

**Before the Appellate Tribunal for Electricity
Appellate Jurisdiction**

Appeal No. 20 of 2006

Dated 7th September, 2006

**Present: Hon'ble Mr. Justice Anil Dev Singh, Chairperson
Hon'ble Mr. A. A. Khan, Technical Member**

Under Section 111 (2) of Electricity Act, 2003

In the matter of :

1. Chhattisgarh Biomass Energy Developers Association
C/o M/s Bajrang Power and Ispat Ltd., Vill. Borja, Dist. Raipur,
Chhattisgarh
2. KVK Bio Energy Pvt. Ltd., 6-3-1109/A/1, 3rd floor,
Nav Bharat Chamber, Raj Bhawan Raod, Hyderabad
3. ISA Power (P) Ltd., 102, Pooja Pride Apartmnt,
Plot No. 499, Srinagar Colony, Hyderabad
4. Sudha Agro Oils ad Chemical Industries
Samalkot, 533440, E.G. Dist., A.P.
5. Ecofren Power and Projects Ltd., Plot No. 499, 6th Avenue,
7t Street, Banjar Hills Hyderabad – 500034

...Appellants

Versus

1. Chhattisgarh State Electricity Regulatory Commission
Civil Lines, Raipur
2. Chhattisgarh State Electricity Board
Dangania, Raipur
3. State of Chhattisgarh
through its Secretary, Department of Energy
D.K.S. Bhawan, Raiur
4. Chhattisgarh Renewable Energy Development Agency
MIG, A/20-1, Sector-1, Shankar Nagar, Raiupr

...Respondents

Counsel for the appellant (s): Mr. K. Gopal Choudary,

Counsel for the respondent(s): Mr. M.G. Ramachandran
Ms Taruna S. Bhagel,
Ms Saumya Sharma
Ms Suparna Srivastava
Ms Pooja Matlani

Judgement

Per Hon'ble Mr. A.A. Khan, Technical Member

Appeal No. 20/2006 is directed against the Tariff Order dated 11.11.2005 passed by Chhattisgarh State Electricity Regulatory Commission (Commission for brevity) in Petition No. 7 of 2005. As 2nd to 7th appellant(s) have similar grievances as that of the first Appellant they have joined the first Appellant – Chhattisgarh Biomass Energy Developers Association (hereafter called CBDA) in preferring this appeal. The Commission vide its impugned order dated 11.11.2005 disposed of the petition No. 7 of 2005 filed by the CBDA. The issues as brought out in the Appeal are mentioned in the succeeding paras.

- 1.1 As against the Appellant(s) request for fixation of uniform rate of wheeling charges of 2% in kind (3% as per Power Purchase and wheeling agreements entered into between the Appellants and Chhattisgarh State Electricity Board – CSEB for brevity), the commission-has decided to levy 6% of the

- energy input into the system towards transmission and wheeling charges irrespective of the distance between the point of injection of energy into the grid and the location of designated consumers.
- 1.2 The Appellant(s) request for 12 month banking facility was not allowed by the Commission.
 - 1.3 While determining the tariff, the Commission has adopted a normative figure of project cost as Rs. 3.9 crores / MW which is lower than Rs. 4 crores/MW adopted by other state Regulatory Commissions and estimate of CEA (central Electricity Authority).
 - 1.4 Commission has allowed operation and maintenance (O&M) expenses at 4% of the project cost as against 7% recommended by the CEA.
 - 1.5 Depreciation, for tariff determination, has been considered at 7% by the commission as against bench mark of 7.84% proposed.
 - 1.6 Commission has allowed the cost of rice husk at the rate of Rs. 800/MT as against actual price varying between Rs. 850 to 900 per MT and increasing. The wastage of 3% in weight and non-combustible in the fuel has not been allowed.

- 1.7 Power project have been allowed the use of 25% of coal as supplementary fuel to biomass fuel, but coal price has not been included in the working of fuel cost for tariff determination. The commission has also prescribed that the tariff decided by the impugned order will not be applicable to those biomass power plants which consume coal more than 25% of the total fuel consumption.
- 1.8 Commission has provided an annual escalation in the cost of fuel at the rate of 5%. Appellant(s), however, have requested for a reasonable fuel cost adjustment (FCA) formula to be evolved alongwith a mechanism by which the actual fuel cost could be determined from time to time for adjustment in tariff.
- 1.9 The Commission has decided that if a supplier delivers energy less than 70% or more than 105% of the scheduled energy (schedule to be given to distribution licensee at least 15 days prior to commencement of supply of energy) tariff for such power will be the variable cost plus 30 p/kwh.
- 1.10 The Commission did not agree to the request of the appellant that the demand charges in case of Biomass projects supplying to the HT consumers (who are also the consumers of CSEB) should be pro-rata shared by the Biomass developers and CSEB.

