



# Competitive Trading Bilateral Contract Market (CTBCM)

July 22, 2018





## Scheme of Presentation

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1. Background & Revision of Key Concepts
2. Proposed High-level Market Model
3. Implementation Roadmap
4. Legal and Policy Development with Market Perspective

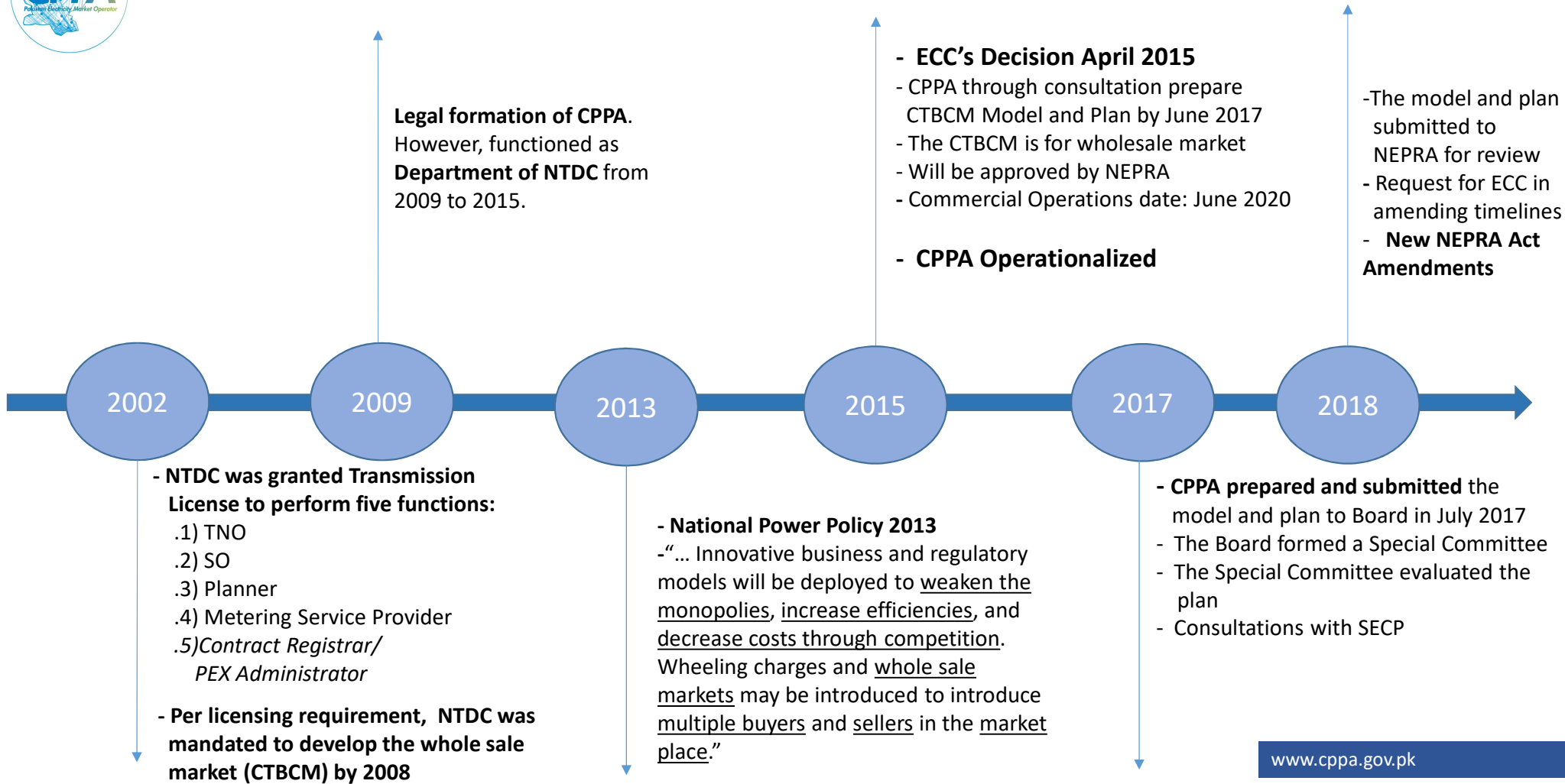


# Part – I

Background



## Background on Market Development





## ECC Decision 2015 on Power Market Development

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- ECC Decision April 30, 2015
- Point 9 of the Decision:
  - Wholesale Competitive Trading Bilateral Contract Market (CTBCM)
  - CPPA-G prepares CTBCM Plan through consultation with stakeholders
  - Transition to be completed not later than July 2020
  - Model to be submitted for approval by NEPRA



