

**BEFORE THE TAMIL NADU ELECTRICITY
REGULATORY COMMISSION**

2nd April 2007

PRESENT

Thiru S.Kabilan		Chairman
Thiru S.Thangarathnam		Member
	and	
Thiru B.Jeyaraman		Member

MP NO.5 OF 2006

In the matter of introduction of modified software in the energy meters of traction substations and reverting to the prevailing software at Bommidi and Tambaram Traction substations.

Union of India
represented by
Deputy Chief Electrical Engineer
Traction Distribution
Office of the Chief Electrical Engineer
Southern Railway,
7th Floor, NGO Annexe,
Park Town,
Chennai 600 003

... Petitioner

Vs.

Tamil Nadu Electricity Board
Represented by its Chairman
800, Anna Salai,
Chennai 600 002

... Respondent

The above petition coming up for hearing before this Commission on 15th March 2007, the Commission upon perusing the petition, the affidavit filed in support thereof and the counter-affidavit filed by the Respondent Board and the rejoinder filed by petitioner and all other connected records and upon hearing the arguments of both sides hereby makes the following:

ORDER

1. Prayer of the Petitioner in MP No.5 of 2006

The prayer of the petitioner in MP No.5 of 2006 is to, (i) direct TNEB not to introduce the modified software in the energy meters of Traction Substations and to revert to the old software at Bommidi and Tambaram Traction Substations. (ii) direct TNEB to refund the power factor surcharges levied at Tambaram, Samalpatti and Bommidi Traction Substations.

2. Prayer of the petitioner in MP No.16 of 2006

The prayer of the petitioner in MP No.16 of 2006 is to issue on interim order restraining the TNEB from raising any demand or claiming any towards low power factor surcharge that arises from introduction of new software in energy meters in the 17 service points (Traction substations of TNEB) supplying power to the Southern Railway pending disposal of the appeal.

3. Contentions of the petitioner

The modified software in the energy meter for recording both lagging and leading KVARh at Tambaram/TSS and Samalpatti/TSS (since discontinued). was introduced by TNEB. On 04-07-2006 TNEB introduced modified software for recording lagging and leading kVARh at Bommidi traction substations. This has resulted in low power factor recording at these substations causing Railways to pay surcharge of Rs.4.61 lakhs (during July 2005 and August 2005). Rs.4.12 Lakhs (during June 2005) and Rs.12.28 lakhs (during July 2006) at Tambaram, Samalpatti and Bommidi TSSs respectively. TNEB have further advised that the modified software for recording both lagging and leading kVARh will be implemented at all traction substations with effect from 28-08-2006. The action

of Respondent Board in introducing the new software has been done without giving any reasonable time of alert to the petitioner.

Implementation of new software for measuring power factor is a violation of the electricity supply code and the TNERC tariff order.

The billed power factor is incorrect since it does not indicate lag or lead and penalty is leviable only for Power Factor less than 0.9 Lag.

Unless the implementation of modified software is stopped the Railways will be losing financially.

4. Contentions of Respondent Board

Two counter-affidavits are filed by Respondent Board, the one by SE/Chennai Electricity Distribution Circle and another by SE/Tirupathur Electricity Distribution Circle. Both the counter-affidavits contain same contentions. The contentions are briefly set out as follows:

- a) The petitioner (Railways) is bound to pay compensation charges for the low power factor recorded at their installations as per the recorded readings found in the meters. The meters in the services were replaced after due intimation to the Competent Railway Officials.
- b) The petitioner being an agreement holder is bound by the conditions stipulated in Tamil Nadu Electricity Regulatory Commission Supply code and as such estopped from disputing the payment of low power factor compensation charges levied in accordance with the recorded meter reading.
- c) As per clause 2 (q) of the supply code "Power Factor" means the ratio of the real power to the apparent power and average power factor

means the ratio of the kilowatt-hours to the kilovolt-ampere-hours consumed during the billing month.

- d) To stabilize the grid, the blocking of leading power factor has been removed in the existing electronic meters by changing the software programme in the meter to record power factor lead as lead during power factor leading condition.
- e) The meter now provided is equipped with embedding necessary software recording the power factors, either lagging or leading, as the case may be, which is in conformity with the rules as laid down by TNERC Tariff order and relevant specification of meter.

