Explanatory Memorandum for
Power Market Regulations

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A. Foreword

Trading in electricity as a licensed activity has been in place since the year 2003.It has been over a year that the power exchanges have commenced operations. They have been playing a crucial role in helping in price discovery of electricity in the day ahead markets. The price is gradually getting accepted as a reference price by all power market players. The electronic price dissemination is also empowering buyers and sellers throughout the country to take informed pricing decisions even in the bilateral negotiated markets. It is acting as a great leveller between large and small players and democratising information for all of them.

As the volumes on the power exchanges gradually increase and the pilot phase ends, it is felt that regulations for power exchange should be created to regularise the practices and incorporate the learning of the pilot phase. The commission had published guidelines on establishment of power exchange in 2007. The power markets regulations are being formulated as an extension of the work done earlier on trading licensing and guidelines on power exchanges and regulate all aspects of power markets.

The Electricity Act 2003 mandates the Commission to promote the development of market (Including trading) and the National Electricity Policy,2005 envisions promotion of competitive power markets. These regulations will be a step towards achieving these goals.

B. Probable Scenario

These regulations have been formulated keeping in mind the most probable scenario 3-4 years from now in the power markets.

The National Electricity Policy, 2005 envisions that 85 % of power from new capacities shall be contracted through long term PPAs. Such contracts would take care of debt coverage and financing obligations of the power players. It is expected that power players will trade a substantial part of the remaining 15% power capacity. Also it is expected that much more merchant capacity would be available in the next few years as the power sector is beginning to successfully attract equity investors.

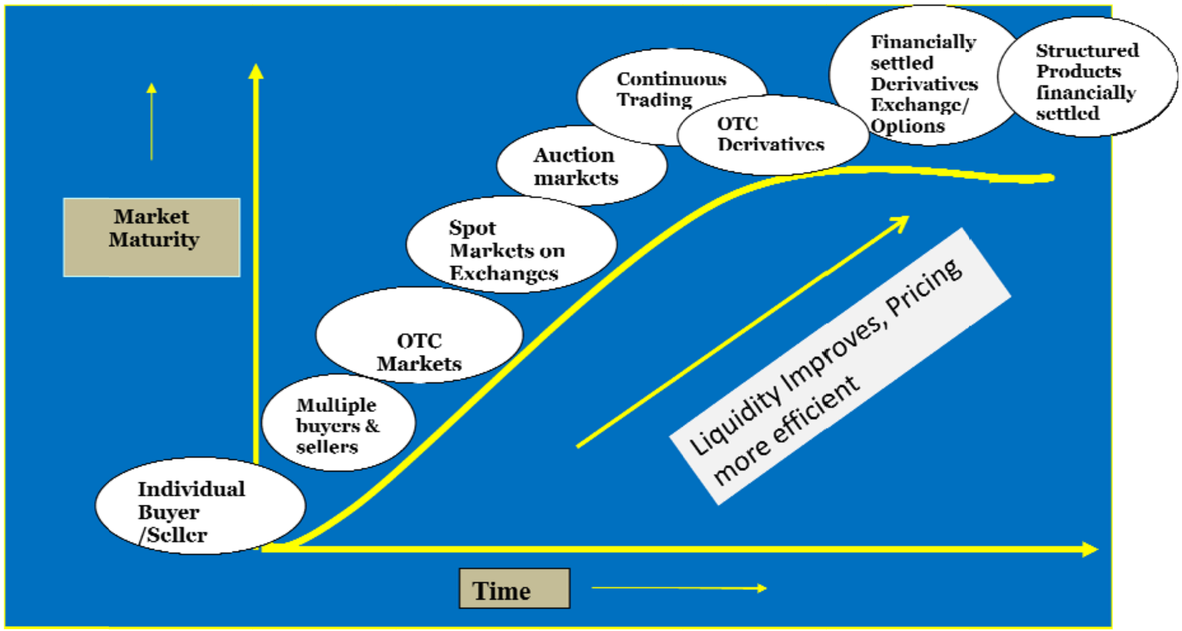
The medium term objective of the Commission is to develop a market where power players can efficient buy and sell power that is not tied up in PPAs. The market can also be used to short term balancing needs which arise from time to time in the power sector.

