Appellate Tribunal for Electricity
(Appellate Jurisdiction)

Appeal No. 75 of 2011

Dated: 23rd May, 2012

Present: HON'BLE MR. JUSTICE KARPAGA VINAYAGAM, CHAIRPERSON
HON'BLE MR. V J TALWAR, TECHNICAL MEMBER,

Union of India through
Southern Railway
Southern Railway, 7th floor,
NGO Annex, Park Town,
Chennai – 600003 …Appellant

Versus

1. Tamil Nadu Electricity Regulatory Commission,
19-A, Rukmimi Lakshmipathy Salai,
Egmore, Chennai 600008

2. Tamil Nadu Electricity Board
NPKRR Maligai, No.800, Anna Salai,
Chennai – 600002 …Respondents

Counsel for the Appellant: Mr VSR Krishna Sr. Advocate

Mr Abhishek Yadav

Counsel for the Respondent : Mr G Umapathy for R-1
Mr Ramsubramanian
Mr S Vallinayagam for R- 2

JUDGMENT

PER MR. V J TALWAR TECHNICAL MEMBER

1. The Southern Railway representing the Union of India is the Appellant herein. The Tamil Nadu Electricity Regulatory Commission (State Commission) is the 1st Respondent. Tamil Nadu State Electricity Board (Electricity Board) is the 2nd Respondent herein.

2. The 2nd Respondent Electricity Board is the distribution licensee for the state of Tamil Nadu. The Appellant Railways is one of its consumers taking supply from the 2nd Respondent Electricity Board at 110 kV at the number of locations to meet its traction requirements.

3. On 18.01.2010 the Electricity Board (R-2) filed a Multi Year Tariff petition being no. TP 1 of 2010 before the State Commission for determination of ARR and retail tariff for the control period of 2010-11 to 2012-13. In accordance with the provision of Section 64(2) of the Electricity Act, 2003, the Electricity Board published the abridged form of its application inviting objections and comments from the stake holders. The Appellant filed its objections to the tariff proposal of the Electricity Board (R-2) on 23.06.2010. The State Commission ultimately passed the impugned order on 31.7.2010 accepting only few of the objections and rejecting the other objections raised by the Appellant Railways.

4. Having aggrieved by the impugned order dated 31.7.2010, the Appellant has filed this Appeal before us.

5. The Appellant has raised three issues in this Appeal. These are:

i. Creation of a new consumer category in retail tariff for consumers taking supply at Extra High Voltage (EHT) and a subcategory for Railway Traction within such EHT category.

ii. Fixation of the cross subsidy with respect to the cost of supply at respective voltage of supply and to reduce the cross subsidy burden on the Appellant Railways.

iii. To specify the tariff conditions in respect of computing billing power factor in lag only metering instead of Lag + Lead metering.

6. We shall now deal with each of the above issues one by one. First issue for our consideration is related to **Creation of a new consumer category in retail tariff for consumers taking supply at Extra High Voltage (EHT) and a subcategory for Railway Traction within such EHT category.**

7. The learned Senior counsel for the Appellant made elaborate submissions on this issue which are summarised below:

i) Southern Railways is currently availing power at 110 KV.

ii) As per the State Commission's Distribution Code, the consumers are to be classified in three categories viz., (i) LT consumers taking supply at 440 volts or below, (ii) HT consumers taking supply at 11kV/22 kV/33 kV and (iii) EHT Consumers getting supply at voltage higher than 33 kV.

iii) Since the Appellant Railways is getting supply at 110 kV, the State Commission ought to have classified the Railways in EHT category.

iv) The Appellant Railways are availing power at 110 KV directly from the Electricity Board's (R-2) Grid; the Appellant Railways installed their own substations to step down the power from 110 KV to 25 KV. The Electricity Board (R-2) need not have to incur any expenditure in setting up such substations, as in the case of other HT consumers availing power supply at 11/22/33 kV. The transmission and distribution losses at EHT level are minimal. In these circumstances if the Appellant Railways is put in to the EHT consumer category, the tariff for the Appellant Railways will have to go down further.

v) In terms of section 62(3) of the Act, the State Commissions are required to differentiate the consumers and fix the tariff firstly according to the voltage of supply apart from the purpose for which the supply is availed.

vi) The State Commission, after having ignored the provisions of the Tamil Nadu Electricity Distribution Code specifying three distinct categories of the consumers' viz., LT, HT and EHT category, the provisions of Electricity Act, 2003 and National Tariff Policy has arbitrarily derived only two categories based on the voltage viz., LT and HT.

vii) There should have been at least three categories based on the voltage of supply as categorized in Tamil Nadu Electricity Regulatory Commission (Distribution Code) Regulations. As such the contention of the Electricity Board in this regard justifying grouping of all the HT and EHT consumers in to

one group for the purpose of tariff fixation should be rejected.

viii) The State Commission has ignored the Article 287 of the Constitution of India which provides that the PRICE (not the rate) charged for the electricity consumed in the Construction, Maintenance and Operation of Railway should be lesser than that charged on the other bulk consumers.

ix) The State Commission has completely ignored the Government of India directive issued in 1991 to all the State Electricity Boards that the tariff for Railway Traction should not be higher than the tariff for HT Industrial consumers.

x) The tariff philosophy under 2003 Act envisages fixation of tariff depending on the paying capacity of the consumer. Since the Appellant Railway is already in loss, imposition of high cross subsidy burden will further strain the financial position of the Appellant Railway and affect the operation and maintenance activities.

8. The learned counsel for the Electricity Board (R-2) vehemently opposed the contentions of the Appellant and made the following reply on this issue:

i. Reliance by the Appellant on the provisions of the Supply Code or Distribution code relating to classification of consumers on voltage is misplaced. These codes have been framed under Section 46 and Section 50 of the Act specifying the charges to be recovered from the consumers for providing electric line, Standards of Performance and

other distribution related activity of the licensee. The process of tariff fixation is to be regulated by the Tariff Regulations framed by the State Commission under Section 61 of the Act.

ii. In fact the request of the Appellant for separate category has been acceded to by the State Commission and accordingly the Appellant has been placed under a new HT (II) category and has been provided with the concessional tariff by reducing the demand charges Rs 50 per kVA. The demand charges for Railway traction had been fixed at Rs 250 per kVA as against Rs 300 per kVA for other HT Industrial Consumers placed under HT (I) category. Thus it is clear that oft-repeated prayer of the Appellant that it be given a tariff which is lesser than the other industrial consumers has already been extended to them.

iii. All HT consumers in the state are subjected to Regulation & Control measures wherein upto 90% power cut is imposed upon them on peak hour consumption. The Appellant Railways are exempted from such R & C measures. Uninterrupted power supply to Railways reduces availability of power to other categories of consumers and distribution licensee is required to procure expensive power to meet the requirement of uninterrupted power supply of the Appellant.

iv. Further, Time of Day (ToD) tariff for HT consumers has been in vogue in the state. Under this scheme of tariff, consumers are liable to pay 25% higher charges for consumption of power during peak hours and get a rebate of 5% during off-

peak hours. The Appellant Railways is also exempted from this Time of Day tariff and gets supply at normal rate for usage of power through out the day. Thus, the Appellant is not only enjoying the lower tariff as compared to the other HT consumers but, also enjoying the uninterrupted power supply at normal rate.

