

ORISSA ELECTRICITY REGULATORY COMMISSION
BIDYUT NIYAMAK BHAWAN,
UNIT – VIII, BHUBANESWAR – 751 012
*** **

Present : Shri B. K. Das, Chairperson
Shri K. C. Badu, Member

CASE Nos.22 / 2009

In the matter of An application regarding determination of Reactive Energy Charges for FY 2009-10 of OPTCL under Regulation 4 (5) (i) of OERC (Determination of Open Access Charges) Regulation, 2006.

AND

In the matter of Orissa Power Transmission Corporation Ltd. Janpath, Bhubaneswar – 751022, Orissa.

....

Applicant

Vrs.

Mr. R.P. Mohapatra, Bhubaneswar, M/s. Nava Bharat Ventures Ltd., SOUTHCO and GRIDCO, Bhubaneswar, Dist. Khurda..

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Objectors.

Date of hearing 21.03.2009

Date of Order 06.04.2009

ORDER

REACTIVE ENERGY – ITS SIGNIFICANCE

1. In Power Sector, supply of electrical power for ultimate consumption by end consumers takes place in two modes as mentioned below :
 - (a) Active Power Consumption (measured in watts)
 - (b) Reactive Power Consumption (measured in volt-amperes reactive or VARs)
- 1.1 Even though only active power actually accomplishes useful work e.g., rotates motors and illuminates lamps, reactive power is an inseparable part of any alternating current power system. The function of reactive power is to support the voltages required to perform useful work. Reactive power has a profound effect on the security of power systems because it affects voltages throughout the system as under :-
 - Deficiencies of reactive power cause voltages to fall.
 - Excess of it cause voltages to rise.
- 1.2 Reactive power is required for the transmission of active power, control of voltage in the system and normal operation of power systems. Reactive power supply is essential for

reliable operation of electric transmission system. Inadequate reactive power has led to voltage collapse and has been a major cause of several recent major power outages worldwide. Therefore, reactive power is one of the most important ancillary services in electricity market.

- 1.3 For proper operation of a power system, the production and consumption of reactive power must be balanced. As voltages and reactive power are strongly inter-related, power system voltages can be controlled through the supply and absorption of VARs. As with active power, generators produce reactive power, but reactive power can also be supplied by components of the transmission and distribution system. Control of reactive power / voltage can be achieved by providing suitable reactor / shunt compensation
- 1.4 Reactive power pricing is usually based on the costs of reactive power procurement. Reactive power costs are usually divided into fixed and variable ones. Fixed costs are independent of the quantity of production and they consist of capital and maintenance costs. According to the methods of separation of capital costs of reactive power, capital costs for reactive power are calculated directly from the data on generators, or they are expressed using the costs of other reactive power sources. Variable costs of reactive power are associated with active power losses in the process of reactive power generation or absorption, which may need to be compensated.

BACKGROUND

2. Para 6.6 of IEGC on Reactive Power and Voltage Control and Para 6 of OGC on Reactive Power Pricing Policy stipulate that VAr exchanges with State Transmission System shall be priced as per the following to discourage VAr draws by Beneficiaries :-
 - The Beneficiary pays for VAr drawal when voltage at the metering point is below 97% of the normal voltage.
 - The Beneficiary gets paid for VAr return when voltage is below 97% of the normal voltage.
 - The Beneficiary gets paid for VAr drawal when voltage is above 103% of the normal voltage.
 - The Beneficiary pays for VAr return when voltage is above 103% of the normal voltage.

Both drawal and injection of reactive energy shall be measured at 15-minute time block along with voltage.

3. Clause 5 of OERC (Determination of Open Access Charges) Regulation 2006 under 'Reactive Energy Charges' provides the following :-
 - (a) The Commission shall separately determine charges for KVarh consumption from the grid in terms of paise / unit and the open access customers shall pay the same.
 - (b) The payment for the reactive energy charges for the direct customers on account of open access shall be calculated in accordance with the scheme applicable to transactions involving intra-state transmission or distribution approved by the Commission in the tariff order.

