



BIHAR ELECTRICITY REGULATORY COMMISSION

**Ground Floor, Vidyut Bhavan-II
Jawahar Lal Nehru Marg
Patna – 800 021**

ORDER

(Suo Motu Proceeding No. -2/2008)

**For Purchase of Power by Distribution Licensee from
Biomass and Bagasse based Cogeneration Plants
In Bihar**

21st May, 2009



**Before the
Bihar Electricity Regulatory Commission
Ground Floor, Vidyut Bhawan – II
Jawahar Lal Nehru Marg, Patna – 800 021**

In the matter of :

Tariff for purchase of electricity from Biomass based power plants and Bagasse based cogeneration plants in the State of Bihar and fixation of percentage target of electricity to be procured by Distribution Licensee in a year from renewable energy / cogeneration plants.

Present :

B.K. Halder, Chairman

S.K. Jayaswal, Member

ORDER

(Suo Motu Proceeding No.-2/2008)

(passed on 21st Day of May, 2009)

Bihar Electricity Regulatory Commission (hereinafter referred to as "Commission") in exercise of the powers vested in it under section 86(1)(a) (b) and (c), Section 62(a) and Section 61(h) of the Electricity Act, 2003 and other powers enabling it in this behalf, through this order, determines the tariff for purchase of electricity by Distribution Licensees from Biomass based power plant / Bagasse based cogeneration plants in the State of Bihar and also fixes the minimum percentage of total energy consumption, in a year, to be procured by the Distribution Licensee from Renewable/ Non-Conventional sources of energy and cogeneration.

The Commission with the intention to set norms for determination of tariff for purchase of electricity by the Distribution Licensee from non conventional/renewable energy sources and cogeneration plants in Bihar, initiated suo-motu proceedings and issued a Concept Paper for the purpose and subsequently on the request of Bihar Renewable Energy Development Agency (BREDA), a Discussion Paper titled "Benchmark for tariff determination for Biomass and Bagasse based Cogeneration Plants" was evolved for comments/suggestions of the stakeholders and public. The Commission has considered the comments/suggestions of the stakeholders, submissions made during public hearing and norms adopted by some State Commissions while fixing the norms and determining the tariff for such plants.

1.0 BACKGROUND

1.1 The Bihar Electricity Regulatory Commission has been established by Government of Bihar under section 17 of the Electricity Regulatory Commission Act, 1998 vide Government of Bihar notification No.1284 dated 15th April 2002. The Electricity Regulatory Commission Act, 1998 along with the Indian Electricity Act, 1910 and Electricity (Supply) Act, 1948 was repealed by Section 185 (1) of the Electricity Act, 2003. The first proviso of section 82 (1) has ensured continuity of the State Electricity Regulatory Commissions by laying down that the State Regulatory Commission established by the State Government under section 17 of Electricity Regulatory Commission Act, 1998 and functioning as such immediately before the appointed date shall be the State Commission for the purpose of the Electricity Act, 2003.

1.2 The functions of State Electricity Regulatory Commission (hereinafter referred to as State Commission) have been specified under Section 86 in particular and its powers under section 181 of the Electricity Act, 2003 (hereinafter referred to as the Act). One of the major function of the State Commission under section 86(1)(e) of the Act is 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. Also as per Section 61(h) of the Act the State Commission shall, subject to the provisions of the Act, specify the terms and conditions for the determination of tariff and in doing so shall be guided inter alia for promotion of cogeneration and generation of electricity from renewable sources of energy.

1.3 The Bihar State Electricity Board (hereinafter referred to as BSEB) was constituted under section 5 of Electricity (Supply) Act, 1948 on 1st April 1958. The BSEB is a deemed licensee in terms of section 14 of the Electricity Act, 2003 and is engaged in the business of generation, transmission and distribution of electricity in the State of Bihar. In terms of Section 172 of the Act, the Board constituted under the repealed laws shall be deemed to be the State Transmission Utility (STU) and a licensee under the provisions of the Act for a period of one year from 10th June, 2003 i.e. the appointed date. On the request of Government of Bihar from time to time, Government of India has extended the date from time to time allowing BSEB to function as STU.

1.4 Power Scenario in the State

Bihar has a total installed generation capacity of 591MW (BSEB – 320MW, Kanti Bijlee Utpadan Nigam Ltd. – 220MW and Bihar State Hydroelectric Power Corporation –

51MW). Though the installed capacity is 591MW, the actual availability is of the order of around 150MW as only one unit each of 110MW at Kanti TPS and Barauni TPS are operational. As such, Bihar has to depend mainly on its allocation from Central Sector Stations in the eastern region. In view of meagre generation of 150MW that too not on regular basis, the State faces power shortages both in terms of energy and peak. According to Central Electricity Authority, Bihar experienced energy and peak shortages of about 18% and 28% respectively during the year 2008-09. Further, no generating power project is in pipeline under the State Sector during 11th Plan.

1.5 Bagasse / Biomass Potential in the State

Bihar is agro-climatically suitable for producing good quality sugarcane. The total area under sugarcane production in the State is about 2.30 lakh hectares and the total sugarcane production is about 130 lakh tonnes. A major part of the sugarcane production is being sent to other states. If the sugarcane produced is processed in the State, this will provide a considerable potential for power generation.

Biomass as a source of energy is gaining importance as renewable source. Agriculture in Bihar is one of the prime players in the State's economy. Biomass energy resources are in abundance in the State which can be harnessed for power generation to meet the energy demand. Besides, rice is grown in almost all the districts of Bihar and a sizeable rice husk production is there which will also be able to generate power. According to Bihar Renewable Energy Development Agency, the State has a potential of about 132MW from bagasse cogeneration and over 200MW from biomass.

2.0 LEGAL PROVISIONS

2.1 Electricity Act, 2003

Section 86(1) and 61(h) of the Act provide the legal framework for the State Commission to promote cogeneration and generation of electricity from renewable sources of energy. The provisions are reproduced below :

86(1) "The State Commission shall discharge the following functions namely :-

86(1)(a) determine the tariff for generation, supply, transmission and wheeling of electricity, wholesale, bulk or retail, as the case may be, within the State:

Provided that where open access has been permitted to a category of consumers under section 42, the State Commission shall determine only the wheeling charges and surcharge thereon, if any, for the said category of consumers;

86(1)(e) 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 licence;"

61 *"The Appropriate Commission shall subject to the provisions of this Act specify terms and conditions for the determination of tariff and in doing so shall be guided by the following namely :-*

61(h) *the promotion of co-generation and generation of electricity from renewable sources of energy;"*

2.2 National Electricity Policy

In pursuance of section 3 of the Act, Government of India has notified the National Electricity Policy (NEP) on 12th February, 2005 which reasserts the Government's intent to promote renewable energy. Select extracts from the NEP are reproduced hereunder:

5.2.20 *"Feasible potential of non-conventional energy resources, mainly small hydro, wind and bio-mass would also need to be exploited fully to create additional power generation capacity. With a view to increase the overall share of non-conventional energy sources in the electricity mix, efforts will be made to encourage private sector participation through suitable promotional measures."*

5.12.1 *"Non-conventional sources of energy being the most environment friendly, there is an urgent need to promote generation of electricity based on such sources of energy. For this purpose, efforts need to be made to reduce the capital cost of projects based on non-conventional and renewable sources of energy. Cost of energy can also be reduced by promoting competition within such projects. At the same time, adequate promotional measures would also have to be taken for development of technologies and a sustained growth of these sources."*

5.12.2 *"... Percentage for purchase of power from non-conventional sources should be made applicable for the tariffs to be determined by the SERCs at the earliest. Progressively the share of electricity from non-conventional sources would need to be increased as prescribed by State Electricity Regulatory Commissions. Such purchase by distribution companies shall be through competitive bidding process. Considering the fact that it will take some time before non-conventional technologies compete, in terms of cost, with conventional sources, the Commission may determine an appropriate differential in prices to promote these technologies."*

2.3 National Tariff Policy

In pursuance of section 3 of the Act, Govt. of India also notified the Tariff Policy on 6th January, 2006 which also reinstates the importance of the renewable energy generation and its subsequent benefits for the country. Some key extracts are reproduced below:

5.3 (i) “ *Tariff fixation for all electricity projects (generation, transmission, and distribution) that results in lower Green House Gas emissions than the relevant base line should take into account the benefits obtained from the Clean Development Mechanism into consideration, in a manner so as to provide adequate incentive to the project developers.*”

6.4 (1) “..... *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 tariffs....*”

6.4 (2) “ *Such procurement by Distribution Licensees for future requirement shall be done as far as possible through competitive bidding process under section 63 of the Act within the suppliers offering energy from same type of non conventional sources.....*”

2.4 Govt. of Bihar Incentive Policy

2.4.1 Government of Bihar had notified a Policy to encourage generation of power from renewable source of energy vide Energy Dept. Resolution No. 1147 dt. 05.05.2003 valid for 5 years from the date of notification i.e. upto 04.05.2008.

2.4.2 Government of Bihar, Sugarcane Development Deptt. has notified an incentive package on 24.01.2006 for establishment and development of sugar industry and sugar based industry including cogeneration in the State. The incentives for cogeneration announced are as follows :

- (i) 10% grant as capital investment (Machinery and equipments).
- (ii) Exemption from registration charges and stamp duty on land purchase.
- (iii) Exemption from electricity duty.
- (iv) Power generated by sugar mills will be purchased by BSEB and transmission facilities will be provided by BSEB.

As per the incentive package above exemptions are available for five years from the date of commercial operation of new cogeneration plants and capacity expansion of old plants.

3.0 REGULATORY PROCESS

3.1 Some sugar mills of Bihar approached this Commission for fixation of tariff for sale of electricity from their proposed bagasse based cogeneration plants. They were asked to file tariff petition along with complete details/data for tariff determination. None of the sugar mills filed tariff petition or any other technical and financial data before the Commission.

3.2 In terms of provisions of Section 86(1)(e) of the Act, the Commission with intention to set norms for determination of tariff for sale of energy generated by non conventional/renewable energy sources in Bihar and other allied issues, initiated suo-motu proceedings and issued a Concept Paper for fixation of tariff for sale of energy generated by

cogeneration and non conventional/renewable energy source in Bihar State and invited comments/suggestions from the Secretary, Deptt. of Energy Govt. of Bihar, BSEB, BSHPC, BREDA, Association of Industries, interested developers in the field by 5th September, 2007 vide Commission's letter No. BERC.Tariff-1/07-294 dt. 08.08.07. A public notice inviting comments/suggestions from stakeholders and general public by 5th September, 2007 on the aforesaid Concept Paper was also published in the newspapers namely "Aaz" (Hindi) and "The Times of India" (English) Bihar on 09.08.2007. The concept paper was also placed on the website of the Commission. As no comments were received till due date, the Commission extended the date for submission of comments/suggestions on the concept paper upto 05.10.2007. Subsequently, Bihar Sugar Mills Association vide their letter dated 26.09.2007 and M/s Bharat Sugar Mills vide their letter dated 27.09.2007 requested for further extension of time for one month for submission of comments/suggestions. Considering their request, the Commission vide its letter No. BERC-Tariff-1/07-436 dt. 03.10.2007 extended the date for submitting comments/suggestions upto 31.10.2007.

- 3.3 Bihar State Electricity Board; New Swadeshi Sugar Mills, Narkatiaganj; Bharat Sugar Mills, P.O.-Sidhwalia, Dist.-Gopalganj; Bihar Sugar Mills Association, Ansal Plaza, August Kranti Marg, New Delhi-110049; M/s Saran Renewable Energy Pvt. Ltd., 102, Bazrang Market, Mauna Gola Road, Chapra, Saran, Bihar submitted their comments/suggestions on the concept paper.
- 3.4 In the meantime, BREDA vide letter dated 02.06.2008 requested the Commission for fixation of tariff for power generated by biomass power plants and cogeneration plants. Considering the request of BREDA and also the comments/suggestions received from stakeholders on the Concept Paper, the Commission evolved a Discussion Paper titled "Benchmarks for Tariff Determination for Biomass and Bagasse Based Cogeneration Plants" to have further consultation with the stakeholders.
- 3.5 Copy of said Discussion Paper was again sent to the Secretary, Deptt. of Energy, Govt. of Bihar; Chairman, Bihar State Electricity Board; Bihar State Hydroelectric Power Corporation; Bihar Renewable Energy Development Agency; Sugar Cane Deptt, Govt. of Bihar; Sugar Mills Association, Bihar, Patna; Bihar Industries Association, Patna; Secretary, CERC, New Delhi; and to all State Commissions seeking comments/suggestions latest by 22.09.2008 vide Commission's letter No. BERC-Tariff-1/07-539 dt. 01.09.2008. The said Discussion Paper was also placed on the website of the Commission.
- 3.6 A public notice seeking comments/suggestions from stakeholders and general public on the Discussion Paper was published in daily newspapers namely- "The Times of India"

(English) on 02.09.2008 and 06.09.2008 and "Hindustan" (Hindi) on 06.09.2008. Considering the request of some of the stakeholders, the last date for submission of comments/suggestions on Discussion Paper was extended from 22.09.2008 to 15.10.2008.

3.7 Comments/suggestions on Discussion Paper were received from the following :

- (i) Bihar State Electricity Board (BSEB), Patna
- (ii) Indian Renewable Energy Development Agency (IREDA), New Delhi
- (iii) Bihar Renewable Energy Development Agency (BREDA), Patna
- (iv) Bihar Sugar Mills Association, Patna
- (v) New Swadeshi Sugar Mills, Narkatiaganj, Bihar
- (vi) Bharat Sugar Mills, Sidhwalia, Gopalganj, Bihar
- (vii) Astonfield Renewable Resources Ltd., Mumbai
- (viii) Emergent Ventures India Pvt. Ltd., Gurgaon

3.8 With a view to give adequate opportunity of personal hearing to stakeholders/persons including those who could not submit comments/suggestion, a public hearing was scheduled on 12th November, 2008 at Patna. Notice for the public hearing was published in the following newspapers of the State.

