BEFORE THE HARYANA ELECTRICITY REGULATORY COMMISSION AT PANCHKULA

Case No. HERC/PRO- 70 of 2020

Date of Hearing	**:**	**20.07.2021**
Date of Order	**:**	**17 .09.2021**

In the Matter of

Petition under Sections 62 of the Electricity Act, 2003 and all other enabling provisions of the Act read with the relevant provisions of Haryana Electricity Regulatory Commission (Terms and Conditions for determination of Tariff from Renewable Energy Sources, Renewable Purchase Obligation and Renewable Energy certificate) Regulations, 2017 for determination of Project Specific Tariff of 20 MWp (AC) Solar Pv Power Plant located at Tosham, Dt. Bhiwani, Haryana.

Petitioner M/s. L R Energy Pvt. Ltd.

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

Present On behalf of the Petitioner through Video Conferencing

1. Shri Ranbir Chatterjee, M/s. L R Energy Pvt. Ltd
2. Shri Sourav Pal, M/s. L R Energy Pvt. Ltd.
3. Shri Ravi, M/s. L R Energy Pvt. Ltd.

Present on behalf of the Respondents through Video Conferencing

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

Quorum

Shri R.K. Pachnanda	**Chairman**
Shri Pravindra Singh Chauhan	**Member**
Shri Naresh Sardana	**Member**

ORDER

Brief Background of the case

1. M/s. L R Energy Pvt. Ltd. has filed 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, 2017 (hereinafter referred to as "HERC RE Regulations, 2017"), for determination of tariff

for supply of power from 20 MWp (AC) Solar Power projects at Tosham, District Bhiwani, Haryana.

2. Submissions of the Petitioner, in brief:-

a) That, vide its Order dated 14.10.2020 (Case No. HERC/PRO–49 of 2020), approved procurement of 20 MW solar power from M/s. L.R. Energy Pvt. Ltd., for 25 years at the tariff to be determined by the Commission.

b) That the Petitioner entered into Power Purchase Agreement (PPA) with the Haryana Power Purchase Centre (HPPC) on 30.10.2020. Subsequently, the present petition has been filed for determination of project specific tariff under Section 62 of the Electricity Act, 2003.

c) Status of the Project: That status of the petitioner's project, including material, for which Purchase Orders have been issued as well as the salient features of the project was provided.

d) That, the Project is in an advance stage of implementation and is expected to be commissioned by March, 2021 and therefore, can immediately supply power which will count towards meeting Solar RPO for FY 2021-22 onwards.

e) That the present Petition is being filed by the Petitioner under Section 62, 86(1)(b) and 86(1)(e) of the Electricity Act, 2003 read with Regulation 6(1)(h) of the Haryana Electricity Regulatory Commission (Terms and Conditions for determination of Tariff from Renewable Energy Sources, Renewable Purchase Obligation and Renewable Energy certificate) Regulations, 2017 (as amended from time to time).

f) The Petitioner, vide its letter dated 18th August, 2018 (No. LR/Solar/24/180818) sought approval of HAREDA / HVPNL for setting up 24 MW Solar Pv based grid interactive power plant at village Tosham, district Bhiwani as IPP, in Haryana.

g) HAREDA, vide its Memo No. NRE-HAREDA/2019/6583 dated 15.07.2019 intimated that the 20 MW AC project, Tosham, Dt. Bhiwani has been registered in HAREDA as Captive / Group Captive Consumption. Name of Sub-station for connectivity of the project was mentioned as 132 kV Tosham.

h) The Haryana Vidyut Prasaran Nigam (HVPNL), vide its Memo No. Ch-30 / ISB-535 Vol. III dated 25.05.2019 granted in principle feasibility to 20 MW Solar Power Plant with connectivity at 132 kV Tosham on the terms and conditions mentioned in the said in-principle approval.

i) Subsequent to the above approvals, the Petitioner due to un-avoidable reasons, entered into discussions with HPPC for sale of entire Solar Power to be generated by the petitioner instead of Captive / Group Captive consumption.

j) On the issue of Tariff and determination of tariff, the relevant Clause of the PPA i.e. 4.1 and 4.2 is reproduced below: -

"4.1 All the delivered energy at the Inter-connection Point for sale to HPPC will be purchased at a fixed levelised Tariff, determined by the Commission for the project under Section 62 of the Electricity Act, 2003, from the Commercial Operation Date of the Solar Power Project. Provided that the energy delivered at any point of time or during any time block shall be limited to Contracted Capacity of the Project only and title to Delivered Energy purchased shall from the Solar Power Developer to the HPPC at the delivery point. For clarification, the energy injected at any point of time or during any time block beyond the Contracted Capacity of the project shall be considered as free energy and be deducted from the Delivered Energy for the purpose of payments.

4.2 The Solar Power Developer shall file a separate petition in the Commission for determination of Tariff, fixed for tenure of this Agreement, under Section 62 of the Electricity Act, 2003. 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".

k) That the Petitioner has already invested Rs. 23.23 Crore in the project and is further committed to undertake an expenditure of Rs. 67.218 Crores. Accordingly, the financial and operating parameters has been proposed as under:-

i) Project Cost (Capital Cost) – The HERC RE Regulations 11 (Chapter – 3 Financial Principles) provides that this Commission shall determine project specific tariff for which the generating company shall submit break - up of capital works including plant and machinery, initial spares, civil work, erection and commissioning expenses, financing cost and IDC as well as cost of evacuation infrastructure upto interconnection point. The proviso(s) to the said Regulations further, provides in case where land is on lease basis, the cost of land to be taken as part of capital cost shall be determined as per the land lease agreement.

ii) In compliance to the above requirement, the relevant details including break - up of capital cost items as well as cost of land as per lease agreement is provided as under:-

Sr. No.	Particulars	Rs. Crore
1	Solar Pv Modules	47.82
2	Inverter & BOS	24.752
3	Installation & Commissioning	10.875
4	Cost of Evacuation up to interconnection point	1.465
5	Civil Works	1.07
6	Land Development	0.056
7	Financing Cost	0.67
8	Project Management	1.55
9	Lease Rentals for Land (paid in advance)	2.19
TOTAL		**90.448**

iii) **Capital Structure**: The HERC RE Regulations provides for D/E Ratio of 70:30 i.e. 70% as the term loan component of the admitted capital cost and 30% as the Equity Capital. It has been further provided that for project specific tariff determination if the actual equity deployed is in excess of 30% of the Capital Cost then the Equity in excess

of 30% shall be considered as normative loan.

Regarding the above, it has been submitted that the Indian Renewable Energy Development Agency Limited (IREDA) a Government of India Enterprise, vide its Ref No. TS.11017/52/2019-IREDA / 637 dated 13.02.2020 sanctioned a term loan of Rs. 58.45 Crore i.e. 64.63% of the project cost. Hence, the balance amount shall be funded from the equity capital. In line with HERC RE Regulations 12(2), the petitioner has proposed that equity capital may be pegged at 30% for return on equity. The balance / excess amount may be considered as debt, on which, interest may be allowed.

iv) **Loan and Finance Charges**

Regulation 13 (1) of the HERC RE Regulations, 2017 provides that the loan tenure shall be considered as 13 years. Accordingly, the loan term of 13 years has been proposed by the petitioner for computation of tariff. Further as per Regulation 13(2)(c) of the HERC RE Regulations, 2017, the repayment of loan shall be considered from the first year of commercial operation and shall be equal to the annual depreciation allowed. In view of the above, loan repayment has been considered to be an amount equal to annual depreciation.

Additionally, regulation 13 (2)(b) of the HERC RE Regulations, 2017, provides that the normative 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 (2%). The petitioner humbly submits that due to the world-wide impact of COVID – 19 and the resultant slowdown of the Indian Economy i.e. the expected contraction whereby the GDP is expected to return a negative growth. Consequently, as 'pump priming' measure the interest rates, as a result of monetary and credit policy of the Reserve Bank of India, has been pegged at lower levels so that the credit off take is spurred to revive the Industrial and commercial activities. However, going forward the interest on working capital will certainly increase while this Commission, while reckoning with the interest on working capital for the entire useful life of the project does not true-up the rate of interest on eligible normative working capital. Hence, the Petitioner prays that this Commission may kindly peg the interest rate at a realistic level.

The SBI MCLR during the last one-year average around 7.91%. Hence, considering 2% margin above the MCLR, the Commission may consider rate of interest on working capital as 9.91%.

v) Depreciation

On the issue of depreciation, the Regulation occupying the field is 14 (1) of the HERC RE Regulations, 2017 i.e. 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%. Further as per Regulation 14 (2) the 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 and the remaining depreciation shall be spread over the remaining useful life of the project from 14th year onwards. Further as per Regulation 14 (3) the 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. Accordingly, the Petitioner has proposed the depreciation rate of 5.38% per annum for first 13 years on Straight Line Method and the remaining depreciation spread over the remaining life of the project from 14th year onwards.

vi) Return on Equity

The Return on Equity (R0E), as per Regulation 15 (1) of the HERC RE Regulations, 2017, shall be 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. Further as per Regulation 15 (2) of the HERC RE Regulations, 2017 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 instalments which shall be payable by the beneficiaries.

In view of the above, the Petitioner prays that the Commission may allow 14% return on eligible equity and MAT / Corporate Tax may be allowed as a pass – through in line with the HERC RE Regulations in vogue.

vii) Working Capital

Regulation 16(1) of the HERC RE Regulations, 2017, provides that the working capital requirement of Solar PV power 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 herein has accordingly estimated working capital requirement and interest on the same as previously discussed in the present petition.

viii) Operation and Maintenance Expenses (O&M)

Regulation 17 (1) of the HERC RE Regulations, 2017, provides that the O&M expenses shall comprise of repair and maintenance (R&M), establishment including employee expenses and administrative expenses. Additionally, Regulation 49 (1) of the of the HERC RE Regulations, 2017 provides that the O&M Expenses shall be determined based on the prevalent market conditions and as per Regulations 49(2) Normative O&M expenses allowed by this Commission during commencement year of the HERC RE Regulations 2017, shall be escalated at 5.72% per annum.

It is respectfully submitted that as per the prevalent market conditions, the O&M expenses per MWp including insurance (requirement under the draft PPA) and GST is far in excess of the normative O&M expenses adopted by SERCs like TNERC, JERC etc. It may not be out of place to bring to the kind notice of this Commission that in Case No. HERC / PRO – 57 of 2019, this Commission, given the ground realities, had allowed O&M expenses of Rs. 1.05 Million / MWp, to the Solar Power developers under KUSUM in Haryana. As the project of the Petitioner is also being set up in Haryana, the same may be allowed to maintain a level playing field for all Solar Power Developers in Haryana.

ix) Land Lease Rentals

It is submitted that the petitioner has already entered into lease agreements with the owners of the land on which the solar project is being set up. The details of land leased for the project (area and rentals) including supporting documents have been provided.

Capacity Utilization Factor (CUF)

Regulation 48 of the HERC RE Regulations, 2017, provides that the Commission shall decide the Capacity Utilization Factor ("CUF") in case of project specific tariff determination. Given the Solar Irradiation levels in Haryana, the same may be considered @ 21% with an annual degradation of 0.5%. over the life of the project. The adjustments can either be made in the Capital Cost for replacement of modules or in the annual gross generation from 2nd year onwards. The petitioner, in the present

petition has reduced the gross generation by 0.5% from 2nd year onwards for estimating the tariff.

In addition to the above, it is prayed that this Commission may kindly make provision for grid downtime i.e. loss of generation beyond 1% (87.60 Hrs) in a year shall be considered as deemed generation to be paid for at the tariff determined by the Commission.

x) Prayers

a) Determine Tariff under Section 62 of the Electricity Act, 2003 for 20 MW (AC Capacity) Solar Pv project of the petitioner. The Proposed Tariff of Rs 4.03/kWh is attached.

b) Allow Petitioner to correct any error, file additional data / information that may be required.

c) Pass such other orders and/or directions as may be deemed fit and necessary in the interests of justice.

d) The Regulations notified by this Commission has the over-riding effect on any contracts / PPAs. As such the dispensation provided in the regulation 7.2 of the Haryana Electricity Regulatory Commission (Forecasting, Scheduling and Deviation Settlement for Solar and Wind Generation) Regulations, 2019, notified on 29th April 2019, may be provided.

Proceedings in the Case

3. The petition filed by M/s. L R Energy Pvt Ltd. was made available on the website(s) of the Commission as well as that of the petitioner. Public Notice was issued by M/s. L R Energy Pvt Ltd. in the Newspapers, having wide circulation, for inviting objections/suggestions from the stakeholders / General Public or any interested person, in accordance with 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 Pioneer	English	10.12.2020
Uttam Hindu Digital	Hindi	10.12.2020

The public notice issued by the Commission was published in the following newspapers, with last date of filing the objections as 25.01.2021: -

Name	Language	Date of publication
Indian Express	English	30.12.2020
Dainik Jagran	Hindi	30.12.2020

i) In response to the public notice, no comments / objections were filed by any stakeholder, except Respondent No. 1 (HPPC). The objections filed by the HPPC and the petitioner's reply dated 08.02.2021 thereto, is briefly set out below:

ii) **Capital cost:-**

HPPC has submitted the option of project specific tariff can only be exercised once the market trend of parameters as well as the actual expenditure incurred is available and placed before this Commission. Decrease in module prices, lower interest rate of loans and technological advances have led to low tariff rates to the extent of Rs.1.99 per unit, in Gujarat in the auctions held by SECI for Solar Power. Considering such market trend, the Commission may determine value of various parameters of the Plant of the Petitioner. It may be noted that the final connectivity to the Project was granted by HVPNL vide letter dated 25.10.2019 and the developer started to develop the project thereon. The various cost components have to be assessed taking this into consideration.

The Petitioner has claimed total project cost of Rs. 90.448 Crores for 20/24 MWp (AC/DC) power Plant. Out of said cost, it has been stated that Rs. 67.2018 crores have not been spent till date and is an estimate to be incurred for the purposes of commissioning of the Plant. The Petitioner has allegedly invested Rs. 23.23 crore till now. The only document that has been placed in support of alleged investment and future expenditure is a CA Certificate which provides an estimated total capital cost of the Project as Rs. 90.44 crores, summarized as under: -

Sr. no.	Particulars	Alleged Cost (Rs. Crore)	Per MW Cost (Rs. Crore)
1	Solar PV Modules (including SGD#)	47.82	2.391
2	Inverter & BOS	24.752	1.2376
3	Installation & Commissioning	10.875	0.54375
4	Cost of Evacuation up to interconnection point	1.465	0.07325
5	Civil Works	1.07	0.0535
6	Land Development	0.056	0.0028
7	Financing Cost	0.67	0.0335
8	Project Management	1.55	0.0775
9	Lease Rentals for Land (paid in advance)	2.19	0.1095
	TOTAL	90.448	4.5224

The Plant of the Petitioner has been set up on leased land and therefore, cost of the land is not included in the Capital Cost. From the foregoing, it is evident that the alleged Cost of Module and ancillary structure, i.e. Rs. 4.52 crores per MW is way exorbitant

and irrational in view of the market trend of the cost of the Solar Power Plant. Even compared with the Petition filed by similarly placed Solar Power generator - M/s. Amplus Sun Solutions, the cost claimed by the Petitioner is way higher. No cogent rationale has been provided as to how the proposed figures have been arrived at. The alleged estimates are arbitrary and unsubstantiated.

The Commission, in Order dated 20.12.2019 passed in PRO-57 of 2019, in the Petition for 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) observed 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 orders of Karnataka Electricity Regulatory Commission and the Rajasthan Electricity Regulatory Commission, the 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 Land, evacuation system as well besides monetised value attributed to degradation of solar panels. Further, the PM Kusum scheme tariff is for the small-scale plants having capacity upto 2 MW only. The said tariff ought to be further reduced for large scale Megawatt projects. Thus, the Capital Cost claimed by the Petitioner is in no manner aligned to market trend and not worthy of consideration.

