KERALA STATE ELECTRICITY REGULATORY COMMISSION

WHEREAS the Kerala State Electricity Regulatory Commission have published in the Kerala Government Gazette on different dates the following, namely:-

Kerala State Electricity Regulatory Commission (KSERC), (Power Procurement from Renewable Sources by Distribution Licensee) Regulations, 2006;
(Notification No. : 1/1/KSERC-2006/XV, Dated: 24.06.2006)

A. Kerala State Electricity Regulatory Commission (KSERC), (Power Procurement from Renewable Sources by Distribution Licensee) Regulations, 2006 (First Amendment), 2008; (Notification No.-KSERC/III/Regulation/2008/Thiruvananthapuram, Dated: 18.11.2008)

B. Kerala State Electricity Regulatory Commission (KSERC), (Power Procurement from Renewable Sources by Distribution Licensee) Regulations, 2006 (Second Amendment), 2010;
(Notification No. : 1163/CT/2010/KSERC, Dated: 22.11.2010)

- Inserted/ Replaced matter is shown as *[ ]*^{D} at appropriate place; wordings inserted/ replaced shown within square brackets;
- In both of above cases; -^{D} ; superscript D implies that change is caused by Amendment '4';

NOTIFICATION

No.1/1/KSERC-2006/XV *Dated, Thiruvananthapuram 24th June, 2006.*

Kerala State Electricity Regulatory Commission (Power Procurement from Renewable Sources by Distribution Licensee) Regulations, 2006

STATEMENT OF OBJECTS AND REASONS

Section 86(1)(e) of the Electricity Act, 2003 mandates the Commission to promote co-generation and generation of electricity from renewable sources of energy by providing suitable measures for connectivity with the grid and sale of electricity to any person, and also specify, for purchase of electricity from such sources, a percentage of the total consumption of electricity in the area of a Distribution Licensee. Section 62(1) of the Act empowers the Commission to determine the tariff for the supply of electricity by a Generating Company to a Distribution Licensee in accordance with the provisions of the Act. Section 61 of the Act further provides that the Appropriate Commission shall, specify the terms and conditions for the determination of tariff and in doing so shall be guided by the principles listed in clauses (a) to (i) of the said Section. In exercise of the powers vested in the Commission under the above Sections read with Section 181 of the Act, the Commission specifies the following Regulations.

1. Short title and commencement:-(1) These Regulations may be called **Kerala State Electricity Regulatory Commission (Power procurement from Renewable Sources by Distribution Licensee) Regulations, 2006**

(2) These Regulations shall be applicable to the Distribution Licensees in the State of Kerala. However, till such time the STU or any licensee is engaged in the activity of bulk purchase and sale of electricity to distribution licensees, these regulations shall be applicable to such STU/Licensee for the State as a whole.

(3) These Regulations shall come into effect from the date of notification in the Kerala Gazette.

2. Definitions:-In these Regulations, unless the context otherwise requires,

(a) ‘Act’ means the Electricity Act, 2003 (Act 36 of 2003)

(b) ‘Buyer’ means:

i. A Distribution Licensee

ii. STU or any other Licensee engaged in the activity of bulk purchase and sale of electricity to distribution licensee/s.

(c) ‘Commission’ means Kerala State Electricity Regulatory Commission

(d) ‘Distribution Licensee’ means a licensee authorised to operate and maintain a distribution system for supplying electricity to the consumers in his area of supply.

(e) 'Licensee' means a person who has been granted licence under section 14 of the Act.

(f) 'Renewable sources' in this context means non-conventional, renewable electricity generating sources such as small hydel, wind, solar, biomass, urban/municipal waste, or other such sources as approved by the Ministry of Non-conventional Energy Sources, Government of India or Government of Kerala.

(g) 'State Transmission Utility (STU)' means the Board or the Government company specified as such by the State Government under sub section (1) of section 39 of the Act.

