

TAMIL NADU ELECTRICITY REGULATORY COMMISSION
(Constituted under section 82 (1) of the Electricity Act, 2003)
(Central Act 36 of 2003)

PRESENT:

Thiru M.Chandrasekar Chairman
Dr.T.PrabhakaraRao Member
and
ThiruK.Venkatasamy Member (Legal)

M.P. No.4of 2018

M/s. Ranergy Solutions P Ltd,
23, Jaganathan Nagar,
II Main Road, Arumbakkam,
Chennai – 600 106,
Repd by its Director V.M. Kannappan

... Petitioner
(ThiruR.S.Pandiyaraj
Advocate for the Petitioner)

Vs.

1. Tamil Nadu Generation and Distribution Corporation Ltd.,(TANGEDCO)
10th Floor, No. 144, Anna Salai,
Chennai – 600 002
Represented by its Chairman and Managing Director
2. The Chief Engineer/NCES,
2nd Floor, Eastern Wing,
44, Anna Salai,
Chennai – 600 002.

... Respondents
(ThiruM.Gopinathan
Standing Counsel for TANGEDCO)

Dates of hearing : 13-03-2018; 08-06-2018; 15-10-2019;
12-11-2019; 17-12-2019; 11-02-2020;
25-02-2020; 04-08-2020; 08-09-2020;
29-09-2020; 13-10-2020; and 03-11-2020

Date of Order : 22-12-2020

The M.P.No.4 of 2018 came up for final hearing on 03-11-2020. The Commission upon perusal of the petition and connected records and after hearing the submissions of the petitioner hereby makes the following:-

ORDER

1. Prayer of the Petitioner in M.P. No.4 of 2018:-

The prayer of the petitioner in this petition is to pass an order in the nature of direction or clarification on the interpretation of the 19% CUF value as per TNERC Tariff Order No.7 of 2014 dated 12-09-2014 and consequently set aside the circular issued by the 2nd Respondent bearing Lr.No.CE/NCES/SE/SOLAR/EE/SCB/AEE3/F.Policy issue-PLF/D.540/17,dated 14-06-2017 as being arbitrary, illegal, violative of the principles of natural justice besides being violative of the provisions of the Electricity Act, 2003 and the orders of this Commission.

2. Prayer in I.A. No.1 of 2018 in M.P. No.4 of 2018:-

The petitioner has reiterated most of the averments made in the petition in this I.A. also. In addition to that the following prayer has been made:-

The Petitioner has made out a prime facie case and the balance of convenience in favour of the Petitioner. Therefore, unless the Respondents, their subordinates, men and agents are restrained from any manner seeking to enforce the impugned circular issued by the 2nd Respondent bearing Lr. No. CE/NCES/SE/SOLAR/EE/SCB/AEE3/F. Policy issue- PLF/D. 540/17 dated 14.06.2017, the Petitioner would not be able to run their power plant and they would be put into great hardship and irreparable loss. The Petitioner's Solar Plant runs the risk of becoming a Non Performing Asset (NPA) if this arbitrary and illegal CUF limit of 19%

imposed by the respondents. On the other hand, no prejudice would be caused to the Respondents for granting such interim orders.

The petitioner is filing an interim prayer petition vide Regulation 32 of The Tamil Nadu Electricity Regulatory Commission (Conduct of Business) Rules, 2004.

In the above circumstances, it is therefore prayed that the Commission may be pleased to pass an Order of INTERIM INJUNCTION restraining the Respondent, their men, agents, from any manner seeking to enforce the impugned circular issued by the 2nd Respondent bearing Lr.No.CE/NCES/SE/SOLAR/EE/SCB/AEE3/F. Policy issue- PLF/D. 540/17 dated 14.06.2017 pending disposal of the Petition and pass such further or other Orders as the Commission may deem fit and proper in the facts and circumstances of the case.

3. Facts of the Case:-

This petition has been filed to issue a clarification on the interpretation of the 19% CUF value as per TNERC Tariff Order No.7 of 2014, dated 12-09-2014 and consequently set aside the circular issued by the 2nd Respondent bearing Lr. No. CE/NCES/SE/SOLAR/EE/SCB/AEE3/F.Policy Issue-PLF/D.540/17, dated 14-06-2017.

4. Contentions of the Petitioner:-

4.1. The present petition is being filed challenging the arbitrary action of the 2nd Respondent in not making payments for units of electricity supplied by the Petitioner's solar power generating company and so availed by

the 2nd Respondent in excess of units corresponding to 19% of Capacity Utilization Factor and deducting the same from the payment to be made by the 2nd Respondent for such units as contained in a Policy note dated 14.06.2017 bearing Lr. No. CE/NCES/SE/SOLAR/EE/SCB/AEE3 /F. Policy issue- PLF/D. 540/17 and the consequent letter issued to the Petitioner dated 27.11.2017 bearing Lr. No:CE/NCES/SE/Solar/EE/SCB /AEE-1/F. CUF/D. 1085/17. Such an action amounts to an illegal interference in the right of a generator, which is impermissible under the provisions of the Electricity Act, 2003. Further there is no authority either in law or the Regulations to allow for such a restriction in generation, which is unilaterally and arbitrarily imposed.

4.2. The Government of Tamil Nadu announced its Solar Policy, namely the "Tamil Nadu Solar Energy Policy 2012" during the year 2012 through its GO (Ms.) NO.121 dated 19.10.2012. Considering the environment friendly attributes of solar power the petitioner decided to establish the solar power project in the State of Tamil Nadu. Accordingly, enthused by the policy, the Petitioner has set up 2 MW Solar Power Plant and accordingly the Petitioner had gone for seeking loans and had procured lands to set up the Solar Energy Plant.

4.3. The Petitioner states that the Commission also issued tariff orders for solar power being Tariff "Comprehensive Tariff Order on Solar Power" dated 12.09.2014 under Tariff Order No.7 of 2014 and the latest being the "Comprehensive Tariff Order on Solar Power" dated 28.03.2016 under Order No 2 of 2016 ("Tariff Orders"), The Tariff Orders are essentially for the purposes of procurement of power

by the TANGEDCO.

4.4. The Petitioner states that to promote generation from renewable energy sources, the Commission has so far issued fifteen Tariff Orders in respect of various Renewable Sources of Energy in accordance with Section 86 (1) (e) of the Electricity Act, 2003. Furthermore, the Government of India, through the Ministry of New and Renewable Energy has launched the Jawaharlal Nehru National Solar Mission ("JNNSM") in 2009 to promote the grid connected and off grid solar power generation. Accordingly, the Commission, by way of Order Nos. 1 & 2 dated 27.05.2010 and 8.7.2010 respectively, has determined the tariff for Solar Photo Voltaic (PV) and Solar Thermal power under this Scheme.

4.5. Being encouraged by the policy initiatives of the Government of Tamil Nadu, the Petitioner, proposed to develop solar power project. Initially, the Government of Tamil Nadu proposed the development of Solar Generation in the State through the announcement of a Tariff and calling for tenders. This was purportedly issued under S.63 of the Electricity Act, 2003 and by virtue of the same, the rates fixed by way of a tender are required to be adopted by the State Regulatory Commission. The Petitioner states that in 2014, the Commission, has published a "Comprehensive Tariff Order on Solar Power" Order No.4 of 2014 (dated 12.09.2014) by which it has determined the tariff payable to solar power plants commissioned during the control period of the said order at the rate of Rs.7.01 per unit. With the introduction of this, the award of contract under the tender system had been scrapped and it is only the Preferential Tariff Scheme that is in force. Accordingly, the Petitioner

have entered into Energy Purchase Agreement with the 1st Respondent under the Preferential Tariff Scheme. Subsequently for the later control Period, Tariff Orders have been issued in Order No. 2 of 2016 dated 28-03.2016.

4.6. The Petitioner entered into an Energy Purchase Agreement ("EPA") dated 06.04.2015 with the 1st Respondent under the Tariff Order dated 12.09.2014 for selling the solar energy generated from its solar power plant to the 1st Respondent TANGEDCO, having a total capacity of 2 MW. The Petitioner has set up its Solar Power Plant, having a capacity of 2 MW at T.Karisalkulam Village, Thiruchuli Taluk, Virudhunagar District having HT SC No. 021 on March 18th 2016. It is further submitted that the Petitioner's Solar Power Plant operates under the preferential tariff scheme at an applicable rate of Rs.7.01 based on Tariff Order No.7 of 2014 dated 12.09.2014 for sale to the 1st Respondent TANGEDCO.

4.7. The subject of Electricity was in the complete domain of the State Governments till 2003 and accordingly, they have been exercising monopolistic powers with the consumers *inter alia* in the matter of Distribution of Electricity, till the coming in to force of the Electricity Act 2003. The Electricity Act 2003 was enacted in the Parliament of India, to address the following main objectives. Encouraging autonomous regulation with the separation of policy regulation and operational aspects

- (a) Rationalizing tariff and lowering the cross subsidization levels
- (b) Creating competition in the industry
- (c) Ensuring supply of electricity to all areas
- (d) Protecting consumer interests

4.8. To implement the above objectives, a National Electricity Plan shall be prepared

in accordance with National Electricity Policy every 5 years, National policy on stands alone systems for rural areas and Nonconventional energy systems. National policy on electrification and local distribution in rural areas.

4.9. In addition to the above changes, the following vital changes were also introduced in the new law, which are the salient features of the Electricity Act 2003.

Restructuring:

- Vertical integration instead of horizontal unbundling of State Electricity Boards (SEBs) to make them financially strong
- State governments will have the freedom to decide the sequence and phases of restructuring and also retain the integrated structure of the SEB for a limited period.
- Introduction of the concept of power trading as a distinct activity, and the introduction on of a spot market for bulk electricity.

Generation:

- Removal of captive power plants from the ambit of licensing and other permissions
- Generators can contract directly with DISCOMs
- DISCOMs can have embedded generation
- Captive generation allowed freely—can supply to associates
- Elimination of Licensing requirement and techno-economic clearances for generation projects except hydel projects.

Transmission & Distribution

- Provision for Private participation in Distribution
- Surcharge for open access to meet current cross-subsidy burden (except for CPP's)
- Dedicated transmission lines allowed
- Central and State Transmission Utilities (CTU and STUs) not permitted to trade
- Transmission licensees allowed
- Multi Year Tariff (MYT) recommended
- Bidding allowed

4.10. After coming in to force of the Electricity Act 2003, the system of providing licenses for generators was dispensed with and any generator can generate electricity without a license. To regulate the policies embedded in the Electricity Act 2003, at the National level, Central Electricity Regulatory Commission was entrusted

with powers and functions. With the same objective, at the State level, the State Regulatory Commissions were provided with the powers and functions and accordingly, the whole system of Electricity Administration was shifted from Board's Regime to Regulator's Regime and all the Electricity Boards owned by the State Governments (SEBs) have become just Distribution Licensees and Generating Companies wherever such generating facilities are owned by the SEBs. Accordingly, the Respondent Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO) was incorporated in Tamil Nadu by way of G.O.Ms.No.114, Energy (B2) Department, dated 08.10.2008 in principle and thereafter. the Reorganization and Transfer Schemes have come into force by way of GO Ms. No. 100 Energy (B2) Department dated 19.10.2010. Accordingly, the Board's Regime was shifted to Regulator's Regime. An important object of the Electricity Act 2003 was to liberalize and the system of granting licenses to generate electricity was dispensed with in order to bring more private participation in the field of Generation of Electricity.