- 1.11 Biomass Power Developers' request that exchange of power between CSEB and Biomass projects may be billed monthly after netting the import and export of power. This request did not find any mention in the tariff order.
- 1.12 The tariff order prescribed that in case of availment of start-up power by developers from the grid the demand charge on the contract demand applicable to HV 6 category of tariff would be reduced to 50% of the existing charge with no condition of minimum monthly guaranteed consumption.
- 1.13 The Commission decided that each distribution licensee shall purchase 5% of its total power consumption during a year from Biomass based plants located in the state subject to availability of power from such sources on first come first serve basis. The power available beyond the fixed percentage may be purchased from a bidding process within the tariff approved by the Commission. Further the Commission also decided that the distribution licensee in whose areas of distribution there is no biomass based power plant may seek exemption from purchase of such power from the Commission.

1.14 The Commission decided the tariff on two part basis i.e. fixed cost component and variable cost component for the year 2005-06 to 2014-15 for a period of 10 years with the provision for its review after 5 years at the request of common biomass generating units or a licensee. Whereas the appellant's request was to fix tariff at rate notified by Ministry of Non-Conventional Energy Sources, Govt. of India to be fixed at Rs. 3.12 per unit (subsequently raised to Rs. 3.29 per unit) with an escalation of 5% per annum, there was no provision in the tariff order for any annual escalation rate in tariff.

1.15 The list of dates and events relating to the case, as submitted by the appellant is indicated below:-

LIST OF DATES & EVENTS

- 1994-95 Government of India announced a policy package of incentives, including wheeling of electricity at 2%, banking facilities, and purchase of electricity by Utilities at a rate of Rs. 2.25 per unit for the base year of 1994-95 with cumulative escalation at 5% of the rate during the previous year.
- 7.7.1994 Policy of Government of Madhya Pradesh
- 8.4.2002 The Chhattisgarh State Government issued Notification No. 38 dated 8.4.2002 providing for uniform incentives to all projects based on renewable sources of energy, power purchase price of Rs. 2.25 per

unit with no provision for escalations and wheeling charges to be fixed by CSEB (later fixed at 3%).

- 4.2.2003 By an order 33/510/E.D/02-03, the State Government amended the earlier notification to provide that the CSEB will have to purchase the power at Rs. 2.25 per unit if the developer is desirous of selling the power to CSEB. It was also provided that the tariff for a start-up power will be normal tariff as prevailing at the time of sale and the contract demand will be payable only at 50% of stipulated contract charges.
- 16.9.2003 Power Purchase cum Wheeling Agreements entered into between 2nd Appellant and CSEB.
- 30.7.2004 The Power Purchase cum Wheeling agreements entered into between 3rd and 4th Appellants and CSEB.
- 28.12.2004 The Power Purchase cum Wheeling agreement entered into between 5th Appellant and CSEB.
- 4.5.2005 1st Appellant's Petition No. 7 of 2205 for fixing tariff and other matters.
- 23.7.2005 Commission's interim order rejecting the application for interim relief and thereby deciding on the issue regarding sharing of demand charges prayed for.
- 11.11.2005 Commission passed the impugned order dealing with the tariff and also other matters. Appellants are aggrieved by the same and hence the Appeal.

FACTS RELATING TO CREATION OF FRAMEWORK FOR PROMOTION OF GENERATION OF ENERGY BY BIOMASS:

2.0 Considering numerous benefits of adding electricity generation capacity based on environmentally benign biomass as fuel comprising of rice husk, other agricultural residue, woody mass from regeneration plantation corps etc., to conserve fast depleting fossils reserve; to gainfully utilize local resource of the renewable sources of energy; to contain transmission and distribution losses by setting-up of small capacity geographically dispersed generating stations and also to meet international obligations, Govt. of India has established the Ministry of Non-conventional Energy Sources (hereafter called MNES). MNES, Govt. of India, had issued policy guidelines to the State Governments, during 1994-95 containing promotional and fiscal incentive for the power generation from renewable sources of energy which also included fixation of purchase price for power generated from such sources and inter-alia provided: -

- (a) The base-electrical-energy-purchase price for 1994-95 shall be minimum of Rs. 2.25 /Kwhr.
- (b) The base-price shall be escalated at a rate of 5% every year for a period of 10 years.
- (c) Third party sale shall be allowed within the state at a uniform wheeling charge of 2% of the energy fed to the grid.

(d) Financing of Non-conventional power plant with capital subsidy through the Govt. of India's owned Indian Renewable Energy Development Agency (hereafter called as IREDA).

