BEFORE THE GUJARAT ELECTRICITY REGULATORY COMMISSION
AT AHMEDABAD

DISCUSSION PAPER

In the matter of:
Determination of the tariff for Procurement of Power by Distribution Licensees and others from Bagasse based Power Generators and Other Commercial Issues.

1. Background

1.1 The Electricity Act, 2003, inter-alia, seeks to promote renewable and alternative sources of energy. With this in view, the Act casts upon the State Electricity Regulatory Commissions, duty to promote co-generation by providing suitable measures for connectivity with the grid and to specify, for purchase of electricity from such sources, a percentage of the total consumption of electricity in the area of a distribution licensee. The National Electricity Policy also mandates full exploitation of feasible potential of renewable and non-conventional energy sources. The Tariff Policy of the Government of India, recognizes the fact that it will take some time before non-conventional technologies can compete with conventional sources in terms of the cost of electricity. Therefore, procurement by distribution companies shall be done at preferential tariffs determined by the Appropriate Commission.

1.2 Keeping the above in view, the Gujarat Electricity Regulatory Commission (GERC) had notified the GERC (Power Procurement from Renewable Sources) Regulations, 2005 on 29th October, 2005 fixing the Renewable Power Purchase Obligation of the Distribution Licensees in the State of Gujarat for the years 2006-07 to 2008-09. For the subsequent period,

the Commission has already published draft regulations, which are in the process of being finalized.

1.3 Bagasse is a by-product from the sugar industry. It is often used as fuel for producing steam required for production/industrial processes. It has considerable amount of intrinsic energy, which can be used for power generation using the heat of the steam produced in the above manner. As such, bagasse has been accepted as a recognized form of non-conventional energy source. To promote bagasse based co-generation plants, the Commission had decided to determine preferential tariff for energy generated from such plants. Accordingly, the Commission had issued its Order No.1 of 2007 dated 3rd January, 2007, determining tariff from bagasse based co-generation plants for a control period of 3 (three) years. In view of technological developments in the field of non-conventional sources of energy and also overall increase in prices, the Commission feels the need for review of its earlier order on tariff from bagasse based co-generation plants. The Commission, therefore, decided to prepare and circulate this discussion paper on the subject. The Commission proposes to invite views from all the stakeholders and after giving opportunity to them to present their view, determine the tariff for procurement of power by Distribution Licensees and others from bagasse based co-generation plants. This paper, in addition to tariff issues, also discusses various commercial issues.

2. Process of Determination of Tariff

The tariff determination process has to be open, transparent and take into consideration the views of the stakeholders. Therefore, the Commission invites views of the stakeholders by issuing this discussion paper so that they could be considered while finalizing the tariff. Some broad principles

regarding determination of Tariff have been laid down by the Commission in its earlier Regulations.

Clauses 6.4(1) of the Tariff Policy provides that the State Electricity Regulatory Commissions shall fix a minimum percentage of power purchase from non-conventional energy sources in the State and determine its tariff. Distribution companies shall procure such energy at preferential tariff determined by the State Commission. The Working Group constituted by the Forum of Regulators (FOR) for Policies on Renewable have in their recommendation suggested that a cost-plus tariff based on appropriate norms should be adopted for Renewable Energy (RE).

The Gujarat Electricity Regulatory Commission had earlier notified Regulations on Procurement of Power from Renewable Sources on 29.10.2005. Clause 5.6 provides for Unscheduled Interchange (UI) rate for injection of generation into the grid by the renewable energy generators. The power generation from Bagasse is schedulable. Clause 15(ii) of the Open Access Regulations of the Commission stipulates that a power plant of size upto 15 MW is entitled to inject Bagasse based power in the grid at UI rate.

The Commission is of the view that renewable energy sources need to be promoted with preferential tariff at this stage. Once such renewable sources become competitive vis-a-vis conventional power, a competitive bidding process for renewable sources could be put into place in future.

3. Approaches for Tariff Determination

Tariff for any type of power generating projects can be determined in various ways:

i. Market Based or Cost Plus Tariff

ii. Project Specific or Generalised Tariff.
iii. Single Part or Two - Part Tariff
iv. Front Loaded, Back Loaded or Levelised Tariff.

