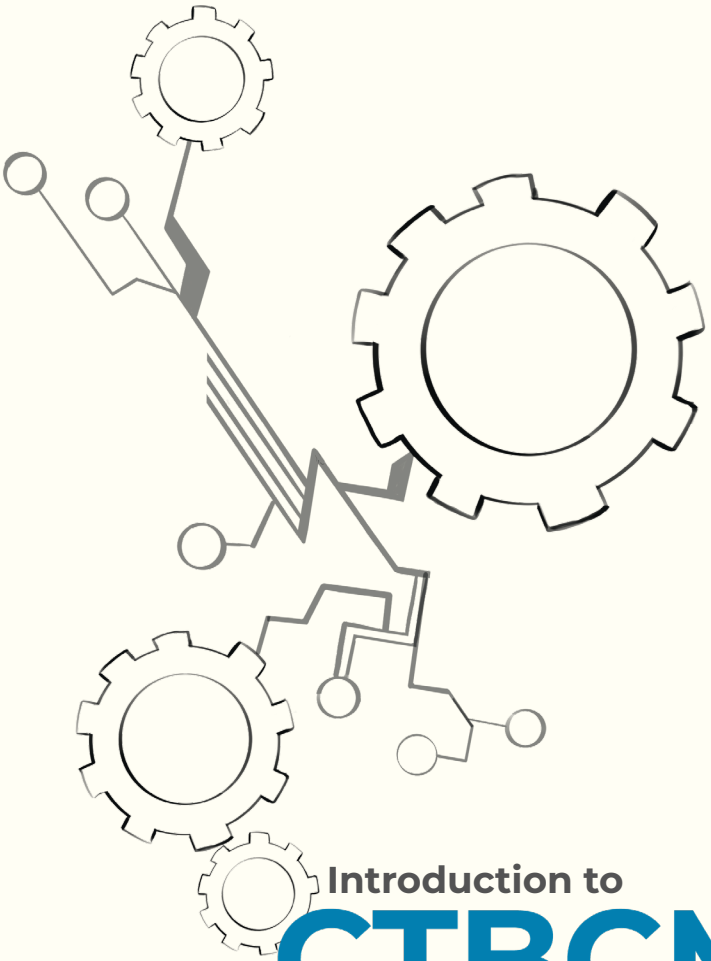


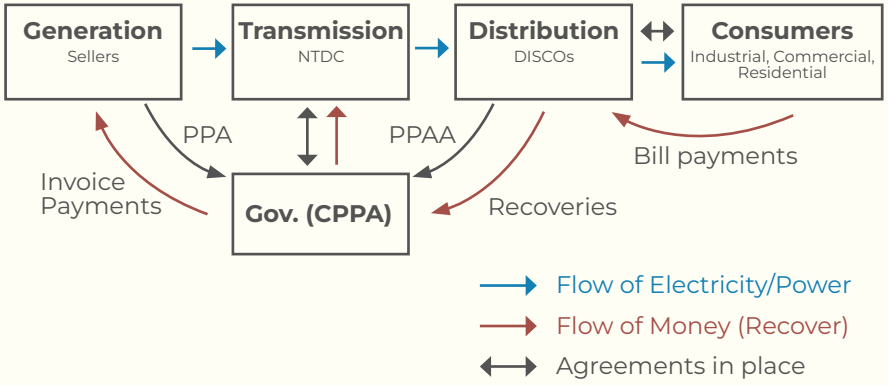
Introduction to CTBCM (Advanced)

What is CTBCM?

The Current Electricity Market of Pakistan

The existing power market structure in Pakistan follows a single-buyer model, where the CPPA-G (or government) functions as the sole power purchaser.

The government also manages contractual agreements through Central Power Purchasing Agency (CPPA-G), facilitating the commercial transactions between all the departments of the electricity sector (generation, transmission, distribution etc.).



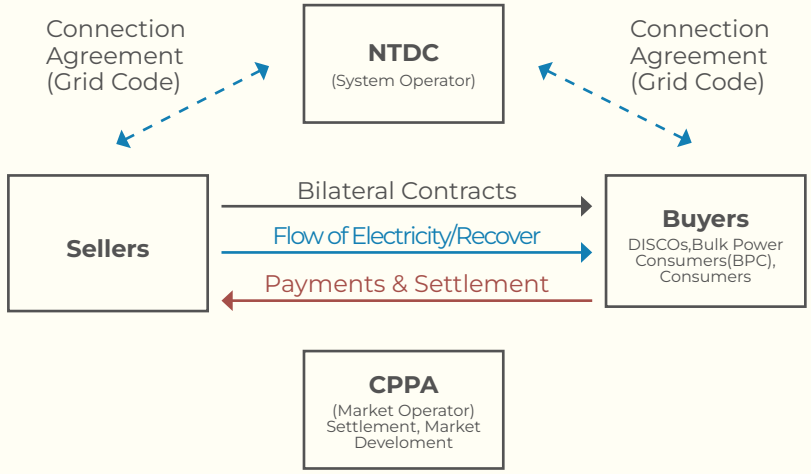
- PPA is the agreement between CPPA-G and the generation companies to buy their power on behalf of distribution companies (DISCOs)
- PPAA is the agreement CPPA-G does with the distribution companies on behalf of the generation companies to collect the payments for the power purchased by the DISCOs

old model

Competitive Trading Bilateral Contracts Market (CTBCM)

The Competitive Trading Bilateral Contracts Market (CTBCM) is the new model proposed by NEPRA to allow trading of electricity units between buyers and sellers through bilateral contracts in a competitive environment.

