

KARNATAKA ELECTRICITY REGULATORY COMMISSION

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

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

In the matter of: Harnessing 'Captive Power Generation' in the State.

ORDER

No.D/01/03/2205

Dated: 27.02 2007

1. POWER SCENARIO IN THE STATE:

The total Installed Capacity of the State including central share as on 25.12.2006 is 7937.67 MW comprising of Hydro generation of 3155.25 MW and Thermal generation of 1470 MW by KPCL and the remaining capacity from Independent Power Producers (IPP), Non conventional sources (NCE) and Diesel Power Plant (VVNL).

The energy consumption in the state for the year 2005-06 was about 33000 MU . The total consumption assessed and approved by the Commission for 2006-07 is 34538 MU.

As per 16th EPS projections of CEA for FY05, the peak demand & energy requirement for Karnataka in FY05 was 6826 MW & 39467 MU respectively. The projected peak shortage was 17.61% and energy shortage was 16.11%. The actual installed capacity for FY05 was 5624 MW & the actual generation was 33110 MU. In view of the continuing growth in demand and the need to match the same with the required generation capacity, there is a need to harness surplus capacity available with the Captive Power Plants (CPPs).

2. Captive Power Generation in the State:

At present only a few sugar mills are feeding their surplus power to the state grid and most of the surplus capacity available with the CPPs in the state still remain unutilized. As per the Report dated 25.8.2005 of the CEA on 'Tapping of surplus power from Captive power plants', surplus power of 63 MW of the CPP capacity has already been utilized.

Karnataka State has a total installed capacity of about 800 MW of Captive Power (1MW and above). About 54% of these CPPs run on diesel, 21% on Fuel oil and the remaining on other fuels.

A large number of Captive Power Plants of various types and sizes, using different fuels are available within the state. These Power Plants are being utilized by the industries mainly as backup supply when there is poor quality & interrupted grid supply. Some captive plants act as standby units for grid supply. There are a few captive power plants, which are meeting the entire requirement of power of the consumer viz., ITPL & ITC without depending on the grid supply. Since majority of the captive plants are being operated at a low PLF, surplus power available from these CPPs could be fed to the grid to meet the shortages to a certain extent, especially during the peak hours.

Harnessing the surplus power from the Captive Power Plants has the following advantages:

- Partially bridge the gap between Demand & Supply.
- Optimize the investment made in CPPs
- Improve the efficiency of CPPs by operating at a higher PLF (Plant Load Factor).
- Additional revenues could be generated by the CPPs by sale of surplus power which could attract new investments in CPP.

3. National Electricity Policy and Tariff Policy:

The National Electricity Policy and Tariff Policy envisage harnessing of surplus captive power. The extract of text of relevant paras of these policies are given hereunder,

a) National Electricity Policy (NEP)

The NEP issued by Gol on 12.2.2005 envisages *the following* with regard to captive generation:

*"5.2.2 The Government of India has initiated several reform measures to create a favorable environment for addition of new generating capacity in the country. The Electricity Act 2003 has put in place a highly liberal framework for generation. There is no requirement of licensing for generation. The requirement of techno-economic clearance of CEA for thermal generation project is no longer there. For hydroelectric generation also, the limit of capital expenditure, above which concurrence of CEA is required, would be raised suitably from the present level. **Captive generation has been freed from all controls.***

5.2.24 The liberal provision in the Electricity Act, 2003 with respect to setting up of captive power plants 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.

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.

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.

5.7.1 (c) Captive generating plants should be permitted to sell electricity to licensees and consumers when they are allowed open access by SERCs under section 42 of the Act"

b) National Tariff Policy

The Tariff Policy issued by Gol on 6.1.2006 provides that:

“5.4 While it is recognized that the State Governments have the right to impose duties, taxes, cess on sale or consumption of electricity, these could potentially distort competition and optimal use of resources especially if such levies are used selectively and on a non- uniform basis. In some cases, the duties etc. on consumption of electricity is linked to sources of generation (like captive generation) and the level of duties levied is much higher as compared to that being levied on the same category of consumers who draw power from grid. Such a distinction is invidious and inappropriate. The sole purpose of freely allowing captive generation is to enable industries to access reliable, quality and cost effective power. Particularly, the provisions relating to captive power plants which can be set up by group of consumers has been brought in

recognition of the fact that efficient expansion of small and medium industries across the country will lead to faster economic growth and creation of larger employment opportunities.

For realizing the goal of making available electricity to consumers at reasonable and competitive prices, it is necessary that such duties are kept at reasonable level.