The renewable energy market is at present in developmental stage and as such market based tariff for such energy is not practicable to adopt. As such, in line with the recommendation of the working group of FOR, the Commission decides to determine tariff for Baggase based co-generation project on cost-plus basis. Further, the preferential tariff has to be a generalized tariff for the category of the renewable energy sources.

The next issue before the Commission is that whether the tariff should be single-part or two-part tariff. Bagasse based co-generation has a fuel component to be accounted for and theoretically it has to be two-part tariff. But, in order to encourage its spread, to keep the accounts simple and to allow preferential treatment to this renewable source of energy, the Commission has decided to adopt a single-part levelised tariff for the purpose of this order.

4. Rationale for Development of Tariff Structure

Design of a bagasse based co-generation plant faces wide range of challenges in terms of plant capacity, configuration, boiler technology (e.g. traveling grate or dumping grate boilers, atmospheric pressure fluidized bed boilers or circulating fluidized bed boilers), steam turbines design, condensers configuration, back pressure, harvesters, firing equipments, pollution control system etc. Further, bagasse fuel mix and availability, Station Heat Rate (SHR), project cost, financing plan etc. are also key factors in determination of tariff. Considering the different size of plants functioning in various parts of the country and projects likely to come up in future, application of cost-plus approach would require considerable time , resources and skills on the part of

the licensees, project developers and the Commission, in case the tariff for each project is determined separately. This would not only be time consuming, but would also not be feasible at present. The Commission also believes that regulatory clarity and certainty in tariff setting is necessary from the perspective of the developers, investors and lenders in order to support investments in non-fossil fuel energy projects such as bagasse which are still in nascent stage of development in Gujarat. Thus, there is merit in setting a uniform tariff level or generalized for the bagasse based co-generation power projects. The Commission therefore proposes to determine a generalized tariff for bagasse based energy generation, based on performance standards in terms of specific fuel, consumption (station heat rate), auxiliary consumption, plant load factor, price of fuel capital cost of project, interest on loans, interest on working capital, O&M cost etc. based on norms.

5. Government Policies

The Central Government provides financial assistance, fiscal incentive such as 80% accelerated depreciation, concessional import duty, excise duty, tax holiday for 10 years etc. for bagasse based power generation projects.

6. Components of Tariff

While determining the bagasse based power generation tariff, it is essential to consider financial and operational parameters. In the context of tariff determined on cost-plus basis, it significantly depends on the following financial and operational parameters:

1. Capital cost
2. Evacuation Cost
3. Tenure of Loan
4. Interest on loan
5. Return on Equity

6. Life of plant and machinery and agreement period.
7. Depreciation
8. Debt-Equity Ratio
9. Operations and Maintenance expenses
10. Interest on Working Capital
11. Plant Load Factor (PLF)
12. Auxiliary Consumption
13. Station Heat Rate (SHR)
14. Fuel Related Assumptions

    a) Fuel Mix and types.
    b) Gross Calorific Value (GCV)
    c) Price of fuel.

6.1 Capital Cost

While determining the tariff for the Bagasse based power generation, it is essential to verify the capital cost for determination of the tariff. Capital cost is the most critical element while determining tariff in a regulated environment. The capital cost of Bagasse based power plant comprises the cost of (i) boiler, (ii) turbine generators, (iii) condenser, (iv) control cabinets, (v) chimney for flue gases, (vi) transformer and associated equipments, (viii) land and its development, (ix) processing fee of Gujarat Energy Development Agency, (x) erection and commissioning charges and (xi) creation of transmission system upto interconnection point of State Transmission Utility. The above components are grouped into four important categories, i.e. (i) Plant and Machinery, (ii) Land Cost, (iii) Evacuation Infrastructure and (iv) Associated service charges.

The CERC in its Order dated 3rd December, 2009 adopted a normative capital cost of Rs.4.45 Cr/ MW for the first year of the control period i.e. 2008-09 and linked it to indexation formula as specified in the regulation.

