TAMIL NADU ELECTRICITY REGULATORY COMMISSION

(Constituted under section 82 (1) of the Electricity Act, 2003)
(Central Act 36 of 2003)

PRESENT:

Thiru S.Akshayakumar **…. Chairman**

and

Dr.T.Prabhakara Rao **…. Member**

I.A. No.1 of 2017
in
M.P.No.16 of 2016
and
M.P.No.16 of 2016

National Solar Energy Federation of India
Having office at
702, Chirajiv Tower
43- Nehru Palace
New Delhi – 110 019.

… Petitioner
(Thiru Rahul Balaji,
Advocate for the petitioner)

Vs

1. Tamil Nadu Generation and Distribution Corpn. Ltd.
(TANGEDCO)
Rep. by its Chairman
No.144, Anna Salai
Chennai – 600 002.

2. Tamil Nadu State Load Despatch Centre
(TNSLDC)
Rep. by its Chairman
(TANTRANSCO Ltd.)
No.144, Anna Salai
Chennai – 600 002.

3. Tamil Nadu Transmission Corpn. Ltd
(TANTRANSCO)
Rep. by its Chairman
No.144, Anna Salai
Chennai – 600 002.

4. Ministry of New and Renewable Energy
(MNRE)
Rep. by its Secretary
Block-14, CGO Complex
Lodhi Road
New Delhi – 110 0030

…. **Respondents**
(Thiru M.Gopinathan,
Standing Counsel for R-1 to R-3 and
Thiru T.Arivarasan, Advocate for R-4)

Dates of hearing : **09-09-2016; 26-10-2016; 09-12-2016; 24-02-2017; 28-04-2017; 02-06-2017; 22-08-2017; 29-08-2017; 12-10-2017; 19-12-2017; and 14-02-2019**

Date of Order : **25-03-2019**

The M.P.No.16 of 2016 came up for final hearing on 14-02-2019. The Commission upon hearing the submissions of the learned Counsels for the parties and after perusing the records relating to the above said M.P.No.16 of 2016 passes the following:-

ORDER

1. (i) Prayer of the Petitioner in M.P.No.16 of 2016:-

The prayer of the petitioner in the above M.P.No.16 of 2016 is to -

(a) direct the respondents to forthwith stop issuing backing down / curtailment instructions to solar projects as the backing down is causing huge losses to the solar developers almost on daily basis, pending final decision in the matter;

(b) issue a direction to respondent to strictly enforce / implement “MUST RUN” status on all solar power plants in the State of Tamil Nadu and consequently direct the respondent not to issue orders to the solar power plants to switch off generation or to back down generation;

(c) issue appropriate directions to consider deemed generation to solar plants for the loss of generation due to outages / backing down instructions of respondents and to approve the methodology for estimating deemed generation;

(d) direct the respondents to compensate the petitioners corresponding to loss of generation on account of backing down instructions with retrospective effect at the tariff of the PPAs;

(e) declare that all directions issued by the respondents to the solar plants in the State of Tamil Nadu, directing them to switch of generation or back down generation, till date as invalid, in case they are not able to establish compliance with above stated provisions and to issue guidelines for formal procedure to be adopted and conditions to be satisfied for carrying out / giving backing down instructions in future.

(ii) Prayer of the Petitioner in I.A. No.1 of 2017 in M.P.No.16 of 2016:-

The prayer of the petitioner in the above I.A.No.1 of 2017 in M.P.No.16 of 2016 is to direct the respondents to stagger the commissioning of the new solar power plants and permit commissioning only after the Respondents are able to demonstrate the absorption of the entire solar capacity already installed in the State on a sustained basis of at least 6-9 months and thereafter issue further directions to first despatch the solar power generation from the older plants first and thereafter despatch the power generation from the solar generating plants and pending disposal of this Petition, suspend all further steps by the 1st Respondent to procure any additional power either from Solar or any other RE source or other conventional sources until the 1st Respondent complies with the statutory and contractual commitments in letter and spirit and evacuate the entire capacity of existing solar power in the State.

2. Facts of the Case:-

The facts of the case is to enforce the “MUST RUN” status granted to all solar power plants in the State of Tamil Nadu and consequently direct the respondents not

to issue orders to the solar power plants to switch off generation or to back down generation and provide the deemed generation charges to the solar generating units for the loss of power generation units due to backing down instructions issued by SLDC/ALDC/TANGEDCO/TANTRANSCO.

3. Contentions of the Petitioner:-

3.1. The members of Petitioner in the petition are owning Solar Power Plants, *inter-alia*, in the State of Tamil Nadu for supplying power to TANGEDCO at the tariff determined by the Commission. The members are continuously facing a huge loss due to backing down instructions from SLDC/ ALDC and forceful disconnection/ curtailment of supply from their solar power plants by TANGEDCO/TANTRANSCO. Moreover, these instructions are issued telephonically without any written confirmation either prior to or after backing down / disconnection. Unlike the conventional power plant, the applicable tariff of solar power project is based on single part tariff and, therefore, backing down of such power directly impacts the revenue of the solar power plant and deprive it of full recovery of the legitimate Annual Fixed Charges determined by Tamil Nadu Electricity Regulatory Commission on normative basis for meeting the expenses of the plant.

3.2. The members of the petitioner association are placed in a position where despite the possibility of maximum production they are unable to evacuate the power that could have been generated leading to wastage of Renewable power: This creates difficulties in supplying projected quantum of power for viability of the project as well as ensuring financial returns for project activity. TANTRANSCO has been issuing orders asking solar power plants to cease generation for a sizeable period almost every day for as much as 7 to 10 hours in a day, which is the peak generation

period out of 12 hours generation period in the day, resulting in significant loss of generations.

3.3. The members of the petitioner have made huge investments in solar power plants in the State of Tamil Nadu and due to regular backing down and curtailment, they are facing huge loss against their investments. The petitioner is not only providing green power to State, it is also supporting them to fulfil the Solar Power Purchase Obligation of the Respondent No.1. Whereas the backing down of solar power is not only dropping down the interest of investors in the State but also preventing the respondent No.1 to fulfil their solar power purchase obligation. Therefore, being aggrieved by the above act of respondents, the petitioner is filing this petition before the Commission.

3.4. The solar energy being green and renewable source of energy needs to be patronized by permitting the solar power plants to run continuously without backing down in view of various statutory provisions, National Electricity Policy, various regulations of the Commission.

3.5. The State Government had come out with the Solar Energy Policy, 2012 with the vision of developing the State as a world leader in Solar Energy by establishing 3000 MW of solar power and to encourage the setting up of solar plants in the State. There was no representation or information about carrying out any curtailment or backing down of solar projects. Accordingly, in good faith, the Members of the Petitioner Association set up plants of varied capacity using Solar Photovoltaic (PV) technology in the State in consonance of the new solar initiative by the State. The

total solar installed capacity in the State as on 29/02/2016 is 581.26 MW. Now, any curtailment of solar power generated from such plants would be considered as Promissory Estoppel. Moreover, frequent backing down of Solar Power by action of the Respondents is violating the very objective of State Solar Policy.

3.6. The Commission passed Comprehensive Tariff Orders on Solar Power vide Tariff Order No.4 of 2014 dated 12.09.2014 and Tariff Order No. 2 of 2016 dated 28.03.2016 and determined Single Part Levelised tariff for 25 years without considering any grid outage or backing down of solar power project. Accordingly, the members of the Petitioner have conceived and installed solar power projects considering the same, i.e., the project will operate in full Capacity Utilization Factor without any grid outage or backing down of the project. In such a case, where solar power projects are operating on single part Levellised tariff, fixed for 25 years, if they are facing the problem of backing down without any compensation for loss of generation, it would lead to sheer loss of revenue making the huge investment dead.

3.7. As per the RPO target as mandated by the Tariff Policy, the Ministry of New and Renewable Energy calculated the requirement of solar power project installation in the State of Tamil Nadu at 8884 MW by 2022, whereas as on 30.06.2016, the installation of solar power projects are only 1142 MW. Therefore, any backing down of solar power generation by Respondent No.1 would not only discourage future investments but also the Respondent would not be able to achieve its Solar Purchase Obligation.

3.8. Thus, in the current situation of backing down of solar power plants, the existing developer would be losing the interest to invest in the State of Tamil Nadu as well as the State will not achieve its objective to project it as a Solar hub State.

3.9. It is clear from the statutory provisions, and various regulations and orders of the Central Electricity Regulatory Commission and the Commission that all Solar Energy Generators, by virtue of being renewable energy source based generators have been granted the MUST RUN status and their operation cannot in any manner be curtailed (instructions given orally and not followed by any written communication) in the name of routine system operations requirements such as scheduling and merit order despatches or transmission constraints. It can be done only in exceptional circumstances of maintaining grid security and safety that too has to be a last resort after exhausting all other measures including backing down of conventional generators. These being statutory provisions are binding on all participants including the Respondents. Non-Generation of Solar power at times of peak generation either by asking Solar power generators to back down/not making evacuation infrastructure available is a National wastage of natural resource. Therefore, for optimum utilization of this natural resource the solar power generators should be allowed to generate during such period. The “MUST RUN” status is not honoured by the respondents and solar plants are being forced to comply with scheduling as per merit order despatch, to switch off generation for extended period during the day. It may be noted that the Commission has also pointed out in its Tariff Order dated 28.03.2016 at page 56 that RE Sources (including solar) have been assigned MUST RUN status and do not come under Merit Order Dispatch, which reads as follows:

> *"Chairman/TNERC - Renewable Energy is considered as separate and they have been assigned must run status. These energies do*

not come under Merit Order Dispatch. Grid Security alone can stop functioning of any of these machines. "

In this state of affairs, the Solar plants would be continuously under serious hardship and the economic sustainability of Solar energy generation in the State of Tamil Nadu would be seriously jeopardized.

3.10. The Respondents are curtailing the solar power in the name of system security, transmission constraint. It would also be pertinent to state that the issue of grid security as the basis for any back downs in solar generation does not arise at all. The data available with respect to the frequency clearly demonstrates that the frequency has never been an issue and the backdowns are occurring due to decisions of the Respondents which are contrary to the legal and regulatory mandate that is binding upon them. In this regard, insofar as Solar Generators are concerned, in the case of voltage drop, there is a provision to install LVRT. The LVRT mechanism boosts the terminal voltage of the point of connection of the machine when there is a fault at the remote location to provide transient stability support. LVRT is the capability of the electrical device to operate through periods of lower grid voltage. This has been installed by members of the petitioner Association in line of CEA guidelines. Thus, the generation is available in the event of transient faults when the recovery of voltage starts after 300 milli. sec. and the grid stability is maintained. Therefore, backing down due to grid security does not even arise.

3.11. It is also pertinent to state that the total installed capacity of the Tamil Nadu is 25994.0 MW as on 30th June 2016 and the total installed capacity of solar power projects in the State is only 1142 MW, which reflect that the total share of Solar

power is only 4.4% of the installed capacity. If the PLF of a solar power plant is taken into account, the share would be even less than 1%. The solar power portion is a tiny portion of overall energy supplied for the load served during any time of day. Further, useful reference can be made to the Monthly progress report of the SRPC, in which the average monthly frequency was within the limit for the month of March, April and May. The reports show that limits were crossed in March on March 07th & 18th, where there are only 2 days in a month in which the frequency cross the limits. In April it was on April 1st & 26th, where there are only 2 days in a month in which the frequency cross the limits. Again in May it occurred only on two days, i.e., May 18th & 26th, when the frequency cross the limits and the average grid frequency in the months of March, April and May'16 was 49.99 Hz, 49.98 Hz and 50 Hz respectively, which reflects that all time the grid was stable. During this period the SLDC, if it required to back down, has scope to backing down of power from other source of generation as Solar power enjoys a Must Run status.

