ODISHA ELECTRICITY REGULATORY COMMISSION
BIDYUT NIYAMAK BHAWAN
UNIT-VIII, BHUBANESWAR - 751 012
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Present : Shri S. P. Nanda, Chairperson
Shri S. P. Swain, Member
Shri A. K. Das, Member

Case No. 32/2015

Odisha Power Transmission Corporation Limited. …. Petitioner
Vrs.
WESCO Utility & others ..... Respondents

In the matter of: **An application under Clause 3.10(1) & (2) of the Grid Code(OGC) Regulations, 2006 seeking approval of the Commission to the Long Term Demand Forecast for the period 2014-15 to 2023-24.**

For Petitioner : Shri. S.K.Puri, GM, OPTCL, Shri S.K.Behera, Manager (Elect.), OPTCL.

For Respondents: Shri Jayaram Parida, GM (Com.), SOUTHCO Utility,
Shri Prabhat Kumar Padhi, GM (ABT), CESU
Shri Sudeep Mishra, Manager (Elect.), NESCO Utility,
Shri S. K. Patra, Manager (ABT), WESCO Utility,
Ms. Niharika Pattnaik, ALO, DoE, GoO.
Nobody is present on behalf of MD, IPICOL.

ORDER

Date of Hearing: 06.10.2015 **Date of Order :03.05.2016**

This is a petition filed by OPTCL (the State Transmission Utility) for approval of Long Term Demand Forecast (LTDF) for the State which is a requirement under Orissa Grid Code Regulations, 2006 (OGC), Orissa Distribution Planning and Operation Code and Practice Direction issued by the Commission in this regard. As per the said statutory requirement the demand forecast is to be approved by the Commission annually. Therefore, the STU has prepared this demand forecast basing on the information supplied by DISCOMs. The various important statutory requirement is as quoted below:

Extracts of Orissa Grid Code Regulations, 2006

"3.10 PLANNING RESPONSIBILITY

(1) The primary responsibility of load forecasting within its area rests with each of the Distribution Companies. The Distribution Companies shall determine peak load and energy forecasts of their respective areas for each category of loads for each of the succeeding five years and submit the same annually by 31st December to the Transmission Licensee along with details of the demand forecasts, data, methodology and assumptions on which the forecasts are based. The load forecasts shall be made for each of the External Connection Points

between the STU and User and shall include annual peak load and energy projections and daily load curve. The demand forecasts shall be updated annually or whenever major changes are made in the existing forecasts or planning. While indicating requirements of single consumer with large demands (5 MW or higher) the Distribution Company shall satisfy itself as to the degree of certainty of the demand materialising.

(2) The STU is responsible for integrating the load forecasts submitted by each of the Distribution Companies and determining the long term (10 years) load forecasts for the State within ninety days of the date on which the distribution companies furnished all the required information consistent to provisions of the OGC. In doing so the STU may apply appropriate diversity factors, and satisfy itself regarding probability of materialisation of bulk loads of consumers with demands above 5 MW in consultation with that Distribution Company concerned.

(3) The STU may also review the methodology and assumptions used by the Distribution Company in making the load forecast, in consultation with the Distribution Company. The resulting overall load forecast will form the basis of planning for expansion of generation and the Transmission System.

(4) In the event, Distribution Companies failed to provide all the requisite information within the time frame and in accordance with the form provided by the STU, the STU shall approach to the Commission for a directive."

Extracts of Orissa Distribution (Planning and Operation) Code

3.4.1 The Licensee is required to forecast the demand for power within the Area of Supply annually or more frequently, if required by the Commission, in each of the succeeding 5 years. The Licensee shall, accordingly, prepare a demand forecast and generally follow the procedures laid herein.

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3.4.3 Load Research

The Licensee may develop a load research programme with the objective of obtaining customer data and load profile data that shows the usage characteristics of specific appliances of different categories of consumers. The load research will facilitate obtaining data such as:

i. Demand according to end use at the hour of system peak, daily, monthly, seasonal or annual.
ii. Hourly end use demand for the day of the system peak, monthly, seasonal or annual.
iii. Hourly end use demand for the average day of the system peak, monthly, seasonal or annual.
iv. Category wise Diversity Factor or Coincidence Factors and Load Factors.
v. Total energy consumption for each category by day, month, season or year.
vi. Category wise non-coincident peak demands.
vii. Hourly demand for end use appliances

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3.4.6 Forecast Methodology

i. The Licensee shall formulate its long term demand forecast taking the previous financial year ending on 31st March as Base Year and projecting the demand in the succeeding 5 years. While making the demand forecast, the Licensee shall review the status of loads materialising as per the previous load forecast.

