

PUNJAB STATE ELECTRICITY REGULATORY COMMISSION
SITE NO. 3, BLOCK B, SECTOR 18-A MADHYA MARG, CHANDIGARH

Petition No. 29 of 2023
(Suo-Motu)
Alongwith IA No. 11 of 2023
Date of Order: 02.07.2024

Petition (Suo Motu) for devising mechanism for payment of amounts by the procurer (PSPCL) to Talwandi Sabo Power Limited and Nabha Power Limited towards additional cost and other expenses in relation to procurement, installation, commissioning, operation and maintenance of FGD for SO₂ and carrying cost in terms of the provisions of the PPAs.

And

In the matter of: Commission on its own motion for compliance of the order dated 28.08.2020 passed by the Hon'ble APTEL in Appeal No. 21 of 2019 and 73 of 2019.

Versus.

1. Talwandi Sabo Power Limited, Site cum Registered Office: Village Banawala, Mansa-Talwandi Sabo Road, District Mansa, Punjab 151302.
2. Nabha Power Limited, Aspire Tower, 4th Floor, Plot No.55, Industrial and Business Park, Phase-I, Chandigarh-160 002.
3. Punjab State Power Corporation Limited, The Mall, Patiala, Punjab, 147001.

Commission: Sh. Viswajeet Khanna, Chairperson
Sh. Paramjeet Singh, Member
TSPL: Sh. Amit Kapoor, Advocate (through VC)
NPL: Sh. Venkatesh, Advocate (through VC)
PSPCL: Ms. Poorva Saigal, Advocate (through VC)

ORDER

1. Talwandi Sabo Power Limited (TSPL) and Nabha Power Limited (NPL) have setup Thermal Power Plants of 3X660 MW and 2X700 MW respectively under Case 2 Scenario 4 of the Competitive Bidding

Guidelines under Section 63 of the Electricity Act 2003. After the notification of revised emission norms vide Environment (Protection) Amendment Rule 2015 by the MOEF & CC, TSPL filed Petition No. 44 of 2017 and NPL filed Petition No. 02 of 2018 seeking approval and consequent tariff adjustment for incurring the additional capital and operating expenditure citing the revised emission norms vide the said Rules as a “Change in Law” event under their respective PPAs. Upon disallowance of their claim by the Commission vide order dated 21.12.2018 in Petition No. 44 of 2017 and order dated 09.01.2019 in Petition No. 02 of 2018, TSPL filed Appeal No. 21 of 2019 and NPL filed Appeal No. 73 of 2019 before Hon’ble APTEL challenging the Commission’s Orders. The Hon’ble APTEL has disposed of the said Appeals vide a common order dated 28.08.2020 setting aside the orders dated 21.12.2018 and 09.01.2019 passed by the Commission and has observed as under:

- a) *The MoEF & CC Notification dated 07.12.2015 is a Change in Law event under PPAs in question having regard to the facts and circumstances of the case of the Appellants.*
- b) *The installation and operation of the FGD and associated system to comply with emission levels of SO₂ is Change in Law and additional expenditure for the same including all allied cost like taxes, duties etc., has to be included as Additional Capital Cost to be incurred by the Appellants.*
- c) *In case technology for installing and operating SNCR and/or any other appropriate technology is mandated in future for complying with the emission levels of NO_x in terms of Notification of 2015, it also amounts to Change in Law event.*
- d) *The Respondent-Commission is directed to devise a mechanism for payment of above amounts by the procurers to both the Appellants towards*

additional cost and other expenses in relation to procurement, installation, commissioning, operation and maintenance of FGD for SO₂ as approved by the concerned authority, after prudence check.

e) Appellants are entitled for carrying cost in terms of provisions of the PPAs to bring the seller-Appellants to the same economic position as if such Change in Law event has not occurred.

However, the said Order by Hon'ble APTEL has been further challenged by PSPCL in the Hon'ble Supreme Court through Civil Appeal Nos. 3688 of 2020 and 3763 of 2020.

2. NPL submitted a letter No. NPL/CD/JU/PSERC/CPR/230411/1 dated 11.04.2023, enclosing the copy of the order dated 03.02.2022 passed by the Hon'ble Supreme Court in Civil Appeal No. 3688 of 2020 and 3763 of 2020 preferred by PSPCL against the Order passed by Hon'ble APTEL. It was submitted that, since no interim relief has been allowed to PSPCL, directions issued by Hon'ble APTEL for devising a suitable mechanism for payment of compensation towards additional costs of the FGD is still mandatory to be followed in letter and spirit. NPL also submitted that the CERC, vide its Order dated 13.08.2021 in Petition No. 06/SM/2021 (Suo-Motu), has already devised a mechanism to determine compensation on account of installation of Emission Control System (ECS) to comply with the revised emission norms by the generating companies, whose tariff is determined through a competitive bidding process under Section 63 of the Electricity Act. However, the same has been challenged before the Hon'ble APTEL in Appeal No. 306/2021 by the Association of Power Producers & Others, on various counts including the issue of the compensation mechanism transcending beyond the operative period of the agreements, provisional tariff and compensation related to the shutdown period.

The letter dated 11.04.2023 submitted by NPL was taken on record as a Suo-Motu petition for compliance of the Order dated 28.08.2020 passed by the Hon'ble APTEL in Appeal No. 21 of 2019 and 73 of 2019. Notice was issued to the parties to appear and submit their written submissions in the matter on an affidavit well before the date of hearing.

3. NPL filed its written submissions dated 17.07.2023 as well as an IA (No. 11 of 2023) seeking Interim Relief by way of a provisional tariff till the time the supplementary tariff is finally determined by the Commission. NPL's submissions are summarized as under:

- 3.1 NPL has submitted that the CERC in its Order 13.08.2021 has considered the Change in Law provision under the Case 2 bidding documents which is identical to the "Change in Law" provisions (Article 13) under the instant PPA. The compensation mechanism devised by CERC is based on the principle laid down in PPAs for restoring the Affected Party to the same economic position as if no Change in Law had occurred. The same can be considered as the model document for devising the methodology in the present case as the NPL's Project was also established as a Case 2 project under the Guidelines for Determination of Tariff by Bidding Process for procurement of power by Distribution Licensees, 2005. The CERC has devised the following structure of compensation:

"A. The Supplementary Capacity Charge (SFC) shall consist of:

(i) Servicing of Additional Capital Expenditure:

(a) Depreciation (DEPe); and

(b) Cost of Additional Capital Expenditure (COCe);

- (ii) *Additional Operation and Maintenance Expenses (O&Me);*
- (iii) *Additional Interest on Working Capital (IWCe); and*
- (iv) *Additional Capacity Charges due to Additional Auxiliary Energy Consumption (ACCe).*

B. *The supplementary Energy Charge (SEC) shall consist of:*

- (i) *Expenses towards consumption of reagent (COrE); and*
- (ii) *Additional Energy Charges due to Additional Auxiliary Consumption (AECE).*

The Commission may consider the same to devise a mechanism/structure for compensation subject to modifications as suggested herein below.

3.2 **Compensation for additional capital expenditure**

The compensation on account of additional capital expenditure would be through the following two components:

- a) **Depreciation:** It is submitted that the useful life of a thermal power plant should be considered as remaining term of the PPA for the purpose of recovery of depreciation. In this regard it may be noted that any expenditure incurred within the PPA period has to be recovered within the remaining term of the PPA, otherwise the entire purpose of having an inbuilt restitution mechanism would be rendered nugatory.
- b) **Cost of Additional Capital Expenditure:** While devising a mechanism for recovery of Cost of Additional Capital Expenditure, the Commission may also consider Cost of Equity Contribution as in projects such as generating stations approximately 70% of total capital is funded by debt and the remaining 30% by the equity contribution. The cost of arranging equity being higher vis-à-vis cost for arranging

debt, the Commission may consider the same @ 15.5% post-tax as is available to cost plus Section 62 projects as the restitution principle in Section 63 projects is purely cost plus. Thus, the overall Cost of Capital for these two components taken together should be the Weighted Average Cost of Capital (**WACC**). The concept of WACC has been explained by CERC in its Explanatory Memorandum and Statement of Reasons issued for current as well as earlier Tariff Regulations for conventional as well as for Renewable generation projects. The Pre-tax WACC has been defined by CERC as:

$$\mathbf{WACC} = (rd * D + re * E) / CE$$

where,

rd = rate of interest on Debt,

D = Debt,

E = Equity,

CE = Capital Employed = *D*+*E*,

re = pre-tax return on equity

In view of the afore-mentioned, the Commission may consider that the cost of capital employed during the year should be worked out as follows:

$$COCe(n) = NFA(n) \times RI(n) / 100$$

Where,

$$NFA(n) = ACEe - [(n-1) \times (DEPe)]$$

COCe Servicing cost of Additional Capital Expenditure in Rupees per annum;

NFA(n) is the net fixed asset of the of the year “n”;

RI(n) is the **WACC** or at the rate of Marginal Cost of

Funds based Lending Rate (MCLR) of State Bank of India (for one year tenor) as on 1st April of the year plus 350 basis points, whichever is lower.

n represents the year starting from the date of operation of emission control system.

DEPe is annual depreciation (in Rupees).

ACEe is the gross capital cost (in Rupees) of emission control system as admitted by the Commission;

3.3 Operation and Maintenance Expenses:

The Commission may consider the additional operation and maintenance expenses as under:

- | | |
|-------------------|---|
| 1st Year: | 5% of ACEe excluding IDC and FERV (to be allowed proportionately if operation of ECS is for part of the year) |
| 2nd Year onwards: | 5% of ACEe escalated annually at the rate of 3.5% |

It is submitted that the additional O&M expenses should be allowed @ 5% in view of the following:

- a) The Wet Limestone FGD is primarily a large chemical based plant with higher wear and tear entailing higher O&M cost.
- b) The implementation of ECS in the existing generating projects may require additional infrastructural support to facilitate smooth operation which further increases the cost of O&M. Further, there will be higher maintenance cost as a sizeable number of equipment installed for the ECS is

likely to be imported which are sensitive to Foreign Exchange Rate Variation (**FERV**) fluctuations.

- c) The Commission should consider the equipment deterioration while determining additional O&M expenses as the entire system operates in a corrosive environment. This could pose significant challenges for generators in terms of ensuring ECS availability which may further increase the Maintenance cost.

3.4 Interest on Working Capital (IWC)

The following components may be allowed in respect of Working Capital:

- a) Cost of limestone or reagent for stock of 20 days corresponding to the normative annual plant availability factor;
- b) Advance payment for 30 days towards cost of limestone or reagent for generation corresponding to the normative annual plant availability factor;
- c) Operation and maintenance expenses in respect of emission control system for one month;
- d) Maintenance spares @ 20% of operation and maintenance expenses in respect of emission control system; and
- e) Receivables equivalent to 45 days of supplementary capacity charge and supplementary energy charge for sale of electricity calculated on the normative annual plant availability factor.

Therefore, following mechanism may be devised in respect of Additional Interest on Working Capital:-

$$IWCE(n) = WCE(n) \times WCIR(n)/100.$$

Where,

WCE(n) is the Working Capital of the year for which compensation is to be determined

WCIR(n) is Working Capital Interest rate (in %) which is Marginal Cost of Lending Rate of State Bank of India (for one year tenor) plus 350 basis points as on 1st April of the year for which compensation is to be determined.

3.5 The following formula may be prescribed in respect of the ‘**additional capacity charges due to Additional Auxiliary Energy Consumption**’:

$$ACC_e \text{ (Rs/kWh)} = \text{Quoted Capacity Charges} \times \left\{ \frac{(1-AUX_o)}{(1-AUX_t)} - 1 \right\}$$

Where,

Quoted Capacity Charge is sum of Quoted Escalable and Non-escalable Capacity Charges in the contract year in accordance with the PPA;

AUX_t is the total auxiliary energy consumption and is equal to (AUX_o + AUX_e);

AUX_o is the original auxiliary energy consumption as agreed under the definition of thermal generating station’s net capacity or otherwise; and

AUX_e is the additional auxiliary energy consumption due to emission control System as specified by the Central Electricity Authority and admitted by the Commission from time to time.

