govt. under intimation to OERC and GRIDCO.

Yours faithfully,

  
Commissioner-cum-Secretary to Government

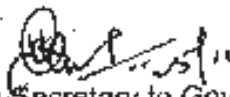
Memo No. 10569 dt. 25/11/2010

Copy forwarded to the Secretary, OERC for information.

  
Commissioner-cum-Secretary to Government

Memo No. 10570 dt. 25/11/2010

Copy forwarded to The Managing Director, OPTCL, Janpath, Bhubaneswar. He is requested to ensure timely completion of grid substations and transmission lines and to ensure enhancement of power transformers at different areas in order to solve the low voltage problem. It must be ensured that along with implementation of CAPEX programme in the identified project area, supplementary/complimentary work needed from OPTCL to improve the power supply and reduce the interruption should be undertaken on priority basis in consultation with the distribution companies.

  
Commissioner-cum-Secretary to Government

**Compliance required on the action point emerged in the inaugural session and the technical session held on 22.11.2010 on launching the Capex Programme for upgradation of distribution network in the State.**

- (i) The Capex programme is in addition to O&M expenditure approved by OERC, investment being made under RGGVY & BGJY and funds provided by different district administration from different sources. Therefore, the essential deficiencies in the distribution network which otherwise could not have been met from O&M expenditure or other sources have to be addressed through Capex Project.
- (ii) While working out the DPR for the distribution companies as a whole the areas where there is persistent problem and complaints like low voltage, frequent power interruption because of lengthy lines, absence of circuit breakers etc., should be identified and these areas should be taken on priority basis. During the course of meeting Hon'ble Minister has given some examples like Bahugram in Salepur area, Raghunathpur in Jagatsinghpur district, Nuapara in Nuapada district, Bissam Cuttack and Rayagada in Rayagada district, Baliana in Khurda district, Nimapada, Kakatpur etc. in Puri district.
- (iii) The DPR for upgradation/renovation of distribution net work should also indicate the parallel action needed to be taken by OPTCL for up gradation of Grid-substation / Transmission lines / upgradation of power transformers etc. For this, prior consultation with OPTCL should be made and the agreed parallel action by OPTCL and the distribution companies should be implemented. The DPR of the distribution companies must indicate the action needed to be taken by OPTCL.
- (iv) In many places the wires are lying low or the poles have been bent. In the past there have been several electrical accidents. Priority should be given to replace the poles and low-hanging wires so that the accidents are avoided.
- (v) Works Department, RD Department, Urban Local Bodies, or other agencies are taking up widening and raising of ds thereby reducing height which may lead to electrical accidents. The concerned distribution companies should issue show cause notice to the implementing department/agencies in case prior permission has not been taken. The officers of concerned distribution companies must intimate to the concerned authority or agencies to include the cost of shifting of

poles/lines in the estimate of the work being undertaken. The local JE and SDO (Electrical) shall be personally responsible for coordinated action in this direction.

- (vi) The Capex project is designed to solve voltage problems at different levels and quality power supply in the project area. But the additional input that may be supplied to those areas of the consumers must be converted into billing and collection. Priority should be given for proper metering, timely billing to the exact amount of energy consumed, serving the bill in time and collecting the revenue.
- (vii) In case of burnt transformers the distribution companies are at present insisting on payment of arrears which have piled up for years together. As a result, the consumers are not able to pay such huge arrears at a time. Further, they point out that such arrear bills have been raised against them where there was no power supply. In order to solve the problem of the consumers, prompt action should be taken to revise the arrear bills promptly as per the existing regulations. Besides, this the E.E.s, AEs etc. should hold meetings with the villagers to explain them why the transformers have been and how they are not able to purchase a new transformer to replace the burnt transformers because of over drawal by some of the consumers and illegal extraction of energy by hooking or bypassing of meters and how their active cooperation and help would avoid burning of transformers and low voltage, etc.

They should enter into an agreement with the people of the village/concerned area for replacing the bare conductors with AB conductors, replacing the electro magnetic meters with static meters and fixing the meter outside their houses etc. and keeping further watch on the pattern of the consumption. After explaining the problem, they should replace the burnt transformers on priority basis and then follow up subsequently. If some of the consumers still default in paying their dues, prompt action should be taken to disconnect the power supply to such consumers.

- (viii) Discrimination should not be made between franchisee and non-franchisee area for utilization of fund under O&M as well as capital investment programme keeping in view the terms and conditions agreed to in the agreement with the franchisees.
- (ix) In order that the distribution companies ensure full utilization of the amount approved for O&M expenditure, concerted efforts should be made to increase substantially the present level of billing and collection so that enough money is

deposited in escrow account for enabling GRIDCO to release the required fund as per the priority fixed by the Commission in their order dated 12.4.2010 in case No. 3/2010 read with their order dated dtd. 02.11.2010 in case No. 34/2010.

- (x) For correct comparison of the improvement achieved over the base line data for the year 2009-10 the distribution companies are to correctly workout the base line data for 2009-10 division-wise as a whole and for the specified project area within the division separately. At the end of the project period the improvement achieved for the division as a whole and for the project area specified shall be compared with the base line data thus worked out correctly.
- (xi) State Govt. in the initial stage is proposing to release fund as loan which can be subsequently converted to grant depending on actual fulfilment of the target of the AT&C loss. Hence in order to reduce the impact on tariff on account of the proposed investment, distribution companies are to closely monitor the actual implementation at the field level. The man and materials should be provided in time through appropriate re-deployment and re-allocation / fresh recruitment of technically qualified persons so that in no way there is cost over run and time over run leading to higher impact on tariff. In other words additional liabilities, if any, arising out of cost over run or time over run or failure by the licensee to achieve the performance parameters fixed by the Monitoring Committee/ State Govt. shall not be considered by the Commission for the purpose of their revenue requirement for the relevant years as clarified by OERC in their Order dated 10.11.2010 in Case No.109, 110, & 111 of 2010.
- (xii) Advance action should be taken for procurement of materials and awarding the contract for implementation of capex programme so that the work is taken up in time and the payment is released as soon as fund is passed on by GRIDCO after receiving the same from the State govt.
- (xiii) While the investment is expected to improve the quality of supply and reduce the distribution loss, concurrent action should be taken for implementation of various anti-theft measures including strong and regular enforcement activities through Energy Police Stations and Vigilance Wing, MRT squad of the distribution companies.



- (xiv) Initially the State govt. is proposing investment of Rs.2400 crore for the four distribution companies out of which State Govt. would provide Rs.1200 crore. Therefore, It is necessary for the distribution companies to take all possible measures to ensure that target fixed on different parameters particularly with reference to distribution loss and AT&C loss are achieved by them at any cost so that govt. may consider further investment over and above Rs.2400 crore now decided. This is an opportunity which the distribution companies must avail and create an enabling situation for the State Govt. to extend further support to the distribution companies in their efforts to reduce the AT& C loss and improve the quality of supply. However, for the purpose of fruing up, the parameters fixed by the Commission in the Tariff Orders of the respective years shall be taken as the basis but not the target fixed for the purpose of achieving budgetary support from the State Govt as clarified by OERC in their Order dated 10.11.2010 in Case No.109, 110, & 111 of 2010..
- (xv) The estimated cost of the project, the date of commencement of the work, the scheduled date of completion and progress of the work should be displayed in website of distribution companies as well as that of GRIDCO for information of the general public as clarified by OERC in their Order dated 10.11.2010 in Case. No.109, 110, & 111 of 2010.
- (xvi) Systematic steps should be taken to involve more number of Franchisees and their performance should be regularly monitored and supervised as directed by OERC in their letter No.DIR(T)-319/08/5201 dtd.30.10.10 which was issued after review of Franchise operation by OERC from 25.10.2010 to 28.10.2010. Energy Dept. would also like to hold workshop on Franchise operation sometime in January, 2011 in places outside Bhubaneswar.
- (xvii) In many cases electrification of villages/hamlets have been completed under RGGVY and BGGY but the transformers/lines are not being officially changed even after many months as a result there is unauthorized abstraction of electricity with connivance of the local electrical staff/contractors. In many cases the lines/transformers are not being charged as a result there is growing discontentment among the local people and unnecessarily govt. machinery is being blamed. Distribution companies must take prompt action for charging of the lines/transformers within 15 days of completion of the work.



- (xviii) Various local problems relating to rural electrification, capex programme, need for active support of the district and police administration on curbing of theft of electricity, law and order problem faced while disconnecting power supply to the defaulting consumers, removing hooking, checking the bypassing of meters, blackmailing by the notorious and dishonest consumers etc., should be regularly discussed in the meeting of the District Committee on electricity which should be convened every month. The initiative has to be taken by the SE/EE located in the District Head Quarters.

**ORISSA ELECTRICITY REGULATORY COMMISSION**  
**BIDYUT NIYAMAK BHAWAN**  
**UNIT-VIII, BHUBANESWAR - 751 012**

Present : Shri B. K. Das, Chairperson  
 Shri K.C. Badu, Member  
 Shri B. K. Misra, Member

**Case No. 134 of 2010**

CESU, Bhubaneswar

....

**Applicant**

**In the matter of :** An application under Condition-11 of the License Conditions of Central Electricity Supply Utility of Orissa (CESU) approved by the OERC.

**And**

**In the matter of:** Investment proposal of CESU for Infrastructure Development and Loss Control activities to be taken up during the period FY 2010-11 to FY 2013-14

**Date of Hearing: 01.10.2010**

**Date of Order : 06.10 .2010**

**ORDER**

Shri B.K. Lenka, COO and Shri B.P. Mohapatra, CFO, CESU are present.

2. Shri Mohapatra made a Power Point presentation and also submitted the hard copies of such presentation to the Commission. During the course of presentation and submission, Shri Mohapatra also submitted a copy of letter No.-I-06/2010(Pt.)/7991 dt.09.09.2010 of Energy Department addressed to four DISCOMs regarding preparation of Investment Plan for Capital Investment in the Distribution Sector. According to the aforesaid letter of the Dept. of Energy, the total investment envisaged is Rs.2400 crore during the period from 2010-11 to 2013-14 as per the table given below:

**(Rs. in crore)**

	2010-11	2011-12	2012-13	2013-14	Total
<b>State Govt. (Out of Which)</b>	<b>300.00</b>	<b>400.00</b>	<b>250.00</b>	<b>250.00</b>	<b>1200.00</b>
a. FC Grant	0.00	200.00	150.00	150.00	500.00
b. SS (*) to FC grant	0.00	66.67	50.00	50.00	166.67
c. Loan to GRIDCO for counterpart funding to FC grant	0.00	66.67	50.00	50.00	166.67
d. State's own contribution	300.00	66.66	0.00	0.00	366.66
<b>DISCOMs (Out of Which)</b>	<b>0.00</b>	<b>200.00</b>	<b>400.00</b>	<b>600.00</b>	<b>1200.00</b>
a. Counterpart DISCOM share for FC grant	0.00	66.67	50.00	50.00	166.67
b. DISCOMs contribution	0.00	133.33	350.00	550.00	1033.33
<b>Total CAPEX:</b>	<b>300.00</b>	<b>600.00</b>	<b>650.00</b>	<b>850.00</b>	<b>2400.00</b>

(\*) SS – State Share

3. Out of Rs.2400 crore envisaged to be spent under CAPEX for upgradation and renovation of the Distribution network over a period of four financial years i.e. 2010-11 to 2013-14, Govt. of Orissa will provide Rs.1200 crore and DISCOMs will invest Rs.1200 crore from their own source or through market borrowing. Rs.1200 crore of budgetary support by the State Govt. would consist of as follows:
  - a) Grant of Rs.500 crore from 13<sup>th</sup> FC is to be initially passed on as loan with 0% interest
  - b) Rs.166.67 crore of matching State share against 13<sup>th</sup> FC grant as loan with 0% interest.
  - c) Rs.166.67 crore of Loan to GRIDCO for 1/3<sup>rd</sup> counterpart funding to FC Grant with 4% interest to be passed on to DISCOMs with same terms and conditions.
  - d) Rs.366.66 crore as budgetary support in shape of soft loan with 4% interest.