6.2 Tariff structuring and associated issues

(1) A two-part tariff structure should be adopted for all long term contracts to facilitate Merit Order dispatch. According to National Electricity Policy, the Availability Based Tariff (ABT) is to be introduced at State level by April 2006. This framework would be extended to generating stations (including grid connected captive plants of capacities as determined by the SERC). The Appropriate Commission may also introduce differential rates of fixed charges for peak and off peak hours for better management of load.

6.3 Harnessing captive generation

Captive generation is an important means to making competitive power available. Appropriate Commission should create an enabling environment that encourages captive power plants to be connected to the grid.

Such captive plants could inject surplus power into the grid subject to the same regulations as applicable to generating companies. 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.

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.

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.

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.

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."

4. Recommendations of the Forum of Regulators (FOR):

FOR has constituted a Group for Preparation of a Paper on "Appropriate commercial arrangements required to be instituted between licensees and the captive generators for harnessing of surplus Capacity/Energy from Captive Power Plants". The group has made the following recommendations in the FOR meeting held on 18.1.2006:

- SERCs should carry out an exercise to figure out the total installed captive generation in the state.
- SERCs should identify availability of firm and infirm captive generation separately.
- Stand alone captive plants, which were not connected to the grid earlier, should be encouraged to have connectivity with the grid.
- SERCs to encourage distribution licensees to procure firm committed supply from captive generation and determine the price based on hours of supply.
- The prices for firm supply could be differentiated for peak and off peak power and the tariff could include variable cost of generation and reasonable compensation for getting capacity charges. Alternatively SERCs may consider fixing maximum and minimum ceiling price for such purchases.
- SERCs may also encourage distribution licensees to procure firm power from CPPs through Competitive bidding on a composite tariff basis.

- Firm supplies contracted should be scheduled as per the merit order dispatch and UI mechanism shall be applicable.
- The price of infirm supply should be linked to UI rates at the time of injection.
- Special Energy Meters (SEMs) need to be installed at Captive plant as well as open access consumer end for third party sales under open access.
- Tripartite agreement for wheeling should be signed by seller, buyer and the Licensee.
- CPP/ Consumers should be allowed to reduce their CD at any time and to any extent without any penalty
- SERCs to ensure that parallel operation charges/grid support charges are as low as possible.
- Start up/Standby Charges should not exceed the charges fixed for temporary connection.
- LC equivalent to one-month bill shall be opened by distribution licensee.
- There should be no minimum guarantee charges.

Further in its 5th meeting held on 17.11.2006, the Forum of Regulators have recommended as follows,

- i. There should be no penalty for reduction of contract demand by the consumer having CPP
- ii. In view of little jurisdiction for levy of parallel operation charges/grid support charges, these charges to be kept at the lowest level
- iii. There should be no minimum guarantee charges
- iv. Charges for startup /standby power should be reasonable and should not exceed the charges fixed for temporary connection
- v. Wheeling charges and other terms and conditions should be determined in advance by the State Commission ensuring that charges are reasonable and fair.

5. CEA's Report on 'Tapping of Surplus Power from Captive Power Plants':

CEA conducted a workshop on 'Tapping of Surplus Power from Captive Power Plants' on 20.03.2006, which was attended by organizations like MNES, Wartsila, BHEL, PFC, PTC, CII, ISMA, PHDCCI & THERMAX. Various issues on the subject were discussed. The text of the conclusion of this report is as under:

A capacity of about 1100 MW has been offered by various CPPs for connectivity to the grid/HT consumers. The quantum may further increase if the various technical and commercial issues are resolved.

The important issues which are required to be resolved on top priority basis, are as under:

A) Issues related to open access.

- i) The States/State Regulatory Commissions which have not issued the regulations for open access may have to expedite the same.*
- ii) In the interest of providing competitive and smooth access and to facilitate export and import of power within the state or between consumers of two or more states, the open access regulations and methodology of determination of charges should be aligned across states. The state regulators may be urged to develop progressive and encouraging policies for CPP (like one issued by MERC)*
- iii) Electricity duty: No electricity duty should be imposed on utilization of generated captive power by participating industry. Reasonable duty may be imposed for export of power.*
- iv) Reduction in contract demand of a CPP holder with distribution licensee may be allowed without any penalty.*
- v) For CPPs having standby connection with grid, demand charges on the standby component should be reasonable say around Rs. 20 per KVA per month. However, if the CPP exceeds the*

contracted standby demand then penal rate can be applicable on excess drawl.

