

**BEFORE THE HON'BLE TAMIL NADU ELECTRICITY REGULATORY  
COMMISSION, CHENNAI**

**Filing No.  
Case No.**

**M.P.No. 3 of 2019**

**In the matter of:** Seeking approval for the procedure to be adopted by TANGEDCO for Repowering of existing Wind Energy Generator's within the State of Tamil Nadu and Tariff proposed for the repowered WEGs as per the Repowering Policy issued by MNRE, vide Notification No.66/175/2015-WE dt:05.08.2016.

Tamil Nadu Generation and Distribution Corporation Ltd.,  
represented by the Chief Engineer/Non-Conventional Energy Sources,  
144 Anna Salai, Chennai – 600 002.

**.... Petitioner**

Versus

Nil

**.... Respondent**

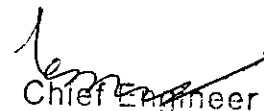
**PETITION FILED UNDER SECTION 62 (1) (a), 63 and 86 (1) (b) OF THE  
ELECTRICITY ACT, 2003**

I, M.Balasubramanian, S/o.Mariappan, Male, aged 57 years officiating as the Chief Engineer/Non-Conventional Energy Sources, Tamil Nadu Generation and Distribution Corporation Limited and having office at 144, Anna Salai, Chennai – 600 002, do hereby solemnly affirm and sincerely state as follows:

As the Chief Engineer/NCES, I am well acquainted with the facts of the case and I am authorized to file the present Miscellaneous Petition before this Hon'ble Commission.

1.0 It is respectfully submitted that the wind generation started in Tamil Nadu from 1986 with the machine capacity of 200 KW, 225 KW, 250 KW, 410 KW, 500 KW, 550 KW & 600 KW. These machines have served their full life period and still running. Most of them are under EPA or EWA with a tariff of Rs.2.75 and Rs.2.90 per unit. Due to technological advancement, presently the machine capacities are 750 KW, 850 KW, 1500 KW, 2000KW and 2100KW, etc.

2.0 It is respectfully submitted that the Ministry of New and Renewable Energy has issued policy for repowering vide Notification No 66/175/2015-WE on 05.08.2016 and generally the guidelines are:

  
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**2.1 Eligibility:**

*Initially wind turbine generators of capacity 1 MW and below would be eligible for repowering under the policy. Based on the experience, Ministry of New & Renewable Energy (MNRE) can extend the repowering policy to other projects also.*

**2.2 Implementation Arrangements:**

*The repowering projects would be implemented through the respective State Nodal Agency/Organization involved in promotion of wind energy in the State.*

**2.3 Support to be provided by States:**

- i. In case augmentation of transmission system from pooling station onwards is required the same will be carried out by the respective State Transmission Utility.*
- ii. In case of power being procured by State Discoms through PPA, the power generated corresponding to average of last three years' generation prior to repowering would continue to be procured on the terms of PPA in-force and remaining additional generation would either be purchased by Discoms at Feed-in-Tariff applicable in the State at the time of commissioning of the repowering project and/or allowed for third party sale.*
- iii. State will facilitate acquiring additional footprint required for higher capacity turbines.*
- iv. For placing of wind turbines 7Dx5D criteria would be relaxed for micro siting.*

*A wind farm/turbine undergoing repowering would be exempted from not honouring the PPA for the non-availability of generation from wind farm/turbine during the period of execution of repowering. Similarly, in case of repowering by captive user they will be allowed to purchase power from grid during the period of execution of repowering, on payment of charges as determined by the regulator.*

3.0 It is respectfully submitted that now TANGEDCO has proposed to implement repowering of old WEGs in line with the guidelines and the following are the specific issues related to TANGEDCO for repowering:

- 3.1 Most of the evacuation infrastructure for WEG's developed prior to year 2000 were by Board after collecting Infrastructure Development Charges (IDC) ranging from Rs.15 Lakhs to presently to Rs.30 Lakhs/MW from the developers under IDC concept or developed by the generator out of IDC amount and the cost of asset amount refunded to the developer after taking over the assets. Maintenance is under the scope of TANGEDCO, since the assets belong to TANGEDCO and presently the O&M cost of Rs.2.363 Lakhs/MW/year are being collected from the WEGs.

