BEFORE THE HARYANA ELECTRICITY REGULATORY COMMISSION

Case No. HERC/Petition No.- 33 of 2023

Date of Hearing : 08.11.2023

Date of Order : 29.01.2024

In the Matter of

Petition under Section 62, 86(1)(b) and 86(1)(e) of the Electricity Act, 2003 read with the provisions of the HERC (terms and conditions for determination of tariff from renewable energy sources, renewable purchase obligation and renewable energy certificate) Regulations, 2021 for determining project specific tariff of the 10.72 MW Solar PV project at village Kuranganwali, District Sirsa, Haryana

Petitioner M/s. Greenyana Solar Pvt. Ltd.

Respondents 1. Haryana Power Purchase Centre, Panchkula (HPPC)
2. Haryana Renewable Energy Development Agency (HAREDA)

Present On behalf of the Petitioner

1. Shri Parinay Deep Shah, Advocate

Present on behalf of the Respondents

1. Smt. Sonia Madan, Advocate, HPPC
2. Shri Aditya Grover, Advocate for HAREDA

Quorum

Shri Naresh Sardana Member

ORDER

Brief Background

1. M/s. Greenyana Solar Pvt. Ltd. has preferred the present petition under section 62 of the Electricity Act, 2003 read with Haryana Electricity Regulatory Commission (Terms and Conditions for determination of Tariff from Renewable Energy Sources, Renewable Purchase Obligation and Renewable Energy Certificate) Regulations, 2021 (hereinafter referred to as "HERC RE Regulations, 2021"), seeking determination of tariff for its 10.72 MW Solar PV power project.

2. **Petitioner's Submissions: -**

Capital Cost

2.1 On the completed cost of its Solar Pv project of 10.72 MWp, the petitioner has submitted that the first proviso to Regulation 11 of the HERC RE Regulations,2021 provides that for project specific tariff determination the generating company shall submit the break-up of capital cost including the Detailed Project Report (DPR), lender's engineer report, justification (item-wise) for any time/cost over-run, if any. Further, as per second proviso of the said Regulations, in case where land for the project is acquired on lease basis, the cost of land to be considered as part of capital cost shall be determined as per the land lease agreement(s). Accordingly, the relevant details filed by the petitioner is as under: -

S. No.	Project Cost	Rs. (Million)
1	Cost of Solar Modules	323.43
2	EPC Cost (Balance of Systems)	218.59
3	Land and Site Development	60.23
4	Contingencies/ Development Fees	35.38
5	IDC and Finance Charges	25.50
6.	Total Project Cost	663.14
7.	Project Cost (Excl. Land)	602.90

2.2 That the petitioner craves leave to refer to the lease agreements executed for the balance 9.28 MW (phase 2 of the entire 20 MW solar power project). The total land for the project in question has been acquired by the petitioner. The details of the land under lease for the 9.28 MW similarly situated solar PV project are as under:

1	Total Land (acres)	55.77
2	Lease per Acre (Rs)	58,000
3	Annual Escalation in Lease rental (%)	5%

2.3 That the petitioner has incurred a total cost of Rs. 4.109 crores towards substation and transmission line (cost of evacuation up to interconnection point). Therefore, a total capital cost of Rs. 663.14 million has been considered for tariff determination.

2.4 That a certificate from Chartered Accountant certifying the capital cost, a copy of all the details for tariff computation including documentary evidence such as invoices and purchase orders that have been used to arrive at the project cost, a copy of DPR with the technical and operation details of the Project and a copy

of the Financial Statements together with the Independent Auditors Report of the petitioner company, have been annexed with the instant petition.

2.5 **Debt: Equity:** It has been submitted by the petitioner that the entire capital cost has been funded through equity contribution and there is no debt element in the capital structure. However, in view of the Regulation 12(2) of HERC RE Regulations, 2021, the petitioner is proposing 30% of the Capital Cost as Equity. Hence, a Debt-Equity ratio of 70:30 is considered for tariff computation. Based on this Debt-Equity ratio, following are the components of the Debt and Equity components of the capital cost for the determination of the tariff.

	Particulars	Percentage (%)	Rs. Million
	Capital Cost	100%	663.14
A.	Debt	70%	464.20
B.	Equity	30%	198.94

2.6 **Loan and Finance Charges**: That as per Regulation 13 (1) of the HERC RE Regulations, 2021, the loan tenure shall be considered as 13 years. Further as per Regulation 13 (2)(b) of the HERC RE Regulations, 2021, the normative interest rate shall be considered as the average Marginal Cost of funds-based lending rate (MCLR) (one-year tenor) of SBI prevailing during the last six months plus a margin of up to 200 basis points i.e., 2%.

Month	SBI – 1-year MCLR	Interest on Loan SBI 1-year MCLR + 200bps
15.08.2022	7.70	Average MCLR = 8.02% Interest rate of loan = 8.02% + 2% = 10.02%
15.09.2022	7.70	
15.10.2022	7.95	
15.11.2022	8.05	
15.12.2022	8.30	
15.01.2023	8.40	

In view of the above, interest rate of 10.02% is considered for computation of tariff. Further as per Regulation 13(2)(c) of the HERC RE Regulations, 2021, notwithstanding any moratorium period availed by the generating company, the repayment of loan shall be considered from the first year of commercial operation of the project and shall be equal to the annual depreciation allowed. In view of the above, loan repayment is considered to be an amount equal to annual depreciation.

2.7 **Depreciation:** That the salvage value of the asset shall be considered as 10%. Further as per Regulation 14 (2), the depreciation rate for the first 13 years of the Tariff Period shall be 5.38% per annum and the remaining depreciation shall be spread over the remaining useful life of the project from 14th year onwards.

2.8 **Return on Equity**: That as per 15 (2) of the HERC RE Regulations, 2021, the normative Return on Equity shall be as under: -

a) 14% per annum calculated on normative Equity Capital.

b) MAT/Corporate Tax applicable shall be considered as pass through.

The generator shall raise the bill for reimbursement of MAT / Corporate Tax applicable on Return on Equity in 12 equal installments which shall be payable by the beneficiaries.

2.9 **Interest on Working Capital**: That as per Regulation 16(1) of the HERC RE Regulations, 2021, the working capital requirement of Solar PV projects shall be computed in accordance with the following:

a) Operation & Maintenance expenses for one month;

b) Receivables equivalent to 2 (two) months of fixed and energy charges for sale of electricity calculated on the normative CUF / PLF;

c) Maintenance spare @ 15% of operation and maintenance expenses.

The petitioner has considered the average (1 year) SBI MCLR applicable for the 6-month period between August' 2022 to January' 2023 of 8.02% plus 2% as the working capital interest. The applicable interest rate of 10.50% on working capital has been considered for computation of tariff.

2.10 **Capacity Utilization Factor (CUF)**: That as per regulation 48 of the HERC RE Regulations, 2021, the Commission shall approve Capacity Utilization Factor ("CUF") for project specific tariff determination. Provided that the minimum CUF for Solar PV project, including floating solar project, shall be 21%.

2.11 The petitioner has submitted that the Solar Photovoltaic (PV) industry across the world uses simulations tools for estimating the project specific CUF at which any solar PV project is expected to generate during operations. The most popular and one of the oldest such simulation tool available is PVSYST which

has been developed by the University of Geneva and is widely used across the world by solar PV industry.

2.12 The petitioner's project has a total AC capacity of 10.72 MW and have total module capacity of 14.88 MWp (DC Capacity). Based on the PVSYST simulations for the Project, the CUF is estimated to be 17.01% DC (24.08% CUF AC), with an annual degradation in CUF of 0.50%.

2.13 **Operation and Maintenance Expenses (O&M)**: That as per Regulation 17(2) of the HERC RE Regulations, 2021, Operation and Maintenance expenses shall be determined for the Tariff Period based on normative O&M expenses specified in the Regulations for the first Year of the Control Period and such normative O&M expenses allowed during the first year of the Control Period shall be escalated at the rate of 2.93% per annum over the Tariff Period, in terms of Regulation 17(3). Further, it has been submitted that as per Regulation 49 (1) of the of the HERC RE Regulations, 2021, the O&M Expenses shall be determined based on the prevalent market conditions.

2.14 The petitioner has submitted that this Hon'ble Commission, by its order dated 18.01.2021 passed in the case of HERC/PRO-59 of 2020 (in the matter of M/s. Amplus Sun Solutions Pvt. Ltd.), decided O&M expenses at Rs. 30.30 (sic) millions/MW, excluding lease rental. Subsequently, in the case of M/s. LR Energy Pvt. Ltd. in case no. HERC/PRO-70 of 2020 also, this Hon'ble Commission allowed O&M expenses of Rs. 0.303 Million/MW inclusive of insurance and all taxes and levies for the first year escalated @5.72% per annum, in terms of the HERC RE Regulations, 2017.

In view of the aforesaid orders, the Petitioner is also claiming O&M expenses Rs. 30.30Millions/MW, excluding lease rent, with an escalation of 5.72% p.a.

2.15 **Auxiliary Energy Consumption**: That auxiliary energy consumption, in terms regulation 50 of the HERC RE Regulations, 2021, has been proposed at 0.25% of gross generation.

2.16 **Sharing of CDM benefits**: The petitioner has averred that as per regulation 20 (1) of the HERC RE Regulations, 2021, the proceeds of carbon credit from approved CDM project, after deduction of expenses incurred by the generating company for registration and approval of the project as CDM project shall be shared between generating company and concerned beneficiaries in the manner as provided under the Regulations. The above provisions have already been captured in the PPA executed between the Petitioner and HPPC.

2.17 **Subsidy / Incentive by the Central Govtt**. It has been submitted that the petitioner has not availed of any incentive or subsidy offered by the Central or State Government, for the project.

2.18 **In view of the above averments, the petitioner has made the following prayers:**

a. Determine tariff of Rs. 4.46/kWh, in terms of Section 62 of the Electricity Act, 2003 for 10.72 MW (AC Capacity) Solar PV project of the Petitioner;
b. Allow Petitioner to correct any error, file additional data / information that may be required;
c. Pass an order for reimbursement of the fee for tariff determination, by the Respondent No. 1 to the Petitioner; and
d. Pass such further order(s) which the Hon'ble Commission deems fit and just in facts of the present case.

3. **Proceedings in the case**:

The petition filed by M/s. Greenyana Solar Pvt. Ltd. was made available on the website(s) of the Commission as well as that of the petitioner for inviting objections / comments / suggestions from the stakeholders. A public notice was issued by M/s. Greenyana Solar Pvt. Ltd. in the Newspapers, having wide circulation in Haryana, for inviting objections/suggestions from the stakeholders / General Public or any interested person, in compliance with the provisions of Section 64 of the Electricity Act, 2003 read with the Haryana Electricity Regulatory Commission (Conduct of Business) Regulations, 2019 as amended from time to time. The said public notice was published by the petitioner, in the following Newspapers:

Name	Language	Date of publication
The Indian Express	English	12.07.2023
Jansatta	Hindi	12.07.2023

The Commission issued public in the following newspapers. The last date of filing objections / comments was 18.07.2023.

Name	Language	Date of publication
The Tribune	English	24.06.2023
Dainik Tribune	Hindi	24.06.2023

Subsequently, the public hearing was adjourned to 13.09.2023 and notice to this effect was published in the following newspapers, with last date of filing objections as 02.08.2023: -

Name	Language	Date of publication
The Tribune	English	27.07.2023
Dainik Tribune	Hindi	27.07.2023

4. In response to the public notice, Haryana Power Purchase Centre (HPPC – R1) and Haryana Renewable Energy Department (HAREDA – R 2) filed their respective objections / comments in the Commission with an advance copy to the petitioner.

5. **HPPC's (R– 1) Submissions**

5.1 That the petitioner has sought determination of tariff @ Rs.4.42/kWh, which is contrary to the terms of the Power Purchase Agreement ("PPA") subsisting between the parties. In fact, the petitioner and HPPC (the beneficiary/Discoms) have mutually agreed on a ceiling tariff of Rs. 2.75/kWh and the same have been incorporated in the concluded PPA between the parties. The relevant clause of the PPA is reproduced below:

> *"4.2 The tariff determined by the Commission under Section 62 of the Electricity Act, 2003 shall be subject to ceiling tariff of Rs.2.75/kWh. The tariff at any point of time during the tenure of this agreement shall not exceed the ceiling tariff of Rs.2.75/kWh, even as a consequence of any order/ intervention of any statutory authority including HERC, CERC, APTEL or Court of Law. In no event shall, the purchaser be liable for any damages whatsoever (including without limitation, incidental, direct,*

indirect, special and consequential damages, damage foe loss of profit, business interruption or other pecuniary loss) for the period prior to the date of signing of this PPA. The Solar Power Developer shall assist the Commission in the process of Tariff determination and submit all the information/ documents as required or sought by the Commission."

In view of the above, the intervener herein, has submitted that any determination of tariff would be necessarily subject to the ceiling tariff as agreed upon by the parties. The same, in no manner, can be over and above the tariff @2.75/kWh. Reliance in this regard is placed on the judgement in ***Haryana Power Purchase Centre Vs. Haryana Electricity Regulatory Commission [Appeal No. 271 of 2019. D/d. 28.01.2021]*** wherein the Hon'ble APTEL observed as under: -

"129 … Though under the law the price of procurement is the domain of the regulator, the parties herein had negotiated and agreed upon the cap – ceiling – on the price to be paid under long term PPA. This is a stipulation which would bind the parties and would undoubtedly be kept in mind by the Commission when it embarks upon the second stage exercise of tariff determination under section 86(1)(b). .".

5.2 It has been submitted that Chapter-8 of the RE Regulations, 2021 which deals with the 'Technology specific parameters for Solar PV Power Project' specifically provides as under: -

"Provided that the ***norms including Capital Cost, O&M expenses etc. and the tariff thereto for Solar Pv / Thermal / Rooftop / Canal top / Water works, as per the technology approved by the MNRE, shall be determined on project specific basis depending on the prevalent market trend*** *(emphasis added) only if required i.e. in case the competitive bidding route for any reason does not take effect."*

Thus, the market trend is relevant in assessment of value of substantial parameters of the Plant as per the RE Regulations, 2021.

