



CPPA Strategy and Market Development Department

Progress Report 3rd -4th Quarter 2017



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Our Vision is to become a world-class power Market Operator by providing the optimum environment for trading electricity in the Pakistani Power Market

Our Mission is to become one of the best-run public organizations in the world, a place where people love to work, developing capacity of stakeholders and providing systems, tools and processes for enabling a transparent and competitive power market. During the transition period, our company will also procure the required energy on behalf of the Distribution Companies for retail sales to their customers transparently and efficiently



CPPPA
Pakistan Electricity Market Operator

Our Core Values

Transparency – Excellence – Teamwork- Be Respectful



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ACRONYMS

CPPA-G	Central Power Purchasing Agency Guarantee
CTBCM	Competitive Trading Bilateral Contract Market
DISCO	Distribution Company
ECC	Economic Coordination Committee
EMRA	Energy Market Regulatory Authority
EPEX SPOT	European Power Exchange
EPIAS/EXIST	Exchange of Istanbul (Turkish Market Operator)
FY	Fiscal Year
KE	Karachi Electric
MO	Market Operator
NEPRA	National Electricity Power Regulatory Authority
NTDC	National Transmission and Despatch Company
NPCC	National Power Control Center
SMD	Strategy and Market Development
TETAS	(State owned wholesale company of Turkey)
ToR	Terms of Reference
TSO	Transmission System Operator



I- STRATEGY AND MARKET DEVELOPMENT DEPARTMENT

I.1- PREAMBLE & PURPOSE

Preamble: CPPA-G is the Market Operator (M.O) in the Power Sector of Pakistan. Being M.O under the current single buyer market model, apart from providing key centralized services of billing and settlement, payments, power procurement on-behalf of DISCOs, the company has been mandated by Economic Coordination Committee (ECC) to play a central role in developing a competitive power market by mid of 2020.

During the next three years the company will strive hard for not only to build its internal capacity in-terms of people, processes and technologies but also assist the other power sector entities to become partners during this journey.

The department of Strategy and Market Development (SMD) was formed in CPPA with the aim to (a) work with external stakeholders to propose a competitive market model for the wholesale market model and the plan for which the mandate has been given by Economic Coordination Committee (ECC) to CPPA-G and (b) work with internal stakeholders of the company and assist CEO CPPA in preparation and implementation of the mid-term Strategic Plan and later the annual business plans. The SMD has been working on the development of the Competitive Trading Bilateral Contract Market (CTBCM) Model and the Plan through a consultative process by taking into account the following objectives: (a) objectives established by the Government of Pakistan and (b) the peculiarities of power sector of Pakistan including inflexibility of purchase agreements, the growing demand, lack of payment discipline etc.

The Market Development Strategy: The market development strategy was divided into the following three phases:

Phase I: This phase includes (a) Research and study of global competitive markets, (b) capacity building of market entities, (c) proposing the market model and TBCM Plan for Pakistan through a consultative process, (d) building strategic partnerships with Market Operators globally and (e) submission of the CTBCM Plan for obtaining approval. This phase was started in mid of 2016 and ended in June 2017. The CTBCM model and plan was submitted for approval and is in the approval process.

Phase II: Phase II is the detailed market design phase in which the complete design of the market model and CTBCM Plan will be developed. This phase started in July and the team is working on basic must do items while the model is being approved. This phase is envisaged to be completed by third quarter of 2018.

Phase III: During the implementation phase, all entities will implement the initiatives as per the approved timelines in the CTBCM Plan. This phase has also kicked-off in parallel with implementation of certain essential building blocks for any market to operate.



Currently, Phase II of the Market Model and CTBCM Plan is in progress and Phase III has been started in parallel which is anticipated to end by mid of 2020.

Purpose of this Report: As per ECC decision the goal is to have the commercial operations of CTBCM by mid of 2020. To be able to achieve the target commercial operational date 2020, the process has been initiated and has been divided into a number of phases. The purpose of this report is to inform the stakeholders and keep them updated regarding the progress that has been made in the market development. Also, this is a regulatory requirement that has to be complied. Therefore, through this report, SMD, CPPA-G is sharing the market updates from April 2017 to September 2017.