3.12. Regarding transmission constraint, the petitioner submits that prior to the installation of the Solar Power Plants, an approval that is colloquially referred to as "No Objection Certificate" (NOC) was issued by TANGEDCO after carrying out load flow/system studies for analysing all the possibilities and infrastructure available to evacuate the full energy to the point of consumption even under worst conditions. For the creation of such infrastructural facilities, Infrastructure Development Charges (IDC) are being paid to TANGEDCO / TANTRANSCO. Hence, prior to generating plant being operational, it is required to resolve all issues pertaining to distribution and transmission constraints and, thereafter, it becomes functional. Moreover, once the NOC is granted by TANGEDCO for connectivity and evacuation before setting up

the project, transmission / distribution constraint cannot be a ground for curtailment particularly when the responsibility of development of transmission/distribution systems lies with TANGEDCO/TANTRANSCO. It may be noted that known transmission constraint would not come under grid security nor it is a stability issue. This is a scheduling issue, for which solar projects are to be treated as MUST RUN. Only those constraints which are encountered suddenly in real time operation of grid can come under operational grid security.

3.13. Thus, the NOC or permission for installation of Solar Power Plants was granted by TANGEDCO upon ensuring adequate transmission infrastructure from TANTRANSCO. Hence, non-availability of the appropriate Evacuation Agreement or transmission constraint should not be considered as situation for initiating backing down of solar generators.

3.14. It shall be noted that all Solar Plants have been found installed and made operative only after getting NOC from the Respondents and only after paying the applicable charges. Now the Respondents cannot come with a plea of grid stability and can stop the plants from functioning to their full capacities by such unlawful forced backing down. Because of the "Must Run Status" provided to solar projects by lEGC and TNEGC and also by the Tariff Order of the Commission, enormous investment was made in the Solar energy segment and, hence, not following the statutory assurances and promises would leave to a situation that all solar power plants be closed and existing/new capacities shifted to other States where the policies encouraging Solar energy segment are conducive for such investments.

3.15. Compared to non-renewable sources such as coal, gas, oil, nuclear the advantages are pretty high as solar is absolutely non-polluting and requires less maintenance. The Ministry of Environment & Forest (MoEF) has also released a new categorisation of industries i.e., white category for harmonization of classification of industrial sectors. The newly introduced white category of industries pertains to those industrial sectors which are practically non-polluting and lists 36 industries including Solar Power Plant through photovoltaic cell. Therefore, such resources need to be utilised optimally and efficiently.

3.16. If the current practice of mass scale backing down of solar power continues for some more time, the solar generators will soon become bankrupt. Hence, there is an urgency to decide the issue at the earliest possible.

3.17. The Petitioner is neither aware whether Respondents have followed the procedure or guidelines issued by the Commission for carrying out the curtailments of solar power nor it wishes to go into their internal systems. The Commission may verify compliance of its orders/directions/regulations if considered necessary. However, the Petitioner is definitely concerned with the outcome of such instructions given to its members, which results in loss of generation. Once such instructions are issued and complied with, solar power developers need to be compensated for loss of generation. Since this loss is due to reasons beyond the control of the solar developer and for none of its fault, it cannot be penalised to bear any loss of revenue on this account. The solar developer needs to be placed back at the same economic position as he would have been had such instructions not been issued. In other words, solar developer should be paid for the generation loss considering this as

Deemed Generation at the rate agreed in the PPA. The Deemed Generation may be calculated on the basis of any one of the following:-

- Estimate based on actual radiation for the hours corresponding to backing down / curtailment ; or
- Average of actual generation during the corresponding period of previous day and next day

4. Contentions of the Affidavit filed on behalf of the Respondents 1 to 3 dated 26-10-2016:-

4.1. As per section 32 & 33 of Electricity Act, 2003, clause 2.7 of Indian Electricity Grid Code (IEGC) and as per clause 4.2 (e), 8.4 (iii) and (v) of Tamil Nadu Electricity Grid Code, the SLDC is responsible for the secured and economic operation of grid. It is the responsibility of SLDC to restrict the surplus power into the grid both in the aspects of grid security, economical and reliable operation.

4.2. It has been stated that as per Regulation 5.2 (u) of lEGC, 2010 provides as follows:-

> "Special requirement for Solar and Wind generators: System operator (SLDC/RLDC) shall make all efforts to evacuate the available wind power and treat as a must-run station. However, System operator may instruct the solar / wind generator to back down generation on consideration of grid security or safety of any equipment or personnel is endangered and solar / wind generator shall comply with the same".

4.3. As stipulated in the clause 5.2 (u) of lEGC 2010, the system operator makes all efforts in accommodating maximum solar power and initiate curtailment action only under circumstances of grid security and in consideration of safety of equipment.

4.4. When the question of grid security surfaces, it attains the superior position as compared to all other aspects including the issue of absorption of renewable power. The issue of "Must Run Status" cannot be viewed in isolation and has to be viewed from the point of view of the stability of the grid and securing the safety of the same.

4.5. As per Clause 5.2(m) of lEGC 2014, the grid operating frequency is 49.90-50.05 Hz. At frequency above 50.05 Hz no underdrawal is permitted and each unit of underdrawal at frequency above 50.10 Hz will attract penalty at the rate of Rs.1.78/Kwhr. Failure of action to contain the frequency and restriction in underdrawal is viewed as grid indiscipline and attract penal action by the Southern Regional Load Dispatch Centre and Central & State Regulatory Commissions. Hence the legal provisions do not permit injection of surplus power into the system. Each unit of underdrawal by way of injection of surplus power beyond the limitations is not only treated as grid indiscipline and attract violation messages, but it also leads to heavy financial loss to the Board as the surplus power injected into the grid will be at free of cost and also with penalty @ Rs.1.78/Kwhr at frequency above 50.10 Hz.

4.6. SLDC tries to accommodate the maximum possible generation from solar source by taking all efforts, however at instances when the excess generation poses a threat to the system security and economic operation of the grid, in line with section 32, 33 (1) & (2) of Electricity Act, 2003, Clause 2.7.1, 5.2.(u), 5.2(m) of Indian Electricity Grid Code, 2010 and clause 8.3 (b), 8.4 (iii), 8.4.(v) & 4.2.(e) of Tamil Nadu Electricity Grid Code, the excess generation is blocked.

4.7. The petitioners contention of backing down of solar generation during the month of March, April and May 2016 is not correct. The solar energy absorption was carried out to the maximum extent possible after backing down of other generating sources.

4.8. The petitioner has signed as accepted to comply with the technical and other conditions while accepting the Noted for Record letter from NCES wing of TANGEDCO under Sl.No.19 which reiterates clause 5.2 (u) of TEGC.

4.9. It has been stated that, for accommodating maximum renewable generation and to avoid backing down of renewable generation, annual overhauling (AOH) and Capital Overhauling (COH) of TANGEDCO thermal machines are planned apart from annual maintenance plan by Central Sector Generating Stations (CGS). Moreover, Backing down of TANGEDCO thermal generation and CGS generation, etc. which are very very cheaper than renewable power is also being done to utilize the renewable power generation. The schedule of TANGEDCO thermal overhauling is tabulated as below:-

Station	Unit	Capacity MW	From	To	Days	Reason
NCTPS	I	210	15-08-2016	28-09-2016	45	COH
	II	210	16-11-2016	30-12-2016	45	COH
	III	210	01-08-2016	15-08-2016	15	AOH
	IV	600	01-07-2016	30-07-2016	30	AOH
	V	600	28-08-2016	26-09-2016	30	AOH
TTPS	I	210	14-07-2016	27-08-2016	45	COH
	II	210	01-11-2016	15-12-2016	45	COH
	III	210	21-09-2016	05-10-2016	15	AOH
	IV	210	10-06-2016	24-06-2016	15	AOH
	V	210	01-09-2016	20-09-2016	20	AOH
MTPS	I	210	06-06-2016	20-06-2016	15	AOH

	II	210	01-11-2016	15-12-2016	45	COH
	III	210	01-08-2016	15-08-2016	15	AOH
	IV	210	10-07-2016	24-07-2016	15	AOH
	V	600	10-06-2016	09-07-2016	30	AOH

4.10. It is submitted that only cost alone is not the factor between the thermal and solar power, there are other distinct difference between thermal power plant and solar power in respect of source of primary drive force, availability, reliability, firm/infirm nature, quantum control, reactive power generation / reactive power consumption, impact on voltage profile etc. which has to be considered in all the above aspects in grid operation. There are many technical constraints in backing down of thermal units frequently which causes frequent failure of thermal units. Reduction in generation of thermal stations beyond certain limit is not technically feasible as frequent change in generation causes heavy thermal stress on the boiler resulting frequent boiler tube puncture depriving the minimum base generation causing load shedding to the general public. .

4.11. Regarding the prayer of the petitioner seeking compensation for the unavailed solar power, it is submitted that scheduling & dispatch of power to be done in accordance with the contracts entered into with the generating stations. Except for the renewable power, other sources of firm generating stations are having contracted agreement which clearly specifies the quantum of power that will be injected into the grid with penalty clause of pay or take. In case of solar there is no provision for quantum of power scheduled, time period & penalty clause that is only grid connectivity agreement and not usual power purchase agreement on par with the firm power generation on fossil fuel/co-generation.

4.12. The petitioner referred the clause 5.2. (u) of IEGC which permits the SLDC to increase or decrease their generation in case of overloading of lines / transformers and threat to system security which may arise due to shoot up in frequency due to heavy injection of wind power. In addition, clause 4.2.(e) of TEGC and section 32 of Electricity Act, 2003 state that the SLDC shall be responsible for carrying out real time operations for Grid control and dispatch the electricity within the State through secure operation of the State grid in accordance with the grid standards and grid code. Hence it is submitted that if the argument of the petitioner is accepted, it would make the section 32 of Act-2003, clause 8.4. (iii) of TEGC and 5.2.(u) of IEGC relating to the responsibility of SLDC to ensure secured and economic operation of the grid completely otiose. Further, it is submitted that when there are two provisions which cannot be acceptable with each other, they may be interpreted in such a way that the effect is given to both.

4.13. In the above line by obeying the clause 8.3 (b) of TEGC and 5.2.(u) of IEGC, SLDC treat the solar power as "Must Run" stations and accommodate the maximum possible generation by taking all possible efforts in normal conditions. However, at instances when the excess injection of power into the grid poses a threat to the system security and economic operation of the grid, in line with clause 5.2. (u) of IEGC, 4.2. (e) & 8.4 (III) of TEGC and section 32 of the Electricity Act, 2003, the excess generation is blocked which would otherwise affects the secured and economic operation of the grid.