The words or expressions in these Regulations, which are not defined herein, shall have the same meaning as in the Act . In case of inconsistency, the meaning in the Act shall prevail.

3. Purchase of electricity from Renewable Sources of Energy:-

With the enactment of Electricity Act, 2003 and declaration of National Electricity Policy and Tariff Policy, Electricity Regulatory Commissions have been directed to encourage non-conventional energy sources

Clause 6.4 of Tariff Policy issued by the Ministry of Power Govt. of India vide No 23/2/ 2005-R&R (Vol III) dated 6th January, 2006 resolves as follows:

" Non-Conventional sources of energy generation including Co-generation:

[A][[1](1) ~~Pursuant to provisions of section 86(1)(e) of the Act, the appropriate commission shall fix a minimum percentage for purchase of energy from such sources taking into account availability of such resources in the region and its impact on retail tariff. Such percentage for purchase of energy should be made applicable for the tariff to be determined by the SERCs latest by April 1, 2006.~~

~~It will take sometime before non-conventional technologies can compete with conventional sources in terms of cost of electricity. Therefore procurement by distribution companies shall be done at preferential tariff determined by the~~

[1] Omitted and inserted sub-clause (1) of clause (1) of the principal Regulation, vide Second amendment (B), 2010

~~Appropriate Commission.~~

Each distribution licensee shall purchase a quantum of 3% from renewable energy sources expressed as a percentage of its total consumption during a year from SHP, Wind and from all other renewable sources and out of this 3%, 0.25% shall be from solar based plants:

Provided that there shall be an increase of 10% of such purchase of energy in the subsequent years till a maximum of 10% of the total consumption'. [A][

(2) Such procurement by Distribution Licensees for future requirements shall be done, as far as possible, through competitive bidding process under Section 63 of the Act within suppliers offering energy from same type of non-conventional sources. In the long –term, these technologies would need to compete with other sources in terms of full costs.

(3) The Central Commission should lay down guidelines within three months for pricing non-firm power, especially from non-conventional sources, to be followed in cases where such procurement is not through competitive bidding".

The policy also requires that the appropriate Commission shall adopt the tariff if such tariff has been determined through transparent process of bidding in accordance with the guidelines issued by the Central Government. The Commission shall fix:

(1) Percentage of renewable energy sources to be purchased by Licensees

(2) Its impact on retail tariff

(3) The maximum tariff that can be allowed for purchase of non-conventional energy.

(4) The methodology for fixing of tariff and the PPA

The Commission based on the comments received from the stake holders on 'The 'Draft Kerala State Electricity Regulatory Commission (Power Procurement from Renewable Sources by Distribution Licensee) Regulations, 2006 dated 23-04-2006 and the public hearing held on 24-05-2006 in the Office of the Commission, approves the following norms for various parameters for the estimation of tariff for Small Hydro Power Projects and Wind Energy Projects

(1) Each Distribution Licensee shall purchase a quantum of 5% from renewable

sources expressed as percentage of its total consumption during a year. The break up of the 5% shall be 2% from SHP, 2% from Wind and 1% from all other sources except Small Hydro and Wind mentioned in 2(f) respectively.

(2) Till such time the STU or any licensee is engaged in the activity of bulk purchase and sale of electricity to distribution licensees in the State, the quantum of purchase from renewable sources shall be considered at the above specified percentage expressed as percentage of total consumption in the area of supply of all such Distribution Licensees considered together.

(3) The Buyer shall indicate the proposed quantum of purchase from renewable sources for the ensuing year in the ARR and ERC filing, duly indicating the sources of purchase.

(4) The Buyer shall source the proposed quantum of electricity from renewable sources within the State.

(5) While contracting power purchase from renewable sources, the priority for purchase shall be on the basis of the date of commercial operation of such generating stations.

(6) The Buyer shall provide adequate payment security mechanism for purchases mentioned above.

