TARIFF FRAMEWORK FOR PROCURMENT OF POWER BY DISTRIBUTION LICENSEES AND OTHERS FROM WIND-SOLAR HYBRID PROJECTS AND OTHER COMMERCIAL ISSUES FOR THE STATE OF GUJARAT

April, 2021

Gujarat Electricity Regulatory Commission

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Abbreviations

%	Percentage
ABT	Availability-Based Tariff
AC	Alternating Current
APPC	Average Pooled Purchase Cost
BOO	Build, Own and Operate
CBG	Competitive Bidding Guidelines
CDM	Clean Development Mechanism
CEA	Central Electricity Authority
CER	Certified Emission Reduction
CERC	Central Electricity Regulatory Commission
COD	Date of Commercial Operation
CPSU	Central Public Sector Undertaking
CUF	Capacity Utilization Factor
DISCOM	Distribution Companies
DC	Direct Current
FY	Financial Year
GEDA	Gujarat Energy Development Agency
GERC	Gujarat Electricity Regulatory Commission
GETCO	Gujarat Energy Transmission Corporation Ltd.
GoG	Government of Gujarat
GoI	Government of India
GUVNL	Gujarat Urja Vikas Nigam Limited
HPD	Hybrid Project Developer
HPG	Hybrid Project Generator
HPP	Hybrid Power Project
HPPC	Haryana Power Purchase Centre
IPCL	India Power Corporation Limited
IREDA	Indian Renewable Energy Development Agency
ISTS	Inter-State Transmission
JNNSM	Jawaharlal Nehru National Solar Mission
KV	Kilo Volt
kW	Kilo Watt
kWh	Kilo Watt hours
kVARh	Kilo Volt Ampere Reactive Hour
M	Meter
m/s	meter per second

MNRE	Ministry of New and Renewable Energy
MW	Mega Watt
MWh	Mega Watt hour
NEP	National Electricity Policy
NTP	National Tariff Policy
O&M	Operation and Maintenance
PPA	Power Purchase Agreement
PSA	Power Supply Agreement
PV	Photovoltaic
R&D	Research & Development
RE	Renewable Energy
REC	Renewable Energy Certificate
RfS	Request for Selection
RPO	Renewable Purchase Obligation
RPS	Renewable Purchase Standards
Rs	Rupees
RTC	Round the Clock
SECI	Solar Energy Corporation of India
SERC	State Electricity Regulatory Commission
T&D	Transmission & Distribution
V	Volt
WPD	Wind Power Density
WTG	Wind Turbine Generators

Order No. 04 of 2021

In the Matter of:

Tariff framework for Procurement of Power by Distribution Licensees and Others from Wind-Solar Hybrid Energy Projects and Other Commercial issues for the State of Gujarat.

Date of Order: 03/04/2021

CORAM:

Shri Anand Kumar, Chairman

Shri Mehul M. Gandhi, Member

Shri S. R. Pandey, Member

1. INTRODUCTION

1.1 Background

In exercise of the powers conferred under Sections 3 (1), 61 (h), 62 (1) (a), and 86 (1) (b)& (e) of the Electricity Act, 2003, National Electricity Policy, 2005, and Tariff Policy, 2016 and all other powers enabling it in this behalf, the Gujarat Electricity Regulatory Commission (GERC or Commission) presents this Order on the tariff framework for procurement of power by Distribution Licensees and others from Wind – Solar Hybrid Power Projects to be commissioned prospectively.

The Commission while framing the discussion paper considered various provisions of the following documents including the 'Gujarat Wind-Solar Hybrid Power policy-2018' notified by GoG as well as 'National Wind –Solar Hybrid Power Policy' and subsequent guidelines notified by MNRE.

1.2 The Electricity Act, 2003

The following provisions of the Act provide the enabling legal framework for promotion of Renewable Sources of energy by the State Electricity Regulatory Commissions (SERCs):

Section 61 (h) of the Act provides that, while specifying the terms and conditions of determination of tariff, the Commission shall be guided by the objective of promotion of co-generation and generation of electricity from renewable sources of energy.

Section 62 (1) (a) of the Act provides for determination of tariff for supply of electricity by a generating company to a distribution licensee.

Section 86 (1) (b) of the Act regulates the procurement process of electricity by the distribution licensees as under**:**

"regulate electricity purchase and procurement process of distribution licensees including the price at which electricity shall be procured from the generating companies or licensees or from other sources through agreements for purchase of power for distribution and supply within the State;"

Section 86 (1) (e) of the Act mandates promotion of co-generation and generation of electricity from renewable sources of energy**:**

"Promote co-generation and generation of electricity from renewable sources of energy by providing suitable measures for connectivity with the grid and sale of electricity to any person, and also specify,

for purchase of electricity from such sources, a percentage of the total consumption of electricity in the area of a distribution licensee."

Section 3 (1) of the Act requires the Central Government to formulate, inter alia, the National Electricity Policy in consultation with the Central Electricity Authority (CEA) and State Governments for inter-alia, development of the renewable sources of energy. The provision is quoted below**:**

"The Central Government shall, from time to time, prepare the National Electricity Policy and tariff policy, in consultation with the State Governments and the Authority for development of the power system based on optimal utilisation of resources such as coal, natural gas, nuclear substances or materials, hydro and renewable sources of energy."

1.3 National Electricity Policy (NEP)

Clause 5.2.20 of the NEP stipulates the need for fully exploiting the feasible potential of non-conventional energy sources, as reproduced below:

"5.2.20 Feasible potential of non-conventional energy resources, mainly small hydro, wind and bio-mass would also need to be exploited fully to create additional power generation capacity. With a view to increase the overall share of non-conventional energy sources in the electricity mix, efforts will be made to encourage private sector participation through suitable promotional measures."

Clause 5.6.1 stipulates about the need for Technology Development and R&D on non-conventional energy systems, as reproduced below:

"*Special efforts would be made for research, development demonstration and commercialisation of non-conventional energy systems. Such systems would need to meet international standards, specifications and performance parameters*."

Clause 5.12 stipulates several conditions for promotion and harnessing of renewable energy sources. The salient features of the said provisions of NEP are reproduced below.

5.12.1: Non-conventional sources of energy being the most environment-friendly, there is an urgent need to promote generation of electricity based on such sources of energy. For this purpose, efforts need to be made to reduce the capital cost of projects based on non-conventional and renewable sources of energy. Cost of energy can also be reduced by promoting competition within

such projects. At the same time, adequate promotional measures would also have to be taken for development of technologies and a sustained growth of these sources. Progressively, the share of electricity from non-conventional sources would need to be increased as prescribed by State Electricity Regulatory Commissions. Such purchase by distribution companies shall be through competitive bidding process. Considering the fact that it will take some time before non-conventional technologies compete, in terms of cost, with conventional sources, the Commission may determine an appropriate differential in prices to promote these technologies.

1.4 Tariff Policy 2016

In compliance with the Section (3) of the Act, the Central Government has notified the revised Tariff Policy on 28th January, 2016. The Tariff Policy elaborates the role of Regulatory Commissions, the mechanism for promoting renewable energy, the time-frame for implementation, etc. Clause 5.2 of the Tariff Policy provides as under:

"Provided also that the State Government can notify a policy to encourage investment in the State by allowing setting up of generating plants, including from renewable energy sources out of which a maximum of 35% of the installed capacity can be procured by the Distribution Licensees of that State for which the tariff may be determined under Section 62 of the Electricity Act, 2003."

Clause 6.4 of the Tariff Policy addresses various aspects associated with promoting and harnessing renewable sources of energy generation including co-generation from renewable energy sources, as reproduced below**:**

1) "Pursuant to provisions of Section 86(1)(e) of the Act, the Appropriate Commission shall fix a minimum percentage of the total consumption of electricity in the area of a distribution licensee for purchase of energy from renewable energy sources, taking into account availability of such resources and its impact on retail tariffs. Cost of purchase of renewable energy shall be taken into account while determining tariff by SERCs. Long term growth trajectory of Renewable Purchase Obligations (RPOs) will be prescribed by the Ministry of Power in consultation with MNRE.

Provided that cogeneration from sources other than renewable sources shall not be excluded from the applicability of RPOs.

(i)Within the percentage so made applicable, to start with, the SERCs shall also reserve a minimum percentage for purchase of solar energy from the date of notification of this policy which shall be

such that it reaches 8% of total consumption of energy, excluding Hydro Power, by March 2022 or as notified by the Central Government from time to time.

(ii) Distribution Licensee(s) shall compulsorily procure 100% power produced from all the Waste-to-Energy plants in the State, in the ratio of their procurement of power from all sources including their own, at the tariff determined by the Appropriate Commission under Section 62 of the Act.

(iii) It is desirable that purchase of energy from renewable sources of energy takes place more or less in the same proportion in different States. To achieve this objective in the current scenario of large availability of such resources only in certain parts of the country, an appropriate mechanism such as Renewable Energy Certificate (REC) would need to be promoted. Through such a mechanism, the renewable energy based generation companies can sell the electricity to local distribution licensee at the rates for conventional power and can recover the balance cost by selling certificates to other distribution companies and obligated entities enabling the latter to meet their renewable power purchase obligations. The REC mechanism should also have a solar specific REC.

(iv) Appropriate Commission may also provide for a suitable regulatory framework for encouraging such other emerging renewable energy technologies by prescribing separate technology based REC multiplier (i.e. granting higher or lower number of RECs to such emerging technologies for the same level of generation). Similarly, considering the change in prices of renewable energy technologies with passage of time, the Appropriate Commission may prescribe vintage based REC multiplier (i.e. granting higher or lower number of RECs for the same level of generation based on year of commissioning of plant).

2) States shall endeavour to procure power from renewable energy sources through competitive bidding to keep the tariff low, except from the waste to energy plants. Procurement of power by Distribution Licensee from renewable energy sources from projects above the notified capacity, shall be done through competitive bidding process, from the date to be notified by the Central Government.

However, till such notification, any such procurement of power from renewable energy sources projects, may be done under Section 62 of the Electricity Act, 2003. While determining the tariff from such sources, the Appropriate Commission shall take into account the solar radiation and wind intensity which may differ from area to area to ensure that the benefits are passed on to the consumers.

3) The Central Commission should lay down guidelines for pricing intermittent power, especially from renewable energy sources, where such procurement is not through competitive bidding. The tariff stipulated by CERC shall act as a ceiling for that category.

4) In order to incentivize the Distribution Companies to procure power from renewable sources of energy, the Central Government may notify, from time to time, an appropriate bid-based tariff framework for renewable energy, allowing the tariff to be increased progressively in a back-loaded or any other manner in the public interest during the period of PPA, over the life cycle of such a generating plant. Correspondingly, the procurer of such bid-based renewable energy shall comply with the obligations for payment of tariff so determined.

5) In order to promote renewable energy sources, any generating company proposing to establish a coal/lignite based thermal generating station after a specified date shall be required to establish such renewable energy generating capacity or procure and supply renewable energy equivalent to such capacity, as may be prescribed by the Central Government from time to time after due consultation with stakeholders. The renewable energy produced by each generator may be bundled with its thermal generation for the purpose of sale. In case an obligated entity procures this renewable power, then the SERCs will consider the obligated entity to have met the Renewable Purchase Obligation (RPO) to the extent of power bought from such renewable energy generating stations.

Provided further that in case any existing coal and lignite based thermal power generating station, with the concurrence of power procurers under the existing Power Purchase Agreements, chooses to set up additional renewable energy generating capacity, the power from such plant shall be allowed to be bundled and tariff of such renewable energy shall be allowed to be pass through by the Appropriate Commission. The Obligated Entities who finally buy such power shall account towards their renewable purchase obligations.

Provided also that scheduling and despatch of such conventional and renewable generating plants shall be done separately.

6) In order to further encourage renewable sources of energy, no inter-State transmission charges and losses may be levied till such period as may be notified by the Central Government on transmission of the electricity generated from solar and wind sources of energy through the inter-State transmission system for sale.

7) Appropriate Commission may provide regulatory framework to facilitate generation and sale of electricity from renewable energy sources particularly from roof-top solar system by any entity including local authority, Panchayat Institution, user institution, cooperative society, Non-Governmental Organization, franchisee or by Renewable Energy Service Company. The Appropriate Government may also provide complementary policy support for this purpose."

1.5 National Wind-Solar Hybrid Power Policy 2018

The Ministry of New and Renewable Energy (MNRE) notified the National Wind-Solar Hybrid Policy on 14th May 2018.

"2.1 The main objective of the policy is to provide a framework for promotion of large grid connected wind-solar PV hybrid system for efficient utilization of transmission infrastructure and land. It also aims at reducing the variability in renewable power generation and achieving better grid stability".

"2.2 Policy also aims to encourage new technologies, methods and way-outs involving combined operation of wind and solar PV Plants."

The policy seeks to provide support for new hybrid projects as well as hybridisation of existing wind/solar power projects. The policy also permits use of battery storage in the hybrid project for optimising the output and further reduces the variability.

The Policy state that a wind-solar plant will be recognized as hybrid plant if the rated power capacity of one resource is at least 25% of the rated power capacity of other resource.

The Policy also state that the Central Electricity Authority and CERC shall formulate necessary standards and regulations including metering methodology and standards, forecasting and scheduling regulations, REC mechanism, grant of connectivity and sharing of transmission lines, etc. for wind-solar hybrid systems.

1.6 MNRE Scheme and Guidelines for Tariff based competitive bidding for setting up 2500 MW ISTS connected Wind Solar Hybrid Projects (No F NO 238/78/2017-Wind dated 25th May 2018)

The provisions under the MNRE competitive bidding scheme and guidelines are given below. These guidelines are used by SECI for conducting bidding under **Trench – I** project:

i) The objectives of the scheme are to facilitate installation of new wind-solar hybrid projects at a price discovered through transparent bidding process.

ii) Capacity under the scheme: The scheme will be implemented for setting up 2500 MW capacity Inter-State Transmission (ISTS) connected wind solar hybrid power projects on build, own and operate basis.

Salient features of the guidelines are as follows:

a) SECI shall be the nodal agency for implementation of the scheme. The selection of hybrid projects under the scheme will be through a transparent e-bidding process followed by e-reverse auction for procurement of hybrid power at tariff discovered through bidding process.

b) Eligible bid capacity for bidding will be minimum 200 MW and maximum 500 MW by a bidder with project capacity at least 50 MW at one project site.

c) Hybrid project developers will be allowed to install any rated capacity of wind and solar energy generation systems at a project site subject to fulfillment of definition of wind-solar hybrid project as per wind-solar hybrid policy.

d) The HPDs will be allowed to install any storage facility to optimally manage the power output from their hybrid project.

e) DISCOMs and bulk customers that requires renewable power to fulfill their solar and non-solar RPO under respective RPO regulations will be eligible to buy hybrid power under the scheme.

f) SECI shall sign Power Purchase Agreement (PPA) with selected bidders at tariff discovered through reverse auction and also back-to-back Power Sale Agreement (PSA) with buyers at a pooled price of the total capacity allotted.

g) The duration of PPA and PSA will be 25 years from the date of commercial operation of the project.

h) SECI will be entitled to charge trading margin as mutually agreed with buyer or as decided by the CERC for long term power purchases, whichever is less.

i) The bidders may avail fiscal and financial incentives available for such projects as per prevailing conditions and rules.

j) No separate Central Financial Assistance is envisaged for implementation of the scheme.

1.7 MNRE Guidelines for Tariff Based Competitive Bidding Process for Procurement of Power from Grid Connected Wind Solar Hybrid Projects (No. 238/78/2017-Wind dated 14.10.2020)

The provisions under the MNRE competitive bidding guidelines are given below.