4.14. Further the following stipulated in the TEGC are respectfully brought to the notice of the Commission:-

“ …. It is nevertheless necessary to recognize that the Grid Code cannot predict and address all possible operational situations. Users must therefore understand and accept that; in such unforeseen circumstances, the State Transmission Utility (STU) who has to play a key role in the implementation of the Grid Code may be required to act decisively for maintaining the Grid regimes for discharging its obligations. Users shall provide such reasonable co-operation and assistance as the STU may request in such circumstances. "

4.15. It is submitted that with all the technical & legal constraints and financial, commitments, the respondents are taking all possible efforts in maximum utilization of the solar power. However, curtailment of solar power on account of technical and legal constraints could not be averted. Hence, if the petitioner’s prayers are accepted irrespective of system condition, the SLDC would be forced to violate the lEGC clause and thereby leaving room for the grid collapse.

4.16. As per the provisions contained in clause 5.2 (u) of lEGC and clause 8.4 of Tamil Nadu Electricity Grid Code (TNEGC), "Must Run" status is not absolute. It is subject to reasonable restrictions for grid safety and reasonable restrictions can be imposed by the respondents, the question of the petitioner seeking the relief of "MUST RUN" status does not arise.

4.17. It is submitted that the Commission issued daily order dated 09.09.2016 that "The 2nd respondent was directed to furnish data indicating the details of dispatch of solar energy”.

4.18. From the above, it is submitted that the State Load Despatch Centre is making all the maximum possible efforts to accommodate the Renewable power both wind and solar by the following measures:-

(i) The State owned thermal units were taken off bars and kept as STANDBY or requested to avail annual overhaul to the tune of 900 to 1400 MW according to grid conditions. High cost IPP's were kept off the grid and purchase from Intra-State Captive Generators was stopped from 31.05.2016 to the tune of 900 MW.

(ii) Low cost power from Central generating stations was surrendered back to central pool on daily basis to the tune of 1500 MW to avail RE power even though CGS power is very cheaper compared to RE power.

4.19. After taking all efforts, when there is no scope for further reduction of generation to maintain the grid parameters and the solar power was asked to back down in lieu of grid security as a last resort.

4.20. Summarizing the above, it is submitted that during the months of March, April and May 2016, the Solar Generation was asked to back down only from 21.05.2016 to 30.05.2016 i.e. only about 10 days out of 92 days on account of Grid security.

5. Counter Statement filed on behalf of the 4th Respondent on 24-02-2017:-

5.1. The 4th Respondent states that as per the Paragraphs 6 and 7 of the Petition is concerned the Petitioner has expressed about their solar projects in State of Tamil Nadu and the problems being faced by them due to backing down from SLDC/ALDC. It is submitted that if the averments made by the petitioner are true then it is a matter of concern and the 4th Respondent is also of the view that generation from

Renewable Projects should not be curtailed. However SLDC/ALDC and TANGEDCO/TANTRANSCO may clarify their position and stand in this regard.

5.2. With regard to Paragraph 8 & 9 of the Petition, it is submitted that the Government of India has launched the National Solar Mission in January, 2010 with the objective to promote ecologically sustainable growth while addressing India's energy security challenge with a target of setting up of 20 GW by 2022. The target was further enhanced to 100 GW by 2022. The Ministry of New and Renewable Energy (MNRE) has initiated various programmes for the development of solar projects under National Solar Mission (NSM). As on 30.11.2016, about 8875 MW of solar projects have been installed in the country. Further, the Ministry have always been promoting setting up of solar capacity in the States through its various schemes and supporting the State schemes.

5.3. It is further submitted that the purpose of solar energy is to promote the production of energy through the use of renewable energy sources in accordance with climate, environment and macroeconomic applications in order to reduce dependence on fossil fuels, ensure security of supply and condense emissions of CO_2 and other greenhouse gases. Solar energy shall in particular contribute to ensuring fulfilment of national and international objectives of increasing the proportion of energy produced through the use of renewable energy sources. Continuing on the business-as-usual development of fossil fuel based generation on long term had limitations due to various factors such as limited fossil fuel resource availability, risks in securitizing external fuel supplies, macro-economic constraints like balance of payments problems and high current account deficit, externalities of

fossil-based generation, international pressures relating to climate mitigation, constraints of water availability for thermal cooling etc. Dependence on import of fossil fuel would exposes India to risks of volatile prices, foreign exchange rate risks, competition with other importers, and domestic needs of the source countries. Solar energy offers the perfect solution to meeting our energy needs without endangering the climate and the environment.

5.4. Efforts are being made to revamp the solar landscape in India with expansion in renewable energy targets and a revamp under the National Solar Mission. By local necessity (of getting cheap, plentiful energy quickly) as well as by global necessity (preventing climate change which would be particularly harmful to India), India could emerge as a leader in the global energy transition as India is aiming to establish International Solar Alliance. The activity like curtailment of solar energy will give a wrong signal to investors and countries where we are proposing solar as an alternative energy resource. Therefore, the Commission may direct competent authority to promote solar energy and prevent curtailment of solar energy as against conventional energy.

5.5. With regard to Legal and Regulatory Provisions, it is submitted that in compliance to section 86 (1) (e) of the Electricity Act, 2003, all the State Electricity Regulatory Commissions (SERCs) have notified the regulations specifying the Renewable Purchase Obligation (RPO) for the obligated entities in their respective States.

5.6. With regard to National Electricity Policy, it is submitted that in compliance with section 3 of the Electricity Act, 2003, the Central Government has notified the National Electricity Policy in February, 2005 for development of the power system based on optional utilization of resources such as coal, natural gas, nuclear substance or materials, hydro and renewable sources of energy.

5.7. With regard to Indian Electricity Grid Code (IEGC) Regulations of CERC, it is submitted that the lEGC is a regulation made by the Central Commission in exercise of powers under clause (h) of sub-section (1) of section 79 read with clause (g) of sub-section (2) of section 178 of the Electricity Act, 2003. The IEGC also lays down the rules, guidelines and standards to be followed by various persons and participants in the system to plan, develop, maintain and operate the power system, in the most secure, reliable, economic and efficient manner, while facilitating healthy competition in the generation and supply of electricity. As per the Notification No.L-1/18/2010-CERC dated 28th April 2010 by CERC on IEGC, the System Operator (SLDC/RLDC) shall make all efforts to evacuate the available solar and wind power and treat as a must-run station. However, System operator may instruct the solar/wind generator to back down generation on consideration of grid security or safety of any equipment or personnel is endangered and solar/wind generator shall comply with the same. For this, Data Acquisition System facility shall be provided for transfer of information to concerned SLDC/RLDC. Hence the System Operators are required to abide by the provisions of the IEGC.

5.8. With regard to Grid Code of TNERC, it is humbly submitted that the State Load Despatch Centre is required to abide by the provision of the Tamil Nadu

Electricity Grid Code for regulating State generation and avoid wastage of Renewable Energy.

5.9. With regard to TNERC (Renewable Energy Purchase Obligation) Regulations, it is submitted that the TNERC has notified the Solar Energy Purchase Obligations in percentage for the years 2015-16, 2016-17 and 2017-18. However, this is not as per RPO requirement as per recommendations of the revised Tariff Policy and the RPO trajectory notified by the Ministry of Power in July, 2016. The long term growth trajectory of Renewable Purchase Obligations (RPOs) for Non-solar as well solar uniformly for all States / Union Territories, initially for three years from 2016-17 to 2018-19 as under-

Long term trajectory	2016-17	2017-18	2018-19
Non-Solar	8.75%	9.50%	10.25%
Solar	2.75%	4.75%	6.75%
Total	11.50%	14.25%	17.00%

The State Commission is required to notify the RPO Regulations in accordance to the notifications of the Ministry of Power for RPO.

5.10. With regard to Solar RPO as per the Revised National Tariff Policy, 2016 it is submitted that the Government of India launched the National Solar Mission in January, 2010 with the objective to promote ecologically sustainable growth while addressing India's energy security challenge with a target of setting up of 20 GW by 2022. The target was further enhanced to 100 GW by 2022. The Ministry of New and Renewable Energy (MNRE) has initiated various programmes for the development of

solar projects under National Solar Mission (NSM). As on 30.11.2016, about 8875 MW of solar projects have been installed in the country. The Ministry is also coming up with new initiatives. These initiatives are monitored at the highest level so that the target of 100 GW of setting up solar capacity by 2022 could be achieved. Further, the Ministry have always been promoting setting up of solar capacity in the States through its various schemes and supporting the State Schemes. Consequent to the Order dated 22.07.2016 notified by the Ministry of Power regarding "guidelines for long term RPO growth trajectory of Renewable Purchase Obligations (RPOs) for non-solar as well for solar, the Ministry of New and Renewable Energy has already sent communications to the State Governments/UTs and State Commissions for compliance and to set their RPO trajectory as per the MoP Order dated 22.07.2016. The SERCs are required to notify RPO for their respective States in line with the aforesaid uniform RPO trajectory set in MoP Order dated 22.07.2016.

5.11. It is submitted that as on 30.11.2016, the total grid connected solar capacity in the country is about 8,875 MW out of which the installed capacity in Tamil Nadu is about 1558 MW accounting for about 18% of the total solar capacity in the country.

5.12. It is further submitted that this Ministry has taken up the matter with Central Electricity Regulatory Commission (CERC) vide letter dated 2nd August, 2016 following the backing down of solar projects by some load dispatch centres that the issue of backing down may be placed before Forum of Regulators so that some consensus is reached on the issue. On the issue of two part tariff, Ministry is of the view that it may be difficult as most of the cost in solar power project is fixed cost.

Hence, a broad consensus on the issue of backing down of solar projects is required.

6. Contentions of Rejoinder filed on behalf of the Petitioner dated 03-01-2017:-

6.1. The present petition has been filed for the enforcement of “MUST RUN” status granted to all solar power plants in the State of Tamil Nadu and consequently direct the respondents not to issue orders to the solar power plants to switch off generation or to back down the generation and provided deemed generation charges to the solar generating units for the loss of power generation units on account of backing down instructions issued by SLDC/ALDC/TANGEDCO/TANTRANSCO.

6.2. The petitioner states that the Respondent in paragraph 3 by referring to sections 32 and 33 of the Electricity Act, 2003, clause 2.7 of the Indian Electricity Grid Code, and Clause 4.2 (e), 8.4 (iii) and 8.4 (v) of the Tamil Nadu Electricity Grid Code has sought to rationalize that the instructions on backing down of generation are on account of the security and economic operation of the grid. By doing so, the Respondents are attempting to minimize their financial obligations by curtailing the solar power generation projects, In fact, the contention of the Respondents in paragraph 3 that the instructions for backing down are on account of economic operations are in gross violation of the provisions of the Indian Electricity Grid Code, Tamil Nadu Electricity Grid Code and the orders of both the Hon'ble APTEL and this Commission. Such an action by the Respondents decreases the overall share of renewable energy in annual consumption and thereby causes long term environmental and developmental ramifications.

6.3. The Petitioner states that the Central Electricity Regulatory Commission ("CERC") has stipulated in clause 5.2 (u) of the CERC (Indian Electricity Grid Code), Regulations, 2010, solar generators shall be treated as "MUST RUN" plants. It further directs the System Operator (RLDC/SLDC) to make all efforts to evacuate all available solar power and treat them as "MUST RUN" plants. Furthermore, the regulations specifically state that the scheduled generation can only be curtailed under the circumstances of Grid security and in consideration to safety of any equipment or personnel. This Commission in Tariff Order No, 4 of 2014 dated 12.09.2014 has stated that the SLDC should exercise proper control and separate instructions have to be given so as to dispatch the power from renewable energy sources. The CMD/TANGEDCO in fact clarified that the SLDC shall not back down the NCES generation until the grid frequency is on the rise. In light of the aforementioned regulations, the Indian Electricity Grid Code and the orders of this Commission have granted “MUST RUN” status to the solar power plants. In fact, after verifying the data furnished by TANTRANSCO and TNSLDC, it is stated that such backing down was not on account of consideration of grid security or safety or equipment of personnel as provided in the regulations.