- (c) Reactive Energy charges shall be based on requirements to be met by the direct customers with regard to reactive power generation/ drawal, as stipulated in the State Grid Code / Distribution Code / Supply Code, as the case may be.
 - (d) The reactive energy charges payable to or receivable by the STU shall be paid to or received from the pool by the STU concerned and shall not be apportioned to the embedded customers.
 - (e) The reactive energy draws and injections by the embedded customers shall be governed by the regulations applicable within the State.
4. As per Clause 1.7 of Orissa Grid Code, the rate for charge / payment of Reactive Energy Charges shall be 5 paise / KVARh with effect from 14.06.2006 and shall be escalated at 0.25 paise / KVARh per year thereafter, unless otherwise revised by OERC.
 5. During hearing on 19.05.2007, the Commission observed that OPTCL did not furnish the Reactive Energy Charges and therefore, the Commission directed OPTCL to file the Reactive Energy Charges with all authenticated supporting documents through affidavit by 31.05.2007.
 6. OPTCL through affidavit filed its proposal on 31.05.2007 before the Commission to approve the Reactive Energy Charges @ 27 paise / KVARh for FY 2007-08 without furnishing any authenticated calculation sheets / documents in support of its claim and, therefore, the proposal of OPTCL was not accepted by the Commission.
 7. The Commission vide letter No.1678 dated 21.09.2007 directed OPTCL to file the Reactive Power Pricing for FY 2008-09 in its application for ARR and determination of transmission tariff for FY 2008-09.
 8. The OPTCL failed to submit the Reactive Energy Pricing in its ARR for FY 2008-09 filed before the Commission on 30.11.2007. OPTCL vide letter dated 01.02.2008 intimated the Commission that it had engaged PRDC, Bangalore as Consultant through open advertisement for determination of Reactive Energy Charges in OPTCL system. OPTCL vide letter dated 01.02.2008 forwarded a copy of Inception Report outlining the International Reactive Power Markets to the Commission for information.
 9. The Commission vide letter No.1924 dated 30.08.2008 directed OPTCL to submit the status of pricing of Reactive Energy in OPTCL system on or before 6th September, 2008 without fail.
 10. PRDC, Bangalore made a presentation before the Commission on 16.09.2008 wherein it had assessed the Reactive Energy Pricing at 3.25 paise/ KVARh against 10 paise / KVARh in Andhra Pradesh and Gujarat, 25 paise / KVARh in Tamilnadu and Maharashtra, 27 paise / KVARh in Madhya Pradesh and Chhatisgarh and 40 paise / KVARh in Karnatak and Rajasthan. As per IEGC and OGC, the Reactive Energy Charges is 5 paise / KVARh with effect from 01.04.2006 with escalation of 5% per year subsequently and, therefore, the ruling Reactive Energy Charges is 5.75 paise / KVARh for inter-state and intra-state transmission system with effect from 01.04.2009 till 31.03.2010..
 11. PRDC vide letter No.77 dated 13.11. 2008 furnished an Executive Summary of its report to the Commission wherein it is inter-alia stated that the Reactive Energy Price worked

out to be in the range of 3.4 to 4 paise / KVARh and in order to give incentive to the stakeholders, PRDC recommended that the pricing structure be kept at 4 or 5 paise / KVARh.

12. OPTCL in its application for approval of ARR and Transmission Tariff for FY 2009-2010 filed before the Commission on 01.12.2008 at last para of Page – 40 had stated that PRDC had submitted the draft report during July, 2008 and the said report was under scrutiny and finalization.
13. As pricing of Reactive Power is an important component of intra-state open access charges as per OERC (Determination of Open Access Charges) Regulation, 2006 and almost one year has been taken by OPTCL to calculate the Reactive Energy Charges even after engaging a Consultant for the purpose, the Commission vide letter No.2689 dated 16.12.2008 again directed OPTCL to file the Reactive Energy Charges to be payable to or receivable by the OPTCL – the STU for FY 2009–10 by 31.12.2008 without fail.