  
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- 3.2 Almost 90% of the existing old machines are under captive scheme and most of the WEG's been allowed to be installed in distribution substation and feeders and vice versa and so there exists mixed feeders and substation.
- 3.3 Similarly distribution loads were allowed to be connected in wind farm substations developed by Board under IDC concept, which also results in mixed feeders and Substations.
- 3.4 The substations in which most of the WEGs erected prior to year 2000 were loaded by 110% to 120% of the rated power transformer capacity because of the adoption of loading factor of 1.1 to 1.2 and in some cases taking into account the sustained peak of the substation, based on the procedure adopted prior to year 2000.
- 3.5 Regarding the issue of micrositing, it is submitted that the TANGEDCO has adopted 5D X 7D so far and now it has been relaxed vide TANGEDCO Proceedings (Per) (CMD) No. 469, dt: 09.11.2018 as mentioned in the policy.
- 3.6 The CUF for the older machines is difficult to arrive, since only after 2006, the TNERC defines and fixes the CUF.
- 4.0 It is respectfully submitted that the repowering is of two types:

Type I:- Repowering not exceeding the installed capacity which needs no infrastructure improvement.

Type II:- Repowering exceeding the installed capacity which needs infrastructure improvement.

#### 4.1.Type I : REPOWERING NOT EXCEEDING THE INSTALLED CAPACITY

- A. The PPA tariff up to 2009 is either Rs.2.75 or Rs.2.90 per unit and so adopting Feed in Tariff (FIT) of Rs. 2.80 per unit for all the generation after repowering or the latest tender discovered rate at the time of commissioning of repowered WEG whichever is less is proposed to be adopted by TANGEDCO, since arriving/adopting different tariff for single PPA after repowering as per the guidelines is practically difficult to adopt.
- B. Similarly for the WEG's under wheeling agreement, it is proposed to adopt the latest Wind Energy Tariff Order No.6 of 2018, dt:13.04.2018 for wheeling and banking since all the repowered WEG's are considered as new WEG's as per the MNRE guidelines. And so the banking of one month with encashment of unutilized energy at 75% of Tariff at the end of the month is proposed.

  
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#### 4.2 TYPE-II: REPOWERING EXCEEDING THE INSTALLED CAPACITY.

Since most of the substations in which the repowering potential exists, are fully loaded, accommodation of additional capacity due to repowering needs load flow study.

4.2.1 After load flow study if the feasibility exists for additional capacity the repowering may be considered, subject to land availability in the existing Substation and technical feasibility.

4.2.2 The RWEG's shall be planned for inter-connection with STU/TANGEDCO substation through dedicated transmission line/cable at voltage level of 11 KV and above.

4.2.3 The improvement needed in the existing board substation will be under IDC scheme by the developer @ Rs 30 Lakhs/MW subject to load flow study and feasibility of the space and technical constraints of the particular substations. If the feasibility of the particular generator is not available, the developer has the option to erect new substation under sec 10(1) of the Electricity act 2003 as per the prevailing procedure in vogue. The developer may also establish the connectivity by themselves through already established substation erected and maintained by the other developers under sec 10(1) of the Electricity Act 2003. The entire cost of Transmission from the project up to the STU/TANGEDCO substation including cost of construction of line, breakers bay etc. shall be borne by the RWEG's and it will not be reimbursed by the TANGEDCO or met by the STU/TANGEDCO. The responsibility of getting Transmission Connectivity and access to the transmission system owned by the STU/TANGEDCO will lie with the RWEG's and shall be at the cost of RWEG. The RWEG's shall not be entitled to any deemed generation in case of any delay in connectivity to the Project whatsoever the reason may be.

4.2.4 The STU/TANGEDCO shall endeavour to match the commissioning of the transmission system with the commissioning of the Repowering of WEG's projects.

#### 4.3 GENERATION:

A. The PPA tariff up to 2009 is either Rs.2.75 or Rs.2.90 per unit and so adopting Feed in Tariff (FIT) of Rs. 2.80 per unit for all the generation after repowering or the latest tender discovered rate at the time of commissioning of repowered WEG whichever is less is proposed to be adopted by TANGEDCO, since arriving/adopting different tariff for one PPA after repowering as per the guidelines is practically difficult to adopt.

  
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- B. Similarly for the WEG's under wheeling agreement, it is proposed to adopt the latest Wind Energy Tariff Order No.6 of 2018, dt: 13.04.2018 for wheeling and banking since all the repowered WEG's are considered as new WEG's as per the MNRE guidelines. And so the banking of one month with encashment of unutilized energy at 75% of the Tariff rate of Rs.2.80/unit at the end of the month is proposed.

