ODISHA ELECTRICITY REGULATORY COMMISSION
PLOT NO.4, CHUNOLOLI, SAILASHREE VIHAR
BHUBANESWAR-751 021
****

Present : Shri U. N. Behera, Chairperson
Shri A. K. Das, Member
Shri S. K. Parhi, Member

Case No. 47/2018

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, 2015 seeking approval of the Commission to the Long Term Demand Forecast for the period 2017-18 to 2026-27.**

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

For Respondents: Shri P. K. Mishra, Chief Load Despatcher, SLDC
Shri P. K. Padhi, GM, CESU
Ms. Susmita Mahapatra DM (Elect.), SOUTHCO Utility,
Ms. Niharika Pattnaik, ALO, DoE, GoO.

ORDER

Date of Hearing: 06.11.2018 **Date of Order: 15.01.2019**

The present petition filed by OPTCL (the State Transmission Utility) for approval of Long Term Demand Forecast (LTDF) for the State for the period from 2017-18 to 2026-27 which is a requirement under Orissa Grid Code Regulations, 2015 (OGC) and Orissa Distribution Planning and Operation Code. As per the said statutory requirement, the demand forecast is to be approved by the Commission annually. Therefore, OPTCL has prepared the long Term Demand Forecast for the aforesaid period basing on the information supplied by DISCOMs. The various important statutory requirements are as quoted below:

Extracts of Orissa Grid Code Regulations, 2015

"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.

xxx

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

xxx

xxx

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. OPTCL submitted that the Commission had approved the Long Term Demand Forecast (LTDF) for the period 2015-16 to 2023-24 in Case No.32/2015 vide its order dt.03.05.2016, 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 and other agencies of government to finalise a realistic and appropriate demand forecast so as to have the required infrastructure in place beforehand.

3. Further, OPTCL's filing in the matter of Long Term Demand Forecast during the year 2016-17 and 2017-18 were registered in Case No.37 of 2016 and 41 of 2017 respectively. Since at the time of hearing of the aforesaid cases, the submission of LTDF for subsequent years had already been due, the Commission instead of according approval had directed OPTCL to file the LTDF report for FY 2017-18 to 2026-27 on or before 30.06.2018 for consideration of the Commission.

4. OPTCL, the STU in compliance to the Regulations/Code and directions of the Commission has filed the report on LTDF on 30.06.2018 for approval. The application has been scrutinised by the Commission's staff and discussions in this matter were held with the concerned personnel of OPTCL/DISCOM.

5. OPTCL has submitted the Long Term Demand Forecast primarily comprising of input data received from DISCOMs 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.

6. The Commission heard the matter on 06.11.2018 and directed the parties to file their written note of submission, if any, within 7 days from the date of the order. Further, OPTCL had been directed to provide clarification on the matter, if needed by the Commission. Accordingly, the report was examined in detail and OPTCL was asked to furnish the comparative sheet on demand achieved in each interconnection point during the year 2017-18 vis-à-vis the forecasted demand.

7. 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 2017-18 of each DISCOM appear to be very near to each other. No DISCOM other than CESU has submitted any written note in this regard. As submitted by the Petitioner, they have conducted several meetings with DISCOMs to finalise the Long Term Demand Forecast. Further, the representatives of DISCOMs have submitted that the report has been prepared by the joint effort/discussion with the STU representative.

8. 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 etc.).
- The actual energy sales for 2016-17 have been taken as the base. Assuming the percentage growth in sales, the energy sales in respect of initial year of forecast has been worked out.
- 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 2018-19 to 2026-27, the estimation of energy demand has been made by growth rate of consumers and pattern of their specific consumption.
- The load factor has been calculated for each grid s/s from the monthly load data of EBC for the base year 2016-17. The peak demand at each interconnection point has been arrived at considering the aforesaid load factor.
- The Diversity Factor (DF) as submitted by the DISCOMs are as follows :

CESU: 1.7, NESCO Utility :1.45, SOUTHCO Utility : 1.46, WESCO Utility :1.50

- The past growth rate has been considered to determine the number of consumers and their specific energy 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 3.50% of peak load for the initial year of forecast i.e.2017-18. It has been considered as 3.0% for 2018-19 to 2026-27.

