BEFORE THE HARYANA ELECTRICITY REGULATORY COMMISSION
BAYS No. 33-36, SECTOR-4, PANCHKULA- 134112, HARYANA

Case No. HERC/PRO – 42 of 2020

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DATE OF ORDER : 08.03.2021

IN THE MATTER OF:

Draft Procedure for Forecasting, Scheduling and Deviation settlement of Solar & Wind Generation in accordance with Haryana Electricity Regulatory Commission (Forecasting, Scheduling and Deviation Settlement for Solar and Wind Generation) Regulations, 2019

Petitioner	HVPNL
Respondents	HPGCL, DISCOMs and other Stakeholders

Present

On behalf of the Petitioner

1. Sh. M.M Matta, SE/Commercial, HVPNL Panchkula
2. Sh. R. Koushik, SLDC/HVPNL Panipat

On behalf of the Respondents

1. Sh.U.K. Aggarwal, Chief Engineer, HPGCL Panchkula
2. Sh. Vikash Kadian, Xen/HPPC, Panchkula

QUORUM

Shri Pravindra Singh, Member (in chair)

Shri Naresh Sardana, Member

ORDER

Background of the case:

In exercise of the powers conferred under Sections 66, 86(1)(b) 86(1)(e) and 181 read with Sections 32 and 33 of the Electricity Act, 2003 and all other powers enabling it in this behalf, the Haryana Electricity Regulatory Commission prepared the Regulations "Haryana Electricity Regulatory Commission (Forecasting, Scheduling and Deviation Settlement and related matters for Solar and Wind Generation) Regulations, 2019 which was subsequently notified on 29.04.2019.

The Regulations (5.20) of Haryana Electricity Regulatory Commission (Forecasting, Scheduling and Deviation Settlement and related matters for Solar and Wind Generation) Regulations, 2019 interalia provides for submission of detailed procedure containing plan for data telemetry, formats of forecast submission and other modalities and requirements by the SLDC. The relevant provision of Regulations is reproduced as under:

"Regulations (5.20):

The plan for data telemetry, formats of forecast submission and other modalities and requirements shall be stipulated in the Detailed Procedure to be submitted by the SLDC within two months, which the Commission shall endeavour to approve within a month thereafter."

Accordingly, the SLDC/HVPNL framed and submitted the draft Procedure for Forecasting, Scheduling and Deviation settlement of Solar & Wind Generation vide their letter memo no. Ch-37/SE/RAU/F-155/Vol-II dated 08.05.2020 for consideration and approval of the Commission.

This procedure shall be applicable to all Wind and Solar Energy Generators in Haryana connected to the Intra-State Transmission/ Distribution System, including those connected through Pooling Sub-Stations, and using the power generated for self-consumption or sale

within or outside the State having the combined installed capacity of the Solar or Wind Generators connected to a particular Pooling Sub-Station, or that of an individual Generator connected to some other Sub-Station, shall not be less than 1 MW

Proceedings:

The Commission after considering the comments of Power utilities (i.e. HPGCL and DISCOMs) suitably amended/modified the draft procedure for Forecasting, Scheduling and Deviation Settlement of Solar and Wind Generation, initially and assigned with petition no. HERC/PRO-42 of 2020. Accordingly, public notice along with draft Procedure for Forecasting, Scheduling and Deviation settlement of Solar & Wind Generation was hosted on the Commission's website whereby all general public/ stakeholders were requested to submit their objections/ comments /suggestions on the above-mentioned draft procedure, if any, by 25th September,2020 and public hearing in the matter was scheduled for 16.10.2020 at 11.30 A.M. In response, in additions to comments of Power utilities (i.e. HPGCL and HPPC/UHBVN), written comments of 4 other intervenors namely, M/s Indian energy Exchange, M/s Kreate Technology LLP, M/s Manikaran Analytics Ltd. and M/s Vibgyore Energy also received in the matter.

The Public hearing in the matter was held as schedule on 16.10.2020. The Officers of HVPNL/SLDC, DISCOMs and HPGCL were present during the hearing. At the outset, SE/Commercial & SO, HVPNL on behalf of STU had made the presentation and briefed about the background of draft procedure submitted for approval of the Commission. The officers present on behalf of HPGCL and DISCOMs also reiterated their written comments already submitted to Commission in response. After hearing the matter, Commission directed the HVPNL/SLDC to respond on the comments of intervenors, and make the final submission to the Commission within two weeks. HVPNL vide its letter dated 08.12.2020 have submitted

the draft modified procedure after the comments of intervenors/stakeholders.

Commission Observations:

Clause wise Comments of stakeholders, reply of HVPNL/SLDC on the comments and the Commission's observations on Procedure for Forecasting, Scheduling and Deviation Settlement of Solar & Wind Generation, is given as under:

1. **Clause No. 2: Definitions and Interpretation**

Comments by UHBVN: Definitions and interpretations in the procedure are not required as already mentioned/defined in the HERC (Forecasting, Scheduling and Deviation Settlement for Solar and Wind Generation) Regulations, 2019 (FS & DS Regulations). Instead, it may be clarified that the words and expressions have same meaning as defined in the ibid Regulations until and unless defined specifically in the Regulations.

Response/reply of HVPN: no need of any change. 2 extra definitions are added

1. Standalone generator
2. Co-ordination committee

Commission's Observation: The Commission finds it appropriate to have additional definitions for clarity to the terms used in the procedure, which are not covered/provided in the Regulations. Accordingly, two additional definitions provided by STU/SLDC are appropriate for the purpose.

2. **Clause No. 2.1 (p)** "Inter-connection point" means the interface point of a generation facility with the transmission or distribution system; and shall mean, in relation to Wind or Solar Energy facility, the line isolator on the outgoing feeder on the High Voltage (HV) side of the Pooling Sub-Station

Comments by HPGCL: As per 2.1 (p), the definition of "Inter-connection point" means the interface point of a generation facility with the transmission or distribution system; and shall mean, in relation to Wind or Solar Energy facility, the line isolator on the outgoing feeder on the High Voltage (HV) side of the Pooling Sub-Station; However, as per the existing agreement signed between HPGCL and HPPC for 10 MW Solar Power plant, same has been defined as follows:

"Interconnection Point shall mean the point at which the bus bar of the Solar Power Plants are connected with the Grid System and at which the Electric Energy is supplied by the Generator to the Grid of the Buyer. Meters shall be connected at these Interconnection Points for measuring the electric energy (a) exported from each of the Solar Power Plants to the Buyer's Grid System, and (b) imported from the Buyer's Grid System."

The suitable definition of interconnection point may be incorporated accordingly. Moreover, the accounting of energy should also be done at the interconnection/delivery point (i.e. existing metering point) as per PPAs signed between generator and procurer.

Response/reply of HVPN:

Regulation supersedes PPA, so inter-connection point definition as per regulation shall be considered.

Commission's Observation: The Commission observed that definitions laid down have the meaning assigned to them as per provisions framed in the regulations. As such the definition of interconnection point as per the principal regulations shall prevail.

3. Clause No. 2.1(w), 4:

(w) "Stand-alone Generator" means a Wind or Solar Generator with individual capacity of 1MW or above connected to the State Transmission System or distribution system (represented by itself).,

4. Role & Responsibilities of Stand-alone Generators:

i) The Chief Operational person/ In-charge of a Stand-alone Generator shall be responsible for scheduling for the generating station and shall notify the name, designation and contact details (phone, mobile and e-mail) of the Scheduling Officer for its Plant to SLDC from time to time.

ii) The Stand-alone generator shall establish a round the clock Control Centre and shall be responsible for control of its Generation/ Injection. The Control Centre shall have facilities of voice communication with SLDC with voice recording facilities, and internet connection available for all the 24 hours.

For the purpose of Grid security and safety, the generator shall comply with the instructions of the System Operator in normal condition as well as during emergencies.

iii) The Stand-alone generator shall establish alternate voice, text and data communication with SLDC to implement the instructions of System Operators and SLDC.

iv) The Stand-alone generator shall be responsible for declaration of Available Capacity of its Generating Station to SLDC.

v) The Stand-alone generator shall provide Wind Turbine Generating plant (WTG's) / Inverter's static data details as per the Performa at Annexure-l(A) for wind, Annexure- l(B) for solar and further any change in the information furnished earlier shall be shared with SLDC within 7 working days from the change.

vi) Stand-alone Generator shall provide real time data for power generation parameters and real time generation data (turbine and inverter level) and weather data wherever available as per Annexure-II.

vii) The Stand-alone generator shall have fully functional forecasting and scheduling tools to obtain the desired output. It shall provide Day ahead & Week ahead forecast (based on its own forecast or on the forecast done by SLDC) and Schedule as per Annexure – III through a web-based application maintained by SLDC.

viii) Till the web-based application is made operational, the day ahead and week ahead schedule shall be provided to the SLDC Control Room through e-mail. Provided that separate schedule for inter and or intra state transaction shall be supplied. Provided further that, Stand-alone Generators shall maintain Buyer-wise schedule information and protocol for sharing the same.

ix) In case of non-availability of Real Time Data (at Turbine Level /inverter Level), Generator shall maintain and provide time block wise generation data at (turbine and inverter level) and weather data on Weekly basis:

- For wind plants, at the turbine level:
  Average wind speed, Average power generation at time block 'level (15-min or lesser, as the case may be)
- For solar plants, for all inverters* >= 1 MW:
  Average Solar Irradiation, Average power generation at time block level (15- min or lesser, as the case may be)

* If a solar-plant uses only smaller string inverters, then data may be provided at the plant level.

x) The Stand-alone generator shall be responsible for metering, data collection/ transmission and communication and

historical data maintenance in co-ordination with concerned agencies (STU/SLDC/CTU/RLDC/ DISCOMs etc.) and for co-ordination with SLDC, RLDC, STU (HVPNL), CTU, DISCOMs and other agencies in line with the provisions of HERC/ CERC Regulations.

xi) The Stand-alone generator shall be responsible for the settlement of Deviation charges with the SLDC and it shall be liable to pay & receive Deviation Charges.

xii) The Stand-alone generator shall maintain records and accounts of the time block-wise Schedules, the actual generation injected and the deviations, so that it could be sent to SLDC (maximum within 7 days from the date of demand from SLDC).

xiii) The Stand-alone generator shall use Automatic meter reading (AMR) technologies for transfer, analysis and processing of interface meter data to SLDC in line with Metering/ AMR protocol and Metering/ AMR standards to be finalized by SLDC/ HVPNL/ DISCOMs in accordance with provisions of Metering Code and CEA Metering Regulations, as amended from time to time. However, until AMR system is established, the monthly energy meter reading shall be downloaded by the field office of DISCOMs/ HVPNL along with a representative of the Stand-alone generator as per standard practices.

xiv) The Stand-alone generator shall abide by the Haryana Electricity Regulatory Commission (Forecasting, Scheduling and Deviation Settlement for Solar and Wind Generation) Regulations, 2019 as amended from time to time.

xv) The Stand-alone generator shall furnish the PPA rates on notarized affidavit (in case of Inter-State transactions) as per Annexure- IV (A), for the purpose of Deviation charge account preparation to SLDC supported by a copy of the PPA.

xvi) The Stand-alone generator shall submit the indemnity bond on Non Judicial Stamp paper of value notified by the State Government from time to time, duly attested by a Notary Public, (as per Annexure-IV (B)) to keep the SLDC indemnified at all times and shall undertake to indemnify, defend and save the SLDC from any and all damages, losses including commercial losses due to forecasting error, claims and actions including those relating to injury to or death of any person or damage to property, demands, suits, recoveries , costs and expenses, court costs, attorney fees

and all other obligations by or to third parties, arising out of or resulting from the transactions undertaken by the Generators.

xvii) The Stand-alone generator shall coordinate for periodical testing and calibration of Interface Meters as per CEA metering Regulations and procedures as specified by the HERC.

xviii) The Stand-alone generator shall provide executive summary of daily generation report for a day and cumulative summary sheet as per Annexure-X.

Comments by UHBVN: Use of term 'Stand–alone Generators'. This term has not been used in the (FS & DS Regulations) and not required in the draft procedure. Applicability clearly defines the set of generators covered under the Regulations/Procedure. However, standalone Generators may opt to be its own QCA or to appoint a separate entity as its QCA. Accordingly, Procedure needs to be amended suitably to set aside the ambiguity. Role and responsibility of Stand-alone generators are not required to be defined separately, hence may be deleted. Other part of Regulations using term standalone generator be amended suitably.

Response/ Reply of HVPNL: no need of any change, definition is required (to distinguish a renewable generator with renewable generator with generation >1MW), however separate definition of RE generator is required.

Commission's Observation: Commission observes the terms "Stand alone Generator" has been used in procedure for a wind or Solar Generator with individual capacity of 1MW or above connected to the State Transmission System or Distribution System without infringing Principal Regulations. As such no change is required.

4. **Clause No. 3:** "The procedure shall be applicable to all Wind and Solar Energy Generators in Haryana connected to the Intra-State Transmission/ Distribution System, including those connected through Pooling Sub-Stations, and using the power generated for self-consumption or sale within or outside the State."

Further the Proviso states that "the 'Combined installed capacity of the Solar or Wind Generators connected to a particular Pooling Sub-Station, or that of an individual Generator connected to some other Sub-Station, shall not be less than 1 MW ".

Comments by Manikaran Analytics Ltd.:

Rationale: The obligations provided under the Draft Procedure will be burdensome for the solar or wind generators the combined installed capacity of whom is less than 1 MW. The capability of the generators should be such that it should be in position to comply with the mandatory obligations as well as to handle the risk of high penalties which may arise due to deviations. While such minimum installed capacity does not create huge burden on grid efficiency due to deviations, the high penalties resulting from it does impact the small generators financially. There are multiple states which prescribes application of forecasting, scheduling and deviation settlements regulations and their respective procedures to generators above 5 MW capacity namely Punjab, Rajasthan, Madhya Pradesh, Maharashtra, Karnataka among others.

Suggestion: It is suggested that proviso to Point 3 be replaced with as follows:

" .. the combined installed capacity of the Solar or Wind Generators connected to a particular Pooling Sub-Station, or that of an individual Generator connected to some other Sub-Station, shall not be less than 5 MW. "

Response/ Reply of HVPNL: The clause no. 3 of draft procedure is as per clause 4.1 of HERC Regulation. It is opined to stick with the regulation i.e. 1MW & above However, change in the regulation is in the purview of the Commission.

Commission's Observation: The Commission observes that ibid provision of procedure is inline with clause no. 4.1 of HERC, Principal Regulation i.e. Haryana Electricity Regulatory Commission (Forecasting, Scheduling and Deviation Settlement and related matters for Solar and Wind Generation) Regulations, 2019, therefore, the provision as per regulations in-vogue shall prevail.

5. **Clause No. 4:** Role & Responsibilities of Stand-alone Generators

Comments by Kreate Technologies LLP: Kindly clarify whether a stand-alone generator can appoint a separate agency as a QCA? The stand-alone generator may not have required IT tools and manpower required for performing forecasting task hence, it will be prudent for the generator to appoint a QCA for its PSS.

Response/Reply by HVPNL: Yes, as per clause 5.2 of the HERC Regulations,

Commission's Observation:

Commission observes that as per clause 5.2 of the HERC Principal Regulations, the Wind and Solar Energy Generators at each Pooling Sub-Station shall appoint a QCA: Provided that an individual Generator not connected to a Pooling Sub-Station may opt to be its own or to appoint a separate entity as its QCA.

6. **Clause No.4.vi:** Stand-alone Generator shall provide real time data for power generation parameters and real time generation data (turbine and inverter level) and weather data wherever available as per Annexure-II

Comments by Vibgyor Energy:

For Solar Projects Data shall be provided at Plant/PPA level

Response/Reply by HVPNL: No change required**,** as the real time telemetry availability from RE Plant to SLDC is of utmost importance in view of smooth operation by SLDC**.**

Commission's Observation:

Commission observed that real-time data requirement is essential as per the operational requirement of SLDC for smooth functioning/ handling of schedules/despatch mechanism as envisaged under the regulation/procedure.

7. **Clause No.4.ix:** "In case of non-availability of Real Time Data (at Turbine Level/inverter Level), Generator shall maintain and provide time block wise generation data at (turbine and inverter level) and weather data on Weekly basis:

• For wind plants, at the turbine level:

• For solar plants, for all inverters * > = 1 MW:"

Further in point 7 it is stipulated that QCA has to perform the Role and undertaking the Responsibilities of Stand-alone Generator (stipulated under Section 4 of this procedure) and supplying pooling station wise data as required by SLDC

Comments by Manikaran Analytics Ltd.:

Rationale & Suggestion: As data transfer is totally dependent upon the availability of SCADA at the Generator/Developers end. Hence, QCAs would only be able to provide parameters made available to them by the Generator/Developer end at the same time we would like to apprise you of the fact that where SCADA mechanism is not installed at Inverter in Haryana, Generator/Developer have to reconsider the execution for installation of SCADA and related mechanism which should remain the core responsibility of Generator/OEM. QCA can coordinate with Generator/OEM for necessary implementation.

Response/Reply by HVPNL: No Change Required

As per the roles and responsibilities of QCA, the same should be settled between Generator and QCA while signing the agreement.

Commission's Observation: Commission observes that Regulation (5.5) of Principal Regulations provides that *notwithstanding the appointment of a QCA, the onus of complying with the relevant provisions of these Regulations shall remain that of the concerned Generators, and the commercial and other arrangements between them and their QCA shall be governed by their inter-se agreements or terms of engagement.* As such, no change required.

8. **Clause No. 5.iii:** Provided that in case of poor performance/ defaults by the QCA, the pool generator can re appoint another QCA by giving prior notice of three (3) month to SLDC and the process of registration of new QCA shall be carried in accordance with the regulations and procedures.

Comments by Manikaran Analytics Ltd.:

Rationale: There is a need for an equivalent provision in order to safeguard the interest of the QCA who provide services on behalf of the generators. Generators who breach in their payment obligations towards the QCA should not go unpunished and hence should not be allowed to avail the services for other QCAs without obtaining the NOC from their initial/existing QCA. The suitable mandatory provision should be incorporated in the Draft Procedure that in the event where the Generator desire to change its QCA, before shifting to another QCA, ought to maintain financial discipline and settle all the amounts due towards QCA for which it has already taken benefit of. Otherwise, it would result in a situation wherein a generator piles up huge outstanding against the QCA for the services already availed for under the Regulation and Procedure, defaults in the payment of the dues while enjoying the services and thereafter, shifts to another QCA and continues its operations of generating electricity.

Suggestion: It is suggested that the following provision should be incorporated as the condition for change of the QCA by the generator to ensure that the generator does not default on its obligations, particularly on clearing the dues with the existing QCA before seeking change to another QCA:

"In the event where the generator desires to change its existing QCA then the generator shall obtain a NOC from their existing QCA declaring that all outstanding dues have been cleared and

there is no pending dues towards such QCA including Services charges and deviation charges till date. "

Response/Reply by HVPNL: it is opined that there is no requirement of obtaining NOC from the existing QCA before appointing another QCA. However, this can be taken care by the Generator and QCA while signing the agreement between each other.

Commission's Observation: Commission finds it appropriate that the respective concerns of QCA/Generator, if any, can be taken care by themselves (i.e. Generator & QCA) while signing the agreement/Inter-se agreement between each other.

9. Clause No. 5.v(b): QCA is "Responsible for coordination with STU/SLDC/ DISCOMs and other agencies for metering, data collection and its transmission and communication ".

Comments by Manikaran Analytics Ltd.:

Rationale: For better implementation of procedure it is mandatory that the role and responsibility of every stake holder in the sector should be clearly defined in order to avoid conflicts at later stage among the institutions involved and which might also result in grid efficiency being affected. However, the above-mentioned points lay emphasis on the QCA's obligation to coordinate with STU/SLDC/DISCOMs for metering, data collection, communication, however, the same is not imposed as an obligation on DISCOM/STU which might not fulfil the purpose of the above-mentioned provisions. The metering data should be provided by DISCOMS to QCA on timely basis because that data acts as a basis for billing, verification of DSM calculated by SLDC and de-pooling. It is also suggested that conflict with respect to metering provisions under CEA Metering Regulations and the current provision needs to be evaluated wherein control and access of metering system is under DISCOM/TRANSCO only.

Suggestion: Therefore, to avoid such problems it is suggested that the same should be imposed as an obligation or in form of mandatory directions on the DISCOM/STU to provide such data and coordinate in communication of the same data to QCA. Hence, it is suggested that the sub point v of point 5 should be amended as follows "QCA shall coordinate with DISCOM/STU and other agencies for data collection, communication to SLDC for purpose of energy accounting under the Regulations and procedure and further, DISCOM/STU shall make sure that such data is provided to the QCA on timely basis as per the provisions requirements under this Procedure. "

Response/Reply by HVPNL: the suggestion has already been taken care under "Role & Responsibilities of SLDC" clause 8 (VI) of draft procedure.

Commission's Observation:

The Commission observes that suggestion of the firm has already been taken care in draft procedure under "Role & Responsibilities of SLDC" at clause 8 (VI).

10. **Clause No. 5.v(e), 5.vii, 7vii:** QCA shall "Undertake commercial settlement of any other charges on behalf of the pool generators of a pooling station, as may be mandated from time to time. " and **5 vii:** "The QCA and pool generators shall mutually decide commercial and other arrangements between them for forecasting, scheduling and deviation settlement as per their inter-se agreement or terms of engagement"

7 vii: QCA shall be responsible for all commercial settlements with the SLDC on behalf of pool generators. " Further in Annexure IV-B it is stated that QCA at the time of its registration has to give undertaking for "all operational and commercial responsibilities on behalf of the Constituents as per the prevalent HERC Regulations and are agreeing for the above terms and conditions for registering as QCA with SLDC, Siwah, Panipat. "

Comments by Manikaran Analytics Ltd.:

Rationale: There is a need for a provision in the Procedure in order to safeguard the interest of the QCA as well. Defaulting generators who breach in their payment obligations towards the QCA should not go unpunished. The suitable provision should be incorporated in the Procedure in the event of default in payments by the solar or wind generators to the QCA along with appropriate penalties.

Further, in case of non-cooperation from minority generators who enjoy services of QCA and meet their compliance without officially appointing QCA and not paying their dues. In such cases QCA should not be obliged to render services such as collecting their share of de-pooled DSM and suitable action should be taken by SLDC to make them cooperate with the QCA. In such case QCA shall only undertake scheduling and forecasting at the entire PSS level for the larger interest of majority complying generators but commercial settlement of non-cooperating generators should not be responsibility of the QCA as they don't have any means to enforce the same.

Further, QCA undertaking all operation and commercial responsibilities on behalf of the generators is an unjust and

biased provision which would create unnecessary hardships for the QCAs as their work is limited to forecasting, scheduling and deviation settlement on behalf of generators.

Suggestion: It is suggested that the following provision should be incorporated in the procedure:

"In case the wind or solar generator defaults in payment to QCA then QCA shall inform about the default by the generator to the SLDC and SLDC in that case should take a strict action against such defaulting generator" and

Further, there shall be a suitable provision in the Draft Procedure whereby Generator shall indemnify and keep QCA indemnified for any or all of the transactions undertaken by them on behalf of them which would be governed through the inter party arrangement between QCA and Generators. The reference for back to back indemnity from concerned generators can be drawn from the states of Gujarat and Maharashtra as provided in their forecasting and scheduling regulations.

Response/Reply by HVPNL: HERC may decide on merit. However, the issue falls between QCA and Generator and how they are binding each other through agreement. In case HVPN/SLDC become third party.