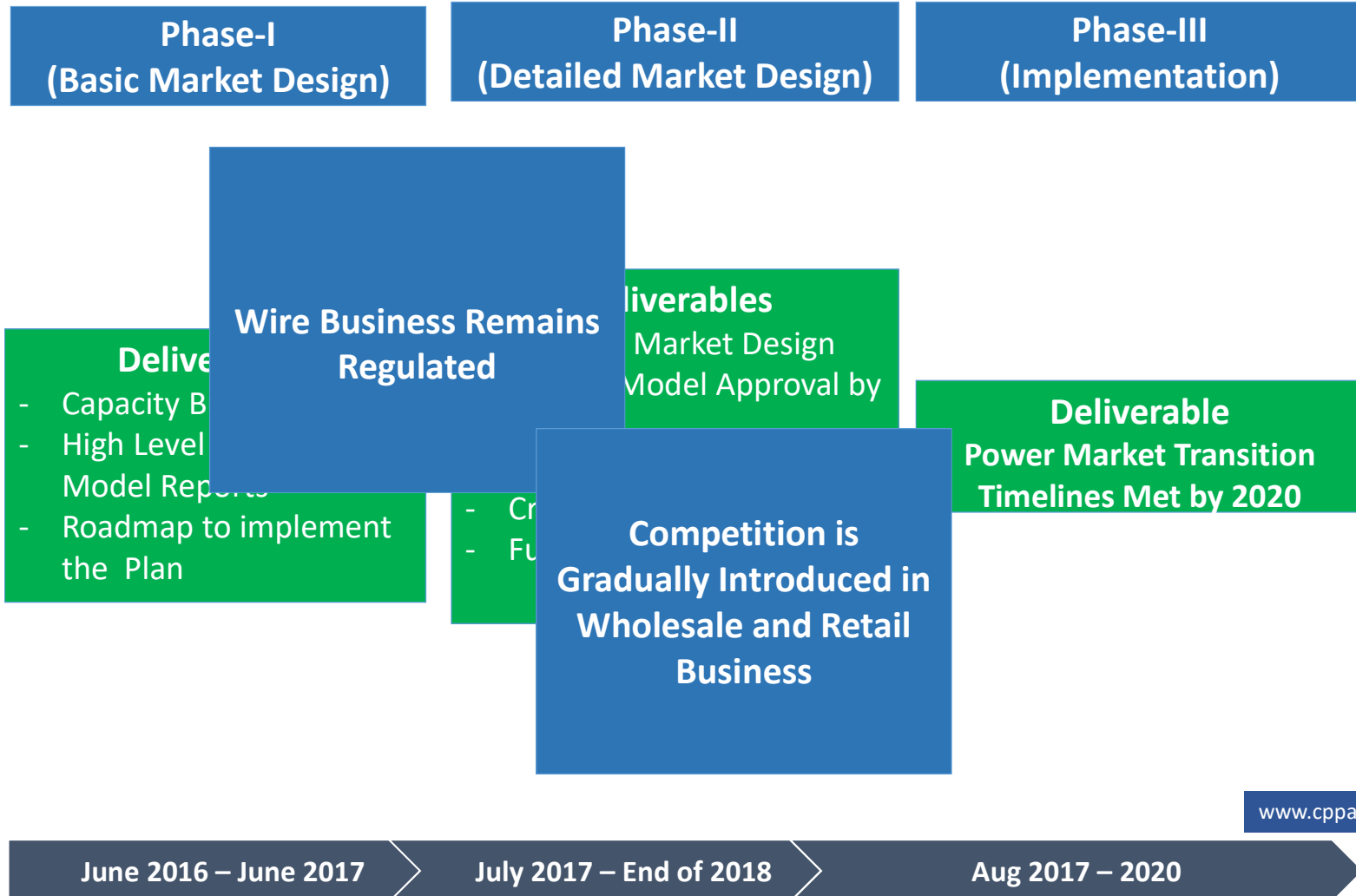
## Amended NEPRA Act and Competitive Markets

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- NEPRA Act Amended in April 2018
- Provides legal basis for creation of competitive markets
  - New Licensees (Traders, suppliers, Market Operator, System Operator)
  - Mandates the GoP to issues policies on efficient and liquid power market design
  - Calls for promotion of competitive markets

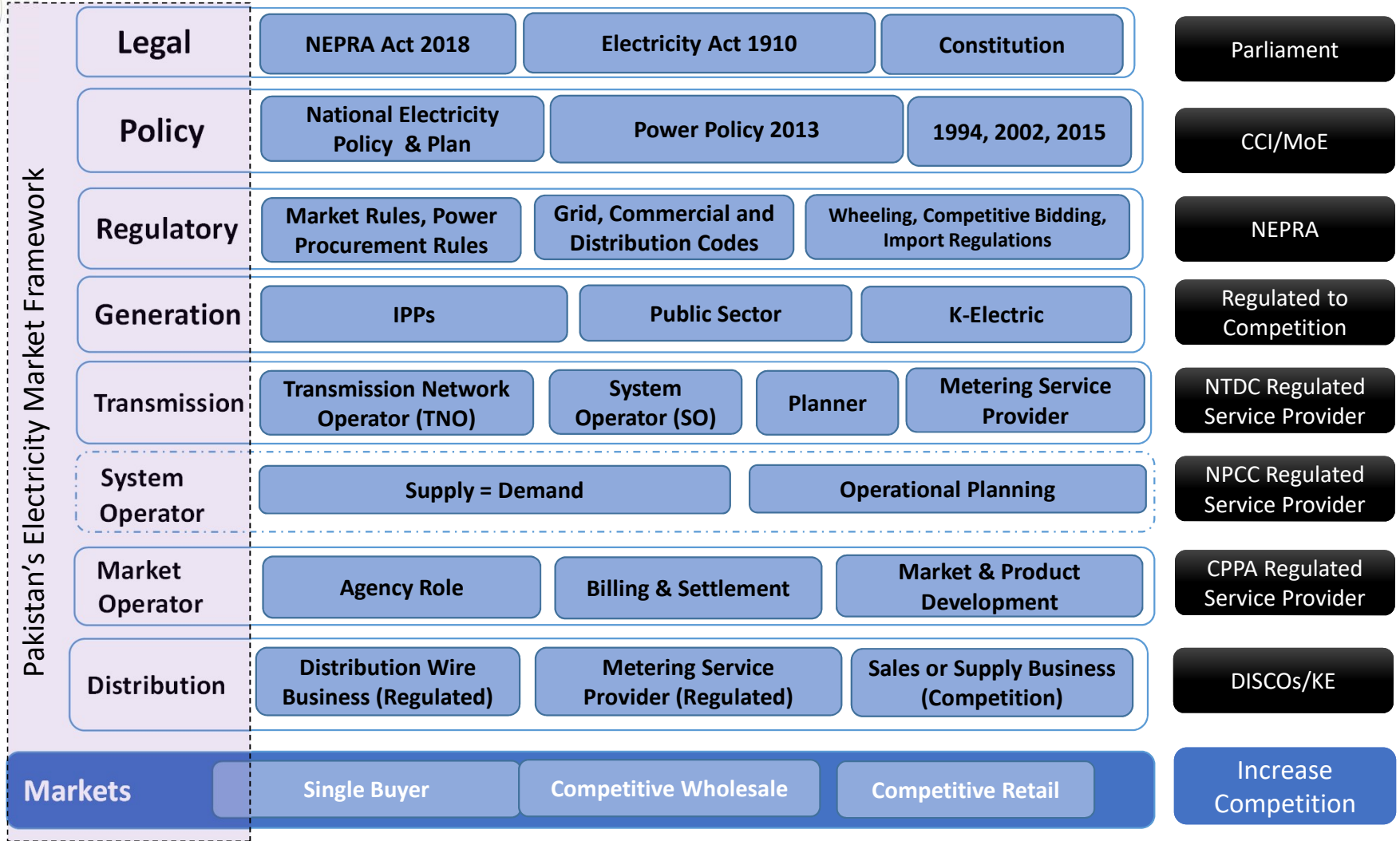


# Market Design and Implementation Strategies





# Power Sector Overview







# Part – II

CTBCM



# Competitive Trading Bilateral Contract Market Model (CTBCM) Proposed for Pakistan



## Objectives for Competitive Power Market Development

The proposed competitive power market design is based on the following main objectives:

- a. Improve efficiency arising from competition for the market (new capacity procurement) and in the market
- b. Enhance power sector security of supply, generation adequacy, to develop power sector sustainability in the short, medium and long term
- c. Create the conditions to attract investments based on credit cover provided by market participants, without the need of the government providing sovereign guarantees
- d. Create the conditions for a fair allocation of risk and benefit sharing between investors/sellers and buyers/consumers
- e. Level the playing field removing conflict of interest to facilitate entry of new investors and participation of private players, including Bulk Power Customers
- f. Pressure on the payment discipline
- g. Ensure transparency and predictability
- h. Open access to information



## General Principles (i)

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- The design builds on existing conditions and type of **take or pay** PPAs in Pakistan
- Takes into consideration relevant international experience: specially inflexible PPAs, significant demand growth and lack of timely payment culture
- Remove existing conflict of interests [Market Operator cannot have commercial interests in the Market]
- Transactions in the new market based on bilateral contracts for old and new PPAs
- Promote efficiency [economic dispatch; new PPAs]



## General Principles (ii)

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- Promote investments [Bankable contracts]
- Ensure medium and long term security of supply [Capacity obligations for Discos and BPCs]
- Products traded in the market: energy [cover electric consumption]; "firm capacity" [security of supply]
- Mechanisms to manage the transition [gradual implementation]
- Avoid wholesale price jumps during the transition
- Ensure future evolution [increase competition]

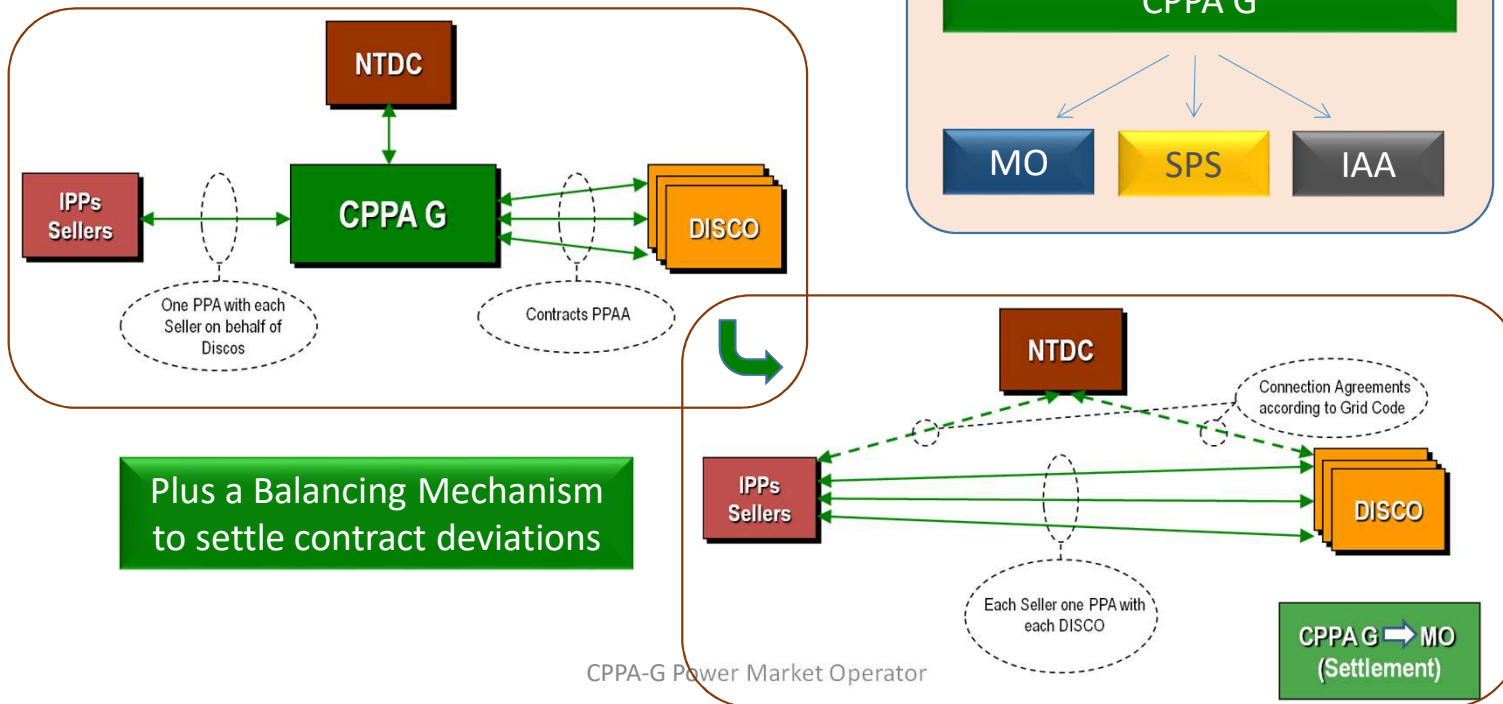
# Competitive Trading Bilateral Contract Market – CTBCM

Conceptual Design



# CTBCM Concept

- Existing PPAs between IPPs and NTDC/CPPA G (on behalf of Discos) will be converted into bilateral contracts between each IPP and all Discos





## Market Participants

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Market participants are:

- Generators (above certain threshold)
- DISCOs
- Bulk Power Consumers (BPC)
- Wholesalers (Traders)
- Retailers (Suppliers)
- Importers / Exporters





## Service Providers

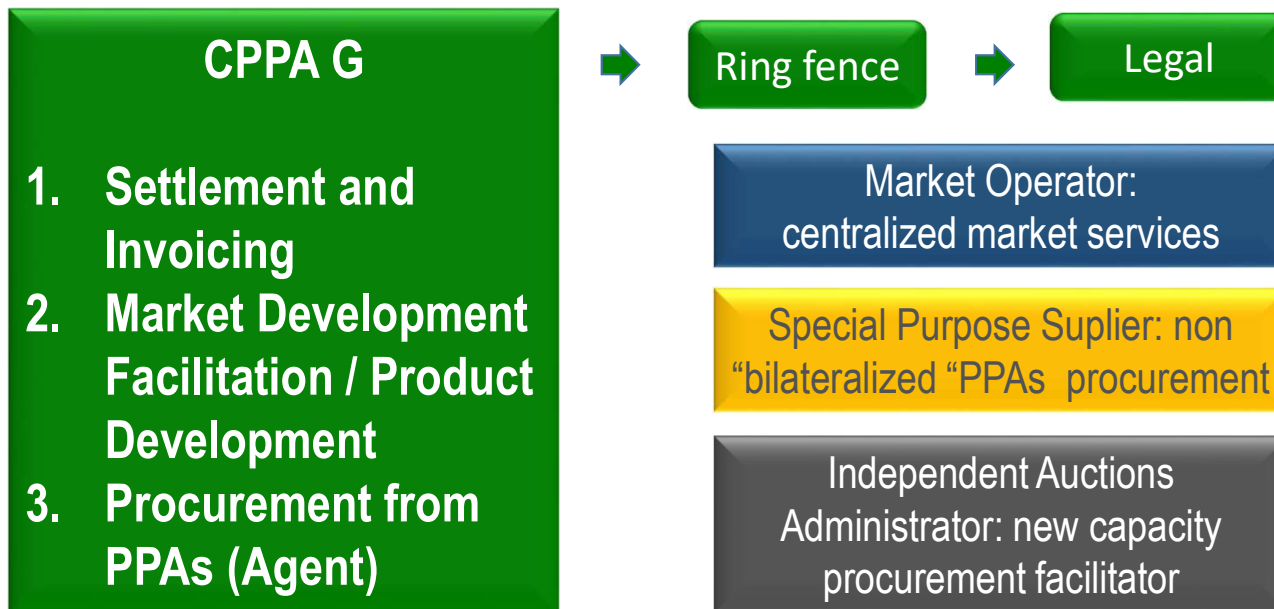
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Service Providers are:

- Market Operator
- **System Operator**
- **Transmission Service Providers**
- **Metering Service Providers**
- **Planner**
- Independent Auction Administrator – IAA

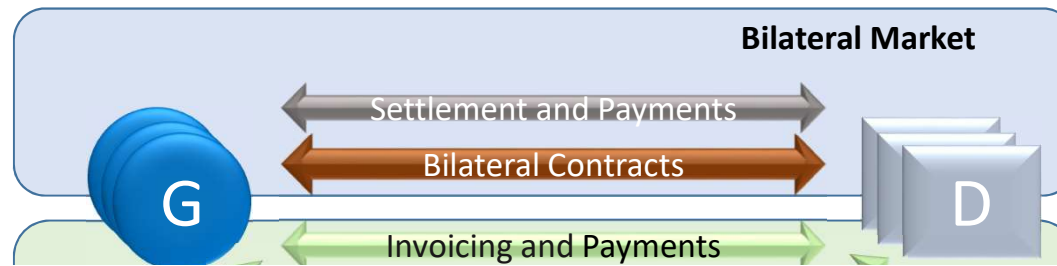


## CPPA G Transition to the CTBCM



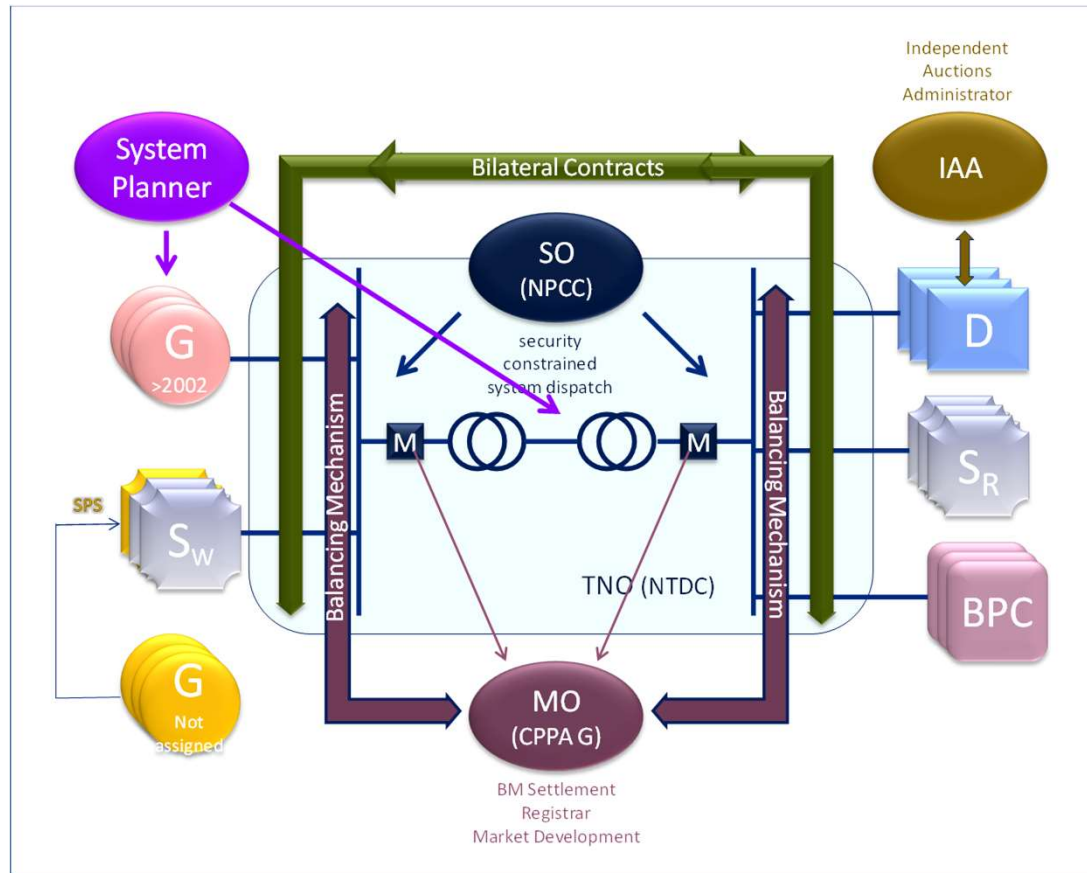


# Bilateral Contract Market with Balancing Mechanism



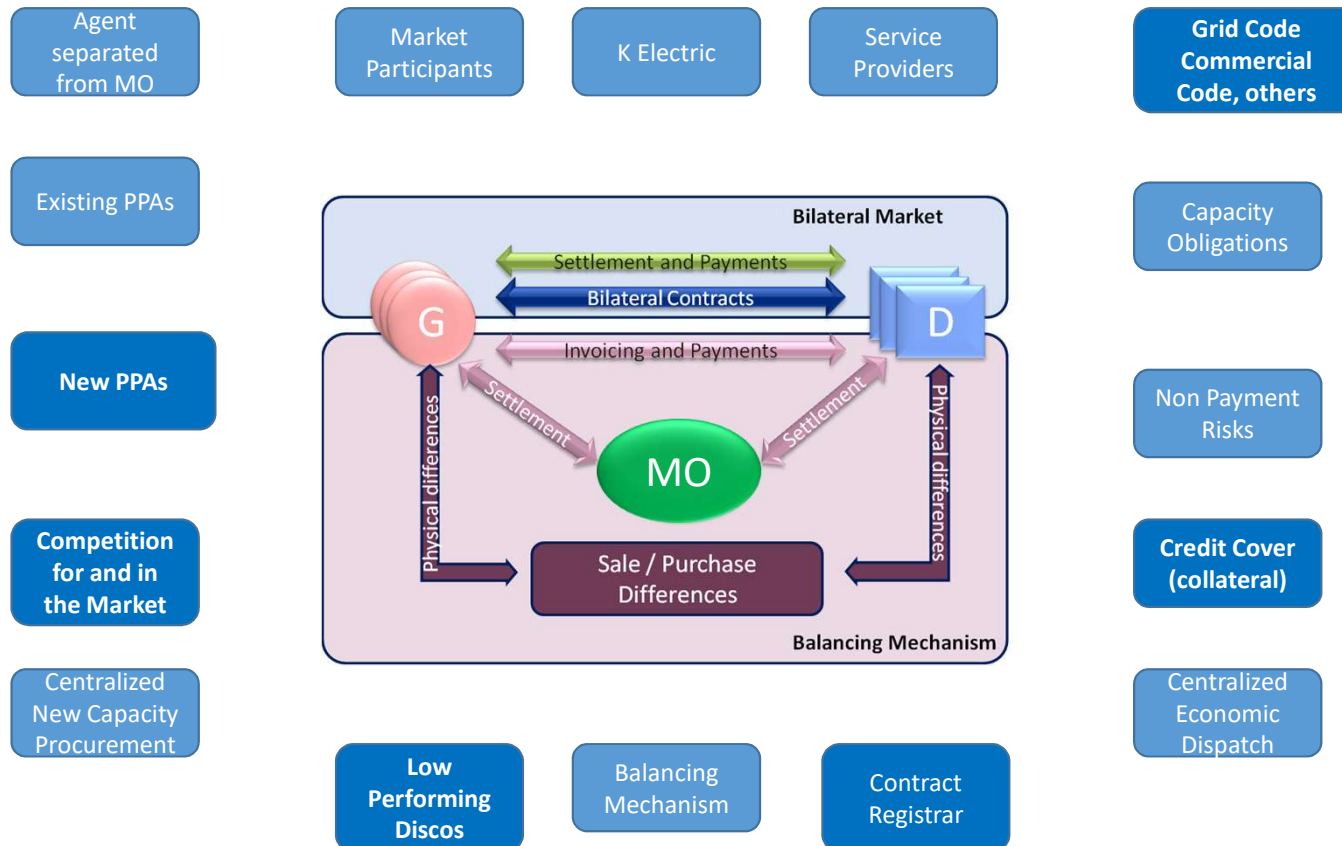


# CTBCM General Structure





# New Market Model – Features



# High Level Details: Some Market Features



## Capacity Obligations

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- Market participants (**Demand**) will have the obligation of having a relevant part of their consumption and demand **covered by contracts**
- DISCOs will be **accountable** for their **demand projections**
- These capacity obligations is a contribution to ensure **medium and long term** security of supply
- DISCOs shall have X% of its projected demand for each of the **next 3 years** (e.g. 100%); Y% for the following 2 years (e.g. 70%); etc. To be determined
