

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 25/MP/2019

Coram:

**Shri P.K. Pujari, Chairperson
Shri I.S. Jha, Member**

Date of Order: 17th August, 2020

In the matter of

Petition under Section 66 of The Electricity Act, 2003 read with the Regulation 7 of the Central Electricity Regulatory Commission (Power Market) Regulations, 2010 for approval of introduction of the Green Term-Ahead Market (Renewable Energy) Contracts at Indian Energy Exchange Ltd.

And in the matter of

Indian Energy Exchange Limited
Fourth Floor, TDI Centre,
Plot No. 7, Jasola,
New Delhi-110 025

... Petitioner

Versus

M/s Power System Operation Corporation
B-9, Qutab Institutional Area, Katwaria Sarai,
New Delhi- 110 016

... Respondent

Parties present:

1. ShriJogendraBehera, IEX
2. ShriGauravMaheshwari, IEX
3. ShriSaurabhSrivastava, IEX
4. Shri G. Chakroborty, NLDC
5. Shri Ashok Rajan, NLDC
6. Shri R. K. Agarwal, SECI
7. Ms. Anita M Goel, SECI
8. Shri A. Verma, SECI
9. ShriAvijeetLala, Advocate PXIL
10. Ms. NithyaBaluaji, Advocate PXIL

ORDER

The Petitioner, Indian Energy Exchange Limited (hereinafter referred to as "IEX") has filed this petition under Regulation 7 of the Central Electricity Regulatory Commission (Power Market) Regulations, 2010 seeking approval for introduction of

Green Term-Ahead Market (Renewable Energy) Contracts (hereinafter referred to as "GTAM Contracts") on its platform. The Petitioner has made the following prayers:

- a) *Accord approval for introduction of proposed Green Term Ahead Contracts on IEX platform;*
- b) *Consider holding that the power bought in the proposed Green Contracts from the Exchange shall be eligible for RPO compliance by obligated entities;*
- c) *Amend Regulations/Procedures required for introducing of Green Term Ahead Contracts on Exchange platform;*
- d) *Accord approval to Schedule (regarding introduction of G-TAM) to be incorporated in the Business Rules of IEX.*

Background:

2. The Petitioner had initially submitted the proposal for introduction of GTAM Contracts on its platform on 26.11.2018 vide this Petition. The Commission heard the matter on 09.05.2019 and noted that the Petitioner had not explained the procedural aspects as to how the deviation in the RE generation would be treated particularly in the context of fulfilling the Renewable Purchase Obligations (RPO) requirement by the buyer. The Commission also observed that the Petitioner had not obtained feedback from the stakeholders on the proposal. Accordingly, the Commission vide Order dated 14.05.2019 directed the Petitioner to give wide publicity to the proposed GTAM Contracts inviting comments from all stakeholders and subsequently approach the Commission after comments are received from the stakeholders along with views of the Petitioner.

3. In pursuance of the Commissions' directions vide Order dated 14.05.2019, the Petitioner hosted the proposed GTAM Contracts in its website vide Public Notice dated 16.05.2019. In response to the aforesaid notice, the Petitioner received comments from 18 stakeholders, including Ministry of New and Renewable Energy, SECI (Solar Energy Corporation of India), Discoms, trading licensees, renewable



energy generators, associations etc. The Petitioner submitted its reply to the stakeholders' comments vide affidavit dated 10.01.2020. The Commission heard the matter on 25.02.2020 and based on the request of the Petitioner, vide Record of Proceedings (RoP) dated 28.02.2020, directed the Petitioner to file the revised Petition by 2.3.2020. Further, the Commission directed the Petitioner to implead Power System Operation and Control (POSOCO) as party to the Petition. The Commission also directed POSOCO to file its reply by 6.3.2020 with an advance copy to the Petitioner, who may file its rejoinder, if any, by 9.3.2020.

4. In pursuance of the Commissions' directions vide RoP dated 28.02.2020, the Petitioner filed the revised Petition. The Petitioner also impleaded POSOCO and served a copy of the revised Petition to POSOCO. In response, POSOCO submitted its comments/suggestions on the proposal to the Petitioner on 06.03.2020 and the Petitioner submitted its reply to the POSOCO's comments/suggestions vide rejoinder dated 09.03.2020. The Commission heard the matter on 12.03.2020 and reserved the Order in this matter.

Submissions of the Petitioner:

5. The Petitioner has proposed to introduce GTAM Contracts on its platform to provide avenues to renewable energy generators (RE generators) for sale of renewable energy through IEX platform and obligated entities to fulfill their Renewable Purchase Obligations (RPOs). The Petitioner has envisaged the following benefits from introduction of GTAM Contracts:

- a) It will provide new avenue to RE merchant capacity to sell power. New RE merchant plants may come up which will inter-alia help to achieve ambitious renewable energy capacity addition targets of the Government of India.



b) It will aid in the development of RE capacity in India. A market-based mechanism where RE surplus and RE deficit States can trade RE and balance their RPO targets. This would incentivize RE resource-rich States to develop RE capacity beyond their own obligation.

c) It will reduce burden on renewable energy rich States to absorb all RE generated within the State.

d) GTAM Contracts will enable obligated entities to procure renewable power at competitive prices at the power exchanges and help meet RPOs.

e) Discoms preference of buying green power over REC (Renewable Energy Certificate) will be addressed.

f) RE sellers and buyers will get more options to sell/buy renewable power.

g) RE generator need not tie up capacity in advance or depend on PPA with the Discoms especially when the tariffs discovered in the PPAs are falling sharply.

h) Small participants (OA/CPP) can buy green power at competitive rates to meet their RPO as well as energy requirement.

i) RE generators under preferential tariff in States having excess wind/solar power are being curtailed due to Discoms' inability to pay. Such generators will now be able to sell power in the market.