Commission's Observation: Commission feels it appropriate that financial/technical concerns of QCA/Generator, if any, would be well taken care by themselves while signing the agreement/Inter-se agreement between each other.

11. Clause No. 6. Qualifying Requirement for QCA: In case of appointment of any mutually agreed agency other than the Generator(s), the pool generators shall consider following guiding principles for appointment of QCA. Adherence to these guiding principles for appointment of QCA would be in the interest of pool generators and would facilitate smooth implementation of F&S framework in the State. Further, the QCA shall be appointed with the approval of at least 51 % of the generators at the pooling sub-station in terms of combined installed capacity.

Operational requirements-

i The QCA shall be a company incorporated in India under the Companies Act, 1956/2013.

ii **The QCA shall have fully functional forecasting and scheduling tools to obtain the desired output.**

iii The QCA shall have the experience in the field of Wind and/or Solar Power forecasting and scheduling for 50 MW projects (including cumulative pilot projects) and a

minimum period of one (1) year with appropriate accuracy levels in forecasting.

iv The QCA shall have an experience in working in different terrain & regions, as Wind/Solar generation depends on these factors and such experience facilitates better scheduling.

v The QCA shall have capability to handle multiple plant owners connected to a pooling station in order to be well positioned to de-pool deviation charges. The financial strength of the QCA shall be such that it shall be in a position to handle the risk of penalties due to deviation charges applicable to pool generator. Considering this, the net worth of the QCA shall be a least RS. 1.50 Crores in the previous financial year (Net worth = Share Capital + Reserve - Revaluation Reserve - Intangible Asset - Misc. Expenditure to the extent not written off - Carried Forward Losses - Liabilities), which shall reflect from its audited accounts duly certified by the Charted Accountant.

vi The QCA shall have a compatible system in place for seamless flow of information to and from SLDC in order to facilitate forecasting, scheduling and revision of schedule, intimation of outages/grid constraints etc. and it shall have capability to provide real time monitoring systems in place for seamless flow of information to and from SLDC.

vii QCA shall have an established team of Renewable Resource Analysts, modeling Statisticians/ Data Scientists, Energy modelers and 24*7 operation and monitoring team.

Viii QCA shall possess/provide the authorization/ consent letter and consent from all the pool generators connected to the pooling station or directly connected to the state network for being appointed as the QCA and from the concerned beneficiary (ies).

ix The corresponding supporting certificates/ documents justifying qualification should be submitted along with the application for registration.

Comments by UHBVN:

The Qualifying Requirements for QCA may be considered and amended as under:

5.1 The majority of Generators in terms of their installed capacity at Pooling Sub Station shall appoint one amongst themselves or any other entity as QCA.

5.2 The QCA should be a company incorporated in India under the Companies Act 1956/2013. Provided that an individual

Generator may opt to function as QCA for the purpose of these Regulations.

5.3 In case of appointment of entity other than Generator(s) at Pooling Sub-Station, the Generators shall consider following guiding principles for appointment of QCA. Adherence to these guiding principles for appointment of QCA would be in the interest of Generators and would facilitate smooth implementation of Forecasting and Scheduling framework in the State.

i. The QCA shall have the capabilities of modeling wind energy generation potential on seasonal time scales with impact surfaces, a tool to visualize the wind energy generation potential in "Climate Space".

ii. The QCA shall have the experience in the field of Wind/Solar Power forecasting and scheduling in different terrain and regions for minimum period of two (2) years including pilot project work with appropriate accuracy levels in forecasting. However, in case of the Wind Turbine Manufacturer or individual Wind/Solar generator is acting as QCA, the experience clause is not applicable

iii. The financial strength of the QCA must be such that it should be in a position to handle the risk of penalties due to deviation charges applicable to generator. Considering this, the Average Net Worth of the QCA for forecasting & scheduling services must be in positive amounting to at least Rs. 1.5 Crores (Net worth = Share Capital + Reserve – Revaluation Reserve – Intangible Asset – Misc. Expenditure to the extent not written off – Carried Forward Losses –Liabilities) in the current financial year which should reflect from its audited balance sheet or CA"s certificate.

iv. QCA should have established team of:
   a. Renewable resource analyst,
   b. Modeling statisticians,
   c. Energy model,
   d. Software developers
   e. 24 x 7 operation and monitoring team,

5.4 The corresponding supporting certificates/documents justifying qualification should be submitted along with the application for registration.

5.5 It is envisaged that Generators acting as QCA themselves, shall also strive to build requisite skill sets, capacity and

technical competence adhering to qualification requirements over the period of two years.

5.6 The QCA shall possess/provide authorization as per Annexure -. from majority of the Generators connected in the Pooling Sub-station in terms of their combined installed capacity for appointment as QCA. (Not applicable if Generator is connected through dedicated inter-connection facility with the Grid) at the time of Registration.

QCA shall be regulated by the Regulations issued by CERC/HERC from time to time.

Response/Reply by HVPNL: No need of any change (no need of any weightage for installed capacity)

Commission's Observation:

Commission observes that these are the standard qualifying requirements which have been also adopted by other state utilities for implementation of similar procedure, collectively rendering the purpose of regulations. As such, no change requires.

12. Clause No.6.ii: The QCA shall have fully functional forecasting and scheduling tools to obtain the desired output.

Comments by Kreate Technologies LLP:

It is requested to kindly include minimum CMMI Level 3 certified companies to act as a QCA. This will ensure only companies which have robust IT process and skills are allowed to become QCA.

Response/Reply by HVPNL: No change is required at this stage. However , with the experience at later stage, if required, amendment in the procedure can be undertaken.

Commission's Observation:

Commission finds it appropriate that existing requirement from QCA shall suffice the purpose at initial stage. However, if necessary the Commission may at any time vary, alter, modify or amend any provision of these regulations/procedure, if deemed necessary.

13. Clause No.6 iii: The QCA shall have the experience in the field of Wind and/or Solar Power forecasting and scheduling for 50 MW projects (including cumulative pilot projects) and a minimum period of one (1) year with appropriate accuracy levels in forecasting.

Comments by Manikaran Analytics Ltd.:

Rationale: In order to efficiently run the secure operations of Grid it is required that the stakeholders in the same sector shall be

competent enough to avoid mistakes and errors and for the same reason it is mandatory that the criteria of appointment and selection of QCA shall be flawless to effectively implement the Renewable Energy Forecasting and Scheduling Regulation in the State, accordingly, the appointment of QCA should be done only after considering their required experience in the sector along with the quantum they have dealt with.

Suggestion: Therefore, in order to strengthen above mentioned point and in order to attain above-mentioned goal it is suggested that following amendments should be made in point ii of point 6 as follow "The QCA shall have the experience in the field of Wind and/or Solar Power forecasting and scheduling for 2000 MW projects (including cumulative pilot projects) and a minimum period of Two (2) years with appropriate accuracy levels in forecasting".

No change is required at this stage. However , with the experience at later stage, if required, amendment in the procedure can be undertaken.

Response/Reply by HVPNL: it is opined that 50MW experience shall suffices the purpose for ensuring the sufficient competition amongst the QCA.

Commission's Observation:

Commission finds it appropriate that existing clause i.e. QCA shall have the experience in the field of Wind and/or Solar Power forecasting and scheduling for 50 MW projects (including cumulative pilot projects) and a minimum period of one (1) year with appropriate accuracy levels in forecasting may suffice the purpose of sufficient competition amongst the QCA.

14. Clause No.7 Role & Responsibilities of QCA:

Beside performing the Role and undertaking the Responsibilities of Stand-alone Generator (stipulated under Section 4 of this procedure) and supplying pooling station wise data as required by SLDC, QCA shall also perform the following roles & undertake the following responsibilities on behalf of pool generators: -

i) The QCA shall be a state entity and shall be the single point of contact between the SLDC and the pool generators to whom it is representing.

ii) Besides establishing a round the clock control center, QCA shall also establish protocol for communication with pool generators to implement the instructions of System Operators and SLDC.

iii) Besides providing WTG's / Inverter's static data as per the proforma Annexure-lA & IB, QCA shall also provide pool/ pooling stations details as per the proforma at Annexure-lC.

iv) QCA shall provide real time data for pooling station wise power generation parameters and weather data wherever available as per Annexure-II.

v) QCA shall provide pooling station wise Available Capacity, Day ahead & Week ahead forecast and Schedule as per Annexure –III on behalf of pool generators, E-mail to SLDC (till web-based application is made operational).

Provided that if the QCA is representing on behalf of the multiple pooling stations, the Scheduling, Energy accounting and Deviation settlement for each pooling station of wind and/or solar power generation shall be undertaken separately.

vi) QCA shall perform commercial settlement beyond the connection point (De-Pooling arrangement among each pool generator) and technical coordination amongst the pool generators and up to the connection point as the case may be. DSM charges shall be de-pooled by the QCA amongst constituent pool generators on the basis of actual generation as provided in Part-C of the Regulations.

vii) QCA shall be responsible for all commercial settlements with the SLDC on behalf of pool generators.

viii) QCA shall maintain records and accounts of the time block-wise Schedules, the actual generation injected and the deviations, for the Pooling Station and the individual pool generators separately.

Comments by UHBVN

The role and responsibilities of QCA need to be elaborated and may be defined as below:

ROLES AND RESPONSIBILITIES OF THE QCA:

In accordance with these Procedures and Regulations, the QCA shall be the State Entity.

7.1 The QCA shall be the single point of contact between the Haryana SLDC and the Generators to whom it is representing in the Pooling Sub-station.

7.2 The QCA shall establish a control center round the clock and shall have complete control over Wind/Solar injection feeders connected to pooling sub-stations. The control center shall have facilities of voice communication with Haryana SLDC and Wind/Solar Generators, with voice recording facilities, fax machine and internet connection available for

all the 24 hours of the day. The QCA shall comply with the instructions of the System Operator in normal condition as well as during emergencies, appropriate decisions taken by the System Operators in view of Grid security and safety.

7.3 The QCA shall have established alternate voice and data communication with Haryana SLDC.

7.4 The QCA shall establish protocol for communication with individual generators to implement the instructions of System Operators and Haryana SLDC.

7.5 In case of any curtailment planned and communicated by the Haryana SLDC due to line maintenance or other reasons in certain time blocks of a day, the QCA shall be responsible for curtailing the generation at site and amending the Schedule accordingly, failing which the Haryana SLDC shall revise the Schedule as required.

7.6 Declaration of Available Capacity of the Generating Station to Haryana SLDC to which it is representing.

7.7 Provide aggregated Day ahead & Week ahead forecast (based on their own forecast or on the forecast done by Haryana SLDC) and Schedule as per Annexure - … through a web-based application maintained by Haryana SLDC.

Provided that if the QCA is representing on behalf of the multiple Pooling Sub-stations, the Scheduling, Energy accounting and Deviation monitoring for each pooling sub-station of wind and/or solar power generation shall be undertaken separately.

Notwithstanding above, the day ahead forecasting be supplied to SLDC on a fixed time mutually decided by QCA and SLDC.

7.8 QCA in coordination with Generator shall provide real time availability (at turbine/inverter level) and generation data (at Pooling Sub-station level) as per Annexure – …

7.9 In case of non-availability of Real time data (at Turbine Level/inverter level), QCA in coordination with Generators shall maintain and provide time block wise generation data at (turbine and inverter level) and weather data on Weekly basis:

i. For wind plants, at the turbine level:

Average wind speed, Average power generation at 15-min time block level

ii. For solar plants, for all inverters* >= 1 MW:

Average Solar Irradiation, Average power generation at 15-min time block level.

* if a solar plant uses only smaller string inverters, then data may be provided at the plant level.

7.10 Be Responsible for metering and data collection, transmission and co-ordination with RLDC, Haryana SLDC, STU, CTU, DISCOM and other agencies as per IEGC and CERC/HERC Regulations.

7.11 Undertake commercial settlement of all deviation-settlement charges as per applicable Forecasting, Scheduling and Deviation Settlement of Solar and Wind Generation Regulations, 2019.

7.12 Maintain records and accounts of the time block-wise Schedules, the actual generation injected and the deviations, for the Pooling Sub-station and the individual Generators separately.

7.13 Prepare deviation accounts on weekly basis as per Regulation 15 of the Forecasting, Scheduling and Deviation Settlement of Solar and Wind Generation Regulations, 2019.

7.14 QCA shall execute an agreement with Haryana SLDC wherein it is mentioned that QCA shall undertake all operational and commercial responsibilities on behalf of the Constituents as per the prevalent HERC Regulations.

7.15 QCA shall use Automatic Meter Reading (AMR) technologies for transfer, analysis and processing of interface ABT meter data to HARYANA SLDC in line with Metering/ AMR protocol and AMR/Metering Standards to be finalised by STU in accordance with provisions of Metering code and CEA Metering Regulations, as amended from time to time.

7.16 Perform commercial settlement beyond the connection point (De-pooling arrangement among each generator in the Pooling Sub-station) and technical coordination amongst the generators within the Pooling Sub-station and up to the connection point as the case may be.

7.17 Shall furnish Technical data of individual generators of Wind/Solar as per Format-….

7.18 Shall furnish the PPA rates as per Format – ….

7.19 The QCA, within seven (07) days, shall inform the details to Haryana SLDC in case there is any change in:

i. The Generating Station (in case of individually connected generator),
ii. Pooling Sub-station
iii. Individual generators in the Pooling Sub-station

iv. Reduction in authorization from generators in a Pooling Sub-station below majority of generators in terms of the total installed Capacity of the Pooling Sub-station.

Keep Haryana SLDC indemnified at all times and shall undertake to indemnify, defend and save the Haryana SLDC harmless from any and all damages, losses including commercial losses due to forecasting error, claims and actions including those relating to injury to or death of any person or damage to property, demands, suits, recoveries, costs and expenses, court costs, attorney fees, and all other obligations by or to third parties, arising out of or resulting from the transactions undertaken by the Generators. The QCA shall submit the indemnity bond (Format – …) on Non-Judicial Stamp Paper of value notified from time to time by the State Government at the time of registration.

Response/Reply by HVPNL: already mentioned in Clause7.

Commission's Observation:

The Commission Observes that the role and responsibility as proposed in the draft procedure seems adequate and also addressed the concerned raised by DISCOMs. It has been further observed that the same role and responsibility of QCA has also been proposed and approved by PSERC for implementation of similar procedure in Punjab. As such, no change required.

15. Clause No. 7.ii, 10:

7.ii QCA shall also establish protocol for communication with pool generators to implement the instructions of System Operators and SLDC.

10: Real Time Data from the turbine/inverter level to the Interface Point (Generator/ Pooling Station) and from Interface Point to SLDC shall be provided by Stand-alone Generators/ QCA (including necessary interfacing arrangements for data integration at SLDC end). The Real Time data shall be transmitted upto SLDC through IEC: 60870-5-101/ IEC 60870-5-104 protocol by providing a redundant (main & backup) communication link using any mode of communication compatible with existing Communication system of STU/SLDC (For e.g. Optical Fibre/PLCC/MPLS/RF/ VSAT/ or any other latest technology available, which shall be provided and maintained by the Stand-alone Generators/ QCA. Further, main and backup communication links shall preferably be either through different communication modes or from different service providers (if same communication mode is used).

Comments by Manikaran Analytics Ltd.:

Rationale: Once again we would like to apprise that data is in control of Generator/Developer at the site. Such communication mode and protocol at the site of the Generator/Developer should not be linked with Renewable Energy Forecasting and Scheduling Agency (QCAs). QCAs are not involved in asset management and the development of the site on behalf of the Generator/Developers, and ensuring such communication mode and protocol at the site of the Generator would not be feasible for the QCAs. Therefore, the onus to provide the data through such protocol should be the obligation of generators only.

Suggestion: Therefore, it is requested that kindly strike down the word QCA from sub point ii Point 7 and from point 10 of the Draft Procedure.

Response/Reply by HVPNL: As per the clause 5.7 of HERC Regulation, QCA will be the single point of contact with SLDC on behalf of the Pool generators. Also, as per the clause no. 5(V) of the draft Procedure, QCA will be the single point of contact with SLDC on behalf of the Pool generators for metering data collections and its transmission and communications.

Commission's Observation:

Commission agrees with response of HVPNL and observes that as per the clause 5.7 of HERC principal Regulation, QCA will be the single point of contact with SLDC on behalf of the Pool generators for metering, data collections & its transmission & communications respectively. As such no change required.

16. **Clause No.7.vi**: QCA shall perform commercial settlement beyond the connection point (De-Pooling arrangement among each pool generator) and technical coordination amongst the pool generators and up to the connection point as the case may be. DSM charges shall be de-pooled by the QCA amongst constituent pool generators on the basis of actual generation as provided in Part-C of the Regulations.

Comments by Vibgyor Energy: DSM settlement shall be done as per the agreement/ understanding of QCA and Owner of Plants.

Response/Reply by HVPNL: already taken care under clause 16 of HERC Regulations.

Commission's Observation:

The Commission observes that Regulation (16) of principal Regulations provides that the QCA shall de-pool the energy deviations and the Deviation Charges against each Generator in proportion to its actual generation or in proportion to Available Capacity, as may be mutually agreed between QCA and the

Generators. As such provision of principal regulations shall prevail.

17. Clause No. 9: Registration and De-Registration Procedure for Stand-alone generator/ QCA:

9.1 Registration as a Stand-alone generator/ QCA:-

The procedure for registering a Stand-alone generator/ QCA is as follows:

i) The prospective Stand-alone generator/ QCA shall submit application accompanied with prescribed fee as per the Performa (Annexure-VI) for registration. After operationalization of the SLDC's web-based software, the application should be submitted online through web-based Software and copy of printed application shall be supplied to SLDC along with required documents.

ii) The QCA shall submit separate application for each Pooling Station. For each Pooling Station only one application shall be accepted from the QCA.

iii) The Application for Registration shall be accompanied by a non-refundable processing fee of Rs. 10,000/- (Ten Thousand Rupees Only) for Stand-alone generators/ Rs. 20,000/- (Twenty Thousand Rupees Only) for QCA (for each pooling station) payable through RTGS/ NEFT.

In case of deposit/ receipt of less amount than the prescribed fee, the application shall not be processed until full payment is received in the account. Bank Charges, if any, shall be borne by the Stand-alone generator/QCA.

The present account details of Accounts Officer/ SLDC are as under:

Name of beneficiary :
Bank Name :
A/c No. :
IFSC Code :

Any change in these account details or procedures will be conveyed to the concerned through uploading on HVPNL website.

iv) Each application for registration shall be accompanied with the following documents:-

a. WTG's/Inverter's static data and pooling Stations details as per Annexure-IA, IB & IC. Further, if there is any change in the information furnished, then the updated information shall be furnished to the SLDC within 7 working days.

b. Undertaking on Non-Judicial Stamp paper of value notified by the State Government from time to time (attested by Notary) in regard to compliance for HERC Regulations and its procedure as per Annexure-IV B.

c. Certified PPA rates (in case of inter-state transaction) on notarized affidavit as per Annexure-IVA, for the purpose of Deviation charge account preparation to SLDC supported by copy of the PPA.

d. Copy of Board Resolutions for Authorized Signatory/ Power of Attorney/ Authorization Letter, duly certified/ attested by Company Secretary/ C.A. in respect of the signing authority of QCA and Generator(s).

In case of QCA, following documents are also required in addition to the aforementioned documents:-

e. Consent letters from all the pool generators connected to the respective pooling station and beneficiary (ies). A performa consent letter attached as Annexure-V.

f. CA audited balance sheets/Financial Statements/Audit reports of the previous year showing net worth of QCA.

g. Experience certificates in respect of Sr.no. 6 (iii) & (iv) above.

Note: All the photocopies supplied along with the application shall be self-attested by authorized signatory.

v) All applications for registration complete in all respects, shall be submitted in the following office: -
Chief Engineer/SO & Comml., HVPNL
Shakti Bhawan, Sector-6
Panchkula-134109
(E-mail:"cesocomml@hvpn.org.in")

vi) The time period for registration of Stand-alone generator/ QCA shall be (15) working days from the date of receipt of all the documents & information complete in all respect by SLDC.

vii) Within one week from the date of registration, Bank Guarantee of Rs. 20,000/- (Twenty Thousand Rupees only) per MW for Solar Generation and Rs. 50,000/- (Fifty Thousand Rupees only) per MW for Wind Generation towards payment security shall be submitted by the Stand-alone generator/ QCA .The same shall be initially valid for 2 years and revalidated/ recouped as per requirement from time to time.

If the Stand-alone generator/ QCA fails to pay deviation charges within Sixty (60) days from the issue of the accounts and billing, the Bank Guarantee shall be encashed by SLDC. In case of expired Bank Guarantee, Stand-alone generator/ QCA shall revive Bank Guarantee within seven (7) days from receipt of such information from SLDC. Failure to revive Bank Guarantee within prescribed time limit, the Wind/Solar generation shall not be scheduled.

viii) Once the application supplied by Stand-alone generator/ QCA along with the requisite documents is found in order and Bank Guarantee is received, the same may be accepted by the SLDC, and the generator/ QCA may be allowed to schedule power for its constituent generators/pooling stations for which the necessary Registration ID (login ID and password for IT enabled communication & software) shall be provided by SLDC for accessing the further activities such as uploading of day ahead/ Intra-day ahead / week ahead scheduling/revisions.

ix) Incomplete application shall be liable for rejection. The reason for rejection shall be communicated to the applicant.

De-Registration as a Stand-alone Generator/ QCA:

Case - 1: Own De-registration of QCA:

i) The QCA may request SLDC for de-registration as QCA, however, in such case, it shall be the responsibility of the QCA to settle all the commercial obligations of SLDC. QCA shall also settle all the commercial obligations of Pool Generators whom it is representing.

ii) The QCA shall serve three (3) months prior notice to all the pool generators whom it is representing for de-registration with a copy to SLDC.

iii) The pool generator(s) shall be responsible for appointing a new QCA and ensure registration of new QCA at SLDC within this notice period, failing which generation shall not be scheduled. Provided that a pool generator shall have the option to act as Stand-alone generator subject to fulfillment of conditions laid down in this procedure.

Case - 2: De-registration of QCA due to non-authorization of Pool Generator:

iv) Three (3) months prior notice to be served by the pool generator to the QCA for non-authorization with copy to SLDC, subject to Clause No. 5 (i).

v) The pool generator(s) shall be responsible for appointing new QCA and ensure registration of new QCA at SLDC within this notice period, failing which generation shall not be scheduled. Provided that a pool generator shall have the option to act as Stand-alone generator subject to fulfilment of conditions laid down in this procedure.

vi) Before de-registration, the pool generator(s) shall ensure that all the commercial settlements pertaining to it has been completed by the QCA with SLDC.

Case - 3: De-registration of Stand-alone generator/ QCA under default condition:

vii) The SLDC shall initiate the process of de-registration, if the condition(s) as per Clause No. 4 are violated by the Stand-alone generator or condition(s) as per Clause No. 7 are violated by the QCA.

viii) The SLDC shall initiate the process of de-registration, in case of default conditions mentioned at Clause No. 16(i).

ix) In such case, the process of de-registration shall be initiated as per Clause No. 16 (ii).

x) The pool generator(s) at a polling station shall be responsible for appointing new QCA and ensure registration of new QCA at SLDC within this notice period, post which generation shall not be scheduled.

Comments by UHBVN

The term stand-alone generator be deleted from the procedure and clause be amended suitably.

Response/Reply by HVPNL: No need of any change.

Commission's Observation

The Commission observes that as the term stand-alone generator stands in the procedure shall prevail, therefore no change is required.