The CTBCM is a market model which aims to introduce competition and efficiency into the power sector by allowing market forces to determine prices and quantities of electricity traded through bilateral agreements.



- A bilateral contract is an agreement between a seller and a buyer for the purchase and sale of electricity at agreed-upon terms, including price, quantity, and duration.
- The government cannot participate in commercial transactions. Instead, its role will be limited to regulatory oversight, market development & monitoring, and grid management (to ensure fairness, prevent market abuse, and maintain grid stability).

new model

Why is CTBCM important?

Demerits of the Existing Electricity Market Structure:

- **Generation Capacity Issues:** Mismatch between seasonal electricity demand results in both excess capacity in winter, as well as insufficient generation capacity in summer (which leads to frequent power outages and load shedding). As a result, stranded costs increase in the form of capacity payments which has a direct impact on national economic growth.
- **Reliance on Fossil Fuels:** Heavy dependence on fossil fuels such as oil and gas for power generation contributes to price volatility and environmental concerns.
- **Forex Drain:** The power sector fuel imports have a major share in the total energy import bill of the country.
- **Lack of Competition:** The current power market operates as a single-buyer system where the CPPA holds exclusive purchasing authority and acts as the sole seller of electricity. This absence of competition deprives consumers of alternate choices, establishing a monopoly within the electricity market.
- **Circular Debt Problem:** Circular debt (CD) is also termed as the power sector payables. It is a chain of unsettled invoices / unpaid bills, unpaid subsidies, and poor recoveries, where receivables of one segment of the power sector value chain become payable to others. CD reached PKR 2.6 trillion by the end of October 2023, witnessing a 13% increase from the previous fiscal year when it was PKR 2.3 trillion. CD is approximately ~45% of annual tax GDP, growing at 10% of tax revenue per annum .
- **Lack of Auctions:** A significant drawback of the current power market structure lies in the government's inability to conduct auctions for cost-effective Category-III renewable energy projects and delayed payments to the existing ones. This inability hinders the integration of potentially affordable renewable energy sources into the market. As a result, despite the presence of viable projects awaiting tariff, the absence of auctions prevents their inclusion, hindering the diversification of the energy mix and potentially denying consumers access to more affordable and sustainable energy options.

old model

Merits of the CTBCM:

- **Market Competition and Efficiency:** A competitive market will lead to more efficient resource allocation, increased innovation, and better service quality in the power sector. Market forces could incentivize the adoption of cleaner and cost-effective technologies.
- **Attracting Private Investment:** CTBCM's competitive market structure, profit incentives, reduced regulatory barriers, diverse energy portfolio, stability, and supportive government policies collectively make it an appealing prospect for private investment in the power sector.
- **Enhanced Generation Capacity:** By attracting private investments, CTBCM will foster the development of diverse and increased power generation capacity. This will lead to an increase of renewable energy sources in the energy-mix due to their competitiveness, potentially reducing reliance on fossil fuels.
- **Energy Security and Stability:** A well-functioning CTBCM could enhance energy security by diversifying energy sources, reducing dependency on specific fuels or regions for power generation.
- **Consumer Choice and Affordability:** A competitive market offers consumers choices in selecting their power providers, potentially leading to competitive pricing and improved services.
- **Regulatory Reforms:** Introduction of robust regulatory frameworks and policies supporting market competition, will ensure fair practices leading to economic viability .

Additional Benefits:

Avoiding Stranded Costs: CTBCM is expected to mitigate stranded costs resulting from the government's poor planning decisions, offering a path to free buyers and sellers from these burdens.

Enhanced DISCO Performance: Competition in the market will drive DISCOs to elevate their efficiency and services to retain customers, compelling them to improve their performance.

Renewable Energy Advantage: With renewables boasting low costs (below 4 cents per unit), a competitive market will favor their prominence, leveraging their cost advantage.

Reduced Dependence on Government Generation Planning: CTBCM will diminish reliance on NTDC and government decisions, which historically showcased poor judgment, ensuring the power sector's future expansion aligns with cost-effective principles.

Merit-Based Operation: Operating plants on merit will become imperative within CTBCM, compelling the system operator to avoid penalties by prioritizing efficient plant operations.

new model

How will the market **shift** to CTBCM?