The various Electricity Regulatory Commissions, such as, Tamilnadu, ,Uttarakhand Uttar Pradesh, Bihar, and karnataka have considered the capital cost for Bagasee based co-generation project as under:

Name of commission	TNERC	UERC	UPERC	BERC	KERC
Capital Cost Rs. Cr/MW	4.67	3.50	3.40	4.00	3.65

The Commission in its earlier Order No.1 of 2007 dated 3rd January, 2007 had considered the capital cost as Rs.4.00 crores/MW (inclusive of evacuation arrangements) for determination of tariff for bagasse based power generation.

Keeping the above in view, the Commission proposes to consider the capital cost of Rs.4.15 crores/MW for the control period of 3 years w.e.f. 2010-11. This capital cost does not include the evacuation cost.

6.2 Evacuation Cost

Section 86(1) (e) of the Electricity Act, 2003 stipulates that the State Commission should take suitable measures for providing grid connectivity to the renewable energy sources. The Working Group constituted by the Forum of Regulators has also in its report on "Renewable Policy" recommended that grid connectivity be provided by the transmission and distribution licensees for renewable energy sources in an optimal manner. The requirement of transmission system for evacuation of power depends upon the quantum of power generated from the generating stations. Cost of creation of 11/33/66/132 /220/ 400 KV lines and associated systems varies. The size of bagasse plants are in the range of 1 to 25 MW, quite small in comparison with conventional power plants. Hence, power generated from such plants can be evacuated through 11 KV, 33 KV or 66 KV lines. The Commission had in

its Order No.1 of 2007 dated 3.1.2007 approved Rs25 lakhs per MW as development charge including grid interface charges for evacuation arrangements. The materials required for creation of transmission system consist of line conductors, insulators, steel structures, civil works, electrical goods, and labour charges etc. It is observed that during the last three years the cost of labour and materials for creation of transmission/distribution system has increased. It is essential to consider this aspect while estimating the evacuation cost for evacuation of power from bagasse based power generation.

The Commission having considered the above aspects, proposes to increase evacuation cost to Rs.29.00 lakhs per MW for bagasse based power projects for the next three years.

6.3 Tenure of Loan

The Commission had in its earlier order dated.3rd January, 2007 considered the loan tenure as 10 years with repayment in equal installments. The CERC has in its order dated 3rd December 2009 adopted normative loan tenure of 10 years. TNERC has also in its order dated 6.5.2009 considered the tenure of loan as 10 years with a moratorium of one year as considered by IREDA.

Considering the above, the Commission proposes the tenure of term loan as 10 years with repayment in equal installments.

6.4 Interest on Loan

In line with Commission's approach in case of Wind and Solar Power Tariffs; the Commission proposes interest on loan at 10.75%. This is equal to the SBI's present PLR minus 1 (one) percent.

6.5 Return on Equity

The Commission had in its Order No.1 of 2007 dtd.3.1.2007 adopted a Rate of Return on equity at 14%.

After considering the interest of various stakeholders, such as Project developers, Discoms, retail consumers and others, the Commission proposes to retain a rate of return on equity at 14% and to allow in addition, MAT @ 16.995% per annum for the initial 10 years of the project from commercial operation date of the plant and Corporate Tax @ 33.99% from the 11th year to 20th year of the plant on the Return on Equity.

6.6 Life of Plant and Machinery, Agreement Period

The Commission had in its earlier Order No.1 of 2007 dated 3rd January, 2007 decided the period of agreement of 20 years with the distribution licensee. For the present order also, the Commission has considered a plant life of 20 years. The power plants established on or after the date of final order in this matter and fulfilling criteria laid down in this order are eligible for the tariff determined by the Commission for the entire plant life of 20 years.

The bagasse based co-generation project developers/ Distribution Licensees who are willing to supply/ purchase power shall sign a Power Purchase Agreement (PPA) for a period of 20 years.

6.7 Depreciation

Depreciation needs to be linked to the loan repayment. The loan repayment period is considered by the Commission is 10 years. Hence, the requirement of cash flow in the initial 10 years is more to match with the loan repayment. The Commission proposes to allow 6% of the capital cost per annum as depreciation for initial 10 years and 3% per annum from 11th to 20th year of the plant.

The provisions of Accelerated Depreciation are provided in the Income Tax Act, 1961 and Rules framed thereunder. A person who qualifies under the above statutory provisions is entitled to get benefits of the Accelerated Depreciation. Hence, the Commission proposes to determine the tariff taking into account the benefit of accelerated depreciation available under Income Tax Act, 1961 and Rules framed under it. Those who do not avail of such benefit may submit petitions, which will be dealt by the Commission on case-to-case basis.