3.0 Pursuant to the policy guidelines issued by MNES as mentioned above, various State Governments took initiatives for promoting the development of non-conventional energy-based power projects. The Govt. of Madhya Pradesh, the predecessor Govt. of Chhattisgarh, before the division of the erstwhile State of Madhya Pradesh had also issued a scheme of incentives dated 07.07.1994 for generation projects based on non-conventional sources of energy. The Govt. notification inter alia provided the following:

(a) Wheeling charges irrespective of the distance between point of injection of generated power and the HT consumer or self use will be 2%. The State Government will separately compensate the Board towards line losses etc. at the rate of 4% of the power wheeled.

(b) Board will purchase the power based on non-conventional sources of energy at the rate of Rs. 2.25 per kwh without any annual escalation in the rate. For sale of power to third party, the rates are to be mutually settled between the generating party and the third party.

4. State Government of Chhattisgarh (GoC for Short) established the Chhattisgarh Renewable Energy Development Agency (CREDA) as a state nodal agency for the promotional activities of non-conventional energy

sources. State Government issued a notification No. 38/A.P./UV/2002 dated 8.4.2002 which, inter-alia provides as under:-

- (a) Uniform incentives to all projects based on renewable source of energy viz Wind, Agriculture-waste, biomass, co-generation, municipal, industrial-waste and mini-hydel units.
- (b) CSEB was given an option to purchase such power from the developers.
- (c) The price of power was fixed at Rs. 2.25 per unit with no provision of escalation in the subsequent years.
- (d) Wheeling charges in respect of electricity sold to consumers other than CSEB was to be fixed by CSEB. The same was fixed by CSEB at 3% of the energy fed into grid. Wheeling charges will be irrespective of the distance to which the power is wheeled.
- (e) State Government will not compensate CSEB towards line losses etc. for the power wheeled.

5.0 The Government of Chhattisgarh vide an order No. 33/510/ED/02-03 dated 4.2.2003 amended the above notification to provide the following:-

- (a) CSEB will have to purchase the power at Rs. 2.25 per unit if the developers are desirous of selling the power to CSEB.

- (b) The tariff for start-up power will be the normal prevailing tariff and the contract demand will be at 50% of stipulated contract charges.
- (c) The incentive extended will be reviewed after a period of 5 years from the date of Government order No. 38 dated 8.4.2002.

6.0 State of Chhattisgarh is endowed with abundant biomass, mainly rice husk and woody biomass from regeneration plantation corps, which can be used for generation of electricity. Based on 2004-2005 data, the total availability of rice-husk in the state is estimated to be about 12 lakh tons per year and is considered adequate to generate 280 MW of power in the state and also the total forest area being 4,746 Sq. k.m., the availability of woody biomass is considered substantial.

7.0 Pursuant to the policy of GoC, the CREDA, the nodal agency for the development of non-conventional energy sources in the state, has promoted 29 developers with aggregate capacity of 280 MW based on biomass fuel. The first Appellant namely, Chhattisgarh Biomass energy Development Association (CBEDA for short) is an association of these 29 developers. The 2nd to 5th Appellants are the promoters of biomass-based power plants at different locations in the state of Chhattisgarh and have entered into Power Purchase and Wheeling Agreements with CSEB. The agreements provides for 3% of the energy fed into the grid as charges towards wheeling. The 2nd Appellant (i.e. KVK Bio Energy Pvt. Ltd) the promoter

of 15 MW biomass power plant has entered into a Power Purchase and Wheeling agreement with CSEB on 16.09.2003. While the 3rd Appellant (i.e. ISA Power (P) Ltd.) and 5th Appellant (i.e. Ecofren Power & Projects Ltd) have entered into Power Purchase & Wheeling agreements with CSEB on 30.07.2004, the 4th Appellant (i.e. Sudha Agro Oils & Chemical Industries Ltd.) has signed the similar agreement on 28.12.2004.

8.0 Based on the study conducted on 16 biomass-based power projects located in different states, the Central Electricity Authority (CEA for short) at the behest of Ministry of Power; Govt. of India, has also notified a report named as “Operation Norms for Biomass Power Plants” in September 2005.

9.0 Electricity Act 2003 (hereafter called as Act) and National Electricity Policy (NEP) provide the policy framework for promotion of non-conventional energy sources. As per Section 86(1) (e) of the Act, the State Electricity Regulatory Commission (SERC for short) is mandated 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.”

As per para 5.12 of the NEP which makes reference to the Act making SERCs responsible to prescribe a percentage of total consumption of Distribution licensee to be purchased from Non-conventional Energy Source and to determine a differential price for such purchase. The policy also stipulates that:

“Such purchase by Distribution Company will 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 prices to promote these technologies”.

