

Comments on CERC's Consultation Paper on "Introducing Competition in
Generation of Electricity"

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1. The key provisions of the Electricity Act 2003 that would help bring in competitive regime in the Indian power sector are¹,
 - a. De-licensing of thermal generation (Sec 7) and captive generation. (Sec 9)
 - b. Permitting stand-alone systems to undertake generation and distribution in the rural areas (Sec 4), and provision for management of rural distribution by panchayats, cooperative societies, non-government organisations, franchisees etc. and exemption from licensing (Sec 5 & 13)
 - c. Non-discriminatory open access in transmission. (Sec 38 (2)(d) & Sec 39 (2)(d))
 - d. Multiple licensing in distribution. (Sec 14)
 - e. Open access in distribution to be introduced in phases. Provision for cross-subsidy surcharge on direct sale to consumers till cross subsidy is gradually phased out. (Sec 42 (2))
 - f. Trading recognised as a distinct activity (Sec 14) with ceilings on trading margins to be fixed by Regulatory Commissions.

2. Sally Hunt (2002)² identifies following primary pre-requisites for competition in power markets
 - a. Many buyers and sellers
 - b. Demand and supply response to prices
 - c. Liquid and efficient market place
 - d. Non-discriminatory access to network facilities
 - e. Treatment of subsidiesPlacing these in Indian context, one can infer that apart from (d), with reservations of open access of distribution network, all other pre-requisites do not seem to have been fulfilled satisfactorily.

3. "Competition for the Market" Vs "Competition in the Market": [22.5, 26.6, 26.8]
One can distinguish between 'competition for the market' vs 'competition in the market'. Understandably, the consultation paper as its main objective refers to "Introducing Competition in Generation of Electricity". This should address competition in creation of generation capacity in the country and would be most effective if it involves tariff bidding. Though, Electricity Act 2003 (Sec 63) bestows the Central Government to issue guidelines for competitive bidding of power plants, there are many miles to go before it is universally adopted.

¹ Relevant sections of the Act are mentioned in the parentheses with reference to each provisions. Hereinafter, the Electricity Act 2003 is referred to as the Act.

² *Making Competition Work in Electricity*, Wiley.

Attempts should be made to strengthen this and to mandate such guidelines for all capacity creation in the country.

4. Roadmap to Competition in Bulk Power Market – In the Indian context, evolution of competitive markets could be perceived to advance through following three modes (and in that order).

- I - Negotiated bilateral agreements
- II - Competitive bilateral agreements
- III - Market based pricing of electricity

Most of the existing transactions are an outcome of allocated capacities or negotiated bilateral agreements. With the advent of trading in the Indian power sector, competitive bilateral agreements are emerging as a new model for transactions. Market based pricing of electricity might evolve over time. Even in that scenario, a larger proportion of energy would still be exchanged through modes I & II, as is generally experienced in most of developed power markets. This helps to arrest volatility in electricity prices and reduce risk for buyers as well as sellers.

5. Margins in Transmission Network – [20.15]³ For competition in power markets, not only sufficiency but also adequate redundancy of transmission capacity plays crucial role in determining the way markets function and facilitates its competitive outcome. This preempts potential threat from practical as well as artificial shortage of transmission facilities. At present, many transmission facilities do not work with sufficient margins and hence are potential bottleneck to competitive power markets. This should be taken up as a medium term-goal for ensuring healthy development of competitive power market in the country.
6. Demand Response – Competitiveness of bulk as well as retail power markets is strengthened by presence of supply and demand response. Demand response refers to ability of final consumers to modify demand in accordance with market prices. In case of regulated retail prices, demand may not be reduced when market prices are high and where retail supplier continues to buy at high price. Part of the problem can be addressed by TOD metering of larger consumers. SERCs should take initiatives to introduce TOD metering and design appropriate tariffs for the same so as to incorporate change in electricity prices.
7. Completeness of Markets - Apart from above, power market design should ensure its completeness i.e. by providing full set of forward and spot markets for each specific time slot, and tools for risk management. This would reduce price volatility expected from market based bulk electricity pricing and facilitates risk hedging by both buyers and sellers.

³ Relevant paragraphs of the consultation paper are given in square parentheses.

