

KARNATAKA ELECTRICITY REGULATORY COMMISSION

No.9/2, 6th & 7th Floor, Mahalaxmi Chambers,
M.G.Road, Bangalore-560 001.

Present: Shri K.P.Pandey	Chairman
Shri H.S.Subramanya	Member
Shri S.D.Ukkali	Member

In the matter of: Approach to determination of tariff for Waste to Energy projects using Municipal Solid Waste supplied by Urban Local Bodies.

ORDER

No.B/03/6/ 1201

Dated: 21st July 2006

1. Section 86(1)(e) of the Electricity Act, 2003 mandates the Commission to promote cogeneration 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 5.10.5 of the National Electricity Policy envisages setting up of Solid Waste to Energy Projects in urban areas and recovery of energy from Industrial effluents with a view to reduce environmental pollution apart from generating additional energy.

2. The Commission has issued KERC (Power Procurement from Renewable Sources by Distribution Licensee) Regulations, 2004 on 27.9.2004 specifying the quantum of purchase from renewable sources and laying down the procedure for determination of tariff from such sources. In the said regulations, the renewable sources include power generation from urban/municipal waste. Subsequently, the Commission has determined the tariff in respect of mini-hydel, wind, biomass and co-generation projects vide order dated 18th January 2005. However, Waste-to-Energy (WtE) projects were not considered while fixing tariff

for biomass projects. In order to promote WtE projects, approach to tariff of such projects needs to be specified by the Commission.

3. In the meanwhile, Sri Srinivasa Gayathri Resource Recovery Ltd(SGRRL) to whom Bangalore Mahanagara Palike has awarded a 8 MW WtE project near Bangalore has made an application before the Commission on 29.07.2005 for determination of tariff for power supply from the said project to BESCO. SGRRL has requested to fix the tariff on the basis of MNES guidelines at a base tariff of Rs.3.37 per unit in 2004-05 with 5% simple escalation per annum as has been determined by APERC for a similar project.

4. In pursuance of the above requirement, the Commission issued & widely circulated a discussion paper in May 2006 titled 'Promotion of Waste-to-Energy Projects' inviting suggestions and comments from stakeholders and experts on the following issues:

- (i) Whether the WtE projects should be treated similar to captive generation units and be allowed to supply power to Municipal corporations at the tariffs to be decided mutually between the two?
- (ii) In the alternative, whether the WtE projects could be allowed to sell the electricity to third parties under open access with 5 % wheeling charge on the energy input and free banking facility. Whether a concessional cross subsidy surcharge say 25 to 50% could be levied on such consumers under open access.
- (iii) In case it is decided that the WtE projects shall supply electricity to the ESCOMs as in the case of other NCE projects, what should be the methodology to be adopted for such tariff determination? In view of complexities involved, can we adopt the MNES tariff with 5% annual escalation (simple) as has been done by APERC.
- (iv) What are the other measures to be taken by the Commission to promote WtE projects?

In response, many experts/stakeholders have furnished their views and a list of persons who provided the views is enclosed as Annex -1.

5. In order to ascertain views from a wider cross section of the society, the Commission decided to hold a public hearing in the matter on 30.06.2006 and accordingly issued notices to KPTCL/ESCOMs/BMP/ Other ULBs/SGGRL and to all those who had offered their views on the discussion paper apart from issuing press release about the hearing. The Commission conducted the hearing on 30.06.2006, which was attended by many experts, academicians, developers besides representatives of KPTCL, SPPCC, ESCOMs and BMP. The list of persons who were present in the hearing, is enclosed vide Annex -2.

6. The suggestions/comments received from the experts and stakeholders both in writing and during the hearing on the various issues are discussed and views of the Commission thereon are given below:

(1) Whether the WtE projects should be treated similar to captive generation units and be allowed to supply power to Municipal corporations at the tariffs to be decided mutually between the two?

Suggestions & Comments: Energy Dept/Gok, KPTCL and BMP have suggested that such WtE plants be treated on par with other NCE projects and be allowed to sell power to ESCOMs. BMP also stated that the proposal of treating the WtE project similar to captive power plants is not suitable to BMP. Sri Gopalakrishna, DEO, HDMC, Hubli suggests that, WtE projects should come up as individual power plants. Sri. Ramesh Bingi, MD, SGGRL has drawn reference to MoP notification No.GSR (379) E dated: 8th June 2005 on the definition of CPPs and has stated that supply of power to Municipal corporations as captive consumption will not be possible unless the notification is amended. Dr. S.Seetharamu, Additional Director, CPRI, Bangalore has suggested that the technology is not mature enough to run on the models similar to captive units.

