



**BEFORE THE TAMIL NADU ELECTRICITY REGULATORY COMMISSION
CHENNAI**

SUO MOTU PROCEEDINGS

Present : Hon'ble Thiru A.Balraj, Chairman
Hon'ble Thiru.S.Thangarathnam, Member
Hon'ble Thiru B.Jeyaraman, Member

Order No 4 dated 15-5-2006

In the matter of : Power purchase and allied issues in respect of fossil fuel based Group Captive Generating Plants and fossil fuel based Co-generation plants

In exercise of the powers conferred by section 181 read with sections 9, 61, 86(b) and 86(e) of the Electricity Act, 2003 (Act 36 of 2003) and all other powers enabling it in this behalf, the Tamil Nadu Electricity Regulatory Commission (TNERC), having considered a draft consultative paper by the staff of the Commission, the views of the stakeholders, received as written comments, consulted the members of the State Advisory Committee, heard the issues raised in a public hearing, the reply of the Tamil Nadu Electricity Board and having considered the documents available on record, passes this order, to fix the power purchase and procurement process, including the price for procurement of power by the Tamil Nadu Electricity Board (TNEB) and other Distribution Licensees in Tamil Nadu from Fossil Fuel based Group Captive Generating Plants (CGPs) and fossil fuel based Cogeneration Plants in the State. This order shall come into force from the date of its issue

Sd.....
B.Jeyaraman
Member

Sd.....
S.Thangarathnam
Member

Sd.....
A.Balraj
Chairman

1.0 PREAMBLE

(1) Power Scenario in Tamil Nadu

The TNEB's generating capacity as on 31.01.2006 is 10130.725 MW comprising 2970 MW from four Thermal Stations, 423 MW from four Gas Turbine Stations, 2138 MW from 33 Hydro Stations, 19.355 MW from wind mills ,1136.4 MW from Private Sector Projects, 177.97 MW as contribution to Tamil Nadu grid by sale of electricity from Captive Generating Plants and 3266 MW as Tamil Nadu's share from Central Generating Stations. Generating capacity from privately owned wind farms is 2475.3 MW. The installed capacity of Cogeneration in Sugar Mills is 296.6 MW, Biomass power project is 32.85 MW and through Solar is 0.165 MW.

The gross generation was 52,345 million units (MU) and a total of 41,200 MU was consumed in Tamil Nadu during the year 2004-2005. Based on the TNEB's data, a gross generation of 53305 MU and a total consumption of 43710 MU have been projected for the year 2005-06. The historical annual growth in energy consumption in Tamil Nadu is in the order of 5% to 6% in the previous 10 years. With a spinning reserve of 500 MW, the net deficit will work out to 629 MW and corresponding energy shortage of 1,130 MU for the year 2005-06.

(2) Captive Generation Scenario in Tamil Nadu

The analysis of data on captive generation in Tamil Nadu reveals that there are 26 operational Captive Generation plants (CGPs) as on 31-01-2006 with a total aggregated capacity of 639.626 MW. Out of the 26 plants, the capacities of 17 plants are more than 10 MW each totalling 577.326 MW. It is understood that 6 more CGPs are in the pipe line with a total capacity of 226.22 MW. As per TNEB's report, the TNEB have purchased around 647.99 MU from the CPP for the year 2004-05 at an average price of Rs 2.90.

2.0 BACKGROUND OF THIS ORDER

The Commission have taken into consideration the genesis of the Captive Power Generation in the State and its evolution. The existing Captive Power Plant Policy was issued by the Government of Tamil Nadu vide G.O. MS. No. 48 Energy dated

22.04.1998 and amended subsequently in letter no. 4020/A1/98-3 dated 22.05.1998 and letter No. 6551/A1/98-3 dated 25.8.1998. Salient features of the policy are:

(1) Energy generated from captive power generation (i) can be used by the user of captive power generation (ii) can be used by the sister concern of the owner of captive power generation (iii) Balance power after usage in items (i) and (ii) above will be purchased by TNEB.

(2) Third party sale is not permissible.

(3) The banking period is one year from 1st October to the next 30th September. The energy banked during a particular banking period shall have to be drawn during banking period or during the succeeding year banking period. The banking commission to the TNEB will be 2% in terms of energy.

(4) Wheeling shall be 15% in terms of energy wheeled in units irrespective of voltage or distance.

(5) The units of energy wheeled will be adjusted in the service to which wheeling is done, as follows :-

- If the tariff of the service to which wheeling of energy is H.T. Tariff-I, the wheeled units will be directly adjusted.
- If the tariff rate for the energy of the wheeled service is higher than that of H.T. Tariff-I, the adjustment will be at H.T. Tariff-I rate. The difference in rates will be charged to the consumer for the units wheeled.
- If the tariff rate of energy of the wheeled service is lower than that of H.T. Tariff-I, then the wheeled units will be directly adjusted.

(6) Pricing of the Power sold to TNEB

- The pricing for the Captive Power Generation is only single part, i.e. rate for units alone.
- The rate for FIRM Power is at normal rate and the rate for INFIRM Power is at 75% of the normal rate.

- FIRM Power means quantity of power in units committed by the owner of the Captive Generation to be sold to Tamil Nadu Electricity Board annually.
- INFIRM power means quantity of power in units sold to TNEB, without any commitment or the entire quantity of power in units sold to TNEB, in case the commitment is not fulfilled.
- The rate for firm power for the year 1998-99 will be Rs. 2.25 (Rupees Two and paise twenty five only). For the next 9 years there will be an increase of 5% (five percent) every year on the previous year rate. From 1-4-2008, the rate will be fixed after review.

(7) Power export to TNEB will be at 0.9 Power Factor. If the average Power Factor of the export meter is below 0.9, penal levy will be made in the bill amount as prescribed in Tariff notifications for H.T. Services

(8) Individual PPA shall be executed with TNEB for purchase of power by TNEB. Prior permission has to be obtained from TNEB for wheeling. The Power Purchase Agreement will be for a period of 15 years or the expected useful life of the plant which ever is less.

(9) Permission for installation of Captive Power Generation is to be obtained from TNEB under Section 44 of Indian Electricity (Supply) Act 1948. For captive power generation of 25 MW and above, TNEB will accord permission under Section 44 of Indian Electricity (Supply) Act 1948 only after consulting the Central Electricity Authority as per Section 44 (2A) of Electricity (Supply) Act 1948.

(10) Commissioning approval shall have to be obtained from Chief Electrical Inspector to Government, if the capacity exceeds 10 KW.

(11) Permission of Government of Tamil Nadu is required to synchronize and operate with Grid. Owner of CGP should apply for the above to TNEB and on TNEB's recommendations Government will issue permission.

(12) All statutory clearances for setting up the CGP have to be obtained by the owner of the CGP on his own accord and TNEB will not be involved in any manner.

The growth of the CGP underwent changes from time to time depending on the prevailing power and tariff scenario in the State in the subsequent years. However, the enactment of EA 2003 brought out radical thinking on CGP policies. The Act mandated reforms and competition in the electricity industry including de-licensing of generation of electricity. TNEB have forecasted a net deficit of 579 MW for the year 2006-07 considering a spinning reserve of 500 MW and the gap will be progressively increasing in the forthcoming years. In such a context, the Commission observed that there is an opportunity to harness the excess saleable capacity with the Captive Generation Plants (CGPs), which could be utilized to partially bridge the demand-supply gap and also to improve the reliability, quality and cost effectiveness of the power in the State. Over and above, the present policy was issued by Government of Tamil Nadu, before the enactment of the Electricity Act 2003, there is a necessity to revisit the same and introduce the provisions as per the new Act.

3.0 CONSULTATIVE PAPER ON CAPTIVE GENERATING PLANTS

After seizing the issue, Commission considered the guidelines stipulated in the National Electricity Policy on CGP which are reproduced below.

Section 5.2.24 *The liberal provision in the Electricity Act, 2003 with respect to setting up of captive power plant has been made with a view to not only securing reliable, quality and cost effective power but also to facilitate creation of employment opportunities through speedy and efficient growth of industry.*

Section 5.2.25 *The provision relating to captive power plants to be set up by group of consumers is primarily aimed at enabling small and medium industries or other consumers that may not individually be in a position to set up plant of optimal size in a cost effective manner. It needs to be noted that efficient expansion of small and medium industries across the country would lead to creation of enormous employment opportunities.*

Section 5.2.26 *A large number of captive and standby generating stations in India have surplus capacity that could be supplied to the grid continuously or during certain time periods. These plants offer a sizeable and potentially competitive capacity that could be harnessed for meeting demand for power.*

*Under the Act, captive generators have access to licensees and would get access to consumers who are allowed open access. Grid inter-connections for captive generators shall be facilitated as per section 30 of the Act. This should be done on priority basis to enable captive generation to become available as distributed generation along the grid. Towards this end, non-conventional energy sources including co-generation could also play a role. **Appropriate commercial arrangements would need to be instituted between licensees and the captive generators for harnessing of spare capacity energy from captive power plants. The appropriate Regulatory Commission shall exercise regulatory oversight on such commercial arrangements between captive generators and licensees and determine tariffs when a licensee is the off-taker of power from captive plant.***

In line with the above, the staff of the Commission prepared a draft consultative paper which included the commercial arrangement for the Captive Generating Plants. The draft consultative paper was discussed in the State Advisory Committee (SAC) meeting held on 11-11-2005. The list of SAC Members and Special invitees who have attended the meeting is furnished in Annexure-I. A public notice was issued on 18-11-2005 in leading daily newspapers in English and Tamil, inviting objections/comments/views on the consultative paper. The last date for filing of objections/comments/views was fixed as 30-11-2005. Based on the request of the stake holders, the last date was extended up to 15-12-2005. A notice dated 29-11-2005 for Public Hearing to be held on 23-12-2005 was published on the website of the Commission and in leading daily newspapers in English and Tamil. The draft consultative paper was hosted on the Website of the Commission for easy access to the Public. The draft consultative paper was provided for inspection at the Commission's office and also made available for sale. The list of stakeholders who have expressed their views in public hearing is given in Annexure - II. The list of stakeholders who have communicated their views through letters is given in Annexure - III. TNEB also furnished their written comments.

4.0 APPLICABILITY OF ORDER

This order shall come into force from the date of its issue. This Order shall be applicable to all future fossil fuel based continuous duty Group Captive Generating

Plants and fossil fuel based cogeneration plants located within the State of Tamil Nadu. For such of those CGPs' existing but not covered by specific agreements, this order shall automatically apply. It should be noted that the existing contracts and agreements in the matter of Captive Generating Plants between the CGP Holders and the Distribution Licensee signed prior to the date of issue of this order would continue to remain in force. However, the CGP Holders and Distribution Licensees shall have the option to mutually re-negotiate the existing agreements / contracts, if any, in line with this order even before the expiry of the contracts. Any renewal of the said contracts / agreements, new contracts / agreements should be in line with this order.

5.0 DEFINITIONS.

- (a) **“Annual Basis”** shall be determined based on a financial year.
- (b) **“Captive generating plant”** means a power plant set up by any person to generate electricity primarily for his own use and includes a power plant set up by any co-operative society or association of persons for generating electricity primarily for the use of members of such co-operative society or association.
- (c) **“Captive User”** shall mean the end user of the electricity generated in a Captive Generating Plant and the term “Captive Use” shall be construed accordingly.
- (d) **“Cogeneration”** means a process which simultaneously produces two or more forms of useful energy (including Electricity)

Two basic cogeneration cycles as defined in the Ministry of Power (MoP) Resolution A-40/95-IPC-I dated 06.11.1996 are:

- (i) **Topping Cycle:** Any facility that uses fuel input for power generation and also utilizes for useful heat for other industrial activities. In any facility with a supplementary firing facility, it would be required that the useful heat, to be utilized in the industrial activities, is more than the heat to be supplied to the system through the supplementary firing by at least 20%.
- (ii) **Bottoming Cycle:** Any facility that uses waste industrial heat for power generation by supplementing heat from any fossil fuel.
- (e) **“Firm Power”** means supplying of at least 700 units by the generator per hour

per scheduled MW. [This calculation is based on a normative load factor of 70% for fossil fuel based Captive Generating or fossil fuel based Cogeneration Plants (i.e. 1000 kWh x 70% Load Factor = 700 units per hour)]. Any injection by the CGP or cogeneration plants, which is less than 700 units per hour per scheduled MW capacity will be construed as infirm power.

