

**BEFORE THE HARYANA ELECTRICITY REGULATORY COMMISSION AT
PANCHKULA**

HERC/Petition No. 35 of 2024

**Date of Hearing : 07.08.2024
Date of Order : 08.08.2024**

In the Matter of

Petition under Section 86(1) (b) and Section 63 of the Electricity Act, 2003 seeking approval of source, adoption of tariff and approval of draft PPA for the procurement of 527 MW RTC power at a tariff of Rs. 5.78/kWh at generator bus bar discovered through tariff based competitive bidding process on a medium-term basis for a period of five years starting w.e.f. 01.08.2024 floated through NIT No. 114/HPPC/MTT/2024 dated 15.03.2024.

Petitioner

Haryana Power Purchase Centre, Panchkula (HPPC)

Present on behalf of the Petitioner

1. Ms. Sonia Madan, Advocate
2. Ms. Seema Sidana, Xen, HPPC

Quorum

**Shri Nand Lal Sharma
Shri Mukesh Garg**

**Chairman
Member**

ORDER

Brief Background of the case

1. The present petition has been filed by HPPC, a joint forum of Haryana Distribution licensees for power purchase/trading, seeking source approval and adoption of tariff for procurement of 527 MW RTC power, on medium term basis for a period of five years w.e.f. 01.08.2024, at the tariff discovered through Competitive bidding.
2. **HPPC's submissions: -**
 - 2.1 That the demand supply projections prepared by the petitioner for the next five years foresees deficit of power. As such, the petitioner issued a Notice Inviting Tender ("NIT"), identified as NIT No. 114/HPPC/MTT/2024, for the procurement of 500 MW RTC of power for a period of five-years (power supply to commence w.e.f. August, 2024) on the National e-bidding portal, DEEP Portal through PFCCCL, (a Govt of India, Enterprise) in accordance with the standard bidding documents issued by the Ministry of Power, Government of India. A copy of NIT-114/HPPC/MTT/2024 dated 15.03.2024 along with the copy of draft PPA is enclosed.
 - 2.2 That as per the conditions of the NIT, the bidders were obligated to submit Earnest money deposit for the maximum capacity that they wish to offer (separately for each

source) @ Rs. 5,00,000/- per MW per month on RTC (30 days, 24 hours) basis in the form of bank guarantee/e-bank guarantee or electronic transfer of money through RTGS/NEFT which was refundable not later than 60 (sixty) days from the Bid Due Date, except in the case of the selected Bidder whose Bid Security shall be retained till it provides Performance Security as per PPA.

- 2.3 That prior to the submission of the bids, the last date of receiving queries was 22.03.2024 and the pre-bid meeting was conducted on 02.04.2024. The last date and time for submission of Application and Bids and Earnest Money Deposit (EMD) was 16.04.2024. Thereafter, the technical bids (RFQ) were opened and four bidders namely M/s SEIL Energy India Limited, M/s NTPC Vidyut Vyapar Nigam Limited, M/s PTC India Limited and M/s Jindal India Thermal Power Limited had submitted their bids in response to the NIT-114/HPPC/MTT/2024. The details of the non-financial technical bid are depicted as under:-

Sr. No.	Name of the bidders	Quantum offered (in MW)
1.	SembCorp Energy India Limited	127
2.	NTPC Vidyut Vyapar Nigam Limited	140
3.	PTC India Limited	150
4.	SembCorp Energy India Limited	127
5.	NTPC Vidyut Vyapar Nigam Limited	140
6.	PTC India Limited	150
7.	Jindal India Thermal Power	150
	Total (in MW)	567

- 2.4 That after the acceptance of the non-financial technical bids, the financial bids (RFP) were opened on 01.05.2024. On the same day, e-reverse auction was also held. The details of the discovered quantum and price after e-reverse auction is placed as under:-

Name of the bidder	Bid Quantity (MW)	Base fixed cost (Rs per KWH)	Cost of Generation (Rs per KWH)	Total
SEMBCORP ENERGY INDIA LIMITED	127	2.89	2.89	5.78
NTPC VIDYUT VYAPAR NIGAM LTD	140	2.89	2.89	5.78
JINDAL INDIA THERMAL POWER LTD	110	2.89	2.89	5.78
PTC INDIA LIMITED	150	3.14	3.14	6.28

- 2.5 That SCPP in its 76th meeting held on 15.05.2024, re-negotiated with M/s PTC India Ltd. and M/s PTC India Limited agreed to match the lowest offered tariff @ Rs. 5.78/kWh for the offered quantum of 150 MW.

