

# Capacity Remuneration Mechanism Workshop

Dundalk, 8 May 2015

# Objectives of today's presentation

*Facilitate feedback on the scope of issues being considered for the first consultation paper*

- We will provide an overview of the scope of issues being considered for the first consultation paper
- Where appropriate, we have indicated the high-level options being considered
- Thinking on specific issues is on-going, but will be set out in the consultation paper

# CRM Consultation issues: overview

- Consultation 1 issues:
  - Capacity Determination
  - Eligibility
  - Product design (Obligations, reference price, performance incentives)
  - Supplier arrangements
  - Institutions
  - Consultation will also contain design overview
- Consultation 2 issues:
  - Interconnector treatment
  - Detailed product design
    - contract tenors
    - strike price
    - collateral arrangements
  - Secondary trading
  - Transitional arrangements

# Capacity Determination

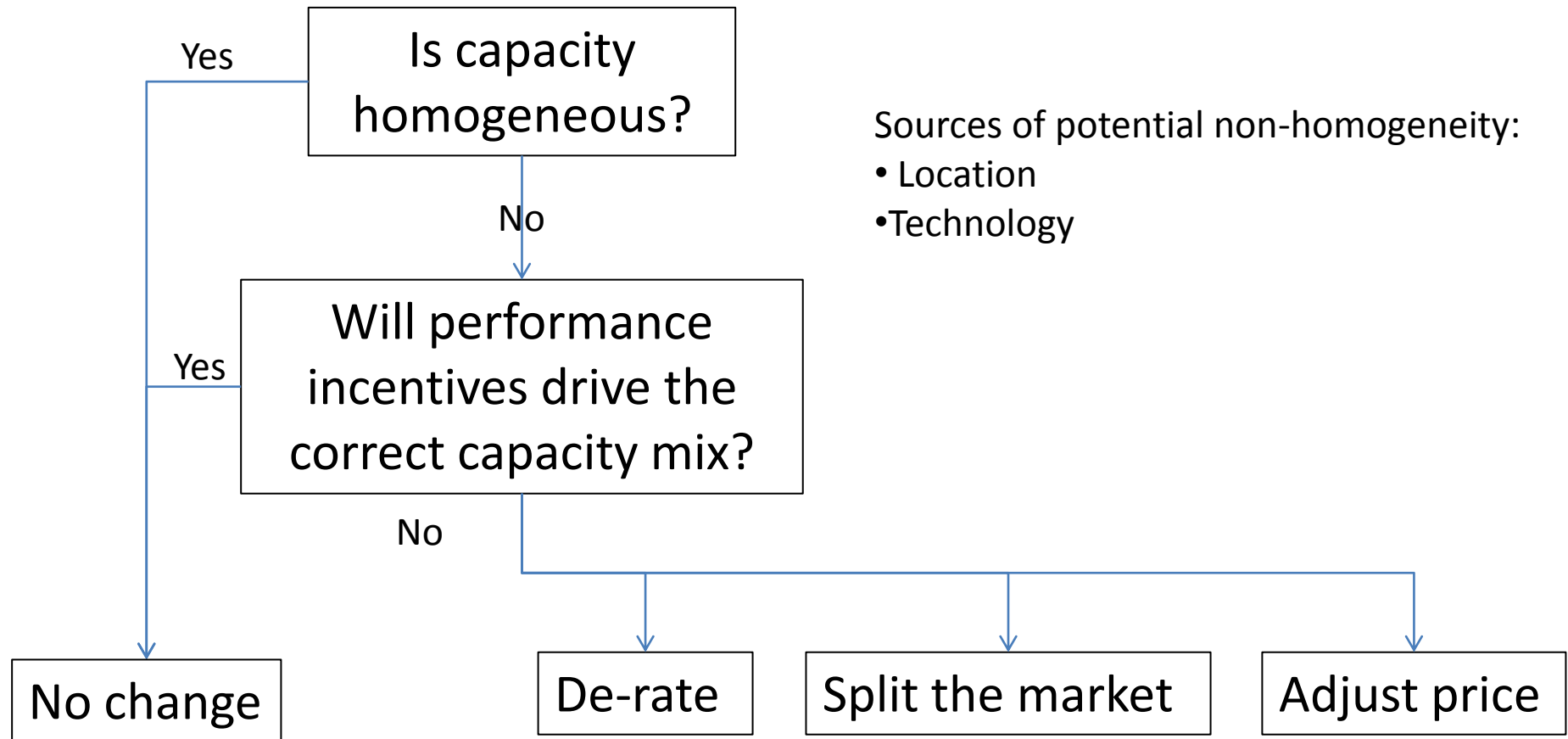
# How much capacity is required in the I-SEM