- vi) The sum of transmission charges and transmission loss (i.e. wheeling charges) fixed by SERCs for transfer of surplus power from captive power plant may not exceed 7% of the generation cost within the state. (Ref. In line with MERC order dated 08-09-2004.)
- vii) The surcharge applicable on HT consumers opting to purchase from other CPPs who have surplus power must be fixed at realistic levels. This may be fixed in accordance with avoided cost method suggested by FOIR (Forum of Indian Regulators).
- viii) For the purpose of recovery of T&D losses in OA charges, the losses should be benchmarked to reflect technical losses, gradually reduced and equitably distributed (exclude theft of electricity for computation of T&D loss) rather than pass-through to the customer.
- ix) Parallel Operation Charges (POC) imposed by state utility is very high. Aligning of POC with ABT regime would encourage connectivity to grid for facilitating transfer of surplus power to the licensee.
- x) Banking of energy may be allowed by the distribution licensee and shall be regulated by the energy banking agreement and may be signed between HT industries/CPP holder and the distribution licensee.
- xi) For the present, 0.5 class metering arrangement may be allowed. 0.2 class accuracy metering arrangement as required as per metering regulations may be installed in phases.

b) Fixation of reasonable tariff by State Regulatory Commission for the surplus Power available from the CPPs.

c) To make available additional fuel required by the CPPs. Due to restriction in the coal linkage quantity, CPPs located in the vicinity of coal pitheads have

to import coal.

d) Strengthening of intra-state and inter-state transmission network.

6. Tariff Regulations as per Section 61 of the Electricity Act 2003:

As per Sec 61 of the EA 2003, the Commission is guided by the following principles for determination of tariff,

(a) the principles and methodologies specified by the Central Commission for determination of the tariff applicable to generating companies and transmission licensees;

(b) the generation, transmission, distribution and supply of electricity are conducted on commercial principles;

(c) the factors which would encourage competition, efficiency, economical use of the resources, good performance and optimum investments;

(d) safeguarding of consumers' interest and at the same time, recovery of the cost of electricity in a reasonable manner;

(e) the principles rewarding efficiency in performance;

(f) multi year tariff principles;

(g) that the tariff progressively reflects the cost of supply of electricity and also, reduces and eliminates cross-subsidies within the period to be specified by the Appropriate Commission;

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

(i) the National Electricity Policy and tariff policy.

7. Requirement for captive generating plants:

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

(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 (ies) 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 subrule (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.

8. Commission's Approach:

The Commission, having taken note of the above said guidelines issued under the National Electricity Policy, Tariff Policy and recommendations of the Forum of Regulators, decided to issue a discussion paper on 'Harnessing Captive Power in the State' and accordingly, a discussion paper in the matter was issued on 03.05.2006.

The discussion paper included recommendations made by Forum of Regulators, action taken by states like Tamil Nadu and Maharashtra and various approaches for determination of tariff for CPPs like, Cost plus approach, Time of Day approach linked to UI rates, Competitive bidding approach and Avoided Grid Usage approach.

The discussion paper invited suggestions and Comments on the following issues,

- i) The need to absorb surplus power from the CPPs to the Grid to meet the shortage, especially during peak hours.
- ii) Absorption of surplus power from CPPs would increase the power purchase cost of the licensees and consequently the cost of supply. Whether the increase in cost on this account should be loaded to all the consumer categories equitably through tariff or to any specific consumer categories selectively.
- iii) Among the alternative approaches for pricing of surplus power from the CPPs as discussed above, what could be the appropriate approach for pricing such surplus power? In case Competitive-bidding approach is adopted, what should be the floor price and ceiling price?

In response to the discussion paper, the Commission received suggestions and comments from various stakeholders. The same are discussed in the following paragraphs,

ISSUE No.1: The need to absorb surplus power from the CPPs to the Grid to meet the shortage, especially during peak hours.

Principal Secretary, Energy Dept, GoK ,Bangalore has suggested that, majority of the captive plants are being operated at low plant load factor, surplus power available from these CPPs could be fed to the grid to meet the power shortages to some extent, especially during peak hours/peak season.

General Manager (Tech & Admin), HESCOM, has suggested that, surplus power could be utilized from CPPs during shortages during peak hours at a rate of Rs.2.30 to Rs.2.60 per Kwh.