The specific objective of these guidelines as follows:

a. To promote competitive procurement of electricity from grid connected wind solar hybrid power projects (hereafter termed as 'Hybrid Power Project'), by distribution licensees, to protect consumer interests;

b. To facilitate transparency and fairness in procurement processes / and to provide for a framework for an Intermediary Procurer as an Aggregator / trader for the inter-state sale-purchase of long-term power.

c. To provide a risk-sharing framework between various stakeholders, involved in the wind solar hybrid power procurement, thereby encouraging investments, enhanced bankability of the Projects and profitability for the investors.

Applicability of guidelines:

"3.1. These Guidelines are being issued under the provisions of Section 63 of the Electricity Act, 2003 for long-term procurement of electricity through competitive bidding process, by Procurer(s), from Hybrid Power Projects having individual size of 50 MW and above at one site with minimum bid capacity of 50 MW, subject to the condition that the rated power capacity of one resource (wind or solar) shall be at least 33% of the total contracted capacity.

3.2. The solar and wind projects of the hybrid project may be located at same or different locations. The minimum capacity to be injected at each injection point shall be 50 MW.

3.3. Storage may be added to the hybrid power project:

a. to reduce the variability of output power from wind solar hybrid project;

b. providing higher energy output for a given capacity (bid/ sanctioned capacity) at delivery point, by installing additional capacity of wind and solar power in a wind solar hybrid project;

c. to ensure availability of firm power for a particular period.

3.4. Unless explicitly specified in these Guidelines, the provisions of these Guidelines shall be binding on the Procurer and Intermediary Procurer. The process to be adopted in event of any deviation proposed from these Guidelines is specified in Clause 23 of these Guidelines.

3.5. The power procured from the project may be used for fulfilment of solar and non-solar RPO in the proportion of rated capacity of solar and wind power in the plant respectively."

The arrangement for implementation shall be as under:

a) SECI will be the nodal agency for implementation of these Guidelines.

b) The selection of the Hybrid Power Projects will be through a transparent e-bidding process followed by e-reverse auction.

c) The solar and wind projects may be located at same or different locations.

d) Storage may be added to the Hybrid power project.

e) The power procured from the project may be used for fulfilment of solar RPO and non-solar RPO in the proportion of rated capacity of solar and wind power in the plant respectively.

f) Unless explicitly specified in these Guidelines, the provisions of these Guidelines shall be binding on the Procurer and SECI.

g) The Intermediary Procurer, i.e., SECI, shall enter into a Power Purchase Agreement (PPA) with the Hybrid Power Generator(s) and also enter into a Power Sale Agreement (PSA) with the distribution licensee(s) /consumer(s). The PSA shall contain the relevant provisions of the PPA on a back-to-back basis. In case SECI is not able to enter into a PSA to sell power from projects awarded to distribution licensee(s) or bulk consumers within six months from issue of letter of award, those projects would be cancelled.

h) The duration of the PPA period should not be less than 25 years from the Scheduled Commissioning Date (SCD).

i) SECI may charge a trading margin of seven paise/kWh from the Buying entity / Procurer for purchase and sale of the hybrid power.

j) The bidders may avail fiscal and financial incentives available for such projects as per prevailing conditions and Rules, and the same may be disclosed by the SECI in the Request for Selection (RfS) document.

1.8 Gujarat Wind-Solar Hybrid Power Policy 2018

'Gujarat Wind-Solar Hybrid Power policy-2018' notified by Government of Gujarat on 20th June, 2018 aims to harness the huge RE potential of the state through "hybridization" of the two sources of energy. Solar and Wind energy potential of the state is mostly concentrated in the areas of Saurashtra, Kutch and North Gujarat region.

The main objectives of this Policy are:

-------"1. To provide a framework for promotion of large grid-connected wind-solar PV hybrid systems for optimal and efficient utilization of the transmission infrastructure and land, and reducing the variability in renewable power generation thus achieving better grid-stability.

2. To encourage new technologies, methods and solutions to facilitate the combined operation of wind and solar PV plants and to promote the integration with emerging technologies like energy storage systems."

The important features of the policy are highlighted below:

"3. ELIGIBLE UNIT

Any individual, company or body corporate or association or body of individuals, whether incorporated or not, or artificial juridical person, shall be eligible for setting up of new Wind-Solar Hybrid Projects OR shall be eligible to add wind/solar capacity at the existing wind/solar power projects, respectively, either for the purpose of captive use and/or for the selling of electricity, in accordance with the Electricity Act, 2003, as amended from time to time. The wind and solar generation may be metered separately at the pooling/sending end sub-station."

"4. STATE GOVERNMENT FACILITATION & NODAL AGENCY

Gujarat Energy Developer Agency (GEDA) shall be the State Government Nodal Agency for facilitation and implementation of the Gujarat Wind-Solar Hybrid Power Policy-2018. The Nodal Agency shall facilitate and assist the Project Developers to undertake the activities in achieving the objectives the policy. Energy storage technology will also be facilitated by the State Government."

"5. IMPLEMENTATION STRATEGY

5.1 For simplicity purpose, wind-solar hybrid power generation plants are divided into two categories: (i) Type-A Projects (Existing/under construction project) (ii) Type-B Projects (New projects)

(i) Type-A projects (Existing / under construction projects)

This includes conversion of existing / under construction wind or solar power plants which are registered with GEDA and for which evacuation permission is granted by GETCO before issuance of this Policy. The installed wind/solar capacity shall be considered based on Power Purchase Agreement (PPA)/Wheeling Agreement.

(ii) Type-B Projects (New Projects)

This includes new wind-solar hybrid power generation projects which are not registered with GEDA or for which evacuation permission is not granted by GETCO till the date of issuance of this policy.

5.2 AC or DC configuration of wind-solar hybrid power projects

(i) Type A Projects (Existing / under construction projects)

Only A.C. integration is permissible. AC output of both, the wind and solar system shall be integrated at pooling /sending end substation as the case may be. Both Wind and solar systems shall use separate set of electrical lines and equipment for connecting at pooling /sending end substation of the Hybrid project. The solar and wind generation is mandatorily required to be metered separately at pooling /sending end substation in order to cater to separate RPO with suitable control equipment.

(ii) Type B Projects (New Projects)

In the absence of a common RPO and Tariff:

In this case, only AC integration shall be allowed. Separate electrical lines and meters needs to be laid for wind and solar respectively until the pooling/sending end sub-station of the hybrid project.

In the presence of a common RPO and tariff:

In this case, AC or DC integration shall be allowed. Common electrical lines may be used up to the pooling substation of the hybrid project. DC integration shall be contingent to the availability of DC metering standards, which may be evolved in due course of time.

Under all circumstances, the Developer shall lay a dedicated line for evacuation of power from the pooling/sending end sub-station of Hybrid Project to the receiving end sub-station of GETCO as per system study undertaken by GETCO. Energy injection from Wind & Solar capacity at receiving end of GETCO sub-station shall be worked out separately on the basis of meter reading of common meter installed at receiving end sub-station appropriately apportioned as per the respective meter reading of wind and solar meters.

5.3 Hybridization of Type- A Projects (Existing Project)

i. The total power injection from solar-wind hybrid project into the grid shall not be more than the transmission capacity /grid connectivity allowed /sanctioned by GETCO for this purpose. In case any augmentation in existing evacuation system is required due to addition of wind /solar capacity, developer has to undertake such work up to GETCO's receiving end substation at their own cost.

ii. The solar/wind power generated from the Hybrid Project shall be measured at the pooling/sending end sub-station, and energy injection at the receiving end sub-station of GETCO shall be worked out on apportioned basis as per the common meter reading at the receiving end sub-station.

iii. The additional solar /wind power from the Hybrid project may be allowed to wheel for Captive use or third-party sale or sale of power to DISCOMs. For transmission and wheeling of power, the applicable charges and losses shall be specified in the policy.

iv. Hybrid Project Developer shall approach GETCO for evacuation system planning up to the receiving station.

5.4. Type-B Project (New Project)

i. The developers of Hybrid Projects shall establish the evacuation line at their own cost up to the receiving end sub-station of GETCO.

ii. The solar/wind power generated from the Hybrid Project shall be measured/apportioned at the pooling/sending end sub-station, and energy injection at the receiving end sub-station of GETCO

shall be worked out on apportioned basis as per the common meter reading at the receiving end sub-station.

iii. The developer has the option for wheeling of Wind and Solar power for their Captive use or third-party sale or sale of power to DISCOMs. For transmission and wheeling of power, the applicable charges and losses shall be specified in the policy.

iv. Hybrid Project Developer shall approach GETCO for evacuation system planning up to the receiving station."

"6. CAPACITY INSTALLATION

For Type –A project, development of additional solar capacity in existing wind power plant of vice-versa is allowed. In case of Type-B Projects (New Projects): The choice of capacity mix between wind and solar shall be the discretion of the Developer or as per the individual schemes as notified by the State or Central Government from time to time."

7. WIND-SOLAR HYBRID SYSTEM & POWER EVACUATION

Wind Solar Hybrid Power Generation System, or the Hybrid Project, means the system of combined generation of wind and solar power at existing or new solar/wind power projects (or) co-located where injection of wind or solar power is at the interconnection point of the pooling sub-station of existing wind farms/ sending end sub-stations of existing solar power installations.

Under the scheme of wind-solar hybrid power generation, wind and solar PV systems may be connected at the same intersection point at pooling/ sending end sub-station. In order to achieve the benefits of hybrid plant in terms of optimal and efficient utilization of transmission infrastructure and better grid stability by reducing the variability in renewable power generation, it is desired that:

i. At the locations of having good wind power potential, the solar PV capacity to be added as the solar-hybrid component could be relatively smaller.

ii. Similarly, in case of the sites where the power density is relatively lower or moderate, the component of the solar PV capacity could be relatively on a higher side.

iii. Evacuation capacity for the purpose of connectivity and injection of power shall be worked out as follows:

For Type A Project (Existing Projects) where open access is already allowed to the extent of rated capacity of transmission line /sub-station of GETCO, evacuation of power from additional solar /wind capacity to be set up is allowed up to the capacity of transmission line /substation of GETCO. No transmission charges are payable for evacuation of such additional capacity. However, the transmission losses and wheeling charges /losses shall be applicable as to any normal project.

In case the capacity margin exists in the transmission system /substation of GETCO or augmentation is possible to evacuate the power from additional wind /solar capacity and if such work is undertaken by GETCO after receiving end substation. The developer has to pay transmission charges, transmission losses and wheeling charges /losses as per any other RE project proponent.

In case of Type-B Projects (New Projects), the developer of Hybrid Project shall establish a dedicated line at its own cost for evacuation of power up to receiving end sub-station of GETCO where the Project Developers desires to inject power in the state grid. From there onwards, GETCO shall ensure transmission system and connectivity. Transmission charges shall be applicable on the basis of sanctioned/ allocated transmission capacity. However, Developer shall ensure that power injection shall never increase beyond sanctioned/allocated transmission capacity. Transmission charges and losses, and wheeling charges and losses shall be applicable as applicable to any other open access for wind and solar projects."

8. TARIFF FOR SALE TO DISCOMS

Distribution Licensees may purchase power from Hybrid Projects, wind and solar separately as follows for meeting their RPOs.

8.1 In case of Type –A project (Existing projects)

The purchase of power from existing project shall be according to respective PPA. Whereas the sale and purchase of power from additional /new capacity shall be at the tariff discovered through competitive bidding undertaken by DISCOMs separately for Wind and Solar power purchase.

8.2. In case of Type-B Projects (New Projects)

The purchase of wind/solar power shall be at a tariff discovered through competitive bidding (reverse bidding whenever required) undertaken by DISCOMs separately for Wind and Solar Power Purchase until a common tariff mechanism and RPO for the hybrid project is evolved.

1.9 Renewable Purchase Obligation in Gujarat

The Gujarat Electricity Regulatory Commission (Procurement of Energy from Renewable Sources) (Second Amendment) Regulations, 2018, (Notification No. 01 of 2018) dated 21st April, 2018 has specified the minimum renewable power purchase by the obligated entities for the financial year (FY) 2017-18 to 2021-22 as shown in Table below.

As per this regulation, the obligated entities have the obligation to purchase electricity (in kWh) from specified RE sources. The said purchase shall be at a defined minimum percentage of the total consumption of its consumers including T&D losses during a year.

This renewable purchase obligation applies to:

- distribution licensees; and
- any other captive and open-access users consuming electricity (i) generated from conventional captive generating plant having capacity of 5 MW and above for their own use and/or (ii) procured from conventional generation through open access and third-party sale.

Table 1 Renewable Purchase Obligation in Gujarat FY 2017-18 to 2021-22

Year	Total RPO	Non-Solar RPO		Solar RPO	Total Wind & Solar
		Wind	Biomass, Bagasse, MSW and Hydro	Solar	
2017-18	10.00%	7.75%	0.5%	1.75%	9.5%
2018-19	12.70%	7.95%	0.5%	4.25%	12.20%
2019-20	14.30%	8.05%	0.75%	5.5%	13.55%
2020-21	15.65%	8.15%	0.75%	6.75%	14.90%
2021-22	17.00%	8.25%	0.75%	8.0%	16.25%

Source: GERC (Procurement of Energy from Renewable Sources) (Second Amendment) Regulations, 2018.

Further, this Regulation recognises the certificates issued within the scope of Central Electricity Regulatory Commission's (CERC) Notification No. L-1/12/2010-CERC dated 14th January, 2010 as the valid instruments for the discharge of the mandatory obligations set out in these regulations for the obligated entities to purchase electricity from renewable energy sources termed as Renewable Energy Certificates (REC).

1.10 Discussion Paper for Wind – Solar Hybrid Project Tariff Framework and other Commercial Issues

The Commission considered the MNRE Policy and Guidelines related to wind-solar hybrid power projects and Government of Gujarat Hybrid Policy. Further, the Commission had also considered the competitively discovered tariffs for energy from wind-solar hybrid projects, while proposing the tariff framework for the prospective period in the Discussion Paper.

Accordingly, the Discussion Paper was published on the Commission's website www.gercin.orgin downloadable format on 28th August, 2020, inviting comments from stakeholders. A list of stakeholders communicated their views on the Discussion Paper is given at **Annexure I.**

1.11 Public Hearing

The Commission examined the objections / suggestions received on the discussion paper. The Commission initially fixed the date for public hearing on the proposed Tariff framework for Wind –Solar hybrid Projects 22nd September 2020 at the Commission's Office, Gandhinagar, which was rescheduled on 19th January 2021 through Video Conferencing as per Commission's Guidelines for Virtual Hearing and a link in this regard has been provided to all stakeholders/objectors. A list of stakeholders participated in the public hearing and presented their objections/suggestions is given at **Annexure-II.**

The main comments and views expressed by the stakeholders through their written/oral submissions and the Commission's views thereon have been summarized in the following paragraphs. It may be noted that all the suggestions given by the stakeholders have been considered, and the Commission has attempted to elaborate all the suggestions as well as the Commission's decisions on each suggestion. However, in case any suggestion is not specifically elaborated, it does not mean that the same has not been considered. Wherever possible, the comments and suggestions have been summarised clause-wise, alongwith the Commission's analysis and ruling on the same.

2. COMMENTS AND SUGGESTIONS ON PROPOSED TARIFF FRAMEWORK, AND COMMISSION'S VIEWS

2.1 Clause 3.1: Tariff Framework

2.1.1 Proposed in Discussion Paper

"…In view of above the Commission feel it appropriate to adopt the tariff for Type A (existing projects) as well as Type B (new projects) based on the rates discovered through competitive bidding process.

In view of above, the Commission proposes to determine the tariff for all prospective Wind-Solar Hybrid power projects, based on the rates discovered through competitive bidding under Section 63 of the Act or by following competitive bidding process followed by SECI/MNRE etc.