OPTCL'S PETITION

- 14.0 OPTCL vide an Affidavit dated 12.02.2009 submitted before the Commission that it has finalized its views on the Reactive Energy Charge which are mentioned as under :
- 14.1 OPTCL's transmission network is integrated with the PGCIL's inter-state network at 25 nos. of interface points. The intra-state generators inside Orissa including NTPC & CGPs, Distribution Network and PGCIL's inter-state lines contribute to generation / absorption of reactive power which is reflected in the OPTCL's network in the form of a wide ranging voltage profile across Orissa.
- 14.2 OPTCL as deemed Transmission Licensee is obliged to keep the voltage profile within the limits as per the Orissa Grid Code, inspite of generation / absorption of reactive power by users of the intra-state transmission system. OPTCL has been able to maintain the voltage profile in most of the places by adopting suitable operational procedures. It is admitted that in some locations, voltage profile is not remaining within the statutory limits and OPTCL has envisaged some special pro-active measures by way of installing shunt capacitors at strategic locations.
- 14.3 OPTCL in its ARR & Transmission Tariff application for FY 2009-10 has proposed for allowing R&M expenditure of Rs.3.75 Crore for Reactive Power Compensation (towards installation of 75 MVAR Shunt Capacitors @ Rs.5 lakh for each MVAR). Similarly, for another 75 MVAR Shunt Capacitors, proposal is being made in the revised Business Plan for procurement and installation during 2010-11 under R&M head. If the proposed expenditure is approved by the Commission, OPTCL will initiate action for procurement and installation of the Shunt Capacitors during 2009-10. Only after these Shunt Capacitors become fully operational, the voltage profile would improve.
- 14.4 As per the study report and recommendations of PRDC, the transmission company i.e. OPTCL would be penalized if the net reactive power pool account is negative i.e. reactive power pool payment is higher than the reactive power pool receipt. The negative reactive power pool account indicates that the transmission company is not maintaining the voltage profile within limits in spite of contribution from all other stakeholders.

In the above context, Para 8 of Annexure-1 to Chapter-6 (Refer Clause 6.1 (c) of Orissa Grid Code is reproduced hereunder :

“Para 8 – In case the voltage profile of state grid improves to an extent that the total pay-out from the state VAr charges account for a week exceeds the total amount being paid-in for that week, and if the state reactive has no balance to meet the deficit, the pay-outs shall be proportionately reduced according to the total money available in the above account.”

In view of the above, the suggestion of PRDC on payment of negative reactive power pool is not acceptable to OPTCL.

- 14.5 OPTCL is of the view that reactive energy charge should not be mere money spinning exercise but instead it should be targeted to eliminate local voltage problems faced by the utilities. The reactive energy recorded in different lines should be analyzed and used to improve voltage profile of different substations by using appropriate remedial measures. In the intra-state level, there should be a coordinated plan among CTU, STU and Distribution Companies for optimal resource utilization towards installation of reactive compensation equipment.

In view of the submissions in the foregoing paragraphs, OPTCL requested the Commission not to levy any Reactive Energy Charge during FY 2009-10.

PUBLIC HEARING ON 21.03,2009

15. The aforesaid petition dated 12.02.2009 of OPTCL was scrutinized and was registered as Case No.22 / 2009. The Commission through a public notice dated 27.02.2009 informed all concerned through the Commission's website ([www. orierc.org](http://www.orierc.org)) that OPTCL – the Transmission Licensee has filed an application before the Commission for not to levy Reactive Energy Charges during FY 2009-10. The Commission through public notice requested the Interested Persons / Institutions / Organisations to download the application of OPTCL from Commission's website and to file their views / suggestions / objections before the Commission on or before 15.03.2009 duly serving a copy to the Applicant – OPTCL. The Commission further advised the objectors to take part in the hearing on 21.03.2009 in the Hearing Hall of the Commission.
16. Accordingly, the matter was taken up for hearing on 21.03.2009. Mr. J.P. Das, CGM (O&M) on behalf of petitioner- OPTCL and Mr. A.K. Parida and Mr. J.K. Mishra on behalf of M/s. Nava Bharat Ventures Ltd. , Mr. A.K. Bohra , CEO and Mr. S.K. Choudhury, G.M. on behalf of SOUTHCO , Mr. U.K.Sahu, Manager on behalf of GRIDCO and Mr. R.P. Mohapatra on behalf of respondents were present and participated in the hearing.

