



“TARIFF FRAMEWORK FOR PROCUREMENT OF POWER BY DISTRIBUTION LICENSEES FROM WIND TURBINE GENERATORS AND OTHER COMMERCIAL ISSUES FOR THE STATE OF GUJARAT”

Discussion Paper

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GUJARAT ELECTRICITY REGULATORY COMMISSION

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INTRODUCTION

The Gujarat Electricity Regulatory Commission (GERC or Commission) vide Order No. 2 of 2012 dated August 8, 2012 had issued generic Tariff Order for procurement of power by Distribution Licensees and others from wind power projects applicable up to March 31, 2016. Thereafter, the Commission vide Order no. 2 of 2016 dated August 30, 2016 had issued generic Tariff Order for procurement of power by Distribution Licensees and others, from wind-based power projects in Gujarat applicable for the Control Period up to 31st March 2019.

The Commission intends to provide clarity on the tariff framework for the prospective period, for procurement of power generated by the wind-based Power Projects in the State of Gujarat by Distribution Licensees, under the powers conferred to it under Sections 61(h), 62(1)(a), and 86(1)(b) & (e) of the Electricity Act, 2003, and National Electricity Policy, 2005, and Tariff Policy, 2016.

The Commission engaged the services of ABPS Infrastructure Advisory Private Limited (ABPS Infra) to provide consultancy support to the Commission for preparing the Discussion Paper.



Executive Summary

The Commission has issued a generic tariff order for procurement of power by Distribution Licensees and others from wind power projects in Gujarat on 30 August, 2016. The Control Period of the GERC Wind Tariff Order dated 30 August, 2016 is up to 31 March, 2019. The Commission presents this Discussion Paper as part of the regulatory process for determination of wind power procurement tariff for the prospective period based on comments received from stakeholders on this Discussion Paper.

The Gujarat Electricity Regulatory Commission (GERC) has determined the tariff framework for procurement of power by Distribution Licensees and others from wind power projects to be commissioned in the prospective period under Sections 61 (h), 62 (1) (a), and 86 (1) (b)&(e) of the Electricity Act, 2003, and National Electricity Policy, 2005, and Tariff Policy, 2016.

The State of Gujarat is blessed with excellent wind resources. National Institute of Wind Energy (NIWE) in association with Riso DTU National Laboratory for Sustainable Energy (NLSE), Denmark developed the Indian Wind Atlas which has been published in December 2015. As per this, the wind power potential of Gujarat is 84,431 MW at 100 m hub height. Further, the Atlas shows that most of the areas in Gujarat are having wind power density between 200-350 W/m² at 100 m hub height and there are very less areas with wind power density lower than 200 W/m². WinDForce along with CSTEP submitted a report on assessment of “India’s wind power potential” to MNRE in July 2015. According to the study, the CUF of Gujarat State ranges from 25% to 40% and wind speeds range from 6 to 9 m/s. The wind power density map developed by C-WET and the LBNL study during the year 2012 reveals that most of the wind power potential area lies in between 200-375 W/m² wind power density zone. The current installed wind power capacity of the State is around 6174 MW¹ as on September 30, 2019. This indicates ample scope for future wind power development in the State.

After issuing the Competitive Bidding Guidelines (CBG), the Ministry of New and Renewable Energy (MNRE) informed all the SERCs that since the CBG issued are for plants with above 25 MW capacity, the Commission can determine the Feed in Tariff for Wind Plant with capacity below 25 MW.

¹ As per Gujarat SLDC website



The Key Findings of this Discussion Paper are:

The Commission proposes to determine the tariff for all prospective wind power projects, based on the rates discovered through competitive bidding, and discontinue the practice of determining the generic tariff for wind power projects.

In order to ensure regulatory certainty for such projects set up in the intervening period, it is clarified that the Control Period shall be deemed to be extended till the date of effectiveness of the tariff framework proposed in this Discussion Paper.

The tariff for Wind 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 latest Tariff discovered through Competitive Bidding by State own DISCOMs for Wind Power project and adopted by the Commission.

Others Commercial Issues:

Transmission and Wheeling Charges

As stipulated in the “Gujarat Wind Power Policy-2016”, the Proposed charges shall be:

For Captive Consumption:

- a) **Wheeling of power to consumption site at 66 kV voltage level and above:** The wheeling of electricity generated from the Wind Energy Generators to the desired location(s) within the State, shall be allowed on payment of Transmission Charges and Transmission Losses applicable to normal Open Access consumer.
- b) **Wheeling of power to consumption site below 66 kV voltage level:** In case injection is at 66 kV or above and drawal is at below 66 kV, wheeling of electricity generated from wind power projects to the desired location(s) within the State shall be allowed on payment of Transmission Charges and Transmission Losses applicable to normal Open Access consumers and 50% of Wheeling Charges and 50% of Distribution Losses of the energy fed into the grid as applicable to normal Open Access consumers.
- c) **Wheeling to more than one location:** Wind Power Project owners, who desire to wheel electricity to more than one location, shall pay 5 paise per unit on energy fed in to the grid to the Distribution Company concerned in whose area power is consumed, in addition to above mentioned Transmission/Wheeling Charges and Losses, as applicable.

For third party sale:

- a) Wheeling of power for third party from Wind Power Project shall be allowed on payment of Transmission Charges, Wheeling Charges and Losses of energy fed to the grid, as applicable to normal Open Access consumers. Set off of wheeled energy at recipient unit(s) shall be carried out in the same 15-minute time block.



- b) Further, Wind Energy Generators, who desire to wheel electricity to more than one location, shall pay 5 paise per unit on energy fed in to the grid to the Distribution Company concerned in whose area power is consumed, in addition to above mentioned Transmission/Wheeling Charges and Losses, as applicable.
- c) Concession of 50% on Cross Subsidy Surcharge and Additional Surcharge, as applicable to normal Open Access consumers, shall be given.

Energy Metering

- Wind projects shall have to provide ABT compliant meters at the interface points and shall conform to the Central Electricity Authority (Installation and Operation of Meters) Regulations, 2014, as amended from time to time.
- Metering shall be done at interconnection point of the generator bus-bar with the transmission or distribution system concerned.

Pricing of Reactive Power

The Pricing of Reactive Power shall be same as decided by the Commission in the GETCO Tariff Order time to time.

Sharing of CDM benefits:

Sharing of CDM benefits shall be on gross basis, starting from 100% to developers in the first year after commissioning, and thereafter reducing by 10% every year till the sharing becomes equal (50:50) between the developers and the consumers, in the sixth year and equal benefits thereafter.

Banking of Surplus Wind Energy

As a promotional measure, it is proposed to continue the banking facility for 1 billing cycle for the wind power captive projects wheeling electricity for own use.

Purchase of Surplus Power from Wind Power Projects opting for Captive use and Third-Party Sale under Open Access

In case of wind power projects availing Open Access for captive use/third party sale but not opting for Renewable Energy Certificates (REC), the surplus power after set off will be purchased by the concerned Distribution Licensee at the rate of Rs. 1.75 per kWh.