6.8 Debt-Equity Ratio

Clause 5.3(b) of the Tariff Policy notified by the Ministry of Power, Government of India stipulates debt-equity ratio of 70:30 for financing of power project. The Terms and Conditions of Tariff Regulations, 2005 notified by the Commission also provides a normative debt-equity ratio of 70:30 for Generating Companies/Licensees. If the equity employed is more than 30%, the amount of equity for the purpose of determining the tariff will be limited to 30% only. However, in case the equity employed is less than 30%, the actual equity employed will be considered. The Commission had in its Order

No.1 of 2007 dated 3.1.2007 considered debt to equity ratio as 70:30. Accordingly, the Commission proposes the debt-equity ratio of 70:30 as per existing practice in line with the Tariff Regulations, 2005 for determination of tariff of bagasse based power generation.

6.9 Operations and Maintenance Expenses

The Commission had, in its earlier Order No.1 of 2007 dt.3rd January, 2007 considered operations and maintenance expenses (O&M) as 2.5% of the capital cost for the first year, to be increased thereafter by 5% per annum.

The CERC in its Order dated 3rd December, 2009 considered normative O& M expenses during first year as Rs.13.35 lakh/MW (which works out to 3% of the capital cost) and escalated at the rate of 5.72% per annum, thereafter.

Various State ERCs have considered O&M expenses varying from 2.5% to 4.5% of the capital cost with annual escalation of 4 to 5%.

Based on above observations, the Commission proposes to allow O&M cost including insurance cost at the rate of 3.0% of the capital cost for the first year, to be escalated at 5% per annum thereafter.

6.10 Interest on working capital

Bagasse is a byproduct available from sugar mills and it is available whenever sugar mills are in operation during the season. Hence, there is no requirement of purchase of Bagasse for storage. Surplus Bagasse is available for subsequent periods during the year. The co-generator utilizing Bagasse does not incur any cost towards purchase of Bagasse. The Commission has

considered the following items as components of working capital for the purpose of allowing interest on working capital.

i. O&M expenses for one month,
ii. Receivables equivalent to one month charges for sale of electricity calculated and

iii. Maintenance spare at 1% of the capital cost escalated @ 5% per annum.

The Commission proposes to allow interest on working capital at the rate of 11.75% as considered for other similar cases of RE tariff determination.

6.11 Plant Load Factor (PLF)

The Plant Load Factor (PLF) of a bagasse based co-generation plant will depend on the number of operating days considering the operations during crushing season and off-season. The CERC, in its order dated 3rd December, 2009 has worked out the PLF at 53% for States other than UP, AP, TN, and Maharashtra. While arriving at this figure, they have considered operating period of 210 days (150 days in crushing season & 60 days in off-season) with load factor of 92%.

Bagasse is available in the State for about 180 days during the season. It is also anticipated that Bagasse will be available for about 60days during the off-season. Thus, the operating days are about 240 days (180 days in crushing season and 60days during off-season) with a load factor of 92%, the PLF works out to 60%.

The Commission, therefore, proposes to adopt the PLF of 60% for determination of tariff from bagasse based co-generation plant.

6.12 Auxiliary Consumption

Auxiliary consumption is the quantum of energy consumed by auxiliary equipment and transformer losses as a percentage of gross energy generated. It is a function of plant efficiency and the energy conservation methods adopted by the developers.

The Electricity Regulatory Commissions of Tamilnadu, Uttrakhand, Uttar Pradesh and Bihar have considered auxiliary consumption as under:

Name of Commission	TNERC	UERC	UPERC	BERC
Auxiliary Consumption	10%	8.5%	8.5%	9%

The CERC in its order dated 3rd December, 2009 considered normative Auxiliary Consumption as 8.5% for computation of tariff.

The Commission had in its earlier Order No.1 of 2007 dated 3rd January, 2007 considered the Auxiliary consumption at 8% for bagasse based power generation.

Based on the above observations, the Commission proposes Auxiliary consumption at 8.5% for determination of tariff for bagasse based generation.