In addition the Commission would like to develop price risk management tools to help power players manage price risk arising from the volatility of prices. This would necessitate development of derivatives market as derivatives are used for purpose of price risk management, hedging and risk transfer between participants with different risk profiles.

However, we believe that a large, liquid and efficient spot market is essential for the healthy development of derivative markets. For derivative markets to function correctly it is essential that the price discovery process in the spot market is robust so that the spot market price benchmark be used by the derivative market. Once supply demand deficit reduces, liquidity gathers in spot markets, markets mature and deepen, derivatives may be introduced.

It is expected that the role of power exchanges would transform with time. From the present main purpose of acting as price signal for investments it will then have twin role of providing price signal and act as risk transfer platform. The present trend world over is to promote exchange traded contracts (in all types of markets) ,since the robust risk management of exchanges/ clearing corporation takes care of any systemic risk issues. Our intention is also to follow this newly gathered wisdom. However, OTC traders are expected to continue to play an important role of providing structured and financing solution to power players and play the role of buyer / supplier aggregator.

In case these presumptions do not turn out as envisaged mid course correction in the regulation may be needed.



•In matured markets all these types of markets exist
•Interplay between markets improves price discovery

It is generally observed that markets follow the above depicted developmental phases in its process of maturity. A strong and robust coupling between these markets through arbitrage mechanism and minimal entry barrier ensures converge of prices between different markets, efficient pricing happens as different market participants price the asset from different perspectives and manipulation of prices is difficult as the integrated market is large in size.

C. Envisaged Macro Objectives of Power Market Development in India:

- To serve the Interest of Society- Consumer Interest and Supplier Interest
- To provide correct prices signals and help raise more capital for investment and thereby reduce supply deficit
- To optimise asset utilisation through promoting short term trading
- To promote competition, efficiency and economy in power Markets
- To create level playing field between different types of entities
- To create a roadmap for future development in power markets in India

D. Objectives of Power Market Regulations

The Commission recognizes that a market a social construct. The Commission also recognizes that building a market place is a not a onetime activity. The Regulations will have to evolve with the changing needs and the advent of new financial technologies and continuous dialogue with all stake holders will be needed.

In keeping with this recognition, Part – 4 of Power Market Regulation mentions the principles that shall govern OTC and exchange markets. The approach to this regulation has been to have "*principle based regulation*", manage the macro picture with adequate safeguards and leave micro management to participants. This will also provide enough space for innovation by markets. The exchanges can introduce any of innovation in the price discovery methodology as long as it adheres to the principle of social welfare maximisation. Similarly exchanges can formulate their own risk management framework system based on their perception of risk. Similarly licensed trader can innovate and introduce new type of contracts based on market needs.

The below mentioned concepts are the underlying principles which have guided the Power Market Regulations:-

1. The Power exchange shall follow the following practices:-

    (a) Ensure fair, neutral, efficient and robust price discovery to provide equal opportunity to all participants in the market.

    (b) Provide extensive and quick price dissemination to reduce information asymmetry in the market and improve informed pricing decisions for participants.

    (c) Design standardised contracts and work towards increasing liquidity in such contracts. As liquidity improves the pricing becomes more efficient.

    Liquidity is a measure of ease of entering or exiting into a trade (generally large trade) without changing the markets price;

(d) Power exchange shall also provide price signal for efficiently allocating resources in power sector

2. OTC Markets – Principles of transaction

(a) OTC market shall provide customized solution to sector participants and bring innovation in the market place. It is expected that licensed traders will innovate and as markets mature introduce in future new types of products in the market like tolling agreement, banking agreement, capacity contracts, and spread contracts as standard back to back type of deals move to exchanges.

(b) Contracts to be sold to client should be based on the suitability, appropriateness and full material disclosure. This is important since actual users may not always be fully aware the financial implications of contracts when markets move in an unanticipated manner.

(c) Endeavour shall be made to provide complete material information about the contract pricing, its risks and implications to the parties entering into the contract. Creation of standardised master agreements for contracts reduces misinterpretations and misinformation (Like International Swaps and Derivatives Association (ISDA) kind of master agreements .This can be introduced over a period of time by the licensed traders

3. The Market Design should complement reliability of power system and under no circumstances, market mechanisms should compromise grid security. The market operators (power exchange/ license traders) and system operators should be in full co ordination to ensure reliability management. The generators, transmission utility and distribution companies should also fully coordinate through the system operator to maintain reliability.