8. Competitive Market for Ancillary services - The consultation paper should also address evolution of competitive market for ancillary services. In more than one way, market for ancillary services like reactive power, reserve margins etc. can be provided on a competitive basis, which could evolve over time.
9. Market Mechanism – There is also a need to evolve rules for market mechanism i.e. method to arrive at market prices. Currently “UI market” in ABT provides a proxy for “market for differences” or “balancing market”, where deviations from schedule are priced explicitly. This behaves like buyers and sellers giving quantity bids whereas price schedule has been predetermined. Hence, ABT only performance role of managed market for “deviations from schedule” and does not include market based pricing for electricity as such. As a logical extension, a mechanism for pricing of complete set of “products” should be initiated. The existing experience under ABT regime would be useful in this exercise. Such a market mechanism should also take care of capacity payments as provided in electricity market in the UK before introduction of NETA in 2000.
10. Monitoring and Rectification of Abuse of Market Power – As a competitive basis for market mechanism would evolve, the regulator would need to be vigilant in terms of monitoring of market participation by various players so as to identify potential or prevalent abuse of market power.

Any approach to competition in power sector can not succeed without the ability to monitor abuse of market power and to take appropriate corrective actions. Hence, appropriate monitoring of market power should be put in place by CERC to assure competition in Indian power sector. This would be in line with Regulations for Trading Licenses 2004 (Regulation 7 (k))
11. Unbundling and Privatization of Discos - This has important implications in the context of provision of open access of their existing customers. Provision of open access for yet to be privatized distribution zones would reduce their valuation as there would be potential loss of creamy layer of customers. This would place downward pressure on per unit revenue and per unit recoveries. Such implications might be taken into consideration by respective state governments in case it considers privatization of distribution zones. Privatised distribution companies may have some margin to improve service to customers and/or to offer competitive rates so as to stall their migration to competing suppliers. Privatisation of VSNL is a live example in this regard. Increased competition in the ILD market significantly reduced the valuation of the company.

To avoid potential lobbying to scuttle the process of granting open access to potential competitors by privatized discos, SERCs should lay out clear roadmap to gradual open access scheme for customers of incumbent utility. This should be undertaken before privatization exercise of distribution zones.
12. Phased Annual Ceiling on Open Access – [24.5] Large consumers of s distribution licensee may account for a significant proportion of energy sales. Instead of arbitrarily restricting open access to ‘about 6 % of total procurement of

a distribution company' phasing should be on the basis of size of customer expressed in terms of maximum demand with appropriate definition for small customers for whom the existing defining criteria is on the basis of connected / sanctioned load.

The suggested criteria for phasing of open access may leave grey areas for rent seeking as this would make open access potentially open for many consumers (say 5 MW and above) while giving no specific criteria for choosing among these while meeting the suggested "6% criteria".

SERCs may choose to introduce phased open access on the basis of size of load. For e.g. 20 MW, 10 MW, 5 MW etc. This should however, take into account consumer mix, number of candidate consumers for open access and plan for phasing out cross-subsidy.

13. Timeline for Distribution Open Access - The consultation paper suggests a timeline for distribution open access depending on the current state of reform in the states. Some consideration should also be made for consumer mix in the state, current level of cross-subsidy and plan for phasing out of cross-subsidy, cost of power procurement, tariff structure and extent of access to electricity in the state.

14. Phasing Open Access - Consultation paper refers to amendment of Electricity Act 2003 that provides for open access to consumers whose maximum demand exceeds 1 MW and hence it does not construed as "1 MW and above" as referred at many places in the consultation paper. The Amendment to Section 42 of the Act, in sub-section (2) reads as follows

"Provided also that the State Commission shall, not later than five years from the date of commencement of the Electricity (Amendment) Act, 2003 by regulations, provide such open access to all consumers who require a supply of electricity where the maximum power to be made available at any time exceeds one megawatt.".(emphasis added)

It might be useful to further amend the above amendment to section 42 to mean "1 MW and above" as most of the relevant data is reported for "1 MW and above" category.

15. Cross-subsidy Surcharge: Its Determination and Phasing out Plan – [25.2] Apart from non-discriminatory open access, cross-subsidy surcharge is another critical issue affecting level of competition in electricity supply.