- **EU Guidelines:** Emerging European guidelines for capacity remuneration mechanisms constrain the determination of the capacity requirement
  - The level of capacity required needs to be identified in a manner consistent with the ENSTO-E generation adequacy analysis
  - TSO's input to ENTSO-E study is based off the "All Island Generation Capacity Statement".
- **Total Requirement:** The EU guidelines impact the determination of the total amount of capacity required for the I-SEM zone. Issues here break into three areas:
  - **What is the security standard?:** Should we continue with 8 hour LOLE?
  - **Role of de-rating:** How to account for margin needed to cover risk of plant failure?
  - **Demand forecast uncertainty:** How is this accommodated?
- **Dealing with non-homogeneity**

# Total Requirement

- **Security Standard:** Should we continue with 8 hour LOLE?
  - TSOs are reviewing costs and benefits of moving to a security standard based on 3 hour LOLE
- **How account for plant unreliability:**
  - **Nameplate requirement:** Capacity requirement is for name-plate capacity with no de-rating (Current SEM thermal capacity treatment).
  - **De-rated capacity:** Capacity requirement is for de-rated capacity, taking into account different availabilities of thermal and intermittent plant
- **Demand forecast uncertainty:**
  - **Single (average) scenario:** Based on an average cold spell year (current SEM)
  - **Worst case:** e.g. based on 95% cold year
  - **Minimise regret cost:** Select scenario that minimises the potential down-side of increased LOLE or of procuring too much capacity (GB approach)

# Recognising non-homogeneous nature of capacity requirement



# Eligibility



## General principles

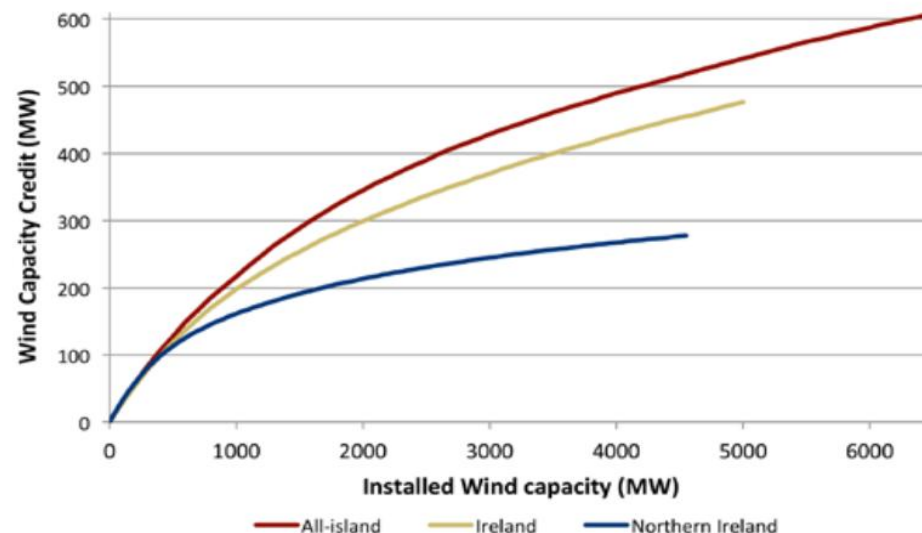
- Eligibility of plant receiving other support (for renewables, peat, DS3)
- Approach to de-rating and consistency with capacity requirement
- Non-firm (transmission access) generation
- Requirements of aggregators / PPA providers
- Thresholds for participation:
  - Limit on minimum size of direct participant (not via aggregator)
  - Limit on maximum size of unit participating via an aggregator
- Should bidding be mandatory for eligible capacity?