- 2.6 That as per the terms and conditions of the RfP, following successful bidders were selected at the lowest tariff at Haryana Periphery, which is Rs. 5.78/kWh subject to the approval of this Hon'ble Commission. The details of the successful bidders selected to supply a total of 527 MW RTC by each successful bidder is tabulated as under:-

Name of the bidder	Bid Quantity (MW)	Base fixed cost (Rs per KWH)	Cost of Generation (Rs per KWH)	Total
SEMBCORP ENERGY INDIA LIMITED	127	2.89	2.89	5.78
NTPC VIDYUT VYAPAR NIGAM LTD	140	2.89	2.89	5.78
JINDAL INDIA THERMAL POWER LTD	110	2.89	2.89	5.78
PTC INDIA LIMITED	150	2.89	2.89	6.28

2.7 That in view of the Demand Supply Projections made for the upcoming 5 years, a deficit of nearly 500-1400 MW is foreseeable after taking into account all the contracted sources of power.

2.8 That the justifiability and the feasibility of the procurement of medium term RTC power is evident from the projected deficit and the rising cost of power, as is seen from the trends of the power exchange and recent tenders floated by various State Electricity Utilities. Following points are noteworthy in this regard:-

2.8.1 The tariff discovered in the medium-term tender floated last year i.e. NIT/104 for procurement of 1000 MW RTC power was Rs. 5.79/kWh at Haryana Periphery and the PPA for a total quantum of 360 MW was signed against the said tender after the approval of this Hon'ble Commission. The details of the said procurement is as under:-

Name of the Bidder	Bid Quantity (MW)	Base Fixed Cost (Rs per KWH)	Cost of Generation (Rs. Per KWH)	Cost of transmission (Rs. Per KWH)	Cost of transmission losses (Rs. Per KWH)	Total Tariff Rs./kWh
Tata Power Trading Company Limited	110	2.516	2.516	0.548	0.21	5.79
PTC India Limited	100	2.51	2.51	0.55	0.22	5.79
GMR Warora Energy Limited	150	2.515	2.515	0.55	0.21	5.79

2.8.2 That the tariff discovered in recent medium-term tender floated by various Discoms State Electricity Utilities is significantly higher than the tariff discovered in instant tender, as tabulated hereunder:-

Name of the utility	Supply Period	Quantum Requisitioned (MW)	Quantum cleared (MW)	Lowest Tariff discovered (Rs./kWh)
Tamil Nadu Generation and Distribution Corp.	01.09.2024 to 31.08.2029	1000	75	15
Assam Power Distribution Company Ltd.	01.04.2024 to 31.03.2026	200	100	7.98
Uttarakhand Power Corporation Limited (UPCL)	01.12.2023 to 31.03.2027	300	40	6.28
Noida Power Company Limited (NPCL)	01.04.2024 to 31.03.2029	125	95	5.19
RUVNL	01.07.2023 to 30.06.2028	160	30	5.3

2.8.3 That HPPC has also issued two other NIT this year to procure power on short term basis for purchase of 750 MW RTC power through tariff based competitive bidding using DEEP Portal. The final tariff approved by this Hon'ble Commission in the said tenders is under:-

Period	Quantum NIT-108	Weighted Average Rate (Rs. /Unit)	Quantum NIT-110	Weighted Average Rate (Rs. /Unit)	Quantum (NIT-108 & 110)	Weighted Average Rate (Rs. /Unit)
01.05.2024 to 31.05.2024	585	8.22	72	8.75	657	8.28
01.06.2024 to 30.06.2024	938	7.05	0	0	938	7.05
01.07.2024 to 31.07.2024	1640	6.46	0	0	1640	6.46
01.08.2024 to 31.08.2024	1530	6.39	0	0	1530	6.39
01.09.2024 to 30.09.2024	1740	6.57	0	0	1740	6.57
01.10.2024 to 31.10.2024	475	6.75	0	0	475	6.75

2.8.4 That the tariff of power procured through Indian Energy Exchange Limited (hereinafter referred to as "IEX") during the summer/paddy season in the year 2023 was higher

than the corresponding period in years 2021 and 2022. The quantum of power purchased from the exchange during the FY 2023-2024 and the cost thereof are tabulated below:

Month	Month wise Purchase of quantum during 2023-24		
	Quantum (LU)	Total Cost (Rs. in Lakh)	Landed cost (Rs/ kWh)
April	449.35	4308.22	9.97
May	1332.11	10013.75	7.80
Jun	843.49	5919.38	7.25
Jul	273.84	1761.07	6.66
Aug	1481.82	12243.59	8.55
Sept	3338.69	24632.87	7.63
Oct	784.65	6361.17	8.38
Nov	330.64	1190.47	3.73
Dec	799.48	3504.22	4.56
Jan	3278.73	23769.56	7.54
Feb	2857.71	16457.51	5.98
Mar	486.68	2047.11	4.36
Total	16257.20	112208.91	7.16

