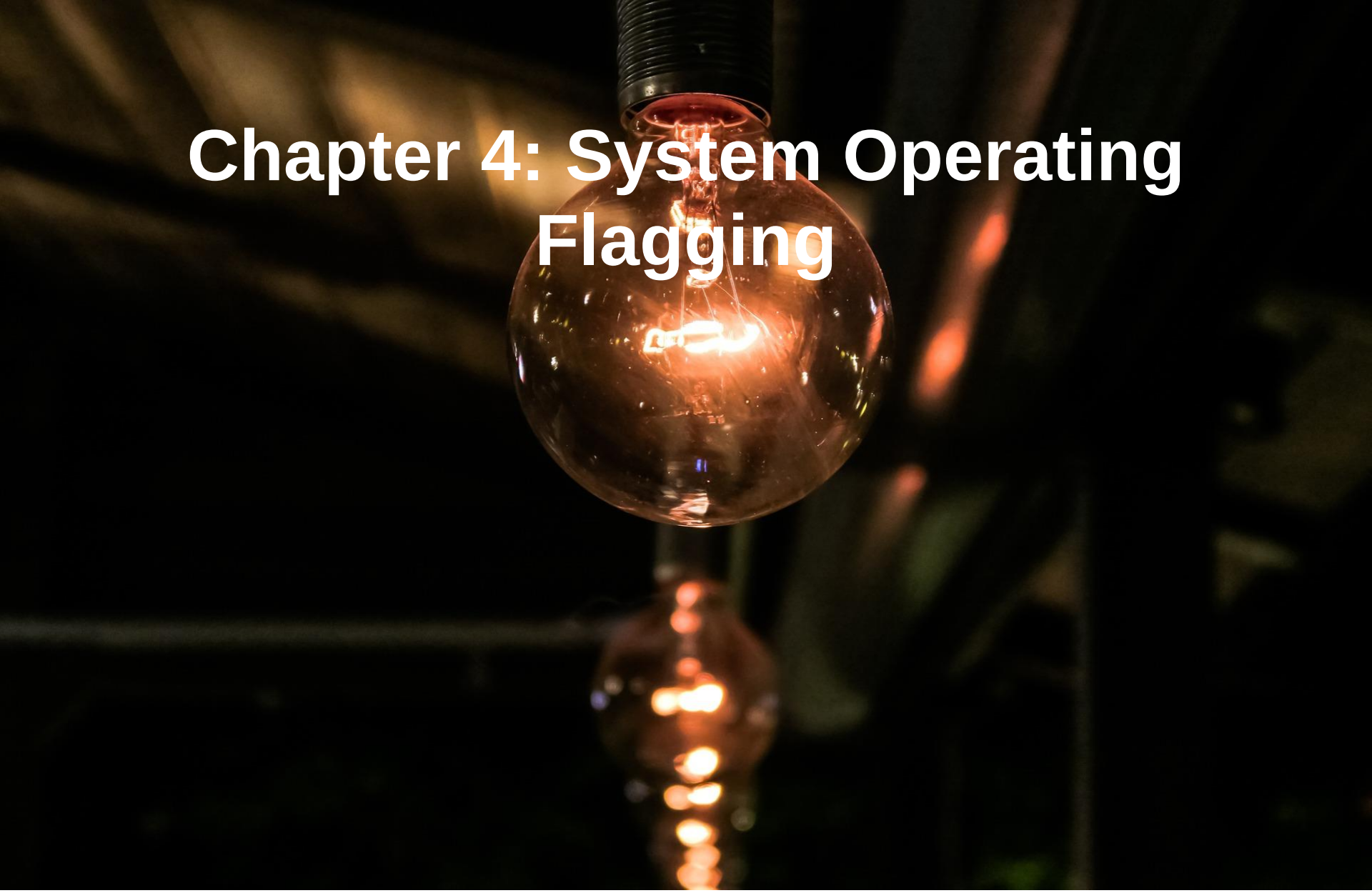


Chapter 4: System Operating Flagging

System Operator Flagging

- The System Operator Flagging process identifies Bid Offer Acceptances taken for system reasons, such as binding network or operational constraint, as opposed to energy balancing reasons;
- This is done to minimise the extent of non-energy actions influencing or setting the price for energy balancing actions and imbalances;
- Although non-energy actions are taken on a least-cost basis, they are taken for reasons other than the economics of ensuring energy demand and supply are balanced at least-cost, and may only have a subset of units available for such actions which may not reflect those units that are least-cost from an overall market perspective:
  - Therefore their cost must be removed from the price setting to ensure that the actual cost of keeping the system energy- balanced feeds into the final Imbalance Settlement Price, to ensure that the price signals reflect the correct costs to create the correct incentives for behaviour in the energy trading markets.
- The SO Flagging process consists of testing, for every constraint in the Indicative Operations Schedule outlined in the Operational Constraints Update and System Operator and Non-Marginal Flagging Methodology:
  - Whether an operational constraint is binding; and
  - Whether the Generator Unit is bound by this constraint.