18. **Clause No. 9 (9.1) (vii)**: Within one week from the date of registration, Bank Guarantee of Rs.20, 000/- (Twenty Thousand Rupees only) per MW for Solar Generation and Rs. 50,000/- (Fifty Thousand Rupees only) per MW for Wind Generation towards payment security shall be submitted by the Stand-alone generator/ QCA. The same shall be initially valid for 2 years and revalidated/recouped as per requirement from time to time. If the Stand-alone generator/ QCA fails to pay deviation charges within Sixty (60) days from the issue of the accounts and billing, the Bank Guarantee shall be encashed by SLDC.

Comments by Manikaran Analytics Ltd.:

Rationale/Suggestion: It is suggested that multiple BGs should be acceptable by SLDC from QCA on behalf of Generators in a PSS because it will be helpful to SLDC as in case of any default by a single generator the whole BG need not be invoked and only a part of it will be invoked. Hence it is suggested that the above-mentioned clause should be amended to incorporate the provision for multiple BGs also for a particular PSS.

Response/Reply by HVPNL: QCA is single point agency for SLDC thus it is opined, the clause should be unaltered.

Commission's Observation

Commission Observes that as per the Regulations in-vogue and Procedure made thereunder, QCA is the single point agency for the intend purposes with SLDC and other stakeholders**.** However, if necessary the Commission may at any time vary , alter , modify or amend any provision of these procedure, if deem necessary.

19. **Clause No. 9.2:** De-Registration as a Stand-alone Generator/QCA

Comments by Kreate Technologies LLP: It is to be submitted that the SLDC will return the BG amount of the previously registered QCA within 15 days of commercial settlement of all dues to SLDC.

Response/Reply by HVPNL: After successful registration of the new QCA, the BG of the old QCA will be released within 30 days and accordingly same has been incorporated in the amended draft Procedure**.**

Commission's Observation

Commission considered the comments of SLDC that after successful registration of the new QCA, the BG of the old QCA will be released within 30 days and accordingly same has been incorporated in the Draft Procedure**.**

20. **Clause No. 9.vii**: If the Stand-alone generator/QCA fails to pay deviation charges within Sixty (60) days from the issue of the accounts and billing, the Bank Guarantee shall be encashed by SLDC.

Comments by Vibgyor Energy: The bank guarantee prorated to the penalty amount should only be encashed

Response/Reply by HVPNL: No alteration is required

Commission's Observation:

As, the QCA is single point source of informations between SLDC and Generators, as such any Cause of action/penalty to the affect shall be complied by QCA as part of its responsibility, as such no change required.

21. Clause No. 12 (ii):

12. Forecasting & Scheduling Procedures:

ii) Forecasting shall be done by every wind and solar generator connected to the Grid, either by itself or by a Qualified Coordinating Agency (QCA) on their behalf. Forecasting of wind and solar power that is expected to be injected into the state grid shall also be done by SLDC with the objective of ensuring secured Grid operation by planning for requisite balancing resources by engaging forecasting agency (ies), if required. The wind or solar generator or QCA will have the option of accepting the SLDC's forecast for preparing its schedule or provide the SLDC with a schedule based on its own forecast. In such case of QCA/ Stand-alone generators adopting forecast provided by SLDC, charges amounting to Rs. 3,000/- per Pooling Station/ Stand-alone generator per day, shall be paid by the QCA/ Stand- alone generator to SLDC. The QCA shall coordinate the aggregation of schedules of all its generators connected to a pooling station and communicate the same to the SLDC.

Comments by UHBVN:

The point of forecasting should be defined clearly i.e. the forecasting shall be done at the Pooling substation in case the Generators are connected at Pooling substation and at interconnection point in case of Individual Generator.

The fee payable by generator opting for forecasting carried out by SLDC needs to be reviewed. The fee can be fixed based on the capacity of plant.

Comments by HPGCL: As brought out in 12 (ii), in case generator adopts forecasting provided by SLDC, charges amounting to Rs 3000/day is on very higher side. Same needs to be reduced. In case the services of SLDC for forecasting are availed by the generator, the deviation charges/penalty should not be imposed on the generator for any variation in the real time vis-a-vis forecasting done by the SLDC.

Response/Reply by HVPNL: No need of any change.

Commission's Observation:

Commission observes that the point of forecasting proposed in

the draft procedure has been defined and the definition seems to be adequate and need not to be defined separately.

The Commission further observes that the similar fees/charges has also proposed and approved by PSERC for implementation of the procedure in Punjab. Therefore, fee/charges as proposed in the draft procedure is considered and allowed. As such, no change requires.

22. Clause No. 12. xiv: In the event of contingencies, transmission constraints, congestion in network, threat to system security, the transaction of RE generators already scheduled by SLDC may be curtailed as per the provisions of State Grid Code for ensuring secure and reliable system operation.

Comments by Vibgyor Energy:

Any Deviation arising out of contingencies, transmission constraints, congestion in network, threat to system security shall be excluded from the Generator's deviation calculation.

Response/Reply by HVPNL: HERC is requested to decide the matter on merit basis.

Commission's Observation: Commission observes that Regulation (14.1) of principal Regulations provides that any curtailment imposed on the energy injection for reliable and secure Grid operation in emergent situations shall be communicated by the SLDC to the QCA through an IT-enabled communication, and **no Deviation Charges shall be payable for any consequent deviations** if the SLDC fails to do so. As such, no change is required.

23. Clause No. 12. xvi: To discourage frivolous revisions, SLDC may, at its sole discretion, refuse to accept requisition schedule/availability changes of less than two (2) percent of previous schedule/availability.

Comments by Vibgyor Energy:

The same should be reduced to one (1) percent.

Response/Reply by HVPNL: no alteration in the said clause is suggested

Commission's Observation: The Commission feels it appropriate and retain the existing clause in the amended draft i.e. to discourage frivolous revisions, SLDC may, at its sole discretion, refuse to accept requisition schedule/availability changes of less than two (2) percent of previous schedule/availability.

24. Clause No.12. xxiii: Any curtailment imposed on the energy injection for reliable and secure Grid operation in emergent situations shall be communicated by the SLDC to the QCA through an IT enabled communication, and no Deviation Charges shall be payable for any consequent deviations if the SLDC fails to do so. In case of any curtailment planned and communicated by the SLDC due to line maintenance or other reasons in certain time blocks of a day, the QCA shall be responsible for curtailing the generation at site and amending the Schedule accordingly, failing which the SLDC shall revise the Schedule as required.

Comments by Manikaran Analytics Ltd.:

Rationale: Curtailment takes away the must run status from RE Generators and in itself is a huge burden for generators as it restricts generators to generate electricity which results into huge revenue losses for them. It would not be wrong to say that entire curtailment period should be exempted from calculation of deviation charges.

Further, this is to apprise you of the fact that QCA doesn't have control on the Generation as its scope is limited to forecasting, scheduling and deviation settlement therefore, it would not be for a QCA to regulate Generation as per the instructions of SLDC and SLDC, should simultaneously intimate the information with respect to curtailment/grid shutdown to QCA as well as to the Generator / OEM Service Provider /Developer. So that QCA can revise the schedule accordingly and curtailment and regulation of Generation can be implemented by Generators' end or by Developers or the O&M service providers.

Furthermore, in order implement a procedure efficiently all the details should be crystal clear in order to avoid the future practical problems and disputes, therefore, the details of time block before which the SLDC is supposed to provide information regarding curtailment shall be specifically mentioned in the procedure so as to enable QCA to revise their schedule accordingly and in case where information could not be provided in a timely manner and as a result QCA are unable to revise their schedule in that case those affected time blocks should be exempted from calculation of deviation settlement charges.

Suggestion: Therefore, it is suggested that in order to provide the clarity on the above-mentioned issue the sub-point xxiii of point 12 of Draft Procedure should be rephrased as follows "Any curtailment imposed on the energy injection for reliable and secure Grid operation in emergent situations shall be communicated by the SLDC to the QCA and Generator / OEM

Service Provider / Developer through an IT enabled communication. In case of any curtailment planned and communicated before 6 time blocks by the SLDC due to line maintenance or other reasons in certain time blocks of a day, SLDC shall be responsible to intimate the QCA as well as the Generators/ Developers (as per each site location) in order to regulate the Generation at the site as per SLDC's advice and, QCA shall be responsible for amending the Schedule accordingly, failing which the SLDC shall revise the Schedule as required and in case of any emergency curtailment by the SLDC and further, the effected time blocks shall be exempted from forecasting and scheduling and no DSM charges shall be applicable. Furthermore, the revisions made in the schedules due to SLDC's intimation of the curtailment should not result in reduction of number of revisions available-to QCA in a single day. "

Response/Reply by HVPNL: in case SLDC imposes any curtailment due to sudden transmission constraints for Grid Stability, the capacities thus reduced or increased by the generator for the immediate time blocks shall be exempted from DSM till the 4th time block after communication with SLDC, the first time block being the one in which the communication to SLDC has been made (For Reference clause 18 (b) of DSM procedure for Forecasting Scheduling of solar & wind Rajasthan can be seen.

Further this can be considered that the revision made in the schedule due to SLDCs intimation of the curtailment should not result in reduction of number of revisions available to QCA in a single day**.**

Commission's Observation: Commission finds it appropriate that in case of emergent conditions for system stability, such situations shall be communicated by SLDC to the QCA through an IT enabled communication and in result the capacity thus reduced or increased by the generator for the immediate time blocks shall be exempted from DSM till the 4th time block after communication with SLDC, the first time block being the one in which the communication to SLDC has been made provided such revision shall not result in reduction of number of revisions available to QCA in a single day**.** The relevant clause is amended suitably in the amended draft procedure.

25. Clause No.13.ii: RE generators shall be responsible for installation, testing, Commissioning, maintenance, rectification & replacement of metering equipment and data downloading at

its cost. " While the point **17 of the Annexure IV-B** "Undertaking by QCA at the time Registration" of the Draft Procedure states that QCA will be responsible to ensure healthiness of metering equipment during the period of schedule/ injection of power and will inform SLDC about defect/change in metering equipment within 24 hrs of such defect coming to notice/change of metering equipment. In absence of timely receipt of such information from QCA, QCA will be responsible for any loss to SLDC/HVPNL on this account

Comments by Manikaran Analytics Ltd.:

Rationale: For effective implementation of any law it is imperative that the role and responsibility of every stake holder in the sector should be clearly defined in a fair and rational manner in order to avoid any conflicts and disputes in future and further, it is crucial that there should not be any contradictory provisions. Scope of work of QCA is limited to forecasting, scheduling & deviation settlements on behalf of the generators thus, metering doesn't come under the purview of QCA. While the Draft Procedure clearly states under **point 13** that RE Generators shall be responsible for installation, testing, Commissioning, maintenance, rectification & replacement of metering equipment and data downloading at their own cost, Annexure IV-B requires the undertaking for metering equipment from the QCAs which is not just contradictory to point 13 of the Draft Procedure but also arbitrary, biased and irrational provision against the interest of the QCA.

Suggestion: For the above-mentioned reason, it is humbly suggested to the Hon'ble Commission that QCAs should not be held responsible for any stipulation for metering. Therefore, the point 17 of the Annexure IV-B shall be deleted and instead a similar undertaking can be taken by SLDC from the generators.

Response/Reply by HVPNL: No Change is suggested.

Commission's Observation: Commission observes that QCA shall be the single point of contact between the Haryana SLDC and the Generators as such any cause of actions/responsibility to the affect shall of respective QCA, as such no change is required.

14.h. Methodology for Intra-State Transactions:

2. To determine the impact of RE deviation at State periphery, the part of DSM weekly bill issued by the NRPC shall be apportioned to the net deviation of RE generation on the basis of applicable composite per unit rate (inclusive of additional DSM or capping

DSM charge) for particular time block, as detailed hereunder via example:

- Net Deviation of RE generation at State Periphery: 5000 kWh
- Avg. Deviation rate at State periphery: Rs. 3.00/- per kWh
- Total Deviation Charges on account of RE deviation at State periphery (D4): Rs. 15,000/-
- Total Deviation Charges paid by RE generators as per Regulations (R1): Rs. 13,500/-
- Shortfall in deviation charges on acc RE generators (D4-R1): Rs. 1,500/-

Comments by HPGCL: As brought out in 14 h (2), it has been mentioned that the total deviation charges paid to the RE generator as per regulations (R 1) has been mentioned as Rs 13500/-. It needs to be checked whether same is 'paid to' or 'payable by' generator.

Response/Reply by HVPNL:

As per HERC (Forecasting, scheduling and deviation settlement for solar and wind Generation) Regulations, 2019 for intra state transactions RE generators is liable to pay Deviation charges in case of any deviation from the schedule. Accordingly, in clause 14 h (2), total deviation charges to be paid by the RE Generators have been mentioned Rs.13500/-. The amended clause 14 to be replaced with the existing clause is placed at Annexure-2

Commission's Observation: The above observation by HPGCL has been corrected by HVPN/SLDC and relevant clause is amended suitably in in the amended draft procedure.

26. Clause No. 14.iv.d, 14 iv (h)(2):

14.iv.d: The Deviation Charges payable/receivable for the State as a whole at State periphery (say D), as computed by NRPC in weekly Deviation Settlement Accounts of the State, shall be allocated by SLDC amongst the distribution licensee/OA consumers/ conventional generators/RE generators (pooling station) in proportion to their respective deviation after implementation of Intra-state ABT.

14 iv (h) (2): To determine the impact of RE deviation at State periphery, the part of DSM weekly bill issued by the NRPC shall be apportioned to the net deviation of RE generation on the basis of applicable composite per unit rate (inclusive of additional DSM or capping DSM charge) for particular time block

Comments by Kreate Technologies LLP:

It is requested to not levy state periphery DSM amount to RE generators as it will have adverse impact on the viability of the Solar/Wind project.

Comments by Manikaran Analytics Ltd.:

Rationale: The above-mentioned point of the draft procedure and regulation is diluting the exemption granted for the non-firm source of power i.e. Wind and Solar. Renewable Energy Forecasting and Scheduling Regulation is put into place keeping in mind the very nature of the generation of power from the non-firm source, and the exemption granted by CERC from the penalty for the deviation below 15% acknowledges the fact that variation from the scheduled and expected generation of power from a non-firm source of energy is inevitable. Payment of a penalty in case the deviation is within 10% of the schedule sent by the QCA for that respective time block is totally against the goal of Ministry of New and Renewable Energy and the vision of our Hon'ble Prime Minister of India for achieving the target of 175 GW of renewable energy by the year 2022. As per the CERC (Deviation Settlement Mechanism and related matters) (Second Amendment) Regulations, 2015, Regulation, exemption, as granted in case of deviation within the prescribed limit i.e. 15%<, is not just a relaxation to the Generators out of equity, but have been put into place after taking into consideration the very nature of the non-firm source of power and its unpredictability. Such is the well-established principle of law, taking away of such exemption would tantamount to violation of the CERC Regulation and the basic jurisprudence behind granting of such exemption. In case such 10% of exemption is implemented, QCAs and the Generators would be penalized even if their deviation is as low as 2% from the schedules so submitted. It is the accepted fact and principle that wind and solar are the non-firm source of power and their accurate and correct forecasting and scheduling is not even possible, and, attempts are made to reduce the deviation but 100% accuracy is not possible in RE generation. The QCAs having world-class technology and service and having deviation as close to even 1 % would be penalized instead of being rewarded in case the deviation is impacting at state periphery. Such arbitrary Point needs to be struck down. Renewable Energy Generator have been taken into at par with the Conventional Energy Generators, and even the Conventional Energy Generators has to pay only for single DSM Charges, however, for Renewable Energy Generator they would be penalized firstly for RE Forecasting and Scheduling and secondly for deviations which could include the errors by

conventional generators as well as deviation in demand which is resultant of Demand Forecasting error. Saving of penalty would be inevitable for the Renewable Energy Generators.

Secondly, In the Draft procedure, there is no transparent methodology prescribed for the computation of state periphery charges covered in DSM bills. Even in a case where the impact of RE deviation at state periphery is negligible, the RE generators will be forced to pay for the deviation charges aroused due to deviation by conventional Energy generators. There is no basis of measurement of the deviation in the energy injected and its impact at the State periphery.

Keeping in mind the practical difficulties faced by Re Generators in respect of **absence of clarity on computation of the State periphery charges covered in DSM bills** MERC in its order dated 12th August 2020 in Petition for "**28 Cases of Renewable Energy Generators for Non-compliance of Common Order dated 30 September 2019 in Case Nos. 172 of 2019,173 of 2019,176 to 181 of 2019,185 to 194 of 2019,200 to 224 of 2019 and MA No. 32 of 2019 and 33 of 2019 in respect of Regulation 19 of MERC (Forecasting. Scheduling and Deviation Settlement for Solar and Wind Generation) Regulations. 2018)**" constituted a DSM Working Group and till the outcome of the analysis of the working group, the Commission ordered that while issuing the RE DSM bill to QCAs, only the RE DSM Charges at PSS level shall be made applicable and the impact of State Periphery Charges shall not be considered till the further directions of the Commission in the matter.

The relevant paras of the said MERC order are as follows:

"**The DSM Working Group is directed to undertake detailed scrutiny of the computation of impact of the State Periphery Charges vis-a-vis the requirements laid down under the procedure and the Regulations. Maharashtra State Load Dispatch Centre is directed to extend necessary co-operation to DSM Working Group and provide all the required data for undertaking analysis. The DSM Working Group would complete the analysis of the sample RE DSM bills already issued by Maharashtra State Load Dispatch Centre within three months from the date of issuance of this Order and submit its report to the Commission.**"

From the date of issuance of this Order, Maharashtra State Load Dispatch Centre would compute the impact of State Periphery Charges as per existing procedure, however while issuing the RE DSM bill to QCAs, only the RE DSM Charges at PSS level as specified under Regulation 7.2 of MERC F&S Regulations [viz. Excluding reference to Regulation 12 as per footnote at Table-1 of Regulation 7.2 of MERC F &S Regulations] shall be made applicable and the impact of State Periphery Charges [on account of Regulation 12.1 (d)] shall not be considered till the further directions of the Commission in the matter.

Based on the outcome of the analysis of the DSM Working Group, the Commission shall decide the further course of action with respect to component of RE DSM State Periphery Charges already collected and to be collected in the future bills by MSLDC"

Thirdly, under HERC (Forecasting, Scheduling and Deviation Settlement and related matters for Solar and Wind Generation) Regulations, 2019, impact of Re deviation at state periphery is not provided for intra-state transactions while the Draft Procedure mentions impact of RE deviation at state periphery for both intra state and inter-state regulations which means HERC Draft procedure contradicts the provisions of its HERC Regulations. The scope of the Draft Procedure should not go beyond the Regulations as it is the parent law from which the Draft Procedure has emanated.

Suggestion: For the above-mentioned reasons and in the interest of Re Generators it is humbly requested that the deviation of the Renewable Energy Generators shall not be linked to the UI at state periphery level.

Therefore, sub point **(iv) (d)** and sub point **iv (h) (2) of point 14** should be strike down along with tables linking the deviation of Re generators with VI shall have to be strike down.

Further, considering the low capacity installation in the state of Haryana penalty for the deviation exemption of 10% should be replaced with 15% as granted under CERC Regulations.

Response/Reply by HVPNL: Procedure is in line with clause 7,8 & 12 of HERC regulations.

Commission's Observation: Commission observes that Regulations (12.b) of principal regulations provides that SLDC shall compute the impact of the deviation of the Solar Wind

Energy generation and its contributions to the deviation charge at the state periphery. The relevant clause in principal regulation to remain unmodified and intact. Accordingly, the same shall prevail.

27. Clause No. 14.(iv)(i)1:

14.Energy Accounting & Deviation Settlement :.....

(iv) i. Methodology for Inter- State Transactions:

Following criteria/ methodology shall be adopted by SLDC for preparation of DSM: -

1) Inter-State transactions at a Pooling Station shall be permitted only if the concerned Generator or group of generators is connected through a separate feeder.

Comments by IEX:

The Draft Procedures for Forecasting, Scheduling and Deviation Settlement of Solar & Wind provide a framework for treatment of inter-State transactions of Solar and Wind Generators, wherein all inter-State wheeling transactions at a pooling sub-station would be allowed only if connected through a separate feeder. Admittedly, this condition flows from the regulations issued in this regard by the Hon'ble Commission.

The requirement of connection to separate feeder has been mandated by few other states also to ease the operational and accounting requirements for SLDC i.e. **for ease of energy and deviation accounting.**

The Hon'ble Commission may kindly appreciate that the cost implications of a separate feeder could be huge for the RE generators which are typically small in size as compared to their conventional counterparts. The DSM regulations clearly mandate the requirement of SEM meters for energy accounting purpose. Since the perceived accounting and scheduling requirements of inter-state transactions can be managed by metering through an additional SEM with AMR facility for the designated capacity to be used for inter-state transactions, it is humbly requested that the Hon'ble Commission may do away with this condition and may prescribe an appropriate procedure for accounting of such transactions.

Notably, RE rich states such as Gujarat, AP, Karnataka (besides others also) do not mandate such requirement of separate feeder for inter-state transactions. Simplifying the provisions to ensure strong accounting framework for payment as well as deviation charges, rather than necessitating the levy of huge cost by asking the RE generators to connect through a separate feeder will go a

long way to ease out the integration of intra-state RE generators with the national market.

It is therefore suggested that the underlined clause of the procedure/ regulations may be done away with or may only be implemented if some difficulty actually arises in the system of accounting as followed by the RE rich states mentioned above.

The suggested modification will assist the state in disposing the surplus RE capacity through the national market and will help in further promotion of RE in the state.

Response/Reply by HVPNL: The instant clause is as per HERC Regulations. However the suggestions may be considered by HERC on Merit

Commission's Observation: Commission observes that the said clause in Procedure is as per Regulation (8.2) of Haryana Electricity Regulatory Commission (Forecasting, Scheduling and Deviation Settlement and related matters for Solar and Wind Generation) Regulations, 2019. As such no change is required

28. Clause No. 14 (iv) (i) 6, 14(iv) (i) 7:

14.

....

(iv) i. Methodology for Inter- State Transactions:

Following criteria/ methodology shall be adopted by SLDC for preparation of DSM: -

.....

6) The fixed rate for deviation settlement in case of Inter-State transactions shall be based on PPA rates determined by the Commission under section 62 of the Act or adopted by the Commission under section 63. The fixed rate for Solar and Wind Energy Captive Power Plants and Open Access Generators selling power which is not counted against the RPO compliance of the Procurer shall be the APPC rate at the national level, as determined by the CERC for the respective year from time to time.

7) For the balancing of the deemed RPO compliance of Procurers with respect to Schedule, the aggregate deviations by Solar and Wind Energy Generators selling power outside the State shall first be netted for the entire Pool on a monthly basis, and any remaining shortfall in generation shall be balanced through purchase of equivalent Solar and non- Solar Renewable Energy Certificates (RECs), as the case may be, by the SLDC by utilizing funds from the Pool account. In case of

a positive balance of Solar or Wind Energy Generation, equivalent notional RECs shall be credited to the State Deviation Pool Account and carried forward for settlement in future.

Comments by IEX:

Consideration of 'Fixed rate' for DSM charges

1. The Draft Procedures for Forecasting, Scheduling and Deviation Settlement of Solar & Wind specify that the 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 Hon'ble CERC.
2. Therefore, the 'fixed rate' required for applying DSM charges for the transactions under open access which are meant to ensure RPO compliance of procurers is not provided in the existing procedures.
3. Thus, it is suggested that APPC should also be considered as the 'fixed rate' in case of open access transactions, which are meant for RPO fulfilment of buyers. The Hon'ble HERC is requested to provide a clarification to that extent in the procedure.
4. The Hon'ble CERC has also made similar considerations, vide Order dated 17.08.2020 in Petition No. 287/MP/2018. This will provide a mechanism to such open access participants to settle their DSM payables/receivables.