- Similar to BPC and K Electric for its purchases in the market



## New PPAs Format - Template

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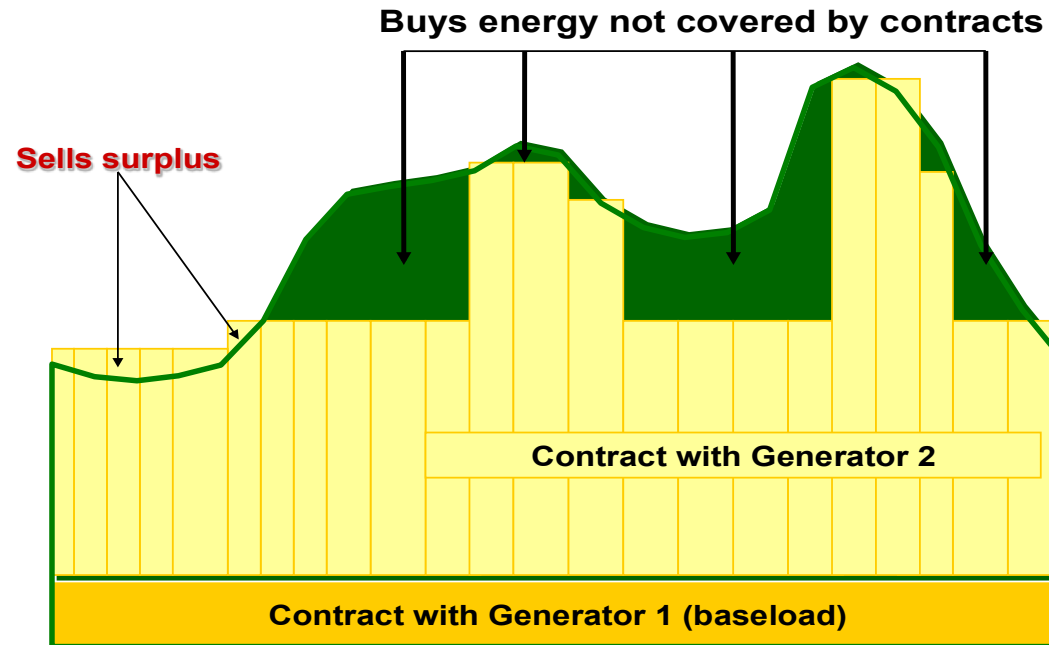
- Portfolio of PPAs, load following contracts, generation following contracts, financial contracts with fixed quantities etc...
- Bilateral rights and obligations:
  - the **Seller to deliver** the committed energy and capacity agreed in the PPA (however, does not have obligation to produce)
  - the **Purchaser to pay** in time the price agreed in the PPA (however, does not have obligation to take the contracted energy and capacity)
- Are **financial contracts** with **physical obligation** to supply
- Two products contracted in the market: “energy” to cover electricity consumption; and “firm capacity” for security of supply
- International experience shows that are bankable contracts (to attract investments, reducing risks) normally not requiring government guarantees





