

**Draft as circulated during the Stakeholders' Consultation Meeting held at TANTRANSCO HQ on 02.01.2024.**

**Tamil Nadu Repowering & Life Extension Policy for  
Wind Power Projects - 2024**

**1. Introduction**

Tamil Nadu stands as one of the leading States in India's Renewable Energy (RE) Sector, having a substantial RE generation capacity of 18,846 MW as on 30<sup>th</sup> November 2023. The major share of renewable energy in the State of Tamil Nadu comprises of Wind Energy at 8,895 MW.

The wind energy generation in Tamil Nadu commenced in 1986, with machine capacities ranging from 55 kW to 600 kW. Though, these machines have completed their full life cycle, they are still in operation. With the advancement in technology over the last three decades, it is observed that there is a potential opportunity to replace these older, lower capacity turbines, with new models that have higher capacity and higher CUF. The current machine capacities available in the market are in the band of 750 kW - 5200 kW with sizes such as 750 kW, 2000 kW, 2100 kW, 2280 kW, 2300 kW, 2700 kW, 2730 kW, 2800 kW, 3000 kW, 3100 kW, 3300kW, 3465 kW, 3600 kW and 5200 kW reflecting the technology advancements in the wind energy sector. By replacing the old wind turbines, optimization of the wind energy potential at each specific site can be explored, which will help in increasing overall installed capacity and wind energy generation in Tamil Nadu.

**2. Background**

Ministry of New and Renewable Energy (MNRE) has come out with the "National Repowering & Life Extension Policy for Wind Power Projects-2023". This Policy presents a total repowering potential in the country at 25,406 MW out of which Tamil Nadu has the largest share at 7,387 MW. While the MNRE Policy provides a national framework, a more detailed Policy has been showcased herein to address the on-ground realities in relation to the repowering opportunity in Tamil Nadu.

**3. Title**

This Policy shall be called "Tamil Nadu Repowering & Life Extension Policy for Wind Power Projects-2024."

**4. Objective**

The objective of the Policy is to promote optimum utilization of wind energy resources by providing an enabling framework for Repowering/Refurbishment of old windmills. The Policy also lays an exhaustive list of incentives so that repowering is commercially attractive for the old Wind Energy Generators (WEGs).

## **5. Eligibility**

All WEGs installed in the State of Tamil Nadu with STU connectivity, which have completed 15 years after installation shall be eligible for Repowering/Refurbishment under this policy.

## **6. Policy Tenure**

The Policy shall be valid from the date of the issuance up to 31<sup>st</sup> March 2030 or till the time a New Repowering Policy is announced, whichever is earlier.

## **7. Repowering/Refurbishment Project**

A project which satisfies the eligibility criteria as mentioned above, shall be considered for Repowering/Refurbishment under this Policy provided it leads to an increase in the annual energy generation by at least 1.5 times of the existing generation of the old WEGs (average generation of last 3 years).

A repowering project shall be any Project wherein the Wind Energy Generator replaces its old wind turbines by newer wind turbines.

A refurbishment project shall be any Project wherein the Wind Energy Generator-

- a) Carries out any suitable modifications in the turbine components such as gearbox, blades, generator, controller, etc.

or/ and

- b) increases hub height without changing the rotor blade diameter

A repowering / refurbishment project can be classified into two categories:

- i. **Standalone Project** - A WEG having a single or group of Wind Turbines owned by a Single Entity
- ii. **Aggregation Project** - A Wind power project having a group of Wind Turbines owned by multiple owners with shared common infrastructure

## **8. Implementation Arrangements**

The Repowering/Refurbishment of STU connected projects would be implemented through the State Nodal Agency (SNA). The modalities which shall be adopted for development of Repowering/Refurbished projects are:

- a) The Repowering/Refurbishment of projects shall have to be done under intimation to TANGEDCO and with prior consent from the SNA.
- b) For refurbishment projects, the turbines shall be assessed and certified by the certification agency for quality and safe operation. The assessment of the turbines shall be carried out as per the UL 4143: Wind Turbine Generator Lifetime Extension Standard or any such

Standards issued by the BIS. Subsequent to the assessment, a separate type certificate or extension of the previous type certificate shall be issued by the Certification Body.