5.3 HPPC has averred that Hon'ble Central Electricity Regulatory Commission (CERC) in its Order dated 07.07.2020 in the matter of Central Electricity Regulatory Commission (Terms and Conditions for Tariff Determination from Renewable Energy Sources) Regulations, 2020 applicable from 01.07.2020 – Statement of Objects & Reasons (SOR) observed that in view of the solar power market having attained maturity, the consideration of market trend is even more imperative. The relevant extract of the Order is reproduced hereunder: -

"*6.11 Most of the Utilities are adopting competitive bidding route for procurement of power from solar and wind power projects. In some cases, it is observed that the tariff determination has been done by SERCs on case to case basis, which lead to the inclusion of solar power projects and wind power projects under project specific tariff. Further,* ***the solar power and wind power have reached maturity level and hence, the market driven determination of tariff needs to be promoted****."*

(Emphasis Supplied)

Reliance is also placed on the judgement in the case of ***Green Energy Association Sargam Vs. Central Electricity Regulatory Commission [Appeal No. 95 of 2017, Appeal No. 105 of 2017 and Appeal No.173 of 2017. D/d. 12.4.2018]*** wherein the Hon'ble APTEL held:

"12.13 … In fact, CERC is responsible for balancing the interest of consumers on one hand and the RE generators on the other. Besides, the Central Commission is playing a proactive role and persuading the State Commissions through FOR, at regular intervals, to enforce RPO compliances. ***We have carefully considered the contentions of all the parties and noted that under the prevailing market scenario, the prices of RECs cannot be kept artificially high to burden the end consumers. Further, if the prices of RECs are kept high without aligning them with the market reality and current cost of electricity, the obligated entities may not purchase the RECs and try to fulfil their RPOs by other means****. It is also noteworthy that sufficient time has been given to RE generators to sell their RECs at the power exchange but perhaps in anticipation of selling them at better prices has resulted into unsold REC inventory."*

(Emphasis Supplied)

5.4 That this Hon'ble Commission in Order dated 20.12.2019 (PRO-57 of 2019) in the matter of determination of levelized tariff for purchase of power from decentralized Solar Power Plants set up under PM KUSUM Scheme introduced by Government of India (GoI), held that the capital cost for the project has to be determined as per the market trend. The relevant part of the order is reproduced hereunder: -

"The Commission observes that the most important parameter impacting the levelized tariff is the project cost which as per HERC RE Regulations has to be aligned with the market trend."

5.5 The intervener has averred that It would also be relevant to highlight that in December 2022, REC Power (RECPDCL) floated tender for 500 MW Solar Power, which was won by ReNew Solar Power and Avaada Energy. ReNew Solar Power was awarded 200 MW at a tariff of INR 2.69/kWh, while Avaada Energy was awarded 300 MW out at a tariff of INR 2.70/kWh. Considering such market trend, the Hon'ble Commission may determine value of various parameters of the solar Pv power plant of the petitioner reasonably.

5.6 That the project of the petitioner was set up in the year 2020. The solar panel and module prices at that time were invariably low. In the year 2020, the solar market witnessed the quoted tariff in auctions as low as Rs. 1.99 per unit. As such, it is the case of HPPC that in view of the regulatory framework set up for the RE Projects, it is imperative that the Hon'ble Commission considers market trend for arriving at the value of various parameters of the Plant to balance the interest of the stakeholders. Needless to say, that the value of parameters such as Capital cost, O&M expenses etc. claimed by the Petitioner are exorbitant and farfetched from the market trend.

5.7 **Capital Cost**: On the issue of capital cost, HPPC has submitted that the total capital cost being claimed by the petitioner is Rs. 663.14 Million for its 10.72 MW solar PV project i.e. Rs.61.86 Million per MW. The petitioner has provided the following break-up of capital cost:

Sl.	Project Cost	Rs. (Million)
1	Cost of Solar Modules	323.43
2	EPC Cost (Balance of System)	218.59
3	Land and Site Development	60.23
4	Contingencies/ Development Fee	35.38
5	IDC and Finance Charges	25.50
6.	Total Project Cost	663.14
7.	Project Cost (Excl. Land)	602.90

5.8 That the capital cost alleged to have been incurred is exorbitant and irrational looking at the market trend of the prices of the Solar Power Plant. The alleged estimates are arbitrary and unsubstantiated. It is submitted that the Hon'ble Commission, in its various orders, has allowed capital cost to similarly placed solar projects installed in Haryana as under: -

a. Rs 3.245 crore/MW to M/s Avaada Green HN Project (50 MW);
b. Rs 3.574 crore/MW to M/s LR Energy (20 MW); and
c. Rs 3.82 crore/MW to M/s Amplus Sun Solutions (50 MW).

5.9 It has been further submitted by the intervener that the available literature including reports by international organization like IRENA, shows that there was rapid decline in cost of the module beginning from the year 2015. They also reveal that the reductions in cost of the module was not only influenced by substantial capacity and deployment upsurge, but also because of improvements in production process, more competitive supply chain, technological improvements and efficiency gains associated with increased adoption of newer cell designs. Similarly reports suggest that with advancement in technologies there was a decrease in price of other equipment's associated with the solar photo voltaic plant. Achieving optimal performance depends on selection of technology and factoring in various parameters that influence the performance of the power plant. The Hon'ble Commission must kindly take note of these developments while considering the capital cost of the Plant of the Petitioner.

5.10 That It was observed by the Hon'ble Commission that the capital cost of such projects especially the cost of modules, inverter and civil work may not vary significantly across the Country. Considering the then recent orders of Karnataka Electricity Regulatory Commission and the Rajasthan Electricity Regulatory Commission, the Hon'ble Commission pegged the Capital cost for

the Solar Projects under PM Kusum Scheme at Rs. 3.40 crore/ MW. The said cost included cost of the Land, evacuation system as well besides monetized value attributed to degradation of solar panels. Further, the PM Kusum scheme tariff is for the plants up to 2.0 MW only. The said tariff ought to be further reduced for large scale Megawatt projects. The above capital cost for small scale grid connected solar PV has been considered by this Hon'ble Commission for a resultant CUF of 19%. Thus, the Capital Cost claimed by the Petitioner is in no manner aligned to market trend and not worthy of consideration.

5.11 HPPC has submitted that Learned Uttarakhand Electricity Regulatory Commission, in Order dated 07.06.2019, passed in Petition No. 18 of 2019 for review of the Benchmark Capital Cost for Solar PV, Solar Thermal and Grid Interactive Rooftop & Small Solar PV Plants to be applicable for FY 2019-20 had approved total Capital Cost of Solar PV plants as 3.56 Crore/ MW. The break-up of the said cost is summarized as under –

Sl.	Particulars	Approved Cost per MW for FY 2019-20 (Rs. (in crores) (rounded off)
1.	Cost of PV module	2.2485
2.	Land Cost	0.50
3.	Civil and General Works	0.142
4.	Mounting Structure	0.150
5.	Power Conditioning Units	0.150
6.	Evacuation infrastructure	0.188
7.	Preliminary and Pre-operative Expenses (5.21% of total capital cost)	0.186
TOTAL		**3.5645**

5.12 The costs approved by Ld. Uttarakhand Electricity Regulatory Commission in the above referred Order are based on generous consideration of the market prices. The Hon'ble Commission after considering GST and safeguard duty applicable for FY 2019-20, worked out cost of module as Rs. 216.01 Lakh/MW. Further, considering the degradation cost of Rs. 8.84 Lakh/MW over the life of the project, the Hon'ble Commission considered the solar PV module cost of Rs. 224.85 Lakh/MW for FY 2019-20. The cost of civil works is worked out based on the average increase of Whole Price Index (WPI) and Consumer Price Index (CPI) for immediately preceding three years by giving equal weightage. Preliminary and Pre-operative expenses is taken on fixed percentage basis, which is 5.21% of total Capital cost. Based on the same,

Hon'ble Commission arrived at the total Capital Cost of Rs. 3.00 crore/ MW excluding the cost of Land. The generic tariff, in case of solar PV based generation plants, is generally determined up to 5 MWp plants, as such, considering the economies of scale and reduced cost of solar inverter and panel during FY 2019-20, the capital cost per MW_{DC} has to be in the range of Rs. 2.5 crores. Compared to the same, the capital cost claimed by the petitioner is exorbitant and exaggerated.

5.13 The learned Rajasthan Electricity Regulatory Commission (RERC) in their order dated 11.02.2020 in the matter of determination of pre-fixed levelized tariff for sale of power from power projects set up under Component-A and rate for purchase of excess power from solarized agriculture pumps under Component-C of the PM KUSUM Scheme of GoI to the State Discoms had considered the cost of setting up 1 MW solar plant along with 3 kM 11 kV connected line as Rs. 3.65 Crores per MW. The cost of project without the cost of 11 kV line/breaker works out to be Rs. 3.50 crores per MW.

5.14 The learned Karnataka Electricity Regulatory Commission (KERC) had adopted capital cost of Rs. 3.50 crores per MW in their Order dated 18.05.2018 where average module cost was at about Rs. 19.68/Watt. However, the Hon'ble KERC in Petition for determination of tariff in respect of Solar Power Projects for FY 2020 by order dated 01.08.2019 approved the Capital Cost of Rs. 3.17 crore/ MW excluding the cost of Land. The said cost considers the fact that the report given by PV insight as on 22.04.2019 evincing average module cost at about Rs.14.89/watt shows a reduction in module cost by about 24% as compared to the cost of previous year. It was held that with the reduction in costs of other equipment and materials along with reduced interest rates, the Capital Cost of Rs.3.14 crores/MW, for ground mounted solar PV based projects having capacity of less than 5 MW, is fair and reasonable for such megawatt scale ground mounted solar power plants. It is further pertinent to note that the Hon'ble KERC in its Order dated 22.05.2020 for extension of tariff for Solar Projects for FY 2021 had observed that - "*As on date module cost has come down drastically and thereby, the project cost will come down correspondingly…..*"

5.15 It is therefore, evident from the order of the various Hon'ble State Electricity Regulatory Commissions across the country for the year 2019-2020 that the Capital cost claimed by the petitioner is far in excess of the market prices. Thus, the Hon'ble Commission may consider reasonable Capital Cost in line with the market prices of the appropriate time.

5.16 Additionally, the intervener herein i.e. HPPC has pointed out the following discrepancies in the documentary evidence placed on record by the petitioner.

a) A number of Lease deeds have been appended (at Page 372 onwards), however, cost towards the lease agreement cannot be included in the computation of capital cost.

b) Further, a number of Exchange Deeds have been appended by the Petitioner (i.e. at Page 293, at Page 303, at Page 311, at Page 317, at Page 324, at page 326 onwards), whereas, any cost associated with the same, including stamp duty etc. may kindly not be considered towards the computation of capital cost. Be that as it may, it is well-settled that in case of exchange deed stamp duty is paid by both the parties in equal shares.

c) Insofar as the sale deeds appended are concerned, the cost of stamp duty, if any, paid may not be counted towards the computation of capital cost as the same stands 100% exempted as per Clause 4.11 of the Haryana Solar Policy, 2016. (Addendum 2nd dated 23.06.2017). The 'Notes' appended with Financial Statement/ Auditor Report specifically mentioned that the Tangible property plant and equipment includes its cost and – *"Cost includes its purchase price including non-refundable taxed or levies and any attributable costs of bringing the asset to its working condition for its intended use."* (As mentioned at Page 670 of the Petition). However, it is submitted that the stamp duty, if any, paid may not be added towards the capital cost, being completely exempted.

d) Further, at page 8 of the petition, the petitioner has stated as under: -

"Cost of evacuation up to interconnection point

The Petitioner has incurred a total cost of Rs.4.109 Crores towards substation and transmission line.

The same may not be added towards the Capital Clause in view of Clauses 6.1.3 and 6.1.4 of the PPA between the parties (at Page 48 of the petition), which are reproduced below for ready reference:

> *"6.1.3 The entire cost of transmission including cost of construction of line, bay, metering and protection system etc. up to the Delivery Point shall be borne by the Solar Power Developer.*
> *6.1.4 Construction and operation/maintenance of evacuation system including transmission line up to the point of connectivity at Nigam's/ Discom's substation shall be the responsibility of Solar Power Developer"*

e) It is further submitted that the 'Services Contract' (at Page 397 onwards) and 'Contract for Supply of Solar Power Generating System' (at Page 522) appended by the Petitioner is with respect to the 15.03 MW ground solar project and is required to be considered in proportion to the present 10.72MW power plant.

f) Further, a perusal of the Note 8, of the Financial Statement (Mentioned at Page 676 of the Petition) for the Calendar year ending on 31.12.2021, shows that the cost of Solar power plant has already been impaired by Rs. 9.80 crores and the same has been booked under the head 'Other Expenses' (as per Note 17 at Page 678 of the Petition). Meaning thereby, the carrying value of the plant already stands reduced due to the impact of impairment. In addition to this impairment, depreciation to the tune of Rs.2.41 crores have also been charged by the petitioner for the year ending 31.12.2021 and the same has been also charged to the P/L Account. Resultantly the WDV as on 31.12.2021 stands at Rs.47.73 Crores as against the original capitalized value of Rs. 60.29 Crores. Thus, the present value of the solar plant is liable to be considered as against the original value.

5.17 **Debt: Equity Ratio**: On this issue the intervener has submitted that petitioner has claimed Debt-Equity Ratio of 70:30 as per the Regulation 12 of the RE Regulations, 2021. However, the Hon'ble Commission may verify actual equity infused by the petitioner in the instant project and in the event the equity is

found lesser than 30%, the Petitioner shall not be unjustly enriched by inclusion of Return on equity on amount higher than the actual equity of the present project.

5.18 **Loan & Finance Charges**: HPPC has submitted that as per HERC RE Regulations, 2021 interest on capital loan and working capital are ceiling parameters and therefore, lower of actual interest rate on loan and working capital availed by the petitioner or normative rate applicable as per RE Regulations, 2021 may be considered by the Hon'ble Commission.

5.19 **Depreciation, RoE and IoWC**: : It has been submitted that the reasonable figures with ceiling of normative parameter may be considered by the Commission with respect to Return on Equity (RoE), Depreciation, Working Capital for determination of tariff of the Plant of the Petitioner.

5.20 **CUF**: The petitioner has submitted that – *'Based on the PVSYST simulations for the Project, the CUF is estimated to be 17.01% DC (24.08% CUF AC), with annual degradation in CUF of 0.50%.'* However, as per the RE Regulations, 2021 it has been provided that – *"… the minimum capacity utilization factor for Solar PV project including floating solar project shall be 21%."* In this regard, it is respectfully submitted that most of the SERCs across the Country have adopted a CUF within range of 19%-21% for Solar PV. It is relevant to mention that CERC in its Order dated 07.07.2020 **(Annexure R-1 appended herewith)** had considered the comments of all leading solar generators and held as under regarding CUF of the Solar power Projects:

"***Commission's Proposal***
38.1 CUF of solar projects was proposed as under as per Regulation 47 of the Draft Regulations:
*"**47. Capacity Utilisation Factor***
The Commission shall only approve capacity utilization factor for project specific tariff:
Provided that the minimum capacity utilization factor for solar PV power projects shall be 21%:
Provided further that the minimum capacity utilization factor for solar thermal power projects shall be 23%:
Provided also that the minimum capacity utilization factor for floating solar projects shall be 19%."

Comments Received

38.2 Mangal Industries Ltd. has sought clarification regarding the period up to which the 21% CUF of solar PV power projects are applicable, as CUF reduces over a period due to ageing.

38.3 The Tata Power Company Ltd. has requested to consider the minimum CUF of 16% and 0.5% per annum degradation for solar PV power projects, as CUF is a site specific parameter and may vary from 16% to 21%, whereas degradation of generation capacity varies from 0.5-1.0% per annum depending upon guarantees provided by PV module suppliers.

38.4 Greenko and NSEFI have suggested that the normative CUF for solar PV should be 19%.

38.5 ACME has requested to include provision for no ceiling on CUF and provision for procurement of total energy generated by solar Power project by beneficiaries. Further, for the purposes of computing CUF, energy delivered at interconnection point, i.e., delivery point as per PPA, should be considered.