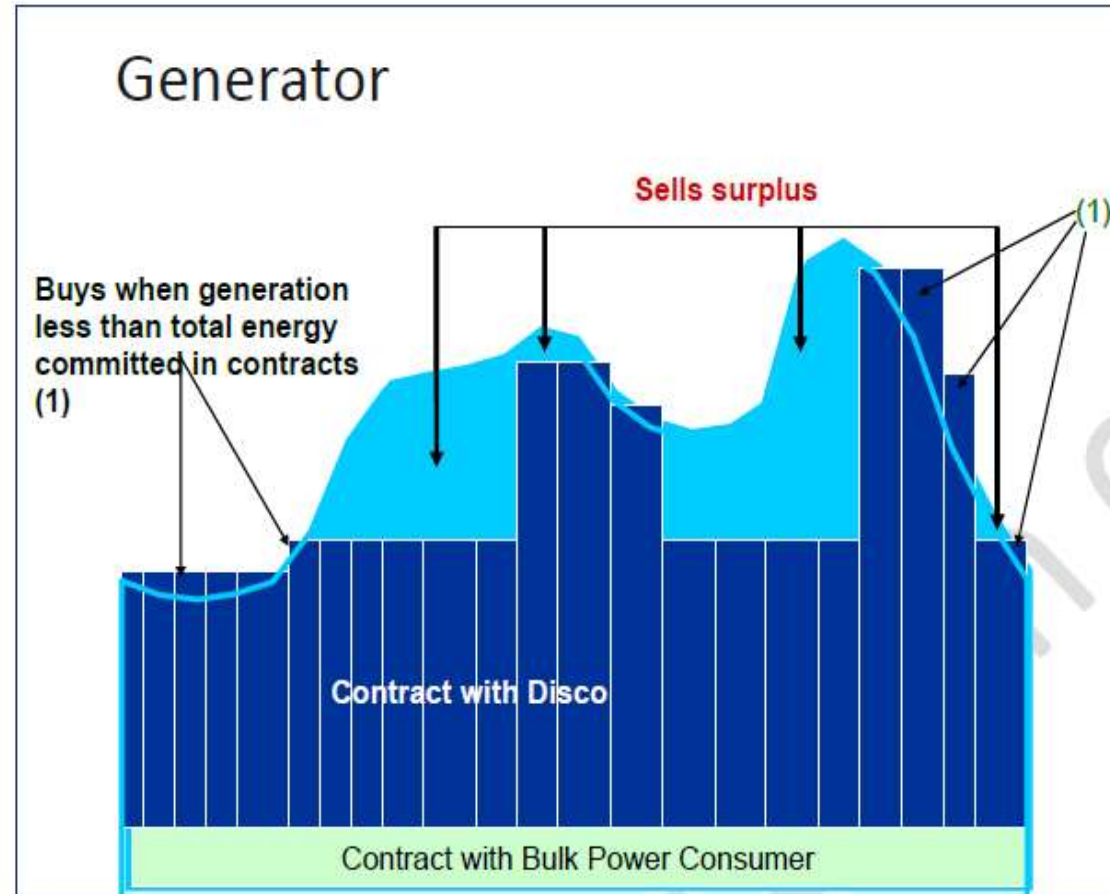
## Example of New PPA

### Balancing: Eligible Customer / Retail Supplier





## Example of New PPA





## Regulations and Codes

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- Market Participants are obliged to comply with the Rules, Regulations and Codes (Grid Code, Commercial Codes, others).
- **Provisions in the contracts** will establish that in case of any inconsistency or discrepancy with a Code, the **Code will prevail to the extent of the inconsistency**



## Bilateral Contracts

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- Pre existing PPAs and EPAs will be **converted into bilateral contracts** with each DISCO by assigning them to each DISCO (as foreseen in the PPAs) proportionally to the existing allocation factors
- “Bilateralized” contracts will have energy and capacity commitments and will be **registered** in the CPPA G – Registrar
- PPAs that cannot be assigned (mostly **1994 policy**) will transitorily be included in a Supplier (**wholesaler**) purchasing their production and re-selling it in the market



## New Capacity Procurement

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- **DISCOs will determine** the amount to be contracted (based on their own demand projections and capacity obligations)
- The new capacity procurement for DISCOs **will be done through centralized competitive tenders** or auctions
- The **Agent will aggregate** the capacity and energy required by each DISCOs and will run the procurement for the total requirements
- **PPAs will be signed by DISCOs**



## Balancing Mechanism

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- It is a pool where both parties to a bilateral contract sale or purchase the **differences** between contractual and actual quantities injected to or extracted from the grid/market and later will evolve for trade providing the spot price
- There will be balancing mechanism for energy and for capacity
- Allows **flexibility** for the participants and boost efficiency (consistent with economic dispatch)
- The **MO** will calculate the **imbalance prices** for each trading period (to be developed)
- Will **require credit cover** for cases of non payment the amounts arising from this mechanism



## Low Performing DISCOs

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- DISCOs cannot provide the required guarantees (for bilateral PPAs) and/or credit cover for participating in the Balancing Mechanism (DISCOs with a history of low collections and low payment records), the **Government** could provide a guarantee or credit mechanism that can be called in case of non or later payment



## Settlement, Invoicing & Payment

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- Settlement, invoicing and payment of **bilateral contracts directly** between the contractual parties
- All contracts have to be **registered** with the Market Operator
- **Imbalance payments** will be made directly by Participants **based on a settlement done** by the MO and information provided by the SO
- Neither the MO nor the SO will be **exposed** to payment **liabilities**
- Balancing Mechanism will be settled for **each market period as defined in the Commercial Code** (a block covering several hours of a day, and later moving to shorter periods up to each hourly prices)





## Non Payment Risks

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- Bilateral contracts:
  - will include provisions for cases of non payment
  - Generator can **call the default of a PPA** in case of non payment
  - Generator **can continue to sell through the balancing mechanism**
  - Defaulting the DISCO will result buying in the balancing mechanism
- Balancing Mechanism
  - Participants **must provide credit cover** for the exposure to imbalances (**sign a balancing mechanism agreement**)
  - One Participant (or group of Participants) can **delegate** to a Supplier (wholesaler) to assume the **balancing mechanism responsibility** for that Participant



## Centralized Economic Dispatch

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- The System Operator of NTDC will be responsible for centralized economic security constrained dispatch, including management of **demand control** and exchanges in international interconnections
- The SO will provide the MO the necessary **information** for settlement in the Balancing Mechanism
- Gradually this will **allow to increase competition for the dispatch among generators** (promote efficiency and competitive generation prices)



## Agent Separated from Market Operator

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- Cohabitation of MO and the Agent in CPPA G clearly creates a conflict of interest
- Market credibility requires that the MO has not any kind of participation in the market transactions
- The Agent will be in charge of:
  - the centralized new capacity procurement (on behalf of Discos) and
  - Assist Discos in the verification of invoices in the bilateral contracts (the MO will have no intervention on this)