ii. *Energy Sales in each tariff class shall be projected in the forecast period over the corresponding figures relating to the Base Year by adopting a suitable methodology.*

iii. *The projections shall take into account assumed normal growth for non-specific loads, specific and identified loads of 1 MW and above, and effects, if any, due to Demand Side Management and energy conservation, if any.*

iv. *The Licensee shall forecast the aggregate energy requirement and peak load at each of the Connection Points for each of the years in the forecast period accounting for losses.*

2. Earlier, the Commission had approved the Long Term Demand Forecast (LTDF) for the period 2014-15 to 2022-23 in Case No.56/2014, where-in the licensees were directed to adopt the Demand Side Management (DSM) measures to reduce specific power consumption in order to optimise the demand. They were further directed to contact IPICOL, State Govt. and bulk consumers like Railways to finalise the requirement of demand in future years.

3. OPTCL, the STU in compliance to the Regulations/Code and directions of the Commission has filed the report on LTDF on 31.08.2015 for approval. The application has been scrutinised by the Commission and several queries have been made. OPTCL has submitted its replies to the queries of the Commission.

4. OPTCL has submitted the Long Term Demand Forecast primarily comprising of input data received from DSCOMs for the first five years and extrapolation of the data for next five years. OPTCL being the STU has analysed the submission of DISCOMs and interacted several times with DISCOMs to finalise the LTDF for the state. The forecast prepared by OPTCL is based on 'End Use" method. For this purpose, OPTCL has worked out the energy requirement for future years basing on the forecast submitted by DISCOMs and extrapolating the same with reference to the growth rate of consumers and pattern of consumption. OPTCL has estimated the peak load (MW) of each interconnection point after applying annual load factor as per the Energy Billing Centre (EBC) data of GRIDCO.

5. The Commission, during the hearing on 06.10.2015 has directed Director (Engg.), OERC to examine the application and obtain any further information on the matter. Accordingly, the report was examined in detail and the licensees were asked to furnish the following information and clarification:

(a) Load factor achieved by each DISCOM at each interconnection point in the base year of forecast.

(b) Basis of projection in case of Traction and EHT consumers.

(c) Basis of calculation of diversity factor (Relevant data in support of such calculation).

(d) Comparative sheet of peak demand achieved vis-à-vis the forecasted peak demand of each DISCOM during the initial year of forecast.

(e) Demand Side Management (DSM) measures adopted to reduce specific consumption in order to optimise demand. (As per the orders of the Commission in Case No. 56 of 2014).

(f) Any other Loss improvement measures taken by DISCOMs.

6. In compliance to the above, OPTCL has submitted its reply, wherein the comparative figures of peak demand achieved vis-à-vis the forecasted peak demand for the FY 2014-15 of each DISCOM appears to be very near to each other. OPTCL has assumed the future load factor at each interconnection point basing on the present calculated figure relating to that point. The diversity factor has also been assumed on the basis of present level of the same. As submitted by the Petitioner, they have conducted several meetings with DISCOMs to finalise the Long Term Demand Forecast.

7. In the matter of DSM, as submitted, CESU has undertaken the activities like Domestic Efficient Lighting Program (DELP), provision of rooftop Energy Efficient Public Lighting (EEPL) etc. to reduce specific consumption to optimise the demand. Also apart from others, the measures like energy auditing of feeders, engagement of input based franchisees and regular inspection by squads have been undertaken for loss reduction.

8. As a part of DSM measure, NESCO Utility is planning to implement Domestic Efficient Lighting Programme (DELP). Further, night patrolling/ regular monitoring of loss making feeders, persistent vigilance activities including monitoring of LT single phase billing were carried out by NESCO Utility for reduction of loss.

9. OPTCL has submitted that the following broad procedures /considerations have been adopted while preparing this LTDF report basing on the information supplied by DISCOMs.

- The forecast has been made for the following tariff categories of consumers i.e. domestic, commercial (general purpose), industrial LT, industrial HT/EHT, Public Water Works, Public Lighting, Railway Traction, Irrigation and Non-industrial (General Purpose, Public Institutions).

- The actual energy sales for 2013-14 have been taken as the base.

- The energy demand for the initial forecast year has been deduced from the anticipated growth in number of consumers and their specific consumption.
- The loss in energy has been worked out from the energy sales and demand for the base year.
- For the subsequent years of forecasting i.e. from 2014-15 to 2023-24, the estimation of energy demand has been made by improving percentage of growth in consumers and their specific consumption pattern.
- The Diversity Factor (DF) as submitted by the DISCOMs are as follows :

  CESU: 1.48, NESCO :1.30, SOUTHCO: 1.28, WESCO :1.42
- The past growth rate has been considered to determine the number of consumers and their specific consumption.
- Specific consumption has been considered taking into account the past trends and the anticipated improvements in the standard of living wherein a rising trend is expected.
- The transmission loss has been considered as 3.73% of peak load for the initial year of forecast i.e.2014-15 and 2015-16. It has been considered as 3.70% for 2016-17 & 2017-18 and 3.65% for rest of the year's i.e 2016-17 to 2022-23.
- The centrally sponsored RGGVY scheme & state sponsored BGJY scheme are expected to be completed by 2015-16. But, the DISCOMs have considered some spill over work under both the schemes which are mostly to be completed by 2016-17. Accordingly, the growth rate of consumers added afterwards for both the schemes have been taken as nil by the STU.

