

# Types of entities involved in the CTBCM

The different entities involved in CTBCM can be broadly categorized as the market participants and the service providers.

## 1. The Market Participants:

Market Participants are entities or individuals who engage in commercial transactions in the market and perform sale and purchase of electricity within the market. The market participants can be classified into two categories: the sellers and the buyers.

**Sellers:** These are entities or individuals who generate electricity and offer it for sale in the market. Sellers can include power generation companies, independent power producers, renewable energy project owners, electric power traders, and other entities capable of supplying electricity to meet demand.

**Buyers:** Buyers are entities or individuals who purchase electricity from sellers to meet their consumption needs. Buyers can include distribution companies, BPCs, industrial, commercial, and other entities requiring electricity for various purposes.



- ◇ A **Generation Company** is an entity that installs a generation unit or plant to produce and sell electric power.
- ◇ An **Electric Power Trader** is an entity which trades electric power at a wholesale level.
- ◇ An **Electric Power Supplier** is an entity which procures electric power and sells it to the end-consumers.
- ◇ A **Bulk Power Consumer** is a consumer which has a minimum load of 1 MW and purchases electric power from the wholesale market or an electric power supplier through a bilateral contract.

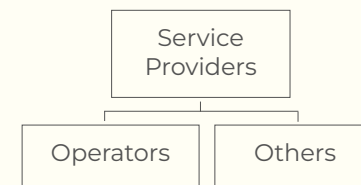
## 2. The Service Providers:

Service Providers are the entities which provide various regulated services necessary for proper market or system functioning. Examples include transmission network service provider, distribution network service provider,

metering service provider, system operator, market operator, independent auction administrator etc.

### a. The Operators:

**The Market Operator (CPPA)** oversees the functioning of wholesale electricity market, including matching buyers and sellers, calculating prices, settling payments, managing market clearing processes, and ensuring the efficient operation of the market as per regulatory requirements and market rules.



**The System Operator (NPCC)** is responsible for balancing electricity supply and demand in real-time, maintaining grid stability, managing transmission constraints, and responding to emergencies or contingencies to ensure the uninterrupted flow of electricity to consumers.

**b. Transmission Service Providers (NTDC as TNO)** provides transmission infrastructure and services to enable wholesale competition and the buying & selling of electric power.

**c. Distribution Network Service Providers** develop and operate distribution network infrastructure to enable distribution-level market participants to enter and participate in the market.

**d. Metering Service Providers (NTDC & DISCOs)** collect, assess, and transfer the metering information to the market operator for settlement function.

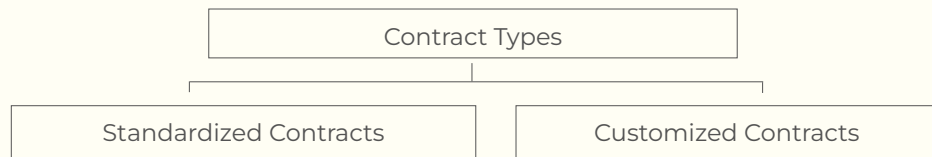
**e. Independent Auction Administrator (PPIB)** is responsible for facilitating XW-DISCOs or Suppliers of Last Resort (SoLR) in meeting their capacity obligations through capacity and energy procurement.f.

**f. The Special Purpose Agent (CPPA-G)** acts as an agent of the distribution licensees (XW-DISCOs and K-Electric) and administers the legacy contracts.

- ◇ **Competitive supplier** is an entity that sells electricity to consumers in a deregulated market where multiple suppliers compete for customers
- ◇ **Supplier of Last Resort (SoLR)** refers to a licensed provider of electricity at regulated prices to customers who do not have a competitive supplier, either because they have not chosen one or their chosen supplier has failed.

## Types of contracts in the CTBCM

In CTBCM, a contract is a bilateral agreement between a seller and a buyer. This bilateral contract can be for energy and/or capacity and it also specifies other details such as quantities, transactions, trading periods, pricings, and other applicable charges. Contracts in CTBCM are classified into the following two main categories:



**a. Standardized Contracts:** an agreement in which the sale and purchase of energy and/or capacity occurs based on predefined terms and conditions. The market participants are not required to disclose their bilateral agreement to the market operator when a standardized contract is signed between them. Under the Market Commercial Code, the following types of contracts are considered as standardized contracts:

**i. Generation following supply contract:** In this contract, the seller sells a defined share of the energy or the capacity (associated with the

physical asset, or a group of physical assets) to the buyer. The payment to the seller is based on the amount of energy it generated and injected into the grid.

