
The Detailed Market Rules

Purpose and Content

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Workshop 1: The rules

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Agenda

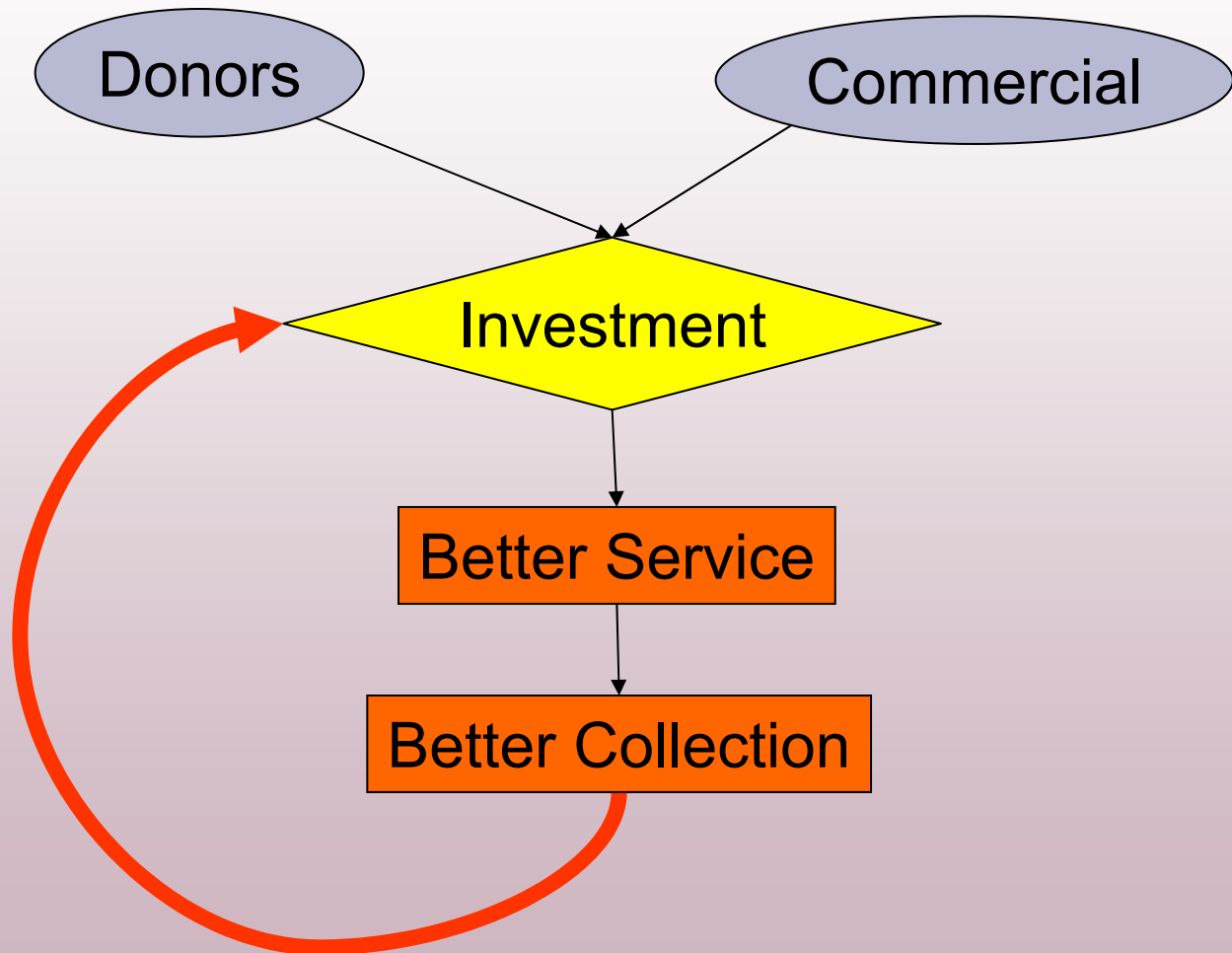
- **Introduction – why a market**
 - **Benefits of competition and the role of market rules**
 - **Contracting and balancing**
- **The regulatory framework – a reminder**
- **The Market Rules**
 - **Balancing – theory and requirements**
 - **Capacity certificates – role and function**
 - **Interconnectors**
 - **The other bits**

The problems of the industry in Kosovo

- Lack of investment in maintaining the network and the generating capacity
- Lack of effective capacity
- Growing demand but
- Lack of effective collection of money

Lack of money

The plan



Offered

- **Market**
 - **Competition**
 - **Trading**
- **Market Rules**
 - **Price setting environment**
 - **Commercial risk framework**

Why a market?