(7) The Commission may review the quantum of purchase from renewable sources once in every 3 years.

(8) If the Buyer defaults in payment for the purchase from any generating company, such generating company shall be at liberty to sell electricity to any other person in accordance with the Kerala State Electricity Regulatory Commission (Open Access) Regulations.

Norms for fixation of tariff for Small Hydel Projects and for Wind Electricity Generation Plants are furnished in Annex I and Annex II respectively. The norms applicable for new projects may be reviewed once in three years.

4. Promotion of renewable sources of energy:-

(1) Any person generating electricity from renewable sources of energy shall have mandatory open access to any Licensee’s transmission system and/or distribution system or grid as the case may be.

5. Determination of Tariff for electricity from Renewable sources:-

(1) The Commission shall determine the tariff for purchase of electricity from renewable sources by a Buyer. Provided that, the PPAs approved by the Commission prior to the notification of these regulations shall continue to apply for such period as mentioned in those PPAs.

(2) The Commission shall determine the tariff separately for each category of renewable source mentioned in clause 2(f).

(3) The Commission shall as far as possible be guided by the principles and methodologies, if any, specified by the CERC, National Electricity Policy and Tariff policy, while deciding the terms and conditions of tariff for renewable sources of energy.

(4) While determining the tariff, the Commission may, to the extent possible consider to permit an allowance based on technology, fuel, market risk, environmental benefits and social contribution etc., of each type of renewable source.

(5) While determining the tariff, the Commission shall consider appropriate operational and financial parameters.

(6) *A*[[2]T~~he Commission may follow the process mentioned below for determination of tariff for renewable energy projects:~~

~~i. Invite tariff proposals from Licensees/Generating companies for different categories of renewable energy projects for 25 years for SHPs and 20 years for Wind Projects with levelised cost at 12% discounting rate.~~

~~ii. Inviting Public response on the proposals of the Licensee/ Generating Companies.~~

~~iii. Public hearing on the above.~~

~~iv. Issue order on the Tariff for the purchase of electricity from renewable sources as per Annex I and Annex II for SHPs and Wind Power Projects if the estimated levelised cost per unit for projects based on the parameters approved by the Commission are equal to or below the levelised cost approved as per Annexe I and Annexe II.~~

(6) The Commission shall follow the following procedure in approving tariff of individual Wind and SHP projects.

(i) The applicant for setting up individual renewable energy projects shall file tariff petition before the Commission along with the prescribed fee.

[2] Omitted and inserted sub-clause (6) of clause 5 of the principal Regulation, vide First amendment (A), 2008

(ii) *The Commission shall approve the same if the proposed rate is equal to or less than the levelized tariff approved as per Annex I and Annex II of the principal regulation.]*[A]

(7) The tariff so approved by the Commission shall be applicable for a period of 25 years for Small Hydro Electric Projects and 20 years for Wind Energy Projects from the date as notified by the Commission.

6. Power to remove difficulties:-

The Commission shall *suo-motu* or on an application from any person generating electricity from renewable sources or a Buyer/Distribution Licensee may review these regulations and pass appropriate orders to remove any difficulty in exercising the provisions of these regulations.

7. Power to amend:-

The Commission may from time to time add, vary, alter, modify or amend any provisions of these regulations.

ANNEXE I

Tariff fixation for Small Hydel Projects (SHP):

