

4.9 Power Purchase Cost

PSPCL's Submissions:

PSPCL has submitted as follows:

A. Assessment of availability:

- i) The demand of power is met by procurement of power from central generating stations and other external sources apart from state's own Generation. The major sources from which PSPCL procures Power are:
 - Central Generating Stations
 - IPP's
 - Co-Generation Plants
 - Banking Arrangements
 - Traders
- ii) The State of Punjab receives its fixed share from the Central Generating Stations (CGSs) based on its allocation from each of the respective stations. Moreover, it also receives a quantum of power from the unallocated share in various CGSs at different intervals during a year.
- iii) Projected energy availability from all existing Central Hydro Generating Stations has been taken as per target provided by Central Hydro Generating Stations for FY 2021-22 and FY 2022-23. Furthermore, State of Punjab is also purchasing the power from Independent Power Producers (IPPs) including Talwandi Sabo Power Ltd. (TSPL), Rajpura TPS (NPL), Goindwal Sahib Power Plant (GVK), etc.
- iv) Projected Energy from the New Hydro and Thermal projects has been calculated in accordance with the CEA regulations/ Designed Energy as mentioned in the PPA.
- v) Merit Order Dispatch is followed for projecting energy availability from long term tied-up plants for ensuing years FY 2021-22 and FY 2022-23 respectively. Power surrendered from thermal/gas generating stations is assumed to be limited at backing down capacity. Any surplus created on this account is banked with other states and consumed during the next financial year.

B. Annual Fixed Charges and Variable Charges:

- i) For FY 2021-22 (H2), fixed charges for CGSs, Karcham, Sasan UMPP and Mundra UMPP, NPL and TSPL have been assumed to be same as that of FY 2021-22 (H1)

- ii) The fixed charges for Bairasul HEP have been calculated on the basis of fixed charges paid for the month of Sept'21, as the Unit#3 of the plant completed its R&M and synchronized with the grid on 30.08.2021.
- iii) The fixed charges for Malana-II have been computed based on Plant Availability Factor of FY 2020-21 (H2) and Annual Fixed Charges of FY 2021-22, according to Orders dated 9th March 2021 against the Petition no. 16 of 2020. Mundra UMPP has ceased operations w.e.f. 18th September 2021, however, the fixed charges for CGPL-Mundra UMPP have been assumed to be those of FY 2020-21 (H1), as it is uncertain whether the CGPL will resume operations or not.
- iv) Fixed charges for GVK during FY 2021-22 (H2) have been computed based on AFC of FY 2021-22 in line with the Commission's Order dated 26.10.2021 against the Petition 14 of 2020. While computing fixed charges, the actual cumulative plant availability factor upto Oct-2021 according to the state energy account was considered. However, due to issuance of termination notice to GVK dated 29.10.2021, fixed charges have been considered as NIL for the rest of the period.
- v) The fixed charges for CGSs for FY 2022-23 have been calculated taking into account the cumulative plant availability factor, cumulative percentage share same as that of FY 2021-22 (H1) and same AFC as that of FY 2021-22.
- vi) For central hydro generating stations, fixed charges have been calculated by assuming Plant Availability Factor of FY 2021-22 (H1) for FY 2022-23 and Annual Fixed Charges of FY 2021-22. In the case of Bairasiul HEP, the normative plant availability Factor for FY 2022-23 has been considered as the Unit#3 of the plant completed its R&M and synchronized with the grid on 30.08.2021. Normative Plant Availability Factor for FY 2022-23 has also been assumed for calculation of fixed charges in case of Sewa-II HEP.
- vii) Due to issuance of Termination Notice dated 12.08.2021 to Anta, Auriya, & Dadri stations of NTPC in view of PSERC order dated 05.08.2021 in Petition no. 28 of 2021, power purchase cost from these stations has been considered as NIL for FY 2022-23.
- viii) Fixed charges for TSPL & NPL have been assumed as same as that for FY 2021-22. Further, assuming the effect of Supreme Court order towards Mega Power Status in case of NPL & TSPL, an increase of 10 paise/unit and 13 paise/unit towards fixed cost respectively has been assumed for FY 2022-23.
- ix) Assuming the effect of Supreme Court order towards Installation of FGD and SNCR systems at NPL & TSPL, an increase of 37 paise/unit and 26 paise/unit towards fixed cost respectively has been assumed for FY 2022-23.