VIEWS OF OPTCL – THE PETITIONER

- 17.0 Shri J.P. Dash, CGM (O&M) on behalf of OPTCL submitted as under :
- 17.1 In accordance with the directive of the Commission, OPTCL through a transparent bidding process engaged PRDC, Bangalore to determine Reactive Power Energy Charges for Intra-State Transmission System of OPTCL. PRDC has so far only submitted an

Inception Report in January, 2008 and the Executive Summary on determination of Reactive Energy Charges in OPTCL system in November, 2008. PRDC has suggested an indicative price of 3.25 Paise / KVARh .As CERC has approved 5 Paise / KVARh in IEGC, PRDC has recommended that the Reactive Energy pricing structure may be kept at 4 or 5 Paise / KVARh under ABT Regime as decided and/or to be approved by the State Regulator.

- 17.2 PRDC has made a comprehensive study of all the existing sub-stations of OPTCL system and identified 23 Nos. of grid sub-stations where voltage is low and recommended for installation of requisite MVAR compensation in each grid sub-station to improve the voltage. PRDC has suggested installation of total 275 MVAR compensation for OPTCL system during XI Plan.
- 17.3 OPTCL discussed the proposal of PRDC threadbare and decided to install 150 MVAR compensation in 10 Nos. of grid sub-stations i.e. at Bolangir, Patnagarh, Sonapur, Kendrapara, Patamundai, Rairangpur, Jajpur town , Kesinga , Khariar and Saintala for improvement of the voltage in the command areas of the aforesaid grid sub-stations during XI Plan.
- 17.4 OPTCL has planned to install 75 MVAR Shunt Capacitors at an estimated expenditure of Rs.3.75 crore during FY 2009-10 and the balance 75 MVAR during FY 2010-11 for improvement of the voltage in the aforesaid 10 Nos. of the grid sub-stations.
- 17.5 OPTCL suggested that there should be a coordinated plan of action amongst CTU, STU and DISCOMs for optimal resource utilization towards installation of Reactive Compensation otherwise there may be duplication of investment resulting in over compensation. OPTCL, therefore, requested the Commission to form a Committee to finalise the Reactive Compensation to be installed by different stake-holders.
- 17.6 OPTCL submitted that the requisite software for calculation of the Reactive Energy Charges is being developed in-house which may take another 3 months' time for installation and commercial operation.

In view of the above submission, Shri J.:P. Das on behalf of petitioner-OPTCL requested the Commission to defer the levy of Reactive Energy Charges to FY 2010-11.

VIEWS OF RESPONDENTS

- 18.0 Shri R.P. Mohapatra, one of the respondents, during hearing submitted as under :
- 18.1 OPTCL's submission not to levy Reactive Energy Charges during 2009-10 should not be accepted by the Commission. In the absence of dis-incentive / incentive for variation of the grid voltage beyond permissible limits, OPTCL is not taking urgent steps to rectify the situation. Therefore, the Commission may determine the Reactive Energy Charges payable for the year 2009-10.
- 18.2 OPTCL should submit the improvement in voltage expected on installation of static shunt capacitors proposed in its ARR application. OPTCL during the hearing conceded that there were only 2 capacitor banks which were in operation and all other capacitor banks which were installed have become defunct and have not been replaced.

