No. S/01/19

BEFORE THE KARNATAKA ELECTRICITY REGULATORY COMMISSION, BENGALURU

Dated 27th February, 2019

Present:

Sri. Shambhu Dayal Meena	-	Chairman
Sri. H.D. Arun Kumar	-	Member
Sri. H.M. Manjunatha	-	Member

In the Matter of Determination of Generic Tariff for Wind Power Projects for 2019-20

Preamble:

1. This Commission, as mandated under the Electricity Act, 2003 to promote generation of electricity from renewable sources of energy, has been determining periodically their generic tariff, based on normative financial and operational parameters. Accordingly, the Commission, vide its Order dated 16.05.2018, had determined levelised tariff of Rs.3.45 per unit for the life of the wind projects, namely, 25 years. The above tariff was made applicable to all such new wind power projects for which PPAs are entered into and approved by the Commission after the date of issue of such Order, that get commissioned on or after 01.04.2018 and also for payment towards any banked energy purchased by the Distribution Licensees and in such other cases as specified in the relevant orders of the Commission.

2. Whereas, the new Tariff Policy, dated 28.01.2016, envisages future procurement of renewable energy (except from waste to energy plants) only through competitive bidding, as per notified bidding framework and pursuant to the same, the MNRE, Government of India, has issued the Bidding Guidelines on 8th December,2017, for wind power projects. Subsequently, the Commission vide its Order dated 05.06.2018, has mandated procurement of wind power by DISCOMs only through competitive e-reverse bidding, with the Generic Tariff determined by the Commission from time to time, as the ceiling price.

3. The tariff determined in the Order dated 16.05.2018, is in force with effect from 1st April, 2018 and till 31st March, 2019. Thus, there is a need to determine the Generic Tariff applicable after 31.03.2019. Hence, the Commission had issued a Discussion Paper to determine the generic tariff afresh for wind power projects, specifying the parameters proposed for tariff determination and invited written comments, views and suggestions from the stakeholders. The Commission had hosted the Discussion Paper on its website and also forwarded a copy of the Discussion Paper to the major stakeholders, mainly the wind power developers' organizations. The Commission also held a public hearing in the matter on 30.01.2019, the notice for which was published in the Deccan Herald, Times of India, Kannada Prabha and Samyuktha Karnataka newspapers, in addition to the notice being hosted on the Commission's website. The list of persons, who submitted written comments/views/suggestions and the list of persons who made oral submissions in the public hearing, is as in Annexure-1 and Annexure-2 respectively.

4. After considering the written and oral submissions received in the matter and in exercise of the powers conferred under Section 62(1) (a) read with Sections 64 and 86(1)(e) of the Electricity Act,2003 and Regulation 9 of the KERC (Power Procurement from Renewable sources by Distribution Licensee and Renewable Energy Certificate Frame work) Regulations, 2011, and all other powers enabling it in this behalf, the Commission hereby proceeds as follows:

ORDERS

5. The Commission, before proceeding with the determination of tariff places on record that it has considered the objections, comments and the suggestions received from the stakeholders.

6. The brief comments, views and suggestions of the various stakeholders on the various issues involved and the Commission's view thereon are as follows:

(1) General:

The Wind Power Project Developers have submitted as follows:

a) The existing projects under Wheeling and Banking are already in financial difficulty and the proposal of purchasing of the unutilized energy at 85% of the proposed Generic Tariff of Rs. 2.95/Unit would make the wind projects non-functional and therefore, for such projects the Generic Tariff of Rs. 4.50/Unit should be continued. Further, the concessions extended to solar projects, in terms of having no wheeling charges and cross subsidy charges, is discriminatory in nature and is against the Electricity Act,2003, which mandates non-discriminatory open access. Therefore, the Commission should extend the above concessions to wind power projects also or to consider the tariff prevailing at the time of commissioning of the power plants for the purpose of payment for unutilised banked energy. Further, for new projects who opt for Wheeling & Banking, the unutilized units should be purchased by ESCOMs at the APPC.