The 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 after neutralizing the de-gradation factor as 3.56 crore/ MW. The break-up of the said cost is summarized as under –

Sr. No.	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**

The Uttarakhand Electricity Regulatory 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 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, the 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 MW plants, as such, considering the economies of scale and reduced cost of solar inverter and panel during FY 2019-20, the Capital Cost per MWDC has to be in the range of Rs. 2.5 crores. Compared to the same, the cost alleged by the Petitioner is way exorbitant and exaggerated.

The 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 solarised 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 of11 kV line/breaker works out to be Rs. 3.50 crores per MW.

The Ministry of New and Renewable Energy (MNRE) vide Office Memorandum dated 21.07.2020 has also notified benchmarking cost for Grid connected Rooftop Solar Photo voltaic systems ranging from 100 kW to 500 kW for the FY 2020-21 as Rs. 36 per Watt. The cost of solar plant considering this standard is Rs. 3.6 crores per MW even though the increase in capacity of Plant shall further decrease the cost of Project substantially.

The 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 1.08.2019 approved the Capital Cost of Rs. 3.14 crore/ MW excluding the cost of Land. The said cost takes into account 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 recent Order dated 22.05.2020 for extension of tariff for Solar Projects for FY 2021 had observed as under:-

" *As on date module cost has come down drastically and thereby, the project cost will come down correspondingly….."*

It is therefore, evident from the order of the various SERCs across the country that the Capital cost claimed by the petitioner is not aligned to the market price. Thus, the Commission may consider reasonable Capital Cost in line with its Order dated 20.12.2019 in PRO-57 of 2019 (M/s. Amplus).

Petitioner's Reply:

The details of capital cost have been provided at Annexure 3A (page No. 261 to 297), Annexure 3B (Page No. 298 to 303), Annexure 9 (Page No. 414 to 415) & Annexure 12 (452 to 800) of the Tariff Petition and also certified by the Chartered Accountant and as appraised by IREDA while sanctioning loan amounting to Rs 58.45 crore.

HPPC has cited the market trend on the basis of the orders of various Regulatory Commissions which is denied in the present project specific case. Further, the tariff discovered through competitive reverse bidding auctions is low, due to the followings:-

1) Access to low-cost financing: At 7-7.5% for government entities like NTPC and other PSUs. For International developers their ability to arbitrage multi-decade, record-low OECD interest rates (even adjusting for a significant combined currency and country risk premium for India)

2) Extra Benefits accustomed in the tender: The bidders will be free to avail fiscal incentives like Accelerated Depreciation, Concessional Customs and Excise Duties, Tax Holidays, benefits from trading of carbon credits and also pass through of costs as per change in law.

3) Project Commissioning timeline: These projects have a longer commissioning timeline of 18 to 24 months depending upon various factors like geo political scenario of the project location, evacuation infrastructure developments by the government, etc.

Solar projects capacity also plays a major role in deciding the tariff. Determination of tariff for a 20 MW Solar project cannot be justified by comparing it with the determination of tariff of the 500 MW project after the reverse tariff auction.

HPPC has submitted that final Connectivity Letter was granted vide letter dated 25.10.2019 and the developer started to develop the project thereon and hence the cost to be taken as per that timeline.

In this regard, the Commission may kindly note that the 20 MW solar project of the Petitioner was registered under Captive Scheme as per Memo No. NRE-HAREDA/2019/6583 dated 15.07.2019 as per the Haryana Solar Policy 2016 and its consequent amendments thereafter. It is true that the final connectivity was granted on 25.10.2019 but R No. was issued by HVPNL after repeated request vide Memo No. R No. 1749/Ch-32/HAP-149 dated 24.11.2020. The Connectivity Agreement was signed by HVPNL on 22.01.2021, which was supposed to be signed within 30 days from Final Connectivity Approval, as per paragraph II, clause D of the Final Guidelines Regarding Connectivity to Solar Power Projects.

Hence, due to these unnecessary delays in approvals from HVPNL/HPPC and lack of clarity from the departments concerned, the fate of the 20 MW solar project was in dilemma and LR Energy Pvt. Ltd was not in a position to undertake such unnecessary huge financial losses in the 20 MW (AC) solar project. Due to these delays the funding agency i.e IREDA has not disbursed any funds for the said 20 MW Solar projects. Hence, we have to undertake the EPC work and place orders after receiving in-principal approval from HPPC for purchase of solar power from 20 MW solar plant under section 62 of Electricity Act 2003 through Long Term PPA vide email dated 08.09.2020 (Source approval granted by Commission's Order dated 14.10.2020 and PPA signed on 30.10.2020).

Thereby, the Commission is requested to consider the costs of the various components of the said 20 MW solar project in Tosham as per the present scenario and market rates post September 2020, during Pandemic Covid19. Also, the Commission may consider the cost towards land lease rental as part of the capital cost, as per the certificate of the Chartered Accountant and Land Lease Registry Documents.

Rs 23.23 crore was the expenses incurred as on 12.11.2020. The project is in advance stage of implementation and the costs are incurred on an ongoing basis, as and when

various components are received at site, as per the timeline and contract with various suppliers. The total PV Module capacity is 24 MW (DC). Out of 24 MW modules, the Petitioner has purchased 2.29 MW of Modules from its parent company Roop Ram Industries P Ltd. (RRIPL), which had stock of the 2.29 MW modules at Sirsa site; at the original invoice amount of Rs 4.95 crore. The balance capacity of 21.71 MW is under manufacturing and the invoices can be submitted as and when received from the manufacturer. The contract copy for supply and service of the modules at Tosham site are attached**.** As of now the total invoice received for the work completed is Rs 41.197 crore approximately. The break-up of the capital cost for the Project is summarized as under:-

** All figures are in Crores*				
Sl. No	**Particulars**	**Project Cost as per Contracts**	**Cost incurred (as per Invoices /CA Certificate)**	**Cost to be Incurred till Commissioning**
1	Solar Photovoltaic Modules	₹ 47.820	₹ 4.951	₹ 42.869
2	Inverter & BOS	₹ 35.627	₹ 31.428	₹ 4.199
3	Installation and Commissioning			
4	Evacuation Network	₹ 1.465	₹ 0.349	₹ 1.116
5	Civil Works	₹ 1.126	₹ 0.773	₹ 0.353
6	Land Development			
7	Finance Cost	₹ 0.670	₹ 0.653	₹ 0.017
8	Project Management Cost	₹ 1.550	₹ 0.852	₹ 0.698
9	Land Lease Rental paid during Construction	₹ 2.190	₹ 2.190	₹ 0.000
Total Capital Cost		**₹ 90.448**	**₹ 41.197**	**₹ 49.251**

The statement of HPPC to the effect that project cost being claimed by the Petitioner is exorbitant at Rs 4.25 crore/MW, is not correct. The correct position is that as against Rs 3.825 crore/MW allowed by the Commission towards capital cost (HERC/PR-59 of 2020), the Petitioner herein has proposed Rs 3.768 crore/MWp for 24 MW DC capacity of the plant and for 20 MW AC capacity the project cost is Rs 4.522 crore/MW.

It is humbly submitted that the issue germane for arriving at the cost of generation of a solar PV project is the installed DC capacity. This cost for DC in the case of M/s Amplus Sun Solutions (HERC/PRO-59 of 2020) was Rs 3.672 crore/MWp as against the same proposed by the Petitioner, Rs 3.768 crore/MWp. The cost of the solar plant is dependent upon the project size and the module cost. The project capacity of the Petitioner is 24 MW (DC), which is nearly one-third of the project size of M/s Amplus Sun Solutions (75 MW DC). Further, the 75 MW project has already been commissioned. The module cost is approximately around 50% of the total project cost in any solar project. So, the variation in module cost plays a major role in the project cost. The module cost varies due to the following reasons:

a. The day-to-day variation in Rupee to USD exchange rate, as the cells/modules are imported from China and other countries. The present Rupee value to USD is Rs 73/USD.
b. The Glass plays a major role in the module. The glasses used in the module are generally imported from China. Due to Covid19 and political scenario in India, the import of glass has taken a hit and hence there is huge gap in supply vs demand for solar module manufacturer which has led to 22% increase in glass prices significantly and thereby increasing the module prices.
c. The unavailability of vessels from China due to Covid19 has also increased the freight cost by 500% to 800%. This has also contributed in the increase in project cost.
d. Addition of Power Guard cost in the module cost. Power Guard gives additional economic security in the event of an unforeseen loss in performance of the modules for the entire period of the plant.
e. The steel rates have also increased 100% in case of Baila lumps (65.5% Fe) from December 2019 to December 2020 and 95.3% increase in the rate of Baila Fines (64% Fe) in the past 12 months. Steel plays a major role in the solar project as the modules are mounted over steel structures to provide durability and stability over the lifetime of the projects i.e 25 years.

The Commission may consider the market scenario as well as the inflation rate and exchange rate of Rupee to USD, glass rates, freight costs during tariff determination. Further, the Petition has been filed under section 62 of the Electricity Act 2003 for project specific Tariff Determination. Also, under Section 62, the cost should be considered as per specific projects and not compare or benchmark the cost of one project with another project, as different projects have different dynamics and associated costs.

It may be worth noting that India does not have competitive advantage in the entire value chain of solar right from solar cells, module frames, adhesives, glass, solar modules, etc. Two major factors playing important role in impacting the project cost – (i) Shift in technology from Mono crystalline modules to Poly crystalline modules and again back to Mono crystalline modules (ii) Indian Rupee to USD exchange rate.

The HERC Order in case no. HERC/PRO-57 of 2019 in KUSUM Scheme was passed on 20.12.2019. The Rupee rate to USD at that time was Rs 71/USD. The present Rupee rate is RS 73/USD. The glass rates and freight cost have increased since 2019**.**

Further the steel rates have also increased 100% in case of Baila lumps (65.5% Fe) from December 2019 to December 2020 and 95.3% increase in the rate of Baila Fines (64% Fe) in the past 12 months. Further, during the order HERC/PRO-57 of 2019, the Safe Guard Duty was applicable on Modules till 29th July 2020 as per Ministry of Finance notification no. 01/2018-Customs (SG) dated 30.07.2018. Thereafter, Ministry of Finance vide Notification No. 02/2020-Customs (SG) dated 29.07.2020 further extended the Safe Guard Duty (14.90%) on solar modules and solar cells imported from China, Thailand and Vietnam till 29.01.2021. This was supposed to be NIL after 29th July 2020. For SECI tenders these costs are covered under 'Change in Law' and are 100% pass through to the Developers. Further, not a single project has been set up till date and start supply of power under PM KUSUM Scheme in Haryana.

That HPPC has cited the orders passed by various SERC as well as MNRE. Similar objections raised before the Commission in the Petition (HERC/PRO-59 of 2020) were disposed of by this Commission vide order dated 18.01.2021. In the said order the Commission observed as under:-

"*The Commission has taken note of the intervener's submissions on capital cost and observes that the same is at variance from one State to another*".

Hence, it is prayed that this Commission may allow the capital cost as proposed by the Petitioner while determining the project specific Tariff under Section 62 of the Electricity Act 2003.

iii) **O&M:-**

It has been submitted by the Respondent No. 1 (HPPC) that the Petitioner has claimed a total O&M expense of Rs. 10.5 lakhs per MW. The Petitioner has stated that the Commission has allowed O&M expenses of Rs.1.05 Million/ MWp to solar developers under KUSUM in Haryana and since the project of the Petitioner is also being set up in Haryana, therefore the Petitioner has sought that the O&M Expenses may be allowed in similar terms to maintain a level playing field for all the Solar Power Developers in the State of Haryana. Petitioner has claimed O&M Cost without furnishing substantial reason and documents for consideration of the Commission.

It has been further submitted by Respondent No. 1 (HPPC) that the Petitioner has not appended any cogent document evincing market trend for O&M cost for Solar Plants of equivalent capacity. Reliance placed on the Order passed by the Commission in PRO-59 of 2019 is not correct as the said O&M Cost is for Plant of very small capacity

of 1 MW. With addition of capacity, O&M cost per MW reduces considerably. The operation and maintenance mainly involve cleaning of the photovoltaic modules at 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, solar 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 Commission may therefore, consider O&M Cost for the Plant of the petitioner prudently keeping in consideration the realistic expenditure involved.

As per RE Regulations, 2017, the Commission has to determine O& M Expenses as per the market trend. In this regard, it is pertinent to highlight that BHEL has recently submitted an offer dated 15.10.2020 for Operation and Maintenance works of NTPC 50 MWp Solar Power Plant at Kadiri, Ananthapur, Andhra Pradesh for a period of 11 months wherein the estimated cost has been 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 works out to be Rs. 70.27 lakh/year i.e. 1.4055 lakh/ MW/Year only. The said offer is 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. Considering GST of 18 % and insurance cost of plant @ Rs. 65 lacs/year, the O&M cost for a 50 MW solar PV plant works out lesser than Rs. 150 lakh/year.

Additionally, it has been submitted that the Hon'ble KERC in its Order dated 01.08.2019 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 upto 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 proportionately with the increase in capacity of a Plant.
In the recent tender floated by HPGCL, the L-1 bidder has quoted O&M expenses of Rs. 3.21 Lac/MW for 10 MW & 6 MW solar power plants envisaged to be setup at village Dhandlan (Jhajjar) and village Chandpur (Faridabad) respectively.

Further, O&M escalation ought to be as per the market trends. The Commission in its draft HERC (Terms and Conditions for Determination of Tariff from Renewable Energy Sources, Renewable Purchase Obligation and Renewable Energy Certificate) Regulations, 2020 (Draft RE Regulations, 2020) has proposed O&M escalation rate of

3.84% per annum in line with CERC Renewable Energy Regulations, 2020. The ibid escalation factor has been calculated based on the five years (FY 2014-15 to FY 2018-19) average of CPI (4.92%) and WPI (1.31%) indices and by considering the weightage of CPI and WPI in the ratio of 70:30. Thus, the escalation factor has been worked out at 3.84%. Whereas, the Commission vide its order dated 04.08.2015 in 4thamendment, 2014 of HERC RE Regulations 2010 had considered O&M escalation considering a weightage of WPI to 55% and weightage of CPI to 45%. Considering the above philosophy finalized by the Hon'ble Commission, the O&M escalation factor works out to be 2.93% which may be considered as such by the Commission. Allowing O&M escalation beyond the trends based on historical data will lead to undue enrichment of the Petitioner.

In view of above submissions, the answering Respondent has prayed that the Commission may consider O&M expenses and escalation percentage admissible for the project of the petitioner as per the prevailing market trends. Further, the lease rent for the land may also be considered as per the prevailing market trends.

Petitioner's reply:

HPPC has objected to the claim of the Petitioner based on the parameters that are allowed for PM Kusum Scheme projects in Haryana, vide Order dated 20.12.2019 (HERC/PRO-57 of 2019), which never came up for review or appeal. Hence, the ibid Order has reached finality which was based on the prevalent market practice. It may be noted by the Commission that HPERC in its recent order (Petition No. 79/2020) dated 15.01.2021 has considered Rs 8.74 lakh/MW as O&M cost while determining the Tariff. The O&M expense allowed by the various SERCs are at wide variance; hence it is of no relevance for the purpose of benchmarking this cost.

The Petitioner herein is already operating a 10 MW AC (12 MWp DC) solar PV project located at Sirsa in Haryana and currently supplying power to the Discom. The actual signed O&M cost incurred is Rs 7,06,597/MW in AC capacity (Rs 5,88,831/MW in DC capacity).

In addition to the above, the Petitioner has submitted O&M quotation (Annexure 15) received from their existing vendor/contractor at Sirsa site, for the present project of 24 MWp in Tosham.

