Appellate Tribunal for Electricity
(Appellate Jurisdiction)

Appeal Nos. 102, 103 & 112 of 2010

Dated 30th May, 2011

Present: Hon'ble Mr. Rakesh Nath, Technical Member
Hon'ble Mr. Justice P.S. Datta, Judicial Member

Appeal No. 102 of 2010 & IA No. 136 of 2010

In the matter of:

M/s. Tata Steel Limited,
24, Homi Mody Fort Street,
Mumbai
Represented through Sri Rajesh Chintak,
Chief Resident Executive ... Appellant(s)

Versus

1. Orissa Electricity Regulatory Commission,
Bidyut Niyamak Bhawan, Unit-VIII,
Bhubaneswar- 751 012.

2. North Eastern Electricity Supply Company,
of Orissa Limited, Regd. Office-Plot No. N/22,
IRC Village, Nayapalli,
Bhubaneswar- 751 015. ...Respondent(s)

Appeal No. 103 of 2010 & IA Nos. 137 & 138 of 2010

In the matter of:

M/s. Ferro Alloys Corporation Limited,
Randia, Bhadrak-756135,
Orissa,
Represented through its Resident Manager ... Appellant(s)

Versus

1. Orissa Electricity Regulatory Commission,
Bidyut Niyamak Bhawan, Unit-VIII,
Bhubaneswar- 751 012.

2. North Eastern Electricity Supply Company,
of Orissa Limited, Regd. Office-Plot No. N/22,
IRC Village, Nayapalli,
Bhubaneswar- 751 015. ...Respondent(s)

Appeal No. 112 of 2010 & IA Nos. 150 & 151 of 2010

In the matter of:

M/s. Balasore Alloys Limited,
(Formerly known as Ispat Alloys Limited),
Village-Balgopalpur,
P.O. Rasulpur, Via-Mitrapur, Balasore,
Orissa-756 020,
Represented through its Resident Representative,
Sri Girish Chandra Lenka ... Appellant(s)

Versus

1. Orissa Electricity Regulatory Commission,
Bidyut Niyamak Bhawan, Unit-VIII,
Bhubaneswar- 751 012.

2. North Eastern Electricity Supply Company,
of Orissa Limited, Regd. Office-Plot No. N/22,
IRC Village, Nayapalli,
Bhubaneswar- 751 015. ...Respondent(s)

Counsel for the Appellant(s): Mr. Ashok Parija, Sr. Advocate
Mr. M.G. Ramachandran,
Ms. Swapna Seshdari
Mr. R.M. Patnaik & Mr. P.P. Mohanty

Counsel for the Respondent(s): Mr. Suresh Tripathy for R-2
Mr. Rutwik Panda for OERC

JUDGMENT

HON'BLE MR. RAKESH NATH, TECHNICAL MEMBER

Appeal Nos. 102,103 and 112 of 2010 have been filed by M/s. Tata Steel Ltd., M/s. Ferro Alloys

Corporation Ltd. and M/s. Balasore Alloys Limited respectively against the order dated 20th March, 2010 of Orissa Electricity Regulatory Commission determining the Annual Revenue Requirements and Retail Supply Tariff for the Financial Year 2010-11 of the North Eastern Electricity Supply Company Limited, the distribution licensee. The State Commission is the respondent No. 1. The distribution licensee which supplies electricity to the appellants is the respondent no. 2.

2. The brief facts of the case are as under:

2.1. The appellants are operating Ferro Alloy plants and are Extra High Voltage (EHT) consumers of respondent no.2/distribution licensee. Even though the appellants are the consumers of the distribution licensee, their premises are connected to the transmission lines and network of the Orissa Power

Transmission Corporation Limited, the transmission licensee and the electricity is transmitted to the appellants through the network of the transmission licensee.

2.2. The appellants earlier had agreements with the distribution licensee for power supply at special rate upto 9.12.2004. The State Commission by order dated 22.3.2005 allowed the special tariff to these industries for a period of three years. Thereafter, by order dated 20.3.2008 the State Commission withdrew the special tariff.

2.3. Aggrieved by the above order dated 20.3.2008, the appellants filed a writ petition, being WP No. 6625 of 2008 before the High Court of Orissa. The High Court in its Judgment dated 16.3.2010 refused to interfere with the State Commission's order relating to the special tariff but directed the State Commission to

strictly comply with the requirement of Sections 61 and 62 of the 2003 Act and the Regulations of the State Commission while fixing the tariff for the FY 2010-11. The State Commission was also directed to fix the cost of supply at various voltage levels and also indicate the cost for each category and indicate the extent of cross subsidy existing and the plan of action to reduce it over a period of time as envisaged in the 2003 Act and the Regulations.

2.4. In the meantime, on 30.11.2009, the distribution licensee filed petition, being petition No. 142 of 2009 for determination of its ARR and tariff before the State Commission for the FY 2010-11. In response to the above petition, the appellants filed objections and reiterated the need to give concessional tariff to Ferro Alloy units, determination of category wise and voltage wise cost of supply and reducing the cross-subsidy.