Further, there could be cases of Wind-Solar Hybrid power projects below the threshold limit of eligibility for participating in Competitive Bidding. It is proposed that the tariff for such projects shall be considered equal to the Tariff discovered through Competitive Bidding by State own DISCOMs, in different time period of 6 months of the year as under:

For Type – A (Existing projects):

The purchase of power from additional /new capacity shall be at the weighted average tariff (for respective RE addition capacity i.e., Wind or Solar), available as on 1stApril (as discovered in the Competitive Bidding by GUVNL during previous six months October-March and adopted by the Commission) shall be applicable for the projects to be commissioned under PPAs signed during April-September. Similarly, the weighted average tariff (for respective RE addition capacity i.e., Wind or Solar), available as on 1stOctober (as discovered in the Competitive Bidding by GUVNL during previous six months April-September and adopted by the Commission) shall be applicable for the projects to be commissioned under PPAs signed during October-March.

For Type-B (New Projects)

The purchase of power from such projects shall be at the weighted average tariff (of Wind, Solar & Wind-Solar Hybrid), available as on 1st April (as discovered in the Competitive Bidding by GUVNL during previous six months October-March and adopted by the Commission) shall be applicable for the projects to be commissioned under PPAs signed during April-September. Similarly, the weighted average tariff (of Wind, Solar & Wind-Solar Hybrid), available as on 1st October (as discovered in the Competitive Bidding by GUVNL during previous six months April-

September and adopted by the Commission) shall be applicable for the projects to be commissioned under PPAs signed during October-March.

In case weighted average tariff is not available for particular 6 months' period then latest weighted average tariff available for 6 months' period as discussed above shall be considered.

The distribution licensees shall place on its website the applicable tariff on which it will buy the energy generated from such Wind Solar Hybrid Power Projects. The rate will be updated every 6 months."

2.1.2 Suggestions/Objections of the Stakeholders

IWPA submitted that for arriving at parameters for Gujarat, based on SECI bid results is not correct, as SECI projects have advantages of economies of scale, PGCIL evacuation, land benefits, and have adequate payment security mechanism. The tariff discovered under SECI/MNRE bids is for specific and individual PPAs which may not be the right benchmark for a state. The fall in price is nowhere related to technology up gradation or reduced production cost but is only reflection of price race. They suggested to have wind solar hybrid competitive bidding in Gujarat which would act as a benchmark for arriving at hybrid tariffs in Gujarat.

In case of tariff of small-scale projects, IWPA submitted that such projects would never be able to match up with the large-scale projects due to difference in economies of scale. Forcing the small-scale projects to provide power at competitive bids eventually hurts the small scale/local investors. Accordingly, they requested to determine generic tariff for small-scale wind solar hybrid power projects which are not eligible to participate in Competitive Bidding.

GE South Asia proposed that the tariff determined by the Commission in the respective category of renewable energy orders should act as a ceiling PPA tariff for Wind-Solar Hybrid power projects below the threshold limit of eligibility for participating in Competitive Bidding.

Continuum submitted that in order to maintain policy certainty, the Commission may clarify that Existing Projects shall mean, projects "Commissioned" as on the date of this Order coming into force.

Torrent Power Ltd (TPL) submitted thatthe Gujarat Solar-Wind Hybrid Policy, 2018 does not envisage any distinction between projects i.e., above or below threshold limit for the purpose of mechanism to be followed for tariff determination. The Policy provides for tariff determination through competitive bidding for additional capacity to be tied up by DISCOMs in respect of both

types of Hybrid projects i.e., existing projects and new projects. Hence, the distinction proposed in the draft between projects above and below threshold limit should be removed.

TPL further urged the Commission to clarify the methodology to be followed for deciding tariff of hybrid projects below threshold limit including how to work out weighted average tariff of GUVNL i.e., whether on the basis of capacity or capacity along with committed CUF (i.e. in terms of Energy) Whether Tariff discovered by GUVNL will be applicable on "as is" basis to any Hybrid project despite having different ratio of wind & solar capacity in terms of MW. TPL also requested to clarify methodology to be followed for RPO compliance i.e., whether RE generation will be considered on the basis of installed capacity of Wind & Solar or actual energy injection of wind and solar.

TPL requested the Commission to make it clear that the GUVNL shall place the applicable tariff on its website and communicate the link to other licensee who shall then upload such link on its respective websites.

2.1.3 Analysis and Commission's Ruling

The intent of the Act, Policies and Regulations is to prefer competitive bidding for renewable energy procurement in future so as to maintain reasonable and competitive tariff. It is, therefore, in the interest of the consumers that such renewable energy is procured by the licensee at the most competitive rates. The Commission through its Order No. 02 of 2020 and Order No. 3 of 2020, has already mandated that Distribution Licensees shall procure RE power from Wind Energy projects and Solar Energy projects through competitive bidding, in order to discover the most competitive price. The contention of the stakeholders that the fall in competitively discovered prices only reflects the price competition and is not related to technology upgradation or reduced production cost, is not really relevant. The very objective of competition is to discover the most competitive price, and if investors are able to set up projects at lower cost, it is beneficial to the end consumer. Therefore, the Commission does not alter the approach proposed in the Discussion paper to adopt the tariff for Type A (existing projects) as well as Type B (new projects) based on the rates discovered through competitive bidding process. The bidding process should be based on competitive bidding guidelines of MNRE and bid document shall be approved by the Commission.

For tariff of small-scale projects (existing as well as new) which fall below the threshold limit provided in competitive bidding guidelines, the Commission has specified mechanism of

determination of applicable tariff having linkage with the tariff rate discovered under the competitive bidding process.

For type A (existing project) having capacity below threshold limit, the tariff (purchase rate) from additional/new RE capacity shall be determined based on the RE technology deployment in particular project (wind or solar). The purchase rate from such additional capacity shall be the weighted average tariff for similar RE technology available for the previous six months as on 1st April or 1st October depending on the commissioning of the project as specified in clause 2.1.1 above. In case weighted average tariff of the respective RE technology (wind or solar) not available other weighted average of hybrid tariff discovered through competitive bidding shall be applicable.

In case of Type B (new projects) having capacity below threshold limit the tariff shall be at the weighted average tariff for the previous six months (of Wind, Solar & Wind-Solar Hybrid) available as on 1st April or 1st October depending on the commissioning date of the project as specified in clause 2.1.1 above.

The Commission agree to the suggestion of TPL and direct GUVNL to publish the applicable tariff for procurement of energy from Wind – Solar hybrid projects on its website and communicate the link to other licensee who shall then upload such link on its respective websites.

2.2 Clause 3.2.1: Control Period

2.2.1 Proposed in Discussion Paper

"The Commission proposes that the control period of the tariff framework under this discussion paper shall be effective from the date of this Order to 31stMarch, 2023.

As per Clause 2 of the Gujarat Wind Solar Hybrid Power Policy, Wind Turbine Generator(s)/Solar PV Generation Project (s) developed during the Operating Period of this Policy shall become eligible for the benefits and incentives declared under this Policy for a period of twenty-five (25) years from the date of commissioning or the life span of such Wind Turbine Generator (s)/Solar Generation Project (s), whichever is earlier."

2.2.2 Suggestions/Objections of the Stakeholders

GE South Asia proposed that control period of the tariff framework shall be effective for a period of 5 years from the date of this Order. Continuum submitted that as operative period of Gujarat Wind Solar Hybrid Power Policy is till 19th June, 2023, whereas Commission proposed the control

period till 31st March, 2023. The control period of the Order shall be matched to the Operating Period of the Policy. This need to be clarified that if the Project has developed under Gujarat Wind Solar Hybrid Power Policy then the tariff, incentive proposed under the said Order shall be applicable.

2.2.3 Analysis and Commission's Ruling

The Commission proposed a pre-defined Control Period for the tariff framework. Considering the applicability of the Gujarat Wind Solar Hybrid Power Policy, the Commission is of the view that it would be appropriate to have pre-defined control period up to 31st March, 2023. The projects developed and commissioned during the Operating Period of this order shall become eligible for the benefits and incentives declared under this order.

2.3 Clause 3.2.2: Useful life of plant

2.3.1 Proposed in Discussion Paper

"The Useful Life for the Wind Solar Hybrid Power Projects to be commissioned under PPAs signed during the new Control Period shall be considered as 25 years from their date of commissioning for Type-B (New Projects), whereas in case of Type-A (Existing Projects) it shall be considered only for additional /new capacity."

2.3.2 Suggestions/Objections of the Stakeholders

GUVNL submitted that GUVNL has been signing PPAs for purchase of power from Wind and solar projects through competitive bidding process wherein the term of the PPA is for 25 years from Scheduled Commercial Operation Date (SCOD) of the project in line with MoP guidelines. M/s Solar Energy Corporation (SECI) is also keeping the term of the PPA as 25 years from SCOD in tenders for Wind, solar, and Hybrid Projects. In view of above, GUVNL requested to modify the useful life of the plants and tariff period as 25 years from SCOD instead of 25 years from COD particularly for the hybrid projects to be tied up through bidding.

2.3.3 Analysis and Commission's Ruling

The Commission proposed the useful life as 25 years from the date of commissioning in the discussion paper. Same principle is followed in case of wind and solar tariff determination process. The Commission decides to keep the definition of 'useful' life unchanged.

2.4 Clause 3.2.4: Eligible Unit

2.4.1 Proposed in Discussion Paper

"Any individual, company or body corporate or association or body of individuals, whether incorporated or not, or artificial juridical person, shall be eligible for setting up of new wind-solar Hybrid Projects OR shall be eligible to add wind/solar capacity at their existing solar/wind power projects, respectively, either for the purpose of captive use and/or for selling of electricity, in accordance with the Electricity Act, 2003, as amended from time to time. The wind and solar generation may be metered separately at the pooling/sending end Sub-Station…."

2.4.2 Suggestions/Objections of the Stakeholders

Continuum submitted that in case of captive, 100% equity amount to be invested/held by captive user. They also proposed that the captive users are required to consume entire generation in the ratio of their equity amount invested with a variation not exceeding 10% in consumption on annual basis.

2.4.3 Analysis and Commission's Ruling

The Commission proposed in the discussion paper that Hybrid projects shall be set up either for the purpose of captive use and/or for selling of electricity, in accordance with the Electricity Act, 2003, as amended from time to time. The same provision is retained without any modification. The Hybrid projects to be developed for captive use will be governed by relevant provisions of the Electricity Act, 2003, as amended from time to time.

Further, for simplicity purpose, wind-solar hybrid power generation plants shall be divided into two categories:

i. Type-A Projects

This category shall include conversion of existing/under-construction wind or solar power plants into Hybrid Projects. Wind/Solar capacity under construction shall be considered based on the Registration Certificate issued by GEDA/evacuation permission granted by GETCO to the Solar/Wind Project Developers before issuance of this Order. The installed Wind/Solar Capacity shall be considered based on Power Purchase Agreement (PPA)/ Wheeling Agreement capacity.

ii. Type-B Projects

This shall include new wind-solar hybrid power generation projects which are not registered with GEDA or evacuation permission is not granted by GETCO till the date of issuance of this Order.

2.5 Clause 3.2.6: Applicability of Merit order dispatch principle

2.5.1 Proposed in Discussion Paper

"Like Wind and Solar power plants, the Wind-Solar Hybrid Power Projects irrespective of the plant capacity shall be treated as 'MUST RUN' power plants and shall not be subjected to merit order dispatch principles."

2.5.2 Suggestions/Objections of the Stakeholders

GE South Asia and GE Renewables submitted that any curtailment except for the reason of grid security to be considered as "deemed generation."

2.5.3 Analysis and Commission's Ruling

The Commission retains the existing provision as proposed in discussion paper. Wind-Solar Hybrid Power Projects irrespective of the plant capacity shall be treated as 'MUST RUN' power plants and shall not be subjected to merit order dispatch principles. Curtailment compensation if any shall be dealt with as per provisions under State Grid Code.

2.6 Clause 3.2.7: Reactive Energy Charges

2.6.1 Proposed in Discussion Paper

"The Reactive Energy Charges as approved by the Commission in tariff orders for the Gujarat Energy Transmission Corporation Ltd. (GETCO) from time to time shall be applicable to such projects."

2.6.2 Suggestions/Objections of the Stakeholders

GETCO submitted that reactive energy charges shall be applicable to such projects (Wind &Solar) on the reactive energy certified by GEDA and SLDC on monthly basis for all the customers embedded to the pooling substation.

2.6.3 Analysis and Commission's Ruling

The Commission considers the suggestion of GETCO in view of bringing clarity on levy of Reactive energy charges. The Commission has modified the clause 3.2.7 as under:

"The Reactive Energy Charges as approved by the Commission in tariff orders for the Gujarat Energy Transmission Corporation Limited (GETCO) from time to time shall be applicable to such projects (Wind–Solar Hybrid Projects) on the Tentative Energy certified by GEDA and SLDC on monthly basis for all the customers embedded to the pooling substation".

2.7 Clause 3.2.8: Metering point and interconnection point

2.7.1 Proposed in Discussion Paper

The metering and interconnectivity shall be as under:

a. Energy generation from wind /solar capacity shall be measured separately at the pooling/sending end sub-station on 15-minute time block by installing ABT compliant meters by the project developers. The project developers shall also have to install Remote Terminal Unit (RTU) for transferring the real time data to SLDC for its monitoring purpose. Further, ABT compliant meter shall be installed on each wind turbine/solar projects.

b. For the purpose of commercial settlement and energy accounting, the metering point shall beat the receiving end sub-stations of GETCO. The injection of energy from wind/solar capacity shall be worked out separately at the receiving end sub-stations of GETCO on the basis of meter reading of common meter installed at receiving end sub-stations appropriately apportioned as per the respective meter reading of wind and solar meters.

c. In case of Type-A projects (Existing Projects), the metering/injection point shall continue toas per existing agreement with GETCO /DISCOM.

d. In case of Type-B Projects (New Projects) that are AC or DC integrated, the metering point shall be at the receiving end of the GETCO substations. Separate meters will be required to be installed for both wind and solar PV systems in view of the different tariff and RPO. In case of common hybrid tariff and common RPO, a single meter for both wind and solar shall suffice.

e. For Type-A Projects (Existing Projects), both wind and solar PV systems shall use separate set of internal electrical lines and equipment, and connect to the pooling/sending-end substations of the Hybrid Projects. The projects shall be mandatorily metered separately.

f. Internal connectivity between solar and wind capacity prior to pooling/sending-end substation shall be allowed for Type B Projects (New Projects) once a common RPO and hybrid tariff are present.

Energy metering and communication facility shall be provided by the project developers hybrid power projects in accordance with the following regulations/codes/orders and their subsequent amendments:

i. Central Electricity Authority (Installation and Operation of meters) Regulations 2014 and its subsequent amendments
ii. Gujarat Electricity Grid Code 2013 and its subsequent amendments
iii. GERC (Terms and Conditions of Intra-State Open Access) Regulations, 2011 and its subsequent amendments
iv. GERC Distribution Code 2004 and its subsequent amendments

However, for the purpose of energy accounting, all projects shall have to provide ABT compliant meters at generators and if the power is to be wheeled to consumer's premises, then ABT compatible meter is to be installed at the consumer premises also.