Streamlining the deemed RPO fulfilment procedure

1. For inter-state sale, the payments are to be done to generators on scheduled energy. Under the CERC DSM regulations, NLDC does the entire accounting for deviation settlement for the regional entities which are paid on scheduled energy basis and the deemed RPO fulfilment of the buyer is ensured through REC purchase. As seen, similar process has been incorporated in the HERC DSM regulations (stated in the Annexure of regulations); wherein SLDC is supposed to ensure deemed RPO fulfilment of procurer in the case of inter-state transactions, with respect to the scheduled energy.
2.However, on perusal of the procedure for implementation of HERC RE forecasting & scheduling regulations, it is noticed that no procedure has been specified for SLDC to ensure deemed RPO fulfilment through procurement of RECs viz. mechanism, timelines for procurement of RECs etc.

3.To ensure that equivalent green power is injected in the system, the deemed RPO fulfilment procedure needs to be stated by the Hon'ble Commission. We request accordingly.

Response/Reply by HVPNL: No change suggested

Commission's Observation: Commission observes that RPO in Haryana is governed as per the Haryana Electricity Regulatory Commission Haryana Electricity Regulatory Commission (Terms and Conditions for determination of Tariff from Renewable Energy Sources, Renewable Purchase Obligation and Renewable Energy Certificate) Regulation in-vogue. As such, no additional modalities require to be introduce in the draft procedure.

29. Clause No. 14 h: Methodology for Intra-State Transactions:

Comments by Vibgyor Energy: For solar plants, for deviation upto 20%, penalty should be zero. For Monsoon season, the deviation for which penalty is zero should be increased to 50%.

Clause No. 14 (h) (2): To determine the impact of RE deviation at State periphery, the part of DSM weekly bill issued by the NRPC shall be apportioned to the net deviation of RE generation on the basis of applicable composite per unit rate.
Comments by Vibgyor Energy: The impact of RE deviation shall not be levied on Renewable Generators

Response/Reply by HVPNL: Procedure is in line with Clause 7,8 &12 of HERC regulations

Commission's Observation: Commission observes that the said clause in Procedure is as per the Haryana Electricity Regulatory Commission (Forecasting, Scheduling and Deviation Settlement and related matters for Solar and Wind Generation) Regulations, 2019 and the same to remain unmodified and intact.

30. Clause No. 15 (i): All the commercial transactions shall be through Electronic Clearance System (ECS) only.
Comments by Manikaran Analytics Ltd.:
Suggestion: It is suggested that provision for National Electronic Fund Transfer **(NEFT)** and Real-time gross settlement **(RTGS)** be also be incorporated along with Electronic Clearance System **(ECS)** for commercial transactions.

Response/Reply by HVPNL: No Changes are suggested

Commission's Observation: Commission is of the view that Electronic Clearance System suffice the purpose of commercial transactions.

Clause No. 15. vi.: All payments to the State Entities on account of charges for deviation shall be made within 2 working days of receipt of the payments in State Pool account

Comments by Kreate Technologies LLP:
It is submitted that payment of DSM charges to QCA to not be linked to receipt of payment in the pool account as in case of deficit balance in the pool due to default of other entities the legitimate due of the generator will get delayed.

Response/Reply by HVPNL: Procedure is in line with clause 7,8 & 12 of HERC Regulations.

Commission's Observation: Commission observes that the said clause in Procedure is in line with principal regulations i.e. Haryana Electricity Regulatory Commission (Forecasting, Scheduling and Deviation Settlement and related matters for Solar and Wind Generation) Regulations, 2019 and the same to remain unmodified and intact**.**

31. Clause No. 16, 16(2)(b):

16: "(i) **Following events shall constitute breach by QCA/Generators:**

a. Non-payment or delay in payment of Deviation Charges

h. *Non-payment of RE DSM charges to RE DSM Pool by Generator/QCA for consecutive three* (3) *weeks.*

Further, **16(2)(b)** stated that *"In case of default, the SLDC shall issue a notice of period not less than* 15 *days for revocation of registration of Stand-alone Generator/QCA, non-scheduling of generator/ Pooling Station and disconnection from the grid and adequate opportunity to Generator/QCA to present its case before SLDC. "*

Comments by Manikaran Analytics Ltd.:

Rationale: This is to apprise you of the fact that QCA is a coordinating agency to act on Generator's behalf and with SLDC. The onus of ensuring the payment of the Deviation Charges to the SLDC by the QCA shall ultimately remain that of the concerned Generator.

Further, it is to be noted that such events of Default have serious consequences on the QCA and might also lead to revocation of registration of the QCA as clearly mentioned in point 16 (ii) (b) of

the Draft Procedure. For the reasons mentioned above, failure to pay deviation charges by generators should not be considered as event of default of the QCA, therefore, the QCA shall not be held liable and considered as a defaulter for any delay in depositing such charges if the same default is clearly attributable to the Generator. If there is any delay in payment of deviation charges then SLDC at its discretion may procure the details of such defaulting generators and thereafter SLDC may take any appropriate action within its power against the concerned defaulting generator/s as QCAs do not have any means to enforce the same.

Suggestion: Therefore, it is suggested that the said **sub clause (i) (a)** should be amended as follow "Non-payment or delay in payment of Deviation Charges by Generators. " and **sub clause (i)(h)**. should be amended as follow "Non-payment of RE DSM charges to RE DSM Pool by Generator for consecutive three (3) weeks."

The terms "revocation of registration of QCA" mentioned under sub point (2) (b) of point 16 should be deleted.

Response/Reply by HVPNL: matter should be decided between QCA and the Generator in their mutual agreement.

Commission's Observation: Commission is of the opinion that any foreseen/unforeseen concerns of Generator & QCA should be taken care while entering into mutual/inter-se agreements.

32. Clause No. 19. Redressal Mechanism:

Any dispute in scheduling, metering, billing/ energy accounting & Commercial Settlement shall be first referred to the Co-ordination Committee. All users shall abide by the decision of Committee. The Committee shall investigate and endeavour to resolve the grievance within 30 days after affording opportunity of hearing to all the affected parties. If the Committee is unable to redress the grievance, it shall be referred to the Commission by the Committee. In case the generator/ QCA is dissatisfied with the decision of the committee, it may approach the Commission through a petition. Pending the decision of the commission, the directions of the SLDC shall be complied with by the Generator QCA.

Comments by UHBVN: There is no provision for formation of Coordination Committee in HERC Forecasting, Scheduling and

Deviation Settlement for Solar and Wind Generation) Regulations, 2019. However, in case it is required, Coordination Committee needs to be defined in the procedure. It is proposed that the Grid Coordination Committee be defined as Redressal Committee for the purpose of this procedure.

Response/Reply by HVPNL: no need of any change.

Commission's Observation: The Commission observes that Coordination committee already exists as defined and set up under the provisions of HERC (Terms & Conditions for grant of connectivity and open access for intra-State transmission and distribution system) Regulations, 2012 as amended from time to time and shall act as Redressal committee for the purpose under this procedure.

33. **Clause No. 14.(iv)(N)**: However, in case sufficient balance amount is not available, payment to Wind/Solar generators on account of impact at State Periphery shall be paid when sufficient balance is made up in RE DSM pool account

Comments by Vibgyor Energy:
A clear timeline should be indicated about the payment of amount payable to Wind/Solar generators

Response/Reply by HVPNL: HERC may decide on merit basis.

Commission's Observation: Commission observed that Regulations (13.2) of principal Regulations provides that the Deviation Charges shall be paid within ten days from the issuance of invoice along with statement of account by the SLDC, failing which an interest of 0.4 percent per day for each day shall be levied for the period of delay. As such no separate timelines is required.

34. **Other General comments:**
Comments by UHBVN:

Role and responsibility of Generator may also be specified.

1. This procedure shall be applicable to all Wind and Solar Energy Generators in Haryana Connected to the Intra-State Transmission/Distribution System, including those connected through Pooling Sub-Stations and using the power generated for self-consumption of sale within or outside the State.
   Provided that the combined installed capacity of the Solar of Wind Generators connected to a particular Pooling Sub-

Station, or that of an individual Generator connected to some other Sub-Station, shall not be less than 1 MW.

Comments: - Whether both WIND and SOLAR Plants having total combined capacity of 1 MW and above can opt for a QCA (Qualified Co-ordinating Agency") or is it required to appoint separate QCA (Qualified Co-ordinating Agency") for Solar and Wind plants.

- No Wind or Solar energy generation shall be considered for despatch by the SLDC if it is not scheduled by the QCA on behalf of the Generators in accordance with the provisions of these Regulations.
- **Comments: - SLDC have to make sure that generator should not connect to the grid/pooling station before QCA (Qualified Co-ordinating Agency") appointment.**
- There is no mention of minimum plant capacity of RE Plant eligible for appointing QCA (Qualified Co-coordinating Agency").

Commission's Observation: Commission observes that above comments are general in nature, however finds that concerns of DISCOMs are adequately covered in the instant Regulation/Procedure.

Other Comments by HPGCL:

2. The setting up of a mechanism for accurate forecasting and scheduling of power involves substantial investment, which will have substantial impact on the capital cost. Therefore, the tariff of the existing renewable projects will have to be revised and the additional cost will have to be pass through on account of change in law. It is suggested that the expenditure for modification, if any, required may be done by SLDC and recover the same through ARR.

   Response/Reply by HVPNL: no need of any change.

   Commission's Observation: The Commission finds no merit in the above suggestion, as such no change is required.

3. The generation from renewable sources depends on nature. The foremost factor on which power generation from a PV solar plant depends is the solar radiation and generating company has almost no control in generation. It seems impractical for the forecast to be accurate and therefore it will

not be fair to penalize generator for any inaccurate forecasting. SLDC may be made responsible for such forecasting. The generator should be asked to give declaration of availability of plant on the basis of forecasting done by SLDC. The penalty for errors in forecasting should not passed on to the generator.

Response/Reply by HVPNL: Nature dependence is a well-known fact and in current scenario of increasing RE injections in to the grid, the onus for stable grid operation highly relies on precise forecasting by QCA or SLDC has already mentioned in procedure.

In reference of 12 (ii), it is submitted that generator will be it self liable for any commercial issue arising out of DSM, since the forecast option has been chosen by generator itself.

Commission's Observation: The Commission is of the view that relevant clause 5.15 of principal regulation to be referred and the same to remain unmodified at present.

5. As Solar Power Plant's generation is possible only when there is availability of supply in power, evacuation line. Since the outages of power evacuation lines (11/33/66 KV) are quite frequent in such scenario how the deviation will be settled. As in such case there will be no/less generation but the factor i.e. evacuation line is not in the purview/control of generator. The generator should also be compensated by the buyer for the financial loss on account of generation loss due to grid disturbances/outages.

   Response/Reply by HVPNL: the transmission system through which the generator is connected will be under N-1 condition as per CEA Manual on transmission planning. Accordingly, outage of one transmission element will not affect the evacuation of Generation.

   However, the said issue is already explained in clause 12(xiv) of draft procedure for forecasting scheduling and deviation settlement for solar and wind.

   Commission's Observation: Commissions observed that the clause14(2)of principal regulations provides that In case of any curtailment planned and communicated by the SLDC due to line maintenance or other reasons in certain time blocks of a day, the QCA shall be responsible for curtailing the generation at site and amending the Schedule accordingly, failing which the SLDC shall revise the Schedule as required.

6. ABT meter at generator end is in the scope of generator company is OK, but at substation same should be in the scope of transmission/ distribution Company.

Response/Reply by HVPNL: the Clouse 13 (ii) of procedure may be read as under:

ii. The Interface meters (ABT compliant Main & Check Meters) at Outgoing feeder at generator end shall be provided by the generators in coordination with field offices of concerned licensee (DISCOMs/ HVPNL). The ABT compliant Standby meters at grid sub- station end shall be provided by the generator.

RE generators shall be responsible for providing metering system along with associated AMR & communication system.

RE generators shall be responsible for installation, testing, commissioning, maintenance, rectification & replacement of metering equipment and data downloading at its cost. However, the testing of the metering equipment shall be got carried out from the NABL duly witnessed by the representative of DISCOMs & HVPNL.

Amended clause 13 to be replaced with existing clause is placed at Annexure-1

Commission's Observation: The observation by HPGCL has been corrected by HVPN/SLDC and relevant clause is amended suitably in in the amended draft procedure.

7. In Annexure-II, huge numbers of data/parameters have been asked to be supplied to SLDC. Many of these parameters may not available in most of the Solar plants for example; Diffused irradiance, Direct Irradiance, Sun set and sun rise time, Cloud cover, Rain fall etc. Therefore, it is requested that the documents and real time Parameters/data demanded to be supplied at SLDC level may please be reviewed.

Response/Reply by HVPNL: It has already been deliberated at TCC level (40th TCC and 43rd NRPC meeting and decided that same information is needed and shall be supplied by the respective generator.

Commission's Observation: The Commission observes that nature and type of data /parameters needed by SLDC are in conformity with NRPC as stated above by HVPNL as such any necessary data needed by SLDC should be provided by each stakeholder for smooth functioning of SLDC operations.

8. As brought out in 12 (ii), in case generator adopts forecasting provided by SLDC, charges amounting to Rs 3000/day is on very higher side. Same needs to be reduced. In case the services of SLDC for forecasting are availed by the generator, the deviation charges/penalty should not be imposed on the generator for any variation in the real time vis-a-vis forecasting done by the SLDC.

   Response/Reply by HVPNL: the fees is analogous to the license fee and should not be treated as commercial function of SLDC.

   SLDC is profit neutral entity, working solely for the safe secure and reliable grid operations.

   In reference of 12(ii) it is submitted that the generator will be itself liable for any commercial issue arising out of DSM, since the forecast option has been chosen by Generator itself.

   Commission's Observation: The Commission opines that these are standard charges levied and commensurate to the nature of activity and similar amount is being taken in other state utilities as well.

9. As brought out in 14 h (2), it has been mentioned that the total deviation charges paid to the RE generator as per regulations (R1) has been mentioned as Rs 13500/-. It needs to be checked whether same is 'paid to' or 'payable by' generator.

   Response/Reply by HVPNL: As per HERC (Forecasting, Scheduling and Deviation Settlement for Solar and Wind Generation) Regulations, 2019, for Intra State Transactions, RE Generator is liable to pay Deviation charges in case of any deviation from the Schedule. Accordingly, in clause 14 h(2), total Deviation charges to be paid by RE Generators have been mentioned Rs 13500/-

   Commission's Observation: The above observation by HPGCL has been corrected by HVPN/SLDC and relevant clause is amended suitably in the amended draft procedure.

10. The State Genco's should be exempted for submitting fee and BG.

    Response/Reply by HVPNL: SLDC is nondiscriminatory, fair, transparent and profit neutral entity, However, HERC may decide on merit case.

    Commission's Observation: The Commission observed that the existing terms and conditions of Regulations/procedure

in vogue have to be equally applicable and required to be complied by all generators.

11. As per Clause no 9 (iv)b, Word 'PSERC' has been referred. Same need to be checked and corrected.

    Response/Reply by HVPNL: shall be replace with HERC
    Commission's Observation: The clerical mistake as pointed out by HPGCL has been suitably corrected by HVPN in amended draft procedure.

12. The timeline for uploading of Monthly Energy Accounts by SLDC for previous month should be in the forenoon on 1st day of the month.
    Response/Reply by HVPNL: Day/ time line defined in the procedure is based on other state/central realistic timelines and stand very well deliberated by the SLDC managements. No change is required.
    Commission's Observation: Commissions agrees that Days/ time line defined in the procedure is based on other state/central realistic timelines as such no change is required.
13. It is suggested that this Procedure may be adopted initially for 01 Year on trial basis and after observing the outcome/impact same may be implemented.
    Response/Reply by HVPNL: concerns seems to be genuine and may be decided by the Hon'ble HERC accordingly.

    Commission's Observation: Commission observes that the regulation is already in place and applicable from the date of notification. There is no such requirement to implement the mechanism on trial basis, however the review of outcome and impact shall be an ongoing process from inception. As such implementation of regulation/procedure thereunder shall be applicable from the date of its notification/ date of approval.

    Comments by IEX:
    In addition to the above suggestions on the procedure, it is also requested that going forward the Hon'ble Commission may provide for RE settlement on schedule basis. It would be desirable and helpful for smooth RE integration that the settlement of RE power generated within the state should be based on schedule rather than on actual basis in line with the DSM regulations of the CERC. In the present scheme of

things, wherein the state regulations are allowing for settlement on actual energy basis, the true essence of RE DSM regulations will not be achieved and RE integration will get delayed. The above steps will strengthen the resolve of participants to help fulfil the objectives of RE market and will address the issues being faced by them.

Commission's Observation: The commission has taken note of the same and observes that the Principal regulation in vogue provides for settlement of wind/solar generation on actual energy basis rather than schedule. As such no modification in procedure is required.

Additional Clause/para: A new para in the amended draft procedure at clause no.14 i.e. 'Energy Accounting & Deviation Settlement' as clause no.14. (i) has been added to clarifying about the time line related to final SEA to be issued by SLDC as under:

"14(i) The day-wise energy scheduled as per Implemented schedules shall form a part of State Energy Account. Monthly provisional State Energy Account (SEA) will be issued by SLDC by 10th day of succeeding month, which will be uploaded on Haryana SLDC website for any comments/objections/corrections to be submitted within 7 days. The provisional SEA will be followed by Final SEA, to be issued by 25th day of succeeding month. SLDC will be authorized to revise the provisional as well as Final Energy Account."

In addition of above, some other minor corrections/amendments as deemed necessary also made in the amended draft procedure.

Commission Analysis and Orders:

The Commission considered the draft Procedure framed/submitted by HVPN/SLDC/STU entitled Procedure for Forecasting, Scheduling and Deviation settlement of Solar & Wind Generation in accordance with provision specified in the Regulation (5.20) of Haryana Electricity Regulatory Commission (Forecasting, Scheduling and Deviation Settlement for Solar and Wind Generation) Regulations, 2019 notified vide notification dated 29.04.2020. The Commission considered the comments of the stakeholders and placed its observation while discussing the comments as above.

In view of above facts, the Commission approves the draft Procedure for Forecasting, Scheduling and Deviation Settlement for Solar and Wind Generation annexed to this order as annexure A

This Order is signed, dated and issued by the Haryana Electricity Regulatory Commission on 08/03/2021.

Date: 08.03.2021	**(Naresh Sardana)**	**(Pravindra Singh)**
Place: Panchkula	**Member**	**Member**

Annexure-A

Office of the Chief Engineer / SO & Comml.
Shakti Bhawan, Sector-6, Panchkula-134109

Procedure

For

Forecasting, Scheduling and Deviation Settlement of Solar & Wind Generation as approved by the HERC

In accordance with

Haryana Electricity Regulatory Commission (Forecasting, Scheduling and Deviation Settlement for Solar and Wind Generation) Regulations, 2019

1. OUTLINE: -

This procedure is in accordance with the Haryana Electricity Regulatory Commission (Forecasting, scheduling and deviation settlement for Solar & Wind Generation) Regulations, 2019, hereinafter referred as "the Regulations". All the applicants shall abide by the provisions of the Regulations. In case of any inconsistency in the provisions of this procedure with the Act/Regulations/Rules framed under the Act, the provisions of the Act/Regulations/Rules shall prevail.

2. Definitions and Interpretation

2.1 In this procedure, unless the context otherwise requires:

(a) "Absolute Error" means the difference between the scheduled and the actual generation injected by Solar or Wind Energy Generators in relation to their Available Capacity in each time block, and may be computed in percentage terms by applying the following formula:

$$\text{Absolute Error (\%)} = 100 \times \frac{[\text{Actual Generation} - \text{Scheduled Generation}]}{\text{AvC}}$$

(b) "Actual Drawl" in a time block means the electricity drawn by a beneficiary or a buyer as the case may be as measured by the interface meters;

(c) "Actual Generation" in a time block means the electricity generated and injected into the Grid by a Generator, as measured by the interface meters;

(d) "Available Capacity" (or "AvC") of Wind or Solar Energy Generators means the cumulative capacity rating of the Wind turbines, Solar inverters that are capable of generating power in a given time block;

(e) "Buyer" means a person, including distribution licensee or open access consumer, purchasing electricity through a transaction scheduled in accordance with the regulations applicable for short-term open access, medium-term open access and long-term access.

(f) "Commission" means the Haryana Electricity Regulatory Commission;

(g) "Co-ordination Committee" means Co-ordination Committee as per HERC (Terms & Conditions for grant of connectivity and open access for Intra-State Transmission and Distribution System) Regulations, 2012.

(h) "Day" means a continuous period starting at 00:00 Hrs. and ending at 24:00 Hrs.

(i) "De-Pooling" means the disaggregation and apportionment of the deviations and the applicable charges among the Generators at a Pooling Sub-Station;

(j) "Deviation" in a time block means the difference between the actual injection of energy and scheduled generation;

(k) "Forecasting" means the projection of likely future electricity generation based on scientific analysis of meteorological data and other relevant parameters;

(l) "Gaming" in relation to these regulations, shall mean an intentional mis-declaration of available capacity or schedule by any generator in order to make an undue commercial gain through Charge for Deviation.

(m) "Grid Code" means the Haryana Grid Code specified by the Commission under Section 86(1) (h) of the Act;

(n) "Indian Electricity Grid Code" (or "IEGC") means the Grid Code specified by the Central Electricity Regulatory Commission under Section 79(1)(h) of the Act;

(o) "Interface Meter" shall have the same meaning as in the Regulations of the Central Electricity Authority governing the installation and operation of Meters;

(p) "Inter-connection point" means the interface point of a generation facility with the transmission or distribution system; and shall mean, in relation to Wind or Solar Energy facility, the line isolator on the outgoing feeder on the High Voltage (HV) side of the Pooling Sub-Station;

(q) "Pool Account" means the State Account for receipts and payments on account of deviations by Procurers and Wind and Solar Energy Generators;

(r) "Pooling Sub-Station" means a Sub-Station consisting of a step-up transformer and associated switchgear to the Low Voltage (LV) side of which several Wind or Solar Energy Generators are connected:

Provided that, where a Generating Unit is connected through a common or an individual feeder terminating at a Sub-Station of a Distribution Licensee or the State Transmission Utility, such Sub-Station shall be treated as the Pooling Sub-Station for such Wind or Solar Energy Generator for the purposes of these Regulations;

(s) "Beneficiary" means a person, including a Distribution Licensee, Trading Licensee or an Open Access consumer, procuring the solar and wind power through a transaction scheduled in accordance with the Regulations governing Open Access;

(t) "Qualified Coordinating Agency" (or "QCA") means the agency appointed by the Wind or Solar Energy Generators connected to a Pooling Sub-Station, or by an individual Generator connected directly to a Sub-Station, to perform the functions and discharge the obligations specified in these Regulations;

(u) "Scheduled Generation", for a time block or other time period, means the Schedule of generation in MW or MWh ex-bus provided by the State Load Despatch Centre;

(v) "Scheduled Drawl" for a time block or other time period means the Schedule of despatch in MW or MWh ex-bus provided by the State Load Despatch Centre;

(w) "Stand-alone Generator" means a Wind or Solar Generator with individual capacity of 1MW or above connected to the State Transmission System or distribution system (represented by itself).