Renewable Energy Certificates for Third-Party Sale and Captive Use of Wind Energy

Third party sale and captive use of wind energy will be eligible for availing RECs as per CERC REC Regulations and subsequent amendments.



In case of wind power projects availing Open Access for captive use/third party sale and opting for Renewable Energy Certificates (REC), the surplus power after set off will be purchased by the concerned Distribution Licensee at the rate of the Rs. 1.50 per kWh.

Security Deposit

- As per the Govt. of Gujarat Wind Power Policy 2016.
- In case of delay in project commissioning beyond the allowed period due to unforeseen reasons, GETCO may issue extensions on case-to-case basis.

Energy Accounting

The Energy Accounting shall be as per the “Gujarat Wind Power Policy-2016” except for the purchase of surplus power by distribution licensees.



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List of Abbreviations

ABT	Availability Based Tariff
APPC	Average Power Pooled Cost
CEA	Central Electricity Authority
CERC	Central Electricity Regulatory Commission
CTU	Central Transmission Utility
CUF	Capacity Utilisation Factor
GEDA	Gujarat Energy Development Agency
GERC	Gujarat Electricity Regulatory Commission
GETCO	Gujarat Energy Transmission Corporation limited
GUVNL	Gujarat Urja Vikas Nigam Limited
KERC	Karnataka Electricity Regulatory Commission
MNRE	Ministry of New and Renewable Energy
MSEDCL	Maharashtra State Electricity Distribution Company Limited
NIWE	National Institute of Wind Energy
PPA	Power Purchase Agreement
PTC	Power Trading Corporation
REC	Renewable Energy Certificates
RPO	Renewable Purchase Obligation
RTU	Remote Terminal Unit
SECI	Solar Energy Corporation of India Limited
SERC	State Electricity Regulatory Commission
SLDC	State Load Despatch Centre
STU	State Transmission Utility
TANGEDCO	Tamil Nadu Generation and Distribution Corporation Limited
TNERC	Tamil Nadu Electricity Regulatory Commission
WPD	Wind Project Developer



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 Discussion Paper on the tariff framework for procurement of power by Distribution Licensees and others from wind power projects to be commissioned prospectively.

The Gujarat Wind Power Policy-2016 as well as the amendments to Gujarat Solar Power Policy-2015 notified by the Government of Gujarat, have been considered while preparing this Discussion Paper. The Commission had issued the previous generic Tariff Order on 30 August, 2016, for procurement of power by Distribution Licensees from wind power projects in Gujarat. The Control Period of GERC Wind power Tariff Order 2016 expired on 31 March, 2019. This Discussion Paper details the tariff framework for the prospective period as well as the intervening period.

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.

5.12.2: The Electricity Act, 2003, provides that co-generation and generation of electricity from non-conventional sources would be promoted by the SERCs by providing suitable measures for connectivity with the grid and sale of electricity to any person and also by specifying, for purchase of electricity from such sources, a percentage of the total consumption of electricity in the area of a distribution licensee. Such percentage for purchase of power from non-conventional sources should be made applicable for the tariffs to be determined by the SERCs at the earliest. 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 (TP), 2016

In compliance with the Section (3) of the Act, the Central Government has notified the revised Tariff Policy on 28 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 Government of Gujarat Wind Power Policy 2016

The Government of Gujarat notified the 'Wind Power Policy-2016' on 02 August, 2016 for development of wind power projects in the State. Some important provisions of this Policy are listed below:

- This Policy came into force with effect from 02 August, 2016 and will remain in operation till 31 June, 2021.
- The Policy states that in case of Group Captive, 100% of equity amount is to be invested/held by Captive Users and they 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.
- The Wind Turbine Generator may be set up at sites notified by GEDA and/or any other sites identified as potential site within the State by the Nodal Agency or Developer(s).
- The Wind Turbine Generator installed capacity in kW/MW for captive use shall be allowed up to 100% of Contracted Demand/Sanctioned Load of consumer in case of MSME unit(s)



and 50% of the Contracted Demand/Sanctioned Load (in kW/kVA/MVA) of other consumers, consuming power from distribution licensees.

- GEDA which will be the nodal agency and will have the objective of:
 - a. Registration of Projects;
 - b. Responding to queries and problems raised by the Wind Power Projects Developer;
 - c. Accreditation and recommendation of Wind Power Projects for registration with Central Agency under the REC mechanism.
- The WTG shall be set up on GEDA land on lease and it shall be done upon the approval of Co-ordination Committee.
- The machinery to be installed shall be new and shall be approved by MNRE, Government of India.
- The Wind Turbine Generators commissioned under this Wind Policy shall have to abide the Regulations and provisions of Grid Code published by the Central Electricity Authority (CEA) in Notification No. 12/X/STD/CONN/GM/CEA dated 15 October, 2013 known as Central Electricity Authority (Technical Standards for connectivity to the Grid) Amendments Regulations, 2013.
- The evacuation facility from the Wind Farm substation to the Gujarat Energy Transmission Corporation Limited (GETCO) shall be done by the developer at their own cost. The evacuation voltage shall be at 66 kV and above in accordance with the GERC Supply Code and amendment thereof. The Wind Turbine Generator should be integrated by installing of Remote Terminal Units (RTUs) by the Developer at their own cost for the monitoring of Injection at the connectivity substation by the SLDC on real time basis, and in accordance with GERC Orders from time to time.
- The metering point shall be at the 66/132/220 kV pooling substation located at the wind farm substation while the interconnection point shall be the point of connection at the nearest GETCO substation. The ABT compliant meter shall have to be installed at the metering point and the interface metering shall conform to the Central Electricity Authority (Installation and Operation of Meters) Regulations, 2014 and amendment thereto. The meter reading shall be taken jointly by Wind Power Project Developer with GEDA and GETCO at the metering point, on a monthly basis.
- The obligated entities may purchase power from the Wind Power Projects to fulfil their RPO at the Tariff determined by GERC or rate discovered through competitive bidding, while the terms and conditions shall be as per the PPA signed between Developer and the Obligated entity.
- The wheeling of electricity for captive consumption at 66 kV within the State shall be allowed on the payment of transmission charges and losses applicable to normal Open Access consumers while captive consumption below 66 kV voltage level within the State shall be allowed on the payment of Transmission Charges and Transmission Losses as



applicable to normal Open Access consumers and 50% of Wheeling Charges and 50% of Distribution Losses of the energy fed to the grid as applicable to the normal Open Access consumers.

For Wheeling of electricity at more than one desired location, payment of 5 paise/unit on energy fed into the grid shall have to be made to the Distribution Licensee concerned in whose area power is consumed, in addition to above mentioned Transmission/Wheeling Charges and Losses.