- 2.8.5 The landed average rate for power procured through Exchange is much higher than the tariff sought to be adopted in the instant Petition (even with escalation). Further, for the time slots where rates in the power exchange are higher, there is difficulty in clearance of requisite bid quantum. Thus, the purchase of power through the exchange to meet the deficit is thus, a costly and unreliable arrangement. The procurement of power through medium term procurement as sought in the instant petition has been therefore, considered in the interest of the State.
- 2.8.6 That the petitioner had sought approval of the Hon'ble Commission for procurement of short-term power for the summer months of 2024 i.e. June 2024 and July 2024 at a weighted average tariff of Rs. 7.32 per kWh, which had been discovered through competitive bidding. The said power shall be supplied till 31.07.2024 in accordance with the approval of the Hon'ble Commission. Pursuant thereto, the deficit may be met with the power sought to be procured under instant Petition, which is priced competitively.
- 2.8.7 All the foregoing reasons are worth a consideration for procurement of power through medium term Power Purchase Agreements to ensure availability of power.
- 2.9 That upon evaluation of the power demand, procuring 527 MW power at a tariff of Rs. 5.78 per kWh on a medium-term basis will be feasible and beneficial for the State and will help fulfill power requirement over the next five years.
- 2.10 That the petitioner-HPPC is consistently making efforts to arrange a reliable and feasible power supply for the State of Haryana. Considering the position of power deficit in the State and growing requirement for power, the petitioner is seeking the kind indulgence of this Hon'ble Commission to approve medium-term power sources discovered against NIT-114/HPPC/MTT/2024.

- 2.11 That the validity of bids submitted against NIT-114/HPPC/MTT/2024 is up till 14.08.2024 i.e. 120 days of Bid Due Date.
- 2.12 That the following prayers have been made: -
- a) Grant approval of source for the procurement of power up to 527 MW RTC power on medium-term basis for a period of five years from 01.08.2024 to 31.07.2029;
 - b) Adopt tariff i.e. Rs 5.78/kWh discovered through competitive bidding (NIT-114/HPPC/MTT/2024) under Section 63 of the Electricity Act, 2003;
 - c) Grant approval for execution of draft PPA to be executed between HPPC and the selected bidders for procurement of medium-term power against NIT-114;
 - d) Pass any such further order(s) or direction(s) that this Hon'ble Commission may deem fit and necessary in the facts and circumstances of the case.

Proceedings in the Case

3. The case was initially heard on 17.07.2024, wherein the petitioner (HPPC) mainly reiterated the contents of its petition, which for the sake of brevity are not being reproduced here. Upon hearing the parties, the HPPC was directed to provide the following information's: -
- a) A detailed analysis of demand-supply position planned and executed/managed for the FY 2023-24.
 - b) Average cost of medium-term power procured during the FY 2023-24.
 - c) Rates currently being discovered in other States for procuring medium term RTC power for next five years.
 - d) A detailed cost-benefit analysis of procuring the medium term RTC power vis-à-vis procurement of power on short term basis with firm tariff, through IEX, without any obligation of round the clock power for five year, as the PPAs proposed with the present generators (in this petition) are exposing HPPC to greater risk of Energy Charge Rate, as fuel cost has been made variable on account of use of alternative coal including blending of imported coal.
 - e) HPPC, mostly has gap of 3000 MW between maximum and minimum demand. Thus, HPPC is in deficit during certain time slots only. HPPC can adopt Demand-Side-Management (DSM) measures to flatten its demand curve e.g. by scheduling Agricultural Tubewell supply during minimum demand period. In case, still some shortfall is felt, the same can be covered up by buying power from Power Exchange (s) under Day-Ahead-Market (DAM)/Real-time-Market (RTM). HPPC need to examine this in detail and give its refined proposal.
 - f) Considering the above and based on the actual figures for the FY 2023-24 and FY 2024-25 (till date), a revised demand-supply position for five years may be provided

along with detailed working for the same. HPPC may also give its revised proposal to meet the deficit (if any).

4. In compliance to the directions of the Commission, HPPC filed the requisite information, under an affidavit dated 02.08.2024. HPPC has submitted as under:-
 - 4.1 That HPPC is constantly involved in planning power procurement for the State of Haryana in accordance with the projected demand. Such projections are not governed by any straight jacket formula and is vulnerable to unforeseen circumstances such as sudden outages of plants, defaults of power supplies to supply under concluded contracts, seasonal variations etc. The power planning is therefore, constantly reviewed.
 - 4.2 That the State of Haryana has witnessed an increase in power demand on account of economic growth in the industrial/commercial sectors for the past many years except covid pandemic period. Also, the State of Haryana is an agrarian economy, the power demand of the State rises exponentially during the summer/paddy season due to AP load along with the air conditioning load in the commercial sectors. Since the demand of the State is variable in nature which can vary from season to season, day-to-day along with variation in demand during the day. As a result, the variation in peak demand and off-peak demand in the State is in the range from 1500 MW to 3500 MW.
 - 4.3 That in the month of April being harvesting season of rabi crops, field offices keep the RDS and AP feeders switched off on the request of local farmers/panchayats to avoid any instance of fire to the ripened crops. Hence, AP & RDS feeders run on minimum load during day hours resulting into lesser consumption of power during day time. Moreover, during off-peak hours of the day, tied up solar power adds up to the surplus quantum. This causes surplus quantum of about 3500 MW in specific time slots and HPPC has to surrender/backdown the generators under Merit Order Despatch upto Technical Minimum upto approx. 2500 MW.
 - 4.4 That Discoms are obligated to supply 24x7 uninterrupted power supply in the area of its jurisdiction. The above-mentioned vulnerability in power demand therefore, has to be factored in with adequate cushion of power supply to ensure reliable and continuous power supply. Electricity (Rights of Consumers) Rules notified by Ministry of Power, Gol vide order dated 22.02.2024 emphasize that the consumers shall get reliable services and quality electricity from the distribution licensee(s) of his area. Accordingly, HPPC is undertaking the necessary steps to ensure quality power to the consumers of the State at optimum price. HPPC is fulfilling the demand with tied up long term/medium term sources and arranging the power to meet the deficit through long/medium term tender(s). Beside these, the remaining deficit power is arranged through short-term tenders on yearly basis. Any demand beyond aforementioned tie-