38.6 RUMSL suggested to provide the minimum capacity utilization factor for solar PV power projects as 19%, considering the fact that the solar power projects installed in North Eastern States/ States with lower solar radiation may not achieve minimum CUF of 21% and citing SERCs such as Karnataka and Tamil Nadu, which consider the CUF of 19% in their Generic Tariff Order.

38.7 Bask Research Foundation submitted that CUF of 21% for solar PV projects is not possible in Indian conditions for DC to AC ratio of 1, i.e., where solar PVcapacity is equal to capacity of inverters installed. CUF of 18% is suggested for DCACratio of 1. It suggested the following method for determination of CUF:
Capacity Utilisation Factor=18% x (solar PV DC Capacity Installed /Sanctioned AC capacity)

38.8 APP requested to consider the zone-wise categorization of CUF of solar PV/solar thermal/ floating solar plants, on the basis of different GHI/ DNI measurements and different CUF values in different States in order to determine different tariffs for different zones. Further, it has proposed that the actual generation data from solar plants located at different regions/ States may be considered for determination of zone-wise normative CUF/ PLF.

38.9 NTPC submitted that the floating solar PV project and solar PV projects are using same technology for generation, and the minimum CUF for solar PV project and floating solar PV project should be same, i.e., 21%, for tariff determination. NTPC also reiterated its previous suggestion regarding CUF of solar and wind projects that developers should be allowed to declare design CUF, which can be above minimum specified CUF and the project developer should be allowed to revise its design CUF during first year of the operation. NTPC also reiterated that the developer should be allowed to have a band (range) of CUF between maximum and minimum CUF, as solar irradiation may vary from year to year. NTPC pointed out that the GoI Guidelines for Tariff Based Competitive Bidding for solar PV Projects also provides for "Range of Capacity Utilization Factor" (Clause-5.2.1).

38.10 NTPC has also submitted that the Commission should allow solar CUF degradation factor of 0.7%. In addition, NTPC suggested that the developer should be allowed additional capitalization to re-power the solar PV project after the identified useful life, to overcome the module degradation and to meet the committed generation. The provision for re-powering by solar generator is provided in the GoI Guidelines for Tariff Based Competitive Bidding for Solar Projects (Clause5.2.3). For projects wherein, tariff is determined under Section-62, such re-powering needs to be funded through additional capitalization.

38.11 Radiance Renewables has requested the Commission to retain the existing norms considering the technical constraints to attain higher DC-AC Ratio and its impact on over-generation.

Analysis and Decision (CERC)

38.12 The Commission observes that majority of the State ERCs do not consider the derating factor for the solar PV panels. Also, quality and efficiency of new solar PV panels has increased. Considering the above, the Commission has retained the CUF norms as specified in the Draft Regulations.

38.13 The prevailing market trend of CUF has been in the range of 21% and above and with advancement of technology in the solar sector, the project developer can easily attain the minimum CUF of 21%.

38.14 As regards the suggestion of zone-wise categorization, it may be under scored that unlike wind resources, solar resource is fairly homogenous within State boundaries and very few States see significant variation across districts."

(Emphasis Supplied)

5.21 It is evident from the foregoing discussion that the CUF alleged by the petitioner is highly unreasonable and without any cogent basis. The Hon'ble Commission may therefore, consider value of CUF as per foregoing observation of Hon'ble CERC. The petitioner has claimed CUF of 17.01% DC (24.08% CUF AC) based on PVsyst simulations report for the Project. At the very outset, it is submitted that PVsyst provides statistical estimates under different probabilities. The simulation results thus, achieved are dependent on various presumptions taken at the choice of the person preparing the report. The radiation data is available from different sources and varies from source to source. The input solar radiation is a variable factor which impacts the results of the simulation. Thus, considering Net Electrical Energy Generation obtained from PVsyst simulations may <u>not</u> be an effective indicator of the CUF. As such, a minimum of 21% of CUF may be allowed in terms of the RE Regulations, 2021 as against the CUF of 17.01% DC (24.08% AC) claimed by the Petitioner.

5.22 **O&M Expenses**: In respect to the Operation and Maintenance (O&M) expenses claimed by the Petitioner, at the outset, it is submitted that Solar Power Plants are characterized by their simple and low-cost O&M. The O&M mainly involves cleaning of the photovoltaic modules at a regular interval. The cleaning frequency of the modules of a commercial plant may be as high as once per week or as low as once per month. In addition to cleaning staff, power plants typically require security staff and site supervisors. Performance monitoring of such plants are typically done remotely, and an engineer is deployed onsite only during troubleshooting of issues or preventive maintenance. The Hon'ble Commission may therefore, consider O&M Cost for the plant of the petitioner prudently keeping in consideration the realistic expenditure involved and disregarding the whimsical quotations allegedly obtained by the Petitioner.

5.23 That the petitioner has relied upon the previous orders passed by the Hon'ble Commission, however, when details of actual O&M expenses incurred by the petitioner are available then the reliance of orders passed by the Hon'ble Commission is misplaced. At this stage, it is pertinent to note that the Financial Statements (Annexure P-10) for the year ending 31.12.2021, shows that the Total Revenue from the sale of electricity is. Rs. 4.48 Crore (As mentioned at Page 667 of the Petition) against the O&M Expenses amounting to Rs. 88.40 Lacs for the calendar year ending in 2021. Since, the Plant is operating at a capacity of 10.72 MW and hence in accordance with the said facts, the O&M expense per MW comes out to be approx. Rs. 8.24 Lacs per MW (As mentioned at Note on 17 at Page 678 of the Petition). However, contrary to the figures as per the Financial Statement, the petitioner is claiming O&M Expenses @Rs.0.303 Million per MW (i.e. Rs.30 lakh per MW).

5.24 The intervener, HPPC, has further submitted the following figures extracted from the balance sheet of the petitioner.

Particulars	FY 2018-2019	FY 2019-2020	FY 2020-2021	FY 2021-2022
Revenue from the sale of Electricity	NIL	58,35,185	4,48,53,738	ITR not filed as yet
Operations and Maintenance	NIL (Refer note below.	Nil	88,40,367	ITR not filed as yet

It has been submitted by the intervener that the petitioner has appended the Financial Statement along with the Independent Auditor's Report for the year ending 31.12.2021 as Annexure P-10, however, rest of the Financial Statements i.e. (1) Financial Statement together with the Independent Auditor's Report for the year ending 31.12.2020; and (2) the Financial Statement together with the Independent Auditor's Report for the year ending 31.12.2019 are appended herewith as Annexure R-7 & Annexure R-8 respectively for the kind perusal of the Hon'ble Commission. It is pertinent to mention here that O&M Expenses are clubbed under the head "Other expenses" in the Balance Sheets. For the year ending 31 March 2019 'Other Expenses' comprise of Remuneration to auditors and other legal expenses which does not form part of Operations and Maintenance Expenses as defined in Petition. Hence, the O&M for FY ending 31.12.2019 was NIL.

5.25 It is further submitted that as per RE Regulations, 2021, the Hon'ble Commission has to determine O&M Expenses as per the market trend. In this regard, it is pertinent to highlight that BHEL had submitted an offer dated 15.10.2020 O&M works of NTPC 50 MWp Solar Power Plant at Kadiri, Ananthapur, Andhra Pradesh for a period of 11 months wherein the estimated cost was submitted as Rs 64.42 Lakhs (Approx.) exclusive of GST. Based on the said offer, the O&M cost for 50 MW solar PV based project worked out to be Rs. 70.27 lakh/year i.e. 1.4055 lakh/ MW/Year only. The said offer was descriptive and indicates breakup for every component of the cost. The claim of the Petitioner for O&M is therefore, way exorbitant and not worthy of any consideration.

5.26 The Hon'ble KERC had also in its Order dated 01.08.2019 (Annexure R-5) has considered O&M expenses inclusive of insurance and all allied expenses as Rs. 4.50 Lakh/ MW for ground mounted Megawatt Scale Solar Plants up to 5 MW. The said cost is further liable to be discounted for High capacity Solar Plants as the O&M cost per MW does not increase at the same proportion with the increase in the capacity of the Plant.

5.27 It further submitted that the claim for lease rentals is a subject matter of prudence check by the Commission. However, it is submitted that the lease rent for the land may be considered as per the prevailing market trends.

As such, the O&M expenses admissible for the Project of the Petitioner may kindly be considered in view of the aforesaid submissions.

5.28 **CDM Benefits / Subsidy / Incentive**: - In this regard it is submitted that whenever the CDM benefits are made applicable to the plant of the petitioner, the same shall be passed on the same to the Respondent as per RE Regulations. Similarly, subsidy/incentive if availed by the Petitioner in the future, the same shall be disclosed to the Respondent and the benefit of the same shall be passed on to the Respondent.

5.29 In view of the facts and circumstances enumerated above, the intervener i.e. HPPC has submitted that the Hon'ble Commission being responsible for balancing the interests of the consumers and the interests of generators, may kindly determine the tariff while aligning the same with market realities and current cost of electricity.

6. **HAREDA's (Respondent – 2) submissions:** -

6.1 That the answering respondent no.2 registered 20 MW of Solar Power Plant to be set in village Kurangwali, District Sirsa, Haryana by the petitioner for captive consumption with certain term and condition on dated 22.08.2019. The point no.5 and 7 of the term and condition are as under: -

"Point no.5: The Solar Project Developer will not split the Solar Power Project into Smaller Power Projects and will develop the project as single project.

Point no.7: The status of captive generation solar power plant shall be ascertained by Power Utilities."

6.2 That the petitioner has setup Solar Power Project and has commissioned the project of **10.72 MW (instead of 20 MW**) on 08.02.2023. On 20.02.2023 they have signed Power Purchase Agreement with Haryana Power Purchase Centre (HPPC). Hence, term and condition of registration of project have been violated by petitioner.

6.2 That as per Haryana Electricity Regulatory Commission (Terms and Conditions for determination of Tariff from Renewable Energy Sources, Renewable Purchase Obligation and Renewable Energy Certificate) Regulations, 2021, Chapter – 8, Technology specific parameters for Solar PV Power Project, clause 47, under Technology Aspects:

"Norms for Solar Photovoltaic (PV) power under these Regulations shall be applicable for grid connected PV systems that directly convert solar energy into electricity and are based on the technologies such as crystalline silicon or thin film etc. as may be approved by MNRE. The Commission shall not determine generic tariff under these Regulations and only project specific tariff, if required, shall be determined. Provided that the Discoms may do reverse bidding with the lowest / last discovered tariff lowest of competitive bidding by HPPC or SECI, as base tariff. Provided that the norms including Capital Cost, O&M expenses etc. and the tariff thereto for Solar Pv / Thermal / Rooftop / Canal top / Water works, as per the technology approved by the MNRE, shall be determined on project specific basis depending on the prevalent market trend only if required i.e. in case the competitive bidding route for any reason does not take effect."

6.3 It has been averred by the intervener that petitioner has avoided the competitive bidding route for setting up of Solar Power Plant in the State and adopted the other route by applying for registration of Solar Power Project with Respondent no.2 under Captive consumption. They had setup and commissioned the project under captive consumption category and got grid connectivity as well. Now, through present petition they are claiming higher tariff of Rs.4.46/kWh on project specific basis. If allowed, this will be a bad precedence and other Captive Solar Power generators may follow this route. So, objective of discovering lowest tariff of solar power through competitive bidding will not be achieved.

6.4 That as per point no.2.6 of the Hon'ble Commission order dated 01.02.2023, in case no. HERC/Petition no.53 of 2022, under brief background of the case, it has been informed by HPPC that:

"*That the comparative details showing the competitiveness of the tariff in the instant case vis-à-vis tariff discovered through competitive bidding/ tariff prevalent in the market is as under: -*

S. No.	*Name of Generating Station*	*Installed capacity/ Haryana Share*	*PPA Date*	*HERC Approval Date*	*Tariff (in Rs/ kWh, including trading margin + transmission losses)*	*Proposed Ceiling tariff (Rs/kWh)*
1	*M/s LR Energy Pvt Ltd*	*20*	*30.10.2020*	*14.10.2020*	*2.58*	*2.75*
2	*ISTS Solar T-IV 1200 MW scheme*	*250*	*19.03.2020*	*18.02.2020*	*2.696*	
3	*ISTS Solar T-II 3000 MW scheme*	*400*	*28.05.2019*	*27.02.2019*	*2.596*	
4	*Avaada GreenHN*	*50*	*20.11.2020*	*03.11.2020*	*2.86*	
5	*M/s Amplus*	*50*	*28.09.2020*	*14.09.2020*	*2.48*	
6	*M/s Avaada RJHN*	*240*	*06.07.2020*	*04.04.2019*	*2.73*	
7	*M/s Giotech*	*1*	*19.07.2020*	*04.04.2019*	*2.99*	

Thus, the proposed ceiling tariff is competitive with the prevalent market tariff. The plant was commissioned in 2020 and supplied solar power under STOA arrangement to HPPC/Discoms from the project during the period 11.11.2020 to 20.09.2021 @ Rs 2.70 per kWh in terms of APTEL Interim Order dated 17.07.2020."

So, HPPC has signed PPA on dated 26.05.2019 on tariff of Rs.2.596/kWh on basis of the tariff discovered through competitive bidding/tariff prevalent in the market. Petitioner has applied for registration of project for captive consumption on dated 19.08.2019. Accordingly, tariff discovered through competitive bidding/tariff prevalent in the market during year of application for registration of project by petitioner needs to be considered i.e. Rs.2.596/kWh.

6.5 That in view of above, the HAREDA has submitted that this Hon'ble Commission may not determine tariff, in the present case, of the solar power project of petitioner on project specific basis and the revision in the tariff of the project should not be allowed above the ceiling tariff allowed earlier by the HERC in its order dated 1.2.2023. Further, the prevalent PPA tariff discovered at the time of application to HAREDA for registration of the project should be

the taken for determining the tariff in such cases. Accordingly, tariff of Rs.2.596/kWh discovered through competitive bidding/tariff prevalent in the market during the year 2019 may be considered.

7. **Petitioner's rejoinder(s)**

7.1 That the present petition has been filed under Section 62 and Section 86 of EA 2003 read with relevant provisions of HERC RE Regulations. In view of the terms and conditions of the PPA executed between the Petitioner with HPPC and for the purpose of determination of tariff of the Petitioner's solar plant, it is germane to highlight the regulatory powers of this Hon'ble Commission under the aforesaid provisions of EA 2003.