E. Scope of the Regulations

1. The intention has been to make the regulations forward looking and to have long shelf life. This has been attempted by introducing concept of derivatives contracts, financial settled exchange traded derivatives and other innovative

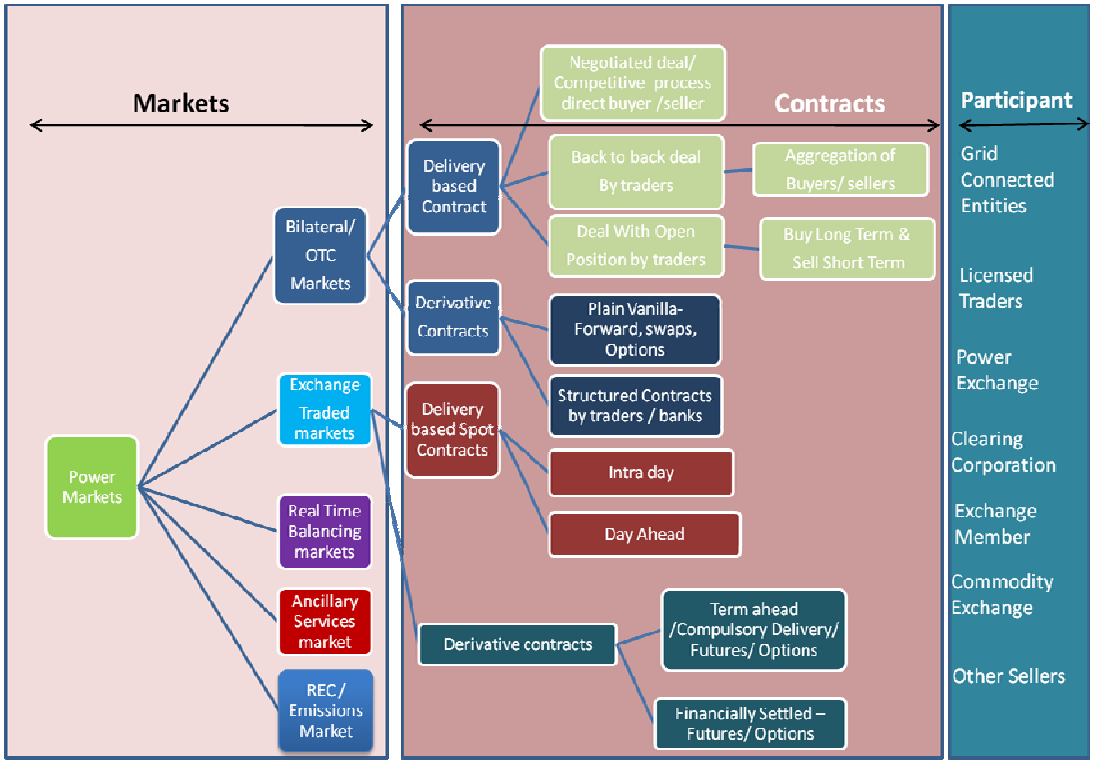
contracts like capacity contracts, ancillary services contracts. However derivatives would be introduced from a date to be notified when the supply deficit scenarios ebbs and sufficient liquidity gathers in day ahead market.

2. The scope of the regulations has been defined from 3 perspectives :-
   - (i) Types of Markets
   - (ii) Types of Contracts
   - (iii) Types of Participants

3. Types of markets- This has been defined from the market trade platform perspective .It includes Bilateral / OTC markets and Exchange traded markets. For regulatory purpose this bifurcation seems suitable as exchange driven markets are more closely regulated than OTC markets. The reason being exchanges handle collective transactions and any disruption in its operation has a lasting and cascading affect on the overall market. In the Indian context the exchange traded markets presently are relatively small compared to OTC markets. However these are expected to grow and hence having the correct structure is essential. Also, though the relatively market share of exchanges is small, in absolute numbers these would be large since the Indian power market is large.

   Markets can also be looked at from delivery time perspective which then bifurcates into Spot market and Derivative market. This concept has been accommodated in the types of contracts as delivery based and financially settled contracts have been defined.