ups is being met through Power Exchanges which also act as load balancing instrument to cater the instantaneous variation of demand during the day.

- 4.5 That the dynamics of power procurement has witness a paradigm shift since last 10 years. The power procurement under long term PPAs witnessed various complexities owing to coal prices, fluctuations in energy demand and the impact of developments in the renewable energy sector translating to lower tariffs. Ministry of Power also in its recent publications emphasized on execution of PPAs for shorter duration say 5 to 10 years to optimize power procurement; to allow Discoms to reassess their demand curves and accordingly contract the power required. As on today, there are no long-term power procurement guidelines issued by the MoP on FOO basis. Still efforts are made to tie up the most reliable sources of power on long term basis. This can be gauged by the fact that total contracted capacity available with Haryana Discoms is 14867.92 MW. Out of which PPAs have been executed on long term basis for 13541.37 MW capacity and only 1326.55 MW capacity has been tied up on medium term basis i. e for 3 or 5 years. For the foreseeable deficit that shall continue throughout the year, the medium-term power procurement is recognized as the most advisable source. The short-term power procurement is only resorted to if an additional power is required for limited months especially during peak season which economically weighs better in comparison to power procurement through IEX during such time. As such, HPPC has been approaching this Hon'ble Commission for approval of power proviolent source considering the most feasible power procurement source for specified periods.
- 4.6 That the instant medium-term power is being procured from 2024 to 2029. This power is required as following contracted long-term projects are expected to start scheduling of power by FY 2029-30 as mentioned below:

Sr. No.	Project Name	Expected CoD	Installed Capacity in MW	Haryana Share in MW	Remarks
1.	NPCIL Nuclear Power Project, Gorakhpur, Haryana (Unit-1)	Mar-28	700.00	350.00	The scheduled commissioning date may extend further
2.	NPCIL Nuclear Power Project, Gorakhpur, Haryana (Unit- 2)	Sep-28	700.00	350.00	
3.	HPGCL, DCRTTP Unit-3, Yamuna Nager	Dec-28	800.00	800.00	
4.	NPCIL Nuclear Power Project, Gorakhpur, Haryana (Unit- 3)	Mar-29	700.00	350.00	
5.	NPCIL Nuclear Power Project, Gorakhpur, Haryana (Unit- 4)	Sep-29	700.00	350.00	
	Total		3600	2200	

- 4.7 That this medium-term power will help in maintaining the energy balance i.e. power sent during winter season will be received back during summer season. It is pertinent to point out that during last year FY 2023-24 banking could not be done due to non-availability of surplus power, as even during daytime of winter season Haryana was deficit in power. The banking data of previous year is tabulated below:

Sr.no	Period	Total Banked LU during Nov to March
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1.	Nov21-March22	-9051.83
2.	Nov22- March23	-7922.88
3.	Nov23-March24	-2380.43

Note: (-) represents power supplied by HPPC

The power available for banking during winter months is reducing year-on year. Thus, it cannot be said that Haryana is surplus in power round the clock. The power surplus is experienced only in a few slots in a day during winter season.

- 4.8 That all the state generators i.e. HPGCL, Aravali & CLP avail annual maintenance during the lean period and thus, overall availability of power with Haryana further reduces as is evident from the table below:-

Maintenance Schedule of Various Plants					
Sr. No.	Name of Generating unit	Period of Outage		Purpose	Remarks
		From	To		
1.	210 MW Unit- 6, PTPS, Panipat	05.01.2025	20.03.2025 (75 days)	Capital overhauling for RLA of turbine, Max DNA Work & Station C&I work	
2.	250 MW Unit-7, PTPS, Panipat	15.03.2025	08.04.2025 (25 days)	Mini Overhauling for Boiler works & Condenser cleaning	
3.	250 MW Unit-8, PTPS	30.03.2025	23.04.2025 (25 days)	Mini Overhauling for Boiler works & Condenser cleaning	
4.	600 MW, Unit-1, RGTTP, Hisar	29.12.2024	13.03.2024 (75 days)	Installation of De-NOx system for statutory compliance of new environment NOx norms & Capital Overhauling	
5.	300 MW Unit-1, DCRTTP, Yamuna Nagar	01.10.2024	29.11.2024 (60 days)	For installation of De-NoX system for statutory compliance of new environment NOx norms along with Capital overhauling works.	Already requested vide this office memo no. 245/GMP-47 dated 10.07.2024
6.	300 MW Unit-2, DCRTTP, Yamuna Nagar	11.11.2024	20.12.2024 (40 days)	For installation of De-NoX system for statutory compliance of new environment NOx norms along with Capital overhauling works.	and subsequent mail dated 18.07.2024.