5. Contentions of petitioner in the rejoinder

The contention of the petitioner in the rejoinder filed by it are briefly set out as follows:

- a) The respondent has wrongly quoted that the changing of metering software is being done as per the orders of TNERC, whereas no such orders have been passed/published by the Commission.
- b) As per the tariff order, supply code and distribution code, penalty is leviable only for power factor less than 0.90 Lag, thus no penalty is leviable for leading power factor. As such the meter should be capable of measuring and recording lagging power factor separately for the purpose of low power factor surcharge.
- c) Since the power factor surcharge is leviable only below 0.9 lag, the preference of bills with low power factor surcharge calculated on the

basis of the power factor indicated by the energy meter with modified software is thus arbitrary and a violation of TNERC tariff order.

6. Findings of the Commission

(a) There are two points which need consideration of the Commission. The first issue is whether the introduction of modified software in the energy meter for recording both lagging and leading kVArh at the premises of the petitioner is on the directions of the Commission. The petitioner in para 5.0 at page 3 of the rejoinder has stated that the respondent have no authority to change the metering software without express orders of the Commission and that the respondent has wrongly stated that the changing of metering software is being done as per the orders of TNERC. The Respondent Board in para 1.1 at page 2 of the counter-affidavit filed by SE/Chennai Electricity Distribution Circle have stated that they introduced modified software in the energy meter for recording both lagging and leading kVArh at HT installations as per tariff orders issued by TNERC dated 15.3.2003 effective from 16.3.2003. Para 7.14 of the tariff order is extracted below for reference:

“Several representations have been received for a corresponding rebate to be extended for HT consumers having PF above 0.9. In other States, too, the PF incentive is extended to units having PF above 0.95. The Commission has provided for a PF rebate at 0.5% of the current consumption charges for PF above 0.95, for every increase of 0.01 in PF above 0.95. In line with the above, the LTCT industrial services under LT tariff III-B with a connected load of 75 HP

and above are also covered under the power factor incentives and penalty. It is proposed to introduce power factor penalty as well as the incentive for all industrial services under the bracket of 25 HP to 75 HP also. Since all such services may not have the power factor measurement facility through electronic meters, TNEB is being directed to install such meters within a period of three months from the effective date of this order and then introduce the incentive / penalty suitably as per the tariff schedule”.

The above paragraph stipulates that the Respondent Board should install electronic meters for measuring power factor. The said para 7.14 of the tariff order of the Commission does not lend any support to the contention of Respondent Board that the introduction of modified software for recording both lagging and leading kVARh at HT installations is as per the Tariff order of the Commission. Hence the above contention of the Respondent Board is not correct.

(b) The introduction of modified software is not in pursuance of the tariff order of March 2003. However, as per section 42(1) of the Electricity Act 2003 which came into force in June 2003, it is the duty of the Respondent Board as a distribution licensee to develop and maintain an efficient co-ordinated and economical distribution system in the area of supply of the Respondent Board. In paragraph 1.1 at pages 3-4 of the counter, the Respondent Board has stated as follows:

“As per reference (2) (or) of the said code “Power Factor” means the ratio of the real power to the apparent power and average power factor means the ratio of the Kilowatt-hours to the kilovolt-ampere-hours consumed during the

billing month. In this connection it is to be stated that simply connecting the shunt capacitors could not solve the low power factor problem. The capacitors should come into circuit proportionate to the load connected into the circuit wherever necessary. Connecting extra capacitors other than required by the consumer is over compensation which will lead to line loss and could damage the transmission lines and equipments. To avoid this condition and to stabilise the grid, the blocking of leading power factor has been removed in the existing electronic meters by changing the software programme in the meter to record power factor lead as lead during power factor leading conditions.”

The above statement of the Respondent Board is not disputed by the petitioner in their rejoinder. In view of the provisions contained in Section 42(1) of the Act referred to above, namely the duty to maintain distribution system in an efficient and economical manner, modified software system is necessitated in order to avoid line loss and damage to transmission lines and equipment as contended by the Respondent Board. The Respondent Board has given due notice for the introduction of the modified software system to the Petitioner as early in 2005 itself. The petitioner ought to have implemented the modified software system to suit the requirement with dynamic compensation from the Respondent Board. Had the petitioner implemented the above modified software system in the year 2005 when they received the notice, the need for the levy of penalty by the Respondent Board would not have arisen at all. There is a delay of nearly one year on the part of the petitioner in approaching the Commission.