## K Electric

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- K Electric will be considered a market participant at the connection point with the market, as a Supplier, in the role of retailer
- Deviations from contractual quantities will be settled in the Balancing Mechanism



## Service Providers

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- Service Providers are
  - The System Operator (NPCC)
  - The Market Operator (CPPA)
  - The transmission service providers (NTDC as TNO)
  - Metering service providers (NTDC for participants connected to its network, Discos for Participants connected to distribution networks)

**Service providers are not market participants**



## Towards the Future

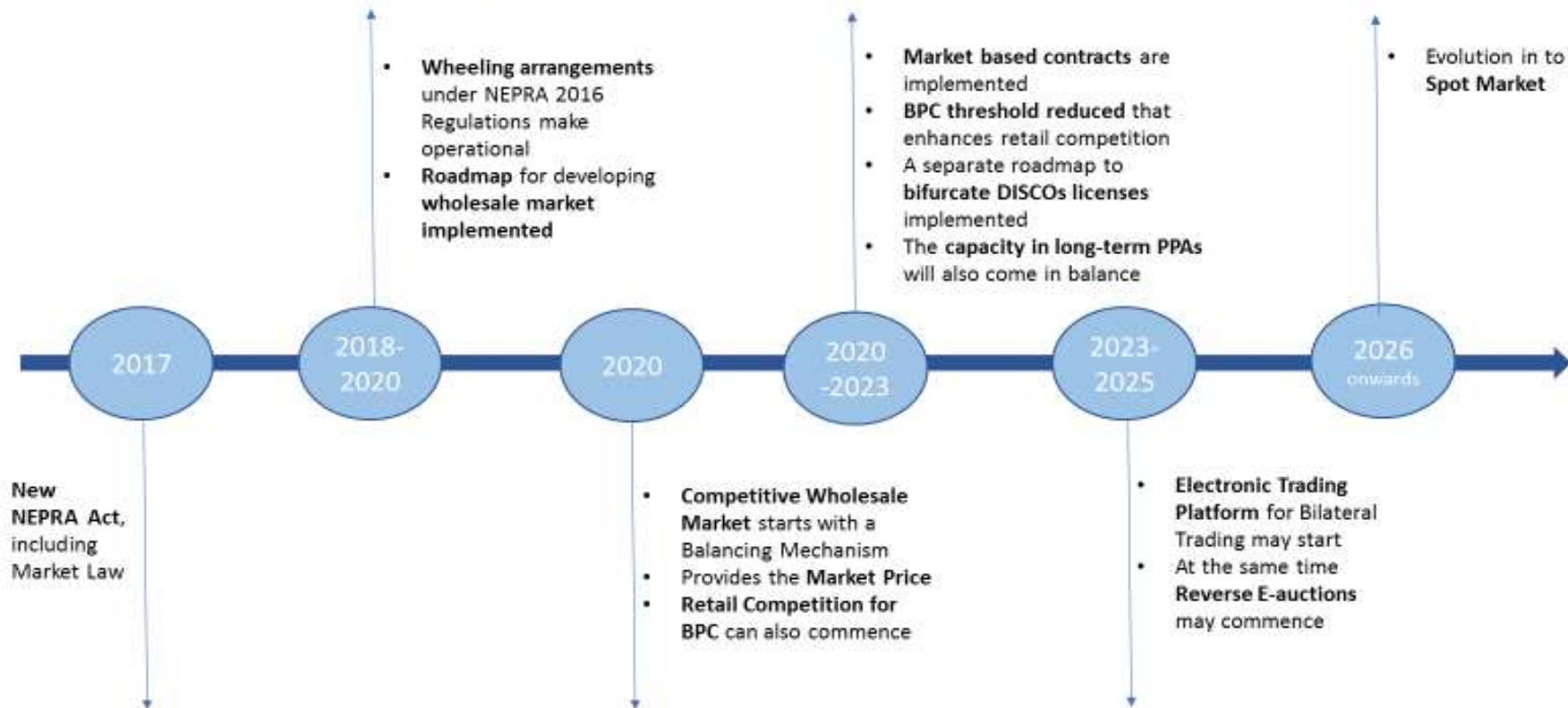
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- The competitive wholesale electricity market from Dispatch Perspective is a Gross Pool that is settled commercially on contracts
- Balancing Mechanism is the **seed to future spot market**. The Balancing Mechanism will be **initially** used for **clearing the differences** and **later** for **trading on Spot Price or BM Price**
- As the market develops and moves towards portfolio of market based contracts with long, medium and short term duration, it will be possible to assess adding a medium to short term **Power Procurement Platform**
- Systematic Evolution of Power Market and its comparison with other markets



# Possible Evolution

## Completive Power Market Stages Planned





## Main Benefits

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- Bilateral Contracts and Market Opening
- Efficiency
- Security of Supply
- Transparency
- Strengthening of Institutions
- Wholesale Level Improvement



# ROADMAP FOR IMPLEMENTATION

Group of actions – Stakeholders - timetable



No.	GROUP OF ACTIONS	Stakeholders directly involved	No.	GROUP OF ACTIONS	Stakeholders directly involved
0	Implementation Process Start; Overall Decision and Actions; Coordination	MWP NEPRA CPPA G	10.1	Codes: New Market Commercial Code	CPPA G draft and consultation, NEPRA review and approval
1	Policy on market development, White Paper describing the market conceptual design	NEPRA; CPPA G (draft); MWP public consultation and with other institutions	10.2	Codes: Update Grid Code	NTDC and Grid Code Review Panel. NEPRA review and approval.
2	Amendment to legal framework	MWP with CPPA G support	11	Strengthening of System Operator, enforce rights and obligations	NTDC and NPCC
3	Modifications to adapt or replace energy policies to be consistent with the market development policy	MWP	12	Strengthening Discos credit worthiness and readiness as market participants	Discos & MWP as the owner of Discos and SPS
4	Modifications to power sector regulatory framework to be consistent with the market development policy	NEPRA.	13	Open access to transmission services: formalize transmission services rights and obligations	NTDC as Transmission Network Owner NPCC as System Operator.
5	Assignment of pre-existing PPAs/EPAs signed or administered by CPPA G among Discos	MWP and CPPA G, IPPs and Gencos Imports Discos	14	NTDC as Planner (Least cost expansion plan) and Metering Services Provider (adequate revenue settlement meters)	NTDC, NEPRA review and approval of plan CPPA G (as observer of
6	Separation of CPPA G into Market Operator and Special Wholesale Supplier Functions	CPPA G	15	Measures to enhance wholesale payment culture: credit cover mechanisms and payment system	CPPA G/Market Operator Discos MWP IAA
7	Creation of the Market Operator as a separate company	CPPA G in particular Market Operator Business Unit	16	Readiness for commercial operation of electricity market:	Lead by CPPA G, includes all market participants; CPPA G reporting of readiness tests and results
8	Creation of the SPS as purchaser of not yet not assigned PPA/EPA	CPPA G in particular SPS Business Unit; Discos	17	Declaration of date to start commercial operation of the market	MWP
9	Creation of the Independent Auction Administrator (IAA) and scheme for credit cover / guarantees for low performing Discos	MWP (PPIB); CPPA G Discos			