Commission's Views:

Clause 5.7 of the current standard Wheeling and Banking agreement clearly specifies that, the unutilized banked energy shall be paid at 85%(eighty-five percent) of the applicable generic RE tariff, as determined by the Commission from time to time. Thus, having agreed to the above clause while signing the WBA, the developers now cannot go back on the agreement, on the ground that the revised tariff is lower. The above clause applies to new projects also.

b) DGEPL, a wind power generator submitted that considering a capital cost of Rs. 6.50 Crs. / MW, CUF of 33%, interest rate of 10.75% and O&M cost of Rs. 10 Lakh / MW with annual escalation of 5.72% and with all other parameters as proposed by the Commission, the tariff works out to be Rs. 3.81/Unit. However, as per the working sheet in the discussion paper, it works out to Rs. 3.26/Unit, because instead of levelised tariff, average tariff for the plant's life has been reckoned.

Commission's Views:

The levellised tariff is being worked out by the Commission as per the standard methodology, discounting the cash flows. The main difference in its calculation as compared to the CERC's approach is that, while the CERC is grossing up the RoE by MAT/ Income Tax rate, this Commission is allowing income tax as pass through separately. Further, the final tariff depends upon the various parameters that would be approved by the Commission.

c) It was submitted that the growth in wind turbines installation in the State in the last couple of years is very low when compared to the potential, due to regulatory uncertainty, shifting of procurement policy from Feed in Tariff to Competitive bidding and no such Competitive bidding in Wind Projects being invited in the State till date.

Commission's Views:

As per the information available from KREDL website, the highest wind capacity addition of 882.30 MW has taken place in FY17 and further in FY18, 875 MW is added. Thus, the contention that in the last couple of years there has not been potential growth in wind is not based on facts.

d) Tariff discovered in competitive bidding invited by the Central Government cannot be the guiding principle for determining the 'Feed in Tariff' (FIT)and also there is no need to determine the FIT for the purpose of fixing ceiling price in the competitive bidding as there should not be any type of tariff upper cap in competitive bidding. The State Commission is comparing the tariff discovered in competitive bidding to FIT of the State, while ignoring the fact that these bids are limited to few windy zones/clusters. The States in focus for all major IPPs during the last 7200MW bid were Tamil Nadu and Gujarat with high wind potential apart from the advantages of PGCIL connectivity with minimum losses to generation and Zero transmission charges. Each State has a different potential, geographical contour, different set of challenges and requirements to be met. Comparing the price of other States or Central bid with Karnataka is not fair. Also, the Tariff economics of any project mainly depends upon three parameters firstly, Project cost, secondly, CUF and thirdly, Interest rate on which funds are raised for execution of projects. Large IPPs are in better position to negotiate on technology and price as compared to small scale players in the market.

Hence, to keep a level playing field for various category of investors, it is requested to remove the upper cap for bidding.

Commission's Views:

The tariff discovered in bidding held in other States and by SECI is a fair indicator of the prevalent trends of capital cost of wind power projects and the latest technologies available in the market. It is a standard practice to indicate a desired upper tariff limit in all such biddings and any exceptions to such norms should be justified by the participating bidders.

e) FiT for small power plants:

It is submitted that tariff determined by the Commission in its order dated 16.05.2018 was applicable to small scale projects for 25MW and below capacity and this order was called off within 20 days mentioning that DISCOMs must procure power only at the tariff determined through competitive bidding. In this regard, referring to Wind Power Policy, 2018 announced in the State of Andhra Pradesh, it is stated that GoAP has urged APERC to announce FIT for 25MW and below projects.

Commission's Views:

The generic tariff determined in the Commission's earlier Order dated 16.05.2018 and being determined in this Order, would be applicable to all new wind power plants irrespective of their capacity. The Commission has ordered all future procurement of power from wind power projects only though bidding with the generic tariff as the upper limit and has also found providing any differential treatment in tariff or bidding as not practical.

f) Bidding:

The Wind Industry is in support of competitive bidding in the State of Karnataka. However, post introduction of competitive bidding, tenders must be floated in timely manner in the State. Thus, they have requested the Commission to recommend and advice Government to call for bids.

Commission's Views:

The Commission does not find any pressing need for capacity addition under wind power sector for the present.