6.4. The petitioner submits that the ground raised by the respondent is a generic legal provision and the CERC regulations stipulate maintenance of grid stability. The respondents have not provided any specific data to show that the grid frequency was more than 50.10 Hz and what financial loss was suffered by the respondents due to the same. It is further submitted that the petitioner has analysed the block wise grid frequency as per the data obtained from the website of the Southern Regional Power Committee (“SRPC"). On the basis of the analysis, the Petitioner submits that from

04.04.2016 to 05.06.2016, a total of 6048 time block of 15 minutes and 56 time blocks have crossed the limit of 50.10 Hz, which is less than 1 % and approximate 0.93%. Therefore, the ground taken by the Respondents in paragraph 6 are incorrect. Additionally, the Respondent has issued a Request for Selection ("RFS") on 21.10.2016 for procurement of additional 500 MW of solar power, which shows that the State has the potential to procure more power into the grid.

6.5. The petitioner submits that by absorbing all the energy which is generated by the solar generators calls for a coordinated action by all the other generators and at the stage of surplus generation, in order to accommodate all the energy which has been generated, other generators have to correspondingly back down their generation. It is further submitted that there could be technical and commercial concerns regarding coordinated performance by other conventional fuel based generators. The technical limit is the inherent quality of the machines which are designed to operate continuously at a maximum capacity. Therefore, till such technical limit, the SLDC must back down the conventional generation belonging to IPPs, State Generating Stations and Central Generating Stations. In this regard, the CERC has notified the 4th amendment to the Indian Electricity Grid Code Regulations, 2010 on 06.04.2016, wherein an additional regulation for fixation of minimum schedule for operation of the Central Generating Stations and Inter-State Generation Stations has been provided for. In view of the same, it is submitted that this Commission may direct the Respondents to back down the State Generating Stations and surrender the share of Central Generating Stations for Tamil Nadu to the extent that the State Generating Stations and Central Generating Stations can operate its units to a technical minimum, which is 55% of MCR loading or installed

capacity, in order to accommodate solar power generation completely. The Petitioner further submits that the backing down ought to be distributed uniformly amongst all WEGs and solar energy generation.

6.6. The petitioner submits that the total installed capacity of the solar power is 1142.41 MW as against the total generation capacity of 29748.02 MW as per the grid details of TANTRANSCO on 24.05.2016. The contribution of solar power generation on 24.05.2016 was only 4.087 MUs as against the total consumption of 296.941 MUs. These statistics show that the generation of solar power projects in the State is only 1.38% of the total consumption in the State. Furthermore, in cases wherein the Respondent ought to curtail the solar power generation, the same ought to be done on a proportionate basis and solar power should be considered on least priority. The Respondents are curtailing power on continuous basis and one of the member of association, Ramnad Solar Power Ltd (RSPL) has project of 72 MW, connected with 110 kV Kamuthi S.S. at 110 kV level. The member has done a detailed exercise to calculate the total loss on monthly basis due to backing down of project from 1st April 2016 to 31st August 2016 and submitted that from the month of April 2016 to September 2016, every month the power generated from solar power project was curtained on routine basis. Month wise solar power generation availability details are as under:-

Month	Generation Availability after Curtailment
April 2016	95.00%
May 2016	76.00%
June 2016	50.00%
July 2016	63.00%
August 2016	68.63%
September 2016	80.07%

6.7. The members of petitioner's federation are facing a huge loss as the backing down instructions are on continuous basis from respondent The respondents had furnished a limited data of curtailment for only 10 days for the month of May 2016 from 21.05.2016 to 30-05-2016 instead of last six month data to misguide the Commission, whereas the Respondents are curtailing solar power in every month. Therefore, it is submitted to direct the respondents to provide complete months wise data from April 2016 to till date and apply the “MUST RUN” status to all solar power projects.

6.8. The respondents are entrusted with the responsibility of providing consent before commissioning of any unit while sanctioning the commissioning of the solar power plant, the petitioners were forced to sign an undertaking, accepting the technical and other conditions as a pre-requisite for the commissioning. Such an undertaking is contrary to the regulations and Grid Code. The undertaking as such cannot alter the nature of a plant and therefore the Respondent's various instructions for backing down of a “MUST RUN" station even with the support of such undertaking cannot be considered for not awarding deemed generation status to the plants. The Respondents taking advantage of this undertaking have been issuing periodic instructions to the Petitioner's members orally to back down generation. In this regard, it is submitted that the Regulations and the orders of the CERC and this Commission are in the nature of delegated legislation by virtue of sections 178 and 181 of the Electricity Act, 2003. Therefore, any executive directions of the Respondent, in violation of the Electricity Act, 2003 are invalid and the Petitioner need not comply with.

6.9. The Respondents in paragraph 10 and 11 of the counter affidavit has stated that the schedule of annual overhauling and capital overhauling of TANGEDCO thermal machines are planned for accommodating maximum renewable generation and for avoiding backing down of renewable generation. In this regard, the petitioner appreciates the stand taken by the respondents to schedule annual overhauling and capital overhauling during the monsoon season and similar practices have been followed by all the renewable rich as well as deficit States in India. While the solar power generation is available only during the day and for almost 330 days in a year. The data submitted by the Respondents are only limited to three stations. The instructions for backing down should be proportionate. The Respondent is misleading this Commission that the backing down of solar power plants is merely a last option. The Respondent has however failed to provide complete data of the backing down of all other power plants on a daily/monthly basis.

6.10. Since the Solar Industry is still in a nascent state in the State, the introduction of 'scheduling and despatch of power' will be done only in the last phase. Therefore, this Commission has not issued any regulation for implementation of scheduling and forecasting which is applicable to solar power plants for supplying power to the Respondents.

6.11. As per the Indian Electricity Grid Code and the Tamil Nadu Electricity Grid Code, the continuous backing down of solar power plants are not allowable and solar power plants have “MUST RUN” status. It is submitted that “MUST RUN” status must be granted as per the regulations to all solar power plants in the State of Tamil Nadu.

6.12. The petitioner submits that “MUST RUN” status has been provided under clause 5.2 (u) of the CERC (Indian Electricity Grid Code), Regulations, 2010 provides as follows:-

> “5.2 (u) Special requirements for Solar / Wind generators
>
> System Operator (SLDC / RLDC) shall make all efforts to evacuate the available solar and wind power and treat as a must-run station. However, System operator may instruct the solar/wind generator to back down generation on consideration of grid security or safety of any equipment or personnel is endangered and solar / wind generator shall comply with the same. For this, Data Acquisition System facility shall be provided for transfer of information to concerned SLDC and RLDC”

6.13. It is submitted that it is clear from clause 5.2 (u) that the SLDC shall instruct the solar/wind generator to back down only in cases of grid security or safety of any equipment or personnel is endangered. The data submitted by the Respondents and the RTI application does not provide any such endanger that has occurred. The Respondents have failed to provide data showing that the backing down was on account of grid security or safety of equipment or personnel. It is submitted that the backing down was carried out only due to surplus generation and without following the Merit Order despatch and only by considering the commercial implication of backing down of low cost conventional generation as well as wind generation to avoid procurement of higher cost solar power generation. Furthermore, solar power being a renewable non-conventional source of energy has to be promoted and is the top most priority in the merit order despatch along with Hydro and Nuclear Stations. However, the data submitted by SLDC indicates that it has not followed the Merit

Order Despatch strictly. In fact, solar power has been back down even when the frequency was below 50 Hz. The SLDC has been conferred upon the power to give appropriate directions to all entitles including solar power plants under section 33 of the Electricity Act, 2003 and Section 8(4)(v) of the Tamil Nadu Electricity Grid Code. Therefore, it is submitted that before curtailing solar power generation, the SLDC ought to have exhausted to other curtailments of power injected into the grid from other sources.

6.14. The petitioner submits that there was scope for reduction of generation available to the respondents. It is clear from the data submitted by the respondent that the solar power generation on 30-05-2016 was from 7.00 a.m. to 18.00 p.m. and backing down on this date was carried out from 10.00 a.m. to 18.00 p.m. The solar power generation was a maximum of 800 MW at 10.00 a.m. out of 202 MW which was backed down. In the same period, the wind generation was in the range of 2000 MW to 3600 MW between 7.00 a.m. to 18.00 p.m. The wind generators were backed down only between 13.00 PM and 16.00 PM and only about 120-240 MW of wind generation was backed down. In this regard, the Petitioner submits that even if the backing down of energy was essential, the same ought to be carried out proportionately on the basis of the generation capacities amongst the solar and wind generation. The Petitioner submits that backing down of wind and solar power generators ought to be done only in the event of Grid Security and proportionate to their generation at that time. Further, the respondent shall curtail all renewable energy plants as per their installed capacity, by not affecting individual generators. Reliance is placed on Regulation 6.3 of the CERC (Indian Electricity Grid Code), Regulations, 2010 which has provided for minimum schedule for operation of Central

Generating Stations and Inter-State Generating stations. The Petitioner submits that from the data provided by the Respondents on 30-05-2016, out of 5464 MW the respondents had given schedule to CGS at the time period of solar power generation during the day in the range of 4413 to 5066 MW. Therefore, it is clear that TANGECO scheduled 80.77% to 92.72% of total CGS allocation and since the CGS power plants have low cost of generation, and assuming the beneficiaries are given full drawal schedule, the backing down was carried out by the Respondents on the maximum extent of 1051 MW and minimum 398 MW, which would be around 19% and 9% respectively. This clearly establishes that was ample scope available for further reduction. From the data provided by the Respondents, it is clear that they have surrendered 685 MW out of 852.5 MW IPPs on 30.05.2016 during the day while solar power plants were under generation. The Petitioner submits that out of 852.5 MW lIPs, 436.50 MW IPPs whose power was not scheduled by TANGEDCO i.e. M/s.PPN Power Generating Co. Pvt. Ltd (PPN)and M/s.Madurai Power Corporation Pvt. Ltd. (MPCL), operating on Gas/Neptha and Liquid fuel i.e. LSHS/LSFO, having variable cost 10.96/kWh and Rs.8.55/kWh (Ref. TNERC ARR Order 14-15) respectively. . However, remaining out of 416 MW IPPs, having power variable cost of generation upto Rs.2.32/kWh were scheduled for 167 MW during the solar power generation. The petitioner appreciates that the backing down of such lower cost IPPs and procurement of power from Intra-State Captive Generating Plants.