- **Why is competition important now?**
- **Why is price-setting needed now?**
- **ERO's role**

Reasons why a market is needed now

- **Kosovo Law**
- **The EU**
- **The Regional Electricity Market**
- **Foreign Investors and Donors**

The Law and the EU market

- **A framework for participation in an integrated European energy market**
- **A full set of laws**
 - **Separate Regulator**
 - **Separation of monopoly and commercial functions**
 - **Eligible customers leading to universal customer competition**
 - **Cross-border access to customers**

Eligible customers

- Allowed to buy from other generators
- Allowed to import
- Why?
 - Cheaper electricity through:
 - Competition and improved efficiency

**Ability to assume commercial risk
through a contract**

Supplying Eligible Customers

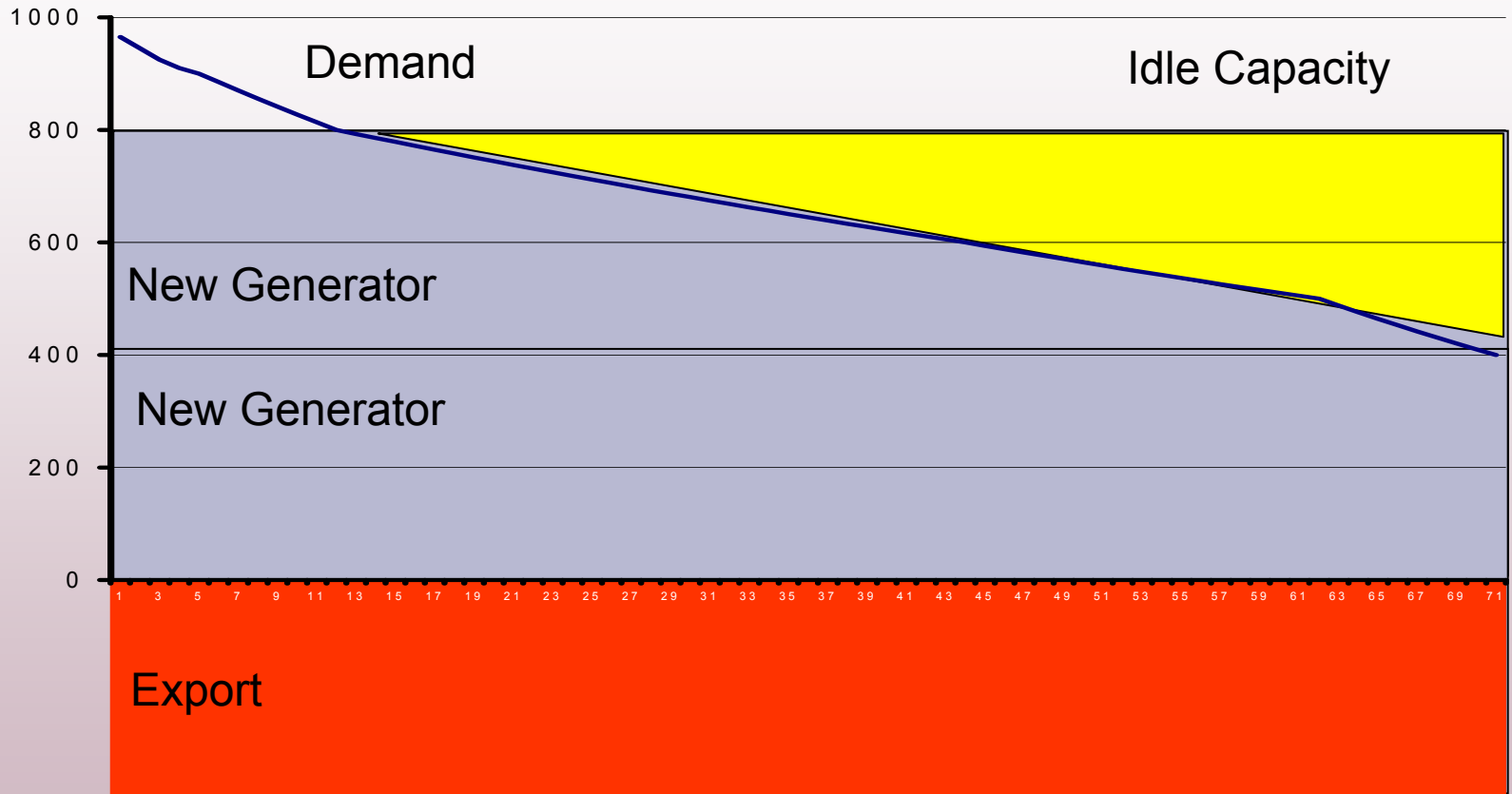
- **Access to the same wires and ancillary services**
- **Ability for the supplier to compete**
 - **Avoidance of paying for public supply obligations**
 - **Ability to manage risks**
 - **Imbalance risk**
 - **Load shape risk**

