

BEFORE THE TAMIL NADU ELECTRICITY REGULATORY COMMISSION

IN THE MATTER OF:

Consultative Paper for procurement of wind power and related issues Consultative Paper for procurement of solar power by distribution licensee and related issues

Submissions of Prayas (Energy Group), Pune

TNERC uploaded two papers on procurement of wind¹ and solar² power on their website for public consultation. Our comments and suggestions on the two consultative papers are given below. Given the nature of the resources, mode of procurement and grid services required for wind and solar power, there seem to be several issues and challenges that are common to both consultative papers. Therefore, the issues for wind and solar are discussed together in this submission to ensure comprehensive treatment and brevity.

1 Continue with competitive bidding based procurement of Wind and Solar Power

As per Para 3.4 of the consultative paper on wind and Para 3.3 of the consultative paper on solar, the Commission has proposed procurement of wind and solar power by DISCOMs through the competitive bidding route. This is a welcome step and should be the default mode of procurement going forward. The relevant paragraphs are reproduced below:

3.4: Commission proposes procurement of wind power by the Distribution Licensee, for compliance of RPO requirement, through the competitive bidding route under section 63 of the Electricity Act 2003 following the bidding guidelines issued by the Central Government or procure power from the projects contracted through competitive bidding process by SECI, the nodal agency that floats tenders and conducts e-reverse auction for procurement of power from solar and wind power projects.

3.3: In order that the rate at which power procured is reflective of the market price, Commission proposes procurement of solar power by the Distribution Licensee through the competitive bidding route under section 63 of the Electricity Act 2003 following the bidding guidelines issued by the Central Government or procure power from the projects contracted through competitive bidding process by SECI to comply with their RPO requirement.

¹ <http://www.tnecr.gov.in/Concept%20Paper/2020/ConceptWind.pdf>

² <http://www.tnecr.gov.in/Concept%20Paper/2020/Solardraft-12-02-2020.pdf>

As noted in the paras above, the Commission has stated that Competitive bidding based procurement should not be limited to only procurement for compliance of RPO requirement but for any renewable energy based procurement even above the minimum RPO.

Further, the Commission may also consider directing the DISCOMs to appropriately modify the bidding documents so that procurement is not just based on least cost of generation, but could better reflect the best value for the TN system considering its load shape and other aspects like need for flexibility, transmission availability etc. Given the changing demand-supply mix in the state, the Commission may also consider directing the DISCOMs to initiate competitive bidding based procurement of RE + Storage capacity in the future given that TANGEDCO. This is pertinent as newspaper articles³ suggest that TANGEDCO is contemplating solar + storage procurement.

2 Need for an appropriate banking framework for wind as well as solar power

The banking mechanism has been a major facilitator for promotion of renewable energy based open access and captive use across the country. The mechanism allows for the difference between infirm (seasonal and diurnal) generation and load of open access or captive consumers to be absorbed by the distribution utility. Banking is presently allowed by SERCs upon levy of a banking charge. This differs in magnitude across states. Recently, distribution utilities in Maharashtra and Karnataka have been claiming that the existing structure of the banking charge is leading to financial losses. To benefit the DISCOM as well as captive and open access consumers, it is imperative that the banking charges and reflective of the value of the service provided by the DISCOM.

TNERC's consultative paper on wind proposes to disallow banking for all open access transactions. This is highly restrictive would impact several renewable energy open access consumers, especially those with medium to long-term contracts.

For captive projects, TNERC proposes a banking framework which classifies projects into three categories based on the commissioning date of the project. For some categories TNERC proposes a yearly banking framework, while for some it is restricted to monthly banking. Further, there are restrictions on unbanking for some categories, differing buy back rates and banking charges. The rationale for such restrictions is not clearly stated in the discussion paper. TNERC's proposal seems complex and onerous and could prove challenging to implement and monitor. If implemented, it is likely that the lack of clarity and complexity of the scheme could lead to significant avoidable litigation. With increasing renewable energy use, it is crucial that the banking framework is easy to implement and compensates the DISCOM for the grid services provided.