Joint Director (R&D), CPRI, Bangalore has stated that the projections of peak and energy shortage during FY 05 in Karnataka based on the 16th EPS are not realistic. Ensuring safe grid connectivity to small CPPs needs to be addressed. CPPs may

only contribute energy to the grid rather than meeting the peak demand, as they would themselves utilize most of the power during peak periods.

Sri. B.G.Rudrappa, Former Chairman, KEB has suggested that harnessing surplus energy from CPPs could only be considered when the CPPs power is economical.

General Manager (Tech & Admin), BESCO, Bangalore, has stated that, depending upon the cost of CPP power, any addition to augment the energy, would be advantageous to the system.

President, Balakedarara Hitharakshaka Sangha, Sirsi has suggested that, if T&D losses are reduced by the utilities, then the need to utilize CPPs power would not arise.

Sri Umesh Rao, MD, Lotus Energy Systems(P)Ltd, Bangalore has stated that, CPPs are ideal for peaking duty since they can be deployed and are suitable for frequent start-stop operations. However, Avoided grid usage method as adopted in Maharashtra could be adopted.

President, FKCCI, Bangalore has agreed that, there is a need to absorb surplus power from CPPs to meet the shortages in the State.

DGM, Rajashree Cements, Bangalore has stated that absorption of CPPs power would benefit the system in terms of improving quality of power, reducing demand-supply gap and utilizing available resources by increased plant load factor.

CEO, Hariyana Steel & Power, Bangalore has suggested that CPPs would not only cater to peak demand but would also take care of power shortages during non-monsoon seasons.

Commission's views/decision:

Considering the energy shortages and the need to keep the demand-supply

equilibrium, the Commission would like to consider the option of utilizing available surplus power from CPPs as they also represent distributed generation spread over in the entire State. Further, utilizing such distributed generation power from existing under utilized (low plant load factor) facilities would also enable to bring down losses to a certain extent.

The Commission is therefore of the view that there is an urgent need to harness captive power generation in the State.

ISSUE No. 2: ***Absorption of surplus power from CPPs would increase the power purchase cost of the licensees and consequently the cost of supply. Whether the increase in cost on this account should be loaded to all the consumer categories equitably through tariff or to any specific consumer categories selectively?***

Principal Secretary, Energy Dept, GoK has suggested that, it would be prudent to load this cost to the paying category of consumers, i.e. the commercial & industrial category, who will be in a position to afford high cost energy.

Sri. B.G.Rudrappa, Former Chairman, KEB has stated that, licensees may be permitted to purchase such energy only at times of acute shortage. The extra burden on the consumers by such small quantity purchase will not be significant.

General Manager (Tech & Admin), BESCOM, Bangalore, has stated that the increase in power purchase cost should be equitably loaded to all consumers. If any concession/rebate is to be extended to any category of consumers, the same will have to be compensated by the GoK or any other agency.

President, Balakedarara Hitharakshaka Sangha, Sirsi has suggested that the increase in cost of supply should not be loaded to all consumers.

Joint Director(R&D),CPRI, Bangalore has stated that the increased cost of supply should be loaded only to high tariff category consumers and those tax paying & high value consumers getting 24 Hrs power supply.

President, FKCCI, Bangalore has suggested that, the cost of power purchase from CPPs should be decided after a thorough discussion with all the stakeholders and such cost could be equitably loaded on to all categories consumers.

DGM, Rajashree Cements, Bangalore and CEO, Hariyana Steel &Power, Bangalore have stated that the cost of supply should be loaded to all categories of consumers on a pro-rata basis.

Commission's views/decision: The correct approach would be to charge the cost of captive power to the consumers who absorb power during peak hours. Collection of accurate data requires lot of time to consider such an approach. Since the effect of additional power purchase cost would be negligible when compared to over all annual power purchase cost, the Commission is of the view, that the additional cost of captive power should be included in the over all annual power purchase cost and should be treated as a part of the Annual Revenue Requirement (ARR) under power purchase to be passed on to all categories of consumers.

As such the Commission decides to load the cost of CPP power to all categories of consumers except in cases of specific power purchase made to meet requirements of a particular category of consumers.

ISSUE No. 3: *Among the alternative approaches for pricing of surplus power from the CPPs as discussed above, what could be the appropriate approach for pricing such surplus power? In case Competitive-bidding approach is adopted, what should be the floor price and ceiling price?*

Principal Secretary, Energy Dept, GoK has suggested that absorption of surplus power from CPP is to be at 2/3rd slab of the UI (Unscheduled interchange) rate as in the case of TNERC's proposal or at half of the UI rate. This takes care of system constraints like frequency that is necessary for maintaining grid discipline.