6. The Petitioner has proposed to introduce GTAM Contracts through Intra-day Contracts, Day ahead contingency Contracts, Daily Contracts and Weekly Contracts for solar and non-Solar RE generation. The different types of GTAM Contracts are briefly discussed below:

a) **Green Intra-day Contracts (Solar/Non-Solar):** These contracts will be 15-minute national contracts available daily round the clock for trading on a



rolling basis till 2.5 hours i.e. 150 minutes (or as allowed by system operators) from the delivery of electricity. The trading in such contracts will be carried out through 'Continuous Trade'. The bidding will be based on price and quantity quotation in Rs./MWh and MW basis. No variation/revision in the schedule will be allowed.

- b) **Green Day-ahead Contingency Contracts (Solar/Non-Solar):** These contracts will be 15-minute national contracts available for trading daily for delivery on next day from 0000 hrs to 2400 hrs. The trading in such contracts will be carried out through 'Continuous Trade'. The trading session will be available from 1500 hrs to 2300hrs on each trading day. The bidding will be based on price and quantity quotation in Rs./MWh and MW basis. No variation/revision in the schedule shall be allowed.
- c) **Green Daily Contracts (Solar/Non-Solar):** These contracts will be available for trading on each trading day for delivery of electricity from T+2 day onwards for 15 minutes or combination thereof from 0000 hrs to 2400 hrs of a Day. The trading session will be available from 1300 hrs to 1700 hrs on each trading day. The trading will be carried out either through 'Continuous Trade' or 'Uniform Price Step Open Auction' depending on the liquidity in the market. The sellers will provide its profile having 15-minute time block wise quantity (MW). It may be an 'All or None' type of order or partial selection type order. Each profile of seller will be aggregated and converted into MWh for the purpose of matching. The seller may revise/ deviate from its initial profile and to provide a firm schedule at 0700 hrs on D-1 (D implies Delivery day) basis. While providing this firm schedule, the seller can deviate up to 15% of daily contracted quantity in energy terms.
- d) **Green Weekly Contracts (Solar/Non-Solar):** These contracts will be available for trading on every Friday and Saturday for upcoming weeks for delivery of electricity from Monday to Sunday. The trading will be carried out through 'Continuous Trade' or through 'Uniform Price Step Open Auction' depending on liquidity in the market. The sellers will provide its profile having 15-minute time block wise quantity (MW). It may be an 'All or None' type of order or partial selection type order. Each profile of seller shall be aggregated



and converted into MWh for the purpose of matching. The seller may revise or deviate from its initial profile and provide a firm schedule at 0700 hrs on D-1 basis. While providing this firm schedule, the seller can deviate up to 15% of daily contracted quantity in energy terms. Such quantity shall be arrived at by dividing the weekly quantum into 7 equal parts.

7. The Petitioner had initially proposed that no revision should be allowed for the Intra-day and Day ahead contingency contracts as in such contracts the matching of bids would be taking place closer to delivery period and can be accurately forecasted. However, in the case of Daily and Weekly contracts where the matching of the bids would be taking place 3-10 days in advance and prone to forecasting error, the Petitioner has proposed to provide flexibility to the seller to deviate from its initial profile and intimate the final schedule on D-1 basis, where D implies the Delivery day. Further, while intimating the final schedule at 0700 hrs on D-1, the seller will be permitted to deviate up to only 15% of the daily contracted quantity in energy terms. The Petitioner has submitted that this mechanism will balance the interests of both buyers and sellers.

8. The Petitioner has proposed the following eligibility conditions for the buyers and sellers to participate in the GTAM Contracts:

- a) Solar energy sellers shall be eligible to trade in 'Solar Green Term Ahead Contract' and non-solar RE seller shall be eligible to trade in 'Non-Solar Green Term Ahead Contract'. To ascertain the eligibility, RLDCs/SLDCs may issue NOC/standing clearance (may be called 'Green NOC') indicating the type of RE generator. Discoms may get Green NOC (solar/non-Solar) for selling renewable energy from the respective SLDCs.
- b) Eligibility of RE sellers shall be ascertained at the time of registration at the power exchange based on NOC/standing clearance issued by RLDC/SLDC, as applicable.



c) All the entities which are eligible to procure power through open access shall be eligible to participate in GTAM (green term ahead market dealing with GTAM Contracts) as buyer. A separate certificate will be issued by the Petitioner detailing various trades undertaken by the buyers, which shall be used for meeting RPO compliance of such buyers.

d) Buyers shall be eligible to participate in GTAM based on the same NOC issued for DAM (Day Ahead Market)/Intra-Day market by SLDC. No separate NOC will be required for the buyers.

9. The Petitioner has submitted that the risk management, bidding mechanism, price discovery methodology, scheduling, and delivery point etc. will be according to the existing process followed in the Term Ahead Market (TAM). The Petitioner has also submitted the detailed Contract specifications for the Intraday Contract, Day Ahead Contingency Contract, Daily Contract and Weekly Contract proposed under GTAM.