- c) The Project Developer will prepare a Detailed Project Report (DPR) for land acquisition and development of the site for Repowering/Refurbished project and submit it to SNA for verification.
- d) After scrutiny of the project and transmission capacity availability and taking in-principle consent of TANGEDCO, SNA shall provide consent letter to the Project Developer within 90 days. If SNA does not give its decision within 90 days, consent shall be deemed to have been given and 91<sup>st</sup> day after the date of submission of application by the Project Developer will be taken as date of consent.
- e) The dismantling and de-commissioning of existing RE projects, land acquisition, augmentation of the evacuation system, renewal of leases, renewal of consents, etc., shall be at the cost, risk, and responsibility of the Project Developer.
- f) After completion of Repowering/Refurbished Projects, Project Developer is required to inform SNA for certification of Repowering/Refurbishment. Date certified by SNA shall be considered as date of Repowering/Refurbishment.
  - i. **For Standalone Project:**  
Project owner shall be the Project Developer.
  - ii. **For Aggregation Project:**  
Wind Repowering Project Aggregators (WRPA) shall be the Project Developer.

WRPA may be a Single Entity/Joint Venture (JV)/Special Purpose Vehicle (SPV)/any existing owner of wind project with or without partnership with other Project Developers. WRPA shall identify potential turbines for repowering and submit a proposal to the SNA along with consent letters from all the identified turbine owners.

For all the above purposes, Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO) shall act as the SNA.

## **9. Evacuation Arrangements**

For evacuation of power from Repowering/Refurbishment projects, the following arrangements can be done:

- a) The WRPA or any single Developer can establish their own substation under Section 10(1) of the Electricity Act, 2003 and all the cost associated with evacuation infrastructure up to the grid connection will be borne by the developer.

- b) If WRPA or any single Developer wants to connect with TANGEDCO's Distribution System (33 kV or 110 kV substation), the same shall be facilitated subject to the following-
  - i. The cost of substation augmentation including feeders up to 33 kV shall have to be paid by the Developer.
  - ii. If there is a change in injection voltage level, the evacuation of power shall be allowed subject to availability of spare capacity at the substation. Otherwise, option shall be given to the Developer for alternate evacuation arrangements.

## **10. Arrangement for Power Purchase**

### **a) Time period for Repowering:**

If any WEG opts for repowering under this Policy, the allowed time for repowering/refurbishment shall be one year from the date of consent for execution of Repowering/Refurbishment.

### **b) Continuity of existing Energy Purchase Agreement:**

For any WEG, which has an existing PPA/EPA with TANGEDCO and it opts for undertaking repowering/refurbishment under this Policy, the power generated corresponding to average of last three years' generation prior to repowering/refurbishment would continue to be procured as per the terms of existing PPA till the PPA tenure. To consider the time required for repowering, the existing PPA tenure shall be extended by a period equal to the repowering/refurbishment or a maximum period of one year, excluding Force Majeure events, whichever is lower.

### **c) Sale of additional generation on account of repowering:**

The Repowered/Refurbished projects shall be at liberty to self-consume or sell additional generation to TANGEDCO/any other entity/in power exchanges as per the existing laws/rules.

- d) A Wind Turbine undergoing Repowering/Refurbishment would be exempted from supplying Power to the TANGEDCO during the period of execution of Repowering/Refurbishment of the project.
- e) For Repowering/Refurbishment projects, the pre-feasibility for evacuation of anticipated energy after repowering/refurbishment through STU shall be assessed by the Developer.
- f) During the period of repowering/refurbishment of the WEG, WEG shall be allowed to draw power from the grid for execution of the project as per applicable tariff.

## **11. Incentives**

### **11.1 Micro-Siting Norms**

For repowering/refurbishment projects:

- a) **For WEGs within own wind farm**-the Project Developer will have the liberty for adopting micro siting norms based on the optimized generation.
- b) **For WEGs situated in outer periphery of wind farm**-5DX7D norms shall be relaxed to 3DX 5D.
- c) **For WEGs within a cluster area**-Group of individual Wind Generators can form a cluster and mutually decide the micro siting norms within that cluster area. However, for periphery of wind farm the 3Dx5D shall be satisfied.

### **11.2 Banking Arrangement**

Presently banking of wind energy for WEGs commissioned till 31<sup>st</sup> March 2018 is allowed on annual basis in Tamil Nadu.

The benefits of Annual banking for the repowered projects will be allowed under this Policy subject to the following conditions:

#### **Category 1: WEGs having residual life period.**

- a. For existing generation, current annual banking arrangements will be applicable till the end of original life period subject to a valid energy wheeling agreement in force.
- b. For the additional generation, Banking will be allowed up to 50% of additional generation in the month by the repowered/refurbished project.

#### **Category 2: WEGs that have already completed their life period-**

Banking will be allowed up to 50% of total generation in the month by the repowered/refurbished project.

The following provisions are applicable to banking under Category 1b and Category 2:

- a) Banking shall be allowed on an annual basis, i.e., from the date of generation up to 31<sup>st</sup> March of the same financial year
- b) Utilization of banked energy will be allowed only during 8 AM-4 PM.