3.6 The following formula may be prescribed for the ‘**cost of reagent**’ per unit of electricity generated during the month to be calculated based on the specific reagent consumption (grams/kWh) and landed price (in Rs.) of the reagent at the generating station:

$$COR_e(\text{Rs/kWh}) = \left(\frac{SRC_e \times LPR_e}{1000} \right)$$

Where,

COR_e	is expenses towards consumption of reagents in Rs/kWh
SRC_e	is the specific reagent consumption on account of emission control system (in grams/kWh) for a unit generated at generator terminal. This shall be normative number recommended by CEA for different variants of ECS;
LPR_e	is the weighted average landed price of reagents for ECS (in Rs/kg) during the month.

However, the formula for computation of Specific Reagent Consumption (SRC_e) as provided in CERC order suffers from a typographical error which has already been highlighted to CERC by NPL vide its letter dated 18.05.2023. Accordingly, the corrected formula must be applied by the Commission as under:

$$SRC_e = [85 \times K \times SHR (\text{kCal/kWh}) \times S (\%)] / [GCV (\text{kCal/kg}) \times LP (\%)]$$

Where,

S = Sulphur content in percentage,

LP = Limestone Purity in percentage.

3.7 The following formula may be prescribed for **'Additional Energy Charges due to Additional Energy Consumption'**:

$$AEC_e = \text{Monthly Energy Charges} \times \left[\frac{(1-AUX_o)}{(1-AUX_t)} \right]^{-1}$$

Where,

Monthly Energy Charges are for the respective month in Rs/kWh.

3.8 That with respect to recovery of the **additional expenditure in the form of Supplementary Capacity Charges and Supplementary Energy Charges**, the CERC devised the following structure:

(a) Recovery of Supplementary Capacity Charges:

“A. The supplementary capacity charges $SFC(m)$ would consist of two components:

- a. Compensation for additional fixed Charges due to additional capital expenditure, O&M and IWC (AFE_e) (in Rs per KWh); and
- b. Compensation for Capacity Charges due to additional Auxiliary Consumption (ACC_e) (in Rs per KWh)

Accordingly, per unit supplementary capacity charges shall be worked out as under:

$$SFC(m) = AFE_e + ACC_e \text{ (in Rs/kWh)}$$

B. Per unit Supplementary Capacity Charge $SFC(m)$ on account of installation of the Emission Control System shall be computed with respect to the installed capacity of unit or generating station, as the case may be, and shall be recovered with reference to the contracted capacity under each power purchase agreement. The compensation for additional fixed expenditure due to ECS shall be computed by applying following formulae:

$$AFE_e = \left(\frac{\sum [DEPe, COCe, O\&Me, IWCe]}{(IC \times 1000 \times NA \times (1 - AUX_t) \times h)} \right) \text{ (in Rupees per KWh)}$$

Where,

IC is Installed Capacity (in MW);

NA is Normative Availability of the generating station expressed in decimal; and

h is Total number of hours in the year;

C. ACC_e in Rs/KWh shall be calculated as per the following formulae mentioned in Paragraph 54.

$$ACC_e = \text{Quoted Capacity Charges} \times \left\{ \frac{(1 - AUX_o)}{(1 - AUX_t)} - 1 \right\}$$

D. By applying the above per unit value of the Supplementary Capacity Charge rate (Rs/kWh), the generating company shall recover the

supplementary capacity charges on monthly basis under each PPA depending upon the cumulative availability of the thermal power plant or generating unit, as the case may be, till the end of each month. No supplementary incentive shall be allowed to the generating company for declaring the availability of ECS beyond the normative availability of the thermal generating station where ECS is installed. The availability and payment of supplementary capacity charges shall be reconciled on annual basis. If the contract period as per PPA is less than the useful life of the emission control system, the obligation of the procurer shall be limited to its contract period and contracted capacity.”

(b) Recovery of Supplementary Energy Charges:

“71. Per unit Supplementary Energy Charges on account of installation of the emission control system shall be computed on the basis reagent consumption and additional quoted energy charges. Monthly Supplementary Energy Charges per (SEC(m)) shall be computed as follows:

$$SEC(m) = AEO(m) \times [COR_e / (1 - AUX_t) + AEC_e]$$

Where,

AEO(m) is scheduled energy during the month ‘m’ (in kWh);

COR_e is expense towards consumption of reagents (Rs. per kWh);

AUX_t is Total Auxiliary Energy consumption ;

AEC_e is Additional Energy Charge due to Additional Auxiliary Energy Consumption (Rs. per kWh);

SEC(m) is Supplementary Energy Charges for the month ‘m’.”

Further, the additional auxiliary energy consumption, due to installation of ECS, also impacts the contracted capacity (CC) assumed at the time of arriving at the contracted capacity,

thereby impacting the computation of availability factor. Accordingly, with respect to the availability computation on account of installation of ECS, the CERC has devised the following methodology:

“Since contracted capacity under the power purchase agreement has been revised to give effect of additional auxiliary energy consumption, the availability factor shall also be calculated based on revised contracted capacity. Accordingly, the computation of Availability factor on account of impact on contracted capacity due to additional auxiliary energy consumption of the emission control system shall be as under:

$$\text{Availability (\%)} = (\text{Availability declared in MW} \times 100) / (\text{CC(Revised)})$$

Where,

$$\text{AUX}_t = \text{AUX}_o + \text{AUX}_e$$

$$\text{CC(Revised)} = \text{CC}_o \times (1 - \text{AUX}_t) / (1 - \text{AUX}_o);$$

CC_o is Original Contracted Ex-Bus capacity of unit or generating station, as the case may be”

The compensation mechanism devised by CERC may be treated as a model mechanism for determination of supplementary tariff for generating stations operating under Section 63 of the Act.

- 3.9 Shutting down period:** NPL has submitted that for integration of ECS with thermal generating station/ unit, a minimum of 10 days normative shutdown for each unit is required. The CERC in its order has already held that the issue of shutdown would be dealt on case to case basis. During the shutdown period for ECS installation, the Generation Company ought to be compensated for complete defrayment of fixed charges, waiver of penalty under PPA, if any, and waiver of charges for short/ non-lifting of coal as per FSA, if any. Although, it is reasonable to expect that

the period of shutdown would differ from plant to plant. However, it would be prudent if the Commission explicitly provides the complete defrayment of fixed charges/opportunity costs incurred by the generating station during the shutdown period, as this would be consistent with the principle of economic restitution under Change in Law.

3.10 Merit Order Dispatch: NPL has submitted that as compensation for implementation of ECS will be paid by way of Supplementary Charges (Energy and Capacity). Accordingly, the final energy charge which will be billed to PSPCL post implementation of ECS would comprise of Energy Charges along with Supplementary Energy Charges. Consequently, the Energy Charge rate of respective TPP would increase. If Merit Order Dispatch is prepared after addition of Supplementary Energy Charges, it would in turn lower the ranking of that TPP in the Merit Order Dispatch. Accordingly, the scheduling of the respective TPP will be impacted. Further, this shall apply only when the Generating Station raises a Single Monthly Bill (including the impact of Supplementary Capacity & Energy Charges). If a separate bill is raised for the impact of only Supplementary Capacity & Energy Charges, then only the monthly bill may be considered for the Merit Order Dispatch. Various authorities like CEA, MoP, etc. have time and again highlighted that the impact of operating costs incurred in the implementation of new Environmental Norms shall not be considered for Merit Order Dispatch of Coal Based Thermal Power Stations. The Commission may consider that CERC in its Order dated 13.08.2021 has provided that recovery of compensation shall be done in the same manner by raising

supplementary monthly bills as is being done in case of any other monthly bills to be paid under the respective PPAs and the same principle shall apply for payment security mechanism. Therefore, impact of ECS is not required to be considered while preparing the Merit Order Despatch.

3.11 On the issue of Provisional Tariff NPL has submitted that the provisional tariff needs to be mutually agreed between procurers and sellers considering the compensation mechanism decided in the Order itself. The determination of compensation, being a time-consuming process, may take 6-12 months after the ECS's Operation date. In the absence of any provisional compensation, the Generating Company would be unable to recover the additional tariff for the period pending litigation. However, the Generation Company's debt servicing obligations, to its lenders would begin immediately following the ECS's Operation date. Also, there would be additional costs needed for procurement of reagents and undertaking the O&M of the ECS. In absence of the same, it would not be easy for Generating Company to financially sustain its operations. Therefore, the Commission may grant Compensation for installation of ECS (which may be taken as 90% of the Capital Expenditure calculated as per audited financials of the NPL) prior to the operation date of the ECS which may subsequently be trued up on the basis of actual ECS Capital Expenditure. Further, in the absence of approval/determination of provisional tariff, there shall be a tariff hiatus which would have a catastrophic impact on NPL and would lead to recurring losses to NPL. Therefore, it is essential for sustainability of ECS operations that the Commission determines in the methodology itself the aspect of provisional

tariff till the supplementary tariff is finally determined and approved.

3.12 NPL has prayed to:

- (a) Devise a mechanism for compensation on account of installation and operation of the Emission Control System;
- (b) Direct PSPCL to adhere to the mechanism so devised for the purpose of payment towards Supplementary Capacity Charges and Supplementary Energy Charges;
- (c) Direct PSPCL that the impact of operating costs incurred in the implementation of new Environmental Norms shall not be considered for Merit Order Despatch of Coal Based Thermal Power Stations;
- (d) Direct PSPCL to pay 90% of the capital expenditure incurred for installation and operation of Emission Control System (calculated as per audited financials of the NPL) till the final Supplementary Tariff is determined; and
- (e) Pass such other orders as deemed fit in the facts and circumstances of the case.

4. PSPCL's reply dated 11.12.2023 to NPL submissions is summarized as under:

4.1 On 07.08.2023, the Hon'ble Supreme Court has passed an Order, in IA No. 116952 of 2020 in Civil Appeal No. 3688 of 2020 filed by PSPCL before the Hon'ble Supreme Court against the Order dated 28.08.2020 passed by the Hon'ble Tribunal in Appeal Nos. 21 and 73 of 2019, *inter-alia*, observing as under:

"... we are of the opinion that the proceedings before the Punjab State Electricity Regulatory Commission can continue and be

decided. However, the order passed therein will not be executed and enforced without the leave of this Court.”

Therefore, the Order passed by the Commission can be enforced only subject to the orders passed by the Hon'ble Supreme Court and there is no question of payment of any provisional tariff to NPL.

4.2 Referring to the submissions of NPL regarding '**Depreciation**' PSPCL has submitted that:

- a) It is not open for NPL to claim that the depreciation be spread only over the balance part of the PPA i.e. 15/16 years, when the benefit of the asset to the Generator is for the remaining life of the plant of 40 years.
- b) NPL shall be selling the power to be generated by its Thermal power plant after the expiry of the existing PPA. In terms of Article 2.1 of the PPA also, the tenure of the agreement can be extended even beyond the expiry date of the existing PPA on mutually agreed terms and conditions between the parties. Thus, the principle of restitution cannot be said to be negated in any manner. NPL shall be able to recover the entire cost of its capital investment over the balance life of its thermal power plant.
- c) Post the 25 years of the PPA, NPL continues to retain the Power Plant and shall continue to use the FGD. Therefore, the time period for deciding the depreciation of the ECS (FGD system) may be considered as 30 years (40 years as the life of thermal power plant minus 10 years period of operation of thermal power plant since Commercial Operation Date of its first unit).