4. In this connection, it is to be noted that the 13<sup>th</sup> Finance Commission in para 12.257 of their recommendation has recommended as under:

*“12.257. The state has represented that it had not received adequate support in its pioneering effort in terms of a radical reform programme involving private sector participation in power distribution. Agricultural power consumption in Orissa is extremely low at only 2 per cent of the total power consumption in the state. The State Government has proposed an investment plan of Rs.1000 crore to strengthen its power distribution, to be shared between the State Government (Rs.200 crore), Gridco (Rs.147 crore) and the various Discoms (Rs.153 crore) and has requested a Finance Commission grant of Rs.500 crore towards this programme. Given the need to strengthen the distribution system in the State, we recommend the grant as sought by the State Government, on the condition that the remaining Rs.500 crore is contributed by the State Government, Gridco and the Discoms in equal proportion.”*

Thus, though the grant of Rs.500 crore from the 13<sup>th</sup> Finance Commission and the State share of Rs.166.67 crore from the State Govt. and Rs.166.67 from GRIDCO should be invested as grant, the State Govt. have initially decided to pass the grant of Rs.500 crore from the 13<sup>th</sup> Finance Commission and the State’s matching share of Rs.166.67 crore as a loan with 0% interest. In respect of GRIDCO’s share of Rs.166.67 crore for investment, this would be passed on to DISCOMs as a loan with 4% interest. Besides this, the State Govt. is contemplating budgetary support of Rs.366.66 crore in shape of soft loan with 4% interest.

5. In course of hearing, it was explained that loan of Rs.666.67 crore bearing 0% interest (Rs.500 crore pertaining to grant of 13<sup>th</sup> Finance Commission + Rs.166.67 representing State’s proportionate matching share) may be considered for conversion to grant after full utilization of loan for the purpose of achievement of loss reduction target of 3% per annum.
6. Out of Rs.2,400 crore of investment to be made by the four DISCOMs, CESU has submitted investment proposal vide its petition dt.29.09.2010 for Rs.1092.72 crore (against Rs.1036.00 cr. proposed by State Govt.) seeking approval of the Commission to be undertaken during the period FY 2010-11 to FY 2013-14. We perused the petition filed by CESU and heard the submission made by CFO & COO, CESU. We hereby admit the case for hearing simultaneously.
7. As per the submission made, the Govt. of Orissa is to infuse investment to the extent of Rs.468 cr. in CESU (WESCO Rs.234.00 cr., NESCO Rs.252.00 cr. and SOUTHCO Rs.246.00 cr.) during the above years for system up-gradation to reduce AT & C loss and to improve quality of power supply. The Govt. of Orissa has desired that for making such an investment of Rs.468 Cr., CESU is required to bring a matching contribution of Rs.468 Cr. during the same period. In addition to the above, CESU has intimated that it shall make a self financing investment to the tune of Rs.156.72 Cr. (Rs.624.72 cr. – Rs.468.00 cr.) during the above years. The year-wise investments from different heads as detailed above is outlined in the following table.

Financial year	2010-11	2010-12	2012-13	2013-14	TOTAL
State Govt.	117.00	156.00	97.50	97.50	468.00
CESU (Matching contribution)	0.00	78.00	156.00	234.00	468.00
CESU (self financing)	87.12	18.64	21.85	29.11	156.72
Total Capex	204.12	252.64	275.35	360.61	1092.72

8. The highlights of the projects to be undertaken under the above investment are as below :

- \* New Primary S/S (33/11 KV)
- \* Supply and installation of new bay extension in existing primary S/S premises along with required protection etc.
- \* Renovation and Modernisation of primary Sub-station
- \* Shifting of power transformer from the existing plinth/location and installing at desired S/S plinth/ location
- \* Supply and erection of Power Transformers
- \* Supply and Installation of new HV overhead lines
- \* Supply conductor and re-conductoring on existing HT support.
- \* Supply and erection of AB conductor replacing LT old Over-head bare conductor
- \* HVDS (LT less System)
- \* Distribution S/S with all accessories, LTDB, earthing and safety equipment
- \* Renovation and modernization of distribution S/S
- \* Metering
- \* System Metering(Energy Auditing)
- \* Capacitor Banks – 11 KV
- \* Utility equipments
- \* Testing Equipments
- \* Modernisation through IT implications
- \* System quality, Reliability and Safety
  - a) HT overhead line on tower,
  - b) HT cabling and Capacitor bank
  - c) Un-manned 33/11 KV S/S and
  - d) Safety measures and training

9. The above investments shall be in the form of two packages, Package-1 for Rs.576.65 crore (FC grant Rs.195.00 cr. + SS to FC Rs.65.00 cr. + loan to GRIDCO Rs.65.00 cr. + State Govt. contribution Rs.143 cr. + CESU's counter funding for FC grant Rs.65 cr. + CESU's own contribution Rs.43.65 cr.) to be undertaken with State Govt. budgetary support along with matching contribution primarily for the urban units and Package -2 for Rs.516.07 crore (Rs.403.00 cr.+ Rs.113.07 cr.) shall be primarily for the rural areas out of CESU's own funding.

CESU have submitted investment proposal for Rs.1092.72 crore (Rs.936.00 cr. + Rs.156.72 cr.) as per the breakup given below :

#### CESU CAPEX PROPOSAL

	Project Cost proposed by CESU (Cr.)	Investment proposed by GoO (Cr.)	Govt. Funding (Cr.)	CESU Funding (Cr.)	Total Investment Proposed by CESU (Cr.)
PACKAGE-1	576.65	468.00	468.00	108.65 (Rs.65+43.65)	576.65
PACKAGE-2	516.07	458.00	NIL	516.07 (Rs.403+113.07)	516.07
TOTAL	1092.72	936.00	468.00	624.72	1092.72

Package-1 (Govt. Funding) covers infrastructure development of the areas coming under BCDD-1, BCDD-II, BED, KED, PED Puri, CDD-1, CDD-II, CED, DED, PED, Paradeep.

Package-2 (Own Resource) NED, Nimapara, NED, Nayagarh, BED, SED, AED Athagarh, AED, Angul, TED Chainpal, KED-1 Kendrapada, KED-11, Marshaghai and JED.

10. The detailed works under each package as per the investment scheme shall be as below :

#### INVESTMENT SUMMARY

ABSTRACT OF INFRASTRUCTURE DEVELOPMENT & LOSS CONTROL ACTIVITIES		ESTIMATED COST (Rs crore)		
		Package 1	Package 2	TOTAL
[1]	New Primary substation	65.12	41.89	107.01
[2]	Upgradation of primary substation	37.38	40.10	97.48
[3]	Breakers (33 KV+ 11 KV)	10.92	6.45	17.37
[4]	Distribution transformer	77.85	94.06	171.91
[5]	Reconductoring of OHL line conductor (33 KV+11 KV)	66.73	39.60	106.33
[6]	New OHL line (33 KV+11 KV)	30.21	77.46	127.67
[7]	Energy accounting (Consumer metering + System metering)	42.39	27.24	69.83
[8]	A.B. Cable & HVDS (LT less System)	86.07	119.62	205.69
[9]	IT including centralized auto billing information flow through PNA/ SCADA etc. and Utility	38.58	15.64	54.22
[10]	Special R&M of sub station	19.05	16.81	35.65
[11]	System Quality, Reliability & Safety	62.15	37.35	99.50
<b>Total:</b>		<b>576.65</b>	<b>516.07</b>	<b>1092.72</b>

11. CESU has submitted that, due to such investment in schemes under Package 1, the annual average decrease in T&D loss and AT&C loss is both calculated to be 4.5%. In other words, the distribution loss is expected to reduce from 39.43% in FY 2009-10 to 21.22% in FY 2013-14 and the AT&C loss is expected to reduce from 41.2% in FY 2009-10 to 23.58% in FY 2013-14. The total accrued benefit per year (after completion of the project) is computed to be Rs.129.23 crore which would be mainly realized through (a) reduction in input energy (purchase from GRIDCO); and (b) increase in billing energy sold to the consumers. Therefore, the simple pay-back period of the project is calculated to be 4.5 years on a project cost of Rs.576.65 crore.

In addition to the above, CESU has submitted that due to such investment in schemes under Package 2, the annual average decrease in T&D loss is calculated to be 3% and AT&C loss is calculated to be 3.75%. In other words, the distribution loss is expected to reduce from 43.65% in FY 2009-10 to 28.67% in FY 2013-14 and the AT&C loss is expected to reduce from 45.34% in FY 2009-10 to 30.81% in FY 2013-14. The total accrued benefit per year (after completion of the project) is computed to be Rs.90.83 crore which would be mainly realized through (a) reduction in input energy (purchase from GRIDCO); and (b) increase in billing energy sold to the consumers. Therefore, the simple pay-back period of the project is calculated to be 5.5 years on a project cost of Rs.516.07 crore.

CESU shall arrange fund for Rs.468 + Rs.156.72 Cr. i.e.Rs.624.72 Cr. of its own from financial institutions for which negotiation has been held. This is in addition to Rs.468.00 crore to be received from State Govt. which consists of as follows:

Grant of Rs.195.00 cr. from 13<sup>th</sup> FC to be initially passed on as loan with 0% interest, Rs.65.00 cr. state share against 13<sup>th</sup> FC grant as loan with 0% interest, Rs.65 cr. loan to GRIDCO for counterpart funding to FC with 4% interest and Rs.143 cr. as budgetary support of the State Govt. in shape of soft loan with 4% interest.

12. In view of the exigencies of the work to be undertaken for system improvement and loss control exercise, being supported by the state govt., the Commission accords in-principle approval of the investment proposal of CESU for infrastructure development and loss control activities to be taken up during the period FY 2010-11 to FY 2013-14 amounting to Rs.1092.72 Cr. under two packages as mentioned in para 10 above.
13. While approving the investment of Rs.1092.72 crore, we make it clear that this will have impact on tariff in as much as CESU has to service the loan to State Govt. and GRIDCO. However, the tariff impact would be reduced if they achieve the target of AT&C loss reduction which will enable them to claim conversion of loan to grant as stipulated by the State Govt. Hence, CESU must take timely action for implementation of the CAPEX from time to time by sticking to the pre-determined time schedule and placing appropriate experienced officers in place for day to day supervision and monitoring. The result of investment can be quantified only after the base line data are firmly worked out with due and proper care and scrutiny. Hence, for proper monitoring and evaluation of the result to be achieved from investment programme, CESU is directed to furnish the following for proper monitoring by the Commission as and when required during the course of implementation and thereafter.
  - \* To furnish the base line data on commercial and technical information of each division for proper evaluation of the result achieved on such investment.
  - \* Identify the predominantly low voltage area and furnish the input voltage at each 33/11 KV S/S and status of distribution elements in the area alongwith the input voltage at farthest 11 KV transformers where there is a proposal for such investment.
  - \* To furnish number of HVDS transformer existing at present in that area.
  - \* To furnish number and length of LT single phase line proposed to be converted to three phase line.
14. Before parting with this order, the Commission would like to appreciate the initiative taken by the State Govt. for investment in sagging distribution network in the State. In this connection, the Commission would like to refer to the Business Plan order dtd.20.03.2010 in which among other things it has been stressed that the distribution loss reduction target can be achieved only if investment is made for repair and renovation of the aging distribution network and system upgradation. Regarding loss ascribed to theft of electricity it has to be curbed by unqualified govt. support through strong police action to book the culprits who are indulging in the theft of electricity being aided and abetted by some of the disorderly employees of the distribution companies. The Kanungo Committee in its report submitted in 2001 had recommended transitional support



of Rs.3240 cores for system upgradation to reduce the loss and by now with inflation this would be equivalent to roughly Rs.5000 crore. Accordingly, Commission has directed that distribution companies and State Govt. should jointly invest Rs.5000 crore for system upgradation. While State Govt. being 49% share holder through GRIDCO should contribute Rs.2450 crore and the distribution companies should contribute Rs.2550 crore in proportion to the ratio of their consumers as indicated below:

**Investment by DISCOMs & Government**

(Rs in Crores)

Description	Ratio of consumers	Investment by DISCOMs	Investment by Govt.	Total
CESU	39.00%	995	955	1950
WESCO	19.50%	497	478	975
NESCO	21.00%	535	515	1050
SOUTHCO	20.50%	523	502	1025
<b>TOTAL</b>	<b>100.00%</b>	<b>2550</b>	<b>2450</b>	<b>5000</b>

The Commission expects that depending on the achievement of loss reduction target from the initial investment of Rs.2400 cr. as envisaged at present by Govt. vide their letter No.7991 dtd.09.09.2010 the quantum of investment may be increased to Rs.5000 cr. as stipulated in the Business Plan order in view of requirement of substantial investment in the distribution network which has been hither to neglected.