(f) **“Fossil fuel”** is defined as a natural substance with hydrocarbon contents that can be burnt to generate useful heat. Major fossil fuels that are covered by this Order include-

- Solid Fossil Fuels like Coal, Lignite
- Liquid Fossil Fuels like Diesel, Furnace Oil (FO), Low Sulphur Heavy Stock (LSHS), Naphtha, Light Diesel Oil (LDO), Superior Kerosene Oil (SKO), High Speed Diesel (HSD) and
- Gaseous Fossil Fuels like Natural Gas, Re-gasified Liquefied Natural Gas (R-LNG), Liquefied Petroleum Gas (LPG), Other Lean Gases (like Propane, Butane, etc.)

It should be noted that the fuels mentioned above are major fossil fuels used in fossil fuel based Captive Power Plants. However, it is not an exhaustive list, and any other fossil fuel with hydrocarbon content shall be covered by this Order. Any non-fossil fuel used for captive generation is not covered under this Order.

(g) **“Infirm Power”** means the energy supplied that is not Firm Power, which is interruptible on a very short notice.

(hi) **“Ownership”** in relation to a generating station or power plant set up by a company or any other body corporate shall mean the equity share capital with voting rights. In other cases ownership shall mean proprietary interest and control over the generating station or power plant

(i) **“Special Purpose Vehicle”** shall mean a legal entity owning, operating and maintaining a generating station and with no other business or activity to be engaged in by the legal entity.

6.0 REQUIREMENT FOR CAPTIVE GENERATING PLANTS

Requirement of Captive / Group Captive Generating Plant as notified by Government of India (GoI) under rule GSR -379 (E) dated 8-6-2005 is:

(1) No power plant shall qualify as a 'Captive Generating Plant' under section 9 read with clause (8) of section 2 of the Act unless-

(a) in case of a power plant -

(i) not less than twenty six percent of the ownership is held by the captive user(s), and

(ii) not less than fifty one percent of the aggregate electricity generated in such plant, determined on an annual basis, is consumed for the captive use

Provided that in case of power plant set up by registered cooperative society, the conditions mentioned under paragraphs at (i) and (ii) above shall be satisfied collectively by the members of the cooperative society

Provided further that in case of association of persons, the captive user(s) shall hold not less than twenty six percent of the ownership of the plant in aggregate and such captive user(s) shall consume not less than fifty one percent of the electricity generated, determined on an annual basis, in proportion to their shares in ownership of the power plant within a variation not exceeding ten percent

(b) in case of a generating station owned by a company formed as special purpose vehicle, for such generating station, a unit or units of such generating station identified for captive use and not the entire generating station satisfy (s) the conditions contained in paragraphs (i) and (ii) of sub-clause (a) above including -

Explanation :-

(1) The electricity required to be consumed by captive users shall be determined with reference to such generating unit or units in aggregate identified for captive use and not with reference to generating station as a whole; and

(2) the equity shares to be held by the captive user(s) in the generating station shall not be less than twenty six per cent of the proportionate of the equity of the company related to the generating unit or units identified as the captive generating plant.

Illustration: In a generating station with two units of 50 MW each namely Units A and B, one unit of 50 MW namely Unit A may be identified as the Captive Generating Plant. The captive users shall hold not less than thirteen percent of the equity shares

in the company (being the twenty six percent proportionate to Unit A of 50 MW) and not less than fifty one percent of the electricity generated in Unit A determined on an annual basis is to be consumed by the captive users.

(2) It shall be the obligation of the captive users to ensure that the consumption by the Captive Users at the percentages mentioned in sub-clauses (a) and (b) of sub-rule (1) above is maintained and in case the minimum percentage of captive use is not complied with in any year, the entire electricity generated shall be treated as if it is a supply of electricity by a generating company.

Note:- *If the CGP holder has not complied with the above criteria, then the entire energy generated by the CGP holder is considered to be sold to Distribution Licensee and the entire energy consumed by the CGP user will be charged under the tariff of that category of the user.*

7.0 REQUIREMENT FOR COGENERATION PLANT

The Ministry of Power (MoP) in its Resolution A-40/95-IPC-I dated 06.11.1996 have defined the qualifying requirements for a co-generation facility as follows:

(1) Qualifying Requirements for Topping Cycle:

The qualifying requirements for topping cycle would depend on the type of fuel used as the overall efficiency levels likely to be achieved for power generation varies with the choice of fuel. Essentially, any cogeneration facility meeting the efficiency requirement will be more efficient than any combination of separately generated electricity and steam using the state-of art- technology. As such while setting the efficiency standards, the achievable efficiency in case of a particular fuel has been kept in consideration. In addition, for all cases of cogeneration facility, it would be required that at least 20% of the total energy output is in the form of useful thermal energy.

As the cogeneration project would be feeding power to the state grid, in order to maintain grid stability and facilitate proper planning of the power system, it would be required that the cogeneration facility must be available to supply at least **5MW of power for at least 250 days in a year.**

(a) Using coal as fuel

The sum of useful power output and one half the useful thermal output be greater than 45% of the facility's energy consumption.

(b) Using Liquid Fuel

The sum of useful power output and the useful thermal output be greater than 65% of the facility's energy consumption.

(c) Refinery Bottoms as fuels

Refinery Bottoms or those by products of refining process would be permitted to be used as fuel for cogeneration facilities to be set up by any petroleum refining unit which cannot be easily marketed due to transportation problems or due to low heat content. However, to qualify as a cogeneration plant, the sum of useful power output and one half the useful thermal output be greater than 45% of the facility's energy consumption and in any calendar year, not less than 90% of the total heat input for the facility should come from refinery residue or the refinery bottom.

(2) Qualifying Requirements for Bottoming Cycle

In case of bottoming cycle, the total useful power out put in any calendar year must not be less than 50% of the total heat input through supplementary firing.

8.0 TARIFF PRINCIPLES

(1) Commission is guided by the following tariff related provisions as stipulated in Section 61 of the Act.

- (a) the principles and methodologies specified by the Central Commission for determination of the tariff applicable to generating companies;
- (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) promotion of co-generation and;
- (g) the National Electricity Policy.

(2) The Commission is also guided by, the following specific provisions of, the Tariff Policy of Government of India (Ministry of Power), relating to Captive Generating Plants.

- (a) Firm supplies may be bought from captive plants by distribution licensees using the guidelines issued by the Central Government under section 63 of the Act.
- (b) The prices should be differentiated for peak and off-peak supply and the tariff should include variable cost of generation at actual levels and reasonable compensation for capacity charges.
- (c) Alternatively, a frequency based real time mechanism can be used and the captive generators can be allowed to inject into the grid under the ABT mechanism.
- (d) Wheeling charges and other terms and conditions, for implementation should be determined in advance, by the respective State Commission, duly ensuring that the charges are reasonable and fair.
- (e) Power Purchase Agreement should ensure adequate and bankable payment security arrangements to the Generating companies and;
- (f) Grid connected captive plants could also supply power to non-captive users connected to the grid through available transmission facilities based on negotiated tariffs. Such sale of electricity would be subject to relevant regulations for open access.

(3) The Forum of Regulators have provided some valuable guidelines as detailed below, with regard to the CGP issues, and the Commission have taken them into account.

- (a) Pricing for firm and infirm surplus captive generation should be different:
- (b) Firm Supply
 - ❖ SERC's should encourage the distribution licensees to procure firm committed supply from captive generation and determine the price for purchase of such firm supply based on hours of supply.

- ❖ The prices could be differentiated for peak and off peak supply and the tariff could include variable cost of generation and reasonable compensation for getting capacity charges. Benchmark tariff for generators using different fuels might also be indicated by the SERCs for purchase of power from CPP up to 15 MW plant size.
- ❖ Alternatively, the SERCs might consider fixing the maximum and minimum ceiling price for such purchase in exercise of the powers under Proviso to section 62 (a) of the Electricity Act 2003.
- ❖ SERCs might also choose to encourage the distribution licensees to procure such firm supply through competitive bidding. Ideally, bids could be invited on a composite tariff basis (instead of two part tariff basis). In the event of the price determined through bidding process, the SERCs might adopt such price as mandated in section 63 of the Act.
- ❖ Firm supplies contracted should be scheduled as per the merit order dispatch and deviation from the schedule, if any, should be financially settled through Unscheduled Interchange (UI) mechanism.

(c) Infirm Supply

- ❖ SERCs should also encourage their distribution licensees to tap infirm supply from Captive Power Plant. Captive generators with infirm supply should be allowed to inject into the grid under the UI mechanism and the price of such infirm supply should be linked to frequency linked UI rates at the time of injection.

As per the provision of the Electricity Act, 2003, surplus power from Captive power Plant could also be supplied directly to a consumer if open access was allowed to such consumer by the SERCs. Once such open access was allowed to a consumer, the tariff for such sale / supply was not subject to regulatory approval. However, to facilitate and operationalise such transactions, proper metering arrangements should be made. Special Energy Meters (SEMs) needed to be installed at Captive Power Plant as well as at open access consumer end.

(d) Where wheeling is involved (for own use or for third-party sale), the following charges could be levied, namely, fixed charges for connection, SLDC charges, reactive energy charges, transmission / wheeling charges. For start up / stand by,

SERCs should fix the tariff upfront. These charges should be reasonable and not exceed the charges fixed for temporary connections.

9.0 APPROACH

The Commission have carried out a detailed analysis of the various policies of the Government and the existing commercial mechanisms provided by TNEB for the captive generating plants. Commission have also analysed the orders issued by other Commissions, the demand-supply gap of the State during peak and non-peak hours, the cost of procuring power from other available sources and the various factors that affect the cost of generation, like technology, fuels used, size of CGP, other operational constraints, etc. It is also observed that there is a considerable variation in the capacity and the fuels used by the CGPs since the CGPs are designed to suit CGP holder's own requirement of power and economic sourcing of fuel. Though there are only 26 CGPs in the State at present, the numbers may increase due to the liberal policies provided under the new Act . Considering all these factors, Commission is of the opinion that the tariff should be generic in nature and not be different for various CGP holders based on size of CGP or type of fuel used.

10. ISSUE-WISE COMPILATION OF COMMENTS / SUGGESTIONS AND COMMISSION'S VIEWS / DECISIONS

Issue No. 1: Clarification / Changes required on various definition:

Thiru T.B.Chikkoba, Member, SAC has remarked that the definition for "Average Power Factor" applies only to consumers.

Mr. Chandrasekaran, M/s. Mont Blanc Finance Services Ltd. has sought for clarifications whether the consumption is proportional to ownership since in the definition of CGP it has been given as 26% ownership and 51% consumption.

M/s.Tamil Nadu Power Producers Association has requested clarifications whether the Companies formed as Special Purpose Vehicle which own the captive generating plant should be identified as Captive Users under the Captive policy if 26% ownership is held amongst the group captive users and they consume 51% of

the net power generated irrespective of the percentage of holding amongst the users.

Mr.Y.Srinibas, M/s.Coromandel Electric Co. Ltd has requested clarification in the definition of firm & Infirm Power. As per the consultative paper the firm power would be one where there is Energy Purchase Agreement (EPA) and the supply is 700 units in one hour. Any shortfall in this would result in the same being classified as Infirm Power. Hence, he has requested classification of Firm/Infirm power based on commitment and not based on supplies less than any stipulation.

