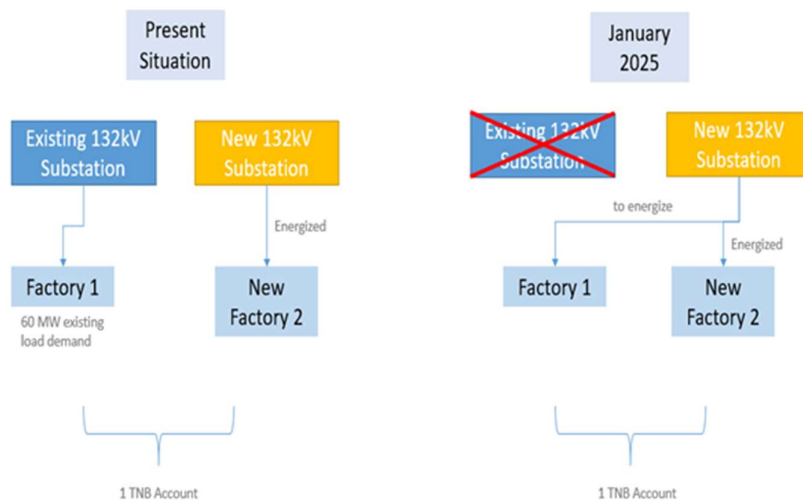


FREQUENTLY ASKED QUESTION #3

1. Based on the following situation, is the customer allowed to participate in CRESS for Factory 1 since it will be energised in the future?



- i. The off-taker has two factories. Factory 1 and the newly constructed Factory 2;
- ii. Factory 1 is supplied by the existing 132kV substation;
- iii. Factory 1 initial Maximum Demand is 60 MW in which the off-taker has submitted a request for a staggered additional load (final MD as 130MW) which will cater for Factory 2 as well;
Year 2026 – 95 MW
Year 2027 – 130 MW
Year 2028 – 130 MW
- iv. The ESA for Factory 2 has been signed, however the Maximum Demand is still being negotiated and is subject to change;
- v. Supply to Factory 2 has been energized this year with the new substation;
- vi. Supply to Factory 1 from the new substation will be energized January next year and the existing substation will cease operations.

Answer: Even though Factory 1 will take from new 132kV substation in the future, Factory 1 is considered as an existing consumer since already take supply from existing 132kV substation prior to 30 September 2024. Based on a recent announcement made by the YAB Minister, CRESS is now open to all consumers including existing demand. Therefore, Factory 1's eligibility to participate in CRESS is subject to amendment of the CRESS guidelines.

2. What rules govern the maximum demand the offtaker states in their CRESA and will this be in MW (vs MWh)? Will this be the same as CGPP where the offtaker's ability to contract is capped by their max demand in MW?

Answer: Under the Clause 6.9 of the CRESS Guidelines, a Green Consumer is allowed to source green electricity from more than one (1) RED up to its maximum energy as declared in the CRESA with the EUC. In the CRESA, the maximum energy declared (MWh) will be used as per Clause 6.9 instead of maximum demand declared (MW). For CGPP, the GC's ability to contract is capped by their maximum demand in MW.

3. Our understanding is that the final amount billed by the REC to the Green Consumer (quantity, rate, terms) is only subject to commercial terms agreed in the Bilateral Energy Supply Contract. Do TNB / SB / CRESS in general have any additional restrictions or requirements on final billing that could supersede the Bilateral Energy Supply Contract?

Answer: Under the Clause 7.3(f), the Bilateral Energy Supply Contract between the RED and the Green Consumer shall include, but not limited to, the following items:

- (f) the information on billing which includes but not limited to the billing period, calculation, statement, meter reading, bill payment, disputes on non-accuracy and records;

There is no restriction to Bilateral Agreement between RED and Green Consumer. However, for clarity, the energy generation from RED that will be used to offset Green Consumer's consumption will be based on the following:-

- i. Up to maximum energy declared (MWh) by RED as per clause 8.9
- ii. Up to maximum energy declared (MWh) declared by GC as per clause 6.9
- iii. Up to actual energy consumed (MWh) by the GC as per Appendix 1

4. If the ESA has already been signed with a scheduled start date, how will delays in the GEP be managed if there is no corresponding delay from the Green Consumer ("GC")? Would TNB be open to provide temporary supply to GC in case where the GEP is delayed.
 - i. If TNB agrees to provide a temporary supply to the GC due to delays from the RED, what would be the terms and conditions for such temporary supply arrangements?

- ii. In the event of a delay from the RED, would there be any financial penalties, compensation, or adjustments to the ESA to account for the discrepancy in readiness? If so, how are these calculated and communicated to the GC?
- iii. Is there a maximum allowable delay period for the RED before the ESA needs to be renegotiated or canceled?