(c) The second issue is whether the levy of penalty for leading power factor is in accordance with the Tariff order of the Commission. With regard to the above issue, it may be stated that para 7.17 at page 182 of the tariff order stipulates that in respect of High Tension service connections the average power factor of the consumers installation shall not be less than 0.90 lag and where the average power factor of HT service connection is less than the stipulated limit of 0.90 lag, the compensation charges as specified in the said para 7.17 will be levied. From the above it is seen that the penalty is leviable only on lag and not on lead.

(d) In view of the above circumstances, both the first and second issue are answered in favour of the petitioner. In this connection it may be relevant to state that the Commission is considering to issue an amendment to the Tariff order dated 15-3-2003 so as to delete the expression "lag" occurring therein, based on the proposal of TNEB. Measurement of over compensation with leading pf which was blocked as unity will also be accounted now since over compensation causes problem of over voltage which is detrimental to the distribution network, besides increased line loss. Levy of compensation for the low power factor of less than 0.9 taking into account the leading VAR can be made only after the relevant amendment is notified by the Commission.

(e) The petitioner has prayed for grant of three year time for implementation of the modified software scheme due to heavy investment of about Rs.24 Cr. for 17 Traction substations. The Commission is inclined to grant the above prayer of the petitioner.

(f) In view of the special privilege considered by the Commission to Railways viz. grant of three years period to have dynamic compensation which will benefit the railways in not paying the likely compensation charges, the TNEB shall levy only compensation charges for less than 0.9 lag as per Tariff orders and no incentive need to be paid to Railway for power factor exceeding 0.95 lag with the old software.

(g) The petitioner has raised some objections to the Commission in regard to the said proposal for amendment of the Tariff order. The Commission is of the view that pending the issue of final notification incorporating the above amendment to the tariff order, no incentive shall be allowed and no penalty shall be levied by the Respondent Board wherein new software is installed taking into leading VAR also.

7. Conclusion

In the above circumstances, the following directions are issued in this MP No.5 of 2006 namely:

- a) i) The Respondent Board is directed to defer the implementation of the modified software system in the energy meters of the petitioner (southern railway) for a period of three years.
- ii) Till the restoration of the old system the Respondent Board is directed not to allow any incentive nor to levy any penalty.
- iii) TNEB shall revert to the old system of blocking the leading VAR to unity early.

- b) i) The Petitioner (Southern Railway) is granted three year time from the date of issue of this order for the introduction of new technology of on-line dynamic reactive power compensation equipment to maintain higher power factor so as to meet the technical requirements of the modified software system of the Respondent Board.
- ii) In view of the special privilege given to Railways for three years period to have dynamic compensation which will benefit the railways in not paying the likely compensation charges, the TNEB shall levy only compensation charges for less than 0.9 lag as per Tariff orders and no incentive need to be paid to Railway for pf exceeding 0.95 with old system of software reverted back in the meter, blocking leading VAR as unity.
- iii) After three years Railway will be bound by the Tariff order prevailing at that time.
- c) Regarding the second prayer of the Petitioner for the refund of amount paid by way of penalty, it may be stated that the levy of penalty on lead power factor is incorrect as per Tariff order condition. But, as stated in paragraph 6(b) above the introduction of modified software by the Respondent Board is in accordance with the statutory provisions of section 42(1) of the Electricity Act 2003. The modified software system was introduced in 2005 after giving due notice to the petitioner Railway. In paragraph 1.2 at page 4 of the counter affidavit of Superintending Engineer, Chennai Electricity Distribution Circle it

has been contended that intimation letter dated 13-1-2005 had already been served to Railway officials that is Senior Divisional Engineer, Traction Distribution, Southern Railway, Chennai 600 003 by AEE/MRT after obtaining acknowledgement. The modified software introduced with meter cannot be said to be wrong, but it is not in conformity to the Tariff order dated 15-03-2003. As there was nearly a delay of one year in the Railways approaching the Tamil Nadu Electricity Regulatory Commission, the past cases need not be reopened. As such the prayer for refund is not allowed.

- d) With these directions, MP No.5 of 2006 and MP No.16 of 2006 are finally disposed off. There would be no cost.

Pronounced in open court by this commission on 2nd April 2007.

B.Jeyaraman
Member

S.Thangarathnam
Member

S.Kabilan
Chairman.