Chairman & MD, M/s.Tamil Nadu Newsprint And Papers Ltd. has requested that firm power may be defined as the power committed to supply on monthly basis instead of breaking supply on hourly units.

M/s.Tamil Nadu Power Producers Association has requested to consider the selling of 500 units as firm power for supply in one hour.

Chairman & MD, M/s.Tamil Nadu Newsprint And Papers Ltd. has requested that the sugar mill Co-generation plants with TNPL tie-up be treated on par with bagasse based co-gen plants along with facilities such as (i) exemption from classifying the power as Firm and Infirm power and (ii) equivalent tariff for both units

He has also submitted that the differential treatment for the sugar mill Co-gen plants with TNPL tie-up would result in denial of basic raw material to TNPL from the sugar mills

M/s.Tamil Nadu Power Producers Association has requested that in the definition of co-generation, provisions should be made to include also the plants having partly waste heat recovery and partly using additional fuel using separate boilers to arrive at feasible power generation capacity.

Director, M/s.Kamachi Sponge And Power Corporation Ltd. has requested that a specific Policy for Waste Heat recovery based Cogeneration Plants may be included

since **Waste Heat recovery based Cogen Plants** delivers more cleaner power and it deserves all the encouragement.

Commission's Views / Decisions

1. It is agreed that the definition on "Average Power factor" is relevant only to consumers and hence need not be included in this order.

2. Regarding the clarification on the percentage of ownership and consumption, the details have been clearly given in the Gol rule GSR (379) (E) dated 8-6-2005.

3. In regard to firm / infirm power, the Commission considered the stability of the grid and facilitating the proper planning of the power system. Distribution licensee has an obligation of supplying continuous and uninterrupted power supply to his/her consumers. Therefore, distribution licensee needs "firm power" to service his consumers. For the coal based TNEB power plants (except ETPS) the Commission in its tariff order dated 15-03-2003 proposed a Plant Load Factor (PLF) of more than 80%. Considering the various size and fuel used by CGP's, the Commission is of the opinion that the adoption of an average PLF of 70% for CGP is very reasonable. Hence, the eligibility criteria of feeding a minimum of 700 units per hour, per committed MW, by CGP (i.e. $1000 \text{ kWh} \times 70\% \text{ (Load Factor)} = 700 \text{ units per hour}$) is justified. In this context, there seems to be a necessity to make it explicitly clear on the usage of terminologies relating to firm power and firm supply commitment. The intention of this order is to enable the CGP holder to sell his surplus power to the Distribution Licensee. The surplus in CGP can be categorised as

(a) Surplus a priori which is the maximum firm commitment (referred as firm supply in the policies / guidelines etc.), a CGP holder can offer at the best.

(b) Surplus resulting from reduced captive usage due to various factors such as factory closure, reduction in production level etc., which is dynamic and an infirm offer (referred as infirm supply)

Accordingly, whenever the order refers to scheduling / commitment, with respect to the transactions of CGP and Licensee, it pertains to the firm / infirm supply and should not be confused with firm power / infirm power definitions.

4. Section 61 of the Act requires that the Appropriate Commission shall, specify the terms and conditions for the determination of tariff, and in doing so, shall be guided by promotion of co-generation and **generation of electricity from renewable sources of energy**. In line with the Act provisions, the Commission considers that the nature of the fuel used for generation of electricity shall be taken as the main criteria for promoting generation of electricity and determination of tariff accordingly. Therefore, for the bagasse based cogen units, using conventional fuel for start up, stabilization and extended operational days, the Commission decides to adopt the following MNES's (Ministry for Non-Conventional Energy Sources) eligibility criteria.

***For Bagasse/Biomass Cogeneration Projects:** Bagasse, forestry and agro-based industrial residues. Mix of conventional and/or non-conventional fuel, up to 25 per cent only, allowed in both cases to achieve extended operating days in a year.*

The categorization of power plants who are supplying of bagasse fibre to TNPL will be done accordingly.

5. Any power generation on waste heat recovery system by an industrial unit shall be treated as cogeneration provided it satisfies the condition and criteria prescribed by the Ministry of Power (MoP) Resolution A-40/95-IPC-I dated 06.11.1996.

Issue No. 2 : Purchase Price:

Thiru T.B.Chikkoba, Member, SAC has remarked that the rationale of linking the purchase rate to "UI rate" is not spelt out. He has also submitted that as the number of captive power plants is only 22, Commission could consider the tariff fixation on case by case basis

Thiru M.S.Parthasarathy, Member, SAC, has suggested that the rate for purchase by co-generation captive generation plants as per UI rate subject to the floor rate of Rs.2.30 per unit needs to be re-examined upwards.

Mr. Chandrasekaran, M/s. Mont Blanc Finance Services Ltd. has expressed that Rs.2.30 basic price fixed in the consultative paper is very less and it will not meet the

variable cost. He has further stated that the previous day paper carried an article stating that Maharashtra is buying power at Rs.10/ per unit to meet the temporary shortage. He has further added that when the frequency of grid is improving everyday, no CGP will feed power to grid at Rs.2.30. Further more he has stated that when the new IPPs are quoting even Rs.4.00 / Rs.5.00 per unit, Rs.3.40 suggested by him is a reasonable price.

Mr. M.B. Gupta, M/s.Hitech Carbon has submitted that the Purchase price may be linked to inflation in fuel cost. He has also submitted that in their HiTech plant, they are forced to produce power as a by-product for environment reasons **from waste heat**. Hence, he has requested the classification as NCES or cogen. He has also submitted that the purchase price of Rs.2.30 per unit is inadequate.

The Secretary, M/s.MMS Steel & Power Pvt. Ltd has requested the modification of the proposed maximum & minimum price from Rs. 3.80 & Rs.2.30 to Rs.3.80 and Rs. 2.70 in line with the current level of fuel cost and future escalation. Similar views were expressed by **Mr.S.Elangovan, MD, M/s.Kaveri Gas Power Ltd, M/s.Saheli Exports Pvt. Ltd, Chairman, M/s. Arkay Energy (Rameswaram) Ltd. and by the Director, M/s.Kamachi Sponge and Power Corporation Ltd.**

Mr.Y.Srinibas, M/s.Coromandel Electric Co. Ltd has requested that the Commission may elaborate the commercial arrangement for the supply of energy and reconciliation and payment keeping in view the settlement under ABT. He has also requested that the Commission may specify the methodology for transparent monitoring of UI Charges. He has also submitted that the Commission has specified a discounted price for infirm Power thus leading to a differential pricing and hence recommended that the firm commitment from CGP for supply ie. Firm Power should be incentivised. Therefore he has requested the reconsideration of the classification aspect of Firm & Infirm Power.

Chairman & MD, M/s.Tamil Nadu Newsprint And Papers Ltd. has requested that the tariff for captive co-generation should be equal to or maximum of 5% lower than that of bagasse based co-generation.

M/s.Tamil Nadu Power Producers Association has requested the modification of the proposed maximum & minimum price from Rs. 3.80 & Rs.2.30 to Rs.4.40 and Rs. 3.40 in line with the current level of fuel cost and future escalation.

M/s.Tamil Nadu Power Producers Association has also requested that the UI frequency should be changed to 49.95 Hz. and this frequency should be fixed and should not be changed on the basis of CERC rates.

Director, M/s.Kamachi Sponge And Power Corporation Ltd. has requested that the rate shall be at Rs.3.20 per unit for Waste Heat recovery based Cogen Plants which will be slightly higher than the rates mentioned in the draft policy for bagasse based co-gen plants.

TNEB has represented that rate of purchase of firm and infirm power shall be based on UI rate under the principles of Availability Based Tariff (ABT). TNEB has stated that the present UI rate at 50 HZ is Rs.1.50 per unit & Rs.1.02 per unit at 50.16 HZ. and the grid is normally operated more than 50 cycles during night off peak hours (22 hours to 5.00 hours the next day). Since, TNEB can avail cheaper power as against the minimum rate for the captive power fixed as Rs.2.30 per unit & maximum rate as Rs.3.80 per unit as per the consultative paper, TNEB may be permitted to insist the captive sets to reduce /stop their generation depending upon grid requirement and to implement the merit order dispatch. The floor rate of Rs.2.30 per Unit and maximum rate of Rs.3.80 per unit indicated needs a detailed study and revision. The tariff may be fixed on case by case basis and the infirm rate may be 75% of the firm rate instead of 90% indicated in the draft.

TNEB has also stated that since in the tariff order effective from 16.03.2003 (clause 4.2.4) it is stated that infirm power sources such as cogeneration, captive, wind and other States is outside the purview of merit order dispatch, necessary amendment will have to be issued for the above.

Further, in the said clause, under the heading, “Common requirements for both firm and infirm CGP power purchases by the distribution licensee”, the following will have

to be deleted as the payment arrangement is to be left to the mutual agreement of the parties concerned:

“The payments for the power purchase from the CGPs by the Distribution Licensee should be settled at the end of each billing cycle”.

Orders of other Commissions on Purchase rate.

Maharashtra Electricity Regulatory Commission

MERC in its order dated 8-9-2004 have proposed a rate for purchase of CGP power linked to the prevailing grid frequency, subject to a band of a minimum floor rate of Rs 2.30 and a maximum ceiling rate of 2/3 of CERC's UI rate at 49 Hz.

Utter Pradesh Electricity Regulatory commission

UPERC in its order dated 18-07-2005, have ordered a firm power purchase rate of Rs. 1.82 per unit for a 200 MW coal based plant in the first year of its operation i.e. sum of Non-escalating fixed cost (93.77 Paisa), Escalating fixed cost (13.72 Paisa) and Variable Cost (75 Paisa). The Commission have fixed different cost for different year for different capacity of Generator. For diesel based captive generation and for short term surplus power sale, the Commission have determined the tariff at the rate of pooled variable cost for the State plants plus an incentive of Rs.0.35 per unit. The pooled variable cost tariff for 2004-05 as per tariff order for 04-05 is Rs. 1.03 per unit. The same shall be increased by 4% for every subsequent year.

Commission's Views / Decisions

There is justifiable logic and prudence for not fixing the purchase rate on case by case basis in respect of CGP and linking the purchase rate to the prevailing UI rate of CERC, subject to a band of a minimum floor rate of Rs 2.10 and a maximum ceiling rate of Rs 3.45 intersecting at 49.8 Hz and 49.5 Hz respectively at the present UI rate of CERC. Keeping in mind, both the cost of generation of the CGPs and the commercial viability of the Distribution Licensee, the Commission have prescribed the upper limit and floor rate for purchase of firm power as well as in-firm power. The floor rate and the upper limit have been decided based on the marginal cost of generation in the State and average realisation of the TNEB. Hence, the Commission feels that the floor rate of Rs 2.10 and the maximum ceiling rate of Rs 3.45 linked to the CERC's UI rate proposed in this order will help both the CGP and

Distribution licensee in the long run. However, the Commission would be monitoring this commercial mechanism and revisit the rate after a period of three years. The floor rate of Rs 2.10 and the maximum ceiling rate of Rs 3.45 proposed in this order are fixed component. However, the intersecting frequency will vary according to the UI rates as and when approved by the CERC from time to time.

The power purchase rate of IPPs has not been considered because those PPA's were signed in a different power scenario of the State under different power purchase regulating mechanism before the enactment of the Act 2003. The scenario has considerably changed after the enactment of Act 2003. Furthermore, CGP holders are installing their generating plants to generate energy primarily for their own consumption and only the surplus power is sold to the Distribution Licensee. In the light of the above, the power purchase rate of IPPs is not considered.

As the tariff is linked to the UI rate, no inflation / escalation in fuel cost is considered by the Commission.