2- PROGRESS AND ACHIEVEMENTS

The developments, progress and milestones achieved in the 2nd and 3rd quarters of 2017 have been discussed in the following paragraphs:

2.1 Market Model and CTBCM Plan: Presentation before the Board

The **proposed Market Model and the CTBCM Plan was designed and developed** after extensive consultation with the stakeholders, and was submitted to the Board on July 13th, 2017. In its response the Board of CPPA-G had taken the following decisions:

1. Formation of Special Committee
2. Formation of Market Implementation Monitoring Group (MIMG)
3. Strategic Organizational Restructuring of CPPA-G

The decisions and the actions taken against them have been explained in the following paragraphs:

1. Formation of Special Committee:

It was decided in the Board Meeting to form a Special Committee that will be represented by the Risk Management Committee of the Board of CPPA-G and will be led by Mr. Zargham Ishaq Khan. Further, it was decided that this committee will also include the representatives from Ministry of Finance and NEPRA. This committee will review the CTBCM Plan and provide the feedback. The model, after incorporating the inputs, will be submitted to the competent authority for approval.

Special Committee has been formed under the leadership of Mr. Zargham Ishaq Khan. NEPRA has also submitted the nominations for the committee. The Market Model and the CTBCM Plan will be reviewed in the coming months and will be submitted to approving Authority for getting the approval.

2. Formation of MIMG:

The Board of CPPA-G had decided that MIMG will be formed that would be led by Power Division, Ministry of Energy and CPPA-G will perform the executive role with an



invitation to NEPRA to be part of the executive management function. The Group will include the members from all the stakeholders in the Power Sector.

The Terms of Reference (ToRs) of MIMG have been approved by Power Division of Ministry of Energy. Important functions that will be performed by MIMG include:

- Providing support to all stakeholders with specific roles in the CTBCM implementation
- Proposing solutions whenever implementation problems arise
- Preparation and dissemination information about the progress in the CTBCM implementation
- Organization and facilitation of capacity building programs
- Coordination with stakeholders

3. Strategic Organizational Restructuring of CPPA-G:

The Central Power Purchasing Agency's (CPPA) current role is expected to change enormously owing to the significant redesign of the wholesale electricity market of Pakistan. This change will require some significant internal changes which have been approved by the BoD of CPPA-G and will be implemented accordingly.

The restructuring plan for the organization was prepared and is being reviewed internally. Once finalized, the plan will be taken to the HR committee of CPPA's Board for approval and will be implemented thereafter.

2.2 Strategic Rebranding of CPPA-G

Among many functions, SMD is responsible to facilitate the CEO CPPA-G for the strategic development of the organization. In order to establish the strategic direction of the organization, the development of vision, mission and core values is of utmost importance. On 28th Sep, 2017, the vision, mission statement and corporate strategy/values were approved by the BoDs of CPPA-G, as follows:

1. Vision:

To become a world-class power Market Operator by providing the optimum environment for trading electricity in the Pakistani Power Market

2. Mission:

To become one of the best-run public organizations in the world, a place where people love to work, developing capacity of stakeholders and providing systems, tools and processes for enabling a transparent and competitive power market. During the transition period, our company will also procure the required energy on behalf of the Distribution Companies for retail sales to their customers transparently and efficiently



3. Core Values:

- Transparency
- Excellence
- Team Work
- Be Respectful



In addition to this, the new logo of CPPA-G has been approved by the BoDs:

2.3 Strategic Plan of CPPA-G FY2018 to FY2020

The Strategic Plan prepared by CPPA sets out key delivery strategies for CPPA in its role as Market Operator and Power Purchaser over the three years to 2020. The strategy is driven by our vision, mission, policy and regulatory obligations, market development, the capabilities of CPPA today and the market participants, and the provision of long-term benefits to Pakistani consumers.

This plan lays out what we are going to do, and the outcomes we seek over the three years. The outcomes in this document will not only help us to measure our progress but also inform annual review of the employees.

This three-year Strategic Plan (July 1, 2017 to June 30, 2020) will form the basis of CPPA's annual business plans. Specific initiatives to progress actions and achieve the desired outcomes will be set out in the relevant business plan.

Derived from our vision and mission statements are our 08 Strategic Targets for next three years:

1. Improve the current business operations and ensure adherence to existing business compliances
2. Develop healthy Corporate Culture
3. Invest in good people
4. Data institutionalization and publishing
5. Strengthen relationships with Market Participants and Service Providers
6. Design and facilitate implementation the wholesale Competitive Market Model
7. IT transformation of CPPA
8. Rebrand CPPA-G

Finally, the whole performance model rests on our four core values and we at CPPA believe that a high-performance culture can only be formed if we successfully operationalize our core values.