2.7.2 Suggestions/Objections of the Stakeholders

GETCO suggested following modifications in metering and interconnectivity related provisions proposed in the discussion paper:

a. Energy generation from wind /solar capacity shall be measured separately on 15-minute time block by installing ABT compliant meters (which can provide the four quadrant data of active and Reactive) by the project developers. The project developers shall also have to install Remote Terminal Unit (RTU) for transferring the real time data to SLDC for its monitoring purpose. Further, ABT compliant meter shall be installed on each wind turbine/solar projects. All the meters will be tested in NABL laboratory and duly sealed by DICOMS. Meters shall be installed in presence of DISCOM/GETCO at the time of

Commissioning the Wind/Solar project. The meters shall be AMR compatible so that data can be fetched at GEDA, DISCOM and SLDC remotely.

b. For the purpose of commercial settlement and energy accounting, the metering point shall be at the receiving end substation of GETCO. The injection of energy from Wind/Solar capacity shall be worked out separately at the receiving end substation of GETCO on the basis of meter reading of common meter installed at receiving end substation appropriately apportioned as per the respective meter reading (Active and Reactive) of Wind and Solar ABT meters (four quadrant) meters separately installed at the respective Wind and Solar Projects individually.

c. Type-A: the metering arrangement for the existing as well additional wind/solar capacity shall be mentioned in (i)& (ii) above. Otherwise, it would lead to two different treatments for same project which is practically difficult to implement.

d. Type-B hybrid plants the metering point shall be the receiving end of the GETCO substation. Developer shall install the ABT (four quadrant) Main & Check meter at developers own cost duly tested sealed and installed in presence of DISCOM. Similarly, ABT (four quadrant) Meters will be installed at the pooling substation also as standby meters at the cost of developer. In case of different tariff and RPO individual ABT (four quadrant) meters will be installed for both Wind and Solar PV systems.

e. Both wind and Solar PV system shall use separate set of internal electrical lines &equipment for connecting at pooling/sending end sub-station of the Hybrid project. The projects shall be mandatorily metered separately with ABT (four quadrant meters) over and above the meters mentioned above. These meters will be procured at developers own cost duly tested sealed and installed in presence of DISCOM.

f. However, for purpose of energy accounting, all projects shall have to provide ABT complaint (four quadrant) meters at generators and if the power is to be wheeled to consumers premise then ABT cum tariff compatible meter is to be installed at the consumer premises also. All the above-mentioned meters shall be AMR compatible. GEDA shall ensure the energy accounting of Active and Reactive energy of the Wind/solar and or Hybrid for each customer as is being done for wind energy certificated.

GE South Asia and GE Renewables enquired that in the absence of DC meters and standards by CEA (Installation and Operation of meters) Regulations 2014 and amendments thereof, how the integration be permitted at DC level?

Also, GE South Asia proposed following modifications in the existing clauses:

"For type-A projects (existing projects), both wind and solar PV systems shall optimize the internal electrical lines and equipment,"

"Internal connectivity between solar and wind capacity prior to pooling/sending-end substation shall be allowed for type B projects (new projects), as long as injection of energy from wind/solar capacity is worked out separately at the receiving end sub-stations of GETCO on the basis of meter reading of common meter installed at receiving end sub-stations as per proviso of Para 3.2.8 (b) till common RPO is present"

GE Renewables requested to clarify whether for the fulfilment of Solar RPO and Non-Solar RPO, the injected units at the receiving end of GETCO sub-station will be apportioned based on rated capacity of solar and wind power or reading of wind and solar meters.

GUVNL submitted that separate metering of wind and Solar components of Hybrid Projects is essential for facilitating system operators / utilities in monitoring generation balancing and grid security. Though there would be common metering at GETCO sub-station and there would be internal connectivity between solar and wind capacity prior to pooling / sending-end sub-station, the developer shall be required to install separate meters for recording generation of Wind and Solar components prior to interconnection / merging of components with each other.

Hindalco submitted that to facilitate new/advanced technology and optimum utilisation of resources, common RPO and hybrid tariff not be made a condition for allowing internal connectivity. The floor and forbearance price of solar and non-solar being the same, it is proposed to have complete fungibility between Solar and Non-Solar at least for the Renewable Hybrid projects. In the draft GERC (Procurement of Energy from Renewable Sources) (Third Amendment) Regulations, 2020, Point No 5: Amendment in Regulation 4.1 of the Principal Regulations at Para 1 & Para 2, the Commission has already proposed Composite RPO target and also allowing additional renewable from other sources if a particular type is not available. In view of the above points probable connectivity requirement prior to the pooling/sending end substation specifically for projects with Storage may be allowed with (a) common RPO for the obligated entity or (b) with appropriate metering arrangement.

amp Energy proposed that ABT compliant meter shall be installed on each wind turbine project while common ABT meter shall be installed for Solar component of the project. For wind component, developer should install a common meter at incoming feeder at the Pooling Substation whereas for solar component, a common meter at incoming feeder at Common pooling substation should be installed.

CleanMax proposed that SLDC shall monitor the generation data for wind and solar respectively through RTU system installed at PSS level and the meters installed at PSS level shall be used to appropriately apportion the power injected from wind and solar respectively at receiving end substation. They requested to clarify that RTU installation will be at PSS level only and not individual Wind turbine and solar plant.

CleanMax submitted that though Type A projects need to build separate lines and metering for wind and solar, it does not clarify that on which side the metering has to done. Whether it's on 33 kV feeder or on the transformer HT side. The intent to develop hybrid projects is to maximise the use of existing infrastructure and optimise the costs and it can be done only when the metering is done on 33 kV feeder on Pooling sub-station (PSS) level. CleanMax requested to define the metering for Type A projects to be at 33kV level at PSS.

Statkraft sought clarification regarding the rated Wind Solar Hybrid capacity under the proposed framework i.e., is it capacity estimated at generator bus or GETCO sub-station.

Prozeal Infra suggested to include GEDA's name in the existing agreement as there are few S/S owned/maintained by GEDA. They requested to provide clarity for Type –A projects which are connected to GEDA Substation and does not have any agreement with DISCOM but having wheeling agreement with GETCO.

2.7.3 Analysis and Commission's Ruling

The Commission finds merit in the suggestion**s** proposed by GETCO as the same brings clarity about the specification, location, testing of metering instrument including the duties of project developers and DISCOM. The Commission, however decide to retain clause (c) about metering and interconnection point of Type-A projects (Existing Projects) unchanged. With regard to integration of hybrid projects at DC level, same will be decided once the CEA Regulations on meters and standards are available. For the settlement of Solar RPO and Non-Solar RPO, the injected units at the receiving end of GETCO sub-station will be appropriately apportioned as per the respective meter reading (active and reactive) of wind and solar ABT meters installed at

respective wind and solar project separately. The Commission make it clear that for Type-A projects (Existing Projects), the metering/injection point for existing capacity as well as new capacity shall continue to be as per existing agreement with GETCO /DISCOM. Further it is to clarify that the rated wind solar hybrid capacity under the proposed framework is envisaged at generator bus.

The Commission has modified the Clause 3.2.8 as under:

a. Energy generation from wind /solar capacity shall be measured separately at the pooling/sending end sub-station on 15/5-minute time block by installing ABT compliant meters (which can provide the four quadrant data of active and Reactive) by the project developers. The project developers shall also have to install Remote Terminal Unit (RTU) for transferring the real time data to SLDC for its monitoring purpose. Further, ABT compliant meter shall be installed on each wind turbine/solar projects. All the meters will be tested in NABL laboratory and duly sealed by DICOMS. Meters shall be installed in presence of DISCOM/GETCO at the time of Commissioning the Wind/Solar project. The meters shall be AMR compatible so that data can be fetched at GEDA, DISCOM and SLDC remotely.

b. For the purpose of commercial settlement and energy accounting, the metering point shall beat the receiving end sub-stations of GETCO. The injection of energy from wind/solar capacity shall be worked out separately at the receiving end sub-stations of GETCO on the basis of meter reading of common meter installed at receiving end sub-stations appropriately apportioned as per the respective meter reading (active and reactive) of wind and solar ABT (four quadrant) meters installed at respective wind and solar project separately.

c. In case of Type-A projects (Existing Projects), the metering/injection point shall continue to as per existing agreement with GETCO /DISCOM.

d. In case of Type-B Projects (New Projects) that are AC or DC integrated, the metering point shall be at the receiving end of the GETCO substation. Developer shall have to install the ABT (four quadrant) Main & Check meter at their own cost duly tested sealed and installed in presence of DISCOM. Developer shall install such meters at receiving end of GETCO substation as well as at wind and solar PV system installations in view of the

different tariff and RPO. In case of common hybrid tariff and common RPO, a single meter as per above specification for both wind and solar system shall suffice.

e. For Type-A Projects (Existing Projects), both wind and solar PV systems shall use separate set of internal electrical lines and equipment, and connect to the pooling/sending-end substations of the Hybrid Projects. The projects shall be mandatorily metered separately. Developers shall have to install ABT (four quadrant) meters at wind and solar PV system installation as well as receiving end of the GETCO substations at their own cost duly tested sealed and installed in presence of DISCOM.

f. Internal connectivity between solar and wind capacity prior to pooling/sending-end substation shall be allowed for Type B Projects (New Projects) once a common RPO and hybrid tariff are present. Energy metering and communication facility shall be provided by the project developers hybrid power projects in accordance with the following regulations/codes/orders and their subsequent amendments:

   i. Central Electricity Authority (Installation and Operation of meters) Regulations 2014 and its subsequent amendments
   ii. Gujarat Electricity Grid Code 2013 and its subsequent amendments
   iii. GERC (Terms and Conditions of Intra-State Open Access) Regulations, 2011 and its subsequent amendments
   iv. GERC Distribution Code 2004 and its subsequent amendments

However, for the purpose of energy accounting, all projects shall have to provide ABT compliant (four quadrant) meters at generators and if the power is to be wheeled to consumer's premises, then ABT cum Tariff compatible meter is to be installed at the consumer premises also. GEDA shall ensure the energy accounting of Active and Reactive energy of the Wind/solar and or Hybrid for each customer as is being done for wind energy projects.

2.8 Clause 3.3: Wind-Solar Hybrid System & Power Evacuation

2.8.1 Proposed in Discussion Paper

"1. Hybridization of Type-A Projects (Existing Projects):

Existing Wind power or Solar Power Projects Developers, willing to install Solar PV plant or Wind Turbine Generators, respectively, at the existing location to avail benefits under GoG Policy, shall be allowed to do so with following conditions:

i. The total power injection (combined wind and solar) into the grid shall not be more than the transmission capacity/grid connectivity allowed/sanctioned by GETCO for this purpose. In case, addition/augmentation in the existing evacuation system is required as per the system study undertaken by GETCO due to addition of wind/ solar capacity, Developers shall undertake such addition/augmentation in the system up to the receiving end sub-stations of GETCO at their own cost. However, the primary focus is to optimize the utilization of existing transmission infrastructure and technologies, and design approaches towards minimum augmentation is encouraged.

ii. The additional solar/wind power from the Hybrid Projects may be allowed to wheel power for captive use or for sale of power to a third-party or sale to DISCOMs. For transmission and wheeling of power, the applicable charges and losses shall be as specified in this Order.

iii. The Developers shall approach GETCO for determining the transmission capacity available to evacuate the additional wind/ solar power or any augmentation that may be required. GETCO shall provide the relevant data with regards to the transmission capacity utilization on its existing network.

2. Type-B Projects (New Projects):

i. The Developers of Hybrid Projects shall establish the evacuation line at their own cost up to the receiving end sub-station of GETCO.
ii. The Developer has option for wheeling of wind and solar power for their captive use or third-party sale or sale of power to the DISCOMs. For transmission and wheeling of power, the applicable charges and losses shall be as specified in this Order.

iii. Hybrid Project Developer shall approach GETCO for evacuation system planning up to the receiving stations.

For both Type-A and Type-B Hybrid Projects, the Developer shall ensure for capacity allocation/sanction of transmission capacity at least equal to installed capacity of wind or

solar project, whichever is higher. In case, total injection of power from Hybrid Project exceeds such allocated/sanctioned transmission capacity, such power shall be considered as inadvertent flow of power and shall not be considered for commercial settlement.

Wind-Solar Hybrid Power Generation System, or the Hybrid Project, means the system of combined generation of Wind and Solar power at existing or new solar/wind power projects (or) collocated where injection of wind or solar power is at the interconnection point of the pooling sub-station of existing wind farms/ sending-end sub-stations of existing solar power installations.

Under the scheme of Wind-Solar Hybrid Power Generation, Wind and Solar PV Systems may be connected at the same inter connection point at pooling/sending-end sub-stations. In order to achieve the benefits of hybrid plant in terms of optimal and efficient utilization of transmission infrastructure and better grid stability by reducing the variability in renewable power generation, it is desired that:

i. At the locations of having good wind power potential, the solar PV capacity to be added as the solar-hybrid component could be relatively smaller.
ii. Similarly, in case of the sites where the wind power density is relatively lower or moderate, the component of the solar PV capacity could be relatively on a higher side.
iii. Evacuation capacity for the purpose of connectivity and injection of power shall be worked out as follows:

A. For Type-A Projects (Existing Projects) where –

(a) open access is already granted to the extent of rated capacity of transmission line/ sub-station of GETCO and injection of power from additional wind/ solar capacity to be set up, is restricted up to rated capacity of transmission line/ substation of GETCO. The same shall be allowed without applicability of transmission charges on such additional capacity. However, the transmission losses and wheeling charges/losses shall be made applicable to such capacity as applicable to any other solar or wind project as the case may be. In case total hybrid generation exceeds the transmission capacity limit, it shall be considered as inadvertent injection of power for which no payment or credit shall be given or under any exigency which requires curtailment of generation, the generation from additional/new wind/ solar capacity shall be curtailed first.

(b) there is capacity margin in the existing transmission system/ sub-stations of GETCO after taking into account open access already granted to the existing wind/solar projects or any augmentation and strengthening of transmission system after receiving-end sub-stations is undertaken by GETCO for allocation/sanction of transmission capacity for allowing additional wind/ solar capacity, the transmission charges and losses, and wheeling charges and losses shall be applicable on such additional sanctioned/allocated capacity as applicable to any other solar/ wind projects as the case may be. However, if any augmentation in the existing transmission system is required due to addition of such solar/wind capacity, up to receiving end substations of GETCO, the same shall be undertaken by the Developers at its own cost.

B. For Type-B Projects (New Projects)

The Developer of Hybrid Projects shall establish a dedicated line at its own cost for evacuation of power up to receiving end sub-stations of GETCO as per system study undertaken by GETCO where the Project Developer desires to inject power in the State Grid. From there onwards, GETCO shall ensure transmission system and connectivity. Transmission charges shall be applicable on the basis of sanctioned/ allocated transmission capacity. However, Developer shall ensure that power injection shall never increase beyond sanctioned/allocated transmission capacity. In case total hybrid generation exceeds the transmission capacity limit, it shall be considered as inadvertent injection of power for which no payment or credit shall be given. Transmission charges and losses, and wheeling charges and losses shall be applicable as applicable to any other open access for wind and solar projects.

2.8.2 Suggestions/Objections of the Stakeholders

GETCO suggested to modify the clause (iii) under hybridization of Type A project as "The Developers shall select the location to evacuate the additional wind/solar power or any augmentation that may be required on the basis of the data provided by GETCO on their website for all the existing location where the hybrid capacity addition will be identified. The capacity addition will be 10% of the existing approved MW.

GETCO suggested to modify the clause (iii) under Type B (New Projects) as "For both Type-A and Type-B Hybrid Projects, the Developer shall ensure for capacity allocation/sanctioned of transmission capacity at least equal to installed capacity of Wind or Solar Project, whichever is

higher with an overriding condition that the total capacity approved shall never be more than the approved capacity. In all the case, total injection of power from Hybrid Project exceeds such allocated/sanctioned transmission capacity developer shall place and Special Protection Scheme (SPS) at GETCO substation to ensure automatic load shedding of the added hybrid capacity. In case the load shedding is not done then the dedicated lines get isolated from grid to ensure grid safety and stability.