4.11. While so, it is submitted that the 2nd Respondent herein issued instructions by way of a Circular dated 14.06.2017 bearing Lr. No.CE/NCES/SE/SOLAR/EE/SCB/AEE3/F. Policy issue- PLF/D. 540/17 on the lapse of excess generation in terms of units, exceeding 19% annual PLF and curtailing the excess generation in terms of MW beyond contracted capacity. The working instructions issued are to be followed for the calculation of exported energy in respect of solar power plants commissioned under the preferential tariff scheme as per the terms and conditions of this Commission's Order No. 7 of 2014 dated 12.09.2014 and Order No. 2 of 2016 dated 28.03.2016.

4.12. As per this circular, the excess generation in terms of MW generated, if any, in

respect of Solar Power Plants commissioned under the preferential tariff scheme beyond the actual installed capacity for a particular billing month, the equivalent energy in terms of units, for the excess MW shall be calculated and shall not be considered for payment.

4.13. Further, the energy units corresponding to the excess MW calculated as such are to be deducted from the particular monthly bill itself and after deducting the energy equivalent to the excess MW, the balance energy may be considered for calculating annual cumulative PLF for that particular month at the end of the financial year. Additionally, the excess generation in terms of units generated, if any, in respect of the plants commissioned under preferential tariff scheme beyond the norms of 19% of annual Plant Load Factor (PLF) fixed by the Commission in its orders dated 12.09.2014 and 28.03.2016, shall be calculated at the end of the financial year and deducted. The energy generated during the month and the total energy generated during the financial year up to that month are to be furnished along with the bill.

4.14. The Petitioner states that such a circular has been issued illegally and the 2nd Respondent does not have the jurisdiction to make such a determination in view of the orders dated 12.09.2014 and 28.03.2016. It is further submitted that the Commission has in several cases directed the TANGEDCO to approach it for any clarifications and not to issue suo-moto circulars. Therefore, any issue, such as this ought to have been preceded by a petition before the Commission rather than issuance of a unilateral circular by the 2nd Respondent.

4.15. The Petitioner Commissioned their 2 MW AC Solar Power plant on March 18th,

2016 and have been supplying power to Respondent since then. The Petitioner have been preparing invoices after each meter reading by the Respondent (on 25th day of every month) and submitting it to SE, TANGEDCO, Virudhunagar. However the Respondent is in the habit of making payments to the invoices with a delay of about 6 to 7 months from the due date. While the facts being so, the Respondent has orally informed the Petitioner that the payment for March 2017 has been withheld. The Petitioner issued a letter dated 20.11.2017 to the 2nd Respondent seeking clarification with respect to the payment withheld as against its Tariff Invoice for the month of March. 2017. To the Shock and surprise of the Petitioner, the 2nd Respondent vide his letter dated 27.11.2017 has denied payment of Rs.47,51,939/- for the month of 03/2017 & 04/2017 on account of disallowance of 677880 units since the generation being beyond 19% PLF for the tariff year 2016-17. Therefore, the Petitioner issued a letter dated 27.11.2017 setting out that the Energy Purchase Agreement does not stipulate that payment would not be made if the generation is above 19% PLF and no such provision has been included in the Tariff Oder or any regulation issued by the Commission. In fact, the entire power generated from the Plant has been injected only to TANGEDCO/TANTRANSCO's Grid.

4.16. The 2nd respondent has deducted the following from the March & April 2017 bill payment even after the representation made as follows:-

Name of Developer	Units disallowed for year ending Mar 2017	Payment not made for power already injected
Ranergy Solutions Private Limited	677880 units	Rs. 47,51,939 (deducted from Mar 2017 and Apr 2017 invoice payments)

4.17. It is submitted that the recovery notice dated 27.11.2017 has been issued based on the 2nd Respondent's instructions vide Circular dated 14.06.2017 and as per the circular, the excess generation in terms of units generated, if any, in respect of the plants commissioned under preferential tariff scheme beyond the norms of 19% of annual Plant Load Factor (PLF) fixed by the Commission its orders dated 12.09.2014 and 28.03.2016, shall be calculated at the end of the financial year and deducted. The Petitioner states that such a circular has been issued illegally and the 2nd Respondent does not have the jurisdiction to make such a determination in view of the Orders dated 12.09.2014 and 28.03.2016. This circular was internally circulated in June 2016 and was not communicated to the Solar Developers before the 2nd Respondent arbitrarily decided to withhold payments without approaching the Commission for any clarifications by way of a Petition.

4.18. Further, the CUF limit of 19% as mentioned in the 2nd Respondent's recovery notice 27.11.2017 is not specified in the Power Purchase Agreement signed between TANGEDCO and the Petitioner on 6th April, 2015. The Petitioner was not informed earlier (during the signing of PPA or when developing the plant or commissioning the plant or even 19 months after the commissioning of the plant) by the Respondent TANGEDCO that there is a CUF limit of 19%. It is submitted that the Petitioner has diligently worked on the

design of the 2MW AC Solar Plant and designed their solar plant to maximize the output within the technical and operational parameters specified in the PPA. The Petitioner took a decision to implement trackers in their solar power plant. There was no mention of any CUF limit or the number of units/year limit in the PPA or in any other document provided by TANGEDCO with whom the PPA was signed. It is submitted that the Petitioner is being penalized for being a good engineer and maximizing the output of the plant while still adhering to the 2MW AC limit specified in the PPA.

4.19. It is further submitted that the petitioner has been pushed to a position where despite efficient use of equipment to maximize production, as encouraged by the Commission's Tariff order on solar power, the Petitioner is unable to get revenue for the power that have already been generated and supplied, leading to substantial revenue loss. This is having a direct impact on the viability of the project as well as the ability of the petitioner to service the debt commitments on this project. The *Tariff Order* of the Commission encourages maximizing return which is extracted below:-

“8.2 Project specific or Generalized Tariff

8.2.1 A generalized tariff mechanism would provide incentive to the investors for use of most efficient equipment to maximize returns and for selecting the suitable site...”

4.20. It is further submitted that the petitioner are placed in a position where despite the maximum production they are unable to get revenue from the power that have already been generated leading to revenue loss. It is submitted that the respondent is placed in a position where despite the possibility of maximum production, the respondent is by its actions promoting wastage of renewable power. This creates difficulties in supplying projected quantum of power for validity of the EPA

as well as ensuring financial returns for the Power Plant's activity and servicing of the debt.

4.21. The circular passed by the 2nd Respondent dated 14.06.2017 and consequential notice dated 27.11.2017 are wholly arbitrary and illegal as also contrary to the provisions of the Electricity Act, 2003 and the Tariff orders issued by the Commission. The 2nd Respondent's order suffers from total non-application of mind in as much as the Petitioner are injecting the entire power generated only to TANGEDCO/ TANTRANSCO's grid. In such circumstances, the Respondent ought to make the payments as raised in the Tariff Invoices from time to time and without disallowing any portion on account of generation beyond 19% PLF. The Circular is in any event liable to be set aside since it is wholly absurd. The 19% PLF is only a norm and cannot be made the basis for calculation. By its very nature, solar power generation will be more for some years and less for some years and this cannot be interfered with in this fashion.

4.22. The circular passed by the 2nd Respondent dated 14.06.2017 and consequential notice dated 27.11.2017 are liable to be set aside since it acts as a disincentive for efficient plants. The 19% PLF which is considered is only an average. Thus some plants may be efficient and some may be inefficient and therefore this average is arrived at. The Plant Load Factor depends upon many factors such as the location, weather, angle of sun, the time of the year, the cloud cover, heat, technology, DC/AC Ratio, Local site Conditions, project design, various technical losses, Modules

degradation, frequency of module cleaning etc. and therefore these are factors beyond the control of a generator. It is therefore wholly absurd to insert such restrictions.

4.23. The Commission has determined the Generic Solar PV Tariff (Feed-in-Tariff) at Rs.7.01/kWh for FY 2015-16 vide its Order dated 12.09.2014 (Order No. 7 of 2014) and Rs.5.10/kWh for FY 2016-17 vide its Order dated 28.03.2016 (Order 2 of 2016). With respect to the Petitioner the Respondent has signed a EPA on 06.04.2017 under Generic Solar PV at Rs.7.01/kWh for FY 2015-16 vide its Order dated 12.09.2014 (Order No. 7 of 2014) as determined by the Commission. The Commission had fixed norms for various parameters which were used in determination of Generic Solar PV Tariff (fixed for entire useful life of the solar PV Project i.e. 25 years). Various Parameters fixed by the Commission for determination of Generic Tariff are: Capital Cost, Working Capital components-i.e. one month O&M cost and two months receivables, Interest rate for Working Capital, Debt Equity Ratio, Interest on Long term loan, Loan Tenure, Return on Equity, Depreciation, Module degradation, Auxiliary Consumption, Operation & Maintenance Cost and its annual escalation, Discount Factor and Plant Load Factor. When the ultimate Generic tariff, as determined by the Commission is a complex interplay of above mentioned parameters, The Respondent cannot pick and choose one parameter and try to reach to a conclusion one way or the other. In real world, some parameters are bound to increase while others may decrease, during actual project execution or during the O&M phase, thereby are expected to negate/reduce the overall impact. The Petitioner

submits that the Respondent is not expected to monitor the actual value of these parameters for the projects executed and adjust the tariff/return suitably.

4.24. That the Generic Tariff (Feed-in-Tariff) regime is not a Fixed Return on Equity' model of tariff determination, like those for the Respondent, where Annual Revenue Requirements (ARRs) are submitted, trued up and the tariff is suitably adjusted so as to ensure a fixed guaranteed return on equity to the State DISCOMS like the Respondent. Even there, now in certain cases, DISCOMS are allowed to retain efficiency gains.

4.25. That the petitioner submits that in a Feed in Tariff Regime, all the risk and reward, post signing the EPA at Tariff determined by the Commission, lies with the Solar Plant Developer. If the actual cost of plant goes high or interest rate goes higher, the Respondent is not expected to pay any higher tariff. In that case, if the PLF of the plant is higher or lower than the normative value, taken by the Commission, the Respondent No.1 should not be worried. The impugned action is liable to be set aside as it has been issued in violation of the Principles of Natural Justice and no hearing was ever granted or explanation provided prior to the impugned action. The circular dated 14.06.2017 issued by the 2nd Respondent ought to be set aside as even if the Respondent No.1 had any queries it ought to approach only the Commission not seek to issue a self-serving clarification, contrary to the orders of the Commission.

5. Common Counter affidavit filed by the 2nd Respondent:-

5.1. The petitioners have filed their petitions praying calling and quash the records of the 2nd respondent

bearing Lr.No.CE/NCES/SE/SOLAR/EE/SCB/AEE3/F.Policy issue-
PLF/D.540/17 dated 14.06.2017 and the consequent letters and
consequently direct the respondents to give payments. The petitioners
have also prayed for grant of interim stay/injunction against the impugned
communications pending Miscellaneous Petition.

5.2. The details of payments allegedly due by the respondents as per
petitioners averments are as below-

1. M/s. Ranergy Solutions (P) Ltd (M.P.No.4 of 2018)
Rs.47,51,938/- for 677880 units for the year 2016-17.
Rs.38,61,108/- for 559800 units for the year 2017-18.
Rs.3,59,697/- for 51312 units for the year 2018-19.
- 2 M/s. B.S. Apparels (M.P.No.11 of 2018)
Rs.44,17,814/- for 630216 units for the year 2016-17.
Rs.9,37,433/- for 133728 units for the year 2017-18.
Rs.15,65,809/- for 223368 units for the year 2018-19.