Since the demand – supply gap of Maharashtra is different from that of Tamil Nadu, their purchase rate to tide over the temporary shortage cannot be compared. It is to be noted that the Maharashtra Electricity Regulatory Commission (MERC) have also considered a UI rate linked tariff for CGP vide its order dated 8-9-2004 issued on case number 55 and 56 of 2003.

In regard to the TNEB's request to amend the tariff order to bring the CGP generation under Merit Order Dispatch, the Commission may consider the same if necessary.

Issue No. 3 : Demand Charges / Grid support Charges:

Mr. Chandrasekaran, M/s. Mont Blanc Finance Services Ltd. has submitted that whatever the power factor of the generating plant, equivalent demand shall be permitted. He has also submitted that the demand set shall be related to the generating capacity. Furthermore he has added that the inter slot (peak and non-peak) adjustment of power may be permitted with cost difference. He has also

submitted that during plant shut down, the CPP also will be shut down and during this period the demand charges are being charged for 12 months. He has requested that it shall be charged at the concerned HT tariff for that period only.

Mr. Chandrasekaran, M/s.India Cements Ltd has submitted that if there is no grid support, there should not be any deemed demand charges under captive power plant. He has further stated that there is no logic for assuming 51% consumption and arriving at 37% deemed demand charges. He has requested that 51% shall only be stipulated as eligibility criteria. If at all, it should be calculated for 75% since most of the CPPs are operating at 75%.

M/s.Tamil Nadu Power Producers Association has requested that the captive power plants which are connected with the grid should be allowed to draw power from the grid during their shutdown periods and breakdown periods to meet the captive users by paying the applicable HT1 unit rate.

Mr. M.B. Gupta, M/s. Hitech Carbon has submitted that they feed power to their sister concerns where the demand charges are made for full contracted demand. Hence they have requested that the demand charges be fixed on proportionate basis.

The Secretary, M/s.MMS Steel & Power Pvt. Ltd has submitted that the charging of 37% deemed demand on the portion of the demand met by CGP is not justifiable when the entire demand has been generated by the CGP.

Mr.Y.Srinibas, M/s.Coromandel Electric Co. Ltd has stated that it is not clear if this charge relates to the standby charges or the settlement arrangement for energy and demand.

He has also requested that the Commission may specify the “energy charges” or “UI Charges” as the Charges for Grid support charges or stand by charges and no other charges (deemed demand charges) shall be leviable towards standby charges.

Mr.S.Elangovan, MD, M/s.Kaveri Gas Power Ltd. has requested that the levy of deemed demand charges may not be appropriate when the entire demand of the Captive user is met by the CGP .

Mr.T.V.Swaminathan, Joint President (Operations), M/s. India Cements Ltd. has submitted that the levy of Deemed demand Charges as proposed by the Commission is not acceptable and Captive user has to be given a credit for the entire demand charges to the extent of the energy consumed from captive source.

M/s.Tamil Nadu Power Producers Association has stated that for the Cogeneration captive users, when the entire demand has been generated by the Cogeneration Plant, it would be only natural justice to give the demand generated by the Cogeneration plant in full to the captive end user depending on the power factor of the generator.

M/s.Saheli Exports Pvt. Ltd. has submitted that when the entire demand of the Captive User is met by the CGP it would be only natural justice to give the demand generated by the CGP in full to the Captive user. Similar views have been expressed by **M/s.Kamachi Sponge And Power Corporation Ltd. and M/s. Arkay Energy (Rameswaram) Ltd.**

V.Balakrishnan, Chennai has requested to introduce the currently available & proven technology to correctly handle the above mismatch after carrying out detailed study and ensure the application of appropriate tariff models as against uniform deemed demand charges across all categories.

Mr. Kathiresan, CFC, TNEB has replied that Board is incurring fixed cost because Board shall always maintain the readiness of supply to CPP, Cogen or NCES plant as and when supply is required by them. Hence the CPP, Cogen or NCES plants shall pay the demand charges @ Rs.300/-.

TNEB's Remark :The Board is charging Demand Charge for HT industries at the rate of Rs.300/KVA/Month (90% of sanctioned demand or actual recorded demand whichever is higher) as per the Tariff Order dt.15.03.2003 issued by the Hon'ble

Commission. This Demand Charge is to recover the fixed charges incurred by the Board for creating capacity to meet the demand of the consumer whenever the consumer needs power. The captive generator has to wheel his power to his destination through the Board's T&D network. The fixed charge will not get reduced due to the coming up of new CGPs as the Board should continue to have the same infrastructure for bringing the power to the consumer's premises.

TNEB has stated that as per the draft policy, the demand charges for captive user shall be 37.03% of the applicable demand charges for that category of captive user for the deemed demand supplied by the CGP holder plus 100% of the applicable demand charges for that category of Captive user for the balance demand supplied by the Distribution Licensee. (i.e. the difference between the maximum demand recorded and the deemed demand subject to the tariff order on demand charges). TNEB has stated that the concept of demand charge is to recover the fixed charge incurred by the Board for maintaining the Grid (i.e. demand) ie. the Board should supply power at the destination point irrespective of whether there is generation in CGP or not .

Whomsoever, installing factories/Industries within the TNEB's grid network shall have to pay the Demand Charge irrespective of the fact whether his power requirement is met by TNEB or by his own captive generation, so that TNEB should be able to maintain the grid/frequency and take steps to improve the grid network in order to meet the incremental demand/fluctuations in the grid demand.

TNEB has recommended that the Demand Charge should be in proportion to the sanctioned Demand to the Industry and not in proportion to the own power/Board's power and hence stated that it is essential that the Demand Charge should be levied on par with Industrial consumers irrespective of the fact whether he is a CGP holder or not. Demand Charge shall be as per the rates fixed by the Hon'ble Commission in the Tariff Order dt.15.03.2003.

Also, any reduction in Demand Charge to the CGP holder as proposed in the draft policy will inevitably increase the Demand Charge disproportionately to the other

Industrial consumers, who does not have CGP, in order to recover the full Fixed Charge.

TNEB has also stated that the demand of the grid is around 7000 MW and the small contribution from the captive units is insignificant and hence the captive user should be made to pay full demand charges on par with the industrial consumers.

Orders of other Commissions on demand charges / Grid Support Charges.

Maharastra Electricity Regulatory Commission

The Additional Demand Charges should be charged to only those CPP Holders whose Captive Power Plants are synchronised with the grid. In line with the MERC Tariff Orders, HT consumers having captive generation facilities synchronised with the grid will pay Additional Demand Charges of Rs.20 per kVA per month only on the Standby component, and only on the quantum, if any, in excess of the consumer's Contract Demand. For exceeding the Contract Demand (over and above the standby component, if applicable), the CPP Holder would be levied penal charges depending upon the drawal during planned shut down or unplanned shut down.

Commission's Views / Decisions

Regarding the grid support / availability charges, the charges proposed by the Commission in its order on transmission and wheeling charges etc. on the petition filed by the TNEB for the following conditions are applicable to all fossil fuel based captive / cogeneration plants and for all third party purchasers in the State.

1. Outage of Generator conditions and providing Start up Power
2. When the scheduled generation is not maintained and / or when the drawal by the consumer is in excess of the schedule.

The rationale in arriving at a percentage of the demand charges as grid support charges is discussed below.

When CGP holder is synchronized with the Grid, energy charges shall be payable by the captive user and/or third party purchaser for the portion of the units supplied by the Distribution Licensee. This can be obtained by subtracting the units supplied by

the CGP holder from the total consumption of the captive user and/or third Party Purchaser during the billing month at the applicable rate of that category. In addition to energy charges stipulated above, the captive user and/or Third party purchaser shall pay applicable demand charges as specified below:

There are 2880 time blocks of 15 minutes interval in a billing month. In each time block in the billing month, it is not feasible to segregate precisely the quantum of demand supplied to the captive user and/or the third party purchaser by the CGP holder and by the licensee distinctly. This segregation may be computed by matching the demand recorded in each time block of the CGP holder end (A) with the sum of the demand recorded in the corresponding time block at the captive users and/or third party purchaser end (B) then

Case 1 - If (B) is lesser than (A), it means there is no supply of demand by the licensee to the captive user.

Case 2 - If (B) is greater than (A), it means that there is supply of demand by the licensee in that respective time block.

As per the tariff order, demand charges in a billing month by any HT consumer is 90% of sanctioned demand or recorded demand which ever is higher. As the demand is recorded at every 15 minutes time block, the recorded demand will show the maximum demand recorded in any of the time block of 15 minutes in that billing period of one month. The probability of occurrence of case 1 is zero and the probability of licensee supplying the demand in any one of the time blocks in a billing month as in case 2 is 100 percent. In this scenario, the licensee is entitled to receive the demand charges in total. But the CGP holder is also injecting the demand into the grid continuously. Even though all the fluctuation in the CGP holder end and captive user end is met by the licensee, percentage of the demand injected by CGP holder is to be taken for consideration and necessary credit provided through the deemed demand charges as specified in section 6.24 of the Commission's orders on transmission and wheeling charges etc., against the petition of TNEB in TP 1 of 2005

Since the purchase rate by the distribution licensee is linked to the UI rate which in turn is linked to the frequency, no separate treatment is necessary for peak / non peak hour tariff

Grid support charges will be levied only for the captive generators who have been synchronised with the grid for the purpose of wheeling power to his/her destination of his/her own use and or to a third party.

Issue No. 4: Banking :

Mr. Chandrasekaran, M/s. Mont Blanc Finance Services Ltd. has submitted that Banking facility shall be given to all CPPs and a banking charge may be fixed.

Mr. Chandrasekaran, M/s.India Cements Ltd has also submitted that Banking provisions shall be given to CPP.

The Secretary, M/s. MMS Steel & Power Pvt. Ltd has requested that the readings shall be taken both at CGP end and the Captive User end on the same date so as to avoid any carry over of the transaction to the next month. He has also requested that the readings taken at CGP end shall be communicated to the respective Captive User end distribution circle within two days so as to facilitate the captive consumption adjustments in the same month. Similar views have been expressed by **Mr.S.Elangovan, MD, M/s.Kaveri Gas Power Ltd., M/s.Tamil Nadu Power Producers Association, M/s.Saheli Exports Pvt. Ltd, M/s.Kamachi Sponge And Power Corporation Ltd and M/s. Arkay Energy (Rameswaram) Ltd.**

Mr.Y.Srinibas, M/s.Coromandel Electric Co. Ltd has submitted that the banking facility proposed in line with the current practice is acceptable and can be continued

Mr.T.V.Swaminathan, Joint President (Operations), M/s. India Cements Ltd. has requested the consideration of banking facility for a period of four months.

M/s.Tamil Nadu Power Producers Association has requested the consideration of banking facility for a period of twelve months as applicable for Wind Energy.

M/s.Saheli Exports Pvt. Ltd. has requested the consideration of uniform banking facility to all CGPs irrespective of the fuel used.

Orders of the other Commissions on Energy Banking.

Maharastra Electricity Regulatory Commission

Banking of energy shall be allowed by the Distribution Licensee, and will be regulated by the following conditions:

(1) An Energy Banking Agreement (EBA) should be executed between the CPP holder and the Distribution Licensee. The EBA will be for a minimum of 3-years and a maximum period of 5-years.

(2) Accounting of the banked energy units would be carried out on Time of Day (ToD) basis, i.e. energy units banked by the CPP Holder during a particular ToD-slot should be accounted against the same ToD slot when the CPP holder draws the banked units. For this purpose the ToD slots as per latest approved tariff of the Distribution Licensee would be applicable. It should be noted that units banked during a higher tariff ToD-slot could be consumed in a lower tariff ToD slot at the option of CPP Holder, but the reverse would not be allowed (i.e. units banked during a lower tariff ToD-slot cannot be drawn by the CPP Holder during a higher tariff ToD-slot).