The Act bestowed Central Commission with powers to determine cross-subsidy surcharge for provision of open access by SERCs. The Act specifies this to correspond to existing levels of cross-subsidy (ii) any consumer as and when such open access is provided by the State Commission under sub-section (2) of section 42, on payment of the transmission charges and a surcharge thereon, as may be specified by the Central Commission:

"Provided that such surcharge shall be utilised for the purpose of meeting the requirement of current level cross-subsidy." (emphasis added)

Definition of cross-subsidy should be linked with cost to serve to the subsidized and cost to serve to subsidizing categories, who might wish to obtain open access from SERCs. Many states are yet to figure out category specific average cost to serve. Marginal basis, in spite of being economically more appropriate, may even be more challenging to implement. Clearly the most important task for SERCs would be to work out “existing level of cross-subsidy”. Apart from financial information, this would require substantial amount of data on consumer profiles, their load curves, technical and non-technical losses etc. Given the exiting level of data available with the utilities, it is suggested that SERCs should take immediate steps to direct improvement of MIS for state utilities so that appropriate and correct information could be made easily available for taking such decisions. Such information would also be useful for designing a phasing out plan for open access.

As per the suggested definition of ceiling on cross-subsidy surcharge in the consultation paper, back of the envelop calculations for the same in case of Haryana using data for 2003-04 are provided below. (assuming that there is only a technical loss of 15 % in transmission and distribution network to serve a consumer of “HT Industrial Category”)

Cross-subsidy Surcharge = Applicable Tariff for Consumer - (Marginal Cost of purchase of electricity by Discos + wheeling charges + T & D loss)

Tariff for “HT Industry” category = Paise 409 per unit
Power Purchase Cost from NHPC - Uri = Paise 313 per unit

(i) Cross-subsidy surcharge as per suggested methodology⁴ (paise)
= Applicable Tariff for the consumer - (313 * 1.15 + 25)
= 409 – 384.95
= **24.05**

(ii) Average cost of supply (2003-04) (paise) = 348
(D& RS ARR – Rs. 39,362.89 Million; Units Projected - 11313.8 MUs)

Cross-subsidy surcharge on the basis of Average Cost to Serve (paise)
= 409 – 348
= **61**

Clearly the issue is debatable and need to be sorted out!

Since the Act also bestows upon the Central Commission a phasing out plan for cross-subsidy surcharge (Section 38 (2) d (iii)), the same should be charted out separately for each state. This would be necessary due to differences in consumer mix and existing level of cross-subsidy across states. I feel that this is

⁴ The calculations are only indicative as one takes appropriate consideration for T & D losses.

one of the crucial issues towards introduction of distribution open access and should be debated and be settled beforehand.

16. Unbundling of Transmission in States – [20.7] In many states ownership of intra-state transmission assets along with the function of system operation (SLDCs) continues to be bundled with SEBs. Competitive supplies to consumers of incumbent utilities could be thwarted by such an organizational structure as there could be skewed incentives to subvert access to transmission network owned by incumbent utility.

Unbundling of Transmission and distribution (network) business is also crucial for appropriate determination of wheeling charges. As a precursor, however, accounting separation of transmission from distribution segment, and further separation of transmission (network) function from bulk supply function would facilitate appropriate determination of wheeling charges for customers seeing open access in the state. This would also facilitate unbundling in future as accounting separation would have been achieved by then. Separation of account has caused various difficulties to SERCs where the sector was unbundled.

Unbundling of SEBs would be recommended not only because it would facilitate open access and competition, but also because such reorganization would help bring more transparency and accountability for performance.

17. ABT for intra-state Transactions – [20.13] ABT mechanism brings in some amount of discipline in the grid. To reduce net impact of UI charges, state utilities respond by altering generation and load management within the state. This can be achieved more efficiently if other intra-state entities, especially embedded captive generators, also respond to economic incentives / disincentives.

Since grid connected captive generators are expected to play greater role in easing power supply position in the states, it is timely and desirable to implement an ABT-like mechanism for intra-state transactions. Design of such a mechanism needs to be widely discussed as it needs to be gelled with ABT for inter-state transactions and to take into account complexities that arise due to open access customers especially if their supply is sourced from outside the state.