Further it is hereby made clear that the present and the future capital expenditure for system upgradation by State Govt. and the four DISCOMs towards their matching counterpart funding shall be over and above the normal O&M expenditure being incurred or to be incurred by the distribution companies as per the approval of the Commission in the respective ARR of the relevant years. The O&M expenditure shall not be taken as counterpart funding by the DISCOMs for capex programme for which the State Govt. is now proposing to provide or that may be provided in future in pursuance to the stipulations made in the business plan.

15. Further, the Commission would like to stress and reiterate that mere investment in the distribution network would not achieve the desired result of loss reduction unless it is accompanied by strong administrative and police action to check theft of electricity by some unscrupulous consumers being aided and abetted by some of the employees of the distribution companies. Unruly behaviour and unpleasant situation are being faced by the employees of the distribution companies while going for disconnection of power supply or collection of revenue in case of default in payment of the electricity. This governance issue should be addressed effectively through strong administrative support by the State Govt. at different levels. Otherwise improvement in supply of power due to investment on system upgradation/renovation would not be accompanied by improvement in collection of revenue unless unlawful behaviour of some of the consumers/unauthorised consumers are severely dealt with. In this connection the Commission has brought to the notice of the State Govt. from time to time regarding the urgent need for making all the notified 34 energy police stations fully operational and effective. The specially designated courts for the trial of all electricity offences also suffer from the inadequate men and materials. This also needs to be addressed on priority basis.
16. The line of command and control of the Energy Police Station is currently an integral part of the general Police Administration as a result of which their special role gets diluted, amidst the competing needs of general law and order and crime control. They need to stand apart from the general run of police administration and act on a dedicated basis in tandem with the DISCOMs who are distributing and supplying electricity.
17. It may further be noted that in West Bengal a very senior police officer at the level of an IG works with the West Bengal State Electricity Distribution Company Ltd. (WBSEDCL) and is responsible for theft prevention, detection prosecution and liaison with the police. West Bengal though has only one DISCOM for the entire State while we have four (4) DISCOMs. GoO, therefore, may consider having one senior officer working with

the Dept of Energy and being responsible for theft prevention and detection in all the four (4) DISCOMs. He could supervise and monitor the working of all the Energy Police Stations and ensure their effective functioning. As an officer of the State's police administration, he could liaise easily with the police and act as a bridge between the Electricity Utilities and the Police. If we can reduce the AT&C losses to a reasonable level and prevent theft fully, it would not only mean huge revenue gains for the DISCOMs but also fairly large increases by way of Electricity Duty for the State Govt.

18. Theft is the most important cause for a humungous amount of the commercial losses, more often than not in connivance with the unscrupulous employees of the DISCOMs. This is a situation of unsustainable burden on the honest and paying consumers, overloading of lines and transformers, break down of supply, load shedding, increases in tariffs, indifferent service standards and huge problems in billing and collection. While the DISCOMs must systematically set about the curbing of losses by system upgradation and proper billing and collection, they need to be aided by the State and the machinery of the police in prevention and detection of theft, with penal action against the thieves. The DISCOMs need to be backed to the hilt by the State administration in curbing such losses. However, it is the primary responsibility of the concerned DISCOMs to take initiative for availing administrative support from the State Govt. No amount of Govt. support would succeed unless the DISCOMs are committed to bring about improvement through internal vigilance and strong administrative action against the unscrupulous employees and dishonest consumers who connive with each other for theft of electricity.
19. The other important aspect is that Government themselves must be model consumers. They must pay their bills in time and in full. The DISCOMs have informed that the outstanding dues payable by Govt., Govt. aided agencies and various semi-government institutions are around Rs.388.79 crore (CESU – Rs.138.60 cr. + NESCO - Rs.77.61 cr. + SOUTHCO – Rs.71.62 cr. + WESCO – Rs.100.96 cr.) as on 01.4.2010. These arrears are rather huge and reflects poorly on the Govt.
20. In addition to strong administrative support by the State Govt. at different levels and timely implementation of various upgradation and renovation work by the distribution companies there is also need for continuous flow of fund. This has to be ensured. There may be some initial difficulties in achieving 3% reduction of AT & C loss per annum in the first year because of delay in preparatory work and putting administrative support in place. While there should be sincere efforts to achieve the annual target of loss reduction conversion of loan to grant may be considered on achievement of AT & C loss reduction of 3% per annum on the average for the period of 2 to 3 years. If there is some slippages in achieving the full target in the initial year this would be make good in the subsequent years and release of fund should not be withheld on the ground of some slippages in the initial year because it will ultimately affect the quality of supply and consequently achievement of reduction of AT & C loss target envisaged for the project period. The Commission, however, hereby make it clear that truing up exercise will be allowed by the Commission based on the normative target fixed by the Commission in the ARR of the respective years but not on the annual target of AT & C loss reduction in the project area expected by State Govt. with reference to the investment envisaged.
21. We further direct that a copy of this order be sent to State Govt., Dept. of Energy as well as to the three Reliance managed DISCOMs to take follow up action as directed in the preceding paragraphs.
22. With these observations and directions, the Commission accords in-principle approval of the investment proposal of CESU for Rs.1092.72 crore.
23. Accordingly the case is disposed off.

Sd/-

**(B.K. Misra)**  
Member

Sd/-

**(K.C. Badu)**  
Member

Sd/-

**(B.K. Das)**  
Chairperson



(Rs. in crore)

Financial Year	2010-11	2011-12	2012-13	2013-14	Total
<b>A. State Govt.</b>					
FC Grant	0.00	200.00	150.00	150.00	500.00
SS to FC grant	0.00	66.67	50.00	50.00	166.67
Loan to GRIDCO for counterpart funding to FC grant	0.00	66.67	50.00	50.00	166.67
States own contribution	300.00	66.66	0.00	0.00	366.66
<b>Total Govt. Fund</b>	<b>300.00</b>	<b>400.00</b>	<b>250.00</b>	<b>250.00</b>	<b>1200.00</b>
<b>B. DISCOMs</b>					
Counterpart DISCOM share for FC grant	0.00	66.67	50.00	50.00	166.67
DISCOM's contribution	0.00	133.33	350.00	350.00	1033.33
<b>Total Counterpart Fund</b>	<b>0.00</b>	<b>200.00</b>	<b>400.00</b>	<b>600.00</b>	<b>1200.00</b>
<b>Total CAPEX (A +B)</b>	<b>300.00</b>	<b>600.00</b>	<b>650.00</b>	<b>850.00</b>	<b>2400.00</b>

4. Accordingly, the three DISCOMs filed an integrated investment plan for the two years i.e. 2010-11 and 2011-12 for approval of the Commission as part of the original proposal of Rs.2005.45 crore originally envisaged during the period of four years from 2010-11 to 2013-14. The amount to be spent during the two years period along with source of funding as projected by the DISCOMs are depicted in the table below:

## For WESCO

Financial Year (1)	Total amount to be spent in four DISCOMs (2)	Share allocation to NESCO out of column 2 (3)	Support by Govt.		Counterpart by DISCOM (6)	Total amount to be spent as per the present proposal (7) (4+5+6)
			Loan with 0% interest (4)	Soft loan with 4% interest (5)		
2010-11	300.00	58.50		58.50	10.00	68.50
2011-12	600.00	117.00	52.00	26.00	39.00	117.00
<b>Total</b>	<b>900.00</b>	<b>175.50</b>	<b>52.00</b>	<b>84.50</b>	<b>49.00</b>	<b>185.50</b>

## For NESCO

Financial Year (1)	Total amount to be spent in four DISCOMs (2)	Share allocation to NESCO out of column 2 (3)	Support by Govt.		Counterpart by DISCOM (6)	Total amount to be spent as per the present proposal (7) (4+5+6)
			Loan with 0% interest (4)	Soft loan with 4% interest (5)		
2010-11	300.00	63.00	-	63.00	12.3775	75.3775
2011-12	600.00	126.00	56.00	28.00	29.6225	113.6225
<b>Total</b>	<b>900.00</b>	<b>189.00</b>	<b>56.00</b>	<b>91.00</b>	<b>42.00</b>	<b>189.00</b>

## For SOUTHCO

Financial Year (1)	Total amount to be spent in four DISCOMs (2)	Share allocation to NESCO out of column 2 (3)	Support by Govt.		Counterpart by DISCOM (6)	Total amount to be spent as per the present proposal (7) (4+5+6)
			Loan with 0% interest (4)	Soft loan with 4% interest (5)		
2010-11	300.00	61.50		61.44	5.81	67.25
2011-12	600.00	123.00	53.32	26.70	42.98	123.00
<b>Total</b>	<b>900.00</b>	<b>184.50</b>	<b>53.32</b>	<b>88.14</b>	<b>48.79</b>	<b>190.25</b>

5. To sum up WESCO, NESCO and SOUTHCO proposed investment of Rs.68.50 cr., Rs.73.38 crore, and Rs.67.25 crore respectively for 2010-11 and Rs.117.00 crore, Rs.113.62 crore and Rs.123.00 crore respectively for 2011-12. Total investment for 2010-11 and 2011-12 works out to Rs.185.50 Cr., Rs.189.00 crore, and Rs.190.25 crore for WESCO, NESCO and SOUTHCO respectively.
6. The licensees explained the details scope of work during the two year period and advance action taken by them to execute the projects in time as soon as the fund is available. The three DISCOMs proposed investment under the following areas.
  - i) Feeder metering for Energy Audit.
  - ii) Metering of distribution transformer
  - iii) Conversion of existing LT overhead line with XLPE ABE cable.
  - iv) Up-gradation of distribution and power transformer.
  - v) To have new HVDS system.
  - vi) Up-gradation of existing 33 KV and 11 KV lines with suitable conductor.
  - vii) Construction of New Primary sub-stations.
  - viii) Installation of 33 and 11 KV breakers.
  - ix) Installation of Pillar boxes/new consumer meters.
  - x) IT activities.
7. The project report submitted by the licensee contains information on scope of work quantified in monetary terms division-wise as well as subdivision-wise.

**WESCO's proposed Capex- 2010-11**

Name of Proposed Works	Amount (In Rs. Cr.)
HVDS	0.69
Upgradation of 11 KV Line	0.00
New 11 KV Line	0.06
LT XLPE AB cable	14.94
Upgradation of 33 KV Line	1.23
New 33 KV line	0.09
Feeder metering Units	1.34
Feeder Meters	5.55
DT Meters	0.00
Consumer Metering	13.94
Boundary Wall	0.00
Replacement of Old LT Line	2.66
New Primary S/S	3.75
IT Implementation	
Setting of DISCOM- 1 No.	
-----	
AMR for DT Meter – 500 nos.	4.24
AMR for High Value Consumers – 500 Nos.	
AMR for 33 KV Feeders – 85 nos.	
AMR for 11 KV Feeders – 50 nos.	
Consumer Indexing – 100000 nos.	
500 KVA Dist. S/S – 30 Nos.	1.65
315 KVA Dist. S/S – 75 nos.	3.38
100 KVA Dist. S/S – 332 Nos.	4.98
<b>Total for WESCO</b>	<b>68.51</b>

**WESCO's proposed Capex- 2011-12**

Name of Proposed Works	Amount (In Rs. Cr.)
HVDS	5.57
Upgradation of 11 KV line	0.00
New 11 KV Line	0.00
LT XLPE AB cable	5.61
Upgradation of 33 KV Line	18.04
New 33 KV line	0.00
Feeder metering Units	0.00
Feeder Meters	5.38
DI Meters	23.46
Consumer Metering	11.15
Boundary Wall	0.00
Replacement of Old LT Line	5.56
New Primary S/S	0.00
11 KV, 36 KVAR Capacitor Bank	0.53
<b>IT Implementation</b>	
Upgradation of DSCOX- 1 No.	
Customer Care Center - 4 Nos.	
AMR for DI Meter - 7500 nos.	
AMR for High Value Consumers - 2000 Nos.	
AMR for 11 KV Feeders - 50 nos.	
Consumer Indexing - 25000 nos.	
Construction of 33/11 KV SS at Khutlipalli, Upgradation of 33 KV Line Berghu to Bhulil, Tusura - Duvolu line, RKL feeder at Rajarapur SS and Biramitrapur feeder from Chenn SS	5.06
Electrical Testing Equipments like Test Bench, Primary injection kits, filter Machine etc.	2.27
<b>WESCO Total</b>	<b>117.00</b>