For Third Party Sale

- (i) Wheeling of power for third party from Wind Power Project shall be allowed on payment of Transmission Charges, Wheeling Charges and Losses of energy fed to the grid, as applicable to the normal Open Access consumers. Set off for the wheeled energy shall be carried out in the same 15-minute time block.
- (ii) Wind Power Projects who desire to wheel electricity to more than one location shall pay 5 paise/unit on energy fed in the grid to the concerned Distribution Company in whose area power is consumed.
- (iii) A concession of 50% of Cross Subsidy Surcharge and Additional Surcharge as applicable to normal Open Access consumers shall be given.
 - The energy generated by the wind power project shall be set off against the consumption during the consumers' billing cycle if the consumer does not take renewable attribute of wind energy for meeting its RPO.
 - Energy accounting shall be done as described below:
 - (i) Case 1: If the consumer does not take renewable attribute of wind energy for meeting its RPO, energy generated by wind power project shall be set off against the consumption during the consumers' billing cycle.
 - In case of net import of power, Distribution Company will charge applicable tariff of the respective category to the consumer including Fixed/Demand Charge, Energy Charges, Peak Charge, other Charges/Penalty, etc., as applicable to other consumers.
 - Surplus power after giving set off, shall be purchased by DISCOM at APFC of the year of commissioning of project. Fixed/Demand Charge, Peak Charge, other Charge/Penalty, etc., shall be as applicable to other consumers.
 - The entire generation shall be considered for fulfilling RPO of Distribution Company.
 - (ii) Case 2 (a): If the consumer takes the renewable attributes of wind energy consumed for meeting its RPO, then energy accounting shall be based on 15 minute time block-basis.
 - For net import of power, Distribution Company will 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.

- Surplus power after giving set off, shall be purchased at APPC of the year of commissioning of the Project. Fixed/Demand Charge, Peak Charge, other Charges/Penalty, etc., shall be applicable as applicable to other consumers.
- The surplus wind energy purchased shall be considered for fulfilling RPO of Distribution Company.

(iii) Case 2(b): In case if registered under the REC mechanism and supply power within the State, then energy accounting shall be based on 15-minute time block-basis.

- For net import of power, Distribution Company will 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.
- Surplus power after giving set off shall be purchased by the Distribution Company at the rate equivalent to 85% of APPC of the year of commissioning of the project. Fixed/Demand Charge, Peak Charge, other Charges/Penalty, etc., shall be as applicable to other consumers.

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

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

- Wind Power Projects availing Open Access for captive/third-party sale under REC mechanism shall be governed by the CERC Regulations. Such type of 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. Further, Cross Subsidy Surcharge and Additional Surcharge shall be applicable as applicable to normal Open Access consumers.
- Obligated Entities have to abide by the RPO Regulations formed by GERC from time to time and they can fulfil their RPO either by purchasing power at Tariff determined by the GERC or Tariff discovered through competitive bidding process.

1.6 Renewable Purchase Obligation in Gujarat

The GERC (Procurement of Energy from Renewable Sources) (Second Amendment) Regulations, 2018 specifies the minimum renewable power purchase by the obligated entities for FY 2017-18 to FY 2021-22, as shown in Table below:

Table 1-1: Renewable Purchase Obligations for Gujarat for FY 2017-18 to FY 2021-22



Financial Year	Total RPO	Non-Solar RPO		Solar RPO
		Wind	Biomass bagasse and other	Solar
2017-18	10.00%	7.75%	0.50%	1.75%
2018-19	12.70%	7.95%	0.50%	4.25%
2019-20	14.30%	8.05%	0.75%	5.50%
2020-21	15.65%	8.15%	0.75%	6.75%
2021-22	17.00%	8.25%	0.75%	8.00%

Source: Gujarat Electricity Regulatory Commission (Procurement of Energy from Renewable Sources) (Second Amendment) Regulations, 2018.

GERC (Procurement of Energy from Renewable Sources) Regulations, 2010 specifies that 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 (RPO) 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.

1.7 Wind Energy Tariffs in Other States

Central Electricity Regulatory Commission (CERC) under its RE Tariff Regulations, 2017 and RE Tariff Order 2019 has adopted project-specific tariff approach for wind power projects. Maharashtra Electricity Regulatory Commission (MERC) in its RE Generic Tariff Order, 2018 has adopted the Tariff of Rs. 2.87/kWh, which was discovered in competitive bidding done by MSEDCL. In the recently notified MERC RE Tariff Regulations, 2019, MERC has specified that the tariff shall invariably be determined through a transparent process of competitive bidding in accordance with the Guidelines issued by the Central Government under Section 63 of the Act, for Wind Power Projects, and that the Commission shall adopt such competitively discovered tariff. In case of Rajasthan, the RERC has divided the wind potential areas of the State in two different zones and separate tariff for wind power projects coming under these two regions are determined. However, most of the other SERCs like TNERC, GERC and KERC have adopted single normative tariff for wind energy projects commissioned in the respective States.



1.8 GERC Tariff Order 2012 for WEG

GERC, in its Order No. 2 of 2012 dated 08 August, 2012 determined the tariff for procurement of power by the Distribution Licensees from wind energy projects in the State of Gujarat. After due public consultation and regulatory process, GERC determined single part levelized tariff of Rs. 4.23/ kWh for procurement of wind power by the Distribution Licensees in the State. This Tariff Order was made applicable for the wind energy projects commissioned on or after 11 August, 2012. The Control Period of this tariff Order expired on 31 March 2016. Along with the rate for sale of electricity to Distribution Licensees, the Commission in this Order addressed the other commercial issues associated with wind power transactions for third party sale and captive use. Further, in review of the Commission's Order No. 2 of 2012, in Petition No.1243/2012 and Petition No.1249/2012, Commission re-determined the tariff as Rs. 4.15/kWh, which was made applicable for the projects commissioned during the Control Period from 11 August, 2012 to 31 March, 2016.

1.9 GERC Tariff Order 2016 for WEG and subsequent developments

GERC, in its Order No. 2 of 2016 dated 30th August, 2016 determined the tariff for procurement of power by the Distribution Licensees and others from wind energy projects in the State of Gujarat. After due public consultation and regulatory process, GERC determined single part levelized tariff of Rs. 4.19/ kWh for procurement of wind power by the distribution licensees in the State. This Tariff Order was made applicable for the wind energy projects commissioned on or after 30 August, 2016. The Control Period of this Tariff Order expired on 31 March, 2019. The Commission vide an advisory issued to the Distribution Licensees dated 18 March, 2017 stated as under:

"The Commission has observed that, as per the provisions of the National Tariff Policy, procurement from renewable energy projects by distribution licensees is recommended through competitive bidding to keep the tariff low. Accordingly, the Govt. of India and various State Governments have initiated competitive bidding process for procurement of power from wind and Solar energy projects, in which the discovered tariff for Solar and Wind energy projects has shown a substantial reduction.

In view of above, the Commission directs that the distribution licensees may procure electricity from the Wind and Solar power projects through competitive bidding under Section 63 of the Act or by following competitive bidding process followed by SECI/MNRE etc. The tariff determined by the Commission in the respective category of renewable energy orders will act as a ceiling tariff.

The distribution licensees may approach the Commission for adoption of the tariff discovered through such competitive bidding process."