## Technology specific

- Storage /energy limited plant
  - Pumped storage (particularly Turlough Hill)
  - Other stored hydro & variable run-of-river hydro
  - Newer technologies
- DSM / DSUs
- Cross-border participation (parked)

# Eligibility: Should renewables be eligible?

- If supported renewables are recovering their capital and operating costs under other support regimes, could be over-compensated if allowed to compete in I-SEM CRM
- Existing REFIT and ROC supported renewables can get capacity payments based on metered output in SEM
- Will intermittent plant want to expose itself to the risk of Reliability Option payouts when not running?
- Additional question about consistency of NI plant with GB plant in FiT CfD auctions
- EU requirement:  
Renewables will have the right to opt out of other support mechanisms and into CRM
- If eligible will need to determine a de-rating factor ( 1 MW of plant of type X can back Y MW of RO )

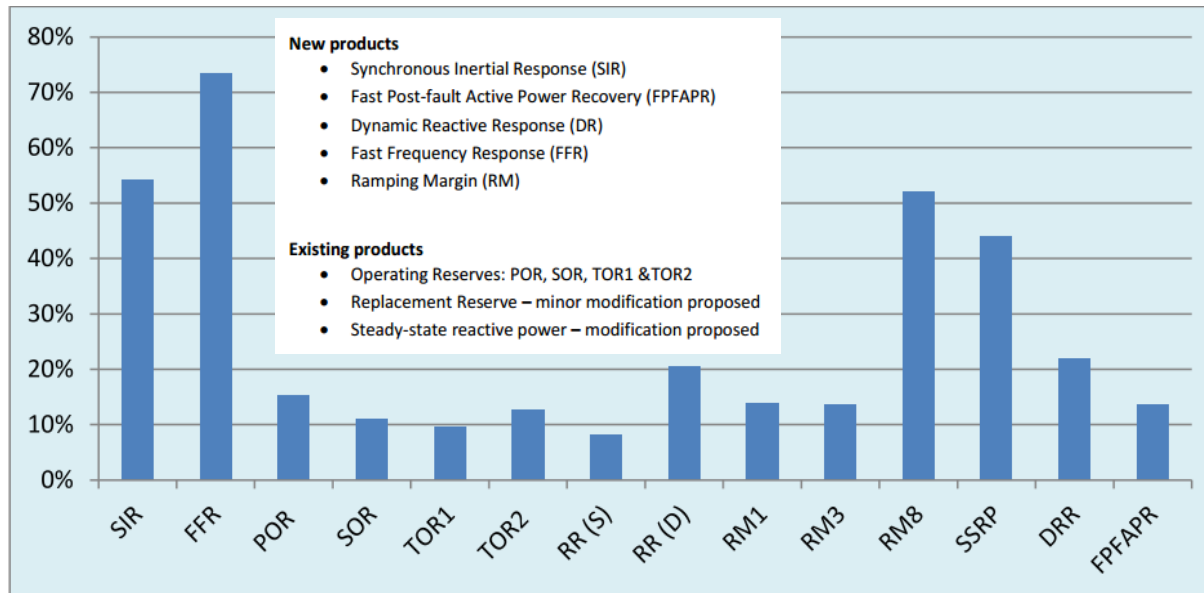


# Eligibility: DS3 System service procurement

## Should plant with SSS contract be eligible?

- Significant increase in requirement for certain system services:
  - Material new investment required soon ?
- Key issue:
  - Are we sending the right long run price signals to co-optimize procurement of ancillary services and capacity?