O&M escalation has been claimed by the Petitioner in line with the HERC Regulation (HERC/PR-57 of 2019). Since, the same has not been amended or revised, this

Commission is bound by its own Regulations. Hence, O&M escalation of 5.72% may be allowed by this Commission. Dispensation under Draft Regulation has no force of law behind unless the same has been given a final shape and duly notified. Hence, objections of HPPC on this issue is superfluous.

iv) **CUF:-**

The Respondent (HPPC) has submitted that petitioner has claimed CUF of 21% (AC) with an annual degradation of 0.5% over the life of the project. The claim is based on hypothetical assumptions, without providing any details in the petition. It is worthwhile to note, at the outset, that the petitioner in its DPR, based on PVSYST report, has envisaged specific generation per kWh as 1646 units, which works to a DC CUF of 18.80%.

The Petitioner has placed heavy reliance on the Order of the Commission dated 20.12.2019 for claiming various parameters. However, for CUF, the said Order has not even been referred by the petitioner. In the said Order, the CUF was taken as 20%. Further, most of the SERCs across the Country have adopted a CUF within range of 19% -21% for Solar PV. The Hon'ble KERC as well in its Order dated 1.08.2019 observed as under –

"…

As per the data published by MNRE and the capacity utilization factor for solar PV plants considered by the CERC and most of the SERCs in the country, the CUF is 19%.

The Commission, therefore, decides to adopt a CUF of 19% for Solar power plants (both ground mounted and SRTPV plants)"

Thus, the CUF of the Plant of the Petitioner should not be considered lower than 19% DC and on prorate basis 22.8% AC after considering the DC to AC ratio as 1.2.

Even considering the CUF at 19% DC, which is a ceiling parameter as per RE Regulations, 2017, the CUF AC for the plant of the petitioner works out to be 22.8%. The said figure has been wrongly projected by the Petitioner which is also far-fetched from the market trend and in violation of the HERC RE Regulations, 2017.

That further, the claim of the Petitioner for degradation factor of 0.5% annually in CUF is not tenable in view of the fact that such degradation cost is already ingrained in the capital cost of the project. The degradation factor applied to CUF will push the tariff upwards unjustly and will tantamount to unjust enrichment of the generator.

Additionally, it has been submitted that the contention of the Petitioner regarding grid downtime i.e. loss of generation beyond 1% is untenable and may not be considered as such. The said margin of 1% has been taken from the PM Kusum scheme which does not provide any generation compensation upto this level. The Commission in its order dated 20.12.2019, while determining tariff for ground mounted solar PV projects to be set up in Haryana under PM Kusum scheme, has also not considered reduction of CUF on this account. The PPA further provides for mechanism for adjustment of this loss in the subsequent years, as such, loss of CUF on this account may not be considered. Without prejudice to above, even if the contention of the petitioner finds any merit by the Commission, compensation percentage shall be calculated considering average hours i.e. 43.8 hours only subject to deletion of condition in the PPA which provides for adjustment of such loss in subsequent years.

Petitioner's Reply

In its reply, the Petitioner has submitted that the Commission has approved 0.5% module degradation on Year-on-Year basis in the its order vide HERC/PRO-59 of 2020 dated 18.01.2021.

As per clause no. 2.1.11 of the PPA signed between LR Energy Pvt. Ltd and HPPC dated 30.10.2020, the petitioner has guaranteed the quantum of units to be supplied at the delivery point with respect to the declared CUF. Hence it is very important to consider the degradation factor of the modules as this is directly in relation with the CUF of the solar plant. Failure to supply power as per contracted energy/declared CUF will attract penalty of 25% of the tariff for the number of shortfall units, for the Petitioner as per clause no. 4.6 of the PPA signed.

That at the time of filing of the Petition HERC/PRO-70 of 2020 dated 16.11.2020, the PVSYST Report was not submitted. The Petitioner is furnishing the PVSYST Report as per NASA Data of irradiation at the location of 24 MW (DC) solar plant. A CUF of 21.32% less 3.287% Grid Down Time = 20.619% AC, is claimed as per the PVSYST output. This CUF is achievable as per the AC:DC ratio of 1:2 and hence to be considered by the Commission for Project Specific Tariff determination under Section 62 of Electricity Act 2003.

The present solar plant of 24 MWp (DC) is also located within the same distribution circle of DHBVNL like the 10 MW plant of the Petitioner in Sirsa. The 10 MW solar plant is selling power in IEX from 17.02.2020. Based on the actual site conditions, the

project at Sirsa witnessed a grid downtime of 137.7 hrs till 31.01.2021 (349 days) during the sunlight hours of 12 hrs/day. Hence, in terms of percentage the grid down time in Haryana would be ((137.7/4188) *100)) = 3.287%.

The Petitioner has further submitted that the contention of HPPC that the grid downtime may not be considered due to lacks merit as such, as the Generator (Petitioner) is not given any compensation for deemed generation in case the generator is available and the problem is at the Grid end. Hence, based on actual data, emanating from the project of the Petitioner at Sirsa, grid downtime of 3.287% needs to be factored in, while reckoning with CUF for the entire life of the Project.

v) **Loan and Finance Charges**

The Respondent (HPPC) has submitted that the petitioner has prayed that the interest on Loan and Working Capital may be based on last one-year average SBI MCLR plus a margin of 200 basis point, i.e. 7.91% + 2%, which works out to be 9.91%. It is the case of the Petitioner that due to COVID-19 pandemic situation, there is slowdown in Indian economy and the GDP is expected to return a negative growth. In this regard, it is submitted that the petitioner has not submitted any proof regarding actual rate of interest at which loans for capital works and working capital has been obtained. Further, the average SBI MCLR has constantly witnessed a declining trend and expected to decline further in near future. As per HERC RE Regulations, 2017 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, 2017 i.e. average MCLR of SBI prevailing during last 6 months plus 200 basis points may be considered by the Commission.

Petitioner's Reply

The petitioner, in its reply, has submitted the loan sanction letter from IREDA has been placed at Annexure 17 of the Original Petition No. HERC/PRO-70 of 2020. A loan of Rs 58.45 crore has been sanctioned by IREDA at an interest rate of 10.95% for 13 years. The Commission should take into consideration of the rate of Interest of 10.95% which is the actual interest cost payable by the Petitioner. Further, benchmarking the Rate of interest for solar projects does not satisfy the very purpose of project specific tariff determination and will lead to huge losses and bankruptcy for the generator (Petitioner).

vi) **Capital Structure - Debt- Equity Ratio**

It has been submitted by the Respondent that the Petitioner has claimed Debt-Equity Ratio of 70:30 as per the RE Regulations, 2017. However, the Commission may call for necessary details/ documents establishing 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.

Petitioner's Reply

The normative Debt : Equity may be considered as per the relevant regulation (RE Regulations 2017 by HERC) of the Commission. In the case of the Petitioner the equity deployed is more than 30%. Hence, ROE may be allowed on the 30% component of the Capital Cost proposed for the project.

The total capital cost submitted in the petition is Rs 90.448 crore, out of which debt is Rs 58.45 crore (kindly refer IREDA Sanction Letter). The rest of the project cost Rs 31.998 crore is infused in the project as Equity. Hence the actual Debt-Equity Ratio in the project is 64.63:35.37. For Tariff determination we have submitted the normative Debt-Equity Ratio of 70:30 as per RE Regulations 2017.

vii) **Return on Equity, Depreciation and Working Capital**

It has been submitted by the Respondent that the normative figures provided in the Regulations are the ceiling parameters. The Petitioner has also referred to the RE Regulations, 2017 for raising claim for balance parameters of the Plant. In view therefore, reasonable figures with ceiling of normative parameter may be considered by the Commission with respect to Return on Equity (RoE), Deprecation, Working Capital for determination of tariff of the Plant of the Petitioner.

viii) **Land Lease Rental**

It has been submitted by the Respondent 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.

Petitioner's Reply

Since, no specific objections have been raised by HPPC on ROE, Depreciation, Working Capital, Lease Rental, etc. the Commission may consider the same as proposed in the Petition in line with the HERC RE Regulations (HERC/PRO-57 of 2019).

The Corporate Tax/MAT may be allowed as pass through as per relevant HERC Regulation (RE Regulations 2017).

As the ownership of power changes hand at the Generator (Petitioner) ex-bus, there is no Transmission/wheeling involved by the Generator. Further as the entire power generated from the said 24 MWp (DC) solar project is being sold to HPPC, the cost of construction of evacuation network and Bay connectivity of Rs 1.465 crore may be reimbursed by the Discom or alternatively the same cost may be made part of the capital cost as may be considered appropriate by the Commission.

ix) **Sharing of CDM benefits and Subsidy / Incentive by Government**

It has been submitted by the Respondent 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.

x) **Declining trend of Solar Tariff**

It has been submitted by the Respondent that the Asia Development Bank Institute (ADBI) recently, in February 2020, has issued a working paper titled as *'Analyzing the falling Solar and Wind Tariffs: Evidence from India'*. The introduction to the paper mentioned about the declining trend of solar tariffs as under –

"The last few years have seen a significant decline in solar and wind energy tariffs in India, making the business case for these RE sources considerably more robust. The year 2017 witnessed record-low winning tariffs of INR 2.44 per kWh (USD 0.04) and INR 2.43 per kWh (USD 0.04) for utility-scale solar and wind energy generation tariffs, respectively (Press Information Bureau 2017, Government of India; Press Information Bureau, Government of India 2018b). While a number of factors together have resulted in the decline in tariffs, the contributions of declining equipment costs and the introduction of competitive auctions have been noted as being significant (IRENA 2016; Crisil 2017; Shrimali et al. 2015). However, besides equipment costs, tariffs are a composite of a number of constituents including financing costs, operations and maintenance expenses, and the impact of government incentives...".

The ADBI paper provided the breakdown of the Solar tariff for May 2017 as under :-

Table 4: Component-Wise Breakdown of February 2017 Wind Tariff and May 2017 Solar Tariff (All Costs are in INR/kWh)	**May 2017 Solar Tariff**
Operations and Maintenance	0.44
Wind Turbine/PV Module	0.47
Land Lease/Solar Park Charges	0.32
Balance of System	0.22
Financing Costs	1.38
Accelerated Depreciation Benefit	–0.21
Total	**2.62**
Tariff (actual)	**2.44**
Model Error	0.18

That the aforesaid paper of ADBI is based on wide accumulation of actual facts and figures from across the country. 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.

Further, it is pertinent to mention here that Aravali Power Company Private Limited recently, vide their letter dated 18.12.2020 (Annexure R-9 appended herewith), had quoted 25 years levellised tariff for Floating Solar Power Plant in the range of Rs. 2.60 to Rs. 2.80 (which is subject to competitive bidding) envisaged at the raw water reservoir of the thermal power generation plant at District Jhajjar. It is pertinent to note that floating solar plants, being capital intensive plants, have relatively higher tariff than solar PV plants.

It would also be relevant to highlight that in the auctions of 2.0 GW ISTS tender by SECI for Solar Power in July 2020, the tariffs had dropped to a low of Rs. 2.36 per unit. Further, in an auction conducted in November 2020 for sale of power to State of Gujarat, lowest tariff of Rs. 1.99 per Unit was quoted. The decline in solar panel prices has significantly contributed to declining tariffs. The above-mentioned market trend may be considered, while determining tariff in the present case.

xi) **Deviation charges payable to State Deviation Pool Account**

It has been submitted by the Respondent that the Petitioner has also claimed dispensation for deviation charge payable to State Deviation Pool Account in line with the Regulation 7.2 of Haryana Electricity Regulatory Commission (Forecasting, Scheduling and Deviation Settlement for Solar and Wind Generation) Regulations, 2019 (F&S Regulations). In this regard, it is submitted that the PPA provides that the generator is required to schedule power as per the regulations in vogue as may be amended from time to time. The generator is required to schedule power and deviation

is to be settled as per F&S Regulations as may be amended from time to time in terms of Clause 5.10 of PPA. The said clause reads as under –

"5.10 Solar Power Developer shall be required to schedule its power as per applicable regulation/requirement/guidelines of HERC/CERC/ SLDC/ RLDC or any other competent agency and the same being recognized by SLDC or any other competent authority /agency as per applicable regulation/law/direction and maintain compliance to the applicable codes/grid code requirement/directions if any, as specified by SLDC from time to time. Any deviation from the schedule will attract the provision of applicable regulation/ directions/guidelines and any financial implication on account of this shall be on account of Solar Power Developer. Solar Power Developer shall comply with CERC/HERC, as the case may be, Regulations on forecasting, scheduling & deviation settlement as applicable & its amendment, re-enactment thereto from time to time and are responsible for all liabilities related to connectivity."

Forecasting and scheduling is an integral part of plant O&M. In view of the foregoing condition of PPA, Petitioner is obligated to schedule power as per prevailing regulations. The deviation charges would only come into play if the forecasting and administration of the project is faulty and ineffective. It is the duty of the generator to ensure that the project is managed efficiently to minimize errors of over-injection or under-injection. Forecasting in current regime is an important aspect of O&M and imprudence of generator cannot be allowed as a pass-through expense.

xii) **Additional prayer of the Petitioner**

The Petitioner in its reply on the comments filed by HPPC, under affidavit dated 03.02.2021, has sought extension of SCOD by another 3 months, which as per PPA dated 30.10.2020, is 30.04.2021.

The Petitioner has submitted that due to unprecedented worldwide pandemic all activities has come to a standstill for quite some time slowing down all economic activities. Also, due to this pandemic and economic crisis the entire value chain of supply and services, worldwide, has been drastically impacted, which ultimately is hampering the current schedule timeline of the project. Due to this crisis arrangement of vessels for transportation of machinery and other deliverables is impacted and causing delay in the project completion schedule.

Further, the Petitioner has received the R No. required for constructing the Evacuation Infrastructure on 24.11.2020 after repeated follow-ups.

Further, the Petitioner has received the Transmission Line Estimation from HVPNL on 10.12.2020 after various follow-ups. The Petitioner has received the Bay Estimation on 21.01.2021, after reviewing the Bay Estimation it was found that the estimation was incomplete (absence of civil work estimation). This led to the delay in finalisation of the Transmission & bay work contractor. Also, as per the Final Connectivity Guidelines issued by HVPNL, the solar project can be commissioned within 9 months from the date of signing of the Connection Agreement dated 22.01.2021.

Additionally, it has been submitted that the Commission, in the similar cases (HERC/PRO-52 of 2020 & HERC/PRO-55 of 2020), has allowed the time extension for Commercial Operation Date.

4. The Commission in its Interim Order dated 24.03.2021, recorded the submissions of the Petitioner that Purchase Order for purchase of solar equipment from the existing vendor i.e. M/s. Renesola Energy Nantong Co. Ltd. China has been cancelled due to various issues related to supply from China. The vendor has been accordingly changed to M/s. Waaree Energies Ltd. (domestic supplier), who has agreed to match the price. Hence, capital cost remains unchanged. Accordingly, the Commission directed the Petitioner to submit the complete details to the Respondents. In response, the Petitioner filed its reply dated 07.04.2021 (affidavit dated 03.04.2021), submitting as under:-

i) Based on all the work contracts, total capital cost is Rs 90.448 crore for the entire 20 MW (AC)/24MW (DC) solar project in Tosham.

ii) The total capital expenditure incurred as on 20.03.2021 for 20 MW (AC)/24MW (DC) solar project at Tosham, Bhiwani is Rs 42.065 crore. The certified copy from Chartered Accountant is enclosed.

iii) Following submissions have been made regarding various components relevant for determination of tariff:-

a) Module Cost:

Initially, the module supply contract for 22 MW was signed with Renesola Energy on 6th April 2020. But during Covid19, due to unavailability of vessel and shortages of Glass and also due to the change in the political scenario between India and China because of India Government's Atmanirbhar Bharat Abhiyan, Renesola informed us that they are unable to supply the consignment by 31st March 2022. Previously Renesola has supplied 2.29 MW of solar modules and in addition that

they have delivered another 0.710 MW at site as on 29.03.2021. Further, the last consignment of 0.47 MW modules from Renesola are ready for dispatch.