2.5. The State Commission by its order dated 20.3.2010 decided the ARR and retail supply tariff of the distribution licensee for the FY 2010-11. In this Tariff Order, the State Commission did not determine the voltage-wise or category-wise cost of supply and has determined the cross subsidy for Extra High Voltage (EHV), High Voltage (HV) and Low Voltage (LV) consumers with respect to average cost of supply for the state as a whole. The State Commission also increased the cross subsidy for the appellant's category with respect to the previous year. Aggrieved by this order, the appellants have filed these appeals.

3. As the impugned order and the issues raised in the appeals are common, a common Judgment is being rendered.

4. The appellants have made the following submissions:-

4.1. Section 61(g) of the 2003 Act mandates that the State Commission while determining the tariff shall be guided by the objective that the tariff progressively reflects the cost of supply of electricity and also the cross-subsidies are reduced. However, without regard to the mandate that the tariff should progressively reflect the cost of supply, the State Commission has not determined the cost of supplying electricity to the appellants at 132 KV by use of the transmission system alone, which would not involve any cost to the distribution licensee except negligible expense of raising the bills and recovery of charges.

4.2. Thus, the appellants could not be loaded of the costs and expenses of the distribution licensee except

the limited cost of the raising of bills and recovery of amount, interest on working capital and the proportionate rate of return on equity. The State Commission has wrongly loaded the appellants with the distribution system losses with which the appellants have no relation whatsoever.

4.3. The State Commission has erred in not determining the voltage-wise cost of supply in the case of appellants on the ground that in the absence of metering of all consumers, the Commission has to base its tariff design on average cost of supply. The State Commission instead of following mandate of the Electricity Act to reduce the cross subsidy gradually has determined the tariff in the manner so as to increase the cross subsidy level.

5. The learned counsel for the State Commission argued in support of the findings of the State Commission and stated that the State Commission had balanced the interest of various stakeholders while determining the tariff and dealing with the issue of cross subsidization. The learned counsel for the respondent no. 2 has also argued in support of the impugned order. He also urged that appellants were earlier getting concessional tariff due to their status as export-oriented units. These industries with the passage of time have lost their status as export oriented unit and, therefore, not entitled to the concessional tariff. Even otherwise, the concessional tariff was applicable upto March, 2008 by the order of the State Commission.

6. After considering the contentions of the parties, we have framed the following questions for consideration:

i) Whether the State Commission has erred in not determining the tariff of the appellants based on the actual cost of supply according to the provisions of the Act, the Policy and the Regulations?

ii) Whether the tariff of the appellant being Extra High Voltage (EHV) consumer getting supply directly through the transmission system of the transmission licensee should include the elements of fixed charges relating to the distribution network of the distribution licensee and the distribution system losses?

7. Both the questions are interwoven and therefore, we have to take them up together.

8. According to the learned counsel for the appellant, the State Commission has not considered the actual cost of supply for the category of consumers contrary to the provisions of the Act, Regulations and the directions given by the High Court of Orissa in the Judgment dated 16.3.2010. The State Commission is not right in holding that it is not possible to determine category wise cost of supply in case of appellant's category of consumers due to lack of data. On the contrary the distribution licensee itself in its filing had duly given the category wise cost of supply to the State Commission. Further the appellants' category of consumers are being supplied electricity from the transmission network of the transmission licensee without any intervention or use of the system of the

distribution licensee, therefore, it is not difficult for the State Commission to determine cost of supply in their case.

9. We will first examine the provisions of the Act, the Policy and the Regulations relating to cost of supply and cross subsidy. The relevant extracts from the Statement of Objects and Reasons of the 2003 Act are reproduced as under:

> *"1.3. Over a period of time, however, the performance of SEBs has deteriorated substantially on account of various factors. For instance, though power to fix tariffs vests with the State Electricity Boards, they have generally been unable to take decisions on tariffs in a professional and independent manner and tariff determination in practice has been done by the State Governments. Cross-subsidies have reached unsustainable levels. To address this issue and to provide for distancing of government from*

determination of tariffs, the Electricity Regulatory Commissions Act, was enacted in 1998".

"4. The main features of the Bill are as follows:

……..

(vi) The State Electricity Regulatory Commissions may permit open access in distribution in phases with surcharge for

(a) current level of cross subsidy to be gradually phased out along with cross subsidies."

10. The relevant provisions of the Electricity Act, 2003 are reproduced as under:

"61. **Tariff Regulations**- 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)……..

(b) the generation, transmission, distribution and supply of electricity are conducted on commercial principles;

(c)----------

(d) safeguarding of consumers' interest and at the same time, recovery of the cost of electricity in a reasonable manner;

(e)----------

(f)----------

(g) that the tariff progressively reflects the cost of supply of electricity, and also, reduces cross-subsidies within the period to be specified by the Appropriate Commission;

(h)----------

(i) the National Electricity Policy and tariff policy".

Thus, one of the factors guiding the determination of tariff will be that it progressively reflects the cost of

supply. Also the cross subsidies have to be reduced progressively.