5.3. The prime issue herein is that whether the TANGEDCO is obligated to
make payment for the alleged excess energy generated and injected into
the grid by solar generators over and above the Capacity Utilization Factor
(CUF) of 19% fixed by the TNERC in the tariff orders. However, the
petitioners have raised many non-issues and irrelevant issues. Therefore,
the respondents herein is restricting the reply to the prime issue by
retaining the right to make further reply on any other issue at the
appropriate time if need be.

5.4. It is submitted that in exercise of power conferred under Section 62

of Electricity Act, 2003, Tamil Nadu Electricity Regulatory Commission (TNERC) has issued 'Comprehensive Tariff Order on Solar Power" vide Order No.7 of 2014 dated 12.09.2014 for procurement of solar power by the Distribution Licensee fixing "Generic/Preferential tariffs" of Rs.7.01 per unit without Accelerated Depreciation (AD) benefit and Rs.6.28 per unit with AD benefit for Solar Photovoltaic plants.

5.5. The Commission has issued further Tariff Orders vide Tariff Order no.2 of 2016 dated 28.03.2016, Tariff order no.2 of 2017 dated 28.03.2017, Tariff order no.5 of 2018 dated 28.03.2018 and Tariff order no.5 of 2019 dated 29.03.2019 for procurement of solar power by the Distribution Licensee fixing preferential tariffs of Rs.5.10/Rs.4.56 per unit without AD benefit/with AD benefit, Rs.4.50/Rs.4.41 per unit without AD benefit/with AD benefit, Rs.3.11/Rs.3.05 per unit without AD benefit/with AD benefit and *Rs.3.04/Rs.2.80* per unit without AD benefit/with AD benefit for respective control periods, for Solar Photovoltaic plants.

5.6. Accordingly, the "Preferential tariffs" as determined in each TNERC's Order will be applicable for the respective solar PhotoVoltaic (PV) power plants commissioned during the control period of the respective Tariff Order in force, irrespective of date of execution of Power Purchase Agreement. As per the Tariff Orders, developers can establish solar power plants not only to sell the generated power to the Distribution Licensee (TANGEDCO), and also have two more options, viz., wheeling the generated power for

captive consumption or wheeling the generated power for third party sale.

5.7. The TANGEDCO have implemented the said tariff Orders issued by the TNERC, in the State, for the procurement of solar power. Based on the "Preferential Tariff" orders issued vide Order No.7 of 2014 dated 12.09.2014 and Order no.2 of 2016 dated 28.03.2016, 78 developers for a combined capacity of 1409 MW have commissioned their solar power plants for selling the power to TANGEDCO.

5.8. The Commission has adopted the following financial and operational parameters in Order No. 7 of 2014 dated 12.09.2014, Order no. 2 of 2016 dated 28.03.2016, Order No. 2 of 2017 dated 28.03.2017, order no.5 of 2018 dated 28.03.2018 and Order No.5 of 2019 dated 29.03.2019, in respect of Solar Photovoltaic projects for determining the 'Preferential tariff', as per regulation 4(5) of the Commission's "Power Procurement from Renewable Sources of Energy Regulations 2008".

Sl. No.	Tariff Components	Order No.7 dated 12.09.2014	Order No.2 of 28.03.2016			
1.	Capital Cost	Rs.7 Crores per MW	Rs.5.05 Crores per MW	Rs.4.70 Crores per MW	Rs.3.5 crores per MW	Rs.3.35 crores per MW
2.	Auxiliary consumption	Nil	Nil	Nil	Nil	Nil
3.	CUF	19%	19%	19%	19%	19%

4.	Operation and Maintenance expenses	1.4% of the capital cost with 5.72% escalation after 1 st year	1.4% of the capital cost with escalation @ 5.72% per annum from 2 nd year	1.4% of the capital cost with escalation @ 5.72% per annum from 2 nd year	1.4% of the capital cost with escalation @ 5.72% per annum from 2 nd year	1.4% of the capital cost with escalation @ 5.72% per annum from 2 nd year
5.	Insurance cost	0.35% of net asset value	0.35% of net asset value	0.35% of net asset value	0.35% of net asset value	0.35% of net asset value
6.	Life of Plant and Machinery	25 years	25 years	25 years	25 years	25 years
7.	Term of Loan	10 years + 1 Yr Moratorium	10 years + 1 Yr Moratorium	10 years + 1 Yr Moratorium	10 years + 1 Yr Moratorium	10 years + 1 Yr Moratorium
8.	Interest on Loan	12.7%	13%	11%	9.95%	10.55%
9.	Working capital components	One month O&M Cost and two months receivables	One month O&M Cost and two months receivables	One month O&M Cost and two months receivables	One month O&M Cost and two months receivables	One month O&M Cost and two months receivables
10.	Interest on working capital	13.2%	13.5%	11.5%	10.95%	11.55%
11.	Return on equity	20% pre tax	20% pre tax	20% pre tax	17.56% pre tax	17.60% pre tax
12.	Debt-equity ratio	70 : 30	70 : 30	70 : 30	70 : 30	70 : 30
13.	Depreciation rate	3.6% on 95% of the Capital Investment	3.6% on 95% of the Capital Investment	3.6% on 95% of the Capital Investment	3.6% on 95% of the Capital Investment	3.6% on 95% of the Capital Investment
14.	Discount factor	10.7%	10.21%	9.24%	8.75%	9.55%

5.9. As per Regulation 4(6) of Commissions Power Procurement from Renewable Sources of Energy Regulations 2008", TNERC has adopted "Cost —Plus tariff" determination methodology in all the said 5 Tariff Orders for a long term period of 25 years. The TNERC has specified that the "Cost-Plus tariff determination is more practical and it can be easily designed to provide adequate returns to the investor". The TNERC has obtained the "Preferential Tariffs" in its Orders, adopting "Cost —Plus tariff" determination methodology, assuming certain reference values for tariff components. The

investor will get adequate return for the tariff of Rs.7.01/5.10 per unit (fixed in TNERC Order no.7/12.09.2014 and Order no.2/28.03.2016) for the period of 25 years, considering the CUF of 19%.

5.10. The Capacity Utilization Factor (CUF) or Plant Load Factor (PLF) is defined as the actual output from a solar power plant over the year to the maximum possible output from it for a year under ideal condition. In general, the CUF of solar power plants shall be calculated on annual basis and termed as "Annual CUF".

5.11. The formula for calculating annual CUF in % (Energy Measured in units/365X24XInstalled capacity) X 100.

5.12.The CUF mentioned in all the 5 TNERC's Order is 19 %. The TNERC has not mentioned the applicable tariff, generated, neither beyond 19% CUF nor below 19% CUF, in all its Tariff Orders.

5.13.In CERC (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2012 dated 06.02.2012, under Chapter 7 of Technology specific parameters for solar PV power projects, the Capacity Utilisation Factor is stated as follows:

"(1) The Capacity Utilisation Factor for Solar PV project shall be 19%. Provided that the Commission may deviate from above norm in case of project specific tariff determination in pursuance of Regulation 7 and Regulation 8".

5.14. Accordingly, the TNERC has adopted Capacity Utilization Factor for

Solar PV project as 19%, in all its Tariff Orders. Subsequently, in notification dated 17.04.2017, the CERC has specified the CUF for solar PV project as 19%.

5.15. From the above, the statutory provision is clear that the statutory norms of 19% can be varied by the Tamil Nadu Electricity Regulatory Commission only in case of project specific determination of tariff and even the TNERC has no powers to raise the CUF above 19% as per the said provisions insofar as fixation of general tariff.

5.16. In the guidelines for Tariff Based Competitive Bidding Process for Procurement of Power from Grid Connected Solar PV Projects issued by Ministry of Power, Government of India dated 03.08.2017, there is a provision to fix tariff for excess energy generated beyond the contracted CUF, as well as to fix a penalty for supplying energy less than the energy corresponding to the contracted CUF.

5.17. As the "Preferential Tariff" Orders is a concessional one, issued by the TNERC are based on various parameters including fixation of the CLJF of 19%, TANGEDCO has issued internal circular to be followed for calculation of exported energy in respect of solar power plants commissioned under preferential tariff scheme as per the terms and conditions of TNERC's Order no.7 of 2014 dated 12.09.2014 and Order No.2 of 2016 dated 28.03.2016, vide Letter No. CE/NCES/SE/SOLAR/EE/SCBJAEE3/F. Policy issue-PLF/D.540/17 dated 14.06.2017, as follows:

"The excess generation in terms of MW, generated if any, in respect of Solar Power Plants commissioned under preferential tariff scheme, beyond

the actual installed capacity for a particular billing month, the equivalent energy in terms of units, for the excess MW shall be calculated and shall not be considered! forpayment. The energy units corresponding to the excess MW calculated as such shall be deducted from the particular monthly bill itself. After deducting the energy equivalent to the excess MW, the balance energy may be considered for calculating annual cumulative PLF for that particular month at the end of financial year.

The excess generation in terms of units, generated if any, in respect of Solar Power Plants commissioned under preferential tariff scheme, beyond the norms of 19% of annual Capacity Utilization Factor (CUF) fixed by the Commission in Order No.. 7of 2014 dated 12.092014 and Order No.2 of 2016 dated 28.03.2016, shall be calculated at the end of financial year and deducted. The excess energy calculated as such shall not be considered for payment on any account.

The energy generated during the month and the total energy generated during the financial year upto that month may be furnished along with the bill"

5.18. Based on the above, Annual CUF for the year 2016-17, 2017-18 & 2018-19 have been calculated for each and every solar power plants commissioned under Preferential Tariff scheme, and excess energy, if any supplied beyond the contracted CUF of 19%, are deducted and balance energy supplied for the contracted CUF of 19% are being paid by the TANGEDGO. Further, if any developer supplies excess energy, in terms of MW, beyond the contracted capacity, the equivalent energy in terms of units, for the excess MW shall also be deducted from the bill.

5.19. There is no energy export pending payment for the year 2016-17 and 2017-18 in respect of the generators commissioned under the said Preferential Tariff scheme. TANGEDCO has deducted only the excess energy generated beyond the contracted CUF of 19% for the year 2016-17 & 2017-18, calculated in terms of units and paid the bills to the generators who commissioned under Preferential Tariff scheme in time with the TNERC

Tariff Orders.

5.20. Similar issue is pending before the Hon'ble Madras High Court in WP.Nos. 17382 & 17383 of 2017 and WP Nos 18131 to 18134 of 2018 filed by 7 developers, who were commissioned the solar projects as per TNERC Order No. 7 of 2014 dated 12.09.2014 and Order No.2 of 2016 dated 28.03.2016.

5.21. The circular dated 14.06.2017 issued by TANGEDCO for calculating the excess energy injection in terms of MW and excess energy injection beyond contracted CUF is a common internal circular. One developer namely. M/s.Etica developers (P) Limited under the option of wheeling of power for captive use has injected excess energy by exceeding contracted capacity in terms of MW for the month of July 2017. This is evident from the meter reading downloaded during July, 2017. TANGEDCO have calculated and deducted equivalent excess energy injected beyond contracted capacity as per circular dated 14.06.2017. Against TANGEDCO's circular dated 14.06.2017, M/s.Etica developers (P) Limited has filed writ petition in WP.No.27531 of 2017 before Hon'ble Madras High Court and obtained interim stay for TANGEDCO's circular dated 14.06.2017 on 17.11.2017. Whereas, the petitioners in this writ petition are under the option of selling the power to TANGEDCO under preferential tariff scheme and they have injected excess energy beyond contracted CUF.