- x) PCPCL has not considered any upward rise in cost for the projection of energy charges for H2 of FY 2021-22 compared to H1.
- xi) The variable rates for CGSs, UMPPs and IPPs for the period FY 2021-22 (H2) have been set equal to those of September 2021.
- xii) Per unit energy and capacity charges proposed for FY 2021-22 is escalated by 5% over the year to project power purchase cost for FY 2022-23.

Accordingly, PSPCL has submitted total power purchase cost of Rs. 22499.11 Crore for APR of FY 2021-22 and Rs. 23511.77 Crore for FY 2022-23.

Commission's Analysis:

A. Inter State Losses:

PSPCL has considered actual inter-State loss of 3.27% for FY 2021-22 (H1). Further, it has projected the inter-State loss of 3.54% and 3.00% for FY 2021-22 (H2) and FY 2022-23 respectively, which the Commission accepts, subject to true up and validation of the same.

B. Fixed Charges

The Commission has provisionally accepted the fixed charges submitted by PSPCL for FY 2021-22 for FY 2022-23. However, the impact of 10 paise/unit and 13 paise/unit in case of Mega Power status in case of NPL/TSPL in FY 2022-23 has not been considered by the Commission, and the same shall be considered during the time of true up, subject to the judgement of the Hon'ble Supreme Court.

C. Variable Charges

The per unit variable cost for FY 2021-22 (H1) has been considered based on actuals. The Commission observes that the actual power purchase cost has shown an increasing trend during the past few years, which has to be passed on to the consumers either in the form of FCA or as a revenue gap along with carrying cost on account of increased power purchase cost at the time of true-up of the respective year. Thus, the Commission decides to consider an escalation of 4% in the per unit variable cost considered by PSPCL for FY 2021-22 (H2). In respect of per unit variable cost for FY 2022-23, the Commission has not considered any increase in the per unit variable cost.

Also, the Commission has excluded Rs. 664.38 Crore of PSTCL Transmission charges and SLDC charges included in the variable charges as the same is allowed separately in the Order.

D. Prior Period and Other Expenses:

In the Power Purchase Cost for FY 2021-22, PSPCL has included previous year payment of Rs. 160.78 Crore. Further, vide reply dated 27.12.2022 PSPCL submitted expenses of Rs. 37.68 Crore as additional UI charges for FY 2021-22 (H1). The Commission shall be dealing with the same at the time of True-up of FY 2021-22. Further, PSPCL has included PSTCL Transmission Charges and SLDC Charges in 'other charges' for both FY 2021-22 and FY 2022-23. The same has been excluded from the power purchase cost as it is being allowed separately in the Order.

Accordingly, the total cost of power purchase cost for FY 2021-22 and FY 2022-23 is worked out as follows:

Table 97: Power Purchase cost for FY 2021-22 & FY 2022-23

Rs. Crore

Sr. No.	Description	FY 2021-22		FY 2022-23	
		Submitted by PSPCL	Approved by the Commission	Submitted by PSPCL	Approved by the Commission
I	II	III	IV	V	VI
1	Power Purchase (Net)	52389.38	52237	52504.29	52331
2	External Losses	1061.48	1058	889.76	887
3	Power Purchase (Gross)	53450.86	53295	53394.06	53218
	Cost of Power Purchase				
4	a) Variable Cost	15517.25	15688	15674.73	15646
	b) Fixed Cost excluding RECs	6664.69	6665	7323.26	7323
	c) Other Charges	317.16	317	313.78	314
	Total	22499.11	22670	23311.77	23283
5	*Add Cost of Purchase of RECs	-	-	200.00	200
6	Less: Impact of 10 paise/unit and 13 paise/unit in case of Mega Power status in case of NPL/TSPL	-	-	-	225
7	Total Cost of Power Purchase (including RECs)	22499.11	22670	23511.77	23258
8	Per Unit Average Power Purchase Cost (Gross)	4.21	4.25	4.40	4.37
9	Per Unit Average Power Purchase Cost (Net)	4.29	4.34	4.48	4.44

* Discussed under para 4.10.