DETAILED ANALYSIS OF DEMAND-SUPPLY POSITION PLANNED AND EXECUTED/MANAGED FOR THE FY 2023-24.

- 4.9 That in response to the instant query of the Hon'ble Commission, a comparative statement of month-wise analysis of the peak demand forecasted and actual peak demand felt during the last financial year i.e. FY 2023-24 is tabulated hereunder –

Comparison of peak demand forecasted viz a viz actual peak demand (FY 2023-24)					
	PEAK DEMAND FORECASTED (IN MW) (1)	ACTUAL PEAK DEMAND (IN MW) (2)	DIFFERENCE (2)-(1)=(3)	%AGE VARIATION	REMARKS
Apr-23	9890	9049	-841	-9.30%	Variation was due to unprecedented weather variations mainly on account of heavy rainfall
May-23	10541	10630	89	0.84%	Variation is nominal
Jun-23	13463	11641	-1822	-15.66%	Variation was experienced owing to unforeseen effects of the Biparjoy cyclone and unseasonal rains bringing down temperatures.
Jul-23	13457	12228	-1230	-10.06%	Variation was experienced owing to unforeseen effects of the Biparjoy cyclone and unseasonal rains bringing down temperatures.

					Further, there was decrease in demand for power due to onset of Monsoons.
Aug-23	12742	13055	313	2.39%	Variation is nominal
Sep-23	12865	12755	-110	-0.86%	
Oct-23	9730	10180	450	4.42%	
Nov-23	7858	7666	-192	-2.51%	
Dec-23	8441	8225	-216	-2.62%	
Jan-24	8817	9530	713	7.48%	Industrial demand increased upto 5% to 30% and Urban demand upto 6% to 27% as compared to last year. As per the directions of Govt., all the agricultural feeders were running in the single shift during day hours instead of two shifts at the interval of 12 hours
Feb-24	8650	8837	187	2.12%	Variation is nominal
Mar-24	8428	7712	-716	-9.28%	Extended cold weather conditions lead to decrease in agriculture demand.

Note: For computation of demand for forthcoming years, Monthly CAGR is taken as per actual However, Maximum CAGR has been taken as 6.12% as per 20th EPS report of CEA for FY 2021-22 to FY 2026-27

- 4.10 That a perusal of the foregoing figures evince that the negative variation in the last financial year is largely within range of 10%, which is also owing to unprecedented seasonal changes. In fact, while predicting the peak demand, it is ensured that there is optimization of power supply vis-à-vis requirement for effective development of the State.

AVERAGE COST OF MEDIUM-TERM POWER PROCURED DURING FY 2023-24.

- 4.11 That the average cost of medium-term power procured during last financial year is tabulated hereunder –

AVERAGE COST OF MEDIUM-TERM POWER				
SOURCES	HARYANA SHARE (IN MW)	Variable cost (Rs. per unit)	Fixed cost (Rs. per unit)	Total rate (Rs. per unit)
MB Power	150	3.086	2.604	5.690
Kameng HEP – NEEPCO Unit - I & II	13	4.000	0.300	4.300
Kameng HEP – NEEPCO	Upto 300	5.450	0.000	5.450
NVVN-Nepal Cross Border Power	109.61	5.52	0.000	5.52

RATES CURRENTLY BEING DISCOVERED IN OTHER STATES FOR PROCURING MEDIUM TERM RTC POWER FOR NEXT FIVE YEARS.

- 4.12 That based on the information available with the Petitioner, a tabular statement exhibiting rates currently being discovered by other States for procuring medium term RTC power for next five years is as under:-

Name of the utility	Supply period	Delivery Point	Quantum Requisitioned (in MW)	Quantum Cleared (in MW)	Lowest Tariff Discovered (Rs/KwH)
Tamil Nadu Generation And Distribution Corp.	01.09.2024 to 31.08.2029	Generator -busbar	1000	75	15
Assam Power Distribution Company Ltd	01.04.2024 to 31.03.2026	Generator -busbar	200	100	7.98
Uttarakhand Power Corporation Limited (UPCL)	01.12.2023 to 31.03.2027	Generator -busbar	300	40	6.28

Noida Power Company Limited (NPCL)	01.04.2024to 31.03.2029	Generator -busbar	125	95	5.19
RUVNL	01.07.2023to 30.06.2028	State periphery	160	80	5.3

A DETAILED COST-BENEFIT ANALYSIS OF PROCURING THE MEDIUM TERM RTC POWER VIS-À-VIS PROCUREMENT OF POWER ON SHORT TERM BASIS WITH FIRM TARIFF, THROUGH IEX, WITHOUT ANY OBLIGATION OF ROUND THE CLOCK POWER FOR FIVE YEARS, AS THE PPAS PROPOSED WITH THE PRESENT GENERATORS (IN THIS PETITION) ARE EXPOSING HPPC TO GREATER RISK OF ENERGY CHARGE RATE, AS FUEL COST HAS BEEN MADE VARIABLE ON ACCOUNT OF USE OF ALTERNATIVE COAL INCLUDING BLENDING OF IMPORTED COAL.