However, if the approved capacity is within the limit of current carrying capacity of the conductor, SPS will be installed up to the current carrying capacity of conductor with the rider that "In case, total injection of power from Hybrid Project exceeds such allocated/sanctioned transmission capacity, such power shall be considered as inadvertent flow of power and shall not be considered for commercial settlement"

GETCO suggested to modify clause (iii)- Type A (existing project) related to Evacuation capacity for the purpose of connectivity and injection of power in case of OA transactions as follows:

(a) open access is already granted to the extent of rated capacity of transmission line/substation of GETCO and injection of power from additional wind/solar capacity to be set up, is restricted up to 10% of existing approved capacity limit identified by GETCO and placed on the website. The same shall be allowed without applicability of transmission charges on such additional capacity. However, the transmission losses and wheeling charges/losses shall be made applicable to such capacity as applicable to any other solar or wind project as the case may be. The hybrid generator shall install SPS at both pooling substation as well as GETCO substation to ensure that the injection does not exceed the permitted limit failing which there will be grid disturbances and failure.

In case total hybrid generation exceeds the transmission capacity limit, it shall be considered as inadvertent injection of power for which no payment of credit shall be given or under any exigency which requires curtailment of generation, the generation from additional/new wind/solar capacity shall be curtailed first through the SPS scheme provided as per GETCO specified limits at both the ends.

GETCO suggested to modify clause (iii)- Type B (New Projects) as given below**:**

For Type-B Projects (New Projects) The developer of Hybrid Projects shall establish a dedicated line at its own cost for evacuation of power up to receiving end sub-stations of GETCO as per the data placed on GETCO website and then apply for system study to GETCO for planning of the

evacuation scheme, where the Project Developer desires to inject power in the State Grid. From there onward, GETCO shall ensure transmission system and connectivity. Transmission charges shall be applicable on the basis of sanctioned/allocated transmission capacity. However, Developer shall ensure that power injection shall never increase beyond sanctioned/allocated transmission capacity for which SPS shall be installed at both pooling substation as well as GETCO end.

In case total hybrid generation exceeds the transmission capacity limit, it shall be considered as inadvertent injection of power for which no payment or credit shall be given. Transmission charges and losses, and wheeling charges and losses shall be applicable to any other open access for wind and solar projects.

GE south Asia submitted that for both type-A and Type-B hybrid projects, the developer shall ensure capacity allocation/sanction of transmission capacity has the primary focus to optimize the utilization of allocated /sanctioned or requested transmission capacity. In case the Project Developer is able to submit a technical reason for a lower transmission capacity requirement with integration of Energy Storage Systems, the same may be allowed by GETCO on a case-to-case basis. This is in line with the philosophy followed for hybrid projects auctioned by SECI. This also resonates with the CERC Connectivity /LTA Regulations whereby there is no restriction on ISTS transmission capacity based on name plate rating of wind /solar, the ceiling is only on contracted capacity.GE Renewables requested that definition of wind-solar hybrid projects should include hybrid projects integrated with energy storage systems.

IWPA suggested that both kind of Solar PV projects- ground mounted as well as floating solar project be allowed for Solar-Wind hybrid scheme in the stated in line with CERC RE Tariff Regulations 2020.The Commission states that wind and solar may be connected at the same interconnection point at pooling S/S. IWPA requested to clarify that weather is it mandatory for the wind and Solar PV hybrid project to be connected at the same inter connection point at pooling S/s? The Commission in this draft has suggested that one component in the wind solar hybrid could be relatively smaller to another. IWPA requested to specify the ratio of Wind and Solar installed capacity in the hybrid project.

Continuum suggested to add another clause in hybridization of Type A projects (existing projects) as under:

"iv. The projects which have already been granted connectivity for wind/solar projects, shall be allowed utilize the same transmission capacity for solar/wind project under intimation to GETCO. For this, GETCO shall not levy any additional supervision, grid connectivity or other such charges."

They also proposed that evacuation capacity for the purpose of connectivity and injection of power shall be worked out as follows:

A. For Type-A Projects (Existing Projects) where-

(a) open access is already granted to the extent of rated capacity of dedicated transmission line of the project and injection of power from additional wind/ solar capacity to be set up, is restricted up to rated capacity of dedicated transmission line of the project. The same shall be allowed without applicability of transmission charges on such additional capacity.

They also submitted that the choice of capacity mix of wind and solar is done High or Low wind density is a vague classification and would leave gaping holes in the policy for projects to take advantage of the policy benefits without actually setting up a hybrid project substantively.

GUVNL submitted that the injection of power beyond sanctioned transmission capacity should not be allowed from Hybrid Projects subject to tolerance limits provided under the prevailing regulatory and technical framework. In the interest of equipment safety and grid security, the Commission is requested to provide the necessary safeguards/technical measures/relays in order to curb injection of power beyond sanctioned limits at the cost of generator shall be installed by GETCO.

Hindalco submitted that in case of Hybrid with Storage projects, the capacity of solar and or wind could be higher than actual transmission requirement to cater to the storage part. With the condition "capacity allocation/sanction of transmission capacity at least equal to installed capacity of wind or solar project" would render part of the allocated/sanctioned capacity idle and also additional cost to the project developer. They proposed that the clause be modified to include the change required for Hybrid with Storage projects as:

"For both Type-A and Type-B Hybrid Projects, the Developer shall ensure for capacity allocation/sanction of transmission capacity at least equal to installed capacity of wind or solar project, whichever is higher. In case of Hybrid projects with Storage, the capacity allocation/sanction shall be based on the design power output. In case, total injection of power from Hybrid Project exceeds such allocated/sanctioned transmission capacity, such power shall

be considered as inadvertent flow of power and shall not be considered for commercial settlement."

Renew Power submitted that to maximize the CUF of hybrid plant there should not be any restriction imposed on evacuation capacity.

amp energy submitted that as per MNRE hybrid policy rated power capacity of one resource is at least 25% of the rated power of another resource. So, at the locations of having good wind/solar power potential, the solar PV/wind capacity to be added as the hybrid component could be relatively smaller but should be at least 25% of wind/solar capacity. They also submitted that the clause related to evacuation new projects, may create ambiguity with respect to installation of additional equipment to curtail energy. Wind Solar Hybrid Controller shall have significant impact on the costs with very limited advantage to Grid system. It is already provided that if total injection of power from the Hybrid Project exceeds such allocated/sanctioned transmission capacity, such power shall be considered as inadvertent flow of power and shall not be considered for any commercial settlement.

Prozeal Infra proposal of evacuation for Type A projects:

• Measurement of power generations from renewable sources as ABT meters should be installed at RE plant side only. Proper RPO counting due to the separate power generations measurement from RE plant level only.

• ROW issue can be avoided by using common evacuation line up to pooling S/S for both wind & solar.

Optimization is possible by using SIM based RTU units for sharing meter data with DISCOM/SLDC.

2.8.3 Analysis and Commission's Ruling

The Commission has carefully gone through the submission made by GETCO, GUVNL and other stakeholders. The Commission is of the opinion that restricting capacity addition of solar/wind to 10% of the existing solar/wind capacity sanction in case of Type A (existing) project is not appropriate and not in line with Gujarat Wind-solar Hybrid power policy 2018. However, for optimum utilization of the existing transmission infrastructure, GETCO should allow the capacity addition of wind /solar in Type A (existing project) considering the grid safety aspects. For such additional capacity additional transmission charges should not be levied. As proposed by GETCO, in case the generation from a hybrid projects exceeds the allocated/sanctioned transmission

capacity limit, same shall be considered as inadvertent injection of power for which no payment or credit shall be given. The Commission clarifies that for both Type A and Type B projects, the allocated/sanctioned transmission capacity shall be at least equal to the installed capacity of Wind or Solar project whichever is higher. As provided in National Wind Solar hybrid power policy 2018 as well as Gujarat Wind-solar Hybrid power policy 2018 storage is allowed in hybrid project for optimizing the output.

The Commission has modified the Clause 3.3 as under:

Clause 3.3 Wind-Solar Hybrid System & Power Evacuation

1. **Hybridization of Type-A Projects (Existing Projects):**

Existing Wind power or Solar Power Projects Developers, willing to install Solar PV plant or wind turbine generators, respectively, at the existing location to avail benefits under GoG Policy, shall be allowed to do so with following conditions:

i. The total power injection (combined wind and solar) into the grid shall not be more than the transmission capacity/grid connectivity allowed/sanctioned by GETCO for this purpose. In case, addition/augmentation in the existing evacuation system is required as per the system study undertaken by GETCO due to addition of wind/ solar capacity, Developers shall undertake such addition/augmentation in the system up to the receiving end sub-station of GETCO at their own cost. However, the primary focus is to optimize the utilization of existing transmission infrastructure and technologies, and design approaches towards minimum augmentation is encouraged. GETCO should allow the capacity addition of wind /solar in Type A (existing project) considering the grid safety aspects.

ii. The additional solar/wind power from the Hybrid Project may be allowed to wheel power for captive use or for sale of power to a third-party or sale to DISCOMs. For transmission and wheeling of power, the applicable charges and losses shall be as specified in this Order.

iii. The Developers shall approach GETCO for determining the transmission capacity available to evacuate the additional wind/ solar power or any augmentation that may be required. GETCO shall provide the relevant data with regards to the transmission capacity utilization on its existing network.

2. Type-B Projects (New Projects):

(i) The Developers of Hybrid Projects shall establish the evacuation line at their own cost up to the receiving end sub-station of GETCO.

(ii) The Developer has option for wheeling of wind and solar power for their captive use or third-party sale or sale of power to the DISCOMs. For transmission and wheeling of power, the applicable charges and losses shall be as specified in this Order.

(iii) Hybrid Project Developer shall approach GETCO for evacuation system planning up to the receiving station.

For both Type-A and Type-B Hybrid Projects, the Developer shall ensure for capacity allocation/sanction of transmission capacity at least equal to installed capacity of wind or solar project, whichever is higher. In case, total injection of power from Hybrid Project exceeds such allocated/sanctioned transmission capacity, such power shall be considered as inadvertent flow of power and shall not be considered for commercial settlement.

Wind-Solar Hybrid Power Generation System, or the Hybrid Project, means the system of combined generation of wind and solar power at existing or new solar/wind power projects (or) collocated where injection of wind or solar power is at the interconnection point of the pooling sub-station of existing windfarms/ sending-end sub-station of existing solar power installations with or without energy storage system.

Under the scheme of wind-solar hybrid power generation, wind and solar PV systems may be connected at the same interconnection point at pooling/sending-end sub-station. In order to achieve the benefits of hybrid plant in terms of optimal and efficient utilization of transmission infrastructure and better grid stability by reducing the variability in renewable power generation, it is desired that:

i. At the locations of having good wind power potential, the solar PV capacity to be added as the solar-hybrid component could be relatively smaller.

ii. Similarly, in case of the sites where the wind power density is relatively lower or moderate, the component of the solar PV capacity could be relatively on a higher side.

iii. Evacuation capacity for the purpose of connectivity and injection of power shall be worked out as follows:

A. For Type-A Projects (Existing Projects) where -

a. open access is already granted to the extent of rated capacity of transmission line/ sub-station of GETCO and injection of power from additional wind/ solar capacity to be set up, is restricted up to rated capacity of transmission line/ substation of GETCO. The same shall be allowed without applicability of transmission charges on such additional capacity. However, the transmission losses and wheeling charges/losses shall be made applicable to such capacity as applicable to any other solar or wind project as the case may be. In case total hybrid generation exceeds the granted open access transmission capacity limit, it shall be considered as inadvertent injection of power for which no payment or credit shall be given or under any exigency which requires curtailment of generation, the generation from additional/new wind/ solar capacity shall be curtailed first.

b. there is capacity margin in the existing transmission system/ sub-station of GETCO after taking into account open access already granted to the existing wind/solar project or any augmentation and strengthening of transmission system after receiving-end sub-station is undertaken by GETCO for allocation/sanction of transmission capacity for allowing additional wind/ solar capacity, the transmission charges and losses, and wheeling charges and losses shall be applicable on such additional sanctioned/allocated capacity as applicable to any other solar/ wind project as the case may be. However, if any augmentation in the existing transmission system is required due to addition of such solar/wind capacity, up to receiving end substation of GETCO, the same shall be undertaken by the Developers at its own cost.

B. For Type-B Projects (New Projects)

The Developer of Hybrid Project shall establish a dedicated line at its own cost for evacuation of power up to receiving end sub-station of GETCO as per system study undertaken by GETCO where the Project Developer desires to inject power in the State Grid. From there onwards, GETCO shall ensure transmission system and connectivity. Transmission charges shall be applicable on the basis of sanctioned/ allocated transmission capacity. However, Developer shall ensure that power injection shall never increase beyond sanctioned/allocated transmission capacity. In case total hybrid generation exceeds the transmission capacity limit, it shall be considered as inadvertent injection of power for which no payment or credit shall be given. Transmission

charges and losses, and wheeling charges and losses shall be applicable as applicable to any other open access for wind and solar projects.

2.9 Clause 3.4: Operation and maintenance of dedicated lines

2.9.1 Proposed in Discussion Paper

"The Operation and Maintenance of dedicated evacuation line shall be carried out at the cost of the Developer of Hybrid Projects as per applicable technical standards and best practices."

2.9.2 Suggestions/Objections of the Stakeholders

GETCO submitted that O&M of dedicated evacuation line & bays shall be carried out by the Developer of Hybrid Projects at their own cost up to and including the metering system at GETCO end as per applicable technical standards and best practices for complete life span of the plant.

2.9.3 Analysis and Commission's Ruling

The Commission has not agreed with the submissions of GETCO. Therefore, the Commission decides to keep the provisions as per the discussion paper as stated under:

The Operation and Maintenance of dedicated evacuation line including the bays shall be carried out by the GETCO at the cost of Developer of Hybrid Projects as per applicable technical standards and best practices.

2.10 Clause 3.5: Transmission and Wheeling Charges

2.10.1 Proposed in Discussion Paper

"The Commission propose following norms for wheeling of power from Wind Solar Hybrid Projects for third party sale/captive use during the control period.

3.5.1 Third Party Sale

a. Wheeling of Power for third party sale from Hybrid power projects shall be allowed on payment of transmission charges applicable on sanctioned/allocated transmission capacity, transmission losses on energy feed basis, wheeling charges and losses on the energy fed into grid as measured at receiving Sub-Stations of GETCO, as applicable to normal open access consumer.

b. In case Renewable attribute is being claimed by the Consumer, set-off of wheeled energy at recipients' end shall be carried out in the same 15-minute time block.

c. 50% of the Cross-Subsidy Surcharge and Additional Surcharge, as applicable to normal open access consumer, shall be applicable.

3.5.2 Wheeling of power for Captive Use

In case of injection at 66 KV and drawl at 11 KV voltage level, wheeling of electricity generated from the Hybrid Projects to desired location(s) within the State shall be allowed on payment of transmission charges and transmission losses as applicable to normal open access consumer and 50% of wheeling charges and 50% of distribution losses of the energy fed to the grid at the receiving end sub-station of GETCO, as applicable to normal Open Access Consumers.

3.5.3 Wheeling of power to more than one locations

Hybrid Project Developers, who desire to wheel electricity to more than one location for captive use/third-party sale, shall pay 5 paise per unit on energy fed in the grid as measured at receiving end sub-stations of GETCO, to the concerned DISCOM in whose area power is consumed in addition to above mentioned transmission charges and losses, as applicable.

In case, total injection of power from the Hybrid Project exceeds such allocated/sanctioned transmission capacity, such power shall be considered as inadvertent flow of power and shall not be considered for any commercial settlement."

2.10.2 Suggestions/Objections of the Stakeholders

GE South Asia, GE Renewables and Hindalco submitted that since hybrid projects provide less variable power and thus less problems w.r.t. grid stability as compared to standalone wind/ solar projects and enable better utilization of land and transmission infrastructure, the Commission may consider waiver of CSS and additional surcharge for third party sale.