6.13 Station Heat Rate (SHR)

The CERC, in its order dated 3rd December, 2009 in Suo-Motu Petition No.284 of 2009 considered normative Station Heat Rate of 3600Kcal/Kwh for computation of tariff for non-fossil fuel based co-generation. The Commission proposes to adopt the same.

6.14 Fuel Related Assumptions

(a) Fuel Mix and Types

As provided in the guidelines issued by Ministry of New and Renewable Energy the Commission proposes to allow maximum of upto 15% use of fossil fuel of total energy consumption in kCal on annual basis.

(b) Gross Calorific Value (GCV)

The Gross Calorific Value (GCV) is the heat produced in kCal by complete combustion of one Kg of fuel. Bagasse has higher moisture content. Commercial arrangements for the bagasse procurement and the price are linked to gross calorific value of bagasse on 'wet basis'. The Commission has decided to consider the GCV of bagasse on "as such" basis i.e. wet basis considering in-house generation of bagasse (in sugar mills) with moisture content.

The CERC in its order dated 3rd December, 2009 in Suo-Motu Petition No.294 of 2009 considered normative gross Calorific value as 2,250 Kcal/Kg for bagasse.

Some of the SERCs have considered Gross Calorific value of bagasse as under:

Name of Commission	TNERC	UERC	UPERC	MERC	BERC
Gross Calorific Value	2300	2275	2275	2250	2275
Order/ Regulation date	6.5.2009	4.8.2007	18.7.2005	16.8.2002	Aug.2008

The Commission had in its earlier Order No.1 of 2007 dated 3rd Janyuary, 2007 considered the Gross calorific value of bagasse at 2250 kCal/kg.

Based on the foregoing observations, the Commission proposes the Gross Calorific Value of bagasse at 2,250 kCal/kg.

(c) Bagasse Price and Escalation Rate

Fuel cost is a key determinant of the cost of power in a co-generation plant. Fuel, in case of Bagasse based co-generation plant, is a by-product of sugar industry. Because of its high volume to weight ratio and moisture content, it is costlier to store and transport over long distances. However, bagasse is a saleable commodity being used as raw material in some other industries like paper, cardboard etc. and hence, has an opportunity cost.

Therefore, economic or opportunity cost of bagasse could be determined on the principle of avoided cost of coal/ oil burnt for getting equivalent amount of heat in a thermal generating station. For the purpose of arriving at the opportunity cost of Baggase, the Commission has considered the price of coal/lignite being used is the thermal stations in the state.

The Commission has considered the following two cases of coal and lignite.

(a) The Ukai TPS of GSECL, which is located in Sugar belt of the State, receives coal supply from the WCL mines. The pit head cost (excluding levies) of 'G' Grade coal, having calorific value in the range of about 3100 to 3700 kCal/kg, from WCL mines is Rs.520/MT. With

statutory levies like royalty, excise duty, CST etc. the total price works out to Rs.716/MT. After adding the transportation cost of about Rs.1057/MT, the total delivered cost of coal at Ukai works out to Rs.1773/MT for G grade coal.

(b) The cost of lignite for Mangrol, Rajpardi mines has been fixed by GMDC at Rs.1,000 to 1,200/MT (including royalty & taxes). The average cost of lignite at power stations in Gujarat works out to about Rs.1,200/MT.

The CERC in its order dated 3rd December, 2009 in Suo-Motu petition No..284 of 2009 considered normative fuel cost for various states as under. The normative escalation factor of 5% per annum would be applicable at the option of the co-generators.

Andhra Pradesh	899
Haryana	1411
Maharashtra	1123
Madhya Pradesh	809
Punjab	1398
Tamilnadu	1243
Uttar Pradesh	1013
Other States	1163

TNERC has in its Order considered bagasse price rate of Rs.1,000/MT with escalation of 5% per annum including the cost of transportation.

Based on the above, the Commission proposes to adopt average cost of Bagasse as fuel at Rs.1,200/MT and for Coal at Rs.1775/MT with 5% escalation per annum thereafter.