(x) "State Entity "means an entity which is in the SLDC control area and whose metering and energy accounting is undertaken at the State level;

(y) "State Load Despatch Centre" (or "SLDC") means the Load Despatch Centre of Haryana established under Section 31(1) of the Act and responsible for coordinating the scheduling of the State Entities in accordance with the provisions of the State Grid Code;

(z) "Time block" means a period of 15 minutes or any such shorter duration as may be notified by Central Commission and State Commission for which specified electrical parameters and quantities are recorded by a Special Energy Meter, with the first-time block starting at 00.00 hrs. or such other period as the Commission may stipulate.

2.2 Words or expressions used and not defined in these Regulations this procedure shall have the meaning assigned to them in the Act, or the Rules or other Regulations framed thereunder.

3. Applicability:-

This procedure shall be applicable to all Wind and Solar Energy Generators in Haryana connected to the Intra-State Transmission/ Distribution System, including those connected through Pooling Sub-Stations, and using the power generated for self-consumption or sale within or outside the State:

Provided that the combined installed capacity of the Solar or Wind Generators connected to a particular Pooling Sub-Station, or that of an individual Generator connected to some other Sub-Station, shall not be less than 1 MW.

4. Role & Responsibilities of Stand-alone Generators:

i) The Chief Operational person/ In-charge of a Stand-alone Generator shall be responsible for scheduling for the generating station and shall notify the name, designation and contact details (phone, mobile and e-mail) of the Scheduling Officer for its Plant to SLDC from time to time.

ii) The Stand-alone generator shall establish a round the clock Control Center and shall be responsible for control of its Generation/ Injection. The Control Centre shall have facilities of voice communication with SLDC with voice recording facilities, and internet connection available for all the 24 hours.

For the purpose of Grid security and safety, the generator shall comply with the instructions of the System Operator in normal condition as well as during emergencies.

iii) The Stand-alone generator shall establish alternate voice, text and data communication with SLDC to implement the instructions of System Operators and SLDC.

iv) The Stand-alone generator shall be responsible for declaration of Available Capacity of its Generating Station to SLDC.

v) The Stand-alone generator shall provide Wind Turbine Generating plant (WTG's) / Inverter's static data details as per the Performa at **Annexure-I(A)** for wind, **Annexure- I(B)** for solar and further any change in the information furnished earlier shall be shared with SLDC within 7 working days from the change.

vi) Stand-alone Generator shall provide real time data for power generation parameters and real time generation data (turbine and inverter level) and weather data wherever available as per **Annexure-II.**

vii) The Stand-alone generator shall have fully functional forecasting and scheduling tools to obtain the desired output. It shall provide Day ahead & Week ahead forecast (based on its own forecast or on the forecast done by SLDC) and Schedule as per **Annexure – III** through a web-based application maintained by SLDC.

viii) Till the web-based application is made operational, the day ahead and week ahead schedule shall be provided to the SLDC Control Room through e-mail.

Provided that separate schedule for inter and or intra state transaction shall be supplied.

Provided further that, Stand-alone Generators shall maintain Buyer-wise schedule information and protocol for sharing the same.

ix) In case of non-availability of Real Time Data (at Turbine Level /inverter Level), Generator shall maintain and provide time block wise generation data at (turbine and inverter level) and weather data on Weekly basis:

- For wind plants, at the turbine level:
  Average wind speed, Average power generation at time block 'level (15-min or lesser, as the case may be)
- For solar plants, for all inverters* >= 1 MW:
  Average Solar Irradiation, Average power generation at time block level (15-min or lesser, as the case may be)
  ** If a solar-plant uses only smaller string inverters, then data may be provided at the plant level.*

x) The Stand-alone generator shall be responsible for metering, data collection/ transmission and communication and historical data maintenance in co-ordination with concerned agencies (STU/SLDC/CTU/RLDC/ DISCOMs etc.) and for co-ordination with SLDC, RLDC, STU (HVPNL), CTU, DISCOMs and other agencies in line with the provisions of HERC/ CERC Regulations.

xi) The Stand-alone generator shall be responsible for the settlement of Deviation charges with the SLDC and it shall be liable to pay & receive Deviation Charges.

xii) The Stand-alone generator shall maintain records and accounts of the time block-wise Schedules, the actual generation injected and the deviations, so that it could be

sent to SLDC (maximum within 7 days from the date of demand from SLDC).

xiii) The Stand-alone generator shall use Automatic meter reading (AMR) technologies for transfer, analysis and processing of interface meter data to SLDC in line with Metering/ AMR protocol and Metering/ AMR standards to be finalized by SLDC/ HVPNL/ DISCOMs in accordance with provisions of Metering Code and CEA Metering Regulations, as amended from time to time. However, until AMR system is established, the monthly energy meter reading shall be downloaded by the field office of DISCOMs/ HVPNL along with a representative of the Stand-alone generator as per standard practices.

xiv) The Stand-alone generator shall abide by the Haryana Electricity Regulatory Commission (Forecasting, Scheduling and Deviation Settlement for Solar and Wind Generation) Regulations, 2019 as amended from time to time.

xv) The Stand-alone generator shall furnish the PPA rates on notarized affidavit (in case of Inter-State transactions) as per **Annexure- IV (A)**, for the purpose of Deviation charge account preparation to SLDC supported by a copy of the PPA.

xvi) The Stand-alone generator shall submit the indemnity bond on Non Judicial Stamp paper of value notified by the State Government from time to time, duly attested by a Notary Public, (as per **Annexure-IV (B)**) to keep the SLDC indemnified at all times and shall undertake to indemnify, defend and save the SLDC from any and all damages, losses including commercial losses due to forecasting error, claims and actions including those relating to injury to or death of any person or damage to property, demands, suits, recoveries , costs and expenses, court costs, attorney fees and all other obligations by or to third parties, arising out of or resulting from the transactions undertaken by the Generators.

xvii) The Stand-alone generator shall coordinate for periodical testing and calibration of Interface Meters as per CEA metering Regulations and procedures as specified by the HERC.

xviii) The Stand-alone generator shall provide executive summary of daily generation report for a day and cumulative summary sheet as per **Annexure-X.**

5. The Qualified Coordinating Agency (QCA):

i) The Pool Generators shall appoint one amongst themselves or any other mutually agreed agency to act as Qualified Coordinating Agency (QCA) for coordinating on their behalf with SLDC. The pool generators shall give authorization/ consent at least for a period of 2 years as per **Annexure-V** for registration of QCA at SLDC.

Provided that an individual pool generator may opt to function as a QCA on its own or appoint a separate entity as its QCA.

Provided further that separate pools shall be formed for generators involved in intra-state and inter-state transactions.

ii) An individual pool generator shall not appoint and authorize multiple QCAs for a particular Pooling Station. In such case, the authorization provided by the pool

generator shall be treated as invalid. The decision of the SLDC on registration of QCA shall be binding on such pool generator.

iii) Once a QCA is registered, the pool generator shall not re-appoint another QCA, at least within two (2) years from the date of successful registration of the QCA at SLDC.

Provided that in case of poor performance/ defaults by the QCA, the pool generator can re-appoint another QCA by giving prior notice of three (3) month to SLDC and the process of registration of new QCA shall be carried in accordance with the regulations and procedures.

iv) The Qualified Coordinating Agency (QCA) shall be nominated on mutually agreed terms and conditions by the pool generators. The pool generators shall also inform SLDC to this effect. On submission of the consent letter from the pool generators and upon meeting the stipulated requirements, the Agency shall be registered as QCA for that pool/ pooling station and shall be treated as an intra-state entity for the purpose of the Regulations.

v) QCA shall be the single point of contact with SLDC on behalf of the pool generators for the following purpose:

a. Provide schedules with periodic revisions as per the Regulations on behalf of all the pool Generators.

b. Responsible for coordination with STU/SLDC/ DISCOMs and other agencies for metering, data collection and its transmission and communication.

c. Undertake commercial settlements on behalf of the pool generators, of such charges pertaining to generation deviations including payments of Deviation Charges to the State pool account through SLDC.

d. Undertake de-pooling of payments received/payable on behalf of the pool generators form/to the State Pool account and settling them with the individual pool generators in accordance with the Regulations.

e. Undertake commercial settlement of any other charges on behalf of the pool generators of a pooling station, as may be mandated from time to time.

f. All other ancillary and incidental matters.

vi) The QCA shall be single point of contact between SLDC and its Solar and/ or Wind Generators.

vii) The QCA and pool generators shall mutually decide commercial and other arrangements between them for forecasting, scheduling and deviation settlement as per their inter-se agreement or terms of engagement.

viii) The pool generators shall provide all requisite details & data (including technical data, time-block wise schedule and actual injection and deviation details) to QCA for onward submission to SLDC.

ix) In case of non-consensus among the pool generators connected through a common feeder for appointment of QCA, then such pool generator(s) shall take separate connectivity from STU/DISCOM and furnish the schedules (individually if stand-alone or by appointing separate QCA), in accordance with the regulations and procedure.

x) Non- performance of functions by QCA under the Regulations and procedure, shall not in any manner absolve the pool generator from meeting their responsibility provided under the Regulations and procedure.

6. Qualifying Requirement for QCA:

In case of appointment of any mutually agreed agency other than the Generator(s), the pool generators shall consider following guiding principles for appointment of QCA. Adherence to these guiding principles for appointment of QCA would be in the interest of pool generators and would facilitate smooth implementation of F&S framework in the State. . Further, the QCA shall be appointed with the approval of at least 51 % of the generators at the pooling sub-station in terms of combined installed capacity.

Operational requirements-

i The QCA shall be a company incorporated in India under the Companies Act, 1956/2013.

ii The QCA shall have fully functional forecasting and scheduling tools to obtain the desired output.

iii The QCA shall have the experience in the field of Wind and/or Solar Power forecasting and scheduling for 50 MW projects (including cumulative pilot projects) and a minimum period of one (1) year with appropriate accuracy levels in forecasting.

iv The QCA shall have an experience in working in different terrain & regions, as Wind /Solar generation depends on these factors and such experience facilitates better scheduling.

v The QCA shall have capability to handle multiple plant owners connected to a pooling station in order to be well positioned to de-pool deviation charges.The financial strength of the QCA shall be such that it shall be in a position to handle the risk of penalties due to deviation charges applicable to pool generator. Considering this, the net worth of the QCA shall be a least RS. 1.50 Crores in the previous financial year (Net worth = Share Capital + Reserve - Revaluation Reserve - Intangible Asset - Misc. Expenditure to the extent not written off - Carried Forward Losses - Liabilities), which shall reflect from its audited accounts duly certified by the Charted Accountant.

vi The QCA shall have a compatible system in place for seamless flow of information to and from SLDC in order to facilitate forecasting, scheduling and revision of schedule, intimation of outages/grid constraints etc. and it shall have capability to provide real

time monitoring systems in place for seamless flow of information to and from SLDC.

vii QCA shall have an established team of Renewable Resource Analysts, modeling Statisticians/ Data Scientists, Energy modelers and 24*7 operation and monitoring team.

viii QCA shall possess/provide the authorization/ consent letter and consent from all the pool generators connected to the pooling station or directly connected to the state network for being appointed as the QCA and from the concerned beneficiary (ies).

ix The corresponding supporting certificates/ documents justifying qualification should be submitted along with the application for registration.

7. Role & Responsibilities of QCA:

Beside performing the Role and undertaking the Responsibilities of Stand-alone Generator (stipulated under Section 4 of this procedure) and supplying pooling station wise data as required by SLDC, QCA shall also perform the following roles & undertake the following responsibilities on behalf of pool generators:-

i) As per the Regulations, QCA shall be a state entity and shall be the single point of contact between the SLDC and the pool generators to whom it is representing.

ii) Besides establishing a round the clock control center, QCA shall also establish protocol for communication with pool generators to implement the instructions of System Operators and SLDC.

iii) Besides providing WTG's / Inverter's static data as per the proforma **Annexure-lA & IB,** QCA shall also provide pool/ pooling stations details as per the proforma at **Annexure-lC**.

iv) QCA shall provide real time data for pooling station wise power generation parameters and weather data wherever available as per **Annexure-II.**

v) QCA shall provide pooling station wise Available Capacity, Day ahead & Week ahead forecast and Schedule as per **Annexure –III** on behalf of pool generators, E-mail to SLDC (till web based application is made operational).

Provided that if the QCA is representing on behalf of the multiple pooling stations, the Scheduling, Energy accounting and Deviation settlement for each pooling station of wind and/or solar power generation shall be undertaken separately.

vi) QCA shall perform commercial settlement beyond the connection point (De-Pooling arrangement among each pool generator) and technical coordination amongst the pool generators and up to the connection point as the case may be. DSM charges shall be de-pooled by the QCA amongst constituent pool generators on the basis of actual generation as provided in Part-C of the Regulations.

vii) QCA shall be responsible for all commercial settlements with the SLDC on behalf of

pool generators.

viii) QCA shall maintain records and accounts of the time block-wise Schedules, the actual generation injected and the deviations, for the Pooling Station and the individual pool generators separately.

8. Role & Responsibilities of SLDC: -

i) SLDC under SAMAST Scheme shall get a web-based Software with login and password facility developed for:

- Online registration/de-registration of Stand-alone generator/ QCA
- Uploading of Day Ahead and Week Ahead Generation Forecasts/ Schedules
- Uploading of the revisions in Schedules in accordance with these Procedures and Regulations.
- Intimation of Grid Constraints and curtailments if any.
- Mechanism for monitoring deviations in Scheduled & Actual generation along with commercial impact for SLDC and Stand-alone generators/ QCAs' along with acquisition of Meter Reading of all the Interface points in the State for calculation of Deviations and Charges thereof.

Till the web-based application is made operational, the day ahead and week ahead schedule/ revisions for each generating station or each pooling station shall be provided to SLDC through e-mail, at the designated contact no./ e-mail ID:

O/o XEN/LD&PC, HVPNL, Panipat.
Contact no.- 09053090722, 09053090721.
E-mail ID:- controlroomsldc@hvpn.org.in & sldcharyanacr@gmail.com

ii) SLDC shall be responsible for scheduling, day to day communication, coordination with generators/ QCAs'. **Forecasting of the renewable energy generation may be done by the SLDC by availing the services of a Forecasting Agency.**

iii) SLDC shall maintain records and accounts of the time block-wise Schedules, the actual generation and the deviations, for the pooling station and the individual Generators separately.

iv) SLDC shall prepare and issue Energy Account Statement (for declared Available Capacity, Scheduled Energy & Actual Injection) and DSM accounts in respect of each pooling station/ Standalone generator (separately for intra-state and inter-state transactions) and maintain record of the same.

v) All commercial transactions w.r.t. receipt/payment of deviation (DSM) charges from/ to RE generators shall be done through DSM pool account maintained by SLDC.

vi) The AMR system at SLDC end shall be made functional after implementation of SAMAST scheme. However, until Automated Meter Reading (AMR)/ infrastructure is established at SLDC, Concerned field offices of DISCOMs/ HVPNL shall be responsible for timely downloading and supply of Interface meter data (duly signed hard copy &

soft copy) to the SLDC for preparation of Deviation accounts. In case of Solar/ Wind Generators directly connected to HVPNL and selling power to 3rd party under open access or wheeling power for captive use within the State or outside the State, concerned filed offices of HVPNL shall be responsible for downloading and supply of Interface meter data (duly signed hard copy & soft copy) to SLDC in coordination with the concerned field offices of DISCOMs.

9. Registration and De-Registration Procedure for Stand-alone generator/ QCA:

9.1 Registration as a Stand-alone generator/ QCA:-

The procedure for registering a Stand-alone generator/ QCA is as follows:

i) The prospective Stand-alone generator/ QCA shall submit application accompanied with prescribed fee as per the performa (**Annexure-VI**) for registration. After operationalization of the SLDC's web-based software, the application should be submitted online through web-based Software and copy of printed application shall be supplied to SLDC along with required documents.

ii) The QCA shall submit separate application for each Pooling Station. For each Pooling Station only one application shall be accepted from the QCA.

iii) The Application for Registration shall be accompanied by a non-refundable processing fee of Rs. 10,000/- (Ten Thousand Rupees Only) for Stand-alone generators/ Rs. 20,000/- (Twenty Thousand Rupees Only) for QCA (for each pooling station) payable through RTGS/ NEFT.

In case of deposit/ receipt of less amount than the prescribed fee, the application shall not be processed until full payment is received in the account. Bank Charges, if any, shall be borne by the Stand-alone generator/QCA.

The present account details of Accounts Officer/ SLDC are as under:

Name of beneficiary	**:**	**H.V.P.N.LTD**
Bank Name	**:**	**ICICI Bank**
A/c No.	**:**	**004305000066**
IFSC Code	**:**	**ICIC0000043**

Any change in these account details or procedures will be conveyed to the concerned through uploading on HVPNL website.

iv) Each application for registration shall be accompanied with the following documents:-

a. WTG's/Inverter's static data and pooling Stations details as per **Annexure-IA, IB & IC**. Further, if there is any change in the information furnished, then the updated information shall be furnished to the SLDC within 7 working days.

b. Undertaking on Non-Judicial Stamp paper of value notified by the State Government from time to time (attested by Notary) in regard to compliance for HERC Regulations and its procedure as per **Annexure-IV B.**

c. Certified PPA rates (in case of inter-state transaction) on notarized affidavit as per **Annexure-IVA**, for the purpose of Deviation charge account preparation to SLDC supported by copy of the PPA.

d. Copy of Board Resolutions for Authorized Signatory/ Power of Attorney/ Authorization Letter, duly certified/ attested by Company Secretary/ C.A. in respect of the signing authority of QCA and Generator(s).

In case of QCA, following documents are also required in addition to the aforementioned documents:-

e. Consent letters from all the pool generators connected to the respective pooling station and beneficiary (ies). A performa consent letter attached as **Annexure-V**.

f. CA audited balance sheets/Financial Statements/Audit reports of the previous year showing net worth of QCA.

g. Experience certificates in respect of Sr.no. 6 (iii) & (iv) above.

Note: All the photocopies supplied along with the application shall be self-attested by authorized signatory.

v) All applications for registration complete in all respects , shall be submitted in the following office: -

Chief Engineer/SO & Comml., HVPNL
Shakti Bhawan, Sector-6
Panchkula-134109
(E-mail:"cesocomml@hvpn.org.in")

vi) The time period for registration of Stand-alone generator/ QCA shall be (15) working days from the date of receipt of all the documents & information complete in all respect by SLDC.

vii) Within one week from the date of registration, Bank Guarantee of Rs. 20,000/- (Twenty Thousand Rupees only) per MW for Solar Generation and Rs. 50,000/- (Fifty Thousand Rupees only) per MW for Wind Generation towards payment security shall be submitted by the Stand-alone generator/ QCA .The same shall be initially valid for 2 years and revalidated/ recouped as per requirement from time to time.

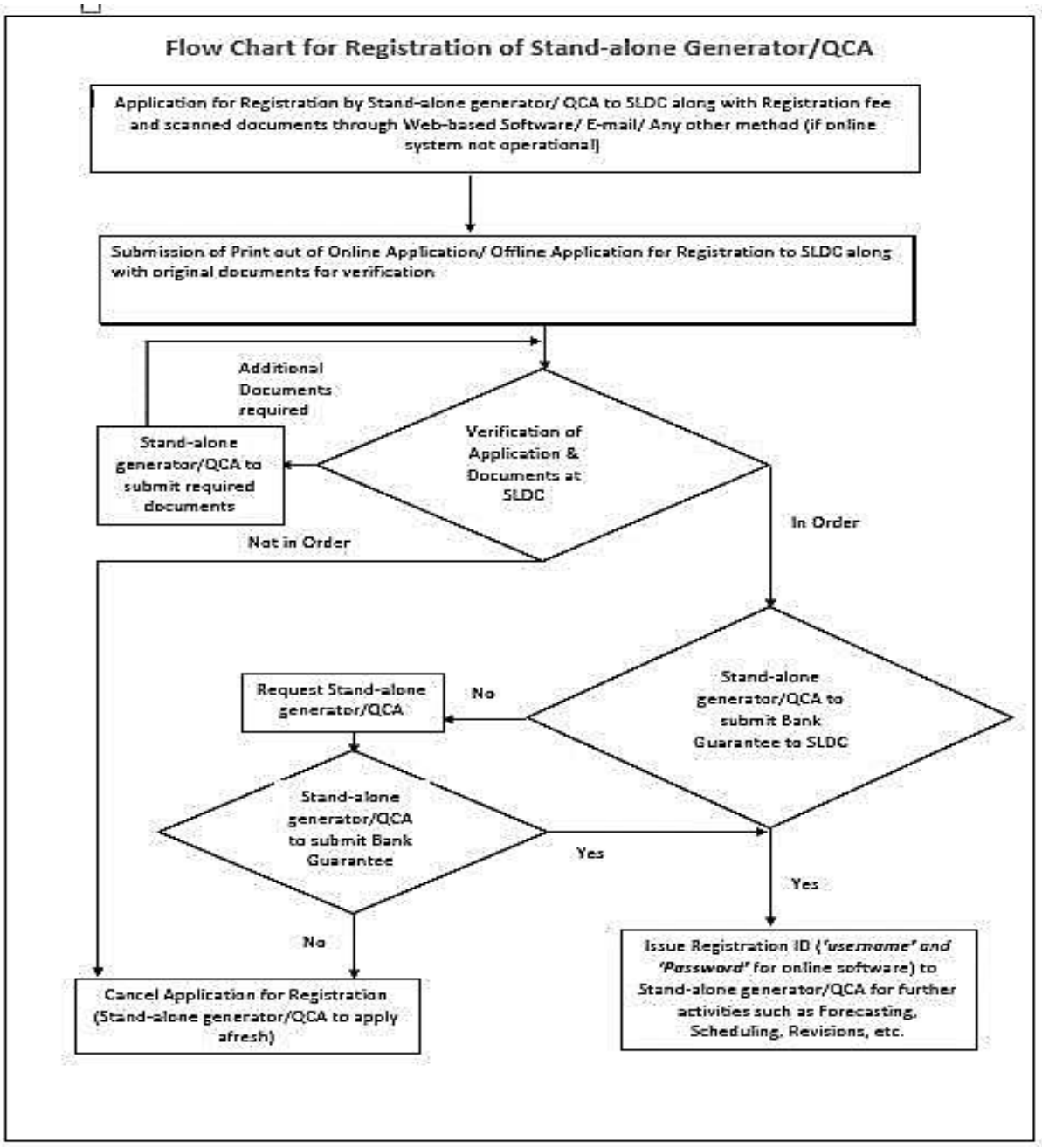
If the Stand-alone generator/ QCA fails to pay deviation charges within Sixty (60) days from the issue of the accounts and billing, the Bank Guarantee shall be encashed by SLDC.

In case of expired Bank Guarantee, Stand-alone generator/ QCA shall revive Bank Guarantee within seven (7) days from receipt of such information from SLDC. Failure to revive Bank Guarantee within prescribed time limit, the Wind/Solar generation shall not be scheduled.

viii) Once the application supplied by Stand-alone generator/ QCA along with the requisite documents is found in order and Bank Guarantee is received, the same may be accepted by the SLDC, and the generator/ QCA may be allowed to schedule power for its constituent generators/pooling stations for which the necessary Registration ID (login ID and password for IT enabled communication & software) shall be provided by SLDC for accessing the further activities such as uploading of day ahead/ Intra-day ahead / week ahead scheduling/revisions.

ix) Incomplete application shall be liable for rejection. The reason for rejection shall be communicated to the applicant.