6.15. The petitioner submits that the respondents are misleading the Commission by furnishing such data and stating that they were asked to back down only for 10 days (i.e. 21.05.2016 to 30.05.2016) out of 92 days (i.e. for the month of March, April & May 2016). The Petitioner submits that the Members of Petitioner's Federation

were facing backing down of solar power generation from their plants, almost daily from the months of April 2016 to till date. In support of above contentions, the Petitioner is hereby furnishing the daily data of backing down, faced by the two solar power projects in the State of Tamil Nadu namely: (1) M/s.Adani Green Energy (Tamil Nadu) Limited AGETL-216 MW) and (2) M/s.Ramnad Solar Power Limited (RSPL)-72 MW) were commissioned on 11.03.2016 and 08.02.2016 respectively, for the period from 1st April, 2016 to 30th September, 2016. From such data it was found that even for the month of April & May 2016, the AGETL plant was backed down for 19 days and RSPL plant was backed down for 21 days, out of 61 days. In the last six months, such plants were asked to back down for 117 days and 119 days respectively, out of 183 days i.e. from April to September, 2016. The contention of the Respondents in paragraph 21 that they were asked to back down for 10 days out of the 92 days on account of grid security is erroneous and incorrect. In this regard, the Petitioner is placing on record the copy of 3rd Respondent's reply to a RTI query on grid security and backing down from 01-04-2016 to 30-09-2016. In this letter, the 3rd respondent has replied that no such grid security events occurred.

7. Memo filed on behalf of the Petitioner on 28-06-2017:-

7.1. The Commission vide order dated 02-06-2017, directed the 2nd respondent to submit daily reports of the total power absorbed from the solar plants and the instructions issued for backing down along with the specific reasons. The relevant extract is set out below:-

> "The counsel for the petitioner prayed to direct the 2nd respondent to file statement on daily basis for atleast two weeks stating reasons whenever instruction for backing down of solar power is issued. The 2nd respondent was directed to submit daily reports detailing the total power absorbed from solar

plants, instructions issued for backing down with specific mention on the reason/s for such backing down instructions etc."

7.2. However, the 2nd respondent has failed to furnish the daily reports of the total power absorbed from the solar plants and the instructions issued for backing down. Furthermore, the 2nd Respondent has substantially increased the backing down from the day following the delivery of the order.

7.3. The petitioners have submitted a letter dated 12-06-2017 to the Commission pointing out the illegal backing down. However, the backing down has continued unabated. The continued backing down has caused enormous losses to the members of the petitioner who will be unable to meet their repayment commitment to their financial institutions and bankers.

7.4. The actions of the 2nd respondent are causing substantial prejudice to the petitioner. Therefore, in such circumstances, it is requested that the matter may be listed for hearing at the earliest.

8. Rejoinder on behalf of the Petitioner to the reply filed by the Respondent No.2, TNSLDC:-

8.1 In the rejoinder filed on 12-09-2017, the petitioner has submitted as follows:-

The members of the Petitioner Federation are still facing continuous backing down consistently and on a daily basis despite the Solar Power Plants being Must Run plants and backing down can be done only in exceptional circumstances viz., grid security events, which the respondent's own data shows has never occurred and apparently there is no issue of whatsoever nature with regard to transmission

constraints. Despite Petitioner's repeated requests to respondents 1 to 3 and directions of the Commission, respondents have continuously instructed to back down, leading to severe financial stress to the members of the Petitioner Federation. The said illegal actions have a direct negative impact upon the policy of the Union of India, the State Government's Solar Power Policy, negatively impacts the energy investment market in the State and also directly affects public interest as public funding in the form of financial facilities by financial institutions have been provided for the projects. The continued financial stress has the inevitable result of all the projects becoming Non-Performing Assets as the ability to repay loans has been substantially affected, moreover the payment is being released by the discoms after a year for the invoice raised. The projects being SPVs have no other source of revenue except from the project assets themselves.

8.2. The blatant disregard of the Respondents not only to the Regulations and Codes in the State but also the specific order and directions by the Commission is evident from the non-chalant attitude in the context of the Commission's order dated 02.06.2017 wherein the following directions were issued:

> *"The counsel for the petitioner prayed to direct the 2nd respondent to file statement on daily basis for atleast two weeks stating reasons whenever instruction for backing down of solar power is issued. The 2nd respondent was directed to submit daily reports detailing the total power absorbed from solar plants, instructions issued for backing down with specific mention on the reason/s for such backing down instructions etc."*

8.3. The 2nd Respondent deliberately disobeyed such order and the Petitioners have already filed a petition under section 142 of the Act for appropriate reliefs. There was a failure on the part of the 2nd respondent to comply with the order of the TNERC in M.P. No. 16 of 2016 dated 02.06.2017, constitutes wilful violation of the orders of this Commission.

8.4. Instead of submitting daily to the Commission as well as Petitioner, the same were filed on behalf of Respondent No.2, and was also served upon the Petitioner belatedly and only during hearing held on 29.08.2017 after being reminded of such order and its non-compliance at the hearing preceding it. Under the said filing, it is stated that the daily reports on absorption of solar power for the period from 03.06.2017 to 16.06.2017 was already submitted to the Secretary, TNERC as per the daily order dated 02.06.2017.

8.5. The Petitioner states that the 2nd Respondent has acted in grave breach of the order dated 02.06.2017, by failing to furnish the daily reports of the total power absorbed from the solar plants and the instructions issued for backing down. This failure is despite clear knowledge of the order which was passed in the presence of the concerned officers at the hearing before this Commission.

8.6. The petitioner states with utmost respect that, such directions issued by the Commission, rather than encourage compliance, has evidently been taken by the 2nd Respondent as a challenge to what it assumes is its unbridled power and in a direct affront to the Commission and with apparently no fear of action, the 2nd Respondent has substantially increased the backing down and has done so systematically right from the day following the delivery of the order. This is also clear from the data furnished. It is most unfortunate that an authority which is bound by the Regulations, rather than demonstrating compliance appears to be throwing a challenge to the Commission through such deliberate illegal actions. It is submitted that the Commission exercise its powers under the Act, to end such blatant illegalities.

8.7 Respondent No.3 submitted that it is necessary to maintain the conventional sources to Technical minimum during day time and to meet the peak demand during night time to offset the 8% solar generation. However, the data furnished rather than supporting the Respondent's stand, in fact clearly and unequivocally demonstrates the consistent stand of the Petitioners from the inception. The Petitioner submits that there was enough scope for reduction of thermal generation available to the Respondents.

8.8 The Petitioner submits that by absorbing all the energy which is generated by the solar generators calls for a coordinated action by all the other generators under the directions and control of the SLDC and at the stage of surplus generation, in order to accommodate all the solar energy which has been generated, other generators (other than solar generators) have to correspondingly back down their generation. The technical limit in so far as backing down the conventional generation is the inherent quality of the machines which are designed to operate continuously at a maximum capacity. Therefore, till such technical limit, the SLDC must back down the conventional generation belonging to IPPs, State Generating Stations and Central Stations.

8.9 As per Daily Grid Details as available on TNSLDC website for the month of June 2017, it was found that the CGS absorbed in evening pick up to 487 MW and as low as 1903 MW in morning peak hours while the State Own Generating Station were absorbed to maximum i.e. upto 3320 MW in morning peak and min. 2425 MW in evening peak. Similarly in the month of August 2017, the CGS were absorbed morning pick up to 3980 MW and as low as 1724 MW in morning peak hours while the State Own Generating Station were absorbed maximum upto 2955 MW in morning peak and minimum 1935 MW in evening peak.

8.10 The solar generators having tariff of Rs.7.01/kWh were asked to back down initially upto 50% any time from 9:15 AM to 14:00 PM and subsequently to 100% i.e. shut down the plant completely till 18:00 PM. In the solar generation hours i.e. between 7.00 AM to 18.00 PM, the wind generation was in the range of 1500 – 4800 MW and the wind generators were not asked to back down during the solar generation hours.

8.11 The sole reason of regular backing down of projects having Tariff of Rs.7.01/kWh is to create economic and commercial duress upon the generators in this category to achieve what appears to be the game plan to force them to accept the lower tariff of subsequent control periods. Backings down on account of economic operations are in gross violation of the provisions of the Indian Electricity Grid Code, Tamil Nadu Electricity Grid Code and the orders of both the Hon'ble APTEL and this Commission.

8.12 Petitioner submits that the TANGEDCO has clearly and demonstrably not taken all the necessary actions to absorb the solar power to the maximum extent as claimed in the above para. It can be seen from the data submitted by the Respondents that on 05.08.2017 entire solar power generation was absorbed in the system, however, on 06.06.2017 from 12.00 Hrs. to 18.00 Hrs., 315 MW solar generation was backed down.

8.13 It is also evident that the Respondent, without any analysis, fixed up minimum target for solar generation to be absorbed and kept the same throughout a day and without any variation in generation. This shows that there was no action taken by the Respondent and it only curtailed a specific category of solar power to absorb other non-conventional and conventional generation sources.

8.14 The Petitioner submits that the Southern Regional Power Committee (SRPC) issues Deviation Settlement Account Statement on weekly basis with payable/receivable particulars in line with CERC (Central Electricity Regulatory Commission (Deviation Settlement Mechanism and related matters) Regulations, 2014. The petitioner has collected the Deviation Charges for the State of Tamil Nadu i.e. Payable / Receivable to / from Pool for the period of 4th April 2016 to 12th June 2017 (14 months).

8.15 In the said period of 63 weeks, the total amount payable to pool was Rs.36.33 Cr, whereas the total Receivable Amount from Pool was Rs.62.33 Cr. Therefore, the net amount receivable from DSM Pool was Rs.25.89 Cr. Its impact on the grid is quite miniscule handling variable power of 7000 + MW of wind and 1500 MW of Solar as well as total generation of @ 87000 MUS. In view of the above, DSM impact on the State should not be a reason for curtailment of solar power throughout the day.

8.16 The Petitioner submits that it is amply clear from the details of daily reports that the solar power plants were asked to back down at its peak generation to 50% level even from 9 am in the morning when solar plant just started generation and later on same day it also further were asked to curtail as low as up to 0% on total actual generation Load, irrespective of Grid parameters, like voltage profile, MVAR supply, ICT and line loadings, DSM and frequency within the specified limit. From the data submitted by the Respondent on Voltage and Frequency level, also indicate that no incidence happened related to “Transmission Constraint” or “Grid Stability and Security”. This undoubtedly indicates that the curtailment was instructed only to avail commercial benefits during low load period by violating Grid Code.

8.17 The time-block wise, average monthly frequency profile analyzed during the period of solar generation during the day from 1.4.2016 to 31.7.2017, it was found that the frequency crossed the upper limit of 50.10 Hz. only for 1% of total time block from said period during solar generation period during the day.

8.18 As per Daily Grid Details reports of TANGEDCO / TANTRANSCO, as available on TNSLDC website shows that the total solar consumption contribution is always less than average of 2.5% of total consumption of the State. Tamil Nadu grid is absorbing around 4800 MW of wind power in full wind season which is in energy terms almost 10 times higher than solar. TNSLDC also curtailed solar projects having comparatively higher tariff. These show that the TNSLDC discriminating between wind & solar projects as well as within the solar projects.

8.19 Petitioner further submits that even in the absence of the Real Time Market, an Intra-Day Market currently available on both the Power Exchanges should be utilized. The Central Commission vide order dated 8.4.2015 in Petition No.006/SM/2015 directed that the Power Exchanges should commence operation of round the clock intra-day/contingency market for same day delivery (upto 24.00 hours). The trading window opens round the clock for delivery of power on the same day (minimum delivery period – 3 hours after contract execution subject to corridor availability). Accordingly, both the Power Exchanges came out with such market mechanism. Presently window for intra-day contracts is available for trading every day from 00.30 Hrs. to 20.00 Hrs. for trading in contracts for delivery from 04.00 Hrs. to 24.00 Hrs. on the same day.