10. The Petitioner has submitted that to introduce GTAM Contracts, the following enabling regulatory provisions may be required:

a) RPO fulfillment through Power Exchange:

The Petitioner has highlighted that while it has been specified in Central Electricity Regulatory Commission (Terms and Conditions for Recognition and Issuance of Renewable Energy Certificate for Renewable Energy Generation) Regulations, 2010 (hereinafter referred to as the "REC Regulations") that if a RE generator sells electricity through power exchanges at market determined price then such RE generator will be eligible for issuance of RECs. However, it is not clear whether a buyer procuring power through power exchange is eligible to meet its RPO compliance. The Petitioner has submitted that the REC Regulations may be suitably amended to allow RPO compliance in case of procurement of power through power exchanges.

b) Reference Price for Deviation Settlement:



The Petitioner has highlighted that in the Central Electricity Regulatory Commission (Deviation Settlement Mechanism and related matters) Regulations, 2014 (hereinafter referred to as the “DSM Regulations”), it has been specified that open access transactions other than the transactions meant for RPO compliance shall be settled at Average Power Purchase Cost (APPC) rate at the National level as may be determined by the Commission through a separate order. The Petitioner has submitted that the transactions under GTAM Contracts being open access transactions, APPC should be considered as the reference price for deviation settlement of such transactions and the provision in the DSM Regulations should be amended to that extent.

c) Issuance of Green NOCs by the concerned RLDC/SLDC:

The Petitioner has submitted that in order to enable RPO compliance (solar or non-Solar), it is imperative that the RE sellers willing to participate in GTAM produce NOC/standing clearance with the type of generation specified in it. The Petitioner has highlighted that in the Central Electricity Regulatory Commission (Open Access in inter-State Transmission) Regulations, 2008(hereinafter referred to as the “Open Access Regulations”), the type of source has not been considered as a part of NOC/standing clearance. The Petitioner has submitted the same may be incorporated in the Open Access Regulations through suitable amendment.

Stakeholder’s Comments and Petitioner’s Response:

11. In pursuance of the Commissions’ directions vide Order dated 14.05.2019, the Petitioner hosted the proposalof GTAM Contracts on its website vide public notice dated 16.05.2019. In response to the aforesaid notice, the Petitioner received comments from 18 stakeholders as mentioned below:

- a) Tata Power Trading Co. Ltd.
- b) Tata Power Company Ltd.
- c) NLC India Limited (NLCIL).
- d) ReNew Power Limited.
- e) First Solar Power India (P) Ltd.



- f) Tata Power-DDL.
- g) Manikaran Power Limited.
- h) Enel Green Power.
- i) Greenko Energies Pvt. Ltd.
- j) Hero Future Energies Pvt. Ltd.
- k) Indian Wind Power Association (IWPA).
- l) Mahindra Susten Pvt Ltd.
- m) Ministry of New and Renewable Energy, Government of India (MNRE).
- n) Power Company of Karnataka Limited.
- o) PTC India Ltd.
- p) BhadreshwarVidyut Private Limited.
- q) Tamil Nadu Spinning Mills Association (TASMA).
- r) Solar Energy Corporation of India Ltd. (SECI).

12. Most of the stakeholders including MNRE and SECI have supported the proposal for introduction of G-TAM Contracts at the power exchange platform. The stakeholders have affirmed that introduction of such contract would provide an alternate avenue for the buyers and sellers to transact in renewable energy which will eventually promote renewable energy in the country. The important issues raised by the stakeholders, along with Petitioner's reply thereon, are summarised below:

- a) **Need of GTAM Contracts when DAM and TAM Contracts are available:** Some of the stakeholders have suggested that the RE generators can participate in the existing market segments for conventional power and there is no need for introduction of GTAM Contracts. Stakeholders have also highlighted that worldwide RE generators have been participating along with the conventional generators on the same platform of DAM.

Response of the Petitioner – The Petitioner has submitted that in recent times although the renewable penetration has increased in the country, the participation of renewable energy in the existing DAM and TAM segment has remained negligible (less than 1%). GTAM has been proposed to bridge this gap and provide a viable alternative for short term inter-State transactions in



RE. The buyers while procuring electricity through GTAM will be able to meet their RPO compliance. In the present market scenario, the Government has taken several policy initiatives to develop RE in the country. In order to achieve the RE capacity addition targets in long run, the market development should also grow in tandem with the policy support. GTAM has been proposed to provide as an exclusive platform for trading of renewables. Allowing competition over the power exchanges would benefit in efficient price discovery. Going forward, as the market and technology would evolve and grid integration of RE becomes relatively easier, the RE generating sources can also compete with conventional power on equal footing in DAM/TAM segment. Till such time the Commission is requested to approve GTAM for enabling inter-State trade in RE.

b) **Liquidity in GTAM Contracts:** Some of the stakeholders have stated that as most of the RE power is tied up on a long-term basis, there is hardly any merchant power available for trading in the proposed GTAM contracts. Further, the stakeholders have also highlighted that it may not be possible to set up merchant RE plant based on GTAM contracts as bankers/FIs are not keen to finance projects without any long-term tie-ups.

Response of the Petitioner – The Petitioner has submitted that the liquidity is not there because currently there is no suitable market available for trading of RE. Introduction of GTAM Contracts will provide the platform to buy/sell RE at inter-State level on a short-term basis. As the obligated entities can fulfill their RPO requirements, there will be a demand to buy green power through GTAM. It will also provide avenue for the REgenerators to sell their RE in open market apart from the existing system of selling power through long/medium term contracts. RE-rich States can also use GTAM to sell their surplus power on short-term basis. It has been indicated by some of the stakeholders that in the absence of a suitable trading platform, the RE-rich States are either backing down RE or selling their surplus RE as conventional power which is leading to losses for both Discoms and RE generators. In this backdrop, it is envisaged that in the initial stages the RE generators or Discoms having surplus RE shall be using GTAM for selling their power. However, as the market becomes more



mature and has more liquid, it may also provide necessary signals for investment in merchant RE capacity (fully or partially).

- c) **Impact on REC Market:** Some of the stakeholders have raised concern regarding the impact of GTAM contracts on the demand for RECs.