(i) Prof.V.Ranganathan (ii) Managing Director/KREDL (iii) President, Balakedarara Hitharakshaka Sangha, Sirsi (iv) MESCOM & (v) BESCOM have suggested that the Commission should treat WtE plants as Captive Units and be allowed to supply power to the Municipal Corporations at mutually agreed tariff. Director, MNES has suggested that the licensees should facilitate transactions to enable ULBs to procure power from MSW based projects and the tariff for such procurement shall be based on MNES guidelines. Managing Director, IREDA, has suggested that, the Commission may allow sale of power to Municipal Corporation at mutually agreed rates or allow sale to third party under open access or allow sale to ESCOM with tariff as per MNES policy. Sri Antonette D'Sa has suggested that, considering the concessions in land and feedstock being given to such WtE plants they should supply at concessional rates to Municipal Corporations as mutually settled between them.

In the Public Hearing on the subject, Sri Prathap Kumar, Director, State Power Procurement Co-ordination Cell, GoK expressed views on behalf of KPTCL and ESCOMs. He informed that, in order to promote WtE projects, the power utilities would not levy wheeling, Banking and cross Subsidy surcharge if power is sold to BMP/Third party.

The BMP representative stated in the public hearing that many facilities have been extended by the BMP to the SGRRL project such as allotment of free land to the project on long term basis (with nominal lease rent), providing infrastructure for water supply, laying of road upto the project site, segregation of waste and its delivery at the project site at a nominal cost, etc. However, BMP has proposed that the said WtE project may sell power to BESCOM directly.

Views of the Commission: It is primarily the responsibility of the ULBs to dispose the waste efficiently. There is no doubt that power generation through WtE projects has many advantages and social benefits. There are also several facilities and concessions that are extended by the ULBs to such WtE projects. Therefore, WtE

project shall sell power to the concerned ULB only at a mutually negotiated price since the parties are in a better position to appreciate the costs and benefits.

However, since WtE project does not fit into the definition of the “captive generation’ under the EA2003 / Electricity Rules 2005, the sale of power from the WtE project to the ULB shall be under ‘open access’ duly availing free wheeling and banking facility and total exemption from payment of cross subsidy surcharge offered by KPTCL/ESCOMs.

(2) In the alternative, whether the WtE projects could be allowed to sell the electricity to third parties under open access with 5 % wheeling charge on the energy input and free banking facility. Whether a concessional cross subsidy surcharge say 25 to 50% could be levied on such consumers under open access.

Suggestions & Comments:

Managing Director, KREDL suggests that, sale of power to third parties under open access with 5% wheeling charges should be allowed without levying cross subsidy charges. BMP has suggested that apart from 5 % wheeling charges and free banking, cross subsidy should not be levied for first ten years period in case WtE projects are allowed to sell under open access.

Dr. S.Seetharamu, Additional Director, CPRI, Bangalore suggests that, sale to third party may be allowed under open access without levying wheeling, banking and surcharge. Further customers using such power through wheeling/banking need to be charged only 50% demand charges. Hence APERC model is more appropriate to reduce the risk in these projects. Absence of substantial operating experience does not permit open market mechanism of tariff fixation.

Prof. V.Ranganathan has suggested that the project promoters are free to sell under open access and hence there should be no interference by the regulators. Sri Antonette D'Sa suggests that WtE plants could be allowed to sell

under open access to third parties with appropriate wheeling and banking charges and that surcharge should be the same as allowed for other NCE plants.

BESCOM suggests that, sale of power through open access should not be allowed. If allowed, tariff should be as per mutual agreement along with other applicable charges. Director, MNES has stated that since WtE projects are in evolving stage it may not be advisable to allow third party sale and priority should be given to local bodies to consume or enter into a PPA with ESCOM and the last option could be third party sale with 5% wheeling and banking charges.

Energy Department/GoK in its letter dated 24.6.06 has forwarded a copy of the GO dated 12.05.2006 issued by the Urban Development Department/GoK in which it is ordered as follows, amongst others:

"The Energy Department would (subject to approval of KERC) extend the following relaxation/ concessions:

- a. Exempt Municipal Solid Waste power units from levy of surcharge per unit of power generated*
- b. Waive levy of wheeling and Banking charges on power supplied by such power units to third party consumers including Urban Local Bodies concerned.*
- c. Extend power tariff on par with MNES rates to power units based on Municipal Solid Waste"*

Energy Dept. Gok has further suggested that if the WtE project is considered as NCE project, sale of electricity to third parties under open access with banking and wheeling charges could be considered.