11. Section 62(3) of the 2003 Act stipulates as under:

> *"(3) The Appropriate Commission shall not, while determining the tariff under this Act, show undue preference to any consumer of electricity but may differentiate according to the consumer's load factor, power factor, voltage, total consumption of electricity during any specified period or the time at which the supply is required or the geographical position of any area, the nature of supply and the purpose for which the supply is required."*

Thus one of the factors on which the tariffs for different categories of consumers could be differentiated is voltage.

12. Section 86(4) of the Electricity Act is reproduced as under:

> *"(4) In discharge of its functions the State Commission shall be guided by the National*

Electricity Policy, National Electricity Plan and tariff policy published under sub-section (2) of section 3".

13. The Tariff Policy provides as under:

"8.3 Tariff design : Linkage of tariffs to cost of service

It has been widely recognised that rational and economic pricing of electricity can be one of the major tools for energy conservation and sustainable use of ground water resources.

In terms of the Section 61 (g) of the Act, the Appropriate Commission shall be guided by the objective that the tariff progressively reflects the efficient and prudent cost of supply of electricity.

Accordingly, the following principles would be adopted:

1. In accordance with the National Electricity Policy, consumers below poverty line who consume below a specified level, say 30 units per month, may receive a special support through cross subsidy. Tariffs for such designated group of

consumers will be at least 50% of the average cost of supply. This provision will be re-examined after five years.

2. For achieving the objective that the tariff progressively reflects the cost of supply of electricity, the SERC would notify roadmap within six months with a target that latest by the end of year 2010-2011 tariffs are within ± 20 % of the average cost of supply. The road map would also have intermediate milestones, based on the approach of a gradual reduction in cross subsidy.

For example if the average cost of service is Rs. 3 per unit, at the end of year 2010-2011 the tariff for the cross subsidized categories excluding those referred to in para 1 above should not be lower than Rs. 2.40 per unit and that for any of the cross-subsidising categories should not go beyond Rs. 3.60 per unit."

Thus, the Tariff Policy envisages that the tariff should progressively reflect the efficient and prudent cost of

supply of electricity and latest by 2010-11 the tariffs for all categories of consumers except the consumers below poverty line should be within ±20% of the average cost of supply.

The Tariff Policy indicates determination of cross subsidy in the context of determination of cross subsidy surcharge for open access under para 8.5. The relevant extract is reproduced below:

> *"Accordingly, when open access is allowed the surcharge for the purpose of sections 38,39,40 and sub-section 2 of section 42 would be computed as the difference between (i) the tariff applicable to the relevant category of consumers and (ii) the cost of the distribution licensee to supply electricity to the consumers of the applicable class. In case of a consumer opting for open access, the distribution licensee could be in a position to discontinue purchase of power at the margin in the merit order. Accordingly, the cost of supply to the consumer for*

this purpose may be computed as the aggregate of (a) the weighted average of power purchase costs (inclusive of fixed and variable charges) of top 5% power at the margin, excluding liquid fuel based generation, in the merit order approved by the SERC adjusted for average loss compensation of the relevant voltage level and (b) the distribution charges determined on the principles as laid down for intra-state transmission charges.

Surcharge formula:

$S = T - [\, C\,(1 + L / 100) + D \,]$

Where

S is the surcharge

T is the Tariff payable by the relevant category of consumers;

C is the Weighted average cost of power purchase of top 5% at the margin excluding liquid fuel based generation and renewable power

D is the Wheeling charge

L is the system Losses for the applicable voltage level, expressed as a percentage".

Thus the cross subsidy surcharge according to Tariff Policy for open access consumer has to be the difference between the applicable tariff and the cost of the distribution licensee to supply electricity for the applicable class of consumer. The distribution system losses applied in the surcharge formula are also the system losses for the applicable voltage level.

14. The National Electricity Policy notified by the Central Government provides as under:

> *"5.5.1. There is an urgent need for ensuring recovery of cost of service from consumers to make the power sector sustainable".*
>
> *"5.5.3. Over the last few decades cross-subsidies have increased to unsustainable levels. Cross-subsidies hide inefficiencies and losses in operations. There is urgent need to correct this imbalance without giving tariff shock to consumers. The existing cross-subsidies for other categories of*

consumers would need to be reduced progressively and gradually".

Thus, the policy provides for progressive and gradual reduction of the cross-subsidies of the subsidizing consumers, without giving tariff shock to the subsidized consumers.

15. The State Commission's Tariff Regulations of 2004 refer to computation of cross subsidy with reference to determination of surcharge. The relevant section is reproduced below:

"7. Tariff Principles

(a) .....

(b) .....

(c) Surcharge

(i) Surcharge to be levied on wheeling consumers shall be determined by the Commission keeping in view the loss of cross-subsidy from the consumers or category of consumers who have opted

for open access to take supply from a person other than the incumbent distribution licensee.

(ii) The Commission may adopt requisite principle for computing surcharge, which shall compensate for the entire loss of cross subsidy for any given consumer category for which supply is given, as the Act clearly states that such surcharges shall be utilised to meet the requirements of current level of cross-subsidy. The entire amount of cross-subsidy lost by the incumbent licensee needs to be compensated.

(iii) For the purpose of computing cross-subsidy, the difference between cost-to-serve of that category and average tariff realisation of that category shall be considered".