(2) Capital Cost (CC):

The Commission had proposed a capital cost of Rs. 5.25 Crores /MW including the cost of evacuation.

i. Karnataka Renewable Energy Development Ltd.(KREDL) :

Based on the DPRs, KREDL has proposed **Rs.5.50 Crs**. as the Capital Cost.

ii. Indian Renewable Energy Development Agency Ltd., (IREDA)IREDA:

Based on the recent loans sanctioned, IREDA has proposed **Rs.6.50 Crs**. as the Capital Cost.

iii. Doddanavar Global Energy Pvt. Ltd., (DGEPL):

The parameter considered by Tamil Nadu is for 60-metre hub height machines, which are available at the price proposed and would perform at 29% CUF, because of high winds in Tamil Nadu. The same machines in Karnataka would deliver 23% CUF and the O&M expenses are also less. For the same machines, MERC has worked out a tariff of Rs. 4.09/unit, considering a CUF of 25%. This CUF is relevant for Karnataka, as wind projects are being developed in areas adjacent to Maharashtra State. Since the average CUF is stated to be 27.25% in the discussion paper, the average tariff should be Rs. 3.84/Unit. The existing cost / MW at 80-metre hub height is about Rs. 5.8 Crs., and at 120-metre hub height it would be Rs. 6.0 to Rs. 6.04 Crs. /MW and the machines procured by certain Public Sector organizations with new technologies and without evacuation cost is Rs.6.25Crs. /MW.

In Maharashtra the successful bidders are implementing the projects in Gujarat and supplying to Maharashtra and therefore, the tariff bidded is viable as the land is leased at Rs. 10,000 / Machine / Year, transportation and evacuation is cheaper and the CUF is more than 38%. Whereas, in

Karnataka as per the KREDL / NIWE data, with advanced technologies, CUF will not be more than 32%.

In view of the above, the cost / MW / Karnataka should be at Rs. 6.50 Crs. / MW.

iv. Indian Wind Energy Association (InWEA):

It has proposed a capital cost of Rs. 6.0 Crs. / MW and submitted that,

a. As per the CEA (Technical Standards for Connectivity to the Grid) Amendment Regulations, 2013, notified on October 15, 2013, wind generators have to comply with the standards specified with respect to Harmonics, Direct Current (DC) Injection and Flicker, power factor and fault ride through, resulting in additional cost of Rs. 8.0 Lakh / MW.

b. Further, the provision of Low Voltage Ride Through(LVRT) system as mandated by the CERC, would result in additional cost of Rs. 15-20 Lakhs.

c. Also, to comply with the Deviation Settlement Mechanism (DSM) Regulations specified by the KERC, additional equipment needs to be installed, which would cost about Rs. 10-15 Lakhs / MW.

d. Further, considering GST of, 8.85% on project cost and 18% on 30% on Balance of plants(BOP), the Goods and Service Tax (GST) would be Rs. 51.5 Lakhs / MW.

In view of the above additional costs, InWEA has suggested a capital cost of Rs. 6.0 Cr. / MW.

v. Indian Wind Power Association (Northern Regional Council) [IWPA(NREC)]

To generalize the Capital cost only on the basis of other State Commissions' orders is not reasonable and capital cost needs to be rationalized after due consideration of all the components as well as the project feasibility conditions, as each State has different challenges. The reference of the States like Tamil Nadu and Maharashtra, where the projects are yet to be installed and commissioned is not reasonable. The details of breakup while considering the capital cost as Rs 5.25 Cr./MW should to be provided.

vi. Indian Wind Power Association (Karnataka Council)

Major potential sites in Karnataka have mostly been exhausted. The cost of land for construction of wind farms is increasing, which has led to increase in capital expenditure over the past. Since, the wind farms are usually remotely located, the developers have to construct long transmission lines till the pooling point that entails significant cost. Technological advancements viz. efficient generators, larger rotor diameters, come at a cost and thus add to the total capital cost of wind power projects.

The Commission's proposal to adopt a capital cost of Rs.5.25 Crs. /MW, which also includes the cost of evacuation is not supported by any detailed breakup or project cost data incurred in recent past and the references given of States like Tamil Nadu and Maharashtra, where the projects are yet to be installed and commissioned.