Requirements for supplying Eligible Customers

- **Risk management information**
 - Customer load shape
 - Market prices
 - Efficient customer transfer mechanism
- **Access to risk management tools**
 - Alternative energy supplies

= Need a market

Investor Requirements (1)



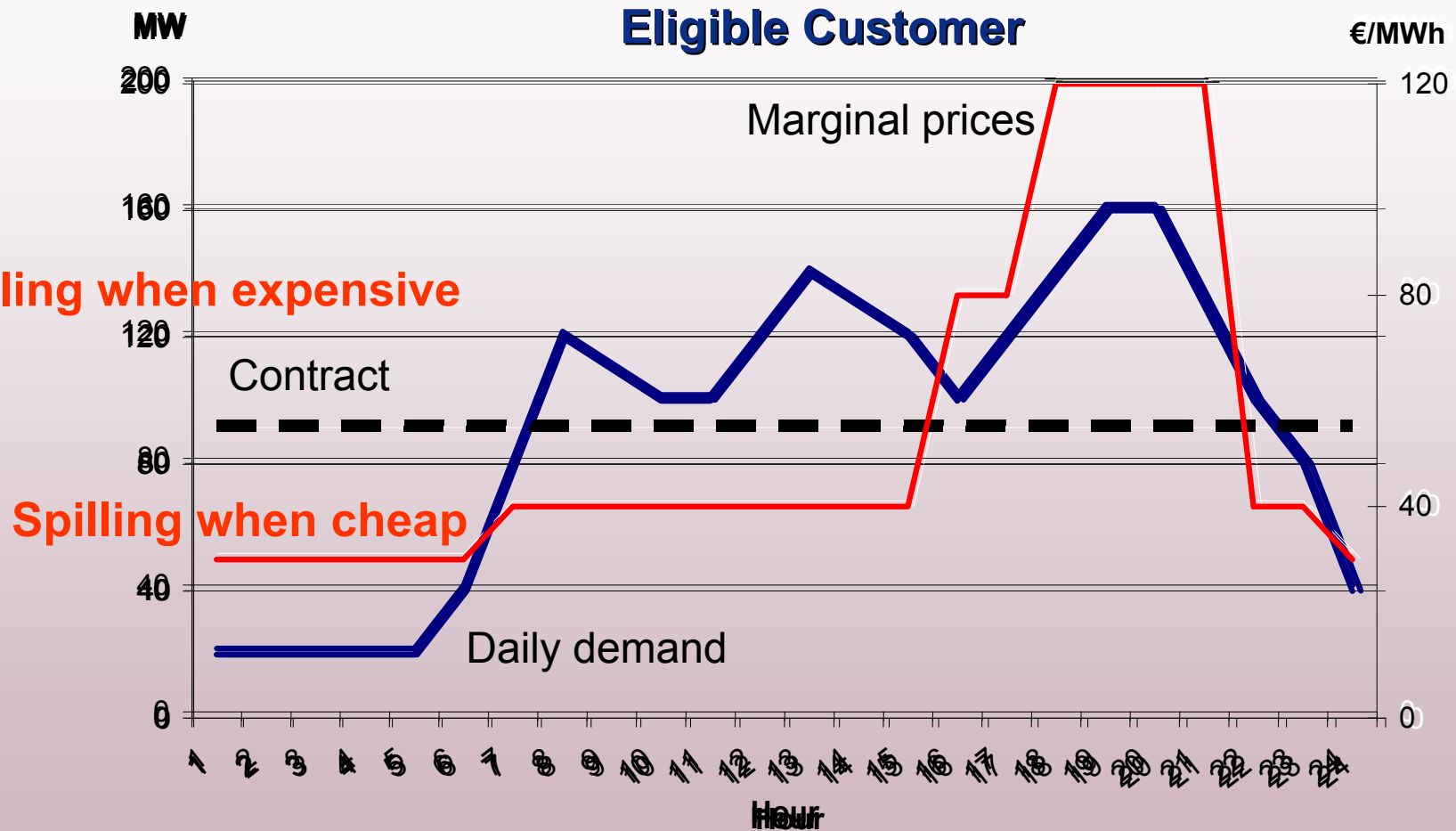
Investor Requirements (2)