Sl. No.	Name of Newspaper	Language	Date of Publication
1.	The Times of India	English	24.10.2008
2.	Dainik Jagran	Hindi	23.10.2008

3.9 Public hearing was held on 12th November, 2008 in the office of the Commission which was attended by the representatives of the Developers/Associations, BREDA, BSEB and Consultants. Not only persons from whom comments/suggestions received were heard but an opportunity was given for open hearing to all participants irrespective of the fact whether they had submitted written comments/suggestions on the Discussion Paper earlier or not. Thus the Commission made efforts to hold wider consultation for arriving at its conclusion.

The list of participants in the public hearing is given in enclosed Appendix.

4.0 Power Purchase Obligation from Renewable Energy and Cogeneration

4.1 Section 86(1)(e) of the Act mandates the State Commission to specify purchase of energy from renewable sources as a percentage of total consumption of electricity in the area of distribution licensee. Also the Tariff policy in its clause 6.4 (1) provides “.....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.....”.

4.2 According to Bihar Renewable Energy Development Agency, the State has a potential of about 132MW for setting up of bagasse based cogeneration projects. Similarly, Bihar has a

potential of more than 200 MW for biomass based projects. In addition, it has a potential of about 200MW for small, mini and micro hydro electric projects.

4.2 The Commission proposed in its Discussion Paper, purchase of minimum 10% of the total energy consumption in a year, from cogeneration and renewable sources of energy by the Distribution Licensee, subject to the availability.

4.4 Comments/suggestions of stakeholders

(i) M/s New Swadeshi Sugar Mills, M/s Bharat Sugar Mills and Bihar Sugar Mills Association have suggested for review of minimum power purchase requirement of 10% by the Distribution Licensee after every three years so that necessary promotional steps be taken for further growth of cogeneration plants.

(ii) B.S.E.B has submitted that the cost of supply of power from renewable energy sources would be considerably high rate, which will increase the overall cost of power and therefore procurement of power from renewable energy sources should be restricted to 5% of the total energy consumption by the BSEB in a year, subject to the availability and should be increased gradually up to 10% after participation of adequate number of the players in this field.

(iii) Indian Renewable Energy Development Agency Ltd. (IREDA), New Delhi has suggested that the year of compliance should be indicated and the word "subject to the availability" deleted so as to promote speedier development of RE projects.

4.5 Keeping in view the existing installed capacity as well as potential for generation of electricity from renewable/non conventional sources of energy and cogeneration in the State, **the Commission makes it obligatory for the Distribution Licensee (i.e. Bihar State Electricity Board) and its successor entities to purchase following minimum percentage of its total energy consumption, in a year, from renewable and cogeneration plants i.e. biomass, small hydro, solar, wind, cogeneration or any other sources coming under this category as per guidelines of Ministry of New and Renewable Energy (MNRE), Govt. of India).**

<u>Year</u>	<u>Minimum percentage</u>
2009-10	4%
2010-11	5%
2011-2012	6%
2012-2013	7%

Such purchase by Distribution Licensee shall, however be subject to availability of power from aforesaid sources. Further the condition of minimum purchase requirement would not be applicable under Force Majeure Conditions.

The minimum purchase requirement shall be reviewed by the Commission after three years i.e at the end of FY. 2011-12.

If the Distribution Licensee fulfils the minimum purchase requirement and still has offers from the aforesaid sources, then either the Distribution Licensee or the developers can approach the Commission for approval of such procurement beyond the above specified minimum percentage.

5.0 MECHANISM FOR TARIFF DETERMINATION

5.1 Issues for Consideration:

The Commission has considered inter-alia the following issues :

- (i) What is a cogeneration project
- (ii) Pricing of electricity from renewable/ cogeneration plants
- (iii) Whether tariff should be single part or two part
- (iv) Whether tariff should be project specific or generalised
- (v) Application of merit order

5.1.1 Definition of Cogeneration Project

"A cogeneration facility is defined as one, which simultaneously produces two or more forms of useful energy such as electrical energy and steam, electrical energy and shaft (mechanical) power etc." A project may qualify to be termed as a cogeneration project if it is in accordance with the definition.

5.1.2 Pricing of electricity from Renewable/ Cogeneration Projects:

After studying the practices followed by other State Commissions in the country and as also suggested by Bihar Sugar Mills Association, Bagasse based cogeneration developers and M/s Emergent Ventures India Pvt.Ltd. (EVI), **the Commission decides to adopt cost plus approach for the purpose of tariff determination.**

5.1.2 Tariff should be single part or two part:

Normally two part tariff is applied in order to recover fixed and variable costs separately through fixed and variable components of tariff. Bihar Sugar Mills Association, Bagasse based cogeneration developers, M/s EVI and Bihar State Electricity Board have suggested for single part tariff.

Keeping in view the suggestions of stakeholders and also recognizing the fact that two part tariff for bagasse cogeneration and biomass plants will be difficult to implement in view of large number of such plants of small capacities, seasonal variation in availability of fuel, monitoring despatch from such plants on a day-to-day basis and large administrative machinery requirements for its monitoring and settlement, the Commission therefore, decides to adopt single part tariff.

5.1.4 **Tariff should be project specific or generalized:**

Bihar Sugar Mills Association has suggested to use generalized tariff in order to upkeep the broader principle of equity to improve overall growth of cogeneration plants. BSEB has proposed generalized tariff separately for different source of energy as the capital investments are different for different type of project. Bagasse based cogeneration developers and Indian Renewable Energy Development Agency Ltd. (IREDA) have given no comments on this issue.

The Commission decides to use generalized benchmark tariff separately for biomass and bagasse based cogeneration plants as suggested by the stakeholders and practice followed generally by other State Commissions.

5.1.5 **Application of merit order:**

Bihar State Electricity Board has suggested application of merit order dispatch for biomass and bagasse based cogeneration plants. Other stakeholders and IREDA have given no comments on this issue.

Ideally overall costs of power purchase by a licensee would be optimized following the merit order. However, in practice it would be difficult to follow this approach keeping in view a large number of power plants of small capacities, the application of merit order dispatch for purchase of power from small projects would be detrimental to the interest of promotion of renewable resources and cogeneration. There is also need to exploit fully the renewable energy resources available for optional utilization of investments. The Act also mandates promotion of generation from renewable sources and cogeneration. **The Commission therefore, decides to keep biomass and bagasse based cogeneration plants out of purview of scheduling and merit order dispatch principles.**

6.0 **TARIFF DESIGN**

6.1 **Norms for Tariff Determination**

The Commission has decided to fix tariff on cost plus approach so that each element of fixed and variable cost is properly addressed and not to follow any other adhoc basis for fixing the tariff rates at which the biomass and bagasse based cogeneration developers will sell electricity to BSEB (deemed distribution licensee) or its successor entities.