2.3 Strategic Partnerships

As the market models around the globe are (a) different from each other and (b) keep on evolving over-time. It is therefore very much necessary for CPPA-G to establish strategic partnerships with selected like institutions from different regions around the world for being able to be connected with transition happening and transfer of knowledge related to competitive markets. Also, establishing partnerships with like international institutions is also a requirement of the Commercial Code. As per the section 12, sub-section 12.1, clause VII, CPPA-G is mandated to 'Liaise with other international bodies having market functions similar to CPPA-G or administering competitive power markets'.

In this regard CPPA has already signed an MoU with EPIAS the Market Operator / Exchange of Turkey and is in the process of signing an MoU with EPEX-SPOT the European Power Exchange.

Signing MoU with EPIAS: CPPA-G and EPIAS-the Market Operator of Turkey, have signed an MoU on Aug 2nd, 2017 for collaboration in the power market development. MoU was signed between EPIAŞ and CPPA-G after the training program at the EPIAŞ headquarters in Istanbul. Following items were agreed upon in this MoU:

1. EPIAS shall provide consultation and advice to CPPA-G on the matters of market development.
2. EPIAS shall share the experience of Turkish market development with CPPA-G.
3. Capacity of CPPA-G shall be built through trainings, exchange programs, internships and likewise.
4. Sharing of public documents and information.
5. EPIAS will provide guidance to CPPA-G to build the strategy of IT and other aligned services.

EPIAŞ representatives, MENR, EMRA, TSO and TETAŞ experts, including CPPA-G CEO Abid Latif Lodhi and other delegates from CPPA-G participated in the signing ceremony.



MoU signing ceremony between CPPA-G and EPIAS



Representatives from EPIAS, CPPA-G, EMRA, TSO and

Strategic Relationship with EPEX-SPOT: The European Power Exchange EPEX SPOT is the market place for short-term power trading in Germany, France, United Kingdom, the Netherlands,



Switzerland, Austria and Belgium via its subsidiary EPEX SPOT Belgium S.A.2. CPPA-G is in the process of signing an MoU with EPEX-SPOT on the same lines as being executed with EPIAS.

2.3 Submission of Registration Application

As per Rule 5 of the Market Rules, CPPA-G shall be deemed to be authorized and registered as the market operator. Thus, for a period of two years from the commencement of the Rules CPPA-G has, by operation of Rule 5, been deemed to be the market operator and authorized and registered to conduct the market operations for this period.

In line with this, on April 12th, 2017, CPPA-G has submitted the registration application for getting registered as the power market operator of Pakistan.

2.3 Market Development: Assistance for DISCOs

In order to start the market, it will be imperative to build a market interface in the DISCOs with adequate capacity to participate in the competitive market. The identified areas where capacity is required to be build are legal, commercial, competitive markets, forecasting, contracts management, finance etc. To this end, the preparation of Medium Term Energy and Demand Forecasts as has been mentioned in DPC 5 of Distribution Code and envisaged in the CTBCM Plan.

However, these forecasts were not prepared for the last couple of years. CPPA-G (a) assisted the DISCOs in the preparation of medium Term and Medium-Term Energy and Demand forecasts and (b) provided on job training to DISCOs to enable them to prepare it independently in the coming years. CPPA-G is also providing assistance to DISCOs to institutionalize this function and provide an enabling environment for the preparation of these forecasts.

The assistance to DISCOs has been divided into three phases:

Preparation:

CPPA-G assisted all DISCOs in the preparation of the PMS based medium term forecast for the year 2015-16 and provided training to DISCOs staff to enhance their capacity regarding demand forecasts. The draft reports were prepared by DISCOs through CPPA's assistance and later approved by DISCOs before submission to NEPRA. After getting approval from the DISCOs, the forecasts for DISCOs were finalized and a consolidated country level forecast was prepared. These individual DISCO forecasts and the consolidated report was submitted to NEPRA for regulatory approval on Aug 22, 2017.

Transition:

During this phase, CPPA-G is undertaking a capacity building program for DISCOs in order to enhance their capacity in terms of people, process and technology to enable them to prepare these forecasts independently. For this purpose, series of trainings were carried out, training manual have been prepared and restructuring is being thought-out.

