PETITION NO.1478/2019

BEFORE

THE UTTAR PRADESH ELECTRICITY REGULATORY COMMISSION

LUCKNOW

Date of Order: 09.07.2019

IN THE MATTER OF: **Petition for seeking approval of long-term procurement plan of UPDISCOMS for FY 2019-20 to 2029-30**

Uttar Pradesh Power Corporation Limited (UPPCL)

.....Petitioner:

1. The matter was heard by the Commission on 04.07.2019. Shri Arvind Mittal, CE, UPPCL appeared on behalf of the Petitioner.

2. The Petitioner submitted that this Petition was filed under section 86 (1) (b) read with 86(1) (k) of the Electricity Act, 2003 for seeking approval of the Hon'ble Commission on Long-Term Power Procurement Plan of UP Distribution Companies for the period FY 2019-20 to 2029-30. The petition is also in compliance of the Commission's order dated 14.01.2019 in petition No. 1343/2018, wherein the Petitioner was directed to file the detailed future load demand projections and capacities tied up under long term PPAs to meet the same.

3. The Commission, in its order dated 16 May 2019 in Petition No. 1456/2019 regarding approval for long term PPA for procurement of 700 MW power from

Hydro Power Projects on long term basis, had directed the Petitioner to make a detailed presentation showing the availability of Power under existing PPAs and also the power expected from projects for which PPAs had been signed including the proposed procurement of renewable power.

4. Shri Mittal, CE, UPPCL submitted that a presentation before this Commission was made on 6th June, 2019 in which Principal Secretary, Energy Govt. of UP who is also the Chairman of UPPCL along with MD, UPPCL and other officers were present. A copy of the Presentation was also submitted before the Commission. Shri Mittal, submitted following salient points made in the presentation:

   a. Contracted PPA capacity from all sources as on March 2019 which are supplying power is around 18134 MW which comprises of 14161 MW of Thermal, Gas & Nuclear power, 3016 MW of Hydro and 958 MW of renewal totaling 18134 MW. In addition to this, PPA capacity under implementation till year 2030 is around 27843 MW comprising of 11999 MW of thermal, 1594 MW of Hydro, 1250 of Wind and 13000 MW of Solar & other renewable power. In the same period, 1325MW of thermal capacity will be retired.

   b. UPPCL & its Discoms would be average demand surplus till FY 2027-28, however, during last two years in FY 2028-29 and 2029-30, there could be a shortfall in availability.

   c. The average load and peak load demand are expected to rise from present level of 13000 MW & 22000 MW respectively (as can be seen from SLDC) to around 23720 MW and 32450 MW respectively by FY26 which

can be met from the existing portfolio of PPAs comprising of both Commissioned as well as under Commissioning projects.

5. Upon query of the Commission regarding stranded capacity charge liability, the Petitioner informed that there is problem of under-utilization of existing thermal capacity and the consequential burden of fixed charges was projected to be around Rs. 4797 Crs during FY 20 with a rising trend and peaking to Rs.10750 Crs in FY 2023.

6. The Commission enquired whether the backlog of Renewable Power Obligation (RPO) was taken into account while preparing those projections, to which the Petitioner replied in affirmative.

7. With above detailed presentation, the Petitioner has sought approval of its long-term power procurement plan of UP Distribution Companies for the period 2019-20 to 2029-30.

8. Sh. Sumit Notani, on behalf of RPSCL, having its thermal Plant located in the state of Uttar Pradesh and supplying power to the Petitioner, mentioned his concern before the Commission about the demand growth rate of 11% considered by CEA while projecting demand in the EPS'19 report. RPSCL, in its submission dated 4th July'19, has mentioned that during last FY 2018-19, RSPCL (1200 MW) PLF was only to the tune of about 42% and that of other IPP Lalitpur TPS (1980 MW) has been only about 32%.

Commission's Views

9. The Peak Electricity demand forecast has been made by the Petitioner based on CEAs 19th EPS report. The key assumptions and considerations used in developing the supply demand scenario are as below:

   i. Peak Demand = CEA's EPS Projections + Average Difference in Actual Vs CEA's Projection in the period FY 17, FY 18 & FY 19 (till Oct) + Additional Demand from Saubhagya Connections - Demand Migration due to open Access (up to 800 MW by FY 30)

   ii. CEA's Projected Demand Growth: ~8% till FY 2022, ~7% for FY 2023, ~6% for FY 2024 and 5% thereon.

   iii. Estimated Consumption for each Saubhagya Conncection: 144 kWh/kW/Month

   iv. Saubhagya Demand Growth; ~15% till FY 2022 and ~8% thereon

   v. Demand Adjustment over CEA's EPS Projection: ~1750 MW Average Increment @6%

10. The Petitioner has estimated the Peak Electricity demand for two scenarios as below:

Table-1

	SAUBHAGYA (Normal in MW)		SAUBHAGYA (Aggressive in MW)	
Year	**Peak Demand**	**Peak Demand with Saubhagya**	**Peak Demand**	**Peak Demand with Saubhagya**
FY 2020	21,196	22,031	20,994	22,792
FY 2021	23,023	23,976	21,914	23,976
FY 2022	24,801	25,896	23,523	25,896
FY 2023	26,536	27,728	25,165	27,728
FY 2024	27,935	29,213	26,446	29,213
FY 2025	29,406	30,792	27,804	30,792
FY 2026	30,955	32,450	29,223	32,450
FY 2027	32,582	34,196	30,711	34,196
FY 2028	34,623	36,237	32,751	36,237
FY 2029	36,785	38,399	34,914	38,399
FY 2030	39,076	40,690	37,205	40,690