1. Capital Cost :

Since the capital cost of Small Hydel Projects are site specific it may be difficult to make standardization of capital cost. The Commission may fix an upper ceiling limit of capital cost of each project considering project specifics, to be furnished by the developer while seeking investment approval. MNES has been providing more capital subsidy for new smaller projects and less for the new bigger projects thereby nullifying the impact of difference in project cost to some extent. Similarly, for existing projects, MNES is providing different rates of interest subsidy for smaller and larger projects. If one goes by the actual project capacities and the various levels of subsidy, it would lead to adopting different project costs and the corresponding tariff. Hence the Commission is inclined to adopt same project cost both for larger and smaller projects. [B][[3]~~The Commission therefore considers that a uniform capital cost of Rs.4.88 Crores / MW would be reasonable for small hydel projects including the cost of transmission lines/substation up to the inter connection point of the grid~~*. A capital cost of Rs.5.2Crores/MW shall be taken for small hydel projects including the cost of transmission lines/substation upto the interconnection point of the grid*.][B] However the project developers should utilise capital subsidy provided by MNES to the Maximum extend and the corresponding reduction in tariff should be passed on to consumers.

2. Plant Load Factor:

In case of Hydel power plants, the PLF depends mostly on monsoon, rainfall in the catchment area, changes in hydrology factor etc, apart from the size of the plant. A benchmark parameter of 30% is considered reasonable for computation of tariff based on cost plus approach. Auxiliary Consumption is taken as 0.5%.

3. O&M expenses:

[3] Omitted and inserted wordings in Annex-I of Capital Cost, vide Second amendment (B), 2010

B[4~~As per Central Electricity Regulatory Commission (CERC) norms the O&M expenses are 1.5% of the actual capital cost with escalation for every year from the base year at 4%. The Commission, therefore, approves O&M expenses as 1.5% of Capital expenditure with 4% escalation every year.~~

The Commission approves O&M expenses as 1.6% of the capital expenditure with 5% escalation over the previous years amount every year.]B

4. Debt- equity ratio:

Debt-equity ratio is mainly determined by the Financial Institutions for approving project loans. As these projects are mainly financed by Indian Renewable Energy Development Agency / Financial Institutions and they insist for debt-equity ratio of 70:30, the Commission considers debt-equity ratio of 70:30 as reasonable.

5. Return on Equity:

The Commission recognizes that the Non Conventional Energy projects are fraught with risks and uncertainties. In order to provide an element of security and to promote development of non-conventional power projects, the Commission approves ROE at 14% for the existing projects as well as for new projects.

6. Interest on Term Loan:

B[5~~While determining the project cost, the Commission has adopted Cost / MW for both existing and new projects. The capital subsidy or interest subsidy more or less nullifies the higher interest rate for one category vis-à-vis the other one. As the Commission considered the capital cost without adjusting for capital subsidy, interest rate is considered without adjusting for the interest rate subsidy. Hence Commission approves the interest rate of 9% for new projects~~.

Commission approves an interest rate of 12% for new projects.]B

7. Interest on working capital:

4 Omitted and inserted wordings of O&M in Annex-I, vide Second amendment (B), 2010

5 Omitted and inserted wordings of Interest on term Loan in Annex-I, vide Second amendment (B), 2010

[B][[6]~~Commission is allowing 7 % as the interest on the working capital as this is in line with the on-going interest rates for working capital levied by banks from power utilities. Maximum working capital shall consist of two months bill amount, one month O&M and Spares 1% of the capital cost.~~

The interest rate on working capital shall be 12%.][B]

8. Depreciation:

Considering the period of operation as 25 years and depreciation, up to 90% of cost of plant, depreciation rate is taken as 3.6% per annum.

The higher recovery of depreciation through tariff in the earlier years may not encourage the developers to sell energy to KSEB in the later years. The Commission agrees that this method of charging depreciation is front-loading the tariff but it is allowed in the tariff only with an intention to enable the developers to repay their loan liability. But at the same time the Commission do not want the benefit to drift away. Hence in order to get the recovery of the same in the later years, the developers shall have to sell energy and capacity to KSEB as contracted in the PPA for the entire term of the PPA, which is 25 years from the year of commissioning.

9. Loan Period:

The Commission approves a loan repayment period of 10 years.

10. Single part tariff:

The Commission approves single part tariff.

11. Minimum Alternate Tax (MAT):

Commission decides to provide a uniform MAT at 10.1% on ROE . Reduction in tariff if tax holiday is allowed shall be passed on to consumers.