9. OPTCL has submitted the expected percentage growth for FY 2017-18 to 2026-27 in peak demand and energy demand of each DISCOM and total system in the manner as shown below :

	SYSTEM	**CESU**	**SOUTHCO Utility**	**WESCO Utility**	**NESCO Utility**
% Peak Growth (MW)	3.39	5.41	3.54	1.61	2.32
% Energy Growth (MU)	3.78	5.92	3.65	1.25	3.31

10. The distribution licensees have agreed to the submission of OPTCL as regards to the estimation of expected peak load at each interconnection point. DISCOMs namely, NESCO, WESCO & SOUTHCO are run by the Administrator appointed by the Commission vide its order dated 04.03.2015 in Case No. 55/2013, who is also the CMD, GRIDCO. The representative of DoE, GoO has also agreed to the submission.

11. The Commission has gone through the submission by OPTCL alongwith submissions of DISCOMs. By comparison of the energy requirement (MU) with system peak demand (MW) forecasted by CEA in its 19th EPS report and submission of OPTCL, it is observed that the projection of demand by CEA is in the higher side that may be attributed to the unrestricted demand and consideration of future load addition arising due to anticipated addition of industries.

12. We observe that the electrical energy forecast 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 requirement in future by augmentation/up-gradation of associated transmission and distribution network. We have already emphasized on required development in electrical infrastructure for meeting the future load growth and extension of quality power to the consumers of the state.

13. We are of the opinion 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.

14. Taking 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 2019-20 to 2026-27. However, the commission has considered the demand for the year 2018-19 as approved in the ARR for FY 2018-19. The details are as shown in table below :

DEMAND FORECAST (MW / MU)OF OPTCL UP To THE YEAR 2027											
Sl. No	**Name of Distribution Company**	**2018-19**		**2019-20**		**2020-21**		**2021-22**	
		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	9070	1580	9693	1656	10372	1760	11142	1869
2	SOUTHCO	3660	610	3873	639	4021	664	4165	687
3	WESCO	7120	1350	7293	1457	7357	1484	7465	1506
4	NESCO	6140	990	6161	975	6342	995	6520	1015
System Demand(Grid End)		**25990**	**4530**	**27020**	**4727**	**28092**	**4903**	**29292**	**5077**

Sl. No	**Name of Distribution Company**	**2022-23**		**2023-24**		**2024-25**		**2025-26**		**2026-27**	
		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	11729	1960	12312	2050	12907	2140	13538	2233	14207	2330
2	SOUTHCO	4300	708	4439	730	4584	753	4734	776	4889	800
3	WESCO	7594	1527	7717	1547	7842	1566	7972	1588	8105	1609
4	NESCO	6672	1035	6829	1052	6993	1071	7162	1090	7339	1111
System Demand (Grid End)		**30295**	**5230**	**31297**	**5379**	**32326**	**5530**	**33406**	**5687**	**34540**	**5850**

15. The Commission as per Regulation 3.10(3) of OGC Regulations, 2015 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 maximum losses and other assumptions considered is only for the purpose of approval accorded in this order. Efforts should be made to reduce the losses by the STU adopting best technological practices available. Since the projection is upto year 2026-27, the Commission may review this order from time to time, if the need arises. The Commission further directs that the DISCOMs should adopt the Demand Side Management (DSM) measures to reduce specific energy consumption in order to optimise the demand. OPTCL should also contact Department of Industry and other Agencies of the government to prepare a realistic and appropriate demand forecast so that required infrastructure shall be in place beforehand to meet the anticipated growth.

16. Accordingly the case is disposed of.

Sd/-	Sd/-	Sd/-
(S. K. Parhi)	**(A. K. Das)**	**(U. N. Behera)**
Member	**Member**	**Chairperson**