- **Long-term risk in a power station investment**
- **Need for:**
 - **Transparent prices in the market**
 - **Ability to trade out of the risk position**
 - **Secure market for output or else secure means to access markets**
 - **No subsidy to competitors**
- **Kosovo cannot provide long-term guarantees so needs to foster regional market access**

Regional Energy Market

- **Access to power from other countries**
- **Sale of power to other countries**
- **Efficient trade in different types of power**
 - **Base load lignite for peaking hydro**
- **Competition**
 - **Efficiencies in generation and supply**
- **Scale economies for new projects**
 - **Kosovo C will be too big just for the Kosovo market**

Why prices are important



Why prices are important

- **Prices for peaking capacity need to be correct in the market**
 - **Too low is a cross-subsidy from non-eligible customers**
 - **Too high is a cross-subsidy too eligible customers**
- **Efficient prices reflect the actual cost of being out of balance**
 - **Need to have linkage between the market price and the imbalance regime**

What is a market

- **Determines prompt prices**
- **Allocates risk**
- **Provides transparency**
- **Provides the means for risk management**
- **The environment in which commercial undertakings can manage investment risk and compete to improve efficiency in order for new money to come into the industry**

Primary roles

- **TSO manages physical operation**
- **DSO manages access to customers**
- **Market Operator manages commercial arrangements between Trading Parties:**
 - **Generators**
 - **Suppliers and Eligible Customers doing self-supply**
 - **Interconnector Traders**

Transmission System Operator

- **Provision of network**
- **Management of system operation**
 - **Grid Code**
 - **Procurement of ancillary services**
 - **Balancing**
- **Managing interconnector linkages**
- **Also responsible for most other Codes under the Law**

Market Operator

- **Registration of commercial parties and their meters**
- **Commercial balancing of the system**
 - **Determination of imbalance pricing**
 - **Registration of system flows and contracts**
- **Settlement**
- **Money flow management**

The Regulator

- **Control of monopoly business pricing**
- **Market abuse policing**
- **Approval of Codes and Rules**
- **Approval of changes to Codes and Rules**
- **Setting of prices for regulated businesses**
- **Facilitating competition**

The regional market (1)

- **Athens memorandum**
 - **Specifies coordination but not form of markets**
 - **At an early stage of development**
 - **Day Ahead Market proposed**
- **CBT Mechanism**
 - **Allocation of and charging for interconnector capacity**
- **Regional balancing**
 - **Early stages**

The regional market (2)

- **More than TSO to TSO trading**
- **Eligible customers in all domains**
- **Eventual universal access for customers to competing suppliers**
- **Trade in ancillary services**
- **Eventual trade in balancing products**

Some Regional Market Requirements

- **Consistent measurement of electricity flows for each country**
- **Registration protocols for generators and eligible customers**
- **Transparent access to interconnector capacity and measures to prevent hoarding**
- **Coordinated regional balancing**
- **Appropriate settlement arrangements**

The Detailed Market Rules

- **Brief overview**
- **Energy balancing**
- **Capacity Availability Certificates**
- **Interconnector trading**
- **Other issues**

The Detailed Market Rules – Overview

- **A manual for operation of commercial market and settlement**
 - **It is not complex but it is detailed**
- **A contractual agreement to ensure all parties abide by the rules**
 - **And they know exactly what the market will provide**
- **A transparent document so that trading parties know how prices and imbalances are determined**

Sections of the Market Rules

- **Preliminary clauses – the building blocks**
- **System Operation**
- **Settlement**
- **Other operational matters**
- **Governance framework**
- **Regulatory Annexes**

Building blocks – needed in a regional market as well

- **Registration of market participants**
- **Registration and transfer of eligible customers**
- **Metering**
- **Registration of trades**
 - **Energy contracts**
 - **Capacity Availability Certificates**
 - **Interconnector capacity**