### Required increase in installed capacity to achieve SNSP of 75%



Source: SEM-14-108

- Applies to all eligible capacity (thermal, renewables, cross-border participation, demand side)
- High Level Options:
  - Centrally determined de-rating factors
  - Participant led de-rating
  - “Hybrid” approach:
    - Centrally determined minimum de-rating factors
    - Participant can choose how much of RO to bid for up to minimum de-rating factor
- De-rating methodology, if centrally determined component
  - Historical data vs. projection
  - Consistency with capacity credit in Cap Requirement calculation (more likely if using projection approach)
- Should central de-rating factor:
  - Vary by technology, or plant
  - Be grandfathered?

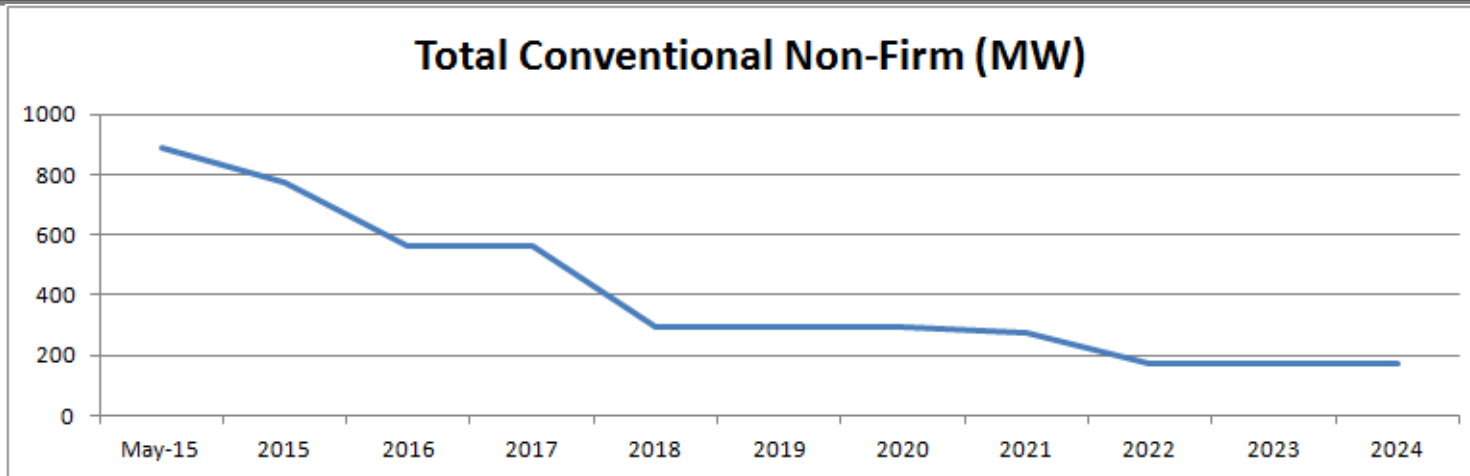
# Eligibility: Approach to de-rating thermal plant

## GB de-rating factors

Technology class	De-rating factor
Oil-fired steam generators and oil burning reciprocating engines	82.10%
OCGT and gas burning reciprocating engines	93.61%
Nuclear	81.39%
Hydro	83.61%
Storage	97.38%
CCGT	88.00%
CHP and auto-generation	90.00%
Coal/biomass	87.64%
DSR	89.70%

Source: National Grid, 2014 Four Year Ahead Capacity Market Auction Guidelines

# Eligibility: Non-firm generation



Source: Eirgrid

- Key issue: Should non-firm generation capacity be eligible?
- Argument in favour of eligibility:
  - Some of the currently non-firm generation is thermal, required as back up for wind, i.e. required at times of system stress?
  - Some of this may not recover costs through energy market alone?
- Argument in favour of de-rating (of non-firm component):
  - Won't necessarily be able to provide system support at key times
- One suggested approach: Allowed to bid but don't apply performance incentives
  - May not be good for system security or equitable to disapply all incentives
  - Carve outs if constrained-off?