In this context, the following framework is proposed:

- The banking framework should be based on a per unit banking charge (as opposed to the present "in-kind" charge)
- The charge should be determined based on the difference between power purchase cost at the time of banking of energy and its drawl, which is revenue neutral to both the DISCOM and the consumers eligible for banking.

³ <https://www.thehindubusinessline.com/news/national/tangedco-open-to-reviewing-need-for-new-coal-projects/article30963988.ece>

- This is done by linking energy banking with the actual Merit Order Dispatch of the distribution utility.

This framework is detailed below:

- a. Energy banked would be valued by the DISCOM at the lowest variable cost of the backed down power or the day-ahead market price in the power exchanges in S2 region, whichever is lower. Energy drawl would be charged by the DISCOM at the highest variable cost of the dispatched power (incl. any power bought from exchanges).
- b. Credit for energy banking and charges for drawl would be calculated for each 15-minute block and would be settled at the end of the month. Such monthly settlement will also avoid the need for specifying any buy-back rate for excess power banked with the DISCOM at the end of the year as was needed in the erstwhile banking framework.
- c. The green attribute for any un-utilised banked energy at the end of the year would be credited to the DISCOMs RPO.
- d. Since the banked energy is already valued both at the time of banking and drawl (thereby making the DISCOM revenue neutral for such transactions), there is no requirement for any seasonal or Time of Day (ToD) based constraints on the banking and drawl of the banked energy subject to technical network constraints.
- e. Finally, linking the banking charge to merit order dispatch of the distribution utility will also enable the market to compare the cost of flexibility and value addition by other options like storage.

A detailed description of the energy banking framework is given in Section 3.5 of the ‘Choosing Green: the status and challenges of RE-OA’ report (pp. 29-36), which is attached with this submission.

3 Need to allow banking for solar power

Para 4.5.2 and 4.5.3 of the solar consultative paper make it clear that banking arrangement is not extended to solar projects. Instead, wheeling for solar is allowed only during generation and adjusted slot/block to slot/block with any excess consumption charged at the tariff applicable to the consumer. Any excess after the billing period will be bought at 75% of the Commission’s tariff or at 75% of lowest tariff discovered during the year through competitive bidding process in this State or SECI.

We suggest that the banking service should not be limited only to wind power but should also be available for solar power. Further, as mentioned earlier, it should be allowed for OA transactions as well rather than restricting it to only captive consumers. Ensuring adequate compensation for the grid services provided, as per the methodology detailed in Section 3 of this submission, can enable this without impacts on the DISCOM.

4 Need to remove concessions/waivers in OA charges

The discussion papers suggest discontinuing with most of the waivers/concessions for wind and solar projects under the captive and open access route. Specifically, transmission, wheeling, line losses, CSS

and scheduling and system operation charges will not be levied on solar and wind projects under open access and captive use.

Given the fall in the prices of solar and wind, we feel that it would be prudent to do away with such concessions. However, this should only be applicable for new solar and wind projects. For older projects, wherein investments were made on the basis on wheeling, banking or such agreements being in place for a specific time period, these should be honoured as per the agreements.

5 Revision in parallel operation charge

The parallel operation charge levied on captive consumers has not been revised in years and is not reflective of growing DISCOM costs. Currently, captive generating plants pay a parallel operation charge of Rs. 30,000 per month for each MW capacity of the generator. This is about Rs. 30/kVA/ month and accounts for 9% of the current fixed charge of HT-1A consumers. It is suggested that the parallel operation charges are parameterized and revised to 25% of the fixed charge applicable to HT-1A consumers. This will ensure adequate compensation to the DISCOM in the years to come.