12. Tariff applicable:

[B][[7]The~~ levelised tariff at 12% Discount Rate for 25 years comes to Rs 2.44/Unit. The developers are to provide energy at a levelised rate of Rs 2.44/unit for 25 years~~.

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[6] Omitted and inserted wordings of Interest on working Capital in Annex-I, vide Second amendment (B), 2010

[7] Omitted and inserted wordings of Tariff applicable in Annex-I, vide Second amendment (B), 2010

The levelised tariff at 12% discount rate for 25 years shall be Rs.2.94/unit. The developers shall provide energy at a levelised rate of Rs.2.94/unit for 25 years.][B]

ANNEX II

Wind Electricity Generating Plants

1. Capacity Utilisation Factor (CUF):

Based on the comments received and presentations during the public hearing held on 24/5/06 on the above matter the Commission approves a CUF of 22% Auxiliary consumption is taken as 0.5%.

2. Capital Cost:

B[8][~~Based on the comments received and presentations during the public hearing held on 24-5-06 on above matter the Commission approves Capital Cost of Rs 4.4 Crore/MW including the cost of transmission lines / sub stations up to the interconnection point of the grid.~~

*A capital cost of Rs.4.56Crores/MW shall be taken for wind plants including the cost of transmission lines/substation upto the interconnection point of the grid.]*B

3. Life of Plant:

Based on the comments received from various stake holders, Commission fixes the life of plant as 20 years.

4. Depreciation Rate:

Considering the Straight Line Method, residual value of 10% and a plant life of 20 years, the depreciation rate works out to 4.5%.

5. Operation and Maintenance:

Commission approves an O&M cost of 1.3% of capital investment with escalation of 4%.

6. Interest cost on Long Term Debts:

The Commission approves a realistic interest rate of B[[9]~~9%.~~ *12%*]B

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[8] Omitted and inserted wordings of Capital Cost in Annex-II, vide Second amendment (B), 2010

[9] Omitted and inserted figures of Interest cost on Long Term Debts in Annex-II, vide Second amendment (B), 2010

7. Loan repayment period:

Commission approves a term loan repayment period of 10 years.

8. Return on equity:

The Commission approves a return on equity of 14% on the equity portion of the Capital cost.

9. Interest on working capital:

Commission is allowing [B][[10] ~~7 %~~ *12%*][B] as the interest on the working capital as this is in line with the on-going interest rates for working capital levied by banks from power utilities. Working Capital shall consist of two months bill amount, one month O&M and Spares 1% of the capital cost.

10. Minimum Alternative Tax (MAT)

Commission decides to provide a uniform MAT at 10.1% of ROE. Reduction in tariff if tax holiday is allowed shall be passed on to consumers.

11. The Commission decides that single part tariff may be adopted.

12. Reactive energy charges shall be incorporated in the PPA.

[B][[11]~~Based on the above norms approved by the Commission, the levelised tariff at 12% Discount Rate for 20 years comes to Rs 3.14/Unit. The developers are to provide energy at a levelised rate of Rs 3.14/ unit for 20 years.~~

Based on the norms approved above, the levalised tariff at 12% discount rate for 20 years shall be Rs.3.64/unit. The tariff arrived at above shall be applicable only for the project proposals submitted after the publication of this amendment regulations. The rates approved are without considering subsidy/incentive offered by Central/State Government including accelerated depreciation availed by generating companies. Generating companies shall disclose to the Commission details of such

[10] Omitted and inserted figures of Interest cost on working Capital in Annex-II, vide Second amendment (B), 2010

[11] Omitted and inserted wordings of clause (12) in Annex-II, vide Second amendment (B), 2010

subsidy/incentive if availed along with application for fixation of tariff and get the rate adjusted appropriately.][B]

By Order of the Commission

Ajitha.S
Secretary