8.20 The Respondent, in para 6 and 7 of its Reply has claimed that while operating technical minimum of CGS stations by surrendering of URS power (excess) to CGS stations, the following difficulties are encountered.

- Surrender of URS power is being given by SLDC on merit order basis (from higher cost to lower cost)
- On process of CGS power surrendering to maintain DSM, sometimes the cheapest cost may need to be surrendered, while surrendering cheaper CGS power for maintaining DSM, the state who had availed costlier power from Tamil Nadu share will start availing the Cheaper power and returning back the c-ostlier power. Thus the (DSM) negative deviation is maintained and no option left for SLDC operator and has to go for back down of RE generation.

8.21 Respondents are seen to be deciding the MUs / MW of Solar Power to be absorbed well in advance and issue instruction of backing down of a particular category of Solar Power up to the level of 50% - 92% in the morning hours and asked them to maintain the same level of generation throughout a day i.e. till 18 hrs.

9.0 Interim Application filed on 12-09-2017:-

In the I.A. filed on 12-09-2017, the petitioner has submitted as follows;

9.1. The members of the Petitioner have made huge investments in solar power plants in the State of Tamil Nadu and due to regular backing down and curtailment; they are facing huge loss against their investments. The Petitioner is not only providing Green power to State, it is also supporting them to fulfil the Solar Power Purchase Obligation of the Respondent No.1. Whereas the backing down of Solar power is not only dropping down the interest of investors in the State but also preventing the Respondent No.1 to fulfil their solar power purchase obligation.

9.2. It is pertinent to state that the Adani Green Energy (Tamil Nadu) Limited ("AGETNL"), a member of the Petitioner Association and four of its 100% owned subsidiaries i.e. RSPL, KREL, KSPL and RREL are continuously facing backing

down from the date of commissioning of the plant. However, such backing down can only be done in exceptional circumstances such as grid security. A tabulation setting out the level of curtailment / backing down of its 5 units for the financial year 2016-2017 and till July, 2017 is set out below:-

Months wise & Company wise generation availability after curtailment					
	AGETNL	RSPL	KREL	KSPL	RREL
April 2016	96.64%	94.82%	34.23%		
May 2016	76.08%	75.95%	30.72%		
June 2016	52.82%	49.86%	34.35%		
July 2016	67.57%	63.00%	27.57%		
August 2016	76.44%	68.63%	27.40%		
September 2016	79.57%	79.99%	38.05%	87.33%	88.74%
October 2016	91.46%	92.10%	91.75%	91.09%	90.42%
November 2016	99.45%	99.43%	99.43%	99.38%	99.77%
December 2016	94.58%	94.20%	94.51%	93.76%	93.39%
January 2017	87.43%	86.65%	86.56%	86.45%	86.76%
February 2017	82.84%	81.19%	82.62%	81.03%	80.98%
March 2017	86.39%	85.95%	86.74%	91.23%	91.18%
April 2017	94.80%	94.53%	94.71%	98.57%	98.78%
May 2017	95.97%	95.93%	95.76%	96.55%	96.54%
June 2017	62.68%	63.01%	63.72%	86.19%	85.12%
July 2017	51.83%	52.42%	66.95%	98.92%	99.07%

Months wise & Company wise losses (in Cr.)						
	AGENTL	RSPL	KREL	KSPL	RREL	Total
April 2016	0.85	0.46	5.24			6.55
May 2016	6.88	2.35	6.73			15.96
June 2016	12.41	4.42	6.23			23.06
July 2016	9.13	3.15	7.53			19.81
August 2016	7.11	2.75	7.84			17.70
September 2016	6.42	1.98	0.92	0.94	0.31	10.57
October 2016	2.56	0.80	0.84	2.35	0.86	7.41
November 2016	0.17	0.06	0.06	0.20	0.02	0.51
December 2016	1.41	0.52	0.45	1.55	0.55	4.48
January 2017	3.47	1.20	1.17	3.84	1.18	10.86
February 2017	5.19	1.96	1.73	5.73	1.97	16.58
March 2017	4.46	1.49	1.36	2.76	0.88	10.96
Losses FY 16-17 (Rs. Cr.)	60.07	21.14	40.11	17.36	5.77	144.44
April 2017	1.80	0.64	0.62	0.46	0.13	3.65
May 2017	1.25	0.44	0.49	1.21	0.39	3.77
June 2017	12.25	4.17	3.96	4.21	1.57	26.17
July 2017	14.86	5.19	3.69	0.34	0.10	24.18
Losses FY 17-18 (Rs.Cr.)	30.16	10.44	8.75	6.22	2.19	57.77

Total Loss from CoD (Cr.)	90.23	31.58	48.86	23.58	7.96	202.21

It is further submitted that AGETNL and its subsidiaries have faced a massive financial loss of Rs.202.21 crores from the date of commissioning of its projects.

9.3. It is submitted that other members of Petitioner Federation i.e. Greenko Group has also installed various solar power plants in the State of Tamil Nadu and are facing continuous backing down instructions from TNSLDC. A tabulation setting forth the details of curtailment are set out below:-

Site/Month	Phoebus		Aadhavan		Kathiravan		RTR		Adityashakti	
PPA Rate	7.10 Rs/Unit		7.10 Rs/Unit		5.01 Rs/Unit		7.10 Rs/Unit		7.10 Rs/Unit	
Month	No. of days	Curtailment %	No. of days	Curtailment %	No. of days	Curtailment %	No. of days	Curtailment %	No. of days	Curtailment %
Jan-17	9	50%	10	50%	Not commissioned				8	50%
	1	75%								
Feb-17	20	50%	18	50%			18	50%	19	50%
Mar-17	17	50%	17	50%	8	50%	16	50%	17	50%
Apl-17	6	50%	6	50%	6	40%	5	40%	5	50%
May-17	3	75%	3	50%	3	50%	3	50%	3	50%
June-17	26	50%	24	50%	10	50%	21	50%	24	50%
	1	100%	1	100%			3	100%	1	100%
July-17	22	100%	24	25%	1	50%	20	100%	2	50%
	6	50%					6	50%	22	100%
Aug-17	20	100%	20	50%			20	100%	22	100%
	2	75%	2	35%			2	50%		

In view of the above data, it is submitted that the Greenko Group, a member of the Petitioner Association is facing huge losses as well due to backing down / curtailment.

9.4. The TNSLDC has been issuing continuous backing down instructions to the power plants since commissioning on the ground of grid stability and has submitted

that this leads to financial losses to the Board insofar as the surplus power injected into the grid with penalty is at a frequency higher than 50.10. The Petitioner Association has collected the block wise grid frequency data from 01-04-2016 to 31-07-2017 and has found that the frequency has crossed the limit of 50.10 HZ only 1% of the time. A month wise summary of the same from April, 2016 to July 2017 is set out below:-

Months	Total time Block Higher than 50.10 Hz	Total time Block Higher than 50.05 Hz	Total time Block Less than 49.90 Hz
April 2016	0.45%	6.74%	6.74%
May 2016	2.27%	10.04%	3.01%
June 2016	0.91%	7.50%	3.11%
July 2016	2.86%	13.71%	0.51%
August 2016	1.91%	10.78%	1.10%
September 2016	0.23%	4.62%	1.82%
October 2016	1.03%	5.65%	2.05%
November 2016	0.08%	3.18%	5.76%
December 2016	0.59%	3.23%	8.50%
January 2017	0.95%	5.57%	2.64%
February 2017	0.16%	6.01%	1.30%
March 2017	0.73%	5.65%	2.79%
April 2017	0.91%	8.86%	3.48%
May 2017	1.91%	10.56%	5.87%
June 2017	1.82%	12.27%	2.35%
July 2017	0.59%	10.34%	1.76%
Average	**1.09%**	**7.79%**	**3.30%**

In view of the above, it is clear that the grid stability is not a reason and cannot be considered as a ground for curtailment / backing down of the solar power continuously.

9.5. Discrimination among solar and wind power procurement:-

The petitioner states that solar power is more firm in comparison with wind power and it can be generated year round and is easily predictable. It is stated that the Tamil Nadu State Load Despatch Centre is procuring more wind power and

issuing backing down instructions to solar power projects, without providing any reasons. The petitioner is setting out below a chart explaining that the share of solar power is miniscule in comparison to wind power procurement by the 1st Respondent herein:-

Months	Solar Target in (MU)	Solar Actuals (MU)	Wind Actuals (MU)	Total power purchased (MU)	Solar % Total power purchase	Wind % Total power purchase
May-16	140	112	907	9254	1.21%	9.8%
June-16	100	93.82	1897	8719	1.08%	21.8%
July-16	100	109	2042	9012	1.21%	22.7%
Aug-16	100	133	2526	9212	1.44%	27.4%
Sep-16	100	139.4	2278	8766	1.59%	26.0%
Oct-16	100	173	990	9050	1.91%	10.9%
Nov-16	120	158.8	197	8552	1.86%	2.3%
Dec-16	150	180	249	7988	2.25%	3.1%
Jan-17	200	189	327	8278	2.28%	4.0%
Feb-17	200	215.9	390	7827	2.76%	5.0%
Mar-17	250	222.3	223	9348	2.38%	2.4%
April-17	250	246.3	791	9523	2.59%	8.3%
May-17	250	234.7	1362	9675	2.43%	14.1%
June-17	250	209.7	2438	9149	2.29%	26.7%
July-17	180	206.8	2532	9389	2.20%	27.0%

9.6. Discrimination among solar power projects:-

The prevailing Regulatory / Contractual framework in the State granting “Must Run” status is only on paper. The sole reason for regular backing down is to avoid commercial impact of procuring high cost solar power. It is pertinent to state that the members of petitioner are continuously facing backing down from the date of commissioning of the plant. However, such backing down can only be done in exceptional circumstances such as grid security. It can be clearly inferred from the backing down data of AGETNL, RSPL, KREL, KSPL and RREL that TANGEDCO is curtailing only those projects entitled to a tariff of Rs.7.01/kWh.