Thus the State Commissions only with a view to promote no-conventional technologies may specify differential procurement prices by distribution licensees from Conventional and non-conventional source of energy and minimum purchase as a percentage of total consumption of electricity in the area of distribution licensees.

10.0 A technical expert committee appointed by the CEA went into details of normative values relating to various technical parameters such as O & M Cost, Aux. Power Consumption etc. for 16 biomass based operating plants located in the states of Andhra Pradesh, Karnataka, Rajasthan and Chhatisgarh. Based on the report of the technical expert Committee, the CEA has notified the operation norms for the biomass-based power plants in September 2005, which inter-alia made the following recommendations:

(a) Following normative values are recommended for existing biomass plants.

Gross Heat Rate (kCal/kwh)	4500
Auxiliary Power Consumption (%)	10
O&M Expenses (%)	7.0
PLF (%)	80

It is however felt that O&M expenses of 7% are very high and biomass power plants should make efforts to reduce the same. These expenses (meaning O&M expenses of 7% of the capital cost) would need to be reviewed after 2-3 years.

(b) As provided in the Electricity Act, 2003 under Section 86 (1) (e), the generation of electricity from renewable sources of energy may be promoted 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. In this connection it is recommended that:

- i) Third party sale with **minimum wheeling charges** may be permitted to encourage biomass power generation.
- ii) Regional/state load dispatch centers should ensure dispatch instructions to biomass generating stations to their capacity/availability irrespective of their merit order ranking.
- iii) The tariff policy may consider including necessary guidelines for fixation of minimum tariff of biomass power plants”.
(Emphasis Supplied).

DISCUSSIONS AND ANALYSIS

11.0 Before we address the pivotal issues raised by the Appellants impacting the viability of non-conventional projects, we are constraint to make certain observations relating to attitude of different agencies in dealing with the implementation of non-conventional projects while at the same time keeping in view the provisions of the Act; NEP; MNES policy guidelines; operation norms notified by CEA and submissions made before the Appellate Tribunal.

- (a) The preamble of the Electricity Act- 2003 reads as under;

*“An act to consolidate the laws relating to generation, transmission, distribution, trading and use of electricity and generally for taking measures conducive to development of electricity industry, promoting competition therein, protecting interest of consumers and supply of electricity to all areas, rationalization of electricity tariff, ensuring transparent policies regarding subsidies, **promotion of efficient and environmentally benign policies**, constitution of Central Electricity Authority, Regulatory Commissions and establishment of Appellate Tribunal and for matters connected therewith or incidental thereto”.* (Emphasis Supplied).

Non-conventional sources of energy including biomass are environmentally friendly ‘green’ power sources of energy and are to be promoted as per the preamble to the Act.

- (b) Section 61 of the Act which specify the guiding factors to be considered for framing terms & conditions for the determination of tariff reads as under;

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

- (a) The principles and methodologies specified by the Central Commission for determination of the tariff applicable to generating companies and transmission licensees;*
- (b) The generation, transmission, distribution and supply of electricity are conducted on commercial principles;*
- (c) The factors which would encourage competition, efficiency, economical use of the resources, good performance and optimum investments;*
- (d) Safeguarding of consumers’ interest and at the same time, recovery of the cost of electricity in a reasonable manner;*
- (e) The principles rewarding efficiency in performance;*
- (f) **Multi-year tariff principles;***
- (g) That the tariff progressively, reflects the cost of supply of electricity, and also, reduces and eliminates cross-subsidies within the period to be specified by the Appropriate Commission;*

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

(i) *Tthe National Electricity Policy and tariff policy.”*

(Emphasis Supplied)

Thus even sub clause (h) of Section 61 gives sufficient indication to the Regulatory Commissions that they are required to promote co-generation and generation of electricity from renewable sources of energy. Promotion of generation of electricity from non-conventional sources of energy is one of the guiding factors for framing the regulations. The Commissions are required to encourage generation of energy by use of non-conventional or renewable sources of energy through regulations. Moreover, sub clause (f) of Section 61 provides for framing of regulations for multi year tariff. Multi-year tariff improves the predictability of the economics of the projects enabling the promoters to commit the investments. It may be pointed out that the improved predictability also enhances the creditworthiness of projects for debt-financing by financial institutions at competitive rates.