2. Study of Competitive Bids for Wind

2.1 Introduction

Solar Energy Corporation of India Ltd (SECI), a Central Public Sector Undertaking (CPSU) under the administrative control of MNRE, was set up on 20 September, 2011 to facilitate the implementation of JNNSM and achievement of targets set therein. The Government later converted it into a Section-3 Company under the Companies Act, 2013. Earlier, it was only focussing on Solar Energy sector, but with the conversion to a Company, its mandate was broadened to cover the entire Renewable Energy domain.

SECI has now been playing the role of a nodal agency for conducting e-reverse auction for procurement for power for solar and wind projects. SECI first started with the competitive bidding of Solar but with huge response of investors, it also floated the tenders for procurement of Wind power. Most of the tenders floated by SECI were oversubscribed and the Tariff offered by the bidders was also much lower than the Tariff of conventional sources.

2.2 SECI Bids for wind power projects

SECI conducted the first e-reverse auction for wind power in FY 2017-18. The auction closed with the lowest winning bid of Rs 3.46/kWh. The Tariff discovered was much lower than the feed-in Tariff in vogue those days. The first auction capacity was of 1000 MW, which was to be connected on ISTS (inter-State transmission system), wherein power generated from one State (renewable rich State) could be transmitted to other renewable deficient States.

The competitive bidding was Tariff based and the project was awarded to those who quoted the lowest price (power Tariff). SECI tied up with Power Trading Corporation Ltd. (PTC) for long-term Power Purchase Agreements (PPA) with non-windy States to whom power was to be supplied through the Central Transmission Utility. Under the scheme, the Government was not required to acquire land or equipment as the developers had to do that on their own. They would also run and maintain the plants. The provisions in the Tariff Policy also mandated to waive the inter-State Transmission Charges and Losses for wind power projects.

SECI, after such enthusiastic response from the developers, conducted different wind bids in tranches where the Tariff was seen rising and falling with the Tranches, as detailed below:

2.3 SECI Bid Results

2.3.1 SECI Tranche I Dated 27 February, 2017

The first wind power auction done by SECI was for the capacity of 1000 MW and the Tariff discovered was Rs. 3.46/kWh.

Table 2-1: SECI First Tranche Result of 1000 MW ISTS-connected Wind Power project

Sl. No.	Name of WPD	Quantity (MW)	Tariff (Rs./kWh)
1	Mytrah Energy India Private Limited	250.00	3.46
2	Green Infra Wind Energy Limited	249.90	3.46
3	Inox Wind Infrastructure Services Limited	250.00	3.46
4	Ostro Kutch Wind Private Limited	250.00	3.46
5	Adani Green Energy (MP) Limited	50.00	3.46

Source: SECI

2.3.2 SECI Tranche II-Dated 31 May, 2017

The Wind capacity auctioned in the second auction was 1000 MW and the lowest Tariff discovered was Rs. 2.64/kWh.

Table 2-2: SECI Second Tranche Result of 1000 MW ISTS-connected Wind Power project

Sl. No.	Name of WPD	Quantity (MW)	Tariff (Rs/kWh)
1	ReNew Power Ventures Private Ltd.	250.00	2.64
2	Orange Sironj Wind Power Private Limited	200.00	2.64
3	Inox Wind Infrastructure Services Limited	250.00	2.65
4	Green Infra Wind Energy Limited	250.00	2.65
5	Adani Green Energy (MP) Limited	50.00	2.65

Source: SECI

2.3.3 SECI Tranche III- Dated 12 January, 2018

In Tranche III, SECI auctioned a capacity of 2000 MW. The lowest Tariff discovered was a historic low Tariff at that time and was also much lower than some of the NTPC conventional plants.

Table 2-3: SECI Third Tranche Result of 2000 MW ISTS-connected Wind Power project

Sl. No.	Name of WPD	Quantity (MW)	Tariff (Rs./kWh)
1	ReNew Power Ventures Private Ltd.	400.00	2.44
2	Green Infra Wind Energy Limited	300.00	2.44
3	Inox Wind Infrastructure Services Limited	200.00	2.44
4	Torrent Power Limited	499.80	2.44
5	Adani Green Energy (MP) Limited	250.00	2.45
6	Alfanar Company	300.00	2.45
7	Betam Wind Energy Pvt. Ltd	50.20	2.45

Source: SECI Website

2.3.4 SECI Tranche IV-Dated 2 February, 2018

After discovering a low Tariff Rs. 2.44/kWh, SECI auctioned another capacity of 2000 MW in Tranche IV. The Tariff increased slightly as compared to previous bid in this auction and the lowest Tariff discovered was Rs. 2.51/kWh.

Table 2-4: SECI Fourth Tranche Result of 2000 MW ISTS-connected Wind Power project

Sl. No.	Name of WPD	Quantity (MW)	Tariff (Rs/kWh)
1	Srijan Energy Systems Private Limited	250.00	2.51
2	Sprng Energy Private Limited	300.00	2.51
3	BLP Energy Private Limited	285.00	2.51
4	Betam Wind Energy Private Limited	200.00	2.51
5	Inox Wind Infrastructure Services Limited	100.00	2.51
6	Adani Green Energy (MP) Limited	300.00	2.51
7	Mytrah Energy India Private Limited	300.00	2.52
8	ReNew Wind Energy (TN) Private Ltd.	265.00	2.52

Source: SECI Website

2.3.5 SECI Tranche V-Dated 25 September, 2018

SECI initiated another RFS for auction of 2000 MW, which was cancelled due to the timid response from the bidders. SECI then retendered and reduced the capacity from 2000 MW to 1200 MW. The main reasons for lowering the bid size was due to the transmission issues being faced by the developers. The lowest Tariff discovered in this auction was Rs.2.76/kWh.

Table 2-5: SECI Fifth Tranche Result of 1200 MW ISTS-connected Wind Power project

Sl. No.	Name of WPD	Quantity (MW)	Tariff (Rs./kWh)
1	Torrent Power Limited	115.00	2.76
2	Adani Green Energy	300.00	2.76
3	Alfanar Company	300.00	2.77
4	SITAC Kabini Renewables	300.00	2.77
5	Ecoren Energy India	175.00	2.77

Source: SECI

2.3.6 SECI Tranche VI-Dated 14 February, 2019

SECI initiated another RFS for auction of 1200 MW. The lowest Tariff discovered in this auction was Rs.2.82/kWh.

Table 2-6: SECI Sixth Tranche Result of 1200 MW ISTS-connected Wind Power project

Sl. No.	Name of WPD	Quantity (MW)	Tariff (Rs./kWh)
1	Adani Green Energy	250	2.82
2	Ostro Energy	300	2.82
3	Srijan Energy Systems	150	2.82
4	Powerica Limited	50.6	2.82
5	Ecoren Energy India Pvt Ltd	125	2.83
6	Softbank Energy	324.4	2.83

Source: Mercom India

2.4 Reasons for low Tariff

- **Increase in Efficiency:** There was an increase in the efficiency of the wind turbines due to which generation achieved was much higher than the old model turbines.
- **Accessibility of cheaper funds:** Since the offtaker was SECI and the PPA would be with centrally-owned PSU rather than with the State, the developers were able to avail cheaper funding from different sources present in the market.
- **Advantage of choosing any site:** The WPD were free to choose any site under the SECI auctions and it would be near a transmission system. This led to reduction in transmission constraint to some extent.
- **Economies of scale:** SECI auctioned project capacity was also much higher, due to which it increased the interest of the investors.

