

# PRESENTATION ON COMPETITIVE WHOLESALE POWER MARKET (CTBCM) OF PAKISTAN



CENTRAL POWER PURCHASING AGENCY (CPPA) SEP 22, 2020



# Scheme of Presentation

Part-1	History of Competitive Market Development (5 Minutes)
Part-2	International Perspective (5 Minutes)
Part-3	Stages of Market Development (3 Minutes)
Part-4	Competitive Market Design (15 Minutes)
Part-5	Implementation Plan (2 Minutes)





# Part-1

History of Competitive Market Development



# Power Sector Reforms (Historical Perspective)



#### **WAPDA Strategic Plan**

- Enhance capital formation
- Improve efficiency and rationalize prices, and
- Move towards full **competition** by providing the greatest possible role for the **private sector** through **privatization**



#### **First Power Policy**

- **Enabled Private** Participation in Generation
- Offered generous incentives
- Several deals and capacity additions

1997

#### **NEPRA Act**

**Enactment of NEPRA** Act Formation of Independent **Regulator** (NEPRA) to oversee the

restructuring process



### **Unbundling of WAPDA**

(10)

DISCOS

#### **PEPCO**

- **Transition** Management Company
- Oversee the corporatization & privatization
- Formed **Business Plan** for Restructuring process

- GENCOs (4)
  - **LESCO**

1998

- **GEPCO**
- **FESCO**
- **IESCO MEPCO**
- **PESCO** 
  - **HESCO**
  - **QESCO**
- **TESCO**
- **SEPCO**

- Thermal Power **Generation Companies** 
  - Perform Supply **Business**
  - Perform distribution. construction, expansion, maintenance operation of the distribution system

**NTDC** 

- **Transmission Network Operator**
- **System Operator**
- Planner
- **Power Procurer**
- **Power Market Development**

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### Historical on Market Development in Pakistan

**Legal formation of CPPA**. However, functioned as **Department of NTDC** from 2009 to 2015.

- ECC's Decision April 2015
- CPPA through consultation prepare CTBCM Model and Plan by June 2017
- The CTBCM is for wholesale market
- Will be approved by NEPRA
- Commercial Operations date: June 2020
- CPPA Operationalized
- CPPA formed Market
   Development Department

The model and plan submitted to NEPRA for review

- Request for ECC in amending timelines
- New NEPRA Act Amendments
- MO's Authorization
- Comments
- Partnerships

2002 2009 2013 2015 2017 2018 2019

- NTDC was granted Transmission License to perform five functions:
  - .1) TNO
  - .2) SO
  - .3) Planner
  - .4) Metering Service Provider
  - .5)Contract Registrar/ PEX Administrator
- Per licensing requirement, NTDC was mandated to develop the whole sale market (CTBCM) by 2008

- National Power Policy 2013
- -"... Innovative business and regulatory models will be deployed to <u>weaken the monopolies</u>, <u>increase efficiencies</u>, and <u>decrease costs through competition</u>.

  Wheeling charges and <u>wholesale markets</u> may be introduced to introduce <u>multiple</u> buyers and sellers in the marketplace."

- CPPA prepared and submitted the model and plan to Board in July 2017
- The Board formed a Special Committee
- The Special Committee evaluated the plan
- Board principally approved CPPA's restructuring and allowed submission of CTBCM submission to NEPRA
- Consultations with SECP

-NEPRA Approved CTBCM Model

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# **Market Development History**

#### 2016-2017

Numerous
Consultation being done for making the model

#### Mar 2018

Submitted CTBCM to NEPRA for approval after evaluation of special committee and approval of CPPA board

#### Sep 2020

After approval of CTBCM Plan by NEPRA 1.5 years extension granted by ECC

March 2021

**CTBCM COD** 

# 2015

# 2017

2018

2019

2020

2022

#### Apr 2015

ECC Decision Point 9 (To Prepare CTBCM)

#### Apr 2017

Special committee including MoE (PD), MoF, CPPA & NEPRA constituted to evaluate the proposed model