**ii. Load following supply contract:** In this contract, the seller sells the contracted energy and capacity which is withdrawn by the buyer at certain pre-defined trading points. The payment to the seller is based on the actual measured energy consumed by the buyer. Such a contract is suitable for the consumers that want to avoid the costs or risks that arise due to imbalances.

**iii. Capacity and associated energy supply contract:** This contract follows the design of a load following supply contract, but it is tailored to enable buyers to fulfill their capacity requirements (capacity obligation). Such a contract is suitable for a buyer, especially XW-DISCOs / SoLR, that wants

a supplier to assume its capacity obligation and guarantee the supply of contracted energy or capacity.

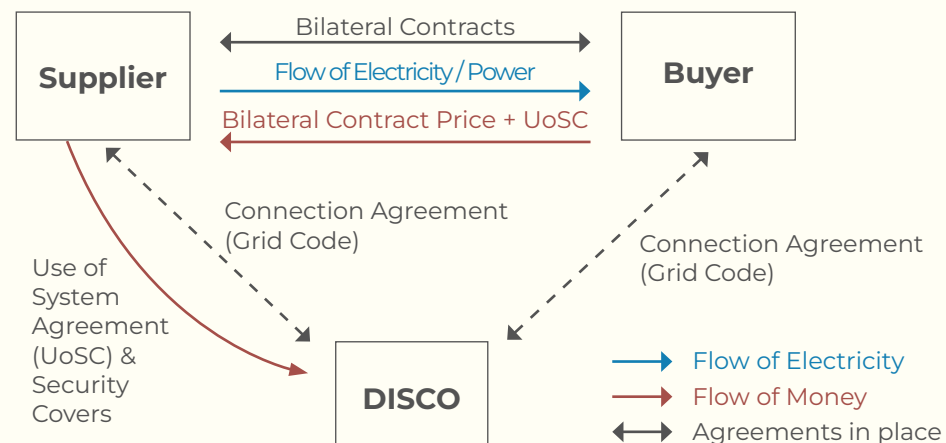
**iv. Financial supply contract with fixed quantities:** In this contract, the buyer and the seller pre-agree on fixed amounts of energy and capacity, regardless of actual generation and consumption. The contract also establishes an energy schedule beforehand with predefined energy quantities for each energy balancing period (e.g., one hour). The contract is designed to share risks between market participants, as it is primarily financial, with the seller obligated to supply (not generate), and the buyer obligated to pay (not consume).

The duration of all these contracts is set to a minimum of two years from the effective date of agreement in the Market Commercial Code.

**b. Customized Contracts:** refers to a bilateral agreement between the market participants (seller and buyer) transaction as per their mutually agreed terms and conditions (tailored to their specific requirements or preferences). Such an agreement does not fit the classification of a standardized contract. If such a contract is in place, the market participants may be required by the market operator to provide any relevant information for ensuring proper and accurate settlement within the balancing mechanism for the contracted energy and/or capacity.



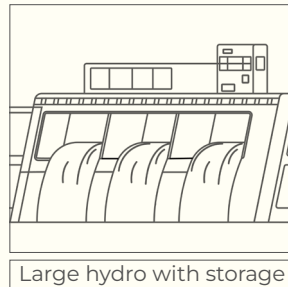
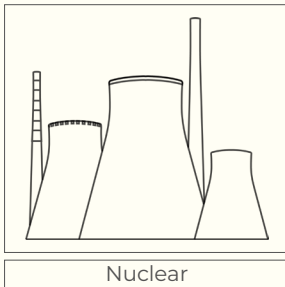
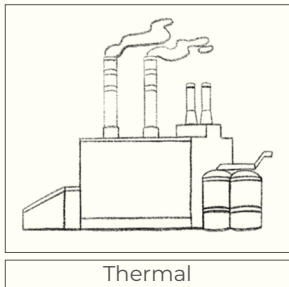
### Contractual Arrangements