System Operator Flagging

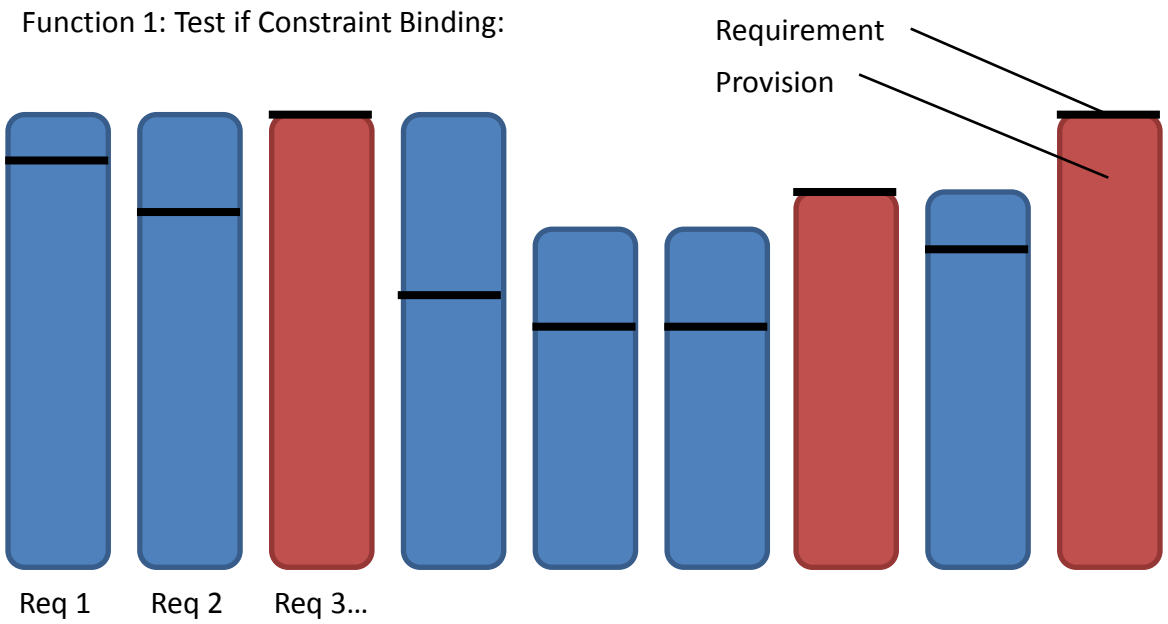
- A balance needs to be found between instances of system actions influencing the imbalance price vs the risk of over-flagging:
  - The Imbalance price can be influenced by non-energy actions if flagging does not accurately identify them;
  - Over-flagging occurs where all actions taken are flagged as non-energy and there are no actions to set the imbalance price.
- Efficient price exists between these two extremes;
- An automated approach to determining flags has been developed:
  - It utilises the Real Time Dispatch tool which drive the dispatch actions the SOs take and contain the most accurate and up to date system and unit information available.

System Operator Flagging

- Because of this the SO Flagging approach:
  - Is based on actual dispatch / actions taken;
  - Reduces the risk of system actions influencing the imbalance price by considering all operational constraints in the scheduling system;
  - Reduces the risk of over-tagging based on considering the data outputs of an optimised schedule, which by the nature of optimisations would tend to have at least one unconstrained unit;
  - Reduces operational errors and SO subjectivity in pricing as it is a systemised ruleset applied to the outcomes of a highly accurate scheduling process;
  - Is transparent and auditable; and
  - Can produce prices within one hour of real time.