(3) Given that the Commission is planning to introduce Intra-state ABT regime, installation of Special ToD Meters with continuous communication capability with the concerned LDC/ Distribution Licensee would be desirable.

(4) The eligibility criterion of minimum 1 MW would be equivalent to 700 units per hour i.e. minimum 700 units per hour should be fed into the Distribution Licensee's grid.

(5) In case the Distribution Licensee does not provide 24 hour banking facility to the CPP Holder, then the accounting of the energy fed into the grid during the time period for which Banking is not desired (mostly the off-peak demand period for the Distribution Licensee) should be linked to the grid frequency prevailing at that time as detailed below.

Sr. No	Grid Frequency (Hz)	Credit for Banking as a percentage of total energy fed into the grid (%)
1	50.00 and above	0%

2	Below 50.00	100%
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(6) The banked units should be accounted for by the Distribution Licensee on a monthly basis. The Distribution Licensee would give the credit for the balance units in the subsequent month's bill.

(7) It should be noted that at the end of the Financial Year accounting of the banked units should be carried out, and balance banked units would be adjusted against the energy purchased by the CPP holder during the Financial Year. However, subsequent to adjustment of banked units at the end of the Financial Year, if there are additional balance banked units, such banked units would lapse at the end of the year.

Commission's Views / Decisions

The Distribution Licensee needs firm power to service their consumers. Unlike generation from NCES sources such as wind energy, the fossil fuel based generators can generate power continuously and they can offer "firm" supply to Distribution Licensee. Hence, there is no justification in giving banking provision for fossil fuel based CGPs. However, the energy generated and consumed can be adjusted on slot to slot basis taking into account the (i) peak (ii) off peak and (iii) normal generation / consumption within monthly billing cycle. It should be noted that units generated during a higher tariff ToD-slot could be consumed in a lower tariff ToD slot at the option of CGP Holder, but the reverse would not be allowed (i.e. units generated during a lower tariff ToD-slot cannot be drawn by the CGP Holder during a higher tariff ToD slot).

The suggestion that monthly readings shall be taken both at CGP end and at the Captive User end on the same date and communicated within two days for adjustment and billing is accepted by the Commission. This is possible since all the CGPs and CGP users are being provided with Special Energy Meters suitable for the implementation of ABT mechanism.

Issue No. 5 : Transmission & Wheeling:

Mr. Chandrasekaran, M/s. Mont Blanc Finance Services Ltd. has submitted that since there is separate policy on Transmission and Wheeling, clause 7.4 of the consultative paper may be deleted.

M/s.Tamil Nadu Power Producers Association has requested that wheeling charges and other benefits applicable for bagasse based Co-gen units be extended to waste heat recovery based generation if it satisfies the co-gen criteria.

Mr. Chandrasekaran, M/s.India Cements Ltd has submitted that CPPs pumping and drawing at 110 KV should not be charged distribution charges.

Mr. S.K. Palaniappan, M/s. India Cements Ltd. has submitted that in the existing agreement, there is no provision for Transmission and Wheeling charges and 15% is followed as per the G.O. He has requested clarification to this point.

Mr. M.B. Gupta, M/s.Hitech Carbon (Aditya Birla Group) has submitted that Wheeling Charge of 2% is very high since their plant is just one km away from the grid and the actual loss would be in the order of 0.3 to 0.5% only.

Director, M/s.Kamachi Sponge And Power Corporation Ltd. has requested that in the absence of a specific policy for the Waste Heat recovery based Cogen Plants, the wheeling charges and other benefits shall be at par with the CoGen plants using Bagasse and biomass

Mr.S.Elangovan, MD, M/s.Kaveri Gas Power Ltd. has requested total deletion of this clause since losses for interfacing line has already been included in the Transmission & Wheeling Losses payable. Similar views have been expressed by M/s.Tamil Nadu Power Producers Association, M/s.Saheli Exports Pvt. Ltd, M/s. Arkay Energy (Rameswaram) Ltd and M/s.Kamachi Sponge And Power Corporation Ltd.

M/s.Tamil Nadu Power Producers Association has requested the levy of the following charges for the purpose of levying transmission & wheeling charges for waste heat recovery based co-gen plants:

- **Within 25 KMs usage : 2%**
- **Beyond 25 KMs usage : 7%**

Director, M/s.Kamachi Sponge And Power Corporation Ltd. has requested the levy of the following charges for the purpose of levying transmission & wheeling charges for waste heat recovery based co-gen plant

- **Within 25 KMs usage : 1.5%**
- **Beyond 25 KMs usage : 6%**

TNEB's Remarks :With regard to the wheeling charges for Intra State, TNEB has requested that a fixed wheeling charges at 15% in terms of energy in units irrespective of distance and voltage of their service may be considered.

TNEB has suggested that 2% of the energy may be deducted for the loss in the interfacing line irrespective of voltage level, if the meter is at CGP generator end as the distance from the CPP to SS end varies from plant to plant.

Orders of other Commissions on Transmission and wheeling charges

Maharastra Electricity Regulatory Commission

The Wheeling Charges and Transmission charges will be 2% and 5% respectively as approved by the Commission in its Order dated 16th August 2002 for purchase of power from Bagasse based Co-generation Projects and Order dated 24th November 2003 for Procurement of Wind Energy and Wheeling for Third Party Sale and/ or self-use. In case the CPP power is wheeled over the grid, separate Energy Wheeling Agreement (EWA) should be signed by the CPP holder as well as CPP power Consumer (consumer may be CPP holder himself or the Third Party) with its respective Distribution Licensee. The Distribution Licensee should provide 24 hour wheeling facility on ToD basis.

Commission's Views / Decisions

Since fossil fuel based CGPs are also the open access customer, the transmission and wheeling charges are to be regulated by the open access regulation issued by the Commission. However, to promote the cogeneration as per the section 86 (1) (e), a separate transmission and wheeling charges have been fixed for CGP cogeneration.

Issue No. 6: Metering Arrangement:

Thiru T.B.Chikkoba, Member, SAC has suggested that the meter may be fixed at the point of injection instead of at generator end to avoid fixation of percentage of line loss.

Mr. Chandrasekaran, M/s. Mont Blanc Finance Services Ltd. has submitted that metering arrangements shall be at generating end.

M/s.Tamil Nadu Power Producers Association has requested that the main meter, check meter, stand-by meter for captive power generating plants and co-generation plants should be installed at the generator output terminal.

TNEB's Remarks :For the energy supplied by the CGP to TNEB the export meter should be fixed at TNEB's receiving end.

Commission's Views / Decisions

After considering various options including the provisions made in the draft CEA regulations on 'Installation and Operations of Meters', the Commission decides to have the outgoing feeders from the CGP switch yard as location for interface meters.

Issue No.7 : Reactive Power Charges:

Mr. S.K. Palaniappan, M/s. India Cements Ltd. has submitted that CGPs are exporting reactive power to the grid and hence they shall be given some incentive.

Mr.T.V.Swaminathan, Joint President (Operations), M/s. India Cements Ltd. has requested the consideration of extending suitable incentive for the reactive power exported by the CGP power Producers for power factor of 0.9 and above.

Commission's Views / Decisions

Charges for the Reactive Power Injection / drawal by the CGP Holders synchronized with the grid, shall be regulated as per Tamil Nadu Electricity Grid Code / Indian Electricity Grid Code., Commission's orders on tariff , transmission charges / wheeling charges etc.,

Issue No.8 : Provision for existing beneficiaries:

The Secretary, M/s.MMS Steel & Power Pvt. Ltd has requested that the existing CGP Holders & captive User who are entitled to continue with the existing agreement or arrangement may also be given an option to opt for the new policy as and when announced so as to eliminate any disparity between existing and new CGP holders and hence requested deletion of the respective clause.

Mr.S.Elangovan, MD, M/s.Kaveri Gas Power Ltd. has also requested the option for the existing CGP Holders to switch to the new policy as & when announced so as to eliminate any disparity between the existing & new CGP holders. Hence he has requested the deletion of this clause in the final policy.

Mr.T.V.Swaminathan, Joint President (Operations), M/s. India Cements Ltd. has requested clarification on the applicability of the new policy as & when announced for the existing & new CGP holders.

M/s.Tamil Nadu Power Producers Association has requested deletion of this clause so that the applicability of the new policy as & when announced will be applicable for both the new CGP holders & as well existing CGP holders. Similar views have been expressed by **M/s.Saheli Exports Pvt. Ltd. and M/s. Arkay Energy (Rameswaram) Ltd.**

TNEB's remarks : Suitable provisions may be made in the said clause, so that the existing CGP holders and captive users may be made to fall in line so as to be regulated under the provisions of the Electricity Act, 2003 from a particular cut off date. The Government of India notification dated 8.6.2005 on Captive Generating Plant may also be incorporated.

Commission's Views / Decisions

Commission accepts the suggestions of the majority of the stake holders on this issue and the Commission have modified the applicability of this order accordingly.

Issue No. 9: Evacuation Facilities:

The Secretary, M/s.MMS Steel & Power Pvt. Ltd has requested for a provision to execute the works such as erection of interfacing line under the supervision of licensee in case of delay in execution by the licensee.

M/s.Tamil Nadu Power Producers Association has requested that a separate interfacing line is not required when the captive Power generator happens to be a consumer and hence the existing service line itself serves the purpose

Orders of other Commissions on Evacuation Facilities.

Maharashtra Electricity Regulatory Commission

The CPP holder desirous of synchronising the CPP with the grid shall bear the cost of switchyard and interconnection facilities (to be accommodated within CPP premises) upto the point of energy metering. The Distribution Licensee shall bear the cost of transmission lines and associated facilities beyond the point of energy metering for the evacuation of power. The CPP Holder shall provide an interest free advance to the Distribution Licensee equivalent to 50% of the cost of works to be carried out by the Distribution Licensee for power evacuation purposes. The Distribution Licensee shall refund the above interest free advance to the CPP Holder in five equal instalments spread over five years commencing from one year after the date of synchronisation of the CPP.

Commission's Views / Decisions

Since the power evacuation works will be carried out by the distribution licensee as a Deposit Contribution Works (DCW), the distribution licensee shall give top priority to complete these works. However, the Distribution Licensee can permit the CGP holder to execute the evacuation works. In that case the deposit received by the Distribution Licensee towards the works shall be returned.

Issue No. 10: Third Party Sale:

Mr.Y.Srinibas, M/s.Coromandel Electric Co. Ltd has requested that the Commission may remove the limitations such as 70% load factor stipulated for wheeling & sale to 3rd party / consumers and they have recommended that any capacity and energy without any limitation, subject to open Access regulations formulated, should be allowed to be wheeled and sold to consumers

Orders of other Commissions on Third Party Sale:

Maharashtra Electricity Regulatory Commission

The rate of purchase of CPP Power by the Third Party Consumer is not within the purview of the Commission. However, the sale of CPP Power to the Third Party shall be subject to the following conditions;

- (1) The 'Infirm' power supply will not be accounted for, in case the Distribution Licensee's network is being used for wheeling such power, since the CPP Holder has the banking option with the Distribution Licensee.
- (2) For the purpose of operational simplicity, the eligibility criterion applicable for purchase of 'Firm' power through the Distribution Licensee's network will be a minimum of 1 MW (i.e.equivalent to 700 units per hour). In case a CPP holder puts less than 1 MW of power into the grid then such lower quantum of energy should not be accounted for by the Distribution Licensee.
- (3) ToD (including Special Energy Meters- SEMs) meters should be installed by both the CPP Holder synchronised with the grid and desirous of selling power to the Third Party consumer as well as the Third Party consumer of CPP Power at the receiving end.
- (4) Third Party sale through the grid will be subject to the Commission providing Open Access in the Distribution Licensee's area where the Third Party Consumer of CPP power is located.

