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Sent: Mon, 11 Nov 2024 18:53:32 +0530 (IST)  
Subject: Prayas (Energy Group) comments on Staff Paper on modifications in the GNA Regulations

Dear Sir,

Please find attached Prayas (Energy Group's) comments on the Staff Paper on modifications in the GNA Regulations.

The staff paper has suggested categorizing the connectivity into solar hours and non-solar hours connectivity. We welcome this innovative approach.

We have some comments, suggestions and questions in this regard which are detailed in the submission.

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Kind Regards,

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## Comments and Suggestions on CERC staff paper on GNA Regulations

Prayas (Energy Group), 11<sup>th</sup> November 2024

CERC has notified CERC (Connectivity and General Network Access to the inter-State Transmission System) Regulations, 2022 on 07.06.2022, and subsequently, issued the first amendment and second amendment on 1st April 2023 and on 19th June 2024, respectively. However, based on suggestions from various stakeholders, CERC has issued a [staff paper](#) on 9th Oct, 2024. The Commission has invited comments on it by 11th Nov, 2024.

The staff paper has captured eight (8) issues in total, most prominent of which is 'Provision for grant of Solar hours Connectivity and Non-Solar hours Connectivity through the same Transmission system'. Ministry of Power/Ministry of New and Renewable Energy had come up with a similar idea in a concept note ('Optimising Transmission and Development of Storage') few months back. Hence, CERC issuing a staff paper capturing this aspect is very timely.

We have comments on few of the 8 issues, which are detailed below.

### Issue 6: Platform for providing NOC by the STU in a time-bound and a transparent manner

The GNA regulation has mandated need of obtaining NOC from STU for various process under GNA. However, 'It has been submitted that they face challenges in getting the timely consent of the STU for the intra-State network.' Hence the suggestion for a centralized online portal for NOC application to STU, which will be implemented and maintained by CTU is welcome. Such a portal will bring in more accountability of STUs and increase transparency and confidence among the applicants in the process. The portal so designed should further enable the following:

- Status of application can be tracked by the applicants and any reason for rejection or need of modification/additional information in application be transparently communicated.
- Via this portal, STUs should put out related data in the public domain. This could include but not be limited to:
  - Monthly submission of applications
  - Applications approved (cumulative, monthly)
  - Applications pending (cumulative, monthly)
  - Applications rejected (cumulative, monthly)
  - Different categories of reason of rejection (cumulative, monthly)
  - Time taken for deciding application (average- cumulative, monthly; max and min time)

Apart from providing such data and information in the public domain, it should be used to further refine the timelines for providing NOC. Furthermore, learnings from this portal shall be shared with STUs which will help them in streamlining NOC process.

**Explore the possibility of a National Connectivity Portal/Registry:** Akin to the National Green Open Access Registry, MoP could give the CTU the mandate to develop a 'National Connectivity Portal/Registry' for any connectivity applications, whether for InSTS or ISTS network. Applications will be forwarded to respective STU/CTU based on the nature of the application. This will help in better transmission network planning, utilization and ease the process for applicants. The NOC portal discussed in the staff paper can be a part of this 'National Connectivity Portal/Registry'.

### Issue 7: Provision for grant of Solar hours Connectivity and Non-Solar hours Connectivity through the same Transmission system

At present, the Connectivity granted to a REGS is available with it for a full day, i.e. for 24 hours, irrespective of the technology/resource of the generating plant and irrespective of the fact that the

*applicant is able to utilise this connectivity and inject the power during the entire day or not.*

Considering this, the staff paper has suggested to categorize the connectivity into solar hours and non-solar hours connectivity. We welcome this innovative approach.