7.2 That this Hon'ble Commission is vested with vast regulatory powers under Section 61 read with Section 62 of EA 2003. In terms of the aforesaid sections, the Hon'ble Commission frames tariff regulations for determination of tariff, and upon an application made by parties, determines tariff on a cost-plus basis. This scheme of determination of tariff on cost plus basis is distinct and independent from discovery of tariff under competitive bidding and adoption of the same under Section 63 of the EA 2003 in terms of the Guidelines issued by the Government. Section 61 provisions are reproduced hereinbelow, for convenience:

"Section 61. (Tariff regulations):

The Appropriate Commission shall, subject to the provisions of this Act, specify the terms and conditions for the determination of tariff, and in doing so, shall be guided by the following, namely: -

(a) the principles and methodologies specified by the Central Commission for determination of the tariff applicable to generating companies and transmission licensees;

(b) the generation, transmission, distribution and supply of electricity are conducted on commercial licensees;

(c) the factors which would encourage competition, efficiency, economical use of the resources, good performance and optimum investments;

(d) safeguarding of consumers' interest and at the same time, recovery of the cost of electricity in a reasonable manner;

(e) the principles rewarding efficiency in performance;

(f) multiyear tariff principles;

(g) that the tariff progressively reflects the cost of supply of electricity and also, reduced cross-subsidies in the manner specified by the Appropriate Commission;

(h) the promotion of cogeneration and generation of electricity from renewable sources of energy;

(i) the National Electricity Policy and tariff policy;

…"

In accordance with the above stated Section 61 and in exercise of its powers to frame delegate/subordinate legislation under Section 181 of EA 2003, this Hon'ble Commission has notified the HERC RE Regulations. As is evident from the provisions of EA 2003 read with the HERC RE Regulations, this Hon'ble Commission while determining tariff of a solar project, such as that of the Petitioner, is bound by the terms and conditions of the HERC RE Regulations, the interpretation of which wherever necessary is necessarily to further the objectives of EA 2003.

7.3 In terms of the Hon'ble Supreme Court's judgment dated 15.03.2010, in the matter of PTC India Ltd. v. CERC (PTC India Judgment), once this Hon'ble Commission has framed and notified regulations, then it is bound by such regulations and further that the regulations so framed override even existing contracts between the Parties. The relevant paragraph from the PTC India case is extracted below for reference:

"40. …On reading Sections 76 (1) and 79 (1) one finds that Central Commission is empowered to take measures/steps in discharge of the functions enumerated in Section 79 (1) like to regulate the tariff of generating companies, to regulate the inter-State transmission of electricity, to determine tariff for inter-State transmission of electricity, to issue licenses, to adjudicate upon disputes, to levy fees, to specify the Grid Code, to fix the trading margin in inter State trading of electricity, if considered necessary etc. These measures, which the Central

Commission is empowered to take, have got to be in conformity with the regulations under Section 178, wherever such regulations are applicable. Measures under Section 79 (1), therefore, have got to be in conformity with the regulations under Section 178. To regulate is an exercise which is different from making of the regulations. However, making of a regulation under Section 178 is not a pre-condition to the Central Commission taking any steps/measures under Section 79 (1). As stated, if there is a regulation, then the measure under Section 79 (1) has to be in conformity with such regulation under Section 178. This principle flows from various judgments of this Court which we have discussed hereinafter, For example, under Section 79 (1) (g) the Central Commission is required to levy fees for the purpose of the 2003 Act. An Order imposing regulatory fees could be passed even in the absence of a regulation under Section 178. If the levy is unreasonable, it could be the subject matter of challenge before the Appellate Authority under Section 111 as the levy is imposed by an Order/decision making process. Making of a regulation under Section 178 if not a pre-condition to passing of an Order levying a regulatory fee under Section 79 (1) (g). However, if there is a regulation under Section 178 in that regard then the Order levying fees under Section 79 (1) (g) has to be in consonance with such regulation. Similarly, while exercising the power to frame the terms and conditions for determination of tariff under Section 178, the Commission has to be guided by the factors specified in Section 71. It is open to the Central Commission to specify terms and conditions for determination of tariff even in the absence of the regulations under Section 178. However, if a regulation is made under Section 178, the, in that event, framing of terms and conditions for determination of tariff under Section 61 has to be in consonance with the regulation under Section 178. …Further, it is important to bear in mind that making of a regulation under Section 178 became necessary because a regulation made under Section 178 has the effect of interfering and overriding the existing contractual relationship between the regulated entities. A regulation under Section 178 is in the nature of a subordinate legislation. Such subordinate legislation can even override the existing contracts including Power Purchase Agreements which have got to be aligned with the regulations under Section 178 and which could not have been done across the board by an Order of the Central Commission under Section 79 (1) (j).”

From the reasoning of the Hon'ble Supreme Court in the above quoted judgment, it is abundantly clear that once this Hon'ble Commission has framed regulations, then for the purposes of subjects governed by the said regulation, the regulations are binding on the Hon'ble Commission. Thus, the exercise of regulatory powers under Section 62 of EA 2003, cannot be curtailed by way of an agreement between the Parties. In the present case, because this Hon'ble Commission has notified the HERC RE Regulations, the norms and terms of which are applicable for determination of tariff of solar projects. Thus, it is most humbly requested that the tariff be determined in terms of the HERC RE Regulations. The PTC India Judgment also makes it clear that once this Hon'ble Commission has framed regulations, then it ought not to rely on its general regulatory powers for determination of tariff unless there is a gap in the regulations, in which case this Hon'ble Commission is to determine tariff in terms of the guiding factors laid down in Section 61 of EA 2003. However, this Hon'ble Commission may not determine tariff on extraneous consideration. Thus, this Hon'ble Commission while safeguarding the interest of the consumers must also ensure that the recovery of cost of electricity is done in a reasonable manner. Therefore, a ceiling tariff provision under the PPA, can in no manner curtail the powers of this Hon'ble Commission.

7.4 In exercising powers under Section 62, this Hon'ble Commission as a regulatory body expends resources to arrive at a tariff which is just and reasonable. This tariff is a cost-plus tariff i.e., the tariff is to necessarily compensate the generating company for the cost incurred towards generation. If this Hon'ble Commission shall allow itself to be bound by the ceiling tariff in the PPA, then the same shall render the entire process under Section 62 as redundant.

7.5 That undue reliance on market trends across the country, without reference to the ground realities in the State, for determination of tariff under Section 62 may result in losses to the petitioner and is in any event not the sole or significant parameter for determination of Section 62 tariff. While market trends could be of persuasive value in certain situations, in the present case, when the tariff determination is being done in terms of a duly notified tariff regulation with details of actual expenditure incurred available before this Hon'ble Commission

for its perusal and prudence check, there is no scope of relying on market trends all over the country to arrive at the correct tariff figure.

7.6 That the determination of tariff under a Section 62 exercise cannot be linked to tariff adopted under Section 63 because, to begin with, there is no manner of knowing the parameters under which bid was made by any generating company desiring to develop a solar project, while a Section 62 determination is done under the umbrella of notified regulations wherein Appropriate Commissions determine tariff, basis the parameters outlined in the relevant tariff regulations. Further, a Section 63 bid is "competitive" and therefore is required to be towards the lower end of recent tariffs discovered, and it is not open to the regulatory bodies such as this Hon'ble Commission to determine what factors of long term and short-term profits persuaded a generator to bid its low tariff. There is no provision in the EA 2003 which states that a Section 62 determination of tariff ought to rely on the discovered tariffs under Section 63, which discovered tariffs may enjoy various concessions, benefits and economies of scale which may not be available to a generator whose tariff is to be determined under Section 62. Further, placing reliance on Section 63 tariffs discovered, again makes Section 62 process as redundant. There are two methods of arriving at a tariff, Section 62 and Section 63, and it is not an appropriate method to inextricably link a Section 62 tariff to a Section 63 tariff, thereby, making the entire process of determination of tariff as redundant.

7.7 That this Hon'ble Commission may not give undue importance to tariff discovered under Section 63 of EA 2003. If without following the procedure under Section 63, the tariff discovered therein shall be considered as a relevant and significant parameter for tariff determination under Section 62, then this will result in unfair and unreasonable determination. The Hon'ble Supreme Court vide its judgment dated 23.11.2022, in the matter of The *TATA Power Company Limited Transmission v/s MERC & Ors.* has held that Section 63 is not the dominant method to determine tariff. Relevant paragraph from the said judgment is extracted below for reference:

"128.

(i) The Electricity Act 2003 provides the States sufficient flexibility to regulate the intra-State transmission systems, wherein the Appropriate State

Commissions possess the power to determine and regulate tariff. The Electricity Act 2003 seeks to distance the State Governments from the determination and regulation of tariff, placing such power completely within the ambit of the Appropriate Commission.

(ii) The provisions of the Electricity Act 2003 do not prescribe one dominant method to determine tariff. Section 63 operates after the bidding process has been conducted. Where the tariff has already been determined through bidding, the Appropriate Commission has to adopt such tariff that has been determined. The Appropriate Commission cannot negate such tariff determined through bidding process by using its powers under Section 62. The tariff determined through the bidding process may not be adopted by the Appropriate Commission only if the bidding process was not transparent (undertaking a substantive review) or the procedure prescribed by the Central Government guidelines under Section 63 was not followed (undertaking a procedural review);

(iii) Section 62 and 63 stipulate the modalities of tariff determination. The non-obstante clause in Section 63 cannot be interpreted to mean that Section 63 would take precedence over Section 62 at the stage of choosing the modality to determine tariff. The criteria or guidelines for the determination of the modality of tariff determination ought to be notified by the Appropriate State Commission either through regulations under Section 181 of the Act or guidelines under Section 61 of the Act;

…"

7.8 That the Hon'ble Appellate Tribunal for Electricity ("the Tribunal**"**) in Appeal No. 310 of 2013 captioned, *M/s. Gayatri Sugars Ltd. v. APNPDCL & Anr.* dated 20.11.2014 was dealing with a similar contention regarding the provision of a ceiling tariff in the Power Purchase Agreement (PPA) entered into between the parties therein. The Hon'ble Tribunal therein was pleased to hold as under: -

"9. In the Impugned Order, the State Commission has not permitted the Appellant's Project to be treated at par with other generators only on the ground that Schedule 1A of the Power Purchase Agreement entered into between the parties provided for a ceiling of tariff of Rs.2.63 per KwH. This finding is not in line with the generic tariff determined by the State Commission in the earlier Orders.

10. It should be pointed out that the State Commission could not discriminate the Appellant on the ground that the Appellant has agreed to the ceiling tariff in the Power Purchase Agreement, which was entered into by the parties with mutual consent. The State Commission has got the regulatory powers to be exercised and it ought to have rectified the position in relation to the variable cost claimed by the Appellant.

12. In fact, this Tribunal affirmed the power of the State Commission to modify the terms of existing long term concluded PPA, especially where the tariff of a renewable project agreed to between the parties is unviable. According to the Appellant the production of electricity is commercially unviable by showing various circumstances. The variable cost in so far as the present case is concerned had been determined by the State Commission by the Order dated 31.03.2009 for the period 2009-2014 and for the period 2014-2019, the State Commission determined the same on 16.05.2014. Thus, the variable rates as determined by the State Commission from time to time coupled with the fixed cost exceed tariff ceiling in Schedule 1A of the PPA. Moreover, the cost of production of electricity far exceeds the rate at which it is being sold to the distribution licensee.

…"

7.9 That the judgment of the Hon'ble Tribunal in Appeal No. 271 of 2019 captioned as *HPPC v. HERC* dated 28.01.2021 relied upon by the respondent is misplaced on account of the fact that the part of the judgment extracted by the respondent in the aforesaid para of its objections fails to provide the proper context. The relevant extract of the aforesaid judgment is reproduced hereunder for completeness:

"129. …Though under the law the price of procurement is the domain of the regulator, the parties herein had negotiated and agreed upon the cap – ceiling – on the price to be paid under long term PPA. This is a stipulation which would bind the parties and would undoubtedly be kept in mind by the Commission when it embarks upon the second stage exercise of tariff determination under section 86(1)(b). There are no reasons to doubt that the Commission would follow the law and its own binding regulations at the stage of tariff determination. The considerations at that stage would include not only consumers' interest but

also all relevant factors set out in law (section 61) including the need to promote renewable energy, the proper thermal hydro mix, the legitimate expectation of reasonable returns for the generator, capital expenditure, additional cost such as wheeling charges, transmission or operational losses etc. and, of course, the National Tariff Policy…

…"

7.10 That the Hon'ble Commission in terms of the various parameters provided in Chapter 8 of the HERC RE Regulations, 2021 cannot determine the tariff for Solar PV solely on the basis of 'market trends'. The broad guiding parameters for determination of tariff by this Hon'ble Commission have been enumerated under Chapter 8 of the aforesaid regulations. The Respondent has failed to extract the Proviso in its entirety and thus the Appellant is extracting the same for the purposes of clarity and completeness: -

"Chapter – 8

Technology specific parameters for Solar PV Power Project

47. Technology Aspects. –Norms for Solar Photovoltaic (PV) power under these Regulations shall be applicable for grid connected PV systems that directly convert solar energy into electricity and are based on the technologies such as crystalline silicon or thin film etc. as may be approved by MNRE. The Commission shall not determine generic tariff under these Regulations and only project specific tariff, if required, shall be determined.

…

Provided that the norms including Capital Cost, O&M expenses etc. and the tariff thereto for Solar Pv / Thermal / Rooftop / Canal top / Water works, as per the technology approved by the MNRE, shall be determined on project specific basis depending on the prevalent market trend only if required i.e. in case the competitive bidding route for any reason does not take effect. The broad guiding parameters shall be as under:-

48. Capacity Utilizations Factor. –

…

49. Operation and Maintenance Expenses. –

…

50. Auxiliary Energy Consumption. –

…"

Without prejudice to the above, it is submitted that a bare perusal of the proviso demonstrates that it is the "norms" which shall be determined on project specific basis depending on the prevalent market trend "only if required", i.e., in case the competitive bidding route for any reason does not take effect. Thus, this proviso a) deals with determination of norms and b) takes effects when there was a competitive bidding (requires multiple generators to bid) to take effect but for any reason the same does not take effect. Thus, the proviso is inapplicable to the present case. In any event, while applying the regulations for tariff determination, guiding factors under Section 61 of the EA, 2023 cannot be ignored. Furthermore, Regulation 47 has to be read with Regulation 11 of the HERC RE Regulations, which provides that for project specific tariff determination, the generating company shall submit the break-up of capital cost items along with its petition, including DPR, Lender's Engineer Report and justification (item-wise) for any time/cost over-run. Thus, the actual costs incurred by the Petitioner ought to be gone into by this Hon'ble Commission, while determining tariff under Section 62 of the EA, 2003.

7.11 That while the Statement of Objects and Reasons to the Central Electricity Regulatory Commission (Terms and Conditions for Tariff Determination from Renewable Energy Sources) Regulations, 2020 does indeed state that 'market driven determination of tariff needs to be promoted', the same cannot be stretched to mean that no other factors other than market trends should be considered while determining project specific tariff. The aforesaid contention that consideration of market trend be given paramountcy is directly in the teeth of Section 61 of the Electricity Act, 2003 which provides that the cost of electricity should correlate with the actual cost of generation. Further, market trend may only be of persuasive value when there is lack of proper documents and consequent inability of this Hon'ble Commission to conduct prudence check. In the present case, the Petitioner has placed on record all relevant documents and facts for determination of tariff under the HERC RE Regulations read with EA 2003, and there is no scope of relying solely on "market trends" for determination of tariff.