A flow-chart depicting the process for registration as Stand-alone generator/ QCA is given below:-



9.2. De-Registration as a Stand-alone Generator/ QCA:

Case - 1: Own De-registration of QCA:

i) The **QCA** may request SLDC for de-registration as **QCA**, however, in such case, it shall be the responsibility of the **QCA** to settle all the commercial obligations of SLDC. QCA shall also settle all the commercial obligations of Pool Generators whom it is representing.

ii) The QCA shall serve three (3) months prior notice to all the pool generators whom it is representing for de-registration with a copy to SLDC.

iii) The pool generator(s) shall be responsible for appointing a new QCA and ensure registration of new QCA at SLDC within this notice period, failing which generation shall not be scheduled. Provided that a pool generator shall have the option to act as Stand-alone generator subject to fulfillment of conditions laid down in this procedure.

Case - 2: De-registration of QCA due to non-authorization of Pool Generator:

iv) Three (3) months prior notice to be served by the pool generator to the QCA for non-authorization with copy to SLDC, subject to Clause No. 5 (i).

v) The pool generator(s) shall be responsible for appointing new QCA and ensure registration of new QCA at SLDC within this notice period, failing which generation shall not be scheduled. Provided that a pool generator shall have the option to act as Stand-alone generator subject to fulfillment of conditions laid down in this procedure.

vi) Before de-registration, the pool generator(s) shall ensure that all the commercial settlements pertaining to it has been completed by the QCA with SLDC.

Case - 3: De-registration of Stand-alone generator/ QCA under default condition:

vii) The SLDC shall initiate the process of de-registration, if the condition(s) as per Clause No. 4 are violated by the Stand-alone generator or condition(s) as per Clause No. 7 are violated by the QCA.

viii) The SLDC shall initiate the process of de-registration, in case of default conditions mentioned at Clause No. 16(i).

ix) In such case, the process of de-registration shall be initiated as per Clause No. 16 (ii).

x) The pool generator(s) at a pooling station shall be responsible for appointing new QCA and ensure registration of new QCA at SLDC within this notice period, post which generation shall not be scheduled.

9.3 After successful registration of the new QCA, the Bank Guarantee of the old QCA will be released within 30 days.

10. Data & communication protocol:-

In view of the large volume of information needed to be exchanged in a time bound manner, the transfer of information e.g. technical/ static data, forecast, Available Capacity, Schedule etc. between SLDC and QCA/ Stand-alone Generator shall be through internet only. However, in case of contingencies like internet failure etc., the transfer of information may be communicated through alternate mode i.e., telephone on request of SLDC/ QCA/ Generator.

Real Time Data from the turbine/inverter level to the Interface Point (Generator/ Pooling Station) and from Interface Point to SLDC shall be provided by Stand-alone Generators/ QCA (including necessary interfacing arrangements for data integration at SLDC end). The Real Time data shall be transmitted upto SLDC through IEC: 60870-5-101/ IEC 60870-5-104 protocol by providing a redundant (main & backup) communication link using any mode of communication compatible with existing Communication system of STU/SLDC (For e.g. Optical Fibre/PLCC/MPLS/RF/VSAT/ or any other latest technology available, which shall be provided and maintained by the Stand-alone Generators/ QCA. Further, main and backup communication links shall preferably be either through different communication modes or from different service providers (if same communication mode is used).

The communication network i.e. PLCC/ Optical fibre from HVPNL sub-stations to SLDC in Haryana is to be provided by STU (HVPNL) for telemetry of real time data up to SLDC.

Generators /QCA shall follow the provisions of Haryana Electricity Regulatory Commission (Communication Systems for Intra-State Transmission of Electricity), Regulations 2020, as amended from time to time and technical standards, protocols for communication system etc. notified by HERC under aforesaid HERC Regulations for communication Infrastructure to be used for data communication and tele-protection of power system and shall ensure the correctness of the real-time data.

And

Generators/ QCA shall follow the provisions of CERC (Communication Systems for Inter-State Transmission of Electricity) Regulations, 2017, as amended from time to time and technical standards, protocols for communication system etc. notified by CEA under aforesaid CERC Regulations for Communication Infrastructure to be used for data communication and tele-protection of power system and shall ensure the correctness of the real-time data.

The real-time data telemetry, interfacing and Data Communication requirements at SLDC are detailed out in Annexure- II.

11. Available Capacity (AvC):

i) It is mandatory for a Stand-alone generator/ QCA to declare the block wise AvC for generator/ pooling station. The AvC shall be declared on day ahead basis and can be revised during the submission of intra-day schedules.

ii) The Available Capacity (AvC) for a wind generating plant shall be applicable for the entire 24 hours in a day. Whereas considering the availability of solar irradiation only during the day, the AvC for solar generating plants shall be applicable only between 05:30 AM till 19:30 PM. **Plants having mixed capacity of wind and solar generation shall consider the AvC accordingly (by adding the wind and solar generation AvC during the period of 05:30 AM to 19:30 PM and only wind generation AvC for the balance period).**

12. Forecasting & Scheduling Procedures:

i) Wind and solar generators, either by themselves or represented by QCAs, shall mandatorily provide to the SLDC, in a format attached (Annexure-IA, IB & IC), the technical specifications of the generating units and all other associated equipment of wind/solar generator at the beginning and thereafter, whenever there is any change in such technical specifications. The data relating to the power generation parameters and weather related data, as applicable, shall also be mandatorily provided by such generators or QCA appointed by it, to the SLDC in real time.

ii) Forecasting shall be done by every wind and solar generator connected to the Grid, either by itself or by a Qualified Coordinating Agency (QCA) on their behalf. Forecasting of wind and solar power that is expected to be injected into the state grid shall also be done by SLDC with the objective of ensuring secured Grid operation by planning for requisite balancing resources by engaging forecasting agency (ies), if required. The forecast by a wind or solar generator or QCA, as the case may be, shall be generator centric. The wind or solar generator or QCA will have the option of accepting the SLDC's forecast for preparing its schedule or provide the SLDC with a schedule based on its own forecast. In such case of QCA/ Stand-alone generators adopting forecast provided by SLDC, charges amounting to Rs. 3,000/- per Pooling Station/ Stand-alone generator per day, shall be paid by the QCA/ Stand- alone generator to SLDC. The QCA shall coordinate the aggregation of schedules of all its generators connected to a pooling station and communicate the same to the SLDC.

iii) The existing wind and solar generators or QCA on their behalf shall establish the forecasting tools and furnish day ahead, week-ahead forecasting and scheduling to SLDC within one month of approval of this procedure by HERC. However, all new wind and solar generators or QCA on their behalf shall establish the forecasting tools before commissioning of the plant and connecting to the State Transmission System or Distribution system, as the case may be.

iii) Every wind and solar generator or a QCA shall submit a day ahead and week ahead schedule for each generating station or each pooling station on ex-bus basis, as the case may be **(Annexure-III)** in line with the provisions of State Grid Code**.** Day ahead schedule shall contain wind or solar energy generation schedule at intervals of fifteen (15) minutes time-block for next day, starting from 00.00 hours of the day and prepared for all ninety six (96) time blocks of the day. Week-ahead schedule shall contain the same information for next seven days. The week will commence from Monday.

iv) The forecast/ schedules shall be in MW up three Decimal places. The fourth Decimal place shall be rounded off to 3rd Decimal place as per standard practice. Deviation Volume and Value shall be calculated accordingly**.**

v) The schedule of wind and solar generators connected to the State Grid, excluding collective transactions, may be revised by giving advance notice to SLDC. Such revisions shall be effective from fourth (4th) time block, the first being the time-block in which notice was given **(Annexure-VII).** There may be one revision for each time slot of one and half hours starting from 00.00 hours of particular day subject to maximum of sixteen (16) revisions during the day.

vi) Process for submission of a day ahead Forecast for Intra-State Transactions shall be as per the provisions of State Grid Code read with the provisions of the Regulations.

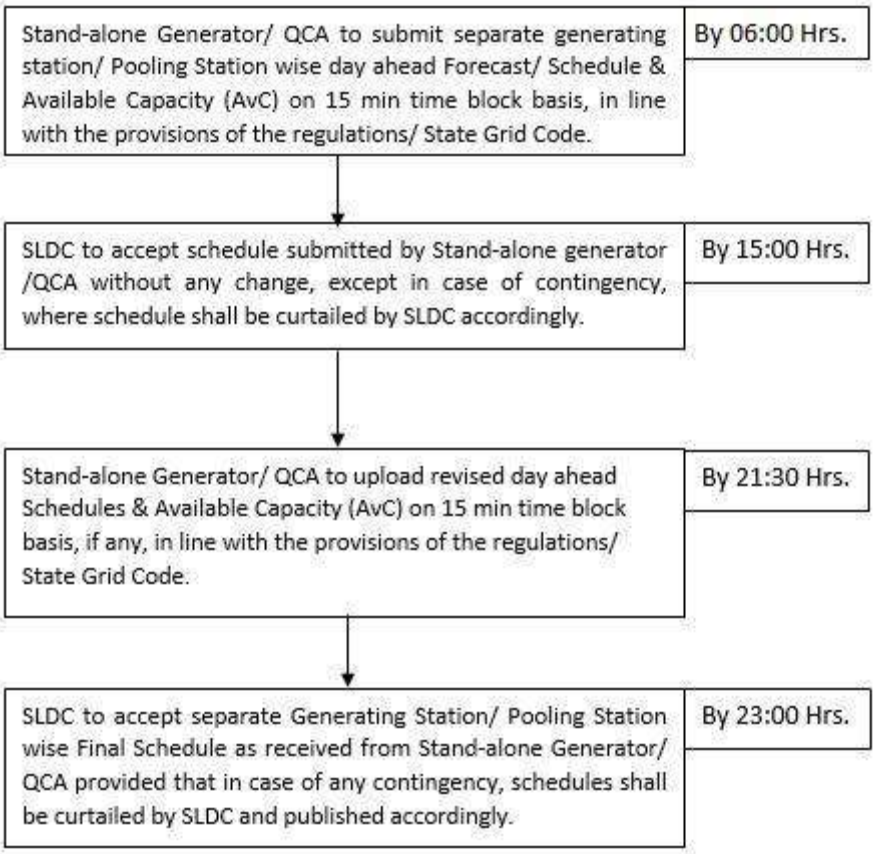
vii) Until start of IT enabled communication & software, the schedule will be supplied in soft copy (Scanned copy of duly signed hard copy (PDF/ JPEG format) and soft copy in excel) through e-mail and the receipt/ time of receipt of schedule shall be got confirmed from SLDC on telephone. SLDC shall also maintain record of such receipt of schedule in log books. Similar record will be maintained by QCA/ RE generator.

viii) It shall be incumbent upon the RE Generator or QCA as the case may be to schedule plant capabilities faithfully, i.e., according to their best assessment. Any intentional mis-declaration of Available Capacity or schedule to the SLDC for its own undue commercial gain through deviation charges or that of a generator shall be considered as gaming and shall be liable to action under appropriate provisions of the Act or the Regulations.

ix) The operating & maintenance log books of the generating station shall be available for inspection/review by the SLDC. These books shall keep record of machine operation and maintenance.

x) The schedules provided by the QCA/ generator(s) shall be accepted by SLDC without any revision (being must-run generating stations) except in case of real time curtailment Such schedules in respect of all RE Generators shall be collectively uploaded on HVPNL website.

xi) The Revision No. shall start from 0 (for first AvC/ Schedule to be submitted by 06:00 Hrs of preceding day as per the provisions of State Grid Code) and will be increased step-by-step as 1, 2, 3……n (for subsequent revisions), subject to the condition that QCA/ generator(s) may inform the modifications / changes to be made, if any, in the AvC/ Schedule to SLDC latest by 21:30 hours of preceding day as per the provisions of State Grid Code. **Process for submission of a day ahead Forecast for Intra-State Transactions is as follows:-**



Note: No revision in Forecast shall be accepted after 21:30 Hrs.

xii) The last/ final (nth) revision shall be considered as Implemented schedule by SLDC for preparation of State Energy Account & deviation account.

xiii) In case the schedule of a generator/QCA for the next day is not received by the specified time, SLDC shall prepare the same on its behalf based on the previous day schedule/ net quantum tied-up for injection under PPA.

xiv) In the event of contingencies, transmission constraints, congestion in network, threat to system security, the transaction of RE generators already scheduled by SLDC may be curtailed as per the provisions of State Grid Code for ensuring secure and reliable system operation **(Annexure-VIII).**

xv) If, at any point of time, SLDC observes that there is need for revision of the schedules in the interest of better system operation, it may do so on its own and in such cases, the revised schedules shall become effective from the 4th time block, counting the time block in which the revised schedule is issued by SLDC to be the first one.

xvi) To discourage frivolous revisions, SLDC may, at its sole discretion, refuse to accept requisition schedule/ **availability** changes of less than two (2) percent of previous schedule/ **availability**.

xvii) In case of any grid disturbance, the schedule generation of all the generating stations

and schedule drawl of the discom shall be deemed to have been revised to be equal to their actual generation/drawl for all the time blocks affected by the grid disturbance and its duration shall be done by SLDC.

xviii) Generation schedules and drawl schedules issued/revised by SLDC shall become effective from designated time block irrespective of communication success.

xix) RE Generators shall promptly inform SLDC of the tripping of a Generating Unit, with reasons & shall submit a more detailed report of Generating Unit tripping to SLDC on monthly basis.

xx) SLDC shall carry out scheduling and accounting for Pooling Station as a whole and the QCA shall de-pool the deviation charges among respective generators separately based on the provisions of the Regulations. However, in case of Intra and Inter-State transactions, separate feeder wise forecast (for Intra & Inter- State) shall be submitted by the QCA/ Stand-alone generator. In such case, SLDC shall separately schedule the power accordingly.

xxi) The final/ implemented schedules issued by SLDC shall be open to all Users for any checking / verification, for a period of 7 days. In case any mistake / omission is detected by SLDC or pointed out by User (DISCOMs /QCA/generator), the SLDC shall forthwith make a complete check and rectify the same, if required.

xxii) Intra-State Open Access transactions by RE generators shall be governed as per the provisions of HERC (Terms & Conditions for grant of connectivity and open access for Intra-State Transmission and Distribution System) Regulations, 2012, as amended from time to time. Similarly Inter-State Open Access transactions by generators shall be governed as per the provisions of CERC (Open Access in Inter- State Transmission) Regulations, 2008, as amended from time to time and any other regulation of HERC wherever applicable.

xxiii) Any curtailment imposed on the energy injection for reliable and secure Grid operation in emergent situations shall be communicated by the SLDC to the QCA through an IT enabled communication, the capacities thus reduced or increased by the generators for the immediate time blocks shall be exempted from DSM calculations till the 4th time block after communication with SLDC, the first-time block being the one in which the communication to SLDC has been made.

Provided that the revisions made in the schedules due to secure Grid operation in emergent situations, it will not result in reduction of total number of revisions available to QCA in a single day.

13. Metering Requirement:

i. Concerned RE Generators shall be responsible for providing required metering equipment along with specified communication facilities for the purpose of proper Energy Accounting in line with State Grid Code requirement and alongwith Automated Meter Reading (AMR) system for communicating and integrating meter data at SLDC. Internal clock of the interface meter shall be time synchronized with GPS. The metering

equipment, metering protocol, AMR system and associated communication facilities shall comply with CEA metering regulations, as amended from time to time, CEA "Functional Requirement of Advanced Metering Infrastructure (AMI)" read along with the provisions in SAMAST report endorsed by Forum of Regulators (FoR).

ii. The Interface meters (ABT compliant Main, Check & Standby Meters) as per CEA metering regulation shall be provided by the generators in coordination with field offices of concerned licensee (DISCOMs/ HVPNL). RE generators shall be responsible for providing metering system along with associated AMR & communication system.

RE generators shall be responsible for installation, testing, commissioning, maintenance, rectification & replacement of metering equipment and data downloading at its cost. However, the testing of the metering equipment shall be got carried out from the NABL duly witnessed by the representative of DISCOMs & HVPNL.

iii. Unique identification code of meter: - Every meter shall have a unique identification code, which shall be marked permanently on the front as well as in its memory. The series of unique identification code of meter shall be provided by HVPN before installation & testing.

iv. The AMR system at SLDC end is expected to be made functional within one year after issue of funding by PSDF under SAMAST scheme.

v. In case the pooling station is a sub-station owned by generator(s) or QCA, the interface meters shall be installed (ABT main & check meters) at the HV side of the pooling station's ex-bus, whereas if the Pooling Station is a sub-station owned by licensee (DISCOMs/ HVPNL), the interface metering shall be done at the individual outgoing feeder(s) of each generator at the LV side of the sub-station of the licensee.

Guidelines regarding change in metering point location can be issued as per the prevailing CEA metering Regulations/ Haryana Grid Code, as amended from time to time.

vi. Concerned field offices of licensee (DISCOMs/ HVPNL) shall be responsible for time to time monitoring, of metering equipment and GPS time synchronization, thus ensuring health of the metering equipment & correctness of ABT data. The remedial action, if any required for Correction of Real Time Clock (RTC) time drift of interface meters shall be carried out by the generator at its cost in the presence of DISCOMs/ HVPNL.

vii. In case of any problem or reported defect/fault in metering equipment, the matter shall be referred to the concerned field office of DISCOMs/ HVPNL, as the case may be, which will investigate and take up the matter CE/ SO & Commercial, HVPNL, Panchkula. If required, RE Generators shall refer/take-up the matter in the Co-ordination Committee, depending upon the nature of issue. In case of any defect/ change in metering equipment, SLDC shall be intimated immediately.

viii. In case of non-availability of Interface Meters data and/or defect in interface metering equipment (ABT Main & Check Meters/ CT/PT at Interface Point), the data recorded by Standby meters shall be considered for accounting purposes during the period of defect. In case of non-availability of both interface Meters' data as well as standby Meter data and/or defect in both the interface metering equipment and Standby meter, accounting shall be done based on historical trends and/or as per the decision of Co-ordination Committee after hearing all the affected parties.

14. Energy Accounting & Deviation Settlement:

i. The day-wise energy scheduled as per Implemented schedules shall form a part of State Energy Account. Monthly provisional State Energy Account (SEA) will be issued by SLDC by 10th day of succeeding month, which will be uploaded on Haryana SLDC website for any comments/objections/corrections to be submitted within 7 days. The provisional SEA will be followed by Final SEA, to be issued by 25th day of succeeding month. SLDC will be authorized to revise the provisional as well as Final Energy Account.

ii. Monthly State Energy accounts for Haryana prepared by SLDC shall be uploaded on SLDC website, for raising bills by all concerned. Such energy accounts shall be subject to inspection/ verification/checking and raising any objection within 15 days of date of issue. If no objection is raised, energy accounts shall be considered finalized. In case, any objection is raised, the energy accounts shall be revised after checking, if required. However the disputed matters shall be deliberated in Co-ordination Committee and finalized as per their decision. Supplementary bills/credit note shall also be raised accordingly.

iii. The Deviation accounting shall be undertaken on the basis of the data recorded by the Interface Meters , capable of recording the energy in 15-minute time blocks or less, as may be specified. Automated Meter Reading (AMR) system shall be used for communicating data/ remote downloading of data at SLDC. Internal clock of the interface meter shall be time synchronized with GPS. Besides, downloaded meter data readings shall also be forwarded to the SLDC.

iv. The DSM account for Generators/ Pooling Stations shall be in line with the provisions of HERC (Forecasting, Scheduling and Deviation Settlement for Solar and Wind Generation) Regulations, 2019, as amended from time to time. Similarly, **Reactive Energy Accounts shall be prepared in line with provisions of State Grid Code/ IEGC after implementation of SAMAST Scheme**.

v. Weekly Energy Accounting and Deviation Settlement in accordance with Haryana Electricity Regulatory Commission (Forecasting, Scheduling and Deviation Settlement for Solar & Wind Generation) Regulations, 2019, (to be operationalized after implementation of Automated Meter Reading (AMR) as per the recommendation of SAMAST):-

a. **By 00:00 hours on every Wednesday**, the Stand-alone generator/ QCA shall furnish weekly meter readings of generators /Pooling Station to SLDC for the 7 days period ending on previous Sunday midnight, in addition to the data provided to the

Supervisory Data and Control Acquisition (SCADA) Centre, for the purpose of energy accounting under the Regulations.

b. SLDC shall process the data provided by all the Stand-alone generator's/QCAs' and prepare the weekly Energy Account Statement (for declared available capacity, scheduled energy and actual energy injected by the RE generator(s)) and weekly DSM account for the Pooling Station or the stand-alone Generator, as the case may be,, **by 24:00 hours of next Tuesday**, which shall be uploaded on SLDC website. The QCA/ Stand-alone generator may raise weekly bills, for the energy injected/ scheduled by Pooling Station or the stand-alone Generator, as the case may be, for Intra-State/ Inter-State transactions respectively in accordance with the regulations and PPA.

c. The QCA/ RE Generator, as the case may be, shall communicate any discrepancies to SLDC within 15 days of issue of accounts, which shall be corrected forthwith by SLDC , if required, within 7 days from date of receipt of such discrepancy. The discrepancies reported after 15 days shall not be considered by SLDC and in such case, the account prepared by SLDC shall be final.

d. The Deviation Charges payable/receivable for the State as a whole at State periphery (say D), as computed by NRPC in weekly Deviation Settlement Accounts of the State, shall be allocated by SLDC amongst the distribution licensee/OA consumers/conventional generators/RE generators (pooling station) in proportion to their respective deviation after implementation of Intra-state ABT.

e. SLDC shall compute the absolute error for each Pooling Stations and for Generators (with capacity more than 1 MW) injecting Power individually, and shall calculate the deviation charges in accordance with **Haryana Electricity Regulatory Commission (Forecasting, Scheduling and Deviation Settlement for Solar & Wind Generation) Regulations, 2019**. The % error shall be calculated on the basis of available capacity and deviation as actual - schedule and shall be calculated by rounding up to second decimal place.

f. SLDC shall determine the impact of deviation of Wind & Solar injection at Pooling Station and its contribution on the total deviation charges at the State periphery as per NRPC weekly DSM accounts by forming a virtual pool of all Pooling Stations and Stand-alone Generators (assuming the share of the State level deviation charges for RE generators as D4).

g. The actual commercial impact for the State as a result of deviation of RE generation shall be D4-R1. At the end of the year, if this amount is greater than zero, the same can be refunded to the State Pool Account from PSDF/NCEF or from the alternative funding mechanism, as may be approved by the Commission.

h. Methodology for Intra-State Transactions:

The following criteria/ methodology shall be adopted by SLDC for preparation of DSM account in case of Intra State transactions by RE generators:-

1) Charges towards sale of Energy shall be settled by the Procurer on the basis of actual generation, whereas the charges towards deviation of Energy from its given schedule shall be settled by the Generator in line with Regulation 7.2 (Table-I) of the Regulations.