Under the above said circumstances, it is prayed that the Hon'ble Commission may be pleased:

- a) To approve the draft procedure as enclosed in the Annexure I to be adopted by TANGEDCO for repowering the existing Wind Electricity Generators.
- b) To approve for the purchase of generation from the Repowered WEG's at the Feed in Tariff (FIT) or the rate decided through bidding whichever is less at the time of commissioning of Repowered Wind Energy Generators (RWEG).
- c) To pass such further or other orders as this Hon'ble Commission may deem fit and proper in the facts and circumstances of the case and thus render justice.

Solemnly affirmed at Chennai on this the  
10<sup>th</sup> day of January 2019 and signed  
his name in my presence:

  
Chief Engineer,

Non Conventional Energy Sources Circle  
Tamilnadu Generation & Distribution Corpn. Ltd  
144, Anna Salai, Chennai - 600 002

Before me,

  
Advocate: Chennai

## **ANNEXURE-I**

### **Procedure to be adopted by TANGEDCO for Repowering of old WEG's in Tamil Nadu**

#### **1. Introduction:**

The wind generation started in Tamil Nadu from 1986 with the machine capacity of 200 KW, 225 KW, 250 KW, 410 KW, 500 KW, 550 KW & 600 KW. These machines have served their life period and still running. Most of them are under EPA or EWA with a tariff of Rs.2.75 and Rs.2.90 per unit due to technological advancement now the machine capacities are 750 KW, 850 KW, 1500 KW, 2000KW and 2100KW. Earlier the WEG developers were insisted to adopt 5D and 7D spacing and for repowering this has been relaxed based on the MNRE guidelines.

#### **2. Objective:**

Objective of the Repowering Policy is to promote optimum utilization of wind energy resources by creating facilitative framework for repowering.

#### **3. Eligibility:**

All wind turbine generators would be eligible for repowering under the policy.

#### **4. Implementation Arrangements:**

##### **Type I : REPOWERING NOT EXCEEDING THE INSTALLED CAPACITY**

A. The PPA tariff up to 2009 is either Rs.2.75 or Rs.2.90 per unit and so adopting Feed in Tariff (FIT) of Rs. 2.80 per unit for all the generation after repowering or the latest tender discovered rate at the time of commissioning of repowered WEG whichever is less, is to be adopted by TANGEDCO.

B. Similarly for the WEG's under wheeling agreement, it is proposed to adopt the latest Wind Energy Tariff Order No.6 of 2018, dt:13.04.2018 for wheeling and banking since all the repowered WEG's are considered as new WEG's as per the MNRE guidelines.

##### **TYPE-II: REPOWERING EXCEEDING THE INSTALLED CAPACITY**

Since most of the substations in which the repowering potential exists, are fully loaded the accommodating of additional capacity due to repowering needs load flow study.

- a) After load flow study if the feasibility exists for additional capacity the repowering may be considered, subject to land and technical feasibility.
- b) The RWEG's shall be planned for inter-connection with STU/TANGEDCO substation through dedicated transmission line/cable at voltage level of 11 KV and above.

  
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- c) *The improvement needed in the existing board substation will be under IDC scheme by the developer @ Rs 30 Lakhs/MW subject to load flow study and feasibility of the space and technical constraints of the particular substations. If the feasibility of the particular generator is not available, the developer has the option to erect new substation under sec 10(1) of the Electricity act 2003 as per the prevailing procedure in vogue. The developer may also establish the connectivity by themselves through already established substation erected and maintained by the other developers under sec 10(1) of the Electricity Act 2003. The entire cost of Transmission from the project up to the STU/TANGEDCO substation including cost of construction of line, breakers bay etc. shall be borne by the RWEG's and it will not be reimbursed by the TANGEDCO or met by the STU/TANGEDCO. The responsibility of getting Transmission Connectivity and access to the transmission system owned by the STU/TANGEDCO will lie with the RWEG's and shall be at the cost of RWEG. The RWEG's shall not be entitled to any deemed generation in case of any delay in connectivity to the Project whatsoever the reason may be.*
- d) *The STU/TANGEDCO shall endeavour to match the commissioning of the transmission system with the commissioning of the Repowering of WEG's projects.*