Response of the Petitioner – The Petitioner has submitted that introduction of GTAM in IEX would only come as a complement to the already existing REC market. It will provide buyers an additional avenue to fulfill their RPO compliance by procuring green power. Notwithstanding this, the buyers will have the choice to either buy green power or RECs to fulfill their RPO compliance. Besides, any mismatch in the RPO compliance due to deviations etc. must be addressed through REC mechanism only. Based on the above, it can be expected that the demand for REC would continue to exist till the time RPO compliance is considered important for promoting RE in the country.

- d) **Waiver of ISTS charges and losses:** Some of the stakeholders have highlighted that the waiver of inter-State transmission charges and losses allowed for green power procured on a competitive basis will render the power procured through GTAM costlier which may adversely impact the liquidity in the market. The stakeholders have suggested that such waiver should also be allowed for the transactions taking place through GTAM.

Response of the Petitioner – The Petitioner has requested the Commission to consider extending the waiver of inter-State transmission charges and losses for the transactions in GTAM.

- e) **Revision in Schedule:** Some of the stakeholders have suggested for allowing revisions in the schedule keeping in view the infirm nature of RE. The stakeholders have suggested that the revisions may be provided effective from 4th time block as there is a chance of sudden loss in generation due to unforeseen climate conditions.

Response of the Petitioner – The Petitioner has submitted that the GTAM contracts have been proposed under the overall regulatory framework of the



CERC (Open Access in inter-State Transmission) Regulations, 2008 and Procedure for Bilateral Transactions framed under these Regulations. Further, the proposal has been made keeping in view the interest of both buyers and sellers. While the revision suggested by the stakeholders may be favorable for the sellers, the same will increase uncertainty for the buyers. At the same time given the infirm nature of RE, additional flexibility is required to be provided to enable the generators manage their unpredictability in generation. Keeping the above in view, the Petitioner has proposed the following mechanism with respect to revision in the GTAM Contracts:

- Intraday and Day Ahead Contingency Contracts: No revision should be allowed for the Intraday and Day Ahead Contingency contracts as these are closer to the delivery period and hence can be accurately forecasted.
- Daily and Weekly Contracts: In the Daily and Weekly contracts, the seller can opt for the following type of scheduling/revision:
 - o Firm Scheduling: In this mode, the application shall be submitted for scheduling immediately after the contract is executed. The application shall be submitted on First Cum First Serve (FCFS)/Day Ahead Bilateral Basis in accordance with the provision of the Open Access Regulations and Procedure for Bilateral Transactions. As provided under the Open Access Regulations, the seller can revise the schedule to be effective after an expiry of minimum of 2 days.
 - o Flexible Scheduling: The seller will have the option of scheduling the Daily/Weekly contracts on D-1 basis. While intimating the schedule at 0700 hrs on D-1 basis, the seller can deviate only up to 15% (downward revision) of the daily contracted energy (pre-scheduled) beyond which it would attract penalty provisions in terms of the IEX Business Rules. In this case, the application for scheduling shall be submitted on Day Ahead Bilateral/Contingency transaction basis to the concerned RLDCs.

The Petitioner has submitted that the above mechanism will balance the interest of both buyers and sellers. While the seller will have some flexibility to manage variable nature of generation, the buyer will also have some certainty



over their contracted quantity. Further, both buyer and seller can take advantage of the products on the power exchange i.e. Intra-Day, Day Ahead Contingency, Real Time Market to manage their specific requirements.

f) **Deviation Settlement and RPO fulfillment:** Some of the stakeholders have expressed concern over the possibilities of having significant deviation in RE and sought clarification on how this could be treated so that the sellers can minimize their losses. The stakeholders have also sought explanation regarding the treatment of deviation particularly in the context of RPO fulfillment for obligated entities.

Response of the Petitioner – The Petitioner has submitted that the proposed flexibility to the seller for scheduling on D-1 basis will enable the seller to minimize the deviations for the sellers. Regarding the treatment of deviation in the context of deemed RPO, the Petitioner has submitted that it will be in accordance with the provisions specified under the CERC (Deviation Settlement Mechanism and other related matters) Regulations, 2014. The Petitioner has proposed the following procedure for deviations settlement:

- i. Wind and solar generators shall be paid as per the schedule and the quantum scheduled shall be considered as deemed RPO fulfillment of the buyer.
- ii. For enabling deemed RPO of buyers, all RE shortfalls and RE over-injections of regional entities to be netted off (on a monthly basis) for the entire RE DSM pool by NLDC. In case of RE shortfall, RECs to be purchased by the nodal agency NLDC from exchange by using funds from DSM pool and the RECs so purchased shall stand extinguished. In case of RE surplus, notional RECs may be credited to DSM pool as carry forward for next cycle.
- iii. In case the RE seller is a Discom or an intra-State entity (wind or solar generator), the payment shall be made as per the schedule and settlement of deviation will take place as per respective State Forecasting and Scheduling Regulations.



g) **Minimum Quantum for bidding and Tick Size:** Some of the stakeholders have suggested that the minimum quantum for bidding should be reduced from proposed 1 MW to 220 kW as most of the operational RE capacity is connected to the State grid and the plants are not of huge size. Further, the stakeholders have proposed that the tick size i.e. minimum change in bid size should also be reduced from 1 MW to 0.1 MW.

Response of the Petitioner – The Petitioner has agreed to the proposal and will be reducing the minimum quantum from 1 MW to 220 kW and tick size from 1 MW to 0.1 MW.

POSOCO's Comments and Petitioner's Response:

13. In pursuance of the Commissions' directions vide RoP dated 28.02.2020, the Petitioner impleaded POSOCO and served a copy of the Petition to POSOCO. In response, POSOCO submitted its comments/suggestions on the proposal to the Petitioner on 06.03.2020. The important observations made by POSOCO along with Petitioner's reply thereon are summarised below:

a) POSOCO has welcomed the proposal for promotion of renewable energy generation which will help in achieving the ambitious target of Government of India of having installed capacity of 175 GW by 2022.

b) **Regional Contract in GTAM:** POSOCO has suggested that it is prudent to design the contracts under GTAM as regional contract so that congestion in transmission corridors is factored in the design and can be taken care of if it occurs. POSOCO has highlighted that congestion may occur in the network due to several factors such as change in load generation pattern, outage of generation, tripping of transmission line(s), planned outage of transmission elements etc.