Hence, due to delay in delivery and non-commitment of supply, a separate contract was signed between M/s. Waaree Energy Ltd. and M/s. Roop Ram Educate Pvt. Ltd., on 17.02.2021 with back to back purchase order from M/s. L.R. Energy on M/s. Roop Ram Educate Pvt. Ltd.. M/s Roop Ram Educare Pvt. Ltd has agreed to lend the modules to M/s LR Energy Private Ltd on a condition of 3 months deferred payment. However, the total cost towards modules remains unchanged as M/s. Waaree has matched the price as previously submitted on 08.02.2021. As on 06.04.2021, M/s. Waaree Energies has delivered, at site, 6.365MW of modules worth Rs 12.735 crore. The remaining modules will be delivered at site by end of April, 2021.Thus, the total cost incurred towards modules as on 06.04.2021 is Rs 19.1949 crores for 9.367MW modules delivered at site.

b) Land Lease Rental:

The total project cost of Rs 90.448 crore is inclusive of Rs 2.19 crore towards land lease rental paid in advance for the first 7 years. This is an upfront cost to the project. Going forward in the next 18 years the lease rental amounting to Rs 6.682 crore have to be paid as per the lease rental agreement submitted to the Commission in the original petition dated 11.11.2020. Hence, prayer has been made to consider Rs 8.872 (2.19+6.682) crore towards land lease rental for 25 years, in the project cost, for tariff determination.

c) Module degradation:

Prayer has been made to consider 20% module degradation for the entire plant life of 25 years i.e. 0.80% annual degradation. The Module manufacturer has submitted written document (forming part of the response filed on 08.02.2021) for this degradation based on which they are providing the warranty of the modules.

d) O&M

Prayer has been made to allow the normative O&M cost of Rs. 10.50 Lakhs per MW per Year with 5.72% YoY escalation for this project. As desired by the intervener i.e. HPPC, actual cost incurred towards yearly O&M of 10 MW (DC)/12 MW(AC) solar power plant operational at Sirsa, Haryana, has already been submitted, which shows that to successfully operate a solar plant while attaining a high CUF of 21%, this cost is justified. Further this cost will be escalated by 5.72% from 2021.

e) CUF

As per the PVSyst report submitted earlier, the achievable CUF for the said 20MW (AC) with 20% DC overloading is 21%. Without overloading factor, the CUF of 17.78% can be achieved. Accordingly, prayer has been made to consider 21% CUF for tariff determination under section 62

iv) Time extension of CoD

Prayer has been made to allow extension of SCOD by another 3 months' time due to the following reasons:

a) IREDA had issued the loan sanction letter for Rs 58.45 crore at an interest rate of 10.95% for 13 years. As per the terms and conditions of the Sanction Letter the PPA rate must be at least Rs 4.00/kWh for the entire project life as the project was under Captive Scheme. But due to changes in the Haryana Government Policies, the power generated from the said plant is being sold to HPPC. Moreover, IREDA has not disbursed any loan amount till date due to non-determination of tariff and the very low interim tariff of Rs 2.50/kwh.

b) Out of the total project cost Rs 90.448 crore, Rs 42.065 crore has already been spent in the project till date which has been funded entirely by the promoters.

c) The unprecedented worldwide pandemic brought all activities to a standstill for quite sometimes and hence slowing down all the economic activities and has created various issues like:

- Availability of vessels
- Delayed delivery schedule
- Price hike of various machinery
- Fresh review and cancellation of placed orders
- Shortages of Modules due to glass shortages

d) Delay in receiving the required approvals for construction of plant from power department.

SN	Delay in getting Govt Approvals for Construction at site	Date
1	R No Issuance by HVPNL – It is required for Evacuation Network & Bay construction	24.11.2020
2	Receipt of Bay Construction estimation by HVPNL	26.02.2021
3	Clearance from HVPNL to commence civil works for bay construction	Still Pending

The Commission has already accepted the time extension for Commercial Operation Date in its Order dated 03.11.2020 (HERC/PRO-52 of 2020 & HERC/PRO-55 of 2020) due to Covid19 Pandemic.

5. The Respondent Nigam (HPPC), during the hearing held on 30.06.2021, submitted that since the project has been completed, the details of the amount spent on the project need to be submitted by the Petitioner. Upon hearing the parties, the Commission in its Interim Order dated 30.06.2021, directed the Petitioner to submit the complete details to the Respondents. In response, the Petitioner filed its reply dated 06.07.2021 (affidavit dated 06.07.2021), submitting as under:-

a) Present status of the project:

Plant side CEIG is completed dated 04.06.2021. Construction of 33 kV Transmission line is complete. Request for CEIG has been raised and is under process. Construction of Bay Connectivity work in under progress and is delayed due to departmental approval of drawings. Once the approval is in place the pending work will be completed within 3-4 weeks. Based on all the work contracts, total cost for entire 20 MW (AC)/24MW (DC) solar project in Tosham, is Rs 90.448 crore, as submitted in the reply dated 08.02.2021.

b) Capital Expenditure

The total capital expenditure as on date 15.06.2021 for 20MW (AC)/24MW (DC) solar project at Tosham, Bhiwani is Rs 76.479 crore, as per the certificate dated 15.06.2021 from Chartered Accountant, as detailed here under:

Project cost breakup (Rs. In Crores)				
SNo.	Particulars	Project cost	Cost incurred till 15.06.2021	Balance payments
1	Modules	47.82	40.039	7.8
2.	EPC	35.627	30.085	5.5
3.	Evacuation line	1.465	0.466	1.0
4.	Civil Works & Land Development	1.126	1.675	0.0
5.	Finance cost	0.670	0.752	0.0
6.	Project Management cost	1.550	1.133	0.4
7.	Land lease rental	2.190	2.330	1.0
	Total	90.448	76.480	14.74

The balance payment of Rs 14.740 crore has to be made to different vendors after receiving the invoices. The details are as under:

S.No.	Particulars	Petitioner Response
1.	Solar PV Modules	a) Previously Renesola has supplied 2.29 MW of solar modules (submitted on 08.02.2021) b) In addition to the above 2.29 MW, Renesola have delivered another 0.710 MW at site as on 29.03.2021.

		c) The last consignment of 0.47 MW modules from Renesola have been received and installed at site. The invoice copy of 0.47 MW is furnished**.** The payment of Rs 0.90 crore is yet to be made to Renesola. d) Waaree Energies has delivered at site 6.365MW of modules worth Rs 12.735 crore as submitted on 07.04.2021. e) The remaining **14.165 MW modules** has been delivered and installed at site. However, the Supplier has raised invoices for 11.266 MW of Modules. The invoice copy of the same is furnished**.** Thus, the total payment made towards modules as on 15.06.2021 is Rs 40.039 crores for invoices received for 20.631 MW modules. The balance payment of Rs (6.9+0.90) = Rs 7.8 crores is yet to be made after receipt of the invoices from the M/s Waaree Energies. The commission is requested to consider the cost of Rs 47.82 crore towards module of 24MW(DC) solar plant.
2.	EPC	a) The Petitioner has submitted on 08.02.2021, the invoice details of 31.428 crores towards EPC of 20 MW solar Project. b) The invoices raised after 08.02.2021 amounting to Rs 3.217 crores is furnished. c) The total value of invoices raised is Rs 34.645 crores, out of which Rs 30.085 crores has been paid as on date 15.06.2021. d) Invoices for the balance amount of Rs 0.982 crore are pending from the Vendor. The Commission is requested to consider EPC cost of Rs 35.627 crore for 24MW (DC) solar project.
3.	Evacuation Line and Bay Connectivity work	a) Invoice for Transmission line of Rs 0.349 Crore has been furnished on 08.02.2021. b) Additional Invoices amounting to Rs 0.336 crore have been furnished**.** c) The total value of invoices raised till now is Rs 0.685 crores, out of which Rs 0.466 crore has been paid as on date 15.06.2021. d) As the Bay work is still pending, the vendor has not raised any invoice for the same. The Purchase Order for Bay work is furnished**.** Invoices for the balance amount of Rs 0.78 crore are pending from the Vendor. The Commission is requested to consider Rs 1.465 crore towards 33kv Transmission Line and Bay Connectivity for 24MW (DC) solar project.
4.	Civil Works and Land Development Cost	The Petitioner has incurred Rs 1.675 crore towards Civil Works and Land development as on date 15.06.2021.
5.	Finance Cost	The detailed have been submitted on 08.02.2021. The cost incurred towards Financing of the project stands at Rs 0.752 crore, as per CA certificate dated 15.06.2021.
6.	Project Management Cost	The detailed have been submitted on 08.02.2021. The cost incurred towards Project Management as on dated 15.06.2021 stands at Rs 1.133 crore, as per CA certificate**.** Additional costs will be incurred till the complete commissioning of the Project.
7.	Land Lease Rental	The total project cost of Rs 90.448 crore is inclusive of Rs 2.19 crore towards land lease rental paid in advance for the first 7 years. This is an upfront cost to the project. Going forward in the next 18 years the lease rental amounting to Rs 6.682 crore have to be paid as per the lease rental agreements.

		Hence, the Commission is requested to consider the Rs (2.19+6.682 = 8.872) crore towards Land lease rental for 25 years, in the project cost for tariff determination.

Additional Issues raised by HPPC and petitioner's reply thereto:

6. The respondent Nigam (HPPC), visited the solar power plant of the petitioner on 10.07.2021 and consequently submitted its additional comments dated 16.07.2021 (affidavit dated 16.07.2021). The Commission, vide its Interim Order dated 20.07.2021, directed the petitioner to file written arguments on the issues raised by HPPC particularly clarifying the area of land used, collector rate of land vis-à-vis lease rental charges claimed, market trend of solar PV module, cost of power transformer, invertors, EPC and cost of evacuation. In compliance to the ibid Order dated 20.07.2021, the petitioner submitted its reply dated 21.07.2021 (affidavit dated 20.07.2021). The submissions of HPPC and reply of the Petitioner thereon, is as under:-

PROJECT COST BREAKUP SUBMITTED BY THE PETITIONER IS EXAGGERATED AND DEVOID OF COMPLETE DETAILS:-

a) On physical verification of the Plant, it was found that the DC Modules for nearly 4 MW capacity are yet to be installed and certain miscellaneous works are still pending to be completed. The Petitioner has claimed a total cost of Rs. 90.448 Crore contending that the balance cost of Rs. 13.968 crore is yet to be incurred. It is pertinent to note that no breakup/ evidence of the 'yet to be incurred' cost has been provided by the petitioner, more so when work has been substantially completed, justifying further expenditure of Rs. 13.968 crore in not acceptable. Out of Rs. 76.48 crore, an amount of Rs. 40.039 Crore has been spent on the module having cumulative capacity of 20.631 MWp (DC) which has been installed at the site. The said module cost covers only the supply cost of the module. The cost of the installation of module has been accounted for by the petitioner in the EPC Cost. The supply cost of module incurred by the Petitioner is apparently way higher than the market trend.

b) As per the website reports of pvinsights.com, the solar PV Module WeeklySpot Price accessed on 21.10.2020 is as under:-

USD/Watt

Item	***High***	***Low***	***Average***
Poly Solar Module	*0.280*	*0.160*	*0.173*
Thin Film Solar Module	*0.310*	*0.200*	*0.213*

In view of the said report, the average cost of Solar PV Module will be considered as Rs. 129.23 Lakhs/ MW considering the exchange rate of Rs. 74.70/USD based on the average of six months, i.e. 29thApril, 2020 to 21stOctober, 2020 for module cost of 0.173 USD/Watt. Even if the said cost is escalated at 9-10% to cover for miscellaneous costs including degradation of cells and taxes etc., the same shall not exceed Rs. 142.153 Lakhs/ MW. However, the supply cost of Modules claimed by the Petitioner is nowhere close to the market trend. Needless to mention that the MCLR rates has also declined from 8.10% in June, 2019 to 6.70% in June, 2020 and 6.65%w.e.f. July 2020 till present, as such, cost of funds has reduced significantly.

c) There has been a downward trend in the cost of solar modules during 2020-21 since June, 2019, as has also been noted by the Uttarakhand Electricity Regulatory Commission in its suo- moto order dated 23.06.2020 wherein it had categorically observed that the cost of solar module has decreased to 0.185 USD/Wp as on June 17, 2020 against the average module cost of 0.241 USD/Wp prevailing on June 07, 2019.

d) For the sake of understanding the component wise cost associated with setting up of solar generating plant, the breakup of benchmark Capital Cost of Rs. 3.56 crore/ MW of Solar PV plants approved by Uttarakhand Electricity Regulatory Commission (UKERC) vide its Order dated 07.06.2019 for FY 2019-20 is summarized as under :

Sr. No.	**Particulars**	**Approved cost by UERC for FY 2019-20 (Rs. in lakh/MW)**	**% of total Cost**
1	PV Module	224.85	63.11
2	Land Cost	50	14.03
3	Civil and general works	14.22	3.99
4	Mounting structure	14.93	4.19
5	Power conditioning units	14.93	4.19
6	Evacuation cost upto interconnection points (cables and transformers)	18.77	5.27
7	Preliminary and preoperative expenses (5.21% of total capital cost)	18.57	5.21
	Total Cost	356.27	100.00

e) The UKERC, vide its Order dated 05.10.2020, has extended the applicability of the ibid Order, up to March, 2022. The benchmark capital cost so determined is after considering the degradation cost of Rs. 8.84 Lakh/MW over the life of the project, GST and safeguard duty. The above stated evinces that the mounting structure contributes to only 4% of capital cost whereas module cost constitutes majority cost.

f) As per the project cost breakup submitted by the Petitioner, Rs. 30.085 crore has been spent on EPC cost towards work of tree cutting, grading and levelling, survey, excavation, concreting, structure installation, DC service, AC services, Switchyard material and miscellaneous supply, Fencing, MC4 and Branch Connectors, Slope Beam, Raft plate, Foot bearing, rafter, SGS inspection, Module Mounting Structures (MMS) structure installation, SCADA and Weather Monitoring Station (WMS), UPS and battery, Module Installation etc. The Petitioner has placed invoices of M/s Nuevosal Energy Pvt. Ltd., Hyderabad in support of the same which are way exaggerated. It has not been stated by the petitioner as to whether the Purchase Order on M/s Nuevosal Energy Pvt. Ltd., Hyderabad has been placed by process of tendering or on the basis of the quotations received from the market. The exorbitant amount of EPC cost reflects that Petitioner has not placed Purchase Order prudently after considering market trend for the reasons best known to them. Needless to say that the EPC cost posed by the Petitioner is way higher as compared to market trends.

g) Further, the EPC Cost of Rs. 30.085 crore, as per documents placed on record by the Petitioner includes all Civil and land development works like survey, excavation, levelling, tree cutting, grading etc. However, the Petitioner has additionally claimed Civil Works and Land Development cost of Rs. 1.675 crore for which no segregation has been given by the Petitioner. It has not been explained as to which works other than included in the EPC Contract has been executed for Rs. 1.675 Crore. The said claim of Civil Works and Land Development cost is therefore, double claim which is unreasonable. The Petitioner has in fact claimed EPC cost of Rs. 35.627 crore without intimating as to what portion of EPC work is to be executed for the balance value of Rs. 5.542 crore. The claim of the Petitioner for total cost as Rs. 90.448 crore is beyond reasonability. HERC RE Regulations provides for that the capital cost, O&M expenses etc. and the tariff thereto shall be determined depending on the prevalent market trends only.

h) The Petitioner has claimed a total of Rs. 8.872 crore towards land lease rent for the life of the project. The advance land lease rent deposited by the Petitioner has been claimed as Rs. 2.19 crore for first 7 years. During the physical verification of the Plant by representatives of HPPC on 10.07.2021, it was confirmed by locals of the Village that the collector rate of the land of Village Tosham is only Rs. 6,00,000/- per acre. The high lease rent fixed in the lease agreement executed by the Petitioner with the private land owners fails to inspire any confidence about the prudence of the business

model of the generator. The claim of exorbitant land lease rent cannot be fastened upon the consumers of the state owing to inefficiencies of the Petitioner.

i) Apart from above submissions on capital cost and EPC cost, it is relevant to point out, as an instance of exorbitant claims made by the Petitioner, that the Petitioner has claimed Rs. 3,20,67,664/- for Solar Transformer (2x10500kW) whereas as per prevailing market trends, the cost of 10 MVA 33/11kV Power transformer as per turnkey rate notified by the PD&C wing of DHBVN for period from 24.05.2021 to 30.09.2021 is Rs. 53,85,091/- for each unit. Similarly, the cost of inverters (2.5 MWx4) claimed as Rs. 2,86,02,000/- i.e. Rs. 71,50,500/- per unit, which is also exorbitant as compared to the rates of Rs 32,56,271/- per unit quoted by M/s Avaada for 3.125 MW inverter. Furthermore, the cost incurred on line construction of Guest house, cleaning and intra structure levelling, construction of periphery/WBM roads, Miscellaneous supplies, survey and excavation, salaries etc. has not been explained and fails to convince any reasonability in the claim made by the Petitioner.

j) The cost of line and bay connectivity has been claimed as Rs. 1.465 crore. It is pertinent to mention that the length of 33 kV transmission line is about 1.2km and connectivity is at 33kV level. Needless to mention that the length of line has been increased from 650 mtrs to 1.2 kms owing to ROW issues. However, perusal of item wise cost considered in the P.O. is almost double as compared to the rates currently notified by PD&C wing of DHBVN for turnkey works.

k) Considering the present HERC Regulations in vogue the interest on term loan & working capital has to be restricted to Average SBI MCLR (one-year tenor) plus a margin of up to 200 basis points only. Needless to mention that the loans are available at interest rate @ 6.65% to 8.65% per annum (considering margin of 200 basis point) depending on the credit rating and collateral pledged.