9. In the light of the above rival contentions, the following questions may arise for consideration in respect of the first issue:

i. Whether the State Commission has violated the provisions of Article 287 of the Constitution of India?

ii. Whether directive issued by Ministry of Power, Government of India in 1991 are binding on the State Commissions constituted under Electricity Act 2003? Also whether the Appellant is entitled for concessional tariff by virtue of it being a public utility?

iii. Whether the provisions of the Distribution Code and the Supply Code relating to voltage wise classification of consumers is binding in tariff determination by the State Commission?

iv. Whether the special category created by the State Commission for the Appellant is sufficient to offset the investments made by the Appellant in taking the supply at EHT level or further rebate in energy charges would also be necessary?

10. We have heard the Learned Senior Counsel for the Appellant and learned counsel for both the Respondents. We have also carefully

considered their respective submissions. Let us now deal with the questions framed above one by one.

11. The first question for our consideration as to **whether the State Commission has violated the provisions of Article 287 of the Constitution of India?**

12. The Appellant has relied upon Article 287 of the Constitution of India and argued the State Commission and the Electricity Board have totally ignored the provisions of this Article. He further argued that the letter and sprit of the Article is that the PRICE (not the rate) charged for the electricity consumed in the Construction, Maintenance and Operation of Railway should be less than that charged to other consumers of substantial quantity.

13. The learned counsel for the State Commission contends that Article 287 of the Constitution of India deals with exemption of tax on consumption of electricity. The issue of levying tax on the consumption or sale of electricity comes under the jurisdiction of the State Government. With regard to levy of charges higher than similar category of consumers of substantial consumption, it is stated that the tariff for Railway Traction is less than that of the HT Industrial consumer.

14. The Appellant has relied upon Article 287 of the Constitution of India which, as per the Appellant, advocates for lower tariff for Railways compared to other HT consumers. In order to appreciate this submission of the Appellant we need to set out Article 287 which reads as under:

"Article 287:

> ***Exemption from taxes on electricity.*** *Save in so far as Parliament may by law otherwise provide, no law of State shall impose, or authorize the imposition of, a tax on the consumption or sale of electricity (whether produced by Government or other persons) which is-*
>
> *(I) consumed by the Government of India, or sold to the Government of India for consumption by that Government; or*
>
> *(II) consumer in the construction, maintenance or operation of any railway by the Government of India or railway company operating that railway, or sold to that Government or any such railway company for consumption in the construction, maintenance or operation of any railway. and any such law imposing, or authorizing, or authorizing the imposition of, a tax on the sale of electricity shall secure that the price of electricity sold to the Government of India for consumption by that Government, or to any such railway company as aforesaid for consumption in the construction, maintenance or operation of any railway, shall be less by the amount of the tax than the price charged to other consumers of a substantial quantity or electricity."*

15. The perusal of the Article 287 would show that the contention of the Appellant is misconceived for the following reasons:

i. Article 287 bars any State Government to impose tax on the consumption of electricity by the Railways. The Tariff determined by the State Commission is in accordance with Electricity Act 2003 which is a Central Act passed by the Parliament.

ii. The last portion of the Article 287 provides that where the retail tariff includes any tax imposed by the State Government, the tariff for the Railways would be lesser by an amount equal to such tax.

iii. The Impugned Order determining the tariff for all categories of consumers did not have any component of any tax imposed by the State Government.

iv. The Article 287 does not deal with tariff much less with the plea of the Appellant that it provides for lower tariff for Railways as compared to other HT consumers.

16. Accordingly, the question is decided as against the Appellant.

17. Second question for our consideration as to **whether directive issued by Ministry of Power, Government of India in 1991 is binding on the State Commissions constituted under Electricity Act, 2003. Also whether the Appellant is entitled for concessional tariff by virtue of it being a public utility?**

18. This question has already been dealt with by this Tribunal in Appeal No. 11 of 2011 and had been decided against the Appellant. The relevant portion of judgment in Appeal no. 11 of 2011 is reproduced below:

> *"43. A comprehensive treatment is called for to conveniently address the issues. Having read the contents of the memorandum of appeal of the Northern Railways it appears that the grounds are more generic than are based on specifics and the appeal raises a fundamental question whether the appellant, definitely a public utility directly under the control of the Government of India, deserves to be specially treated in view of the circular of the Ministry of Energy dated 1st of May, 2001(sic 1991) and the recommendation of the Public Accounts Committee. That the appellant caters to the needs of the general public, that it contributes to the growth of the economy of the nation, that it is not necessarily a commercial institution, that it has its own network and transmission lines , that it is not responsible for transmission and distribution losses which can be attributed*

to other consumers, that it receives electrical energy at high voltages to the advantage of the distribution companies fail to carry much force firstly because with the advent of economic reforms said to have been initiated by the Government in the early nineties the concept of what should be the attitude of the public utilities in its service to the society has definitely undergone a change and the appellant cannot any longer say that since it serves the people without any profit motive it requires special treatment from the respondents nos. 2 and 3 because to say so is to forget that the respondent no. 2 & 3 are equally Government companies and they are right when they say that they are also equally public utilities and they cannot be asked to run on non-commercial principles, for to do so is to wind up their concerns. It is for the appellant to lay down its own policy, but the circular emphasized upon in the memorandum of appeal was dated much prior to the reforms in the electricity sector and similarly the recommendation of the Public Accounts Committee extracted in one sentence out of context has to be read in the context of the totalities of the factuality presented therein which we do not know. What is, important, therefore, is the law, and we are called upon to examine whether the facts have been appropriately appreciated by the State Commission and the law as it now stands has been properly applied."

19. It is settled law as laid down by this Tribunal as well as by the Hon'ble Supreme Court that even the policy directions issued under section 108 of the Act relating to fixation of tariff are not binding on the State Commission and the powers of State Commission in the matter of determination of tariff cannot curtailed. Thus, the direction contained in Ministry of Power's letter dated May 1991 cannot be held to be binding on the State Commission so far as determination of tariff is concerned.

20. Accordingly, this question is also answered as against the Appellant.

21. Third question for us to deliberate upon is as to **whether the provisions of the Distribution Code and the Supply Code relating to voltage wise classification of consumers is binding on the State Commission in tariff determination?**

22. On this issue the learned Senior Counsel for the Appellant has made the following submissions:

i. The State Commission has Classified the consumer categories in Chapter 6 of Terms and condition for supply of Electricity (Tamil Nadu Electricity Distribution Code) which reads as under:

> ***Regulation 25: System of Supply***
> ***The Licensee's declared voltage of supply will be generally as follows:***
> ***(a)Low Tension Supply***
> *Single phase 240 volts, 50 Hz A.C between phase and neutral.*
> *Three-phase 415 volts 50 Hz A.C between phases.*
> ***(b)High Tension Supply***
> *Three-phase 50 Hz A.C, 11,000 volts, or 22,000 volts and 33,000 volts between phases whichever is available.*
> ***(c) Extra High Tension Supply***
> *Alternating current - 50 Hertz Three- phase 66,000 volts, 110,000 volts and 230,000 volts between phases whichever is available.*

ii. As per the Regulation 25 of the terms and condition for supply of Electricity under Distribution Code, reproduced above, the Appellant Railways should have been put in to Extra High Tension Supply Category as the power is supplied to Southern Railways at 110KV, whereas power is supplied to HT industries at 11 KV, 22 KV or 33 KV which put them into High Tension Supply category. Thus the category

of Southern Railways is entirely different from HT industries and thereby Southern Railways should be placed in the EHT category.

iii. Even though a separate category for Railway Traction (HT – 1B) has been introduced by the State Commission in the impugned order but again the Railways have been clubbed along with other HT category consumers which is illegal since Railways need to be put as a separate category under EHT category and their case for computation of tariff should have been decided accordingly.

iv. Although the Categories of Supply and Categories of consumers are defined only in the Supply Code and Distribution Code and not in Tariff Regulation but Section 2 of the Tamil Nadu Electricity Regulatory Commission Tariff Regulations also provides that;

"*Words or expressions occurring in these Regulations and not defined herein but defined in other Regulations published by the Commission or the Electricity Act 2003 shall bear the same meaning respectively assigned to the terms in the Act / Regulation*"

v. Accordingly the expressions "Consumer category" and Voltage Category" used in the Tariff Regulations would get definitions from the Supply Code and Distribution Codes , as such reliance on Supply Code and Distribution Code by this Appellant for categorization of consumers is justified.

vi. As a matter of fact that the State Commission itself, in its latest tariff order determining the ARR and retail tariff for the

year 2012-13 being Tariff Order No.1 of 2012 dated 30.03.2012, has relied upon the categorizations made in the Supply Code and Distribution Code, which fortifies the submission of the Appellant.