7.12 That the reliance of the Respondent on the judgment of the Hon'ble Appellate Tribunal in Appeal No. 105 of 2017 captioned as Green Energy Association v. Central Electricity Regulatory Commission dated 12.04.2018 is misplaced. The Hon'ble Tribunal therein was dealing with the reduction of floor prices of Renewable Energy Certificates (RECs). The aforesaid judgment is currently in appeal before the Hon'ble Supreme Court being Civil Appeal No. 8655 of 2022 and is pending adjudication as on date. In any event, in the said case, market trend was co-related with "artificially high" prices which burdened end consumers. In the present case, there is no "artificial" determination done to favor the Petitioner at the cost of the consumers and in fact the determination of tariff is to be done basis parameters of HERC RE Regulations and the information/documents furnished by the Petitioner. Further, market trend in the REC mechanism means that there would be times when the REC would be sold at a premium while at another time, the sale cost could only be breaking even the cost of generation. There is no uniformity of tariff while tariff for sale of power from the Petitioner shall be fixed for the entire duration of the PPA and necessitates that all relevant parameters are given due consideration as per the HERC RE Regulations. There will not be any opportunity for the generator to recover cost of generation in any other manner depending on market trends of demand and supply, and the only means of recovering cost is determination of reasonable and fair tariff by this Hon'ble Commission.

7.13 That the Hon'ble Commission in its Order dated 20.12.2019 in PRO-57 of 2019 was dealing with levelized tariff for purchase of power from decentralized Solar Power Plants set up under the PM KUSUM scheme, while the Hon'ble Commission in the present set of facts and circumstances is dealing with the determination of project specific tariff for the Petitioner's project in terms of Section 62 of the Electricity Act, 2003, whilst being guided by the principles set out under Section 61 of the Electricity Act, 2003. The facts herein are markedly different from the facts therein. In terms of the same, it is evident that the aforesaid Order has no application to the current set of facts and circumstances and thus reliance placed by the Respondent on the aforesaid Order is entirely misplaced. It is reiterated that the Respondent is placing undue and unfair reliance on market trends despite the same having no bearing to determination of tariff under Section 62 per the HERC RE Regulations.

7.14 That the reliance placed by the Respondent on the tariff discovered in furtherance of the tender for 500 MW Solar Power floated by REC Power wherein a tariff of INR. 2.69/kWh and INR. 2.70/kWh was discovered, and is entirely misplaced. It is submitted that the tariff quoted therein was pertaining to projects which were utility-scale (200 MW and above). The economies of scale in utility scale projects enable the developers to quote lower tariff and the same cannot be placed on an equal pedestal vis-à-vis the Petitioner's 10.7 MW solar PV project. In any event, market trend cannot be the determining factor for exercise of regulatory powers under Section 62 of EA 2003.

7.15 That the reliance placed by the Respondent on the quoted tariff of 1.99 / unit is entirely misplaced. The Respondent has failed to provide relevant details regarding such discovered tariff. Notwithstanding the same, the tariff quoted by HPPC was the outcome of competitive bidding for projects totaling a capacity of 500 MW conducted by the Gujarat Urja Vikas Nigam Limited in December, 2020. The comparison is erroneous on account of the fact that the economies of scale involved for such large-scale utility projects are markedly different from the Petitioner's 10.72 MW solar power project herein, which had originally been developed for supply of power to a Consumer & Industrial (C&I) customer. It is pertinent to mention here that utility scale projects benefit from having access to low-cost financing, in addition to fiscal benefits such as accelerated depreciation, concession on payment of custom and excise duties, tax holidays and a longer project commissioning timeline i.e., 18 – 24 months which were not available to the Petitioner. It is further submitted that the project specific tariff determination exercise for a solar power project entails various data points such as the irradiation available at the project location, duty rates on PV modules procured, size of the project, the commissioning (construction) timeline, cost of land, etc. which ought to be taken into consideration. Thus, merely citing that the tariff for solar power projects were lower in other states of India, is not merited and ought not be taken into consideration by this Hon'ble Commission. In any event, tariff discovered under competitive bidding is not a benchmark norm under the HERC RE Regulations for determination of cost-plus tariff.

7.16 That HPPC's submission that this Hon'ble Commission has allowed a capital cost of INR. 3.2 – 3.8 Cr/MW is wholly erroneous and not applicable to the current set of facts and circumstances. The capital cost quoted was for 20-50 MW solar projects unlike the 10.72 MW Solar Power Project being set up by the Petitioner herein. In any event, HPPC's reliance on market trend is erroneous and without merit. There are various parameters which affect cost of generation and this Hon'ble Commission has already notified the HERC RE Regulations for determination of tariff basis the norms/figures mentioned therein and subject to prudence check. HPPC has failed to show that the capital cost sought by the Petitioner is based on incorrect figures. HPPC as a responsible State entity is bound by the provisions of EA 2003 and ought not to contest the valid claims of the Petitioner, especially because the same is subject to prudence check by this Hon'ble Commission. The Petitioner is entitled to a cost-plus tariff and if for any reason during any time period other generators commissioned projects at lower capital cost, the same ought not to be an impediment in the Petitioner being allowed a reasonable and fair tariff. The Petitioner is not privy to various facts and circumstances which may have allowed any other generator to lower its capital cost.

7.17 That the project cost (excluding land) of 5.62 cr INR/MW ac quoted by the Petitioner is in line with other projects of similar size. For ex., Amplus, which commissioned a 50MW project in the State had a cost of 5.51 cr INR/MWac. The project cost of 3.2 to 3.8 cr quoted by HPPC is for projects which fall under the KUSUM schemes or are based in the State of Uttarakhand. It is also pertinent to mention herein that several factors have impacted the project cost of the Petitioner including 1) the IDC incurred, as the timeline for implementation of the project was impacted by the delay in execution of connectivity agreement and delay in approvals that had an cascading impact on the project cost; (2) DSRA is not considered as a cost by HPPC; (3) The tariff proposed by Uttarakhand Electricity Regulatory Commission is considering a lower USD/INR, whereas the rupee has depreciated significantly, and (4) Imposition of safeguard duty on solar PV modules.

7.18 That the Respondent has failed to place on record the reports and studies it has referred to in the aforesaid paragraph of its Reply to purportedly suggest that there has been a substantial reduction in the cost of modules. It is further

submitted that the modules procured by the Petitioner for its projects have been procured after thorough due diligence and the cost claimed towards the same have been provided at actuals and supported with relevant documentary evidence. It is reiterated that market trend is not a determining factor under Section 62 mechanism of tariff determination.

7.19 That the Order dated 07.06.2019 passed by the Ld. Uttarakhand Electricity Regulatory Commission in Petition No. 18 of 2019, is not binding on this Hon'ble Commission. The tariff or the benchmark capital cost determined by two different States cannot be compared on a like-to-like basis on account of the fact that the input costs such as land, etc. are vastly different and thus any such comparison has no basis whatsoever. Further, this Hon'ble Commission is bound by the HERC RE Regulations and prudence check is to be conducted based on information/documents submitted by the Petitioner.

7.20 That the reliance placed by the Respondent on the order of the Ld. Rajasthan Electricity Regulatory (RERC) dated 11.02.2020 vide which the Commission determined the pre-fixed levelized tariff for sale of power from projects set up under the PM-KUSUM scheme as INR. 3.65 Crores / MW is entirely misplaced, on account of the fact that the projects set up under the abovementioned scheme get sizable subsidies from the Central Government and thus the capital cost is much lower than those of the Petitioner's project. In any event the categories of projects which are being compared by the Respondent is vastly different and thus such a comparison ought not be taken into consideration by this Hon'ble Commission.

7.21 That the reliance of the respondent on the Order of the Ld. Karnataka Electricity Regulatory Commission (Ld. KERC) dated 01.08.2019 is entirely misplaced. It is submitted that the Ld. KERC therein was determining the tariff for small ground mounted solar projects of less than 5 MW capacity and rooftop projects up to 2000 kW. The Respondent has wrongly submitted that the Ld. KERC therein had approved the Capital Cost of INR. 3.14 Cr./MW instead of the capital cost of INR. 3.40 Cr./MW adopted by it. Notwithstanding the aforementioned submission, it is humbly submitted that the Ld. KERC while determining such capital cost did not consider the impact of Safeguard Duty and GST in terms of the Notifications issued by the Ministry of Finance,

Government of India, which significantly impacted the price of solar modules. In terms of the aforesaid, it is clear that the same is not applicable on the current set of facts and circumstances. In any event, the Respondent is making undue and irrelevant comparisons to the tariff determined under vastly different scenarios of different States. These tariffs cannot and ought not to be considered the benchmark norm for determination of tariff of the Petitioner's project. The Respondent has failed to show any discrepancy with the claims of the Petitioner and therefore due to lack of arguments on merit opposing the capital cost claimed by the Petitioner, the Respondent is placing reliance on extraneous factors which have no bearing to the exercise of the regulatory functions under Section 62 by this Hon'ble Commission.

7.22 That the capital cost claimed by the Petitioners have been duly supported by evidence and in terms of the same, ought to be considered by the Hon'ble Commission in line with Section 61 of the Electricity Act, 2003 while determining the tariff for the petitioner's project.

7.23 That the Petitioner has annexed the lease deeds and exchange deeds for transparency and clarity. It is submitted that in terms of the second proviso to Regulation 11, in case where land for the project is acquired on lease basis, the cost of land to be considered as part of capital cost shall be determined as per the Land Lease Agreement (s). Therefore, it is not correct for the Respondent to contend that the cost towards lease agreements cannot be included in the computation of capital cost. Furthermore, this Hon'ble Commission by its order dated 11.11.2021 passed in the case of *M/s. Avaada Green HN Project Private Ltd*. observed that the petitioner therein had not given any justification for incurring unwarranted expenditure on purchasing land instead of taking the same on lease. The consumers of electricity in Haryana, ought not to be burdened by way of higher tariff due to imprudent decision of the petitioner. Accordingly, the Commission is not inclined to allow land cost amounting to Rs. 20.52 crores claimed by the petitioner. Instead, lease rent allowed by the Commission in its order dated 17.09.2021 (HERC/PRO-70 of 2020 – M/s. L.R. Energy) for 20 MW AC (91.78 Acres) capacity, increasing the same proportionately for 50 MW, was considered by this Hon'ble Commission considered for the purpose of tariff determination. It is most therefore, most respectfully submitted that the Hon'ble Commission may consider allowing the

actual land costs incurred by the petitioner towards the lease deed and exchange deed.

7.24 That the averment of the Respondent that the cost of stamp duty paid by the Petitioner should not be counted towards the computation of capital cost is wholly denied, since it has been made in the absence of any specific regulation or provision of law. It is further submitted that the Petitioner has not claimed the stamp duty which was exempted under the Haryana Solar Policy, 2016 and has only claimed cost paid towards stamp duty as a part of the capital cost for execution of deeds which were not exempted under the policy. It is further submitted that the registration fees for the execution of the land deeds were not exempted under any policy and thus ought to be considered as a part of the capital cost. The details of the stamp duty and registration fee, actually incurred by the Petitioner, have been reproduced hereunder for convenience: -

Sl. No.	Type	Deed No.	Deed Value	Stamp Duty Paid	Registration Fees	Total
1.	Sale Deed	5285	24,439,388	1,222,100	50,000	25,711,488
2.	Sale Deed	105	6,413,613	320,800	35,000	6,769,413
3.	Sale Deed	64	6,447,986	322,500	35,000	6,769,413
4.	Sale Deed	63	5,204,375	260,320	30,000	6,805,486
5.	Sale Deed	60	3,741,527	187,180	20,000	290,320
6.	Sale Deed	585	4,580,278	229,200	25,000	3,948,707
7.	Sale Deed	586	2,827,917	141,500	15,000	4,834,478
8.	Sale Deed	934	1,747,778	87,500	10,000	2,984,417
9.	Sale Deed	2530	1,182,500	59,200	10,000	1,845,278
10.	Sale Deed	3692	1,333,750	66,800	10,000	1,251,700
11.	Sale Deed	4306	2,230,000	*	12,500	1,410,550
12.	Sale Deed	5003	4,395,715	*	25,000	2,242,500
13.	Sale Deed	4869	200,000	*	1,000	4,420,715
14.	Exchange Deed	2	-	119,000	-	201,000
15.	Exchange Deed	3121	797,500	40,000	5,000	119,000
16.	Exchange Deed	2104	-	55,100	10,000	842,500
17.	Exchange Deed	5006	-	66,900	10,000	65,100
18.	Lease Deed	4868	-	-	-	76,900
19.	Lease Deed	3627	-	2,000	1,000	3,000
	TOTAL		65,542,327	3,180,100	304,500	63,822,522

*Key: *Stamp Duty exempted under Clause 4.1.1 of the Haryana Solar Policy, 2016*

7.25 That Clauses 6.1.3 and 6.1.4 of the Power Purchase Agreement entered into between the parties are being read by the respondent without reference to Regulation 11 of the HERC RE Regulations, which provides that the norms for the Capital cost, as specified in the subsequent technology specific chapters, shall be inclusive of land cost, pre-development expenses, all capital work

including plant and machinery, initial spares, civil work, erection and commissioning, financing and interest during construction, and evacuation infrastructure up to the inter-connection point. Thus, the cost of evacuation infrastructure ought to be considered, in the determination of tariff of the Petitioner's project.

7.26 That the AC size of the plant is 10.72 MW whereas, the DC capacity of the plant is 14.9 MWp (actual built). As the base model assumption was 15.03MWp, the original Service Contract was 15.03 MWp. Subsequently, however, there an amendment to the Supply Contract as well as the Service Contract and the capacity therein was correctly mentioned as 14.9 MWp. It is a settled principle of law that cost is to be allowed for additional DC capacity and the same ought not to be the same quantum as AC capacity. Copies of the amendment to the Supply Contract and the Service Contract were annexed.

7.27 That the present value of the solar plant should be considered as against the original value of the solar plant. In this regard, it is submitted that initially the petitioner had entered into a PPA with a third-party for a tariff of INR. 3.90 / KWh for a total period of 25 years. In terms of the same, the third-party procurer had procured 26% of the total equity contribution for ensuring the captive-status remained intact. However, due to the subsequent rejection of the Connection Agreement and non-approval of the power supply to the third-party procurer by the concerned utilities, the PPA had to be terminated and the petitioner had to buy back the entire portion of the equity stake, in terms of the Shareholder's Agreement (SHA) entered into between the aforesaid parties previously. Since the project was in advance stages of completion, the petitioner requested the respondent to offtake the entire quantum of renewable energy produced by the petitioner's project. The aforesaid events, in no manner, take away from the cost-plus tariff determination process envisaged under Section 62 read with Section 61 of the Electricity Act, 2003.

7.28 That the petitioner, in the aforesaid factual backdrop, had assessed the current value of the investment made by it in the project and calculated the impairment (which is a notional accounting entry) as per the accounting standards requirement. For the FY of 2021, the petitioner had accounted for INR. 9.80 Cr. as impairment. As stated earlier, the impairment which has been accounted is

nothing but a notional accounting entry, there is cash in-flow from the aforesaid notional entry and thus, the project cost and cash out-flow incurred by the Petitioner for setting up of its Project remains at INR. 60.29 Crs. It is further submitted that the depreciation charged by the Petitioner is also as per the accounting standard requirement and is a non-cash expenditure. In view of the foregoing submissions, the Petitioner humbly requests this Hon'ble Commission to consider the real cash out-flow incurred by the Petitioner for setting up of the project, for determining the capital expenditure (capex) cost of the Project without deducting notional accounting entries required as per the accounting standards.