6 Revision in framework for standby charges

It is proposed that the standby charge for captive consumers varies based on the standby service provided. Captive consumers opt for parallel operation with the DISCOMs system to ensure secure operation and reliable power supply. Thus, it is equivalent to a payment made for standby services by those who opt for such services when such services are not utilised. In addition, the cost of standby services provided in case of planned shutdown of the generator and unplanned shutdown is different. Further, when the drawal of standby power is higher than the contracted capacity (for which Parallel Operation charges are paid) penal demand charges should apply. Based on this framework, the proposed charges are outlined in Table 1.

Table 1: Proposed framework for standby services

Scenario	Energy Charges	Demand Charges on standby contracted capacity	Penal Additional Demand Charges
When standby demand is not utilized	Not applicable	25% of applicable demand charges on standby contracted capacity (same as Parallel Operation Charges)	Not applicable
Standby services in case of planned shut-down	Energy charge as approved in Tariff Order for HT-IA Industrial category	As approved in tariff Order for HT-IA Industrial category on total contracted standby capacity (on monthly basis).	2 times Demand Charges (on monthly basis)
Standby services in case of unplanned shut-down	Applicable Energy charge for HT-V temporary supply category	25% of applicable demand charges on standby contracted capacity	2 times Demand Charges (on monthly basis)

Such a framework would ensure standby services provided for captive generators are priced as per the cost to the DISCOMs.

7 “Start-up” power for solar generators

Para 4.4.1.1 of the solar consultative paper clearly states that start-up power is not required for solar PV generators. However, it goes on to say that power drawn during non-solar hours will be charged at HT Industrial tariff. Further, the paper proposes that power drawn from the grid during the solar hours will also be charged at HT Industrial tariff.

It is suggested that to ensure consistent treatment, power drawn from the grid be treated as standby power and the applicable standby charges as proposed in Section 5 of this submission is levied on the generator.

8 Capping of solar and wind generating capacity needs to accompany with yearly banking

Para 4.5.5 of the solar consultative paper and Para 4.1.10 of the wind consultative paper propose the capping of solar and wind generating capacity so that generation broadly matches with yearly consumption. This is a welcome step in the right direction. However, this should be accompanied by a framework of yearly banking for this to work in practice, especially for wind projects which have a highly seasonal spread.

9 Limit on start-up power for wind.

Para 4.5.1.1 states that as WEGs require start-up power, the power shall be provided “in-kind” such that the energy drawn is adjusted with the energy generated. As the adjustment of power drawn for start-up power is adjusted with the generation, it is essential that there is a limit or a cap on start-up power that can be drawn to ensure effective grid operations and planning by the DISCOMs.

10 Need for registration of behind the meter solar rooftop PV projects

Grid Connected Solar Systems connected behind the consumer’s meter, and not opting for Net Metering Arrangement should be allowed only after prior intimation to the respective Distribution Licensee. The Commission could consider amending its regulations to give effect to such a process. This is necessary so DISCOMs are aware of such the nature and extent of such systems to enable planning.

The Commission could further direct that each such solar system should be given a unique ID by the DISCOM and that a database with relevant details of each project should be available in the public domain without personal details of the consumer.

11 Need to re-assessment of distribution losses considered for open access, captive consumers

Regulation 32 (2) of the TNERC Intra-State Open Access regulations⁴ states that:

In case of distribution open access, the Licensee shall estimate the losses for each category of voltages and furnish to the Commission. These losses as approved by Commission shall be borne by the open access customer.

In the latest tariff order⁵, TNERC stated that TANGEDCO had submitted a study report on distribution losses for FY16. TNERC noted several discrepancies in the study report which was not reconciled by

⁴ <http://www.tnecr.gov.in/regulation/ISOA/2014/ISOA%20-%2011-2%20dated%2013-03-2014.pdf>

TANGEDCO. The voltage-wise distribution losses currently considered is on the basis of the FY16 numbers, as approved in the FY17 tariff order dated 11.08.2017.

To ensure the wheeling losses considered and levied on open access and captive consumers is reflective of actual technical losses, the Commission should direct TANGEDCO to conduct a study to review voltage-wise technical losses. The results of the study can be considered while reviewing the voltage-wise losses in the FY21 tariff determination process. It is suggested that failing the submission of the study, any cost recovery due to wheeling losses should be disallowed.