23. Reliance by the Appellant on the classification of consumer category as per the provisions of Distribution Code or Supply Code is wholly untenable. While these codes have been framed by the State Commission under Section 46 and Section 50 contained in part VI of the 2003 Act related to Distribution of Electricity, the Tariff is determined by the State Commission under Section 62 in accordance with the Tariff Regulations framed by the State Commission under Section 61 contained in Part VII of the Electricity Act.

24. It is to be noted that Section 181 of the 2003 Act empowers the State Commissions to frame Regulations to carry out the provisions of the Act. Section 181 of the Act is reproduced below:

> ***181. Powers of State Commissions to make regulations.***—*(1) The State Commissions may, by notification, make regulations consistent with this Act and the rules generally to carry out the provisions of this Act.*
> *(2) In particular and without prejudice to the generality of the power contained in sub-section (1), such regulations may provide for all or any of the following matters, namely:—*
>
> *(a) period to be specified under the first proviso of section 14;*
> *(b) the form and the manner of application under sub-section (1) of section 15;*
> *(c) the manner and particulars of application for licence to be published under sub-section (2) of section 15;*
> *(d) the conditions of licence under section 16;*
> *(e) the manner and particulars of notice under clause (a) of sub-section (2) of section 18;*

(f) publication of the alterations or amendments to be made in the licence under clause (c) of sub-section (2) of section 18;

(g) levy and collection of fees and charges from generating companies or licensees under sub-section (3) of section 32;

(h) rates, charges and the terms and conditions in respect of intervening transmission facilities under proviso to section 36;

(i) payment of the transmission charges and a surcharge under sub-clause (ii) of clause (d) of sub-section (2) of section 39;

(j) reduction of surcharge and cross subsidies under second proviso to sub-clause (ii) of clause (d) of sub-section (2) of section 39;

(k) manner and utilisation of payment of surcharge under the fourth proviso to sub-clause (ii) of clause (d) of sub-section (2) of section 39;

(l) payment of the transmission charges and a surcharge under sub-clause (ii) of clause (c) of section 40;

(m) reduction of surcharge and cross subsidies under second proviso to sub-clause (ii) of clause (c) of section 40;

(n) the manner of payment of surcharge under the fourth proviso to sub-clause (ii) of clause (c) of section 40;

(o) proportion of revenues from other business to be utilised for reducing the transmission and wheeling charges under proviso to section 41;

(p) reduction of surcharge and cross-subsidies under the third proviso to sub-section (2) of section 42;

(q) payment of additional charges on charges of wheeling under sub-section (4) of section 42;

(r) guidelines under sub-section (5) of section 42;

(s) the time and manner for settlement of grievances under sub-section (7) of section 42;

(t) the period to be specified by the State Commission for the purposes specified under sub-section (1) of section 43;

(u) methods and principles by which charges for electricity shall be fixed under sub-section (2) of section 45;

(v) reasonable security payable to the distribution licensee under sub-section (1) of section 47;

(w) payment of interest on security under sub-section (4) of section 47;

(x) ***electricity supply code under section 50;***

(y) the proportion of revenues from other business to be utilised for reducing wheeling charges under proviso to section 51;

(z) duties of electricity trader under sub-section (2) of section 52;

(za) ***standards of performance of a licensee or a class of licensees under sub-section (1) of section 57;***

(zb) the period within which information to be furnished by the licensee under sub-section (1) of section 59;

(zc) ***the manner of reduction of cross-subsidies under clause (g) of section 61;***

(zd) the terms and conditions for determination of tariff under section 61;

(ze) details to be furnished by licensee or generating company under sub-section (2) of section 62;

(zf) the methodologies and procedures for calculating the expected revenue from tariff and charges under sub-section (5) of section 62;

(zg) the manner of making an application before the State Commission and the fee payable therefor under sub-section (1) of section 64;

(zh) issue of tariff order with modifications or conditions under sub-section (3) of section 64;

(zi) the manner by which development of market in power including trading specified under section 66;

(zj) the powers and duties of the Secretary of the State Commission under sub-section (1) of section 91;

(zk) the terms and conditions of service of the secretary, officers and other employees of the State Commission under sub-section (2) of section 91;

(zl) rules of procedure for transaction of business under sub-section (1) of section 92;

(zm) minimum information to be maintained by a licensee or the generating company and the manner of such information to be maintained under sub-section (8) of section 128;

(zn) the manner of service and publication of notice under section 130;

(zo) the form of preferring the appeal and the manner in which such form shall be verified and the fee for preferring the appeal under sub-section (1) of section 127;

(zp) any other matter which is to be, or may be, specified.

(3) All regulations made by the State Commission under this Act shall be subject to the condition of previous publication.

25. The reading of the above section makes it clear that every Regulation framed by the State Commission under the 2003 Act is to carry out various functions assigned to it by the Act and to meet specific objective and purpose of the Act.

26. The Distribution Code has been framed under Section 46 of the Act which read as under:

> ***46. Power to recover expenditure.—****The State Commission may, by regulations, authorise a distribution licensee to charge from a person requiring a supply of electricity in pursuance of section 43 any expenses reasonably incurred in providing any electric line or electrical plant used for the purpose of giving that supply.*

27. Accordingly, the State Commission has framed the Distribution code specifying, inter alia, the charges to be recovered from the consumers in providing electric line or plant for the purpose of giving supply. The preamble of the Distribution Code would clarify the purpose of passing the Distribution Code Regulations and is quoted below:

"Tamil Nadu Electricity Regulatory Commission

TAMIL NADU ELECTRICITY DISTRIBUTION CODE

Notification No. Tamil Nadu Electricity Regulatory Commission / DC / 8 / 1, Dated 21-07-2004

WHEREAS under section 86 of the Electricity Act, 2003 (Central Act 36 of 2003), the State Electricity Regulatory Commission shall, among others, specify or enforce standards with respect to quality, continuity and reliability of service by licensees;

AND WHEREAS section 46 of the said Act, the State Electricity Regulatory Commission may, by regulations, authorize a distribution licensee to charge from a person requiring a supply of electricity any expenses reasonably incurred in providing any electric line or electrical plant used for the purpose of giving that supply;

NOW, THEREFORE under the powers conferred by the said sections and all other powers enabling in that behalf and after previous publication, the Tamil Nadu Electricity Regulatory Commission hereby specifies the following Code."

28. From the above, it is clear that the purpose of classification of consumers according to voltage in the Distribution Code is to recover charges for provision of supply line and electric plant. It cannot be denied that the cost of supply line at different voltages would necessarily be different and this code specifies the same.