**GENERATION:**

- A. *The PPA tariff up to 2009 is either Rs.2.75 or Rs.2.90 per unit and so adopting Feed in Tariff (FIT) of Rs. 2.80 per unit for all the generation after repowering or the latest tender discovered rate at the time of commissioning of repowered WEG whichever is less, is to be adopted by TANGEDCO.*
- B. *Similarly for the WEG's under wheeling agreement, it is proposed to adopt the latest Wind Energy Tariff Order No.6 of 2018, dt:13.04.2018 for wheeling and banking since all the repowered WEG's are considered as new WEG's as per the MNRE guidelines.*

**4. Micrositing:**

*For erection of repowered wind turbines, spacing criteria had been relaxed, as per the TANGEDCO Proceedings (Per) (CMD) No. 469, dt:09.11.2018.*

**6. Financial Outlay:**

*The repowering projects may avail Accelerated Depreciation benefit as per the conditions applicable to new wind power projects.*

**7. Review:**

*The Repowering Policy would be reviewed by the TANGEDCO as and when required.*

  
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ANNEXURE-II

No. 66/175/2015-WE  
Ministry of New & Renewable Energy  
(Wind Energy Division)

Block No.14, CGO Complex,  
Lodhi Road, New Delhi-110003  
Dated: 5<sup>th</sup> August, 2016

**Policy for Repowering of the Wind Power Projects**

Ministry of New & Renewable Energy hereby releases the Policy for Repowering of the Wind Power Projects for information of the stakeholders and general public.

[J. K. Jethani]  
Scientist-D



**POLICY FOR REPOWERING OF THE WIND POWER PROJECTS**

**1. Introduction:**

Major share of renewable power capacity in India is from wind energy. India started harnessing of the wind power prior to 1990. The present installed capacity is over 27 GW which is fourth largest in the world after China, USA and Germany.

Most of the wind-turbines installed up to the year 2000 are of capacity below 500 kW and are at sites having high wind energy potential. It is estimated that over 3000 MW capacity installation are from wind turbines of around 500 kW or below. In order to optimally utilise the wind energy resources repowering is required.

**2. Objective:**

Objective of the Repowering Policy is to promote optimum utilisation of wind energy resources by creating facilitative framework for repowering.

**3. Eligibility:**

Initially wind turbine generators of capacity 1 MW and below would be eligible for repowering under the policy. Based on the experience, Ministry of New & Renewable Energy (MNRE) can extend the repowering policy to other projects also.

**4. Incentive:**

- i. For repowering projects Indian Renewable Energy Development Agency (IREDA) will provide an additional interest rate rebate of 0.25% over and above the interest rate rebates available to the new wind projects being financed by IREDA.
- ii. All fiscal and financial benefits available to the new wind projects will also be available to the repowering project as per applicable conditions.

**5. Implementation Arrangements:**

The repowering projects would be implemented through the respective State Nodal Agency/Organisation involved in promotion of wind energy in the State.

**6. Support to be provided by States:**

- i. In case augmentation of transmission system from pooling station onwards is required the same will be carried out by the respective State Transmission Utility.
- ii. In case of power being procured by State Discoms through PPA, the power generated corresponding to average of last three years' generation prior to repowering would continue to be procured on the terms of PPA in-force and remaining additional generation would either be purchased by Discoms at Feed-in-Tariff applicable in the State at the time of commissioning of the repowering project and/or allowed for third party sale.
- iii. State will facilitate acquiring additional footprint required for higher capacity turbines.
- iv. For placing of wind turbines 7D x 5D criteria would be relaxed for micro siting.

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- v. A wind farm/turbine undergoing repowering would be exempted from not honouring the PPA for the non-availability of generation from wind farm/turbine during the period of execution of repowering. Similarly, in case of repowering by captive user they will be allowed to purchase power from grid during the period of execution of repowering, on payment of charges as determined by the regulator.

**7. Financial Outlay:**

No additional financial liability to be met by the MNRE for implementing the Repowering Policy. The repowering projects may avail Accelerated Depreciation benefit or GBI as per the conditions applicable to new wind power projects.

**8. Review:**

The Repowering Policy would be reviewed by the Government as and when required.

**BEFORE THE HONOURABLE TAMILNADU  
ELECTRICITY REGULATORY  
COMMISSION, CHENNAI.**

**M.P.No. of 2019**

**Tamil Nadu Generation and Distribution  
Corporation Limited (TANGEDCO)**

**...Petitioner**

**Vs**

**NIL**

**...Respondent**

**M.GOPINATHAN**

**Counsel for Respondent**