Answers:

- i. Under the Clause 6.10, TNB as a supplier of last resort will provide full and/or balance of electricity supply as required by the GC based on T&C in Electricity Supply Agreement, independent of the readiness of the GEP.
- ii. Any compensation due to delay from the RED may be covered under Bilateral Agreement between RED and GC.
- iii. Maximum allowable delay period may be covered under the Bilateral Agreement.

5. Will there be MD be chargeable to Green Consumer?

Answer: Yes, Green Consumer is subjected to actual metered Maximum Demand Charge.

6. As consumers are charged at 2 different energy rates (peak and off-peak), how will the offsetting between consumption and RE generation be done?

Answer: The energy from RE generation will be offset first with peak energy consumption. If there is any balance, it will be offset with off peak energy consumption. For example:-

Before CRESS: Peak = 30kWh, Off-peak = 40kWh

Total from TNB = 70kWh

After CRESS, total energy required is still 70kWh. IF GC is taking xxkWh from RED, the balance of energy required are taken from TNB is calculated as follows:-

Scenario	Energy supplied by RED (kWh)	Balance of energy supplied by TNB		Total energy consumption (kWh)
		Peak (kWh)	Off-peak (kWh)	
#1	20	10	40	70
#2	30	0	40	70
#3	40	0	30	70
#4	70	0	0	70

7. Section 6.11 of the CRESS Guidelines outlines that "The EUC shall carry out the billing process and issue the relevant bill to the Green Consumer based on meter readings at both RED (M_{RED}) and Green Consumer (M_{GC}) premises. The meter reading at RED and Green Consumer premises shall be coordinated in such a way that the readings reflect the supply and consumption of electricity that occur within the same time during the Billing Period. The meter reading and billing activities shall be carried out on a monthly basis. RED and Green Consumer shall also grant EUC and Single Buyer the access for M_{RED} and M_{GC} "
- i. Is the Settlement Period equal to the Billing Period? (ie. Can power delivered by the RED to TNB at 12 noon be consumed by a Green Consumer at 3pm that day, or another later time during a day within that month's Billing Period?)
 - ii. If the Settlement Period does not equal the Billing Period, what settlement period is planned to be used?

Answer: Billing Period is referring to monthly bill starting from 1st of the month until end of the month. The same Billing Period will be use for :-

- i. **TNB bill the GC for Maximum Demand and balance of energy**
- ii. **TNB bill RED for backfeed usage**
- iii. **SB bill RED for SAC**

Yes, the power delivered by the RED to TNB at 12 noon can be consumed by a Green Consumer at 3pm that day, or another later time during a day within that month's Billing Period.

8. Referring to Clause 6.14(b) of the September CRESS Guidelines outlines "EUC will issue an electricity bill to the Green Consumer for every billing cycle period, being:
- (a) the period beginning on the Commencement Date and ending on the date on which the first bill is issued by EUC to the Green Consumer, following the occurrence of such Commencement Date;
 - (b) each one (1) month period thereafter during the term of the CRESA between EUC and Green Consumer; and
 - (c) the period beginning from the date following the last date of the immediate preceding bill and ending on the date the CRESA between EUC and Green Consumer expires in accordance with its terms.
- i. Are there any restrictions to Bilateral Energy Supply Contracts between RED and Green Consumer having term extensions?

- ii. Can extensions of term be reflected on a like-for-like basis in the other key contracts, such as the CRESA between Green Consumer and TNB?
- iii. Would the CRESA be similar to the Electricity Supply Agreement TNB has with large power consumers or in a reduced and simplified form?

Answers:

- i. **There is no restriction to the extension of the term of the Bilateral Agreement under CRESA.**
 - ii. **CRESA is perpetual unless earlier terminated in accordance with the terms and conditions of CRESA.**
 - iii. **CRESA is based on the Electricity Supply Agreement in a reduced and simplified version to suit with CRESS scheme.**
9. Referring to Clause 7.6 of the September CRESS Guidelines outlines that "The RED shall also enter into Backfeed Agreement with the EUC to obtain electricity supply for plant own consumption, backfeed requirement during construction and other usages".
- i. Will there be restrictions in the Backfeed Agreement (or otherwise) to prevent a BESS charging from Grid?
 - ii. If so, what nature will these restrictions be?
 - iii. Would the Backfeed Agreement be similar to the Electricity Supply Agreement TNB has with large power consumers or in a reduced and simplified form?

Answers:

- i. **BESS will be connected directly to the grid and will be independent from backfeed agreement. GSO will determine the charging and discharging of BESS.**
- ii. **There is no restriction in backfeed agreement.**
- iii. **Backfeed Agreement is a standard agreement meant for backfeed supply where there will be no maximum demand charge. While, Electricity Supply Agreement (ESA) is a special agreement for normal supply for high voltage, public distribution and co-generation customers.**

10. RED's Declared Monthly Energy Output = 1,000 MWh
RED's Actual Monthly Energy Output = 1,000 MWh
GC's Consumption = 1,200MWh
Balance consumption from TNB = 200MWh

Given the GC's TNB Tariff is C2 which has a Peak tariff of RM 0.365/kWh and an off-peak tariff of RM 0.224/kWh. Which tariff will TNB charge the GC for the 200MWh?