29. Further examination of Distribution Code would disclose that the term "EHT consumer" has been referred to only in clauses 8(4) and 51(g) of the Distribution Code. Clause 8 deals with the Distribution Systems protection arrangement and sub-clause 4 requires the EHT consumers to attend the protection committee meetings. Clause 51 deals with appointment of Code Review Panel and sub-clause (g) nominates one of the EHT/HT consumers as member of such panel.

30. Now let us deal with the Supply Code. The Supply Code has been framed by the State Commission under Section 50 read with Section 181 (x) of the 2003 Act. Section 50 of Act is quoted below:

> ***50. The Electricity Supply Code.—****The State Commission shall specify an Electricity Supply Code to provide for recovery of electricity charges, intervals for billing of electricity charges, disconnection of supply of electricity for non-payment thereof, restoration of supply of electricity, measures for preventing tampering, distress or damage to electrical plant or electrical line or meter, entry of distribution licensee or any person acting on his behalf for disconnecting supply and removing the meter, entry for replacing, altering or maintaining electric lines or electrical plants or meter and such other matters.*

31. The State Commission has framed the Supply Code in accordance with this section and the preamble of Tamil Nadu Electricity Supply Code reads as under:

> *"WHEREAS under the Electricity Act, 2003 (Central Act 36 of 2003) the State Electricity Regulatory Commission shall specify an Electricity Supply Code to provide for recovery of electricity charges, intervals for billing of electricity charges, disconnection of supply of electricity for non-payment thereof, restoration of supply, tampering, distress or damage to electrical plant, electric lines or meter, entry of distribution Licensee or any person acting on his behalf for disconnecting supply and removing the meter, entry for replacing, altering or maintaining electric lines or electrical plant or meter;"*

32. The Supply Code provides for LT, HT and EHT categories specifically to effect supply at specified voltage based on the sanctioned demand of the consumer, so as to take care of the current carrying capacity of the line etc. The rated voltage at which the supply has to be effected and the sanctioned demand as approved by the Commission. Thus, the EHT categorization in

Supply Code has been done for technical reasons and not for tariff setting purpose which is governed only by the Tariff Regulation of the Commission.

33. Interestingly, explanation to Regulation 4 of the Supply Code explicitly provides that any reference to HT Consumer shall be deemed to include a reference to the expression 'EHT' consumer also.

> *"**(4) Belated payment surcharge (BPSC)***
> *…*
> *Explanation: In this regulation and **other regulations of this code,** the reference to the expression 'HT Consumer' shall be deemed to include a reference to the expression 'EHT consumer' also"*

34. From the above it is clear that the reliance by the Appellant of Distribution Code and Supply Code is misplaced. These codes have been framed by the State Commission for some specific purposes and the provisions of these codes cannot be applied for determination of tariff which to be done under section 62 in accordance with the Tariff Regulations framed by the State Commission under Section 61 of the Act.

35. Lastly, the submission made on behalf of the Appellant that the State Commission itself has relied upon the provisions of the Distribution Code and Supply Code in its latest Tariff Order for the Year 2012-13 is also misconceived. In Para 10.1.1 under the heading "categories of supply" of this tariff order, the State Commission has only mentioned that the categories of supply are as specified in the Commission's Distribution Code and Supply Code. The State Commission has further clarified that the HT tariffs specified for different categories of HT consumers are also

applicable to the consumers who are supplied at EHT level in accordance with Supply Code and Distribution Code.

36. The question is, therefore, answered against the Appellant.

37. Finally the fourth question for consideration is as to **whether the special category created by the State Commission for the Appellant is sufficient to offset the investments made by the Appellant in taking the supply at EHT level or further rebate in energy charges would also be necessary?**

38. The learned Senior Counsel for the Appellant vehemently made the following contentions in support of special dispensation to the railways:

i. The Appellant Railway is availing power supply at 110 KV for Railway traction from the Respondent's Grid Substations at 110 kV through 110 kV feeders to the Appellant's own 110/25 kV substations and stepped down to 25 kV and distributed over the Railway track through Railway owned 25 kV distribution network. The entire cost of 110 kV feeders from the Respondent's grid substations to the Appellant's premises and the cost of 110/25 kV substations has been borne by the Appellant.

ii. The Respondent Electricity Board has not incurred any expense in distribution of power into different level within Railway or in stepping down from 110 kV to 25 kV.

iii. In the present case the demand charges in respect of other HT consumers are bound to be higher that the Railway Traction as the power supplied to the HT industries are at

different lower voltage levels such as 11KV, 22KV, 33KV for which Respondent Board had to incur expenditure in setting up 110/33/22/11 kV substations, transformers, long 33/22/11 kV sub-transmission lines or underground cables, recruitment of man power to maintain these substation, cables, sub-transmission lines etc., to step down power as per the requirement of the HT industries. It is thereby because of such huge expenditure incurred by the Electricity Board, the Demand Charges in respect of HT category comes out to be higher than that of EHT category. Whereas in case of Southern Railway no such set up is required to be set up by Electricity Board

iv. If the Appellant Southern Railways is put into the EHT category, the Energy Charges will also be less than that for HT category as distribution losses are negligible while power is supplied to Southern Railways directly from the Grid, than compared to that for HT category. Distribution losses are losses which arise when the power is stepped down from 110 kV to 33/22/11 kV, where Electricity Board incurs energy loss in transformation from 110 kV to the lower voltages of 11/22/33 kV and also in the long 11/22/33 kV distribution lines from the Electricity Board substation to the consumer premises. These losses occur only in the case of HT and LT category.

v. Merely creating a category called Railway Traction, without relating to the Voltage of supply at 110 kV, and levying energy charges equivalent to 11 kV consumers is against the tariff setting principles laid down in section 62(3) of the

2003 Act. The energy charges need to be brought down at least by the amount of reduction in energy loss at 110 kV level compared to 11 kV level.

vi. Some of the State Commissions Viz., Chhattisgarh Electricity Regulatory Commission and Kerala State Electricity Regulatory Commission have considered Railway Traction in EHT category of consumers.

vii. In the case of other states even though a separate EHT category has not been created, yet a perusal of the demand and energy charges determined in the case of consumers consuming electricity at extra high tension voltages would show that in those cases the demand and energy charges are lower than those of the consumers consuming electricity at lower voltages. This fortifies the point raised by the Appellant that demand and electricity charges are directly proportional /related to the voltages at which electricity is consumed.

39. Per contra, the learned counsel for the State Commission made the following contentions refuting the arguments of the Appellant:

i. Apart from the Appellant Railways, there are around 135 consumers connected at 110 kV or above in Tamil Nadu Grid. All these EHT consumers have also been categorized under HT tariff only for tariff determination purpose.

ii. The State Commission has reduced the demand charges for the Appellant from Rs.300 per KVA to Rs.250 per KVA in the impugned Tariff Order dated 31-07-2010. Thus, while the

energy charges for both HT Consumers and Railways are same at Rs.4 per unit, the appellant enjoys a reduction of Rs.50/- per KVA in demand charges as compared to all other HT consumers including those HT consumers who are drawing power from the Respondent Board's Grid at 110 kV or above.

iii. The oft-repeated prayer of the Appellant that it be given a tariff which is lesser than the other consumers such as industrial consumer is already extended to them. As already mentioned, there are around 135 consumers connected at EHT voltages in Tamil Nadu Grid. Like the Appellant Railways, all these consumers have setup 110/33 kV Sub-stations at their own cost. All these EHT consumers have also been categorized under HT tariff with demand charges fixed at Rs 300 per kVA as against Rs 250 per kVA for the Appellant Railways.