4.3 Referring to the issue of consideration of Equity contribution and RoE, PSPCL has submitted that in line with the methodology laid down by the Central Commission, the “Change in Law” compensation cannot become a means for the Generators to make profit and improve their financial position. There can be no element of return on equity in the compensation to be granted to NPL. PSPCL states that the formula as prescribed by the Central Commission should be applicable, namely, that the Capital Expenditure would be serviced on Net Fixed Assets (**NFA**) basis at either the weighted average rate of actual interest on loans of the thermal generating station including ECS raised by the generators or at the MCLR of State Bank of India plus 350 basis points, as on 1st April of the year in which the ECS is put into operation, whichever is lower.

4.4 Referring to the submissions of NPL regarding the issue of ‘Additional Operation and Maintenance Expenses’ PSPCL has submitted that:

- a) NPL has sought to propose that the Additional O&M be computed @ 5% of the total Additional Capital Expenditure to be escalated at 3.5% annually. Whereas, the Central Commission has prescribed Additional O&M to be computed @ 2.5% of the total Additional Capital Expenditure to be escalated at 3.5%. NPL may be further asked to submit the details of IDC and FERV in connection with the installation of FGD system in their thermal power plant.
- b) That NPL has placed an order upon M/s Larsen & Toubro Limited Mumbai on 06.06.2020 for operation and maintenance of their ECS (FGD system) for 3 years from the

date of provisional takeover of the FGD system from M/s Larsen & Toubro Limited, Mumbai. As per the aforesaid price schedule, the cost of comprehensive operation and maintenance charges for 3 years are tabulated as under:

Sr. No.	Description	Year	Amount including GST (INR)	Percentage of ACEe excluding IDC and FERV (assuming Rs. 700 Crores)
1.	Comprehensive O&M charges	1 st year	10,85,77,793+18% GST = 12,81,21,796	1.83%
2.	for operating the FGD system for NPL's 1400 MW	2 nd year	11,40,06,683+18% GST = 13,45,27,886	1.92%
3.	thermal power plant.	3 rd year	11,97,07,017+18% GST = 14,12,54,280	2.02%

Thus, it is evident that cost claimed by M/s NPL on account of additional operation and maintenance expenses is on the higher side and cannot be considered. The Additional O&M Expenses ought to be computed on the basis of the data from NPL, which should maintain the O&M incurred on the ECS as a separate component, and based on such data, decide if any escalation needs to be given, subject to prudence check. NPL cannot be awarded O&M Expenses @5% along with yearly escalation of 3.5%. The Commission, after carrying out the prudence check, may grant the Additional O&M expenses @2.0% of the total additional capital expenditure excluding IDC and FERV (relating to ECS) with an escalation (if required) or the actual O&M expenses incurred by NPL (whose accounting

shall be maintained separately by M/s NPL), whichever is lower.

4.5 Referring to the issue of the '**Interest on Working Capital (IWC)**', PSPCL has submitted that:

- a) That in regard to the purported implications on account of IWC as a part of Supplementary Capacity Charges, the Hon'ble Supreme Court in its Order dated 20.04.2023 in Civil Appeal No. 6641 of 2019 in the case of GMR Kamalanga (while upholding the judgment of the Hon'ble Tribunal) has held that it is not open for a Section 63 bidder to be granted component wise tariff.
- b) That there is no basis to provide receivables equivalent to 45 days of Supplementary Capacity Charges and Supplementary Energy calculated on NAPAF as a component of IWC. As per the PPA, the payment terms, payment period, Late Payment Surcharge, and rebate flow from the standard bidding guidelines and standard PPAs finalized by the Ministry of Power. The due date in terms of the PPA is 30 days, therefore, the receivables also have to be equivalent to 30 days (if at all).
- c) Further, the Working Capital Interest Rate (WCIRn) should be computed in accordance with the formula prescribed for determining the weighted average rate of actual interest on loans of the thermal generating station including ECS *or at the rate of Marginal Cost of Funds based Lending Rate (MCLR) of State Bank of India (for one year tenor) as on 1st April of the year plus 350 basis points, whichever is lower.*

d) The proposed formula also includes the cost of reagent for 20 days corresponding to NAPAF with advance payment for 30 days towards its cost. No data has been furnished by NPL as to the terms of purchase of reagent so as to enable a conclusion that the cost of reagent should be taken towards additional IWC. Further, in case M/s NPL maintain the stock of Limestone for less than 20 days, then PSPCL may be granted the liberty to reduce the interest on working capital cost proportionately. NPL shall maintain the opening balance, consumption and closing balance of the stock of Limestone and shall provide it to PSPCL, whenever sought for.

4.6 On the issue of the 'Additional Capacity Charges due to Additional Auxiliary Energy Consumption' PSPCL has submitted that:

- a) NPL may be directed to furnish the details regarding the additional auxiliary energy consumption based on the order placed upon M/s Larsen & Toubro Limited, Mumbai. Further, the component AUXe may be decided as the additional auxiliary energy consumption due to emission control system as specified in the FGD system order placed upon M/s Larsen & Toubro Limited, Mumbai or as specified by the Central Electricity Authority, New Delhi or the Commission, whichever is lowest.
- b) The additional capacity charges due to additional auxiliary energy consumption (ACCe) are payable only for the period during which the ECS (i.e. FGD system in this case) remains operational. NPL may be asked to derive a factor namely

"FGD Utilization Factor" to indicate the time period for which the FGD system, in either/both of their units, shall remain operational, weighted with the energy units generated. This factor may be incorporated in the formula decided by the Central Commission to safeguard the interest of PSPCL and the consumers of the State at large. Further, the auxiliary energy consumption should also be linked with actual running of ECS (FGD system) and, therefore, the aforesaid factor namely **"FGD Utilization Factor"** may be incorporated, while working out the additional capacity charges due to additional auxiliary energy consumption as the FGD system(s) may not be operational even in the running units of the thermal power plant due to its breakdown, regular/preventive maintenance of its machinery or any other reason(s).

4.7 NPL has sought liberty from the Commission to seek clarification/modification in respect of cost of consumption of reagents, as determined by the Central Commission. In this regard, NPL may be directed to maintain the opening balance, consumption and closing balance of the stock of Limestone. NPL can calculate the actual monthly consumption of the Limestone. Further, the weighted average landed price of Limestone shall also be available with NPL. Based on these two factors, NPL may calculate the cost of the Limestone used in any specific month. Further, CEA in its Recommendations given to NPL has clearly mentioned that the FGD system should be designed in such a way that its by-product should be of saleable quality. Gypsum is the by-product in this case and is a

saleable commodity. Therefore, the revenue that NPL would get on sale of Gypsum, irrespective of whether actual sale has taken place or not, should be netted off, on the basis of market price of Gypsum, from the cost of the Reagent i.e. Limestone. This would also ensure accountability and efficient operation.

4.8 PSPCL, referring to the formula suggested by NPL regarding 'Additional Energy Charges due to Additional Auxiliary Energy Consumption (AEC)' has submitted that the calculations on account of this sub-head can be done by NPL by multiplying the actual energy consumption of FGD system with monthly charges (MEPn) rate of schedule 7 of the existing PPA subject to a maximum ceiling to be decided by the Commission.

4.9 PSPCL referring to the submissions of NPL regarding 'Shutting Down Period' for integration of ECS with thermal generating station/ generating unit, while referring to CERC view in its Order, has submitted that the installation and commissioning of the ECS should match the annual overhaul period of NPL so as to be able to maintain its normative availability in terms of the PPA. There can be no payment of deemed fixed charges to NPL for the period of non-availability on account of commissioning of ECS (FGD system in this case). The Indian Electricity Grid Code, 2010 is clear and unambiguous in this regard.

4.10 PSPCL referring to the submissions of NPL regarding 'Merit Order Dispatch' has submitted that since the revised emission norms applies to all thermal generating stations, therefore, the merit order dispatch shall also be affected commensurately. It is not open for NPL to contend that the increased ECR charges

shall not be considered while computing the Merit Order Despatch.

4.11 PSPCL has submitted in reply to the submissions of NPL praying for Provisional Tariff that there is no provision for grant of provisional tariff under Article 13 of the PPA. In addition, thereto, the orders passed by the Commission cannot be executed without the leave of the Hon'ble Supreme Court, where the Civil Appeal No. 3688 of 2020 & Civil Appeal No. 3763 of 2020 filed by PSPCL is pending.

4.12 PSPCL has further submitted that NPL may be directed to provide documents (copies of orders placed upon M/s Larsen & Toubro Limited, Mumbai & other companies for installation of FGD system, copies of the invoices raised, details of the material supplied, details of the payment made, documents regarding the rate of interest of the bank for IDC, details of the IDC and FERV, details of the preoperative expenses, contingency expenditure, project management and engineering services expenses and any other cost or relevant documents) regarding the cost of installation of ECS (FGD system in this case) for prudence check by the Commission and for consideration/comments of PSPCL.

5. NPL filed its rejoinder to the submissions filed by PSPCL denying the averments made by PSPCL and reiterating its earlier submissions. NPL has further submitted that:

5.1 The issue raised by the PSPCL regarding the executability of the orders passed by the Commission is to confuse and confound the Commission so as to delay the determination of Provisional Tariff. It is submitted that the Hon'ble Supreme Court in its Order

dated 07.08.2023 has not granted any stay on the proceedings pending before the Commission. In fact, the Hon'ble Supreme Court has observed that the proceedings can continue subject to the condition that the order passed by this Commission will not be executed and enforced without the leave of the Hon'ble Supreme Court. Moreover, NPL can only seek the leave of the Hon'ble Supreme Court if the Tariff/Provisional Tariff is determined by the Commission. Accordingly, the Commission must decide the mechanism for the Tariff Determination and also determine the Provisional Tariff payable to NPL so that NPL can expeditiously recover the tariff on account of ECS.

5.2 Depreciation

PSPCL had earlier submitted its comments on the Staff paper on Mechanism for Compensation for Competitively Bid Thermal Generating Stations for Change in Law on account of Compliance of the Revised Emission Standards issued by the CERC. In its submissions therein, PSPCL has not questioned the period of 25 years for recovery of additional capital expenditure on account of depreciation. However, PSPCL in the present proceedings is contending that a period of 30 years be considered for recovery of additional capital expenditure on account of depreciation, citing wrongly that the life of plant is 40 years. Clearly, PSPCL has taken contrary stand which ought to be rejected. Regarding PSPCL's contention that the useful life of the TPP should be considered as 40 years, it is submitted that the term '*useful life*' and the recovery of depreciation within such useful life has been interpreted by the Hon'ble Supreme Court in '*DERC v. BSES Yamuna Power Limited & Ors.*', (2007) 3 SCC 33, as under:-

"43. Before concluding, we may state that the basic object of providing

depreciation is to allocate the amount of depreciation of an asset over its useful life and not actual life so as to exhibit a true and fair view of the financial statements of an enterprise. Useful life is a period over which a depreciable asset is expected to be used. Useful life of an asset in a capital intensive industry is generally shorter than its physical life. In the present case, DERC has not considered the difference between the physical life of an asset and the useful life of the asset.”

On similar lines, Hon’ble High Court of Delhi at Para 17.5 of the Order dated 27.02.2009 passed in the matter of ‘*Commissioner of Income Tax-IV, New Delhi v. INSILCO Limited*’, 2009 SCC On Line Del 472 interpreted following in context of depreciation and ‘useful life’:

“17.5The object of providing for depreciation is to spread the expenditure incurred on the asset over its effective lifetime, and the amount written off during an accounting period is intended to represent the proportion of such expenditure which has expired during the period. The Court noted that the principle factors responsible for reduction in the value of capital asset and, therefore, responsible for depreciation are (i) ordinary wear and tear (ii) unusual damage (iii) inadequacy and (iv) obsolescence. These factors include not only those relating to physical deterioration but also those referring to the suitability of the asset as an economically productive unit after a period of time.”