Accordingly, the following components are taken into consideration in determination of the tariff.

- (i) Capital cost
- (ii) Debt–equity ratio
- (iii) Return on equity
- (iv) Interest on term loan

- (v) Depreciation
- (vi) O&M expenditure
- (vii) Interest on working capital
- (viii) Plant Load Factor
- (ix) Fuel cost
- (x) Gross Calorific value and specific fuel consumption
- (xi) Station heat rate

6.2 Norms Common for Biomass based Power Plants and Bagasse based Cogeneration Plants

The Commission in its discussion paper proposed norms for the components of tariff mentioned above. While taking decision on fixing these norms, the Commission has considered the comments/suggestions on the Discussion Paper received from Bihar Sugar Mills Association, Bagasse Cogeneration developers (Sugar Mills), Consultants in biomass development viz. M/s EVI & M/s ARRL, Bihar Renewable Energy Development Agency (BREDA), IREDA and BSEB and submissions made by the stakeholders during public hearing and also norms approved for such plants by some of the State Commissions.

6.2.1 Debt-equity ratio:

The Commission has proposed a debt-equity ratio of 70:30 in the discussion paper. Generally the same debt-equity ratio is followed by the financial institutions and also adopted by other State Commissions. Though no stakeholder has commented on this issue, there was however a consensus on 70:30 debt-equity ratio during the public hearing. CERC has also adopted a normative 70:30 debt-equity ratio for conventional power plants. **Hence the Commission decides to adopt debt-equity ratio of 70:30.**

6.2.2 Return on Equity (ROE)

The Commission in its discussion paper has considered 16% (pre-tax) ROE when 14% ROE was considered by Central Electricity Regulatory Commission in Tariff Regulations, 2004 applicable for 5 years w.e.f. 1st April, 2004. CERC has now issued Tariff Regulations, 2009 on 19.01.2009 applicable for 5 years w.e.f. 1st April, 2009 where the base rate for return on equity has been raised from 14% to 15.5% (pre-tax) with a provision of additional 0.5% for timely completion of projects, to attract investment.

Bihar Sugar Mills Association and Bagasse based cogeneration developers have suggested for ROE of 20% (pre-tax). While M/s Astonfield Renewable Resources Ltd. has calculated tariff for biomass projects at ROE of 15%, M/s EVI has suggested for 18%. BSEB has suggested ROE as per provision of the Central Electricity Regulatory Commission's Regulations. In the Electricity Act, 2003 and National Electricity Policy

emphasis has been made for promotion of cogeneration and generation of electricity from renewable sources of energy. The Commission too wishes to encourage renewable and cogeneration projects which are environment friendly but are fraught with risks and uncertainties.

Keeping in view the suggestions of stakeholders as mentioned above and the fact that CERC has raised ROE from 14% to 15.5% (pre-tax) in its Tariff Regulations, 2009, **the Commission considers ROE at 17.5% (pre-tax) to provide encouragement to renewable and cogeneration sector and attract investment in the State.**

6.2.3 Depreciation:

The Commission in its discussion paper has considered depreciation on straight line method wherein historical value of 70% of asset is to be depreciated for first 10 years at a rate of 7% per annum and the remaining 20% of asset spread over for next 10 years on straight line method. None of the stakeholders have given any comment/ suggestion on this issue and therefore, **the Commission decides to adopt rate of depreciation as proposed in the discussion paper i.e. @ 7% per annum for first 10 years and @ 2% per annum for next 10 years.**

6.2.4 Interest on term loan:

The Commission in its discussion paper has considered interest on term loan at State Bank of India prime lending rate (SBI-PLR). Bihar Sugar Mills Association, Cogeneration developers, IREDA and M/s Astonfield Renewable Resources Ltd. have suggested rate of interest at SBI PLR plus 2 to 3%. BSEB has not given any comment on this issue.

The Commission feels that in a regime of declining interest rates, interest on long-term loan shall also correspondingly reduce. Reserve Bank of India in its annual policy/credit review in April 2009 has projected reduction in BPLR by the banks in near future in view of RBI cuts in key rates in the last six months. **Further in most of the cases of long-term loan, the bank charges generally interest below their PLR. However, keeping in view the risks and uncertainties in renewable energy/cogeneration projects, the Commission considers the rate of interest on term loan at SBI-PLR for tariff calculation. Existing SBI-PLR is 12.25%.** This will be reviewed, if PLR varies by more than $\pm 2\%$ in any financial year.

6.2.5 Interest on working capital:

The Commission in its discussion paper has proposed interest rate at short-term on working capital SBI PLR. The comments of the stakeholders are same as given under interest on term loan. **The Commission considers interest on working capital at the**

SBI-PLR i.e. 12.25%. This will be reviewed if PLR varies by more than $\pm 2\%$ in any financial year.

6.3 Norms for Bagasse based Cogeneration Plants

6.3.1 Capital Cost:

The Commission notes that capital cost of a project is dependent on several factors such as plant configuration, technology (boiler type and pressure level), etc. and would also vary depending on the capital cost related to fuel handling and storage, crushing equipment and the plant and machinery associated with environmental management which in turn would depend on the type and mix of fuels being considered for plant operation.

BREDA has submitted that capital cost shall include cost of land and tariff be determined so as to encourage development of renewable energy in the State and also keeping in view tariff determined by other State Commissions. IREDA has suggested capital cost of Rs.3.75 to 4.5 crores/M.W depending on boiler configuration, technology etc. Bihar Sugar Mills Association and Bagasse based cogeneration developers have suggested capital cost of Rs.5 crores/MW.

BSEB has contended that the sugar mills have contracted to supply surplus power out of its own use to BSEB. As such the distribution licensee is liable to pay only the energy charge to sugar mills and the energy charge shall be equivalent to highest energy charge of the central sector thermal power station of NTPC in the eastern region.

Some State Commissions have considered capital cost for Bagasse based cogeneration plants as U.P–Rs.3.5 crores/M.W, Andhra Pradesh–Rs.3.25 crores/M.W, Karnataka–Rs.3.0 crores/M.W and Madhya Pradesh–Rs.2.75 crores/ M.W (incremental capital cost only).

Keeping in view the normative capital cost adopted by some State Commissions and as also proposed in the discussion paper, the Commission is of the view that capital cost of Rs. 3.75 crores/MW for bagasse based cogeneration plants is reasonable.