iv. All HT consumers in the state, except the Appellant, are subjected to Regulation & Control measures under which they are subjected to power cut around 30% during normal hours and up to 90% power cut on peak hours. The Appellant is not subject to such R & C measures and is enjoying uninterrupted power supply on 24 X 7 basis i.e. on round the clock round the year basis. Thus, the Appellant is not only enjoying the lower tariff as compared to as other HT consumers but, they are also enjoying the uninterrupted power supply.

v. Further, Time of the Day tariff has been in vogue in the State. Under this scheme all HT consumers are required to pay a surcharge of 25% on energy consumption during peak hours (6 am to 9 am and 5 pm to 9 pm) and are entitled for rebate of 5% on power consumption during off peak hours. The Appellant Railways are exempted from ToD Tariff.

vi. Thus, the Appellant is getting uninterrupted power supply at lesser demand charges and without Time of the Day tariff. Therefore, the contention of the appellant is wholly untenable.

vii. The Impugned Tariff order No. 3 of 2010 is perfectly valid more particularly in view of the fact that the increase in tariff from Rs. 3.50 per unit to Rs. 4 per unit is very minimal considering the fact the tariff revision has been taken up after a gap of seven years since the passing of the previous tariff order issued in 2003. It is neither fair nor equitable on the part of appellant to seek to maintain the same rate of tariff even after a period of seven years when some other categories of consumers are bearing the brunt of tariff increase.

viii. Barring the two states like Chhatisgarh and Kerala all the other states in the country have also categorized the Railways under HT tariff only.

40. In view of the fact that the Appellant Railways has been raising this issue in their other Appeals, it is desirable to examine this issue in detail and settle the matter once for all.

41. The plea of the Appellant is that it is drawing power at 110 kV from the Electricity Board's grid by laying 110 kV line and 110/25 kV substation at its own cost and therefore, it is entitled for lesser demand charges. This is untenable for the reason that under Section 46 of the 2003 Act, the licensee is entitled to recover expenditure incurred in providing the electric line and electric plant for giving supply to any consumer under section 43 of the Act. The Electricity Board is charging the cost of service line even from a domestic LT consumer. Other 135 EHT consumers taking supply at 110 kV or above also provide the cost of these facilities. The Appellant Railways was required to pay such charges even in case it preferred to take supply at 33 kV or 11 kV. In such a case the Appellant Railways was also required to provide 33/25 kV or 11/25 kV substation as the traction is at 25 kV. So there is nothing exceptional for the Appellant Railways in providing the cost of 110 kV lines and 110/25 kV Substation at their own cost.

42. Drawal of power at 110 kV or above for consumers with heavy power demand is technical requirement. Theoretically, any load can be met even at 400 volts. However, that would require large number of circuits depending upon the power requirement. Managing large number of parallel circuits would be techno-economically unviable and unpractical. Accordingly, the State Commission has fixed the voltage levels for drawal of power. Undoubtedly, drawal of power at EHT level would result in lesser distribution losses, the same would be true for other EHT consumers also.

43. Now let us examine the impact of lower demand charges for the Appellant. Even according to the Appellant, its load factor is

around 35%. The demand charges for the Appellant Railways have been fixed at Rs 250 per kVA. Demand charges for other HT consumers including EHT consumers have been fixed at Rs 300 per kVA. The energy charges for both categories have been fixed at Rs 400 per unit. Effective tariff at demand charges of Rs 250 per kVA and Rs 300 per kVA works out as given in table below:

Demand Charge	Energy Charge	Effective Tariff at 35% Load factor and 0.9 PF
Rs 250 per kVA	Rs 4.00 per unit	Rs 5.09 per unit
Rs 300 per kVA	Rs 4.00 per unit	Rs 5.30 per unit

44. From the above, it is seen that the effective tariff for Respondent is lower by 21 paise per unit on account of lower demand charges which amounts to about 4% rebate. In addition the Appellant Railways has not been subjected to Time of the Day tariff.

45. Let us examine the impact of exemption from the Time of Day tariff in monitory terms. For doing so, we have to make some assumptions in the absence of data for consumption in different time slots. The learned senior counsel for the Appellant has acknowledged that the consumption of the Appellant during peak hours would be higher than the other hours as railways has to run more number of locals during rush hours which coincides with the peak hour. Let us assume that consumption of Appellant during peak hours is 40%, during normal hours consumption is 35% and during off peak hours, when local trains are restricted, it is 25%. With this pattern of consumption the average energy charges that would have been payable by the Appellant under Time of Day tariff would work out to be Rs 4.35 per unit. With uniform consumption

throughout the day, the average energy charges with Time of Day tariff in force would be around Rs 4.30 per unit. This exercise would reveal that the benefit of exemption from Time of Day tariff is not meagre.

46. In addition, the Appellant Railways is not being subjected to power cuts which are imposed on other similarly placed HT consumers. These power cuts are around 30% during normal hours and up to 90% during peak hours. The benefit to the Appellant Railways by way of exemption in power cuts cannot be measured in monitory terms, but undoubtedly it is huge.

47. This Tribunal in Appeal no.79 of 2005 has held that *"It needs to be pointed out that the Railways require uninterrupted power supply and such uninterrupted power supply reduces the available quantity of energy to various other categories of consumers. Ensuring uninterrupted power supply by the respondent Nos 2 to 6 is a factor which places the Railways in a different category than other consumers. Therefore, the Railways cannot complain of discriminatory treatment in the matter of fixation of tariff for the railway traction."*

48. The Appellant has claimed that the State Commission ought to have determined the tariff in accordance Section 62(3) of the Act. In order to appreciate the submission of the Appellant, we need to set out Section 62(3) of the Act.

> "62 (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."

49. Perusal of this section would indicate that while the State Commission is debarred from showing undue preference to any consumer, it is left to the discretion of the State Commission to differentiate between tariffs of the consumers based on various factors. While first part of the section is made mandatory through use of 'shall', later part is discretionary by use of 'may'. The Commission has not differentiated the tariffs on the basis of load factor, voltage, total consumption of electricity during any period or the geographical position of any area. The Commission has chosen to differentiate only on the basis of power factor, Time of Day and for the purpose of which the supply is required. Hence, we cannot find fault with the differentiation adopted by the State Commission for determining the tariff for various categories of consumers.

50. The question is accordingly answered as against the Appellant. Thus, all the questions in regard to the first issue have been decided against the Appellant.

51. The second issue for our consideration is related to **fixation of the cross subsidy with respect to the cost of supply at respective voltage of supply and to reduce the cross subsidy burden on the railways.**

52. The Appellant has contended that the Electricity Act, 2003 and Tariff Policy stipulates that the State Commissions shall fix the tariff reflecting the cost of supply and cross subsidy shall be gradually reduced. Thus, the State Commission ought to have

fixed the tariff of various categories of consumers reflecting cost of supply at respective voltage of supply and to reduce the cross subsidy. This Tribunal has addressed this issue in Appeal No.192 & 206 of 2010 against the impugned tariff order and the same was remanded back to the State Commission with the direction to determine voltage wise cost of supply and cross subsidy in future cases. The Appellant submitted that the impugned order should have been remanded back with the direction to determine the voltage wise cost of supply and cross subsidy for the relevant financial year also.

53. The learned counsel for the State Commission refuted the above contention of the Appellant and made the following submissions:

a. The Board (R-2) has adhered to the Tariff Policy guidelines of reducing the cross subsidy for all categories of consumers. A comparative statement given below would show the cross subsidy for the subsidizing categories had been reduced substantially in the impugned order as compared to the tariff determined in the last tariff order for the year from 2003-04.