4. Types of contracts – Various types of OTC contracts (back to back deals, deals with open position, aggregation of sellers/ buyers, spot contracts, derivatives), contracts traded on exchanges (spot, day ahead, term ahead, financial derivatives on exchanges), real time balancing contracts, capacity contracts, ancillary market contracts and renewable energy contracts have been defined. Many of these contracts would be developed in the due course of time. However at this stage it was felt necessary to recognise them and mention them. The market structure along with the contracts is depicted in the diagram below:



5. Types of Participants – The various stakeholders in the market include the actual users (all grid connected entities, state govt with free power), the trade facilitators (licensed traders and members of exchange) and the electronic trading platforms (power exchanges and commodity exchanges). Commodity exchanges have also been mentioned as stakeholders as they would in future deal with derivative contracts as and when permitted by Commission. In case of power markets, electricity derivatives shall have concurrence jurisdiction of this commission and Forward Market Commission. It needs to be appreciated that derivative markets cannot be viewed in isolation as the larger purpose of derivatives is to provide participants of the power sectors with services like price risk management and hedging, the forward price curve to show the demand supply situation in the long term and as a platform for risk transfer between participants of different risk profile. There is strong theoretical and empirical basis that activities in the derivative markets impact the spot/delivery market and therefore regulation of derivative market by the sector regulator also is essential for successful development of power markets.

F. Power Exchange

Part - 5 is the section on power exchange and covers all aspects and issues related to exchanges. This section has duly taken into account the earlier guidelines for power exchanges published in February 2007. Necessary modification and additions have been made based on the experience so far, issues that have come up before the Commission and the best practices for regulating exchanges.

1. Similar norms for Licensed traders and exchanges have been introduced:-
    (a) Similar capital adequacy norms for both exchange and Licensed Traders has been introduced (Normalizing over their risk profiles).
    (b) Similar capital adequacy norms for licensed traders and exchange members have been introduced.
    (c) Similar registration fee for exchange and licensed traders (highest category)

2. There have been some modifications introduced in the capital structure and governance structure of power exchanges. This is with the consideration that exchange is market based institution and should be a widely held organisation. Presently many power sector traders have equity stake in the power exchanges which is an accepted practice internationally. (Nordpool and EEX both have significant shareholding from generation companies with trading arm, transmission companies). However exchange should be demutualised and ringfenced. In a demutualised form of organization, the ownership and management is segregated from the trading rights of the members of the exchange. Ringfencing is segregation of trading member owners' influence or control on any operational matters of exchange. The proposed Capital Structure is :-
    (i) Any shareholder (in case of a corporate this is including its subsidiaries and cross holding in other companies) other than member of the exchange can have a maximum of 25% shareholding in the exchange. (Earlier it was 51 % of the equity share capital of the PX should be held by the public other than the shareholder having trading rights in the exchange).

(ii) A member to the exchange can have maximum of 5 % shareholding in the exchange. (Earlier there was no limit on individual member's shareholding in the exchange). This has been done in line with Kanya Committee recommendations for demutualistion of stock exchange in 2002

(iii) In total, an exchange can have a maximum of 49 % of its total shareholding owned by entities (in case of a corporate this is including its subsidiaries and cross holding in other companies) which are members of the exchange.

(iv) One- third of Board of Directors, with at least 2 directors shall be Independent directors. This will be from panel of eminent professionals / academics constituted by the exchange and approved by CERC. Earlier there was no such stipulation from the Commission however exchanges have appointed independent director as a best practice.

(v) Maximum one- fourth board of directors can be trader shareholders (This is same as earlier orders).

(vi) Alignment of the capital structure to the new norms - Over the next two years the capital structure has to be aligned by the existing exchanges.