Response of the Petitioner – The Petitioner has submitted that it has proposed national contracts under GTAM as these contracts are expected to provide



better liquidity and price discovery in the exchange platform. The Petitioner has also drawn attention to the fact that the congestion in transmission corridors has significantly reduced in recent times. Besides, the flow of power in case of GTAM Contracts would be mostly from SR to ER, WR and NER which is opposite in direction to where congestion is frequently witnessed. The Petitioner has submitted that going forward, if it is observed that congestion in the network is affecting the transactions, then regional contracts may be considered as proposed by POSOCO.

c) **Portfolio sale by a RE rich state:** POSOCO has expressed concern that in case of portfolio sale by a RE-rich State, the power sold is from a mix of generators and it is not possible to identify and tag this power as green power. Hence, such sale of power cannot be used for fulfillment of RPO by the buyer. In order to ensure that all power sold in the G-TAM contracts, which is being specifically designed for sale/purchase of RE, is truly RE and can be used for fulfillment of RPO, only sale of power by RE generators be allowed in the GTAM contracts.

Response of the Petitioner – The Petitioner has submitted that the sellers participating in the GTAM contracts will have to produce a NOC from RLDC/SLDC indicating the source of generation which would establish that the power to be sold is truly RE and go towards the fulfillment of RPO compliance of the buyer. With the NOC mechanism in place, there will not be any confusion regarding the green power as highlighted by POSOCO.

d) **Deviation Settlement:** POSOCO has submitted that NLDC has been mandated to balance the shortfall in RE injection through purchase of RECs for inter-State RE generators falling under the jurisdiction of RLDCs. POSOCO observed that the intra-State generators should also purchase RECs for any shortfall in the total injection on a monthly basis. Any excess injection may also be recorded and adjusted in the shortfall before purchase of RECs. POSOCO has suggested that in order to ensure compliance of this mechanism, the concerned power exchange should monitor the energy traded by the RE generator participating in GTAM along with the actual injection and REC



purchases by the participating generator and submit a compliance report to CERC/SERCs on a quarterly basis. POSOCO has also suggested that the reference price for deviation settlement of a RE generator with a mixed portfolio may be taken as Average Power Purchase Cost (APPC) as determined by the Commission.

Response of the Petitioner –The Petitioner has submitted that most of the SERCs in their respective Forecasting & Scheduling Regulations have provided that the SLDCs are required to maintain State DSM Pool and purchase RECs in case of shortage of generation in the pool mirror-imaging the mechanism followed by NLDC at the national level. Instead of power exchange, SLDCs are better positioned to monitor the actual injection, aggregate the excess/shortfall in the injection of RE at the State level and balance it through purchase of RECs.

The Petitioner has agreed to POSOCO's suggestion that APPC may be used as a reference rate for the purpose of deviation settlement of RE Open access transactions.

e) **Introduction of GTAM in all Power Exchanges:** POSOCO has suggested that GTAM may be made available in all the operational power exchanges for competition purpose.

Response of the Petitioner – The Petitioner has submitted that while the other operational power exchange is free to propose such product, the approval to the GTAM proposal of the Petitioner should not be kept in abeyance considering the status of the progress of other power exchange with respect to its proposal.

f) **RE other than Wind and Solar Generation:** POSOCO has suggested that as the wind and solar installed capacity constitutes around 82% of all types of RE generation, to begin with only wind and solar generation may be allowed to participate in GTAM and after liquidity of GTAM increases, the other RE technologies may also be allowed to participate.



Response of the Petitioner – The Petitioner has submitted that non-solar RE generators other than wind should also be promoted. Therefore, they should also be allowed to trade in G-TAM market.

g) **Trading Margin:** POSOCO has suggested that the Commission may like to specify the trading margins to be levied by the power exchanges in case of participants in GTAM.

Response of the Petitioner – The Petitioner has clarified that the power exchange does not levy any trading margin rather it levies transaction fees from its Members. Further, as a principle, the Commission has allowed the power exchanges to self-determine the transaction fee. Accordingly, the provision related to transaction fees will be decided by the power exchange from time to time and shall be effective with the prior approval of the Commission.

h) **Information dissemination:** POSOCO has suggested that all information regarding start date, end date, start time, end time, volume (in MU), name of seller, name of buyer, price discovered for GTAM Contracts may be made available on the website of the power exchange.

Response of the Petitioner – The Petitioner has submitted that apart from the name of buyer and seller, all the details as sought will be available on the website of the Petitioner.

Analysis and Decision:

14. The Petitioner has proposed to introduce GTAM Contracts on its platform for exclusive trading of renewable energy. The Petitioner has submitted that the proposed contract will provide additional avenues to the RE generators for sale of renewable energy and obligated entities to fulfill their RPOs. The Petitioner has highlighted that the proposed contract will provide a market-based mechanism where RE surplus and RE deficit States can trade RE and balance their RPO targets. The Petitioner has also submitted that this proposal would lessen the burden on RE-rich



States and incentivize them to develop RE capacity beyond their own RPO. The proposed contract will enable obligated entities to procure renewable power at competitive prices at the power exchanges. The Petitioner has also highlighted that the proposed contract will promote RE merchant capacity addition which will eventually help in achieving RE capacity addition targets of the country.