*Particularly in the case of the Connectivity granted on a Solar generating station without any storage, the Connectivity and transmission system for the same will be utilised only during the Solar hours, and for the remaining period of the day, the transmission system is not likely to be utilised, unless another generating station or storage with complementary injection pattern is added behind the meter. It is proposed that to ensure the optimum utilisation of the transmission system, the applicant who is seeking Connectivity for the Solar source only, the Connectivity will be granted 'Solar-hour Connectivity.' These plants will have full rights to inject power up to their connectivity quantum into the grid during solar hours. Solar plants that are already connected to the ISTS or have already been granted connectivity will retain the GNA during solar hours. Grid India shall declare solar hours well in advance.*

*Further, existing connectivity grantee, which was solar-based REGS, shall be mandated to share the dedicated grid infrastructure (terminal bay and the dedicated transmission line) with payment of charges for the dedicated transmission infrastructure (as mutually agreed or as determined by CERC in case of disagreement). For solar hours, the new grantee shall be allowed to schedule power if the transmission system is available after scheduling power of existing solar REGS. The hours other than solar hours shall be treated as non-solar hours. It is clarified that the existing solar REGS can also seek GNA (non-solar)/connectivity at par with the new entity.*

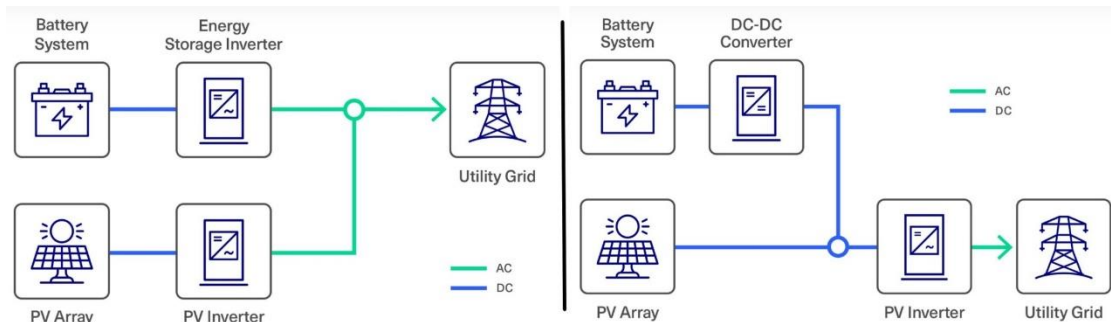
This issue is extremely timely and important issue given the existing ISTS waiver for RE projects and the ISTS transmission bottlenecks arising in the system. However, we would like to highlight few aspects on this:

- According to our understanding there are two parts of the transmission system in question here.
  - First is the part of the transmission line which connects one or several solar plants to a pooling sub-station. This infrastructure is part of the dedicated infra-structure of the solar plant and the metering for the solar generation would be done at the evacuation point, i.e. at the pooling sub-station.
  - Secondly, is the transmission line starting from the pooling sub-station connecting to the larger ISTS network. This will be typically much longer than the dedicated transmission infrastructure of the solar power plant. Further this line and associated elements (sub-station etc.) are part of the ISTS network and are included in the CERC's POC pricing methodology (unless the specific RE ISTS waiver is granted for this element).
- As a first step, CTU shall identify the substations where non-solar connectivity is available and will specify the quantum of such connectivity based on existing solar or RE hybrid generators.
- Secondly, would a CPSU like SECI call for bids for RE+ co-located storage or stand-alone storage with connectivity specified at these pooling sub-stations? Such a provision is proposed in the recent draft amendments to the TBCB guidelines. If connectivity is specified directly at the pooling sub-station, there could be two options (as noted in the Figure 1), namely,
  - the storage could be DC-coupled with the existing or new solar/RE generation plant or
  - the storage could be AC-coupled with the existing or new solar/RE generation plant.

*As per the staff paper, 'It is proposed that the existing connectivity grantee, which was solar-based REGS, shall be mandated to share the dedicated grid infrastructure (terminal bay and the dedicated transmission line) with payment of charges for the dedicated transmission infrastructure (as mutually agreed or as determined by CERC in case of disagreement).'* This will apply only in the first case where storage asset is DC coupled to the existing solar generator or if the storage asset is

using the dedicated transmission infrastructure. In this case, a mutual agreement on payment of charges should suffice and it might be difficult for CERC to specify generic principles. In case the RE+storage asset is directly connected to the pooling s/s, there is no question of sharing of dedicated grid infrastructure. In this case, the utilisation of the transmission line/elements considered in the POC pricing would go up and since the entire cost of the element is already factored into the POC pricing, the price per MW for GNA will slightly reduce for users.