- 18.3 Apart from static capacitors, up-rating of the existing transmission system and construction of new lines and Substations would be required. The study made by PRDC should be made available and there should be a public hearing on the issue to determine the scope of work for the next 5 years.
- 18.4 The cost of the capacitor units and up-rating / construction of lines cannot be considered as part of R&M expenses. OPTCL as the Transmission Licensee has to arrange for the equity and debt capital required for execution of the various schemes. In fact, if a proper study is made the required capital investment is going to be substantial and cannot be loaded on the consumers as one time expenditure during a financial year.
- 18.5 The system improvement will require continuous study taking into account the new loads added to the system as well as projected loads. This work should form a part of the OPTCL's own internal organization and should not be out-sourced.
- 18.6 Regarding the date from which the Reactive Energy Charges should be implemented, OPTCL stated that necessary software would be developed in-house and it would take 3 months to install the software for the meters at the various inter-connection points. There should be no objection to implement the Reactive Energy Charges with effect from 01.07.2009. The representative of M/s. Navbharat Ventures, however, stated that already the Kvarh is being metered and the software to be developed should be to multiply the Kvarh by the Reactive Energy Charges as may be approved by the Hon'ble Commission. He, therefore, felt that not more than 7 days would be required to complete the work. The Hon'ble Commission may kindly take a view on the matter.
- 18.7 The Reactive Energy Charges have been determined by many of the SERCs in the country. This will not only act as an incentive for the Transmission Licensee to maintain the Grid voltage, it will also require the Generators to generate the required Reactive Energy. Similarly, it will also act as a check on the consumers from drawing excessive Reactive Energy.
- In view of the above, Shri R.P. Mohapatra prayed before the Commission to determine the Reactive Energy Charges and may fix initially at 6 paise per Kvarh.
- 19.0 Shri J.K. Mishra on behalf of M/s. Nava Bharat Ventures Ltd. submitted the following during the hearing.
- 19.1 OERC has introduced Intra-State ABT in the State of Orissa with effect from 14.02.2008, in order to ensure quality of Electrical Energy supply to the end user. The active energy under ABT principle is frequency-differentiated and the price has been fixed for each 0.02Hz step and acts through incentive/dis-incentive mechanism for unscheduled interchange of electricity.
- 19.2 The next component of quality power is the electrical energy if supplied within the prescribed voltage band for which the voltage- differentiated reactive energy is to be priced in shape of Low VAR / High VAR if the Bus Voltage on supply goes beyond -3% to +3% respectively. The High VAR and Low VAR ABT compatible energy metering of MVAR is a measure of voltage deviation and corresponding corrective measure thereof in shape of installation of static / dynamic compensation of VAR in the Grid system can be taken up. CERC has prescribed a VAR price for the CTU. The VAR pricing has been

discontinued because, Main / Check energy meters have not been installed by PGCIL at the same bus instead Main / Check meters at either end of the transmission line has been installed. In the particular case, if the Main Meter fails, the check meters at the other end of the transmission line cannot indicate VAR duly as the transmission line acts as a synchronous condenser. For recording MVAR, the Main / Check energy meters are to be installed at the same source i.e. same CT / PT is to be utilised so that, if the Main fails the check meter reading can be accepted as indicator of the VAR or Vice-versa.

- 19.3 Very often the Load Despatch Centre requests the generators to share VAR and this costs the generator in terms of additional input resources. Hence, the generators should be compensated. OPTCL Main / Check energy meters have been installed at transaction points to record MVAR and the corresponding Software is already in operation to generate MVAR bill.
- 19.4 IB-TPS in its PPA has already included that beyond the prescribed MVAR range of the IB generators every 2 KVARH will be paid @ 1 KWH, the rest of the generators in Orissa system have been debarred from getting price on the VAR support, they are giving to Orissa Grid.
- 19.5 Shri Mishra did not agree to OPTCL's submission that the requisite software for calculation of the reactive energy charges being developed in-house may take another 3 months' time for installation and commercial operation. He submitted that he was a member of the in-house committee of OPTCL prior to his retirement in August, 2008 and as per his estimation the required software for calculation of reactive energy can be developed within a period of 7 days as the appropriate data base and format have already been developed.

In view of the above submission, Shri J.K. Mishra prayed that a suitable compensation for the VAR exchange may be allowed by the Commission as incentive / disincentive mechanism in line with UI pricing forming part of Intra-State ABT.