Accordingly, the Commission approves the revised estimates power purchase cost (excluding Intra-State Transmission and SLDC charges) of Rs. 22670 Crore and Rs. 23258 Crore for FY 2021-22 and FY 2022-23 respectively. The Commission reiterates that the quantum and rate of power approved by the Commission is only for the purpose of power purchase and energy balance for FY 2021-22 and FY 2022-23. The

same should not be construed as Commission's approval for procurement of power on long-term basis.

4.10 RPO Compliance

The Commission vide its Order dated 13.10.2021 in petition no. 36 of 2021 filed by PSPCL, keeping in view of the difficulties faced by the obligated entities as well as consumers of the Punjab on account of the lockdowns imposed to prevent the spread of COVID Pandemic, allowed the carry forward of the surplus/gap after compliance of RPO of FY 2020-21 to FY 2021-22 and reduction in RPO targets fixed for FY 2021-22 by 0.3% for Non Solar and 1.5% for Solar. Accordingly, with the revised RPO target of 7.7% (8.0%-0.3%) for Non-Solar and 5.0% (6.5%-1.5%) for Solar, status of RPO Compliance by PSPCL, as per the provisions of PSERC (Renewable Purchase Obligation and its compliance) Regulations 2011, as amended from time to time, is worked out as under:

Table 98: Status of RPO Compliance for FY 2021-22 & 2022-23

Sr. No.	Description	Unit	FY 2021-22		FY 2022-23	
1	Energy Consumption/Input in PSPCL System	MkWh	60,850		63,121	
	Consumption met from Hydro sources		12,416		13,098	
	Consumption/Energy Input in PSPCL's system excluding consumption met from Hydro sources		48,434		50,023	
			Non Solar	Solar	Non Solar	Solar
2	RPO Target for the Year	%	7.70	5.00	9.50	8.00
		MkWh	3,729	2,422	4,752	4,002
3	RPO compliance during the year	MkWh	3,204	1,969	3,566	3,307
4	RPO shortfall/surplus (-) during the year (2-3)		525	453	1,186	695
5	RPO shortfall/surplus upto previous year		-107	- 332	-	-
6	Net RPO shortfall/surplus (-) (4-5)		418	121	1,186	695

The Commission observes that the projected RPO shortfall of Non-Solar and Solar for FY 2021-22 works out to be 418 MkWh and 121 MkWh respectively and for FY 2022-23 works out to be 1186 MkWh and 695 MkWh respectively. And, PSPCL has kept the provision of Rs. 200 Crore for procurement of the RECs in its ARR for FY 2022-23. The Commission allows the same, with directions that PSPCL shall fulfill its RPO shortfall for FY 2021-22 within one month of issue of this Order. Further, for FY 2022-23, PSPCL shall endeavor to meet its RPO targets through increased share of NRSE sources in its power portfolio/REC.

4.11 Capital Expenditure for FY 2021-22 and FY 2022-23

PSPCL in its Petition had initially projected Capital Expenditure of Rs. 1759.47 Crore for FY 2021-22 and Rs. 1476.60 Crore for FY 2022-23.

Commission's Analysis:

The Commission approved the Capital Expenditure and capitalisation for FY 2021-22 and FY 2022-23 in its Order dated 03.12.2019 for Capital Investment Plan. The summary of the same is as follows:

Table 99: Summary of Capital Investment approved by the Commission for 2nd Control Period (Rs. Crore)

Particulars	Capital Expenditure approved by the Commission in CIP	
	FY 2021-22	FY 2022-23
I	II	III
Generation Business	557.95	438.09
Distribution Business	1520.67	1407.65
Total Capital Investment	2078.62	1845.74

The Commission in the MYT Order had directed PSPCL to curtail Capital Expenditure by 20% during the 2nd Control Period in view of the extraordinary situation prevailing across the country due to Covid-19 outbreak and consequent likely difficult economic situation.

The Commission vide Tariff Order for FY 2021-22, has curtailed the Capital Expenditure of FY 2021-22 approved in the CIP by 20% as per the directions given in the MYT Order.

Further, the Capital Expenditure projected by PSPCL for Shahpur Kandi Hydro Project and SYL was not considered by the Commission as the Capital Expenditure for the same were not approved in the CIP.

Table 100: Capital Expenditure provisionally approved by the Commission for FY 2021-22 in Tariff Order for FY 2021-22 (Rs. Crore)

Particulars	Approved by the Commission
	FY 2021-22
I	II
Generation Business	446.36
Distribution Business	1216.54
Total Capital Expenditure	1662.90

The Commission has observed that PSPCL vide email dated 08.03.2022 has submitted the revised capital expenditure and capitalization for FY 2021-22 and FY 2022-23.