7. Tariff for Bagasse based power projects

In view of the foregoing, the various parameters considered by the Commission for determination of tariff are given in table below:

Parameters for determination of tariff

No	Parameter (per MW basis)	17th August 2007 Order	Proposed for the 2010 discussion paper
Project Cost			
1	Land+ Plant & Machinery + Erection cost (Rs lakhs)	375	415
2	Evacuation Infrastructure (Rs. lakhs)	25	29
	Total Capex (Rs. lakhs)	400	444
Operational parameters			
3	Debt-Equity ratio	70:30	70:30
4	Interest on Loan (tenure 10 years)	10.25%	10.75%
5	Return on Equity	14%	14%
6	O&M cost (% of project cost- including Insurance cost)	2.5%	3.0%
7	Escalation on O&M	5%	5%
8	PLF (at 100% grid & m/c availability)	80%	60%
9	Actual machine availability	100%	100%
10	Actual grid availability	100%	100%
11	Depreciation	4.5%	6.0% for initial 10years and 3% from 11th year to 20th year.
12	Auxiliary Consumption	8%	8.5%
13	Project life (years)	20	20
14	Minimum Alternate Tax (MAT) for initial 10 years of the plant	11.33%	16.995%
15	Corporate Income Tax from 11th year to 20th year of the plant.	33.66%	33.99%
16.	Interest on Working Capital	10.75%	11.75%
	(i) O&M expenses for one month		
	(ii) Receivables equivalent to one month charges for sale of electricity calculated and		

	(iii) Maintenance spare at 1% of the capital cost escalated @ 5% per annum.		
16	Gross Calorific Value(kCal/kg) of bagasse	3300	2250
	Gross Calorific Value(kCal/kg) of coal		3300
17	Price of Bagasse in (Rs/Tonne) for the first year	1000	1200
18	Price of Coal (Rs/Tonne)for the first year	1000	1775
19	Station Heat Rate (kCal/ kwh)	4250	3600

Based on the various parameters as discussed above, the levelised tariff including RoE of bagasse based power generation using a discounting rate of 10.19% works out to Rs.4.69 per kWh and without accelerated depreciation it works out to Rs.4.63 per kWh.

However, the Commission feels that it would be appropriate to determine tariff for two sub-periods: one tariff for initial 10 years and another tariff from 11th year onward upto 20th year. Hence, the Commission determines the tariff for generation of electricity from bagasse based co-generation Power project at **Rs. 4.50** per kWh for the initial 10(ten) years starting from the date of Commercial operation of the project and **Rs. 4.90 /KWh** from the 11th (Eleventh) year to 20th (twentieth) year.

However, in case a project developer has received any capital subsidy from the Government or any statutory authority, it will be passed on to the distribution licensee concerned.

The above tariff takes into account the benefit of accelerated depreciation under the Income Tax Act and Rules. For a project that does not

get such benefit, the Commission would, on a petition in that respect, determine a separate tariff taking into account all the relevant facts.

The Commission proposes to adopt the tariff for generation of electricity from Bagasse based power project at **Rs. 4.50** per kWh for the initial 10(ten) years starting from the date of Commercial operation of the project and **Rs. 4.90 KWh** from the 11th (Eleventh) year to 20th (twentieth) year. This tariff rate shall be applicable for purchase of bagasse based power by /Distribution Licensees and others in Gujarat for complying with the renewable power purchase obligation specified in the Regulations of this Commission from time to time. This tariff shall be applicable to bagasse based power generators who will commission new bagasse based power plants and equipments during the control period.

8. Other Commercial Issues

Following are the other commercial issues, connected with electricity generated from bagasse based co-generation projects, proposed to be addressed.

1. Transmission and wheeling charges.
2. Security Deposit
3. Sharing of CDM benefit
4. Pricing of Reactive Power
5. Third party sales and Cross-subsidy Surcharge
6. Metering
7. Applicability of Intra-State ABT.
8. Merit Order/Must run station.
9. Monitoring mechanism for the use of fossil and Non fossil fuel.

8.1 Transmission and Wheeling charges

The Commission in its earlier order dated 3.1.2007 had decided that whenever a bagasse based power Generator opts for wheeling of power for his own use, the GETCO (STU) /Distribution Licensee shall transmit the same to the point of use. For transmitting the power to the point of use, GETCO was entitled to charge 4% of the energy injected (in kind) as all inclusive Transmission charges/wheeling charges.