**NESCO's proposed Capex- 2010-11 & 2011-12**

Sl. No.	Name of Proposed Works	Amount (In Rs. Cr.)	
		2010-11	2011-12
1.	Construction of new 33/11 KV sub-station.	1.44	8.97
2.	Upgrading of 33 KV line		
	(a) With 100 mm <sup>2</sup>	4.53	7.70
	(a) With 232 mm <sup>2</sup>	6.06	5.25
3.	New 33 KV line		
	(a) With 100 mm <sup>2</sup>	1.09	0.00
	(a) with 232 mm <sup>2</sup>	0.30	0.00
4.	Requirement of VCB/CT/PT.		
	33 KV VCB	1.14	2.52
	11 KV VCB	1.10	2.10
	33 KV PT	0.24	0.59
	11 KV PT	0.26	0.10
5.	Up-gradation of Power Transformer		
	(a) 3.15 MVA	0.00	0.00
	(a) 5 MVA	0.60	3.00
	(c) 10 MVA	2.50	1.00
6.	Upgrading of 11 KV line	11.44	14.47



7.	Provision of HVDS		
	No. of Sub-station	12.30	8.18
	11KV Line	1.37	3.30
8.	Consumer metering		
	(a) 1-Ph Meter	15.15	15.15
	(b) 3-Ph Meter	0.80	2.40
9.	Replacement of bare conductor with A/B Cable.	12.80	14.78
10.	Replacement of damaged Pole		
	(a) 9 Mtr PSC Pole	0.65	0.65
	(b) 8 Mtr PSC Pole	0.87	0.87
11.	Feeder Metering		
	(a) 33 KV Feeder Metering	0.04	0.00
	(b) 11 KV Feeder Metering	0.04	0.21
12.	DTR Metering	0.75	7.25
13.	Installation of Capacitor Bank	0.75	0.50
14.	Earthing of the sub-station	0.56	1.25
15.	Procurement of Auto check, Earth Tester, Oil Testing Kit, Meggar, Red Phase Tester, Litter Machine, etc.	1.05	0.90
16.	IT Implementation (Computers, Lap Top, MRL. etc.)	0.13	12.38
	<b>Total</b>	<b>75.38</b>	<b>113.62</b>

**SOUTHCO's proposed Capex- 2010-11**

<b>Name of Proposed Works</b>	<b>Amount (In Rs. Cr.)</b>
HVDS (16 KVA & 125 KVA)	4.33
Upgradation of 11 KV Line	5.83
LT XLPE A/B cable	12.49
Upgradation of 33 KV Line	2.04
New 33 KV line (excluding for new primary S/S)	6.78
Feeder metering (33 KV)	1.23
DT Meters	1.74
Consumer Metering	6.75
New Primary S/S	13.92
Installation of 33 KV VCB	4.80
Installation of 11 KV VCB	0.95
Conversion of 33/0.4 KV Transformer to 11/0.4 KV Transformer	0.31
IT Implementation	3.88
Replacement of joist pole with PSC pole	0.40
T&P material for MRT work	0.40
Shifting of 11 KV/LT Line with the erection	1.39
<b>Grand Total for SOUTHCO</b>	<b>67.25</b>

**SOUTHCO's proposed Capex- 2011-12**

<b>Name of Proposed Works</b>	<b>Amount (In Rs. Cr.)</b>
HVDS (16 KVA & 125 KVA)	5.24
11 XLPE AIR cable	17.97
Upgrading of 33 KV Line	8.75
Upgrading of 11 KV line	13.32
New 33 KV line (excluding for new primary S/S)	0.70
Feeder metering (11 KV)	0.71
DT Meters	1.07
Consumer Metering	34.46
New Primary S/S	15.04
Installation of VCB	3.58
IT Implementation	11.18
Renovation of damaged lines & S/S	1.27
Construction of project building	1.00
Improvement at store site	0.30
Procurement of T&P for MRT work	1.10
Replacement of joist pole/rail pole with PSC pole	0.52
Strengthening of Distribution system (up-gradation of DTR, new S/S)	1.15
Improvement of earthing at Primary S/s	0.62
<b>Grand Total for SOUTHCO</b>	<b>123.00</b>

8. As regards the cost-benefit analysis of the proposed project, the three DISCOMs viz. WESCO, NESCO and SOUTHCO stated that the details of cost-benefit analysis for each specific projects area has been calculated and the overall return on investment works out to more than 15% per annum. The reduction in AT&C loss is projected at 3% per year. The DPRs have been prepared to ensure reduction of AT&C loss level @ 3% per annum on the average for the respective division as a whole although the reduction of AT&C loss would be more than 3% in the identified project area which would be ring fenced.
9. The Commission during hearing questioned the authenticity of the Baseline data and urged that the Baseline data submitted by the licensees shall under no circumstances be changed. The CEOs of DISCOMs replied that the base-line data pertained to the financial year 2009-10 submitted to the Commission in the performance review meeting.
10. Further, the Commission enquired about their capitalization plan and its impact on tariff. The Commission directed that DISCOMs shall submit the information on scheduled date of commencement of the proposed work, scheduled date of completion along with interest during construction, employees cost and overhead allocation to capital works. In reply the licensee explained the manner in which investment would be capitalized and its impact on tariff has been duly considered as indicated below:

**Manner of capitalization**

- i) The proposed capital expenditure shall be ascertained on the basis of actual expenditure incurred along with capitalization of interest, employee cost and other overhead expenses.
- ii) The expenditure so made shall be booked under Capital Work in progress (CWIP) scheme-wise.
- iii) Date of completion of the asset shall be obtained from the field units.
- iv) The sub-category of the asset shall also be ascertained like Land, Building, Network Asset (line, cable, substation etc.), office equipments and vehicles etc.
- v) The asset put to use shall be booked as completed asset registered in the ARR and uncompleted asset shall be shown under CWIP head.

Impact on Tariff:

- i) Depreciation - The depreciation on the GFA to be added shall be computed @ 3.7% p.a as per the prevailing practices of the Commission.
  - ii) Interest - the grant portion of the CAPEX shall not carry any interest. The GoO loan and GRIDCO loan carry 4% interest. The counterpart loan of DISCOMs are arranged for Rs.58 cr. and Rs.40 Cr from REC and IDBI bank respectively which carry interest @13% p.a and @ 11% p.a respectively.
  - iii) Repair and Maintenance expenses - the R&M expenses shall carry @ 5.4% p.a on the Gross Fixed Assets to be added.
  - iv) Return in Equity - NIL.
  - v) Performance Improvement - Reduction in Distribution Losses.
11. The licensee further replied that details of capitalization plan in the defined area shall be submitted to the Commission in their ARR filing of 2011-12.
  12. The Commission stated that the efficiency gain due to investment should earn extra revenue so as to cover the establishment cost, interest depreciation, R&M resulting in least impact on tariff.
  13. Regarding resource mobilization and financial plans for meeting the investment, the licensees in reply to the query raised by the Commission stated that the DISCOMs are expected to get the funding under 13th Finance Commission grant and State Govt. as grant/loan and part of the same may be converted to grant on achieving loss reduction parameters set out by State Govt. @3% per annum. DISCOMs are also raising counterpart funding from financial institutions based on first charge over existing immovable asset as security and escrow on receivables. The Commission advised that the fund should be arranged by mortgaging the asset and the first charge on the receivables of the DISCOMs can not be accepted as the receivables are meant to discharge other liability like purchase of power, employee cost, R&M etc. The counter part funding to be arranged by the DISCOMs should be over and above the amount approved for Repair and Maintenance expenditure every year. There should be no compromise on full utilization of R&M expenditure and clear demarcation should be done so far as repair and maintenance work and Capex under taken by the licensee.

Commission's observations and Directions:

14. After hearing the representatives of three Reliance managed distribution companies at length and in view of the urgency of investment for upgradation, renovation and expansion of the sagging distribution network the Commission hereby approves the DPRs submitted by WESCO, NESCO & SOUTHCO for the year 2010-11 and 2011-12 as summarized in Para -7 with the following directions and stipulations:-
  - i. The guidelines/procedure outlined by Energy Dept. in their Lr. No. R&R-I-06/2010-9230/En dtd. 21.10.2010 in the matter of procurement materials, third party verifications etc. shall be followed.
  - ii. The capital expenditure to be incurred out of the budgetary assistance from the State Govt. and the loan/resource to be arranged by WESCO, NESCO & SOUTHCO would be over and above the approved O & M expenditure for them for the year 2010-11 and O & M expenditure to be approved for the subsequent years. The O & M expenditure shall not be considered towards counter funding by WESCO, NESCO & SOUTHCO.
  - iii. Discrimination should not be made between franchisee and non-franchisee area for utilization of fund under O&M as well as capital investment programme keeping in view the terms and conditions agreed to in the agreement with the franchisees.
  - iv. In order that the distribution companies ensure full utilization of the amount approved for O & M expenditure, concerted efforts should be made to increase substantially the present level of billing and collection so that enough money is deposited in escrow account for enabling GRIDCO to release the required fund as per the priority fixed by the Commission in their order dated 12.4.2010 in case No. 3/2010 read with their order dated dtd. 02.11.2010 in case No. 34/2010.
  - v. For correct comparison of the improvement achieved over the base line data for the year 2009-10 the distribution companies are to correctly workout the base line data for 2009-10 division-wise as a whole

and for the specified project area within the division separately. At the end of the project period the improvement achieved for the division as a whole and for the project area specified shall be compared with the base line data thus worked out correctly.

- vi. State Govt. in the initial stage is proposing to release fund as loan which can be subsequently converted to grant depending on actual fulfillment of the target of the AT&C loss. Hence in order to reduce the impact on tariff on account of the proposed investment, distribution companies are to closely monitor the actual implementation at the field level. The man and materials should be provided in time through appropriate re-deployment and re-allocation so that in no way there is cost over run and time over run leading to higher impact on tariff. In otherwords additional liabilities, if any, arising out of cost over run or time over run or failure by the licensee to achieve the performance parameters fixed by the Monitoring Committee/ State Govt. shall not be considered by the Commission for the purpose of their revenue requirement for the relevant years.
  - vii. Advance action should be taken for procurement of materials and awarding the contract for implementation of capex programme so that the work is taken up in time and the payment is released as soon as fund is passed on by GRIDCO after receiving the same from the State govt.
  - viii. While the investment is expected to improve the quality of supply and reduce the distribution loss, concurrent action should be taken for implementation of various anti-theft measures including strong and regular enforcement activities through Energy Police Stations and Vigilance Wing, MRT squad of the distribution companies.
  - ix. Initially the State govt. is proposing investment of Rs.2400 core for the four distribution companies out of which State Govt. would provide Rs.1200 crore. Therefore, it is necessary for the distribution companies to take all possible measures to ensure that target fixed on different parameters particularly with reference to distribution loss and AT&C loss are achieved by them at any cost so that govt. may consider further investment over and above Rs.2400 crore now decided. This is an opportunity which the distribution companies must avail and create an enabling situation for the State Govt. to extend further support to the distribution companies in their efforts to reduce the AT& C loss and improve the quality of supply. However, for the purpose of truing up, the parameters fixed by the Commission in the Tariff Orders of the respective years shall be taken as the basis but not the target fixed for the purpose of achieving budgetary support from the State Govt.
  - x. The distribution companies are to furnish quarterly progress report on actual implementation of the project in specified area to the Commission by 15th of the month following the end of the quarter i.e. 15th January, 15th April, 15th July and 15th October
  - xi. The estimated cost of the project, the date of commencement of the work, the scheduled date of completion and progress of the work should be displayed in website of distribution companies as well as that of GRIDCO for information of the general public.
15. The Commission further directs that the copy of this Order be forwarded to Energy Department, GRIDCO and CESU for their information and following up action on the stipulations /observations made in Para 14.
  16. With these observations and directions the above cases are disposed of.