Category	Cross subsidy in year	
	2003-04	2010-11
Commercial (LT)	110.27%	41.38%
Commercial (HT)	114.42%	46.61%
Industries (LT)	54.69%	2.90%
Industries (HT)	54.34%	3.95%

b. It is be noted that the Appellant Railways had been categorized under the Industries (HT) category in the last

tariff order for the year 2003-04. The cross subsidy of this category has decreased from 54.34% to 3.95%.

c. The average cost of supply for the year 2010-11 works out to be Rs. 4.78 per unit. As per the National Tariff Policy, the cross-subsidy surcharge should be brought down progressively and, as far as possible, at a linear rate to a maximum of 20% of its opening level by the year 2010-11. The cross subsidy for the appellant is well within the 20%.

54. We have heard the Learned Counsels for the parties and carefully considered the provisions of the 2003 Act and Tariff Policy. In view of the rival contentions referred to above urged by the learned counsel for parties, following questions would arise for consideration on this issue:

i. Whether the State Commission has violated the provisions of the Act by not determining voltage wise cost of supply and by reducing cross subsidy?

ii. Whether the State Commission has determined the tariff of the Appellant in accordance with the provisions of Tariff Policy related to reduction of cross subsidy?

55. The Appellant, in this Appeal has stated that the State Commission has not followed the guidelines laid down in the Section 61 of the 2003 Act and principles laid down by the Tariff Policy issued by the Government of India in accordance with Section 3 of the 2003 Act. It has further stated that Section 61(g) of 2003 Act requires the State Commissions, while fixing tariff, shall ensure that the tariff progressively, reflects the cost of supply of electricity, and also, reduces cross-subsidies within the specified period. Further,

Section 61(i) of the Act mandates the State Commission to be guided by the National Electricity Policy and Tariff Policy. In this context it would be desirable to refer to Section 61 of the Act which reads 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) 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 cross-subsidies within the period to be specified by the Appropriate Commission;
>
> (h)…;
>
> (i) the National Electricity Policy and tariff policy:
>
> …

56. Bare reading of Section 61 would elucidate that the State Commissions have been mandated to frame Regulations for fixing tariff under Section 62 of the Act and while doing so i.e. while framing such regulations, State Commissions are required to be guided by National Electricity Policy, Tariff Policy etc. It also provide that while framing the Regulations the State Commissions shall ensure that generation, transmission and distribution are conducted on commercial principles; the tariff reflects the cost of

service and cross subsidies are reduced progressively; factors which would encourage competition and safeguard consumer's interest. Once the State Commission has framed and notified the requisite Regulations after meeting the requirement of prior publication under Section 181(3), it is bound by such Regulations while fixing Tariff under Section 62 of the Act.

57. Keeping in view of the above, we shall now deal with each of the two questions framed above. First question is as to **whether the State Commission has violated the provisions of the Act by not determining voltage wise cost of supply and by reducing cross subsidy**?

58. The State Commission had framed the Tamil Nadu Electricity Regulatory Commission (Terms and Conditions for determination of tariff) Regulations, 2005 in accordance with Section 61 of the 2003 Act. Regulations 4 of these regulations lays down the tariff setting principles including that the tariff shall reflect the cost of supply and cross subsidies shall be reduced progressively.

59. Admittedly, the State Commission did not determine the voltage wise cost of supply in the impugned order. It may be mentioned that this issue with regard to cost to serve was under consideration before this Tribunal in another appeal being Appeal no 192 & 206 of 2010 arising out of same impugned order dated 31.7. 2010 and this Tribunal has by its judgment dated 28.7.2011 remanded the issue with regard to cost to serve by directing as under:-

> *"…13.4. The fourth issue is regarding cost to serve each category of consumer.* ***We have noticed that the State Commission has not determined the cost of supply according to its Regulations as also the variation in tariff***

> ***of different categories of consumers with reference to average cost of supply. In the absence of this information, we are not able to verify that the tariff of categories of consumers is within ± 20% of the average cost of supply and whether the cross subsidy has been reduced or increased with respect to the previous year.*** *…* ***Accordingly, the State Commission is directed to determine the voltage wise cost of supply within six months from the date of this Judgment to ensure that in the future tariff orders cross subsidies for different categories of consumers are determined according to the Regulations and the cross subsidies are reduced as per the provisions of the Act.*** *The State Commission is also directed to determine the variation of tariff of different categories of consumers with respect to average cost of supply and provide consequential relief, if any, to the appellant's consumer category in terms with our findings after hearing all concerned."*

60. The grievance of the Appellant with regard to this issue is limited to the extent that this Tribunal has directed the State Commission to ensure that in future tariff orders cross subsidies for different categories of consumers are reduced as per provisions of the Act. The Appellant has submitted that this direction should have been given for the year 2010-11 also.

61. Determination of voltage wise cost of supply alone would not serve any purpose unless it is shown that cross subsidies has also been reduced. In this context it is to be noted that the last tariff order was passed by the State Commission on 16.3.2003 i.e. prior to enactment of the Electricity Act 2003, as such the provisions of the 2003 Act relating to determination of voltage wise cost of supply and cross subsidy cannot be applied to the tariff order dated 16.3.2003. Accordingly, it would not be possible to verify as to whether the cross subsidy in terms of cost of supply has been reduced in the impugned tariff order dated 31.7.2010 or not. Thus,

the essential requirement laid down in section 61(g) of the Act in regard to tariff being progressively reflecting the cost of supply and also reduction of cross subsidy could be verified only after the next tariff order is passed by the State Commission.

62. Next question for consideration on this issue is as to **whether the State Commission has determined the tariff of the Appellant in accordance with the provisions of Tariff Policy related to reduction of cross subsidy?**

63. As already noted in para 61 above, the question as to whether cross subsidy has been reduced or not cannot be determined in the absence of earlier tariff order passed under the Act. However, it would be desirable to refer to this Tribunal judgment in Appeal no. 135 of 2010 where in it has been held that *"The Tariff Policy postulates that the category-wise subsidy has to be within ± 20 % of average cost of supply by the end of the year 2010-2011 and not the tariff for each and every consumer that is to say, if the tariff for subsidizing category is already within 120% of the cost of supply, the cross subsidy must not be increased beyond that point, and may or may not be reduced further.*"

64. The Respondent has submitted that approved average cost of supply during the year 2010-11 was Rs 4.78 per unit. The effective tariff for the Appellant Railways has been worked out to be Rs 5.09 per unit. Thus the cross subsidy by the Appellant Railways would be Rs 0.31 per unit or 6% only.

65. In the light of above decision of this Tribunal whereby the cross subsidy payable by the Appellant Railways has already been reduced to 6% of average cost of supply i.e. well within prescribed

limit of ± 20 % by the year 2010-11, we are of the view that the tariff for railways meet the essential requirement laid down in the Act.