## Aggregators and PPA providers

- Efficient (and an EU requirement) to allow small players (e.g. DSM, small generators) to compete to provide capacity
- So allow aggregators / PPA providers, to be backed by contracted DSM / generation, without direct ownership
  - Allows small players to lay off risk of difference payments to PPA providers/aggregators
- But what proof of capacity is required by aggregators- and more generally for DSM

## Other eligibility criteria

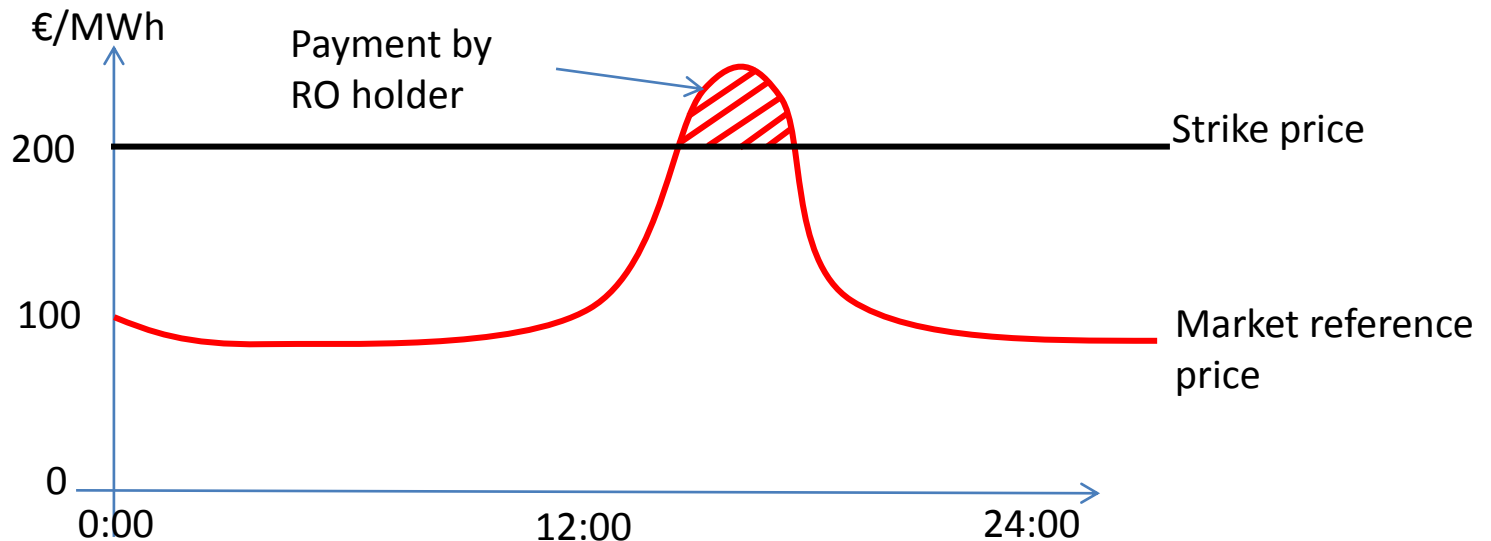
- Define other eligibility requirements to enter the auction :
  - Planning permission obtained ?
  - Connection related criteria?
  - Financial standing?
  - Collateral requirements(To prevent “bed blocking” and ensure capacity is actually delivered)

# Product design: Overview and performance regime



# Product design: Overview of Reliability Option

- Reliability Option is a one-way CfD, where MW volume follows load
- Capacity providers paid an option fee (determined by auction), make difference payments of (Reference price – Strike price) when Reference Price > Strike Price



- Key features to be determined
  - Strike price and strike price indexing
  - Reference price: Day Ahead Market vs. intra-day vs. balancing
  - Payment only in scarcity or purely on price
  - Additional performance incentives