6.3.2 Plant Load Factor:

Sugar Mills Association and Cogeneration developers have submitted that in Bihar the average duration of crushing varies from 90 days to 120 days based on 5 months of operation (season–4 months and off season–1 month) at 95% plant efficiency and therefore PLF of 40% be considered for Bagasse cogeneration plants. BSEB has suggested PLF of 70% to be increased upto 80%. Other State Commissions have considered PLF for tariff determination as U.P–60%, Andhra Pradesh–55%, Karnataka– 60%, Madhya Pradesh–70% and Maharashtra –65% (240 days)

The Commission recognizes that sugar cane production in Bihar is less than the States of UP, AP, Karnataka, Maharashtra, etc. and also the crushing season is shorter than these states. Assuming that cogeneration plants can run for 200 days in a year i.e. 130 days during crushing season and 70 days during non-crushing season (with bagasse stock and other agro residues), annual PLF of 55% can be achieved.

The Commission therefore, considers normative PLF at 55% instead of 60% proposed in the discussion paper, for tariff determination.

6.3.3 Auxiliary consumption:

The Commission notes that auxiliary consumption factor is the key parameter for a thermal power station and is dependent on size of the plant and plant configuration. Sugar Mills Association and Cogeneration developers have suggested auxiliary consumption of 11% for bagasse based cogeneration plants. IREDA has suggested for 10%. Other State Commissions have considered auxiliary consumption in the range of 8 to 9% for such plants viz. U.P.–8.5%. A.P.–9%, Karnataka–8%, M.P.–8%, Gujrat–8%.

Further CERC in its Tariff Regulations, 2009 has considered auxiliary consumption at 8.5% for coal based generation plants of 200 MW series (with natural draft cooling tower or without cooling tower). Compared to conventional power projects, auxiliary system in case of non-conventional power projects is less and in case of cogeneration plant certain auxiliaries are common.

Considering the norms adopted by some State Commissions, the Commission therefore, considers auxiliary consumption at 8.5% for bagasse based cogeneration plants for tariff determination.

6.3.4 Operation & Maintenance expenses (O&M expenses) and O&M escalation:

Bihar Sugar Mills Association and Cogeneration developers have suggested O&M expenses at 5% of the capital cost with an escalation of 5% per annum keeping in view the then rate of inflation of 12%. BSEB has suggested O&M expenses at 1.5% of the capital cost or the actual expenses, whichever is less and escalation of 4%. Generally other State Commissions have considered O&M expenses at 2.5% or 3% of capital cost with an escalation of 4% or 5%.

The Commission notes that in case of Bagasse based cogeneration there are several common expenses between the sugar factory and the cogeneration unit. Further the escalation of 5% was proposed in the discussion paper when the rate of the inflation was of the order of 8 to 10%. The rate of inflation has now declined to less than 1%.

In view of the above, the Commission considers O&M expenses (including insurance) for bagasse cogeneration plant at 3% of capital cost with an annual escalation @ 4% per annum on O&M expenses as reasonable.

6.3.5 Working Capital:

Since bagasse is a byproduct of sugar production process, fuel stock for one month has been considered in the working capital for generation.

Accordingly, components for working capital for bagasse cogeneration plants are considered as under:

- (a) One month fuel stock
- (b) One month O&M expenses
- (c) Two months of receivables

6.3.6 Fuel Cost :

Bihar Sugar Mills Association and Cogeneration developers have suggested fuel cost at Rs.1300/M.T. BSEB has contended that fuel cost of Rs. 800/M.T as proposed in the discussion paper is on the higher side and should be reviewed. The fuel cost and annual escalation thereon as approved by some State Commissions are given in table below :-

	Andhra Pradesh	Karnataka	Madhya Pradesh	Gujrat	U.P.
Fuel cost (Rs./M.T)	5 75	800	775	775	740
Fuel escalation	5%	5%	4%	5%	4%

The Commission appreciates that the cost of fuel is a key parameter which determines the viability of cogeneration project. Though the fuel for the bagasse based cogeneration project is a byproduct during cane crushing season, however, there is an opportunity cost as bagasse is used in paper production and as domestic fuel in rural areas and as fuel in bagasse based power generation plants. Further the Commission recognizes that the developers have also to purchase additional bagasse / alternate fuel during off season in order to achieve the generation target, the Commission is of the view that major portion of bagasse is available within the premises of sugar mills and so no transportation cost is involved. It is only during off season, bagasse or alternate non fossil fuel is to be arranged and transported from the market.

Considering the normative fuel cost considered by some State Commissions, the Commission considers cost of fuel for bagasse cogeneration plants at Rs. 800 per MT with an escalation in fuel price @ 4% per annum for tariff determination.

6.3.7 Gross Calorific Value (GCV), Station Heat Rate (SHR) & Fuel Consumption:

Bihar Sugar Mills Association and Developers have not indicated GCV or fuel consumption in case of cogeneration plants. However they have suggested station heat rate

(SHR) of 5440 kcal/kwh. The norms of GCV, SHR and fuel consumption adopted by some State Commissions in tariff determination are given in table below :

	Andhra Pradesh	Karnataka	Madhya Pradesh	Gujrat	U.P.
GCV (k.cal/kg)	2250	2300	2300	2250	2275
Station heat rate (k.cal/kwh)	3700	3700	3700	3700	3300
Fuel consumption (kg/kwh)	1.60	1.60	1.61	1.64	1.45

The Commission considers GCV of 2275 kcal/kg as proposed in the Discussion Paper and also as considered by some State Commissions reasonable. Further the expert committee constituted by the Govt. of Andhra Pradesh for biomass power projects has considered allowable station heat rate of 3650 kcal/kwh. However, there was no such committee for bagasse based projects. Considering the similarities between both the categories of bagasse and biomass **the Commission considers SHR at 3650 kcal/kwh for bagasse cogeneration plants as reasonable. Based on this, the specific fuel consumption works out to 1.60 kg/kwh which has been also considered by some State Commissions.**

6.4 Norms for Biomass based Plants

6.4.1 Capital Cost:

The Commission in its discussion paper has considered capital cost at Rs.4 crore per MW in case of biomass power plants. The stakeholders have submitted following comments/suggestions :

IREDA has suggested capital cost in the range of Rs.4 to 5 crore per MW depending on boiler configuration, technology etc. M/s Astonfield Renewable Resources Ltd have suggested normative capital cost of Rs.5.5 to 6 crore per MW keeping in view prevailing price for boilers, steam turbine generators and electrical systems. M/s Emergent Ventures India Pvt. Ltd. have suggested capital cost of Rs. 4.5 crore per MW considering high efficiency boilers and use of air cooled condensers. BSEB has not given any specific comment on this issue in respect of biomass based power plant. The normative capital cost considered by some State Commissions are AP– Rs. 4.00 crores/MW, Karnataka – Rs. 4.00 crores/MW, Maharashtra – Rs. 4.00 crores/MW, MP – Rs. 4.25 crores/MW.

The Commission recognizes the fact that the capital cost varies on account of various factors including location of the project, capacity, technology, etc.

