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DRAFT GUJARAT WIND-SOLAR HYBRID POWER POLICY- 2017

PREAMBLE

The State Government envisions a future with reduced dependence on fossil-based energy by promoting renewable energy sources. The State recognizes that renewable energy can also significantly increase the State's and the Nation's energy security. Above all, it is the vision of the State Government to provide a clean and sustainable environment for its Citizens.

The State of Gujarat is blessed with long coast line and good wind speeds for harnessing of the wind Energy potential of more than 35,000 MW. Gujarat is also rich in solar energy resource with substantial amounts of barren and uncultivable land, solar radiation in the range of 5.5-6 kilowatt-hour (kWh) per square meter per day, an extensive power network and utilities with reasonably good operational efficiency.

State has taken several initiatives such as investor friendly solar and wind power policies, large scale solar park(s) development, green corridor investment for power evacuation and power procurement through PPA's with DISCOMs to promote RE capacity addition, to meet the growing energy demand of the state in environmentally sustainable manner. As a result of this, so far Wind Capacity installation to the tune of around 4,000 MW & solar capacity installation around 1127 MW solar has been achieved.

Studies revealed that solar and winds are almost complementary to each other and hybridisation of two technologies would help in minimizing the variability apart from optimally utilizing the infrastructure including land and transmission system.

Solar and wind power potential in Gujarat is concentrated mainly in Saurashtra, Kutchh & North Gujarat region. The existing wind farms have scope of adding solar PV capacity and similarly existing solar PV plant have potential to develop Wind capacity. Suitable policy interventions are required not only for new wind-solar hybrid plants but also for encouraging hybridization of existing wind and solar plant.

This Wind Solar Hybrid Power Policy-2017 aims to scale up installation of Wind & Solar hybrid power project in order to minimize the variability apart from optimally utilizing the infrastructure including land and transmission system and thus strengthening the energy security of the country.

OBJECTIVE

- i. The main objective of the Policy is to provide a framework for promotion of large grid connected wind-solar PV systems for optimal and efficient utilization of transmission infrastructure and land, reducing the variability in renewable power generation and thus achieving better grid stability.
- ii. Optimal utilization of existing transmission infrastructure built by State Utility to evacuate renewable power.
- iii. Policy aims to encourage new technologies, methods and way-outs involving combined operation of wind and solar PV plants may also be coupled with any other Renewable Energy Sources and other emerging Technologies like Energy Storage systems.

RESOLUTION

1. TITLE

This policy shall be known as the "Gujarat Wind-Solar Hybrid Power Policy — 2017".

2. OPERATIVE PERIOD

This policy will come into effect from the date of issuance and shall remain in operation for a period of five years from the date of its issuance.

The Wind Turbine Generator (s) /Solar PV Generation project developed during operative period of this Policy shall become eligible for the benefits and incentives declared under the Policy for a period of 25 years from the date of commissioning or the life span of such Wind Turbine Generator (s) /Solar Generation project whichever is earlier.

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3. ELIGIBLE UNIT

Any individual, company or body corporate or association or body of individuals, whether incorporated or not, or artificial juridical person, will be eligible for setting up of new Wind-Solar Hybrid Power Project OR will be eligible to add Wind/Solar capacity at their existing Solar/Wind power project respectively in the same name 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 will be metered separately at the pooling/sending end Sub-Station.

Explanation: The use of electricity for own consumption at his end use location/s by the owner of Hybrid Power Project shall be considered as Captive use. 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.

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 Power Policy — 2017. The nodal agency will facilitate and assist the project developers to undertake the activities in achieving the objectives of the Policy.

5. IMPLEMENTATION STRATEGY:

5.1 The installation of wind solar hybrid power generation system shall be with AC integrated configurations as detailed below:

In this configuration, the AC output of the both the wind and solar system will be integrated at the pooling / sending end sub-station as the case may be. Both Wind and Solar PV system shall use separate set of internal electrical lines & equipments for connecting at pooling/sending end sub-station of the Hybrid project and metered separately. Further, suitable

control equipment shall be deployed for controlling the power output of hybrid system.

In case of new Hybrid Power Project, the Developer shall lay dedicated line for evacuation of power from 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 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 meter at the pooling/sending end sub-station of hybrid project.