- 4.13 That the instant query raises concerns as to whether medium term power procurement more cost effective in comparison to short term power procurement and procurement through IEX, especially considering the variable fuel cost conditions incorporated in medium term PPAs.
- 4.14 That cost of power procurement through exchange is largely expensive and uncertain. For reference, the average landed rates of power through IEX during the year 2023 is tabulated hereunder:-

Period 2023	Avg MCP through IEX (Rs/ Kwh)	*Landed cost at State Periphery (Rs/ Kwh)
Jan	6.18	6.88
Feb	6.68	7.38
Mar	5.43	6.13
Apr	5.29	5.99
May	4.74	5.44
Jun	5.37	6.07
Jul	4.55	5.25
Aug	6.89	7.59
Sep	6.23	6.93
Oct	6.45	7.15
Nov	3.99	4.69
Dec	4.55	5.25

**Transmission charges and losses amount to 70 paise has be added to arrive at landed rates at state periphery*

- 4.15 That a comparative tabulated statement depicting landed cost of procurement on RTC basis through IEX and through medium term source is tabulated as under:

(a) PEAK SEASON

Case 1 – Procuring 500 MW RTC power from Power Exchange (IEX)

Table-8

Period	Quantum (Lus) at 85% Normative Availability	Landed cost at State Periphery (Rs/Kwh) of IEX	Total Cost (in Lakhs)
Apr	306.00	5.99	1832.14
May	316.20	5.44	1719.17
Jun	306.00	6.07	1857.48
July	316.20	5.25	1659.30
Aug	316.20	7.59	2401.20
Sept	306.00	6.93	2121.53
Oct	316.20	7.15	2260.76
		Total	13851.60

Case 2- Procuring 500 MW RTC power through Medium Term Tender NIT/114

Table-9

Period	Quantum (Lus) at 85% Normative Availability	Landed cost at State Periphery (Rs/Kwh) of medium-term tender NIT/114	Total Cost (in Lakhs)
Apr	306.00	6.50	1989.00
May	316.20	6.50	2055.30
Jun	306.00	6.50	1989.00

July	316.20	6.50	2055.30
Aug	316.20	6.50	2055.30
Sept	306.00	6.50	1989.00
Oct	316.20	6.50	2055.30
		Total	14188.20

(b) Financial Implication of procuring 500 MW medium term power during Lean Season (Period November-March)

Table-10

	Financial Implication of 500 MW medium-term power				Financial Implication of 500 MW power through IEX	
	Quantum (Lus) at 85% Normative Availability	Average Fixed cost in tender NIT/114	ECR at Haryana Periphery	Total Cost (Lakhs)	Average Landed rate of IEX during Nov-March	Total Cost (Lakhs) through IEX
Case 1: No medium-term power is scheduled during the lean season	1540.20	2.89	3.61	4451.18	6.06	0
Case 2: Considering that 50% medium term power is scheduled during the lean season	1540.20	2.89	3.61	7231.24	6.06	4669.79
Case 3: Considering that 75% medium term power is scheduled during the lean season	1540.20	2.89	3.61	8621.27	6.06	7004.69
Case 4: Considering that 100% medium term power is scheduled during the lean season	1540.20	2.89	3.61	10011.30	6.06	9339.59

SUMMATIVE COMPARISON OF MEDIUM TERM AND IEX COST –

Accordingly, the cost comparison after summation of figures at Table 8, Table 9 & Table 10 is as under:-

Sr. no.		Total Cost Medium Term Tender NIT/114 (in Rs.) (From TABLE 9 & 10)	Total Cost Power through IEX (in Rs.) (From TABLE 8 & 10)
1	Case 1: No power is scheduled during the lean season	18639.38	13851.60
2.	Case 2: Considering that 50% power is scheduled during the lean season	21419.44	18521.39
3.	Case 3: Considering that 75% power is scheduled during the lean season	22809.47	20856.29
4.	Case 4: Considering that 100% power is scheduled during the lean season	24199.50	23191.18

4.16 That during periods of high demand, the rates on the power exchange can reach as high as ₹10/kWh, which is significantly higher than the rates discovered in the medium-term tender and only proportional power gets cleared in the exchange. A perusal of

foregoing reveals that during the months of July 2023, August 2023 and in the recent month June 2024 requisite quantum could not be cleared even at Rs10/kWh during peak demand slots. In view thereof, power procurement through Exchange for a foreseeable deficit is not considered a viable option.