The transmission and distribution licensees incur expense for creation of transmission and distribution network. Whenever any person desires to utilize such network, he shall have to pay necessary charges to the concerned licensees. Hence, the Commission proposes that whenever bagasse based co-generators opt to wheel power through transmission and distribution networks for own use, they shall pay the transmission and wheeling charges as under:

(a) Wheeling of power to consumption site at 66 KV voltage level and above.

The wheeling of electricity generated from the Bagasse based co-generators to the desired location(s) within the State shall be allowed on payment of transmission charges and transmission losses applicable to normal Open Access Consumer.

(b) Wheeling of power to consumption site below 66 KV voltage level.

(i) The wheeling of electricity generated from the Bagasse based co-generators, to the desired location(s) within the State, shall be allowed on payment of transmission charges, applicable to normal Open Access Consumer and transmission and wheeling loss @ 10% of the energy fed to the grid. The above loss is to be shared between the transmission and distribution licensees in the ratio of 4:6.

(ii) The wheeling of electricity generated by smaller investors, having capacity of below 5 MW in the State, to the desired

location(s), shall be allowed on payment of transmission charges, applicable to normal open access consumer, and transmission and wheeling losses @ 7% of the energy fed to the grid. The above losses are to be shared between the transmission and distribution licensees in the ratio of 4:3.

Bagasse based co-generation plant owners, who desire to wheel electricity to more than two locations shall pay 5 paise per unit on energy fed in the grid to the Distribution Company concerned in whose area power is consumed in addition to above mentioned transmission charges and losses, as applicable.

(iii) Injection at 11 KV and drawal at 11 KV and below voltage level. When the point of injection and drawal at 11 KV or below voltage level lies within the same distribution area, the user shall bear wheeling loss at 6% and pay wheeling charges at 5 paise per unit.

8.2 Security Deposit

The objective of the order is to promote development of renewable energy in the state. A procedure of giving permission for the proposed wind projects, based on the load flow studies has been followed by the GETCO. Thus, the proposed evacuation system from the pooling station of bagasse based co-generation projects forms part of the overall GETCO System. While timely completion of power evacuation system of such bagasse based co-generation project is essential, timely execution of bagasse based co-generation project is also equally important. Non-completion of projects leads to idling of transmission resources. Thus, to assure GETCO about seriousness of bagasse based co-generator projects, the project Developer shall be required to furnish a Bank Guarantee of Rs. 5 lakhs/MW to GETCO. The Bank guarantee shall be forfeited if the project is not commissioned within four years.

8.3 Sharing of CDM benefit

The Commission in its earlier order No.1 of 2007 dated 3.1.2007 had specified that 25% of the gross benefits received from the CDM projects are to be shared by the Project developer with the distribution licensee. The Forum of Regulators had constituted a Working Group for Renewable Energy Generation. The Group has recommended as under:

> *"The CDM benefits should be shared on a gross basis, starting from 100% to developers in the first year after commissioning, and thereafter reducing by 10% every year till the sharing becomes equal (50:50) between the developers and the consumers, in the sixth year. Thereafter, the sharing of CDM benefits should remain equal till the time that benefits accrue."*

The CERC had also, in its regulations on determination of tariff for renewable energy sources, adopted the same principle. It is, therefore, proposed to adopt the above principle for sharing of CDM benefits in case of bagasse based co-generation projects also.

8.4 Pricing of Reactive Power

The Commission proposes the following reactive energy pricing as specified for Wind Energy generation and Solar Energy Generation Tariff for the Bagasse based energy generation tariff.

10 paise/ KVARH	For the drawal of reactive energy at 10% or less of the net energy exported.
25 paise/kVARH	For the drawal of reactive energy at more than 10% of the net active energy exported.

8.5 Third Party Sale and Cross-subsidy Surcharge

Third Party Sale under Open access transactions carried out using generation from renewable sources shall be exempted from levy of cross-subsidy surcharge under section 42 (2) of the Electricity Act, 2003. However, no banking facility shall be provided for third party sale. Further, Availability Based Tariff (ABT) compatible interface metering system capable of energy accounting for each block of 15 minutes shall be provided at both supply as well as drawal points. Energy generation from renewable sources such as Wind and mini hydro are exempted from the requirement of scheduling, due to their infirm nature, while in case of Bagasse based power generation, it is possible to forecast the availability of plant and generation capacity. Hence, the bagasse based power generators are covered under the ambit of provisions of the Intra-state ABT In case of Bagasse based power generators opting for third party sale, the generation from such sources in each 15-minute time block shall be set off against the open access consumer's consumption in the same 15-minute time block. Any deviation in schedule and drawal of energy should be treated under UI mechanism. The transmission/wheeling charges payable for third party sale are same as stipulated for captive users as indicated in section 8.1 above.