(c) As per para 5.12 of NEP pertaining to Non-conventional sources of energy *“adequate promotional measures would also have to be taken for development of technologies and a sustained growth of*

these source.” The technologies presently are at nascent stage and require more time to achieve stabilized operations after the plants based on them are made operational. There are numerous factors relating to manufacturing of efficient and reliable equipment with high adaptability to a range of biomass fuel for achieving optimal performance; adequate availability of biomass feed stock of varying characteristics and calorific values; collection and packaging process of biomass and its transportation to the project sites etc. In order to ensure viability of projects, the uncertainties affecting the projects in its’ operation phase need to be minimized to the extent feasible. Further, the Non-conventional Sources of Energy are denied the advantage of economies of scale of Conventional projects. Non-conventional technologies have, therefore, to be nurtured and developed before they could become competitive in cost efficiency and performance with the conventional source. This has also been acknowledged in para 5.12.2 of NEP.

- (d) The open excess under the Act is primarily conceived to introduce the competition so that consumer gets power of required quality at competitive rates.
- (e) All agencies from Central Government to State Level have clearly recognized that non-conventional sources of energy for some time in

future cannot compete with conventional sources of energy in so far as the cost is concerned and yet need to be promoted for encouraging investments in the former, for a number of tangible and intangible benefits. It was for this reason that non-conventional sources of energy even though at its' nascent state of development is perceived as a favoured candidate for incentives in both promotional and fiscal terms. We record our grave concern that the promotional as well as fiscal incentives recommended by the specialized Ministry at the Centre i.e. Ministry of Non-Conventional Energy Sources are subjected to a series of dissection and scrutiny at the level of State utilities, State Governments, and State Regulatory Commissions to such an extent that the original schemes are rendered totally disfigured and unimplementable. The promoters, too, are not having equal bargaining powers and meekly acquiesces in even signing a long-term, otherwise unacceptable, Power Purchase Agreements with the State utilities. In fact, the competition amongst the different agencies has been in the degree of denial of incentives towards implementation of the schemes. With the result in cases where the promoters have even made huge investments in projects are faced with serious questions about the viability of projects leading to defaults in payment of dues to Financial Institutions. Further many

projects, even though approved have not reached the stage of financial closure and have been languishing.

- (f) We observe that even where the state governments have set up a special organization to act as a nodal agency for promoting the non-conventional projects on renewable sources of energy are neither given credence that they deserve, by the state governments nor by the Commissions. In the state of Chhattisgarh, CREDA set up by the Government of Chhattisgarh has to play a very active role for promoting the Non-Conventional Sources of Energy and in that direction the recommendations made by them have to be given higher credit to that of any other state agency. CREDA have made written submissions before the Commission in all aspects of the biomass projects including the computation for tariff determination. The commission while deciding the various issues seems to have ignored the suggestions made by CREDA and have largely relied on the policies pursued in other states in determining the basis for tariff-parameters not caring to know as to what extent the development of Non-Conventional Sources of Energy has been successful in these states. We would mention few points, hereunder to illustrate:

- (i) MNES, Govt. of India in their guidelines have recommended the wheeling charges for non-conventional energy power to

third party payable to the utilities @ 2% of the total energy injected in the grid. The same was retained in the erstwhile, Government of Madhya Pradesh in the incentive package notified in the year 1994. Government of Chhattisgarh, however, left the wheeling charges to be decided by CSEB from time to time and CSEB arbitrarily decided to increase it to 3% of the energy fed into the grid irrespective of the distance to which the power is wheeled. The impugned tariff order, however, has increased it further to 6% indicating that the state government has withdrawn the subsidy for T&D losses. The provisions of the Act for open access in terms of levying the surcharges for cross-subsidy, additional surcharge on wheeling etc. have also been imposed.

- (ii) MNES incentive provided the tariff of Rs. 2.25/kwh in 1994-95 with an annual escalation at the rate of 5% for 10 years. Government of Madhya Pradesh in its notification adhered to the basic rate of Rs. 2.25/kwh for 1994-95 but did not provide for any annual escalation. The Government of Chhattisgarh in its notification for incentives to non conventional energy projects issued on 08.04.2002 retained the pricing of Rs. 2.25 without any escalation in the

subsequent years. As per the tariff approved by the Commission in its impugned order for the period from 2005-06 to 2014-15, applicable for 10 years, the first year tariff (2005-06) is fixed at Rs. 2.67/kwh and for the terminal year (2014-15) at Rs. 2.98/kwh. It may be pertinent to mention that the Commission at para 19 in its order has indicated that the Board is purchasing power from out side sources other than from the Central Stations at an average rate of Rs. 2.70/KWH (2005-06). It is also noted that the tariff from biomass plant remained fixed at Rs. 2.25 / Kwh for 10 years from 1994-95. With no annual escalation in the rates, the average annual inflation rate of 6% has completely eroded the value of Rs. 2.25/Kwh. This by itself will make the projects unviable and unsustainable. Under these conditions it will be irrational to hope much needed flow of investments in such projects from private sources.

