Electricity Markets: Overview

PAEM Committees: Session 2

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Key Messages

1. **Trade delivers economic benefits – in particular, a more efficient system able to meet demand at least cost. Trade delivers economic benefits to both buyers and sellers, to both importing and exporting countries**

Economic benefits of trade

- An *economically efficient* electricity system meets demand at least cost (while complying with physical constraints and system stability)
- There are net economic gains from trade for both importing and exporting countries
  - Exporting countries gain overall from increased generation profits and output
  - Importing countries gain overall from lower costs for electricity (and possibly increased demand)
- The aim of a traded market is to achieve the most economically efficient outcome, relying on *price* to signal the choices of the individual parties. An *efficient market* would achieve the optimal outcome (or get very close)

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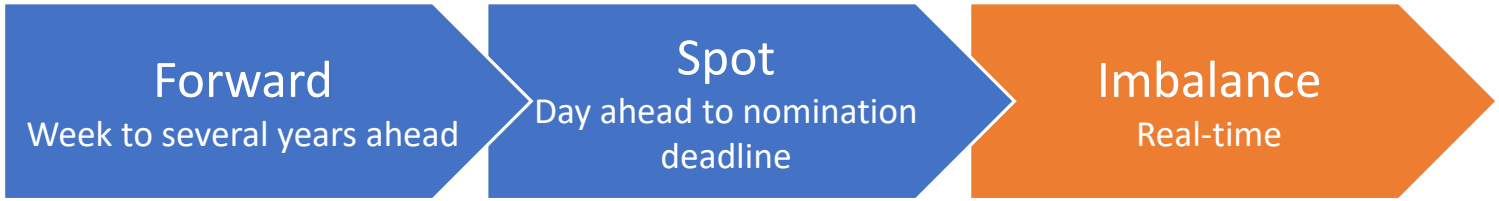
2. **Trading can be for different timeframes, serving different needs**

Trading timeframes



Traded Market

Market parties managing uncertainty of trading in spot market (price and volume risk)

Contracts for energy covering periods in the future – e.g., next season or year

Traded Market

Market parties avoiding *imbalance* (difference between contracted and actual position)

Day-ahead: main focus
Intraday: adjustment, but becoming more important due to intermittent RES

TSO Mechanism

TSO managing system balance, transmission congestion and security

Costs of real-time deviations (imbalance) recovered from market parties

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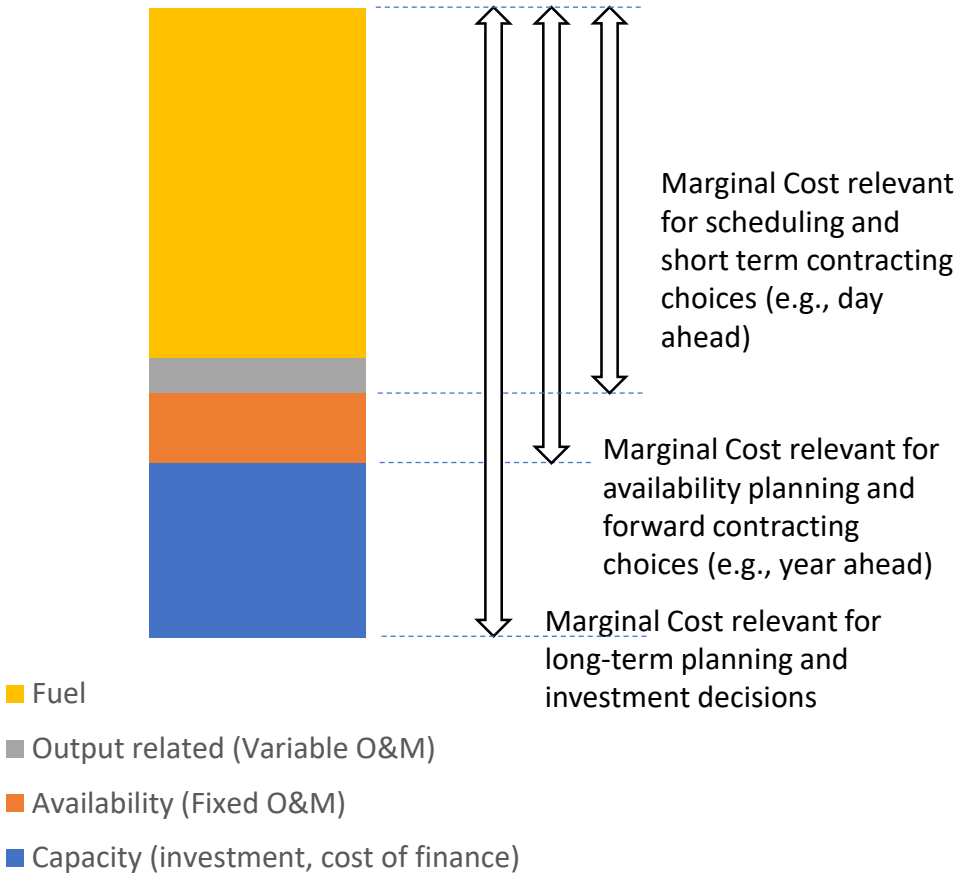
2. Trading can be for different timeframes, serving different needs
3. **The only costs that are relevant to a particular choice or decision are the costs that are impacted by that decision – the 'marginal costs'.**
   - **Costs that have already been incurred or committed – 'sunk costs' – are not relevant to the particular decision**
   - **Understanding your marginal costs is critical to minimising the costs of generation and identifying beneficial opportunities to trade**

Marginal Cost

Marginal Costs are those costs that are either saved or incurred depending on the particular choice or decision being considered

Only these costs need to be considered when seeking the economically efficient outcome since all other costs are by definition already incurred or committed ("sunk costs")

Generation Marginal Costs
(illustrative)



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4. **Widening the choice of counterparties you can trade with – e.g., cross-border competition - is the best way to facilitate trade**

Price discovery

Price discovery is the process by which buyers and sellers freely agree a price – i.e., one that both accept as reasonable

The process depends on the type of the market:

1. Auction – e.g., as used in the European day ahead market - determines the market clearing price applied to all trades
2. Bilateral markets require trading counterparts to find each other and negotiate a price for each trade

Price discovery in illiquid markets (i.e., a market lacking in offers) is inherently difficult:

- While parties have an interest in making economically beneficial trades, each also has the incentive to maximise their share of the gains – i.e., getting a good price
- Mechanisms such as splitting the gains are vulnerable to manipulation (seller overstating his marginal costs; buyer understating his)
- Ability to choose between several alternative possible trading counterparts – i.e., competition - is the best way to enable fair price discovery
- Increasing the market size and the number of parties who can access it – e.g., by enabling cross-border (XB) access – increases competition and facilitates price discovery

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5. **The market needs to evolve at both a national and international level**

Potential Market Evolution

- Many development pathways are possible
- Mixture of models in different countries/sub regions can coexist

Developing Cross-Border Markets

1. **Market type**

   Country-to-country bilateral trade

   →Access/Extension of bordering national market

   →Explicit cross-border capacity markets

   → Implicit cross-border capacity markets

2. **Geographic scope**

   Ad hoc country pairs

   →Clusters/sub regions

   →Pan Arab Region

Developing National Markets

1. **Generation**

   Vertically integrated utility

   → IPPs with PPAs/Single Buyer

   → IPPs without PPAs/Single Buyer

   → Fully liberalised market all generators

2. **Supply**

   Vertically integrated utility

   → Open market for large customers

   → Fully liberalised market all customers

CURRENT
National utility; Cross-border swaps

TARGET
Fully liberalised; Pan Arab market

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