Petitioner's Reply

In the absence of tariff, lender has not so far extended the loan that they had approved in principle in their sanction letter. Therefore, the project which is almost complete except the fact that currently AC & DC capacity are the same i.e. 20 MW as against 24 MW DC capacity envisaged. The entire project, so far, has been funded from promoters' capital as against 70% that should have come from debt funding by IREDA. The expense details submitted to the Commission was till 15.06.2021. The balance 4 MW Solar PV modules will be installed after receiving of funds from IREDA.

The breakup of "yet to be incurred" cost of Rs.13.968 crore has already been submitted.

Further, getting the price indication from a non-recognized publication (PV Insights) by any government agency is not ideal to benchmark the cost of PV modules for a solar plant installed to supply power to the government department. The prices indicated in PV Insight are spot prices. However, the respondent has completely missed the other component which will be added cost in procuring the solar modules for a project like - transportation and shipping charges, custom clearance duty, transit insurance charges, port handling charges, Shipping line charges and other applicable taxes.

The module cost considered by the State Commission (UERC) is Rs.224.85 Lakh/MW. However, the module cost claimed by the Petitioner is Rs 47.82 crores for 24 MW solar PV Modules which is equal to 199.25 lakhs/MW and way lower than cost approved by the Uttarakhand Hon'ble Commission. This petition is filed under Section 62 of the Electricity Act 2003 for project specific tariff determination and should not be compared with the orders issued by different State Commission.

The contract for EPC has been awarded to Nuevosol ,after receiving quotations from different EPC vendors, in the market. Proper due diligence & evaluation of each and every quote was done before awarding the contract. The Petitioner and the selected EPC Contractor has no formal/informal relationships. Hence the award of the contract was entirely based on Merit.

The project construction was started during the beginning of the COVID - 19 period in the country and hence the cost of the materials available in the market has shot up during those periods compare to the cost before the pre COVID period.

Hence, the claim of the respondent that "the exorbitant amount of EPC cost reflects that petitioner has not placed 'Purchase Order' prudently after considering market trend for the reasons best known to them" is unfounded and baseless.

The Petitioner has submitted Civil and Land development cost for Rs 1.675 crore for construction of Boundary wall, barbed wire fencing and initial land access work. The relevant documents along with invoices have already been submitted by the Petitioner. The civil works and land development works undertaken by the EPC Contractor are

the module foundation works, control room works and various other land development works like land levelling etc. Hence, there is no double claim as stated by the Respondent.

The collector rate of the land is Rs. 6,00,000/ acre and considering this high rate the asking rate by the group of farmers for lease rent was very high which was bought down to Rs. 33,000/ acre after stringent negotiation with them. The Commission, in its Order dated 18.01.2021 (PRO-59 of 2020), has approved an amount of Rs. 10.99 million for 1-year land lease rental. The total area of the land is 260.1 acres. This works out to be (i.e. 10.99/260.1) Rs. 42252.97 per acre lease rent. The Respondent has not challenged but rather accepted this order which implies that the above lease rates are not high as per the market trend. Further to add that the said land of the project is just approx. 20 KM away from the petitioner's plant in Tosham. The collector rate of land is same (Rs 600,000/acre) for both project sites.

The petitioner has already submitted the invoices and other relevant documents to substantiate the cost incurred in purchasing the electrical equipment from reputed Indian manufacturer. The respondent's submission of other developers' choice of Chinese manufacturer should not be benchmarked with the Petitioner's. The cost varies from one manufacturer to the other manufacturer depending upon the quality, quantity and other terms of supply. Govt. of Haryana have been boycotting products made in China, in large for govt related projects. This led to lot of cancellations of projects to be carried out by the Chinese companies in August 2020.

The Respondent have claimed that the cost of power transformer is Rs 53,85,091/- as per PD&C wing of DHBVN. The cost referred by the Respondent is of 33/11 kv step down Transformer, however, the Power Transformers (2 Quantity) in question are 660V/33 KV step up transformers (a custom-built item) required for transmission of the power generated from the solar PV plant to the 33/132 KV substation. The power transformers installed at the petitioner's site is also not available in the 'Rate List' of HVPNL dated 19.02.2020. The Commission may take relevant data from HVPNL/DHBVN or from the market and take a considered view in the matter.

The cost of Transmission line & 33 kv bay connectivity work in a 132 kv substation, submitted by the Petitioner was based on the quotes received from vendors and after due diligence and cost estimation received from the DHBVNL. The estimation for 33 kv Transmission line and 33kv bay connectivity work & civil works received from the

department (DHBVN) were Rs 67,47,429 & Rs 39,56,336 respectively against our work order of Rs 72,28,622 and Rs 70,50,000 respectively. The estimation for bay connectivity and civil works received from DHBVNL was outdated as the new HSR policy of 2021 is in effect from 1st April 2021. Therefore, the vendors were not ready to undertake the work order at old prices. Therefore, the Commission may kindly consider the Rs. 1.465 crore for the line & bay connectivity work, as submitted by the Petitioner.

The petitioner will be happy, in case the respondent can produce any example of the low financing rate @ 6.65% to 8.65%, provided to any Indian developers for similar capacity project. The petitioner has already submitted the sanction letter issued by IREDA (an agency appointed by the Government of India for funding of renewable projects only).

CLAIMED CAPITAL COST OF THE PLANT IS NOT ALIGNED TO MARKET TREND:

l) The Commission in its Order dated 20.12.2019 passed for PM KUSUM Scheme related to capacity of less than 2 MW, has considered the capital cost as Rs. 3.40 crores/MW which is inclusive of cost of land and transmission infrastructure. Considering that the capital cost of the Plant of the Petitioner is exclusive of cost of land, downward trend of the prices and applying economies of scale for the capacity of the Plant of the Petitioner, the said capital cost should be reduced by about 15%. The Respondent had provided for the reverse calculation and based on the same, the amount ought to have been considered at Rs. 3.40 crores per MW with CUF of 20 % albeit inclusive of cost associated with degradation factor. Even considering the alleged higher CUF of 21.32%(i.e.17.78%x1.2), the additional cost would be only for additional panels (which have been considered to constitute 65% of cost) and therefore capital cost for the Project of Petitioner should be in range of Rs. 2.57 to Rs. 3.03 crores per MW only. It is apparent that the Capital Cost claimed by the Petitioner is in not aligned to market trend.

m) The capital cost determined by this Commission under KUSUM Scheme and the benchmark cost approved by the Uttarakhand Electricity Regulatory Commission included in addition to cost of land, evacuation system, “monetized value attributed to degradation of solar panels”. Without such degradation, the capital cost would have been much lower. The Net present value cost associated with degradation of solar panel has been specifically worked out as Rs. 8.84 lakhs/MW by the Uttarakhand Electricity Regulatory Commission in its Order dated 07.06.2019. If the cost of

degradation is not included in the Capital Cost of the Petitioner, the benchmark Capital Cost should be lower. Thus, Capital Cost for the Project of the Petitioner would have to be reduced to exclude the degradation cost. Capital Cost determined by the Commission for projects under PM KUSUM is inclusive of degradation of 0.5% in the CUF. The Commission had not provided for a separate degradation in the CUF in that case. The Commission may therefore, consider the said fact and the capital cost of the Petitioner may be revised accordingly.

n) Without prejudice to foregoing, in the event the Commission considers the CUF of 21.32 % as claimed by the Petitioner, the capital cost should also be apportioned. The Respondent has worked out the capital cost considering the CUF of 21.32% considering the benchmark capital cost as Rs. 3.40 crore per MW as determined by the Commission for Solar Power Plants under PM KUSUM Scheme. As per the said calculation, the Per MW Capital Cost considering the benefit of economies of scale for a CUF of 21.32% including cost of degradation works out to Rs. 2.57 crore per MW.

o) The Capital Cost determined by the Commission for projects under PM KUSUM is also inclusive of cost of transmission line/infrastructure. As such, the cost of evacuation system cannot be allowed over and above the capital cost considered in line with market trends.

Petitioner's Reply:

It has been submitted that the present petition has been filed under Section 62 of the Electricity Act 2003 for project specific tariff determination, hence comparing it with KUSUM scheme will not serve the basic purpose of the given section under which the Petitioner has filled the petition. Therefore, we request the Commission to determine the tariff of this project based on the documents submitted by the petitioner.

As a matter of fact, the Kusum Scheme itself has been a complete failure due to non-feasibility of the project and not a single project has gone anywhere beyond PPA signing. As rightly mentioned by the Respondent that not even a single project has achieved financial closure.

It is pertinent to mention that under component A of PM KUSUM scheme, intimation of 135 MW of solar power project was sent to the MNRE. However, even after almost 2 years not a single project has been commissioned. Only 8 PPAs' have been signed as mentioned by the Respondent. This depicts that only a small fraction of the capacity envisaged are yet to be commissioned as these projects have not achieved financial closure so far.

The primary reason in our view is that the lower tariff of Rs 3.11/kwh is not bankable. Hence, very few interests have been shown in this project.

The process of determining the capital cost of a project by the procedure mentioned by HPPC is completely irrelevant and the method is not validated or approved by any State /Central Commission.

Hence the Commission may kindly ignore this type of baseless procedure prescribed by the Respondent, who has not done proper due diligence of the scheme they are referring to.

It is further to state that in KUSUM Scheme the cost of transmission line is included in the capital cost is of 11 KV. Whereas, in the Petitioner's project, the transmission line is of 33 KV and as per the latest approved design by the Discom, lattice tower was considered. Hence the cost of 33kV line is far more than the 11 kv line. The connectivity of the solar plant with 33 kv line to 132 kv substation at 33 kv Bay is far different and cannot be compared with KUSUM Scheme's cost.

WHERE THE TARIFF OF SOLAR PV PROJECT IS NOT THROUGH COMPETITIVE BIDDING, THE SAME HAS TO BE ALIGNED TO MARKET TREND :-

p) It has been submitted by the intervener that the solar tariff discovered in the competitive bidding process across in India has witnessed a downwards trend; which touched Rs. 1.99 per unit. Not only this, the solar tariff has been in the range of Rs. 2.00 per unit to Rs. 2.40 per unit in various other competitive bidding processes across the country, which clearly indicates that the overall expenses in setting up a solar power generating plant has decreased resulting in decrease in solar tariff thereof. It is the contention of the petitioner that the low tariff quoted by SECI cannot be relied upon as the reasons for the same is attributable to various factors. The reasons for low tariff quoted by SECI may be attributed to various factors/ incentives, subsidies provided to the generator. However, the fact of the matter is that the tariff had dropped significantly with respect to the previous solar auctions. Due to the certainty in power offtake, there has been rise in the subscription rates for recent solar auctions. There are two major reasons for the falling tariffs: module price and interest cost reduction. It is therefore, the duty of the generator to ensure that the procurement management and debt management is done effectively. Merely because the tariff is not being determined through competitive bidding route, the same cannot be allowed to work against the interest of the consumers. It is also relevant to note that the low solar tariff of Rs. 1.99 per unit quoted in the auction held by SECI is inclusive of all taxes and duties. However, on the tariff determined by this Commission, the respondent separately pays corporate tax which is a pass-through expense. Seen from that perspective, the tariff of Rs. 1.99

per unit minus Corporate tax, which is paid on actual basis in terms of HERC RE Regulations, works out to Rs. 1.86 per unit only. Against the same the Petitioner is seeking tariff of Rs. 4.03 per unit. It is the contention of the Petitioner that the quoted tariff of Rs. 1.99 per unit is majorly owing to access to low cost financing, fiscal incentives and longer commissioning timelines. Presuming, but not conceding, there are certain factors contributing to reduction in quoted tariff in SECI auction, the lame contention of the Petitioner that the said tariff does not reflect market trend is not worthy of any credence. The Petitioner ought to have explained the impact of such components in monetary terms by working out the grossed-up tariff in the absence of alleged major components. The same was not touched upon by the petitioner for the apparent reason that even after grossing up the tariff, the same would be nearly half of what has been claimed by the petitioner.

q) Further, it has been submitted that it is relevant to mention here that during the proceedings of PRO-49 of 2020, for approval of source and draft power purchase agreement (PPA), to be executed with M/s LR Energy Pvt. Ltd., the representative of the petitioner, Shri Ravi Shekhar had stated before the Commission that the scheduled CoD of the project is January, 2021. He further stated that most of the work stands completed and the transmission line of 650 meter between the power project and grid sub-station, including bays, shall be completed in about 15 to 20 days. The said statement finds mention in the Commission's Order dated 14.10.2020. However, in view of the statements made in the instant petition, it is apparent that the petitioner misrepresented before the Commission insofar as the execution of work is concerned. In view of the representation made by the petitioner, the reliance on increasing trend of freight, glass prices, and steel prices since December, 2020 is uncalled for. No subsequent intimation has been made by the petitioner justifying non-adherence of the commissioning date. In that view, the plea of alleged increase in cost on account of inefficiencies of generator cannot be loaded on the consumers at large by allowing higher tariff. Furthermore, the contention regarding increase in steel prices post September, 2020 has no merit as the plant is under commissioning since the approval of final connectivity by HVPNL vide letter dated 25.10.2019. Even otherwise, the steel price does not largely impact the project cost as the same contributes to only 4% to 5% of total project cost.

r) The Petitioner had earlier placed on record 'Purchase Order' dated 28.07.2020 placed upon M/s Nuevosal Energy Pvt. Ltd., Hyderabad for design, engineering, procurement, inspection and testing works, supplying, packing and forwarding, transportation with transit insurance on F.O.R site for supply of item/equipment for 24 MW (DC)/20 MW (AC) solar power plant. This ibid order *inter alia* includes supply of all items except

panels but inclusive of structures. It is worthwhile to note that the monthly summary report on iron and steel prices annexed by the Petitioner clearly indicates that the prices of iron and steel during March, 2020 to September, 2020 had been decreasing. Meaning thereby, the alleged increase in the steel process are of no impact in the case of the Petitioner as the Purchase Order for the structures have already been placed when the steel prices were declining. Thus, reference to standalone increase in steel prices is misleading and fails to reflect the correct position regarding market trend of cost of Solar Power Plant.

s) As regards the reference of the petitioner to alleged increase in 'Glass Prices', it is submitted that the Glass is an integral part of Module and cost of Module has instead declined during FY 2020-21. Thus, seen in totality, it can be safely concluded that capital cost of Rs. 3.40 crore/MW, which was determined by the Commission in its order dated 19.12.2019 for Projects to be set up under PM KUSUM scheme should be further reduced to arrive at the prevailing market trend. Moreover, the said cost was inclusive of land cost, transmission infrastructure, degradation factor and was considered at CUF of 20%. It is also pertinent to mention that the while determining tariff in above mentioned Order dated 19.12.2019 safeguard duty was considered as 20%, which is way higher than current safeguard duty of 14.90%. Thus, the averments of petitioner are misleading and not worthy of consideration.

t) That another misleading averment made by the Petitioner, in earlier submissions dated March, 2021, was that owing to increase in prices, no project has been set up till date under PM KUSUM Scheme in Haryana. The averment of the Petitioner, as projected, is factually incorrect. It is submitted at the outset that 8 nos. PPA has been executed with Solar Power Developers under PM KUSUM scheme and the Projects are under execution. It is imperative to understand that the Projects under PM KUSUM are facing challenge as these being set up by the landowners, who have difficulty in arranging loans from banks without any collateral guarantees. The contention of the Petitioner is therefore, a feeble attempt of the Petitioner to mislead the Commission.