11. As per the details provided by Petitioner, the summary of long term PPAs signed by UPPCL till financial year 2030 is as follow:

Table -2

(Available Capacity in MW as on 31.03.2019)

Themal+Nuclear+Gas	Hydro	Renewable	Total
14161	3016	958	18134

(Upcoming Capacity Yearly in MW)

Year	Thermal	Hydro	Wind	Other Renewables including Solar
FY20	2832	756	200	1000
FY21	1817	100	350	1400
FY22	2834	190	700	1400
FY23	198	166		1400
FY24	998	382		1400
FY25				1400
FY26				1000
FY27	2520			1000
FY28				1000
FY29				1000
FY30	800			1000
Total	11999	1594	1250	13000
Deletion	1325			

Net Capacity Addition between FY20-FY30	**10674**	**1594**	**1250**	**13000**
Total Capacity in FY-2030	**24835**	**4610**		**15208**

12. Thus the total available capacity from existing & upcoming PPAs will be around 44,652 MW. Taking CUF of 40% for the wind power plants, 25% for the solar and 50% for the bagasse- based power plants, the thermal equivalent capacity addition from wind, solar & other renewables will be around 4300MW besides 24835 MW of thermal and 4610 MW of Hydro capacity. Therefore, more than 33750 MW of coal equivalent contracted capacity will be available to the Discoms by year 2030 from their existing PPA portfolio.

13. Normally, thermal & large hydro power plants are used to meet the base load and Gas & reservoir/storage hydro power plants are required to meet the peak load. Renewables like Solar and Wind have the must run status because of their characteristics. However, against the present base load of around 13000 MW, UPPCL & its Discoms are already having combined tied up capacity of more than 17100 MW of Thermal/Nuclear and Hydro power plants.

14. It is observed that in the total power portfolio of UPPCL, thermal capacity has dominance to the tune of about four times to that of non-thermal. The total energy availability from the PPA capacity and other sources on date is approx. 140 BUs but the capacity utilization is subdued as can be seen from power purchase details submitted by the Petitioner in ARR petitions of current and

previous years comprising of Trued up ARRs of FY 15-16 and FY 16-17, True-up Petition for FY 17-18, APR of FY 18-19 and ARR for FY 19-20. These figures also include power purchased from energy exchanges & bilateral banking arrangements. Therefore, energy consumption of the Discoms for previous 5 years clearly shows that capacity utilization of PPA portfolio has been sub-optimal.

Table -3

Financial Year	Energy (MUs)
2015-16	87,942 (True UP)
2016-17	99,849 (True UP)
2017-18	1,11,999 (True UP Filed)
2018-19	1,06,902 (APR)
2019-20	1,09,300 (ARR)

15. The base load contracted capacity has emerged as main reason for high fixed charges being paid by the Petitioner & its Discoms which totals around Rs.26562 Crores presently 49.12% of their total power purchase cost of Rs. 54070 Crores as per their ARR filing for FY 2019-20. The share of fixed cost to total power purchase cost is likely to further increase in coming years as and when the PPA projects under implementation get Commissioned and declare their capacity for availability. In their presentation, the Petitioner has also brought out the fact that the stranded fixed cost burden of thermal plants during FY19-20 would be around Rs. 4797 Crs (8.8% of total power purchase cost) which is projected to

increase to around Rs. 10750 Crs in FY 23-24. This translates into avoidable burden of Rs.0.44 per unit which is passed on to the consumers.

16. As per CEA report also, the All India installed thermal capacity as on Mar'19 is about 226 GW (out of total installed capacity of 356 GW) with energy generation at 1072 BU i.e. capacity utilization of approx. 52%.

17. Commission is mindful of the fact that power purchase requirement over future years would also get discounted by the energy consumed through Roof Top Solar installations. Approximately 60% of the consumers in the state fall under the domestic category; and with net-metering arrangements under RSPV Regulations 2019 coupled with falling SPV panel/module prices and advent of energy efficiency devices, the domestic energy demand for the Discoms are likely to grow at a lower trajectory than the historical CAGR as projected by the Petitioner.

18. Further, various notifications issued by MoEF & CC has made the norms related to emission of SPM, SO2, NOx and Mercury for coal based thermal power plants more stringent. It has also added the burden of fly ash transportation on the respective thermal power plants besides modifying limits for specific water consumption. Therefore, CAPEX for implementing the new environmental norms would further increase the fixed cost for both the existing as well as upcoming new thermal power plants and thereby further adding to already high fixed charges / stranded capacity charges.