Dec 2019
CTBCM Model approved

by NEPRA

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# Part-2

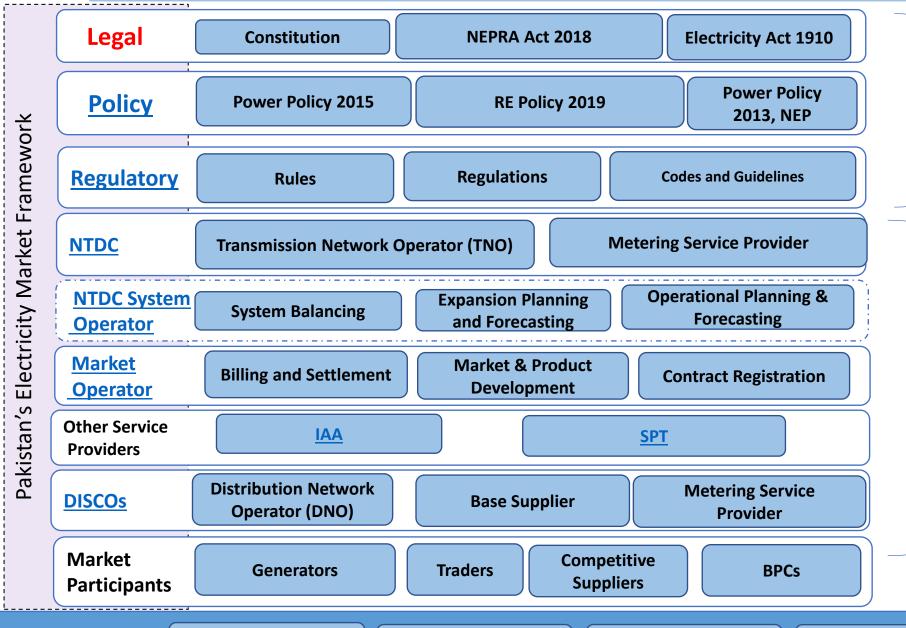
International Perspective





# Market Transition is a 'Big Undertaking'





**Framework Alignment:** 

Legal, Policy & Regulatory

#### **Institutional Work:**

- Roles Alignment
- People capacity
- Processes automation
- Technology deployment