Illustrative example for calculation of deviation for five Pooling Stations/ Stand-alone Generators in case of Intra-State transaction is given at **Table - 1A** below:-

Table-1 A

Pooling Station/ Generator wise deviation charge calculation for under- or over injection, for sale or self-consumption of power within Haryana (for One Time block)										
Pooling station / Individual Genera-tor	Available Capacity (kWh)	Schedule (kWh)	Actual Injection (kWh)	Deviation (kWh)	Absolute Error (%)	Deviation units apportioned on the basis of Absolute Error (kWh)				
						<=10 %	>10% but <= 20%	>20% but <=30%	>30%	
	(A)	(B)	(C)	(D)=C-B	(E)= Dx100/A	(F)	(G)	(H)	(I)	(J) = 0xF+0.5xG+ 1xH+1.5xI
P.S.-1	35000	25000	32500	7500	21.43%	3500	3500	500	0	3500x0+ 3500 x 0.5+500 = 2250
P.S.-2	80000	50000	52500	2500	3.13%	2500	0	0	0	0
P.S.-3	120000	75000	90000	15000	12.50%	12000	3000	0	0	1500
G-1	90000	50000	47500	-2500	-2.78%	2500	0	0	0	0
G-2	55000	37500	20000	-17500	-31.82%	5500	5500	5500	1000	9750
Total	**380000**	**237500**	**242500**	**ABS 45000**	**11.84%**					**13500**
Net Exchange	380000	237500	242500	5000						

2) To determine the impact of RE deviation at State periphery, the part of DSM weekly bill issued by the NRPC shall be apportioned to the net deviation of RE generation on the basis of applicable composite per unit rate (inclusive of additional DSM or capping DSM charge) for particular time block, as detailed hereunder via example: -

- Net Deviation of RE generation at State Periphery: 5000 kWh
- Avg. Deviation rate at State periphery: Rs. 3.00/- per kWh
- Total Deviation Charges on account of RE deviation at State periphery (D4): Rs. 15,000/-
- Total Deviation Charges paid by RE generators as per Regulations (R1) : Rs. 13,500/-
- Shortfall in deviation charges on acc RE generators (D4-R1): Rs. 1,500 /

i. Methodology for Inter-State Transactions:

Following criteria/ methodology shall be adopted by SLDC for preparation of DSM: -

1) Inter-State transactions at a Pooling Station shall be permitted only if the concerned Generator or group of generators is connected through a separate feeder.
2) The Generator(s), through the QCA, shall submit a separate Schedule for its energy injection at Pooling Station, in accordance with these Regulations, to

the SLDCs.

3) The Inter-State Schedule submitted by the Stand-alone generator/ QCA shall be grossed-up to State Periphery by applicable transmission losses at par with conventional procedures and further shall be forwarded to Regional Load Despatch Centre (RLDC) to in-corporate in the State drawl schedule.

4) Charges towards sale of Energy shall be settled by the Procurer on the basis of scheduled generation, whereas the charges towards deviation of Energy from its given schedule shall be settled by the Generator in line with*) Annexure of the Regulations* as explained at **Table-2A** below:-

Table-2 A

Pooling Station/ Generator wise deviation charge calculation for Under or Over Injection by Solar and Wind Generators connected to Intra-State Transmission Network and selling and consuming power outside Haryana (for One Time block)										
Pooling station/ Individual Generator	Available Capacity (kWh)	Schedule (kWh)	Actual Injection (kWh)	Deviation (kWh)	Absolute Error (%)	Deviation units apportioned on the basis of Absolute Error (kWh)				Deviation Charges payable (+)/ receivable (-) by individual Pooling Station/Generator considering PPA rate/ APPC @ Rs.3.53 per kWh (Rs.)
						<=10 %	>10% but <= 20%	>20% but <=30%	>30%	
	(A)	(B)	(C)	(D)=C-B	(E)= Dx100/A	(F)	(G)	(H)	(I)	(J)= 3.53xF+ 1.1x3.53xG+ 1.2x3.53xH+ 1.3x3.53xI (for under-injection) 3.53xF+ 0.9x3.53xG+ 0.8x3.53xH+ 0.7x3.53xI (for over-injection)
P.S.-1	35000	25000	32500	7500	21.43%	3500	3500	500		-24887
P.S.-2	80000	50000	52500	2500	3.13%	2500	0			-8825
P.S.-3	120000	75000	90000	15000	12.50%	12000	3000		0	-51891
G-1	90000	50000	47500	-2500	-2.78%	2500	0		0	8825
G-2	55000	37500	20000	-17500	-31.82%	5500	5500	5500	1000	68659
Total	**380000**	**237500**	**238000**	**ABS 49500**	**11.84%**					**-8119**
Net Exchange	**380000**	**237500**	**242500**	**5000**						

5) To determine the impact of RE deviation at State periphery, the part of DSM weekly bill issued by the NRPC shall be apportioned to the net deviation of RE generation on the basis of applicable composite per unit rate (inclusive of additional DSM or capping DSM charge) for particular time block, as detailed hereunder via example: -

- Net Deviation of RE generation at State Periphery 5000 kWh
- Avg. Deviation rate at State periphery Rs. 3.00/- per kWh

- Total Deviation Charges on account of RE deviation at State periphery (D4) : Rs. 15,000/-
- Total Deviation Charges paid by RE generators as per Regulations (R1) : Rs. -8119/-
- Shortfall in deviation charges on acc RE generators (D4-R1): Rs. 23,119/-

6) The fixed rate for deviation settlement in case of Inter-State transactions shall be based on PPA rates determined by the commission under section 62 of the Act or adopted by the Commission under section 63 .

The fixed rate for Solar and Wind Energy Captive Power Plants and Open Access Generators selling power which is not counted against the RPO compliance of the Procurer shall be the APPC rate at the national level, as determined by the CERC for the respective year from time to time.

7) For the balancing of the deemed RPO compliance of Procurers with respect to Schedule, the aggregate deviations by Solar and Wind Energy Generators selling power outside the State shall first be netted for the entire Pool on a monthly basis, and any remaining shortfall in generation shall be balanced through purchase of equivalent Solar and non-Solar Renewable Energy Certificates (RECs), as the case may be, by the SLDC by utilizing funds from the Pool account. In case of a positive balance of Solar or Wind Energy Generation, equivalent notional RECs shall be credited to the State Deviation Pool Account and carried forward for settlement in future.

j. The Energy Center shall provide separate DSM accounts for Inter-State and Intra-State transactions to the QCA/Stand-alone generators. QCA shall settle the Deviation Charges with the concerned Generators.

k. Deviations in respect of Inter-State and Intra-State transactions shall be accounted separately at each Pooling Station.

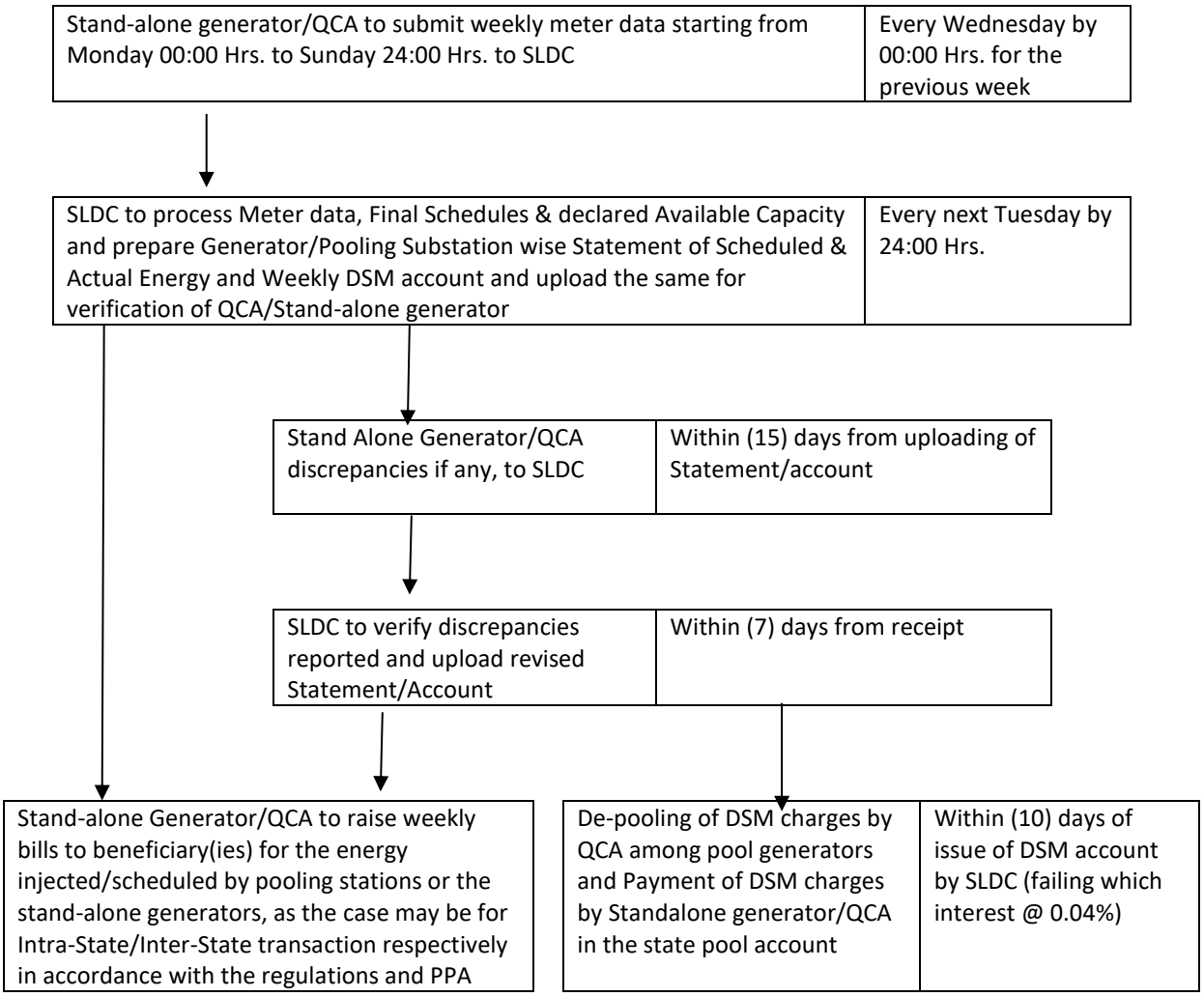
l. After notification of Intra-State DSM Regulations by the Commission, the Deviation Charges payable/receivable by distribution licensee, OA consumers, and conventional generators shall be computed by SLDC in accordance with Intra-State DSM regulations (say D1 be the Total Deviation Charges payable/receivable computed by SLDC) and after receipt of the deviation charges for RE generation in accordance with Regulation 6 of the regulations (say R1), if Deviation charges for the State as a whole (D) is greater than (D1+R1), the differential be made good from the PSDF/NCEF or any alternate funding mechanism as approved by HERC.

m. Calculation of impact of Wind/Solar generators at State Periphery shall be subject to revision in case the NRPC revises DSM account for concerned week at a later stage.

n. An amount payable to Wind/Solar generators shall be paid if sufficient balance amount is available in RE DSM pool account. However, in case sufficient balance amount is not available, payment to Wind/Solar generators on account of impact at State periphery shall be paid when sufficient balance is made up in RE DSM pool account.

o. The process-chart pertaining to timelines for accounting by SLDC is summarized as

under:-



vi. Monthly Energy Accounting and Deviation Settlement in accordance with Section 14.1 of the State Grid Code, being operationalized till implementation of Automated Meter Reading (AMR) as per the recommendation of SAMAST:-

a. For the purpose of preparation of Deviation Settlement Accounts, the joint meter reading(s) of Interface Meters shall be downloaded by concerned field offices **of licensee (DISCOMs/ HVPNL)** in presence of representative of Generator, on 1st of every month at interconnection/ interface points. **After duly verification & checking, the downloaded meter data in encrypted form shall be supplied to SLDC** via e-mail **xenec4@yahoo.com** by 3rd of every month or as per the provisions of PPA, whichever is earlier. The readings shall include Load- Survey (15-min) & Mid-Night (24 Hrs) data of Interface meters (Main Meter & Check Meter) and corresponding data of standby meters.

b. Based on the ABT data received, energy account statement for the actual energy injected by generators and Deviation Settlement Accounts for the month shall be issued in next 10 working days of every month by SLDC (after receipt of all input timely) and sent to stand-alone generator/QCAs to raise monthly bills to beneficiary (ies) and for

QCA's to de-pool the DSM charges among the pool generators.

The methodology for preparation of Deviation Settlement accounts for Intra-State as well as Inter-State transactions of Solar & Wind Generators/ Pooling Stations shall be same as elaborated in Sr.No. 14 (v) above. The accounts shall be sent to stand-alone generator/QCAs. Such energy accounts shall be subject to inspection/ verification/checking and raising any objection within 15 days of date of issue. If no objection is raised, energy accounts shall be considered finalized, or otherwise accounts shall be corrected forthwith by SLDC, if required, within 7 days from date of receipt of such discrepancy.

vii The disputed matters, if any, shall be deliberated in Co-ordination Committee.

viii The QCA shall process data for de-pooling among generators to whom it is representing and supply Statement to SLDC for information within 7 days of issue of UI/ DSM account.

15. Deviation Charges Payment Mechanism:

i All the commercial transactions shall be through Electronic Clearance System (ECS) only.

ii The Stand-alone Generator/ QCA shall open Bank Account in any Bank registered and regulated by RBI and intimate the details of the same to SLDC.

iii The Deviation Charges shall be paid by the Stand-alone Generator/ QCA within ten (10) days from the issue of the accounts by the SLDC.

iv If the Stand-alone Generator/ QCA fails to pay charges within 12 days from the date of issue of DSM account by SLDC, the defaulting generator/ QCA shall pay simple interest @ 0.04% for the each day of delay.

v The QCA shall pay the Deviation Charges to SLDC and collect it from the concerned Generators in proportion to their actual generation.

vi All payments to the State Entities on account of charges for deviation shall be made within 2 working days of receipt of the payments in State Pool account.

vii The responsibility of ensuring the payment of the Deviation Charges to the SLDC by the QCA shall remain to that of the concerned Generators.

viii After successful registration of the Stand-alone Generator/QCA, it shall be the responsibility of the Stand-alone Generator/QCA to deposit Bank Guarantee to ensure payment security mechanism.

16. Mechanism for Ensuring Compliance

In the Event of breach or default of procedure and consequences thereof shall be as under:

i) Following events shall constitute breach by QCA/ Generators:

a. Non-payment or delay in payment of Deviation Charges.
b. Non-compliance of any of the terms & conditions/ rules outlined under this procedure.

c. Non-compliance of any of the directive issued by SLDC, so long as such directives are not inconsistent with any of the provisions of HERC (Forecasting, Scheduling, and Deviation Settlement for Solar and Wind Generation) Regulations 2019.
d. Obtaining registration on the basis of false information or by suppressing material information.
e. Generator or QCA fails to provide schedules for continuously for 10 days.
f. Non-availability of real time data continuously for three (3) days without justified reason.
g. In case the Available Capacity (AvC) is intentionally and repeatedly mis-declared by the Generator/ QCA.
h. Non-payment of RE DSM charges to RE DSM Pool by Generator/QCA for consecutive three (3) weeks.
i. In case the Generator/QCA has become insolvent/ bankrupt.
j. In case of continued default for statutory compliance leading to declare wilful defaulter by Competent Authority

ii) Consequences for event of default:

a. If schedule is not provided by the generator/QCA then the previous day's schedule for those non-submission days shall be considered and DSM charges shall be computed accordingly. The non-submission of schedule shall attract scheduling charges as per the provisions of the SLDC's ARR approved by Hon'ble HERC as amended from time to time.

b. In case of default, the SLDC shall issue a notice of period not less than 15 days for revocation of registration of Stand-alone Generator/QCA, non-scheduling of generator/ Pooling Station and disconnection from the grid and adequate opportunity to Generator/ QCA to present its case before SLDC.
In case QCA/Generator fails to address/rectify the breach expressed by the SLDC in the Notice within stipulated time, the SLDC shall proceed with revocation of registration of QCA/ Generator and disconnection form grid. The Bank Guarantee may be forfeited in such case and the QCA/ Generator may also be debarred for a period of 2 years.

17. SLDC Fees & Charges and other Charges:

SLDC fee and charges including scheduling and operating charges shall be payable by QCA or generator, as the case may be, as specified/decided by the Haryana Electricity Regulatory Commission. The other Charges shall be levied as per the applicable HERC Regulations/Orders. Details of Registration Fee, Forecasting fee, Schedule Revision Charges and Bank Guarantee enclosed at **Annexure-IX** (which shall be levied subject to approval of Hon'ble HERC).

The payment/ billing of charges shall be in accordance with the relevant regulations (e.g. forecasting, scheduling & DSM regulations, open access regulations etc.) issued by Hon'ble HERC from time to time.

18. Application of Losses and Charges:

Transmission and Distribution charges and losses shall be applicable as specified by the HERC/ CERC from time to time.

19. Re-dressal Mechanism:

Any dispute in scheduling, metering, billing/ energy accounting & Commercial Settlement shall be first referred to the Co-ordination Committee. All users shall abide by the decision of Committee. The Committee shall investigate and endeavor to resolve the grievance within 30 days after affording opportunity of hearing to all the affected parties. If the Committee is unable to redress the grievance, it shall be referred to the Commission by the Committee. In case the generator/ QCA is dissatisfied with the decision of the committee, it may approach the Commission through a petition. Pending the decision of the commission, the directions of the SLDC shall be complied with by the Generator QCA

20. Removal of difficulties:

In case of any difficulty in implementation of this procedure, SLDC may approach the Commission for review or revision of the procedure with requisite

21. General:

i) All costs/expenses/ charges associated with the application, including bank charges, Affidavits etc. shall be borne by the applicant.

ii) The Generators and QCA shall abide by the provisions of the Electricity Act, 2003, the HERC Regulations and Indian Electricity Grid Code and HERC (State Grid Code) Regulation - 2013, and applicable CERC and HERC regulations as amended from time to time.

iii) This procedure aims at easy and pragmatic Forecasting, Accounting and Settlement of Deviations for Wind and Solar Generations. However, some teething problems may still be experienced. The various implications would be known only after practical experience is gained by way of implementing these procedures. In order to resolve the same, this procedure shall be reviewed or revised by the SLDC with prior approval of Commission.

22. Annexures & Formats:

List of Annexures and Formats are listed below:

Sr.No.	Particulars	Annexure/ Format No.
1.	Technical Data of individual Generators	
(a)	For Wind Generators	Annexure - I A
(b)	For Solar Generators	Annexure - I B
(c)	For Pooling Stations	Annexure - I C
2.	Real-time Data Telemetry requirement	Annexure - II
3.	Format for submission of Forecast/ Schedule	Annexure - III
4.	Notarized Affidavit/ Undertakings on Stamp Paper	
(a)	PPA details of individual pool Generators in the Pooling Station	Annexure - IV A
(b)	Format for Indemnity Bond to be submitted by Stand-alone generator/ QCA	Annexure - IV B
5.	Consent/Authorization Letter from Pool Generators & beneficiary for appointment of QCA	Annexure-V
6.	Application for Registration of Stand-alone generator/ QCA	Annexure - VI
7.	Format for revision of Forecast/ Schedule	Annexure - VII
8.	Format for curtailment of Forecast/ Schedule by SLDC	Annexure - VIII
9.	Proposed Fee & Charges	Annexure - IX
10.	Executive Summary of DGR for Date & cumulative summary sheet.	Annexure-X

Annexure-I A

Proforma for static data for wind turbine generating plants

S. No.	Particulars
1	Type
2	Manufacturer
3	Make
4	Model
5	Capacity
6	Commissioned date
7	Hub height
8	Total height
9	RPM range
10	Rated wind speed
11	Performance Parameter
12	Rated electrical power at Rated wind speed
13	Cut in speed
14	Cut out Speed
15	Survival speed {Max wind speed)
16	Ambient temperature for out of operation
17	Ambient temperature for in operation
18	Survival temperature
19	Low Voltage Ride Through (LVRT) setting
20	High Voltage Ride Through (HVRT) setting
21	Lightning strength (KA & in coulombs).
22	Noise power level (db)
23	Rotor
24	Hub type
25	Rotor diameter
26	Number of blades
27	Area swept by blades
28	Rated rotational speed
29	Rotational Direction
30	Coning angle
31	Tilting angle
32	Design tip speed ratio
33	Blade
(i)	Length
	(ii) Diameter
	(iii) Material

(iv) Twist angle

34 Generator

(i) Generator Type

(ii) Generator no. of poles

(iii) Generator speed

(iv) Winding type

(v) Rated Gen. Voltage

(vi) Rated Gen. Frequency

(vii) Generator current

(viii) Rated Temperature of generator

(ix) Generator cooling

(x) Generator power factor

(xi) KW /MW@ Rated Wind speed

(xii) KW /MW@ peak continuous

35 Frequency Converter

36 Filter generator side

37 Filter grid side

38 Transformer

a. Transformer capacity

b. Transformer cooling type

c. Voltage

d. Winding configuration

39 Weight

(i) Rotor weight

(ii) Nacelle weight

(iii) Tower weight

40 Over speed Protection

41 Design Life

42 Design Standard

43 Latitude

44 Longitude

45 COD Details

46 Past Generation History from the COD to the date on which DAS facility provided at SLDC, if applicable

47 Distance above mean sea level

48 Electrical Single Line Diagram and Plant Layout

49 Any other data required from time to time

Note: Any change in aforementioned data/ information shall be conveyed to SLDC immediately.

Sign & Stamp of Authorized Signatory of QCA/ Generator(s)

Annexure-I B

Proforma for Static data for Solar generating -Plants

1. Latitude
2. Longitude
3. Inverter Power Curve
4. Elevation and orientation angles of arrays or concentrators
5. The generation capacity of the Generating Facility
6. Distance above mean sea level etc.
7. COD details
8. Rated voltage
9. Details of Type of Mounting: (Tracking Technology If used, single axis or dual axis, auto or manual)
10. Manufacturer and Model (of Important Components, Concentrators, Inverter, Cable, PV Module, Transformer, Cables)
11. DC installed Capacity
12. Module Cell Technology
13. I-V Characteristic of the Module
14. Inverter rating at different temperature
15. Inverter Efficiency Curve
16. Transformer Capacity & Rating; evacuation voltage, distance form injection point
17. Any other data required from time to time

Note: Any change in aforementioned data/ information shall be conveyed to SLDC immediately.

Sign & Stamp of Authorized Signatory of QCA/ Generator(s)

Annexure-I C

Proforma for Technical Data for Pooling Stations:-

WIND/SOLAR (400/220/132/66/33 kV GSS)

Sr.No.	Name of Receiving Station	Name of Company	Wind/Solar capacity in MW

Note: Any change in aforementioned data/ information shall be conveyed to SLDC immediately.

Sign & Stamp of Authorized Signatory of QCA/ Generator(s)

Annexure-II

Detailed Information/Guidelines for Integration of Sub-station data including RES (Renewable Energy Sources) **plants data (i.e. solar power, wind power etc.) with SCADA system at Haryana SLDC, Sewah, Panipat.**

Reliable and efficient Speech & Data Communication systems shall be provided to facilitate necessary communication and data exchange as well as effective & efficient power system operation in the State. All agencies including RE/NRE Generator who are allowed open access or otherwise shall provide real-time telemetry of power system parameters such as power flow, voltage, frequency, tap position of the transformers and status of switching devices like CBs & Isolators etc.
The RTUs/SAS to be installed at the power stations/substations/pooling station should have IEC 60870-5-101 / IEC 60870-5-104 protocol with interoperability matrix compatible with SCADA system available at SLDC, Panipat / REMC/ Back-up Control Centre.

Physical addresses for Telegrams:

Physical addresses of each telegram will be provided by SCADA Wing during the integration of substation with SCADA system of SLDC, Panipat after submitting the required documents by integrator.

I. For the purpose of integration of RTUs/SAS data with the said SCADA system, all the concerned are requested to kindly go through the following information/general guidelines as reference.