15. In pursuance of the directions of the Commission, the Petitioner has carried out stakeholder consultations and submitted its point-wise reply to the comments/suggestions given by the stakeholders. Further, the Petitioner has also impleaded POSOCO and submitted its point-wise reply to the observations made by POSOCO. It is observed that majority of the stakeholders including POSOCO have largely welcomed the proposal for introduction of GTAM in the exchange platform though some of them have raised concerns regarding issues viz. liquidity in the market, flexibility to the generators, deviation settlement etc.

16. We have considered the submissions of the Petitioner, and the comments/suggestions given by different stakeholders along with the reply thereupon by the Petitioner. Prima facie, we are of the view that the introduction of GTAM Contracts in the power exchange will provide an additional avenue for short-term trading of RE. Sellers of RE can use this for sale of renewable energy whereas the obligated entities can procure green power to meet their RPO requirement. Initially there may be issues related to liquidity in the market. However, with the availability of the trading platform, it may attract participation from buyers and sellers and in longer term may also promote RE merchant capacity.

17. Considering the above, we are of the view that approval needs to be accorded to the Petitioner to introduce GTAM Contracts on its platform. However, it is



observed that the Petitioner has proposed changes in the existing provisions of various regulations and procedures. Further, the stakeholders have also given many comments/suggestions during the stakeholders' consultation. The different aspects of the proposed contract have been dealt with in the succeeding paragraphs keeping in view the submissions made by the Petitioner and comments/suggestions given by the stakeholders.

RPO fulfillment through GTAM:

18. The Petitioner has submitted the proposal for introducing Green Term Ahead Market (Renewable Energy) Contracts on its platform for trading of renewable energy on short-term basis. The Petitioner has also proposed that the procurement of green power by the obligated entities through this platform be considered towards their fulfillment of RPO.

19. We agree with the proposal of the Petitioner that the obligated entities procuring renewable power through GTAM shall be eligible for fulfillment of RPO in view of the fact that unlike in REC mechanism the green and brown attributes are not proposed to be separated through such sale of RE in GTAM. GTAM will provide an alternate route for the obligated entities to meet their RPO compliance and will also promote trading of renewable energy in the market. Further, as the transactions through GTAM will be bilateral in nature with clear identification of corresponding buyers and sellers, there will not be any difficulty in accounting for RPO.

Solar & Non-Solar Sub-segment:

20. The Petitioner has proposed to have two sub-segments, namely solar and non-solar sub-segments, under GTAM Contracts. In the solar sub-segment, only electricity generated from solar energy sources shall be traded while in non-solar



segment, electricity generated from renewable energy sources other than solar energy sources shall be traded. In this regard, POSOCO has suggested to begin with only solar and wind energy sources and include other RE technologies at a later stage.

21. As presently RPO is categorized into solar and non-solar RPOs, we allow the Petitioner to have two sub-segments i.e. solar and non-solar sub-segments.

Type of Contracts:

22. The Petitioner has proposed the G-TAM Contract under the categories of Intraday Contract, Day Ahead Contingency Contract, Daily Contract and Weekly Contract. Intraday contract will allow trading for delivery of electricity on the same day, Day Ahead Contingency for delivery in the next day, Daily Contract for delivery on a daily basis during T+2 to T+10 days, and Weekly Contract for delivery during the forthcoming week from Monday to Sunday. The Petitioner has proposed these contracts to be of 15-minutes duration or multiples thereof.

23. As regards duration of contracts, as the proposed contracts are on same lines as the existing contracts under Term Ahead Market, we allow the Petitioner to introduce Intraday Contract, Day Ahead Contingency Contract, Daily Contract and Weekly Contract in GTAM. We also agree to the proposal of 15-minute contracts as this will provide more granularity to the RE generators for managing their intermittent generation. However, the delivery of power under Intra-day Contracts and Contingency Contracts shall be subject to the condition that their delivery period does not overlap with the specified period of delivery of the real-time market as per Regulation 2(i)(o) of the Central Electricity Regulatory Commission (Power Market) Regulations, 2010, that is quoted as under:



"(o) "Intraday Contract /Contingency Contract" means the contract where the transaction (not being a collective transaction) occurs on day (T) after the closure of day ahead transaction window and the delivery of power is on the same day (T) except for the duration of the specified period of delivery of the real-time market, or next day (T+1) and which is scheduled by Regional Load Despatch Centre or National Load Despatch Centre."

National vs. Regional Contract:

24. The Petitioner has proposed for national contracts under GTAM as compared to regional contracts existing in Term Ahead Market. POSOCO has, however, pointed out that it is prudent to design the contracts under GTAM as regional contracts so that congestion in transmission corridor is factored in the design and can be taken care of, if it occurs. In response, the Petitioner has submitted that the national contracts will provide better liquidity and better price discovery. The Petitioner has also highlighted that the occurrence of congestion has reduced in recent times.

25. In initial stages, issues of liquidity in GTAM are likely to be there. Therefore, we agree with the proposal of the Petitioner to have national contracts for GTAM as this is expected to provide better liquidity and price discovery. As submitted by the Petitioner, congestion in the transmission corridor is not a major issue at present.

Price Discovery Methodology and Matching Rules:

26. The Petitioner has proposed that for Intraday Contract and Day Ahead Contingency Contract, the bidding will take place based on 15-minute quotation of quantity (MW) and price (Rs/MWh). The price discovery and matching of the bids will take place on the basis of 'Continuous Trade'.