Market History and Future Transition

The following is a brief history of the development of power sector reforms in the country:

In **1992**, the "Power Sector Strategic Plan for Restructuring and Reform" was issued with the aim of unbundling, regulating, and privatizing the existing generation and distribution components, to attract private sector investment and improve sector efficiency.

In **1994**, the National Power Policy was formulated which introduced "Policy Framework and Package of Incentives for Private Power Generation Projects in Pakistan" aimed to attract private capital to the sector and to standardize the conditions for investment for IPPS. This policy laid the groundwork for a more liberalized market by encouraging private investment and breaking the monopoly of the public sector in power generation.

In **1997**, under the "Regulation of Generation, Transmission and Distribution of Electric Power Act", the National Electric Power Regulatory Authority (NEPRA) was established to develop a regulatory framework to ensure "safe, reliable, efficient and affordable electric power to the electricity consumers of Pakistan" and to "facilitate the transition from a protected monopoly service structure to a competitive environment".

2002

NTDC was granted Transmission License to perform five functions:

- ◊ Transmission Network Operator
- ◊ System Operator
- ◊ Planner
- ◊ Metering Service Provider
- ◊ Contract Registrar/ PEX Administrator

-Per licensing requirement, NTDC was mandated to develop the whole sale market (CTBCM) by 2008.

2009

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

2013

National Power Policy

-"... Innovative business and regulatory models will be deployed to weaken the monopolies, increase efficiencies, and decrease costs through competition. Wheeling charges and whole sale marketsmay be introduced to introduce multiple buyersand sellers in the marketplace.

2015

CPPA Operationalized

- ◊ ECC Decision April
- ◊ CPPA through consultation prepare CTBCM Model & Plan by June 2017
- ◊ CTBCM is for wholesale market
- ◊ Will be approved by NEPRA
- ◊ Commercial operations date: June 2020

2017

CPPA prepared & submitted the Model & Plan to Board;

- ◊ The board formed a special committee for evaluation of the Plan.
- ◊ Consultations with SECP

2018

- ◊ CTBCM Model & Plan submitted to NEPRA for review
- ◊ Enactment of NEPRA Amendment Act 2018

2020

- ◊ CTBCM Model & Plan approved by NEPRA

2021

- ◊ National Electricity Policy 2021 formed
- ◊ Policy directions for development of efficient & liquid power market design as er clause 14b(2b) of NEPRA Amendment Act

2022

- ◊ NEPRA formulated the market regulations, and granted licenses to various institutions (market operator, market participants, and service providers)
- ◊ Test / trial run of CTBCM for six months

2023

- ◊ National Electricity Plan 2023-27 developed as per clause 14A (2b) of NEPRA Amendment Act
- ◊ CPPA (MO) has submitted the final test run (FTR) report to NEPRA for review
- ◊ Delicensing of generation companies as per clause 14B of the Act
- ◊ Separation of distribution and supplier licenses as per clause 23E of the Act

2024

- ◊ PPIB licensed as the Independent Auction Administrator (IAA) under Section 25A of the NEPRA Act
- ◊ Hearing held by NEPRA for Wheeling/ Use of System Charges(UoSC)

Way Forward:

- ◊ Declaration of the Commercial Operation Date (COD) of CTBCM by MoE(PD)

The CTBCM initiative has tremendous potential to solve the long-standing problems of Pakistan's electricity sector. To ensure this however, several crucial steps need to be taken which include but are not limited to:

- ◊ Provide durable estimations of the marginal price to reduce uncertainty in the market and boost the investor confidence,
- ◊ Finalization of an attractive UoSC (Wheeling/Use of System Charge) by NEPRA with a high degree of clarity regarding its structure and estimates,
- ◊ Develop a UoSC methodology encouraging the DISCOs to improve their performance and penalizing the underperformers,
- ◊ Reassess the firm capacity calculation methodology to give a fair treatment and equitably accommodate the RE projects in the energy mix,
- ◊ Establish a clear framework for disciplining the demand side in the transitioning market evolving consumers of electricity to prosumers.

Furthermore, successful implementation of the CTBCM in Pakistan's power sector would require political stability, financial sustainability, a strong regulatory framework, infrastructure investment, stakeholder engagement, technological innovation, adaptability, and risk mitigation strategies. Integrating these elements effectively while learning from the past challenges is key to addressing the sector's challenges and ensuring the CTBCM's success.

Renewables First is an energy and environment policy think-tank. Our work addresses issues critical to energy and natural resource that intends to make energy and climate transitions just and inclusive towards a sustainable future.

We aim to drive energy transition through impactful research, advocacy and strategic partnerships with a focus on inclusivity and immediate action.

Author: Hammad Ali
Designer: Sana Shahid

RENEWABLES FIRST

10 - 11, 3rd Floor,
Executive Complex,
G-8 Markaz,
Islamabad
+9251 - 8773676
info@renewablesfirst.org