10. OPTCL has submitted the expected percentage growth for FY 2014-15 to 2023-24 in peak demand and energy demand of each DISCOM and total system in the manner as shown below :

	SYSTEM	**CESU**	**SOUTHCO**	**WESCO**	**NESCO**
% Peak Growth (MW)	5.04	7.12	4.89	3.55	3.25
% Energy Growth (MU)	5.27	7.53	4.67	3.38	3.88

11. The distribution licensees have agreed to the submission of OPTCL as regards to the estimation of expected peak load at each interconnection point. The representative of DoE, GoO has also agreed to the submission.

12. The Commission has gone through the original submission by OPTCL and subsequent submissions of OPTCL & DISCOMS. While comparing the energy requirement (MU), system peak demand (MW) forecasted by CEA in its draft 18th EPS report and submission of OPTCL, it has been seen that the forecast of CEA is in the higher side which can be attributed to the unrestricted demand and consideration of future load addition due to several upcoming industries.

13. We find that the electrical energy forecast primarily has been made to assess the electricity demand in each category of loads at various load centres so that the licensee would be able to plan and meet the electrical energy requirement in future by the augmentation/up-gradation of associated transmission and distribution network. In this connection we have already given stress for required development in electrical infrastructure for meeting the future unrestricted load growth.

14. We feel that infrastructure addition by OPTCL should be adequate for smooth flow of power without any constraint/congestion and simultaneously DISCOMs should be ready with the associated distribution system for downward evacuation of power.

15. Considering the above facts and views into consideration, the Commission hereby accords in-principle approval of the LTDF submitted by OPTCL basing on the data submitted by DISCOMs for the period from 2015-16 to 2023-24 as shown in table below :

PROBABLE DEMAND FORECAST (MW / MU) UP TO THE YEAR 2024

Sl. No.	Name of Distribution Company	2015-16		2016-17		2017-18		2018-19	
		Energy Demand (MU)	Peak Demand (MW)	Energy Demand (MU)	Peak Demand (MW)	Energy Demand (MU)	Peak Demand (MW)	Energy Demand (MU)	Peak Demand (MW)
1	CESU	9426	1584	11154	1862	11781	1961	12451	2067
2	SOUTHCO	3512	581	3832	637	4079	679	4213	703
3	WESCO	7407	1306	7790	1365	8221	1428	8406	1467
4	NESCO	5462	918	5802	967	6097	999	6401	1031
System Demand(Grid End)		**25806**	**4388**	**28578**	**4831**	**30177**	**5067**	**31471**	**5268**

Sl. No.	Name of Distribution Company	2019-20		2020-21		2021-22		2022-23		2023-24	
		Energy Demand (MU)	Peak Demand (MW)	Energy Demand (MU)	Peak Demand (MW)	Energy Demand (MU)	Peak Demand (MW)	Energy Demand (MU)	Peak Demand (MW)	Energy Demand (MU)	Peak Demand (MW)
1	CESU	13160	2177	13877	2289	14656	2410	15502	2541	16424	2684
2	SOUTHCO	4322	722	4436	742	4553	762	4674	783	4798	805
3	WESCO	8595	1507	8789	1548	8990	1592	9198	1636	9413	1671
4	NESCO	6577	1064	6759	1090	6948	1117	7143	1144	7346	1173
System Demand (Grid End)		**32654**	**5470**	**33861**	**5669**	**35147**	**5880**	**36517**	**6105**	**37980**	**6333**

16. The Commission as per Regulation 3.10(3) of OGC Regulations, 2006 directs the licensees that the expected peak demands for future years may be considered for the purpose of transmission network planning and generation expansion only. The Commission further directs that DISCOMs should adopt the Demand Side Management (DSM) measures to reduce specific consumption in order to optimise demand. OPTCL should also contact IPICOL and other Agencies of the Govt. to reach a realistic and appropriate demand forecast so that required infrastructure shall be in place beforehand.

17. Accordingly the case is disposed of.

Sd/-	Sd/-	Sd/-
(A. K. Das)	**(S. P. Swain)**	**(S. P. Nanda)**
Member	**Member**	**Chairperson**