2.5 Competitive bids conducted by States

Some States, which have good potential of wind, also conducted wind auctions to get the benefit of low Tariff whose benefit can be passed on to the consumers. These States included Gujarat (GUVNL), Maharashtra (MSEDCL), and Tamil Nadu (TANGEDCO).

2.5.1 Gujarat (GUVNL) Auction-Dated 21 December, 2017

In Gujarat, GUVNL conducted a tariff-based auction for procurement of wind power. The capacity auctioned was 500 MW and the Tariff of Rs. 2.43/kWh discovered was a historic low of all times. In this auction, the capacity allocation was under the Greenshoe Option, in which an additional capacity of 500 MW was also available to be offered to the participating bidders who are willing to execute the PPA with GUVNL at the L1 rate.

Some Brief Facts about the Auction:

- The minimum CUF required was 22%
- The project shall be designed for the interconnection with CTU/STU substation from the pooling substation.
- The interconnection point was the GETCO substation.

- If the generation is over and above 10% of declared annual CUF, then the bidder can sell to any other entity with GUVNL having the first right of refusal. In case of purchase above the excess generation, the same would be done at 75% of the PPA Tariff.
- The duration of PPA was of 25 years.
- The Wheeling Charges and losses from pooling substation to the GETCO substation would have to be borne by the developer.

2.5.1.1 Result of the Auction

The Tariff discovered was Rs. 2.43/kWh. The auctioned capacity was 500 MW. It is understood that this tender has been annulled as GUVNL was unable to address the issues raised by the bidders.

Table 2-7: GUVNL Wind Auction Result of capacity 500 MW

Sr No.	Name of bidder	Capacity (in MW)	Rate (Rs./kWh)
1	Sprng Energy Private Limited	197.50	2.43
2	K.P Energy Limited	30.00	2.43
3	Verdant Renewable Private Limited	100.00	2.44
4	Betam Wind Energy Pvt. Ltd	29.90	2.44
5	Powerica Limited	50.00	2.44

Source: GUVNL Website

2.5.2 Maharashtra (MSEDCL) Auction-Dated 3 March, 2018

The Maharashtra State Electricity Distribution Company Limited (MSEDCL) has auctioned 500 MW of grid-connected wind projects to meet its non-solar RPO. The lowest quoted Tariff in the auction was Rs. 2.85/kWh. The L1 Tariff quoted in this auction was 41 paise (17%) higher than the Tariff quoted in SECI auction, i.e., Rs. 2.44/kWh. In this bid, the upper ceiling Tariff was fixed as Rs. 3/kWh.

Some Brief Facts about the Auction:

- The minimum CUF required was 22%. The bidder has to maintain generation so as to achieve CUF in the range of $\pm 10\%$ of their declared value during PPA duration.
- The project shall be designed for the interconnection with CTU/STU substation from the pooling substation.
- If the generation is over and above 10% of declared annual CUF, then the bidder can sell to any other entity, with MSEDCL having the first right of refusal. In case of purchase above the excess generation, the same would be done at 75% of the PPA Tariff.
- The duration of PPA was 25 years.

2.5.2.1 Result of the Auction

The rates discovered in the auction are given in the Table below:

Table 2-8: MSEDCL wind auction Results for capacity of 500 MW

Sr No.	Name of Supplier	Quantum (MW)	Rate (Rs. /kWh)
1	Adani Green Energy (MP) Limited	75.00	2.85
2	KCT Renewable Energy Private Limited	75.00	2.85
3	Inox Wind Limited	50.00	2.86
4	Mytrah Energy India Private Limited	100.00	2.86
5	Hero Wind Energy Private Limited	75.60	2.86
6	Torrent Power Limited	124.50	2.87

Source: MERC Order, Case No. 129 of 2018, dated 14 June, 2018

2.5.3 Tamil Nadu (TANGEDCO) auction-Dated 19 June, 2017

The Tamil Nadu Generation and Distribution Corporation Ltd. (TANGEDCO) conducted an auction for 500 MW capacity, to meet its RPO. The Tariff discovered in this auction was Rs. 3.42/kWh.

Some Brief Facts about the Auction:

- The CUF should be in between 20% to 27.15%
- In case the availability is more than the maximum specified CUF of 27.15%, TANGEDCO was required to purchase the excess power at 75% of the PPA Tariff.
- The wind power project would be designed for interconnection with a TANGEDCO substation through a dedicated transmission line at voltage levels of 110 kV or higher. The entire cost of transmission from the project up to the TANGEDCO substation including cost of construction of the line and losses would be borne by the developer.
- The timeframe for the project completion was 15 months.

2.5.3.1 Result of the Auction

The details of the auction results along with the Tariff discovered is given below:

Table 2-9: TANGEDCO Wind Auction result of capacity 500 MW

Sr No.	Name of bidder	Capacity (in MW)	Rate (Rs./kWh)
1	Regen Powertech Pvt. Ltd	200	3.42
2	Leap Green Energy Pvt. Ltd.	250	3.42

Source: TNERC Order, PPA No. 6 of 2017, dated 13 November, 2017

2.6 NTPC Wind Auction-Dated 21 August, 2018

The National Thermal Power Corporation (NTPC) also auctioned 1200 MW inter-State transmission system connected projects to be developed across India. The Tariff climbed in this wind auction, as the Tariff had gone down to Rs 2.44/kWh before this auction. The main reasons for such sudden increase in the Tariff was due to increase in finance cost and limited availability of transmission facilities.

2.6.1 Results of the Auction

The details of the auction results are given in the below table:

Table 2-10: NTPC Wind Auction result of capacity 1200 MW

Sr No.	Name of bidder	Capacity (in MW)	Rate (Rs. /kWh)
1	Sprng Vayu Vidyut (Actis)	200	2.77
2	Mytrah Energy	300	2.79
3	Srijan Energy Systems (Continuum Wind Energy)	50	2.79
4	Renew Wind Energy (TN)	300	2.81
5	Hero Wind Energy	300	2.82
6	Fasten Power (SITAC RE)	50	2.83

Source: Mercom Research Website

2.7 GUVNL - Gujarat Wind Auction-Dated 13 May, 2019

The latest auction conducted by Gujarat Urja Vikas Nigam Ltd (GUVNL) saw Enerfra win 40 MW of capacity at Rs 2.80 per unit, and Powerica and Vena win 50 MW and 100 MW capacities, respectively, at Rs 2.81 per unit. Sarjan Realities, Viridi Clean Alternatives, Renew Power, Adani and Inox Wind were the other winners whose tariffs were in the Rs 2.87-2.95 per unit range.

The state utility's tender was undersubscribed – of the 1,000 MW of capacity put up for auction, bids were received for only for 853 MW, of which the 745 MW was allotted.

