Utility Regulator
ELECTRICITY GAS WATER

New Wholesale Single Electricity Market on the Island of Ireland

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7 December 2018

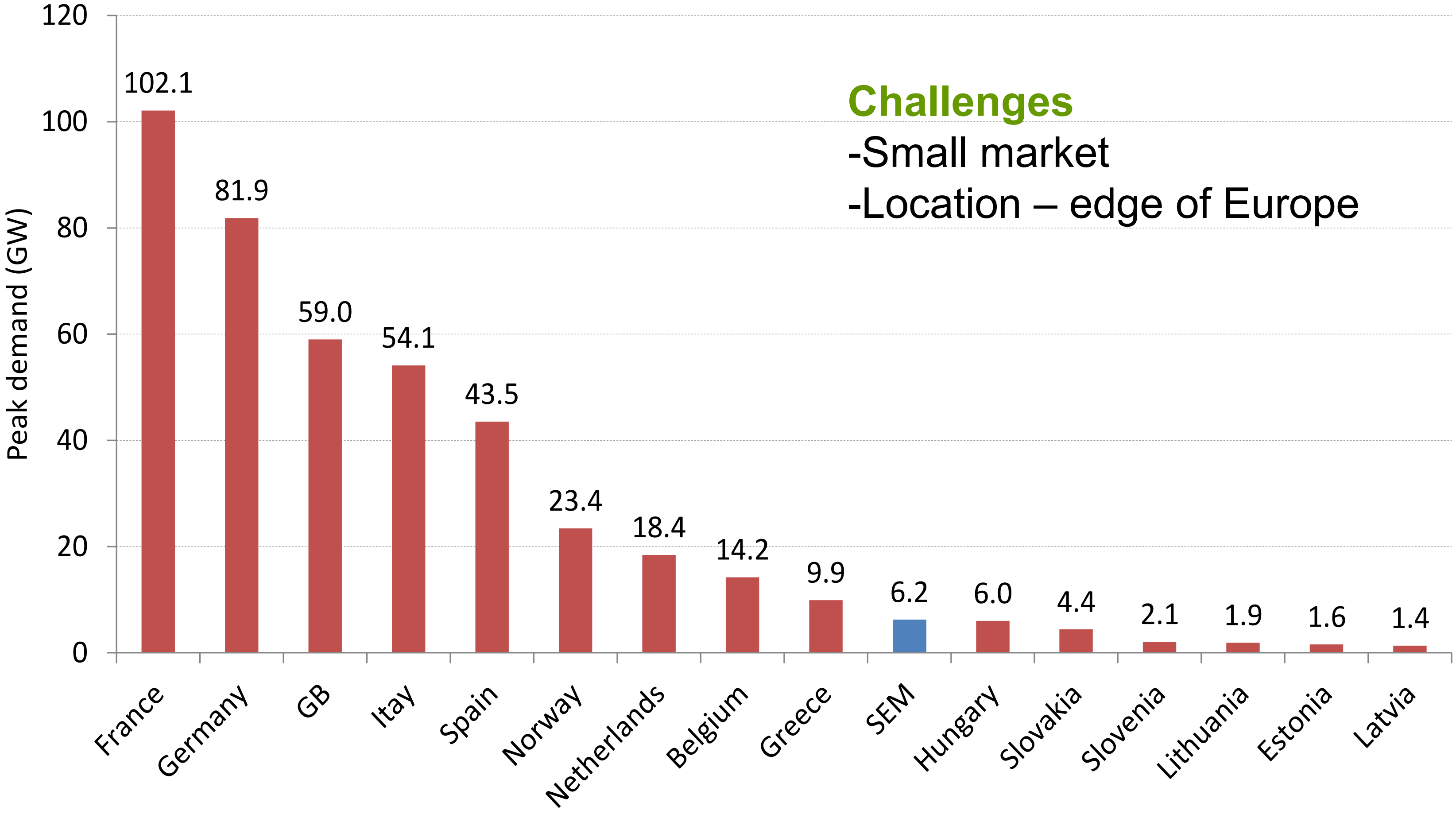
Summary - New SEM

- Context, concept and design
- Initial Assessment – 2 months in
- Looking Forward