In terms of the above Judgment of the Hon’ble Supreme Court and the Hon’ble Delhi High Court, it is clear that the useful life of the ECS is to be considered as period mentioned in the PPA, i.e. 25 years/balance period of the PPA (whichever is less) based on the industry practices (being the contractual arrangement with the Procurers and as provided in the Competitive Bidding

Guidelines). Apart from the afore-mentioned, it is also submitted that the Hon'ble Supreme Court in '*Haryana Power Purchase Centre v Sasan Power Limited & Others*', (2024) 1 SCC 247 and '*Uttar Haryana Bijli Vitran Nigam Limited & Another v. Adani Power Limited & Others*', (2019) 5 SCC 325 dealt with a PPA which was similar to that of NPL. While dealing with the provisions of change in law, the Hon'ble Supreme Court has held that Article 13.4 which allows for adjustment in monthly tariff payment is subject to Article 13.2 of the PPA which states that the purpose of compensating the Party affected by Change in Law is to restore through Monthly Tariff Payments components to the extent contemplated in Article 13. Thus, the change in law must be recovered through monthly tariff payments. In view thereof, it is humbly submitted that the relief cannot go beyond the term of the PPA and that the relief has to be granted within the life of the PPA. The relevant paragraphs of Uttar Haryana Judgment are reproduced below for ease of reference: -

“9. What is important to notice is that Article 13.4.1 is subject to Article 13.2 of the PPAs.

10. Article 13.2 is an in-built restitutionary principle which compensates the party affected by such change in law and which must restore, through monthly tariff payments, the affected party to the same economic position as if such change in law has not occurred. This would mean that by this clause a fiction is created, and the party has to be put in the same economic position as if such change in law has not occurred i.e. the party must be given the benefit of restitution as understood in civil law.”

5.3 Cost of Equity Contribution:

PSPCL has baselessly contended that there can be no element of return on equity in the compensation to be granted to NPL. Since risks associated with assets of generating station and that with ECS assets is valued collectively for generating station as a whole by market and not asset-wise, there is no reason that return on equity for ECS should be lower than that for the generating station. Further, it must be considered that since existing assets under cost plus regime are getting market based return of 15.5% post-tax. In fact, the CERC, itself for Section 62 Projects, has derived the cost of equity based on scientific CAPM considering the prevalent and historical post-tax returns on equity investments in country's thermal generating stations. The latest determined return in CERC's Tariff Regulations, 2019 for FY 2019-24 tariff block is 15.5%. Considering that the Cost of Equity is higher than risk free return on debt and for new equity infusion must be derived from market price of shares, determined as 15.5% by applying CAPM, which is the minimum rate of return required to maintain earnings of existing shareholders same. In case, this rate of return on new equity infusion is less than this minimum then wealth of existing shareholders is eroded for meeting expectation of new shareholders thereby bringing overall share value down and erosion of equity.

5.4 Additional O&M Expenses:

NPL, in response to the contention of PSPCL that the cost claimed by NPL on account of additional O&M expense is on higher side, submitted that PSPCL has failed to consider that

apart from the cost as indicated in the O&M contract; there are certain additional factors which ought to be considered:

- a) WFGD is a chemical based emerging technology. The manufacturing capacity for FGD is practically non-existent in the country and there are limited vendors with restricted capacities. O&M of such critical components demands a high level of expertise, necessitating the importation of skilled manpower along with the FGD technology. This results in higher maintenance cost as a sizeable number of equipment installed for the ECS is likely to be imported and imported spares are sensitive to forex fluctuations.
- b) Further, quite a few components, such as the ones mentioned below, have a much shorter life due to the corrosive environment in which they operate.
 - i. Booster Fan;
 - ii. GGH Baskets;
 - iii. Scrubber;
 - iv. Dampers & Ducts.
- c) Also, recurring annual insurance costs of ECS which is almost of the order of 0.5% of ECS CAPEX.

5.5 Working Capital:

With regard to the submissions of PSPCL regarding additional interest on Working Capital component of SFC, NPL has submitted that the Commission should consider that the suggestions made by PSPCL are neither in consonance with the CERC (Determination of Tariff) Regulations, 2019 ("**CERC Tariff Regulations, 2019**") nor with the Order dated 13.08.2021 passed by the CERC. Further, PSPCL has already accepted the Order

dated 13.08.2021 in so far as SPL and CGPL are concerned. Therefore, PSPCL will be paying the Supplementary Tariff to SPL and CGPL, which includes IWC as determined by Order dated 13.08.2021. However, PSPCL, in its Reply, has contended that a Section 63 Project cannot be granted component wise tariff even though it shall be granting similar tariff to CGPL and SPL. Clearly, PSPCL should not be allowed to take such contrary and discriminatory stands. Further, while considering the IWC, it ought to be borne in mind that unlike coal, limestone or reagent may not be available on a daily basis, requiring generators to maintain higher stock availability than coal. Currently, there is uncertainty about the availability, quality and location (international/ domestic) of limestone. The internationally sourced reagents will have a significantly longer lead time. As limestone is transported primarily by road within the country, there are also transportation/logistic constraints. Therefore, in order to meet availability commitments for all plants in general, and remotely located plants in particular, the generator will need to keep stock of limestone/reagent for at least a month due to the longer lead time of transportation and to protect against supply disruptions, quality issues, and so on. It is to be noted that coal has a well settled and established supply chain and the demand-supply is met through seamless delivery network. However, it would be for the first time that limestone would witness such an upsurge in demand. The supply of limestone is still being worked out by various suppliers and there may be situations where the availability of limestone may not commensurate to the demand. Therefore, it is essential that generating companies are provided adequate buffer stock of limestone so that the plant operations

are not affected due to immediate unavailability of limestone. Further, in response to PSPCL's suggestion that that actual consumption of limestone has to be considered by maintaining a stock of limestone, it is pertinent to mention here that NPL has sought IOWC on account of advance payment to be made against supply of reagents. In this regard, the supply of reagents may get affected due to various reasons including, force majeure events (such as availability of reagents at supplier end, availability of transportation etc.) Therefore, IOWC cannot be linked with availability of stock as despite making payments there are chances that supply may get delayed. Accordingly, the IOWC ought to be granted to NPL on a normative basis in terms of the Submissions of NPL.

5.6 Additional Auxiliary Energy Consumption:

Replying to the submissions of PSPCL, regarding additional Auxiliary Energy Consumption, NPL submitted that the additional auxiliary energy consumption as specified in the order placed upon L&T (for the ECS) is only applicable under controlled conditions. The stipulation therein does not take into account operational variations. Accordingly, the same must be considered in light of the submissions of NPL. Further, the Commission should consider that the formula proposed by the NPL is based on norms laid down in the CERC's Order dated 13.08.2021 and the same may be considered by the Commission on the issue of additional auxiliary energy consumption. The CERC in furtherance to recommendations of CEA, in Annexure-I thereto, has provided an increment of 1% in the Gross Generation as Additional Auxiliary Energy Consumption. Accordingly, the

Commission may adopt the same methodology on a normative basis.

5.7 Consumption of Reagent/Sale of Gypsum

In respect of PSPCL's suggestions to consider actual consumption of reagent, it is submitted that the same are not in line with the norms laid down by the CERC in its Order dated 13.08.2021 or either the CERC Tariff Regulations, 2019. It is submitted that the PSPCL has not based its suggestions on any actual data or any cogent reasons. Also, in respect to NPL's initial submission that, vide its Letter dated 18.05.2023 addressed to the CERC, it had submitted that the formula for computation of SRCe as provided in the Order dated 13.08.2021 suffered from a typographical error. Subsequently, the CERC issued a corrigendum vide Order dated 12.09.2023 wherein the inadvertent error has been rectified. Accordingly, this Commission may take note of the corrected formula for computation of SRCe as submitted in NPL's Submissions.

Referring to the submissions of PSPCL, NPL has submitted that the sale of gypsum is not a controllable factor which can be influenced by the NPL. As such, NPL cannot be disadvantaged by netting off the price of Gypsum from the cost of reagent, regardless of the actual sale of Gypsum. NPL had approached CEA on direction of Hon'ble CERC seeking its recommendations on suitable FGD Technology and cost implications in its implementation in 2018. At the relevant time, the FGD technology was new in the country and there were very few ECS in operation in the country, thus there was very little knowledge about various FGD technologies and its O&M related challenges in the power industry. Over the course of time, i.e. in 2021, several ECSs

were installed in the country. Therefore, further information on the workings of ECS's technology became available in the industry. At this juncture, the CERC passed its Order dated 13.08.2021 and decided the norms for reimbursement for ECS's Capital Expenditure and Operational Expenditure after due discussions with various stake holders and due diligence, it has acknowledged that the suggestions of stakeholders relating to expenses for handling and disposal of gypsum due to ECS installation needs to be addressed and allowed O&M expenses @2.5% (instead of 2% proposed in the draft Suo-Motu order). Therefore, it is clear that the CERC, in its wisdom, was aware about the increase in expenditure on account of handling and disposal of gypsum and PSPCL should not be allowed to claim any revenue on account of sale of Gypsum, if any, let alone at market rate.

5.8 Merit Order Dispatch

NPL referring to the submissions of PSPCL regarding merit order dispatch of electricity has submitted that the different generating stations shall have different COD for the ECS. Therefore, generating stations who have installed ECS earlier will have increased ECR charges as compared to generating stations who will achieve COD at a later date. As such, MOD for such stations will differ. Moreover, since a separate bill is raised for the impact of Supplementary Capacity & Energy Charges, only the monthly ECR bill may be considered for the MOD. In this regard, the Ministry of Power (**MoP**), on 18.10.2018, had forwarded the recommendations of CEA to all the power utilities, including PSPCL, wherein CEA had recommended various incentives with respect to installation of ECS by the generation plants. Therefore,

the Commission ought to devise a mechanism to ensure parity among the generating stations in this regard.

5.9 Provisional Tariff:

NPL, referring to the submissions of PSPCL regarding that NPL is required to provide relevant documents regarding the cost of installation of ECS (FGD system in this case) for consideration/comments of PSPCL and prudence check by the Commission, has submitted that by way of the IA, it is only seeking the Provisional Tariff till the supplementary tariff is finally decided by the Commission. The present proceedings initiated by the Commission is only with regard to devising the payment mechanism. The documents can be submitted once the FGD comes into operation. The Commission may grant Compensation for installation of ECS in terms of the aforesaid Order (which may be taken as 90% of the Capital Expenditure calculated as per audited financials of the Petitioner) prior to the operation date of the ECS which may subsequently be tried up on the basis of actual ECS Capital Expenditure.

5.10 Further, PSPCL has PPAs with two other generators, i.e., Sasan Power Limited (**SPL**) and Coastal Gujarat Power Limited (**CGPL**), which fall under the jurisdiction of the CERC. Accordingly, the Supplementary Tariff of SPL and CGPL for the ECS will be determined in terms of Order dated 13.08.2021. Considering that PSPCL has not appealed against the Order dated 13.08.2021, it shall be reimbursing SPL and CGPL for Supplementary Tariff determined in terms of Order dated 13.08.2021. PSPCL is a Public Utility and the Hon'ble Supreme Court in '*Central Warehousing Corporation v. Adani Ports Special Economic Zone Ltd.*', 2022 SCC OnLine SC 1398, has deprecated the practice for

different instrumentalities of the state for taking contradictory stands on the same issue. PSPCL is barred from taking any contrary stand which is in variance with the order dated 13.08.2021. NPL, relying on the Tariff Policy 2005 and Tariff Policy 2016 has submitted that the Commission may permit of O&M costs, IOWC, Shutting Down Period, Additional Auxiliary Energy Consumption and Consumption of Reagents on normative basis.