Views of the Commission: WtE projects may avail the facility of sale to third party under open access duly availing free wheeling and banking facility and exemption from cross subsidy surcharge offered by KPTCL/ESCOMs.

(3) In case it is decided that the WtE projects shall supply electricity to the ESCOMs as in the case of other NCE projects, what should be the methodology to be adopted for such tariff determination? In view of complexities involved, can we adopt the MNES tariff with 5% annual escalation (simple) as has been done by APERC.

Suggestions & Comments: BMP has suggested to adopt MNES tariff with 5% annual escalation (simple) as done by APERC. Similarly, (i) Managing Director, KREDL (ii) Gopalakrishna, DEO, HDMC, Hubli (iii) Sri Suneel Pandey, (iv) Dr. S.Seetharamu, Additional Director, CPRI, Bangalore have suggested that, MNES tariff with simple annual escalation of 5% as has been followed by APERC shall be allowed. Director, MNES has suggested to adopt MNES tariff structure.

MD, SGGRL in their written comments has requested to adopt the tariff as per GO dated 12.05.2006 in which the Govt has ordered to adopt MNES tariff (subject to approval of KERC). However, in the public hearing, the MD requested the Commission to determine the tariff on par with HT2(b) tariff plus 5% escalation per annum stating that the prevailing tariff for WtE projects as approved by APERC (MNES base tariff + 5% simple escalation per year) is not workable as per the experience of the projects in AP. He stated that there is higher wear and tear of the machinery due to the peculiar nature of the fuel and low heat content in the fuel resulting in higher O&M cost and frequent replacement of the spares/machinery in respect of the fuel and processing plant.

KPTCL has suggested to determine the tariff for such plants on similar lines followed for renewable energy projects. Sri Antonette D'Sa suggests that, the actual cost estimation has to be done before a specific tariff is imposed. Sri B.G.Rudrappa has suggested that, Tariff could be determined on case to case

basis as the capacity and technology of each plant varies with the population and combustible garbage available.

Energy Dept has stated in the letter dated 24.6.06 that if WtE project supplies electricity to ESCOMs as in case of other NCE projects, the present norm of cost escalation at 5% every year over base price (simple) to be continued to comply with MNES guidelines and also to comply with terms under GO dated 12.5.06. It is further stated that based on the project cost of WtE arrived at in its year of commissioning, if the actual rates for sale of power works out less than the notional rate computed at 5% escalation per annum over base price figure, then the actual cost may need to be considered for tariff fixation in place of MNES rates.

Sri Suneel Pandey suggests that the tariff should reflect the avoided land cost for the Municipal Corporations and be decided on case to case basis.

Prof. V.Ranganathan has stated that MNES tariff is only a guideline and not mandatory to the regulators and according to him the correct procedure would be to adopt 'avoided cost' approach.

Views of the Commission: As indicated earlier, the Commission is of the view that the WtE project shall sell power to the concerned ULB under the open access duly availing free wheeling and banking facility and exemption from cross subsidy surcharge offered by KPTCL/ESCOMs. However, if this arrangement is not agreed to between the parties for any reason, then the concerned ESCOM shall purchase power from that project at the tariff to be determined by the Commission.

Regarding tariff determination on the basis of MNES guidelines, it is to be noted that MNES guidelines indicated uniform tariff for all NCE sources and also those guidelines were applicable for the initial 10 years from 1994-95, which is already over. According to the submission made by one of the project developers in the

hearing, the MNES tariff is also not feasible for the project and hence the developer is seeking a higher tariff. Considering the various points, it would not be appropriate to adopt the MNES tariff for the present exercise.

The Commission appreciates the complexities involved in tariff determination of the WtE projects in the absence of operational and financial parameters and also for want of data on past performance since only two new WtE projects are presently functioning in the country. It is also to be noted that facilities and concessions extended by the ULBs to the WtE projects are project specific and also that each project may be unique with many functions. Therefore the project cost as well as operational and financial parameters may be widely varying from project to project and needs to be examined separately. Therefore, the Commission would endeavor to determine the tariff for each of the WtE projects separately.

The Commission is also of the view that where the ESCOM purchases power from the WtE project, the extra power purchase cost for such purchase over and above the average power purchase cost of the ESCOM shall be passed on to the concerned ULB only by appropriate increase in tariff.