As per the information obtained under RTI Act, KREDL has indicated a cost of Rs.6.59 Crs. /MW for 8.4 MW project and SECI has not provided any details. In the recent past, Karnataka has seen about 700 MW of wind installed capacity under various hub heights with capacity of 2MW and 2.3 MW, and KREDL will able to provide the data to KERC with additional details with respect to various other parameters also.

In view of the above, it is requested for a detailed analysis in the interest of the industry for sustainable investment in the State before finalizing the parameters.

Commission's Views:

The Commission notes that, the developers themselves have to furnish the cost break up details, as they would have the data of recently commissioned wind power projects. Since, the developers have not furnished the details, the Commission has proceeded with the available information. The CEA Regulations referred to by InWEA is not a new one and is in force since 2014 and cannot be a reason for claiming additional costs. Further, the cost of Rs.6.59 Crores/MW of an 8.4 MW wind project, statedly obtained by IWPA, from KREDL, cannot be considered as a benchmark capital cost while determining generic tariff.

The Commission notes that the Wind project developers have proposed capital cost in the range of Rs.6.00 Crores to Rs.6.59 Crores/MW. The Commission has noted that the capital costs incurred in most of the wind rich States, varies from Rs. 5.25 Crores/MW to Rs.6.15 Crores/MW, which fairly indicates the prevalent capital cost, as 70-80% of the cost pertains to plant and machinery, which is almost constant across the States. The remaining 20-30% of the capital cost which pertains mainly to civil works, land cost and transportation expenses, may vary from State to State.

The KREDL, has suggested Rs.5.50 Crs/MW. The data of recently approved, twenty-seven projects with cumulative capacity of 1485.30 MW, obtained from KREDL indicates a weighted average capital cost of Rs. 6.32 Crores/MW. Most of these projects are adopting 93 metre and above hub-heights.

The Commission notes that, generally the costs indicated in the DPRs will be higher as the developers / promoters tend to seek higher financial assistance to cover any cost overruns. Further, considering the capital costs in the wind rich States and also the submissions of InWEA and DGEPL that, the capital cost is around Rs.6.00 Crs./ MW for wind projects adopting new technology, the Commission considers it reasonable to adopt a capital cost of Rs.6.00 Crores/MW for wind projects so that they adopt hub-heights of 93 metre and above and also more efficient new technology.

Accordingly, the Commission decides to approve a capital cost of Rs. 6.00 Crores/MW, including evacuation and all other costs.

(3) Capacity Utilisation Factor (CUF):

The Commission had proposed to continue the CUF at 29%.

i. IREDA:

CUF is site specific and the proposed CUF may be achieved at higher hub heights. Hence, CUF data from NIWE/KREDL or some other reputed agency may be taken at different hub heights.

ii. DGEPL:

In Karnataka, the CUF for the existing 80-metre hub height machine is 24% and for new machines, it would be 32%. Adopting hub-heights of 120/140 metres, the CUF of 38% could be achieved, but the cost will be higher. Hence, **if KERC is considering the cost / MW as per the old technology then the CUF should be 22-24% and if the cost/MW is as per the new technology then the CUF can be greater than 32%.**

iii. INWEA:

The Appellate Tribunal for Electricity in its Order dated 25.11.2014, has held that CUF has to be determined considering the scientific study or supporting data available for the State from C.WET or any other reliable data or based on actual wind energy generation data available with the distribution licensees for the existing wind generators for different areas of the State and object and reasons of the Regulations of the Central Commission. This should be considered while arriving at the CUF. Also the CUF data varies from State to State and are not comparable. As per the Ministry of New and Renewable Energy (MNRE) and the Centre for Energy Technology, most of the wind generators in the State of Karnataka lie in the CUF range of 20-22%.

In view of the above, a CUF of 28% should be considered for tariff calculation.

iv. IWPA (Karnataka Council)

The Commission should carry out a detailed exercise for determining the generic tariff for wind projects as urged by the Association during the issuance of Commission's Order dated 24.02.2015. In that the

Commission had requested all the stakeholders to submit the data with respect to CUF in the State. The Commission had thereafter, examined the actual generation data from the wind power plants (WPPs) established during earlier 3 – 4 years' period having PPAs with different ESCOMs. Keeping the above factors in view, and the fact that CUF is totally dependent on environmental factors which may vary with site, location and years of generation, the Commission had arrived at 26.5% as CUF of the state during the previous control period, which has been significantly increased to 28% in the KERC Order dated 04.09.2017 and later on within a period of 6 months increased to 29% for determination of tariff without any substantiated data.