6. TSPL filed its reply/submissions dated 07.04.2024 and has submitted:

6.1 That in terms of the Common Judgment dated 28.08.2020 passed by the Hon'ble Tribunal, the additional cost and other expenses in relation to procurement, installation, commissioning, operation and maintenance of FGD and associated systems for SO₂ to be incurred by TSPL is required to be passed to PSPCL as a part of additional capital cost after prudence check by the Commission. Further, in terms of Article 13 of the PPA, TSPL is entitled to be compensated and restored to the same economic position as if the instance of 'Change in Law' did not occur. Also, it is a settled position of law that the principle of restoration to the same economic position requires that the compensation be calculated and awarded on actuals.

6.2 The mechanism devised by CERC in *suo motu* Order dated 13.08.2021 in Petition No. 06/SM/2021 cannot be adopted for TSPL at this stage since TSPL is yet to incur the cost and other expenses in relation to procurement, installation, commissioning, operation and maintenance of FGD and associated systems, as the MOEF & CC by its Notification

dated 05.09.2022 has extended the timelines for compliance to SOx emissions to 31.12.2026.

- 6.3 That the determination of the additional capital cost and impact on performance parameters due to the installation and commissioning of the FGD and associated systems is plant specific and thus vary on plant-to-plant basis due to usage of different technology, machinery etc. Therefore, the cost towards installation of FGD and associated system to be incurred by TSPL in future may vary from the cost incurred by NPL or any other power plants towards installation of FGD and associated system.
- 6.4 That the Commission may consider to approve the additional capital cost as well as performance parameters based on the actuals and accordingly, TSPL may be permitted to approach the Commission in future for approval of the actual incurred cost subsequent to implementation of the required systems for complying with revised emission levels.
- 6.5 That there is no lack of bona fide on behalf of TSPL to assist the Commission for devising a mechanism for payment of costs, additional cost and other expenses in relation to procurement, installation, commissioning, operation and maintenance of FGD and associated systems since TSPL is yet to incur the cost towards the installation of FGD and associated systems.
- 6.6 That no prejudice would be caused to any parties, if TSPL is permitted to approach the Commission subsequent to implementation of the required systems for devising a mechanism for payment of costs towards the FGD and associated systems.

7. On 08.05.2024, after hearing the parties, the Order was reserved with directions that the parties may file written submissions, if any, within one week. NPL and PSPCL submitted their respective written submissions on 14.05.2024 and 17.05.2024, summarizing the submissions made earlier in the petition. Thereafter, on 27.05.2024, NPL, again reiterating its earlier submissions, has also pointed out that the issues raised by PSPCL in its written submissions (mainly a reliance on the CERC Order dated 20.08.2021 in Petition No. 536/MP/2020 in respect of Change in Law claim of the Solar Power Projects), which were not raised previously, deserve to be rejected.

8. Analysis and the decision of the Commission

The instant Suo-Motu Petition is for compliance of Hon'ble APTEL's Order dated 28.08.2020, in Appeal No. 21 of 2019 filed by TSPL and Appeal No. 73 of 2019 filed by NPL, directing the Commission to devise a mechanism for payment of compensation for Additional Capital Cost for installation and operation of the FGD and associated system for SO₂ as approved by the concerned authority, after prudence check. The Commission has examined the submissions and arguments thereon by the parties.

NPL's plea is that the mechanism devised by the CERC, vide its Order dated 13.08.2021 in Petition No. 06/SM/2021 Suo-Moto for generating companies whose Tariff is determined through competitive bidding under Section 63 of the Electricity Act, can be considered as the model document for devising the similar mechanism for the State IPPs. It was pleaded that the CERC has considered the Change in Law provision under the Case 2 bidding documents which is identical to the "Change in Law" provisions (Article 13) under its PPA being also established as a Case 2 project under the competitive bidding process. Further, while

informing that the CERC's said Order is under challenge before Hon'ble APTEL in Appeal No. 306 of 2021 filed by Association of Power Producers and others, wherein no stay/relief has been provided so far, NPL has submitted that the Commission may adopt the CERC mechanism/structure subject to modifications proposed in its submission.

However, TSPL has submitted that the said CERC mechanism cannot be adopted for TSPL at this stage since TSPL is yet to incur the cost and other expenses in relation to the FGD and associated systems. TSPL's plea is that the additional capital cost/expenses for installation of the FGD and impact on performance parameters on account of same vary on plant-to-plant basis depending on usage of technology/machinery. Therefore, the Commission may consider to approve the additional capital cost as well as performance parameters based on the actuals and accordingly it may be permitted to approach this Commission in future for approval of the actual incurred costs subsequent to the installation of required systems for complying with the emission norms.

The Commission observes that TSPL appears to be confusing the issue of 'approval of the additional Capex' for installation of FGD with the issue of 'devising of a mechanism for payment of compensation' for the same as directed by Hon'ble APTEL. The Commission notes TSPL's assertion that the additional Capex for the FGD/ECS may vary depending on the technology recommendations by the CEA and therefore should be considered only after the Generator actually incurs the same. However, in order to have a regulatory certainty, a mechanism is required to be put in place for ensuring payment of compensation to the generators for incurring of additional costs to

meet the revised emission norms declared as a Change in Law event by Hon'ble APTEL. Further, to have uniformity/consistency, the Commission is also inclined to consider NPL's suggestion that the mechanism devised by the CERC for similarly placed generators, can be taken as a benchmark. The Commission also observes that the said mechanism has been evolved after following a due process, wide consultations and is based on performance parameters recommended by the CEA. Accordingly, the Commission examines the suggestions made by the parties as under:

8.1 Capital cost

With regard to the issue of Depreciation (DEPe) the CERC Mechanism issued vide Order dated 13.08.2021 in Petition No. 06/SM/2021 (Suo-Motu), provides as under:

“20. Additional capital expenditure on emission control system/s shall include hard cost, incidental expenditure during construction, financing charges, insurance charges, interest during construction, gain or loss on foreign exchange rate variations and initial spares. Hard cost of emission control system would need to be discovered through a process of transparent competitive bidding by the generating company owning the thermal generating station. Admissibility of any other expenditure shall be decided on case to case basis. Once the capital cost (additional capital expenditure) of emission control system is determined, the compensation mechanism shall be applicable to work out the compensation.”

In this regard, while TSPL has submitted that it is yet to incur the cost and other expenses in relation to procurement, installation, commissioning, operation and maintenance of FGD and associated systems. NPL chose not to submit the same till the

FGD comes into operation, even on the asking for the same by PSPCL during the proceedings of the instant petition.

8.2 Servicing of Additional Capital Expenditure:

8.2.1 Depreciation (DEPe):

With regard to the issue of Depreciation (DEPe) the CERC Mechanism issued vide Order dated 13.08.2021 in Petition No. 06/SM/2021 (Suo-Motu), provides as under:

“32....90% of additional capital expenditure on account of installation of ECS (considering salvage value of 10%) shall be recovered by the generating company in 25 years as depreciation (straight line method @3.6% per year). The depreciation shall be computed from the date of operation of the emission control system after meeting all applicable technical and environmental standards, certified through the Management Certificate duly signed by an authorized person. The value base for the purpose of depreciation shall be the additional capital expenditure of the emission control system as admitted by the Commission. The computation of depreciation during each year of the contract period shall be worked out by the parties directly based on admitted capital cost and the depreciation rate as follows:

$$DEPe = (0.036) \times ACEe$$

Where,

ACEe is the gross capital cost (in Rupees) of emission control system as admitted by the Commission;

DEPe is annual depreciation (in Rupees).”

In this regard, NPL's plea is that an expenditure incurred during the operational period of the PPA has to be recovered within the remaining term of the PPA, therefore the Commission may consider the remaining term of the PPA (i.e. 15 years, considering

that the plant is about 10 years old) for the purpose of computation of depreciation.

Whereas, PSPCL's contention is that this issue has already been considered by the Central Commission, wherein useful life of 25 years of the FGD/ECS has been prescribed for computation of depreciation, considering the life of a thermal plant as 40 years and on the premise that that no thermal generating station under a competitively bid tariff has so far completed more than 15 years of life after its COD. PSPCL has further suggested that, with the remaining operational life of NPL's plant being 30 years (considering a total life of 40 years minus 10 years of operation of the plant since CoD of its first unit), the same be considered for computing the depreciation of its ECS, as the generator shall continue to use the ECS even beyond the period of the existing PPA.

Commission's Analysis:

The Commission refers to the CERC draft Order dated 12.04.2021 and the final Order dated 13.08.2021 in Petition No. 06/SM/2021 (Suo-Motu) on devising of a Mechanism for Compensation for Competitively Bid Thermal Generating Stations for Change in Law on account of Compliance of the Revised Emission Standards in case of power purchase agreements under Section 63 of the Act, which reads as under:

a) CERC draft Order dated 12.04.2021 in Petition No. 04/SM/2021 renamed as 6/SM/2021(Suo-Motu):

"31. The staff paper had suggested as under:

"4.9. Based on the above, life of 25 years has been considered for ECS. Accordingly, 90% (considering salvage value of 10%) of

additional capital expenditure on account of installation of ECS is proposed to be recovered by the generating company in 25 years as depreciation {straight line method @3.6% (90%/25) per year} starting from ODe of ECS.”

32. *The stakeholders have responded mainly on two issues - period over which depreciation is to be recovered and the rate of depreciation. **Some of the stakeholders have suggested that the recovery should be over the balance useful life or balance extended life of the generating station or the balance tenure of the long term PPA, whichever is lower. The useful life of the emission control system should be considered as the remaining useful life of the power plant and depreciation for the initial 12 years of operation may be considered at a rate of 7% to 7.5% to service the debt repayment and the remaining depreciation should be on a Straight Line method basis till the end of life of the power plant. Some stakeholders have pointed out that the standardized recovery of depreciation @ 3.6% per annum is premised on the erroneous assumption that all the generating projects shall continue to operate efficiently for 25 years post installation of the emission control system, irrespective of their actual years in operation, at the time of installing the emission control system.***
33. *Per contra, **some of the stakeholders have justified the approach on the ground that almost all the generating stations under competitive bidding have been commissioned during the last fifteen years and since their useful life is considered as forty years, the consideration of 25 years for recovery of depreciation is logical.***

34. **We are of the view that the useful life of the generating station is to be considered 40 years in line with the Companies Act, 2013. The Commission has considered the useful life of the generating station based on life cycle of major equipment of thermal generating station. The life of emission control system has been considered as 25 years in line with the other major equipment of generating station. The Commission observes that as on today, there are no generation projects with competitively bid tariff which have completed more than 15 years of life. Therefore, based on 40 years of life of generating stations, in all cases 25 years of life of emission control system would be available for recovery of depreciation. Thus, the proposed approach for recovery of depreciation in 25 years balances the interest of the generating companies and procurers.**

b) CERC Order dated 13.08.2021:

“29. Some stakeholders have suggested that the recovery should be over the balance useful life or balance extended life of the thermal generating station or the balance tenure of the long term PPA, whichever is lower. Some stakeholders have suggested that the useful life of the emission control system should be considered as the remaining useful life of the thermal generating station. ...Some stakeholders have pointed out that the standardized recovery of depreciation @ 3.6% per annum is premised on the assumption that all thermal generating stations shall continue to operate efficiently for 25 years post installation of the emission control system, irrespective of their actual years of operation, at the time of installing the emission control system.