Having regard to the submissions made by the stakeholders and also normative capital cost considered by some State Commissions for tariff determination, the Commission decides to adopt normative capital cost at Rs. 4.25 crores per MW for biomass based power projects.

6.4.2 Plant Load Factor (PLF):

The Commission in its discussion paper has considered a normative PLF of 70% for biomass power plants. The comments/ suggestions of the stakeholders are –

M/s ARRL have not given any specific comment on this issue, however they have assumed a PLF of 87% maximum with 335 days of operation per year in their tariff calculation. M/s E.V.I. have submitted that most of the biomass projects assume capacity utilization at 70% during first year of operation and 75% to 85% from second year onwards which translate into PLF of 63% during first year and around 78% from the second year onwards considering 330 days operation per year. According to BSEB, PLF/CUF should be 70% and increased to 80% and above in order to compete with power generation from conventional plants. Some State Commissions have considered PLF for biomass based power plants as U.P.-60% (Cogen), A.P.-80%, Karnataka-75% and M.P.-70%.

Considering the submissions made by the stakeholders and normative PLF considered by some State Commissions for tariff determination and also looking into the potential of biomass in the State and other factors, annual normative PLF of 70% as proposed in the discussion paper is considered appropriate.

6.4.3 Auxiliary Consumption:

The comments/ suggestions of the stakeholders are:

ARRL have suggested for auxiliary consumption of 11.5%. EVI have suggested an auxiliary consumption of atleast 12% on account of use of air cooled condensers. Some State Commissions have considered normative auxiliary consumption as U.P.–8.5%, A.P.–9%, Karnataka–9% and M.P.–10%.

Keeping in view the auxiliary consumption norms for biomass based plants adopted by some State Commissions, the Commission considers auxiliary consumption of 9% for biomass power plants as reasonable.

6.4.4 O&M expenses:

The Commission in its discussion paper has proposed O&M expenses at 4% of the capital cost for biomass based power plants. The comments/ suggestions of the stakeholders are:

M/s. ARRL have suggested O&M expenses at 6% of the project cost for biomass power plants with an annual escalation of 5% and M/s EVI have suggested O&M expenses at 4% of the project cost. Other State Commissions generally have considered O&M expenses at 4% of the capital cost for biomass power plants with an annual escalation varying from 4 to 5%. BSEB has suggested O&M expenses at 1.5% of the capital cost or actual expenses whichever is less and escalated @ 4% per annum.

Taking into consideration the suggestions of stakeholders and the norms adopted by other State Commissions, the Commission considers O&M expenses (including insurance) at 4% of the capital cost with an escalation of 4% on O&M expenses per annum for biomass power plants.

6.4.5 Working Capital:

BSEB has contended that fuel stock for 3 months irrespective of the target capacity utilization factor as proposed in the discussion paper is on the higher side and it should be restricted to 45 days only in the working capital. M/s ARRL and M/s EVI have not offered any comments on this issue. There are variations in the working capital norms adopted by State Commissions for tariff determination for biomass power plants. While APERC has considered only one month stock of biomass fuel for working capital component, Karnataka ERC has considered two months fuel stock as working capital requirement on a normative level, Maharashtra ERC has considered fuel stock of 60 days and M.P. ERC has considered 3 months of fuel stock as working capital in determining the tariff for biomass power plants.

The fuel storage requirement depends on factors such as type of fuel, its availability, storage facilities, procurement arrangement, the price during season and off season etc. Biomass in Bihar is likely to consist mainly rice husk, maize husk, etc. which are seasonal. **The Commission considers fuel stock of two months for biomass power plants in working capital as reasonable. The Commission considers working capital for biomass based power plants as follows :**

- (i) Two (2) months fuel stock**
- (ii) One (1) month O&M expenses**
- (iii) Two (2) months of receivables**

6.4.6 Fuel Cost and Fuel Escalation:

The Commission in its discussion paper has proposed fuel cost at Rs.1000 per MT for biomass power plants. The comments/ suggestions of the stakeholders are:

IREDA has suggested average biomass fuel cost in the range of Rs.1200 per tonne. M/s ARRL have suggested fuel cost at Rs.1100 per tonne with an annual escalation of 5%. M/s EVI have submitted that the Commission can either assume the part of price based on the geographical locations of the plant or consider the coal price of the State. BSEB has contended that the fuel cost proposed in the discussion paper is on higher side and should be reviewed.

Fuel cost and fuel escalation norms as approved by some State Commissions for biomass based power plants are given in table below :

	Andhra Pradesh	Karnataka	Madhya Pradesh	U.P. (cogeneration)
Fuel cost (Rs./M.T)	1000	1000	1181	740
Fuel price escalation	5%	5%	5%	4%

Keeping in view the biomass potential in the State, submissions made by stakeholders and the fuel cost for biomass power plants approved by some State Commissions, the Commission considers fuel cost for biomass power plant at Rs. 1050 per MT with an escalation in fuel cost @ 4% per annum for tariff determination.

6.4.7 Gross Calorific Value (GCV), Station Heat Rate (SHR) and Fuel Consumption :

M/s ARRL have suggested GCV for biomass / rice husk at 3150 kcal/kg and station heat rate (SHR) at 3650 kcal/kwh. Maharashtra Electricity Regulatory Commission has also considered SHR at 3650 Kcall/kwh for tariff determination. The parameters adopted by some other State Commissions are given in the table below :

	Andhra Pradesh	Karnataka	Madhya Pradesh
GCV (kcal/kg)	3200	3200	3325
Station heat rate (kcal/kwh)	3700	3700	3600
Fuel consumption (kg/kwh)	1.16	1.16	1.08

An expert committee constituted by Govt. of Andhra Pradesh which also had biomass developers as its members, indicated 3650 kcal/kwh as the station heat rate considering a gross calorific value of 3250 kcal/kg of biomass fuel which translates into specific fuel consumption of 1.12 kcal/kwh.

The Commission is of the opinion that renewable energy plants should improve the operational efficiency and in turn the station heat rate. Accordingly the Commission provides for a station heat rate of 3650 kcal/kwh and fuel gross calorific value of 3150 kcal/kg which translates to a specific fuel consumption of 1.16 kg/kwh.

7.0 TARIFF AND TARIFF STRUCTURE

7.1 Bagasse based cogeneration plants

7.1.1 Considering the technical and financial parameters decided in the preceding paragraphs, the Commission determines tariff for purchase of power from bagasse based cogeneration plant by the Distribution Licensee as given below:

(a) Fixed Cost component

Year	Fixed Cost Component (Rs. / Unit)	Year	Fixed Cost Component (Rs. / Unit)
1	2.11	6	1.81
2	2.05	7	1.75
3	1.99	8	1.69
4	1.93	9	1.63
5	1.87	10	1.57

Note

1. The above fixed cost includes an annual escalation of 4% on O&M cost.
2. The fixed cost component shall be linked to the age of the generating station and shall be based on its year of commissioning.