7.29 That Regulation 12(2) of the HERC RE Regulations, 2021 states that equity contribution over and above the 30% threshold will be treated as a normative loan. In the current set of facts and circumstances, the entire capital cost of the project has been deployed vide equity. However, in view of the 30% threshold, equity contribution amounting to INR 198.94 million (30% equity) and a debt component amounting to INR. 464.20 million (70% equity) has been considered. The same has been supported by the Petitioner through submission of relevant evidence. Thus, the Respondent's contention in the aforesaid paras ought to be dismissed and not considered by this Hon'ble Commission while determining the tariff.

7.30 That CUF 'alleged' by the petitioner is highly unreasonable and without any cogent basis. The PVsyst simulation data submitted by the petitioner is one of the most trusted simulation tools and is regarded as the industry standard for simulating CUF. The CUF estimated as 24.08% CUF AC, with an annual degradation in CUF of 0.50% is thus accurate and ought to be considered by this Hon'ble Commission for the determination of tariff. Notwithstanding the aforesaid submissions, it is stated that the actual yield of the petitioner's project for Year 1 was 1,471 kWh/kWp and thus the CUF calculated arrives at 23.3%, which is beyond the minimum of 21% CUF mandated by the HERC RE Regulations, 2021.

7.31 That the Respondent's contention that the Hon'ble Commission ought to disregard the quotations obtained by the Petitioner in relation to the O&M expenses claimed is wholly erroneous and ought not to be considered. It is

submitted in terms of Regulation 17(1) of the HERC RE Regulations, 2021, the O&M expenses comprises repair and maintenance (R&M), establishment including employee expenses and administrative and general expenses and thus consist of a wide gamut of expenses incurred by a generator in the process of generating power. The amount of expenses would vary vastly on a year-to-year basis. The same reasoning is followed by this Hon'ble Commission and thus the O&M expenses are allowed on a normative basis for Year 1 and escalated thereafter.

7.32 That the O&M expenses mentioned in the financial statements are of no relevance on account of the fact that the invertor replacement cost has been considered separately hence, the O&M cost got reduced artificially (O&M cost has been reduced from 500 KWp to 325 KWp per year for AC capacity of 10.72, which results in ~450 for DC capacity of 14.90). Furthermore, the HERC RE Regulations nowhere provides that in case O&M Expenses for a year are available, the same ought to be considered for the entire period and escalated. Thus, such a submission made by the Respondent ought not be entertained and dismissed at the very outset. It is submitted that the Orders of this Hon'ble Commission cited by the Petitioner in support of the O&M expenses claimed by it are squarely applicable since they are based on the prevalent market conditions. Thus, the O&M expenses allowed therein should also be allowed for the Petitioner's project herein.

7.33 That the Petitioner commissioned its 10.72 MW Solar Project on 08.02.2023 and thus there are no O&M expenses incurred by the petitioner for FY 2018-19 and FY 2019-20.

7.34 That the respondent's reliance on a quote submitted by a bidder for O&M works of a Solar Project situated in the state of Andhra Pradesh has no relevance whatsoever to the present set of facts and circumstances. It is submitted that no details have been provided with regard to the quote made by such bidder. The same ought to not be taken into consideration by this Hon'ble Commission while determining the O&M cost of the Petitioner's Project.

7.35 That the Order of the Ld. KERC dated 01.08.2019 vide which the Ld. KERC had considered the O&M expenses as INR. 4.50 Lakh /MW is not applicable to

the current set of facts since the Ld. KERC therein was dealing with projects up to 5 MW capacity. It is further submitted that the Respondent's contention that the O&M cost / MW does not increase with the increase in the capacity of the Plant has no basis whatsoever and ought to be rejected.

7.36 That the claim for lease rentals has been duly supported with relevant evidence and thus the same ought to be allowed by this Hon'ble Commission. It is further denied that the lease rental for the land claimed by the Petitioner ought to be considered as per the prevailing market rates. The same contention that the lease rental for the land ought to be considered as per the prevailing market rates, finds no mention in the HERC RE Regulations, 2021 and thus the same should be considered by this Hon'ble Commission. Further, in terms of Section 61, the tariff allowed should be reflective of the actual cost of generation.

7.37 That in terms of Regulation 20(1) of the HERC RE Regulations, 2021, the proceeds of Carbon Credit from approved CDM project after deduction of expenses incurred by the generating company for registration and approval of the project as a CDM project shall be shared between the generating company and the concerned beneficiaries. Thus, the contention of the Respondent that the CDM benefits applicable ought to be passed on to the Respondent has no basis. The Hon'ble Commission may decide on the aforesaid issue on the basis of the applicable HERC RE Regulations as well as the terms of the PPA entered into by the parties.

8. **Petitioner's rejoinder to HAREDA's objections: -**

8.1 That undue reliance on market trends across the country, without reference to the ground realities in the State, for determination of tariff under Section 62 may result in losses to the petitioner and is in any event not the sole or significant parameter for determination of Section 62 tariff. While market trends could be of persuasive value in certain situations, in the present case, when the tariff determination is being done in terms of a duly notified tariff regulation with details of actual expenditure incurred available before this Hon'ble Commission for its perusal and prudence check, there is no scope of relying on market trends all over the country to arrive at the correct tariff figure.

8.2 That HAREDA's contention that the petitioner has violated the terms and conditions of registration of the project are denied and disputed *in toto*. HAREDA is attempting to re-raise issues which have already been laid to rest by this Hon'ble Commission by its order dated 24.09.2020 passed in Case No. HERC/PRO-23/2020 and the Hon'ble Tribunal by its judgment dated 20.09.2021 in Appeal No. 164 of 2020. Notably, no appeal has been preferred against the aforesaid judgment of the Hon'ble Tribunal before the Hon'ble Supreme Court of India and thus, the same has attained finality. It is pertinent to mention herein that the Power Purchase Agreement dated 20.02.2023, executed between the Petitioner and HPPC, has been subsequently approved by this Hon'ble Commission by its order dated 01.02.2023. Therefore, the allegations being raised by HAREDA in the paras under reply are baseless and in contravention of the PPA approval order dated 01.02.2023 passed by this Hon'ble Commission.

8.3 That the date of registration of the project of the Petitioner with HAREDA is of no relevance for determination of tariff of the Petitioner's project in terms of the HERC RE Regulations, 2021. Furthermore, undue reliance is being placed upon market trend directly in teeth of Section 61 of the Electricity Act, 2003 which provides that the cost of electricity should correlate with the actual cost of generation. Further, market trend may only be of persuasive value when there is lack of proper documents and consequent inability of this Hon'ble Commission to conduct prudence check. In the present case, the Petitioner has placed on record all relevant documents and facts for determination of tariff under the HERC RE Regulations read with EA 2003, and there is no scope of relying on irrelevant "market trends" for determination of tariff. Furthermore, there is no basis to the argument that tariff discovered under Section 63 for other projects ought to be considered as ceiling tariff for the Petitioner's project. It is reiterated that a Section 63 tariff has no bearing on a Section 62 tariff and if the Hon'ble Commission was to bind itself to a ceiling tariff, then the entire process of tariff determination under Section 62 of the Electricity Act, shall become redundant.

8.4 That HAREDA's prayer that the tariff of the petitioner's project may not be determined on a project specific basis is in violation of the provisions of the Electricity Act, 2003 and the HERC RE Regulations, which specifically provide

for project specific tariff determination. Furthermore, HAREDA's contention that the tariff of Rs. 2.596/kWh discovered through competitive bidding/tariff prevalent in the market during the year 2019 be considered, is also seeking to encroach and diminish the tariff determination process and powers of this Hon'ble Commission and merit to be outrightly rejected.

9. **Commission's Analysis and Order**:

Given the rapidly emerging significance of solar power in the entire scheme of de-carbonization and sustainability with an objective to achieve 'net zero', the Commission has carefully considered the averments of the parties, the facts and figures placed on record by them as well as the data / information available in the public domain.

At the outset, the Commission observes that the objections filed by R-1 and R-2 is largely based on the plea that the tariff should be determined based on the market trend and subject to the ceiling tariff agreed upon by the parties and made part of the concluded Power Purchase Agreement. HAREDA has further submitted that HPPC has signed PPA on dated 26.05.2019 on tariff of Rs.2.596/kWh on basis of the tariff discovered through competitive bidding/tariff prevalent in the market. Petitioner has applied for registration of project for captive consumption on dated 19.08.2019. Accordingly, tariff discovered through competitive bidding/tariff prevalent in the market during year of application for registration of project by petitioner needs to be considered i.e. Rs.2.596/kWh. HAREDA has further reproduced para no. 2.6 of the Commission's order dated 01.02.2023 (HERC/Petition no.53 of 2022), to emphasis that the plant was commissioned in 2020 and supplied solar power under STOA arrangement to HPPC/Discoms from the project during the period 11.11.2020 to 20.09.2021 @ Rs 2.70 per kWh in terms of APTEL Interim Order dated 17.07.2020.

In the hearing held on 8.11.2023, on being questioned by the Commission, the learned counsel M/s Shika Ohri, putting in appearance for the petitioner herein, fairly conceded that the tariff determined by this Commission is subject to the ceiling tariff of Rs. 2.75 / Unit. In view of the admitted position the averment of

the petitioner, in its submissions dated 8th September,2023, that 'if this Commission binds itself by the ceiling tariff in the PPA then the same shall render the entire process under Section 62 of the Electricity Act, 2003 redundant', becomes infructuous. Consequently, the reliance placed by the petitioner on the judgement of the Hon'ble Supreme Court in PTC India Ltd Vs. CERC (PTC India judgement) is misplaced and distinguishable on facts and figures.

Further, HAREDA's contention regarding 'breach of agreement' as well as estoppel on 'part commissioning' i.e., only 10.72 MWp commissioned out of 20 MWp is hardly tenable as the issue stands settled and the project has migrated from 'Captive Status' to selling power generated from 10.72 MWp to the Haryana Distribution Licensees represented by the Haryana Power Purchase Centre (HPPC) under a PPA approved by this Commission. The issue agitated by HAREDA has reached finality with passing of the order dated 24.09.2020 in Case No. HERC/PRO-23/2020 by this Commission and the Hon'ble Tribunal's judgment dated 20.09.2021 in Appeal No. 164 of 2020. Hence, to allay the fears of the respondents viz. HPPC and HAREDA, the Commission shall proceed to determine tariff keeping in mind the market trend in various tariff components as observed by it in catena of cases including the one cited by the intervener i.e. order dated 20.12.2019 in case no. HERC/PRO-57 OF 2019, as well as the cases of tariff determined by various SERCs cited by the parties as well as rebuttal to the same filed by the petitioner herein.

10. **Capital Cost**: - HPPC (R-1) has contended that the capital cost claimed by the petitioner for their 10.72 MWp solar PV power project installed in 2020 is exorbitant especially in the light of report, on capital cost, published by IRENA as well as the capital cost considered by this Commission as well as a few other SERCs.

In this regard, the Commission observes that 82% of the capital cost (Rs. 663.14 millions) claimed by the petitioner, comprises of cost of modules and EPC cost i.e. Rs. 323.43 million and Rs. 218.59 millions, respectively (aggregating to Rs. 542.02 millions). In support of cost of modules and EPC cost, the petitioner has submitted the copy of supply agreement entered into

between the petitioner i.e. Greenyana Solar Pvt. Ltd. and M/s. Sunsure Energy Private Ltd., at a contract price of Rs. 501.03 millions and a service agreement entered into between M/s CSE Development (India) Pvt. Ltd. and M/s. Primesolar Renewable Services Pvt. Ltd., at a contract price of Rs. 47.61 millions; both dated 25.05.2019 for 15.03 MW solar power plant. The petitioner has also attached along with its petition, invoices dated 31.01.2020 and 29.11.2020, amounting to Rs. 501.32 millions and Rs. 47.23 millions, respectively, for supply of 15.03 MW system.

The relationship between all these companies is difficult to discern, especially in view of the fact that for supply of solar power generation system the purchase order was issued by M/s Cleantech and the vendor was Sunsure Energy Private Ltd. Additionally, the EPC contract is between entities whose relation with the petitioner has not been explained.

Further, to the great dismay of the Commission, the petitioner in its rejoinder submitted copies of the amendment supply agreement and service agreement dated 19.03.2021 and 31.03.2021, respectively i.e. a date much after the date of commencement of commercial operations of the petitioner i.e. 11.11.2020 and in contradiction to its own invoices submitted earlier, for a revised capacity of 14.90 MW instead of 15.03 MW, at revised contract price of Rs. 500.09 millions and Rs. 47.20 millions, respectively. The amended supply agreement of Rs. 500.09 millions comprising of solar modules (323.43 millions), inverters (26.25 millions), AC/DC cables (21.42 millions), Transformers/HT panels (17.14 millions), transmission line equipment (Rs. 17.93 millions) and other equipment (Rs. 93.92 millions). The Commission further observed that the cost of solar modules in the original supply agreement dated 25.05.2019 and amended supply agreement dated 19.03.2021, the cost of solar modules was kept the same at Rs. 323.43 millions, although the original contract was for supply of solar module of 15.03 MW capacity which is revised to 14.90 MW capacity.

In order to examine the veracity of claims and counter claims of the parties, the Commission has examined the information available in the public domain regarding the cost of solar modules. It is observed that since 2015, there has been a sustained decline in module prices for both multi (Poly Crystalline

Silicon) and mono PERC modules and the trend continues in 2023 as well i.e. June 2023, FOB China was USD 0.196 Wp (1 USD = INR 81.82) and in the case of Module Multi (Poly Crystalline) the same stood at USD 0.234 / Wp (Cf. OPIS Survey – a Dow Jones Company). The average of four quarters landed price in India was US Cents 24.25 / Wp in 2018, the same declined to 21.25 US Cents /Wp in 2019 and 18.375 / Wp in 2020 without tax incidence.

In view of the empirical evidence, the fact cannot be denied that there has been a significant reduction in the price of solar PV modules from a high of 2.36 USD / Wp in the year 2010 to 18.375 US Cents / Wp in the year 2020. Further, if solar PV experts are to be believed than it is expected to halve again before 2030.

In line with the above, the lowest winning tender between quarter 1 of 2020 and Quarter 1 of the year 2021 were at a tariff ranging from Rs. 2.00 / kWh to Rs. 2.50 / kWh. It is at this point apposite to notice that the lowest discovered tariff in June, 2019 was Rs. 2.50/kWh (SECI's auction for 750 MW solar PV power in Rajasthan). In November 2020, Solar PV power tariff has fallen to Rs. 2.00/kWh (SECI's auction of 1070 MW solar pv projects in Rajasthan). In March 2021, the discovered levelized tariff was Rs. 2.20/kWh (GUVNL's auction to purchase 500 MW solar pv power) after the imposition of basic customs duty (BCD) on imported solar PV panels and cells. The Commission further observes that in the project specific tariff determination proceedings before it, the solar PV tariff determined, vide its order dated 18.01.2021 (petition no. 59 of 2020 for 50 MW, in the matter of M/s. Amplus) and 17.09.2021 (petition no. 70 of 2020 for 20 MW in the matter of M/s. LR) was Rs. 2.58/kWh and Rs. 2.48/kWh, respectively.