Petitioner's Reply

In Solar projects, the capacity of the projects also plays a major role in deciding the tariff. Determination of tariff for a 20MW Solar project cannot be justified by comparing it with the tariff discovered under reverse bidding option for 500MW & above capacity of Solar projects.

This is also to mention that this project was envisaged in 2018 with an intention to sell power under captive or 3rd party. However, due to uncertainty in the State policy, delay in departmental approval for more than 2 years, the petitioner was under acute financial crisis and the fate of the project was in doldrums. Due to these delays and

lack of clarity in the state policy the funding agencies did not have confidence in the off taker as well as the fate of the project. Only, IREDA has agreed for funding and the rate of interest offered by IREDA is their best rate for this 20 MW project, which is also available in the public domain.

The solar projects under SECI Scheme are not exactly comparable with individual projects being set up on self-identifiable sites. The former has the advantages of the developed land, infrastructure such as Underground cabling, street lights, water, electricity, Main Road, drainage system, Evacuation system of 220/66 kv from the pooling substation to 400/220 kv station of Power Grid. Also, the developers will be free to avail fiscal incentives like Accelerated Depreciation, Concessional Customs and Excise Duties, Tax Holidays etc. Any change in the rates of any Taxes after the last day of submission of the bid, including any duties and cess or introduction of any new tax made applicable for setting up the solar power project and supply of power from the Solar Power project by the SPD which have a direct effect on the Project, shall only be considered as change in law. Further, the timeline for commissioning of the SECI projects are 18 months to 24 months from the date of signing the LOI. This provides ample of time for module sourcing at cheaper rates. Applicable SGD on modules and solar cells is 14.90% which is applicable on the Petitioner, however, the projects under SECI were exempted paying such duties under change in law. This duty outrightly increases our project cost by nearly 15% in comparison with SECI Projects. Again, the CUF to be maintained in these projects are minimum of 17% with permissible variation of +10% and -15%, for the first 10 years from COD, subject to a minimum of 15% and a variation of +10% and -20% till the lifetime of the project. With this target of CUF the module cost can be minimized (approx 10% of the project cost) by eliminating the DC overloading, which is required to meet the high CUF of 21%. Further to mention, that to achieve 15% CUF the developer doesn't require to procure high efficiency costlier modules, which is again an attribute to the lower capital cost in the SECI tenders which ultimately results in lower tariff.

Thereby, based on the above-mentioned factors the overall capital cost of an individual solar project of under 25MW can be brought down by approximately 35% comprising of reduction in module cost and associated EPC costs, low financing schemes, etc.
The mentioned statement *"the transmission line of 650 meter between the power project and grid sub-station including bays shall be completed in about 15 to 20 days"* was somehow misinterpreted by the Commission during the hearing and which the

Petitioner immediately clarified through the letter reference number LRE/20MW/23102020 dated 23.10.2020, post the hearing.

With reference to the SCOD of the project, it was delayed due to delay in getting the departmental approval like Receiving of R number from HVPNL (received on 24.11.2020), Receipt of Transmission line estimation (received on 10.12.2020) & Bay connectivity estimation (received on 21.01.2021 & 26.02.2021) after stringent follow ups with the department.

These delays have negatively impacted on the planned SCOD. Also, to mention that due to geo political issues & COVID 19 the module manufacturer declined to supply the modules as per the contract. Subsequently new domestic module manufacturer was identified (matching the same cost) and order was placed on them. The same was also mentioned during the hearing and clarified that no impact of additional cost would be there.

Once again, the respondent is purposefully trying to grossly misguide the Commission by mentioning the SCOD date of Jan 2021. As pe the PPA signed between the Petitioner and the Respondent on 30.10.2020, the SCOD was 6 months from the signing of the PPA i.e.30.04.2021.

Further, as the respondent quoted *"Furthermore, the contention regarding increase in steel prices post September, 2020 has no merit as the plant is under commissioning since the approval of final connectivity by HVPNL vide letter dated 25.10.2019"* - Once again the respondent is trying to suppress the facts, when they were fully aware that the petitioner could not start the construction of plant in the absence of R number to be issued by the department and the clarity in the state policy. This clearly shows the intention towards discouraging the Investors in the state, which leads to acute power crisis and even non-fulfilment of state RPO.

Referring to the submission made by the Petitioner dated 08.02.2021, the Respondent has quoted *"clearly indicates that the prices of iron and steel during March, 2020 to September, 2020 had been decreasing"*, it may be noted that the reference index taken at March 2020 and September 2020 is same and the prices increased thereafter. The increased prices of Rs 1.6 crores have been absorbed by the Petitioner in order to keep the total project cost of Rs 90.448 crore intact, that have already been submitted in our original submission dated 12.11.2020.

The Commission may kindly note that, till date, not a single project under Kusum Scheme has seen the light of the day due to failure in achieving financial closure. A total of 135 MW of solar project was envisaged under this very scheme in the State of Haryana as an attempt to boost the agricultural sector. As stated by the respondent only 8 PPAs have been signed till date but not a single project has even started at the ground level due to lower tariff/lower approved project cost making the entire project totally unviable for the developers and farmers.

O&M COST OF THE PLANT

u) Regulations 49 (1) of the HERC RE Regulations, 2021 specifies that O&M Expenses shall be allowed based on prevalent market conditions. The Petitioner had relied upon the Order of the Commission dated 15.01.2021 to claim O&M cost of Rs. 8.74 lakh/MW and has conveniently omitted reference to fairly recent order dated 18.01.2021 in PRO-59 of 2020. While adjudicating PRO-59 of 2020, this Commission had observed that O&M contracts are fairly broad based and as such mere quotations cited by generator cannot be taken at its face value for the purpose of tariff determination. The Commission further observed that the offer dated 15.10.2020 made by BHEL for 50 MWp Solar Power Plant of NTPC, ought to be the benchmark depicting the prevalent market trend. Considering that, the Commission fairly and justly approved O&M expenses of Rs. 0.303 Million / MW inclusive of Insurance and all taxes and levies for 50 MW project for first year. The O&M expenses for the Plant of the Petitioner shall also be approved at par. It is additionally submitted that Regulations 49 (2) of the HERC RE Regulations, 2021provides for escalation of 2.93% per annum on O&M cost. Thus, the Commission may provide escalation on O&M as per prevailing RE Regulations.

Petitioner's Reply

The Petitioner has already submitted the prevailing market rate for O&M of their existing 10 MW solar plant in Sirsa, Haryana. However, the reference of the O&M Contract of BHEL as mentioned by the Respondent have not been benchmarked by any State/Central Commission.

CUF of the Plant

v) The Commission in its Order given in PRO-59 of 2020 has held that the Capital Cost of solar project is related to CUF as higher CUF can be achieved by adding solar panels. The Petitioner as well in its Detailed Project Report (DPR), based on PVSYST report, has envisaged specific generation per kWh as 1646 units, which works to a DC

CUF of 18.80%. However, disregarding the same, the Petitioner has coined fabricated contentions to justify claim of AC CUF of 21.32%. As per Regulation 48 of HERC RE Regulations, 2021, the minimum capacity utilisation factor for Solar PV project shall be 21%. The contention of the Petition to consider degradation of 0.5% has to be viewed in the light of the fact that the Capital Cost decided by the Commission in recent orders pertaining to tariff determination, the Capital Cost is inclusive of the monetised value attributed to degradation of solar panels. Therefore, when considering the said Capital Cost based on market trend, no degradation shall be allowed in CUF. Furthermore, PVSYT simulations reports cannot form basis of assessing CUF as the same only provide 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 PVSYT simulations may not be an effective indicator of the CUF.

w) As regards grid outages, the contentions raised by the petitioner, in submissions dated March, 2021, are misleading and meritless. Without commenting on the authentication of outage data provided by the Petitioner qua its 10 MW plant, it is submitted that the said 10 MW solar project in District Sirsa is connected to 33kV substation of DHBVN whereas the 20 MW project under consideration is connected to 132 kV substation of HVPNL. Needless to say, that the availability of HVPNL substation is beyond 99.5%. The contentions raised by the Petitioner are erroneous and not worthy of any credence.

x) Further, the PPA provides for compensation grid outage beyond 1 %. The PPA also provides that excess generation beyond the Contracted Energy by the Solar Power Developer equal to this generation loss shall be adjusted by HPPC at the Excess Generation Tariff so as to offset this loss in the succeeding 3 (three) Contract Years. Thus, the PPA ensures balance of interest of both the parties. As such, the contention of the petitioner for reduction in CUF considering grid unavailability is unjustified and untenable. Considering the foregoing, the CUF for the power plant of the petitioner may kindly be considered as 21%DC / 25.2% AC, against the normative cost or alternatively the cost per MW be reduced on prorate basis qua CUF offered from the Project.

Petitioner's Reply

The respondent is fully unaware or totally ignorant of the fact that for solar projects to maintain the AC CUF of approx. 21.32%, the DC capacity has to be proportionately installed. The PPA clearly mentions that the Petitioner has to pay penalty for not maintaining the CUF for the entire project life. Hence, to maintain the same CUF the DC capacity has to be increased to 20%. The may kindly allow module degradation in the CUF as also the same has been allowed in Case No. HERC/PRO-59 of 2020. The overall availability of HVPNL transmission system may be 99%. However, even a few individual 132 kV lines & substations are subject to frequent tripping. The Commission may take relevant data from HVPNL and take a considered view in the matter.

CUF is entirely dependent on the irradiation available at the site. The same was evaluated by PVSyst software by feeding in latitude & longitude. The actual CUF achieved in the Petitioner's operation 10 MW solar plant in Sirsa, Haryana is 21%. Hence, the respondent's contention for CUF of 21% DC / 25% AC, against the normative cost, is completely out of context and illogical and without any basis.

Financing cost of the plant

y) Financial cost of the Plant is ceiling parameter as per HERC RE Regulations and has to be dealt accordingly. The Commission in PRO-59 of 2020 has rightly allowed average of SBI MCLR (one-year tenor) of SBI during the last six months i.e. July-December, 2020 to allow interest rate of 7.00% + 200 basis points. Consequently, in line with the then prevailing HERC RE Regulations, 2017, the Commission approved interest on term loan & working capital, as 9% (i.e. Average SBI MCLR (one-year tenor) plus a margin of up to 200 basis points). Accordingly, the discounting factor for working out levelised tariff was taken as weighted average cost of capital i.e. 10.50%. The Petitioner has relied on sanction letter of IREDA dated 13.02.2020 to claim higher cost of financing. It is submitted that as on 13.02.2020, the project was enveloped with uncertainty of constant power supply. However, with execution of PPA with respondent, the petitioner could renegotiate the terms of the loan to avail benefits of lower financing cost with power purchase assurance and immediate deployment of funds.

Petitioner's Reply

The petitioner have sought financial assistance from Financial Institution under the administrative control of MNRE. This is a premiere body working on renewable projects pan India and having exposure of 17585 MW for renewable projects. There is no point

in challenging this Government body with other NBFC & public banks. The prevailing rate from IREDA is well published and approved by the Govt of India.

REQUEST OF THE PETITIONER FOR EXTENSION OF SCOD IS UNTENABLE–

z) The petitioner has prayed for extension of 3 months for Commissioning of the power plant. At the outset, the grant of said relief is outside the purview of the present petition which has been filed only for determination of tariff under Section 62 of the Electricity Act, 2003. The said prayer is thus, liable to be rejected on this short score. However, without prejudice to the objection regarding tenability of the prayer of the petitioner for extension of time for achieving SCOD, it is submitted that HPPC vide letter dated 11.05.2021 has already intimated to the Petitioner that the case for extension of time will be considered by HPPC on merits after the completion of the Plant as per the terms and conditions of the Contract.

Petitioner's Reply:

As per the PPA signed between the petitioner and the respondent (HPPC), the SCOD was 30th April 2021. However, due to subsequent developments arising out of Covid-19, which was beyond the control of the petitioner, the project got delayed. Now, once the clearance is received from the Chief Electrical Inspector, the COD shall be declared after grid synchronization as per the terms of the PPA. Once the CEIG is completed it will be taken up for further clearances from the department. Thereafter, the commercial operation date is purely dependent upon the time taken by the authority concerned.

Additional Submissions of the intervener (HPPC)

The respondent (HPPC), thorough its Advocate Smt. Sonia Madan, made a few additional submissions on 09.08.2021. The submissions made by the Ld. Advocate, in brief, and the Commission's view on the same is as under:

It has been submitted that the averments made in the present proceedings are not intended to adversely represent the claims of the petitioner. Going forward, the Ld. Advocate refers the case as 'adjudication' i.e. "The said averment has been (sic.) irrelevant for the adjudication of present proceedings". It needs to be noted that the present proceedings are u/s 62 of the Electricity Act, 2003 for determination of tariff within the four corners of the statutes and the relevant regulations in vogue. It is not a proceeding for adjudication u/s 86(1)(f) of Act. However, the Commission is duty bound to consider all suggestions and objections received from the public (cf. section 64(b) of the Act). In the present case, the intervener is not a 'public' but because of its status

of a public utility, the Commission has considered all the comments / suggestions and objections filed by HPPC from time to time.

i. The Commission has taken on record the submission of HPPC that the solar power plant of the petitioner herein has been declared commissioned for commercial operation on 31.07.2021. The contracted capacity commissioned is 20 MW AC / 20.24 MW DC. Resultantly, the additional prayer made by the petitioner on the issue of extension of SCOD and the objections filed by the intervener, has become infructuous.

ii. HPPC has brought out the issue of excess infusion of 'equity', HPPC needs to note that the regulations occupying the filed regarding treatment of excess equity is crystal clear i.e. return on equity shall be restricted to 30% of the admitted projects cost and any excess equity capital that may have been infused shall be treated as normative loan. It is observed that any bank / financial institutions, with the exception of PE Fund and Venture Capital Fund and balance sheet-based funding (not relevant in the present case) will not fund any project unless they are sure about the project IRR as distinct from equity IRR, cash flows and debt service coverage ratio of the project. These cannot be ascertained in the absence of tariff. The tariff applicable for Amplus, as determined by the Commission, is project specific and the same has also been appealed against in the Hon'ble Aptel by both HPPC as well as Amplus. Hence, the same has not reached finality to be considered as a benchmark or indicative tariff by a project lender.

iii. HPPC has dwelt, at length, on the cost of PV modules, EPC cost, cost of transformer cost of connectivity, lease rentals, interest rate on term loan, O&M cost as well as project cost and CUF. All these issues have been discussed and deliberated by the parties during the proceedings in the present case, hence, nothing new has now been pointed out by the respondent to be of any assistance to the Commission as such. Resultantly, directing the petitioner herein to reply to the averments now made by HPPC will not serve any purpose.