Commission's Views:

The Commission notes that, the main contention of the developers is that, if the capital cost is as low as Rs.5.25 Crores/MW, then the CUF cannot be more than 25% in Karnataka. On the other hand, if new technology is adopted, with hub heights of 120 metre, the CUF could be as high as 32%, but the Capital cost would be higher in the range of Rs.6.00 Crores to Rs.6.59 Crores/MW.

The Commission in this regard has obtained data from BESCOM for the period from March/April, 2018 to December, 2018 relating to the recently commissioned eight Wind power projects, whose CUF varies from 27.6% to 48.50 %, excluding the wind project with 48.50%, which appears to be an unusual case, the weighted average CUF of other projects works out to 32.49%. Since, the Commission has approved a capital cost of Rs.6.00 Crores/MW, the Commission is of the view that by adopting hub-heights of more than 100 metre and new technology, a CUF of 31% could be achieved, as demonstrated by these projects. It is expected that the wind project developers should strive to identify appropriate sites and adopt appropriate new technology to derive optimum returns for their investment.

In view of the above, the Commission decides to adopt a CUF of 31%.

(4) Interest on term loan:

The Commission had proposed to continue interest rate on term loan at 10% with a loan tenure of 15 years.

i. **IREDA** has stated that, it levies interest rates in the range of 9.80% to 10.95% for wind projects based on grading of the projects and most of the projects come under Grade-IV with interest of 10.95%.

ii. **DGEPL:** The interest rate considered in Maharashtra bid is 7% as funds are procured from abroad, whereas Power Finance Corporation(PFC)/IREDA charge interest on Term loans at about 10.75%.

iii. **InWEA:** Referring to the Regulation 8 of the CERC (Terms and Conditions for Tariff determination from RE sources) Regulations, 2017, InWEA has proposed interest rate at 10.55% considering 200 basis points above the one year SBI MCLR of 8.55%. Further, it is stated that IREDA / PFC are financing the projects at interest rates ranging between 10 to 12%.

iv. **IWPA (NREC)**

Credit rating varies from company to company and on the basis of credit rating the interest rates may also differ. The rate of interest may also differ for different financial institutions as well as the interest rate for the same institution may vary in a year as REC / PFC Interest loan rates varied from 9.85% to 11.25% in year 2018 and IREDA Interest loan rate varies from: 9.55% to 10.75%.

Hence, interest on loan should be considered at not less than 11% and loan tenure considered as 10 years as considered in the earlier orders.

v. **IWPA (Karnataka Council)**

The interest rate is market driven component and also driven by the rating given to the organization opting for long term loan. Not all the investors fall under AAA or A + category to win loan at such a lower rate (of 10%). REC / PFC Interest loan rate varies from: 9.85% to 11.25% in year 2018, IREDA Interest loan rate varies from: 9.55% to 10.75% and loan tenure is 2 years to 10 years.

Hence interest on loan should not be considered at not less than 11% and loan tenure considered as 10 years as considered in earlier orders.

Commission's Views:

The CERC in its recent draft RE tariff Order dated 11.01.2019, has considered 10.41% as the interest rate for RE Projects based on SBI MCLR.

With effect from 19.11.2018, the Indian Renewable Energy Development Agency (IREDA) has revised the interest rates, which vary from 9.80% to 10.95% for wind projects, with a reduction of 20, 15 and 10 basis points for Grades 1 to 3 respectively with external grading.

Similarly, PFC has revised the rates of interest with effect from 15.06.2018, which vary from 9.85% to 10.25% for State sector and 10.00% to 11.25% for private sector with rating IR-1 to IR-5 for RE sources other than Biomass Power Plants, with a reduction of 25 basis points for private sector RE projects.

As per the latest data, with effect from 10.02.2019, the MCLR of SBI is ranging between 8.55% to 8.75% for loan tenure varying from one year to three years. Considering 200 basis points above MCLR, the maximum interest rate would be 10.75%.