Energy Balancing

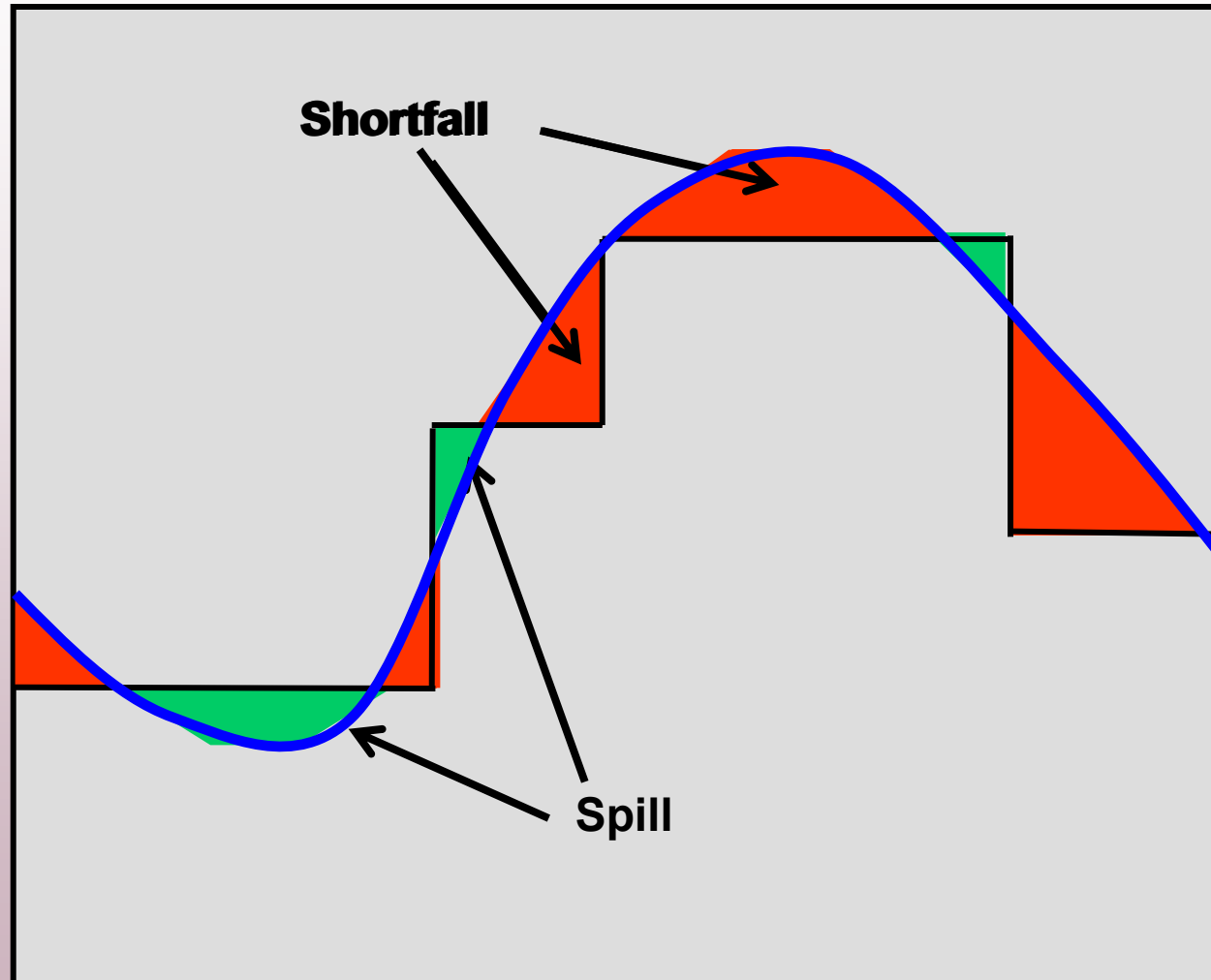
- **System must balance in real time**
 - **System Operator to manage**
- **Bilateral contract market**
 - **Incentive to contract to balance**
- **Incentive is based on cost of managing residual imbalance**
 - **Price of imbalance must relate to costs of imbalance energy at time required**

Contract submission

- **Suppliers must contract with generators**
 - Incentive to match the offtake of their customers
- **Contract specifies hourly delivery of energy**
 - Varies through the day
- **Generator submits Physical Nomination (PN) to System Operator**
 - Incentive to base this on the contracts it has sold to suppliers
- **This gives the System Operator a Day Ahead Schedule**