- 4.17 That as regards short term power procurement, the discovered rates for the current FY 2024-25 are tabulated below:-

Period 2024	NIT 108		NIT 110		NIT 115	
	01.05.2024 to 15.10.2024		01.05.2024 to 15.10.2024		01.06.2024 to 30.09.2024	
	Quantum (MW)	Weighted Avg. Rate (Rs./unit)	Quantum (MW)	Weighted Avg. Rate (Rs./unit)	Quantum (MW)	Weighted Avg. Rate (Rs./unit)
March	-	-	-	-	-	-
April	-	-	-	-	-	-
May	585	8.22	72	8.75	-	-
June	938	7.05	-	-	689	8.22
July	1640	6.46	-	-	604	6.32
August	1530	6.39	-	-	-	-
Sept	1740	6.57	-	-	-	-
October	475	6.75	-	-	-	-
Weighted Average Rate		6.72		8.75		8.75

Thus, the procurement through short term power is more expensive than medium term procurement.

STATE OF HARYANA EXPERIENCES A GAP OF NEARLY 3000 MW BETWEEN MAXIMUM AND MINIMUM DEMAND. HARYANA IS IN DEFICIT DURING CERTAIN TIME SLOTS ONLY. HPPC CAN ADOPT DEMAND SIDE-MANAGEMENT (DSM) MEASURES TO FLATTEN ITS DEMAND CURVE E.G. BY SCHEDULING AGRICULTURAL TUBEWELL SUPPLY DURING MINIMUM DEMAND PERIOD. IN CASE, STILL SOME SHORTFALL IS FELT, THE SAME CAN BE COVERED UP BY BUYING POWER FROM POWER EXCHANGE(S) UNDER DAY-AHEAD-MARKET (DAM)/REAL-TIME-MARKET (RTM). HPPC NEED TO EXAMINE THIS IN DETAIL AND GIVE ITS REFINED PROPOSAL.

- 4.18 That the petitioner is making all efforts to optimize power procurement and no stone is left unturned to flatten the demand of the State. To fortify the same, the petitioner is appending herewith Demand Graph for a particular day i.e., 25.07.2024 which shows that the demand met in a day is varying in between 10479 MW to 13193 MW i.e. there is a difference of 2714 MW. Considering that demand in the month of July is most unpredictable due to weather conditions however, demand graph shows that demand curve is almost flattened throughout the day. It is pertinent to point out that demand curve cannot be flattened 100% due to system constraints and availability, still the Petitioner constantly endeavour to flatten the demand by managing agriculture feeders and RDS feeders. AP feeders are run in three groups A, B and C through various substations which too are divided into three groups. Similarly, RDS feeders are divided

into three groups so that electricity can be supplied to them for particular hours in a day.

CONSIDERING THE ABOVE AND BASED ON THE ACTUAL FIGURES FOR THE FY 2023-24 AND FY 2024-25 (TILL DATE), A REVISED DEMAND-SUPPLY POSITION FOR FIVE YEARS MAY BE PROVIDED ALONG WITH DETAILED WORKING FOR THE SAME. HPPC MAY ALSO GIVE ITS REVISED PROPOSAL TO MEET THE DEFICIT (IF ANY).

4.19 That to forecast the demand for the upcoming months in a particular year (for short term period), HPPC uses actual CAGR on the historic peak demand, as explained below:

a) The historical data of the past years is referred. The maximum demand felt during a particular month of a year (starting from FY 2011-12 to last financial year i.e. FY 2023-24 as on date) is recorded and Cumulative Annual Growth Rate (CAGR) is applied by using following formula:

$$\left[\left(\frac{A^{23}}{B^{11}} \right)^{\frac{1}{T}} - 1 \right]$$

Note - A23 is the maximum demand felt in a particular month say April of year 2023 and B11 is the maximum demand felt in April of year 2011 and T is 13 years in this case.

b) The CAGR so arrived is applied for the forthcoming years to estimate the maximum demand that would likely be felt. If CAGR so arrived exceeds the maximum CAGR worked out by CEA (6.12% as per 20th EPS report of CEA for FY 2021-22 to FY 2026-27) in its prevalent Electric Power Survey (EPS) Report, the CAGR as per CEA is applied to estimate the peak demand for the forthcoming years, so as not to overestimate the requirement.