Markets Transition

**Vertically Integrated** 

**Single Buyer** 

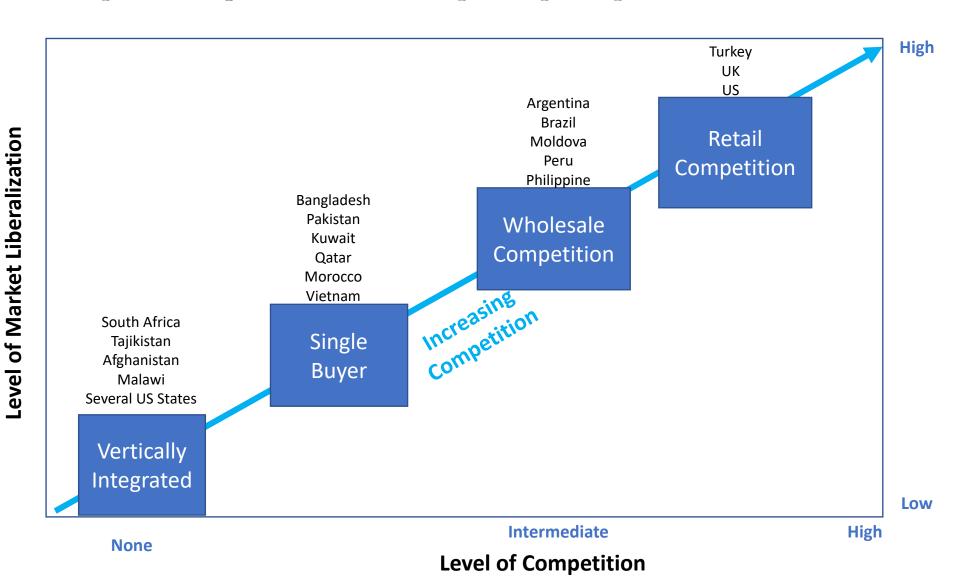
**Single Buyer Plus** 

Competitive Wholesale & Retail



# **Competition = Liberalization**

#### Competition requires liberalization (private participation) to achieve desired results!





# Part-3

Stages of Market Development



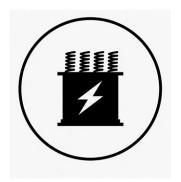
### Players in the Market

#### **Consumers**

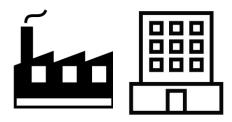


1. Regulated Tariff Consumers (all consumers)

## **Suppliers**



DISCOs as Supplier
 (can sell at regulated tariff only\*)



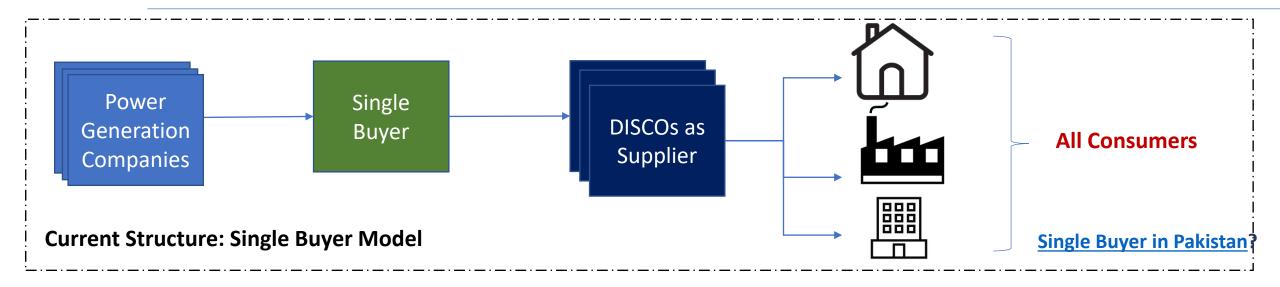
2. Eligible Consumers (large consumers with choice)



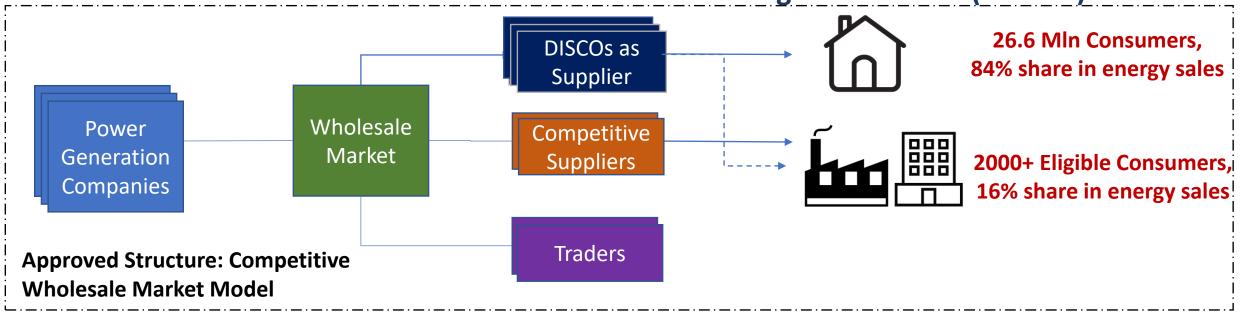
2. Competitive Supplier (can sell to only eligible consumers at non-regulated prices)