Commission's Views / Decisions

Third party sale can be permitted for CGP subject to the provision in Open Access Regulations.

Issue No. 11 :Adjustments of peak / off-peak power:

Mr.Y.Srinibas, M/s.Coromandel Electric Co. Ltd has requested clarification with regard to requirement of settlement of peak power and off-peak power as the cumulative generation during the Peak and off-peak power (including the relevant banking of power) as against the Peak and off-peak power consumption for the determination of net consumption during the billing month.

M/s.Tamil Nadu Power Producers Association has requested the adjustments as (i) peak hour generation with peak hour consumption (ii) off-peak generation with off-

peak hour consumption and (iii) the normal generation with normal consumption with any surplus being adjusted in the remaining two slots by charging or paying additional charges as notified by the Commission from time to time.

TNEB's Remark : TNEB has stated that the peak hour extra charges and off peak hour rebate shall be on net energy consumption subject to the condition that TOD meters are fixed at the generation point to measure the generation during peak hour/off peak hour and adjustment is made through wheeling on time basis.

Commission's Views / Decisions

Since all the CGPs and captive users shall be provided with TOD meters, the adjustment of energy shall be done on slot to slot basis, within monthly billing cycle as follows.

- (i) peak hour generation with peak hour consumption
- (ii) off-peak hour generation with off-peak hour consumption and
- (iii) the normal hour generation with normal hour consumption.

It should be noted that units generated during a higher tariff ToD-slot could be consumed in a lower tariff ToD slot at the option of CGP holder, but the reverse would not be allowed (i.e. units generated during a lower tariff ToD-slot cannot be drawn by the CGP Holder during a higher tariff ToD-slot).

No carry over is allowed for the next month. The peak hour extra charges and off peak hour rebate shall be on net energy consumption after deducting captive generation during the respective peak hour block and off peak hour block.

Issue No 12: Power factor incentive / disincentive :

TNEB's Remark : The power factor incentive / disincentive shall be on net consumption since the consumer is buying/paying bill only for the net energy consumption.

Commission's Views / Decisions

The reactive power injection by the CGP is governed by the Tamil Nadu Electricity Grid Code (TNEGC). It is the responsibility of the CGP user to maintain the power

factor both in the interest of the user and in the interest of the power system as a whole. As per section 7.17, part 1 (1.0) of the Commission's tariff order dated 15-03-2003, pf incentive / disincentive is applicable to the consumer as a percentage of current consumption charges. In the same line, the pf incentive / disincentive is applicable to CGP user on the current consumption charges bill prepared based on the gross energy and applicable demand as per the CGP order. However, the average pf recorded by the meter will be the reference for calculation of pf incentive / disincentive.

Issue No. 13 :Reduction in Contracted Demand:

Mr.Y.Srinibas, M/s.Coromandel Electric Co. Ltd has requested clarification with regard to recovery of additional surcharge as per section 42(4) of EA 2003 when the open access consumer reduces or changes his contracted demand when sourcing power from other sources.

TNEB's Remarks :When the sanctioned demand is surrendered by the consumer after installation of CGP, the infrastructures are not dismantled immediately. Also the infrastructures could not be utilized immediately for any other consumer. TNEB has to wait for some more time to bring the infrastructures to beneficial usage. In order to compensate the losses to some extent the one time payment is collected.

TNEB has also stated that, once the line material /transformers are used and then taken back due to reduction of demand, it can not be used in other places and has to be disposed as scrap. Therefore, TNEB incurs loss due to non-utilization of assets in order to its full life period. In order to compensate this loss, additional one time charge for the quantum of demand reduced is being levied.

Commission's Views / Decisions

The CGP user is permitted to reduce his/her demand without paying any charges once in a year. *However, frequent reduction / changes in the demand will adversely affect the generation and power purchase planning of the Distribution licensees. Therefore, the Commission proposes a rate of twice the demand charges applicable to that category of consumers in case of reduction in demand more than once within a year.*

Issue No14: Excess Demand Charges

TNEB's Remarks: TNEB has stated that, for the Excess Recorded demand, two times of the Demand charge is to be charged as per the Tariff Order dt. 15.03.2003. This charge is to be levied for all industrial consumers irrespective of the fact that whether he is a captive user or third party purchaser of captive user.

TNEB has also added that, this provision is to regulate the consumer to use the equipment /machineries within the permitted limit to facilitate and maintain the Grid condition. If there is no such penalty, the regulatory mechanism may be affected and consequently the grid condition may be disturbed.

Commission's Views / Decisions

Commission accepts the views of TNEB. The captive user / third party purchaser shall pay excess demand charges at the rates as applicable to a HT consumer.

Issue No. 15 : Energy Purchase Agreement :

Mr.Y.Srinibas, M/s.Coromandel Electric Co. Ltd has requested deletion of minimum of 3 years and maximum of 5 years envisaged in the regulations for EPA and requested provision to decide the Agreement Period at the discretion of CGP and the distribution licensee.

He has also requested that EPA will be more pertinent in case of Firm Power Agreement while for in-firm power, the same is to be included in the open access agreement especially when the captive consumption is based on open Access.

Thiru M.S.Parthasarathy, Member SAC has suggested that the permission process may be transparent and within specified time frame of 30 days with a one stop agency viz. TNEB.

TNEB's Remark: The provision in the said clause to the effect (i) that the Distribution Licensee should sign an EPA for a minimum of 3 years and a maximum of 5 years and (ii) that the Distribution Licensee should sign the EPA within one month from the date of submission of the application for such agreement by the CGP holder, may be deleted and the said aspects may be left to the mutual agreement of the parties concerned.

Commission's Views / Decisions

The enactment of EA 2003 brought out radical changes in the power sector. The Commission feels that the reform process initiated by the Act is still under its transition stage and its outcome shall be monitored closely and corrective action taken whenever necessary. Considering this fact, the Commission have decided to revisit the purchase rate after three years. For the same reason Commission proposes an EPA period of 3 to 5 years.

The Commission accepts the view of Thiru M.S.Parthasarathy, and consider that the one month time limit for the permission process is reasonable and it is required to avoid unnecessary delay..

Issue No. 16 : Payment of Security Deposit:

Mr.T.V.Swaminathan, Joint President (Operations), M/s. India Cements Ltd. has requested the consideration of fixing the quantum of Security Deposit as 1.5 times as against 2 times proposed.

TNEB's Remark :TNEB has stated that the Payment of additional security deposit shall be on the average of Gross consumption in order to safeguard the interest of the TNEB in the event of failure of bill payment by the HT consumers.

Commission's Views / Decisions

The security deposit of two times of the average consumption is governed by the Tamil Nadu Electricity Supply code. The Commission fixes two times of the average of net consumption (after deducting the generation) for payment of security deposit.

Issue No. 17 : Cross subsidy surcharge:

Chairman & MD, M/s.Tamil Nadu Newsprint And Papers Ltd. has requested that small units should also be encouraged to sell power to 3rd parties without the obligation of cross subsidy or atleast with lower surcharge on a slab basis indicated below;

- Exports up to 50% of the Captive Consumption : No cross subsidy
- Export beyond 50% of the Captive generation : Nominal charge of 25 paise per unit of power sold to the 3rd parties

Commission's Views / Decisions

Payment of cross subsidies is one of the important provisions of the Act. It will be governed by the Open Access Regulations and Commission's orders on cross subsidy surcharges.

Issue No.18 Adjustment of wheeled energy :

Thiru T.B.Chikkoba, Member, SAC has remarked that the proposal of the adjustment for the wheeled energy (to be at HT tariff I, if the applicable tariff is higher than HT Tariff I, and if the applicable tariff is less than HT Tariff I, the adjustment would be at applicable rate, is not consistent with the provision in the Act and the National Electricity Policy.

Mr.Y.Srinibas, M/s.Coromandel Electric Co. Ltd has requested deletion of provision of levying differential rates for captive consumers when the service to which energy is wheeled is more than HT tariff-I.

M/s.Tamil Nadu Power Producers Association has requested that the owner users of captive power should be allowed to adjust their consumption irrespective of the category of service they are classified by the distribution licensee and they should not be asked to pay any extra charge irrespective of their classification.

Commission's Views / Decisions

The Electricity Act 2003 does not provide any condition for self use of energy by a Captive Generator in regard to service category. Therefore, the CGP user can adjust the energy in any category of service, subject to other conditions in this order

Issue No 19: Payment Security - for Firm Power Purchase by Distribution Licensee from CGP holder :

TNEB's Remark: It is indicated in the draft that a letter of Credit (irrevocable and revolving) in favour of the CGP holder for an amount equivalent to an average monthly bill shall be opened at the cost and option of the CGP holder by the Distribution Licensee, in case an EPA is signed for Firm Power Purchase between Distribution Licensee and the CGP holder.

This clause may be deleted as the parties concerned may decide the payment security mechanism.

Commission's Views / Decisions

Section 6.2 of the Tariff Policy requires to ensure adequate and bankable payment security arrangements to the generating companies. In the same line, Commission also proposes adequate security mechanism to the CGP.

Issue No 20: Distribution Licensee to furnish details related to power purchased from captive Generation Plants :

TNEB's Remark : In the said clause, the following may be deleted for the reason that it may not be practically feasible for the Distribution Licensee to comply with the condition due to enormous work.

“Distribution Licensees shall provide and update every month details in respect of quantum of power purchased (both firm as well as infirm power), source from which power is procured and the cost of purchased power (both monthly and moving year average) on their websites”.

Commission's Views / Decisions

The above data have to be compiled by the distribution licensee without which billing cannot be done. Special Energy Meters (SEM) and software applications for ABT metering mechanism are already available in the market. Hence, Commission is of the view that the distribution licensee shall improve their infrastructure suitable for implementation of ABT mechanism and provide such details.

Issue No 21: Billing and Payment to CGP holder by Distribution Licensee :

TNEB's Remark : The clause has to be deleted. The payment has to be made to CGP holder within a reasonable time on receipt of monthly bill.

Commission's Views / Decisions

The Commission expects that the Distribution Licensee shall also provide the same treatment to its consumers/customers with regard to making payments in the same way as they want their consumers to pay . Hence, Commission is not inclined to provide any privilege to Distribution licensee as suggested by TNEB in this regard.

12. COMMISSION'S ANALYSIS AND ITS RULING ON TARIFF AND RELATED ISSUES

(1) Rate of purchase of CGP power by distribution licensee

To decide on the mechanism of purchase of Power, the Commission is guided by the following provisions given in section 6.3 of Tariff Policy.

- (a) Firm supplies may be bought from captive plants by distribution licensees using the guidelines issued by the Central Government under section 63 of the Act.
- (b) Alternatively, a frequency based real time mechanism can be used and the captive generators can be allowed to inject into the grid under the ABT mechanism.

Section 63 of the Act states that notwithstanding anything contained in section 62, the Appropriate Commission shall adopt the tariff if such tariff has been determined through transparent process of bidding in accordance with the guidelines issued by the Central Government.

Considering the number of CGPs in the State and its large variations in size, capacity and use of fuel, it is difficult for both the CGP's and the Distribution licensee to adopt the competitive bidding route to decide on the tariff.

Considering the incongruent nature of the different CGP, the Commission examined various options to arrive at an appropriate mechanism by which the distribution

licensee can procure the power from CGPs in and around their marginal generation cost.

The introduction of inter state ABT mechanism leads to ultimate optimization of generation on a region-wise basis wherein the marginal generation cost of every State would equal the UI rate.

Hence, the Commission decides to adopt the frequency based real time tariff mechanism provided as the alternative method in the Tariff Policy to procure power from CGP.