Solar Power Generation Curtailment Level in %					
Company & current	AGETNL	RSPL	KREL	KSPL	RREL
	(₹ 7.01/Kwh)	(₹ 7.01/Kwh)	(₹ 7.01/5.10/Kwh)	(₹ 5.10/Kwh)	(₹ 5.10/Kwh)

paying tariff					
23-Mar-17	14%	14%	12%	1%	0%
24-Mar-17	28%	27%	26%	0%	0%
25-Mar-17	30%	29%	28%	0%	0%
29 Mar-17	36%	35%	34%	0%	0%
30-Mar-17	18%	35%	28%	0%	0%
31-Mar-17	31%	27%	27%	2%	2%
1-Apr-17	25%	23%	24%	0%	0%
2-Apr-17	29%	36%	27%	0%	0%
4-Apr-17	32%	29%	29%	0%	0%
5-Apr-17	27%	31%	31%	0%	0%
22-May-17	19%	18%	17%	0%	0%
3-Jun-17	26%	27%	19%	0%	0%
4-Jun-17	21%	20%	20%	0%	0%
6-Jun-17	37%	32%	30%	2%	2%
7-Jun-17	23%	22%	23%	0%	0%
8-Jun-17	38%	39%	40%	0%	0%
9-Jun-17	39%	40%	37%	0%	0%
10-Jun-17	39%	40%	39%	0%	0%
11-Jun-17	32%	34%	32%	0%	0%
12-Jun-17	24%	25%	21%	0%	0%
13-Jun-17	37%	36%	37%	0%	0%
14-Jun-17	42%	36%	36%	0%	0%
15-Jun-17	41%	49%	50%	0%	0%
16-Jun-17	54%	50%	47%	0%	0%
4-Jul-17	35%	36%	37%	0%	0%
5-Jul-17	25%	26%	25%	0%	0%
6-Jul-17	42%	43%	42%	0%	0%
7-Jul-17	36%	42%	41%	0%	0%
8-Jul-17	14%	14%	14%	0%	0%
11-Jul-17	51%	63%	66%	0%	0%
12-Jul-17	41%	43%	43%	0%	0%
13-Jul-17	63%	58%	58%	0%	0%
14-Jul-17	60%	58%	59%	0%	0%
15-Jul-17	64%	59%	60%	0%	0%
16-Jul-17	61%	58%	58%	0%	0%
17-Jul-17	71%	69%	69%	0%	0%
18-Jul-17	66%	64%	64%	0%	0%
19-Jul-17	72%	70%	64%	0%	0%
20-Jul-17	70%	62%	23%	0%	0%
21-Jul-17	69%	67%	25%	0%	0%
22-Jul-17	66%	64%	22%	0%	0%
23-Jul-17	68%	65%	25%	0%	0%
24-Jul-17	67%	66%	21%	0%	0%
25-Jul-17	66%	64%	25%	0%	0%
26-Jul-17	63%	63%	25%	0%	0%
27-Jul-17	62%	56%	24%	0%	0%
28-Jul-17	55%	58%	25%	0%	0%
29-Jul-17	42%	46%	19%	0%	0%
30-Jul-17	69%	64%	21%	0%	0%
31-Jul-17	57%	57%	32%	0%	0%

9.7. It is further submitted that other members of Petitioner Federation projects having tariff of Rs.7.01/kWh are also facing continues backing down instruction from TNSLDC.

Site/Month	Phoebus		Aadhavan		Kathiravan		RTR		Adityashakti	
PPA Rate	7.10 Rs/Unit		7.10 Rs/Unit		5.01 Rs/Unit		7.10 Rs/Unit		7.10 Rs/Unit	
Month	No.of days	Curtailment %	No. of days	Curtailment %	No.of days	Curtailment %	No. of days	Curtailment %	No. of days	Curtailment %
Mar-17	17	50%	17	50%	8	50%	16	50%	17	50%
Jun-17	26	50%	24	50%	10	50%	21	50%	24	50%
	1	100%	1	100%			3	100%	1	100%
Jul-17	22	100%	24	25%	1	50%	20	100%	2	50%
	6	50%					6	50%	22	100%
Aug-17	20	100%	20	50%	0	0	20	100%	22	100%
	2	75%	2	35%			2	50%		

9.8. In line with the Solar Energy Policy of the State of Tamil Nadu, the original tariff order dated 12-09-2014 determining Solar PV Tariff at Rs.7.01/kWh specifically recorded that the “need for the order” was to meet the solar capacity targets mandated by the Tamil Nadu Solar Energy Policy. It is pertinent to state that as a result of the tariff order dated 12-09-2014, having control period till 11-09-2015, no solar projects developers had come forward for signing of the PPA. Therefore, it was imperative for the Commission to extend the period from 1 to 1.5 years, by order dated 01-04-2015. Pursuant to the said extension of control period, TANGEDCO was able to tie up a cumulative 1590.97 MW of solar capacity. In other words, after the passage of the said order, the actual contracted solar capacity increased to 1142 MW. As a result total 1697.32 MW solar power projects has been commissioned as on 30-06-2017.

9.9. Solar Power Purchase Obligation Target in the State of Tamil Nadu:-

The Commission, vide its notification dated 07-03-2016, has made the following amendment to the Renewable Energy Purchase Obligation Regulation, 2010 and specified total Renewable Energy Purchase Obligation (RPO) as well as Solar Power Purchase Obligation (SPPO). The relevant extract of the said amendment Regulations is set out below:-

"(1) Every obligated entity shall purchase not less than defined minimum percentage of its consumption of energy from renewable energy sources under the Renewable Purchase Obligation (RPO) during a year as specified below:

(IA) The following percentage of Renewable Purchase Obligation is fixed:

Sl. No.	*Year*	*Minimum quantum of total renewable purchase obligation in percentage (in terms of energy in KWh)*	*Minimum quantum of solar renewable purchase obligation in percentage out of the total renewable purchase obligation mentioned in Column (3) (in terms of Energy KWh)*
(1)	*(2)*	*(3)*	*(4)*
1	*2015-16*	*9.50%*	*0.50%*
2	*2016-17*	*11.50%*	*2.50%*
3	*2017-18*	*14.00%*	*5.00%*

The Renewable Purchase Obligation as specified for the year 2011-12 in sub-regulation (1) shall be applicable for the years 2012-13, 2013-14 and 2014-15 to the distribution licensee."

9.10. Solar purchase obligation: Compliance status of TANGEDCO

TANGEDCO filed a petition bearing M.P.No.8 of 2017 before the Commission seeking permission for procurement of 1500 MW solar power from the solar power developers through reverse bidding process, wherein, TANGEDCO furnished their SPPO compliance level as under:-

Particulars	FY 2015-16	FY 2016-17	FY 2017-18

Solar RPO Target	0.50%	2.50%	5%
Total electricity units sold and expected to be sold to different category of consumers	95050 MU	99802 MU	104792 MU
Electricity units to be procured in proportionate to solar RPO	475 MU	2495 MU	5240 MU
Expected capacity of solar power generation to be available in MW		1591 MW (As per System Operation Report, March 17 of SRLDC, Page No.13)	1697.32 MW (As on 30-06-2017 MNRE Reply submitted in Lok Sabha dated 20-07-2017)
Solar Generation (MUs)	507.18 (As on 30-06-2017, MNRE Reply submitted in Lok Sabha, dated 23-03-2017)	1866.27 (As per Monthy Progress Report of SRPC, March 2017, Page No.31)	
Shortfall (-) / Excess (+) Generation (MUs)	+ 6.77%	- 25.20%	

In view of the above, it is clear that the TANGEDCO has not fulfilled its Solar Power Purchase Obligation due to backing down / curtailment of solar power generation. If 1591 MW solar power projects had allowed generating at its full capacity, such plants could have generated 2371.33 Mus (@ 19% CUF, 90% plant availability and Auxiliary consumption: 0.5%). Therefore, it seems that the TANGEDCO intention is only to increase the installed capacity of solar power projects but not to allow such commissioned projects to run at their full capacity. The solar projects installed in FY 2017-18, till 30-06-2017, is only 106.32 MW against the requirement of SPPO of 5% which is double than the FY 2016-17 level. In fact, it can be concluded that TANGEDCO is unlikely to meet its SPPO as mandated by the Commission.

9.11. Revised solar RPO as per the Tariff Policy, 2016:

The Ministry of Power, Government of India has notified its Revised Tariff Policy on 28-01-2016, wherein, *inter alia* fixed minimum percentage for purchase of solar power as under:

> *"6.4. (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;*
>
> *Provided that cogeneration from sources other than renewable sources shall not be excluded from the applicability of RPOs.*
>
> *(i) Within the percentage so made applicable, to start with, the SERCs shall also reserve a minimum percentage for purchase of solar energy from the date of notification of this policy which shall be such that it reaches 8% of total consumption of energy, excluding Hydro Power, by March 2022 or as notified by the Central Government from time to time."*

9.12. Accordingly, the Ministry of Power in consultation with the Ministry of New and Renewable Energy, notified a long term trajectory for RPO on 22.07.2016 as under:-

Long Term Trajectory	2016-17	2017-18	2018-19
Non-Solar	8.75%	9.50%	10.25%
Solar	2.75%	4.75%	6.75%
Total	11.50%	14.25%	17.00%

The Commission need to specify a long term RPO trajectory matching the Solar Power Purchase Obligation Target as mandated in the Tariff Policy. The petitioner states that by not enforcing the MUST RUN STATUS of solar power and subjecting the plants to backing down as well as Merit Order Despatch continuously would hamper the ambitious RPO target of 100 GW of power from solar power by 2022 as set by the Government of India.

9.13. Additional solar power project capacities tied up by TANGEDCO:-

The petitioner submits that the 1st respondent, on one hand regularly resorted to illegal backing down of the existing solar projects and on the other hand it is taking measures to procure additional solar and wind power in the State through competitive bidding. This is clearly arbitrary, illegal and contrary to the very purpose of promotion of generation of solar energy in the State. The respondent No.1 implemented the Order No.7 of 2014 determining preferential tariff scheme and entered into Energy Purchase Agreement with 86 developers for a combined total capacity of 1484 MW. Out of which, 74 power plants to a combined total capacity of 1332 MW have been commissioned. Subsequent to the solar power capacity of 1332 MW tied up, following additional capacities tied up through the approval of the Commission:-

(i) 500 MW Bid dated 20-10-2016: Phase-1

TANGEDCO approached the Commission by way of Petition No. M.P. No.13 of 2016 for approval of procurement upto 500 MW solar power from the private developers through reverse bidding route with Rs.5.10 per unit as fixed by the Commission in Order No.2 of 2016 as upper limit.

(ii) 500 MW Bid dated 05-01-2017: Phase II

As the targeted capacity has not been achieved through Phase 1 tender, the 1st Respondent again approached the Commission by way of M.P.No.30 of 2016 for approval of procurement of 500 MW through reverse bidding with Rs.4.50 per unit as the ceiling price. The Commission, vide its order dated 29-12-2016 approved the tender.

(iii) 1500 MW Bid dated 19-05-2017: Phase III

The 1st respondent again approached the Commission vide M.P.No.8 of 2017 for approval of procurement of 1500 MW of solar power from solar power developers through reverse bidding process with Rs.4.00 per unit as the upper limit. This Commission, vide its order dated 10-07-2017, granted approval for procurement of 1500 MW of solar power through reverse bidding at Rs.4.00 per unit as the upper limit.

(iv) 630 MW PPAs signed with M/s.NLC

As stated in the Commission's order dated 29-12-2016 (Petition No.M.P. No.30 of 2016), the 1st respondent has also executed PPAs with NLC for the establishment of 130 MW and 500 MW of solar power plants under preferential tariff scheme at the tariff of Rs.5.10 per unit and Rs.4.56 per unit (Order No.2 dated 28-03-3016) respectively.

(v) 50 MW PPA signed with M/s. NHPC

As stated in the Commission's order dated 29-12-2016 (Petition No.M.P.No.30 of 2016), the 1st respondent has also executed PPA with M/s.NHPC Limited for the establishment of 50 MW solar power plant under preferential tariff scheme at the tariff of Rs.4.56 per unit fixed by the Commission in its Order No.2 dated 28-03-2016.

(vi) 500 MW power from Wind Power Developers

The 1st respondent has an installed capacity of wind power of 7849.255 as on 31-03-2017. The 1st respondent approached to the Commission vide petition No.M.P.No.10 of 2017 for procurement of additional 500 MW wind power through bidding process to fulfil their Non-Solar RPO target. The Commission passed the order on 10-07-2017 and allowed the respondent to procure 500 MW wind power

with minimum capacity of 25 MW through transparent process of reverse bidding fixing Rs.3.46 per unit as the upper limit.