Challenges for Market Design

Utility Regulator
ELECTRICITY GAS WATER

Peak demand of selected European markets



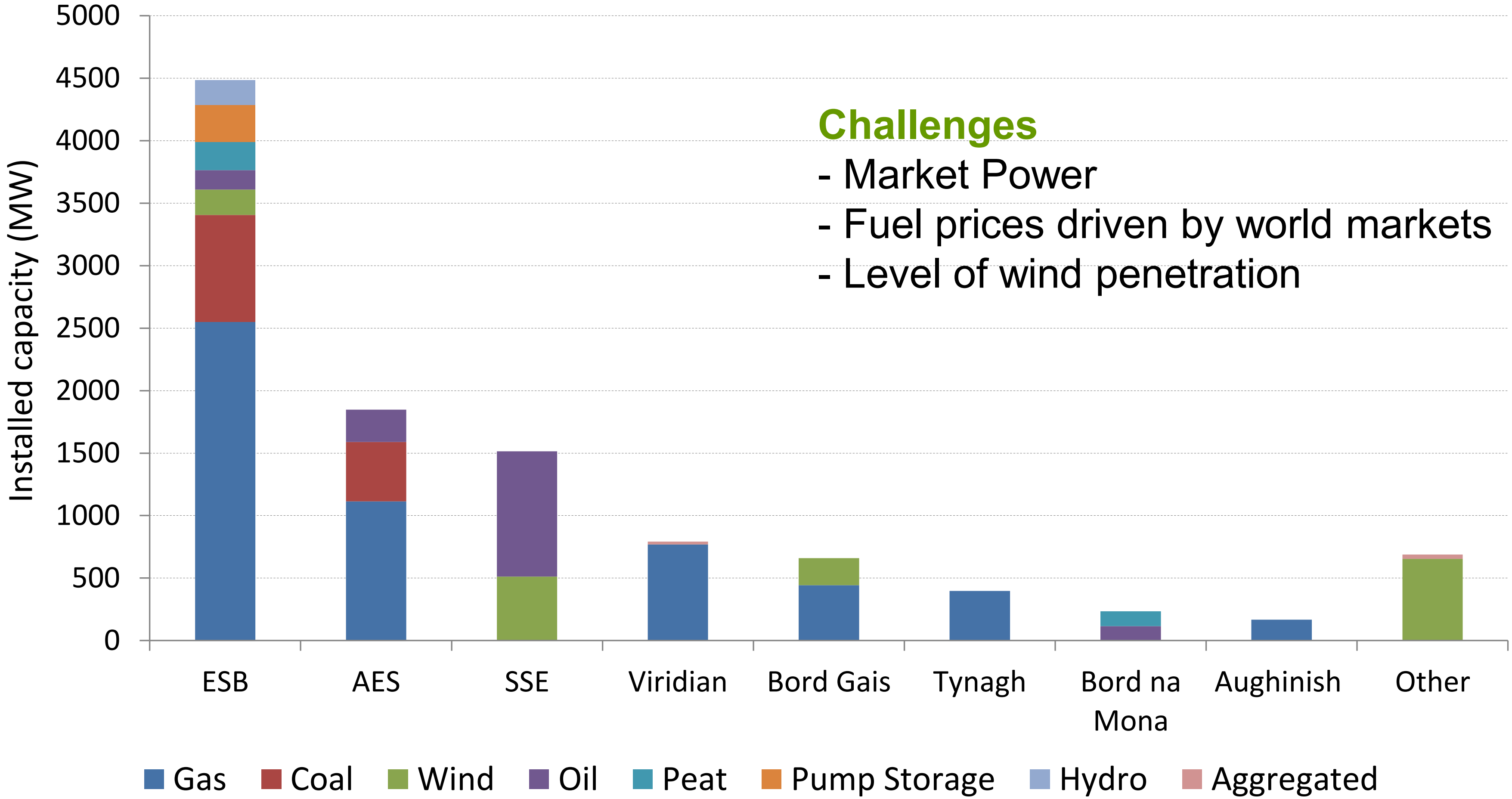
Challenges

-Small market

-Location – edge of Europe

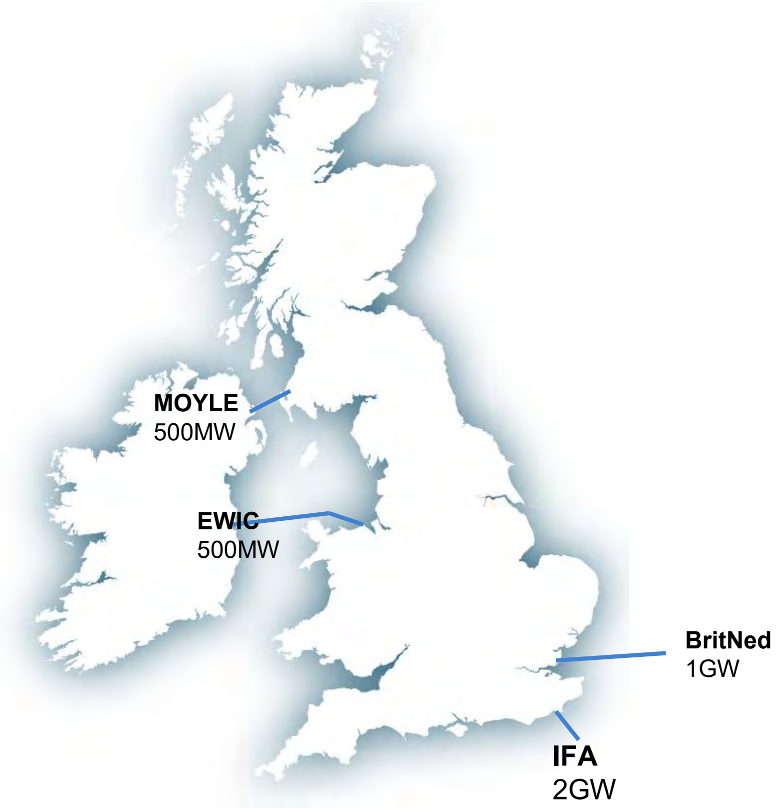
Challenges for Market Design

Generation capacity by owner



Challenges
- Market Power
- Fuel prices driven by world markets
- Level of wind penetration