30. *One of the stakeholders has justified the approach proposed by the Commission on the ground that almost all the thermal generating stations under competitive bidding have been commissioned during the last fifteen years and since their useful life is considered as forty years, the consideration of 25 years for recovery of depreciation is logical.*
31. ***We have considered all the suggestions and comments of the stakeholders. We are of the view that the useful life of a thermal generating station is to be considered as 40 years in line with the Companies Act, 2013. The life of emission control system has been considered as 25 years in line with other major equipment of thermal generating stations. The Commission observes that as on today, there are no thermal generating stations with competitively bid tariff which have completed more than 15 years of life after COD. Therefore, based on 40 years of life of thermal generating stations, 25 years of life of emission control system would be available for recovery of depreciation. Further, the recovery of depreciation in 25 years also balances the interest of the generating companies and the procurers.***

[Emphasis supplied]

The Commission notes that the stakeholders' suggestion to recover depreciation within the balance tenure of the PPA, raised herein by NPL, stands dealt with logically and adequately in the CERC's Order. Moreover, the Hon'ble Supreme Court judgments relied upon by NPL also state that, "the basic object of providing depreciation is to allocate the amount of depreciation of an asset over its useful life and not actual life Useful life is a period over which a depreciable asset is expected to be used." The CERC in its order has fairly illustrated that, 'based on 40 years of life of thermal generating

stations, 25 years of life of emission control system would be available for recovery of depreciation.” Further, Article 13 of the PPAs, as articulated in the Hon’ble Supreme Court judgments relied upon by NPL, also doesn’t support its case that the period for computation of depreciation for addition of any asset subsequent to the CoD of the project is to be considered as the remaining period of the PPA and not the useful life of the new asset to which it can be put to use. At the same time, the Commission also do not agree with PSPCL’s submission that period for computation of depreciation be considered as 30 years when the useful life of ECS has been assessed to be only of 25 years in line with other assets of the plant. Thus, the Commission agrees with the logic and the decision in the CERC Order and considers 25 years to be the reasonable time frame for determining the life of the FGD Plant for purpose of depreciation.

8.2.2 Cost of Additional Capital Expenditure (COCe):

On the issue of COCe, the CERC Mechanism issued vide Order dated 13.08.2021 in Petition No. 06/SM/2021 (Suo-Motu), provides as under:

“37. The servicing of capital employed during each year of the contract period shall be worked out based on net fixed asset (derived by adjusting cumulative depreciation of emission control system) and interest rate of fund. The interest rate will be weighted average rate of actual interest on loans of the thermal generating station including ECS or Marginal Cost of Lending Rate of State Bank of India (for one year tenor) as on 1st April of the year under consideration plus 350 basis points, whichever is lower. The generating companies shall workout the applicable interest rate for the cost of capital employed towards emission control system for the year under

consideration. The cost of capital employed during the year shall be worked out as follows:

$$COCe(n) = NFA(n) \times RI(n) / 100$$

Where,

$$NFA(n) = ACEe - [(n-1) \times (DEPe)]$$

COCe Servicing cost of Additional Capital Expenditure in Rupees per annum;

NFA(n) is the net fixed asset of the of the year “n”;

RI(n) is the weighted average rate of interest (in %) worked out based on weighted average rate of interest on loans of the generating station including ECS or at the rate of Marginal Cost of Funds based Lending Rate (MCLR) of State Bank of India (for one year tenor) as on 1st April of the year plus 350 basis points, whichever is lower.

n represents the year starting from the date of operation of emission control system.

DEPe is annual depreciation (in Rupees).

ACEe is the gross capital cost (in Rupees) of emission control system as admitted by the Commission;”

In this regard, NPL’s plea is that the projects such as generating stations are ordinarily funded in such a way that approximately 70% of total capital is funded by debt and the remaining 30% through the equity contribution. Accordingly, the Commission may consider that the capital expenditure for a project of such a nature would comprise of equity and debt components. It was further pleaded that, since cost of arranging equity is higher vis-à-vis cost for arranging debt, the Commission may consider cost of equity @15.5% post-tax as is available to cost plus Section 62 projects as restitution principle in Section 63 projects is purely cost plus.

On the contrary, PSPCL, while agreeing with the methodology laid down by the Central Commission, has contended that the

compensation for any 'Change in Law' is restitutionary in nature and cannot become a means for profiteering by the Generators. There can, therefore, be no element of higher rate of return on equity, if any invested, in the compensation to be granted to NPL.

Commission's Analysis:

The Commission refers to the CERC Mechanism issued vide its Order dated 13.08.2021 in Petition No. 06/SM/2021 (Suo-Motu) which reads as under:

"33. ..., the suggested approach of servicing of cost of capital employed was in line with industry practice unlike the servicing of debt and equity separately as followed for thermal generating stations whose tariff is determined under Section 62 of the Act. Relevant extract of the draft Suo-Motu order is as under:

*"4.10. The cost of capital employed also known as the cost of fund infused represents the weighted average cost of debt fund and equity fund deployed in the project. **Considering the fact that any compensation mechanism needs to be based on the principle of restitution, there can be no expectation of profit in any component of tariff.***

4.11. Accordingly, additional capital expenditure on installation of emission control system is proposed to be serviced on Net Fixed Assets (NFA) basis (value of fixed assets reducing each year by the depreciation value) @weighted average rate of interest of loans raised by the generator or at the rate of Marginal Cost of Lending Rate of State Bank of India (for one year tenor) plus 350 basis points, as on 1st April of the year in which emission control system is put into operation, whichever is lower."

34. Most of the Stakeholders have suggested to adopt the notional debt to equity ratio of 70:30 with consideration of actual debt in case of higher debt and have also suggested to service equity at

the rate of 15.5% post tax i.e. with grossing up with tax rate and servicing of debt at the rate lower of actual rate or SBI MCLR+3.5%. Further, they have also suggested that the capital base be worked out based on Gross Fixed Assets (GFA) to provide a level playing field for thermal generating stations under Sections 62 and 63 of the Act for compliance to the revised emission standards.

.....

36. We have considered all the suggestions and comments of the stakeholders. However, the Commission notes that the approach of net fixed assets and cost of capital employed suggested in the draft Suo-Motu order satisfies the principle of economic restitution. The Commission is aware of the concerns and financial position of the generating companies. However, compensation for change in law cannot be a mechanism to improve their financial position. Accordingly, the proposed approach of servicing investment through cost of capital employed is appropriate, being consistent with the principle of economic restitution.”

[Emphasis Supplied]

As is evident, the suggestion to adopt the notional debt to equity ratio of 70:30 with consideration of return on equity at the rate of 15.5% with grossed up tax rate, as being pleaded herein in by NPL, stands already discussed and dealt with in the CERC Order with the underlying observation that any compensation mechanism needs to be based on the principle of restitution, there should therefore be no expectation of profit in any component of restitution tariff. The Commission also agrees with the CERC view in the matter. Further, the Commission is of view that projects selected on the basis of competitively bid tariff

under Section 63 of the Electricity Act cannot be compared with the cost plus tariff projects setup under Section 62. The Commission also notes that the current CERC Tariff Regulations, applicable to the projects setup under Section 62, also do not support the case of NPL for seeking return on equity in respect of additional capitalization on account of the ECS @ 15.5% with grossed up tax rate. Relevant extract of Regulation is reproduced below:

“30(3)Provided that return on equity in respect of additional capitalization beyond the original scope, including additional capitalization on account of the emission control system, Change in Law, and Force Majeure shall be computed at the base rate of one-year marginal cost of lending rate (MCLR) of the State Bank of India plus 350 basis points as on 1st April of the year, subject to a ceiling of 14%.”

8.3 Additional Operation & Maintenance (O&Me) Expenses:

On the issue of the Additional O&M Expense requirement for the ECS the CERC Mechanism issued vide Order dated 13.08.2021 in Petition No. 06/SM/2021 (Suo-Motu), provides as under:

“44. the Commission is of the view that operation and maintenance expenses shall be allowed @2.5% (instead of 2% proposed in the draft Suo-Motu order) of the additional capital expenditure (ACEe) for installation of ECS (excluding IDC and FERV) as admitted by the Commission and to be escalated at the rate of 3.5% per annum for the period up to 31.03.2024 and, thereafter, the norms shall be reviewed based on available data.”

In this regard, NPL's plea is that the additional O&M expenses may be fixed as 5% of ACEe excluding IDC and FERV for 1st year annual escalation at the rate of 3.5% from 2nd year onwards. It was

pleaded that higher O&M expenses are justifiable considering that the Wet Limestone FGD is primarily a chemical based plant with higher wear/tear, higher maintenance cost is involved as a sizeable number of equipment installed for the ECS likely to be imported which are sensitive to Foreign Exchange Rate Variation (**FERV**) and the equipment deterioration as the system operates in a corrosive environment entailing higher O&M costs.

On the contrary, PSPCL, while citing the O&M rates of 1.83%, 1.92% and 2.02% specified in NPL's order dated 06.06.2020 placed on M/s Larsen & Toubro Limited Mumbai for O&M of their ECS(FGD system) for 3 years from the date of provisional takeover of the FGD system, has suggested that the Commission may consider to grant the Additional O&M Expenses @ 2.0% of the total additional capital expenditure (excluding IDC and FERV) for the ECS with an escalation (if required) or the actual O&M expenses incurred by NPL, whichever is lower. In reference to the said contention, NPL vide its rejoinder has submitted that PSPCL has failed to consider that apart from the cost as indicated in the O&M Contract, there are certain additional factors including higher annual insurance costs because of high consumption of spares due to the corrosive environment in which they operate.

Commission's Analysis:

The Commission refers to the CERC Mechanism issued vide Order dated 13.08.2021 in Petition No. 06/SM/2021 (Suo-Motu), which provides as under:

"38. The installation of emission control system would result in additional operation and maintenance expenses due to repair and maintenance, human resource deployment, reagent consumption, additional working

capital expenses etc. **In the draft Suo-Motu order, it was proposed that the additional revenue expenses for operation and maintenance (O&Me) for the first two years of operation (including part financial year), shall be @2% (for first year or part of it) of the additional capital expenditure (ACEe) for installation of ECS (excluding IDC and FERV) as admitted by the Commission, to be escalated at the rate of 3.5% per annum for the second year. The O&M expense from the third year onward was proposed to be as per norms and escalation rate to be determined separately by the Commission.....**

39. Some of the stakeholders have suggested that the approach of linking additional O&M expenses with additional capital expenditure is not appropriate as sufficient data is not available. Further, there is difficulty in separating additional O&M expenses on account of emission control system from the overall O&M expenses of the thermal generating station. **Some stakeholders have suggested that additional O&M expenses should be allowed at least @4% of additional capital expenditure with an annual escalation of 5%.**

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41. Some of the stakeholders have raised the issue of gypsum disposal cost and cost of increase in water consumption and requested for additional 2% O&M expenses over and above the proposed amount. They have submitted that gypsum is environmentally hazardous and for its disposal and storage, safe measures are required to be adopted which entails significant expense. ...

42. One of the stakeholders (RUVNL) has suggested that additional O&M expenses should be @2% of Additional Capital Expenditure or actual O&M expenses, whichever is lower, and that escalation should be based on composite percentage of WPI/CPI or 3.5%, whichever is lower.

43. *We have considered all the suggestions and comments of the stakeholders. The Commission appreciates the concerns of stakeholders as regards the difficulty in availability of data relating to O&M expenses due to lack of ECS in operation. The Commission also notes that the issues raised by the stakeholders regarding expenses for handling and disposal of gypsum and additional water consumption due to ECS installation needs to be addressed.*
44. *Accordingly, the Commission is of the view that operation and maintenance expenses shall be allowed @2.5% (instead of 2% proposed in the draft Suo-Motu order) of the additional capital expenditure (ACEe) for installation of ECS (excluding IDC and FERV) as admitted by the Commission and to be escalated at the rate of 3.5% per annum for the period up to 31.03.2024 and, thereafter, the norms shall be reviewed based on available data.....”*

[Emphasis supplied]

The Commission observes that, the CERC, after considering various suggestions including those for allowing higher O&M Charges, has decided to prescribe the increased O&M expenses @2.5% (in place of the 2% proposed in its draft Suo-Motu order) of the additional capital expenditure (ACEe) for installation of ECS (excluding IDC and FERV), which is to be further reviewed after 31.03.2024 based on the available data, if any.