The Commission observes that the petitioner has proposed a capital cost of Rs. 6.19 crore/MW with CUF of 24.08% giving a tariff of Rs. 4.46/kWh, which has surpassed even the ceiling tariff of Rs. 2.75/kWh agreed upon between the parties. As against the same, in the project specific tariff determination proceedings before it, the capital cost approved, vide its order dated 18.01.2021 (petition no. 59 of 2020 for 50 MW, in the matter of M/s. Amplus), 17.09.2021 (petition no. 70 of 2020 for 20 MW in the matter of M/s. LR) and 11.11.2021 (petition no. 16 of 2021 for 50 MW in the matter of M/s. Avaada), was Rs. 3.82

crore/MW (CUF 25.91%), Rs. 3.57 crore/MW (CUF 22.14%) and Rs. 3.24 crore/MW (CUF 17.29%), respectively.

Consequently, the tariff proposed by the petitioner is clearly not aligned to the market and hence the parameters for tariff determination claimed by the petitioner requires prudence check to remove the distortions and thereby arrive at a reasonable tariff to be borne by the distribution utilities in Haryana which in turn is passed on to the electricity consumers by way of distribution and retail supply tariff.

Considering cost of Poly Crystalline Modules, at 18.37 Cents per Wp in 2020 excluding taxes and USD: INR exchange rate of Rs. 74.13, the FOB cost of 10.72 MWp modules would work out to Rs.136.17 Million. **Adding the estimated cost of logistics and taxes @ 15% on the same, the landed cost of Poly Crystalline Modules comes out to Rs. 156.60 millions as against Rs. 323.43 millions proposed by the petitioner.** It is observed that besides the price, a major difference is caused due to the fact that HERC RE Regulations, 2021 do not reckon with DC capacity and all the norms / benchmarks including land size are for AC capacity alone. In effect the Commission considers DC:AC capacity in the ratio of 1:1 while the petitioner's proposed cost is for 14.90 MWp solar Pv modules as against 10.72 MWp considered by this Commission. Further, as corollary the balance of system cost (installation and commissioning), cost of inverters, cables, HT panels etc. will also get reduced. The amount claimed under this head (booked to the project) was Rs. 200.66 Million (Rs. 542.02 millions minus Rs. 323.43 millions towards cost of solar mouldes minus Rs. 17.93 millions towards transmission line equipments). **Accordingly, the Commission has considered Rs. 144.37 Million towards balance of system/EPC cost for 10.72 MWp as against 14.90 MWp solar power generating system considered by the petitioner.**

On the issue of cost of land / lease rental, the Commission observes from the ground mounted solar PV projects commissioned in Haryana in the recent past, the land parcel required, on an average, has been 4.14 Acres per MWp. Hence, in the instant case, for 10.72 MWp, the requirement of land has been restricted to 44.34 Acres. The contention of the petitioner that they used modules of a

particular wattage is not sufficient to claim higher per MW of land. Needless to add that in Haryana, where land is available at a premium as compared to say Rajasthan, high efficiency modules requiring less land is preferable. Consequently, the cost of land and site development claimed for 14.90 MW DC capacity is pared down to 10.72 MWp capacity i.e. Rs. 44 Acres (rounded off).

The Commission has perused Annexure – 7 (page no. 164 to 281) of the petition under consideration. The petitioner has annexed sales deed for the land purchased by them for the present project. The per acre cost of acquisition including stamp duty is Rs. 1.155 million. As the total land required could be met from own / purchased land, the Commission has not considered the balance land leased / exchanged for which documents have been submitted by the petitioner.

Consequently, the Commission, for the purpose of arriving at a capital cost, has considered Rs. 50.82 million as cost of land including site development.

It needs to be noted that the RE Regulations notified by this Commission from time to time and also that in vogue including Solar PV project specific tariff determined by this Commission reckons with AC capacity only and has no benchmarks / norms for DC capacity, which entirely depends on the discretion of the project developer.

The Commission observes that the petitioner herein has claimed some amount towards contingency and development fee without providing requisite details of payments made to an intermediary i.e. CSE Development Pvt. Ltd. which seemingly is a SPV fully owned and controlled by the petitioner herein. Hence, a payment made to a solar developer, who happens to be a 100% subsidiary, purportedly (in general terms) as a compensation for the time and resources spent in successfully developing a solar project, without any specific provision in the RE Regulations in vogue, cannot be loaded on to the project cost for the purposes of tariff determination in the present case. Consequently, the same has not been considered by the Commission for arriving at the completed cost of capital.

The solar PV power projects like that of the petitioner including evacuation system has a typical gestation lag of about 18 months. The servicing / repayment of loan(s) typically begin post declaration of CoD from the revenue stream generated from sale of power generated, prior to this the interest amount that is due and payable (cost of debt) is capitalized and made part of the allowable project cost. It may be worthwhile to mention, at the cost of prolixity, that equity deployed in a project, even under the regulatory regime where RoE is guaranteed, has no compensation mechanism till the project is commissioned and assets enter into revenue earning stream.

In the above background, the Commission observes that the petitioner, in the present petition for tariff determination under the consideration of the Commission, has stated that the '**entire funding of the capital cost is through equity contribution and there is no debt element in the capital cost' (**emphasis added). Resultantly, there is no project loan / debt to be serviced and that can be capitalized prior to CoD of the project. However, from a perusal of the financial statement placed on record by the petitioner, it is evident that the petitioner company has some amount of External Commercial Borrowing (ECB) but the same has been repaid, what was carried over to the balance sheet as on 31/12/2020 was Rs. 8.45 Crore. **Hence, for a standard construction period of 18 months @ 10% the Commission has considered an IDC of Rs. 12.67 million.**

5	IDC and Finance Charges	25.50	12.67

In view of the above discussions, the Capital Cost considered by the Commission for the purpose of tariff determination in the present case is Rs. 364.46 million i.e. Rs. 34 Million / MWp as tabulated below: -

S. No.	Project Cost (Rs Million)	HERC Allowed
1	Cost of Solar Modules (inc logistics)	156.60
2	EPC Cost (Balance of Systems)	144.37
3	Land and Site Development	50.82
4	IDC and Finance Charges	12.67
	Total Project Cost (10.72 MWp)	364.46
	Rs Mln / MWp	34.00 (rounded off)

It is observed that the per MW cost in the present case is almost at par with the mean value of per MW cost determined by this Commission i.e. Rs. 3.4

crore/MW for the similarly situated solar PV project projects. Further, the contention of the petitioner that the current value of their project ought to be considered instead of original value has no merit as the project has been supplying to Haryana on a commercial basis since Nov., 2020. Hence, it is quite strange to reckon with CoD w.e.f. 08.02.2023.

Notes 1: As the project pre-dates the signng of the PPA and the levelized tariff is to be calculated from 1st year of operation for the entire useful life of the project, the revenue earned in the FY 2019-20 and FY 2020-21 amounting to Rs. 50.69 Million has been reduced from the project cost for the purpose of calculating depreciation.

Notes2: The cost of transmission has not been considered in view of the concluded contract between the parties cited by the intervener i.e. the same has to be borne by the generator (Ref. 6.1.3 and 6.1.4 of the concluded PPA approved by the Commission vide order dated 1.02.2023.

Notes 3: In case any further claims are raised by the petitioner for supply of power prior to 20.02.2023, the same shall be reduced from the capital cost and the levelized tariff thereto.

11. The Commission has perused the broad guidelines of the relevant regulations as re-produced below:

***"48. Capacity Utilization Factor**. – The Commission shall approve capacity utilization factor for project specific tariff determination.*

Provided that the minimum capacity utilization factor for Solar PV project including floating solar project shall be 21%.

A plain reading of the above makes it clear and without distinguishing between DC and AC capacity /ratio that the minimum CUF shall be 21%. This clearly has been stipulated to discourage proliferation of cheap and inefficient modules / panels. The MNRE also came up with an approved list i.e. The term ALMM stands for an Approved List of models and manufacturers (ALMM). This term was coined by MNRE (Ministry of New and Renewable Energy). This is a list of solar cell and module types and manufacturers in India that have been certified

by the BIS (Bureau of Indian Standards). In the present case the petitioner has claimed a CUF based on the basis of PVsyst report. The same has been disputed / objected to by the intervener i.e. HPPC on the plea that "the *simulation results thus, achieved are dependent on various presumptions taken at the choice of the person preparing the report. The radiation data is available from different sources and varies from source to source".*

The Commission has considered the above objection. Admittedly when generating electricity using solar light (Pv) is involved, a lot depends on the solar irradiation, efficiency of the modules, location and weather conditions etc. The PVSYST report appended by the petitioner is in the name of Cleantech Solar Development Company incorporated in Singapore for 20 MWac and not in the name of the petitioner herein. However, the active power in the said report is stated as 10.7 MW and the location is Kuraganwali (Latitude 29.78 degrees North and Longitude 75.08 degrees East) i.e. same that of the Pv project of the petitioner i.e. M/s Greenyana Solar, the Commission has examined the said simulation report dated 17.03.2022 as under: -

The petitioner has averred that based on the PVSYST simulations for the Project, the CUF is estimated to be 17.01% DC (24.08% CUF AC), with an annual degradation in CUF of 0.50%. The simulation parameters (PVSYST V6.88) dated 17.03.2022 is for 20 MWac, with grid power limited to 10.7 MW (Si Poly) at a performance ratio (PR average) of 76.89%, the simulated produced energy is 22.21 MUs per year. It is observed that at the minimum benchmark CUF of 21%, the project would have generated 19.72 Mus per year (10.72 MW X 21% X 8760 Hrs. /1000). Further, the energy produced would increase by 0.94 MUs with every percentage (%) increase in the CUF. Consequently, with a CUF of 24%, the project would generate 22.53 Mus per year i.e. almost similar to PVSYST simulation results of 22.21 MUs of energy injected into the grid.

The Commission observes that while calculating CUF of 24.08%, 1.94% system unavailability has already been subtracted in the PVSYST report submitted by the petitioner and grid downtime of 0.67% has been again subtracted from the generated energy, to claim CUF of 24.08%. The Commission, in its Orders

dated 18.01.2021 and 17.09.2021 in the matter of tariff determination of similarly placed Solar PV Power generator in case no. HERC/PRO-59 of 2020 (M/s. Amplus Sun Solutions Pvt. Ltd.) and in case no. HERC/PRO-70 of 2020 (M/s. LR Energy), respectively, had rejected the adjustment of the petitioner in the CUF, towards system unavailability. The Commission, in its ibid Order, had decided that *"it is not inclined to build in compensation for grid unavailability by adjusting the CUF. However, over the project life cycle the degradation in module efficiency has become an established norm. Resultantly, the Commission has considered 0.50% degradation by accordingly adjusting the CUF over the useful life of the project."*

Accordingly, CUF is not required to be adjusted for system unavailability and the deduction of 1.94% in the PVSYST report is to be added back while calculating CUF of 24.08%. However, even with the CUF of 24.08%, the approved capital cost/MW, per percentile of CUF comes out to Rs. 1.41 millions/MW (Rs. 34 millions/MW/24.08), which is lesser as compared to the Rs. 1.61 millions/MW per percentile and Rs. 1.87 millions/MW per percentile approved by the Commission in tariff determination proceedings in the case of M/s. LR energy and M/s. Avaada. Accordingly, the same may not give the tariff aligned to the market. The Commission is of the considered view that the tariff is the end result of various financial and technical components and CUF is one such component. The Commission has statutory obligation to ensure that the tariff determined by it is aligned to the market conditions so that the electricity consumers of Haryana are not un-necessarily burdened. However, the CUF of 17.01% at DC proposed by the petitioner, can also not be accepted, in view of the minimum acceptable capacity utilization factor of 21% for solar PV power projects, provided in the HERC RE Regulations, 2021. **Accordingly, the Commission is constrained to peg CUF at 21%, to give the approved capital cost/MW, per percentile of CUF at Rs. 1.62 millions/MW (Rs. 34 millions/MW/21). The approved CUF of 21%, taking into account of the revenue of Rs. 50.69 millions earned in the FY 2019-20 and FY 2020-21 which has been reduced from the project cost, for working out eligible depreciation, would ensure that the tariff is aligned to the market.**

12. **CUF Degradation** - Additionally, annual degradation in the CUF has been considered as 0.50% in line with the HERC RE Regulations, 2021.

13. **O&M**: The HERC RE Regulations in vogue occupying the field to reckon with allowable O&M expenses is reproduced below: -

49. Operation and Maintenance Expenses

(1) The O&M Expenses shall be determined based on prevalent market conditions.

(2) Normative O&M expenses allowed at the commencement of the Control Period under these Regulations shall be escalated at the rate of 2.93% per annum.

The Commission had examined at length the O&M expenses and had accordingly considered O&M expenses of 0.303 Million / MW. The relevant analysis for arriving at the same is as under: -

"The Commission observes that regulations 49 (1) of the HERC RE Regulations, 2021 provides that O&M Expenses shall be allowed based on the prevalent market conditions.

The Commission has considered the rival submissions on the aforesaid issue and reiterates that O&M contracts are fairly broad based and as such mere quotations cited by the petitioner cannot be taken at its face value for the purpose of tariff determination. Hence, the Commission is of the considered view that the offer dated 15.10.2020 made by BHEL for 50 MWp Solar Power Plant of NTPC cited by the intervener i.e. HPPC, ought to be the benchmark depicting the prevalent market trend. Accepting the submissions of HPPC, the Commission in its Order dated 18.01.2021 in case no. HERC/PRO-59 of 2020 (in the matter of M/s. Amplus Sun Solutions Pvt. Ltd.) & in the Order dated 17.09.2021 in case no. HERC/PRO-70 of 2020 (in the matter of M/s. L.R. Energy Pvt. Ltd.), has considered O&M expenses at Rs. 30.30 Millions/MW on the AC capacity for the purpose of tariff determination. Therefore, grossing up of the same with the DC capacity of those plants, as suggested by the intervener, is not relevant.

*In view of the above, the Commission approves O&M expenses of Rs. 0.303 Million / MW inclusive of Insurance and all taxes and levies for 50 MW project, for first year. Thereafter, the same shall be escalated @ 2.*93% per annum, as per the relevant provisions of HERC RE Regulations, 2021".

In the present case the O&M expenditure will be considered as Rs. 0.303 Million / MW as also proposed by the petitioner as against Rs. 0.824 Million per MW proposed by the intervener based on financial report of the petitioner company where O&M expenditure, reportedly, included 'other expenses' also.

14. **AUXe –** The HERC RE Regulation in vogue, on the issue of AUXe provides as under_

50. Auxiliary Energy Consumption. – *The auxiliary energy consumption shall be 0.25% of the gross generation."*

The same has been proposed by the petitioner and not objected to by the interveners. Consequently, for the present purpose of tariff determination the AUXc will be pegged at 0.25%.

15. **Debt Equity Ratio**

Regarding capital structure, regulation 12 of the HERC RE Regulations, 2021, provides as under: -

(1) For generic tariff to be determined based on suo motu petition, the debt equity ratio shall be 70: 30.

(2) For Project specific tariff, if the equity actually deployed is more than 30% of the capital cost, equity in excess of 30% shall be treated as normative loan.

Provided that where equity actually deployed is less than 30% of the capital cost, the actual equity shall be considered for determination of tariff. Provided further that the equity invested in foreign currency shall be designated in Indian rupees on the date of each investment.