66. Thus issue is accordingly decided against the Appellant.

67. The last issue before us is related **to the tariff conditions in respect of computing billing power factor in lag only metering instead of Lag + Lead metering.**

68. During the hearings of this Appeal, the learned Sr. Counsel for the Appellant himself admitted that the issue has been fully covered by the judgment of this Tribunal in Appeal no. 122 of 2010. However, in the written submissions, the Appellant has once again raised the issue relating to lead + lag metering. Therefore, it has become imperative to readdress this issue on each of the grounds raised by the Appellant in its written submissions. The grounds raised in support of its contentions are mostly similar to the grounds raised in Appeal no. 122 of 2010. The Appellant has raised the following contentions in the written submissions:

a. It is the fundamental legal principle that “Lex Non Cogit Ad Impossibilia” that is “The law does not compel a man to do that which is impossible”. Whereas in the case of Railway Traction, though the State Commission is aware that the stipulation to provide automatic reactive power compensation at Railway Traction substation is resulting in huge amount of energy loss and not saving anything as being contended by the Respondent Electricity Board, has overlooked and ignored the plea of the Appellant to withdraw the lag+ lead logic for power factor metering of Railway Traction load. That there is

no scope for reduction in energy losses by using automatic reactive power compensation equipment as far as Railway traction is concerned as the energy loss in the automatic reactive power compensation equipment is 25 times more than the loss that could be saved, assuming no traction load for a whole day and by switching off Capacitor bank for all the 24 hours. But in reality no-load periods are much less and hence the potential for loss reduction by avoiding leading reactive power flow is practically negligible. Hence it is prayed that the law should not impose the impossible and hence the respondent Commission may be directed withdraw the erroneous stipulation of Lag + Lead logic of power factor metering as far as Railway Traction is concerned.

b. The contention of the Electricity Board that "both leading and lagging reactive power is detrimental to the system" is basically wrong as the reactive power exchange has to be weighed related to the voltage at the point of common coupling at the time of exchange and whether it is good or bad cannot be determined independent of the voltage.

c. In all the States across the country, except Tamilnadu and Chhattisgarh, leading reactive power is ignored for calculating billing power factor, not penalised, irrespective of whether the energy charges are based on kWh or kVAh.

d. The Lag + Lead metering was introduced by the Electricity Board stating that "in the pretext of availing high power factor incentive certain consumers have indiscriminately added more capacitors". This is not true in the case of Railway

Traction, as leading reactive power flow occurs only during no-load/light load conditions and not while drawing power. Further there is fundamental change in the circumstances, that State Commission has withdrawn the power factor incentive with effect from 01.08.10 and the very cause of action for introducing Lag + Lead logic of metering has been removed, hence metering of leading power factor is no more necessary, status quo ante to be restored.

69. While refuting the above contentions of the Appellant, the learned counsel for the State Commission submitted that the adoption of Lag + Lead logic of metering have been introduced in the state of Tamil Nadu way back in the year 2005 for all consumers drawing power at Extra High Voltage. He made following submission countering the contentions of the Appellant.

a) The contention of the appellant that there is a linkage between withdrawal of High Power Factor incentive and adoption of Lag + Lead logic and hence the Lag + Lead logic may be dropped is totally incorrect. High power factor incentive was withdrawn by the Commission for very many reasons, inter alia for maintaining high power factor itself is an incentive to the consumer as it leads to stable voltage, reduction of strain to consumer equipments and reduction of current consumption charges to the consumer. Therefore, there is no linkage between withdrawal of High Power Factor incentive and adoption of Lag + Lead logic by the Commission.

b) High reactive power, both due to leading and lagging power factor is injurious to the grid system. It affects the system voltage, capacity and stability. Only for this reason, the Board (R-2) introduced the Lag + Lead logic for power factor measurement and the State Commission approved the same by appropriately amending the Supply Code. Lag + Lead logic for power factor measurement is also followed by many states. Thus the contentions are wholly unsustainable.

c) The Appellant has selectively quoted certain portions of CEA's letter dated 15.6.2001 to suggest that current drawal at leading power factor would not be higher under high voltage conditions. In fact CEA's said letter advocates for controlling power factor, both lagging and leading to bring down the losses to minimum. The relevant portion of the CEA's letter dated 15-06-2001 is reproduced below:

> *"Technically the power drawn by a consumer at unity power factor would be most desirable so that the technical losses are minimised.*
>
> *The current drawal for the same active power would be higher when the load has lagging power factor under low voltage conditions or leading power factor under high voltage conditions. This in the strictest sense the lagging power factor and leading power factor would have to be controlled."*

d) Both leading as well as lagging reactive power injected into the system are detrimental to the grid and the appellant has to improve the power factor as specified in the Commission's Regulations / Codes. Even though, the 110 kV lines are dedicated for the Railways, the drawal/injection of leading reactive power will reflect on the State grid causing voltage

fluctuation, increased line losses, etc. Further the grid is mainly meant for carrying active power and the loss due to carrying active power is inherent characteristics of the network. The grid is meant for only carrying minimal reactive power and hence the loss shall be minimal. As per the Grid Code and other Regulations, it is also the responsibility of the consumer like Railways not to draw / inject reactive power into the grid. Thus the contention of the appellant that the loss due to reactive power is less is of no avail.

70. In view of rival contentions of the parties following questions would arise for consideration on this issue:

i) Whether installation of Dynamic Reactive Power Compensation by the Appellant to control the power factor and to keep it near to unity would result in increase in system losses and, therefore, would be detrimental to the Tamil Nadu power system?

ii) Whether both leading and lagging power factor is detrimental to the grid?

iii) Whether the State Commission is bound by the practices followed by the other State Commissions.

iv) Whether it is appropriate for the State Commission to penalise the Appellant for providing fixed shunt capacitors where as the there is a deficit of shunt compensation in the Tamil Nadu Grid as per Southern regional Power Committee Reports?

71. We shall deal with these questions one by one. The first question for consideration is as to **whether installation of Dynamic Reactive Power Compensation by the Appellant to control the power factor and to keep it near to unity would result in increase in system losses and, therefore, would be detrimental to the Tamil Nadu power system?**

72. Admittedly, this issue has been considered by this Tribunal and held against the Appellant in Appeal No. 122 of 2010. The relevant portion of the judgment in the said appeal read as under:

> *"The Appellant has claimed that installation of DRPC equipment at some of its locations has resulted in increase in system losses. However, the Appellant could not substantiate its claim by any documentary proof of increase in system losses. The statements furnished by the Appellant in support of its claim only show that the energy loss in new DRPC equipment was much higher than the energy loss in existing fixed capacitor banks. Loss in one equipment is entirely different from overall system losses. It is an engineering fact that injection of VAR – inductive or capacitive – results in increased system losses. Further, electrical power system being predominantly inductive in nature, injection of inductive VAR results in low voltages and injection of capacitive VAR causes over voltages. Excessive over Voltages may result in equipment flashover and failure endangering the system stability. In order to keep system losses to minimum and system voltage within permissible limits, it is always advisable to keep power factor close to unity. This fact is endorsed by the data submitted by the 1st Respondent Electricity Board showing the consumption of the Appellant at locations where DRPC equipment has been installed has reduced after installation of DRPC equipment.*
>
> *In view of our above findings, the relief sought for by the Appellant which is neither based on authentic data nor on detailed study cannot be granted. Southern Railway, being the Government concern has to act as a role model by obeying the*

Judgement on statutory obligations. The State Commission has already pointed out that the Southern Railway has enjoyed the benefit of Rs.8,00,00,000 in the form of incentive and escaped from the clutches of penalty for 3 years. Therefore, the Appellant cannot be allowed to challenge the main order passed in MP No.5 of 2006 dated 2.4.2007 in this Appeal especially when the orders passed in M.P. No.5 of 2006 has already attained finality and the fruits of the said order have been enjoyed by the Appellant."

73. The findings of this Tribunal in this Appeal have not been challenged and have, therefore, attained finality. Accordingly, the question is answered against the Appellant.

74. Second question for consideration is as to **whether both leading and lagging power factor is detrimental to the grid**?