27. The Petitioner has proposed that in case of Daily and Weekly Contracts, the matching of bids will take place on energy terms of MWh basis. The seller will provide profile in terms of 15-minute time block wise quantity (MW) along with the



price (Rs/MWh). The profile shall be aggregated and converted into MWh for the purpose of matching. The buyer will provide bids with quantity (MWh) and price quotation (Rs/MWh). The price discovery and matching of the bids will be carried out either through ‘Continuous Trade’ or ‘Uniform Price Step Open Auction’ (presently in use for TAM). The buyer will not provide any profile; if the contract gets executed the buyer has to accept the initial profile submitted by the Seller. In case there are multiple buyers, the initial profile of seller will be allocated to each buyer on a pro-rata basis.

28. We agree with the Petitioner’s proposal for price discovery methodology and matching rules for the contracts under GTAM. The methodology proposed by the Petitioner for Intraday Contract and Day Ahead Contingency Contract is the same as that of the methodology followed in Term Ahead Market. For Daily Contracts and Weekly contracts, the matching on the basis of MWh will take care of variation in the supply profile of RE generators which is dependent on their location and associated weather conditions.

Revision in the Schedule:

29. The Petitioner has proposed that in the case of Daily Contracts and Weekly Contract, the RE generator be given flexibility to intimate its final schedule on a D-1 basis at 0700 hrs. This will enable the RE Generators to provide their schedule on a day ahead basis and reduce their forecasting error. The Petitioner has submitted that after the seller submits its final schedule, no further revision shall be allowed. Some of the stakeholders suggested that given the intermittent nature of RE, the generators be given the flexibility to revise their schedule to be effective from 4th time block on the day of delivery.



30. We are conscious of the intermittency of the RE generation and the issues associated with its forecasting, and are of the view that instead of making revision in the schedule, the buyers and sellers can take advantage of other products viz. Intraday, Day Ahead Contingency, etc. to manage their variation in generation. As regards the proposal of the Petitioner to intimate the schedule on a D-1 basis, this would imply a departure from the existing practice and regulatory requirement of scheduling under CERC (Open Access in inter-State Transmission) Regulations, 2008. The Commission is of the view that any such dispensation without analyzing its impact on other transactions of similar nature would not be appropriate. Accordingly, we do not agree with the proposal to allow revisions to RE generator during the day as suggested by the stakeholders or intimate the schedule on D-1 basis as proposed by the Petitioner. Revisions in scheduling as well as intimation of schedule have to be done in accordance with the CERC (Open Access in inter-State Transmission) Regulations, 2008 as is being followed in case of Term Ahead Market. However, the Commission directs the staff to examine the need for any such flexibility in scheduling and propose amendment to the CERC (Open Access in inter-State Transmission) Regulations, 2008 subsequently, if required.

Deemed RPO & Deviation Settlement Mechanism:

31. The stakeholders have sought clarity regarding the treatment of deviation particularly in the context of RPO fulfillment for obligated entities. POSOCO has submitted that NLDC is mandated to balance the shortfall in RE injection through purchase of RECs for inter-State RE generators. POSOCO has also suggested that the concerned power exchanges should monitor the energy traded by the intra-State RE generator participating in GTAM along with the actual injection and RECs purchases.



32. In response, the Petitioner has submitted that for the regional entities, the deviation settlement can be carried out in accordance with CERC (Deviation Settlement Mechanism and related matters) Regulations, 2014 whereas, for the intra-State entities, the same can be carried out as per the provisions in their respective State Forecasting and Scheduling Regulations. The Petitioner has proposed the following procedure for deviation settlement in respect of transactions under GTAM:

- i. Wind and solar generators shall be paid as per schedule and the quantum scheduled shall be considered as deemed RPO fulfillment of the buyer.
- ii. For enabling deemed RPO of buyers, all RE shortfalls and RE over-injections of regional entities to be netted off (on a monthly basis) for the entire RE DSM pool by NLDC. In case of RE shortfall, RECs to be purchased by the nodal agency (NLDC) from power exchange by using funds from DSM pool and the RECs so purchased shall stand extinguished. In case of RE surplus, notional RECs may be credited to DSM pool as carry forward for next cycle.
- iii. In case the RE seller is a Discom or an intra-State entity (wind and solar generator), the payment shall be made as per the schedule and settlement of deviation will take place as per respective State Forecasting and Scheduling Regulations.

33. As regards the suggestion of POSOCO, the Petitioner has submitted that it is not possible for a power exchange to monitor the actual injection and purchase of RECs of intra-State RE Generators. Further, the Petitioner has highlighted that most of the SERCs in their Forecasting and Scheduling Regulations have provided that the SLDCs are required to maintain State DSM pool and purchase RECs in case of shortage of generation in the pool mirror-imaging the mechanism followed by NLDC at the national level.



34. We agree with the observations made by the Petitioner. The Deviation Settlement mechanism for regional solar and wind power in the context of deemed RPO is provided in the DSM Regulations. The relevant clause of the DSM Regulations is extracted below:

"5. Charge of Deviation

...

Provided that

...

(vii), for balancing of deemed renewable purchase obligation (RPO) compliance of buyers with respect to schedule, deviations by all wind and solar generators which are regional entities shall first be netted off for the entire pool on a monthly basis and any remaining shortfall in renewable energy generation must be balanced through purchase of equivalent solar and non-solar Renewable Energy Certificates (RECs), as the case may be, by NLDC by utilizing funds from the Pool Account. For positive balance of renewable energy generation, equivalent notional RECs shall be credited to the DSM Pool and carried forward for settlement in future."

35. As specified under the DSM Regulations, the deviation settlement in case of deemed RPO shall be carried out by the NLDC through the RE DSM Pool. In case of intra-State entities, the deviation settlement has to be in accordance with Regulations and Orders of the respective State Commission.