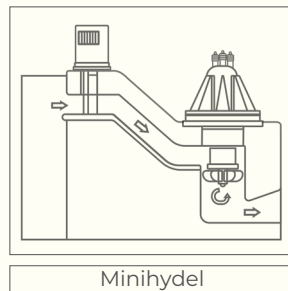
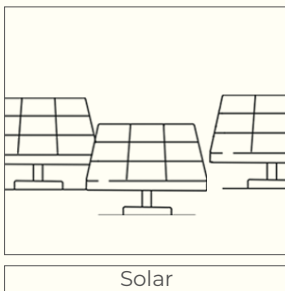
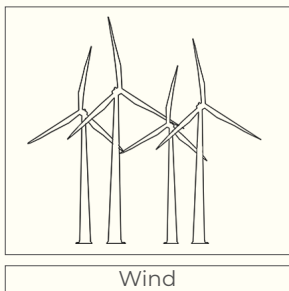
## Types of technologies in the CTBCM

The Market Commercial Code categorizes different generation technologies as follows:

**i. Dispatchable:** The output of generation technologies in this category can be increased or decreased based on manual or automatic instructions issued by the operator to meet varying demand of the system. In CTBCM, following technologies are categorized as dispatchable



**ii. Non-dispatchable:** Unlike dispatchable generation technologies, non-dispatchable technologies cannot change their output as and when required to meet varying system needs (e.g., demand). In CTBCM, following technologies are categorized as non-dispatchable:

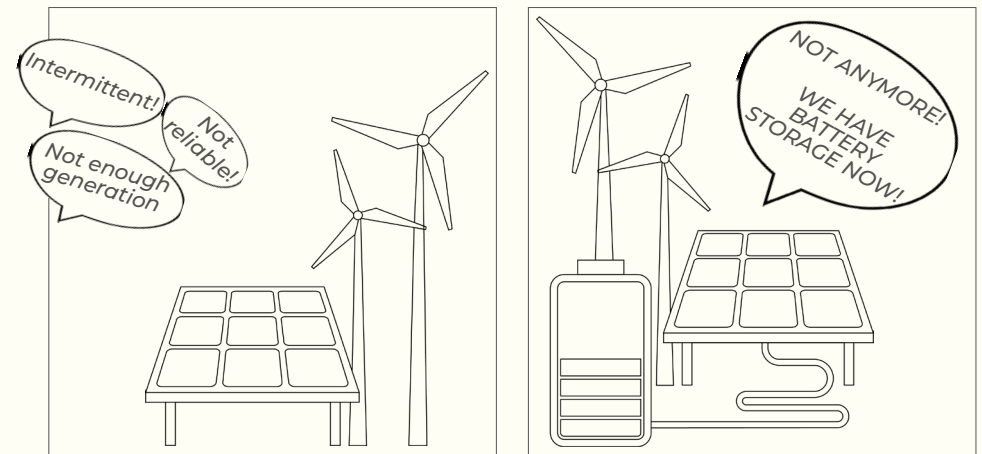


### Some comments on the categorization scheme of technologies:

Categorizing wind and solar energy technologies as non-dispatchable overlooks their evolving capabilities in today's advancing energy landscape. While traditionally seen as intermittent sources, both wind and solar are now

increasingly being integrated with battery energy storage systems, enabling them to provide reliable and secure power supply for varying system demands. Even without battery backups, solar and wind technologies offer some of the highest ramping rates available to the grid operator.

By coupling wind and solar with battery storage, their output can be effectively managed to meet varying system demands. They also offer a cost-effective solution for addressing system constraints, grid management challenges, providing backup power and resolving curtailment issues of renewable energy sources (REs).



Using terms such as “non-dispatchable” stigmatizes renewable energy sources and conveys a false impression regarding the nature of these technologies. Better naming conventions may be adopted to accurately reflect the capabilities and operational characteristics of these technologies. An alternative categorization is recommended as follows:

**Firm Dispatch:** For technologies such as nuclear, thermal (coal, gas, RLNG etc.) and large hydro the term “Firm Dispatch” may be used

**Forecast-Based Dispatch:** For technologies such as wind and solar, the term “Forecast-Based Dispatch” may be used.

The above classification acknowledges the reliance of RE on weather forecasts as well as the many ways in which the grid operators may schedule and manage their deployment more effectively.

Renewables First (RF) is a think tank for energy and environment. Our work addresses critical energy and natural resource issues with the aim to make energy and climate transitions just and inclusive.

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