(vii) Alignment of governance structure shall be complied with in one year time period

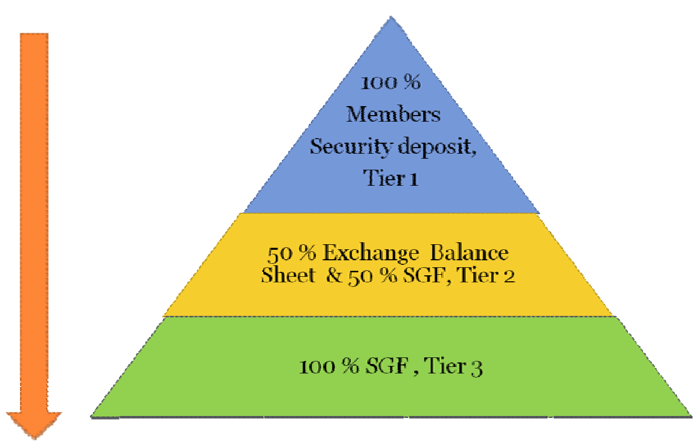
3. Prudential Norms – The Net worth requirement for exchanges is Rs 25 Crs. In addition, turnover based Settlement Guarantee Fund has been introduced. The networth requirement for exchange shall reduce to Rs 5 Cr once the clearing function is hived off to a separate clearing corporation. The prudential norms for clearing corporation are similar to the present prudential norms of the present self clearing exchange.
4. Management of Exchange-Exchanges have been directed to form a Risk Management Committee, a Market Surveillance Committee and a Settlement Guarantee Fund Committee. This has to be complied within one year of notification of the regulations. Risk committee headed by an independent director shall oversee the complete risk management function of the exchange. It shall provide reports to commission on a half yearly and along with board meeting observations on the subject. Similarly market surveillance

committee headed by an independent director shall oversee trading and surveillance and submit a quarterly report to the Commission. The SGF committee shall have adequate representation from trading members of the exchange.

5. Capital Adequacy Ratio (CAR) requirement for exchange members has been kept same as licensed trader. However a new category with Rs 1 Cr CAR has been created to accommodate fringe participants and reduce entry barrier for service providers.
6. Ceiling on Member Service Charge for trading members has been introduced at 0.75 % of Transaction value .This is to stymie the malpractices of exchanges members charging high margin to infrequent and less informed clients. This charge shall be inclusive of all subordinate services provider in between the member and the client.
7. A three -Tiered Default mechanism has been introduced for defaults on trades on the exchange using Settlement Guarantee Fund (SGF). Once all transmission charges, system operator charges have been cleared off, the default mechanism shall work in the following order to make good the payment to counterparty:-

   (i) 1st Tier – 100 % Security of member of exchange
   (ii) 2nd Tier -50 % Equity of exchange & 50 % SGF (To ensure the exchanges introduce products judiciously and align their risk management objectives with the members of the exchange)
   (iii) 3rd Tier -100 % SGF (Adopting concept of pooled insurance)

   The same structure shall be adopted by clearing corporations



8. Exchanges are being required to create an exit scheme detailing the process of winding up of business and the transfer mechanism of long dated contracts executed on the exchange. This is being promoted strongly by Financial Securities Authority (FSA) ,the UK financial regulator through the concept of a “Living Will for banks”
9. After two years of operations, any exchange with a market share less than 20 % for a continuous period of 2 years shall need to close or merge with other exchange. This will not be applicable in case there are only of two exchanges operational. The rationale behind this stipulation is to concentrate liquidity for improved pricing of contracts while at the same time avoiding monopoly of a single exchange.
10. Presently in the day ahead market the deviations between contracts and actual is considered to be real time deviations and handled through UI mechanism. For term ahead markets contractual deviations i.e. The difference between the energy corresponding to contracted power and actually scheduled energy by the seller / buyer at point of injection shall be handled through a penalty mechanism with a floor of 20 % of the contract value in unit terms. This is needed to maintain sanctity of contracts.
11. Congestion revenue generated during market splitting process is proposed to be utilised to relieve transmission corridor congestion with reactive energy generation, capacitor bank installation, and technical studies on congestion relief measures. Creation of an expert technical team to further advice on the most optimal utilisation of the congestion fund has been introduced.
12. Exchanges are being required to provide demand supply, weather, fuel, generators information for informed pricing decisions for participants mandatorily .This is to emphasis the exchanges role in price and information dissemination to reduce information asymmetry in markets.