Thus, according to the Regulations of the State Commission, the open access consumer has to

compensate for the entire loss of cross subsidy for the given consumer category. The cross subsidy will be computed as the difference between cost to serve the concerned category of consumers and average tariff realization of that category of consumers.

16. In view of above provisions of the Act, National Electricity Policy, Tariff Policy and the Regulations, we have to find answer to the question whether the tariff of the appellants should be based on average cost of supply or actual cost of supply to the appellant's consumer category, which we shall do in the following paragraphs.

17. Section 61(g) of the 2003 Act stipulates that the tariff should progressively reflect the cost of supply and cross subsidies should be reduced within the time period specified by the State Commission. The Tariff

Policy stipulates the target for achieving this objective latest by the end of year 2010-11, such that the tariffs are within ± 20% of the average cost of supply. In this connection, it would be worthwhile to examine the original provision of the Section 61(g). The original provision of Section 61(g) "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" was replaced by "the tariff progressively reflects the cost of supply of electricity and also reduces cross subsidies in the manner specified by the Appropriate Commission" by an amendment under Electricity (Amendment) Act, 2007 w.e.f. 15.6.2007. Thus the intention of the Parliament in amending the above provisions of the Act by removing provision for elimination of cross subsidies appears to be that the

cross subsidies may be reduced but may not have to be eliminated. The tariff should progressively reflect the cost of supply but at the same time the cross subsidy, though may be reduced, may not be eliminated. If strict commercial principles are followed, then the tariffs have to be based on the cost to supply a consumer category. However, it is not the intent of the Act after the amendment in the year 2007 (Act 26 of 2007) that the tariff should be the mirror image of the cost of supply of electricity to a category of consumer.

18. Section 62(2) provides for the factors on which the tariffs of the various consumers can be differentiated. Some of these factors like load factor, power factor, voltage, total electricity consumption during any specified period or time or geographical position also affects the cost of supply to the consumer. Due

weightage can be given in the tariffs to these factor to differentiate the tariffs.

19. The National Electricity Policy provides for reducing the cross subsidies progressively and gradually. The gradual reduction is envisaged to avoid tariff shock to the subsidized categories of consumers. It also provides for subsidized tariff for consumers below poverty line for minimum level of support. Cross subsidy for such categories of consumers has to be necessarily provided by the subsidizing consumers.

20. The Tariff Policy clearly stipulates that for achieving the objective that the tariff progressively reflects the cost of supply of electricity, latest by the end of the year 2010-11, the tariffs should be within ±20% of the average cost of supply, for which the State Commission would notify a road-map. The road map

would also have intermediate milestones for reduction of cross subsidy.

21. According to the Tariff Regulation 7 (c) (iii) of the State Commission the cross subsidy has to be computed as difference between cost-to-serve a category of consumer and average tariff realization of that category.

22. After cogent reading of all the above provisions of the Act, the Policy and the Regulations we infer the following:

i) The cross subsidy for a consumer category is the difference between cost to serve that category of consumers and average tariff realization of that category of consumers. While the cross-subsidies have to be reduced progressively and gradually to avoid tariff

shock to the subsidized categories, the cross-subsidies may not be eliminated.

ii) The tariff for different categories of consumer may progressively reflect the cost of electricity to the consumer category but may not be a mirror image of cost to supply to the respective consumer categories.

iii) Tariff for consumers below the poverty line will be at least 50% of the average cost of supply.

iv) The tariffs should be within ±20% of the average cost of supply by the end of 2010-11 to achieve the objective that the tariff progressively reflects the cost of supply of electricity.

v) The cross subsidies may gradually be reduced but should not be increased for a category of subsidizing consumer.

vi) The tariffs can be differentiated according to the consumer's load factor, power factor, voltage, total consumption of electricity during specified period or the time or the geographical location, the nature of supply and the purpose for which electricity is required.

Thus, if the cross subsidy calculated on the basis of cost of supply to the consumer category is not increased but reduced gradually, the tariff of consumer categories is within ±20% of the average cost of supply except the consumers below the poverty line, tariffs of different categories of consumers are differentiated only according to the factors given in

Section 62(3) and there is no tariff shock to any category of consumer, no prejudice would have been caused to any category of consumers with regard to the issues of cross subsidy and cost of supply raised in this appeal.

23. On these principles we will examine if any prejudice has been caused to the appellants in determining their tariff in the impugned order.

24. First we will examine the relevant findings of the State Commission in the impugned order which are reproduced as under:

> *"373. Thus, as per the order of the Hon'ble High Court, the Commission is required to indicate the cost of supply for each category and extent of cross-subsidy existing and plan of action to reduce it to over a period of time as envisaged in Section 61(g) of the Electricity Act, 2003 and Regulation*

7(c) (iii) of OERC (Terms and Conditions for Determination of Tariff) Regulations, 2004.