In view of above, and particularly in light of the fact of the non-availability of any reliable data relating to the actual O&M expenses due to lack of ECS in operation, the Commission does not find any cogent reason to deviate from the CERC mechanism already decided on the issue. However, the parties shall be at liberty to approach the Commission, whenever the

CERC reviews the same or on the basis of substantial reliable data.

The Commission also notes that the CERC mechanism as adopted by this Commission now, also reasonably addresses the concerns on costs of both the Generators and the Discom PSPCL.

8.4 Additional Interest on Working Capital (IWCe):

On the issue of Additional Interest on Working Capital (IWCe), the CERC Mechanism issued vides Order dated 13.08.2021 in Petition No. 06/SM/2021 (Suo-Motu), provides as under:

“51. Working Capital (WCe) allowed shall include following components:

- a) Cost of limestone or reagent for stock of 20 days corresponding to the normative annual plant availability factor;*
- b) Advance payment for 30 days towards cost of limestone or reagent for generation corresponding to the normative annual plant availability factor;*
- c) Operation and maintenance expenses in respect of emission control system for one month;*
- d) Maintenance spares @20% of operation and maintenance expenses in respect of emission control system; and*
- e) Receivables equivalent to 45 days of supplementary capacity charge and supplementary energy charge for sale of electricity calculated on the normative annual plant availability factor.*

52. Accordingly, the Additional Interest on Working Capital (IWCe) shall be worked out as under:

$$IWCe(n) = WCe(n) \times WCIR(n)/100.$$

Where,

W_{Ce}(n) is the Working Capital of the year for which compensation is to be determined.

W_{CIR}(n) is Working Capital Interest rate (in %) which is Marginal Cost of Lending Rate of State Bank of India (for one year tenor) plus 350 basis points as on 1st April of the year for which compensation is to be determined.”

In this regard, NPL's plea is that the same methodology as contained in the CERC Mechanism be adopted.

However, PSPCL's contention is that there is no basis to provide receivables equivalent to 45 days as the due date of payment of monthly bill, in terms of the PPA, is 30 days. PSPCL has further suggested that the Working Capital Interest Rate (W_{CIR}n) should be the weighted average rate of actual interest on loans of the thermal generating station including ECS or at the rate of Marginal Cost of Funds based Lending Rate (MCLR) of State Bank of India (for one year tenor) as on 1st April of the year plus 350 basis points, whichever is lower. It was further suggested that in case the stock of Limestone is maintained for less than 20 days, then PSPCL may be granted the liberty to reduce the working capital cost proportionately.

Commission's Analysis:

The Commission observes that PSPCL has itself mentioned in its submissions that the due date of payment in terms of the PPA is 30 days. Since the monthly bill for supplementary capacity charge and supplementary energy charge are to be raised on completion of the month, the effective delay in the payment of receivables by the end of the month tantamount to an effective period of half of a month i.e. 15 days. By the due date i.e. after 30 days of submission of the

monthly bills, the delay in payment of receivables becomes equivalent to 45 (15+30) days.

Further, PSPCL's suggestion to consider the interest rate for the Working Capital on par with that considered for Cost of Additional Capex cannot be accepted in view of the fact that the Working Capital and the Additional Capex are different in nature being short term and long term loans respectively, which have different tenures and parameters and thus different interest rates.

However, the Commission is inclined to agree with PSPCL's suggestion that in case the stock of Limestone is maintained for less than 20 days, then PSPCL be granted the liberty to reduce the working capital cost proportionately based on actual data aggregated and weighted monthly. Accordingly, the Generators shall maintain and continuously update the stock position of Limestone on its web-site, indicating the opening balance, receipt and consumption of Limestone so as to have an actual data base.

8.5 Additional Capacity Charges due to Additional Auxiliary Energy Consumption (ACCe):

With regard to the 'ACCe', CERC Order dated 13.08.2021 in Petition No. 06/SM/2021 (Suo-Motu) provides as under:

"...additional capacity charges due to additional auxiliary energy consumption (ACCe) shall be arrived at based on the formula..:

$$ACCe \text{ (Rs/kWh)} = \text{Quoted Capacity Charges} \times [(1-AUX_o)/(1-AUX_t) - 1]$$

Where,

Quoted Capacity Charge is sum of Quoted Escalable and Non-escalable Capacity Charges in the contract year in accordance with the PPA;

AUX_t is the total auxiliary energy consumption i.e. (AUX_o + AUX_e);

AUXo is the original auxiliary energy consumption as agreed under the definition of thermal generating station's net capacity or otherwise; and

AUXe is the additional auxiliary energy consumption due to emission control System as specified by the Central Electricity Authority and admitted by the Commission from time to time."

In this regard, NPL's plea is that the formula as prescribed in the CERC mechanism may be adopted.

Whereas, PSPCL's suggestion is that the additional auxiliary energy consumption (AUXe) may be considered as specified in the FGD system order or as specified by the CEA or the Commission, whichever is lowest. PSPCL further suggested that the additional capacity charges due to additional auxiliary energy consumption (ACCe) should be payable only for the period during which the ECS (i.e. FGD system in this case) remains operational. Accordingly, the generators need to derive a factor namely "FGD Utilization Factor" to indicate the time period for which the FGD system, in either/both of their units, remains operational, weighted with the energy units generated, to be incorporated in the formula while working out the additional capacity charges due to additional auxiliary energy consumption.

Commission's Analysis:

The Commission refers to the CERC Mechanism issued vide Order dated 13.08.2021 in Petition No. 06/SM/2021 (Suo-Motu), which provides as under:

*"56. One of the stakeholders, Reliance Power Ltd. has suggested that as sufficient data is not available about Auxiliary Energy Consumption of ECS, **CEA may be advised to consider actual auxiliary energy consumption for initial 3-4 years and subsequently based on the data collected for different***

unit rating, norms of additional auxiliary energy consumption for ECS may be notified.

.....
58. **One stakeholder (Prayas Energy Group) has suggested that auxiliary energy consumption is also linked with availability of ECS and, therefore, ECS availability factor may be incorporated while working out the additional capacity charges due to additional auxiliary energy consumption.**

59. *We have considered all the suggestions and comments of the stakeholders. We are of the view that auxiliary energy consumption norms for ECS specified by the Central Electricity Authority are based on some study, available data and discussions with technology providers. Therefore, the Commission at this stage, when sufficient operational data regarding auxiliary energy consumption of ECS is not available, considers it appropriate to be guided by the norms suggested by Central Electricity Authority (CEA).....*

.....
84. *We have considered all the suggestions and comments of the stakeholders and concerns raised regarding declaration of availability of the ECS system. As per provisions of the Grid Code, availability of thermal generating stations is declared as a whole and not for the individual auxiliaries. To comply with requirements of the 2015 Rules and subsequent notifications of MoEF&CC regarding emission standards, the thermal generating stations cannot be in operation without ECS. Therefore, availability of the ECS need not to be declared separately.....*

[Emphasis supplied]

As evident, the suggestions to consider the ‘actual auxiliary energy consumption’ and ‘ECS Availability Factor’ stands already discussed and adequately dealt by the CERC in its Order. The Commission is in

agreement with the stated view of the CERC. However, the Commission is also of view that, since the impugned mechanism is being devised for payment of compensation for incurring additional costs and other expenses in relation to procurement, installation, commissioning, operation and maintenance of FGD to meet the revised emission norms, the generators needs to ensure that the FGDs so installed, with such a huge cost to the consumers, serves their intended purpose of controlling the pollution levels.

Therefore, the Commission deems it proper to hold that the compensation i.e. in Availability calculation and the additional expenditure in the form of Supplementary Capacity Charges and Supplementary Energy Charges determined as per the mechanism devised in this Order, shall be payable for the period the generator is able to meet the prescribed emission standards i.e. the days for which it is able to achieve its 24 hr Average SO₂ emission levels in the range notified under the Rules.

8.6 Expenses towards Consumption of Reagent (COR_e):

With regard to the Consumption of Reagent (COR_e), CERC mechanism issued vide Order dated 13.08.2021 provides as under:

“.....cost of reagent per unit of electricity generated for the month shall be worked out based on the formula:

$$COR_e(\text{Rs/kWh}) = \left(\frac{SRC_e \times LPR_e}{1000} \right)$$

Where,

- | | |
|------------------|---|
| COR _e | is expenses towards consumption of reagents in Rs/kWh |
| SRC _e | is the specific reagent consumption on account of emission control system (in grams/kWh) for a unit generated at generator terminal. This shall be normative number recommended by CEA for different variants of ECS; |
| LPR _e | is the weighted average landed price of reagents for ECS (in Rs/kg) during the month. |

In this regard, NPL's plea is for adoption of the formula prescribed in the CERC mechanism issued vide Order dated 13.08.2021 read with corrigendum dated 12.09.2023 rectifying the typographical error in the formula for specific Reagent Consumption (SRCe).

Whereas, PSPCL, referring to NPL's initial submission that it has written to the CERC seeking correction of a typographical error in the formula for specific Reagent Consumption (SRCe) mentioned in the CERC Order, has suggested that NPL be directed to maintain the opening balance, consumption and closing balance of the stock of Limestone. Accordingly, it can also calculate the actual monthly consumption of the Limestone. PSPCL has also submitted that CEA in its Recommendations to NPL has clearly mentioned that the FGD system should be designed in such a way that its by-product (Gypsum) should be of saleable quality. Thus, the revenue that NPL would get on sale of Gypsum, irrespective of whether actual sale has taken place or not, should be netted off, on the basis of market price of Gypsum, from the cost of the Reagent. This would also ensure accountability and efficient operation.

Commission's Analysis:

The Commission observes that, on NPL's initial submission of there being a typographical error in the formula for specific Reagent Consumption (SRCe) as mentioned in the CERC Order, PSPCL's suggestion that NPL can calculate the actual monthly consumption of the Limestone, has been rendered infructuous with the issuance of corrigendum dated 12.09.2023 by the CERC rectifying the said typographical error in the formula SRCe in line with the CEA recommendations. Further, the Commission notes that the CERC in its Order has held that the Specific reagent consumption norm has been finalized by CEA based on discussions with technology

providers and available data. The Commission also feels that in order to ensure uniformity, efficient/competitive operation and also to avoid disputes between the parties the normative parameters, if any specified by the CEA, should be a preferred option. However, there shouldn't be any issue in maintaining of the opening balance, receipt, consumption and closing balance of the stock of Limestone by NPL for accounting purpose and for obtaining data for future reference.

Further, on the issue of adjustment of revenue on account of Gypsum sale, the Commission also refers to the CEA recommendation, wherein it has been mentioned that the FGD system should be designed in such a way that its by-product (Gypsum) should be of saleable quality. The Commission also notes that the CERC, in the Order dated 13.08.2021, has already taken in account the expenses for handling and disposal of gypsum, has allowed the increased O&M expenses @2.5% (in place of the 2% initially proposed in its draft Suo-Motu order).

Thus, the Commission is of view that it would be prudent to adjust the revenue receipts on account of sale of Gypsum in the 'Expenses towards Consumption of Reagent'. Further, on the plea of NPL that the sale of gypsum is not a controllable factor, it would be prudent to hold that the generating companies shall endeavor to procure reagent/sell gypsum through a competitive and transparent bidding process through a joint committee constituted in consultation with the beneficiary procurer i.e. PSPCL who shall invariably participate in all such proceedings so as to avoid any future dispute on the pricing for purchase of reagent or sale of Gypsum.