- (iii) The power purchase and wheeling agreements signed between CSEB and biomass developers have a clause as under:

*“Any change, modification, deletions, additions etc
in the policy of State Government from time to time*

in relations to exemption in deferment of Sales tax any other concessions and incentives etc. shall be acceptable to the owner of the plant and the incentives under the present Scheme should stand modified to that extent.”

The above clause negates such agreements to be of bi-lateral nature between equal parties and injects uncertainties about the finality of the terms and conditions of agreements. This also demonstrates the unequal bargaining powers of the parties involved. The developers of plants perhaps had no alternative but to acquiesce to ‘take it or leave it’ attitude of authorities and signed the agreements. No financial institutions, in the normal course, will probably attach much value to such agreements while assessing the creditworthiness of the concerned projects.

- (iv) The forecast for demand and availability of Power from 2004-2005 to 2011-12 projected by CSEB indicate a net deficit of 289 MW in meeting the peak demand by 2011-12. The additional power to meet the current requirement being acquired from outside the state through traders such as PTC, is at much higher cost than being offered to Biomass plants (Appellants have claimed that average

purchase price from PTC etc. is at the rate of Rs. 3.30/Kwh). Further, CEA's report on "Operation Norms for Biomass based plants" at para 7 states that *"the ASCI (Administrative Staff College of India) has quantified the socio-economic impact of biomass power generation. The same has been estimated as 114.3/Kwh for Andhra Pradesh. The report states that such impacts are to be considered while comparing the biomass power generation with Conventional generation"*. A similar study to ascertain positive pricing bias in favour of Biomass power generation for the States of Chhattisgarh on account of saving of socio-economic cost may be commissioned. This however, should have no affect on the rationalizing of the promotional and fiscal incentives to encourage investments in the sector of non-conventional sources of energy.

- (f) The aforesaid illustrates that while deciding the various parameters governing the tariff, a continuous effort by the different authorities/agencies, is being made to make energy prices from non-conventional sources of energy to compete with that of conventional sources of energy. It is premature to be done at this stage of biomass power development and is violative of the letter and spirit of the Act and the National Electricity Plan (NEP).

12. We have perused the CEA's report on **“Operations Norms for biomass based power plants”** dated September, 2005, prepared by a Technical Expert Committee with representatives from State utilities and Equipment manufacturers. The norms are based on actual operation data of plants for 3 years (from January, 2002 to December, 2004) and site related conditions like ambient conditions, fuel quality, equipment and technology specific factors etc. It covered the plants located in States of Tamil Nadu, Karnataka, Andhra Pradesh, Rajasthan and Chhattisgarh. We find that the report has taken into account the guidelines issued by MNES to state Govts. in 1994-95; considered the Andhra Pradesh Regulatory Commission's (APERC) orders dated 20.06.2001 and 20.03.2004 on Non-conventional Energy Sources' Projects; held discussions with manufacturers of plant-equipment (M/s Thermax; BHEL, Triveni); consultants (M/s Avant Grade), ASCI Hyderabad and Indian Renewable Energy Development Agency (IREDA), etc. and had made visits to the selected plants before recommending norms for biomass-based power plants. The approach adopted is fairly scientific and will promote generation of electricity from biomass. As already noted, it is the mandate of the Act of 2003 more particularly Section 86(1)(e) of the Act of 2003 read with Section 61(h) thereof and Preamble thereto and the various policy guidelines to promote generation of electricity from renewable sources of energy including biomass. The appropriate Commission is bound to give effect to the

statutory direction of the Act of 2003 to promote generation of electricity from renewable sources of energy. We find that this spirit of legislation is being defeated while regulating electricity purchase and procurement process of distribution licensees including the price at which the electricity is procured from the generating companies using renewable sources of energy, including biomass. Appropriate Commission is also directed to notify a set of Regulations specifying terms and conditions for the tariff determination of Non-Conventional Sources in compliance to the Section 61 of Electricity Act-2003.

Where the Power Purchase Agreements (PPAs) between the distribution licensees and generating companies utilizing renewable sources of energy are in conformity with MNES guidelines or various policy guidelines as detailed above, the agreements are not required to be tinkered with but where the agreements are one sided and are not in consonance with the MNES guidelines or aforesaid policy guidelines and the terms thereof do not promote generation of electricity from renewable sources of energy, it is the bounden duty of the appropriate Commission to invoke the provisions of Section 86(1)(e) to issue appropriate directions with a view to promote generation of electricity from renewable sources of energy. This call for re-opening of the power purchase and wheeling agreements by the

Commission for suitable amendments in keeping with the provisions of Section 86 (1) (e) of Electricity Act-2003.