Figure 1: Electrical connection for co-located projects (a) AC Coupling (left side), (b) DC Coupling (right side)



Source: Co-locating BESS with Renewable Energy Asset<sup>1</sup>

- Given the rights of the existing solar generator as per regulation 5.2 of the GNA regulations, it may be better to offer the first right of refusal to the existing generator for installing storage. MoP should clarify what the quantum of storage (capacity and duration) would be applicable in this case. If the existing generator foregoes the right to install storage, competitive bidding for non-solar connectivity should be carried out by the appropriate CPSU.
- A few more issues that come up in this regard are
  - Would non-solar connectivity be only granted to RE or Storage projects or any generation resource would be eligible?
  - Would an existing solar generator be eligible to add ESS and simply shift all generation from solar to non-solar hours, thereby providing peak power but without any benefit in transmission utilisation?
  - Would be bid for non-solar connectivity be necessarily for RE+storage since without additional RE generation behind the pooling station, there is no support for higher transmission utilisation.

### Issue 8: Provision for Minimum Transmission Capacity Utilisation for Hybrid ISTS Connectivity

The staff paper suggests that “An applicant should take Connectivity for a quantum that it wishes to utilise. It is proposed that to ensure the optimal utilization of the transmission system, a minimum annual capacity utilization, i.e., 50%, for RHGS may be mandated, failing which the underutilized capacity of the Connectivity may be reduced, effective 1<sup>st</sup> October 2026. Alternatively, the quantum of Connectivity equal to the average of maximum injection in any time block of a day over the year (first year after the declaration of COD) may be allowed to be retained by the Connectivity grantee, and the balance quantum of the part of the Connectivity may be revoked (with corresponding Conn-BGs to be returned). Connectivity on such vacated capacity may be granted to other entities.”

<sup>1</sup> <https://www.linkedin.com/pulse/co-locating-bess-renewable-energy-asset-ali-akbar-ajmerwala/>

Firstly, it is unclear if this is limited to physically co-located hybrid projects or for hybrid procurement wherein say wind and solar generators are located in different states. Having a minimum CUF (40% or 50%) to improve transmission utilisation will be practical only if these are co-located assets. Further, the issue of minimum CUF is common to all RE sources and not only to hybrid RE. **Hence ideally the minimum CUF for wind, solar and wind-solar hybrid should be relatively high and should be specified as part of the TBCB guidelines under section 63 or as part of the RFS.**

Secondly, CUF is an annual parameter and not useful to judge the block-wise, daily or monthly transmission capacity utilisation or any RE resource. For wind, the monsoon months may see very high, close to 100% utilisation, which may fall to 10-20% in the rest of the months.

The staff paper also suggests that, *'Alternatively, the quantum of Connectivity equal to the average of maximum injection in any time block of a day over the year (first year after the declaration of COD) may be allowed to be retained by the Connectivity grantee, and the balance quantum of the part of the Connectivity may be revoked (with corresponding Conn-BGs to be returned). Connectivity on such vacated capacity may be granted to other entities.'* This may not be practical since the need for transmission capacity would depend on maximum injection in any time period and not linked to annual averages. Further, the capacity of the generation project may get enhanced over time which would affect transmission utilisation.

To begin with, we suggest that CTU monitors CUF for wind, solar and hybrid projects on a monthly basis and report the same on its website. In addition to this, it will be good if CTU monitors and publishes transmission capacity utilization for every category of ISTS connectivity on monthly and annual basis on its website.

Finally, if a minimum CUF threshold were to be set, there would be a need to develop a monitoring protocol (data formats) along with principles for penalty provisions (penalty amount, process of imposing penalty, how and where such penalty shall be deposited, etc.)