The Commission observes that the petitioner, in its petition, has upfront stated that the entire project has been funded by way of Equity Capital and hence no term loan as such existed as on date of COD dated 8.02.2023 as certified by the AEE of HPPC.

On the issue of Equity and RoE thereto, the respondent HPPC, has averred that “the Commission may verify actual equity infused”. The Commission observes that it is the responsibility of the intervener to study / analyze and even seek additional data / information before filing any objection. The intervener herein did not seek the actual equity infusion even at the time of hearing. However, the Commission observes, from the financial statements placed on record, that the equity component including share premium deployed amounts to Rs. 192.25 million (Rs 21.45 Mln + Rs 170.8 Mln) i.e., more than 30% of the project cost.

In view of the above discussions, the Commission observes that in line with the RE Regulations, 2021, the Commission shall consider 30% of the approved capital cost as equity eligible for RoE and balance i.e. 70% shall be considered as loan eligible for interest, for the purpose of tariff determination.

16. **Interest rate on Term Loan & Working Capital**

The Commission has examined the relevant provisions of HERC RE Regulations, 2021 which provides that the interest rate shall be considered as the average Marginal Cost of funds-based lending rate (MCLR of one-year tenor) of SBI prevailing during the last available six months plus a margin of up to 200 basis points i.e. 2%.

The Commission observes that the petitioner has estimated and claimed interest on notional (as the project is entirely equity funded) term loan in line with the regulations in vogue. Hence, the Commission, for the purpose of working out cost of term loan (notional) and working capital loan has considered the rate of interest of 10.02%.

Further, discounting factor for working out the levelized tariff, for the entire useful life of the project i.e. 25 years, shall be the weighted average cost of capital i.e. 10.02%. (70% loan) and 14% (30% Equity Capital) i.e. 11.21%. As the tax (MAT / Corporate Tax) is not built into the tariff model i.e. as per the regulations in vogue it has to be claimed on an actual basis, impact of the same has not been considered for working out WACC in the present case.

Other factors relevant for determination of tariff shall be as per the norms specified in the HERC RE Regulations, 2021, as reproduced hereunder: -

"13. Loan and Finance Charges. –

(1) For the purpose of determination of tariff, loan tenure of 13 years shall be considered.

(2) (a) The loans arrived at in the manner indicated above shall be considered as gross normative loan for calculation for interest on loan. The normative loan outstanding as on 1st April of every year shall be worked out by deducting the cumulative repayment up to March 31st of the previous year from the gross normative loan.

(b) For the purpose of computation of tariff, the normative interest rate shall be considered as the average Marginal Cost of funds-based lending rate (MCLR) (one-year tenor) of SBI prevailing during the last available six months plus a margin of up to 200 basis points i.e. 2%.

(c) Notwithstanding any moratorium period availed by the generating company, the repayment of loan shall be considered from the first year of commercial operation of the project and shall be equal to the annual depreciation allowed."

17. **Depreciation**

The norms specified in the HERC RE Regulations, 2021, is reproduced hereunder: -

"14. Depreciation

(1) The value base for the purpose of depreciation shall be the Capital Cost of the asset admitted by the Commission. The salvage value of the asset shall be considered as 10%.

Provided that, no depreciation shall be allowed to the extent of grant or capital subsidy received for the project. Provided further that land is not a depreciable asset, and hence, its cost shall be excluded while computing 90% of the original cost of asset eligible for depreciation.

(2) Depreciation per annum shall be based on 'Differential Depreciation Approach' over loan tenure and period beyond loan tenure over useful life computed on 'Straight Line Method'. The depreciation rate for the first 13 years of the Tariff Period shall be 5.38% per annum charged on the capital cost and the remaining depreciation (i.e. 90% of the capital cost as reduced by the depreciation charged in first 13 years) shall be spread over the remaining useful life of the project from 14th year onwards.

(3) Depreciation shall be chargeable from the first year of commercial operation.

Provided that in case of commercial operation of the asset for part of the year, depreciation shall be charged on pro rata basis.

In view of the above regulations, the Commission observes that the instant project has been supplying power to the Haryana Discoms since Nov., 2020 Hence, for the purpose of depreciation, the project cost has been reduced by the revenue earned prior to signing of the PPA with Haryana Discoms. In its absence, there would have been duplicity of recovery.

18. **Return on Equity**

The norms specified in the HERC RE Regulations, 2021, is reproduced hereunder: -

"15. Return on Equity

(1) The value base for the equity shall lower of the two either 30% of the capital cost or actual equity (in case of project specific tariff determination) as determined under Regulation.

(2) The normative Return on Equity shall be as under: -

a) 14% per annum calculated on normative Equity Capital.

b) MAT/Corporate Tax applicable shall be considered as pass through.

Provided that the applicable MAT / Corporate Tax shall be separately invoiced as per the actual paid at the rate as declared by the Income Tax Department. The Generator shall raise the bill for reimbursement of MAT / Corporate Tax applicable on Return on Equity in 12 equal installments which shall be payable by the beneficiaries."

19. **CDM / Subsidy sharing** – The Commission has considered the submissions of the intervener on this issue. The petitioner has averred that they have received no subsidy / grant for this project and also not availing CDM benefits based on CER / VER. The Commission accepts the submissions of the petitioner; however, it is observed in case, at a future date, the project avails CDM benefits or gets some grants / subsidy, the same shall be dealt as per the relevant regulations occupying the filed.

20. **Impairment of Assets & Revenue Earned** – The Commission has examined the issue of impairment of assets as pointed out by the intervener and response of the petitioner thereto. The Commission observes that any asset deemed to be impaired has to be necessarily written down in the balance sheet of the company. Hence, in the present case the notional amount as pointed out by the intervener figures as impaired asset. Since the same has to be marked to the current market value so as to prevent overstatement in the b/s, it is a mere accounting entry and of little value to the process of tariff determination especially when the capital cost is being determined based on market trend at the time of commissioning of the instant project. However, as the tariff herein is being determined from the first year of operation giving the benefits of depreciation, RoE and other OPEX and CAPEX related expenditure, the Commission has considered it appropriate to reduce the allowable capital cost by the entire revenue earned prior to signing of the PPA with the Haryana Discoms / HPPC, for the purpose of working out the depreciation amount for the entire useful life of the 10.72 MW solar PV project, as there is no fuel cost involved in a solar PV project.

21. **In accordance with the parameters discussed in the foregoing paras, the Commission determines the tariff for 25 years useful life of the project, appended to the present order (Annexure – A). The tariff payable to the**

petitioner herein shall be in terms of Article 4.1 of the PPA i.e. fixed levelized tariff, as determined by the Commission, for the entire life of the 10.72 MWp solar power project.

In terms of the above Order, the present petition as well as IAs, are disposed of. This Order is signed, dated and issued by the Haryana Electricity Regulatory Commission on 29.01.2024.

Date: 29.01.2024
Place: Panchkula

(Naresh Sardana)
Member

ANNEXURE - A

Levelized Tariff for Greenyana 10.72 MW - Solar PV Projects for 25 years

Table of Parameters	**Per MW**	**10.72**	**MW**
Capital cost (Rs. in Million)	33.9981	364.46	
Less: Revenue earned prior to PPA (Rs. Million)		50.69	
Balance Capital cost (Rs. in Million)		313.77	
Less: Cost of land purchased (Rs. Million)		50.82	
Capital cost, excluding land (Rs. in Million)		262.95	
Residual value (10%) of Capital Cost Ex Land (Rs Million)		26.30	
Total depreciation (Rs Million)		236.66	
Loan component (Rs in Million)		255.12	
Equity component (Rs in Million)		109.34	
CUF		21.00%	
Annual degradation in CUF (%)		0.50%	
O&M (Rs Million)	0.3030	3.25	
O&M escalation (%)		2.93%	
Depreicaton (first 13 years) (%)		5.38%	
ROE (1st 10 years) (%)		14%	
ROE (11th year onwards) (%)		14%	
Interest on term loan (%)		10.02%	
Interest on working capital(%)		10.02%	
Auxiliary consumption (%)		0.25%	
Discount rate WACC (%)		11.21%	
Levellised tariff (Rs / kWh)		2.35	

	Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
O&M with escalation (Rs Million)		3.25	3.34	3.44	3.54	3.65	3.75	3.86	3.98	4.09	4.21	4.34	4.46	4.59	4.73	4.87	5.01	5.16	5.31	5.46	5.62	5.79	5.96	6.13	6.31	6.50
Outstanding Loan amount (Rs Million)		255.12	235.50	215.87	196.25	176.62	157.00	137.37	117.75	98.12	78.50	58.87	39.25	19.62												
Loan repayment (staggered over 13 years) Rs Million		19.62	19.62	19.62	19.62	19.62	19.62	19.62	19.62	19.62	19.62	19.62	19.62	19.62												
Interest on loan (Avg of opening & closing) Rs Million		24.58	22.61	20.65	18.68	16.71	14.75	12.78	10.82	8.85	6.88	4.92	2.95	0.98												
Working Capital	Rs Million																									
One month O&M		0.27	0.28	0.29	0.30	0.30	0.31	0.32	0.33	0.34	0.35	0.36	0.37	0.38	0.39	0.41	0.42	0.43	0.44	0.46	0.47	0.48	0.50	0.51	0.53	0.54
2 Months receivables		9.72	9.41	9.09	8.77	8.46	8.14	7.83	7.52	7.20	6.89	6.58	6.27	5.96	4.16	4.18	4.21	4.23	4.26	4.29	4.31	4.34	4.37	4.40	4.43	4.47
Maintenance spares15% of O&M		0.49	0.50	0.52	0.53	0.55	0.56	0.58	0.60	0.61	0.63	0.65	0.67	0.69	0.71	0.73	0.75	0.77	0.80	0.82	0.84	0.87	0.89	0.92	0.95	0.97
Total Working Capital Required		10.48	10.19	9.89	9.60	9.31	9.02	8.73	8.44	8.16	7.87	7.59	7.31	7.03	5.26	5.32	5.38	5.44	5.50	5.56	5.63	5.69	5.76	5.83	5.91	5.98
Interest on working capital		1.05	1.02	0.99	0.96	0.93	0.90	0.87	0.85	0.82	0.79	0.76	0.73	0.70	0.53	0.53	0.54	0.54	0.55	0.56	0.56	0.57	0.58	0.58	0.59	0.60

Parameters	**Derivation**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**
Capacity (MW)		**10.72**	**10.72**	**10.72**	**10.72**	**10.72**	**10.72**	**10.72**	**10.72**	**10.72**	**10.72**	**10.72**	**10.72**	**10.72**	**10.72**	**10.72**	**10.72**	**10.72**	**10.72**	**10.72**	**10.72**	**10.72**	**10.72**	**10.72**	**10.72**	**10.72**
CUF (%)		**21.00%**	**20.90%**	**20.79%**	**20.69%**	**20.58%**	**20.48%**	**20.38%**	**20.28%**	**20.17%**	**20.07%**	**19.97%**	**19.87%**	**19.77%**	**19.68%**	**19.58%**	**19.48%**	**19.38%**	**19.28%**	**19.19%**	**19.09%**	**19.00%**	**18.90%**	**18.81%**	**18.71%**	**18.62%**
Generation (Million Units)		19.72	19.62	19.52	19.43	19.33	19.23	19.14	19.04	18.95	18.85	18.76	18.66	18.57	18.48	18.38	18.29	18.20	18.11	18.02	17.93	17.84	17.75	17.66	17.57	17.49
Auxiliary Cons (%)		0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%	0.25%
Generation (Ex-bus Million Units)		19.67	19.57	19.47	19.38	19.28	19.18	19.09	18.99	18.90	18.80	18.71	18.62	18.52	18.43	18.34	18.25	18.16	18.06	17.97	17.88	17.79	17.71	17.62	17.53	17.44
Fixed Costs																										
O&M Expenses (Rs million)		3.25	3.34	3.44	3.54	3.65	3.75	3.86	3.98	4.09	4.21	4.34	4.46	4.59	4.73	4.87	5.01	5.16	5.31	5.46	5.62	5.79	5.96	6.13	6.31	6.50
Depreciation (Rs million)		14.15	14.15	14.15	14.15	14.15	14.15	14.15	14.15	14.15	14.15	14.15	14.15	14.15	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40
Interest on Term Loan (Rs million)		24.58	22.61	20.65	18.68	16.71	14.75	12.78	10.82	8.85	6.88	4.92	2.95	0.98	0.00	0.00	0.00	0.00	0.00	0.00						
Interest on Working Capital (Rs million)		1.05	1.02	0.99	0.96	0.93	0.90	0.87	0.85	0.82	0.79	0.76	0.73	0.70	0.53	0.53	0.54	0.54	0.55	0.56	0.56	0.57	0.58	0.58	0.59	0.60
Return on Equity (Rs million)		15.31	15.31	15.31	15.31	15.31	15.31	15.31	15.31	15.31	15.31	15.31	15.31	15.31	15.31	15.31	15.31	15.31	15.31	15.31	15.31	15.31	15.31	15.31	15.31	15.31
Total Fixed Cost (Rs. Million)		58.33	56.43	54.53	52.64	50.75	48.86	46.97	45.09	43.21	41.34	39.47	37.60	35.73	24.96	25.10	25.25	25.40	25.56	25.72	25.89	26.06	26.24	26.42	26.61	26.80
Tariff (Rs/kWh)		2.97	2.88	2.80	2.72	2.63	2.55	2.46	2.37	2.29	2.20	2.11	2.02	1.93	1.35	1.37	1.38	1.40	1.41	1.43	1.45	1.46	1.48	1.50	1.52	1.54
Per unit tariff components (Rs / kWh)																										
Per unit O&M Expenses		0.17	0.17	0.18	0.18	0.19	0.20	0.20	0.21	0.22	0.22	0.23	0.24	0.25	0.26	0.27	0.27	0.28	0.29	0.30	0.31	0.33	0.34	0.35	0.36	0.37
Per Unit Depreciation		0.72	0.72	0.73	0.73	0.73	0.74	0.74	0.74	0.75	0.75	0.23	0.76	0.76	0.24	0.24	0.24	0.24	0.24	0.24	0.25	0.25	0.25	0.25	0.25	0.25
Per Unit Interest on term loan		1.25	1.16	1.06	0.96	0.87	0.77	0.67	0.57	0.47	0.37	0.26	0.16	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Per Unit Interest on working capital		0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Per Unit Return on equity		0.78	0.78	0.79	0.79	0.79	0.80	0.80	0.81	0.81	0.81	0.82	0.82	0.83	0.83	0.83	0.84	0.84	0.85	0.85	0.86	0.86	0.86	0.87	0.87	0.88
Levellised tariff																										
Discount factor		1.00	0.899	0.809	0.727	0.654	0.588	0.529	0.475	0.427	0.384	0.346	0.311	0.279	0.251	0.226	0.203	0.183	0.164	0.148	0.133	0.119	0.107	0.097	0.087	0.078
Discounted tariff		2.97	2.59	2.26	1.98	1.72	1.50	1.30	1.13	0.98	0.84	0.73	0.63	0.54	0.34	0.31	0.28	0.26	0.23	0.21	0.19	0.17	0.16	0.14	0.13	0.12
Levellised Tariff (Rs/kWh)		**2.35**																								