GUVNL submitted that Clause 3.5.1 (b) can be deleted as the method of energy accounting has been already provided at Clause 3.6. Further, the Commission is requested to clarify that clause 3.6 is applicable in case of projects for Captive as well as for third Party sale.

amp Energy and CleanMax suggested that in third party sale, in case Renewable Attribute is not being claimed by Consumer, energy settlement shall be undertaken as per Clause 3.6. CleanMax submitted that set-off shall be against consumption during the Consumer's billing cycle but within

the same 15-minute time block. They requested to clarify that the set-off shall be carried out in the same 15-minute time block and can be carried through the Consumer's billing cycle within the same 15-minute time block.

Reliance Industries Ltd submitted that CERC has now permitted trading of Renewable Energy and IEX has started the trading of renewable energy. The power is traded on exchange for certain time blocks only in a day, therefore condition of Round the Clock (RTC) Scheduling may please be relaxed for procurement of RE power from Energy Exchange. They also submitted that transmission charges shall be levied on per unit of energy transmitted for Long term and Medium-term Hybrid Power consumers.

Prozeal Infra enquired that for Type-A project, which are connected to GEDA S/S at 11 kV level and further injection at 66 kV GETCO S/S, whether injection voltage will be considered at 11 kV or 66kV? They also enquired that 50% of wheeling charges and 50% of distribution losses shall be applicable on captive consumer or not?

In case of captive transaction, Reliance Industries submitted that the power can be wheeled below 11 kV voltage level as the captive consumption restriction to do Open Access up to a particular voltage level is contradictory to the provisions of the Electricity Act, 2003 and GERC's Open Access Regulation 2011.

In case of Wheeling of power to more than one location, Continuum submitted that for the purpose of classifying into 'one' or 'more than one' location, wind and solar capacities will not be bundled but treated independently. CleanMax requested the Commission to clarify that the charges for wheeling more than one location will be payable on units of energy delivered to the Consumer at Consumer's busbar.

2.10.3 Analysis and Commission's Ruling

The Commission decides to retain the provisions with respect to cross subsidy surcharge & transmission and wheeling charges as proposed in the discussion paper which are also consistent with Commission's tariff orders on Wind (2 of 2020) and Solar (3 of 2020). The Commission clarifies that in third party transaction if renewable attributes does not claim by the consumer, the energy settlement at consumer end shall be allowed during one billing cycle irrespective of time slot. The Commission further clarify that in case of wheeling of power to more than one locations for captive use/third party sale, the hybrid power developer shall pay 5 paisa /unit on

energy fed into the grid as measured at receiving end substation of GETCO. Wheeling of power beyond GETCO substation to the destination of use shall be treated as hybrid power.

In view of above the Commission decides to modify the clause 3.5 as below:

Third Party Sale

a. Wheeling of Power for third party sale from Hybrid power projects shall be allowed on payment of transmission charges applicable on sanctioned/allocated transmission capacity, transmission losses on energy feed basis, wheeling charges and losses on the energy fed into grid as measured at receiving Sub-Station of GETCO, as applicable to normal open access consumer.

b. In case Renewable attribute is being claimed by the Consumer, for RPO purpose, set -off of wheeled energy at receipt's end shall be carried out in the same 15/5-minute time block. If renewable attribute is not claimed by the consumer the set off of wheeled energy at receipt's end shall be carried out over one month billing cycle.

c. 50% of the Cross Subsidy Surcharge and Additional Surcharge, as applicable to normal open access consumer, shall be applicable.

Wheeling of power for Captive Use

In case of injection at 66 KV and drawl at 11 KV voltage level, wheeling of electricity generated from the Hybrid Project to desired location(s) within the State shall be allowed on payment of transmission charges and transmission losses as applicable to normal open access consumer and 50% of wheeling charges and 50% of distribution losses of the energy fed to the grid at the receiving end sub-station of GETCO, as applicable to normal Open Access Consumers.

Provided that the entity who states that the energy generated from Hybrid project is consumed is for captive consumption shall require to establish on annual basis that the ownership in Captive Generating Plant and consumption of such energy shall fulfil the necessary conditions stipulated in Electricity Rules, 2005. Failure to fulfil the aforesaid two conditions such captive consumption lose the status of captive consumption and it shall be qualified as supply to third party by generator and the benefits granted to captive consumption shall be withdrawn for that Financial Year and it attracts the applicability of 50% of the Cross-Subsidy Surcharge and Additional Surcharge applicable to normal Open Access Consumer as per this Order. The captive consumers shall provide the details of ownership in the captive generating plant and generation as well as

consumption of energy from captive generating plant to the Chief Electrical Inspector and also the distribution licensee in whose area of supply captive consumer is situated. The Chief Electrical Inspector and Distribution Licensee shall verify the status of the captive consumers on annual basis. In case of failure to the status of captive generating plant and captive use of energy by the consumer the action may be initiated as stated above.

Projects registered under REC Mechanism

a. Hybrid Projects availing open access for captive use/ third-party sale under REC mechanism shall be governed as per CERC REC Regulations.

b. Such projects shall be allowed to wheel the electricity on payment of applicable transmission charges/losses, wheeling charges/losses and other charges as applicable to other normal Open Access Consumers.

c. Cross Subsidy Surcharge and Additional Surcharge shall be applicable as applicable to normal Open Access Consumers.

Wheeling of power to more than one locations

Hybrid Project Developers, who desire to wheel electricity to more than one location for captive use/third-party sale, shall pay 5 paise per unit on energy fed in the grid as measured at receiving end sub-station of GETCO, to the concerned DISCOM in whose area power is consumed in addition to above mentioned transmission charges and losses, as applicable.

Provided that in all above cases, total injection of power from the Hybrid Project exceeds such allocated/sanctioned transmission capacity, such power shall be considered as inadvertent flow of power and shall not be considered for any commercial settlement.

2.11 Clause 3.6: Energy Accounting

2.11.1 Proposed in Discussion Paper

1) **Case 1**: If the Consumer does not claim the renewable attribute of wind/solar energy for meeting its Solar and Non-Solar RPO, energy injection worked out at the receiving end sub-station of GETCO shall be set-off against the consumption during the Consumer's billing cycle.

i. For net import of power, DISCOM shall charge applicable tariff of respective category to the Consumer including fixed/ demand charge, energy charges, peak charge, other charges/ penalty etc. as applicable to other Consumers.

ii. Surplus power, after giving set-off, shall be compensated by the concerned Distribution Licensee at the rate Rs. 1.75 per unit or the rate, if any, specified by the Commission for Surplus Injection Compensation (SIC) from time to time. Fixed/ demand charge, peak charge, other charges/penalty, etc. shall be as applicable to other Consumers.

iii. The entire generation shall be considered for fulfilling solar and non-solar RPO of DISCOM.

2) **Case 2 (a):** If the Consumer claims the renewable attributes of solar/wind energy consumed for meeting its solar/non-solar RPO, then energy accounting shall be based on 15-minute time block-basis.

i. For net import of power, the DISCOM shall charge applicable tariff of respective category to the Consumer including fixed/ demand charge, energy charges, peak charge, other charges / penalty, etc. as applicable to other Consumers.

ii. Surplus power, after giving set off, shall be compensated by the concerned Distribution Licensee at the rate Rs. 1.75 per unit or the rate, if any, specified by the Commission for Surplus Injection Compensation (SIC) from time to time. Fixed/ demand charge, peak charge, other charges / penalty, etc. shall be applicable to as applicable to other Consumers.

iii. The surplus energy purchased shall be considered for fulfilling solar and non-solar RPO of DISCOM.

3) **Case 2 (b)**: If registered under REC mechanism and supply power within the State, the Energy accounting shall be based on a 15-minute time block-basis.

i. For net import of power, the DISCOM shall charge applicable tariff of respective category to the Consumer including fixed/ demand charge, energy charges, peak charge, other charges/ penalty, etc. as applicable to other Consumers.

ii. Surplus power, after giving set off, shall be compensated by the concerned Distribution Licensee at the rate Rs. 1.50 per unit or the rate, if any, specified by the Commission for

Surplus Injection Compensation (SIC) from time to time. Fixed/ demand charge, peak charge, other charges/ penalty, etc. shall be applicable to as applicable to other Consumers.

4) For Type-A Projects (Existing Projects), the energy accounting for consumption of power for captive use/third party sale from existing wind/solar project shall be governed by existing Regulations/Orders/wheeling agreement. If these provisions are different, the above provisions shall be applicable only for wheeling of power from new/additional wind/solar capacity.

2.11.2 Suggestions/Objections of the Stakeholders

IWPA requested the Commission to continue with the one month banking provision for Captive Wind-Solar Hybrid projects like captive consumption from wind power projects. And also, in order to promote the Hybrid projects, they requested to provide banking to third party sale also.

Renew power requested the Commission requested to allow at least Monthly Banking Facility for those Consumer's as well who claims the renewable attributes of solar/wind energy consumed for meeting its solar/non-solar RPO. They also submitted that the Commission may propose levy of peak charges/Banking Charges for consumption of energy drawn during peak hours .and thus allowing at least monthly Banking Facility.

Renew Power also submitted that as per Article 11.2, Case 2 (a) of the Wind-Solar Hybrid Policy-2018, in case the Consumer claims the renewable attributes of solar/wind energy consumed for meeting its solar/non-solar RPO then Surplus power, after giving set off, shall be Purchased by the concerned Distribution Licensees at Average Pooled Power Purchase Cost (APPC) of the year of commissioning of project. Accordingly, compensation at the rate of Rs. 1.75 per unit or the rate, if any, specified by the Commission for Surplus Injection Compensation (SIC) from time to time will be contrary to the provisions of the WSH Policy and also harm the project economics and financing.

Continuum requested the Commission that for already commissioned capacity the rate for surplus power should as per the then applicable policy/tariff order. Reliance Industries submitted that surplus power rate shall be based on the Hybrid tariff discovered through competitive bidding in the State and not the discounted rate when, all applicable charges, losses etc. are paid by the Hybrid generating plant and consumers.

Statkraft requested clarity regarding accounting and payment for injecting surplus power (but within the sanctioned transmission capacity limit) in case when there is no dedicated consumer. For example, in case a hybrid power plant has contracted to sell power under OA route and if the OA consumer contract terminates (let ay after 3-4 years) or avails only part capacity after some duration, then such surplus injection, meanwhile another or same OA consumer contract is resumed, shall be compensated by the distribution licensee at Rs.1.75/kWh. They also requested clarity on consumer sourcing power from hybrid power plants and also requires additional power from other arrangements such as Power exchange or short-term OA route etc. Hence, such arrangement is allowed or not and up to what extent of the contracted or sanctioned load.

GE Renewables submitted that for sale of power from hybrid projects under open access to consumers who do not want to claim the renewable attribute of Solar/Wind energy for meeting its Solar and Non-Solar RPO, the energy accounting should be done considering simply the injected units.

2.11.3 Analysis and Commission's Ruling

The Commission clarifies that the Energy Accounting related provision provided under clause 3.6 in subsequent chapter of this order shall be applicable to captive as well as third party open access transaction and banking facility available in different cases.

While arriving at the rate of surplus power purchase by DISCOM under Open access route the Commission feels that such rate should be reasonable, yet not so high so as to incentivize the sale of surplus power from hybrid project as well as put burden on end consumer. Also, such rate should be comparable with the latest tariff discovered under competitive bidding, which is eventually lower that the APPC. The projects set up under OA had the primary objective of captive consumption or third-party sale which is a commercial decision of generator and any sale of surplus power is incidental for which DISCOM shall not made accountable.

2.12 Clause 3.8: Restrictions

2.12.1 Proposed in Discussion Paper

a. Second hand WTGs/ solar modules or other equipment shall not be eligible for installation under this Policy.

b. For captive and third-party models, the power contracted from the hybrid project shall be 50% of the sanctioned load of consumer for each solar and wind respectively.

c. However, Consumers may set up Hybrid Project to extent of meeting RPO without limit of Contracted Demand/Sanctioned Load.

Above restrictions shall be distinct and different from the standalone Solar/Wind generating stations set up under Solar/Wind Orders or Policies.

2.12.2 Suggestions/Objections of the Stakeholders

GE South Asia and GE Renewables submitted that for captive and third-party models, the power contracted from the hybrid project shall be capped to 100% of the sanctioned load of consumer since:

a) the Gujarat Hybrid Policy allows Developer the choice/ discretion of capacity mix between wind and solar; and

b) a Project qualifies as a hybrid project under the MNRE Policy and Gujarat State Policy both if the rated power capacity of one resource is at least 25% of the rated power capacity of other resource.

In addition, as the Gujarat Hybrid Policy allows the developer the choice of the capacity mix and also permits use of battery storage in the Hybrid Project for optimising the output and further reduces the variability, they proposed that the choice of adding energy storage capacity also shall be at the discretion of the Developer.

IWPA and Renew Power submitted to remove the restriction of power to be contracted from hybrid i.e. 50% of sanctioned load for third party and captive consumers. Also, the existing CPPs in the state be allowed to set up Hybrid project without ant limit of Contract Demand.

Hindalco submitted that individual capacity restriction should be removed and proposed that the contracted capacity (combination of solar, wind and storage) be restricted to the sanction load of consumer.

Continuum proposed that consumers may procure power from Hybrid Project to extent of meeting RPO without limit of Contracted Demand/Sanctioned Load.

GUVNL submitted that GEDA, being a Nodal Agency under the policy in the State of Gujarat and responsible for certifying commissioning of projects, shall be required to ensure that no second-hand WTGs / Solar Modules are installed. The word 'other equipment' mentioned in the policy

has a wide scope and may create interpretation issues at the time of commissioning of projects. Hence, they requested to remove the clause or specify the equipment.

GUVNL submitted that a clarificatory clause may be added in the order stating that in cases of existing projects (Type A), while calculating the eligible capacity installation limit for additional component (Hybrid), the Solar or Wind Projects already installed under the other policies/orders shall be considered in the overall limit of total 100% i.e., 50% for Solar and 50% for wind. In case the installed capacity of existing component is higher than 50%, the same shall be allowed subject to overall limit of 100% combined for Wind and Solar capacity. Overall ceiling for installation of Wind/Solar capacities whether standalone or under hybrid policy shall not exceed 50% of the sanctioned load of the consumer for each wind and solar respectively.

Reliance Industries Limited submitted that captive power projects' capacity shall not be linked with sanctioned load of the Captive Consumer.

Statkraft submitted that tariff framework does not define any minimum sanctioned load for the consumers to procure power from hybrid power plants under OA and Captive route.

CleanMax requested to clarify that maximum allowed contracted capacity from Hybrid in MW shall be 50% of contract demand (in kVA). They requested clarification about restriction of 50% of sanctioned load of consumer for maximum allowed contracted capacity from Hybrid, over and above the Wind, Solar or other restrictions already met under the Wind/Solar or other Orders or Policies.

2.12.3 Analysis and Commission's Ruling

The Commission noted the submission of stakeholders on the restriction clause. As mentioned in the Gujarat Hybrid Policy, second hand WTGs/ solar modules or other equipment shall not be eligible for installation under this Policy. Regarding other equipment. it is clarified that other equipment include all other electrical and mechanical equipment in the hybrid project.

The Commission clarifies that as provided in 'Gujarat Wind Solar Hybrid Power Policy 2018' as well as in the discussion paper, the power contracted from Hybrid project shall be 50% of the sanctioned load of the consumer for each solar and wind respectively. The eligibility of hybrid project shall be governed by the ratio of individual RE capacity (solar and wind) and not on the basis of procurement of power by consumer. In Type A (existing) project, the existing arrangement of sale of electricity under OA shall remain unchanged, in case such project proponent decides to convert the existing project in to hybrid project its eligibility shall be

governed by the ratio of individual RE capacity (solar and wind) as per standard definition and the interested consumer can source power through OA from such additional capacity up to 50% of its contract demand.