2.7.1 Results of the Auction

The details of the auction results are given in the below table:

Table 2-11: GUVNL Wind Auction result of capacity 745 MW

Sr No.	Name of bidder	Capacity (in MW)	Rate (Rs. /kWh)
1	Anisha Power Projects	40	2.80
2	Powerica	50.6	2.81
3	Vena Energy	100	2.81
4	Sarjan Realities	100.8	2.87
5	Viridi Clean Alternatives	100	2.95
6	Inox Wind	40	2.95



Sr No.	Name of bidder	Capacity (in MW)	Rate (Rs. /kWh)
7	Renew Power	200	2.95
8	Adani Renewable Energy	113.6	2.95

Source: GERC Order in Petition No. 1849 of 2019 dated 7 January 2020

Out of the above, PPAs were signed for 202.6 MW with the first 3 Bidders at Rs. 2.80 per kWh and for 12 MW with M/s SJVN at the earlier discovered competitive rate of Rs. 2.43/kWh, and the same have been approved by the Commission, while adopting the competitively discovered tariff, vide Order in Petition No. 1849 of 2019 dated 7 January 2020.



3. Tariff Framework, General principles and Other Commercial Issues

3.1 Tariff Framework

The Commission has already directed the Distribution Licensees to procure power from Wind Projects through competitive bidding under Section 63 of the Act or by following competitive bidding process followed by SECI/MNRE etc. The tariff determined by the Commission in the respective category of renewable energy orders will act as a ceiling tariff.

Further, in Order dated 21 December 2019 in Petition No. 1658 of 2017, the Commission has quoted the advisory issued to the Distribution Licensees dated 18 March, 2017, which states as under:

“The Commission has observed that, as per the provisions of the National Tariff Policy, procurement from renewable energy projects by distribution licensees is recommended through competitive bidding to keep the tariff low. Accordingly, the Govt. of India and various State Governments have initiated competitive bidding process for procurement of power from wind and Solar energy projects, in which the discovered tariff for Solar and Wind energy projects has shown a substantial reduction.

In view of above, the Commission directs that the distribution licensees may procure electricity from the Wind and Solar power projects through competitive bidding under Section 63 of the Act or by following competitive bidding process followed by SECI/MNRE etc. The tariff determined by the Commission in the respective category of renewable energy orders will act as a ceiling tariff.

The distribution licensees may approach the Commission for adoption of the tariff discovered through such competitive bidding process.”

Further, in the said Order, the Commission has ruled as under:

“Looking to the recent developments on the front of technology and mass scale production of wind turbines and other equipments related to wind energy generation, there has been a clear down-trend in the tariff of wind energy. The distribution licensees are duty bound to reduce their costs including the cost of power purchase to keep the retail tariff minimum in the interest of the consumers of the State. In view of this, if there is an opportunity of bidding available with the distribution licensees to avail wind energy at a rate lower than the preferential tariff, the distribution licensee is bound to go for the lower tariff. The Order dated 30.08.2016 does not bind the distribution licensees to procure the wind energy only at the tariff of Rs. 4.19/kWh determined by the Commission.

In view of the stipulation of Electricity Act, 2003, Tariff Policy, Order dated 30.08.2016 of the Commission and letters of the Commission and Government of Gujarat, we decide that the Distribution Licensee is not mandated to procure wind energy at preferential tariff. In fact, the



Distribution Licensee is bound to explore the avenues where from the cheaper wind power is available."

In view of the above, the Commission proposes to determine the tariff for all prospective wind power projects, based on the rates discovered through competitive bidding, and discontinue the practice of determining the generic tariff for wind power projects.

Further, as stated earlier, the Control Period under the present dispensation expired on 31 March, 2019. The present Discussion Paper outlines the proposed approach and tariff framework for the prospective period. However, projects have continued to be set up during the intervening period, i.e., post 31 March, 2019 and before date of commencement of the dispensation proposed in this Discussion Paper. Hence, in order to ensure regulatory certainty for such projects set up in the intervening period, it is clarified that the Control Period ended on 31st March, 2019, shall be deemed to be extended till the date of effectiveness of the tariff framework proposed in this Discussion Paper.

Further, there could be cases of Wind 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 latest Tariff discovered through Competitive Bidding by State own DISCOMs for Wind Power Projects and adopted by the Commission.

3.2 General Principles

a. Control Period

The Commission proposes that the new control period of the tariff framework under this discussion paper shall be effective from the date of final order till further Order in this regard.

b. Useful life of Plant

The Commission proposes to continue to consider useful life of 25 years for the wind power projects to be commissioned during the new control period starting from date of this order.

c. Tariff period

The tariff period for the tariff proposed by the Commission for procurement of wind power projects by the distribution licenses in the State will be 25 years.

d. Eligibility Criteria

The wind power projects using new wind turbine generators installed and commissioned during the new control period as proposed in this discussion paper will be eligible to sell power to distribution licensees of Gujarat at the tariff proposed by the Commission.

e. Forecasting and Scheduling of wind power

The wind power projects shall require to follow the provisions as prescribed under the GERC (Forecasting, Scheduling, Deviation Settlement and Related Matters of Solar and



Wind Generation Sources) Regulations, 2019 notified 19th January, 2019 and its amendments issued from time to time.

f. Applicability of Merit Order Dispatch Principle

The Commission proposes to continue the practice of considering the wind power plants irrespective of plant capacity as 'MUST RUN' power plants and shall not be subjected to 'merit order despatch' principles

g. Metering point, grid connectivity and evacuation arrangement

The metering point will be at the pooling sub-station at 66KV level and above located at wind farm site, whereas the interface point for the grid connectivity will be the nearest GETCO sub-station

3.3 Transmission and Wheeling Charges

The transmission lines are designed so as to carry the rated connected capacity of wind energy generator and therefore, the cost of transmission/distribution assets created for such projects is required to be recovered through the Transmission Charges and Wheeling Charges.

The "Gujarat Wind Power Policy- 2016" has stipulated the following norms:

For Captive Consumption:

- d) Wheeling of power to consumption site at 66 kV voltage level and above: The wheeling of electricity generated from the Wind Energy Generators to the desired location(s) within the State, shall be allowed on payment of Transmission Charges and Transmission Losses applicable to normal Open Access consumer.*
- e) Wheeling of power to consumption site below 66 kV voltage level: In case injection is at 66 kV or above and drawal is below 66 kV, wheeling of electricity generated from wind power projects to the desired location(s) within the State shall be allowed on payment of Transmission Charges and Transmission Losses applicable to normal Open Access consumers and 50% of Wheeling Charges and 50% of Distribution Losses of the energy fed into the grid as applicable to normal Open Access consumers.*
- f) Wheeling to more than one location: Wind Power Project owners, who desire to wheel electricity to more than one location, shall pay 5 paise per unit on energy fed in to the grid to the Distribution Company concerned in whose area power is consumed, in addition to above mentioned Transmission/Wheeling Charges and Losses, as applicable.*

For third party sale:

- d) Wheeling of power for third party from Wind Power Project shall be allowed on payment of Transmission Charges, Wheeling Charges and Losses of energy fed to the grid, as applicable to normal Open Access consumers. Set off of wheeled energy at recipient unit(s) shall be carried out in the same 15-minute time block.*

- e) *Further, Wind Energy Generators, who desire to wheel electricity to more than one location, shall pay 5 paise per unit on energy fed in to the grid to the Distribution Company concerned in whose area power is consumed, in addition to above mentioned Transmission/Wheeling Charges and Losses, as applicable.*
- f) *Concession of 50% on Cross Subsidy Surcharge and Additional Surcharge, as applicable to normal Open Access consumers, shall be given.*

It is proposed to retain the above-stipulated Transmission Charges, Wheeling Charges, and Losses as stipulated in the “Wind Power Policy- 2016” shall be applicable for all prospective wind power projects.