- c) Balance banked energy as on 1<sup>st</sup> November shall be utilized from November to March with a minimum utilization of 20% of banked energy every month
- d) Banking charge as approved by TNERC from time to time shall be levied. Currently, the same is 14% of the surplus energy.
- e) Encashment of unutilized banked energy at the end of financial year shall be at 75% of the applicable tariff as per TNERC order in force at the time of repowering/refurbishment
- f) Adjustment of energy generated against consumption by the captive users shall be as per the TNERC's orders / regulations including Deviation Settlement Mechanism regulation in force.

### **11.3 Power Purchase**

- a) WEGs having existing PPA with TANGEDCO-

- I. PPA may be extended at the existing tariff under the agreement.

- II. Additional generation due to repowering/refurbished projects may be procured by TANGEDCO at existing PPA tariff applicable to the WEG or the tariff approved by the TNERC

- b) WEGs not having existing PPA with TANGEDCO-

If such repowering/refurbished wind projects want to sell power to TANGEDCO, TANGEDCO may procure wind energy generation at the tariff as approved by TNERC.

### **11.4 Fall in Distance**

As per Government of Tamil Nadu Combined Development and Building Rules, 2019 fall in distance from a dwelling unit has to 500 meters. However, this criterion is being relaxed to -(hub height (in meter)+half of the diameter of blade/rotor (in meter) +5 meter)subject to the condition that noise mitigation measures are taken care by the WEG.

### **11.5 Wind-Solar Hybrid**

The Project Developer shall be eligible to further install solar modules and make it Wind solar hybrid plant with repowering/refurbished wind project subject to the following provisions

- a) Generation (MW) from wind and solar at any time should not exceed the repowered wind capacity (MW)
- b) Banking for the above wind solar hybrid plant will be allowed for the energy generated from WEG only and all the provisions of this policy shall apply to wind energy only.

- c) Developers will have the option to install solar wind hybrid plant with or without battery storage.

### **11.6 Infrastructure Development Charges**

As per the prevalent rules, new Wind Generators have to pay Infrastructure Development Charges at the rate of Rs. 30 Lakh / MW. The Policy envisages to provide a 10 % discount on Infrastructure Development Charges for the additional wind capacity.

### **11.7 Facilitation for financing**

MNRE's National Repowering & Life Extension Policy for Wind Power Projects -2023 provides that those financial institutions, such as PFC/ REC/ IREDA shall provide loans for repowering on the same terms and conditions as laid out for the new Projects. It also provides that IREDA shall provide an interest rebate of 0.25% over and above the interest rate available to new wind projects. TANGEDCO shall help in coordination with these financial institutions to help WEGs in availing loans for repowering/ refurbishment of their Projects under this Policy.

### **11.8 Other incentives**

- a) WEG under wheeling agreement with TANGEDCO, will be exempted from paying open access charges during repowering/refurbishment period.
- b) All fiscal and financial benefits available to the new Wind Projects shall be available to the Repowering/Refurbishment projects.

## **12. Power to Remove Difficulties and Interpretation**

The Energy Department, Government of Tamil Nadu will have power to amend or review or relax or interpret any of the provisions under this Policy as and when required. If any difficulty arises in giving effect to this Policy, TANGEDCO is authorized to issue clarifications as well as interpretations to such provisions, as may appear to be necessary for removing the difficulties either on its own motion or after hearing those parties who have represented for change in any provisions.

If there is any confusion or dispute about the meaning, intent or purpose of any provision of this Policy, the interpretation given by TANGEDCO shall be final and binding to all concerned.

Notwithstanding anything contained in this Policy, the provisions of the Electricity Act, 2003, MNRE guidelines, applicable CERC Regulations, Grid Code, and the applicable Regulations issued by the TNERC from time to time shall prevail for the purpose of implementation of this Policy.

### **13. Abbreviations and Definitions**

Unless the meaning is repugnant to the context, the following words shall have the meanings assigned to them.

- i. "Additional Generation" means incremental generation achieved by a WEG due to repowering / refurbishment over and above the existing generation
- ii. "BIS" means Bureau of Indian Standards;
- iii. "CEA" means Central Electricity Authority;
- iv. "CERC" means Central Electricity Regulatory Commission;
- v. "CNA" means Central Nodal agency as notified by Central Government;
- vi. "DSM" means Deviation Settlement Mechanism
- vii. "Existing Generation" means average generation (MUs) of last three financial years before the financial year in which repowering is commenced.
- viii. "Life period" means life of the wind energy generator as adopted by TNERC in the applicable Tariff Order
- ix. "MNRE" means Ministry of New and Renewable Energy
- x. "O&M" means operation and maintenance charges;
- xi. "PPA" means Power Purchase Agreement;
- xii. "SNA" means State Nodal Agency as notified by Government of Tamil Nadu;
- xiii. "TNERC" means Tamil Nadu Electricity Regulatory Commission