Portfolio Sale by RE Rich State:

36. POSOCO has expressed concern that in case of portfolio sale by a RE-rich State, the power sold is from a mix of generators and it is not possible to identify and tag this power as green power. Hence, such sale of power cannot be used for fulfillment of RPO by the buyer. The Petitioner, in its reply, has submitted that the sellers participating in the G-TAM Contracts will have to produce NOC from RLDC/SLDC indicating the source of generation which would establish that the power to be sold is truly RE and that it will go towards the fulfillment of RPO compliance of the buyer.

37. We observe that POSOCO in its reply has submitted that the details of source, quantum etc. are already being mentioned in the NOCs issued to RE



generators by the SLDCs/RLDCs. Accordingly, any seller transacting through a portfolio shall ensure that the source of generation (solar or non-solar) is indicated in the NOC clearly for being able to participate in solar or non-Solar segment of GTAM.

Risk Management System and Margin Requirements:

38. The Petitioner has submitted that it shall undertake risk management measures according to the existing practices followed in the Term Ahead Market. The Petitioner has proposed that it shall be seeking margins in the form of Initial Margins, Additional Margins and Variation Margins from the Member/Client to cover the risks during the tenure of the contract.

39. The nature of contract in GTAM being similar to the Term Ahead Market, we agree to the proposal of the Petitioner to carry out risk management as per the existing procedure followed in the Term Ahead Market.

Enabling Regulatory Provisions:

40. The Petitioner has also submitted that certain enabling provisions in the CERC (Terms and Conditions for Recognition and Issuance of Renewable Energy Certificate for Renewable Energy Generation) Regulations, 2010; CERC (Deviation Settlement Mechanism and Related Matters) Regulations, 2014; and CERC (Open Access in inter-State Transmission) Regulations, 2008 are required in order to introduce G-TAM contracts by bringing in clarity regarding fulfillment of RPO through power exchanges, reference price for deviation settlement of RE open access transactions, issuance of Green NOCs by the concerned RLDC/SLDC and treatment of non-solar RE sources other than wind. We deal with these issues one by one.

RPO Compliance through Power Exchanges:



41. In terms of Regulation 5(1)(d) of the REC Regulations, an RE generator selling power through the power exchanges to an obligated entity shall not be eligible for grant of REC, if the obligated entity intends to meet its RPO obligations through purchase of such power. Regulation 5(1)(d) of the REC Regulations statesas under:

"5. Eligibility and Registration for Certificates:

(1) A generating company engaged in generation of electricity from renewable energy sources shall be eligible to apply for registration for issuance of and dealing in Certificates if it fulfills the following conditions:

.....
(d) It does not sell electricity generated from the plant, either directly or through trader, to an obligated entity for compliance of the renewable purchase obligation by such entity."

42. Therefore, Regulation 5(1)(d) clearly recognizes that an RE generator can sell power through power exchanges to an obligated entity for meeting RPO compliance by not claiming REC for such power. In the instant petition, the Petitioner has proposed that sale of power by an RE generator under GTAM will not qualify such generator to claim REC while enabling the obligated entity to meet its RPO compliance. Therefore, we do not find any statutory prohibition in the REC Regulations to consider the proposal of the Petitioner.

Reference price for Deviation Settlement:

43. Para 3 of Proviso (v) and (vi) to Regulation 5 of DSM Regulations provides that:

"Fixed Rate for Open Access participants selling power which is not accounted for RPO compliance of the buyer, and the captive wind or solar plants shall be the Average Power Purchase Cost (APPC) rate at the National level, as may be determined by the Commission from time to time through a separate order. A copy of the order shall be endorsed to all RPCs."

44. Therefore, the DSM Regulations have not provided for the reference price i.e. Fixed rate to be considered for settlement of deviation on account of sale of power through open access by an RE generator to an obligated entity for meeting its RPO compliance. Regulation 13 of the DSM Regulations empowers Commission to issue



directions in case of any difficulty arises in giving effect to the regulations. Regulation 13 of DSM Regulations provides as under:

"13. Power to issue directions

If any difficulty arises in giving effect to these regulations, the Commission may on its own motion or on an application filed by any affected party, issue such directions as may be considered necessary in furtherance of the objective and purpose of these regulations."

45. Therefore, considering the necessity of the reference price/Fixed Rate for settlement of deviation on account of sale of power through open access by a RE generator to an obligated entity for meeting its RPO compliance, in exercise of the power under Regulation 13 of the DSM Regulations, it is directed that the Fixed Rate for settlement of deviation on account of sale of power through open access by an RE generator to an obligated entity for meeting its RPO compliance shall be Average Power Purchase Cost (APPC) rate at the National level, as notified by the Commission in terms of proviso (v) and (vi) under Regulation 5 of DSM Regulations.

Issuance of Green NOC by concerned RLDC/SLDC:

46. POSOCO in its reply has submitted that the details of source, quantum etc. are already being mentioned in the NOCs issued to RE generators by the SLDCs/RLDCs. Therefore, no amendment is required at this point of time.

Waiver of ISTS charges and losses:

47. Some stakeholders have requested to waive off transmission charges and losses for the transactions under GTAM. It is clarified that waiver of inter-State transmission charges and losses for RE generation is in accordance with provisions of the Sharing Regulations. Any such waiver shall be admissible to the entities which fulfill the conditions specified under the Sharing Regulations.



48. In the light of the analysis and decision on the various issues arising out of the proposal for introduction of GTAM Contracts at IEX, the Commission approves the proposal of the Petitioner to introduce G-TAM subject to compliance of the directions given in this Order.

49. The Petitioner is further directed to incorporate appropriate provisions in its Bye laws, Rules and Business Rules with respect to introduction of GTAM Contracts and submit to the Commission for records within 2 (two) weeks from the date of this order.

50. Petition No. 25/MP/2019 is disposed of in terms of the above.

Sd/-
(I.S. Jha)
Member

Sd/-
(P.K. Pujari)
Chairperson