System Operator Flagging

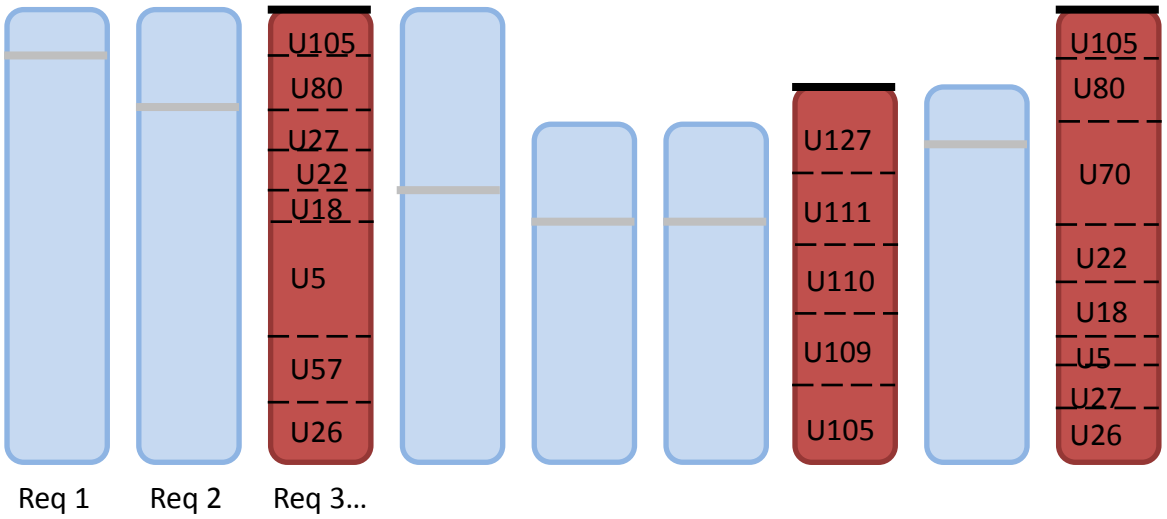
These slides visualise the concept of the functions being carried out by the SO Flagging approach:



System Operator Flagging

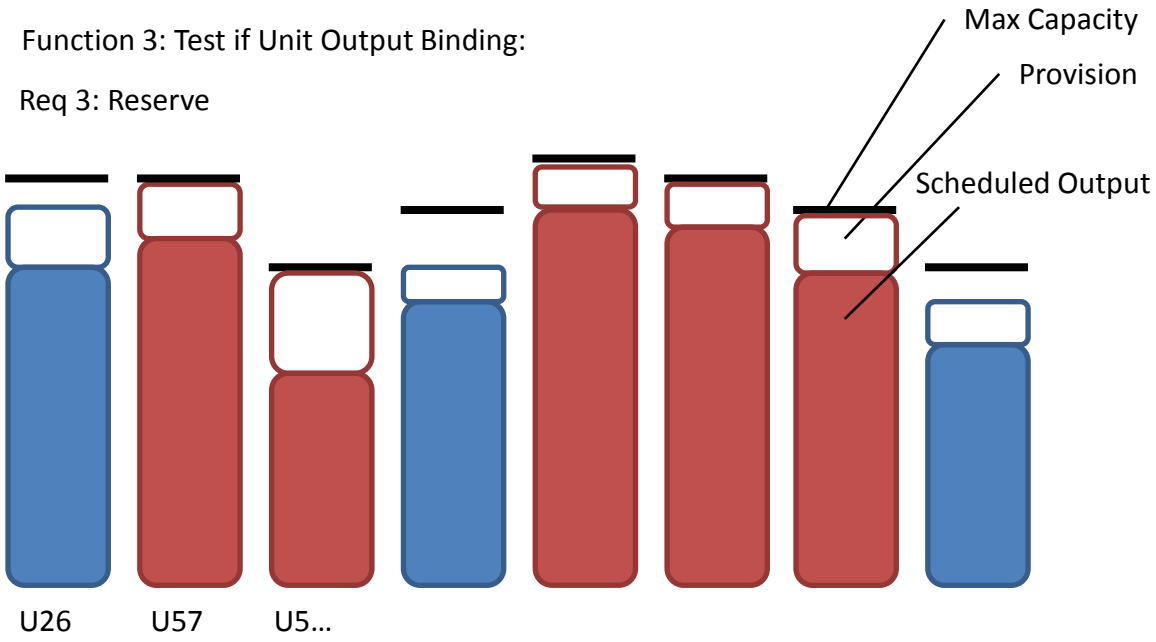
These slides visualise the concept of the functions being carried out by the SO Flagging approach:

Function 2: Identify Units Contributing to Binding Constraint:



System Operator Flagging

These slides visualise the concept of the functions being carried out by the SO Flagging approach:



System Operator Flagging

- Since SO Flags are used to identify that a unit is non-energy for the purposes of the Imbalance Pricing process, it is also used in a Market Power Mitigation functionality:
  - RA decision that non-energy actions should be settled on Complex Bid Offer Data which has bidding controls applied which should ensure that they are cost-based;
  - Therefore units which are SO-Flagged in any Imbalance Pricing Period in the Imbalance Settlement Period will be settled using their Complex Bid Offer Data to calculate their Bid Offer Acceptance Quantities and Prices;
  - Note that it only applies to the settlement process: the unit's Simple Bid Offer Data may still be used in the pricing process if the other requirements for its use are met.
- The SO Flagging methodology is also used to determined System Service Flags (FSS) for Capacity Market Settlement:
  - Provision of Replacement Reserves counts towards meeting capacity market obligations;
  - If unit is bound by the Replacement Reserve operational constraint, its FSS = 0.