5.22. The Hon'ble Madras High Court was pleased to issue interim stay in

WP.Nos. 17382 & 17383 of 2017 and WP.Nos. 18131 to 18134 of 2018 on the plea of petitioners against TANGEDCO's circular dated 14.06.2017, which has already been stayed in WP.No.27531 of 2017 filed by M/s. Etica developers (P) Limited. In order to vacate the stay, TANGEDCO have filed stay vacate petition before Hon'ble Madras High Court in WP.Nos. 17382 & 17383 of 2017 and WP.Nos.18131 to 18134 of 2018.

5.23. The Writ Petition in WP.No.27531 of 2017 filed by M/s. Etica developers (P) Limited was closed by Hon'ble Madras High Court as withdrawn by the petitioner.

5.24. Nowadays the solar PV tariff rates are in declining trend in the Country due to reduction in the cost of solar PV panels. Some of the latest tariff rates arrived through bidding route is furnished below:

- * Rs.3.0 per unit, quoted by M/s. Amplus Energy Solutions in an auction for rooftop solar power conducted by M/s. SECI during Nov, 2016.

- * Rs.2.97 per unit, quoted by M/s. Acme Solar Holdings (P) Limited in REWA bidding, Madhya Pradesh.

- * Rs.2.62 per unit, quoted by M/s. Phelan Energy and Avaada Power in an auction conducted for Bhadla Solar Park.

- * Rs.2.44 per unit, quoted by M/s. Acme Solar Holdings (F) Limited in an auction conducted for Bhadla Solar Park by M/s. SECI during May'2017.

- * Rs.2.44per unit, quoted by M/s. Acme Solar in a 2000 MW auction conducted by SECI during July 2018.

- * Rs.2.53 per unit, quoted by M/s. G.R.T in the auction conducted

bySECI during 2019.

5.25. Due to reduction in solar PV tariff, instead of procuring power at the Preferential Tariff rate fixed by the TNERC, TANGEDCO has decided to procure solar power from the bidders establishing solar power plants in Tamil Nadu under bidding process. TANGEDCO has signed Power Purchase Agreement with 18 bidders for a combined capacity of 1500 MW for supplying solar power at the rate of Rs.3.47 per unit, arrived through bidding process. As the solar power is available at Rs.3.47 per unit, if TANGEDCO procures solar power, supplied in excess over the contracted CUF of 19%, at the concessional and preferential tariff fixed by TNERC Orders (Order No. 7 of 2014 dated 12.09.2014 and Order No.2 of 2016 dated 28.03.2016), there is definitely an unintended financial burden to TANGEDCO and unjust enrichment to petitioners by way of purchase of energy beyond the CUF of 19% based on which the tariff rates was fixed and such unintended benefits, if claimed and paid. will have to be passed on to the end consumers by way of increase in tariff, thereby public interest will suffer. Further, TANGEDCO is in a process of procuring solar power from M/s. Solar Energy Corporation of India (SECI) through tender to be floated by SECI under e-reverse auction process, considering upper limit tariff of Rs.2.93 per unit, in which tariff would be less than Rs.2.93 per unit.

5.26. However, the petitioners have entered into Power Purchase Agreement (PPA) as per the principles and methodology with which the TNERC has

issued the Tariff Order and approved the conditions governing the PPA executed under Preferential Tariff' Orders, for supplying solar power at the rate of Rs.7.01 per unit (as per TNERC Order No.7 of 2014, dated 12.09.2014) and Rs.5.10 per unit (as per TNERC Order No.2 of 2016. dated 28.03.2016), based on the date of commissioning for the next 25 years.

5.27. First of all it is an injection beyond the technical limit and feasibility. Secondly such injections could only be due to illegality known to petitioners only and thirdly a blatant violation of open access approval. While so, in the case of developers injecting any excess generation, TANGEDCO is not required to procure such high cost energy, generated illegally beyond the contracted CUF of 19%, injected into the grid beyond the approved open access quantum and there is no provision in the Power Purchase Agreement or Tariff Order issued by the TNERC or any Regulation of TNERC to purchase the excess energy injected into grid generated beyond the contracted CUF of 19%. Further, TANGEDCO is procuring "INFIRM" Solar Power with a Social responsibility to promote Green Power and also to meet the RPO requirements set by MNRE. Hence, TANGEDCO is not bound to procure high cost power.

5.28. The CUF is one of the parameter to determine the "Preferential Tariff" for a long term period of 25 years. It is well known fact that the CUF may vary according to location and the technology used. TANGEDCO is not disputing the payment for the export energy arrived for the contracted CUF of 19% fixed by the TNERC's in its Preferential Tariff Orders. TANGEDCO stand is that it is not bound to purchase high cost power at the

rate of Rs.7.01 per unit or Rs.5.10 per unit, allegedly generated beyond the contracted CUF of 19%, exported to TANGEDCO/TANTRANSCO grid, particularly when the solar power may be available now at the rate of around Rs.3/- per unit and it also would amount to paying premium for wrong doer.

5.29. The above said 2 petitioners have claimed that they have generated excess energy beyond the contracted CUF of 19% and injected such excess energy into TANGEDCO/TANTRANSCO grid for the year 2016-17 and 2017-18. TANGEDCO have segregated such excess energy and made payment to the extent of energy generatable within the CUF of 19% as fixed by the TNERC, for the year 2016-17 and 2017-18.

5.30. Out of commissioned 78 projects, 43 developers have generated excess energy beyond the contracted CUF, including these 2 petitioners and the actual amount incurred in this excess energy injection is Rs.21,92,42,278/- for the year 2016-17 alone. 59 developers have generated excess energy beyond the contracted CUF, including these 2 petitioners and the actual amount incurred in this excess generation is approximately 107 Crores for the year 2017-18.

5.31. The financial implication for every 1% increase in CUF is as below:

If annual CUF is calculated as 19% as fixed by the TNERC, the annual generation for 1 MW solar power plant will be 16,64,400 units.

i.e. Annual Generation in units $365 \times 24 \times 1 \times 19 \times 1000 / 100$

$$= 16,64,400 \text{ units.}$$

If annual CUFis calculated as 20% (1% above contracted CUF fixed by the TNERC), the annual generation for 1 MW solar power plant will be 17,52,000. i.e. Annual Generation in units = $365 \times 24 \times 1 \times 20 \times 1000 / 100$
 $= 17,52,000 \text{ units.}$

For example, consider a developer commissioned their 1 MW solar power plant under preferential tariff scheme as per TNERC tariff of Rs.7.01 per unit (Order no.7 of 2014 dated 12.09.2014). If the CUF of his plant exceeds 1%, TANGEDCO has to pay Rs.6,14,076/- ($17,52,000 \text{ units} - 16,64,400 \text{ units} = 87,600 \text{ Units} \times \text{Rs.}7.01 = \text{Rs.}6,14,076/-$) annually for generation beyond contracted CUF. If the tariff is Rs.5.10 per unit (Order no.2 of 2016 dated 28.03.2016), TANGEDCO has to pay Rs.4,46,760/- for 1% CUF increase on annual basis.

5.32. Out of the commissioned 1409 MW plants under preferential tariff scheme, 48 developers have commissioned their solar power plants of combined capacity of 917 MW with an applicable preferential tariff of Rs.7.01 per unit, 20 developers have commissioned their solar power plants of combined capacity of 101 MW with an applicable preferential tariff of Rs.6.28 per unit, 8 developers have commissioned their solar power plants of combined capacity of 389 MW with an applicable tariff of Rs.5.10 per unit and 2 developers have commissioned their solar power plants of combined capacity of 2 MW with an applicable tariff of Rs.4.56 per unit.

5.33. Apart from the above, under preferential tariff scheme, M/s. NLC India

Limited has commissioned solar power plants of combined capacity of 630 MW and M/s.NHPC Limited has commissioned 50 MW solar power plant.

5.34. TANGEDCO have calculated annual CUF for the year 2016-17, 2017-18 & 2018-19 for each and every solar power plants commissioned under Preferential Tariff scheme, and excess energy, if any supplied beyond the contracted CUF of 19%, are deducted and balance energy supplied for the contracted CUF of 19% are being paid by the TANGEDCO.

5.35. TANGEDCO has executed Power Purchase Agreement with the developers for a period of 25 years. If every commissioned solar plants under preferential tariff scheme exceeds contracted CUF, it may lead to huge financial burden to TANGEDCO for the entire Agreement period and TANGEDCO is not bound to purchase such high cost power. If allowed, beyond the permissible limit of 19% CUF, the petitioners instead of developing a new plant and supplying power thoroughly competitive Bidding rate at the rate in or about Rs.3/-per unit, would malafidely add Solar panels and generate and inject energy, over and above the norms and technical limit, in order to get higher tariff of Rs.7.01 or Rs.5.10, thereby unjustly enriching themselves.

5.36. As the generation of energy over and above the CUF of 19% is itself a questionable and disputed one and as there is also no provision to vary the norms of 19% to general tariff covered plants, and as there is also no provision to pay for the alleged excess energy generated beyond the

contracted CUF of 19% in the Commission's Preferential Tariff' Orders, TANGEDCO is not obligated to purchase such illegal excess energy over and above the CUF of 19% from the developers, under preferential tariff scheme by violating the open access approval and employing illegal methods.

5.37. Six developers have executed Power Purchase Agreement (PPA) with TANGEDCO during 2011-12 for supplying solar power at the rate of Rs.18.45 per unit for a period of 25 years and commissioned their solar power plants under Rooftop Photovoltaic and Small Solar Generation Programme (RPSSGP scheme) of Jawaharlal Nehru National Solar Mission (JNNSM). Under this scheme, the contracted CUF has been fixed as 19%. The excess energy, if any supplied beyond the contracted CUF of 19%, are deducted by Ministry of New and Renewable Energy (MNRE) and balance energy supplied for the contracted CUF of 19% are being paid to the developers.

5.38. The issue involved in these Miscellaneous petitions is directly related to violation of Electricity norms, tariff fixation and the methodology under which the CUF of 19% arrived at for generation from solar plants using Photovoltaic panels which was the basis for fixing a tariff by considering other parameters and the length of its life. On this ground alone, this petition is liable to be dismissed in limini.

5.39. With reference various grounds in this Petition, which are generally repetitive as follows:-

- (A) The impugned orders were issued in accordance with Tariff Orders issued by the TNERC and as such sustainable in law.
- (B) As stated already, the impugned orders are in accordance with Tariff orders and there is a cap of 19% CUF. Therefore, Tariff Order not provides for CUF is factually and legally incorrect. In fact, the CERC regulations do not even provide Powers to vary 19% CUF insofar as generic/preferential route and may be, based on that only the Commission in accordance with CERC Regulation has fixed the CUF as 19%. It is relevant to submit that when a plant is having the capacity of 1 MW, it cannot generate more than 1 MW. Further, the TNERC has not made any deduction of Auxiliary (Self) consumption considering that the usage for the same would be negligible. Therefore, at any rate, after self-usage, the injection cannot exceed 1 MW. If there is any excess injection over and above 1 MW, it can only be by way of illegal methods for, unjust enrichment. Therefore, eligible payment at the end of the year would only be after calculation and restriction to 19% CUF.
- (D) As stated already, the impugned circular was issued as per the provisions aforesaid and sustainable in law.
- (E) As stated already, a Solar Plant having a particular capacity and obviously utilizing Auxiliary (Self) consumption cannot inject more energy under any circumstances. In other words, it can only be through illegal methods
- (F) As stated already, a particular capacity plant with auxiliary consumption cannot inject more. Therefore, the averments of efficiency,

disincentive, etc. are to cover up their illegalities and as such unacceptable.