- 20.0 Shri A.K. Bohra, CEO, SOUTHCO submitted during the hearing as under :
- 20.1 Reactive Power Compensation should ideally be provided locally, by generating reactive power as close to reactive power consumption as possible. The beneficiaries are therefore expected to provide local VAr compensation / generation such that they do not draw VARs from the EHV grid, particularly in low voltage conditions, which is also as per IEGC.
- 20.2 Regarding VAr compensation, the role of SLDC, DISCOMs and consumers is more important than OPTCL.
- 20.3 It is suggested that SLDC should prepare Intra-State Reactive Energy Account as early as possible, so that DISCOMs can take measure for VAr compensation close to the reactive power consumption as possible, which will help in improvement of voltage profile in DISCOMs.
- 20.4 It appears that the PRDC report has identified the low voltage areas and for which PRDC report has proposed a CAPEX programme. The report should be provided to SOUTHCO for views.

- 20.5 OPTCL should consider installation of 75 MVAR Capacitors as CAPEX schemes and not under R&M expenses.
- 20.6 The CAPEX programme submitted by OPTCL may be reviewed by the Hon'ble Commission and SOUTHCO may be allowed to submit the views on CAPEX programme.
- 21.0 Shri Umakanta Sahu on behalf of GRIDCO submitted the views as under :
- 21.1 GRIDCO supports and fully agrees with the views of OPTCL since VAR transactions are mostly concerned with generators and end consumers. Keeping in view the integration of regional grid with Orissa grid, OPTCL should not be penalized for a negative pool account. GRIDCO suggests that the practice adopted by ERPC in case of Eastern Regional Reactive Charges Pool, wherein PGCIL (CTU) is not being charged towards VAR exchange in ER grid may be followed for State Reactive Pool also.
- 21.2 GRIDCO suggested that a fund may be created out of the receivables (thus making the payables zero) which should be used for system improvement and personnel training in line with the practice followed in ER Rreactive Charges pool account.
- 21.3 GRIDCO supports the prayer of OPTCL to defer the levy of Reactive Energy Charges to FY 2010-11.

COMMISSION'S OBSERVATION

- 22.0 The Commission heard the parties at length. All the written submissions were taken into record. The observations of the Commission are as under :-
- 22.1 The Commission vide letter No.1190 dated 13.07.2007 issued a Road Map for implementation of intra-state ABT in the state with effect from 01.01.2008 where inter-alia it was stated as under :
- (a) OPTCL should make meter reading and data collection arrangements for preparation of weekly UI and Reactive Energy bills by 31.08.2007.
 - (b) SLDC should function as Nodal Entity for preparation of Monthly State Energy Accounting and weekly UI and Reactive Energy Accounting (both provisional and final) for implementation by stakeholders by 31.08.2007.
- 22.2 The Commission issued the Intra-State ABT Regulation, 2007 which was published in the Orissa Gazette on 14.02.2008 and is in force from the said date which inter-alia states in respect of Reactive Energy Charges as under :
- (a) Regulation 10 (e) states that weekly accounts on Reactive Charge shall be prepared by SLDC.
 - (b) Regulation 10 (g) states that SLDC shall table the statement on State Reactive Energy account in GCC's Commercial Committee Meeting on a quarterly basis for audit by the latter.
 - (c) Regulation – 11 (f) & (g) state that payment of UI and Reactive Energy Charges may be made and delay in payment shall invite payment of interest as specified in Chapter-6 of OGC.