Answer: Energy charge for the balance consumption of 200 MWh will be based on metered consumption of 1,200 MWh on peak and off-peak bucket. Consumption on peak bucket will be offset first followed by off-peak bucket. Sample calculation as below:

Metered consumption:

Peak bucket: 500MWh

Off-peak bucket: 700MWh

Consumption from RED (1,000MWh): 500MWh (Peak bucket) + 500MWh (Off-peak bucket)

Consumption from TNB: 200MWh (Remaining on off-peak bucket)

Hence, energy charge from TNB of 200MWh will be based on off-peak rate (RM0.224/kWh).

11. How is excess energy of GEP due to imbalance of generation and consumption determined?
- The generation of GEP is higher than the consumption of GC at any point of time as per Clause 6.11; or
 - The total actual generation of GEP exceeds the total consumption of GC which is calculated on the last day of the month regardless of hourly generation and consumption as per Clause 8.12?

Answer: Generation of GEP will not be matched with consumption of GC on half-hourly interval basis. Instead, it will be matched on monthly basis.

In GC bill calculation, the excess generation will not be used when the total actual generation of GEP exceeds the;

- maximum energy declared (MWh) by RED as per clause 8.9**

- ii. **maximum energy declared (MWh) declared by GC as per clause 6.9**
- iii. **actual energy consumed (MWh) by the GC as per Appendix 1**

12. What is the defined hours of operation with BESS? As during the townhall, the sample was operating between 9 AM to 9 PM. Can we operate beyond 12 hours, for example, from 9 AM to 11 PM?

Answer: The main function of BESS is to firm up the solar to 50% of GEP capacity. To do this, GSO is responsible to orchestrate and give instruction to commence charging or discharging of the BESS to achieve the above objective while at the same time ensuring that GEP, BESS and other grid-connected users can safely connect and operate in compliance with Grid Code and other regulatory requirements.

The firmness (to 50% of GEP capacity), hence operating hours of BESS depends on a few factors - other than size of GEP and BESS, the operating hours also depend on factors like solar irradiance, efficiency of the solar plant etc. among others.

13. What is the AC/DC ratio acceptable for the scheme?

Answer: RED to determine the appropriate AC/DC ratio based on expected technical compliance stipulated in Grid Code and other GSO technical documents - as long as the required firming of 50% of GEP capacity for 4 hrs is fulfilled*

***For the avoidance of doubt, the verification of this requirement is done at the commissioning stage, before commercial operation commences.**

14. Is there any guarantee that energy to be exported?

Answer: Yes. The energy from solar and BESS produced by GEP will be exported to grid. However, during rare occasions of emergency cases, the energy produced by GEP may get curtailed to ensure system security.

15. Can Single Buyer dispatch the energy from the Solar System in normal circumstances?

Answer: The solar energy in CRESS program is self-dispatched. However, GSO can curtail (part or whole) the solar output under emergency condition, or whenever the grid system is unable to wheel energy due to system constraint.

16. How is wheeling availability is determined?

Answer: There are a few stages to determine the wheeling availability. At planning stage, the PSS process will determine and advise if the chosen connection node is able to connect and safely evacuate RED (capacity in MW). This shall be the default wheeling availability.

However, operationally, GSO may advise on unavailability to wheel the energy due to grid system constraint- e.g. planned or forced outages or other emergency e.g. planned or unplanned transmission outages or any other system constraints that impact the wheeling availability.

17. Are there any limitations to the interconnection (export capacity) other than the PSS? i.e. Is the interconnection capacity set at 50% of the plant AC capacity?

Answer: The export capacity shall be as per PSS conducted capacity proposal. i.e., AC capacity.

18. Under the clause 8.14(a), reads that the BESS is “dispatchable by GSO as per system requirements”. Under what circumstances will GSO be dispatching power from the BESS—

- i. is this for emergency / occasional use only under unusual circumstances and otherwise, the RED will dispatch the BESS under normal circumstances, or
- ii. will GSO maintain sole dispatch control of the BESS?

For (i) Is there any rules governing how the RED dispatches the power from the BESS?

Answer: Main function of BESS is to firm up the solar to 50% of GEP capacity. GSO will be the responsible party to orchestrate and give instruction to commence charging or discharging of the BESS to achieve the above objective while at the same time ensuring that GEP, BESS and other grid-connected users can safely connect and operate in compliance with Grid Code and other

regulatory requirements. Outside these normal conditions, GSO will also be dispatching BESS to either immediately begin charging or discharging during rare occasions of system emergency to ensure the security of the grid system is preserved.