- (G) The impugned orders are internal circulars and are issued based on the Tariff Orders. Hence, the principles of natural justice has no role to play.

5.40. In view of the position stated above, the averment/grounds of the petitioner are untenable. The respondents crave leave of this Hon'ble Court to file additional affidavit, if need be at the appropriate stage.

5.41. The petitioner is not entitled to any relief in this miscellaneous petition on merits and also on an equitable consideration. In fact, the miscellaneous petition itself is not maintainable. Therefore, the petitioner is not entitled to any interim relief, as similar matter is pending before Hon'ble Madras High Court in WP.Nos. 17382 & 17383 of 2017 and WP.Nos. 18131 to 18134 of 2018 and as such ends of justice requires that the miscellaneous petitions are liable to be dismissed. By dismissing the same no prejudice will be caused to the petitioner. Otherwise, serious prejudice will be caused to the TANGEDCO'S grid security as well.

6. Common Rejoinder filed on behalf of the Petitioner:-

6.1. The impugned circular issued by the Respondent bearing Lr.No. CE/NCES/SE/SOLAR/EE/SCB/AEE3/F. Policy issue – PLF/D.540/17 dated

14.06.2017 ('Impugned Circular') is wholly arbitrary and illegal and is liable to be set aside. The issuance of the impugned circular has serious impact on solar photovoltaic power plants set up across the state of Tamil Nadu. Therefore, the Petitioner being an investor in such solar power plants, has filed the instant petition challenging the impugned circular. The most significant aspect of the issue is that CUF or PLF has been a component of every Tariff Order for both conventional and non-conventional generation. Not once in the past has the TANGEDCO restricted payments on the basis of CUF/PLF which are notional and normative assumptions for purposes of Tariff fixation for an entire category and upon fixation of the Tariff it is the Tariff which is relevant as individual projects will differ on actual in respect of the components from the generic normative parameters adopted. By such logic, if the project cost increases, the Generator would be entitled to higher tariff and similarly where the O&M charges adopted on a normative basis changes, the same would also potentially increase tariff. This approach would render a generic tariff fixation exercise into a project-specific tariff fixation where the DISCOM would, on the basis of its whims and fancies decide on payments based on individual tariff components when there is no such provision in the Tariff Order which is always an absolute figure without any conditionalities attached.

6.2. The Commission has followed a feed-in tariff (FIT) design principles for supporting the development of new solar PV power projects in the State of Tamil Nadu. Commission has determined long-term power purchase agreements of 25 years for the sale of solar power generation. These purchase agreements offers a fixed tariff for 25 years and are extended for every kilowatt-hour of electricity produced. Moreover, Commission has determined the tariff for each kilowatt-hour

of solar PV generation, without differentiating by PV technology type, project size, resource quality, and project location. Under this approach, the Commission has adopted an approach of offering FIT as the tariff for entire generation, for large scale integration of solar energy in the State, as such generic tariff for solar power project determined based on the costs of generation, without regard to levelized RE generation differentiating by PV technology type, project size, resource quality, and project location. The entire investment in the projects has proceeded on the basis of the Tariff Orders.

6.3. The developers such as the Petitioners are not getting adequate returns as claimed by the Respondent in their tabulated statement. This is due to a variety of reasons including:

- a) The rampant backing down of solar generation since inception of the project resulting heavy financial losses to the generators;
- b) Generators are not being paid by the Respondent TANGEDCO within the stipulated time as specified in the PPA and TNERC regulations. Payments are delayed for more than a year. This makes the entire project unviable since the generators are unable to service their financial obligations;
- c) While making delayed payments TANGEDCO is asking for 2% rebate for the payment which directly affects returns from the project for the generators- this is despite the Hon'ble Supreme Court deprecating and disallowing such practice of unilateral rebate as illegal in the PPN case;
- d) The generators are not being paid late payment surcharge for the

delayed payments being made to them by the Respondent TANGEDCO;

- e) The norm allowance of depreciation equal to loan repayment would force the developer to meet the loan repayment shortfalls through their own return on equity.

6.4. The Commission has adhered to the CERC RE Tariff regulation as far as single part tariff design is concerned and normative CUF of 19%. The Hon'ble CERC in its Statement of Reasons Order while issuing CERC (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2009, regarding Tariff Design has stated as under:

"13. Tariff Structure

13.1 The draft Regulations provided for single part tariff structure for RE technologies. The Stakeholders submitted to specify two part tariff structure for small hydro so that fixed cost could be recovered in case generation is affected due to poor monsoon.

13.2 The Commission is of the view that single part tariff structure for RE technologies is the most simple method to operationalise considering number of projects and unit size of each project and the same has been in practice for RE technologies for long time. In case of RE technologies involving variable cost components such as biomass power and non-fossil fuel based co-generation, single part tariff with two components representing fixed cost component and variable cost component has been specified. It is envisaged that RE project developer shall undertake detailed study and investigation of the project site, location and design unit size (or capacity) taking into consideration site specific aspects. Further, any generation beyond threshold PLF shall also receive same tariff since risk and cost associated with project sizing, project location etc is expected to be borne by project developer."

6.5. The CUF, is a function of various factors such as the location, technology, quality of the plant, weather, angle of incidence, season, cloud cover, various technical losses, degradation of modules, etc. and they are fixed

on a state-wide basis after considering all variables on an expert view for purposes of tariff fixation and since these factors are beyond the control of a generator, it is unreasonable to impose such restrictions on the plant performance.

6.6. One of the technical reasons for higher generation in addition to the various variables already mentioned, i.e. more than 19% normative CUF is that the Developer has implemented Tracker mechanism. It is arbitrary and illegal on the part of the Respondent to allege that the Petitioner has exceeded the total approved capacity from time to time. The Petitioners have not exceeded the total approved 2 MWAC capacity anytime from the date of commissioning until now. The Tariff Order of the Commission encourages maximizing return which is extracted below:-

"8.2.1. A generalized tariff mechanism would provide incentive to the investors for use of most efficient equipment to maximize returns and for selecting the suitable site....."

6.7. Being a law-abiding entity and due to the encouragement provided by the Commission to adopting efficient equipment, site, etc, the Petitioners have installed SINGLE-AXIS TRACKER mechanism in our plant wherein the Solar panels constantly move during the day, tracking the direction of Sun from East to West. This mechanism provides for more generation than a fixed panel mounting arrangement during the morning and evening hours. Using this mechanism, the Petitioners have generated more units per year than what is expected from a fixed panel mounting arrangement plant. The Petitioners had to invest substantial additional capital cost for the implementation of TRACKER mechanism. The Petitioner has invested in this additional capital cost to make the plant more efficient, as encouraged by the

commission, without violating any rules mentioned in the EPA including the 2 MWac capacity limit. It is pertinent to mention here that Respondent TANGEDCO has every right to penalize the Petitioners if the approved capacity is exceeded any point in time. The present action of the Respondent in not paying for the units generated above CUF limit of 19% is downright illegal and also goes against the recommendations of the commission to build a more efficient plant.

6.8. In the present case, the Respondent TANGEDCO has lifted the units generated which are alleged to be above the CUF limit of 19% and consequently have made use of such power by supplying to its consumers connected to TANGEDCO's grid. The Respondent TANGEDCO has already enriched the injected power which are alleged to be above CUF limit of 19% and now only with an intention to avoid payment for such units the present impugned communications is issued by misinterpreting the Tariff orders issued by this Commission. The Respondent TANGEDCO is trying to illegally enrich upon the better plant performance of the Petitioner which is unreasonable and against the principles of natural justice.

6.9. Another technical reason for the higher generation is the DC: AC ratio kept by Developers for which they are incurring higher cost. Due to losses between the solar array and the output to the grid, AC capacity will be always somewhat lower than the peak DC capacity. Therefore, for optimum system configuration SPDs always go for higher DC capacity and use inverters, whose total capacity are equivalent to PPA AC MW capacity, somewhat less than the peak DC capacity. Such Inverters would clip' at times

of peak array output and keep the output equivalent PPA AC MW capacity. Such infrastructure/technology too involves costs which are put in for reasons of maintaining efficiency of the resources. Further, the Hon'ble Central Commission in its order dated 15.05.2014 in a SuoMotu Petition No. SM/353/2013, dealt this issue while disallowing additional cost for higher capacity of modules (more than 1 MW of DC Modules) for 1 MW AC output, stating that one can optimize the performance of the plant for maximum generation vis-a-vis cost by suitable selection of DC capacity and Inverter. Though the Hon'ble Central Commission in the said Order recognized such additional cost to Solar power Developers, however dis-allowed such additional cost with a rationale that the excess generation will take care of such additional cost incurred by Developers in higher DC:AC ratio. Therefore there is no restriction in the Tariff Order for achieving CUF more than 19% by improved efficiencies since such improvement is in fact mandated by the provisions of the Electricity Act, 2003 which calls for maintenance of better efficiencies. The Respondent appears to want reduced efficiencies on the purported basis that the subsequent rates for solar tariff have fallen. Further, the PPA also does not have restriction for generation upto 19% CUF only.

6.10. There is no condition for specifying the range of capacity utilization factor for procurement of power in the PPAs that have been signed with the Respondent TANGEDCO. The Guidelines for Tariff Based Competitive Bidding Process for Procurement of Power from Grid Connected Solar PV Power Projects, notified on 03.08.2017 states as under:

"4.2. Bids in Power/Energy Terms: The Procurer may choose to invite the bids in (a) Power Capacity (MW) terms or (b) Energy Quantity (kWh or million units i.e. MU) terms."

"5.2. Quantum of Power/ Energy to Be Procured: The procurement of power could either be in power (MW) terms or in energy (kWh or Million Units, i.e. MU) terms."

5.2.1. Procurement in Power Terms (MW):

a) In case of procurement in power (MW) terms, the range of Capacity Utilisation Factor (CUF) will be indicated in the bidding documents. Calculation of CUF will be on yearly basis. In case the project generates and supplies energy less than the energy corresponding to the minimum CUF, the Solar Power Generator will be liable to pay to the Procurer, penalty for the shortfall in availability below such contracted CUF level. The amount of such penalty will be in accordance with the terms of the PPA, which shall ensure that the Procurer is offset for all potential costs associated with low generation and supply of power under the PPA, subject to a minimum of 25% (twenty-five per cent) of the cost of this shortfall in energy terms, calculated at PPA tariff.

b) In case the availability is more than the maximum CUF specified, the Solar Power Generator will be free to sell it to any other entity provided first right of refusal will vest with the Procurer(s). In case the Procurer purchases the excess generation, the same may be done at 75% (seventy-five per cent) of the PPA tariff, and provision to this effect shall be clearly indicated in the RfS document.