Petitioner's reply to the additional submissions

Subsequent to the ibid comments submitted by the Respondent 1 (HPPC) dated 09.08.2021, the Petitioner has filed its reply dated 13.08.2021, briefly stated, below:

The petitioner, on the issue of solar module cost, has reiterated that the present petition is for project specific tariff determination. Further, it has been submitted that the cost

comparison of a 20 MW solar project with a 550 MW solar power plant under reverse bidding procedure on component level is not the correct method to appraise a project cost as the [rojects commissioned under SECI tenders avail benefits such as – common pooling station, common transmission line and fiscal incentive like Accelerated Depreciation and others. Also, the respondent is quoting references of various SERCs and Reverse bidding tenders for benchmarking of Project cost but refuting on the matter of levelized Tariff of the various SERCs as the levelized tariff are not as per their expectations.

On the issue of EPC, O&M expenses, lease rentals and interest of term loan, the petitioner has reiterated the submissions that have already been made by them. However, the petitioner in its present reply on project cost vis-à-vis CUF, has made detailed submissions as under:

That the Petitioner has submitted the DPR (Annexure 4 of the Original petition filled dated 16.11.2020). The Yearly Generation from a 24 MW (DC Capacity) solar plant was envisaged as 35420 Mwh. The CUF (AC) of the plant will be as:

$$\text{CUF (AC Capacity) \%} = \frac{\text{Generation from the Plant}}{(365*24*\text{Plant Capacity})} * 100 = \frac{35420*1000*100}{(8760*20000)} = 20.216\%$$

As per the PVSyst Report submitted by the Petitioner (Annexure 16 of the Response submitted on 16.11.2020), specific production from a 24MW (DC)/20 MW(AC) Solar PV Plant is 1558 kwh/kwp/yr. Thus, the yearly production from 24MWp =37,392 MWh (Attached in **Annexure 1**, comparison of CUF Calculation of under two different scenarios of AC/DC ratio)

$$\text{CUF (AC Capacity) \%} = \frac{\text{Generation from the Plant}}{(365*24*\text{Plant Capacity})} * 100 = \frac{37392*1000*100}{(8760*20000)} = 21.34\%$$

Hence, the Respondent's claim that the Petitioner has coined the claim of CUF is inaccurate and misleading.

The formula mentioned above is standardised for CUF calculation. Hence, to achieve a CUF of 21.34% the DC Capacity of the plant must be 24 MW at that particular geographical location considering the same output efficiency of the solar PV modules. Thus, restricting the DC capacity of the Solar plant to the AC Capacity to achieve a lower tariff will only put

unnecessary financial burden on the Petitioner and hence, make the project completely financially unviable.

Further, due to consideration of higher CUF without overloading the DC Capacity, the Petitioner will have to pay penalty to the Respondent for shortfall in CUF as per the PPA signed on 30.10.2020.

The petitioner guarantees a CUF of 21.34% in the 1st yr of operation subject to overloading of DC Capacity by 4 MW. A CUF as high as 21% is technically impossible to achieve with AC/DC ratio as 1:1 as per the Regulation No. HERC/53/2021 dated 27.04.2021. Also to the bring to the notice of the Hon'ble Commission, M/s Avaada Green HN Project Pvt Ltd has also claimed a CUF of 17.119% for their 50 MW solar plant where AC/DC ratio is 1:1 **(**Reference to HERC/Petition No.-16 of 2021**).**

Hence, the petitioner has prayed that the Commission may consider the total 24 MW DC Capacity cost in the tariff determination to meet the annual CUF of 1st year as 21.34%. Otherwise, to consider the plant capacity at 20MW DC for tariff determination, the CUF may be fixed at 17.79%. The Commission may also refer to Industry Experts and MNRE approved testing laboratories of solar PV to ascertain the claim of the Petitioner regarding the CUF of 17.79% while considering the DC capacity of the plant at 20MW and 21.34% while considering the DC capacity of the plant at 24MW at the present geographical location with the existing plant & machinery.

In view of the above submissions, the petitioner has reiterated that the project cost of Rs. 90.448 crore claimed by them is justified and all the relevant documents regarding the cost have been submitted to the Commission from time to time. Hence, the Commission may allow the proposed tariff of Rs 4.03/kwh under Section 62 of Electricity Act 2003, for project specific tariff determination.

Commission's Analysis & Order

7. The Commission heard the arguments of the parties at length as well as perused the written submissions placed on record by them. At the onset the Commission observes that the CoD of the project, as informed by the parties, has been declared on 31st July, 2021. Hence, the project falls in the FY 2021-22 to FY 2024-25 control period. Resultantly, the tariff u/s 62 of the Electricity Act, 2003 shall be determined in line with the relevant provisions of the HERC RE Regulations 2021.

8. Upon perusing the claims and counter claims of the parties herein, the Commission observes that the two most significant factor for determination of tariff are Capacity Utilization Factor (CUF) and Project Cost. Hence, the Commission has considered it appropriate to settle the issue of CUF and Project cost first, before proceeding to reckon, with other parameters.

CUF

The petitioner has claimed that for 24 MW (DC) capacity cost first year CUF may be pegged at 21.34%, otherwise, considering DC:AC ratio of 1:1 for tariff determination, the first year CUF may be fixed at 17.79%. As against this the intervener i.e. HPPC, has submitted that DC CUF, as per the DPR and envisaged generation is 18.80%. Hence, AC CUF of 21.32% is not justified and the hence the CUF may not be pegged lower than 19%

The Commission has considered the rival submissions and all other data / details available on record. It needs to be noted that the HERC Regulations in vogue neither talks about DC capacity nor lays down any benchmark ratio between DC:AC capacity. Hence, all the norms relate only to AC Capacity. The AC CUF proposed by the petitioner is 17.79% on the basis of DC CUF of 21.34%. As per the intervener is ought to be still lower considering 18.80% DC CUF.

The Commission has pressed the HERC Regulations occupying the filed and the same is reproduced below:

***"48. Capacity Utilization Factor**. –* *The Commission shall approve capacity utilization factor for project specific tariff determination.*
Provided that the ***minimum capacity utilization*** **(emphasis added)** *factor for Solar PV project including floating solar project shall be 21%".*
The Commission, after due deliberations, had fixed the minimum benchmark CUF of 21% and is bound by the same. Resultantly, the Commission, for the purpose of tariff determination in the present case **pegs the AC CUF at 21%** for the first yea **with annual degradation of 0.50%** and is not inclined to agree with the parties to lower the same. The fact, however, is not denied that by adding modules at DC end i.e. DC capacity greater than one with corresponding higher capital outlay, the AC CUF can also be increased beyond the minimum benchmark.

Project Cost

HPPC, in its submissions dated 16.07.2021 has pointed out that escalation in O&M expenses should be allowed @ 2.93%, as per the relevant provisions of Clause 49 (2) of HERC RE Regulations, 2021. The Commission observes that '*Haryana Electricity Regulatory Commission (Terms and Conditions for determination of Tariff from Renewable Energy Sources, Renewable Purchase Obligation and Renewable Energy Certificate) Regulations, 2021 ('HERC RE Regulations, 2021')*' have been notified on 30.04.2021, in respect of control period from the FY 2021-22 to FY 2024-25. Since, the project of the Petitioner has not achieved CoD till 30.04.2021 and is expected to achieve the same in the FY 2021-22, the norms specified in the 'HERC RE Regulations, 2021' shall be applicable, as against 'HERC RE Regulations, 2017' pleaded by the Petitioner in its present petition. The Commission has carefully examined the Regulations occupying the field. Second Proviso to Regulation clause no. 47 of HERC RE Regulations, 2021 provides that the norms including Capital Cost, O&M expenses etc. shall be determined on the basis of prevalent market trend. The broad guidelines of the relevant regulations are as under: -

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.

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

The Commission shall now proceed to examine and decide each component relevant for determination of tariff in the present case:-

a) **CUF:**

The Petitioner, in its submissions dated 08.02.2021, submitted that based on the PVSYST simulations for the Project, CUF is estimated to be 20.62% AC (21.32% less 3.287% grid downtime). The CUF is further adjusted for 0.5% on account of module degradation.

The Commission observes that while calculating CUF of 21.32%, 3.37% system unavailability has already been subtracted in the PVSYST report submitted by the Petitioner and grid downtime of 3.287% has been again subtracted from 21.32%, to

claim CUF of 20.62%. Thus, double claim over system unavailability has been taken by the Petitioner. The Commission, in its Order dated 18.01.2021 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.) had rejected the adjustment of the petitioner in the CUF, towards plant unavailability (0.50%) and system unavailability (1%). 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 3.37% in the PVSYST report is added back while calculating CUF of 22.14%. The Commission further observes that HERC RE Regulations, 2021, specifies the minimum acceptable capacity utilization factor of 21% for solar PV power projects. Thus, there is, as such, no bar on the claim of the Petitioner of higher CUF @ 22.14% AC, due to its efficient design and AC:DC ratio. Accordingly, the Commission approves CUF @ 22.14% AC, as proposed, with annual degradation of 0.50% for working out tariff in the present case.

b) **Capital cost**

The Petitioner has claimed capital cost of Rs. 90.448 Crore for 24 MWp DC capacity i.e. Rs. 3.768 Crore / MW. The break-up of the capital cost claimed is presented below.

Sr. No.	Particulars	Rs. Crore
1	Solar Pv Modules (including SGD#)	47.82
2	Inverter & BOS	24.752
3	Installation & Commissioning	10.875
4	Cost of Evacuation up to interconnection point	1.465
5	Civil Works	1.07
6	Land Development	0.056
7	Financing Cost	0.67
8	Project Management	1.55
9	Lease Rentals for Land (paid in advance)	2.19
TOTAL		**90.448**

The intervener in the present case i.e. HPPC has vehemently countered the claim of the Petitioner for the exorbitant capital cost claim of Rs. 90.448 Crore. It has also been pointed out that as on 15.06.2021 the actual cost incurred is Rs. 76.48 Crore only.

The intervener cited orders of various State Commissions, wherein capital cost per MW has been approved significantly lower than that claimed by the petitioner herein. Additionally, it has been brought to the notice of the Commission, that officers of the intervener visited the plant site of the Petitioner on 10.07.2021. Subsequent to the said visit, HPPC filed additional comments dated 16.07.2021, raising apprehension of excessive capital cost claimed by the Petitioner w.r.t. Land, Invertors, Transformers, Solar PV Modules, Civil Work & Land Development, Evacuation line etc. Per Contra, the petitioner has argued that project cost approved by the SERCs vary across different states and hence cannot be considered as the benchmark. Moreover, while determining case specific tariff u/s 62 of the Electricity Act, the Commission is expected to take into consideration the purchase order / invoices submitted in the matter.

The Commission has carefully examined the contentions of the parties and observes that Uttarakhand Electricity Regulatory Commission (UKERC), vide its Order dated 07.06.2019 (Petition No. 18 of 2019), has approved the benchmark capital cost for Solar PV Plants to be applicable for FY 2019-20, validity of the same was extended up to March, 2022. The benchmark Capital Cost of Solar PV plants was approved as Rs. 3.56 crore/ MW. The benchmark capital cost so determined is after considering the degradation cost of Rs. 8.84 Lakh/MW over the life of the project, GST and safeguard duty.

Further, the Commission in its Order dated 20.12.2019 (PRO-57 of 2019), while determining levelized tariff for purchase of power from decentralized Solar Power Plants set up under PM KUSUM Scheme, up to 2 MW, has determined Capital cost for the Solar Projects at Rs. 3.40 crore/ MW. The said cost included cost of the Land, evacuation system as well the monetized value attributed to degradation of solar panels.

Additionally, the Commission in its Order dated 18.01.2021 (PRO-59 of 2020), while determining levelized tariff for its 50 MW AC (75 MW DC) power plant in the same village, has determined Capital cost for the Solar Projects at Rs. 3.825 crore/ MW (50 MW AC). As against this, the Petitioner has claimed the capital cost of Rs. 90.448 Crore at Rs. 3.768 Crore/MW (24 MW DC).

The Commission observes that the Petitioner has stated that the cost has increased due to depreciated value of rupee, increase in the price of steel & glass, increased transportation cost etc. The Petitioner has further submitted in its submissions dated 06.07.2021 that PV Modules of 24 MW (DC), has been installed at the cost of Rs. 47.82 Crore (Rs. 1.9925 Crore/MW). Out of 24 MW modules, the Petitioner has incurred an amount of Rs. 40.039 Crore on procurement of 20.631 MW Modules and the balance payment is pending due to non-receipt of invoice. Per-contra, HPPC in its submissions dated 16.07.2021, has submitted that on physical verification of the plant on 10.07.2021, it was found that DC modules for nearly 4 MW capacity are yet to be installed. Therefore, there is a contradiction of the claim of the Petitioner (which claims that DC modules of 24 MW have been installed) and HPPC (which claims that DC modules of 4 MW for which the payment has not been made, are not yet installed). The fact was later confirmed by the Petitioner, in its reply dated 21.07.2021.

The Commission has perused the CERC Order dated 23.03.2016, in the matter of determination of Benchmark Capital Cost Norm for Solar PV power projects and Solar Thermal power projects applicable during the FY 2016-17, wherein the Central Commission has decided that capital cost has to be reckoned with on AC capacity and not on DC capacity, as additional modules are deployed by some developers to optimize the performance of the plant, especially the inverters and additional units of electricity are generated with the extra module capacity, resulting in higher earnings from feed-in-tariff. The remuneration due to additional units generated sufficiently covers additional costs in such a case. Accordingly, in any case the Commission has to allow cost of modules to the extent of AC capacity of 20 MW only, which has already been installed. Therefore, the Commission is not deliberating further on the pendency of installation of DC modules of 4 MW.

The Commission has also examined the submission of HPPC on the cost of Solar PV modules, which as per website report of pvinsights.com accessed on 21.10.2020, should be Rs. 1.29 Crore/MW (based on average cost of modules: USD 0.173/Watt and average exchange rate during 29.04.2020 to 21.10.2020 at Rs. 74.70/USD). A mark up of 10% over the base price of PV modules, to cover for miscellaneous cost and taxes, provides the cost of PV modules as Rs. 1.42 Crore/MW. Per-contra, the Petitioner has submitted that the benchmark module cost approved by Hon'ble UERC

in its Order dated 07.06.2019, as cited by the HPPC is Rs. 2.24 Crore/MW, as against the claim of Petitioner at Rs. 1.99 Crore/MW.

The Commission observes that 10% mark up over the base price hypothetically determined by HPPC may not hold good, taking into consideration of increased transportation cost, insurance and safeguard duty which itself is 14.90%. Nevertheless, it cannot be altogether denied that the Petitioner has not exercised due diligence and financial prudence while purchasing Solar PV modules at such high cost as Rs. 1.99 Crore/MW, particularly considering the fact that the similarly paced Solar PV Power generator M/s. Amplus Sun Solutions Pvt. Ltd., had claimed cost of solar PV modules at Rs. 132.01 Crore for 75 MW modules i.e. Rs. 1.76 Crore/MW. Accordingly, the cost of Solar PV modules is allowed at Rs. 19.925 Million/MW, as claimed by the Petitioner for 20 MW AC capacity i.e. Rs. 398.50 Million (reduced by Rs. 79.70 Million).

Similarly, the EPC cost amounting to Rs. 356.27 million includes cost of module mounting structure (Rs. 67.93 million), cost of DC supply (Rs. 42.74 million) and commissioning cost (Rs. 108.75 million) for 24 MW DC modules, which is reduced to proportionate cost for 20 MW i.e. reduced by Rs. 36.57 million. Hence, the EPC cost to be considered as part of the capital cost shall be Rs. 319.7 million.