374. With regard to fixation of cost of supply it may be stated that as per Section 62 of the Electricity Act, 2003, the Commission is required to determine the Retail Tariff to be charged by Distribution Licensees from its consumers. The Commission while determining the tariff is required to give consideration to the factors (load factor, power factor, voltage etc.) listed in Section 62(3), 61(c) and 61(e) of the Electricity Act, 2003 which are essentially cost determinants. Economically efficient tariff should consider the cost impact of these factors only without providing for any cross subsidies. The Electricity Act, 2003 recognizes the fact that tariff of some consumer categories are presently below the cost of supply and being cross-subsidized by other categories. Therefore, it is desirable that a tariff shock due to abrupt elimination of cross-subsidy for such consumers should be avoided. Hence, it provides for

progressive reduction of cross-subsidy and does not provide for elimination of cross subsidy.

It 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 ±20% of the "average cost of supply"."

" 376. 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. We have already discussed the provisions regarding the reduction of cross-subsidy in the above two Policies of the Central Govt. The

terms cross-subsidy has not been defined in the Electricity Act, 2003, the National Electricity and 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 ± 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.

377. 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 Licensee 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

Orissa 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."

The State Commission has expressed difficulties in determining the voltage-wise cost of supply in the absence of 100% metering at the level of consumers

and distribution transformers. The State Commission has also held that the submissions of distribution companies regarding cost allocation in the tariff filing do not have technical and commercial data support. The State Commission has also concluded that from the conjoint reading of the Tariff Policy and National Electricity Policy, the cost of supply can be construed to mean the average cost of supply. Therefore, the State Commission has considered it prudent to accept the average overall cost of supply for computation of cross-subsidy.

25. Further, the State Commission by the impugned order (para 379) has categorised the consumers into three categories on voltage basis, viz; Extra High Tension (EHT), High Tension (HT) and Low Tension (except the sub-categories of Kutir Jyoti, Domestic Irrigation Pumping, Allied Agricultural Activities,

Allied Agro Industrial Activities and General Purpose), each category being given uniform retail tariff for the entire state, irrespective of the distribution licensee supplying electricity to the consumer. Cross subsidy has been provided to all the above sub-categories except the general purpose. The cross subsidy is provided by general purpose LT consumers, HT consumers and EHT consumers.

26. The State Commission has further discussed the computation of cross subsidy in para 381 to 383 of the impugned order, the relevant portion of which are reproduced below:

> *"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".

"383. Regarding the extent of cross-subsidy existing at various voltage levels, let us examine how far the Commission have kept cross subsidy within ± 20% of the average cost of supply as mandated in para 8.3.2 of Tariff Policy.

Table-42

Year (1)	Level of Voltage (2)	Average cost of supply for the State as a whole (P/U) (3)	Tariff (P/U) (4)	Cross-Subsidy (P/U) 5=(4)-(3)	Percentage of Cross –subsidy above/below or cost of supply (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

Thus the State Commission has held that the cross subsidy has to be worked out as difference

between Tariff for the category of consumer and average cost of supply for the state as a whole. The average tariff of HT and EHT consumers, has been worked out with energy consumption at assumed load factor of 80% instead of average tariff realization of the respective categories according to the ARR. With the above calculations, the State Commission established that the tariffs are within ± 20% of average cost of supply in consonance with the Tariff Policy.

27. We do not agree with the findings of the State Commission that the cost to supply a consumer category is the same as average cost of supply for the distribution system as a whole and average cost of supply can be used in calculation of cross subsidy instead of cost to supply. This is contrary to Regulation 7 (c)(iii) of the State Commission. Learned counsel for the appellants has argued that the

appellants being EHT consumers get power supply directly through the transmission system without the use of the distribution system of the licensee and therefore, the distribution losses should not be loaded on their tariff. He also relied on decision of this Tribunal on the principle of reducing cross subsidy in the following Judgments:

SIEL limited, New Delhi v/s Punjab Electricity Regulatory Commission & Ors, 2007 APTEL 931; Spencer's Retail Limited v/s Maharashtra Electricity Regulatory Commission & Ors., 2007 ELR 9 (APTEL 1592); Spencer's Retail Limited v/s Maharashtra Electricity Electricity & Ors. 2007 (Order dated 18.0202008); Kashi Vishwanath Steel Limited v/s Uttaranchal Electricity Regulatory Commission & Ors. (Order dated 02.06.2006); Spencer's Retail Limited v/s Maharashtra Electricity Electricity & Ors. (Order dated 27.0102009); Multiplex Association of India v/s Maharashtra Electricity Regulatory Commission & Another, (Order dated 19.01.2009) and Spencer's Retail

Ltd. Vs. Maharashtra Electricity Regulatory Commission & Another . (Order dated 1 July 2009).