Sri. B.G.Rudrappa, Former Chairman, KEB, has suggested that it is not desirable to have too much control over the transactions which have little impact on the overall tariff to the consumers. Discretion can be given to the licensees to purchase small quantities from CPPs in case of emergencies under intimation to the Commission under such conditions and at rates considered as advantageous to the licensees.

General Manager (Tech & Admin), BESCO, Bangalore, has stated that the Commission shall regulate the pricing of surplus power. The thermal power plant pricing may be considered as benchmark.

President, Balakedarara Hitharakshaka Sangha, Sirsi has suggested that it would be better to adopt competitive bidding approach. However, the pricing should be at UI rates.

Joint Director(R&D),CPRI, Bangalore has stated that the prices of surplus power from CPPs should be differentiated for peak and off-peak supplies and tariff should include variable cost of generation at actual levels. Since in most of the cases the grid dictates the terms, better option would be to take committed power from the CPPs over small back-to-back links.

President, FKCCI, Bangalore has suggested that due consideration has to be given for fuel escalation charges as a result of increase in international petroleum prices.

DGM, Rajashree Cements, Bangalore has stated that the appropriate approach would be 'cost plus approach'. Price determination based on the design efficiency would encourage CPPs. Base price should be exempted from levy of taxes and duties, demand charges and grid support charges.

CEO, Hariyana Steel &Power, Bangalore has suggested that determination of price shall be on a case-to-case basis using cost plus approach.

Prof. V.Ranganathan,IIM,Bangalore has suggested that the survey conducted by IIM shows that captive generation cost is more than Rs 5.00 per unit.

Commission's views/decision:

As suggested by some of the experts, it is true that the quantum of power purchase is too small when compared with the major power purchases of licensees. The impact on the end consumers may not also be significant. However, it would be prudent to strike a balance between the increase in cost of supply and the tariff burden on the consumer. There is therefore a need to evolve an approach for determination of tariff for purchase of power from the CPPs.

Some of the stakeholders have opined that, it would be better to adopt the cost plus approach for determining the price of the CPP power. One of the stakeholders has suggested adopting bidding route for determination of the cost of CPP power.

In the mean time, the Commission has also received letters from some CPPs willing to supply their surplus power to the Grid. M/s Hariyana Steel& Power, Bangalore, vide their letter dated 23.09.2005 addressed to Principal Secretary, Dept. of Energy, GoK has stated that, they would supply 10 MU annually to ESCOM at a rate of Rs.2.30 per unit. M/s Sathavahana Ispat Limited, vide their letter dated 09.11.2005 addressed to Director (Procurement), Dept. of Energy, GoK has stated that, they would supply 19.5 MW of surplus power to ESCOM at a rate of Rs. 2.60 per unit. M/s Rajashree Cements, vide their letter dated 14.04.2006 addressed to the Commission has stated that, they would supply 50 lakh units per month without any commitment on demand at a rate of Rs. 2.90 per unit.

In view of the different sizes, fuels & different processes being used and considering a large number of small captive power plants, it would be difficult to adopt a cost plus approach.

Regarding Competitive Bidding, Section 63 of the Electricity Act 2003 states that,

'Notwithstanding anything contained in Section 62, the appropriate Commission shall adopt the tariff if such tariff has been determined through a transparent process of bidding in accordance with the guidelines issued by the Central Government'.

Further, Section 60 of EA 2003 states that,

" The Appropriate Commission may issue such directions as it considers appropriate to a licensee or a generating company if such licensee or generating enters into any agreement or abuses its dominant position or enters into a combination which is likely to cause or causes an adverse effect on competition in electricity industry"

In case the Licensee opts for Competitive bidding route, the Commission specifies a ceiling rate of Rs. 2.87 per unit [based on average of the floor rate and ceiling rate of UI as discussed below]. This ceiling rate has been specified by the Commission as per Sec.60 of the EA 2003 in order to avoid market dominance.

In case the Licensee does not opt for competitive bid route, the Commission decides to adopt a pricing based on UI mechanism to procure power from the CPPs as discussed in the following paragraphs.