## Are additional performance incentives required?

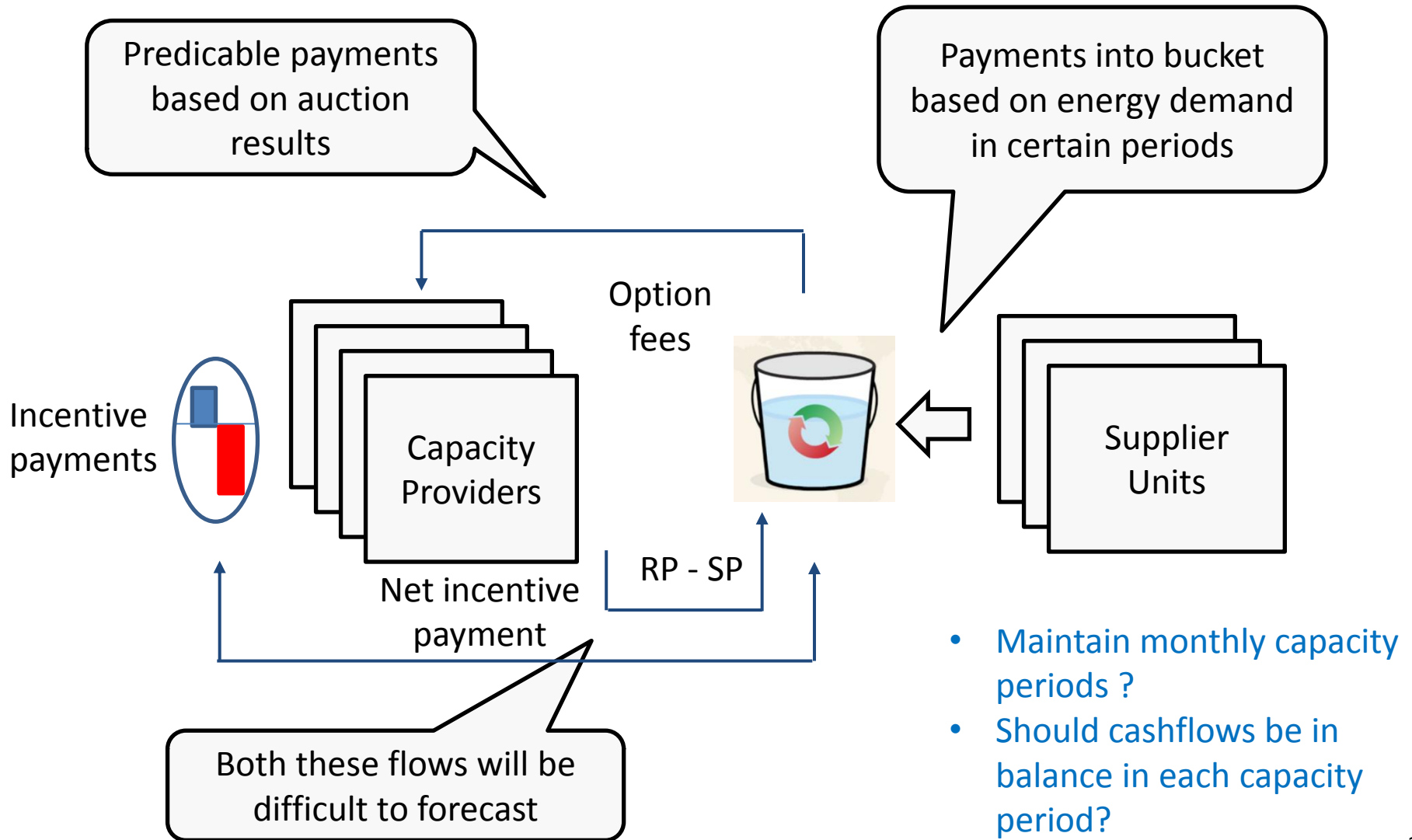
- RO contract contains an in-built incentive for the provision of capacity at times of scarcity :
  - If the RO provider is not generating at the time, it has no revenue to offset the cost of this difference payment.
- The in-built RO incentive may be blunt, if market prices cannot rise high enough:
  - BCoP would have prevented this under SEM?
  - In other markets price / bidding caps (explicit, implied, assumed) have also blunted incentives
  - Some markets address this through a high administered price in scarcity event