Contracts Require Balancing

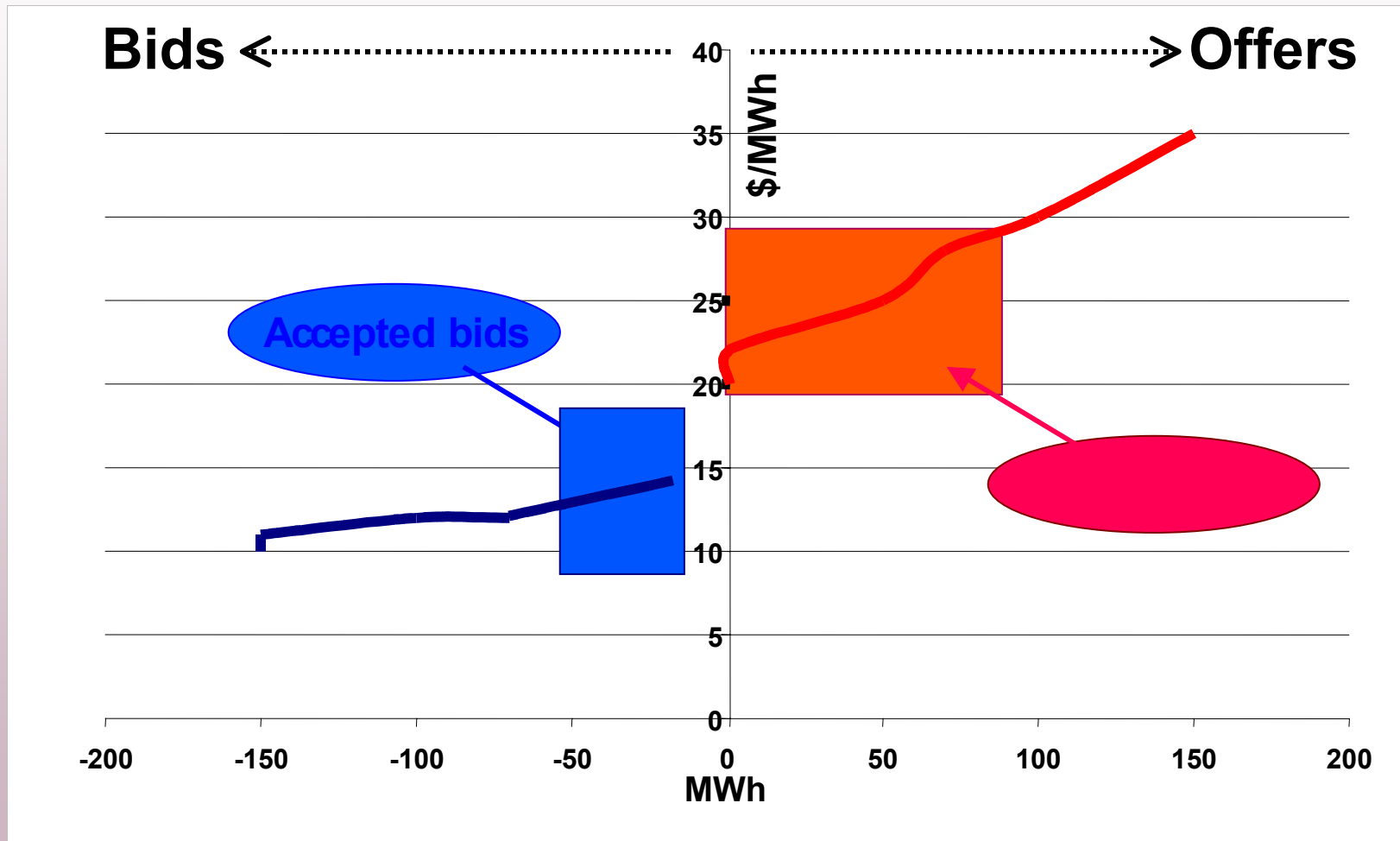
- TSO provides balancing to match generators and customers generation and load



Balancing Mechanism

- **System Operator tool for residual balance**
- **Generators and demand-side participants submit:**
 - **Bids to buy surplus energy off the TSO (at a low price)**
 - **Offers to sell top-up energy to the TSO (at a higher price)**
- **TSO accepts Bids and Offers by instructing generators (or demand-side) to deviate from the PN**

BM Price Stack Example



Bid and Offer Acceptance (1)