9.14. Thereafter, the 1st respondent floated tender for the procurement of 500 MW of wind power through e-bidding on 19-06-2017 vide No.CE/NCES/OT.No.2/ 2017-18. 1st respondent got response from successful bidders for 950 MW against the tender of 500 MW. The petitioner understood that the 1st respondent is trying to get consent from the Commission to increase the total allocation to 950 MW so that all such bidders can be assigned the project sizes they sought.

9.15. It is submitted that the 1st respondent has tied up additional 3374 MW that include 2424 MW solar and 950 MW wind power project projects capacity as under:-

Company	Bid Capacity in MW	PPA signed at Fit/allotted through bid in MW	Tentative commissioning period
NLC		130	2017-18
NLC		500	2017-18
NHPC		50	2017-18
TANGEDCO – Phase I	500	20	2017-18
TANGEDCO – Phase II	500	224	2017-18
TANGEDCO – Phase III	1500	1500	2018-19
TANGEDCO – Phase I Wind Bid	500	950	2018-19

Thus, it is clear that on the one hand, the respondent is resorting to illegal backing down and on the other hand, the 1st respondent has been floating tenders for procurement of additional solar and wind power.

9.16. The petitioner states that while on one hand the Respondents state that the grid is unable to absorb the solar power, it is wholly inexplicable as to why they are entering into fresh PPA's. It is also evident that the backing down is mainly targeted against the Plants which are covered by the Tariff rate of Rs.7.01 and ranges from 50% to 100% back down. If new plants are allowed to come up until the earlier Solar

Power Plants' generation are absorbed, it will lead to a situation where there will be a further increase in the curtailment. It is therefore necessary that the Commission direct that the implementation and Commissioning of the new Solar generating Plants be staggered and be permitted only after the entire capacity already commissioned is absorbed and the Respondents are able to demonstrate such absorption on a continuous and sustained basis. It would further be necessary for the older power plants to be evacuated first since they have already suffered enormously due to the backing down over the last two years.

10. Findings of the Commission:-

10.1. We have heard submission of the petitioner as well as the respondent at length. Having considered the rival arguments, we find that the main issue before us is whether SLDC is free to curtail the solar generation and if so, what extent.

10.2. It is the contention of the petitioner that the members of the petitioner association are facing loss on account of back down instruction and that since the tariff for the solar project is based on single part tariff, backing down directly impact the revenue of the solar plants and deprive it of full recovery of legitimate, annual fixed charges. The petitioner has also referred to the Regulation/Orders of CERC in regard to “MUST RUN STATUS” and contended that the operation of a solar plant cannot be curtailed except for maintenance of grid security and that too as a last resort after exhausting all measures including backing down of conventional generators.

10.3. The petitioner has further contended that data available on frequency clearly demonstrates that frequency has never been an issue and backing down is occurring

due to the decisions of the respondent which are contrary to legal and regulatory mandate and that the petitioner has installed LVRT mechanism which would address the issue of voltage and hence the backing down due to grid security does not arise.

10.4. Per contra, the respondents have placed reliance on sections 32 and 33 of the Electricity Act, 2003, clause 2.7 of Intra Grid Code and Regulations 4.2 (e), 8.4(iii) and (v) of Tamil Nadu Electricity Grid Code which postulate that SLDC is responsible for secured and economical operation of the Grid. The respondents have also adverted to Regulation 5.2 (u) of IEGC 2010 which empowers the system operator to instruct solar / wind generator to back down on consideration of grid security and safety of any equipment.

10.5. It is the contention of the respondents that when the question of grid security arises, the same attains a superior position as compared to the absorption of renewable power and that “Must Run Status” cannot be viewed in isolation from the point of view of grid stability.

10.6. The respondent further submitted that for accommodating maximum renewable generation and to avoid backing down of renewable generation, annual overhauling (AOH) and Capital Overhauling (COH) of TANGEDCO thermal machines are planned apart from annual maintenance plan by Central Sector Generating Stations (CGS). Moreover, Backing down of TANGEDCO thermal generation and CGS generation, etc. which are very very cheaper than renewable power is also being done to utilize the renewable power generation. The schedule of TANGEDCO thermal overhauling was also furnished to support this.

10.7. The respondent further submitted that cost alone is not the factor between the thermal and solar power. There are other distinct differences between thermal power plant and solar power plant in respect of source of primary drive force, availability, reliability, firm/infirm nature, quantum control, reactive power generation / reactive power consumption, impact on voltage profile etc. which has to be considered in all the above aspects in grid operation. There are many technical constraints in backing down of thermal units frequently which causes frequent failure of thermal units. Reduction in generation of thermal stations beyond certain limit is not technically feasible as frequent change in generation causes heavy thermal stress on the boiler resulting frequent boiler tube puncture depriving the minimum base generation causing load shedding to the general public.

.

10.8. The petitioners point out the following provision in the IEGC Regulations:-

> "5.2. (u) special requirements for solar / wind generations: System Operator (SLDC / RLDC) shall make all efforts to evacuate the available solar and wind power and treat as a must-run station. However, System operator may instruct the solar / wind generator to back down generation on consideration of grid security or safety or any equipment or personnel is endangered and solar / wind generator shall comply with the same. For this, Data Acquisition System facility shall be provided for transfer of information to concerned SLDC and RLDC."

10.9. The petitioner also cites the following provisions in the Tamil Nadu Grid Code notified by the Commission:-

> *"8. Scheduling and Despatch:-*
> *(1) x x x x*
> *(2) x x x x*
> *(3) x x x x*
> *(a) x x x x*
> *(b) SLDC shall regulate the overall State generation in such a manner that generation from following types of power station where energy potential, if unutilised goes, as a waste shall not be curtailed;*
> - *Run of river or canal based hydro stations*

- *Hydro-station where water level is at peak reservoir level or expected to touch peak reservoir level (as per inflows)*
- *Wind Power Stations and Renewable Energy Sources*
- *Nuclear Power Stations*

10.10. However, the respondent submitted that if the argument of the petitioner is accepted, it would make the section 32 of Electricity Act 2003, clause 8.4. (iii) of TEGC and 5.2.(u) of IEGC relating to the responsibility of SLDC to ensure secured and economic operation of the grid completely otiose and that when there are two provisions which cannot be acceptable with each other, they may be interpreted in such a way that the effect is given to both.

10.11. The respondent has also placed records on the provisions of the Tamil Nadu Electricity Grid Code which reads as follows:-

> *" …. It is nevertheless necessary to recognize that the Grid Code cannot predict and address all possible operational situations. Users must therefore understand and accept that; in such unforeseen circumstances, the State Transmission Utility (STU) who has to play a key role in the implementation of the Grid Code may be required to act decisively for maintaining the Grid regimes for discharging its obligations. Users shall provide such reasonable co-operation and assistance as the STU may request in such circumstances. "*

10.12. The respondent has further submitted that the technical & legal constraints and financial commitments and that the respondents are taking all possible efforts in maximum utilization of the solar power. However, curtailment of solar power on account of technical and legal constraints could not be averted. Hence, if the petitioner's prayers are accepted irrespective of system condition, the SLDC would be forced to violate the lEGC clause and thereby leaving room for the grid collapse.

10.13. There is no dispute on the contention of the respondent that the grid security would prevail over other considerations including "Must Run Status" in issuing despatch or backing down instructions. The Commission also appreciates the fact

that it is an onerous task for the SLDC to handle large quantum of intermittent and infirm power while targeting 24x7 reliable and uninterrupted power supply to the State. The Utility is also envisaging in addition much higher quantum of both solar and wind energy to the State Grid in line with the policy of the State and Central Governments as pointed out by the petitioner. It is understandable that in the absence of forecasting and scheduling mechanism for the renewable power and till the creation of adequate balancing sources to address the variability of these renewable sources it may not be possible to evacuate 100% of the generation from these sources.

10.14. However, it is to be emphasized that the SLDC cannot curtail the renewable power at their convenience. Backing down of the "Must Run Status" power shall be resorted to only after exhausting all other possible means of achieving and ensuring grid stability and reliable power supply. The backing down data furnished by the petitioners has not been disputed by the respondents. However, they were not able to explain the reason prevailing at each time of backing down beyond the general statements as mentioned in earlier paras. It gives rise to a suspicion that the backing down instructions were not solely for the purpose of ensuing grid safety.

10.15. Under these circumstances, it is necessary to direct the SLDC to ensure evacuation of the solar power generations connected to the State grid to the fullest possible extent truly recognising the Must Run Status assigned to it in full spirit. In doing so, in view of the problems enumerated supra, the SLDC may resort to backing down in rare occasions in order to ensure the grid safety as stipulated in the Grid Code and to ensure reliable 24 x 7 power supply to the State. It is necessary to log each event of backing down whenever such instructions are issued with the reason(s) which lead(s) to that unavoidable decision. A quarterly return on the

curtailments with the reasons shall be sent to the Commission. Any whimsical backing down instructions would attract penal action under section 142 of the Electricity Act on the officials concerned.

10.16. On the next issue, it is seen that the petitioner has prayed in the I.A. to direct the respondents to stagger the commissioning of the new solar power plants and permit commissioning only after the respondents are able to demonstrate the absorption of the entire solar capacity already installed in the State on a sustained basis of atleast 6-9 months. We find that the said prayer in the I.A., is not tenable for the reason that it goes against the very mandate of promotion of New and Renewable Sources of Energy under section 86 (1) (e) and the power procurement from New and Renewable Sources of Energy Regulations, 2008 which mandate the promotion of New and Renewable Energy. Further, given the fact that the target of 175 GW of green energy has been set by the Government of India for the period ended 2022, the present prayer would go against the stated goal of GOI if acceded to. The petitioners are advised to schedule the generation block-wise on day ahead basis so that the SLDC may be in a position to plan its despatch instructions to other generators so as to ensure reliable power supply. The Commission is of the view that as already stated till such a time accurate forecasting to scheduling becomes possible and adequate affordable balancing sources are available, the SLDC will be left with existing practice of ramping down / ramping up (or) shutting down of existing power plants to the extent it is technically feasible which may vary case to case. However, various stakeholders and Commission are seized of the issue and are contemplating various means to address the same. It is not possible as prayed by the petitioner to stop augmenting the renewable resources till the respondents are able to demonstrate the absorption of the entire solar capacity already installed,

since acceding to the above prayer goes against the policy of the Central Government in augmenting additional renewable energy and also achieving the target fixed for renewable energy.

10.17. While perusing the rejoinder filed by the petitioner, it is found a fresh prayer seeking deemed generation charges to the solar generating units for the loss of power generation units due to backing down instructions issued by the SLDC. Inasmuch as the Commission considers that (a) in the present circumstances it is unavoidable that the generation from the solar generators need to be curtailed albeit to a small extent if the grid conditions so warrant, (b) we have given direction to the SLDC not to resort backing down instructions without recording the proper reason which are liable for scrutiny at any point of time and (c) that there is no provision in the agreement signed with the Utility for payment of deemed generation charges, we find it not possible to accede to the prayer of the petitioner.

The petition together with the I.A. is disposed of with the above orders.

11. Appeal: -

An appeal against this order shall lie before the Appellate Tribunal for Electricity under section 111 of the Electricity Act, 2003, within a period of 45 days from the date of receipt of the copy of this order by the aggrieved person.

(Sd……)
(Dr.T.Prabhakara Rao)
Member

(Sd……)
(S.Akshayakumar)
Chairman

//True copy//

Secretary
Tamil Nadu Electricity
Regulatory Commission