The Commission also clarifies that Consumers may set up Hybrid Project to the extent of meeting RPO, without limit of 50% Contracted Demand/Sanctioned Load separately for solar and wind. However, the sum total of solar and wind capacity shall not exceed 100% of the Contract Demand/Sanctioned Load.

2.13 Clause 3.9: CDM Benefits

2.13.1 Proposed in Discussion Paper

"In case DISCOM purchases power as per tariff framework approved in this Order, Clean Development Mechanism (CDM) benefits shall be shared on net proceeds, starting from 100% to power producer in the first year after commissioning, and thereafter reducing by 10% every year till the sharing becomes equal (50:50) between the power producer and the power procurer, in the sixth year. Thereafter, the sharing of CDM benefits shall remain equal till the time that benefit accrues."

2.13.2 Suggestions/Objections of the Stakeholders

GUVNL submitted that provisions regarding sharing of CDM Benefits shall not be applicable in case of procurement of power by DISCOMs through competitive bidding as developers are selected solely on the basis of tariff and they are free to avail fiscal and other incentives available for their projects. The clause regarding sharing of CDM benefits was relevant in case of preferential tariff/cost plus tariff regime wherein the tariff was determined considering life.

2.13.3 Analysis and Commission's Ruling

The Commission finds merit in the submission of GUVNL who is a bulk power procurer for DISCOM in the state. GUVNL has proposed to discontinue the sharing of CDM benefits with the power procurer and proposed that the CDM benefit may be retailed by the power producer selected through competitive bidding. Projects selected under competitive bidding route are free to avail fiscal and other incentives. Considering the above submission, the Commission has revised the clause related to CDM benefits and discontinues the sharing of CDM revenue with power procurer. Hybrid power producers selected under competitive bidding process shall not be required to share any proceeds from CDM.

2.14 Clause 3.10: Security Deposit

2.14.1 Proposed in Discussion Paper

"a. The Hybrid Power Developer setting up new project (Type-B) shall be required to provide Bank Guarantee @ Rs. 3 lacs per MW to GETCO based on allotment of transmission capacity and in case the Developer fails to commission the Hybrid capacity within the time period mentioned hereunder, GETCO shall encash the Bank Guarantee.

b. The Developer shall commission new Hybrid capacity at least 10% of the allotted capacity within one month of charging of evacuation line, failing which, the Developer shall be liable to pay long term transmission charges for 10% of allotted capacity till such 10% of allotted capacity is commissioned.

Table 7Security Deposit

Hybrid Capacity in MW	**Period for commissioning the entire evacuation line along with bays and metering system**
1 MW to 100 MW	1.5 years from date of allotment of transmission capacity
101 MW to 200 MW	2 years from date of allotment of transmission capacity
201 MW to 400 MW	2.5 years from date of allotment of transmission capacity
401 MW to 600 MW	3.5 years from date of allotment of transmission capacity

Provided that GETCO may issue extension on case-to-case basis to the Developers if they fail to commission the entire evacuation line along with bays and metering system within the stipulated time period due to unforeseen reasons."

2.14.2 Suggestions/Objections of the Stakeholders

GE South Asia requested clarification that in case the wind-solar hybrid power project is developed under the state bid, then the timeline as outlined under Table 7 and Para 3.10 (b) be linked with the bid /PPA documents. They enquired about the details of long-term transmission charges as stated under Para 3.10 (b).

IWPA submitted that GETCO may issue extension on case-to-case basis to the Developers if they fail to commission the entire evacuation line along with bays and metering system within the

stipulated time period due to unforeseen reasons and on account of factors beyond the control of the developers.

Continuum requested to clarify that these charges will be applicable only in case of seeking additional transmission capacity /connectivity.

2.14.3 Analysis and Commission's Ruling

The Commission decides to keep Clause 3.10 with respect to Security Deposit proposed in discussion paper as it is and the Commission further decides that GETCO with prior approval of the Commission shall issue extension on case-to-case basis to the Developers if they fail to commission the entire evacuation line within the stipulated time period due to unforeseen reasons.

In case of State level bid, the Commission shall approve the bid / PPA documents when the same shall be submitted before Commission for approval. Long term transmission charges are applicable as decided by the Commission in the GETCO tariff order, time to time.

2.15 Additional points:

2.15.1 Suggestions/Objections of the Stakeholders

Continuum submitted to add the following provisions as per Govt of Gujarat Hybrid Policy:

Clause 12.1 of the GoG Policy:

"12.1 Electricity generated and consumed for self-consumption/sale to third party within the State shall be exempted from payment of electricity duty in accordance with the provisions of the Gujarat Electricity Duty Act, 1958 and its amendments from time to time".

Electricity generated and consumed for self-consumption/sale to third-party within the State shall be exempted from payment of electricity duty in accordance with the provisions of the Gujarat Electricity Duty Act, 1958 and its amendments from time to time.

Clause 12.2 of the GoG Policy:

"*12.2 Exemption from demand cut to the extent of 50% of installed capacity of Hybrid Wind-Solar Power Project in case of captive consumption and third-party sale within the State*".

Exemption from demand cut to the extent of 50% of installed capacity of Hybrid Wind-Solar Power Project in case of captive consumption and third-party sale within the State.

2.15.2 Analysis and Commission's Ruling

Levy of Electricity Duty on consumption of electricity comes under the purview of Government of Gujarat and not falls under purview of the Commission.

The Commission decides to incorporate provision related to 'Exemption from demand cut up to 50%' in line with the Policy.

2.15.3 Some of the objectors have submitted that the distribution licensee shall pay the tariff @ APPC for the surplus energy, if any, injected into the grid by the hybrid project developer in case of non-existence of PPA with the consumers to whom it was supplying energy earlier.

Commission's Analysis

The aforesaid suggestion of the objectors is not acceptable on a ground that the Commission determined the tariff in the present order as tariff receivable to the project developer of hybrid project either supply to licensee or utilize the energy for self-consumption or sale to third party. The energy accounting proposed is also based on the sale of power to distribution licensee or self-consumption or sale to the third party by the developer. The Commission has decided the tariff for surplus energy, if any, available after consumption at captive consumer place or at third party place as sell by the generator with consideration of energy available due to mismatch in generation and consumption energy. There is no intent to allow the generator to inject energy into the grid in absence of PPA and earn revenue from it as surplus energy sale to the licensee. In absence of PPA with the consumers, as third party sale or use of such energy for self-consumption, i.e., captive consumption, or sale to the licensee energy, if any, injected into the grid by the generator without consumption will hamper to the grid frequency and reflects in the deviations settlement account also. We, therefore, decline such request and the same is rejected.

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3. TARIFF FRAMEWORK, GENERAL PRINCIPLES AND OTHER COMMERCIAL CONSIDERATIONS

Having considered all the comments from the stakeholders, the Commission hereby issues the final Tariff Framework for Wind-Solar Hybrid Power Projects for the prospective period as under:

3.1 Tariff Framework

The Ministry of New and Renewable Energy has notified competitive bidding guidelines for procurement of power from grid connected Wind Solar Hybrid Projects on 14.10.2020. The Commission has already directed the Distribution Licensees to procure power from Solar and Wind Projects through competitive bidding under Section 63 of the Act or by following competitive bidding process followed by SECI/MNRE etc. In the same way the tariff for Type A (existing projects) as well as Type B (new projects) shall be determined based on the rates discovered through competitive bidding process. The bidding process shall be based on competitive bidding guidelines of MNRE and bid document shall be approved by the Commission.

Further, for tariff of small-scale projects (existing as well as new) which fall below the threshold limit provided in competitive bidding guidelines, the Commission is specifying following mechanism of determination of applicable tariff having linkage with the tariff rate discovered under the competitive bidding process by State own DISCOMs.

For Type – A (Existing projects):

The purchase of power from existing wind/solar capacity shall be in accordance with the respective PPAs with Distribution licensees. The purchase of power from additional /new capacity shall be at the weighted average tariff (for respective RE addition capacity i.e., Wind or Solar), available as on 1stApril (as discovered in the Competitive Bidding by GUVNL during previous six months October-March and adopted by the Commission) shall be applicable for the projects to be commissioned under PPAs signed during April-September. Similarly, the weighted average tariff (for respective RE addition capacity i.e., Wind or Solar), available as on 1stOctober (as discovered in the Competitive Bidding by GUVNL during previous six months April-September and adopted by the Commission) shall be applicable for the projects to be commissioned under PPAs signed during October-March.

For Type-B (New Projects)

The purchase of power from such projects shall be at the weighted average tariff (of Wind, Solar & Wind-Solar Hybrid) available as on 1st April or 1st October depending on the commissioning date of the project. The weighted average tariff as on 1st April (as discovered in the Competitive Bidding by GUVNL during previous six months October-March and adopted by the Commission) shall be applicable for the projects to be commissioned under PPAs signed during April-September. Similarly, the weighted average tariff available as on 1st October (as discovered in the Competitive Bidding by GUVNL during previous six months April-September and adopted by the Commission) shall be applicable for the projects to be commissioned under PPAs signed during October-March.

In case weighted average tariff is not available for particular 6 months' period then latest weighted average tariff available for 6 months' period shall be considered.

GUVNL shall place on its website the applicable tariff on which it will buy the energy generated from such Wind Solar Hybrid Power Projects. GUVNL shall communicate the link to other licensee who shall then upload such link on its respective websites. The rate will be updated every 6 months.

3.2 General Principles

3.2.1 Control period:

The Control period for the tariff framework approved in this tariff order shall be effective from the date of this order to 31st March 2023.

3.2.2 Useful life of plant:

The Useful Life for the Wind Solar Hybrid Power Projects to be commissioned during control period of this order shall be considered as 25 years from date of commissioning.

3.2.3 Tariff period:

The tariff period for the tariff framework approved by the Commission for procurement of electricity from Wind-Solar Hybrid Power Projects by the distribution licenses in the state shall be 25 years.

3.2.4 Eligible Unit:

Any individual, company or body corporate or association or body of individuals, whether incorporated or not, or artificial juridical person, shall be eligible for setting up of new wind-solar Hybrid Projects OR shall be eligible to add wind/solar capacity at their existing solar/wind power projects, respectively, either for the purpose of captive use and/or for selling of electricity, in accordance with the Electricity Act, 2003, as amended from time to time. The wind and solar generation may be metered separately at the pooling/sending end Sub-Station.

The Wind-Solar Hybrid power projects to be commissioned under PPAs signed during the control period of this order shall be eligible to sell power to distribution licensees of Gujarat at the tariff approved by the Commission under this order.

Further, for simplicity purpose, wind-solar hybrid power generation plants shall be divided into two categories:

(i) Type-A Projects

This category shall include conversion of existing/under-construction wind or solar power plants into Hybrid Projects. Wind/Solar capacity under construction shall be considered based on the Registration Certificate issued by GEDA/evacuation permission granted by GETCO to the Solar/Wind Project Developers before issuance of this Order. The installed Wind/Solar Capacity shall be considered based on Power Purchase Agreement (PPA)/ Wheeling Agreement capacity.

(ii) Type-B Projects

This shall include new wind-solar hybrid power generation projects which are not registered with GEDA or evacuation permission is not granted by GETCO till the date of issuance of this Order.

3.2.5 Forecasting and scheduling for Wind Solar hybrid power:

The Wind-Solar Hybrid Projects shall require to forecast and schedule their generation in accordance with the GERC (Forecasting, Scheduling, Deviation Settlement and Related Matters of Solar and Wind Generation Sources) Regulations, 2019 notified dated 19th January, 2019 and its amendments issued from time to time.

3.2.6 Applicability of Merit order dispatch principle:

Wind-Solar Hybrid Power Projects irrespective of the plant capacity shall be treated as 'MUST RUN' power plants and shall not be subjected to merit order dispatch principles.

3.2.7 Reactive Energy Charges

The Reactive Energy Charges as approved by the Commission in tariff orders for the Gujarat Energy Transmission Corporation Ltd. (GETCO) from time to time shall be applicable to Wind Solar Hybrid projects.

3.2.8 Metering points an interconnection point:

a. Energy generation from wind /solar capacity shall be measured separately at the pooling/sending end sub-station on 15/5-minute time block by installing ABT compliant meters (which can provide the four quadrant data of active and Reactive) by the project developers. The project developers shall also have to install Remote Terminal Unit (RTU) for transferring the real time data to SLDC for its monitoring purpose. Further, ABT compliant meter shall be installed on each wind turbine/solar projects. All the meters will be tested in NABL laboratory and duly sealed by DICOMS. Meters shall be installed in presence of DISCOM/GETCO at the time of Commissioning the Wind/Solar project. The meters shall be AMR compatible so that data can be fetched at GEDA, DISCOM and SLDC remotely.

b. For the purpose of commercial settlement and energy accounting, the metering point shall beat the receiving end sub-stations of GETCO. The injection of energy from wind/solar capacity shall be worked out separately at the receiving end sub-stations of GETCO on the basis of meter reading of common meter installed at receiving end sub-stations appropriately apportioned as per the respective meter reading (active and reactive) of wind and solar ABT (four quadrant) meters installed at respective wind and solar project separately.

c. In case of Type-A projects (Existing Projects), the metering/injection point shall continue to as per existing agreement with GETCO /DISCOM.

d. In case of Type-B Projects (New Projects) that are AC or DC integrated, the metering point shall be at the receiving end of the GETCO substation. Developer shall have to install the ABT (four quadrant) Main & Check meter at their own cost duly tested

sealed and installed in presence of DISCOM. Developer shall install such meters at receiving end of GETCO substation as well as at wind and solar PV system installations in view of the different tariff and RPO. In case of common hybrid tariff and common RPO, a single meter as per above specification for both wind and solar system shall suffice.

e. For Type-A Projects (Existing Projects), both wind and solar PV systems shall use separate set of internal electrical lines and equipment, and connect to the pooling/sending-end substations of the Hybrid Projects. The projects shall be mandatorily metered separately. Developers shall have to install ABT (four quadrant) meters at wind and solar PV system installation as well as receiving end of the GETCO substations at their own cost duly tested sealed and installed in presence of DISCOM.

f. Internal connectivity between solar and wind capacity prior to pooling/sending-end substation shall be allowed for Type B Projects (New Projects) once a common RPO and hybrid tariff are present. Energy metering and communication facility shall be provided by the project developers hybrid power projects in accordance with the following regulations/codes/orders and their subsequent amendments:

   i. Central Electricity Authority (Installation and Operation of meters) Regulations 2014 and its subsequent amendments
   ii. Gujarat Electricity Grid Code 2013 and its subsequent amendments
   iii. GERC (Terms and Conditions of Intra-State Open Access) Regulations, 2011 and its subsequent amendments
   iv. GERC Distribution Code 2004 and its subsequent amendments

For the purpose of energy accounting, all projects shall have to provide ABT compliant (four quadrant) meters at generators and if the power is to be wheeled to consumer's premises, then ABT cum Tariff compatible meter is to be installed at the consumer premises also. GEDA shall ensure the energy accounting of Active and Reactive energy of the Wind/solar and or Hybrid for each customer as is being done for wind energy projects.

3.3 Wind-Solar Hybrid System & Power Evacuation

1. Hybridization of Type-A Projects (Existing Projects):

Existing Wind power or Solar Power Projects Developers, willing to install Solar PV plant or wind turbine generators, respectively, at the existing location to avail benefits under GoG Policy, shall be allowed to do so with following conditions:

i. The total power injection (combined wind and solar) into the grid shall not be more than the transmission capacity/grid connectivity allowed/sanctioned by GETCO for this purpose. In case, addition/augmentation in the existing evacuation system is required as per the system study undertaken by GETCO due to addition of wind/ solar capacity, Developers shall undertake such addition/augmentation in the system up to the receiving end sub-station of GETCO at their own cost. However, the primary focus is to optimize the utilization of existing transmission infrastructure and technologies, and design approaches towards minimum augmentation is encouraged.

ii. The additional solar/wind power from the Hybrid Project may be allowed to wheel power for captive use or for sale of power to a third-party or sale to DISCOMs. For transmission and wheeling of power, the applicable charges and losses shall be as specified in this Order.

iii. The Developers shall approach GETCO for determining the transmission capacity available to evacuate the additional wind/ solar power or any augmentation that may be required. GETCO shall provide the relevant data with regards to the transmission capacity utilization on its existing network.