While protecting the commercial interests of the Distribution Licensee, the CGP holder also should be fairly compensated for the power sold even during the period when grid frequency is close to 50 Hz so as to enable them to supply their surplus power to the Distribution Licensee continuously. Similarly, Distribution Licensee shall also get the power from the CGP at a reasonable rate when the frequency goes below 49.5 Hz. Therefore, the Commission decided to fix a floor rate and a ceiling rate linked to the CERC's UI rate in the interest of both the CGPs and the Distribution Licensees.

Accordingly, the rate of purchase of Firm as well as Infirm CGP Power shall be based on the UI rate under the principles of Availability Based Tariff (ABT). As of now, the TNEB, the only Distribution Licensee, transacts in power under inter State ABT mechanism based on the UI rate decided by the CERC. Hence the Commission have decided to adopt the UI charges approved by CERC which is in force. As and when the Commission introduces intrastate ABT mechanism in the State, the intrastate UI charges as decided by the Commission could be considered in place of inter state UI rates.

The UI charges adopted by the CERC with effect from 1-10-2004 are as follows.

Average frequency of time block (Hz)		UI Rate
Below	Not below	(Paise per kWh)
---	50.50	0.0
50.50	50.48	6.0
50.48	50.46	12.0
---	---	---
---	---	---
49.84	49.82	204.0
49.82	49.80	210.0
49.80	49.78	219.0
49.78	49.76	228.0
49.756	---	230.0
---	---	---
49.54	49.52	336.0
49.52	49.50	345.0
---	---	---
49.04	49.02	561.0
49.02	49.00	570.0

The rate of purchase from CGPs would be linked to frequency as explained below.

The rate of purchase of Firm CGP power shall be linked to the prevailing grid frequency and subject to a band of a minimum (floor) and maximum (ceiling) rate of CERC's UI charges. To decide on the band width, the Commission considered the marginal cost of power in Tamil Nadu for the year 2005. As per the TNEB's report the average cost of power purchase by TNEB under UI mechanism for the Year 2005 is around Rs. 2.60 per unit. The Commission considers this rate as the base for the marginal generation cost for Tamil Nadu. Keeping this as the base rate, the Commission arrived at a band of a maximum rate of Rs. 3.45 per unit and a minimum rate of Rs. 2.10 per unit linked to the CERC's UI rate.

In view of the provisions of Section 86 (1)(e) of EA 2003 mandating promotion of cogeneration, the Commission proposes that CGPs adopting the principles of co-generation based on fossil fuel, shall be entitled to a rate premium of 10% as prescribed above.

The applicable tariff for Fossil Fuel based Group Captive Generating Plants (CGPs) and fossil fuel based Cogeneration Plants in the State is tabulated below.

Rate for Purchase (including Band) of Firm/ Infirm Power from CGP

Purchase Condition	Frequency	Purchase Rate
Firm Purchase		
Non-Co-generation CGP	At all frequency within ABT range	As per CERC's UI rate subject to the Floor rate of Rs. 2.10 per kWh_ and Ceiling rate of Rs. 3.45. (intersecting at 49.8 Hz and 49.5 Hz respectively at the present UI rate of CERC)
Co-generation based CGP	At all frequency within ABT range	10% premium over the rate prescribed under Firm purchase for Non-Co-generation based CGPs i.e. As per UI rate subject to the Floor rate of 110% of Firm power rate of Non-Cogeneration based CGPs and 110% of ceiling rate of Non-Cogeneration based CGPs
Infirm Purchase		
Non-Co-generation CGP	At all frequency within ABT range	90% of the applicable rate prescribed under Firm purchase for Non-Co-generation based CGPs
Co-generation based CGP	At all frequency within ABT range	90% of the applicable rate prescribed under Firm purchase for Co-generation based CGPs

Common requirements for both Firm and Infirm CGP Power purchases by Distribution Licensee:-

The Distribution Licensee shall purchase the firm supply, committed and contracted with the CGP holder. However, the Licensee has the option to buy or not the infirm supply offered by the CGP holder. The payments for the power purchase from the CGPs by the Distribution Licensee should be settled at the end of each billing cycle.

Each CGP Holder whose CGP is synchronised with the grid and desirous of selling power to the Distribution Licensee or to Third Party should install ToD meters (including SEMs) at the grid entry point of the CGP.

It shall be noted that the intersecting frequency is based on the current UI Rate prescribed by the CERC and is subject to change as and when CERC revises the same..

(2) Purchase of surplus captive power from CGP by third party

The rate of purchase of CGP power by the Third Party Consumer is not in the

purview of the Commission. Third Party sale through the grid will be as specified by the Commission in the Open Access Regulations. ToD (including Special Energy Meters- SEMs) meters should be installed by both the CGP Holder synchronised with the grid and desirous of selling power to the Third Party consumer as well as the Third Party consumer of CGP power at the receiving end.

For the purpose of operational simplicity, the eligibility criterion applicable for purchase of power by a third party, through the Distribution Licensee's network will be subject to phasing of open access as specified in intra state open access regulations. In case a CGP holder puts less than 1 MW of power into the grid then such lower quantum of energy need not be accounted for, by the Distribution Licensee.

(3) Banking and Commercial Mechanism

Fossil fuel based power plants can produce firm power. Hence, there is no justification in providing banking provision for fossil fuel based CGPs or Cogeneration plants. Meter Reading should be taken on the same day at CGP holder end and captive user / third party purchaser end. The generation at CGP holder end shall be communicated to all the circles of the captive users / third party purchaser within 2 days so as to facilitate for matching generation with consumption in the same billing month. This adjustment will be done on slot to slot basis taking in to account the (i) peak (ii) off peak and (iii) normal generation / consumption within monthly billing cycle. No carry over is allowed for the next month. Excess generation by the CGP holder in a monthly billing cycle can be sold to the Licensee. Excess drawal will be charged under respective tariff applicable to the user.

It should be noted that units generated during a higher tariff ToD-slot could be consumed in a lower tariff ToD slot at the option of CGP Holder, but the reverse would not be allowed (i.e.units generated during a lower tariff ToD-slot cannot be drawn by the CGP Holder during a higher tariff ToD-slot).

(4) Provisions related to wheeling of CGP power

The Transmission and Wheeling charges for the purpose of carrying electricity for third party sale and/self use, in respect of Captive Generating Plants shall be as per

the order issued by the Commission on the petition filed by the TNEB requesting to fix Transmission Charges, Wheeling charges, Surcharges etc. for Intra State Open Access.

To promote cogeneration as provided in Section 86 (1)(e) of the Act, the Commission decided to allow a wheeling charge of 3% if the user is within 25 Kms and 7% for users beyond 25 kms for fossil fuel based Cogeneration only. The wheeling charges fixed as above will get reduced, if the voltage level at the point of injection and at the point of drawal is equal to or more than 110 kV. The reduction will be based on the Commission's order against the petition no TP1/2005 from TNEB. As an example, if the injection voltage by the NCES generator is at 110 kV and the drawal for captive usage is also at 110 kV, the transmission charges specified by the Commission in the above said order will work out to around 5.80%. Such cases shall be specifically brought to the Commission and the rate revised.

(5) Surcharge and additional surcharge on third party purchaser of captive power

The surcharge and additional surcharge shall be as per the order issued by the Commission on the petition filed by the TNEB requesting to fix Transmission Charges, Wheeling charges, Surcharges etc. for Intra State Open Access.

(6) Grid Support Charges for Captive User and or Third Party Purchaser

Regarding the grid support / availability charges, the charges proposed by the Commission in its order on transmission and wheeling charges etc. on the petition filed by the TNEB for the following conditions under section 6.24 are applicable to all fossil fuel based captive and cogeneration plants and for all third party purchasers in the State.

1. Outage of Generator conditions and providing Start up Power
2. When the scheduled generation is not maintained and / or when the drawal by the consumer is in excess of the schedule.

(7) Special Issues

(a) Peak hour extra charges / off peak hour rebate for captive user and third

party purchaser of captive power.

As per the tariff order of the Commission, the peak hour extra charges and off peak hour rebate shall be calculated as a percentage of current consumption charges. Since billing is done for net energy consumption after deducting captive generation during the respective peak hour block and off peak hour block of the billing cycle, the peak hour extra charges and off peak hour rebate shall be calculated for the net energy consumption after deducting captive generation during the respective peak hour block and off peak hour block of the billing cycle .

(b) Power factor incentive / disincentive for captive user and third party purchaser of captive power

The reactive power injection by the CGP is governed by the Tamil Nadu Electricity Grid Code (TNEGC). It is the responsibility of the CGP user to maintain the power factor both in the interest of the user and in the interest of the power system as a whole. As per the Commission's tariff order dated 15-03-2003, pf incentive / disincentive is applicable to the consumer as a percentage of current consumption charges. In the same line, the pf incentive / disincentive is applicable to CGP user on the current consumption charges bill prepared based on the gross energy and applicable demand as per the CGP order. However, the average pf recorded by the meter will be the reference for calculation of pf incentive / disincentive.

(c) Payment of additional security deposit for captive user and third party purchaser of captive power

The security deposit is governed by the Tamil Nadu Electricity Supply code and it is fixed as two times of the average consumption. Hence, the Commission have considered the net consumption after deducting the generation as average consumption for security deposit calculation purpose.

(d) Adjustment of Energy in different service category

- ❖ Act does not provide any condition for self use of energy by a Captive user in regard to service category. Therefore, the CGP user can adjust the energy in any category of service on unit to unit adjustment basis. e directly adjusted.

(8) GENERAL CONDITIONS

(a) CGP Holders to Furnish Details related to CGP to the SLDC

All the existing CGP holders in the State of Tamil Nadu shall provide details related to their CGPs to the Distribution Licensee, State Load Dispatch Centre (SLDC) and State Transmission Utility (STU) within a period of six months from the date of notification of this order.

For the CGPs that are commissioned after this Order, the CGP holder shall provide the intimation of date of commissioning of CGP to the STU, SLDC and the Distribution Licensee at least one month in advance. Additionally, the details related to the various aspects of such CGPs shall be submitted by the respective CGP Holders to the SLDC within one month after commissioning of the CGP.

Also, any modification/ augmentation of the existing CGP capacity shall be reported to the SLDC within one month of the said modification / augmentation.

(b) Reactive Power Supply

For the quantum of Reactive Power Supply, the CGP Holders synchronized with the grid, shall be governed by the TNEGC and the charges are as proposed by the Commission in the order on transmission and wheeling charges etc. on the petition filed by the TNEB.

(c) Payment Security- for Firm Power Purchase by Distribution Licensee from CGP holder

Section 6.2 of the Tariff Policy requires to ensure adequate and bankable payment security arrangements to the generating companies. In the same line Commission specifies that a bankable security in favour of the CGP holder for an amount equivalent to an average monthly bill shall be opened by the Distribution Licensee

(d) Billing and Payment to CGP Holder by Distribution Licensee for Purchase of Firm/ Infirm Power

The Distribution Licensee shall raise the bill to CGP user after accounting for generation and consumption at the end of each monthly billing cycle subject to recovery of charges in cash and losses in kind.

The payments in respect of the energy consumed from CGP after adjustments shall be made by the Distribution Licensee within the same period as provided by the Distribution Licensee to recover payments from its HT Industrial Consumers.

(e) Application Procedure and Evacuation Facilities

- a. STU shall within 30 days of receipt of application from CGP, intimate whether or not the long term access can be allowed without further system strengthening.
- b. If further system strengthening is essential, the results of study conducted by the STU based on the request of CGP shall be intimated within ninety days of such request from CGP holder.
- c. Feasibility based on the system studies shall be established at the earliest possible but not later than six months.
- d. Clearances, approvals, certificate, if any, required by CGP shall be issued within a month time.
- e. The cost of interfacing lines, switch gear, metering and protection arrangement shall have to be borne by the owner of captive power generators, but the work will be executed by Distribution Licensee on Deposit Contribution Work basis.
- f. When the owner of the captive power generator happens to be a consumer and when the power fed to the Distribution Licensee grid is less than 2 MVA, dedicated line from the location of the captive power generator to near by Distribution Licensee substation will not be required. The service line itself will cater to the need to export the power to the Distribution Licensee grid.
- g. When the owner of the captive power generator happens to be a consumer and when the power fed to the Distribution Licensee Grid is more than 2 MVA, then a dedicated feeder to a nearby substation will

be required. If already the consumer is availing himself of supply through a dedicated feeder and if the capacity of the feeder is adequate to carry the quantum of export of power, then the same feeder can be used for export of power and no additional installation is required.