- **System Operator accepts Bids to cover minutes where it sees it has too much energy on the system**
 - **The system is over-contracted**
 - **The most expensive Bid will be taken first – SO is selling the energy back to the generator**
- **Offers taken when the system is under contracted**
 - **Cheapest Offer will be the first Offer taken**

Bid and Offer Acceptance (2)

- **Bids and offers are settled at the bid/offer price**
- **Possible to take both Bids and Offers in the same hour**
 - **Forecasting error**
 - **Late generator failure**
 - **Constraint**
 - **Demand profile within hour**

Imbalance Price derivation

- **Based on Bids or Offers accepted**
 - Incentive to balance is therefore cost-based
- **Single imbalance price as weighted average of all actions taken to in the net direction of system imbalance**
- **High price when system is short, low price when system is long**
 - This means that an imbalance that helps the system will be rewarded by a competitive price

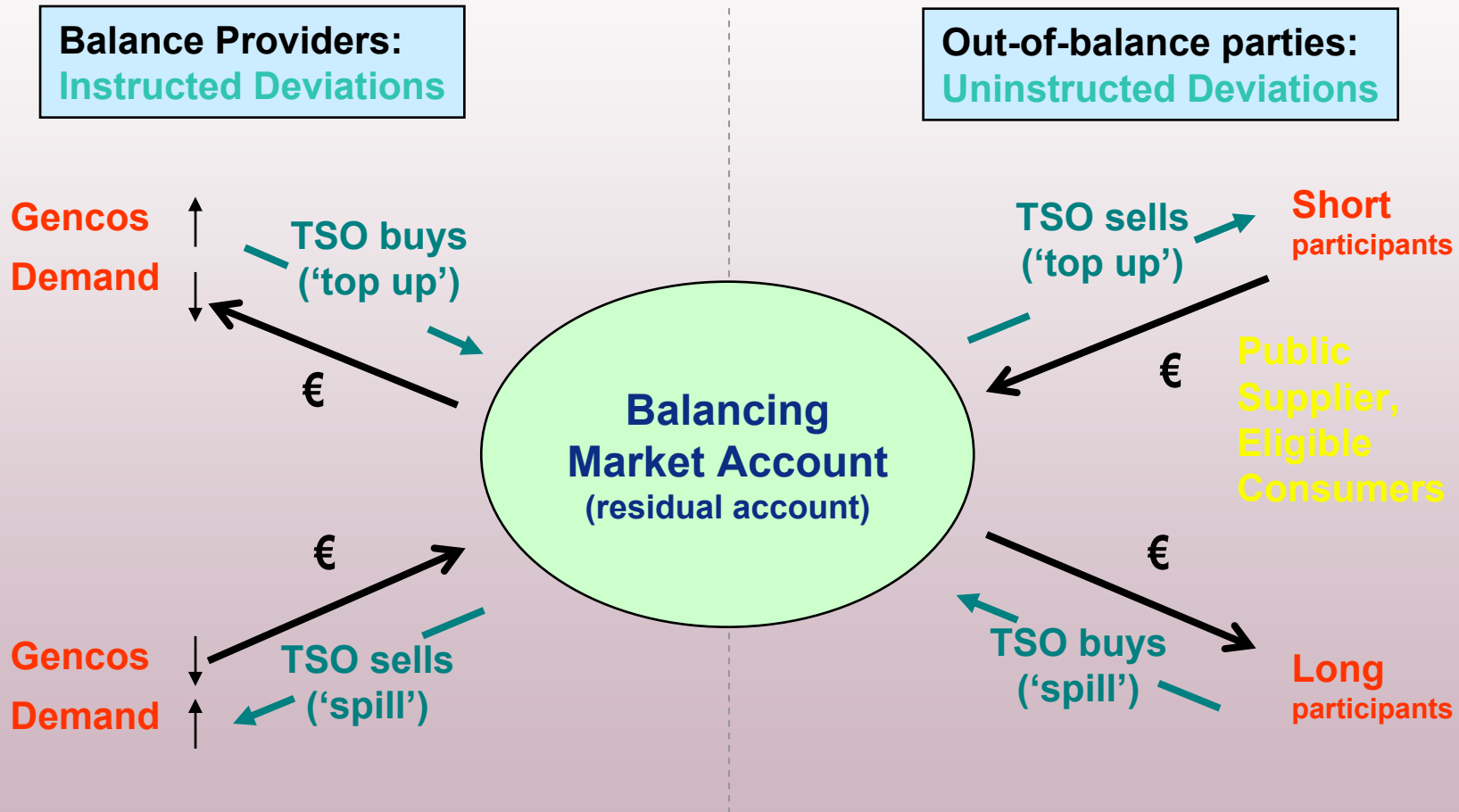
Why averaged imbalance price?