4.20 That to forecast the demand for the forthcoming years (for longer period say 5-10 years), methodology considering mode of peak demand is applied as under:-

The Mode (i.e. most occurring values) of peak demand is computed on monthly basis by arranging peak demand felt during the last 10 years in ascending order and then finding the value (demand) which occurs most frequently. The mathematical model to predict Mode of Peak demand is as under:

$$M_0 = l + \left(\frac{f_1 - f_0}{2f_1 - f_0 - f_2} \right) h$$

Where,

M_0 = Mode of Peak Demand

l = lower limit of the interval,

h = size of the interval

f_1 = frequency of modal class

f_0 = frequency of class preceding the modal class

f_2 = frequency of class succeeding the modal class

- 4.21 That the demand supply position as on date is worked out by taking Availability (in MW) on the basis of Normative Plant Availability Factor (NAPAF) for various plants, depending upon the sources of energy from State Generator, Central Sector Generators (CGSs) and Independent Power Producers through long term and medium-term agreements. Out of this contacted capacity, actual power on normative availability arrives by considering Normative Plant Availability Factor (NAPAF) is as under:

Sr. No.	Power Source	% share in total power demand for State
1.	Thermal/Gas	85%
2.	Hydro	
	For months April, May and September	61%
	For months June, July and August	87%
	For months October to March	26%
3.	Solar	19%
4.	Wind	34%
5.	Biomass/ Bagasse	80%

- 4.22 That a demand-supply projection chart based on mode of peak demand is appended herewith as Annexure P-6. The demand-supply projection has been made taking an optimistic scenario which shall ensure that there is no overestimation; while considering long term procurement, mode of peak demand is worked out, instead of taking average or maximum demand felt during the last years.
- 4.23 That the present petition has also been filed after a thorough deliberation on the requirement of the sought power pursuant to approval of SCPP. Upon evaluation of the power demand, it is submitted that procuring 527 MW power at a tariff of Rs. 5.78 per Kwh on a medium-term basis will be feasible and beneficial for the State and will help fulfil power requirement over the next five years.

Commission's Order

5. The Commission heard the arguments of the petitioner at length as well as perused the written submissions placed on record by the petitioner. The Commission has considered the submissions of the petitioner herein that the bids are valid up to 14.08.2024.
6. The Commission has taken note of the demand-supply position portrayed by HPPC. HPPC has submitted that deficit in power supply of approximately 900-2200 MW is being foreseen in next five years, considering all the contracted sources of power. Further, during winter season, generators with around 1200 MW capacity are going for scheduled maintenance on account of installation of De-NoX system for statutory

compliance of new environment NOx norms along with Capital overhauling works, for 40 to 75 days, which is likely to be extended. The Commission has perused the submissions of HPPC that it has recently discovered tariff ranging from Rs. 6.39/kWh (for August, 2024) to Rs. 8.28/kWh (for May, 2024), in the recently concluded NIT floated for procuring short term RTC power. Further, HPPC had procured 16257.20 LU of short-term power from IEX during the FY 2023-24 at average landed cost of Rs. 7.16/kWh. The Commission has also taken note of the submissions of HPPC that for the time slots where rates in the power exchange are higher, there is difficulty in clearance of requisite bid quantum. HPPC has averred that the purchase of power through the exchange to meet the deficit is a costly and unreliable arrangement. The procurement of power through medium term procurement as sought in the instant petition has been therefore, considered in the interest of the State.

7. The Commission is conscious of the fact that with the demand may rise significantly in the coming years due to fast paced urbanization and industrialization. Further, the power requirement of AP tube-well consumers as well as air conditioning load and the supply of power especially during the peak period is often inadequate. The supply side has been continuously constrained because of non-availability of power from a few large sources viz. Coastal Gujarat Power Ltd. (Mundra), Faridabad Gas Power Plant (FGPP, NTPC) and J&K Baglihar Hydro power project. Further, non-availability of certain intra-state thermal generators, particularly China make power plants, due to technical glitches/unforeseen circumstances, cannot be ruled out. Additionally, the short-term rates in the power exchanges are also expected to be exorbitant during the peak months as the power demand in the entire northern region increases during these months.
8. Having observed as above, but before parting with the present petition, the Commission observes that the Discoms are already burdened with deferred 'Fuel and Power Purchase Adjustment Surcharge' amounting to Rs. 7672 crore as on 31.03.2023. The higher power purchase cost will increase this bucket of 'deferred Fuel and Power Purchase Adjustment Surcharge' to a level which will be difficult to realize from the consumers without giving them a tariff shock. It has been observed that there is gap of around 3000 MW between the daily maximum demand and minimum demand met. The more stringent efforts are required to reduce the 'peak load' by taking appropriate demand side management measures. Further, a long-term planning of power procurement, considering the forecasted demand, is required so that reliable power is made available to the electricity consumers of the State of Haryana, at optimum and firm cost. The options of power procurement should be explored with responsibility and accountability of the generator to supply power at firm tariff.

9. Subject to the above observations, the Commission has considered it appropriate to accord source approval as prayed for in the petition, in the best interest of the electricity consumers of the State of Haryana. The Commission adopts the tariff and approves the PPA to procure the power, as prayed for in the present petition.

In terms of the above order, the present petition is disposed of.

This order is signed, dated and issued by the Haryana Electricity Regulatory Commission on 08.08.2024.

Date: 08.08.2024
Place: Panchkula

(Mukesh Garg)
Member

(Nand Lal Sharma)
Chairman