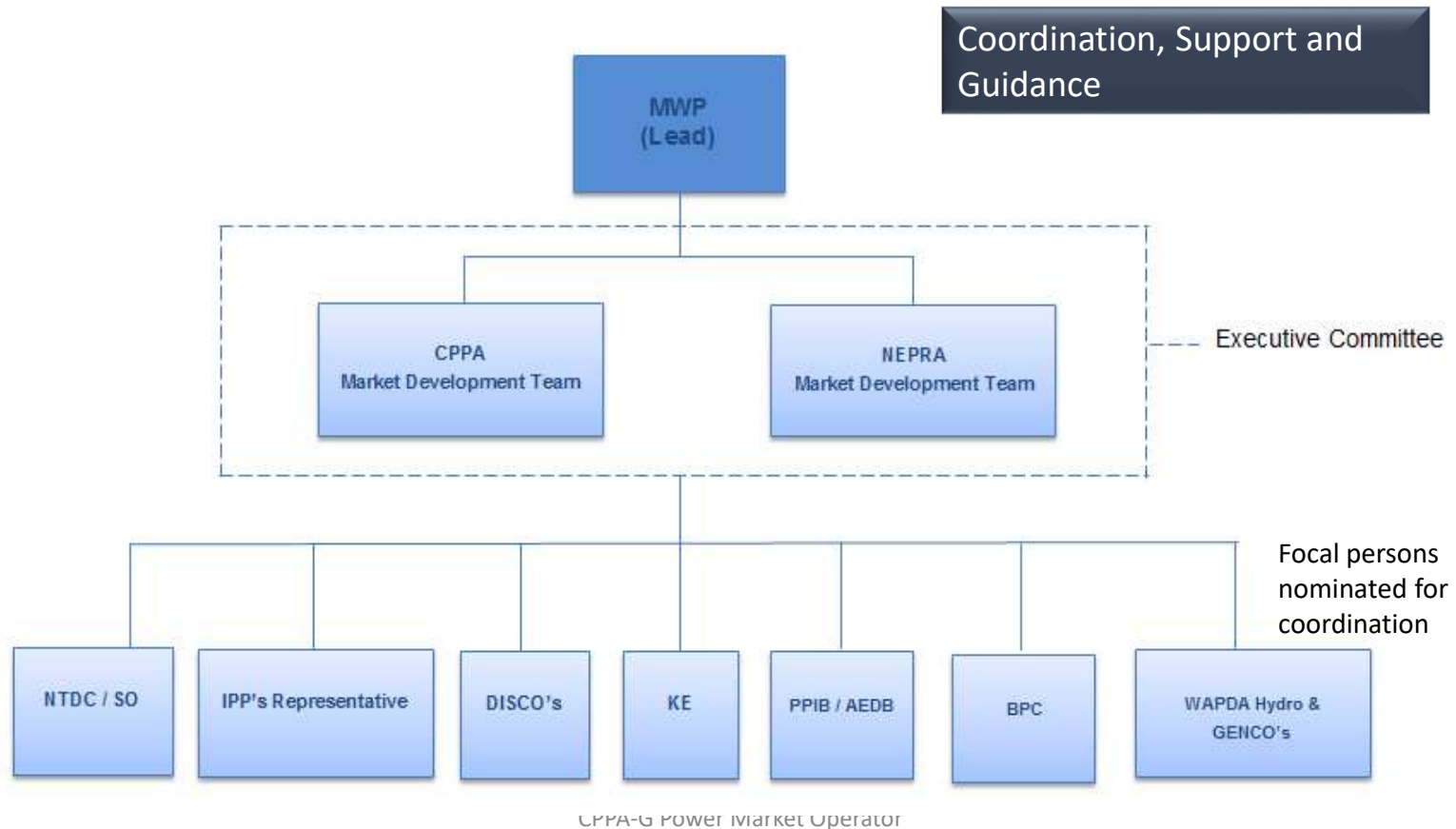
## Main Timetable Targets

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<b>Timelines</b>	<b>CTBCM Plan Submission</b>	<b>Trial Run of the Market</b>	<b>Commercial Operation Date</b>
<b>Initial Deadline</b>	Jun 2017	Jan 2020	Jul 2020
<b>Revised Deadline</b>	Jun 2018	Jul 2020	Jan 2021



# Market Monitoring & Implementation Group (MMIG)





## New Market: Challenges

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New Culture

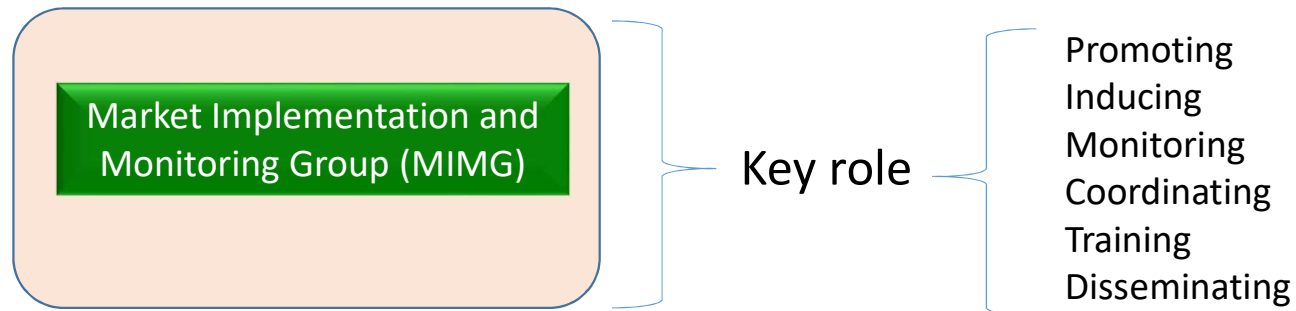
New HR Approach

New Capacities

New Accountability

New Technologies

New Efficiency



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# Thanks