Sd/  
(B.K. Misra)  
Member

Sd/  
(K.C. Badu)  
Memer

Sd/  
(B.K. Das)  
Chairperson

ବିଦ୍ୟୁତ୍ ଯୋଗାଣର ଗୁଣାତ୍ମକମାନ ବୃଦ୍ଧି ସହିତ  
ବିଦ୍ୟୁତ୍ ବ୍ୟୟ କମ୍ପାନୀମାନେ ସ୍ୱରୋଜଗାରକ୍ଷମ  
ହେବା ଉପରେ କେତୋଟି ପ୍ରାସଙ୍ଗିକ ତଥ୍ୟ



ଉପସ୍ଥାପନା  
କେ ସି ବଡୁ, ସଦସ୍ୟ,  
ଓଡ଼ିଶା ବିଦ୍ୟୁତ୍ ନିୟାମକ ଆୟୋଗ,  
ଭୁବନେଶ୍ୱର

ତା ୦୫.୦୧.୨୦୧୧

## ଉପସ୍ଥାପନାର ସାରାଂଶ

- ବିଦ୍ୟୁତ୍ ଉପଭୋକ୍ତାମାନେ କଣ ଚାହାଁନ୍ତି ?
- ବିଦ୍ୟୁତ୍ ବିତରଣ କଂପାନୀମାନେ କଣ କରୁଛନ୍ତି ?
- ରାଜ୍ୟ ସରକାର କଣ କରୁଛନ୍ତି ?
- ଇଲେକ୍ଟ୍ରିସିଟି ଆକ୍ଟ, ୨୦୦୩ ଏବଂ ଓଡ଼ିଶା ବିଦ୍ୟୁତ୍ ନିୟାମକ ଆୟୋଗଙ୍କ କାର୍ଯ୍ୟ
- ବିଦ୍ୟୁତ୍ ଶୁଳ୍କ ନିର୍ଦ୍ଧାରଣ ନିୟମ
- ବିଦ୍ୟୁତ୍ ଶୁଳ୍କ କିପରି ନିର୍ଦ୍ଧାରଣ କରାଯାଏ
- ବିଦ୍ୟୁତ୍ ଶୁଳ୍କ ବୃଦ୍ଧିର କାରଣ
- ଶେଷକଥା

## ବିଦ୍ୟୁତ୍ ଉପଭୋକ୍ତାମାନେ କଣ ଚାହାଁନ୍ତି

- \* ନିରବଚ୍ଛିନ୍ନ ଭାବରେ ଦିନକୁ ୨୪ ଘଠିା ଉଚ୍ଚମାନର ବିଦ୍ୟୁତ୍ ପ୍ରତ୍ୟେକ ବିଦ୍ୟୁତ୍ ଉପଭୋକ୍ତାଙ୍କୁ ମିଳୁ ।
- \* ଉଠିମ ଭୋଲଟେଜ୍ ମିଳୁ କିନ୍ତୁ କମ୍ ଦରରେ ମିଳୁ, ମାଗଣାରେ ଯଦିମିଳିଲା, ଆହୁରି ବଢ଼ିଥା ।
- \* **Distribution transformer** ଗୁଡ଼ିକ ପୋଡ଼ିଗଲେ ସହରାଠିଳମାନଙ୍କରେ ୨୪ ଘଠିା ମ୍ନରେ ଏବଂ ଗ୍ରାମଠିଳଗୁଡ଼ିକରେ ୪୮ ଘଠିାମ୍ନରେ ପରିବଠିନ କରି ବିଦ୍ୟୁତ୍ ଯୋଗାଣ ଜାରି ରଖିବା ପାଇଁ ଯେଉଁ ନିୟମ ଅଛି ତାହାକୁ ବିଦ୍ୟୁତ୍ ବଠିନ କମ୍ପାନୀମାନେ କାର୍ଯ୍ୟକାରୀ କରନ୍ତୁ ।
- \* ଭଙ୍ଗା ଖୁଠି, ଦଦରା ତାର ଇତ୍ୟାଦି ତୁରନ୍ତ ପରିବଠିନ କରାଯାଉ ।
- \* ଅନେକ କ୍ଷେତ୍ରରେ ବିଦ୍ୟୁତ୍ ବିଲ୍ ଠିକ୍ ସମୟରେ ପଇଠ ନକରି ମ୍ନ ବିଦ୍ୟୁତ୍ ଲାଇନ୍ କଟା ନଯାଉ ।
- \* ଆଖପାଖରେ ବିନା ଅନୁମତିରେ ହୁକପକାଇ ବିଦ୍ୟୁତ୍ ଜାଲିଲେ ମ୍ନ ପାଖାପାଖି ବିଦ୍ୟୁତ୍ ଉପଭୋକ୍ତାମାନେ ଗଣ୍ଡଗୋଳ ବା ଝାମଲାକୁ ଭୟକରି କାହାକୁ କିଛି ନକହିବା କେତେକ କ୍ଷେତ୍ରରେ ଶ୍ରେୟ ମନେକରନ୍ତି ।
- \* ଅଭିଯୋଗ ନିର୍ଦ୍ଦାରିତ ସମୟରେ ସମାଧାନ ହେଉ
- \* ଉପଯୁକ୍ତ ମିଟର ଦ୍ୱାରା ବିଦ୍ୟୁତ୍ ଯୋଗାଣର ସଠିକ ପରିମାଣ ନିର୍ଦ୍ଦାରିତ
- \* ଉଠିମ ଗ୍ରାହକ ସେବା

## ବିଦ୍ୟୁତ୍ ବଠିନ କମ୍ପାନୀମାନେ କଣ କହୁଛନ୍ତି

- \* ବିଦ୍ୟୁତ୍ ବିତରଣ ଜନିତ କ୍ଷତି ୩୭.୨୪% ଓ ସାମଗ୍ରୀକ ବୈଷୟିକ ଓ ବାଣିଜ୍ୟିକ କ୍ଷତି ୩୯.୧୫% ହେଉଥିବାରୁ ଗ୍ରାହକୋ ଠାରୁ ୧୦୦ ଯୁନିଟ୍ କିଣୁଥିଲାବେଳେ, ବିଲ୍ ମାତ୍ର ୬୨.୭୬ ଯୁନିଟ୍ ବା ୬୩ ଯୁନିଟ୍‌ର ଉପଭୋକ୍ତାମାନଙ୍କୁ ଦିଆ ଯାଉଛି ଓ ୬୦.୮୫ ଯୁନିଟ୍ ବା ୬୧ ଯୁନିଟ୍‌ରୁ ବିଲ୍ ଆଦାୟ କରାଯାଉଛି । ଅର୍ଥାତ୍ ବିତରଣ କମ୍ପାନୀମାନେ ୬୧ ଯୁନିଟ୍‌ର ବିକାଦାମ୍ ରୁ ୧୦୦ ଯୁନିଟ୍‌ର କ୍ରୟମୂଲ୍ୟ ଦେଲାପରେ, କର୍ମଚାରୀମାନଙ୍କର ଦରମା, ପେନ୍ସନ, ଲାଇନ୍ ଟ୍ରାନ୍ସ୍ମିସନ୍‌ର ଇତ୍ୟାଦି ରକ୍ଷଣାବେକ୍ଷଣ ପାଇଁ ସେମାନଙ୍କର ପାଣି ଉପଲବ୍ଧ ହୋଇପାରୁନାହିଁ । ବିଦ୍ୟୁତ୍‌ଚୋରା ଓ ଅନାଦେୟ ବିଦ୍ୟୁତ୍ ଦେୟ ମୁଖ୍ୟ ସମସ୍ୟା ।



## Overall Performance of DISCOMs

	2009-10 (Prov.)		2010-11 (Prov.)		%Rise(+)/ Reduction (-) from 2009-10
	OERC Approval	Actual	OERC Approval	Actual upto Sept,2010	
<b>A. DISTRIBUTION LOSS (%)</b>					
CESU	26.30%	39.43%	25.37%	37.59%	-1.84%
NESCO	23.00%	32.52%	18.46%	32.76%	0.24%
WESCO	22.50%	34.68%	19.93%	37.20%	2.52%
SOUTHCO	27.92%	48.02%	27.82%	47.79%	-0.23%
ALL ORISSA	24.45%	37.24%	22.22%	37.54%	0.30%
<b>B. COLLECTION EFFICIENCY (%)</b>					
CESU	98.00%	97.09%	98.00%	91.47%	-5.62%
NESCO	98.00%	95.24%	98.00%	84.39%	-10.85%
WESCO	98.00%	98.38%	98.00%	88.85%	-9.53%
SOUTHCO	98.00%	95.89%	98.00%	85.10%	-10.79%
ALL ORISSA	98.00%	96.96%	98.00%	88.28%	-8.68%
<b>C. AT &amp; C LOSS (%)</b>					
CESU	27.77%	41.19%	26.86%	42.91%	1.72%
NESCO	24.54%	35.73%	20.09%	43.25%	7.52%
WESCO	24.05%	35.74%	21.53%	44.21%	8.47%
SOUTHCO	29.36%	50.16%	29.27%	55.57%	5.41%
ALL ORISSA	25.96%	38.45%	23.77%	44.86%	5.71%

MI: 1) When IST including transmission charges was 143.28 P/U (122.2 P/U BSP + 21 P/U Tr. Charge including SLDC) for 2009-10 & Average collection per unit input was 198.89 P/U as against estimated 196.32 P/U in the ABRIL.  
2) When IST including transmission charges was 193.93 P/U (178.25 P/U BSP + 23.68 P/U Tr. Charge including SLDC) & Average collection per unit input was 286.56 P/U (upto Sept,2010) as against estimated 246.37 P/U in the ABRIL.

## LT Performance of DISCOMs

	2009-10 (Prov.)		2010-11 (Prov.)		%Rise(+)/ Reduction (-) from 2009-10
	OERC Approval	Actual	OERC Approval	Actual upto Sept,2010	
<b>A. LT LOSS (%)</b>					
CESU	35.04%	51.97%	29.40%	50.11%	-1.86%
NESCO	33.19%	55.83%	29.40%	54.94%	-0.89%
WESCO	35.86%	62.49%	29.40%	62.55%	0.06%
SOUTHCO	29.50%	56.22%	29.40%	54.52%	-1.70%
ALL ORISSA	34.04%	56.26%	29.40%	55.04%	-1.22%
<b>B. COLLECTION EFFICIENCY IN LT (%)</b>					
CESU	98.00%	96.51%	98.00%	83.6%	-12.91%
NESCO	98.00%	77.43%	98.00%	59.9%	-17.53%
WESCO	98.00%	76.01%	98.00%	64.9%	-11.11%
SOUTHCO	98.00%	92.77%	98.00%	76.3%	-16.47%
ALL ORISSA	98.00%	87.62%	98.00%	73.9%	-13.72%
<b>C. AT &amp; C LOSS FOR LT (%)</b>					
CESU	36.34%	53.65%	30.81%	58.26%	4.61%
NESCO	34.53%	65.80%	30.81%	73.02%	7.22%
WESCO	37.14%	71.49%	30.81%	75.69%	4.20%
SOUTHCO	30.91%	59.39%	30.81%	65.31%	5.92%
ALL ORISSA	35.36%	61.68%	30.81%	66.80%	5.12%

MI: 1) When IST including transmission charges was 143.28 P/U (122.2 P/U BSP + 21 P/U Tr. Charge including SLDC) for 2009-10 & Average LT collection per unit input was 95.36 P/U as against estimated 118.73 P/U in the ABRIL.  
2) When IST including transmission charges was 193.93 P/U (178.25 P/U BSP + 23.68 P/U Tr. Charge including SLDC) for 2010-11 & Average LT collection per unit input was 104.61 P/U (upto Sept,2010) as against estimated 154.76 P/U in the ABRIL.