- **True efficient price is a marginal price but**
 - **Actions may be taken to manage non-energy imbalance**
 - **Frequency control**
 - **Reactive Power management**
 - **Constraints (although these are tagged out)**
 - **At times, prices will be set by a temporary monopolist – marginal prices increase monopoly effects**

Why a single price?

- **GB uses a two-price system**
 - Experience shows this is not an incentive to be in balance but to avoid the price you like the least
 - Encourages oligopoly – scale economies
- **Imbalance against system imbalance helps the system and so allows avoidance of action**
 - Reward appropriate
- **Going out of balance will tip the system away from your position – you are betting against yourself**
 - Strong incentive to balance because penalty for getting it wrong is proportionate

Balancing market in summary



Imbalance settlement

- **BM Participants pay or are paid by SO for accepted Bids and Offers**
- **Parties who are short in a Settlement Period pay the Imbalance Price to the SO on each MW by which they are under-contracted**
 - **Generators that have tripped or under-contracted suppliers**
- **Parties who are over-contracted are paid the Imbalance price by the SO on each MW of spill**
- **Possible to have a residual spread across all metered inputs and outputs**

Capacity Availability Certificates

- **Security of supply not covered by energy market incentives**
 - **Energy market will only carry reserve for average imbalances, not exceptional ones**
- **CACs to encourage carrying of security of supply reserves**
- **Encouragement to new build**

Award of certificates

- **Each generator is awarded a certificate for each MW available to the market**
 - **Periodic test of availability**
 - **Cannot do it on normal dispatch because this is capacity that is in reserve and so not used**
- **Importers provide security of supply when importing**
 - **Certificates awarded**
- **Exporters reduce security**
 - **Certificates required**

CAC Theory

- **Supplier obligation**
 - **Demand Plus Security Element (e.g. 20%)**
- **Penalty for not having a CAC**
- **Because of imports and exports, cannot just rely on peak demand to carry certificates**
 - **CAC awarded for each Settlement Period**
 - **Regime is calculated at each Settlement Period**
 - **Penalty varies by level of demand**

CAC Trading

- **Each trade must be registered centrally**
- **Trading forward**
 - **No obligation to have a certificate registered before it is sold**
 - **Generators get certificates based on expected availability**
 - **Suppliers will need to buy forward**
- **This leads to capacity imbalance potential**

CAC Settlement price

- **Penalty price determined by capacity imbalance level relative to peak requirement**
 - Peak is modeled in Regulatory Annex 3
- **Capacity imbalance based on whole market:**
 - Supplier obligation
 - plus Imports
 - minus Exports
 - minus Net certificates awarded to generators
- **Use-it-or-lose-it to prevent hoarding**

CAC Settlement

- **Paid at CAC Settlement Price by**
 - **Suppliers with insufficient CACs to cover their obligation**
 - **Generators that sold forward but then were proven unavailable**
 - **Exporters without certificates**
- **When demand is low, obligation is low and Settlement Price will be zero**

Interconnector capacity availability

- **Availability of interconnector capacity determined by SO**
 - Based on agreement with other TSOs
- **Awarded at each individual interconnector**
 - This means that actual flows can be different on the day
- **Super-position estimated**
- **Sold as:**
 - Annual
 - Monthly
 - Daily

Sale of interconnector capacity

- **Sold at auction**
 - Annual
 - Monthly
- **Daily allocated pro rata for admin fee**
- **Capacity holding does not give usage right – licence**
- **Tradable – each trade must be registered**

Usage priority

- **Annual is firmest right**
- **Daily is not firm right**
- **Requirement to nominate against rights**
 - **Leaves residual for others to use**
- **Curtailement before the day will see daily off first**
- **Curtailement during the day handled in the Balancing Mechanism**

Other Issues

- **Credit rules are rudimentary**
 - Always a risk if insufficient credit security posted
 - Risk borne by whole market (no opportunity to manage your own bilateral position)
 - Other risk is to over-collateralise the market
- **Governance rules in the Market Rules**
 - Open system of rule change is needed
 - ERO has final say

Tomorrow

Important issue unresolved in this presentation

How to get market prices before there are market participants competing?

The Regulatory Annexes