(b) Fuel Cost component

Financial Year	Fuel Cost Component (Rs./Unit)	Financial Year	Fuel Cost Component (Rs./Unit)
2009-10	1.40	2014-15	1.71
2010-11	1.46	2015-16	1.77
2011-12	1.52	2016-17	1.85
2012-13	1.58	2017-18	1.92
2013-14	1.64	2018-19	2.00

Note : The above fuel cost includes an annual escalation of 4% on fuel cost.

- 7.1.2 The Effective Tariff for a particular financial year shall be the sum of the fixed cost component applicable in that year which will be reckoned from the year of commercial operation of the plant, and the fuel cost component of that financial year.

Illustration :

- (i) For the plant which shall come under commercial operation during 2009-10, the tariff applicable in the FY 2009-10 shall be (fixed cost component Rs. 2.11/unit + fuel cost component Rs. 1.40/unit), i.e. Rs. 3.51/unit.
- (ii) For the plant which shall come under commercial operation in the year 2010-11, the applicable tariff shall be (fixed cost component Rs. 2.11/unit + fuel cost component Rs. 1.46/unit) i.e. Rs. 3.57/unit in the FY 2010-11.
- (iii) For the plant which has come under commercial operation during 2008-09, the tariff applicable in the FY 2009-10 shall be (fixed cost component Rs. 2.05/unit + fuel cost component Rs. 1.40/unit) i.e. Rs. 3.45/unit.

7.2 Biomass based power plants

- 7.2.1 Considering the technical and financial parameters approved in the preceding paragraphs, the Commission determines tariff for purchase of power from biomass based power plant by the Distribution Licensee, as given below:

(a) Fixed Cost component

Year	Fixed Cost Component (Rs. / Unit)	Year	Fixed Cost Component (Rs. / Unit)
1	1.99	6	1.73
2	1.94	7	1.69
3	1.88	8	1.64
4	1.83	9	1.59
5	1.78	10	1.54

Note

1. The above fixed cost includes an annual escalation of 4% on O&M cost.
2. The fixed cost component shall be linked to the age of the generating station and shall be based on its year of commissioning.

(b) Fuel Cost component

Financial Year	Fuel Cost Component (Rs./Unit)	Financial Year	Fuel Cost Component (Rs./Unit)
2009-10	1.34	2014-15	1.63
2010-11	1.39	2015-16	1.69
2011-12	1.45	2016-17	1.76
2012-13	1.50	2017-18	1.83
2013-14	1.56	2018-19	1.90

Note : The above fuel cost includes an annual escalation of 4% on fuel cost.

- 7.2.2 The Effective Tariff for a particular financial year shall be the sum of the fixed cost component applicable in that year which will be reckoned from the year of commercial operation of the plant and the fuel cost component of that financial year.

Illustration :

- (i) The plant which shall come under commercial operation during 2009-10, the tariff applicable in the FY 2009-10 shall be (fixed cost component Rs. 1.99/unit + fuel cost component Rs. 1.34/unit), i.e. Rs. 3.33/unit.
- (ii) For the plant which shall come under commercial operation in the year 2010-11, the applicable tariff shall be (fixed cost component Rs. 1.99/unit + fuel cost component Rs. 1.39/unit) i.e. Rs. 3.38/unit in the FY 2010-11.
- (iii) The plant which has come under commercial operation during 2008-09, the tariff applicable in the FY 2009-10 shall be (fixed cost component Rs. 1.94/unit + fuel cost component Rs. 1.34/unit) i.e. Rs. 3.28/unit.

7.3. Other Terms and Conditions

The above tariff rates shall be applicable for supply of electricity by Bagasse based cogeneration and Biomass based power plants located within Bihar to Distribution Licensee(s) in the State subject to the conditions given below :

- 7.3.1 The above tariff rates are inclusive of all charges including tax liability.
- 7.3.2 The above tariff rates shall be firm and will not vary with exchange rate variations or on account of change in law or in taxes.

8.0 TARIFF REVIEW PERIOD

- 8.1. The Commission understands that the cogeneration industry with non fossil fuel (such as bagasse, biomass, agriculture residues, etc.) and generation with biomass fuel are under nascent stage particularly in Bihar. The Commission hopes that with establishment of

cogeneration plants and biomass based power plants in the State, industry participants including BSEB would gain experience of development, implementation and operation of such plants. **Accordingly the Commission determines the review period for review of the tariff rate and structure as five (5) years from the date of issue of this order.**

8.2 An earlier review of the tariff rate before the period of five years may be undertaken in exceptional circumstances, if the need of such review is clearly demonstrated with adequate supporting material.

9.0 Reactive Power Supply

9.1 The Commission in its Discussion Paper has proposed that reactive energy charges to be determined by the Commission from time to time shall be payable by the developers.

9.2 The Commission is of the view that it is the responsibility of the generators to supply reactive power requirement of the grid along with active power. The generators should meet a certain minimum requirement of reactive power while generating and supplying active power to the grid.

9.3 Reactive energy charges will be payable as per open access charges specified in the tariff order of the Commission in vogue.

10.0 POWER PURCHASE AGREEMENT

10.1 The Developer and the Distribution Licensee shall enter into a Power Purchase Agreement (PPA) for a period of 20 years from the date of commissioning of the plant.

10.2 The projects should be sized in correlation to the locally available non fossil fuel. The Developer shall establish availability of fuel for the tenure of PPA.

10.3 The Developers are required to get all the required environmental and pollution control approvals/consents from competent authorities before entering into agreement with the Distribution Licensee.

10.4 The projects should be designed to use and should use non fossil fuels available within Bihar such as bagasse, biogas, rice husk, etc. for cogeneration projects and crop residues, agro-industrial residues and other biomass fuels for Biomass based power projects. The projects shall conform to the pollution control and environmental standards as may be applicable from time to time. It shall be the responsibility of the Distribution Licensee to verify and ensure that requisite approval/ clearances/consents for establishment and operation of the project from the concerned competent authority, as regards environmental matters have been acquired before entering into PPA with the Developer.

10.5 In case of loan default by the borrowers (i.e Developers), the Distribution Licensee or successor entities shall pay the dues directly to Financial Institutions (FIs) / Banks on demand by FIs, from the receivables of the power purchased from the generating projects

of the Developers, to ensure security to Lending Institutions and to enable them lend at competitive rates.

- 10.6** The Distribution Licensee shall prepare a model PPA within a month from the date of this order to reflect the tariff provisions and principles as approved therein. The Licensee shall submit to the Commission the copy of the PPA executed in respect of each project within a period of 15 days from the date of such execution. Such PPA's shall also be made public.