# Single-Buyer Model and Wholesale Competitive Market



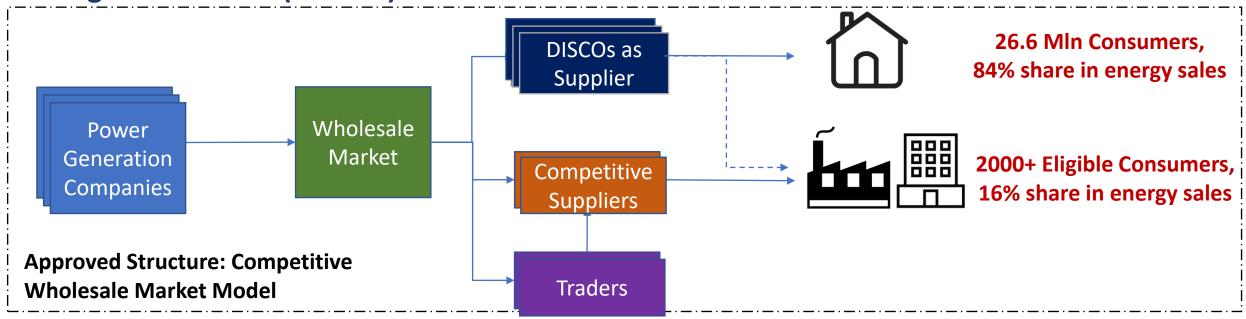
### 1<sup>st</sup> Stage: Wholesale (CTBCM) Mar 2022



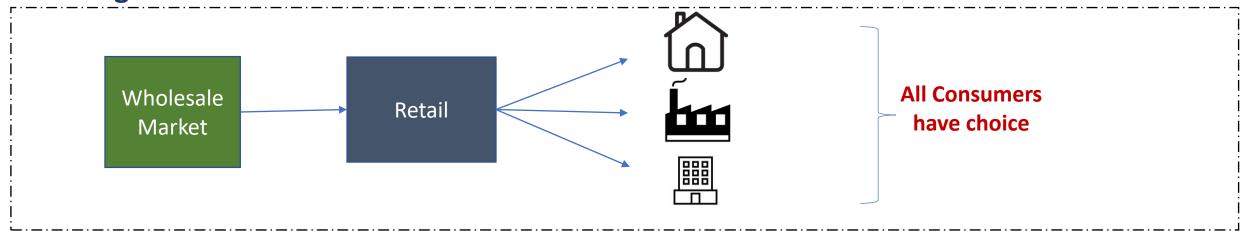


### Competitive Wholesale and Retail Markets

### 1<sup>st</sup> Stage: Wholesale (CTBCM) Mar 2022



# 2<sup>nd</sup> Stage: Retail





# Part-4

Competitive Market Design



# CTBCM – Features

Capacity Obligations **New PPAs** 

Existing PPAs

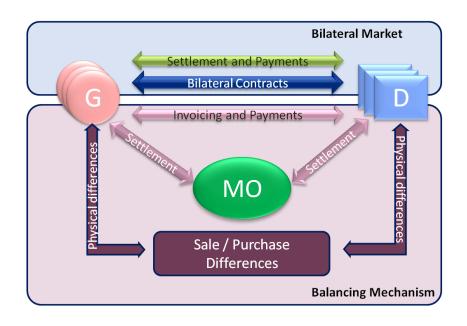
Service Providers Centralized New Capacity Procurement

Grid Code Commercial Code, others

Non Payment Risks

Agent separated from MO

> Market Participants



Competition for and in the Market

Low Performing Discos

Credit Cover (collateral)

Centralized Economic Dispatch

Balancing Mechanism

Contract Registrar K Electric



# Trading in Competitive Wholesale Market

- 1. The CTBCM is constructed around bilateral contracts.
- 2. The System Operator will establish marginal prices for trading including settlement of imbalances.
- 3. DISCOs will procure power through competitive bidding organized by Independent Auctioneer (IAA) resulting in reduced purchase price for DISCOs.
- 4. Eligible Consumers will be free to procure power from Competitive Suppliers.