One important to highlight is the Energy and Demand Workshop, was conducted to give a brief introduction of regulatory framework and compliance to the DISCOs and to put

emphasis on the importance of Energy and Demand Forecasting. During the session, training was provided on forecasting techniques and data collection methodology was discussed.

During this workshop, it was decided that specific formats shall be developed by CPPA-G for data sharing among various entities. The formats have now been finalized and will be submitted to NEPRA for the regulatory approval.



Dr. Shahab Qureshi delivering the Energy and Demand Forecasting Workshop



CEO, CPPA-G with the participants of the Energy and Demand Forecasting Workshop

CPPA-G has also developed a comprehensive training plan to provide on job trainings to DISCOs for the preparation of the medium term forecast. An operational manual has also been developed for the Power Market Survey (PMS) based computer model. The manual will also be shared with the DISCOs during the training sessions.

Monitoring:

By this time, CPPA-G envisages that DISCOs will be fully equipped to perform the function on their own. However, CPPA-G will monitor and provide guidance to the DISCOs regarding the preparation of these forecasts and eventually the transition will complete after this phase.

2.3 Market Development: Assistance for NTDC

As stated earlier, market interface needs to be developed for the commencement of CTBCM. An important aspect of the efficient power market is the accurate planning forecast as has been stated in the OC 4.3.3 and PC 4.2 in the Grid Code. The PC 4.2 of the Grid Code includes two types of plans; Indicative Generation Capacity Expansion Plan (IGCEP) and Long-Term Energy and Demand Forecasts. To meet this regulatory compliance, CPPA-G has been providing assistance to NTDC.

For IGCEP, CPPA-G has hired an individual consultant, Mr. Abdul Razzaq Khan, having an experience of 34 years of Generation Planning. NTDC has assigned 3 resources from Generation Planning Department who will work closely with the consultant and will be trained on-job to be able to perform the task of generation planning independently. NTDC has the target to complete and submit the draft for approval by March 2018 before the regulator. The assistance has been divided into three phases; (i) Preparation assistance, (ii) Transition, (iii) Institutionalization. These

efforts intend to equip NTDC with the necessary abilities to be able to perform the function on their own.

The other assistance, CPPA-G has been providing NTDC is regarding the preparation of Long Term Energy and Demand Forecasts. For this function too, NTDC has provided three resources from the forecasting department to work closely with the consultant and his team hired by CPPA-G. The long term forecast will be submitted by NTDC to the Regulator during the last quarter of 2017. This assistance has also been divided into three phases; (i) Preparation assistance, (ii) Transition, (iii) Institutionalization.

In the first phase, both on job-training and classroom training are in process. CPPA-G has also purchased a training tool from Harvard Business School for the team and has been utilized to further strengthen the concepts of long-term forecasting.



NTDC's Team working with CPPA-G for Generation Planning and Long Term Demand Forecasting

2.4 Market Development: Assistance for NPCC

System Operator and Market Operator are two pillars of the power market. One entity looks after the technical aspects and the other is responsible for the commercial aspects and both of the entities work closely for the operation of the market. Therefore, it is very imperative for the System Operator to be fully equipped to perform efficiently. For this purpose, CPPA-G on the direction of Power Division, Ministry of Energy and with the approval of MD, NTDC, has developed a draft high level plan to strengthen the SO. The detailed assessment was done, requirements were gathered and the feedback was taken which will be incorporated in the plan.

In addition to this, a workshop on the simulation tools was conducted for NPCC. It was a two day workshop, conducted at NPCC office Islamabad, where the basics of modeling, optimization of model for dispatch, input data and modeling tools were discussed.

Moving forward, once the plan for SO is approved, its implementation will start and will end by the commencement of the market.



Daniel Serrano delivering the workshop on Simulation Tools at NPCC

2.5 Market Simulations:

A simulation is a simplified description, especially a mathematical one, of a system or process, to assist calculations and predictions. The power system decision makers need to be able to predict the functioning of the system in the times to come in order to assist the technical and financial planning processes. Simulation is done in short, medium and long term horizons. Short term is used by System Operator for dispatch, medium term is used by Market Operator and long term is used by Network Operator.

One run of simulation has already been completed and is in the process of evaluation. After weighing and fine tuning it, the second run of simulation will be done for the market. Moreover, SMD is in the process of assessing the simulation tools that will be procured in the coming months for the three entities covering the three horizons.