5.2 For simplicity purpose, Wind-Solar Hybrid Power Generation plants are divided into two categories:

i. Type-A

This category includes conversion of existing / under-construction wind or solar power plants into Hybrid Power Plants. Wind/Solar Capacity under construction shall be considered based on the Registration Certificate issued by GEDA/ Evacuation permission granted by GETCO to Solar/Wind Project developers before issuance of this Policy. The installed Wind/Solar Capacity shall be considered based on PPA/Wheeling Agreement capacity.

ii. Type-B

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

5.3 Hybridization of Type-A (existing allocation):

Existing wind power or solar power projects, willing to install solar PV plant or wind turbine generators (WTGs) respectively at the existing

location to avail benefit of hybrid policy, shall be allowed to do so with following conditions:

- i. The total power injection (combined wind and solar) in to 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 receiving end Sub-station of GETCO at their own cost.
- ii. The solar/wind power generated from the Hybrid Project shall be measured separately 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 power for captive use or for sale of power to the third party or sale to DISCOMs. For transmission and wheeling of power, the applicable charges and losses shall be as specified in the Policy.
- iv. The developers shall approach to GETCO for determining the additional Wind/Solar capacity which can be evacuated through existing transmission system or augmentation is required to accommodate additional Wind/Solar capacity.

5.4 Type-B Hybrid Generation Plant (new project):

- i. The developers of Hybrid Power project shall establish evacuation line upto receiving end Sub-station of GETCO.
- ii. The solar/wind power generated from the Hybrid Project shall be measured separately 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 option for wheeling of Wind & 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 the Policy.
- iv. Hybrid project developer shall approach GETCO for evacuation system planning upto receiving station.

For both Type-A & 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.

6. CAPACITY INSTALLATION

I. Type-A (existing):

To develop additional solar capacity in wind power plant or vice-versa, participation is limited to only existing developers. Existing developer can develop the new wind/solar capacity in the same name of existing project.

II. Type-B (new project)

The choice of capacity mix between wind and solar shall be at the discretion of the developer.

7. WIND-SOLAR HYBRID SYSTEM & POWER EVACUATION

Wind-Solar Hybrid Power Generation System means the Combined generation of Wind-Solar power at existing or new solar/wind power projects (or) Co-located i.e injection of Wind or Solar Power at the interconnection point of the Pooling

Sub-station of existing Wind Farms / Sending End Sub-station of existing solar power installations.

Under the scheme of wind-solar hybrid power generation, Wind and Solar PV systems will be connected at the same inter connection 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:

- a. 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.
- b. 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.
- c. Evacuation capacity for the purpose of connectivity and injection of power shall be worked out as follow:
 - i. In the cases Type-A (existing): (a) where 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 upto rated capacity of transmission line/ sub-station 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/Wind project as the case may be. In case total hybrid generation exceeds the transmission capacity limit, it will 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.

- ii. In the cases where 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 & losses and wheeling charges & 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, upto receiving end sub-station of GETCO, the same shall be undertaken by the Developers at his cost.
- iii. In case of Type-B (new Hybrid project), the Developer of Hybrid Power Project shall establish dedicated line at their 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. Transmission charges & losses and wheeling charges & losses shall be applicable as applicable to any other open access for wind and solar.

8. TARIFF FOR SALE TO DISCOMS:

Distribution Licensees may purchase power from Hybrid Project, wind and solar separately as follow for meeting RPO:

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- i. In case of Type-A project (existing): (a) The purchase of power from existing wind/solar capacity shall be in accordance with the respective PPAs with GUVNL (b) The sale & purchase of power from additional/ new wind/solar capacity shall be at the tariff discovered through competitive bidding (Reverse bidding wherever required) undertaken by DISCOMs separately for Wind and Solar power purchase.
 - ii. In case of Type-B project (new project): The purchase of wind/solar power shall be at the tariff discovered through competitive bidding (Reverse bidding whenever required) undertaken by DISCOMs separately for Wind and Solar power purchase.