G. Clearing Corporation

1. Part - 6 introduces the concept of clearing corporation. Separating the clearing function from the price discovery function is needed as they are two distinct functions. Presently both are being performed by the power exchange (They are acting as self clearing exchanges). Internationally clearing corporations are independent, well capitalised institutions and

clear high volume of trade for exchanges as well as OTC markets. For instance Nordpool Clearing ASA is a separate clearing corporation which clears trades for Nordpool spot and derivative markets, the LCH -London Clearing House clears trades for various stock and commodity exchanges and OTC trades, similarly DTCC - Depository Trust and Clearing Corporation of US has similar business model). OTC trades can also be cleared by the clearing house.

2. Presently in our markets if a trader executes trades, lets us say on two exchanges and one trade in OTC, he needs to pay margins / collaterals individually to all the 3 institutions thereby increasing his overall capital requirement. The risk arising due to these positions remain compartmentalised in different institutions. When clearing corporation would clear trades of the same party on exchange and OTC market, the clearing corporation would have complete information about position and risk of the party. Hence it can provide cross margin advantages (buy position in one platform and sell on the other on similar contracts effectively reduces risk and this is recognised by clearing corporation and advantage given to parties) based on position thereby bringing more efficient use of capital for the trader. The economy of scale reduces the transaction cost as well.
3. Exchanges are being required to hive off clearing business to clearing corporation within one year. In that case the Settlement Guarantee Fund shall move from exchange to the clearing corporation .Clearing Corporations will be a separate legal corporate entities regulated by CERC with appropriate capital adequacy norms. Since the clearing corporation may clear OTC trades also it shall benefit license traders as they can also use the services of the clearing corporation thereby reducing their capital adequacy requirement.
4. Credit rating of clearing corporations shall need to be done through Securities Exchange board of India (SEBI) accredited credit rating agency.

H. Market Oversight & Surveillance

Market oversight is required to maintain the market integrity and credibility in the minds of participants, that the market is fair and efficient. The oversight function becomes even more important when the market is in nascent stage of development, the market is not large and not fully competitive. At such a stage the regulator's monitoring is crucial as checks and balances through competitive forces is not sufficiently built in. In the initial stage as now the commission is monitoring prices through Market Monitoring Cell. Over a period of time as market size increases monitoring aspect will become as important as prices. Prices, it can be expected would be taken care of by competitive forces. In these regulations various new reports have been introduced to monitor risk. For exchanges, with commencement of term ahead markets risk management has become crucial. Reporting of open position of participants, overall market open position reports have been introduced for them. For licensed traders their composite portfolio risk summary report has been introduced.

The Commissions oversight will be on market as well as market participants. Markets may be adversely affected due to abuse by a participant. It may also be affected by the collective participant behaviour and sentiments. Hence monitoring both markets as well as its participants is necessary. Over a period of time the commission would adopt the principle of "risk based regulation" wherein transaction which induce higher systemic risk will be monitored more rigorously than others.

The specific provisions created in Markets Oversight and surveillance section are as follows:-

1. Commission shall have an oversight on the overall functioning of the market through monitoring of prices, volatility, volumes of trades etc.
2. Commission shall have an oversight on market participants behaviour through checks on manipulative or attempted manipulative trading activity, trading that is misleading or deceptive, or is likely to mislead or deceive; market abuse or gaming etc
3. Commission can intervene in markets when prices or volatility rises unreasonably ,or very high sudden trading reported

4. The interventions methods can be appropriate price caps for necessary duration, halting trading for a cooling period in case of increased volatility , increasing margins on contracts ,imposing client / market position limit, suspend contracts from trading etc.
5. Various forms of reports for exchanges participants and licenses trader have been introduce to monitor prices and well as risk.
6. Bilateral deals of very large size have an effect on market, both on price and well as risk. These need to be reported.
7. Insider trading policy has been introduced so that price sensitive information is not used for profiteering.
8. Whistle blowing policy has been introduced. Markets participants being closest to the market come to know may more issues than what come to the knowledge of the regulator. Whistle blowing shall promote reporting of any such abnormalities. To protect such acts of courage, punitive action is prescribed against the affected party in case s/he attempts to harm the whistle blower.

I. Conclusion

These regulations are an attempt to address the mandate given to the Commission by the Electricity Act, 2003 for development of power markets. Markets are an evolutionary process. The commission would keep refining these regulations through a consultative process with all the stakeholders.