2.6 Participation in ISTRADE'17:

CPPA-G was invited to attend ISTRADE 2017 in Istanbul, Turkey. ISTRADE is a unique platform in the field of energy trading and supply. The trade issues, current developments, anticipations and the future of organized markets were discussed. The countries all across the globe had participated in the conference. A delegation consisting of two individuals from CPPA-G attended this conference.



ISTRADE 2017



CPPA-G's delegation with CEO, EXIST

2.6 Consultation Workshops:

SMD department of CPPA-G has conducted three consultation sessions with the stakeholders and market participants during the last quarter of 2016 and the first quarter of 2017. The purpose of

these sessions was to get the feedback on the market model and take into account the concerns of the participants. The following paragraphs briefly discuss the timings and the participants of these sessions.

The first such session was conducted at Marriott during the April 4, 2017 to April 7, 2017. It was a four day training workshop on market development followed by the consultative workshop. This session was attended by the participants from NEPRA, CPPA-G, DISCOs, KE and NTDC. It was an interactive session and a detailed discussion regarding the design of the market model, followed by the question answer session took place.

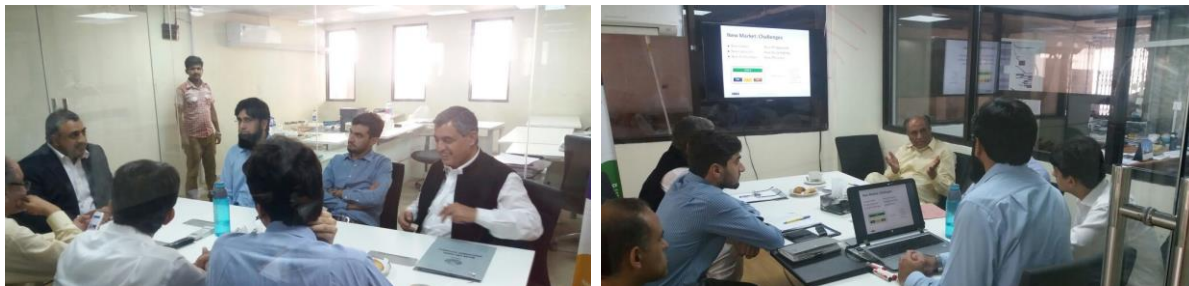


Question-Answers Session during the Consultation Workshop



CEO, CPPA Explaining the Motive of Transition during the Consultation Workshop

The second consultative workshop was held at CPPA-G's office. GM NPCC, CE NPCC and other members from NPCC attended this session. Market model was discussed in detail and the input and feedback was taken.



Consultative Session with NPCC

Third session was held in the month of August'17 after the Energy and Demand Forecasting Workshop. The session was attended by the participants form DISCOs, NPCC, KE, NEPRA and CPPA-G. In this session, the market design was briefed once again and the inputs were taken.



Consultative Workshop conducted by CPPA-G

3- WAY FORWARD

In the coming months, following activities have been planned for the market development:

1. **Notification of MIMG:** All the stakeholders will be notified regarding the formation of MIMG. Also, the nominations from the relevant bodies will be requested.
2. **Meeting of Special Committee:** The first meeting of the Special Committee will be called in near future to start the review of the model which will then be submitted for approval.
3. **The Detailed Design** will be carried-out in full swing.
4. **Visit of EPIAS to Pakistan:** The visit of Turkish Market Operator has been planned to Pakistan in December 2017. During this visit, further consultative sessions will be held with CPPA-G. Moreover, a workshop will be conducted for the power sector entities of Pakistan, in which the transition of Turkish Market Operator and the Turkish Power Market will be discussed in detail and the proposed market model of Pakistan will be discussed. In addition to this, IT teams of both organizations will meet to discuss the IT strategy of the company.
5. **Training Workshops:** A series of training sessions on the Power Purchase Agreements have been planned. First session will be conducted in the next quarter. The purpose of these sessions would be to build the legal capacity of the sector. In addition to this, a training plan has been developed for the Energy and Demand Forecasting. It will also start in the coming months.
6. **Further Consultations:** Extensive consultative sessions will be conducted with all the stakeholders from the platform of MIMG.
7. **Internal Restructuring:** The plan for internal restructuring will be taken to the HR Committee of CPPA-G to get the approval. Once approved, its implementation will start as per the plan.
8. **Strategic Plan for CPPA-G:** The approval of the strategic plan for CPPA-G for the next three years will be taken.
9. **MoU with EPEX-SPOT** has been agreed upon and will be executed.