19. The burden of higher fixed/stranded capacity charges of TPPs would lead to widening of revenue gap and thus restricting scope for any reduction in APPC (Average Power Purchase Cost). This would also be detrimental to the overall

financial health of the electricity sector in the state, particularly the generators who would find it increasingly difficult to service their debt obligations due to weakened revenue streams from the Discoms. We should be mindful of the fact that UP is a low- income state and viability of power sector is directly related to the affordability of the electricity tariff. A tariff which is affordable in other state may not be affordable in UP because of relatively low per capita income of the consumers in the state which is, at present, less than half of the national average. This low per capita income of the state, besides limiting the capacity of the consumers to pay for electricity, also limits the capacity of the state government to give more by way of subsidy even with relatively higher tax to GDP ratio.

20. The government of India has set a target of installing 175 GW of renewable capacity by year 2022 and UPERC has already notified RPO Regulation-2010 vide notification No. UPERC/Secy/Regulation/10-787, dated 17.08.2010. UPPCL on behalf of Uttar Pradesh Distribution companies is under obligation to meet the RPO target set as per directions of the Commission under existing RPO Regulations -2010 and its amendments from time to time. It is observed by the Commission that UPPCL has cumulative shortfall in both Non-Solar and Solar RPO of 4260 MUs and 3,994 MUs respectively till 2018-19 (till Nov). Besides this backlog, the Discoms are also obligated to increase the share of renewables in coming years for which draft amendment to the RPO Regulation has been published inviting comments.

21. In keeping with UNFCC Paris Declaration on Climate change, Govt. of India has also resolved to enhance the share of renewable energy in total energy to 40% by the end of 2030 implying that RPO is likely to be enhanced further from present target.

22. Therefore, significant renewable energy capacity would be required to be added by UPPCL & its Discoms in the coming years in order to meet its current as well as future renewable obligation. This renewable power obligation will have seniority over other conventional sources of power and may totally eliminate any vacant space in Discom's PPA portfolio required to meet projected load demand.

23. The gap between the average and peak demand in the state is increasing day by day because of the consumer mix and advent of rooftop solar power. Further, the cost of setting up a new TPP is increasing with notification of stringent environmental norms whereas battery prices for Li-ion batteries are coming down. Therefore, the need to have battery storage power plants in the PPA portfolio of the Discoms is increasingly justified because of short duration nature of the peak load. The battery storage power plants may be utilized to supplement the ramp up required to meet the peak load. While the present cost of setting up battery storage power plant may be albeit higher than others sources of power, with falling Li-ion battery prices, in coming years it will be attractive for the Discoms.

24. The Petitioner / UPPCL is already saddled with a huge burden of stranded capacity charges and therefore, there is a greater need of rationalization & optimization of its existing Power Purchase portfolio to weeding out non-performing or high cost PPAs.

25. Taking into account the load demand projections, existing sub-optimal PLF of TPPs, stringent environmental norms, higher stranded capacity charges being paid by Discoms and future renewable power obligations, Commission finds that contracting any new long term PPA with coal based thermal power plants by UPPCL & its Discoms should be an option of last resort. Any coal based thermal

capacity addition in haste would be detrimental to the already deteriorated financial health of the Discoms as well as the generators because expensive power from newly contracted coal based TPP would result in further increase in stranded capacity charges leading to higher retail tariff. Consumers may find it difficult to afford high cost power which would lead to further creation of stressed assets. "Power for All" should not be interpreted as power at all cost. Already, some of the coal based thermal generating companies in the state, like PPGCL & LANCO, have become stressed assets.

26. From load demand projections and review of existing PPA portfolio of Petitioner, it is clear that Petitioner would require additional capacity over and above their RPO obligation to meet their peak demand only after FY 2027-28, therefore Petitioner can safely avoid contracting any new long- term PPA from coal based thermal power plant for next few years.

27. In view of the above, the Commission directs that UPPCL and its Discoms should: -

a. Procure/contract long term renewable power through competitive bidding process to meet their renewable power obligations keeping in view the lead time in setting up different types of renewable power plants. If there is any unmet load demand even after meeting the RPO, it should be met preferably from Large Hydro sources, if available.

b. In case the economics justifies and when the battery prices fall below per MW cost of setting up a new TPP with evacuation system, Discoms may consider contracting some capacity from the battery storage- based power plants located near load centers to meet their short duration peak demand.

c. Since sufficient long -term capacity PPAs have already been contracted with coal based TPPs to meet the projected demand till FY2027, no new long term PPA with coal based thermal power plant should be contracted till Dec. 2022 by UPPCL or its Discoms. Commission will review the capacity & energy demand; and its availability status in Dec.2022 to re-assess the need for any new long term PPA with coal based thermal power plant keeping in view 54 months' gestation period required.

d. Petitioner will have full liberty to procure short term seasonal peak power from power exchanges or Govt. of India DEEP portal or through bilateral banking arrangement with other States' Discoms.

The Petition No. 1478/2019 stands disposed of accordingly with above directions.

(Kaushal Kishore Sharma)
Member

(Raj Pratap Singh)
Chairman

Place: Lucknow

Date: 09.07.2019