## ବିଦ୍ୟୁତ୍ ବ□ନ କମ୍ପାନୀମାନେ କଣ କହୁଛନ୍ତି ... କ୍ରମଶଃ

\* ବିଦ୍ୟୁତ୍ ନିୟାମକ ଆୟୋଗ ବିଦ୍ୟୁତ୍ ବିତରଣ ଜନିତ କ୍ଷତି ଏବଂ ସର୍ବମୋଟ ବୈଷୟିକ ଓ ବାଣିଜ୍ୟିକ କ୍ଷତିକୁ ଏକ ନିର୍ଦ୍ଦିଷ୍ଟ ସ୍ତରରେ ରଖି ବିଦ୍ୟୁତ୍ ଶୁଳ୍କ ନିର୍ଦ୍ଧାରଣ କରୁଥିବାରୁ ଏବଂ ଏହି ବିଦ୍ୟୁତ୍ ବିତରଣ ଜନିତ କ୍ଷତି ଏବଂ ସର୍ବମୋଟ ବୈଷୟିକ ଓ ବାଣିଜ୍ୟିକ କ୍ଷତି ତାଠାରୁ ବହୁତ ଅଧିକ ହୋଇଥିବାରୁ ବିଦ୍ୟୁତ୍ ବିତରଣ କମ୍ପାନୀମାନେ ଯେତିକି ଆୟ ଆକଳନ କରୁଅଛନ୍ତି ସେହି ଅନୁସାରେ ଆୟ ହୋଇପାରୁନାହିଁ । ଉଦାହରଣ ସ୍ୱରୂପ ୨୦୦୯-୧୦ ଆର୍ଥିକ ବର୍ଷପାଇଁ ଆୟୋଗ ବିଦ୍ୟୁତ୍ ବିତରଣ ଜନିତ କ୍ଷତି ୨୪.୪୫% ଏବଂ ବୈଷୟିକ ଓ ବାଣିଜ୍ୟିକ କ୍ଷତି ୨୫.୯୬% ହିସାବକୁ ନେଇ ବିଦ୍ୟୁତ୍ ଶୁଳ୍କ ନିର୍ଦ୍ଧାରଣ କରିଥିଲେ କିନ୍ତୁ ବର୍ଷ ଶେଷରେ ଦେଖାଗଲା ଯେ ବିତରଣ ଜନିତ କ୍ଷତି ୩୭.୨୪% ଏବଂ ବୈଷୟିକ ଓ ବାଣିଜ୍ୟିକ କ୍ଷତି ୩୯.୧୫% ହୋଇଛି । ସେହିପରି ଆୟୋଗ ୨୦୧୦-୧୧ ମସିହାରେ ବିଦ୍ୟୁତ୍ ବିତରଣ କ୍ଷତି ୨୨.୨୨% ଏବଂ ବୈଷୟିକ ଓ ବାଣିଜ୍ୟିକ କ୍ଷତି ୨୩.୭୭% ହିସାବକୁ ନେଇ ବିଦ୍ୟୁତ୍ ଶୁଳ୍କ ନିର୍ଦ୍ଧାରଣ କରିଅଛନ୍ତି । ଯେହେତୁ ବର୍ଷ ବର୍ଷ ଧରି ବ□ନ କ୍ଷେତ୍ରରେ ସେପରି କିଛି ଆଖିଦୂରୀଆ ଭାବରେ ପୂଞ୍ଜି ବିନିଯୋଗ ହୋଇନାହିଁ ଏବଂ ବିଦ୍ୟୁତ୍ ଚୋରି ଅନ୍ୟ ରାଜ୍ୟ ତୁଳନାରେ ଓଡ଼ିଶାରେ ବହୁତ ଘଟୁଅଛି, ତେଣୁ ବିଦ୍ୟୁତ୍ ବ□ନ କ୍ଷେତ୍ରରେ ବୈଷୟିକ ଓ ବାଣିଜ୍ୟିକ କ୍ଷତିର ହାର ଅଧିକ ହେଉଛି ।

### ARR Proposal of Licensee vis-à-vis Commission's Approval

Year	2007-08	2008-09	2009-10	2010-11	2011-12
<b>GRIDCO</b>					
ARR Projected by GRIDCO	3,085.95	3,345.54	3,929.04	5,480.22	6,605.02
ARR Approved by OERC for GRIDCO (incl. loan repayment)	2,724.07	2,562.28	3,194.96	4,237.34	
Avg. BSP Proposed by GRIDCO PUJ	192.87	184.39	209.82	262.89	290.26
Avg. BSP approved PUJ	121.59	122.15	122.20	170.25	
<b>OPTCL</b>					
ARR Projected by OPTCL (incl. SLDC)	675.34	655.78	1,092.80	1,458.41	1,585.39
ARR Approved by OERC for OPTCL (incl. SLDC)	373.72	376.57	403.81	488.70	
Tr. Charge proposed by PUJ	41.41	33.05	56.74	68.72	68.68
Tr. Charge approved PUJ	22.00	21.00	20.50	23.50	
<b>DISCOMs</b>					
ARR Projected by DISCOMs	5,615.28	4,478.07	5,170.24	6,513.42	7,946.75
ARR Approved by OERC for DISCOMs	3,585.52	3,588.49	3,827.48	5,009.35	
Avg. RST approved PUJ	295.36	281.40	265.15	320.58	
Overall Distribution Loss Projected by DISCOMs(%)	34.0	33.4	33.6	35.6	34.8
Overall Distribution loss approved by OERC (%)	27.1	27.0	24.5	22.2	21.7(BP)
Overall AT&C Loss Projected by DISCOMs(%)	39.0	36.6	36.4	37.8	36.1
Overall AT&C loss approved by OERC (%)	31.4	30.4	26.0	23.8	22.5(BP)

## ବିଦ୍ୟୁତ୍ ବ୍ୟବହାର କମ୍ପାନୀମାନେ କଣ କହୁଛନ୍ତି... କ୍ରମଶଃ

- \* ବିଦ୍ୟୁତ୍ ଶୁଳ୍କ ବାବଦରେ ଯାହା ଆୟ ହେଉଛି ତାହା କର୍ମଚାରିମାନଙ୍କର ଦରମା ଓ ପେନ୍ସନ୍, ଗ୍ରୀଡ଼କୋ ଠାରୁ ବିଦ୍ୟୁତ୍ କ୍ରୟର ମୂଲ୍ୟ, ଓପିଟିସିଏଲକୁ ସଂଚାରଣ ଭାର ଇତ୍ୟାଦିକୁ ଭରଣା କଲାପରେ ସେମାନଙ୍କପାଖରେ ଅଧିକା କିଛି ପୁଞ୍ଜି ବଳୁନଥିବାରୁ ସେମାନେ ସେମାନଙ୍କର ଦୈନନ୍ଦିନ ମରାମତି ଓ ରକ୍ଷଣାବେକ୍ଷଣ ଠିକ୍ ସମୟରେ କରିପାରୁନାହାଁନ୍ତି ।
- \* ପୂର୍ଣ୍ଣ ଯାହା ବି ଅର୍ଥ ବଳୁଛି ତାହା ଗ୍ରୀଡ଼କୋ ସମୟରେ ପୂର୍ବରୁ ବାଜିଥିବା ଏବଂ ତା ପରବର୍ତ୍ତୀ ସମୟରେ ବିଦ୍ୟୁତ୍ କ୍ରୟ ବାବଦକୁ ଏଥିରୁ ଦେବାକୁ ପଡୁଛି ।
- \* ଯେଉଁ ସ୍ଥାନରେ ବିଦ୍ୟୁତ୍ ଗ୍ରାହ୍ୟ ରମ୍ପର ପୋଡ଼ିଯାଇଅଛି ସେଠାର ଅଧିକାଂଶ ଲୋକଙ୍କ ଉପରେ ବିଦ୍ୟୁତ୍ ଦେୟ ବାଜିଥିବାରୁ ଏବଂ ବିତରଣ କମ୍ପାନୀମାନଙ୍କ ପାଖରେ ଅନ୍ୟ ସୂତ୍ରରୁ କୌଣସି ପୁଞ୍ଜି ନଥିବାରୁ ସେମାନେ ବ୍ଲୁ ହୋଇ ବିଦ୍ୟୁତ୍ ଦେୟ ପଇଠ କଲେ ଗ୍ରାହ୍ୟ ରମ୍ପର ବସିବ ବୋଲି ଉପଭୋକ୍ତାମାନଙ୍କୁ କହୁଛନ୍ତି ।
- \* ଯେଉଁଠାରେ ଲୋ ଭୋଲଟେଜ୍ ହେଉଅଛି ସେଠାରେ କେବଳ ବିଦ୍ୟୁତ୍ ବିତରଣ ଗ୍ରାହ୍ୟ ରମ୍ପର ର capacity ଅଭାବରୁ ହେଉନାହିଁ । ଅନେକ କ୍ଷେତ୍ରରେ ଓପିଟିସିଏଲର ଗ୍ରୀଡ଼ ସବଷ୍ଟେସନ୍ ର capacity କମ୍ ଥିବାରୁ ଯଥେଷ୍ଟ ବିଦ୍ୟୁତ୍ ଶକ୍ତି ବିତରଣ ଗ୍ରାହ୍ୟ ରମ୍ପରକୁ ପ୍ରବାହିତ ହେବା ସମ୍ଭବ ହେଉନାହିଁ ।

## ବିଦ୍ୟୁତ୍ ବ୍ୟବହାର କମ୍ପାନୀମାନେ କଣ କହୁଛନ୍ତି... କ୍ରମଶଃ

- \* ତେଣୁ ପ୍ରଥମେ ଓପିଟିସିଏଲକୁ ଗ୍ରୀଡ଼ ସବଷ୍ଟେସନ୍ ଓ ପରିବହନ ଲାଇନଗୁଡ଼ିକ ପରିବର୍ତ୍ତନ କରିବା ସଙ୍ଗେ ସଙ୍ଗେ ବିତରଣ କମ୍ପାନୀମାନେ **distribution network** ଏବଂ ଗ୍ରାହ୍ୟ ରମ୍ପର ଗୁଡ଼ିକୁ ପରିବର୍ତ୍ତନ କରିବାକୁ ପଡ଼ିବ ।
- \* ଅନେକ କ୍ଷେତ୍ରରେ କେତେକ ଅସାଧୁ ଓ ଅନଧିକୃତ ଉପଭୋକ୍ତାମାନେ କର୍ମଚାରିମାନଙ୍କୁ ମାରଧର କରୁଛନ୍ତି ଏବଂ ସେଥିପାଇଁ ତୁରନ୍ତ ଉପଯୁକ୍ତ ପଦକ୍ଷେପ ଏବଂ ସୁରକ୍ଷା ଦିଆଯାଉନାହିଁ ଯାହା ଲରେ ଯେଉଁ ଉପଭୋକ୍ତାମାନେ ବିଦ୍ୟୁତ୍ ଶୁଳ୍କ ଠିକ୍ ସମୟରେ ପୈଠ କରନ୍ତି ସେମାନେ ମ୍ଲ ବିଦ୍ୟୁତ୍ ଦେୟରେ ଖିଲାପ କରିବାକୁ ପଛଉନାହାଁନ୍ତି । କାରଣ ସେମାନେ ଭାରୁଛନ୍ତି ଅନ୍ୟ ଉପଭୋକ୍ତାମାନେ ବର୍ଷ ବର୍ଷ ଧରି ବିଦ୍ୟୁତ୍ ଦେୟ ନଦେଇ ମ୍ଲ ବିଜୁଲିଶକ୍ତି ବ୍ୟବହାର କରୁଥିବାବେଳେ ଆମେ କାହିଁକି ବିଦ୍ୟୁତ୍ ଦେୟ ପୈଠ କରିବୁ ।

## ରାଜ୍ୟ ସରକାର କଣ କରୁଛନ୍ତି

\* OSEB ଓ GRIDCO ସମୟରେ ବିଦ୍ୟୁତ୍ ବିତରଣ ଜନିତ କ୍ଷତି ଏବଂ ସର୍ବମୋଟ ବୈଷୟିକ ଓ ବାଣିଜ୍ୟିକ କ୍ଷତି ବର୍ଷକୁ ବର୍ଷ ବୃଦ୍ଧି ପାଇଥିବାରୁ ଏବଂ ଏହି କ୍ଷତି ଭରଣା କରିବାପାଇଁ ରାଜ୍ୟସରକାର ଉପରେ ଅଧିକରୁ ଅଧିକ ଆର୍ଥିକ ବୋଧ ପଡୁଥିବାରୁ ରାଜ୍ୟସରକାର ୧.୪.୧୯୯୬ ମସିହାଠାରୁ ବିଦ୍ୟୁତ୍ ସଂସ୍କାର କାର୍ଯ୍ୟକ୍ରମ ହାତକୁ ନେଲେ । ୧୯୮୯-୯୦ ମସିହାରେ ରାଜ୍ୟସରକାର ବର୍ଷକୁ ପ୍ରାୟ ୩୩ କୋଟି ଟଙ୍କା ସର୍ବସିଡି ଦେବାକୁ ପଡୁଥିବାବେଳେ ୧୯୯୫-୯୬ ରେ ତାହା ୨୫୭.୫୯ କୋଟିରେ ପହଞ୍ଚିଥିଲା । ତା ୩୧.୩.୧୯୯୬ ସୁଦ୍ଧା ରାଜ୍ୟସରକାର ଗ୍ରୀଡକୋକୁ ୩୬୯ କୋଟି ଟଙ୍କା ସର୍ବସିଡି ଦେବାକୁ ବାଜିଥିଲା । ଯଦି ବିଦ୍ୟୁତ୍ ସଂସ୍କାର ହୋଇନଥାନ୍ତା ତେବେ ଏହି ସର୍ବସିଡି ରାଜ୍ୟସରକାରଙ୍କୁ ଚାଲୁରଖିବାକୁ ପଡୁଥାଆନ୍ତା ଏବଂ ଏହା ବର୍ଷକୁ ପ୍ରାୟ ୧୦୦୦ କୋଟିରୁ ଅଧିକ ହୋଇଥାଆନ୍ତା ।