12 Streamlining of administrative processes for captive and open access

TNERC's initiative to finalise procure for verification of captive status in order dated 28.01.2020⁶ is welcome and will go a long way in streamlining processes for operationalising RE captive consumption in the state. The administrative process for open access and captive can be simplified further by instituting a portal to enable online filing of application and for checking the status of the application along with delays vis-à-vis stipulated timelines. Further, compliance to ensure captive status and reporting by open access consumers as per TNERC regulations can also be made through the portal. The DISCOM, SLDC and Transmission Company can have administrative access to the portal to ensure smooth operation with unique IDs and access for each consumer, trader, and generator. TNERC should direct the DISCOMs to launch such a portal within six months of the directive.

13 Need to 'actively discourage' short-term open access

To mitigate the risks faced by TANGEDCO due to short-term open access, TNERC should amend open access regulations to limit the duration of open access to 1-2 days instead of 3 months. This would help cater to contingent and unavoidable requirements for short-term open access. Further, any repeat application during a year for short-term open access by a consumer should be charged progressively higher wheeling and transmission charges till these charges are doubled for the fourth application by the same consumer in the year. Such a move would force consumers to choose medium term open access for longer durations instead of applying multiple times in a year for short-term open access without providing TANGEDCO a certain estimate of demand.

14 Change in methodology for estimation of cross subsidy surcharge

The cross-subsidy surcharge (CSS) applicable on open access consumers should be fixed at a rate which enables significant revenue recovery from the charges for the financially stressed DISCOM. This could be significantly higher than the current CSS at say, Rs. 2.5/kWh or Rs. 3/kWh. As the National Tariff Policy is only prescriptive, the TNERC can devise its own methodology which reflects the realities of the state. However, the CSS fixed for FY21 should remain constant for the next 5 years. This would provide consumers certainty on the sales migration charge enabling them to plan alternate power procurement options in the medium term. As the value is fixed for a five year period, the value of the CSS will reduce in real terms, even if remains the same in nominal terms. This would make open access more lucrative for consumers in the future and ensure TANGEDCO increases efficiency in the medium term.

⁵ <http://www.tnecr.gov.in/orders/Tariff%20Order%202009/2017/TariffOrder/TANGEDCO-11-08-2017.pdf>

⁶ <http://www.tnecr.gov.in/orders/commn%20order/2020/CGP-RA%207%20of%202009.pdf>

15 Introduction of seasonal variation in time of day tariff due to increase in renewable energy

With the increased proliferation of renewable energy, TANGEDCO would also have to manage significant and sharp changes in daily and seasonal load. Therefore, it is essential that the DISCOM moves towards a more dynamic tariff design and pricing model in order to be compensated for the costs and risks the utility undertakes for catering to uncertain and changing demand. To capture the impact of load variation due to renewable energy use the ToD tariffs, should be designed such that:

- there is neither an incentive nor penalty is levied for day-time consumption (solar hours)
- the dis-incentive for consumption in the evening peak should be higher than the night time incentive.

These principles are true for the currently applicable ToD tariffs approved by TNERC.

In addition, it is also vital to introduce seasonal variation in tariffs such that:

- An increase in ToD rates is applicable for the morning and evening peaks during stress months when the peak demand is high.
- Further, given the lower load in monsoon and higher availability of wind energy, an additional incentive for off-peak, night time ToD slot should be provided during the wind season.

Such measures will help TANGEDCO manage variations in load due to RE better.

16 Extending ToD tariff regime to wider set of consumers

ToD pricing need not be restricted to HT consumers alone, as it is today. The significant reduction in prices of metering technologies in the recent years provides a unique opportunity to implement such a pricing mechanism for:

- All LT consumers with connected load > 10 Kw
- All residential consumers opting for kW scale grid connected PV options.

TNERC could provide an enabling framework to ensure TANGEDCO is able to extend the ToD tariff regime as suggested.

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