The above facts indicate that the rate of interest on domestic loan for wind projects would be in the range of 9.80% to 11.25%, depending upon the credit rating of the wind power generators and the average rate works out to 10.53%.

Thus, considering the prevailing interest rates, the Commission decides to allow an interest rate of 10.50%. Further, the Commission decides to adopt a loan tenure of 15 (fifteen)years.

(5) Interest on Working Capital(IWC):

The Commission had proposed to continue interest rate on working capital at 11%.

i. **IREDA**: IWC will be normally 2% to 3% more than the interest rate for terms loans.

ii. **DGEPL:** IWC proposed by KERC is 11% against 13.26% considered by the CERC. The IWC would be around 10%, if fund is procured from abroad.

iii. **InWEA:**

Referring to the CERC (Terms and Conditions for Tariff determination from RE sources) Regulations, 2017, InWEA has suggested interest rate of 11.55% considering 300 basis points above the one year SBI MCLR of 8.55%.

iv. **IWPA (Karnataka Council)**

Considering the interest rate in the market which varies from 9.85% to 11.25% for different categories of investors and the delay in payments from DISCOMs for the energy supplied, which is on an average more than 3 months in most of the State DISCOMs, the interest rate of working capital should be above 12%.

Commission's Views:

Depending on the interest rate allowed for term loans, the Commission in all its earlier orders has considered IWC at 1% more than that for term-loan. Following the same approach, the Commission decides to allow IWC at 11.50%.

(6) Depreciation:

The Commission had proposed to adopt depreciation rate of 4.67% for the first 15-years and the balance depreciation spread equally for next 10-years of useful life of the project.

i. **IWPA (Karnataka Council)**

The Commission should consider depreciation rate in line with the loan tenure, 70% of depreciation for the loan tenure and balance during the useful plant life.

Commission's Views:

The Commission in its earlier Order has considered depreciating the assets to 90% of the asset value with 10% as salvage value. During, the debt tenure, the depreciation is provided such that it would cover debt servicing and the balance depreciation is spread over the life of the project.

The Commission decides to follow the same approach in this Order also.

(7) O & M expenses:

The Commission had proposed O & M expenses at 1.40% (Rs.7.35 lakhs/MW) of capital cost with annual escalation of 5%.

i. **KREDL** has proposed **Rs.8.0 Lakhs/MW**, as the average O & M expenses for the first year, with 5% annual escalation.

ii. **IREDA** has suggested to consider, the impact of GST also on the O & M expenses. Further, IREDA has concurred with the KERC proposed annual escalation of 5% for O & M expenses.

iii. **DGEPL:** The realistic O&M expenses amounts to Rs. 10 Lakhs / MW with an annual escalation of 5.72%. Rs. 7 lakhs / MW would be sufficient for old plants.

iv. **InWEA**: O&M expenses should be at Rs. 8.67 Lakhs / MW considering the impact of GST of 18% and escalation of 5.72% / annum. The wind developers offer O&M rates on annual basis with an escalation provision. Most of them offer first year O&M free of cost and subsequently compounding the O&M charges annually at 5%. Normally these charges are in the range of Rs. 8 to Rs. 12 Lakh / MW. In addition, 0.25% of the project cost has to be factored as insurance. The O&M cost adopted by some of the Commission's varies from Rs. 9.06 Lakhs to Rs. 9.94 Lakhs / MW.

v. **IWPA(NREC):** The Commission has recently issued the Order dated 14.12.2018 "In the matter of collection of Operation and Maintenance (O&M) charges by the KPTCL from the Generators" and determined the O&M charges as follows:

'The operation and maintenance charges, payable by the generators for the line terminal bay, shall be at 1.5% of the capital cost of the line terminal bay with an annual escalation of 5.72% on the O & M charges,'

There should be no differentiation between the State Owned Transmission utility and private investor in terms of calculating the O&M charges, since for all the concerned stakeholders the equipment's are electrical and rotating in nature. Hence, the O&M base should continue to be taken as 1.5% of the capital cost with 5.72% annual escalation.

vi. **IWPA (Karnataka Council):** The Commission in its recent order dated 14.12.2018 "In the matter of collection of Operation and Maintenance (O&M) charges by the KPTCL from the Generators" has determined the O&M charges at 1.5% of the capital cost of the line terminal bay, with an annual escalation of 5.72%.