- (d) Regulation – 11 (i) & (j) outline the utilization of Var charges after all pay outs.
- 22.3 The Commission had constituted various enquiry committees of independent professional experts in recent past to enquire into the Operation and Maintenance of grid sub-stations of OPTCL. The Commission has observed with great concern from the statement at Annexure-A prepared based on those reports that in as many as 26 grid sub-stations of the Transmission Licensee suffer from low voltage and Sonapur and Bolangir grids are the worst sufferers at 99 KV and 100 KV respectively at 132 KV potential as the voltage drops are at record high of 29.33% for Sonapur and 28% for Bolangir as against permissible variance of 3% as per OGC.
- 22.4 The Commission has observed from OPTCL's petition dated 12.02.2009 that OPTCL in its ARR & Transmission Tariff application for FY 2009-10 had proposed for allowing R&M expenditure of Rs.3.75 Crore for Reactive Power Compensation (towards installation of 75 MVAR Shunt Capacitors @ Rs.5 lakh for each MVAR). OPTCL has further proposed installation of another 75 MVAR Shunt Capacitors during 2010-11 under R&M head. OPTCL has stated that only after these Shunt Capacitors become fully operational, the voltage profile of Intra-State transmission network would improve.
- 22.5 The Commission noted that PRDC had identified 23 Nos. of grid sub-stations (Annexure – I of OPTCL affidavit dated 25.03.2009) where voltage profile is not within limits and had recommended to OPTCL for installation of total 275 MVAR compensation during XI Plan. The Commission observed with great concern that in spite of such recommendation of PRDC, OPTCL has decided for installation of 150 MVAR compensation in 10 Nos. of grid sub-stations leaving thereby the balance 13 Nos. of grid sub-stations to suffer from low voltage. (Annexure – II of OPTCL affidavit dated 25.03.2009). The Commission therefore, directs OPTCL to install 150 MVAR compensation in 10 Nos. of grid sub-stations viz. Bolangir, Patnagarh, Sonapur, Kendrapara, Patamundai, Rairangpur, Jajpur Town, Kesinga , Khariar and Saintala in FY 2009-10. The Commission further directs that in the balance 13 Nos. of grid sub-stations viz. Sambalpur, Dhenkanal, Puri, Ransinghpur, Bidanasi, Chandikhol, Choudwar ,Cuttack, Nuapatna, Paradeep, Bhadrak, Jaleswar and Sunabeda, 125 MVAR compensation may be installed during 2010-11, subject to system study report after installation of first phase 150 MVAR compensation.
- 22.6 The Commission desires that the Transmission Licensee should keep the voltage profile within +/- 3% of the rated voltage as per the provision of OGC. Additional investments necessary for keeping the voltage profile within operating limits is to be met through capital expenditure programme of OPTCL. The Commission further directs that the transmission licensee will liable to be penalized for its failure to maintain the voltage profile within limits if the required MVAR compensation will not be in place during 2009-10 and 2010-11 as stated above.
- 22.7 The Commission hereby rejects the suggestion of OPTCL mentioned at Para 3 (5) of its affidavit dated 25.03.2008 to form a separate Committee to finalize Reactive Compensation to be installed by CTU, STU and DISCOMs. The Commission directs OPTCL to refer Para 11.2 of OGC where it is specifically mentioned that there should be a Grid Co-ordination Committee (GCC) which shall be responsible for assessing and recommending required remedial measures for issues / problems that may arise / be

raised by the stakeholders from time to time. The Commission, therefore, directs OPTCL to raise the issue of over compensation /lower compensation / requisite reactive compensation in GCC where all the stakeholders CTU, STU, SLDC and DISCOMs are members for amicable settlement of the matter.

- 22.8 The Commission vide order dated 20.03.2009 has already approved ARR and levy of Operating Charges for FY 2009-10 for SLDC separating SLDC Charges from Transmission Charges of OPTCL with effect from 01.04.2009 and suitably ring-fencing SLDC to function as an Independent System Operator. Hence, the Commission directs that SLDC should prepare and bill weekly Reactive Energy Charges (both provisional and final) @ 5.75 paise / KVarh as per Clause 1.7 of OGC during the interim period till the Commission finally approves an appropriate Reactive Energy Charges.