2. Type-B Projects (New Projects)

i. The Developers of Hybrid Projects shall establish the evacuation line at their own cost up to the receiving end sub-station of GETCO.

ii. The Developer has option for wheeling of wind and solar power for their captive use or third-party sale or sale of power to the DISCOMs. For transmission and wheeling of power, the applicable charges and losses shall be as specified in this Order.

iii. Hybrid Project Developer shall approach GETCO for evacuation system planning up to the receiving station.

For both Type-A and Type-B Hybrid Projects, the Developer shall ensure for capacity allocation/sanction of transmission capacity at least equal to installed capacity of wind or solar

project, whichever is higher. In case, total injection of power from Hybrid Project exceeds such allocated/sanctioned transmission capacity, such power shall be considered as inadvertent flow of power and shall not be considered for commercial settlement.

Wind-Solar Hybrid Power Generation System, or the Hybrid Project, means the system of combined generation of wind and solar power at existing or new solar/wind power projects (or) collocated where injection of wind or solar power is at the interconnection point of the pooling sub-station of existing windfarms/ sending-end sub-station of existing solar power installations with or without energy storage system.

Under the scheme of wind-solar hybrid power generation, wind and solar PV systems shall be connected at the same interconnection point at pooling/sending-end sub-station. In order to achieve the benefits of hybrid plant in terms of optimal and efficient utilization of transmission infrastructure and better grid stability by reducing the variability in renewable power generation, it is desired that:

i. At the locations of having good wind power potential, the solar PV capacity to be added as the solar-hybrid component could be relatively smaller.

ii. Similarly, in case of the sites where the wind power density is relatively lower or moderate, the component of the solar PV capacity could be relatively on a higher side.

Evacuation capacity for the purpose of connectivity and injection of power shall be worked out as follows:

A For Type-A Projects (Existing Projects) where -

a. open access is already granted to the extent of rated capacity of transmission line/ sub-station of GETCO and injection of power from additional wind/ solar capacity to be set up, is restricted up to already granted rated capacity of transmission line/ substation of GETCO. The same shall be allowed without applicability of transmission charges on such additional capacity. However, the transmission losses and wheeling charges/losses shall be made applicable to such capacity as applicable to any other solar or wind project as the case may be. In case total hybrid generation exceeds the transmission capacity limit, it shall be considered as inadvertent injection of power for which no payment or credit shall be given or under any exigency which requires curtailment of generation, the generation from additional/new wind/ solar capacity shall be curtailed first.

b. there is capacity margin in the existing transmission system/ sub-station of GETCO after taking into account open access already granted to the existing wind/solar project or any augmentation and strengthening of transmission system after receiving-end sub-station is undertaken by GETCO for allocation/sanction of transmission capacity for allowing additional wind/ solar capacity, the transmission charges and losses, and wheeling charges and losses shall be applicable on such additional sanctioned/allocated capacity as applicable to any other solar/ wind project as the case may be. However, if any augmentation in the existing transmission system is required due to addition of such solar/wind capacity, up to receiving end substation of GETCO, the same shall be undertaken by the Developers at its own cost.

B For Type-B Projects (New Projects)

The Developer of Hybrid Project shall establish a dedicated line at its own cost for evacuation of power up to receiving end sub-station of GETCO as per system study undertaken by GETCO where the Project Developer desires to inject power in the State Grid. From there onwards, GETCO shall ensure transmission system and connectivity. Transmission charges shall be applicable on the basis of sanctioned/ allocated transmission capacity. However, Developer shall ensure that power injection shall never increase beyond sanctioned/allocated transmission capacity. In case total hybrid generation exceeds the transmission capacity limit, it shall be considered as inadvertent injection of power for which no payment or credit shall be given. Transmission charges and losses, and wheeling charges and losses shall be applicable as applicable to any other open access for wind and solar projects.

3.4 Operation and maintenance of dedicated lines

The Operation and Maintenance of dedicated evacuation line including the bays shall be carried out by the GETCO at the cost of Developer of Hybrid Projects as per applicable technical standards and best practices.

3.5 Transmission and Wheeling Charges

Third Party Sale

a. Wheeling of Power for third party sale from Hybrid power projects shall be allowed on payment of transmission charges applicable on sanctioned/allocated transmission capacity, transmission losses on energy feed basis, wheeling charges and losses on the

energy fed into grid as measured at receiving Sub-Station of GETCO, as applicable to normal open access consumer

b. In case Renewable attribute is being claimed by the Consumer for RPO purpose, set-off of wheeled energy at receipt's end shall be carried out in the same 15/5-minute time block. If renewable attribute is not claimed by the consumer the set off of wheeled energy at receipt's end shall be carried out over one-month billing cycle.

c. 50**%** of the Cross Subsidy Surcharge and Additional Surcharge, as applicable to normal open access consumer, shall be applicable**.**

Wheeling of power for Captive Use

In case of injection at 66 KV and drawl at 11 KV voltage level, wheeling of electricity generated from the Hybrid Project to desired location(s) within the State shall be allowed on payment of transmission charges and transmission losses as applicable to normal open access consumer and 50% of wheeling charges and 50% of distribution losses of the energy fed to the grid at the receiving end sub-station of GETCO, as applicable to normal Open Access Consumers.

Provided that the entity who states that the energy generated from Hybrid project is consumed is for captive consumption shall require to establish on annual basis that the ownership in Captive Generating Plant and consumption of such energy shall fulfil the necessary conditions stipulated in Electricity Rules, 2005. Failure to fulfil the aforesaid two conditions such captive consumption lose the status of captive consumption and it shall be qualified as supply to third party by generator and the benefits granted to captive consumption shall be withdrawn for that Financial Year and it attracts the applicability of 50% of the Cross-Subsidy Surcharge and Additional Surcharge applicable to normal Open Access Consumer as per this Order. The captive consumers shall provide the details of ownership in the captive generating plant and generation as well as consumption of energy from captive generating plant to the Chief Electrical Inspector and also the distribution licensee in whose area of supply captive consumer is situated. The Chief Electrical Inspector and Distribution Licensee shall verify the status of the captive consumers on annual basis. In case of failure to the status of captive generating plant and captive use of energy by the consumer the action may be initiated as stated above.

Wheeling of power to more than one locations

Hybrid Project Developers, who desire to wheel electricity to more than one location for captive use/third-party sale, shall pay 5 paise per unit on energy fed in the grid as measured at receiving

end sub-station of GETCO, to the concerned DISCOM in whose area power is consumed in addition to above mentioned transmission charges and losses, as applicable.

Provided that in all above cases, total injection of power from the Hybrid Project exceeds such allocated/sanctioned transmission capacity, such power shall be considered as inadvertent flow of power and shall not be considered for any commercial settlement.

3.6 Energy Accounting

Energy Accounting related provision as provided below shall be applicable to captive as well as third party open access transaction

1) **Case 1**: If the Consumer does not claim the renewable attribute of wind/solar energy for meeting its Solar and Non-Solar RPO, energy injection worked out at the receiving end sub-station of GETCO shall be set-off against the consumption during the Consumer's billing cycle.

   i. For net import of power, DISCOM shall charge applicable tariff of respective category to the Consumer including fixed/ demand charge, energy charges, peak charge, other charges/ penalty etc. as applicable to other Consumers.

   ii. Surplus power, after giving set-off, shall be compensated by the concerned Distribution Licensee at the rate Rs. 1.75 per unit or the lower rate, if any, specified by the Commission for Surplus Injection Compensation (SIC) from time to time with consideration of market rates. Fixed/ demand charge, peak charge, other charges/ penalty, etc. shall be as applicable to other Consumers.

   Provided that the surplus energy in case of either captive use or third-party sale shall not exceed 15% of the actual generation on annual basis. If any surplus energy exceeds above limit the licensee shall compensate it at 50% of the SIC rate stated above.

   iii. The entire generation shall be considered for fulfilling solar and non-solar RPO of DISCOM.

2) **Case 2 (a):** If the Consumer claims the renewable attributes of solar/wind energy consumed for meeting its solar/non-solar RPO, then energy accounting shall be based on 15/5-minute time block-basis.

i. For net import of power, the DISCOM shall charge applicable tariff of respective category to the Consumer including fixed/ demand charge, energy charges, peak charge, other charges / penalty, etc. as applicable to other Consumers.

ii. Surplus power, after giving set off, shall be compensated by the concerned Distribution Licensee at the rate Rs. 1.75 per unit or the lower rate, if any, specified by the Commission for Surplus Injection Compensation (SIC) from time to time with consideration of market rates. Fixed/ demand charge, peak charge, other charges / penalty, etc. shall be applicable to as applicable to other Consumers.

Provided that the surplus energy in case of either captive use or third-party sale shall not exceed15% of the actual generation on annual basis. If any surplus energy exceeds above limit the licensee shall compensate it at 50% of the SIC rate stated above.

iii. The surplus energy purchased shall be considered for fulfilling solar and non-solar RPO of DISCOM.

3) **Case 2 (b):** For hybrid projects registered under REC mechanism and supply power within the State, the Energy accounting shall be based on a 15/5-minute time block-basis.

i. For net import of power, the DISCOM shall charge applicable tariff of respective category to the Consumer including fixed/ demand charge, energy charges, peak charge, other charges/ penalty, etc. as applicable to other Consumers.

ii. Surplus power, after giving set off, shall be compensated by the concerned Distribution Licensee at the rate Rs. 1.50 per unit or the lower rate, if any, specified by the Commission for Surplus Injection Compensation (SIC) from time to time with consideration of market rates. Fixed/ demand charge, peak charge, other charges/ penalty, etc. shall be applicable to as applicable to other Consumers.

Provided that the surplus energy in case of either captive use or third-party sale shall not exceed15% of the actual generation on annual basis. If any surplus energy exceeds above limit the licensee shall compensate it at 50% of the SIC rate stated above.

4) **For Type-A** Projects (Existing Projects), the energy accounting for consumption of power for captive use / third party sale from existing wind/solar project shall be governed by existing Regulations / Orders / wheeling agreement. If these provisions are different, the above

provisions shall be applicable only for wheeling of power from new/additional wind/solar capacity.

3.7 Concessional Benefits and Exemptions

Levy of Electricity Duty on consumption of electricity comes under the purview of Government of Gujarat.

Consumers are exempted from demand cut to the extent of 50% of installed capacity of Hybrid Wind-Solar Power Project in case of captive consumption and third-party sale within the State.

3.8 Projects registered under REC Mechanism

a. Hybrid Projects availing open access for captive use/ third-party sale under REC mechanism shall be governed as per CERC REC Regulations.

b. Such projects shall be allowed to wheel the electricity on payment of applicable transmission charges/losses, wheeling charges/losses and other charges as applicable to other normal Open Access Consumers.

c. Cross Subsidy Surcharge and Additional Surcharge shall be applicable as applicable to normal Open Access Consumers.

3.9 Restrictions

a. Second hand WTGs/ solar modules or other electrical and mechanical equipment shall not be eligible for installation under this Policy.

b. For captive and third-party models, the power contracted from the hybrid project shall be 50% of the sanctioned load of consumer for each solar and wind respectively.

c. However, Consumers may set up Hybrid Project to extent of meeting RPO without limit of Contracted Demand/Sanctioned Load.

Above restrictions shall be distinct and different from the standalone Solar/Wind generating stations set up under Solar/Wind Orders or Policies.

3.10 CDM Benefits

Wind Solar Hybrid power producers selected under competitive bidding process under this tariff framework shall not be required to share any proceeds from CDM.

3.11 Security Deposit

a. The Hybrid Power Developer setting up new project (Type-B) shall be required to provide Bank Guarantee @ Rs. 3 lacs per MW to GETCO based on allotment of transmission capacity and in case the Developer fails to commission the Hybrid capacity within the time period mentioned hereunder, GETCO shall encash the Bank Guarantee.

b. The Developer shall commission new Hybrid capacity at least 10% of the allotted capacity within one month of charging of evacuation line, failing which, the Developer shall be liable to pay long term transmission charges for 10% of allotted capacity till such 10% of allotted capacity is commissioned.

Table 2 Security Deposit

Hybrid Capacity in MW	**Period for commissioning the entire evacuation line along with bays and metering system**
1 MW to 100 MW	1.5 years from date of allotment of transmission capacity
101 MW to 200 MW	2 years from date of allotment of transmission capacity
201 MW to 400 MW	2.5 years from date of allotment of transmission capacity
401 MW to 600 MW	3.5 years from date of allotment of transmission capacity

Provided that with prior approval of the Commission GETCO shall issue extension on case to case basis to the Developers if they fail to commission the entire evacuation line along with bays and metering system within the stipulated time period due to unforeseen reasons.

In case of state level bid, the Commission shall approve the bid / PPA documents when the same shall be submitted before Commission for approval. Long term transmission charges are applicable as decided by the Commission in the GETCO tariff order, time to time.

3.12 Commissioning of the Hybrid Project

"Commissioning" with respect to the Hybrid project shall be certified by the GEDA shall mean when all equipment as per rated capacity has been installed and energy has flown into the grid and recorded in the energy meters installed at project site and witnessing of such generation of electricity by representative authorised by DISCOM/GETCO. Further it shall also ensure that

generation data from the hybrid project shall also transferred in the real time basis through RTU to SLDC".

Applicability of the Order

The Commission decides that this order shall come into force from the date of issue of this order. Therefore, the tariff and other commercial terms as determined by the Commission in this order shall be applicable to all such Hybrid energy generators for which the PPAs would be signed in respect of Hybrid Projects to be installed and commissioned on or after the date of this order.

Sd/-	**Sd/-**	**Sd/-**
[S.R. Pandey]	**[Mehul M. Gandhi]**	**[Anand Kumar]**
Member	**Member**	**Chairman**

Place: Gandhinagar

Date: 03/04/2021.

Annexure I: List of Stakeholders communicated their views on the Discussion Paper

Sr. No.	Name of Stakeholders
1.	Gujarat Energy Transmission Corporation Limited
2.	GE Renewables
3.	M/s Hindalco Industries Limited
4.	Prozeal Infra Engineering Private Limited
5.	Statkraft Markets Private Limited
6.	Reliance Industries Limited
7.	Clean Max Enviro Energy Solutions Private Limited
8.	AMP Energy Green Nine Private Limited
9.	ReNew Power Private Limited
10.	Gujarat Urja Vikas Nigam Limited
11.	Continuum Wind Energy (India) Private Limited
12.	Indian Wind Power Association
13.	GE South Asia
14.	Torrent Power Limited

Annexure - II: List of Stakeholders participated in the public hearing

Sr. No.	Name of Stakeholders
1.	M/s Hindalco Industries Limited
2.	Reliance Industries Limited
3.	Prozeal Infra Engineering Private Limited
4.	Statkraft Markets Private Limited
5.	Clean Max Enviro Energy Solutions Private Limited
6.	AMP Energy Green Nine Private Limited
7.	ReNew Power Private Limited
8.	Continuum Wind Energy (India) Private Limited
9.	Splash Power Private Limited
10.	BEE Electric Private Limited
11.	GE Renewables
12.	GE South Asia
13.	GIPCL
14.	Torrent Power Limited
15.	Uttar Gujarat Vij Company Limited
16.	Gujarat Energy Transmission Corporation Limited
17.	Gujarat Urja Vikas Nigam Limited