Information required for database Preparation:

a) **List of Documents as required for approval** :-

1) Schematic Diagram of Data telemetry along with communication route details etc.
2) System Architecture
3) Details of tools/software(s) etc. to be used to counter data hacking/cyber-attacks.
4) Latest Single Line Diagram of Plant/Sub-Station
5) Bay description Performa (**as per Annexure II-A**).
6) Test Reports of all hardware to be installed by the firm.
7) Any other document(s) as deemed necessary from time to time

Note : Documents to be submitted should be arranged as per the above order/sequence.

b) Details of required telemetry (Common for all entities)

1) Analog values
   a. **Generating Units/Inverters** : Unit wise Active & Reactive Power (MW & MVAR)
   b. **Lines/ Transformers** : Active & Reactive Power (MW & MVAR) & Tap position (in case of transformer)
   c. **Bus Bar**: Voltage (KV)
   d. **Frequency** - Hz.

2) Digital Signals

   a. Circuit Breaker Status (On/Off)
   b. Isolator Status (On/Off)
   c. Sequence of Events
   d. Remote Control of Circuit Breakers (if any)
   e. Protection Trip

3) Energy data (KW/KWH)

a. Import

b. Export

c. Net

c) Details of additional Signals (Plant specific only)

As per requirement of System Operation Wing of HVPNL, following the guideline of CERC/HERC approved procedure for "Implementation of the framework on forecasting, scheduling & imbalance handling for Renewable energy (RE), Generating stations including power parks on winds & Solar at Inter-state level", following data points are required from Wind & Solar Power Plants:

(i) For Wind turbine generating plants

1. Turbine Generation (MW/MVAR)
2. Wind Speed (meter/second)
3. Wind Direction (degrees from true north)·
4. Ambient air temperature (°C)
5. Barometric pressure (Pascal)·
6. Relative humidity (in percent)
7. Air Density (kg/m3)

(ii) For Solar generating Plants

1. Global horizontal irradiance (GHI)-Watt per meter square
2. Diffuse Irradiance-Watt per meter square
3. Direct Irradiance- Watt per meter square
4. Sun-rise and sun set timings
5. Performance Ratio
6. Cloud cover-(Okta)
7. Ambient temperature (°C)
8. Rainfall (mm)
9. Relative Humidity (%)

Note: Additional requirement of the above parameters shall be provided as per requirement of System Operation from time to time.

d) Telemetry system/Infrastructure Requirements :

1) The RTU/SAS and voice communication facility (OPGW & FOTE etc.) with technical specifications approved by HVPNL shall be provided by the User / Generator as per provision of Haryana Grid Code, 2009 and amendment thereof. The main and standby communication links shall be provided by users.

2) The user RE/NRE Generator/system integrator shall be required to provide/install & commission required telemetry system/ Infrastructure at their own risk & cost at their respective site(s) and at SLDC, Panipat (i.e. hardware, communication connectivity, mounting arrangements, cables/wires etc. including tools/software(s) to counter data hacking/cyber-attacks in the commissioned system/ infrastructure etc.) as per the approval conveyed by SLDC for successful integration of their remote plant(s)/site(s) data. They shall ensure strict compliance of standard industry practices/safety provisions as per by IE rules, 2005.

3) The user RE/NRE Generator /system integrator(s) shall ensure redundancy of the Communication

Link at SCADA Centers at SLDC, Panipat / REMC / Back-up Control Center. Ensuring round-the-clock availability of telemetry after its commissioning is of utmost importance and necessary arrangement for ensuring 99.9% availability after subsequent commissioning of telemetry like arrangement of sufficient spares for data acquisition equipments as well as data channel equipments / AMC with OEMs, availability of backup of all configuration files, wiring diagrams etc. is required to be maintained and details of contact person responsible for maintenance of telemetry is required to be informed to SLDC.The RE/NRE Generators being integrated at 11kV/33kV/66kV are required to arrange reliable data channel using dedicated point to point leased line, VSAT with Redundancy up to SLDC, Panipat / REMC / Back-up Control Center.

4) The provision of OPGW & Communication FOTE (Fiber Optic Telecommunication Equipment) shall be made by the User / RE/NRE Generator on 132 kV and above as per technical specifications of HVPNL. The integration of Communication Equipment with NMS at SLDC will be ensured. The renewable generating stations are required to arrange data channel upto nearest available wideband communication node of STU (HVPNL).

Note(s):

1. Due to space constraint in SLDC Building as mentioned above, it shall not be binding upon the SLDC to consider/approve an independent telemetry system/infrastructure for each and every RTUs/SAS/RES vendor(s)/system integrator as proposed by them as an alternative to the above, RTUs/SAS/RES vendor(s)/system integrator(s) may use on shared basis, the existing data integration facilities as provided, as per the terms & conditions mutually agreed upon.

2. The user/RE/NRE Generator/system integrator(s) shall be liable to upgrade/replace their existing telemetry system (at their own cost & risk) in compliance to meet with regulations/statutory requirements as issued by any Government agency/ CEA/CERC/ HERC/PGCIL/NRPC/FOLDHVPNL/SLDC etc. from time to time. There shall be no financial implications to HVPNL/ SLDC on this account.

3. The user/ RE/NRE Generator/system integrator(s) shall be liable to pay the charges (including telemetry data integration charges), if any, as decided/levied by Government of India/ Haryana/CEA/CERC/ HERC/FOLD/ / HVPNL/SLDC etc. from time to time.

4. Communication channel / solutions using GPRS shall not be allowed for Real-time telemetry data.

e) Other General Requirements (for The user / RE/NRE Generator/system integrator(s)) :

1) They shall be required to get all the requisite prior approval from concerned offices of HVPNL before taking up any activity (in hand).
2) They shall be fully responsible for proper upkeep and maintenance of their telemetry system so as to ensure round the clock availability of telemetry data at SLDC, Panipat/ REMC /Back-up Control Center.
3) Telemetry Data as integrated with SCADA system at SLDC Panipat/ REMC /Back-up Control Center after end-to-end testing shall remain under observation for its quality /continuous availability at SLDC Control centre, Sewah, Panipat for a period of minimum of 7 days before declaring the said telemetry system as "Successfully Integrated with SCADA system"
4) They shall also ensure cyber security audit of their telemetry system from the third party Independent agencies registered with Indian Computer Emergency Response Team, which is a functional organisation of Ministry of Electronics and Information Technology, Government of

India (http://www.cert-in.org.in/) or other agencies only authorized by government time to time in compliance against cyber security threats and accordingly shall submit certified reports to this office within 30 days of integration of their RTU/SAS/plant data with SCADA system and subsequently submit certified reports on half yearly basis.

5) In case of any failure of SCADA system/ any loss of data either due to non -compliance of Sr. no. 4 above or any other lapses in the telemetry system provided by user/RE/NRE Generator/System integrator(s) etc. they shall be liable to pay damages/penalties as per the provisions of various acts in place and as decided by competent authority.
6) They shall have to comply with the instructions issued by CEA/CERC/ HERC/ / /PGCIL/NRPC/FOLD/HVPNL/SLDC or any other statutory body etc. from time to time. In case of any dispute regarding hardware/software/or any other technical issues, the decision of SLDC/HVPNL shall be applicable whatsoever.
7) Contact details/ e-mail Ids of all the concerned persons, including office contact details of Company(owner of plant), site engineer, Control room Number and that of the DISCOMs/ HVPNL sub- station, to which RES power is proposed to be injected, shall be made available to this office & may be updated after every 3 months.

III Contact Details of Officers/Officials of SLDC, Panipat are as follows:

S.No.	**Designation**	**Contact No.**	**E-mail ID**
1	XEN LD&PC, HVPN, SLDC Panipat	0180-2664095	xenldpc@hvpn.org.in
2	XEN SCADA- EMS Mtc. Divn., HVPNL, SLDC Panipat	0180-2671788	xenscada@hvpn.org.in
3	XEN SLDC RTU Const. & Mtc. Divn., HVPN, SLDC Panipat	0180-2664852	xensldcrtumtc@hvpn.org.in

Annexure-III

Format for day ahead schedule submitted by Wind/Solar Generator or QCA

Date:

Name of the wind/solar Generator or QCA _____

schedule for dated _____

Revision No. _____

Time of Revision _____**Hrs**

Time of Receipt by SLDC ----------Hrs

Time-Period			**Available Capacity Day Ahead**	**Day Ahead Forecast**	**Day Ahead Schedule**
Block	**From (Hrs: MM)**	**To (Hrs: MM)**	**(MW)***	**(MW)***	**(MW)***
1	0:00	0:15			
2	0:15	0:30			
3	0:30	0:45			
4	0:45	1:00			
-	-	-			
-	-	-			
-	-	-			
-	-	-			
93	23:00	23:15			
94	23:15	23:30			
95	23:30	23:45			
96	23:45	24:00			
Total in MWHr (for 24 Hrs)					
Maximum during the day (MW)					
Minimum during the day (MW)					
Average during the day (MW)					

*** All figures at Ex-Bus Periphery.**

(Name, designation & Signatures of Scheduling Officer-Incharge)

ANNEXURE-III cont..

Format for week- ahead schedule submitted by Wind/Solar Generator or QCA

Date:

Name of the wind/solar Generator or QCA _____

schedule for week _____

Revision No. _____

Time of Revision _____**Hrs**

Time of Receipt by SLDC---------- **Hrs**

Time-Period			**Schedule for week ahead (Day wise)**						
			Day1	**Day2**	**Day3**	**Day4**	**Day5**	**Day 6**	**Day7**
Block	**From (Hrs: MM)**	**To (Hrs: MM)**	**(MW)***	**(MW)***	**(MW)***	**(MW)***	**(MW)***	**(MW)***	**(MW)***
1	0:00	0:15							
2	0:15	0:30							
3	0:30	0:45							
4	0:45	1:00							
-	-	-							
-	-	-							
-	-	-							
-	-	-							
93	23:00	23:15							
94	23:15	23:30							
95	23:30	23:45							
96	23:45	24:00							
Total in MWHr (for 24 Hrs)									
Maximum during the day (MW)									
Minimum during the day (MW)									
Average during the day (MW)									

*** All figures at Ex-Bus Periphery.**

(Name, designation & Signatures of Scheduling Officer-Incharge)

Annexure-IV A

(To be submitted on Notarized Affidavit)

Pooling Station Name:_____

Name of Stand-alone generator/ QCA: _____

Sr.No.	Name of Generator	Installed Capacity (MW)	PPA with	Effective Date	PPA validity Date	Rate per Unit (Rs./ kWh)

Date:_____

Place: _____

Sign: _____

Authorized Signatory

Name:_____

Designation:_____

Name of Stand-alone generator/ QCA:

_____

Seal:

Annexure-IV B

UNDERTAKING TO BE GIVEN BY PROSPECITVE Stand-alone Generator/ QCA AT THE TIME OF REGISTRATION

Name: M/s_____(Name of Stand-alone generator/ QCA), _____(Postal address)_____

(To be provided by the QCA on a stamp paper attested by Notary Public)

1. I/We, as a Stand-alone Generator/ QCA will be regulated by HERC (Forecasting, Scheduling and Deviation Settlement for Solar and Wind Generation) Regulations, 2019 as amended from time to time.
2. The Deviation Settlement charges shall be as per the HERC Regulations read with these guidelines for which we as QCA will be responsible for the pooling stations/ Generator for which we represent as a QCA. *(for QCA only)*
3. We as QCA fulfill all the Operational requirements as per Sr. no. 5 of detailed procedure, as under:- *(for QCA only)*
   - i We have fully functional forecasting and scheduling tools to obtain the desired output.
   - ii We have the experience in the field of Wind and/or Solar Power forecasting and scheduling for 50 MW projects (including cumulative pilot projects) and a minimum period of one (1) year with appropriate accuracy levels in forecasting.
   - iii We have an experience in working in different terrain & regions, as Wind /Solar generation depends on these factors and such experience facilitates better scheduling.
   - iv We have capability to handle multiple plant owners connected to a pooling station in order to be well positioned to de-pool deviation charges.
   - v Our financial strength of the QCA is in a position to handle the risk of penalties due to deviation charges applicable to RE generator. Our net worth is more than Rs. 1.50 Crores in the previous financial year, which reflects from our audited accounts duly certified by the Charted Accountant.
   - vi We have a compatible system in place for seamless flow of information to and from SLDC in order to facilitate forecasting, scheduling and revision of schedule, intimation of outages/grid constraints etc. and we have capability to provide real time monitoring systems in place for seamless flow of information to and from SLDC.
   - vii We have an established team of Renewable Resource Analysts, modeling Statisticians/data Scientists, Energy modelers and 24*7 operation and monitoring team.

4. As per the HERC Regulations, I/we as a Stand-alone Generator/QCA, agree to provide the forecasting schedules to SLDC on day-ahead and week ahead basis on behalf of Wind and Solar Generator/ pooling stations connected to STU/DISCOM.
5. We as QCA agree to provide the authorization/ consent letter from all the generators connected to the pooling station/RE Generator and beneficiary(ies) for being appointed as the QCA. *(for QCA only)*
6. I/We understand that we can revise the day ahead schedules for a maximum of 16 revisions during the day as per the regulations.
7. I/We agree that if there is any deviation from the schedule, then for such energy, Deviation charges will be applicable as per the regulations as amended from time to time.
8. We shall be responsible for commercial settlements with the SLDC on behalf of wind and solar generators connected to the pooling station and generators. *(for QCA only)*
9. I/We understand that the SLDC will compute the comprehensive Deviation charges and raise bill for the deviation on weekly/monthly basis, as may be applicable.
10. DSM Account shall be prepared as per HERC (Forecasting, Scheduling and Deviation settlement for Solar and Wind Generation) Regulations, 2019
11. I/We as Stand-alone Generator/QCA will abide by HERC (Forecasting, Scheduling and Deviation settlement for Solar and Wind Generation) Regulations, 2019 as amended from time to time for all transactions.
12. I/We shall establish necessary communication system for telemetry of Real Time Data from the turbine/inverter level to the Interface Point (Generator/ Pooling Station) and from Interface Point to SLDC (including necessary interfacing arrangements for data integration at SLDC end) for the purpose of monitoring and billing as per procedure.
13. In the event of any fault in generating system resulting in lower generation then, I/we will revise the schedule and the same shall be intimated to SLDC as per the procedure.
14. I/We agree to submit Bank Guarantee for the amount of Rs.20,000/MW for solar generation and Rs. 50,000/MW for wind generation.
15. I/We agree to provide WTG's/ Inverter's static data and pooling stations details as per the formats specified by SLDC.
16. I/We agree, if payments against the Charges for Deviation Charges are delayed by more than two days, i.e. beyond seven (7) working days from the date of issue of final DSM account by SLDC, the defaulting Stand-alone generator/ QCA shall have to pay simple interest@ 0.04% per day in addition and in case the payment is not made even after a lapse of 60 days from issuance of final DSM account, process to invoke Bank Guarantee shall be initiated.
17. I/We will be responsible to ensure healthiness of metering equipment during the period of schedule/ injection of power and will inform SLDC about defect/ change in metering equipment within 24 hrs of such defect coming to notice/ change of metering equipment. In absence of timely receipt of such information from us, I/We will be responsible for any loss to SLDC/ HVPNL on this account.
18. I/We agree to accept the decision of Co-ordination Committee/ appropriate commission (CERC/ HERC)

19. I/We agree to bear any loss to SLDC/ HVPNL incurred on account of misrepresentation/ concealment of facts by me/us.

I/We undertake all operational and commercial responsibilities on behalf of the Constituents as per the prevalent HERC Regulations and are agreeing for the above terms and conditions for registering as Stand-alone generator /QCA with SLDC, Swah, Panipat.

Details of Payment Security is enclosed
(Name and Postal address of Stand-alone generator/ QCA)

_____

_____

~~For Pooling Station:~~

HVPNL/DISCOM Injecting Station:

Voltage level at injecting point:

List of generators connected to the pooling station along with installed capacity for which consent is obtained *(for QCA only)*:

1.

2.

Declaration: All that is stated in the above is true and correct.

Note: Copy of Board Resolution of Authorized Signatory/ Power of attorney/ Authorization Letter in respect of signing authority to be enclosed.

Annexure-V

Performa Consent Letter

To,

Chief Engineer/ SO & Commercial,
HVPNL, Panipat

ub: Appointment of QCA as per HERC Forecasting, Scheduling, and Deviation Settlement for Solar and Wind Generation Regulations, 2019.

Respected Sir,

We would like to inform you that we as the Wind/Solar power generator at (name) polling station have decided to exclusively appoint …….. only as the Qualified Coordinating Agency (QCA) for Forecasting, Scheduling and Commercial Settlement, as per HERC (Forecasting, Scheduling, and Deviation settlement for Solar and Wind Generation) Regulations, 2019
Kindly find below the details of our capacity at ……..(Name) polling station having MW.

S.No.	Generator Name	No of WTGs/Panels	Contact Person	Mail ID & Contact No	Capacity in MW
1					…

We would like to state that hence forth the role of QCA at …. (Name) Poling station will be taken care by ……

Contact Person (Pool Generator 1):……
Address: ……
Phones (o) : …….. (M) : …….. (E-mail) : ……..
Contact Person 2 (Pool Generator 2): ……
(Address: ……
Phones (o) : …….. (M) : …….. (E-mail)..... **Contact Person (Beneficiary)**
Contact Person 3 (Pool Generator 3): …… ***(concerned procurement agency)***
Address: …… Address: ……
Phones (o) : …….. (M) : …….. (E-mail) : ……. Phones (o) : …….
Forecast Operations Desk : …… (M):……..(E-mail): ……
(o) : …… (E-mail) : ……..
This is for your kind information and records.
Regards,
<<Signing Authority Name>>
<<Signing Authority Designation>>

ANNEXURE-VI

Tel :
Email: Haryana State Load Dispatch Centre

Stand-alone generator/ QCA Registration Form
(Regn No.____of the HERC Regulations)

Tick relevant box

New Registration	Change of registration	Cancel registration

Tick relevant box

Wind Generation	Solar Generation

Tick relevant box

Individual	On behalf of Group of generators*

* If on behalf of Group of generators, attach consent/ Authorization form and copy of agreement executed with generators, if any.

Tick relevant box

Intra-State Pooling Station	Inter-State Pooling Station	Mixed Pooling Station

1	Name of the Entity			
2	Primary business (brief description)			
3	Business address			
Phone	Mobile	Fax	Email	website

4	Postal Address			
5	Contact person & designation			
Phone	Mobile	Fax	Email	
6	Name of Directors	Position	Mobile	E-mail
A				
B				
7	Financial details			

8. Pooling station represented				
Pooling station Name, Type & Address	Total installed capacity	DISCOMs/ HVPNL Injecting Grid Sub Station	Voltage Level	Type (Wind/Solar)

Agreement & Appointing letter from the legal owners of WTGs.(Enclose copies)				
9. Details of Generator(s)				
Name of Generator (s)	Location of Generator(s) (Village, Tal, District)	Total unit-wise Installed Capacity (MW)	Type of transaction (Intra-State/ Inter-State)	Detail of beneficiary/ drawl point (Attach Notorized affidavit as per Format-IVA)

<table>
<tr><td colspan="5">10. Metering Details</td></tr>
<tr><td>Point of Injection</td><td>Main Meter</td><td>Check Meter</td><td>CT Ratio</td><td>PT Ratio</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>11.</td><td>Details of Registration Fee
(RTGS/ NEFT No.)</td><td colspan="3"></td></tr>
<tr><td colspan="5"></td></tr>
<tr><td rowspan="4">12.</td><td rowspan="4">Details of Bank Guarantee
(No. & date)</td><td>Solar</td><td>MW capacity</td><td>Amount</td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td>Wind</td><td>MW capacity</td><td>Amount</td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td colspan="5"></td></tr>
<tr><td rowspan="4">13.</td><td rowspan="4">Bank account Details of Stand-alone Generator/ QCA for handling DSM mechanism</td><td>A.C No.</td><td colspan="2"></td></tr>
<tr><td>IFSC Code</td><td colspan="2"></td></tr>
<tr><td>Name of the Bank</td><td colspan="2"></td></tr>
<tr><td>Address</td><td colspan="2"></td></tr>
</table>

Authorized Signature
And Official Seal
(For Stand-alone Generator/ QCA)

Note: Any change in aforementioned data/ information shall be conveyed to SLDC immediately.

ANNEXURE-VII

Format for Revision on the day of Actual Generation submitted by Wind/Solar Generator or QCA

Date:

Name of the wind/solar Generator or QCA _____ **schedule for dated** _____ **Revision No.** _____ **Time of Revision** _____**Hrs** **Time of Receipt by SLDC ---------- Hrs**					
Time-Period			**Day Ahead Schedule**	**Current Available Capacity**	**Revised Schedule**
Block	**From (Hrs: MM)**	**To (Hrs: MM)**	**(MW)***	**(MW)***	**(MW)***
1	0:00	0:15			
2	0:15	0:30			
3	0:30	0:45			
4	0:45	1:00			
-	-	-			
-	-	-			
-	-	-			
-	-	-			
93	23:00	23:15			
94	23:15	23:30			
95	23:30	23:45			
96	23:45	24:00			
Total in MWHr (for 24 Hrs)					
Maximum during the day (MW)					
Minimum during the day (MW)					
Average during the day (MW)					
*** All figures at Ex-Bus Periphery.** **(Name, designation & Signatures of Scheduling Officer-Incharge)**					

ANNEXURE-VIII

Format for curtailment schedule Issued by SLDC during contingency

Date:

Name of the wind/solar Generator _____

or QCA ___

schedule for dated _____

Revision No. _____

Time of Revision _____**Hrs**

Time-Period			**Required Schedule after curtailment**
Block	**From (Hrs: MM)**	**To (Hrs: MM)**	**(MW)***
1	0:00	0:15	
2	0:15	0:30	
3	0:30	0:45	
4	0:45	1:00	
-	-	-	
-	-	-	
-	-	-	
-	-	-	
93	23:00	23:15	
94	23:15	23:30	
95	23:30	23:45	
96	23:45	24:00	
Total in MWHr (for 24 Hrs)			
Maximum during the day (MW)			
Minimum during the day (MW)			
Average during the day (MW)			

*** All figures at Ex-Bus Periphery.**

(Name, designation & Signatures of Scheduling Officer-Incharge)

ANNEXURE-IX

Abstract of Payment to be made by the Stand-alone generator/ QCA to SLDC

Sr. No.	Reason for Payment	Amount (Rs.)	Time of Payment
1	Registration Charges	10,000/- for Stand-alone generator 20,000/- for QCA for each Pooling Station	Alongwith Application for Registration
2	Scheduling Charges	NIL	For each day
3	Revision in Schedules	NIL	For every revision
4	Forecasting services	3,000/-	Per day, if availed and provided by SLDC
5	Bank Guarantee	Rs.20,000/MW for solar generation and Rs. 50,000/MW for wind generation	During Registration
6	Any other charges	As approved by the Commission from time to time	As required

Annexure-X

	Executive Summary of DGR for Date & cumulative summary sheet:																	
Sr. No.	Plant Details	Generation (kWh)		Generation @ rated voltage Net Export		Generation Per MW AC		Tilt (KWh/m2)		% PR		% CUF		Plant Availability		AC Losess+Aux. Cons.	
		Daily	This Month-Till Today	Daily	This Month-Till Today	Daily	This Month-Till Today	Daily	This Month-Till Today	Daily	This Month-Till Today	Daily	This Month-Till Today	Today	This Month-Till Today	Daily	This Month-Till Today

Abbreviations

i.) FOLD: Forum of Load Despatchers.

ii.) NMS: Network Management System.

iii.) REMC: Renewable Energy Management System.

iv.) CERC: Central Electricity Regulatory Commission.

v.) CEA: Central Electricity Authority.

vi.) PSS: Pooling Sub-Station.

vii.) QCA: Qualified Co-ordinating Agency.

viii.) VSAT: Very Small Aperture Terminal.

ix.) HERC: Haryana Electricity Regulatory Commission.

x.) SEA: State Energy Account.