28. Of the above Judgments of this Tribunal, 2007 APTEL 931 Siel Limited vs. PSERC & Ors. has a clear finding on the cost of supply. The relevant extracts of the Judgment are reproduced below:

> *"109. According to Section 61(g) of the Act of 2003, the Commission is required to specify the period within which cross subsidy would be reduced and eliminated so that the tariff progressively reflects the cost of supply of electricity. Under Section 28(2) of the Act of 1998, the Commission while prescribing the terms and conditions of tariff was required to safeguard the interests of the consumers and at the same time, it was to ensure that the consumers paid for the use of the electricity in a manner based on average cost of supply. The word "Average" preceding the words "cost of supply" is absent in Section 61(g) of the Act of 2003. The omission of the word "Average" is*

significant. It indicates that the cost of supply means the actual cost of supply, but it is not the intent of the legislation that the Commission should determine the Tariff based on cost of supply from the date of the enforcement of the Act of 2003. Section 61(g) of the Act of 2003 envisages a gradual transition from the Tariff loaded with cross subsidies to a Tariff reflective of cost of supply to various class and categories of consumers. Till the Commission progressively reaches that stage, in the interregnum, the roadmap for achieving the objective must be notified by the Commission within six months from January 6, 2006, when the Tariff Policy was notified by the Government of India, i.e. by July 6, 2006. In consonance with the Tariff Policy, by the end of the year 2010-11, tariffs are required to be fixed within ± 20 per cent of the average cost of supply (pooled cost of supply of energy received from different sources). But the policy has reached only up to average cost of supply. As per the Act, Tariff must be gradually fine tuned to the cost of supply of electricity and the Commission should be able to reach the target

within a reasonable period of time to be specified by it. Therefore, for the present, the approach adopted by the Commission in determining the average cost of supply cannot be faulted. We, however, hasten to add that we disapprove the view of the Commission that the words "Cost of Supply" means "Average Cost of Supply.

110. Keeping in view the provisions of Section 61 (g), which requires Tariff to ultimately reflect the cost of supply of electricity and the National Tariff Policy, which requires Tariff to be within ± 20 per cent of the average cost of supply, it seems to us that the Commission must determine the cost of supply, as that is the goal set by the Act. It should also determine the average cost of supply. Once the figures are known, they must be juxtaposed, with the actual tariff fixed by the Commission. This will transparently show the extent of cross subsidy added to the tariff, which will be the difference between the tariff per unit and the actual cost of supply".

This Tribunal in the above Judgment has held that the cost of supply as indicated in Section 61(g) is not the average cost of supply but the actual cost of supply and the cross subsidy is the difference between the tariff fixed by the State Commission and the actual cost of supply.

29. The State Commission has indicated in the impugned order that the voltage-wise cost determination is the first step in determining the consumer-wise cost of supply but has expressed difficulties in determination of voltage-wise cost of supply due to non-segregation of costs incurred by the licensee related to different voltage levels and determination of technical and commercial losses at different voltage levels due to non-availability of meters. The State Commission has also noted that the

data submitted by the distribution licensee does not have technical or commercial data support.

30. It is regretted that even after six years of formation of the Regulations, the State Commission has not been able to establish data for the distribution losses. The position of metering in the distribution system of respondent no. 2 is pathetic. Only about 1/4th of 11 KV feeders have been metered and very small numbers of transformers have been provided with meters. Only 68% of the consumer meters are functional in the distribution system as indicated in Table-37 of the impugned order. It is also noticed that a large number of meters are old electro mechanical meter which are not functioning. This is in contravention to Section 55 of the Act. Section 55(1) specifies that no licensee shall supply electricity after the expiry of two years from the appointed data, except

through installation of a correct meter in accordance with the Regulations of the Central Electricity Authority. According to Section 55(2) meters have to be provided for the purpose of accounting and audit. According to Section 8.2.1 (2) of the Tariff Policy, the State Commission has to undertake independent assessment of baseline data for various parameters for every distribution circle of the licensee and this exercise should be completed by March, 2007. In our opinion the State Commission can not be a silent spectator to the violation of the provisions of the Act. In view of large scale installation of meters, the State Commission should immediately direct the distribution licensee to submit a capital scheme for installation of consumer and energy audit meters including replacement of defective energy meters with the correct meters within a reasonable time schedule

to be decided by the State Commission. The State Commission may ensure that the meters are installed by the distribution licensee according to the approved metering scheme and the specified schedule. In the meantime, the State Commission should institute system studies for the distribution system with the available load data to assess the technical distribution losses at different voltage levels.

31. We appreciate that the determination of cost of supply to different categories of consumers is a difficult exercise in view of non-availability of metering data and segregation of the network costs. However, it will not be prudent to wait indefinitely for availability of the entire data and it would be advisable to initiate a simple formulation which could take into account the major cost element to a great extent reflect the cost of supply. There is no need to make distinction

between the distribution charges of identical consumers connected at different nodes in the distribution network. It would be adequate to determine the voltage-wise cost of supply taking into account the major cost element which would be applicable to all the categories of consumers connected to the same voltage level at different locations in the distribution system. Since the State Commission has expressed difficulties in determining voltage wise cost of supply, we would like to give necessary directions in this regard.

32. Ideally, the network costs can be split into the partial costs of the different voltage level and the cost of supply at a particular voltage level is the cost at that voltage level and upstream network. However, in the absence of segregated network costs, it would be prudent to work out the voltage-wise cost of supply

taking into account the distribution losses at different voltage levels as a first major step in the right direction. As power purchase cost is a major component of the tariff, apportioning the power purchase cost at different voltage levels taking into account the distribution losses at the relevant voltage level and the upstream system will facilitate determination of voltage wise cost of supply, though not very accurate, but a simple and practical method to reflect the actual cost of supply.