18. Universal Service –

As per Section 6 Electricity Act 2003, Appropriate Government should endeavour to provide Universal Service. Such a provision would have significant implication in terms of subsidy burden on incumbent utilities. Section 6 of the Act does not oblige the incumbent or entrant utility to provide universal service. It is not clear, as to how respective governments would ensure universal service. Does it mean that appropriate Governments would provide subsidy for extension of grid to customers in rural and difficult terrains which would otherwise be an expensive exercise. If such an extension of network is to be borne by the incumbent utilities, this would be unfair to the incumbent and hence would subvert competition in retail supply. Similar experience on account of Universal Service Obligation (USO) for telecom operators could be useful in addressing this issue.

The consultation paper should elaborate on such an issue that can have significant bearing on competition in retail electricity supply.

19. Obligation to Supply and Additional Surcharge – In case the competing retail supplier goes out of business and could not meet its obligation to supply electricity to its customers, it seems to be an obligation on incumbent utility to serve all such customers. The Electricity Act 2003 provides for levy of an additional surcharge,

“(4) Where the State Commission permits a consumer or class of consumers to receive supply of electricity from a person other than the distribution licensee of his area of supply, such consumer shall be liable to pay an additional surcharge on the charges of wheeling, as may be specified by the State Commission, to meet the fixed cost of such distribution licensee arising out of his obligation to supply.” (emphasis added)

Procedure for determination of ‘additional surcharge’ should also be discussed and settled before introducing distribution open access.

20. Competition in Unbundled Services - The consultation paper is silent about competition in unbundled services like billing, metering and collection. Though many state utilities outsource such services, adequacy of competition may still be questionable and can be improved significantly. These should perhaps be considered by SERCs as per their vision towards introducing competition in their respective states.
21. Bank Rate + 2 % - [20.5] Appropriate definition of ‘Bank rate’ should be provided. Given the risk profile of Indian power sector, investors would not find it attractive to do business at Bank rate + 2 % (around 8+ %) return in Indian power sector where cost of debt itself is more than 8 % pa. This needs a serious thought and should be linked to ‘cost of capital’ which can be determined using some of capital asset pricing methodologies.
22. Sale of Power over 80 % Availability by CPSUs – [20.5] Since CPSUs are able to cover their total fixed cost at 80 % availability, allowing them to offload electricity at their variable cost (with some margins) would mean that beneficiary states are deprived of such ‘cheap’ power while they have shouldered all the fixed cost of such generating plants.
23. Price for Sale of Power beyond 80 % Availability by CPSUs –From the perspective of CPSUs, sale of electricity beyond 80 % availability is proposed to be allowed below regulated tariff (meaning only variable cost? As fixed cost would have been recovered by then). In any case, sale of power at lower price while bearing higher demand risk defies economic logic.

24. Tariff for Captive Generating Plants – [22.4] Process of determination of tariff for captive generating stations supplying electricity to distribution licensees, could thwart harnessing of untapped captive generating capacity. This cheap source of power can help reduce shortage scenario. However, process of determination of tariff for each individual captive generating station would add to the regulatory cost which could be significant for small captive stations. Light handed regulation of captive generation through benchmarked tariff would significantly lower the cost of regulation. These captive generators can provide necessary liquidity in the market and improve its competitive outcome, and hence should be encouraged.
25. Electricity Duty: Though this is an issues that is within the purview of state governments, it should be ensured that this is not utilized on a discriminatory basis either to thwart open access of distort competition in the power markets.....
26. Regional Power Market in South Asia – In many parts of the world, integration of power networks across the countries of a region has enabled development of regional power markets that thrive in the Europe, the Africa, the East Asia and the Americas. Over the past few years, similar studies have been made in the context of SAGQ countries covering India, Nepal, Bangladesh and Bhutan. A vision towards competitive power market in eth country should take into account such potential developments in future. This aspect has largely been neglected till now. An issue of immediate attention would be potential access and participation of generating companies in Nepal and Bhutan to Indian power markets which goes beyond politically negotiated agreements.
27. The Competition Act 2002 – Another important piece of legislation, the Competition Act 2002, was brought into force to deal with competition related aspects in various markets in the country. The scope of the Act includes supply of electricity. CERC should also examine provisions of the Competition Act 2002 on ways and means to promote and sustain competition, to deal with practices having adverse effect on competition, to protect the interests of consumers and to ensure freedom of trade.
28. Treatment of Renewable Energy –Electricity Act 2003 promotes use of renewable energy for electricity generation which is to be purchased by respective state utilities at a price determined by the central government. SERCs have been mandated to specify a certain percentage of total power consumption in the area of a distribution licensee from such sources (Sec 86 (1) (e)). In determining terms and conditions for tariff, appropriate commission shall promote generation of electricity from renewable sources of energy (Sec 61 (h)). While promoting renewable energy, SERCs would allow purchase of electricity from renewable sources even at higher cost. This should not mean that competition can not be promoted in cost effective procurement of electricity from renewable sources. SERCs should put in place regulations for competitive procurement of electricity