9. METERING

- i. Energy generation from Wind/Solar capacity shall be measured separately at the pooling /sending end sub-station on 15 minutes time block by installing ABT compliant meters by the project developers. Further, ABT compliant meter shall be installed on each Wind Turbine/Solar project.
- ii. For the purpose of commercial settlement and energy accounting, the metering point shall be at the receiving end sub-station of GETCO. The injection of energy from Wind/Solar capacity shall be worked out separately at the receiving end sub-station of GETCO 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 ABT meter separately installed at the pooling/sending end sub-station of hybrid project.
- iii. Type-A and Type-B hybrid plants shall follow the same metering system. In case, existing Wind/Solar power project having PPA with GUVNL for off-take of wind/solar power or wheeling agreement with a metering provision at the pooling sub-station/sending end sub-station and now willing to convert such project into Hybrid power project by addition of

Solar/Wind capacity, the metering/injection point shall be at the receiving end sub-station of GETCO.

- iv. Both Wind and Solar PV system shall use separate set of internal electrical lines & equipments for connecting at pooling/sending end sub-station of the Hybrid project and metered separately.
- v. Internal connectivity between solar & wind capacity prior to pooling /sending end sub-station shall not be allowed. In case, lower tariff generation is mixed up with higher tariff generation in order to get higher tariff, entire quantum of generation shall be considered towards lower tariff generation.

10. WHEELING OF ELECTRICITY:

Wheeling of electricity generated from Hybrid Power Project to the desired location(s) within the State shall be allowed on payment of transmission charges & losses and wheeling charges & losses as under:

- i. The payment of transmission charges shall be applicable on sanctioned/allocated transmission capacity at the rate as applicable to any normal open access consumer. The developer shall require to seek sanction and allocation of transmission capacity at least for installed capacity of Wind/Solar, whichever is higher. Transmission losses shall be applicable on energy feed basis as applicable to any other Wind/Solar project.
- ii. For captive use: In case of injection at 66 KV and drawl is at 11 KV voltage level, wheeling of electricity generated from Project to desired location(s) within the State, shall be allowed on payment of transmission charges and transmission losses as stated above 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.

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- iii. For third party sale: Wheeling of power for third party from Hybrid Power Project shall be allowed on payment of transmission charges & losses as stated above. Wheeling Charges & losses of energy fed to the grid as measured at receiving end sub-station of GETCO shall be applicable as applicable to normal open access consumers. Set off of wheeled at recipient unit (s) shall be carried out in the same 15 minutes time block. Further, concession of 50% of Cross Subsidy Surcharge and Additional Surcharge, as applicable to normal open access consumers, shall be given.
 - iv. Hybrid Power Project owners, who desire to wheel electricity to more than one locations 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 Distribution Company concerned in whose area power is consumed in addition to above mentioned transmission charges and losses, as applicable.
 - v. 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 any commercial settlement.

11. ENERGY ACCOUNTING

Energy accounting shall be as follows:

- (i) **Case 1:** If the Consumer does not take 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 separately for wind and solar shall be set off against the consumption during the Consumer's billing cycle.
 - a. 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.

b. Surplus power, after giving set off, shall be purchased by DISCOM at Average Pooled Power Purchase Cost (APPC) of the year of commissioning of project. Fixed / demand charge, peak charge, other charges / penalty etc shall be as applicable to other consumers.

c. The entire generation shall be considered for fulfilling solar and non-solar RPO of Distribution Company.

(ii) Case 2 (a) : If the Consumer takes 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.

a. 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.

b. Surplus power, after giving set off, shall be purchased by Distribution Company at Average Pooled Power Purchase Cost (APPC) of the year of commissioning of the project. Fixed/ demand charge, peak charge, other charges / penalty etc shall be applicable to as applicable to other consumers.

c. The surplus energy purchased shall be considered for fulfilling solar/non-solar RPO of Distribution Company.

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

a. 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.

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- b. Surplus power, after giving set off, shall be purchased by Distribution Company at 85% of Average Pooled Power Purchase Cost (APPC) of the year of commissioning of the project. Fixed/ demand charge, peak charge, other charges / penalty etc shall be applicable to as applicable to other consumers.

Provided that in case of Type –A projects (existing), the energy accounting for consumption of power for captive consumption /third party sale from existing wind /solar capacity shall be governed as per the respective policy/order of GERC/wheeling agreement and if these provisions are different, the above provisions shall be applicable only for the wheeling of power from additional /new wind/solar capacity.

12. CONCESSIONAL BENEFITS & EXEMPTIONS

- 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.
- 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.