Accordingly, the Capital Expenditure provisionally approved by the Commission for FY 2021-22 and FY 2022-23 is as follows:

Table 101: Capital Expenditure provisionally approved by the Commission for FY 2021-22 and FY 2022-23

(Rs. Crore)

Particulars	Approved by the Commission	
	FY 2021-22	FY 2022-23
I	II	III
Generation Business	337.22	275.19
Distribution Business	1246.46	1126.12
Total Capital Expenditure	1583.68	1401.31

4.12 Capital Works in-Progress and Funding

The Opening Capital Work in Progress is considered from the Closing Capital Work in Progress (CWIP) approved in the True-up of FY 2020-21 in this Order. The CWIP for FY 2021-22 is as follows:

Table 102: Capital Work in Progress approved by the Commission for FY 2021-22 and FY 2022-23

(Rs. Crore)

Sr. No.	Particulars	FY 2021-22	FY 2022-23
1	Opening Capital Work in Progress	1886.26	1710.70
2	Add: Capital Expenditure during the Year	1583.68	1401.31
3	Less: Capitalisation	1759.24	1547.56
4	Closing Capital Work in Progress	1710.70	1564.45

PSPCL has submitted that Capital Expenditure during FY 2021-22 and FY 2022-23 shall be completely financed through loans. Therefore, the Commission has considered the same for funding of approved Capital Expenditure. The infusion of equity (if any) shall be considered during the True Up of respective years as per the Annual Audited Accounts.

During the 2nd Capital Investment Plan, the Financing Plan was given as per the Capital expenditure approved by the Commission. As per the approach followed in the MYT Order, since the funding of assets is to be approved for PSPCL only after the assets are put to use, the Commission has considered to fund the new schemes as per Capitalization and in order to avoid funding of the Spillover schemes twice, the Commission has considered funding of the Spillover Schemes as per capital expenditure for FY 2021-22 to FY 2022-23. The Commission shall retain separate methodologies for spillover and new schemes until the time all spillover schemes as on 01.04.2020 are capitalized. After the capitalization of all such spillover schemes, the closing value of loans, equity and depreciation for spillover schemes shall be added to the opening value of loans, equity and depreciation respectively for new schemes in the subsequent year.

The Commission allows 100% financing through long term loans after deducting funds raised through grants and Consumer Contribution. The Grant and Consumer Contribution for FY 2021-22 is considered as Rs. 403.13 Crore as approved in Tariff Order for FY 2021-22 and the same has been considered for FY 2022-23.

Based on approved amount of capital expenditure and capitalization as mentioned in the table above, the Commission determines funding for FY 2021-22 and FY 2022-23 as follows:

Table 103: Funding of Spillover schemes for FY 2021-22 and FY 2022-23

(Rs. Crore)			
Sr. No.	Particulars	FY 2021-22	FY 2022-23
Generation Business			
1	Loan requirement of Generation Business	178.88	273.68
Distribution Business			
1	Loan requirement of Distribution Business	44.33	-
2	Less: Consumer Contribution and Grants	-	-
3	Total loan requirement	44.33	-

Table 104: Funding of New schemes for FY 2021-22 and FY 2022-23

(Rs. Crore)			
Sr. No.	Particulars	FY 2021-22	FY 2022-23
Generation Business			
1	Loan requirement of Generation Business	18.92	1.36
Distribution Business			
1	Loan requirement of Distribution Business	1346.91	1448.40
2	Less: Consumer Contribution and Grants	403.13	403.13
3	Total loan requirement	943.78	1045.27

4.13 Operation and Maintenance Expenses

The O&M expenses for the 2nd Control Period have been projected as per the Regulation 26 of the PSERC MYT Regulations, 2019. The Regulation has been reproduced as under:

“26.1. The O&M expenses for the nth year of the Control Period shall be approved based on the formula shown below:

$$O\&M_n = (R\&M_n + EMP_n + A\&G_n) \times (1 - X_n)$$

Where,

R&M_n – Repair and Maintenance Costs of the Applicant for the nth year;

EMP_n – Employee Cost of the Applicant for the nth year;