

11-11-2022

To

Sh. Harpreet Singh Pruthi,
Secretary
Central Electricity Regulatory Commission
3rd & 4th Floor, Chanderlok Building,
36 Janpath, New Delhi - 110001

Dear Sir,

Sub: Comments on Staff Paper on Power Market Pricing

This is in reference to the public notice issued by CERC on 'Staff Paper on Power Market Pricing' where comments are invited by the Commission vide Public Notice No. Eco-4/2022-CERC dated 04th Nov 2022.

Working in the area of Power Market Design, Trading & Planning, and supporting various players in Power Trading and Market Participation, EMA Solutions strongly feel the need for the Power Market to remain free and competitive, with limited intervention in exceptional situations only. There are certain market design flaws at present, highlighted in our comments in annexure, and the same needs to be looked into, rather than looking for changing the well-functioning elements of market.

Our comments on the said notification are elaborated under Annexure-1 enclosed herewith. Kindly consider our views in consideration of the market interest.

Yours truly,



Victor Vanya B
Director



About EMA

EMA Solutions Pvt. Ltd (EMA), is a technology focused New Delhi based firm, recognized by GoI under the flagship 'Startup India Scheme' (No: DPIIT34787), and is the first and only startup firm in India's Energy Analytics Space, aimed at offering new-age Analytical, Big-data & AI, Trading Technology, Forecasting, Market Advisory and Knowledge solutions to Energy & Power Markets.

Our team has a diverse and suitable collective experience of 50+ years in areas of Power Market Design, Power Trading & Advisory, RE, Price & Demand Forecasting using AI & Statistical Models, Portfolio Management of Discoms and Generators, Power Plant Management, Forecasting, SLDC Operations and Big Data Analytics & AI.

ANNEXURE-I

Reference/ Subject	Views / Comments
<p>Sec-2 : Issues in Pricing Methodology (Uniform Pricing vs Pay as Bid)</p>	<p>At the time of introduction of Power Exchanges in India, The Commission has issued a “Staff Paper on Developing Common Platform for Electricity Trading” in the year 2006. Then itself, Uniform Pricing Vs Pay-as-Bid is discussed in detail, and relevant excerpt from the same is reproduced below for reference:</p> <p><i>“4.2.5 Uniform pricing Vs discriminatory pricing</i></p> <p><i>4.2.5.1 Most of the power exchanges across the world work on the principle of uniform pricing. In this method, the clearing price and clearing volume of electricity corresponds to the point of intersection of the Aggregate Demand curve and Aggregate Supply curve. All the suppliers are paid based on the clearing price, irrespective of their offer. This means that price is set by the last accepted offer of supply. In the alternative approach, referred as discriminatory pricing or "pay-as-bid" method, each supplier is paid as per its bid. Each buyer pays a price, which is the weighted average of the price for all suppliers cleared by the PX.</i></p> <p><i>4.2.5.2 <u>At first glance, discriminatory pricing appears attractive as it gives the impression that prices for buyers will be lower in this option.</u> However, a more careful analysis reveals that this may not be the case, as <u>the philosophy of submitting offers by the suppliers may be entirely different in the two alternatives.</u> In uniform pricing, suppliers are likely to submit their offers based on <u>marginal cost.</u> This is so because most of the suppliers are aware that the clearing price will be higher than the offer submitted by them and the difference between clearing price and offer price will set off their fixed charges. On the other hand, in case of discriminatory pricing, the suppliers are likely to submit bids based on the average cost, covering fixed expenses as well. It is more likely that <u>in case of "pay-as-bid" pricing, each supplier quotes prices which are not based on its own costs but based on anticipated clearing price of marginal supplier.</u> It is also argued that market manipulation by collusion is more likely in case of uniform pricing. However, critics of "pay-as-bid" pricing, point out that even if market manipulation takes place, it would be hard to monitor and detect in case of "pay-as-bid" pricing because suppliers will not quote consistently around a price (which will be marginal cost) but will quote higher than marginal price to a varying extent depending on their anticipation about clearing price. Though not much practical experience is available on discriminatory pricing so as to compare with uniform pricing, theoretical work done in this regard suggests that discriminatory pricing may lead to higher price level but less volatility as compared to uniform pricing.</i></p> <p><i>4.2.5.3 Overall, it appears that in view of the <u>limited practical experience worldwide on "pay-as-bid" pricing,</u> there is no evidence to suggest that perceived advantages of this method will turn into reality. Therefore, uniform pricing appears to be a better option.”</i></p> <p>The above excerpt from 2006 still holds true, and given that there is limited practical experience in pay-as-bid mechanism due to the cons associated with it, this approach seems to be a risky experiment to try in Indian Power Sector, given that Uniform Pricing in DAM been reflecting the supply-demand realities (Surplus/Deficit) in pricing well, though extreme deficit/surplus situations have drawn</p>