### 4 Major Design Parameters

- **Products Traded in the Market and System Reliability:** Two main products, Energy and Capacity, Energy traded to supply consumption and Firm Capacity Traded to ensure medium and long-term security of supply
- Pricing Mechanism: Cost-based pool model with single market clearing price based on marginal cost principle
- Power Procurement: 100% capacity obligations, procurement for regulated consumers is subject to IGCEP and Procurement Plan, Eligible Consumers free to contract bilaterally on their own terms and conditions
- Market Architecture: Bilateral Contracts complimented with balancing mechanisms for capacity and energy



#### **CTBCM Main Features**

CTBCM is wholesale competitive electricity market where electricity will be traded in bulk quantities on competitive prices

#### **Main Features:**

- Establishment of an independent and impartial Market Operator
- Dispatch Operations improved through strengthening of System Operator
- Tool based Security Constrained Economic Dispatch
- Generation adequacy ensured through Capacity Obligations
- New Capacity for DISCOs procured through centralized auction by Independent Auction Administrator (IAA)
- Introduction of Credit Covers to cover non-payment risks in the market
- Government Support for low performing DISCOs
- Balancing Mechanisms introduced to trade imbalances on market prices



#### **CTBCM Main Features**

- Rules and Regulations established for Market Participants and Service Providers
- Legacy PPAs/EPAs will be commercially allocated to the DISCOs and will be legally administered by the Special Purpose Trader (SPT)
- Introduction of **flexibilities** in new contracts
- Contract Registrar to check validity of contracts and verify capacity obligations of the market participants
- New Commercial Code to govern the operations of MO
- Existing Commercial Code amended to govern the operations of SPT as per new market design
- Amendments in certain sub-codes of **Grid Code** to reflect the market design i.e. SDC, Metering, DRC and Planning
- Strengthening of Institutions i.e. MO, SO, IAA, DISCOs
- Institutionalization of data to enhance transparency



# **Capacity Obligations**

- Capacity Obligations are introduced to ensure Security of Supply and Generation Adequacy in the system
- Market participants representing Demand will have the obligation to contract in advance sufficient capacity (contribution to system peak and system reserves) to serve its load
- Each market participant will be accountable for its demand projections
- These capacity obligations is a contribution to ensure **medium and long term security** of supply
- Obligations for each demand participant will be **calculated in advance** by MO based on an approved criteria
- Capacity Obligations will be **verified** by the **Contract Registrar** function of the MO



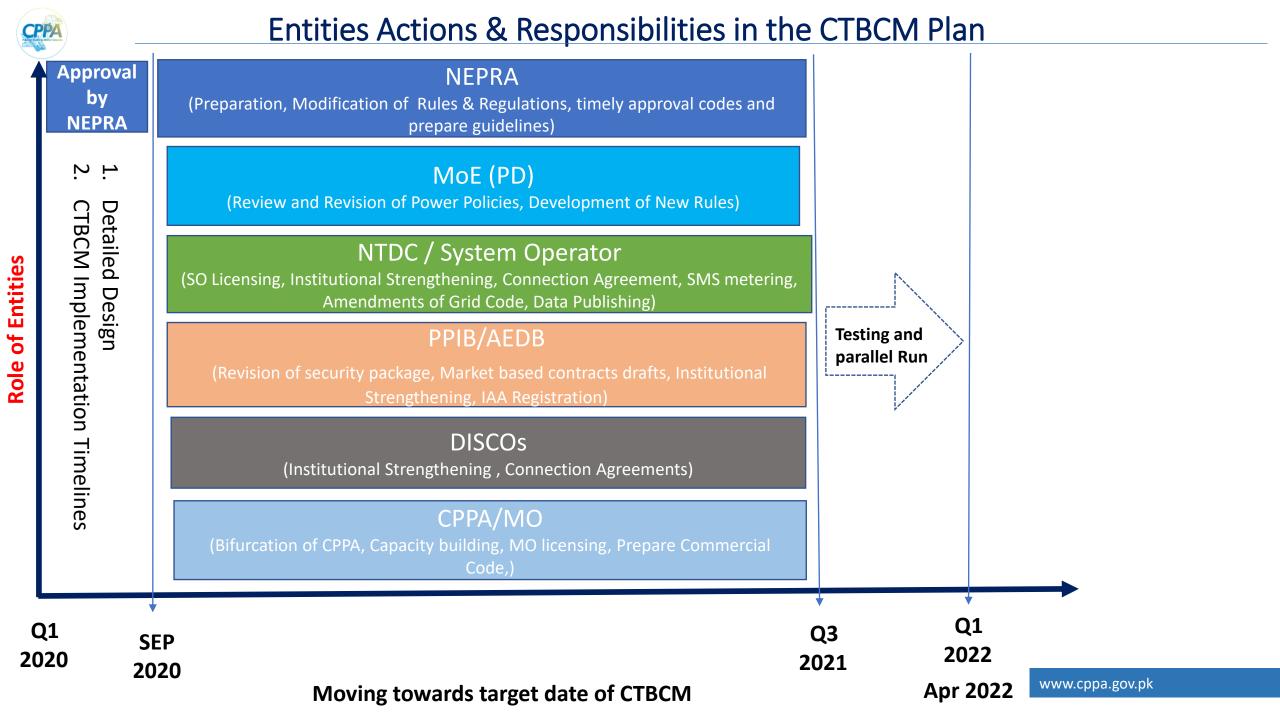
# Future Procurement Price Discovery through Competitive Auction