COMMISSION'S DIRECTIVES

- 23.1 Based on our observations at para 22.5 above, we direct OPTCL to come up with a capital expenditure plan for installation of shunt capacitors in 23 nos. of substations before the Commission by 15th May, 2009 for necessary approval.
- 23.2 We are extremely unhappy and note with serious concern the tendency of OPTCL to defer the implementation of Reactive Energy charges to FY 2010-11. As the State is suffering from low voltage and there is wide spread discontentment amongst the consumers of the State due to such low voltage, we direct OPTCL and SLDC to finalise, install and put into Commercial Operation the required hardware and software for calculation of Reactive Energy Charges by SLDC by 15th June, 2009.
- 23.3 We further direct SLDC to file its status of preparation of Reactive Energy Charges before us by 15th June, 2009 duly serving a copy to all the Respondents who participated during hearing on 21.03.2009.
- 23.4 We direct that the matter may be put up before us during last week of June, 2009 for further hearing on the matter.
- 23.5 We direct that the copy of this order may be sent to OPTCL, SLDC and to all the respondents immediately. Further, the copy of this order may be posted in the Commission's website www.oriarc.org for information of all concerned.

Sd/-
(**K.C. BADU**)
MEMBER

Sd/-
(**B.K. DAS**)
CHAIRPERSON

ANNEXURE-‘A’
LIST OF GRID SUB-STATIONS SHOWING THE VOLTAGE PROFILE NOT WITHIN
PERMISSIBLE LIMITS

Sl. No	Name of the Grid S/S	Voltage Level(kV)	Maximum Voltage(kV)	Minimum Voltage(kV)	Percentage Variations as per Grid Code	
					Maximum (kV)	Minimum (kV)
1	Chandaka	220	235	185	3.71%	15.35%
2	Nayagarh	220	240	202	5.91%	5.64%
3	Bidanasi	220	238	214	5.03%	0.00%
4	Budhipadar	220	228	217	0.62%	0.00%
5	Tarkera	220	222	215	0.00%	0.00%
6	Barkote	220	232	220	2.38%	0.00%
7	Kalapali	220	226	204	0.00%	4.61%
8	Chandaka	132	130	108	0.00%	18.56%
9	Mancheswar	132	136	122	0.03%	4.95%
10	Ransinghpur	132	130	108	0.00%	18.56%
11	Nimapara	132	108	108	0.00%	18.56%
12	Puri	132	130	110	0.00%	16.40%
13	Khurda	132	130	104	0.00%	23.12%
14	Bidanasi	132	138	118	1.50%	8.51%
15	Cuttack	132	140	110	2.97%	16.40%
16	Jagatsinghpur	132	135	118	0.00%	8.51%
17	Choudwar	132	138	120	1.50%	6.70%
18	ICCL	132	138	120	1.50%	6.70%
19	Salepur	132	140	130	2.97%	0.00%
20	Budhipadar	132	135	130	0.00%	0.00%
21	Jharsuguda	132	134	127	0.00%	0.82%
22	Brajrajnagar	132	132	130	0.00%	0.00%
23	Bolangir	132	135	107	0.00%	19.66%
24	Sonepur	132	135	99	0.00%	29.33%
25	Bolangir	132	136	100	0.03%	28.04%
26	Bargarh	132	134	116	0.00%	10.38%
27	Chandikhole	132	144	125	5.91%	2.43%
28	Nuapatna	132	136.5	119.5	0.40%	7.15%
29	Paradeep	132	133	110	0.00%	16.40%
30	Kendrapara	132	130	114	0.00%	12.32%
31	Pattamundai	132	134	119	0.00%	7.60%
32	Jajpur Road	132	140	128	2.97%	0.03%
33	Jajpur Town	132	136	116	0.03%	10.38%
34	Rourkela	132	134	124	0.00%	3.26%
35	Tarkera	132	134	124	0.00%	3.26%
36	Chend	132	140	131	2.97%	0.00%
37	Rajgangpur	132	135	125	0.00%	2.43%
38	Sundergarh	132	137	125	0.76%	2.43%
39	Katapali	132	135.7	126.2	0.00%	1.46%
40	Sambalpur	132	132	122	0.00%	4.95%
41	Rairakhole	132	138	128	1.50%	0.03%