Yes, GSO will be the sole responsible party to orchestrate dispatch control of the BESS to achieve the objectives described above.

All the signals and communication protocols required for interfacing to GSO Control Centre including signals for control and monitoring are specified and described in the GSO BESS Technical Guidelines, all these guidelines are supporting documents with details in ensuring compliance for connected users to the GC.

19. What is the dispatch priority during solar energy generation? E.g. is it to fully charge the BESS first and export to grid once BESS is fully charged or vice versa? Or is the battery mainly to help firm up/smooth out the half-hourly firm output?

Answer: Main function of BESS is to firm up GEP output to 50% of its capacity by storing solar energy in excess of 50%.

Meaning that all solar energy will be exported to grid. Depending on weather condition and solar irradiance on a particular day, and if there is solar output more than 50% of GEP capacity, only the energy in excess of this 50% of GEP capacity will be stored in BESS and discharged later to grid on the same day.

20. In the industrial dialogue held on 23 Aug, it was explained that only 50% of the maximum capacity of the solar power plant will be exported to grid and the rest will be used to charge battery. Is this mechanism still valid under CRESS Guideline?

Answer: Yes. Please refer to answer given in Q21 above.

21. Is a RED permitted to sign FCAS (Frequency Control Ancillary Services) agreements with the grid operator for a qualifying BESS system developed within a solar farm, as well as for standalone projects?

Answer: There is no requirement to sign ancillary services for the development of BESS. However, there are sets of technical and control and monitoring requirements BESS has to comply with for hybrid and standalone BESS.

22. If we declare the firm capacity for the next day, how long the plant need to maintain the firm capacity (i.e 6 hour, 12 hours etc?)

Answer: Please refer to answer given in Q14 above.

23. For section 8.14 (a) of the CRESS Guidelines, can we understand that for a 100MWac plant, the usable other than nominal capacity for BESS shall be at least 50MW/200MWh?

Answer: Yes.

24. For the case 50MW/200MWh above, do we need to meet the requirement everyday over PPA term, that every day the plant shall have the capability to inject 200MWh energy to grid system directly from BESS, even in bad weather days which the PV system may not generate enough power to ensure full charge of BESS. Is there an inspection & test method and procedure regarding this?

Answer: No. The main function of BESS is to firm GEP output to 50% of its capacity, where solar energy in excess of 50% of GEP capacity will be stored in BESS. The GEP solar output, and hence energy above 50% of its capacity depends on weather conditions, solar irradiance and panel efficiency - where only these 'excess' is charged and discharged through BESS.

However, the fulfilment of the firming requirement of 50% and 4hours will be tested and verified during commissioning activities

25. What is the AC/DC ratio acceptable for the scheme?

Answer: The DC/AC ratio is up to the developer.

26. Will there be any template of agreements shared for document listed under the Clause 7.2 of the Guidelines?

Answer: The template of NEDA CRESS Deed of Accession has been published on the Single Buyers's website.

27. Under the Clause 8.13 of the Guidelines "GEP shall declare a Firm Output for the day-ahead scheduling in the Market Participant Interface (MPI)". Are there any penalties if the day-ahead output declared does not match the actual output? What is the margin for error?

Answer: No penalty imposed

28. What is the expected duration for CRESS participation approval process?

Answer: The estimated duration from the registration submission up to the completion of execution of the agreements required under CRESS (before commencement of plant and IF development) is 10-12 months.

29. Under the Clause 6.18 - Bill issued from SB to RED, item (c) mentioned "relevant NEDA charges, and other services (if any)".

Please elaborate what constitutes relevant NEDA charges and what other services will be charged by SB?

Answer: NEDA charges referring to market/administrative fee (which includes other costs as per direction by the Government (e.g.: tax, levy, etc)).

30. Under the Clause 8.13 of the Guidelines, "GEP shall declare a Firm Output for the day-ahead scheduling in the Market Participant Interface (MPI)".

- i. What is the allowed imbalance/ tolerance for the day-ahead scheduling?
- ii. At what resolution/interval should the energy output be provided?

Answers:

- i. **We do not specify the imbalance/tolerance allowed for day-ahead scheduling.**
- ii. **Every half an hour interval**

31. If Power Plant type with FIRM output is submitted during application stage, does RED require to declare monthly energy output which will be subjected to excess energy clause?

The energy storage capacity shall not be less than fifty percent (50%) of GEP registered capacity. The registered capacity refers to Solar Farm AC capacity or export capacity?

Answer: Regardless of the plant type (Firm or non-firm output), the RED is required to declare the monthly energy output. This monthly energy output will be considered in the calculation of the excess energy in the event of withdrawal of a Green Consumer.

The registered capacity refers to the export capacity.