8.7 Additional Energy Charges due to Additional Auxiliary Energy Consumption (AECe)

With regard to the 'AECe', CERC mechanism issued vide its Order dated 13.08.2021 provides as under:

"..... the Additional Energy Charges due to Additional Auxiliary Energy Consumption (AECe) shall be worked out as:

$$AECe = \text{Quoted Energy Charges} \times [(1-AUXo)/(1-AUXt) - 1]$$

Where, Quoted Energy Charges is sum of Escalable and non-Escalable Energy Charges in Rs/kWh."

In this regard, NPL's plea is for adoption of the formula prescribed in the CERC mechanism with the suggestion to substitute 'Quoted Energy Charges' with the 'Monthly Energy Charges' as applicable to its plant.

Whereas, PSPCL has submitted that the calculations on account of this sub-head can be done by NPL by multiplying the actual energy consumption of the FGD with monthly energy charges (MEPn) rate of schedule 7 of the existing PPA subject to a maximum ceiling (ought to be decided by the Commission).

Commission's Analysis

The Commission notes that, in the State IPPs established under Case 2 bidding, there is no concept of Quoted Energy Charges. The allowable Monthly Energy Charge (MEPn) rate is computed as per schedule 7 of the PPAs based on the 'quoted Station Heat Rate' and 'landed Cost of Fuel'. Further, on the issue of PSPCL's suggestion to consider the actual energy consumption of FGD, the Commission has already expressed its view in para 8.5 above of being in agreement with the CERC view, reproduced below:

“59. We have considered all the suggestions and comments of the stakeholders. We are of the view that auxiliary energy consumption norms for ECS specified by the Central Electricity Authority are based on some study, available data and discussions with technology providers. Therefore, the Commission at this stage, when sufficient operational data regarding auxiliary energy consumption of ECS is not available, considers it appropriate to be guided by the norms suggested by Central Electricity Authority (CEA)”

Accordingly, the Commission accepts the NPL’s plea to substitute the ‘Quoted Energy Charges’ with the ‘Monthly Energy Charges’ in the formulae prescribed for payment of the Additional Energy Charges due to Additional Energy Consumption should be computed as under:

$$\text{AECe} = \text{Monthly Energy Charges} \times [(1-\text{AUXo})/(1-\text{AUXt}) - 1]$$

8.8 Recovery of Compensation i.e. Supplementary Capacity Charges(SFCm) and Supplementary Energy Charges (SECm) through supplementary monthly bills and Availability Calculation:

In this regard, while NPL’s suggestion is as per the structure/formulas mentioned in the CERC Mechanism, PSPCL has neither submitted any suggestion nor comments on the NPL’s submission. However, as discussed in Para 8.5 above, the compensation i.e., in Availability calculation and the additional expenditure in the form of Supplementary Capacity Charges and Supplementary Energy Charges determined as per the mechanism devised in this Order, shall be payable for the period the generator is able to meet the prescribed emission standards i.e. the days for which it is able to achieve its 24 hr Average SO₂ emission levels in the range notified under the Rules.

8.9 Miscellaneous issues:

8.9.1 Shutting-down period

In this regard, NPL's plea is that for integration of ECS with thermal generating station/generating unit a minimum of 10 days normative shutdown for each unit is required. It has been submitted that annual overhaul and commissioning of ECS are two activities which are separate in nature. NPL shall endeavor to match the two so that the shutdown period can be restricted to the minimum. However, in case the two activities cannot be matched at the same time, then NPL ought to be compensated for shutdown period for complete defrayment of fixed charges, waiver of penalty under PPA, if any, and waiver of charges for short/ non-lifting of coal as per FSA, if any.

Whereas, PSPCL contention is that the installation and commissioning of the ECS should match the annual overhaul period of NPL so as to be able to maintain its normative availability in terms of the PPA. There can be no payment of deemed fixed charges to NPL for the period of non-availability on account of commissioning of ECS. The Indian Electricity Grid Code, 2010 is clear and unambiguous in this regard.

Commission's Analysis

The Commission observes that on the issue of 'shutting-down period', the CERC mechanism issued vides Order dated 13.08.2021 has expressed its view as under:

"96. In our view, it is appropriate to deal with this issue on case to case basis. However, we would like to state that the thermal generating stations are required to take appropriate measures to keep the

shutdown period to the minimum possible level. The Commission is also of the view that the generating company should plan interconnection of ECS with thermal generating station during annual overhaul. The procurer(s) must be consulted while undertaking such interconnection. Any claims of costs associated with such shutdown would be considered by the Commission on prudence check after installation of ECS.”

The Commission is also in agreement with the above view expressed by the CERC. The shutdown should be synchronized so as to minimize the shutdown period. No fixed costs should be payable to the Generator for any shutdown in excess of the period of regular maintenance agreed with PSPCL.

8.9.2 Merit Order Dispatch of Electricity

In this regard, NPL's plea is that the Commission in its compensation mechanism may explicitly mention that the impact of ECS shall not be considered while preparing the Merit Order Dispatch. It has been pleaded that NPL's Energy Charge rate would increase with addition of the Supplementary Energy Charges, thereby affecting its Merit Order in the Dispatch Schedule. Therefore, that generating stations who install ECS earlier would be at disadvantage vis'-a-vis' the generating stations who installs it at a later date. NPL has also referred to the MoP letter dated 18.10.2018, forwarding the recommendations of CEA (for comments) to all the power utilities, including PSPCL, wherein CEA had recommended various incentives with respect to installation of ECS as per the timelines, including that the increased Variable

Cost because of installation of pollution control equipment would not be considered in preparation of stack for merit order dispatch.

On the contrary, PSPCL's contention is that the revised emission norms notified by the MoEF&CC Notification applies to all thermal generating stations, therefore, the Merit Order Dispatch shall also be affected commensurately. Therefore, it is not open for NPL to contend that the Supplementary Energy Charges shall not be considered while computing the Merit Order Dispatch.

Commission's Analysis

The Commission, while agreeing with PSPCL's submission that since all generators are mandated to meet the revised emission norms and thus all shall be at par with respect to their position in Merit Order Dispatch, is also in agreement with NPL's plea that that generating stations who install ECS earlier would be at disadvantage vis'-a-vis' the generating stations who installs it at a later date.

The Commission observes that the CERC mechanism issued vide its Order dated 13.08.2021 has not discussed/dealt the issue of Merit Order Dispatch for the generators who installs FGD before the timelines issued by the MoP. However, the CEA letter dated 26.09.2018, forwarded to MoP for consideration, regarding Incentives to thermal power plants for early installation of pollution control equipment, reads as under:

“Keeping in view the discussions held at the above meetings, the following measures are recommended to incentivize early installation of pollution control equipment by the TPPs:

- a. The variable cost of TPPs installing FGD and other pollution control equipment as per the timelines in the notice of CPCB would continue to remain same as that before installation of pollution control equipment for the purpose of Merit Order Dispatch (MOD), i.e. the increased Variable Cost because of installation of pollution control equipment would not be considered, in preparation of stack for merit order dispatch. However, payment to the TPP for the energy scheduled would be based on actual variable cost.”*

In view of the above, the Commission is also of the view that generators who install FGD before the timelines issued by the MoP should not be at a disadvantage or get penalised.

Thus, in order to maintain a level playing field for such generators, who have taken the initiative in installing the FGD/ECS in compliance of the revised emission Rules ahead of the timelines issued by the MoP, the Commission decides that till the date of the timeline, by which all generators are required to install the FGD/ECS and placed at same pedestal, “the increased Variable Cost on account of installation of FGD would not be considered, in preparation of stack for Merit Order Dispatch. In case, the others fail to install the ECS/FGD by the scheduled timeline, those who have installed earlier can approach the Commission for a further review of this Order on merit order despatch.

8.9.3 Provisional Tariff

NPL has filed an IA (No. 11 of 2023) seeking Interim Relief of provisional tariff till the time supplementary tariff is finally determined by the Commission. NPL's plea is that the determination of compensation, being a time-consuming process, may take 6-12 months. However, the Generation Company's debt servicing obligations to its lenders would begin immediately following the ECS Operation date and there would be additional costs needed for procurement of reagents and undertaking the O&M of the ECS. Further, NPL has also cited judgements by Hon'ble APTEL inter alia granting in-principle approval for the expenditure to be incurred by the projects on account of a 'Change in Law' event.

On the other hand, PSPCL, while submitting that there is no provision under Article 13 of the PPA for grant of provisional tariff, has pointed out that the orders passed by the Commission cannot be executed without the leave of the Hon'ble Supreme Court, where the Civil Appeal No. 3688 of 2020 & Civil Appeal No. 3763 of 2020 filed by PSPCL is pending and the interim Orders therein dated 07.08.2023 have allowed the proceedings to be completed before this Commission but with the added rider that the Order passed therein will not be executed without the leave of the Hon'ble Supreme Court.

Commission's Analysis

The Commission observes that NPL, vide its rejoinder to PSPCL's reply, has cited some of the instances wherein different Courts/Commissions had allowed the provisional tariff in case of the Change in Law events. However, without going

into the merit of the same, the Commission observes, that with the mechanism for payment of compensation towards additional cost and other expenses of FGD/ECS being put in place vide this Order, the plea made in the IA for grant of provisional tariff becomes infructuous.

The Commission also notes that, while TSPL is yet to incur the cost and other expenses in relation to the procurement, installation, commissioning, operation and maintenance of FGD and associated systems. NPL chose not to submit that the same till the FGD comes into operation, even on the asking for the same during the proceedings of the instant petition by PSPCL. Therefore, now the delay, if any, is to the account of the generators.

The Commission also refers to the CERC mechanism issued vide Order dated 13.08.2021 in Petition No. 06/SM/2021 (Suo-Motu), which provides as under:

*“110. We have considered the suggestions and comments of the stakeholder. **We are of the view that provisional tariff needs to be mutually agreed between procurers and sellers taking into account the compensation mechanism decided in this order.**”*

[Emphasis supplied]

In light of the above, the Commission decides to adopt the mechanism for payment of compensation, towards additional cost and other expenses in relation to procurement, installation, commissioning, operation and maintenance of FGD for SO₂ (recommended by the CEA), as issued by the CERC vide its Order dated 13.08.2021 in Petition No.

06/SM/2021 Suo-Moto for generating companies whose Tariff is determined through competitive bidding under Section 63 of the Electricity Act, subject to the observations made by this Commission in the component wise analysis.

Further, in reference to the NPL's submission that the said mechanism devised by CERC has been challenged before the Hon'ble APTEL in Appeal No. 306/2021 by the Association of Power Producers & Others, on various counts, including the issue of the compensation mechanism transcending beyond the operative period of the agreements, provisional tariff and compensation related to the shutdown period, this Commission decides that the findings of Hon'ble APTEL shall also be applicable, upon attainment of finality.

Accordingly, the Commission has complied with the Hon'ble APTEL's directions issued vide its common order dated 28.08.2020 in Appeal No. 21 of 2019 filed by TSPL and Appeal No. 73 of 2019 filed by NPL. However, the Commission's above Order shall be subject to the leave of the Hon'ble Supreme Court in line with the Hon'ble Supreme Court Order dated 07.08.2023 in Civil Appeal No. 3688 of 2020 & Civil Appeal No. 3763 of 2020 including Applications for Interim Relief filed by PSPCL against the Order dated 28.08.2020 passed by Hon'ble Tribunal. The relevant extract of the Order is reproduced below:

"... we are of the opinion that the proceedings before the Punjab State Electricity Regulatory Commission can continue and be decided. However, the order passed therein will not be executed and enforced without the leave of this Court."

Accordingly, the suo-motu Petition and the IA No. 11 of 2023 filed by NPL are disposed of in terms of the observations and Order above.

Sd/-

(Paramjeet Singh)
Member

Sd/-

(Viswajeet Khanna)
Chairperson

Chandigarh
Dated: 02.07.2024