33. The technical distribution system losses in the distribution network can be assessed by carrying out system studies based on the available load data. Some difficulty might be faced in reflecting the entire distribution system at 11 KV and 0.4 KV due to vastness of data. This could be simplified by carrying

out field studies with representative feeders of the various consumer mix prevailing in the distribution system. However, the actual distribution losses allowed in the ARR which include the commercial losses will be more than the technical losses determined by the system studies. Therefore, the difference between the losses allowed in the ARR and that determined by the system studies may have to be apportioned to different voltage levels in proportion to the annual gross energy consumption at the respective voltage level. The annual gross energy consumption at a voltage level will be the sum of energy consumption of all consumer categories connected at that voltage plus the technical distribution losses corresponding to that voltage level as worked out by system studies. In this manner, the total losses allowed in the ARR can be apportioned to different voltage levels including the

EHT consumers directly connected to the transmission system of GRIDCO. The cost of supply of the appellant's category who are connected to the 220/132 KV voltage may have zero technical losses but will have a component of apportioned distribution losses due to difference between the loss level allowed in ARR (which includes commercial losses) and the technical losses determined by the system studies, which they have to bear as consumers of the distribution licensee.

34. Thus Power Purchase Cost which is the major component of tariff can be segregated for different voltage levels taking into account the transmission and distribution losses, both commercial and technical, for the relevant voltage level and upstream system. As segregated network costs are not available, all the other costs such as Return on Equity, Interest on Loan, depreciation, interest on working capital and

O&M costs can be pooled and apportioned equitably, on pro-rata basis, to all the voltage levels including the appellant's category to determine the cost of supply. Segregating Power Purchase cost taking into account voltage-wise transmission and distribution losses will be a major step in the right direction for determining the actual cost of supply to various consumer categories. All consumer categories connected to the same voltage will have the same cost of supply. Further, refinements in formulation for cost of supply can be done gradually when more data is available.

35. We have also noticed that the State Commission has wrongly determined the average tariff realization for the appellants' consumer category at an assumed load factor of 80%. According to Regulation 7(c) (iii) cross subsidy has to be computed as the difference between cost to serve that category and the average

tariff realization of that category. Thus the method used by the State Commission in calculating average tariff for the appellant's category is incorrect and needs to be corrected as per formula given below:

$$\text{Average Tariff realization for a category} = \frac{\text{Total expected revenue realized from that category as per ARR}}{\text{Total anticipated sale to that category as per ARR}}$$

It is also noticed that the State Commission has clubbed different categories of consumers having different tariff on the basis of voltage of supply for computing average tariff for the purpose of determining cross subsidy. This is not the correct and transparent method of determining cross subsidy. Cross subsidy has to be determined for each category of consumer having different tariff to have transparency in actual cross subsidy being given by the subsidizing consumer and that received by the subsidized consumers.

36. The learned counsel for the Appellants has argued that it would not be difficult to determine cost to supply for them as they draw electricity directly from the transmission system of the State Transmission Licensee. We feel that even if it is not difficult for the State Commission to determine the cost of supply for the appellants, unless the cost of supply is determined for all the consumer categories connected to different voltage levels, it will not serve any purpose. We also do not accept the argument of the learned counsel for the appellant that the distribution losses and network costs in respect of the appellant consumer category will be nil. As stated above, the commercial losses of the distribution system have to be borne by all the consumers of the distribution licensee. However, as the distribution losses reduce gradually, the cost of supply for the appellants'

category will also reduce. We also can not grant any relief to the appellants on account of fixed charges for the distribution system assets and O&M expenses, etc. due to complexities involved in determining the segregated cost of service and in light of amendment of 2007 of the Act removing the provision for elimination of subsidies.

37. We, however, direct the State Commission to determine the cross subsidy for each consumer category after working out the voltage-wise cost of supply based on the directions given in the preceding paragraphs. The cross subsidy will be calculated as the difference between the average tariff realization for that category as per the Annual Revenue Requirement and the cost of supply for the consumer category based on voltage-based cost of supply.

38. We would now examine if the tariffs are within ± 20% of the average cost of supply in consonance with the Tariff Policy.

39. The State Commission in the impugned order has made three categories viz., EHT, HT and LT based on voltage level and determined the average tariff for each voltage level in Table-42 of the impugned order. However, it is noticed that each voltage category has consumer sub-categories which have different tariffs. The tariff for each category which has different tariff has to be compared with average cost of supply to check if all the tariffs are within ± 20% of the average cost of supply. For example, consumers under LT General Purpose have energy tariff varying from 420 to 590 p/kWh whereas the LT agriculture has energy tariff of 110 p/kWh. Thus, both these categories of consumers can not be clubbed together for the

purpose of ensuring that the tariff for each consumer category is within ±20% of average cost of supply and also for determining cross subsidy and, therefore, have to be shown separately. In our opinion, Table-42 of the impugned order which shows that EHT and HT categories are within ± 20% of the average cost of supply and LT categories about 33% above the average cost of supply is an incorrect representation. As far as the appellants' consumer category is concerned, even though their average tariffs in the impugned order has been shown as within + 20% of the cost of supply, the average tariff has been calculated at 80% load factor and not on average tariff realization of the consumer category as per the ARR which is incorrect and contrary to the Regulation. However, the LT consumer's tariff even when different consumer categories are clubbed together is beyond (-) 20%

which is not in consonance with the Tariff Policy. The State Commission is directed to correctly determine the variation in tariff of each consumer category/sub-category with respect to average cost of supply in accordance with the directions given in this Judgment to see whether the mandate of the Tariff Policy of having tariff within ± 20% of the average cost of supply has been met or not in respect of the appellants' category and other categories.