Keeping in view the principle that the generation of electricity from renewable sources of energy needs to be promoted, we accept these operational norms as recommended by the CEA's report as basic norms and the Appropriate Commission to act upon them subject to minor adjustments relating to the local site conditions and further refinement after operational data of 5 years operation of biomass plants in the state aggregating to 100 MW is available. The following normative figures as recommended by CEA be adopted:

- (a) Capital cost at the rate of Rs. 4 crores/MW.**
- (b) O & M expenses including insurance to be 7% of the cost of capital with the annual escalation at the rate of 5%.**
- (c) Auxiliary power consumption to be taken as 10%.**
- (d) Normative Gross Heat Rate (Kcal/Kwh)-4500.
(Station Heat Rate to be taken based on the actual P.G. Test report of the projects).**
- (e) Plant Load Factor (PLF) of 80% for recovery of the full fixed cost.**
- (f) Depreciation at the rate of 7.84% p.a. until the debt is repaid. Beyond that 20% is to be spread over the remaining life of the plants. (As permitted by the GOI notification relating to**

Depreciations norms for generating companies dated 29.03.1994).

- (g) **Specific fuel consumption of 1.36 Kg/Kwh with average calorific value of fuel as 3300 cal/Kg.**

WHEELING CHARGES

13. Appellants have requested that the wheeling charges of 2% should be levied for first 10 years of the agreement period. However, as brought out in para 5 above, 2nd to 5th Appellate have entered into Power Purchase and Wheeling Agreement with CSEB which provide for 3% of the energy fed into the grid as charges towards wheeling if the supply is for delivery to consumers other than CSEB or for self captive use. The Commission has increased the transmission and wheeling charges from 3% to 6% irrespective of the distance from the generating station. The open-access under the Act is conceived to introduce competition so that consumers get power at competitive rates. It is an acknowledged fact supported by NEP that biomass-energy sources for sometime in future cannot compete with conventional sources of energy in so far as cost is concerned. It was for this reason it was recognized that the promotion of Non-conventional sources of energy need incentivisation in both fiscal and promotional terms.

The Commission has, therefore, rightly opined that there should be differential wheeling charges on electricity generated from biomass.

14. However, increase in wheeling charges from the rate of 2% (originally fixed) to 6% with the reason that it is to compensate the assessed technical losses at 33 kv voltage level network of 10% and that the State Government has withdrawn the subsidy to compensate for the transmission losses is not a sound reason. Firstly the assessed loss on 33 kv network appears excessive, secondly the biomass based power plants being small in capacity, power generated by them are largely consumed in the close proximity of the plants thereby contributing to the overall reduction in technical loss of the network.

15. If the policy changes by the state government who is to promote these projects in public interest is so frequent, it does not augur well for a long term sustainability of the projects. Under Section 86(1) (e), the state commissions are enjoined to promote generation of energy 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”**. In the circumstances, keeping in view the requirements of the Preamble of the Act

of 2003, Section 86 (1) (e) read with Section 61(h) and the aforesaid policy guidelines referred heretofore, including the policy guidelines issued by MNES, we consider 3% as transmission/wheeling charges to be the reasonable cost to be borne by the biomass plants in the tariff computations of the utilities. We order accordingly.

16. Biomass mainly Rice-husk could be considered to be available for purchase in the market at Rs. 850/- per M.T. The price of supplementary fuel permissible at 25% of coal of the total fuel quantity be also priced along with 75% rice-husk to obtain the aggregate cost of fuel. An escalation on fuel cost at the rate of 5% p.a. be provided. However, the commission may also develop a mechanism of fuel cost adjustment (FCA) so that the variation in cost of the fuel could be extended on actual basis, as and when it occurs.

SHARING OF DEMAND CHARGES

17. The Appellate have requested that the demand charges collectable from the prospective H.T. consumers. (i.e. Third party sale) should be shared pro-rata to the energy supplied by each of them to the consumers. It appears an unreasonable request as the demand charges as a part of the contracted demand agreement between the utility and its H.T. consumers are meant to recover the fixed cost of the infrastructure provided by the distribution

licensee to provide connectivity with the consumers. This request, therefore, is not tenable.

18. In case a person (except the Captive Power Plants carrying electricity to the destination for their own use) is provided the facility of open access to purchase power from a generator instead of distribution licensee the cross subsidy surcharge is leviable to be paid to the licensee as per Section 42 of the Act. The Commission has fixed the rate of cross-subsidy surcharge to the consumers purchasing electricity from the Biomass Generators at 50% prescribed from time to time. The efficacy of dispensing with it or lowering the rate further be re-examined by the Commission.