generated from renewable energy sources while mandating purchase of specified percentage of total power consumption (Sec 86 (1) (e)).

29. Market for Fuel for Power Generation – Since fuel cost accounts for a significant part of thermal power plants, extent of competition in fuel market (coal, oil and natural gas) would influence price in these markets. This would be reflected in cost of power produced using various fuels and hence would influence competition in power markets. Though this issue lies beyond the CERCs purview and the mandate of Electricity Act 2003, nodal ministries of power, coal, and petroleum and natural gas should discuss approach to enhanced competition in fuel markets.
30. PPA-Capacity in Open Market – [26.10] Cost of electricity generated through depreciated thermal and hydro power plants, especially later, reduces with time as most of the fixed cost of such plants has already been borne by beneficiary states. If a part of such capacity is allowed to be offloaded in the open market, beneficiary states would lose the benefit of cheaper power now (from the capacity which they have paid for) and may not be willing to do so. This could perhaps be done in stages.
31. Capacity Addition by PSUs - Why shield inefficiencies of PSUs for 3 years? Inefficiency and delays has caused rise in cost of power projects in the country and SEBs/state utilities are made to shoulder this high cost due to cost plus tariff for reasons beyond their control. To reduce cost of power procurement by SEBs, cost plus basis advantage should not be extended.
32. Role of Unallocated Capacity of CPSUs in Competitive Markets: The unallocated capacity of central generating stations remains with the central government and is at the discretionary disposal of the Ministry of Power for allocation primarily on a non-commercial basis. Such capacity totaled 3848.01 MW at the end of 2003-04. (864 (N) + 891.3 (W) + 610 (S) + 1303.51 (E) + 179.20 (NE) (So: MoP Annual Report 2003-04 pp 122-126). A part of this discretionary quota should gradually be offloaded in the market where state utilities can competitively bid for this unallocated capacity in a scheme that runs independently or as a part of larger scheme for competitive power markets which would enhance liquidity in the market. Alternatively, as competitive market evolves over time, unallocated capacity can also be judiciously utilized to arrest price volatility.

Appendix A

Table: Percentage Share of Energy Sales Industrial Power (High Voltage) in Total Energy Sold (2002-03)

All Utilities	Industrial Power (High Voltage)	All Utilities	Industrial Power (High Voltage)
Haryana	16.45	Bihar	17.34
Himachal Pradesh	-	Jharkhand \$	76.36
Jammu & Kashmir	-	Orissa	39.33
Punjab	29.24	West Bengal \$	33.92
Rajasthan	23.72	A. & N. Islands	0.00
Uttar Pradesh	13.90	Sikkim	0.00
Uttaranchal	18.54	Sub-Total(ER)	41.64
Chandigarh	15.32	Assam	26.70
Delhi	1.85	Manipur	1.20
Sub-Total(NR)	17.14	Meghalaya	39.00
Gujarat	25.71	Nagaland	-
Madhya Pradesh	23.07	Tripura	-
Chhattisgarh	24.78	Arunachal Pradesh	-
Maharashtra	28.71	Mizoram	0.00
Goa	46.57	Sub-Total(NER)	22.52
Daman & Diu	76.51	Total (All India)	24.85
D. & N Haveli	91.82		
Sub-Total(WR)	27.86		
Andhra Pradesh	18.11		
Karnataka	23.56		
Kerala	26.84		
Tamil Nadu	24.17		
Pondicherry	66.91		
Lakshadweep	0.00		
Sub-Total(SR)	23.04		

So: Derived from energy sold data as given in "General Review: 2002-03", CEA, New Delhi