(4) What are the other measures to be taken by the Commission to promote WtE projects?

Suggestions & Comments: (i) Director, MNES (ii) MD, IREDA & (iii) BMP have suggested the need to have a consistent and conducive Policy for 10 years/long term and be reviewed thereafter by the Commission. Dr. S.Seetharamu, Additional Director, CPRI, Bangalore has suggested that there is a need to advocate specific, measurable achievable realistic and time bound targets to implementing agencies in their sustainable development strategy. Etc. Prof. V.Ranganathan has stated that the Commission need not take any measures to promote WtE projects.

Apart from tariff related matters, many suggestions have been received for promotion of WtE projects such as extending facilities & concessions, exemption from levy of taxes and duties, etc.

Views of the Commission: In view of social and environmental benefits from WtE projects, such projects needs to be encouraged and promoted. The Commission notes the suggestions received in this regard.

7. Considering all the above the Commission decides as follows in the matter:

The WtE projects shall sell power to the respective ULB under open access at a tariff to be mutually negotiated between them. KPTCL/ESCOMs shall provide free wheeling and banking facility for such wheeling of power and also no cross subsidy surcharge shall be applicable for such sale. Out of the total consumption of electricity by the ULB under various tariff categories in a month, supply from the WtE project shall be allocated towards street lights on first charge basis, and the balance if any towards water supply and there after to other tariff categories.

- (ii) The project developer shall have the option to sell power to third parties under open access duly availing free wheeling and banking facility and exemption from cross subsidy surcharge offered by the utilities.**
- (iii) In case the above is not feasible, the concerned ESCOM shall purchase power from the WtE project at the tariff to be determined by the Commission. The Commission would endeavour to determine tariff for each of the WtE projects separately. The extra cost of power purchase by the ESCOM on account of purchase from the WtE project (over and above the average power purchase**

cost of the ESCOM) shall be passed on by the ESCOM to the concerned ULB only by proposing appropriate tariff for the ULB.

This order is signed dated and issued by Karnataka Electricity Regulatory Commission on this 21st day of July 2006.

Sd/-

**K.P.Pandey
Chairman**

Sd/-

**H.S.Subramanya
Member**

Sd/-

**S.D.Ukkali
Member**

Discussion Paper on 'Promotion of Waste-to-Energy Projects'

LIST OF RESPONSE RECEIVED

Sl.No.	Name / Address
1	Prof. V.Ranganathan
2	Managing Director, KREDL
3	Sri B.G.Rudrappa, Former Chairman KEB
4	Sri. Ramesh Bingi, Managing Director, Srinivasa Gayathri Resource Recovery Ltd., Bangalore
5	President, Balakedara Hitharakshaka Sangha, Siris
6	Sri Raghavendra Raju, Member, Consumer Advisory Committee, KERC
7	Sri H.N.Natraj, AE, BESCOM, Hosakote
8	Director, MNES
9	Dr.S.Seetharamu, Additional Director, CPRI, Bangalore
10	Gopalakrishna, DEO, HDMC, Hubli
11	Managing Director, IREDA, New Delhi
12	Suneel Pandey, Fellow & Convenor, TERI, New Delhi
13	Sri Antonette D'Sa, Director, Regional Energy Initiative-Asia, Bangalore
14	BESCOM, Bangalore
15	KPTCL, Bangalore
16	BMP, Bangalore
17	Energy Department, GoK, Bangalore

**PUBLIC HEARING ON PROMOTION OF “WASTE TO ENERGY PROJECTS” ON
30.06.2006**

MEMBERS PRESENT:

1	Gonal Bheemappa MD, BESCOM
2	Prathap Kumar Director, SPCCC
3	Mujeeb Ahmed MD, GESCOM
4	A.Devaprasad KPTCL
5	H.S.Ananthaswamy Bangalore Mahanagara Palike
6	M.Jagadish Karanth, EE(RA), GESCOM
7	Smt.B.L.Sumithra DT, MESCOM
8	K.S.Satishchandra EE (RA), MESCOM
9	Nagaraj Rao R.V.College of Engineering
10	K.V.Reddy
11	M.S.Parthasarathy, SLSS
12	S.Ravikanth
13	K.Krishna Murthy
14	Ramesh Bingi
15	Prof.P.Sudarshan
16	Srinivasa Setty
17	K.M.Gupta
18	M.C.R.Rajan
19	K.Subba Raja Gupta Advocate
20	B.R.Ashirwad SGPRL
21	H.N.Nataraja AEEP
22	Srinath SJR