3.4 State Energy Metering

The “Gujarat Wind Power Policy-2016” stipulates as under:

“The metering point shall be at the 66/132/220 kV pooling sub-station located at the Wind farm site and interconnection point shall be at the point of connection at the nearest GETCO sub-station.

For the purpose of energy accounting, the ABT compliant meter shall be installed at the metering point, as per GERC Order. Interface metering shall conform to the Central Electricity Authority (Installation and Operation of Meters) Regulations, 2014 and amendment thereto. GETCO shall stipulate specifications in this regard. The electricity generated from the WTGs shall be metered and readings taken jointly by Wind Power Project Developer with GEDA and GETCO at the metering point on a monthly basis.

Further, for the purpose of accounting, each WTG shall have to provide ABT compliant meters.”

It is proposed to adopt the above Policy for metering for all prospective wind power projects.

3.5 Pricing of Reactive Power

Reactive Power is required by the Wind Energy generators during initial start-up and station transformers also continuously require reactive power from the grid. Hence, in order to maintain grid stability, it is necessary to limit such reactive power consumption from the grid by installation of suitable compensation devices.

In order to restrain the wind power projects from consuming more reactive power from the grid and to encourage them to install suitable compensation devices to limit such reactive power consumption, the Commission in the previous Order had levied reactive power charges.

The Pricing of Reactive Power for all prospective wind power projects shall be same as decided by the Commission in the GETCO Order from time to time.

3.6 Sharing of Clean Development Mechanism (CDM) Benefits

In case of CDM benefits, the “Gujarat Wind Power Policy-2016” states that;

1. *In case Discom purchases power on Feed-in-Tariff, 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. *In case of purchase of power by Discom through competitive bidding, the same shall be as per terms and conditions of bid documents.*

The above approach is proposed to be adopted for all prospective wind power projects.

3.7 Banking of Surplus Wind Energy

Since, Wind Power generation is intermittent in nature, as a promotional measure, the Commission in its existing Wind Tariff Order decided to continue the practice of settlement of excess generation after set off during one billing cycle in case of captive wind power projects in the State. The Commission further stated that with intra-State ABT mechanism in place in the State, increase in time period for banking will have adverse financial impact on utilities. For promotional measure, the Commission stated that the captive WEGs not registered under REC are eligible for one-month banking for the electricity generated during the same calendar month.

The Commission continued the practice of settlement on the basis of peak and normal hours as provided in the Order. The Commission stated that , the generators are eligible to utilize the same during the billing cycle (1 month) in the proportion to the energy generated during peak and normal hours. The Commission further stated that the banking facility shall not be available for third-party sale of wind energy and set off will be done in the 15-minute time block with Open Access consumers’ consumption.

The above approach is proposed for all prospective wind power projects.

3.8 Purchase of Surplus Power from Wind Power Projects opting for Captive use and Third-Party Sale under Open Access

The Commission in the Generic Wind Tariff Order dated 30 August, 2016 stipulated that:

“Quantum of surplus power available after setting off under captive use or third-party sale is uncertain, it could lead to uncertainty in planning for utilities while utilising such surplus power. Further, linking the tariff for purchase of surplus power with the fulfilment of the Utility’s RPO will lead to implementation issues, and therefore, the Commission decided not to link the same with the RPO in the Wind Tariff Order.



The Commission further clarified that in case of wind power projects availing Open Access for captive use/third party sale but not opting for Renewable Energy Certificates (REC), the surplus power after set off will be purchased by the concerned Distribution Licensee at the rate of the Average Pooled Power Purchase Cost (APPC) of the year of commissioning of the project, as determined by the Commission. “

Further, in the amendment dated 26 September 2019 to the State Solar Power Policy vide G.R. No. SLR-11/2-15/2442/B1, the Government of Gujarat has notified as under:

*“6. **Purchase of surplus power:** Any surplus solar energy not consumed by consumer as per Energy Accounting shall be purchased by DISCOMs at Rs. 1.75/unit.”*

The Commission is of the view that these Projects are set up with the primary objective of captive consumption, and any sale of surplus power is incidental, and on account of being unable to absorb the entire generation through captive consumption. Further, there is a need to rationalise the charges for procurement of surplus power from those consumers who are setting up the captive wind power projects, with the intention of selling the surplus power to the Distribution Licensees, who will not be able to plan their Non-Solar RPO based on such uncertain and infirm source of wind power. Hence, the rate for purchase of such surplus power by the Distribution Licensee has to be reasonable, yet not so high so as to incentivise sale of surplus power. Further, the tariffs discovered through competitive bidding are lower than the Average Power Purchase Cost (APPC), hence, it would be inappropriate to link the rate for purchase of surplus power to APPC.

In view of all the above, and in order to provide the same dispensation to Wind and Solar power projects in this regard, it is decided that in case of wind power projects availing Open Access for captive use/third party sale but not opting for Renewable Energy Certificates (REC), the surplus power after set off will be purchased by the concerned Distribution Licensee at the rate of Rs. 1.75 per kWh.

3.9 Renewable Energy Certificates for Third-Party Sale and Captive Use of Wind Energy

In the “Gujarat Wind Power Policy-2016”, it is stipulated that

“Wind Power projects availing Open Access for captive use/third-party sale under REC mechanism shall be governed as per CERC REC Regulations. 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. Further, Cross subsidy Surcharge and Additional Surcharge shall be applicable as applicable to normal Open Access consumers”.

The Commission in the Wind Tariff Order dated 30 August, 2016 stipulated as under:



“The Commission has specified the concessional treatment available to the captive and third-party wind power projects. However, the captive and third-party wind energy projects for registering under the REC mechanism, in case they avail any concessional benefits are governed by the CERC REC Regulations and its amendments thereof and the same shall also be applicable to the wind projects commissioned in Gujarat.

Regarding banking for captive projects registered under REC, the Commission had clarified the issue through its order dated 07.01.2013. Under the Intra-State ABT implemented in the State of Gujarat from 05.04.2010, banking facility is not permissible to the CPP holders who set up the WTG under REC schemes. The WTGs registered under REC are entitled to set-off in 15 minutes' time block only.