- All future procurements for regulated customers will be subject to competitive procurements (to the extent feasible)
- The competitive process will be subject to NEPRA's regulations and oversight
- The IAA will consolidate requirements from all DISCOs and will run competitive auctions as per process approved by NEPRA
- After successful completion of the bidding process, the IAA will nominate successful bidders which will then be required to approve their tariffs from NEPRA
- After approval of such tariffs, NEPRA will be bound to pass through these costs to endcustomer tariffs of the DISCOs.



# Part-5

CTBCM Implementation Plan and Monitoring





### Implementation & Monitoring

**CC**oE

Market
Implementation &
Monitoring Group
(MIMG) Board

Market Implementation Support Committee (MISC) of CPPA Board

Working Groups of Power Sector Entities



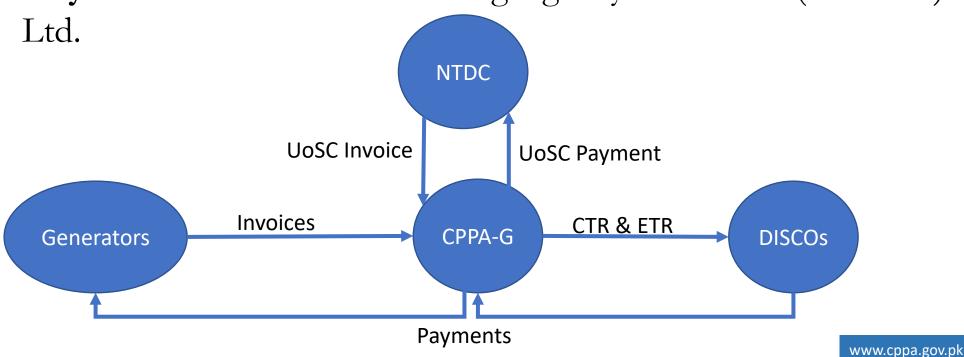
# Thanks



# Market Structure

Market Structure: Pakistan has a single-buyer market structure in place.

Buyer: Central Power Purchasing Agency Guarantee (CPPA-G)





# Today – Single Buyer

- Today: each Disco has one contract with CPPA-G (PPAA)
- PPAs/EPAs costs are equally shared
- Costs allocated monthly: share of energy and of peak demand of a Disco within the total for all Discos.
- Same regulated purchase price for energy & capacity
- Wholesale price transferred as a cost to regulated retail electricity tariffs (plus fuel cost adjustments)
- All discos have the same system transmission charge