8.6 Metering

Metering and communication facilities shall be provided by the project developer in accordance with the following provisions:

1. Central Electricity Authority (Installation and Operation of Meters) Regulations 2006.
2. Intra-State ABT Order dt.11th August, 2006 and subsequent amendments, if any.
3. State Grid Code, 2005.of GERC.

4. Distribution Code,2005 of GERC
5. Open Access Regulation, 2005.

ABT compatible energy meter is to be installed at generators' end and if the power is to be wheeled to consumer premises, then ABT compatible meter is to be installed at the consumer premises.

8.7 Applicability of Intra-State ABT

Bagasse based power generating plants are covered under the ambit of Intra-State ABT order. They are governed by the provisions of the Intra-State ABT Order of the Commission. Such plants have to install Intra-state ABT Compliant meters at their place for energy accounting and Remote Terminal Unit (RTU) to facilitate SLDC in real time monitoring

8.8 Merit Order Dispatch/ Must Run Status

The Commission has considered that although the bagasse based co-generation projects will be required to give the scheduling and dispatch instruction as per the Intra-State ABT order of the Commission, Merit Order Dispatch principles will not be applied to such projects,on account of the small size of the plants.

8.9 Monitoring Mechanism for the use of Fossil and Non-fossil fuel

In order to ensure that the use of fossil fuel is within the prescribed limit, it is essential to create necessary mechanism for monitoring the usage of fossil and non-fossil fuel utilized by the bagasse based power project developer.

[A] The Commission proposes to nominate the Gujarat Energy Development Agency (GEDA) as the nodal agency for monitoring the

usage of fossil and non-fossil fuel. The project developer shall furnish to the nodal agency a monthly fuel usage and fuel procurement statement duly certified by Chartered Accountant. They should also provide a copy of this statement to the distribution licensee/ procurers along with the monthly energy bill. The statement should cover details, such as:

i. Quantity of fuel (in tonnes) for each fuel type (bagasse fuel and fossil fuel) consumed and procured during the month for power generation purposes,

ii. Cumulative quantity (in tonnes) of each fuel type (bagasse fuel and fossil fuel) consumed and procured till the end of that month during the year,
iii. Actual (gross and net) energy generation (denominated in units) during the month,
iv. Cumulative actual (gross and net) energy generation (denominated in units) until the end of that month during the year,
v. Opening fuel stock quantity (in tonnes),
vi. Receipt of fuel quantity (in tonnes) at the power plant site and,
vii. Closing fuel stock quantity (in tonnes) for each fuel type (bagasse fuel and fossil fuel) available at the power plant site.

Non-compliance to the condition regarding limited use of fossil fuel, during any financial year, may result in withdrawal of "Preferential tariff" or actions as deemed fit by the Commission in accordance with provision of the Act.

[B] Information system for creation of Database.

It is necessary to create data-base for further review of the technical/ financial parameters for next tariff order. Therefore, the project developers shall keep records of the following and provide the

same to GEDA and the Commission annually to create data-base for future.

i. Number and categories of employees for different purposes.

ii. Administrative and General Expenses.

iii. Repair and Maintenance work carried out during the year specifying activities carried out with time period and spare/ material replaced and its cost.

iv. Details of Spare parts of the plant / machines replaced during the year with justification and cost.

9 Applicability of proposed Order

The proposed order shall be applicable for 3 years from the date of the final order. The tariff fixed in the final order shall be applicable to all the Bagasse based power projects commissioned after the final order. The existing contracts and agreements between the bagasse based power generators and Distribution Licensees signed prior to final order would continue to remain in force.

Sd/-

[Sanjay Nandan Agrawal]
SECRETARY

Place: Ahmedabad
Date: 10/02/2010