5.2.2. Procurement in Energy Terms: In case of procurement in energy (kWh or Million Units, i.e. MU) terms, and not in power (MW) terms, the range of permissible capacity of the plant in terms of MW(AC) shall be clearly specified by the Procurer in the RfS. The Procurer will also specify the Contracted Energy Quantity (CEQ), including a minimum supply obligation below which the developer will be required to pay damages to the Procurer and a guaranteed energy offtake upto which the Procurer will be bound to purchase all energy generated and supplied by the developer. Any excess generation shall be treated in the same manner as specified in clause 5.2.1(b)."

6.11. There is no mention of capping the supply of power supplied by the generators at 19% as contended by the Respondent. Further in the absence of such a clause on reduced payment for generation beyond CUF in the applicable PPAs, applying any retrograde restriction is impermissible

6.12. It is therefore wrong for the Respondent to place reliance on the above two orders in order to substantiate the impugned circular. The claim of the Respondent is without basis.

6.13. As stated earlier, the PPA does not specify any 'contracted quantity' as contended by the Respondent. Therefore, the Respondent TANGEDCO is liable

to pay for the entire sum of energy that is injected into the grid by the Petitioner. The Respondent TANGEDCO is aware of the same and has been clearing its dues for the financial years 2016-2017 and 2017-2018.

6.14. The Commission is vested with the requisite powers to enforce the terms of its Tariff Orders and the deliberate disregard to the specific terms by the Respondent.

6.15. The reason why there has been a fall in the price of the solar tariff rates is due to the reduction in the solar module prices in the international market. In such a scenario, it is pertinent to note that those generators who installed plants in the years 2015, did indeed incur a capital cost of Rs.7 crores per MW. Be that as it may, a subsequent fall in the solar tariff due to reduced capital cost is no reason for the Respondent TANGEDCO to not honour its PPA terms just as an increase will not allow generators to seek for higher tariff.

6.16. Neither the Commission's Tariff Orders nor the PPA entered into between generators and the Respondent TANGEDCO contemplate that CUF of 19% places fetters on payment beyond the 19%. The mandate on TANGEDCO to pay for all the power injected into its grid as per the terms of the PPA is binding and cannot be superseded through the issuance of the impugned circular.

6.17. The Tariff Design adopted by the Commission and PPA allows generation beyond normative CUF as it is technically permissible and feasible and the same also entitle the petitioner to receive the same tariff, since risk and cost associated with project

sizing, project location etc is expected to be borne by project developer.

6.18. There is no bar on generators to generate beyond the 19% CUF and there are bound to be cases where generators have generated beyond the 19% CUF due to establishing efficient plants in good locations. At the same time it is possible that generation sometimes may be below 19% CUF or may decline in subsequent years, these are aspects that are obviously being ignored by the Respondent.

6.19. The Respondent TANGEDCO's daily consumption is 300 MU . Out of the same, only 5% comes from solar power generators. In such a scenario, it is completely out of place for the Respondent TANGEDCO to contend that there will be fiscal imbalance if the terms of the PPA are strictly adhered to. Further it is now well established that Solar Generation which started with tariff in excess of *Rs.16* per unit has been declining due to various factors will not entitle the Respondent to claim that there is a loss as the decrease in rates is a recognized development and it is for this reason that even the RPO trajectory is a gradually increasing one so that as and when cheaper power from Solar becomes available agreements are required to be entered into thus bring down the average cost of procurement.

6.20. It is wholly erroneous to place reliance on schemes such as the Rooftop Photovaltic and Small Solar Generation Programme (RPSSGP) or the Jawaharlal Nehru National Solar Mission (JNNSM) which find no place in the preferential Tariff Order No. 4 of 2014 pursuant to which the generators belonging to the Petitioner entered into PPAs.

6.21. The Tariff methodology followed by the Commission permits any generation beyond normative PLF to receive same tariff since risk and cost associated with project sizing, project location etc. is expected to be borne by project developer.

6.22. The Petitioners have not exceeded rated/sanctioned capacity respectively and have not indulged in illegal methods to generate units beyond 19% CUF as alleged by TANGEDCO. The Respondent is trying to directly link the AC capacity with Annual units produced in a solar power plant and is trying to mislead the Commission. The above statement clearly shows that TANGEDCO does not have a sound understanding of Solar power plants, Tracker technology and Solar generation profiles. The Petitioners have not exceeded their respective Plant's rated capacity of 2 MW_{AC} at anytime since the commissioning of their plant. The Tracker technology results in increased production during the morning and evening hours when the solar generation hardly reaches 70% to 80% of its total rated capacity. Therefore, TANGEDCO's submission and trying to imply that producing annual units in excess of 19% CUF is possible only by way of illegal methods only highlights its ignorance on available efficient technologies like Tracker technology.

6.23. The generation profile of a typical day for a Single-axis tracker-implemented Solar Power plant and a fixed-structure Solar power plant are provided below. It is clearly evident from these profiles and is a widely known definite fact that Single axis Tracker technology increases the units produced during the evening and morning hours and the peak power is slightly below the peak power of a similar capacity fixed Tilt structure solar power plant.

6.24. The Commission is vested with the power to make a determination of the violation of its Tariff Orders and also exercise its powers and functions under S.86 and S.61r/wS.62 of the Electricity Act, 2003. The logic of the Respondent in this regard is untenable since the easiest way to prevent any matter from being heard by this Commission would be to have one interested person file a Writ under Art.226 which is a wide discretionary power available with a High Court under the Constitution. In as much as there is no stay of the present proceedings, mere pendency of a similar petition are not a bar in law in the Commission from exercising jurisdiction. In fact not exercising jurisdiction would be a violation of the statutory mandate and therefore the Respondent's contentions in this regard are entirely without merit.

7. Findings of the Commission:-

7.1. The petition has been filed seeking to set aside the circular issued by Respondent TANGEDCO in Lr.No.CE/NCES/SE/SOLARIEE/SCB/AEE3/F.Policy issue-PLFID.540/17 dt.14.6.2017 and consequent actions including short payments and for adherence to the terms of the PPA and not make any deductions using Capacity Utilisation Factor.

7.2. The instructions issued by TANGEDCO call for the following action in the case of solar generators commissioned during the control period of the Tariff orders No.7 of 2014 and 5 of 2016 issued by the Commission:

- i) Not to consider payment for excess generation in terms of units beyond the annual CUF of 19%.
- ii) To curtail the excess generation in terms of MW beyond contracted capacity.

7.3. The petitioners have reasoned as follows to stay the instructions of TANGEDCO:

(i) Neither the regulations/orders nor the PPA have any provision to restrict payment of excess generation beyond the normative CUF of 19%.The circular dt.14.6.2017 is in violation of natural justice.

(ii) TANGEDCO does not have the jurisdiction to issue such a circular when Commission has issued the tariff orders for solar power in Order No.7 of 2014 and Order No.2 of 2016 notifying feed in tariff without differentiating PV technology type, project size, location, resource quality.

(iii) TANGEDCO is bound to compensate the excess power injected into the grid. Since risk of lower generation is on account of the Developer, the benefit of excess generation should also be on account of the developer.

(iv) Determination of generic tariff has many components based on normative values. A generic tariff provides incentive to use most efficient equipment to maximize returns selecting suitable location for the plant. Petitioner is not expected to measure actual value of parameters.

(v) The generic tariff regime is not a 'Fixed Return on Equity' model of tariff determination like those of the respondent where ARR's are trued up and tariff suitably adjusted to ensure fixed guaranteed return

(vi) Optimum system configuration always goes with higher DC capacity and use of invertors whose total capacity is equivalent to PPA's AC output. TANGEDCO has not informed earlier, during signing of PPA or when developing the plant that payments will be made only for the CUF limit. Petitioners have invested and designed the solar plant by implementing trackers for maximum output within the

technical and operational parameters specified in the PPA while still adhering to the 1 MW_{AC} limit.

7.4. The justification of TANGEDCO for issue of the above instructions is :

(i) Commission has adopted 'cost plus tariff' determination assuming certain reference values for tariff components.

(ii) CUF is the actual output from a solar power plant over the year to the maximum possible output in a year under ideal condition. CUF in all of TNERC's orders is 19%. The tariff order does not say about tariff for generation beyond rated CUF.

(iii) Guidelines for tariff based competitive bidding for solar have a provision to fix tariff for excess energy beyond contracted CUF and penalty for supplying energy less than the contracted CUF.

(iv) CERC in its regulations on Tariff determination from Renewable Sources of energy has specified CUF of 19% and Commission may deviate from the norms only in project specific tariff determination.

(v) The injection above 19% CUF is beyond technical limit and feasibility and a blatant violation of open access approval.

(vi) There is no pending payment for energy export for the year 2016-17 and 2017-18. Only payment for excess energy generated has been deducted.

(vii) Seven developers filed W.P Nos. 27531 of 2017, W.P Nos.17382 & 17383 of 2017, W.P Nos. 18131 to 18134 of 2018 before the Hon'ble High Court of Madras and obtained interim stay of the circular dt.14.6.2017 issued by TANGEDCO. TANGEDCO has filed stay vacate petitions. One case(W.P No.27531 of 2017) has been closed as withdrawn.

(viii) Out of the commissioned 78 projects, 43 developers have generated excess energy equivalent to Rs. 21.92 crore during 2016-17 and Rs.107 crores during

2017-18. For every 1% increase in CUF per MW, the financial implication to TANGEDCO would be Rs.6.14 Lakhs under Order No.7 of 2014 and Rs. 4.46 Lakhs under Order No. 2 of 2016.

(ix) If no restrictions are in place, petitioners would add solar panels and always supply at higher CUF.

(x) For the solar plants under the scheme RPSSGP and JNNISM at a tariff of Rs.18.45, payment is made only for energy generated at CUF of 19%.

(xi) There is no provision in PPA or in order which says that payment should be made for excess generation. TANGEDCO procures infirm solar power with a social responsibility to promote green power and to meet RPO set by MNRE. TANGEDCO is not required to procure such high cost energy beyond 19% CUF.

(xii) Rates arrived through competitive bidding are cheaper and is less than Rs.3/unit.

7.5. The issue that arises here is whether payments can be restricted on the normative CUF of 19% adopted to determine generic tariff more so when a PPA is executed between the generator and the licensee on the basis of the preferential tariff order issued by the Commission.

7.6. Both the petitioners and TANGEDCO have relied on the 'Cost plus tariff determination' methodology adopted in the Commission's Tariff orders issued for solar power and interpreted it to their advantage.

7.7. Similarly, the petitioners and TANGEDCO have brought the provisions in the EPA to each one's favour to decide on the issue of non payment or payment of generation beyond a CUF of 19%. The petitioner contends that there is no

provision in the EPA to restrict CUF whereas TANGEDCO contends that EPA does not mention about payment for excess generation.

7.8. This is a case where an Energy Purchase Agreement has been signed based on the preferential tariff orders issued by the Commission. The preferential tariff order has been issued by the Commission under the provisions of the Electricity Act, 2003(sections 61,62,86(1)(e)), relevant provisions of National Electricity Policy, Tariff Policy on procurement from renewable energy sources and the Commission's regulations on Power procurement from New and Renewable sources of energy. The tariff has been determined in accordance to Regulation 4 of Commission's Power procurement regulations for New and Renewable Sources of energy.