The UI rates applicable as per the prevailing norms issued by CERC are as follows,

Average frequency in Hz for a time block		UI Rate (Paise per KWH)
Below	Not below	
....	50.50	0
50.50	50.48	6
50.48	50.46	12
....
....
49.84	49.82	204
49.82	49.80	210

Average frequency in Hz for a time block		UI Rate (Paise per KWH)
Below	Not below	
49.78	49.76	228
49.76	49.74	237
49.74	49.72	246
49.72	49.70	255
49.70	49.68	264
49.68	49.66	273
49.66	49.64	282
49.64	49.62	291
49.62	49.60	300
49.60	49.58	309
49.58	49.56	318
49.56	49.54	327
49.54	49.52	336
49.52	49.50	345
.....
.....
49.04	49.02	561
49.02	49.00	570

UI Rates applicable for Long term, Firm and Infirm supplies from CGPs:

Supply of power for durations of more than THREE years or more would be termed as long-term supplies for the purpose of this Order.

Supply of 700 units or more per hour per MW is defined as 'Firm Power'. This is based on the normative load factor of 70%.

Any supply, which is less than 700 units per hour per MW capacity, is defined as 'Infirm Power'.

For Firm Power, the Commission fixes a floor rate of Rs. 2.28 per unit and a ceiling rate of Rs. 3.45 per unit (UI rates at intersecting frequency of 49.76 Hz and 49.50Hz respectively). Accordingly, supply above a frequency of 49.76 Hz is entitled for payment at a floor rate of Rs.2.28 per unit only. Similarly, all supplies below frequency of 49.50 Hz would be entitled for payment at a ceiling rate of Rs.3.45 per unit only. All supplies in between the said frequency range of 49.76 Hz and 49.50Hz would be entitled for payment as per the

existing UI rates. The above rates are applicable for firm purchase for a period of less than 3-years.

Firm Power purchase for long periods of THREE years or more shall be through competitive bids at a ceiling rate of Rs. 2.87 per unit [based on average of the floor rate and ceiling rate of UI as discussed above]. As such UI rate will not be applicable for long-term firm supplies.

For Infirm Power, the Commission fixes a floor rate of Rs. 2.05 per unit and a ceiling rate of Rs. 3.10 (90% of UI rates at intersecting frequency of 49.76 Hz and 49.50Hz respectively). Accordingly, supplies above a frequency of 49.76 Hz are entitled for payment at a floor rate of Rs.2.05 per unit only. Similarly, all supplies below frequency of 49.50 Hz would be entitled for payment at a ceiling rate of Rs.3.10 per unit only. All supplies in between the said frequency range of 49.76 Hz and 49.50Hz would be entitled for payment of 90% of existing UI rates.

The UI Rates are as prescribed by CERC and are subject to revision by CERC. In case of revision, the revised rates shall be applicable.

OTHER RELATED ISSUES

As discussed in the discussion paper, the Commission decides as follows,

a) Applicability of this Order: This order is applicable to all those Captive Power Plants agreeing to supply a capacity of **one MW and above** to the distribution licensees duly complying with the terms indicated in this order.

NCE projects which include biomass, wind and mini hydel, Sugar based cogeneration Power Plants are exempted from this order as they are separately covered under relevant Regulations.

b) Power Purchase Agreement: The Captive power generator shall enter into an agreement with the distribution licensee for sale of power. Power purchase shall be through the PPA route only. Distribution Licensees shall

draft the PPA considering the various provisions made in this order and the same shall be got approved from the Commission.

c) Banking and Wheeling: As the purpose of this order is to harness the available surplus power with the CPPs in the State, no banking facility shall be allowed.

d) Metering: All Captive Power Plants desirous of selling power to either Distribution Licensee or Third party shall install meters at interface points as per the prevailing CEA regulations as amended from time to time.

e) Billing and Accounting: The distribution licensee buying power from one or more CPPs shall settle payment within fifteen days after the completion of the billing cycle. The billing cycle shall be one month. The Distribution Licensee shall open a letter of credit equivalent to one month's bill for purchase of firm power and long-term contracts.

f) Grid Support/parallel operation Charges: The transmission utility shall place suitable proposals on grid support charges. The same will be dealt with as and when the transmission utility submits the proposal to the Commission.

g) Operational characteristics of the CPP: The captive power plant shall be capable of being synchronised and operated in the system within nominal system parameters of voltage, frequency and power factor range specified by the licensee. The CPP shall be capable of delivering reactive power commensurate with the generator design capability and prorated to the capacity contracted to the grid.

In the first instance, this Order shall be valid for a period of one year from the date of this Order and the same would be reviewed based on the feedback from all the stakeholders.

This order is signed and issued by Karnataka Electricity Regulatory Commission on this 27th day of February 2007.

Sd/-
K.P.Pandey
Chairman

Sd/-
H.S.Subramanya
Member

Sd/-
S.D.Ukkali
Member