In case of wind power projects availing OA for captive use / third-party sale and opting for REC, the surplus power after set off will be purchased by the distribution licensee at 85% of Average power procurement cost (APPC) of the year of commissioning of the project as determined by the Commission, which will remain unchanged throughout the life of plant. The APPC rate for the state will be determined by the Commission separately after receiving the data from utilities in this regard. The present practice of settlement of excess generation after set off in case of wind power projects availing OA for captive use / third-party sale will remain unchanged. The CGP set-up under REC mode and energy generated from it for sell to third party shall be liable to pay cross- subsidy surcharge of relevant year as decided by the Commission. Further such consumer shall also be liable to pay the additional surcharge over and above cross-subsidy surcharge.”

As the rate for sale of surplus power from captive power projects has been fixed at Rs. 1.75 per kWh rather than APPC, in case of wind power projects availing OA for captive use / third-party sale and opting for REC, the surplus power after set off will accordingly be purchased by the Distribution Licensee at 85% of Rs. 1.75/kWh, i.e., Rs. 1.50 per kWh.

Thus, the dispensation proposed for such Projects is as under:

“Third party sale and captive use of wind energy will be eligible for availing RECs as per CERC REC Regulations and subsequent amendments.

In case of wind power projects availing Open Access for captive use/third party sale and opting for Renewable Energy Certificates (REC), the surplus power after set off will be purchased by the concerned Distribution Licensee at the rate of the Rs. 1.50 per kWh.”

3.10 Security Deposit

The security deposit is furnished by the project developer in order to assure GETCO about the seriousness of the project. The Commission in the Wind Tariff Order dated 30 August,



2016 retained the provision regarding furnishing of Bank Guarantee of Rs 5 Lakh/MW by the project developers to GETCO.

In the “Gujarat Wind Power Policy-2016” also, it is stipulated that

“The WTGs Developers have to furnish a Bank Guarantee of Rs 5 Lakh/MW to GETCO based on allotment of transmission capacity and in case the Developer fails to commission the wind farm s/s and transmission line within the time period mentioned hereunder, GETCO shall encash the Bank Guarantee.”

The Policy also provides that that

“The developer shall commission Wind farms of 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 3-1: Capacity and Commissioning Period for the Wind Projects

Wind Farm Capacity in MW	Period for commissioning of the entire allotted Pooling Sub Station capacity
1 MW to 100 MW	1.5 years from the date of allotment of transmission capacity
100 MW to 200 MW	2 years from the date of allotment of transmission capacity
201MW to 400 MW	2.5 years from the date of allotment of transmission capacity
401 MW to 600 MW	3.5 years from the date of allotment of transmission capacity

The above approach is proposed to be adopted for all prospective wind power projects.

3.11 Energy Accounting

The Wind Tariff Order dated 30 August, 2016 stipulates that:

- *In case the consumer does not take renewable attribute for meeting its RPO, energy generated by wind power project shall be set off against the consumption during the consumers’ billing cycle. Surplus power after giving set off shall be purchased by DISCOM at APPC of the year of commissioning of project and entire generation shall be credited to DISCOM’s account for meeting RPO.*
- *In case the consumer takes renewable attribute of wind energy for meeting its RPO, energy accounting shall be based on 15 minutes’ time block. Surplus power after giving set off shall be purchased by DISCOM at APPC of the year of commissioning of project. Surplus wind energy purchased by DISCOM shall be considered for meeting RPO of DISCOM.*

The Gujarat Wind Power Policy-2016 stipulates that:



- i. *Case 1: If consumer does not take renewable attribute of wind energy for meeting its RPO, energy generated by wind power project shall be set off against the consumption during the consumers billing cycle.*
 - a) *The net import of power, Distribution Company will charge applicable tariff for the respective category and other charges as applicable to other consumers.*
 - b) *Surplus power, after giving set off, shall be purchased by DISCOM at APPC of the year of the commissioning of the project.*
 - c) *The entire generation will be considered for fulfilling the RPO of DISCOM.*
- ii. *Case 2 (a); If consumer take renewable attribute of wind energy for meeting its RPO, then energy accounting shall be based on 15 min time block basis.*
 - a) *The net import of power, Distribution company will charge applicable tariff for the respective category and other charges as applicable to other consumers.*
 - b) *Surplus power, after giving set off, shall be purchased by DISCOM at APPC of the year of the commissioning of the project.*
 - c) *The surplus wind energy purchased shall be considered for fulfilling the RPO of DISCOM.*
- iii. *Case 2 (b); If registered under REC Mechanism and supply of power within the State, then energy accounting shall be based on 15 min time block basis.*
 - a) *For the net import of power, Distribution Company will charge applicable tariff for the respective category and other charges as applicable to other consumers.*
 - b) *Surplus power, after giving set off, shall be purchased by DISCOM at equivalent to 85% of APPC of the year of commissioning of the project.*

In view of the rationalisation of charge for procurement of surplus power from wind power projects set up for captive use /third party sale, the Commission proposes the following methodology to be adopted for the prospective period.

- i. *Case 1: If consumer does not take renewable attribute of wind energy for meeting its RPO, energy generated by wind power project shall be set off against the consumption during the consumers billing cycle.*
 - a) *The net import of power, Distribution Company will charge applicable tariff for the respective category and other charges as applicable to other consumers.*
 - b) *Surplus power, after giving set off, shall be purchased by DISCOM at Rs. 1.75 per kWh.*
 - c) *The entire generation will be considered for fulfilling the RPO of DISCOM.*
- ii. *Case 2 (a); If consumer take renewable attribute of wind energy for meeting its RPO, then energy accounting shall be based on 15 min time block basis.*



- a) The net import of power, Distribution company will charge applicable tariff for the respective category and other charges as applicable to other consumers.
 - b) Surplus power, after giving set off, shall be purchased by DISCOM at Rs. 1.75 per kWh.
 - c) The surplus wind energy purchased shall be considered for fulfilling the RPO of DISCOM.
- iii. Case 2 (b); If registered under REC Mechanism and supply of power within the State, then energy accounting shall be based on 15 min time block basis.
- a) For the net import of power, Distribution Company will charge applicable tariff for the respective category and other charges as applicable to other consumers.
 - b) Surplus power, after giving set off, shall be purchased by DISCOM at Rs. 1.50 per kWh.

3.11.1 Concessional Benefit and Exemptions

The “Gujarat Wind Power Policy-2016” stipulates that

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

Exemption from demand cut to the extent of 50% of installed capacity of wind power project in case of captive consumption and third-party sale within the State”.

The above benefits and exemptions provided by the State Government shall be applicable for the prospective period.

GERC present this discussion paper to initiate the regulatory process for fixing the wind power procurement tariff for new control period starting from the date of order on this discussion paper after considering comments received from stockholders. GERC invites comments from the potential stakeholders for fixation of wind power tariff for the new control period.

Stakeholders may offer their comments on or before 25th February, 2020. Public hearing in this regard will held on 28th February, 2020 at 11:30 AM at GERC office GIFT CITY Gandhinagar. Stakeholder either in person or through their authorized representative may remain present.

Place: Gandhinagar

Date: 28.01.2020

**Sd/-
[Roopwanti Singh, IAS]
Secretary
GERC**