7.9. Regulation 4 of Commission's Power Procurement from New and Renewable Sources of Energy regulations is as follows:

"4(1) The Commission shall follow the process mentioned below for the determination of tariff for the power from new and renewable sources based generators, namely;-

a) initiating the process of fixing the tariff either suomotu or on an application filed by the distribution licensee or by the generator.

b) inviting public response on the suomotu proceedings or on the application filed by the distribution licensee or by the generator.

d) issuing general / specific tariff order for purchase of power from new and renewable sources based generators.

(2) While deciding the tariff for power purchase by distribution licensee from new and renewable sources based generators, the Commission shall, as far as possible, be guided by the principles and methodologies specified by:

(a) Central Electricity Regulatory Commission

(b) National Electricity Policy

(c) Tariff Policy issued by the Government of India

(d) Rural Electrification Policy

(e) Forum of Regulators (FOR)

(f) Central and State Governments

(3) The Commission shall, by a general or specific order, determine the tariff for the purchase of power from each kind of new and renewable sources based generators by the distribution licensee. In case of small hydro projects with a capacity of more than 5 MW but not exceeding 25 MW capacities, Commission decides the tariff on case to case basis.

Provided where the tariff has been determined by following transparent process of bidding in accordance with the guidelines issued by the Central Government, as provided under section 63 of the Act, the Commission shall adopt such tariff.

(4) While determining the tariff, the Commission may, to the extent possible adopt to permit an allowance / disincentive based on technology, fuel, market risk, environmental benefits and social impact etc., of each type of new and renewable source.

(5) While determining the tariff, the Commission shall adopt appropriate financial and operational parameters.

(6) While determining the tariff the Commission may adopt appropriate tariff methodology.”

Accordingly, Commission has determined the tariff for solar power under section 62 of the Electricity Act 2003.

7.10. Commission’s regulations provide to adopt ‘appropriate tariff methodology’ and therefore Commission has adopted ‘cost plus single part levelised tariff’ methodology. The tariff components are

1. Capital investment
2. Capacity Utilization Factor
3. Operation and maintenance expenses
4. Insurance cost
5. Debt-equity ratio
6. Rate of Interest and Term of Loan
7. Life of plant and machinery

8. Interest and components of Working Capital

9. Return on equity

10. Depreciation rate applicable

All the above components determine the tariff at which the Energy Purchase Agreement is to be signed by the developer with the Distribution Licensee. Commission has so far issued five preferential tariff orders for solar power and has adopted the same tariff determination methodology.

7.11. Regarding, cost plus tariff determination, Cost plus tariff is a methodology in which the generator is paid its actual cost plus a profit. This is confirmed further in the statement of CERC in its SoR for the Tariff regulations 2009 extracted below:

“26.3 ..., the Commission is of the view that under ‘Preferential Tariff’ approach based on cost plus regime, the tariff in a Cost plus regime is determined upon ascertaining normative costs and performance parameters and in view of the fact that all reasonable costs are being allowed to be recovered through such preferential tariff and it is fair that any subsidy or generation based incentive be factored in while determining tariff.”

7.12. The generators in a cost plus tariff are not required to submit any evidence or any supportive documents except in the case of availing of fiscal incentives.

7.13. Say, if the generators obtain finance at a lesser interest rate, it is not passed on to the licensee. On the cost plus profit, no generator will sell energy at a loss to TANGEDCO as the tariff model takes care of the investor.

7.14. Let us see the relevant provisions on Cost plus Tariff determination and Capacity Utilisation Factor in the Order no.7 of 2014 on determination of tariff :

(i) Relevant extracts of the order No.7 of 2014 on cost plus tariff and CUF is as below:

Extract of the order:

“8.3. Cost-Plus Tariff Determination

8.3.1. Regulation 4(6) of “Power Procurement from New and Renewable Sources of Energy Regulations 2008” empowers the Commission to adopt “appropriate tariff methodology” to determine the tariff for solar power. Cost-plus tariff determination is a more practical method and it can be easily designed to provide adequate returns to the investor and a surety of returns will lead to larger investment in solar power plants. Para 6.4 of the Tariff Policy specifies that procurement by the distribution companies shall be done at preferential tariff determined by the Commission till such time the non-conventional technologies compete with the conventional sources in terms of cost of electricity. At the prevailing cost, the cost of solar power is generally higher than the cost of predominant conventional power. Therefore Cost-Plus tariff is adopted for determination of tariff in respect of solar projects.”

“9.3. Capacity Utilization Factor (CUF)

9.3.1. Many of the stakeholders have suggested a CUF of 17 to 18%. Some of the stakeholders have recommended to adopt a CUF of 19%. Stakeholders have also suggested deration of 0.5% to 1% during the life of the plant. The Commission has adopted the capital cost taking into account the cost of replacement of modules in respect of degradation during the life time. The CERC has adopted a CUF of 19% and has not considered any deration in its order. Most of the SERCs have also considered a CUF of 19% in their orders. The Commission decides to adopt the CUF of 19% for solar PV projects and 23% for solar thermal projects. These CUFs are considered taking into account the efficiency factors of equipment, deration etc.”

(ii) Similar provisions exist in the Order No.2 of 2016 and hence orders on solar power therefore are not reproduced. As mentioned in the above tariff orders, cost plus tariff provides surety and safe returns to the investor and a CUF of 19% is considered on account of efficiency factors while stakeholders had requested for CUF of 17% to 18%.

7.15. The Capacity Utilisation factor (CUF) set out by CERC in its RE Tariff Regulations, 2012 which prevailed at the time of issue of the first tariff order of solar power in Order No.7 of 2014 is as follows:

“53. Capacity Utilisation Factor

(1) The Capacity utilisation factor for Solar PV project shall be 19%.

Provided that the Commission may deviate from above norm in case of project specific tariff determination in pursuance of Regulation 7 and Regulation 8.”

The above provision is specified in CERC's RE Tariff regulations 2017 which has a control period of three years.

7.16.In the context of this case MNRE's advisory dt.5.11.2019 issued with respect to considering MW_{AC} capacity of solar power plants is also reproduced below:

“ F. No. 283/63/2019-GRID SOLAR

Government of India

Ministry of New & Renewable Energy

Grid Solar Power Division

Block No. 14, C.G.O. Complex,
Lodi Road, New Delhi - 110003

Dated: 5th November, 2019

ADVISORY/ CLARIFICATION

Sub: Advisory / Clarification w.r.t. D.C. Capacity of Solar PV Power Plants

(1). MNRE has received representations from various Solar Developers/ Solar Developer Associations that recently few States have raised questions and concerns around globally adopted practice of installing additional DC capacity, over and above the nameplate /contracted AC capacity, with the objective of meeting the committed Capacity Utilisation Factor (CUF) in Power Purchase Agreements (PPAs) / Power Supply Agreements (PSAs).

(2). It has further been stated that the State Governments feel that installation of such additional capacity serves as a medium for additional revenue generation for the developers and that such additional DC capacity cannot be allowed.

(3). The issue has been examined in the Ministry of New & Renewable Energy (MNRE), and it is noted that:

i. As per the present bidding practice, the procurer, whether State Government Agencies/ DISCOMS or Central Government entities like SECI/ NTPC, invite bids from solar power developers for setting up solar PV power plant of a certain capacity (MW). The capacity won by the successful bidder (solar PV power developer), on signing of Power Purchase

Agreement (PPA) becomes the "Contracted Capacity", which is the capacity (MW) in AC terms, allocated for supply by that bidder.

ii. Along with 'Contracted Capacity', the PPA also provides for a range of energy supply based on Capacity Utilisation Factor (CUF). While the procurer is not obligated to buy energy beyond this range, the developer is liable for penal charges for supply of energy less than the minimum committed energy or minimum committed Capacity Utilisation Factor (CUF).

iii. Thus, the PPAs define the relationship between the Solar Developers and the procurer in terms of AC capacity, and range of energy supply based on CUF, with procurement obligation within this range.

iv. The requirement of designing and installation of additional DC panels may emanate from the contractual need to supply the committed energy and does not cast any obligation on the procurer to buy generation in excess of the contracted energy range.

v. The procurer, without getting into the design and installation of solar capacity on the DC side, should only ensure that the AC capacity of the solar PV power plant set up by the developer corresponds with the contracted AC capacity and that, at no point, the power (MW) scheduled from the solar PV power plant, is in excess of the contracted AC capacity.

(4). *Accordingly, all concerned are hereby advised that:*

i. As long as the solar PV power plant is in accordance with the contracted AC capacity and meets the range of energy supply based on Capacity Utilisation Factor (CUF) requirements, the design and installation of solar capacity on the DC side should be left to the generator / developer.

ii. Even if the installed DC capacity (MWp) [expressed as the sum of the nominal DC rating (Wp) of all the individual solar PV modules installed] in a solar PV power plant, is in excess of the value of the contracted AC capacity (MW), it is not violation of PPA or PSA, as long as the AC capacity of the solar PV power plant set up by the developer corresponds

with the contracted AC capacity and that, at no point, the power (MW) scheduled from the solar PV power plant is in excess of the contracted AC capacity, unless there is any specific clause in the PPA restricting such D.C. capacity.

iii. The contracting party is not obliged to buy any power in excess of the contracted quantum. There is provision of penalty in case the supply falls short of the contracted quantity.

iv. As per law, the setting up of generation capacity is an unlicensed activity and therefore any person is entitled to set up any capacity which he desires to set up, and sell power to any entity which may want to buy it.

(5). This issues with the approval of Hon'ble Minister (Power & NRE).

(SanjayKarndhar)

Scientist-C

Email: karndhar.sg@nic.in

To: All concerned

Copy to: NIC, MNRE, for uploading on MNRE website.

Copy for internal circulation to:

Sr. PPS to Secretary/ PPS to SS/ Sr. PPS to JS (AKS)/ Dir (RG).”

The clarification issued by MNRE throws light on considering the contracted MW_{AC} capacity mentioned in the PPAs/PSAs through competitive bidding process in a Solar PV power plant in the light of meeting the committed Capacity Utilisation Factor.

7.17. To emphasize the relevance of power procurement under preferential tariff orders, sections of the Tariff Policy 2016 are extracted below:

“5.0 GENERAL APPROACH TO TARIFF

5.1

5.2 All future requirement of power should continue to be procured competitively by distribution licensees except in cases of expansion of existing projects or where there is a company owned or controlled by the State Government as an identified developer and

where regulators will need to resort to tariff determination based on norms provided that expansion of generating capacity by private developers for this purpose would be restricted to one time addition of not more than 100% of the existing capacity.

....

Provided also that the State Government can notify a policy to encourage investment in the State by allowing setting up of generating plants, including from renewable energy sources out of which a maximum of 35% of the installed capacity can be procured by the Distribution Licensees of that State for which the tariff may be determined under Section 62 of the Electricity Act, 2003.

Provided that notwithstanding the provision contained in para 5.11(j) of the policy, the tariff for such 35% of the installed capacity shall be determined by SERC.

6.4 Renewable sources of energy generation including Co-generation from renewable energy sources:

(1) Pursuant to provisions of section 86(1)(e) of the Act, the Appropriate Commission shall fix a minimum percentage of the total consumption of electricity in the area of a distribution licensee for purchase of energy from renewable energy sources, taking into account availability of such resources and its impact on retail tariffs. Cost of purchase of renewable energy shall be taken into account while determining tariff by SERCs. Long term growth trajectory of Renewable Purchase Obligations (RPOs) will be prescribed by the Ministry of Power in consultation with MNRE.