11.0 Grid Interface/Evacuation Facilities

The Developers shall bear the cost of project switchyard and inter-connection facilities at the project site upto the point of energy metering. The State Transmission Utility/Transmission Licensee will bear the cost of transmission lines and associated facilities beyond the point of energy metering at the project switchyard for evacuation of power. The Developers shall provide 50% of cost of evacuation facilities at an interest free advance to STU/Licensee to be refunded by STU to the Developers in five equal installments spread over period of 5 years starting from one year after the date of commissioning of Project. In case there is more than one Developer sharing the transmission facilities to be set up by the STU/Licensee, the advance amount shall be shared amongst all the concerned Developers in equal proportion.

Sugar Cane Development Deptt., Govt. of Bihar vide notification dated 24th January, 2006 have notified an incentive package for 5 years from the date of commercial operation of new cogeneration plant or after capacity expansion of old plants for promoting sugar industry and cogeneration plant in the State which inter-alia include that BSEB shall provide transmission lines and associated facilities beyond the point of metering for such cogeneration plants.

12.0 Third Party Sale Provisions

- 12.1** The Developers will supply electricity generated from the bagasse based cogeneration plants and biomass based power plants to BSEB (Deemed Distribution Licensee) or its successor entities at tariff rates indicated in paragraph 7.0 above.
- 12.2** In case of any default by the Licensee under PPA provisions, the Developer shall be entitled to sell energy to third party consumers subject to compliance with the Open Access Regulations notified by the Commission from time to time. The State Transmission Utility Licensee shall facilitate third party sale and enter into an agreement with the developer for this purpose. In case where the Developer has availed the facility of incentive from the State Govt., clearance from the State Govt. will be mandatory for third party sale outside the State.

13.0 Transmission and Wheeling Charges

In case of sale of energy to third party consumers, Sugar Mills Association and Bagasse Cogeneration Developers have suggested transmission charges at 2.5% and wheeling charges at 2%. M/s Emergent Ventures India Limited have submitted that transmission and wheeling charges should be kept at minimum and have proposed transmission loss of not more than 3% ((in energy terms) and wheeling charges at the rate of 1% (in energy terms). IREDA has contended that the renewable energy projects may be allowed lower transmission, wheeling and surcharges.

On the other hand, BSEB have submitted that the transmission and wheeling charges at 5% and 6% as proposed in the Discussion Paper would subsidise the cost of power at the cost of transmission and distribution licensee. Therefore they have suggested that full transmission/wheeling charges corresponding to the usage shall be paid by the developers to the transmission/distribution licensee.

With regard to sale of energy to third party consumer, the transmission and wheeling charges for renewable/cogeneration projects shall be determined by the Commission separately. However, keeping in view the suggestions of the stakeholders, submissions made during the hearing and practices followed by some of the State Commissions, in the interim, **uniform transmission charges at the rate of 5% (in energy terms) and wheeling charges at the rate of 2% (in energy terms) irrespective of the distance, shall be applicable to such projects, in case of sale of energy to third party consumers under default in PPA provisions by the Distribution Licensee as mentioned at para 12.2 above.**

14.0 Banking

The stakeholders and developers have submitted that provision for banking of energy be made in order to meet the power requirements of the plants during emergencies and shutdowns.

Keeping in view the submissions made by the stakeholders and the practice being generally followed by other State Commissions, **the Commission decides that banking facility of upto 2% (Two percent) of total energy supplied to the grid of the licensee shall be allowed upto a maximum period of one calendar year subject to the condition that the banked energy should be drawn within the same calendar year.** Further, drawal of banked energy shall not be allowed during peak hours which is to be decided by the Distribution Licensee.

Banking charges of 2% (Two percent) of the banked energy (in energy terms) shall be applicable.

15.0 Metering and Billing

- 15.1** The meter reading shall be carried out jointly by the Developer and Purchaser and billing of metered energy done on a monthly basis.
- 15.2** The metering equipment/arrangement shall be provided in accordance with the provisions of Bihar Electricity Supply Code, 2007 and Operation and Installation of Meters Regulation of Central Electricity Authority.

16.0 Payment Mechanism

- 16.1** The Commission prescribes a settlement period of 30 days from the date of presentation of the bill by the Developers in order to ensure that the Developer has an assurance of cash inflow for the energy which is delivered to the Distribution Licensee.
- 16.2** In case of delay beyond 30 days payment period, the purchaser will be liable to pay interest on outstanding amount at the rate of 1.25% per month.
- 16.3** In case the purchaser makes the payment within 15 (Fifteen) days from the date of presentation of the bill a rebate at the rate of 1% of billed amount will be allowed by the Developer.

17.0 APPLICABILITY OF THE ORDER

- 17.1** This order will be effective from 1st June, 2009 and applicable to all bagasse based cogeneration projects, other non fossil fuel based cogeneration projects and biomass based power projects in Bihar for sale of electricity to the Distribution Licensee or its successor entities within the State.
- 17.2** The Licensee or its successor entities shall submit half yearly progress reports on the capacity addition and purchase of electricity from such projects to the Commission, and also post them on their website.

18.0 POWER TO AMEND

The Commission reserves the right to alter, modify or amend any provisions of this order at any time. The Commission is of the view that this provision is necessary so that any fact which may have been overlooked can be incorporated or any situation emerges due to experience gained during the operation of the order or announcement of any renewable energy policy by the State Govt./Central Govt. can be suitably addressed in the interest of the stakeholders.

Order accordingly.

Sd/-
(S.K. Jayaswal)
Member

Sd/-
(B.K. Halder)
Chairman

Place : Patna
Date : 21st May, 2009

Appendix

List of Participants in Public Hearing held on 12.11.2008 at Patna

Sl.No.	Name	Designation	Organisation
1.	T.K. Mitra	Tech. Advisor	Birla Sugar, New Delhi.
2.	B.K. Sureka	Executive President	Bharat Sugar Mills, Sidhwalia
3.	Anil Kejriwal	Exe. Vice President	Bharat Sugar Mills, Sidhwalia
4.	Arjun Lal	Consultant	Bihar Sugar Mills Association
5.	Pankaj Bhagat	Legal Advisor	New Swadeshi Sugar Mill
6.	Mayank Mehta	D.G.M. Fin/Accts	Astonfield Group, Mumbai
7.	Sridhar Ramanan	Consultant, Biomas	Astonfield Group, Mumbai
8.	S.N. Poddar	CGM	Harinagar Sugar Mill
9.	G.C. Goyal	Secretary	Bihar Sugar Mill Association
10.	S.S. Singh	Consultant	EVI. Gurgaon – 122 001
11.	Abhinav Gupta	Consultant	EVI. Gurgaon – 122 001
12.	Ankit Kumar	Consultant	EVI. Gurgaon – 122 001
13.	Arun K. Somani	Consultant	EVI. Gurgaon – 122 001
14.	Birendra Kumar	Project Director	BREDA, Sone Bhawan, Patna
15.	V.K. Sinha	Chief Advisor	BSEB, Vidyut Bhawan, Patna
16.	Ravinandan Pd.	ESE Tariff	BSEB, Vidyut Bhawan, Patna
17.	Rakesh	EEE	BSEB, Vidyut Bhawan, Patna