13. PROJECTS UNDER REC MECHANISM

Hybrid 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.

14. RENEWABLE POWER PURCHASE OBLIGATION (RPO)

Obligated Entities have to abide by the GERC Regulations and Orders from time to time and GERC has been deciding the overall RPO and sub-category wise procurement of Renewable Energy Power from each Renewable energy Source. Obligated Entities may fulfill their RPO by purchasing wind/solar power at the tariff determined by GERC or tariff discovered through competitive bidding process/reverse competitive bidding process as the case may be undertaken separately for wind and solar keeping in view the interest of consumers .

15. FORECASTING SCHEDULING

These power projects shall give their forecast and energy shall be scheduled for day-to-day operations.

16. REACTIVE POWER

The drawl of reactive power shall be charged as per the GERC order, as amended from time to time.

17. OPERATION & MAINTENANCE

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

18. RESTRICTIONS

- Second hand WTGs /Solar Panel shall not be eligible for installation under this Policy.
- Only such WTGs which are approved either by Ministry of New and Renewable Energy, Government of India, or by recognized international test houses, shall be eligible.

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- The total installed capacity of Wind/Solar for captive use/third party sale within State under Hybrid Policy shall not be more than 50% of Contracted Demand/Sanctioned Load with DISCOMs. However, consumers may set up Hybrid Wind-Solar project to extent of meeting RPO without limit of Contracted Demand/Sanctioned Load.

19. SHARING OF CLEAN DEVELOPMENT MECHANISM (CDM) BENEFIT

The Clean Development Mechanism (CER/VER) 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.

The sharing of net proceeds on account of CDM benefits realized through sale of CER/VER generated from corresponding annual energy generation should be as follows:

100% of net proceeds through sale of CER/VER generated from the energy generation in the first year after the date of commercial operation of the Hybrid power project shall be retained by the eligible unit.

In the second year, the share of the beneficiary shall be 10% which shall be progressively increased by 10% every year till it reaches 50% in the sixth year; thereafter the proceeds shall be shared in equal proportion by the eligible unit and the beneficiary. Thereafter, the sharing of CDM benefits shall remain equal till the time that benefit accrues.

Hybrid power projects availing CDM benefit shall share the net CDM proceeds annually as per above, by 31 March of every year with affidavit stating the annual energy generation (date of commissioning as starting point of the first year), CER/VER generated, gross receipts, and net receipts.

At the end of every financial year i.e. on 31st March, the Hybrid Power Project owner shall share the net CDM proceeds, as per above provisions, annually and

submit an affidavit to GUVNL/Distribution licensee, stating the annual energy generation (date of commissioning as starting point of the first year), CER generated, gross receipts, and net receipts.

20. SECURITY DEPOSIT

The Hybrid Power Developer setting up new project (Type-B) or setting up additional solar/wind capacity (Type-A) shall be required to provide Bank Guarantee @ Rs. 5 lacs per MW to GETCO based on allotment of transmission capacity and in case the Developer fails to commission the Solar/Wind farm /Hybrid capacity within the time period mentioned hereunder, GETCO shall encash the Bank Guarantee.

Hybrid Capacity (MW)	Period of Commissioning of the entire allotted capacity
1 MW to 100 MW	1.5 yrs from date of allotment of transmission capacity
101 MW to 200 MW	2 yrs from date of allotment of transmission capacity
201 MW to 400 MW	2.5 yrs from date of allotment of transmission capacity
401 MW to 600 MW	3.5 yrs from date of allotment of transmission capacity

Provided further that 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.

21. REGULATION

The Hon'ble Gujarat Electricity Regulatory Commission shall be guided by this Policy while framing its rules, regulations and orders.

22. POWER TO REMOVE DIFFICULTIES

If any difficulty arises in giving effect to this policy, the State Government may issue clarification / interpretation to remove such difficulties either on its own motion or based on representations from stakeholders.

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23. POWER TO INTERPRET

If there is any confusion or dispute about the meaning, intent or purpose of any provision of this Policy, the interpretations given by energy & Petrochemicals Department, Government of Gujarat shall be final and binding to all concerned

Notwithstanding anything contained in this resolution, the provisions of the Electricity Act- 2003 and GERC order(s) as issued from time to time, shall prevail, for the purpose of the implementation of this policy.