

Discussion Paper on “Determination of Generic Tariff for Wind Power Projects”

1. The Commission 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. To create a stable environment for investment in such projects, the generic tariff is fixed for all projects commissioned during a control period. Accordingly, the Commission, vide its Order dated 4th September, 2017 has determined the generic tariff for wind power projects, wherein a levelized tariff of Rs.3.74/unit has been determined for the life of the projects, namely 25-years. The said Order was made applicable to all new wind projects, for which PPAs are entered into and approved by the Commission after the date of issue of the said Order, subject to the quantum of maximum capacity addition as may be fixed by the Commission. The tariff determined in the said Order is in force till 31st March, 2018.

2. 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 its notified bidding framework. Pursuant to the same, the Central Government, has issued the Bidding Guidelines on 8th December,2017. Consequent to the issue of the bidding guidelines, the Karnataka Electricity Regulatory Commission has passed Order on 08.02.2018, directing the Distribution Licensees in the State to make all future power procurement from grid connected Wind power Projects only through transparent process of bidding, in accordance with the aforesaid Bidding Guidelines.

3. However, the Commission in some of its Orders has referred to applicability of RE Generic Tariff of the relevant year, as determined by the Commission, for payment towards banked energy purchased by the distribution licensees and such other cases. Hence, Generic Tariff applicable for wind generators from 01.04.2018 onwards needs to be determined. Therefore, the Commission proposes to determine the tariff afresh for wind power projects based on the following parameters:
 - a) Capital cost including evacuation system cost.
 - b) CUF, Capacity Utilization Factor,
 - c) Debt Equity Ratio,

- d) Interest on term loan,
- e) Depreciation,
- f) Return on equity,
- g) Operation and maintenance charges,
- h) Interest on working capital,
- i) Auxiliary consumption.

4. The Commission proposes to deal with each of the above parameters as follows:

a) Capital cost including evacuation system cost:

The Commission has approved a normative capital cost of Rs.6.20 Crs/MW in its order dated 04.09. 2017. The Commission notes that in the recent bids, the tariff quoted by wind developers are below Rs.3.00/unit. Considering that the other parameters as adopted in order dated 04.09.2017 would remain more or less the same, the two parameters that would affect the tariff would be the capital cost and the CUF. It is natural that the norm of competitive bidding has had the positive effect of encouraging cutting capital costs and maximizing productivity through increase in machine efficiency and hub-height across the sector. Thus, the Commission is of the view that the current capital cost is less than Rs. 6.00 Crs/MW and is likely to be Rs. 5.50 Crs/MW with hub-heights being more than 80 meters.

Thus, the Commission proposes to adopt a capital cost of Rs.5.50 Crs. /MW, which also includes the cost of evacuation.

b) Capacity Utilization Factor (CUF):

The Commission has approved a normative capital CUF of 28% in its order dated 04.09. 2017. As stated earlier, one of the parameters that affects the tariff is CUF and considering the recent bid discovered tariff of less than Rs.3.00/unit, which indicates higher optimal hub-heights of the proposed wind projects, **the Commission proposes to adopt CUF at 30%**, taking that more efficient turbines at higher hub-heights are being installed now.

c) Debt Equity Ratio:

The Commission in all its earlier Orders has considered debt-equity ratio of 70:30.

The Commission proposes to continue the debt equity ratio of 70:30.

d) Interest on term loan and loan tenure:

The Commission has approved a normative interest rate of 9.23% in its order dated 04.09. 2017. Since, there is no appreciable change in the interest rates in the last six months, **the Commission proposes to continue interest rate on term loan at 9.23%.**

Further, the Commission proposes to adopt a loan tenure of 13 years for the purpose of tariff determination.

e) Depreciation:

The Commission in its Order dated 04.09.2017, has adopted depreciation rate 5.38% for first 13 years and remaining depreciation is spread over balance years of the useful life. **The Commission proposes to continue the depreciation rate at 5.38% for the first 13 years and remaining depreciation is spread over balance years of the useful life.**

f) Return on equity:

The Commission in its Order dated 04.09.2017, has adopted RoE of 14%. **The Commission proposes to continue the RoE at 14% per annum.**

g) Operation and Maintenance (O &M) Expenses:

The Commission in its Order dated 04.09.2017, has considered Rs.10 Lakhs/MW as the O& M expense with annual escalation of 5.72%. **The Commission proposes to continue the O& M expense at 10 Lakhs/MW with escalation of 5.72% per annum.**

h) Interest on working capital:

The Commission has approved a normative interest rate on working capital at 11.50% in its Order dated 04.09. 2017. **The Commission proposes to revise the interest rate on working capital to 11%**, considering easing of domestic interest rates in the recent months.

i) Auxiliary Consumption:

The Commission in its earlier Order has considered an auxiliary consumption of 0.5%. It is proposed to continue the same.

j) The summary of the existing and the proposed parameters is indicated below:

Parameter	Existing as per Order dated 04.09.2017	Proposed
Capital Cost-Rs.MW	6.20	5.50
Debt: Equity ratio	70:30	70:30
CUF in %	28	30
Interest on term loan in %	9.23	9.23
Tenure of loan-Yrs.	13	13
Working Capital [WC]	Two-Months' receivables	Two-Months' receivables
Interest on WC in %	11.50	11.00
Depreciation in %	5.38% for first 13 years and remaining depreciation spread over balance years of the useful life.	5.38% for first 13 years and remaining depreciation spread over balance years of the useful life.
RoE in %	14	14
O & M Expenses-Rs. Lakhs/MW	10.00	10.00
O & M expenses' escalation per annum	5.72%	5.72%

Auxiliary Consumption	0.5%	0.5%
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5. The Commission, hereby, invites comments/views/suggestions from Stakeholders and interested persons on the above proposal, with a request to submit the objections/ comments/ suggestion on or before 16.03.2018 to:

**The Secretary,
Karnataka Electricity Regulatory Commission,
#61C-1, Miller Tank Bed Area, Vasanthanagar,
Bengaluru 560 052.**

Approved by the Commission

**SECRETARY
KERC**

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