75. Undoubtedly, in Alternating Current (AC) systems, for the same load the current is minimum at unity power factor. At any power factor, other than unity, whether leading or lagging, current is bound to be higher. In AC system, the current (I) in a circuit is resolved in to two components viz., active current (I_a) and reactive current (I_r). These two resolved currents (I_a & I_r) are at 90^O to each other. Thus, the current (I), active current (I_a) and reactive current (I_r) forms a right angled triangle with the current (I) as hypotenuse. In geometry, hypotenuse of a right angled triangle is always the longest side. Power loss in system is proportional to square of the current in the system. Thus, losses would always be higher at any power factor other than unity. Accordingly, both leading as well as lagging power factors are required to be controlled to keep losses to the minimum. Again, the power grid is always predominately inductive. So inductive current (lagging current) passing through inductive circuit would result in drop in voltage and conversely

capacitive current (leading current) in inductive circuit would cause rise in voltage. All electrical equipments are designed to withstand particular voltage level and any excess voltage may result in equipment failure and grid safety.

76. It would be pertinent to note that the issue regarding blocking of lead power factor was also raised by another Zonal Railway viz., South East Central Railways before this Tribunal against the order of Chhatisgarh State Commission in Appeal No. 130 of 2005 and the same was decided as against the Appellant. Relevant extract of the judgment in Appeal no. 130 of 2005 is reproduced below:

> ***"(iv) Is there need to block the leading power factor for determining average power factor?***
>
> *(a) The appellant has argued that the concept of kVAh based tariff was agreed only for single part tariff. As the Commission has ordered two part tariff, the appellant is being penalized for the power factor. As the leading power factor is beneficial for the respondent Board, the appellant has pleaded that the leading power factor should be blocked.*
>
> *(b) The respondent Board has submitted that any power factor other than 0.9 leading may result in excessive load current for the same kWh requirement and may thus lead to excessive technical losses. Appellant's demand will tantamount to CSEB suffering the financial loss in terms of excess energy losses at supply network on account of inefficiency of customers load to operate within the prescribed parameters.*
>
> *(c) The respondent Commission in its tariff order has specifically introduced kVAh billing which provides inbuilt incentive for the appellant's category, which will automatically take care of power factor incentive and disincentive for the high and low power factor respectively.*
>
> *(d) In view of the above cited position we hold that there is no reason for us to interfere with the Commission's orders."*

77. In the light of the above, the question is answered as against the Appellant Southern Railway.

78. The third question before us for consideration is as to **whether the State Commission is bound by the practices followed by the other State Commissions?**

79. The contentions of the Appellant Sothern Railways regarding practice adopted by other State Commissions are untenable and liable to be rejected for the reasons that Section 62(3) of the 2003 Act empowers the State Commission to differentiate between the tariffs of various categories of the consumers based on certain parameters including consumer's power factor. Section 62(3) does not put restriction on the State Commission to differentiate the tariffs on lagging power factor only and to ignore the leading power factor. While exercising such powers, the each State Commission has to take in to consideration local conditions and other relevant factors only and the methodologies adopted by other Commissions has no relevance. In the light of above this question is also decided against the Appellant.

80. The fourth question is **whether it is appropriate for the State Commission to penalise the Appellant for providing fixed shunt capacitors where as the there is a deficit of shunt compensation in the Tamil Nadu Grid as per Southern regional Power Committee Reports?**

81. The Appellant has submitted that there is acute deficit of shunt compensation in the Board's Grid. Therefore, any surplus reactive power from few consumers like Railways should be welcomed by the Board, as it is actually helping the Board (R-2) grid to augment

its reactive power requirement and such expectation also meets the principle of efficient use of resources. However, the Board (R-2) has taken extreme step of penalizing leading reactive power. In support of its argument, the Appellant has submitted the Reports of CEA regarding Status installation of capacitors in various states in Southern Region.

82. The above contention of the Appellant is misconceived and is liable to be rejected for the reason given as under:

83. The reactive power requirement for the Region and for the State is worked out under annual peak load conditions. Shunt capacitors are provided in the state grid are fixed as well as switchable. The switchable capacitors are put into the service as per requirement of the grid. The annual minimum load on the grid would be around 40% - 50% of the annual peak load. Thus, the state grid would always remains sufficiently loaded and reactive power requirement would be regulated through switchable shunt capacitors and reactors.

84. The Appellant has admitted that in its case the leading reactive power flows into the gird during no-load condition when the system is relieved of active power drawl for Railway traction. The load factor of the Appellant, according to its own submission, is around 35%, which means that most of the time there would not be any active load and only reactive power through fixed shunt capacitors would be fed in to the grid. As explained in para 75 above, capacitive power flow would result in over voltage which is detrimental to the grid and would have to be regulated either through switchable capacitors adopted by utilities or by means of

Dynamic Reactive Power Compensation adopted by the Appellant Railways. The DRPS system adopted by the Railways is not the only system to regulate reactive power compensation. There are few other economical solutions available. The Appellant Southern Railways should carry some research and find out most techno-economical solution to meet its requirement.

85. The question is also replied as against the Appellant accordingly. Thus, all the questions in regard to the third issue have been decided against the Appellant.

86. Summary of our findings:

(a) The Article 287 does not deal with tariff much less with the plea of the appellant that it provides for lower tariff for Railways as compared to other HT consumers. It is settled law as laid down by this Tribunal as well as by the Hon'ble Supreme Court that even the policy directions issued under section 108 of the Act relating to fixation of tariff are not binding on the State Commission and the powers of State Commission in the matter of determination of tariff cannot curtailed. Thus, the directions contained in Ministry of Power's letter dated May 1991 cannot be held to binding on the State Commission so far as determination of tariff is concerned.

Reliance by the Appellant of Distribution Code and Supply Code is misplaced. These codes have been framed by the State Commission for specific purposes and the provisions of these codes cannot be applied for

determination of tariff which is to be done under Section 62 in accordance with the Tariff Regulations framed by the State Commission under Section 61 of the Act. With regard to expenditure incurred by the Appellant it is clarified that all consumers are required to pay the charges for providing electric line and electric plant under Section 46 of the Act for securing supply under Section 43 of the Act and expenditure incurred by the Appellant in providing the 110 kV feeders and 110/25 kV substations is no exception. If the Appellant preferred to take supply at 33 kV it was required to pay the expenditure for 33 kV lines and 33/25 kV substations.

It is to be noted that the effective tariff for the Appellant is reduced by about 20 paise per unit by reducing the demand charges by Rs 50 per kVA. In addition the Appellant gets substantive benefit through exemption from Time of the Day tariff and from power cuts.

The issue is accordingly decided against the Appellant

(b) In the light of the decision of this Tribunal in Appeal no. 135 of 2010 whereby the cross subsidy payable by the Appellant Railways has already been reduced to 6% of average cost of supply i.e. well within prescribed limit of ± 20 % by the year 2010-11, we are of the view that the tariff for railways fixed by the state Commission meets the requirements of the Act in regard to cross subsidy. The issue is accordingly decided against the Appellant.

(c) The contentions of the Appellant Sothern Railway regarding blocking of leading power factor had been considered in Appeal no. 122 of 2010 and held against the Appellant. Section 62(3) of the 2003 Act empowers the State Commission to differentiate between the tariffs of various categories of the consumers based on certain parameters including consumer's power factor. Section 62(3) does not put restriction on the State Commission to differentiate the tariffs on lagging power factor only and to ignore the leading power factor. Further, while exercising such powers the each State Commission has to take in to consideration local conditions and other relevant factors only and the methodologies adopted by other Commissions has no relevance.

Both the lagging as well as leading currents are detrimental to the grid. The flow of leading current would have to be regulated.

87. In the light of our above findings, we do not find any reason to interfere with the impugned order of the State Commission. The Appeal is accordingly dismissed being devoid of merits. However, there is no order as to costs.

(V J Talwar)
Technical Member

(Justice Karpaga Vinayagam)
Chairperson

Dated: 23rd May, 2012

REPORTABLE/~~NOT REPORTABLE~~