	<p>wider/undue/required attention, throughout in its 14 years of existence in India.</p> <p>It should also be noted that the Spot Market in India is around 5-6% of overall generation, and acts as a highly competitive barometer bringing out the imperfections & planning issues on both supply & demand sides through discovered Prices.</p> <p>Also, Short-Term in India is “ENERGY ONLY”, while the Long-Term market segment is “CAPACITY+ENERGY”. As such the risk involved for both Buyer and Seller in participating in the last-minute ‘energy-only’ market is quite high, as compared to other available contracts. Overall, given the small share of this Spot market, the spikes in this segment is a reflection of overall supply-demand situation, and doesn’t impact the revenues of Discoms much, and at the same time doesn’t give ultra-normal profits to Sellers in a long term.</p>
<p>Clause 3.1 Does Pricing Methodology need a change?</p>	<p>Pay-as-Bid mechanism has not been tried globally, due to the risks associated with the same. It is too risky for India to adopt such untested pricing principles, which may adversely impact the well-functioning Indian Spot Market , and may lead to gaming possibilities.</p>
<p>Clause 3.2 What should be the criteria for Regulatory Interventions?</p>	<p>It is reasonable for Regulator to intervene during exceptional situations which cause severe stress in the Supply-Demand side and cause prices to be exceptionally high for a longer period, say > 2 months. Such intervention can be in the form of Price Caps, and can be of temporary nature till the crisis withers out.</p>
<p>Clause 3.2.4 Would it be advisable to define a tolerance level (for instance, how many times during a day or over the week/month are we tolerant with the price touching the ceiling) beyond which intervention is justified?</p>	<p>The commission, based on experience can interfere with the pricing through Price Caps, only if the prices touch ceiling in atleast half of a day (48 timeblocks) for a period of atleast a month.</p>
<p>Clause 3.2.4 What should be the basis for such intervention and tolerance level in the Indian context?</p>	
<p>Clause 3.2.4 Would it be advisable to define a dynamic price cap?</p>	<p>Dynamic price-caps will create uncertainty, and will make the short-term bilateral/OTC position taking highly risky for market plyers. Price-cap is usually kept high so as to give room for market forces, and also indicate scarcity through price spikes, so that market forces can automatically take corrective actions.</p>
<p>Can a cap be considered on the excess revenues made by power plants that do not use gas or other high cost fuel to produce electricity, such as solar, wind, domestic coal, nuclear, hydropower and lignite?</p>	<p>Globally, well designed Electricity Markets have Ancillary/Balancing Markets to accommodate high-priced peaking power plants , and restrict their participation in the DAM/Intraday/RTM segments. We should study International markets and draw relevant design elements to adopt, rather than trying for short-fixes.</p>
<p>To partially capture the surplus profits made by the inframarginal generators, would it be advisable to impose a levy on supernormal profits, as was done by the Government for Petroleum?</p>	<p>This approach goes against the competitive market design, and will have drastic impact on the competitive market price discovery of Spot Market. Game theory based experimental studies can be conducted to assess impact on market, and behaviour of players under such interventions.</p>
<p>If price cap for inframarginal generators is levied, should the other</p>	<p>Globally, well designed Electricity Markets have Ancillary/Balancing Markets to accommodate high-priced peaking power plants , and restrict their participation in the DAM/Intraday/RTM segments. We</p>

<p>supramarginal generators like gas based generating stations be left without a cap or a separate price of Rs 20 or so be levied for this segment as well?</p>	<p>should study International markets and draw relevant design elements to adopt, rather than trying for short-fixes.</p>
<p>Clause 3.3 How do we address the negative impact of price cap?</p>	<p>Price Cap should be a tool to interfere in exceptional situations, like post covid supply-demand shock, and is not to be used a frequent one.</p>
<p>Clause 3.3.2 What should be the basis for defining supramarginal or high cost generators? Technology or fuel source?</p>	<p>High cost generators which are mostly used for peaking purpose are to be shifted to Balancing/Ancillary market. Globally, there is extensive experience and guidelines for identifying and pricing generators in Balancing Market</p>
<p>Clause 3.3.2 Would there be enough liquidity in this small segment for collective transactions (demand and supply curve intersection) to take place?</p>	<p>Balancing Markets for high-cost Peaking generators have different pricing mechanisms adopted, which can factor-in low liquidity, and is not mostly based on uniform price principle. Appropriate market designs to be studied regarding the same.</p>
<p>Clause 3.3.2 Would it lead to market power by these small sets of generators?</p>	<p>Market Power is well handled in Balancing Market design, which is a small segment with high-cost generators.</p>
<p>Clause 3.3.2 If the high cost/marginal generator setting the market clearing price is a concern and a cause for market intervention, would Term Ahead Market (TAM) be a better option for such transactions to take place without affecting the rest of the buyers?</p>	<p>Balancing/Reserves markets are designated market segments for high-cost peaking generators, as is the case in well established electricity market designs. TAM is a forward market, and cannot be forced to be an alternative.</p>
<p>Any other suggestion on mitigating the negative impact of price cap?</p>	<p>Price Cap is a tool to intervene in 'exceptional' situations only, and should not be a norm, as they distort free market forces.</p>