# Other performance incentive issues

- Overall design of performance incentive regime
  - Based on examples from New England, PJM, GB or own design
- Scarcity event: How do we need to define a scarcity event
- Limits on incentive regime:
  - Do we need caps and collars?
  - Per event, monthly / annual caps?

# Supplier arrangements

# Cashflow diagram for CRM



# Basis for charging supplier units

- **Economic efficiency indicates charging demand in periods of system stress**
- **Key Options**
  - **Ex-ante - predictable:** Sets the total cost and profile of payments ex-ante
  - **Ex-post - accurate:** Allocates costs to actual (but rare) scarcity events (ex-post)
  - **Hybrid:** Option fees recovered in a predictable manner, performance payments recovery aligned with scarcity events
- **Key questions:**
  - Which of the above approaches should we use?
  - How should we determine ex-ante liability periods? GB and SEM both incorporate different approaches:
    - SEM charges over all hours – but sculpted
    - GB charges over market share of demand between 4pm to 7pm weekdays between November and February

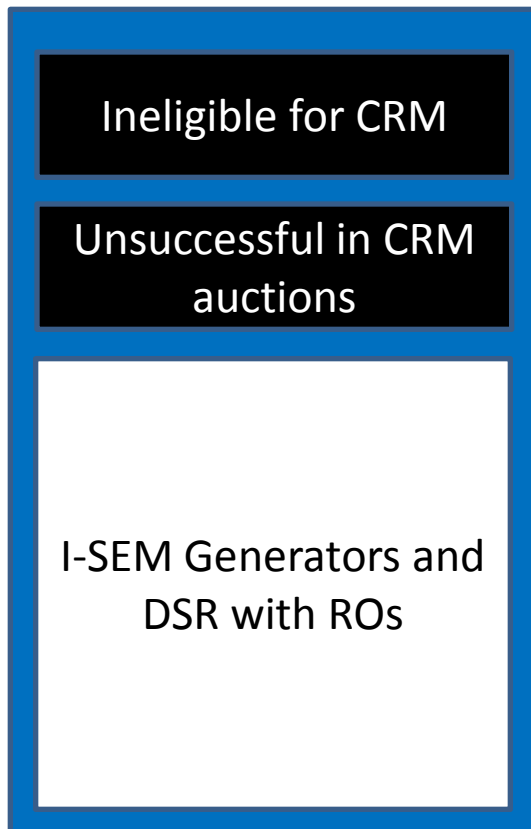
# Other issues for supplier arrangements

- Invoicing
  - Is there going to be a counterparty or will this be done within framework of the SEM
- Settlement issues
  - Settlement calculations will be done by SEMO – does there need to be a separate fee for CRM only those who succeed in the auction will benefit?
  - For same reason, do there need to be separate provisions to manage credit risk

# Institutional framework



I-SEM



Depending on final decision on eligibility, some I-SEM units may not be eligible

Not all eligible I-SEM units will be successful in the auctions

Fact that not all I-SEM units will also be RO holders may have implications for

Some capacity providers may not be full parties to the SEM. Metering implications need consideration

**Codes May Need to Recognise Different Type of Participant**

Governance

Will the arrangement be the same as those for the SEM or specific to the CRM?

Delivery Body

Initial assumption is that TSOs will take this role (see Roles and Responsibilities Consultation Paper)

RO counterparty

Whether or not this role is needed depends on the regulatory framework for CRM and investor perceptions for new capacity

Settlement Agent

Performance will depends on metering data so TSO / Imbalance market operator is only party that can perform the calculations