DEMAND CHARGES FOR START-UP POWER AND MODE OF PAYMENT THEREOF.

19. The generators are required to pay for the total cost of infrastructure for sub-station, line etc (even though deemed owned by the distribution licensees) to establish inter-connection with the grid. Generators also pay additional monthly charges for supervision, maintenance etc. of the inter-connection and the same HT/EHV connections are used for injecting the generated power into the grid and import of power for start-up of the generators. There is no extra expenditure incurred for taking start-up power from the distribution licensees. Moreover, since the quantum of demand being small and of short duration and occur less frequently, we do not

- consider it reasonable and proactive to levy any demand charge on start-up power imported by non-conventional energy plants from the grid for a specified period of at least 5 years of plant operation. Therefore, the demand charge could be levied on gradual basis up to 50% of the demand charges applicable to conventional plants. No minimum charges on account of guaranteed consumption shall also be leviable as decided by the Commission.
20. Further, netting of the monthly export of energy to the grid by the non-conventional energy plants against the import of start-up power from the grid is a sound proposal for settlement of bills as it reduces the hassles of accountings. As a matter of fact in this exchange, the costlier energy of non-conventional energy plant being traded in kind against the lower priced energy from the grid, and thus nullifying to some extent the impact on the purchase price of the licensee.

MANDATORY MINIMUM PURCHASE OF POWER BY THE BOARD/LICENSEE

21. Section 86 (1) (e) of the Act provides that the State commission shall specify for purchase of electricity from such sources (i.e. cogeneration and renewable sources of energy), a percentage of the total consumption of electricity in the area of a distribution licensee. The commission in its impugned order after making it mandatory for each distribution licensee to

purchase 5% of its total power consumption during a year, from biomass based power plants, has decided that the distribution licensees in whose area of distribution there is no biomass based power may seek exemption from the Commission from the purchase of the specified power. The latter condition being contrary to sec 86 (1) (e) is, therefore, rejected.

BANKING

22. Banking of electricity is a facility to help small generating stations based on non-conventional sources of energy to produce power by maximizing the utilizations of available fuel stock without demand restrictions. This, however, is subject to average annual utilization of the generator not exceeding 100% PLF. In this arrangement the distribution licensee purchases the entire power generated by a plant even if it is more than the demand of the third party or its own and utilizes the excess power to meet its current demand by adjusting the purchases from other outside sources. The excess power so utilized (banked) by the distribution licensee is released back from its own source to the generators when required by them. This facilitates in optimal utilization of available sources of energy viz, water, wind, bagasse, biomass etc. and makes an economic sense.
23. The objections relating to the timing of deposits and withdrawal from the “banked energy” could be addressed and resolved as under:

- (a) If timings of deposits and withdrawals both occur either during peaking hours or in non-peaking hours – No change in tariff.
 - (b) If timing of deposits is in peaking hours and withdrawal is non-peaking hours – generators agree for no change in the basic tariff.
 - (c) If timing of deposits is in non-peaking hours and withdrawal is in peaking hours.
24. In case of situation 24(c) above the generator may be asked to pay the difference in rates of average annual procurement price from the sources outside the state (except central power) by the licensees and sale price of the generator to compensate the licensee. The Commission to examine this for a suitable formulation and adoption.

IF THE GENERATOR SUPPLIES ENERGY LESS THAN 70% OR MORE THAN 105% OF THE SCHEDULED ENERGY

25. The commission in its impugned order has decided that the tariff for sale of energy will be the variable cost only plus 30 paise per units in case supply is less than 70% or more than 105% of the scheduled energy. It further specifies that the plants should give monthly schedule of energy proposed to be supplied to a distribution licensee at least 15 days in advance. The capping of 105% of the scheduled energy be relaxed and regulated in a

manner that annual average PLF does no exceed 100% as mentioned in para 22 above.

CONCLUSIONS:

26. In view of the aforesaid discussions, the appeal is partly allowed and the impugned order of the Commission dated November 11, 2005 is set aside to the extent indicated above and the matter is remitted to the Commission for fresh determination, with regard to the findings of the Commission, which have not been confirmed by us. The Commission shall decide the matter within three weeks' of the receipt of the copy of this order in the light of the observations made by us and in accordance with law. Also the Commission is directed to prepare and notify a set of Regulations for Non-Conventional Sources of Energy in compliance with Section 61 of the Electricity Act-2003 within four months.

(A. A. KHAN)
Member Technical

(JUSTICE ANIL DEV SINGH)
Chairperson