Hence, there should be no differentiation between the State Owned Transmission utility and private investor and accordingly, the same O&M base as 1.5% of the capital cost with 5.72% annual escalation should be allowed.

Commission's Views:

The O & M cost wind projects which includes, employee costs, Administrative & General expenses and Repairs & Maintenance expenses, cannot be compared with that of KPTCL, as the nature of business and the operation involved is quite different for wind projects. However, to accommodate for GST, Insurance and other expenses, the Commission considers that Rs. 8.00 Lakhs/MW proposed by KREDL as the O & M cost for the base year, is reasonable.

Accordingly, the Commission decides to allow O & M expenses at Rs.8.00 Lakhs/MW with annual escalation of 5.0%.

(8) Debt: Equity Ratio (DER):

The Commission had proposed to continue DER at 70:30.

IREDA: DER of 75:25 is adopted by IREDA for repeat borrowers with good payment record and for consortium financing. KERC may review DER accordingly.

Commission's Views:

The Commission as per Clause 5.11(b) of Tariff Policy,2016 decides to adopt normative DER of 70:30.

(9) On other parameters, the stakeholders have not submitted any comments/suggestions. Hence, the Commission decides to retain these parameters as proposed in the discussion paper.

(10) Based on the above, the summary of the existing and the newly determined parameters is indicated below:

Parameter	**Parameters existing as per Order dated 16.05.2018**	**Newly determined Parameters**
Capital Cost-Rs.Crs./MW	5.75	6.00
Debt: Equity Ratio	70:30	70:30
CUF in %	29	31
Interest on term loan p.a. in %	10.00	10.50
Tenure of loan-Yrs.	13	15
Working Capital [WC]	Two-Months' receivables	Two-Months' receivables
Interest on WC p.a. in %	11.00	11.50
Depreciation in %	5.38% for first 13 years and remaining depreciation spread equally over balance twelve years of the useful life.	4.67% of capital cost for first 15 years and remaining depreciation amount is spread equally over balance ten years of the useful life.
RoE in %	14	14
O & M Expenses-Rs. Lakhs/MW	Rs. 10.00 lakhs/MW	Rs.8.00 lakhs/MW for the base year
O & M expenses' escalation per annum	5.72%	5.00%
Auxiliary Consumption	0.5%	0.5%

Based on the above approved parameters, the tariff would work out to Rs.3.26/kWh as against the current Rs.3.45/kWh.

7. For the forgoing reasons, we pass the following:

ORDER

(i) The Commission, hereby determines the generic tariff for wind power projects at Rs.3.26 [Three Rupees twenty-six paise] only per unit;

(ii) The above tariff shall be the ceiling tariff for the purpose of tariff based reverse bidding for wind power projects;

(iii) The tenure of the PPA, shall be for life of the wind power projects i.e., twenty-five (25) years and the tariff shall be at the rate discovered in the bidding;

(iv) The generic tariff determined in this Order shall also be applicable for payment towards any banked energy purchased by the Distribution Licensees and in such other cases as specified in the relevant orders of the Commission; and

v) This Order shall be in force with effect from 1st April, 2019 and till 31st March, 2020.

This Order is signed and issued by the Karnataka Electricity Regulatory Commission on this 27th day of February, 2019.

Sd/-	**Sd/-**	**Sd/-**
(SHAMBHU DAYAL MEENA)	(H.D. ARUN KUMAR)	(H.M. MANJUNATHA)
CHAIRMAN	**MEMBER**	**MEMBER**

Annexure – 1

List of person / organizations who made written submissions

1. Doddanavar Global Energy Pvt Ltd.
2. Indian Wind Power Association (Northern Region Council)
3. Indian Wind Power Association (Karnataka State Council).
4. Indian Wind Energy Association
5. Indian Renewable Energy Development Agency
6. Karnataka Renewable Energy Development Limited

Annexure – 2

List of person who made Oral submission during public hearing

1. Sri. Praveen Thakre, IWPA – Karnataka State Council.
2. Sri S.V. Nesargi, DGEPL.
3. Sri Rahul Srivastava, IWPA, Northern Region Council.