AGGREGATE TECHNICAL AND COMMERCIAL LOSS (ACTUAL)		
Financial Year	Distribution Loss (%)	AT&C LOSS (%)
1978-79	18.24%	30.4%
1989-90	23.97%	31.9%
1990-91	45.30%	52.1%
1994-95	46.59%	54.6%
1995-96	46.95%	51.1%
1996-97	49.47%	56.7%
1997-98	49.24%	58.8%
1998-99	51.02%	60.9%
<b>Privatisation of Distribution w.e.f.01.04.1999</b>		
1999-00	43.91%	56.7%
2000-01	44.01%	55.9%
2008-09	37.50%	41.9%
2009-10	37.24%	39.2%
2010-11 (upto Sept,10)	37.54%	44.9%
2010-11 (approval)	22.22%	23.8%
2011-12 (approval)	21.70%	22.5%

## ରାଜ୍ୟ ସରକାର କଣ କରୁଛନ୍ତି

- \* ବିଦ୍ୟୁତ୍ ବିତରଣ ଜନିତ କ୍ଷତି ଏବଂ ସର୍ବମୋଟ ବୈଷୟିକ ଓ ବାଣିଜ୍ୟିକ କ୍ଷତିକମାଇବା ଏବଂ ବିଦ୍ୟୁତ୍ ଯୋଗାଣରେ ଉନ୍ନତି ଆଣିବାପାଇଁ ବିଦ୍ୟୁତ୍ ବିତରଣ କମ୍ପାନୀମାନଙ୍କୁ ଦାୟିତ୍ୱ ଦିଆଯାଇଛି ତେଣୁ ସେମାନେ ଏ ଦିଗରେ ବିହିତ କାର୍ଯ୍ୟାନୁଷ୍ଠାନ କରିବା ଦରକାର । ରାଜ୍ୟସରକାର ସେମାନଙ୍କୁ ବିଦ୍ୟୁତ୍ ଚୋରୀ ରୋକିବାରେ ସାହାଯ୍ୟ କରୁଅଛି ଓ କରିବେ ମ୍ । ଏଥିପାଇଁ ବିତରଣ କମ୍ପାନୀମାନେ ନିଜେ ସତ୍ୟ ପ୍ରେରଣା ନେବା ଆବଶ୍ୟକ ।
- \* ଇଡିମ୍ପରେ distribution network upgradation କରିବାପାଇଁ ରାଜ୍ୟ ସରକାର ୧୨୦୦ କୋଟି ଟଙ୍କା ବିନିଯୋଗ କରିବାପାଇଁ ସ୍ଥିର କରିଅଛି ଏବଂ ବିତରଣ କମ୍ପାନୀମାନେ ସେହିପରିମାଣର ନିଜସ୍ୱ ପୁଞ୍ଜି ବିନିଯୋଗ କରିବାପାଇଁ ନିର୍ଦ୍ଦେଶ ଦେଇଅଛନ୍ତି ।
- \* distribution network upgradation ହେବା ସଙ୍ଗେ ସଙ୍ଗେ ବିଦ୍ୟୁତ୍‌ଚୋରୀ ରୋକିବାପାଇଁ ବିତରଣ କମ୍ପାନୀମାନେ ସକ୍ରିୟ କାର୍ଯ୍ୟକ୍ରମ ଗ୍ରହଣ କରିବାରେ ରାଜ୍ୟ ସରକାର ମ୍ ସାହାଯ୍ୟ ଓ ସହଯୋଗ କରିବେ । ଏଥିପାଇଁ ୩୧.୩.୨୦୧୧ ସୁଦ୍ଧା ସମସ୍ତ ୩୪ ଟା ବିଦ୍ୟୁତ୍ ଆନା କାର୍ଯ୍ୟକାରୀ ହେବାପାଇଁ ଓ ବିଦ୍ୟୁତ୍ ଚୋରୀ ରୋକିବାପାଇଁ ଯେପରି ବିଦ୍ୟୁତ୍‌ଆନା ଗୁଡିକ ଠିକ୍ ଭାବରେ କାର୍ଯ୍ୟକରିବେ ଜଣେ ବରିଷ୍ଠ ପୁଲିସ୍ ଅଫିସରଙ୍କୁ ନିର୍ଦ୍ଦେଶିତାଦେ ଦାୟିତ୍ୱ ଦିଆଯିବ ପାଇଁ ସରକାର ସ୍ଥିର କରିଛନ୍ତି ।
- \* ବିଭିନ୍ନ ଅଞ୍ଚଳରେ ଲୋ ଭୋଲଟେଜ୍ ସମସ୍ୟା ସମାଧାନ କରିବାପାଇଁ ରାଜ୍ୟର ବିଭିନ୍ନ ଅନୁନ୍ନତ ଓ ଦୁର୍ଗମ ଅଞ୍ଚଳରେ ଗ୍ରୀଡ୍ ସର୍ବ୍ଵେୟନ ଓ ଗ୍ରୀନସ୍ମିଥନ ଲାଇନ ନିର୍ମାଣ କରିବାପାଇଁ ରାଜ୍ୟସରକାର ଓପିଟିସିଏଲ୍ କୁ ୧୦୦ କୋଟି ଟଙ୍କା ଅଂଶଧନ ହିସାବରେ ଯୋଗାଇଦେଇ ସାରିଛନ୍ତି ଓ ୨୦୧୧-୧୨ରୁ ୨୦୧୫-୧୬ ମ୍ରେ ବର୍ଷକୁ ୬୦ କୋଟି ଟଙ୍କା ହିସାବରେ ୫ ବର୍ଷରେ ୩୦୦ କୋଟି viable gap funding ଆକାରରେ ପାଣ୍ଠି ଯୋଗାଇ ଦେବାକୁ ସ୍ଥିର କରିଛନ୍ତି ।

## ଇଲେକ୍ଟ୍ରିସିଟି ଆକ୍ଟ, ୨୦୦୩ ଏବଂ ଓଡିଶା ବିଦ୍ୟୁତ୍ ନିୟମାବଳୀ ଆୟୋଗଙ୍କ କାର୍ଯ୍ୟ

- \* ବିଦ୍ୟୁତ୍ ନିୟମାବଳୀ ଆୟୋଗଙ୍କ କାର୍ଯ୍ୟ ଓ ଦାୟିତ୍ୱ ବିଦ୍ୟୁତ୍ ଅଧିନିୟମ ୨୦୦୩ ଧାରା ୮୬ ରେ ଲିପିବଦ୍ଧହୋଇଛି । ସେଗୁଡିକ ମ୍ରେ କେତେକ ପ୍ରମୁଖ କାର୍ଯ୍ୟ ହେଉଛି ;
- \* ଏହି କାର୍ଯ୍ୟକ୍ରମ ମଧ୍ୟରେ ବିଦ୍ୟୁତ୍ ଉତ୍ପାଦନ, ପରିବହନ ଓ ଯୋଗାଣକାରୀ ସଂସ୍ଥାମାନଙ୍କ ପାଇଁ ବିଦ୍ୟୁତ୍ ବିକ୍ରୟ ମୂଲ୍ୟ ନିର୍ଦ୍ଧାରଣ କରିବା
- \* ରାଜ୍ୟମଧ୍ୟରେ ଥିବା ବିଦ୍ୟୁତ୍ ଯୋଗାଣକାରୀ ସଂସ୍ଥାମାନଙ୍କର ବିଦ୍ୟୁତ୍ କ୍ରୟମୂଲ୍ୟ ଓ ବିଭିନ୍ନସ୍ତରରୁ ବିଦ୍ୟୁତ୍‌କ୍ରୟ ପ୍ରଣାଳୀର ନିୟନ୍ତ୍ରଣକରିବା
- \* ବିଦ୍ୟୁତ୍ ଉତ୍ପାଦନ ଓ ଯୋଗାଣକାରୀ ସଂସ୍ଥାମାନଙ୍କ ମଧ୍ୟରେ ଥିବା ବିବାଦର ସମାଧାନ କରିବା
- \* ବିଦ୍ୟୁତ୍ ଶୁଳ୍କ ନିର୍ଦ୍ଧାରଣ କରିବା ଆୟୋଗର ଏକ ମୁଖ୍ୟ କାର୍ଯ୍ୟ । ଏହି ବିଦ୍ୟୁତ୍ ଶୁଳ୍କ ନିର୍ଦ୍ଧାରଣ କରିବାକୁ ଆୟୋଗକୁ ଇଲେକ୍ଟ୍ରିସିଟି ଆକ୍ଟ, ୨୦୦୩ ର ଧାରା ୬୧, ନ୍ୟାସ୍ନାଲ୍ ଇଲେକ୍ଟ୍ରିସିଟି ପଲିସି, ୨୦୦୫, ଟାରିଫ୍ ପଲିସି, ୨୦୦୬ ଅନୁସାରେ କାର୍ଯ୍ୟ କରିବାକୁ ପଡିଥାଏ ।
- \* ଇଲେକ୍ଟ୍ରିସିଟି ଆକ୍ଟ, ୨୦୦୩ ର ଧାରା ୬୧ର କେତୋଟି ମୁଖ୍ୟ ଅଂଶକୁ ଏଠାରେ ଉଲ୍ଲେଖ କରାଯାଇପାରେ ।
- \* ବିଦ୍ୟୁତ୍ ସେବାରେ ଉନ୍ନତି, ବିଦ୍ୟୁତ୍ ଶିଳ୍ପର ବିକାଶ ସହିତ ଉପଭୋକ୍ତାମାନଙ୍କର ସ୍ୱାର୍ଥରକ୍ଷା କରିବା କମିଶନଙ୍କ ଲକ୍ଷ୍ୟ ଅଟେ ।



## ବିଦ୍ୟୁତ୍ ଶୁଳ୍କ ନିର୍ଦ୍ଧାରଣ ନିୟମ:

- \* Section 61 of the Electricity Act, 2003 : Tariff Regulations
- \* 61. The Appropriate Commission shall, subject to the provisions of this Act, specify the terms and conditions for the determination of tariff, and in doing so, shall be guided by the following, namely:-
- \* (a) the principles and methodologies specified by the Central Commission for determination of the tariff applicable to generating companies and transmission licensees;
- \* **(b) the generation, transmission, distribution and supply of electricity are conducted on commercial principles;**
- \* **(c) the factors which would encourage competition, efficiency, economical use of the resources, good performance and optimum investments;**
- \* **(d) safeguarding of consumers' interest and at the same time, recovery of the cost of electricity in a reasonable manner;**
- \* (e) the principles rewarding efficiency in performance;
- \* (f) multi year tariff principles;
- \* **(g) that the tariff progressively reflects the cost of supply of electricity and also, reduces and eliminates cross-subsidies within the period to be specified by the Appropriate Commission;**
- \* **(h) the promotion of co-generation and generation of electricity from renewable sources of energy;**
- \* (i) the National Electricity Policy and tariff policy:

## ବିଦ୍ୟୁତ୍ ଶୁଳ୍କ କିପରି ନିର୍ଦ୍ଧାରଣ କରାଯାଏ

- \* ବିଦ୍ୟୁତ୍ ଶୁଳ୍କ ଉପଭୋକ୍ତାମାନଙ୍କୁ ବିଦ୍ୟୁତ୍ ଯୋଗାଇଦେବାର ମୂଲ୍ୟ ଅଟେ ।
- \* ଏହା ମୁଗ୍ଧରେ ବିଭିନ୍ନ ଖର୍ଚ୍ଚ ଯଥା ବିଦ୍ୟୁତ୍ ଉତ୍ପାଦନ (Generation) ଖର୍ଚ୍ଚ, ସରବରାହ ଜନିତ (Transmission) ଖର୍ଚ୍ଚ ଓ ବିତରଣ ଜନିତ (Distribution) ଖର୍ଚ୍ଚ ଅନ୍ତର୍ଭୁକ୍ତ ଅଟେ ।
- \* ବିଦ୍ୟୁତ୍ ଉତ୍ପାଦନ ପାଇଁ ଆମେ ରାଜ୍ୟର ବିଦ୍ୟୁତ୍ ଉତ୍ପାଦନ କେନ୍ଦ୍ର ତଥା କେନ୍ଦ୍ର ସରକାରଙ୍କର ଓ ଘରୋଇ ବିଦ୍ୟୁତ୍ ଉତ୍ପାଦନକାରୀଙ୍କ ଉପରେ ନିର୍ଭରଶୀଳ ।
- \* ବିଦ୍ୟୁତ୍ ଉତ୍ପାଦନ (Generation) ଖର୍ଚ୍ଚରେ କୋଇଲା, ତୈଳ ପ୍ରଭୃତି କଠାମାଲର ମୂଲ୍ୟ (Variable cost), ବିଦ୍ୟୁତ୍ କେନ୍ଦ୍ର ସ୍ଥାପନ, ରକ୍ଷଣାବେକ୍ଷଣ (O&M) ଖର୍ଚ୍ଚ ଓ କର୍ମଚାରୀଙ୍କ ଦରମା ଇତ୍ୟାଦି ସାମିଲ ଥାଏ ।
- \* ସେହିପରି ବିଦ୍ୟୁତ୍ ସରବରାହ (Transmission) ଖର୍ଚ୍ଚରେ ଉଚ୍ଚ ଶକ୍ତିସମ୍ପନ୍ନ ବିଦ୍ୟୁତ୍ ଲାଇନ ଓ ସର୍ବ୍ଵେକ୍ଷଣ ବସାଇବାର ଖର୍ଚ୍ଚ, କର୍ମଚାରୀଙ୍କ ଦରମା ଇତ୍ୟାଦି ଅନ୍ତର୍ଭୁକ୍ତ ।
- \* ବିଦ୍ୟୁତ୍ ଶକ୍ତି ବିତରଣ କମ୍ପାନୀଙ୍କ ନିକଟରେ ପହଞ୍ଚିବା ପରେ ଏଥିରେ ବିଦ୍ୟୁତ୍ ବିତରଣ (Distribution) ଜନିତ ଖର୍ଚ୍ଚ ଯଥା ଲାଇନ ଓ ସର୍ବ୍ଵେକ୍ଷଣ ବସାଇବାର ଖର୍ଚ୍ଚ, ରକ୍ଷଣାବେକ୍ଷଣ ଖର୍ଚ୍ଚ ଓ କର୍ମଚାରୀଙ୍କ ଦରମା ଇତ୍ୟାଦି ମିଶିଥାଏ ।
- \* ଏହିଭଳି ବିଭିନ୍ନ ସ୍ତରରେ ହେଉଥିବା ଖର୍ଚ୍ଚ ଯଥା ଉତ୍ପାଦନଠାରୁ ଉପଭୋକ୍ତା ପର୍ଯ୍ୟନ୍ତ ମିଶି ବିଦ୍ୟୁତ୍ ଶୁଳ୍କ (Tariff) ନିର୍ଦ୍ଧାରିତ ହୋଇଥାଏ ।



## ବିଦ୍ୟୁତ୍ ଶୁଳ୍କ ବୃଦ୍ଧିର କାରଣ

- \* କୋଇଲା , ବିଦ୍ୟୁତ୍ ସଂରକ୍ଷାମାନ ଦରବୃଦ୍ଧି ଓ କର୍ମଚାରୀମାନଙ୍କର ଦରମା ଓ ଭିକ୍ରି ଇତ୍ୟାଦି ବୃଦ୍ଧି
- \* ଅଳ୍ପ ମୂଲ୍ୟରେ ମିଳୁଥିବା ଜଳବିଦ୍ୟୁତ୍ କେନ୍ଦ୍ରରେ ସମ୍ବନ୍ଧିତ ଉତ୍ପାଦନ ହ୍ରାସ
- \* ଶିଳ୍ପାୟନ ଓ ଉପଭୋକ୍ତା ସଂଖ୍ୟା ବୃଦ୍ଧି ଯୋଗୁଁ ଯୋଗାଣରେ ନିଅଁଆ ପରିସ୍ଥିତି
- \* ରାଜ୍ୟରେ ବିଦ୍ୟୁତ୍ ନିଅଁଆ ପରିସ୍ଥିତି ଯୋଗୁଁ ଜାତୀୟ ଗ୍ରାଡ଼ରୁ UI (ଏକ ବାଣିଜ୍ୟିକ ବ୍ୟବସ୍ଥା) ରେ ଅଧିକ ମୂଲ୍ୟରେ ବିଦ୍ୟୁତ୍ କ୍ରୟ
- \* ବିଦ୍ୟୁତ୍ ଚୋରି ଜନିତ ଜାତୀୟ ସମ୍ପତି ନଷ୍ଟ ହେବାରୁ ବିତରଣ କମ୍ପାନୀର ରାଜସ୍ୱ ହ୍ରାସ
- \* ବିଦ୍ୟୁତ୍ ଦେୟ ଠିକ ସମୟରେ ନିୟମିତ ଭରଣା ନ କରିବା 'ଲରେ ବ୍ୟବସାୟୀକ କ୍ଷତି
- \* ବିଦ୍ୟୁତ୍ ଲାଭନ, ଗ୍ରାନ୍ଧୁ'ରମର ଇତ୍ୟାଦିର ଠିକ ସମୟରେ ରକ୍ଷଣାବେକ୍ଷଣ ଅଭାବରୁ ବିଦ୍ୟୁତ୍ ବିତରଣ ଜନିତ ବୈଷୟିକ କ୍ଷତି

## ଶେଷ କଥା

- \* ବର୍ତ୍ତମାନ ରାଜ୍ୟର ସାମାଜିକ ଓ ଅର୍ଥନୈତିକ କ୍ଷେତ୍ରରେ ଉନ୍ନତି ଘଟିବାରୁ ବିଦ୍ୟୁତ୍ ଚାହିଦା ବୃଦ୍ଧି ପାଇବାରେ ଲାଗିଛି ଏବଂ ସେହି ପରିମାଣର ବିଦ୍ୟୁତ୍ ଶକ୍ତି ଉତ୍ପାଦନ ହୋଇପାରିନାହିଁ ।
- \* ଏଥି ସହିତ ବିଦ୍ୟୁତ୍ ଯୋଗାଣ କ୍ଷେତ୍ରରେ ସାମୁହିକ ବିଦ୍ୟୁତ୍ ବିତରଣଜନିତ କ୍ଷତିର ପରିମାଣ ବହୁଳ ଭାବରେ ବୃଦ୍ଧି ପାଇଛି ଯାହାକି ବର୍ତ୍ତମାନ ଘରୁଥିବା ବିଦ୍ୟୁତ୍ ସଙ୍କଟର ମୁଖ୍ୟ କାରଣ । ଏଥିପାଇଁ ବିଦ୍ୟୁତ୍ ଚୋରୀ ମୁଖ୍ୟତ ଦାୟୀ ।
- \* ତେଣୁ ବିଦ୍ୟୁତ୍ ଯୋଗାଣକାରୀ ସଂସ୍ଥାମାନେ ସେମାନଙ୍କର ବିଦ୍ୟୁତ୍ ବିତରଣ ଜନିତ କ୍ଷତି ତଥା ବୈଷୟିକ ଓ ବାଣିଜ୍ୟିକ କ୍ଷତି ହ୍ରାସ କରିବା ନିହାତି ଆବଶ୍ୟକ ।
- \* ଏଥିପାଇଁ ରାଜ୍ୟ ସରକାର ଓ ବିଦ୍ୟୁତ୍ ଯୋଗାଣକାରୀ ସଂସ୍ଥାମାନଙ୍କ ମ୍ଳରେ ସମନ୍ୱୟ ଓ ଉଦ୍ୟମ ସଙ୍ଗେ ସଙ୍ଗେ ସାଧାରଣ ଉପଭୋକ୍ତାମାନଙ୍କର ସଚେତନତା ଓ ସହଯୋଗର ଜରୁରୀ ଆବଶ୍ୟକତା ରହିଛି ।
- \* ରାଜ୍ୟସରକାର ଓ ବିଦ୍ୟୁତ୍ ଯୋଗାଣକାରୀ ସଂସ୍ଥାମାନେ ପୁଞ୍ଜି ବିନିଯୋଗ କରି ବିତରଣ ପ୍ରଣାଳୀରେ ଉନ୍ନତି ଆଣିବା ସଙ୍ଗେ ସଙ୍ଗେ ଜନସାଧାରଣ ଅସାଧୁ ଉପଭୋକ୍ତାମାନଙ୍କ ଦ୍ୱାରା ହେଉଥିବା ବିଦ୍ୟୁତ୍ ଚୋରୀ ରୋକିବାରେ ଆକ୍ର, ପଶ୍ଚିମବଙ୍ଗ, ମହାରାଷ୍ଟ୍ରରେ ଯେପରି ବଳିଷ୍ଠ ପଦକ୍ଷେପ ନିଆଯାଇଛି ସେପରି ପଦକ୍ଷେପ ରାଜ୍ୟସରକାର ଓ ବିତରଣ କମ୍ପାନୀ ନେବା ଦରକାର ।

## ଶେଷ କଥା

- \* ବିଦ୍ୟୁତ୍ ବିତରଣଜନିତ କ୍ଷତି ଓ ବିଦ୍ୟୁତ୍ ଚୋରୀ ହ୍ରାସ ପାଇଲେ ଓ କୋଇଲା, ଯନ୍ତ୍ରପାତି, ଗ୍ରାମସଂରମ୍ଭର, ବିଦ୍ୟୁତ୍ ତାର, କେବୁଲ୍, କର୍ମଚାରୀ ମାନଙ୍କର ଦରମା, ଯେନସନ ବାବଦକୁ ବୃଦ୍ଧି ଇତ୍ୟାଦିକୁ ହିସାବକୁ ନେଇ ବିଦ୍ୟୁତ୍ ବରିତଣ ମୂଲ୍ୟ ଉପଯୁକ୍ତଭାବେ ନିର୍ଦ୍ଧାରଣ କରାଗଲେ ଓ ବିଦ୍ୟୁତ୍ ଉପଭୋକ୍ତାମାନେ ବିଦ୍ୟୁତ୍ ଦେୟ ଠିକ୍ ସମୟରେ ପୈଠକଲେ ବିଦ୍ୟୁତ୍ ସେବାରେ ଉନ୍ନତି ଆସିପାରିବ
- \* ରାଜ୍ୟ ବିଦ୍ୟୁତ୍ କ୍ଷେତ୍ରର ଉନ୍ନତି ହେଲେ ରାଜ୍ୟର ସାମଗ୍ରିକ ବିକାଶ ସମ୍ଭବ ହୋଇପାରିବ ।
- \* ଏଥିପାଇଁ ମାନ୍ୟବର ଲୋକପ୍ରତିନିଧି, ଜନସାଧାରଣ, ବିଦ୍ୟୁତ୍ ଉତ୍ପାଦନକାରୀ, ଗ୍ରାହକୋ, ଓପିଟିସିଏଲ୍, ବ୍ୟବସାୟମାନେ, ସେମାନଙ୍କର କର୍ମଚାରୀ ଓ ସର୍ବୋପରି ବିଦ୍ୟୁତ୍ ଉପଭୋକ୍ତା ମାନେ ପରସ୍ପରର ସମସ୍ୟା ଭଲଭାବରେ ହୃଦୟଙ୍ଗମ କରି ସାହାଯ୍ୟ ଓ ସହଯୋଗ କରିବା ନିହାତି ଦରକାର ।
- \* ଜନସାଧାରଣଙ୍କର ବିନା ସାହାଯ୍ୟ ଓ ସହଯୋଗରେ ବିଦ୍ୟୁତ୍ ସେବାରେ ଉନ୍ନତି ଆଣିବାପାଇଁ ଆମର କାହାଣୀ ବା ପ୍ରୟାସ କେବଳ ଅଧାନୁହେଁ - ପୁରା ଠପ୍ ହୋଇଯିବ ।

## ଧନ୍ୟବାଦ