40. We are also unable to establish if the cross subsidy as determined with respect to cost to supply has reduced, with respect to the previous year (s) for the appellants' category, as per the mandate of the Act, or not as the State Commission has not determined the cross subsidy with respect to cost of supply according to the Regulations. We are also not in a

position to establish if the tariff for different categories of consumers including the appellant's category is within ± 20% of average cost of supply as per the mandate of the Tariff Policy due to incorrect representation in the impugned order. Determination of cost of supply as per our directions will involve carrying out system studies which is time consuming and can be implemented only in the future tariff orders. However, whether the tariff of the appellant's category is within 20% of the average cost of supply can be determined. Accordingly, the State Commission is directed to determine the average tariff realization per unit of the appellant's category which will be the expected revenue realised from the appellants' consumer category divided by the expected energy sale to the appellants' consumer category according to the ARR, and check if the tariff applicable

to appellants' consumer category is within 20% of average cost of supply and provide consequential benefit to the appellants, if any after hearing all concerned.

41. **Summary of our findings**

41.1. After considering the provisions of the Act, the National Electricity Policy, Tariff Policy and the Regulations of the State Commission, we have come to the conclusion that if the cross subsidy calculated on the basis of cost of supply to the consumer category is not increased but reduced gradually, the tariff of consumer categories is within ±20% of the average cost of supply except the consumers below the poverty line, tariffs of different categories of consumers are differentiated only according to the factors given in Section 62(3)

and there is no tariff shock to any category of consumer, no prejudice would have been caused to any category of consumers with regard to the issues of cross subsidy and cost of supply raised in this appeal.

41.2. We do not agree with the findings of the State Commission that cost to supply a consumer category is the same as average cost of supply for the distribution system as a whole and average cost of supply can be used in calculation of cross subsidy instead of actual cost of supply. This is contrary to Regulation 7 (c)(iii) of the State Commission and findings of this Tribunal in the Judgment reported in 2007(APTEL) 931 SIEL Limited, New Delhi v/s PSERC & Ors.

41.3. The State Commission has expressed difficulties in determining cost of supply in view of non-availability of metering data and segregation of the network costs. In our opinion, it will not be prudent to wait indefinitely for availability of the entire data and it would be advisable to initiate a simple formulation which could take into account the major cost elements. There is no need to make distinction between the distribution charges of identical consumers connected at different nodes in the distribution network. It would be adequate to determine the voltage-wise cost of supply taking into account the major cost element which would be applicable to all the categories of consumers connected to the same voltage level at different locations in the distribution system. We have given a practical formulation to determine voltage

wise cost of supply to all category of consumers connected at the same voltage level in paragraphs 31 to 35 above. Accordingly, the State Commission is directed to determine cross subsidy for different categories of consumers within next six months from FY 2010-11 onwards and ensure that in future orders for ARR and tariff of the distribution licensees, cross subsidies for different consumer categories are determined according to the directions given in this Judgment and that the cross subsidies are reduced gradually as per the provisions of the Act.

41.4. In view of pathetic condition of consumers and distribution feeder and transformer metering, we direct the State Commission to take immediate action for preparation of a metering scheme as a

project by the distribution company and its approval and implementation as per a time bound schedule to be decided by the State Commission.

41.5. According to the Tariff Policy, the tariff of all categories of consumers except those below poverty line have to be within ± 20% of the total average cost of supply. The variation of tariffs of different category with respect to average cost of supply has not been correctly determined by the State Commission. The State Commission has erred in clubbing different consumer categories having different tariff in one category based on voltage of supply. Also for the appellants' category average tariff per unit has been incorrectly determined at assumed load factor of 80%. The State Commission is directed to determine the

average tariff for appellant's another category according to the directions given in paragraphs 39 and 40. Accordingly, we remand the matter to the State Commission to re-determine the variation of average tariff for different consumer categories with respect to average cost of supply and provide consequential relief to appellant's consumer category in terms of the tariff policy, if any, after hearing all concerned.

42. **Conclusion**

In view of above, we remand the matter to the State Commission to correctly determine the variation of tariff of the appellant's category with respect to average cost of supply and provide consequential relief to the appellants in terms of the Tariff Policy, if any. The State Commission is also directed to take action

on consumer and audit metering and determination of cross subsidy based on actual cost of supply in accordance with the directions given in this Judgment. No order as to cost.

43. Pronounced in the open court on this **30th day of May, 2011.**

(Justice P.S. Datta)
Judicial Member

(Rakesh Nath)
Technical Member

REPORTABLE / NON-REPORTABLE

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