The petitioner has also included Inverter cost (2.5 MW x 8 nos) amounting to Rs. 5.72 Crore (Rs. 2.86 Million/MW), in the EPC cost of Rs. 35.62 crore. The Commission observes that similarly placed generator i.e. M/s. Avaada Green has claimed the cost of 3.125 MW invertor as Rs. 3.256 Million (Rs. 1.04 Million/MW). Another similarly placed generator i.e. M/s. Amplus has claimed Rs. 20.8 Million for its 50 MW AC plant (Rs. 1.04 million/MW). Thus, the cost of invertor claimed by M/s. Avaada and M/s. Amplus are same at Rs. 1.04 million/MW. The Petitioner in its reply has not justified the excess claim towards the cost of invertors amounting to 36.4 Million i.e. Rs. 1.82 Million/MW for 20 MW and instead has prayed to accept the actual invoices submitted by them. Therefore, the Commission is not convinced regarding its prudence i.e. incurrence of comparatively higher invertor cost which is not aligned to the prevalent market conditions. Accordingly, cost of invertor of 20 MW is approved at Rs. 20.8 Million @ Rs. 1.04 Million/MW.

The Commission has further observed that the petitioner has included cost of 2 Transformer of 10000 MVA amounting to Rs. 35.07 million. HPPC, while objecting to

the same, has submitted that the cost of 10 MVA 33/11KV power transformer as per PD&C wing of DHBVN is Rs. 53.85 lacs only. Per-contra, the petitioner has submitted that the cost referred to by the HPPC is for 33/11 KV step down transformer, however, the power transformers in question are 660v/33 KV step up transformers. In order to resolve the claim and counter claim on the instant issue , the Commission perused the cost of Transformer claimed by similarly placed generator – M/s. Amplus for its 50 MW AC power plant. The 50 MVA 132/33 KV step up transformer was procured by them from M/s. Bharat Bijlee Ltd. at a cost of Rs. 27.21 Million only. Proportionately for 20 MVA, the cost can be derived at Rs. 10.88 Million (27.21/50*20), which is approximately the same as submitted by HPPC for 33/11 KV step down transformer. Accordingly, the Commission, for the purpose of tariff determination, approves cost of power transformer at Rs. 10.88 Million i.e. reduced by Rs. 24.19 Million (Rs. 35.07 Million minus Rs. 10.88 Million).

Thus, the EPC cost, after considering the proportionate reduction for 4 MW DC modules, in cost of module mounting structure, cost of DC supply and commissioning cost (reduction by Rs. 36.50 million), reduction in the cost of invertors by Rs. 36.4 Million and reduction in the cost of transformers by Rs. 24.19 Million, works out to Rs. 259.11 million (Rs. 356.27 million minus Rs. 36.57 million minus Rs. 36.40 million minus Rs. 24.19 million) i.e. reduced by Rs. 97.16 Million (Rs. 356.27 Million minus Rs. 259.11 Million).

Additionally, the Commission observes that the petitioner has submitted that 96 Acre of land has been taken on lease. Out of which, 91.7 Acre is used for the project. As per lease agreement submitted by the Petitioner, lease rent was required to be paid in advance for 3 years and balance lease rent on yearly basis. While justifying the advance lease rental payment of Rs. 2.19 Crore, the petitioner has submitted that this was required to enable certain land owners to clear off encumbrances i.e. loans taken against the land etc. so that the lease deed could be registered. Further, year-wise break-up of lease rent of Rs. 6.68 Crore for 18 years, claimed by the Petitioner in additional submissions, has not been furnished. The Petitioner has not addressed the objection raised by HPPC for obtaining the land on lease at lease rent of Rs. 8.87 Cr. (Rs. 2.19 Crore plus Rs. 6.68 Crore), when the purchase cost of 91.7 Acre of land at collector rate of Rs. 6 lacs/acre costs Rs. 5.50 Crore only. However, considering the duly executed lease deeds submitted by the Petitioner, as advance lease rentals, cannot be allowed as such, the Commission, for the purpose of tariff determination,

allows annual lease rent payable evened out on annual basis for the entire useful life of the project.

While approving the capital cost, the Commission observes that project specific tariff determination ought not to escape the rigor of prudence check including the market trend in India. The argument that the project was originally conceived for third party / captive role / consumption and hence state of the art technology / configuration was used leading to higher capital cost is also flawed. The Commission is of the considered view that while setting up any such project, the fact that the energy generated is to be sold to a third party or a DISCOM ought not to make any difference to the Capital Cost.

In view of the above discussions, the Commission approves capital cost of 20 MWp solar Pv power plant at Rs. 714.81 Million i.e. Rs. 35.74 million per MWp (AC) aligned to the market conditions.

c) **Operation and Maintenance (O&M) Expenses:**

The Petitioner has submitted that this Commission, in Case No. HERC/PRO – 57 of 2019, this Commission, given the ground realities, had allowed O&M expenses of Rs. 1.05 Million / MWp, to the Solar Power developers under KUSUM in Haryana. As the project of the Petitioner is also being set up in Haryana, the same may be allowed to maintain a level playing field for all Solar Power Developers in Haryana. The Petitioner further submitted that they are already operating a 10 MW AC (12 MWp DC) solar PV project in Sirsa in Haryana and currently supplying power to the Discom. The actual signed O&M cost incurred is Rs 7,06,597/MW in AC capacity (Rs 5,88,831/MW in DC capacity).

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

The Commission has considered the above submission and observes 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.), has decided the O&M expenses at Rs. 30.30 Millions/MW, excluding lease rent.

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 20 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.

d) **Lease Rentals**

The Petitioner has already entered into lease agreements with the landowners of the land on which the Project is installed. The Project, as submitted, uses a total of 91.78 acres of land which is leased by the petitioner at Rs. 30.29 Million of annual lease rental which is applicable for the period from 20.08.2019 to 19.08.2024, and shall escalate at 7% per annum, after every five years.

Considering the essentiality of the same for the project and being claimed on the basis of actual, the Commission allows the same as proposed.

e) **Interest rate on Term Loan & Working Capital**

The Commission is not convinced with the submissions of the petitioner on this issue. The Commission believes that going forward due to the inflation rate and larger access to funds for project finance, the interest rates is expected to seek lower levels. 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) (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 average of SBI MCLR (one-year tenor) of SBI during the last six months i.e. January, 2021-June, 2021, works out to 7.00%. Consequently, in line with the HERC RE Regulations, 2021, the Commission approves interest on term loan & working capital, as 9% (i.e. Average SBI MCLR (one-year tenor) plus a margin of up to 200 basis points).

The discounting factor for working out levelized tariff shall be the weighted average cost of capital (debt and equity) i.e. 10.50%.

f) **Other factors**

Other factors relevant for determination of tariff shall be considered as per the norms specified in the HERC RE Regulations, 2021. Regulation No. 12, 13 ,14 & 15 of the HERC RE Regulations, 2021, provides as under:-

***"12. Debt Equity Ratio**.*

(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.

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.

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.

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."

aa) The Commission has examined the issue raised by the petitioner in its submissions dated 03.02.2021 for extension of SCOD by another 3 months, which as per PPA dated 30.10.2020, is due on 30.04.2021, citing exigencies caused by unprecedented worldwide pandemic. The petitioner has submitted

that the Commission had allowed time extension for Commercial Operation Date for other similarly placed generators in case nos. PRO - 52 of 2020 and PRO - 55 of 2020. Per-contra, HPPC has submitted that grant of said relief is outside the purview of the present petition which is for determination of tariff, in pursuant to already executed PPA between the Petitioner and HPPC. It has been intimated that HPPC, vide letter dated 11.05.2021, has already informed the petitioner that the case for extension of time will be considered by HPPC on merits after the completion of the Plant as per the terms and conditions of the Contract. The Commission observes that the project stands commissioned, hence it is not deliberating the issue of extension in SCOD.

Based on the parameters discussed in the foregoing paras, the Commission determines the tariff for 25 years life of the project, appended to the present order (Annexure – A).

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

This Order is signed, dated and issued by the Haryana Electricity Regulatory Commission on 17.09.2021.

Date: 17.09.2021 Place: Panchkula	(Naresh Sardana) Member	(Pravindra Singh Chauhan) Member	(R.K. Pachnanda) Chairman

Tariff Determination for 20 MWp (AC) L.R. Pvt Ltd		
Table of parameters		
Capacity (MWp)	20	
Capital cost (Rs in Million)	714.81	35.74
Residual value (10%) Rs Million	71.481	
Total depreciation (Rs. Million)	643.33	
Loan component (70%) Rs. Million	500.37	
Equity component (30%) Rs. Million	214.44	
Annual Degradation (%)	0.50%	
Capcity Utiliation Factor (CUF) (%)	22.14%	
O&M (Rs. Million / MW)	6.06	0.303
O&M escalation	2.93%	
Depreciation (1st 12 years)	5.38%	
ROE (1st 10 years)	14%	
ROE (11th year onwards)	14%	
Income tax / MAT	Pass Through	
Interest on term loan	9.00%	
Interest on working capital	9.00%	
Discount rate (Weighted Average Cost of Capital)	10.50%	
Levellised tariff (Rs /kWh)	2.5843	

ANNEXURE - A

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 wity escalation from the 2nd years onwards	6.06	6.24	6.42	6.61	6.80	7.00	7.21	7.42	7.63	7.86	8.09	8.33	8.57	8.82	9.08	9.35	9.62	9.90	10.19	10.49	10.80	11.11	11.44	11.77	12.12	
Outstanding Loan amount	500.37	461.88	423.39	384.90	346.41	307.92	269.43	230.94	192.45	153.96	115.47	76.98	38.49													
Loan repayment	38.49	38.49	38.49	38.49	38.49	38.49	38.49	38.49	38.49	38.49	38.49	38.49	38.49													
Interest on loan	43.30	39.84	36.37	32.91	29.44	25.98	22.52	19.05	15.59	12.12	8.66	5.20	1.73													
Working capital																										
One month O&M & Lease Rental	0.76	0.77	0.79	0.80	0.82	0.85	0.87	0.89	0.91	0.93	0.96	0.98	1.00	1.02	1.05	1.09	1.11	1.13	1.16	1.18	1.23	1.26	1.28	1.31	1.34	
2 Months receivables	20.48	19.92	19.37	18.81	18.26	17.75	17.19	16.65	16.10	15.55	15.04	14.50	13.95	9.22	9.26	9.35	9.40	9.45	9.50	9.55	9.64	9.70	9.76	9.81	9.87	
Maintenance spares 15% of O&M	0.91	0.94	0.96	0.99	1.02	1.05	1.08	1.11	1.15	1.18	1.21	1.25	1.29	1.32	1.36	1.40	1.44	1.49	1.53	1.57	1.62	1.67	1.72	1.77	1.82	
Total	22.14	21.63	21.12	20.61	20.10	19.65	19.15	18.65	18.15	17.65	17.22	16.73	16.24	11.56	11.67	11.84	11.95	12.07	12.18	12.30	12.50	12.62	12.76	12.89	13.03	
Interest on working capital	1.99	1.95	1.90	1.85	1.81	1.77	1.72	1.68	1.63	1.59	1.55	1.51	1.46	1.04	1.05	1.07	1.08	1.09	1.10	1.11	1.12	1.14	1.15	1.16	1.17	

Particulars	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)	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	
CUF(%) 0.5% Module Degradation per annum)	22.14%	22.03%	21.92%	21.81%	21.70%	21.59%	21.48%	21.38%	21.27%	21.16%	21.06%	20.95%	20.85%	20.74%	20.64%	20.54%	20.43%	20.33%	20.23%	20.13%	20.03%	19.93%	19.83%	19.73%	19.63%	
Generation (Million Units)	38.79	38.60	38.40	38.21	38.02	37.83	37.64	37.45	37.26	37.08	36.89	36.71	36.52	36.34	36.16	35.98	35.80	35.62	35.44	35.27	35.09	34.91	34.74	34.57	34.39	913.7
Aux Energy 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%	0.25%	
Generation (Ex-bus Mllion Units)	38.69	38.50	38.31	38.11	37.92	37.73	37.55	37.36	37.17	36.99	36.80	36.62	36.43	36.25	36.07	35.89	35.71	35.53	35.35	35.18	35.00	34.83	34.65	34.48	34.31	911.43
Fixed Costs																										
O&M Expenses	6.06	6.24	6.42	6.61	6.80	7.00	7.21	7.42	7.63	7.86	8.09	8.33	8.57	8.82	9.08	9.35	9.62	9.90	10.19	10.49	10.80	11.11	11.44	11.77	12.12	218.9
Depreciation	38.46	38.46	38.46	38.46	38.46	38.46	38.46	38.46	38.46	38.46	38.46	38.46	38.46	11.95	11.95	11.95	11.95	11.95	11.95	11.95	11.95	11.95	11.95	11.95	11.95	643.3
Land Lease Rental	3.03	3.03	3.03	3.03	3.03	3.24	3.24	3.24	3.24	3.24	3.47	3.47	3.47	3.47	3.47	3.71	3.71	3.71	3.71	3.71	3.97	3.97	3.97	3.97	3.97	87.2
Interest on Term Loan	43.30	39.84	36.37	32.91	29.44	25.98	22.52	19.05	15.59	12.12	8.66	5.20	1.73													292.7
Interest on Working Capital	1.99	1.95	1.90	1.85	1.81	1.77	1.72	1.68	1.63	1.59	1.55	1.51	1.46	1.04	1.05	1.07	1.08	1.09	1.10	1.11	1.12	1.14	1.15	1.16	1.17	35.7
Return on Equity	30.02	30.02	30.02	30.02	30.02	30.02	30.02	30.02	30.02	30.02	30.02	30.02	30.02	30.02	30.02	30.02	30.02	30.02	30.02	30.02	30.02	30.02	30.02	30.02	30.02	750.6
Income tax on ROE																										
Fixed Cost (Rs. Mln)	122.86	119.53	116.20	112.88	109.57	106.47	103.17	99.87	96.58	93.29	90.25	86.98	83.71	55.30	55.57	56.10	56.38	56.67	56.97	57.28	57.87	58.20	58.53	58.88	59.24	2028.4
Tariff (Rs/kWh)	3.18	3.10	3.03	2.96	2.89	2.82	2.75	2.67	2.60	2.52	2.45	2.38	2.30	1.53	1.54	1.56	1.58	1.59	1.61	1.63	1.65	1.67	1.69	1.71	1.73	55.1
Per unit tariff components																										
Per unit O&M Expenses	0.16	0.16	0.17	0.17	0.18	0.19	0.19	0.20	0.21	0.21	0.22	0.23	0.24	0.24	0.25	0.26	0.27	0.28	0.29	0.30	0.31	0.32	0.33	0.34	0.35	6.1
Per Unit Depreciation	0.99	1.00	1.00	1.01	1.01	1.02	1.02	1.03	1.03	1.04	1.05	1.05	1.06	0.33	0.33	0.33	0.33	0.34	0.34	0.34	0.34	0.34	0.34	0.35	0.35	17.4
Per Unit Land Lease Rental	0.08	0.08	0.08	0.08	0.08	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.10	0.10	0.10	0.10	0.10	0.10	0.11	0.11	0.11	0.11	0.11	0.12	0.12	2.4
Per Unit Interest on term loan	1.12	1.03	0.95	0.86	0.78	0.69	0.60	0.51	0.42	0.33	0.24	0.14	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	7.7
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	1.0
Per Unit Return on equity	0.78	0.78	0.78	0.79	0.79	0.80	0.80	0.80	0.81	0.81	0.82	0.82	0.82	0.83	0.83	0.84	0.84	0.84	0.85	0.85	0.86	0.86	0.87	0.87	0.88	20.6
Per unit Income tax	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
Levellised tariff computation																										
Discount factor	1.00	0.90	0.82	0.74	0.67	0.61	0.55	0.50	0.45	0.41	0.37	0.33	0.30	0.27	0.25	0.22	0.20	0.18	0.17	0.15	0.14	0.12	0.11	0.10	0.09	9.7
Discounted tariff components(fixed) Rs / kWh	3.18	2.81	2.48	2.20	1.94	1.71	1.51	1.33	1.17	1.03	0.90	0.79	0.69	0.42	0.38	0.35	0.32	0.29	0.27	0.24	0.22	0.21	0.19	0.17	0.16	25.0
Levellised tariff (Rs / kWh)	2.5843																									