(2) States shall endeavor to procure power from renewable energy sources through competitive bidding to keep the tariff low, except from the waste to energy plants. Procurement of power by Distribution Licensee from renewable energy sources from projects above the notified capacity, shall be done through competitive bidding process, from the date to be notified by the Central Government.

However....

.....

(4) In order to incentivize the Distribution Companies to procure power from renewable sources of energy, the Central Government may notify, from time to time, an appropriate bid-based tariff framework for renewable energy, allowing the tariff to be increased progressively in a back-loaded or any other manner in the public interest during the period of PPA, over the life cycle of such a generating plant. Correspondingly, the procurer of

such bid-based renewable energy shall comply with the obligations for payment of tariff so determined.”

The Tariff Policy while promoting renewable sources of energy has considered the impacts on retail tariff, interest of the DISCOM and the public.

7.18. In the above backdrop, let us examine the provisions in the Energy Purchase Agreement of Solar power on contracted capacity, tariff and terms of agreement which are of relevance :

Extract of Energy Purchase Agreement for Solar Power Plants:

“ This agreement made at

WHEREAS the SPG has sent a proposal to the Distribution Licensee to sell solar energy generated from its solar power plant No(s) as detailed below, having a total capacity of _____ MWAC

<i>Sl.No.</i>	<i>SF No.& Address</i>	<i>Capacity</i>	<i>Plant Number</i>
<i>1.</i>	<i>Generator 1 -----</i>		
<i>2.</i>	<i>Generator 2 -----</i>		
<i>3.</i>	<i>-----</i>		

AND WHEREAS the Distribution licensee has accepted the said proposal and has agreed to buy the solar energy from the SPG from their/his aforesaid generators vide Lr.No._____ on the terms and conditions hereinafter agreed to.

(a) “Billing Period” means the time period between the date of meter reading in a particular month and the corresponding reading in the immediately succeeding month and Month shall mean a month reckoned in the British Calendar.

(b)

(h) “Installed Capacity” or” IC ” means the AC output in MW of all the units of the Solar power generators or the total capacity of the Solar generating station (reckoned at the generator terminals) as declared by the generator and agreed by the distribution licensee.

.....

5. Tariff and Other Charges:-

(a) Energy Charges:

*The Solar Power Tariff shall be Rs. per unit as fixed by the Commission in Order
.....*

(b) Reactive Power Charges:

.....

9. Terms of the Agreement:-

(a) This agreement shall come into effect from the “Effective Date”.

(b) The actual period of sale/purchase of power by the SPG/Distribution licensee under this agreement shall be valid for years, subject to COD and Expiry date. (c) The parties to the agreement shall have the option to terminate the agreement for violation of any of the clauses of the agreement after serving a notice of three months on the other party.”

7.19. The Energy Purchase Agreement between the Solar Power Generator (SPG) and the Licensee specifies the contracted capacity in MW_{AC}, the tariff at which the net energy shall be purchased from the contracted MW_{AC} capacity under the specific tariff order issued by the Commission. The agreement does not spell the quantum of energy that will be paid at the agreed tariff or the CUF.

7.20. The CUF is a parameter that is fixed after analysis of data of generation and applicable to all SPGs governed by respective solar tariff orders. Unlike other parameters that decide on the investment of the generator, CUF is a vital parameter that has a direct bearing on the tariff.

7.21. The Capacity Utilization Factor (CUF) is the ratio of the actual electricity output from the plant to the maximum possible output during the year. Capacity Utilisation Factor in other words is the ratio of actual energy generated against 100% existence of the plant. It is agreed that the estimated output from the solar power plant depends on the design parameters. Several variables like quality of panels, high temperatures, cloud cover, atmospheric factors, inherent cable losses contribute to CUF. On account of these factors CUF can vary. The CUF considered for tariff determination is 19% and therefore developers can design for

maximum efficiency to operate at 19% CUF. The petitioners' statement of installing trackers to generate higher energy can be of acceptance if by installing trackers they are able to achieve a CUF of 19% instead of a lesser quantum.

7.22. The petitioners M/s.Crescent Power Ltd, M/s.B.S.Apparel and M/s. Ranergy Solutions P Ltd. have generated upto CUF of 20.14%, 22.60% and 22.87% respectively during 2016-17. If payments are to be made for generation beyond CUF of 19%, then the determined tariff at higher CUF will naturally be less. The petitioners cannot seek payment for investments made to increase the performance of the plant beyond the specified parameter of 19% CUF.

7.23. For every increase in CUF by 1%, above the CUF of 19% adopted in the tariff orders of the Commission, the change in tariff would be as follows:

Increase in CUF beyond 19%	Tariff under Order No.7 of 2014 in Rs.		Tariff under Order No.2 of 2016 in Rs.	
	without Accelerated Depreciation	with Accelerated Depreciation	without Accelerated Depreciation	with Accelerated Depreciation
By 1%	6.66	5.96	4.84	4.33
By 2%	6.34	5.68	4.61	4.13
By 3%	6.06	5.42	4.40	3.94
By 4%	5.79	5.19	4.21	3.77
By 5%	5.55	4.97	4.04	3.61

Cases contested pertain to the Tariff orders of 2014 and 2016 and hence are taken for illustration. From the above table, one can notice the huge impact on tariff caused by every increase in per cent of the CUF. Another illustration that shows the earnings of a developer per MW at CUF of 19% and 23% when paid at the tariff of

Rs.7.01 per unit and the revised tariff of Rs.5.79 per unit would precisely exhibit the undue enrichment of the developer and the loss to the licensee:

CUF	Gross generation	Revenue at Tariff of Rs.7.01	Revenue at tariff of Rs.5.79
19%	1664400	Rs.1,16,67,444/-(A)	-
23%	2014800	Rs.1,41,23,748/-(B)	Rs.1,16,65,692

If the requests of the solar generators to pay for the excess CUF is considered, then the generators stand to gain by Rs.25 lakhs per MW per annum (B - A) above their cost plus profit that is permitted in the tariff orders issued by the Commission.

7.24. The petitioners contentions of restricted financial returns and inability to sustain PPAs cannot hold water. When payments are made for the energy generated to the extent of CUF of 19% which is the norm considered for the tariff determined, and the EPA specifies the tenure of the agreement thus assuring long time offtake of power, petitioners cannot complain of impact of project viability and revenue loss. The generic tariff determined is a levelised tariff that offers a safe return on equity to the investor. The tariff working provides repayment of loan within 10 to 11 years. Above all, the order provides for power purchase by distribution licensees for their Renewable Purchase Obligation (RPO) compliance.

7.25. In the case of Rithwick Energy Systems Limited vs Transmission Corporation Of Andhra Pradesh in Appeal Nos.90,91 etc. of 2006 on 28 September, 2006, on the issue of the declaration that even in the absence of Commission's directions the petitioner has no obligation to purchase excess

delivered energy from the Respondent at any point of time in terms of the provisions of PPA, Hon'ble APTEL held as follows:

“26. We agree with the learned Counsel for the first respondent that the capacity of the power plant was crucial to the agreement of sale and purchase of energy between the appellant and the first respondent. In case the capacity factor was irrelevant, there would not have been reason enough for the appellant to seek approval of the NEDCAP for enhancement of capacity of the plant. Generally speaking in a contract of sale and purchase, quantities are fixed so that parties know their obligations. An element of uncertainty has to be avoided as otherwise the parties cannot be said to be ad- idem or having same understanding of the terms of the contract. A party cannot be saddled with a liability which was not even in its contemplation, when it entered into an agreement with the other party. The agreement speaks of definite capacity of the plant. In Schedule 1 to the PPA, capacity of the generator and the station has been indicated as 6 MW. Delivered energy clause in the agreement has nexus with the generating capacity of the plant and cannot be read in isolation. It was argued by the learned Counsel for the appellants that the generating plant has an inbuilt ability to produce approximately 20% more energy than the declared capacity. This argument has not been supported by the learned Counsel for the appellants by providing any scientific data. Accordingly, the submission of the learned Counsel for the appellants that all delivered energy beyond 100% PLF on monthly basis is required to be computed for payment, cannot be accepted.”

7.26.Commission is of the view that a PPA signed with respect to the provisions in a preferential tariff order cannot be equated with a PPA signed to purchase power through competitive bidding guidelines. A developer who signs the PPA under competitive bidding guidelines has to bear the risks associated with his price quote whereas a developer under the preferential tariff scheme is guaranteed of

a safe return on investments over a long tenure of 20 to 25 years with prior knowledge of tariff and its components.

7.27. An argument may arise on violability that a PPA has been signed between the developers and the distribution licensee. The Energy Purchase Agreement signed between the developers and the Distribution Licensee is based on the preferential tariff order issued by the Commission wherein Commission has adopted the CUF of 19% to determine the tariff. The terms of the purchase agreements specify the order under which the agreement is signed and the tariff and this tariff necessarily has to be for the energy generated upto a CUF of 19%. The terms of the PPA are binding on both the parties equally. Even if one were to say that the CUF or units to be purchased were not mentioned in the PPA, then the judgment delivered by the Hon'ble Supreme Court of India in Civil Appeal Nos. 5399-5400 of 2016 dt.11.4.2017 would come to the rescue.

7.28. The Hon'ble Supreme Court of India in the judgment delivered in The Energy Watchdog vs CERC in Civil Appeal Nos.5399-5400 of 2016 on 11.4.2017 while discussing the sanctity of the PPA has observed as follows: ,

“19.It is clear that in a situation where the guidelines issued by the Central Government under Section 63 cover the situation, the Central Commission is bound by those guidelines and must exercise its regulatory functions, albeit under Section 79(1)(b), only in accordance with those guidelines. As has been stated above, it is only in a situation where there are no guidelines framed at all or where the guidelines do not deal with a given situation that the Commission's general regulatory powers under Section 79(1)(b) can then be used.”

This observation answers to the queries that may arise in settling this case.

7.29. A contract cannot cause loss to the other party. TANGEDCO's purchase of power under the preferential tariff orders of the Commission issued is to promote RE and for compliance of RPO. To incur higher costs on account of higher CUF is an additional financial burden to the DISCOM. If the petitioners are to seek for payment for entire energy generated at higher CUFs for having maximized the output with optimized design of the solar power plant as put forth by the petitioners, they may have to settle for lesser tariffs for the entire energy generated with respect to the contracted capacity undergoing a re-determination of tariff as per statutory provisions.

7.30. In view of the aforementioned facts and discussions, considering the peculiar nature where the process of adding panels to the DC side is in vogue in any solar power plant, Commission decides that

(i) the payments to the SPGs governed by the tariff orders No.7 of 2014 dt.12.9.2014 and No.2 of 2016 dt.28.3.2016 shall be limited to the annual generation that corresponds to the CUF of 19%.

(ii) at any point of time the AC capacity of the solar PV power plant set up by the developer should correspond with the contracted AC capacity and the scheduled power at no point of time shall be in excess of the contracted capacity.

The above direction would be fairly even to the SPGs, Distribution Licensee and the consumers.

With the above order, this petition is finally disposed of.

(Sd.....)
(K.Venkatasamy)
Member (Legal)

(Sd.....)
(Dr.T.PrabhakaraRao)
Member

(Sd.....)
(M.Chandrasekar)
Chairman

/True Copy /

Secretary

Tamil Nadu Electricity
Regulatory Commission