- h. In case the dedicated feeder is not adequate to carry the power exported, then the existing dedicated feeder has to be strengthened or a new line has to be erected.
- i. For a non-consumer (user) the new interfacing line of appropriate capacity and voltage shall be at his cost and will be executed by Distribution Licensee.
- j. No compensation shall be provided to the CGP Holder or the Third Party purchaser of CGP Power by the Distribution Licensee for deemed generation benefits in case the Distribution Licensee fails to evacuate power due to failure of the Transmission facility. However, the Distribution Licensee shall have to maintain the standards as per Commission's regulation on distribution standard of performance.

(f) Energy Purchase Agreement (EPA)

The CGP Holder shall sign an EPA with Distribution Licensee or Third Party consumers for sale of power of minimum 1MW (i.e. equivalent to 700 units per hour). The above criterion shall be applicable for "Firm" as well as "Infirm" power. Any power injected into the grid for the purpose of selling to the Distribution Licensee or the Third Party which is less than 1 MW shall not be considered while billing by the Distribution Licensee.

It is not intended that the Commission would approve EPA for each CGP Holder individually. Distribution Licensees shall draft EPA taking cognizance of the Tariff provisions and EPA-related principles elaborated in this Order.

A short tenure such as 1 year for Firm power purchase agreement considered to be

inadequate for CGPs to provide investment / financial related details to the lending agencies / institutions while seeking financial assistance. Therefore, the Distribution Licensee should sign an EPA for a minimum of 3-years and a maximum period of 5-years, with the CGP Holders, for both 'Firm' as well as 'Infirm' power purchase from CGP.

The Distribution Licensee should sign the EPA within 1-month from the date of submission of the application with all relevant details for such agreement by the CGP Holder.

(g) Energy Wheeling Agreement (EWA)

The CGP Holder/ Third Party buyer of CGP power and the concerned Distribution Licensee shall sign an EWA for the purpose of Wheeling of only Firm power from the CGP Holder to the Third Party buyer of CGP power. Such Wheeling Agreement shall be applicable for a minimum quantum of 1 MW (i.e. equivalent to 700 units per hour) if wheeled over the Distribution Licensee's Network. It is not intended that the Commission would approve EWA for each CGP holder individually. The Distribution Licensees shall draft EWA taking cognizance of the energy Wheeling principles elaborated in this Order.

The tenure of the EWA shall be same as that of the EPA signed with the CGP holder / Third Party buyer of CGP power.

The Distribution Licensee should execute the EWA within 1-month from the date of submission of application with all relevant details for such agreement by the CGP Holder or the Third Party purchaser of CGP power, as the case may be.

(h) Planned and Unplanned Shutdown for Captive Generating Plant

The CGP Holder shall inform the Distribution Licensee about their planned shutdown at least one-month in advance.

(i) Metering Arrangements and Communications

(1) The CGP holder shall provide metering arrangements in accordance with the open access regulations in consultation with Distribution Licensee.

(2) The Generating company or a Licensee contracting to effect supply to an open access customer shall provide Main Meters at the outgoing feeders from CGP switchyard bus. Based on the customers to whom it will effect supply under open access or in case of inter state transmission, it shall arrange communication of energy accounts of respective Regional Load Dispatch Centers, effected through displacement/adjustment in the format as may be specified by State Load Dispatch Centre on real time basis as well as periodically.

(3) The Distribution Licensee shall provide Check Meters of the same specification as Main Meters.

(4) The Main and Check Meters shall be periodically tested and calibrated by State Transmission Utility in the presence of other parties involved. Both parties shall seal Main and Check meters. Defective meter shall be replaced immediately. The periodicity of testing, checking, calibration etc., will be governed by the regulations issued by the Central Electricity Authority in this regard.

(5) Reading of Main and Check meters shall be taken periodically at appointed day and hour by authorized officer of distribution Licensee and customer or his representative, if present. Meter reading shall be immediately communicated to State Load Dispatch Centre, customer, State Transmission Utility and Generating Company / electricity trader, as the case may be, by the distribution Licensee, within twelve hours. Check meter readings shall be considered when Main Meters are found to be defective or stopped.

Provided that if difference between the readings of main and check meter vis-à-vis main meter reading exceeds twice the percentage error applicable to relevant class, both meters shall be tested and the one found defective shall be immediately replaced and reading of other will be considered.

Provided further that Distribution Licensee for the purpose of this clause shall be the distribution Licensee operating and maintaining distribution system to which consumer's premises are connected.

(6) An open access customer or generating company or Licensee may request distribution Licensee to provide Main Meters. In that case he shall provide security to distribution Licensee and shall pay for its rent and Main Meter shall be maintained by Distribution Licensee.

(7) Main and Check Meters shall have facility to communicate its reading to State Load Dispatch Centre on real time basis or otherwise as may be specified by the

Commission. Such special energy meters (conforming to the requirements to be specified by Central Electricity Authority in this regard) shall be installed by the direct customers to the STU and if required, also by the embedded customers as found necessary by the STU / SLDC (the nodal agency)

(8) The Special Energy Meters installed shall be capable of time-differentiated measurements (fifteen minutes integration) of active energy and voltage-differentiated measurement of reactive energy as specified by the State Transmission Utility or the State Load Dispatch Centre.

(9) The term 'Meter' shall include Current transformers, voltage/potential transformers, wiring between them and meter box/panel etc.

Location of Meters

SI No	Stages	Main meter	Check meter	Stand by meter
1	Captive Generating Plant/Co-generation Plant	At the outgoing feeders from the CGP switch yard bus	At the outgoing feeders from the CGP switch yard bus	At the outgoing feeders from the CGP switch yard bus

(j) Distribution Licensees to furnish details related to power purchased from Captive Generating Plants

Distribution Licensees shall provide and update every month details in respect of quantum of power purchased (both Firm as well as Infirm power), source from which power is procured and the cost of purchased power (both monthly and moving year average) on their websites.

Captive Generating Plant Holders must furnish details related to CGP power sales to Distribution Licensee and/ or Third Party

The CGP Holder shall provide details in respect of quantum of power sales to Distribution Licensee (both Firm as well as Infirm power) as well as to Third Party purchaser of CGP power, if any, along with details such as units sold and realization from sale of such power, at the end of every Financial Year to the SLDC.

The said details shall be duly audited by an independent accredited energy auditor

before submission to the SLDC. A copy of the same shall also be submitted to the relevant Distribution Licensee in whose license area the CGP is situated.

(k) Fossil fuel based cogeneration – Bottoming cycle (Waste Heat Recovery based Cogeneration) and Topping cycle

Any power generation by bottoming cycle (on waste heat recovery system) and topping cycle both by an industrial unit shall be classified either as CGP or as Cogeneration power plants based on the definition and requirement given in this order and treated accordingly.

The eligibility criteria specified for captive use, and ruling specified for all other issues in this order for CGP except purchase rate and wheeling charges for CGP for which separate ruling have been ordered shall be applicable for fossil fuel based cogeneration plants also.

13. Conclusion

The Commission acknowledges the efforts of all the officers, staff and consultants of the Commission for their contribution in the detailed analysis of various issues. The coordinated efforts from the TNEB side and the contribution from the members and special invitees of SAC are commendable. The suggestions / comments/ objections received in response during the pre-publication process, have helped the Commission to address many issues with a special focus. The Commission is confident that the present order for the fossil fuel based Captive Generation and co-generation will provide the required promotional environment and encouragement to CGP holders to utilise their generating capacity to the optimal levels, supplement their existing capacity, add more capacity etc., to tide over the power shortage situation at the National and State levels

By order of the Commission

R.Balasubramanian
Secretary

Annexure I

List of Participants in the State Advisory Committee Meeting on 11.11.2005

Sl.No.	Name of Participant
1	Mr. Venu Srinivasan , Managing Director M/s.Sundaram Clayton Ltd, Chennai
2	Mr. M.S.Parthasarathy Chennai
3	Mr. K. Venkatesan, IAS (Retd.) Chennai
4	Mr. C.V.Narasimhan, IPS (Retd.) , Trustee, Citizen Consumer and Civic Action Group ,Chennai
5	Mr A.M.Swaminathan, IAS (Retd.) Chennai
6	Mr. C.Ramachandran, IAS (Retd.) Member , State Planning Commission, Chennai
7	Mr. M.Nandagopal , Managing Director, M/s.Sagar Sugar & Allied Products Ltd., Chennai
8	Mr. K.V.Shetty Managing Director M/s.I.P.Rings Ltd. Chennai
9	Mr. K.Vasudevan Chairman Confederation of Indian Industry(Southern Region) Chennai
10	Mr. T.M.Varadaraj President M/s Tamil Nadu Grape Growers Association Coimbatore
11	Mr. G.N.Periasamy Salem.
12	Mr. K.M.Sundaram Salem.
13	Mr. D. Kumaravelu , Retired Chief Engineer/TNEB Coimbatore
14	Dr.U. Shankar , Honorary Professor, Madras School of Economics, Chennai
15	Dr. M.Abdullah Khan Chennai
16	Mr. T.B. Chikkoba , Former Member (Gen.) /TNEB , Chennai
17	Mr. P. Duraisingam , Chairman & Chief Functionary Federation of Consumer organization Paramakudi

Anenxure II

List of Stakeholders who Participated in the Public Hearing on 23.12.2005:

Sl.No.	Name of Participant
1	Mr. N.Chandrasekaran Chairman, M/s.Mont Blan Financial Services Ltd. Chennai
2	Mr.Velliangiri Director (Finance) M/s.Tamil Nadu Newsprint & Papers Ltd. Chennai
3	Mr.T.R.Krishnaswamy M/s.Energreen Power Ltd. Chennai
4	Mr.Arvind Gupta & Mr.N.Ravishankar M/s.Tamil Nadu Power Producers Association Chennai
5	Mr.S.K.Palaniappan M/s.India Cements Ltd., Chennai
6	Mr. M.B.Gupta, M/s.HiTech Carbon (Aditya Birla Group)
7	Mr.P.Vetrivelan M/s.Tamil Nadu Spinning Mills Association
8	Mr.C.Satishkumar M/s.Saheli Exports Pvt.Ltd.
9	Mr.Chandrasekaran M/s.India Cements Ltd., Chennai

Anenxure III

List of Stakeholders who have communicated through letters

Sl.No.	Name of Participant
1	Dr.A.M.S.Raju Director M/s. MMS Steel & Power Private Limited, Nagore
2	Mr. Y.Srinibas M/s.Coromandel Electric Co. Ltd. Hyderabad
3	Mr. S.Elangovan, Managing Director M/s.Kaveri Gas Power Ltd. Chennai
4	Mr. T.V.Swaminathan, Joint President (Operations) M/s.India Cements Ltd. Chennai
5	Chairman and Managing Director M/s.Tamil Nadu Newsprint & Papers Ltd. Chennai
6	M/s.Tamil Nadu Power Producers Association Chennai
7	M/s. Saheli Exports Private Ltd. Chennai
8	Director M/s. Kamachi Sponge and Power Corporation Limited, Chennai
9	Mr. V.Balakrishnan, Chennai
10	Mr. K.Raghu, Chairman M/s.Arkay Energy (Rameswaram) Ltd. Chennai