Current Interconnection



Integration of Single Electricity Market

Key Drivers for redesign of the market

- Alignment of cross border trading arrangements within the region.
- Maximisation of use of interconnection capacity between NI/ROI and GB.
- Price convergence across the region.
- EU target model is a factor but not the single reason for redesigning the SEM.

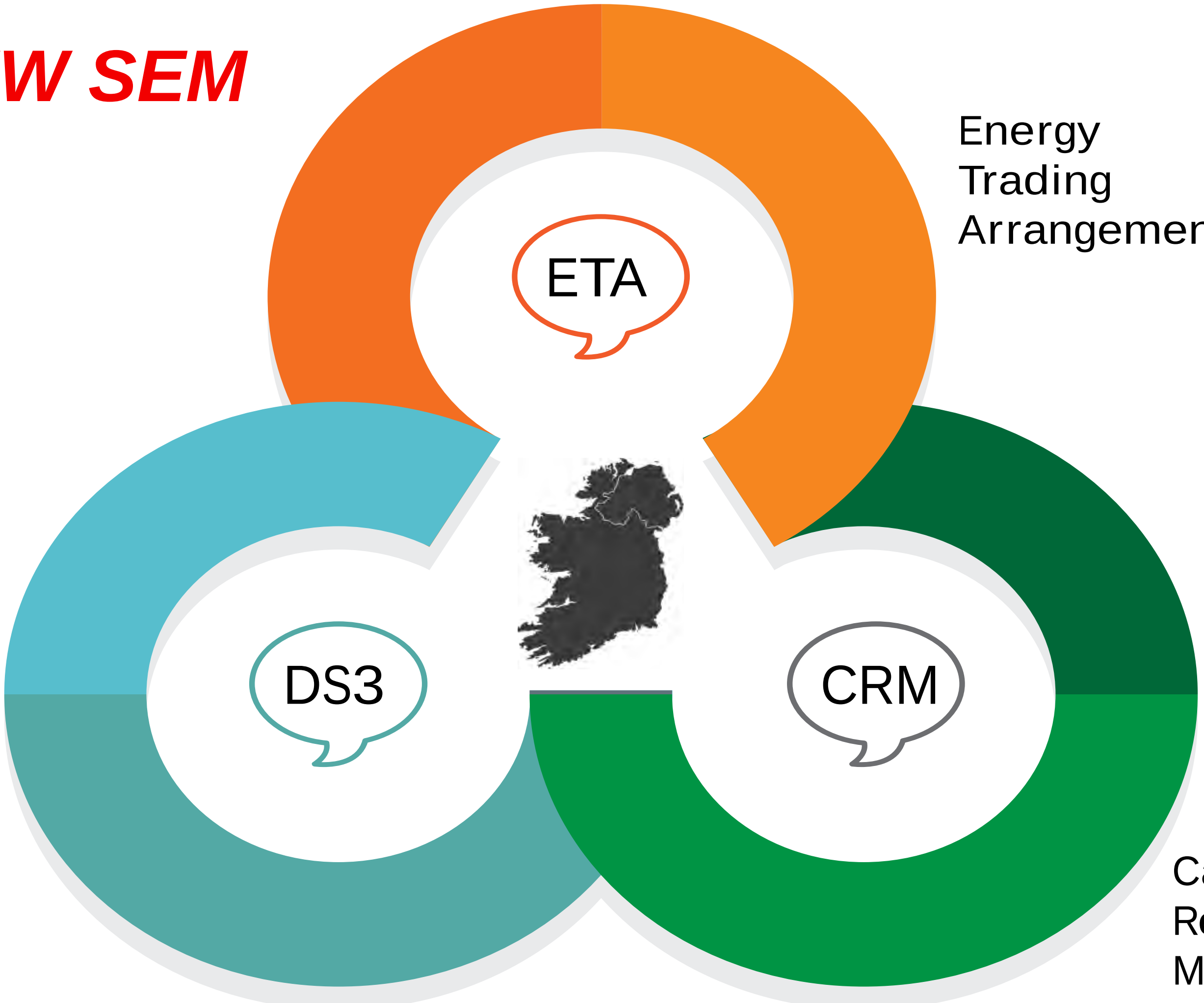
Timely Review

- Increased interconnection capability – 80MW to 950MW.
- Changing generation mix - wind penetration.
- Greater potential for demand side participation.

The Energy Trilemma

THE NEW SEM

Energy
Trading
Arrangements

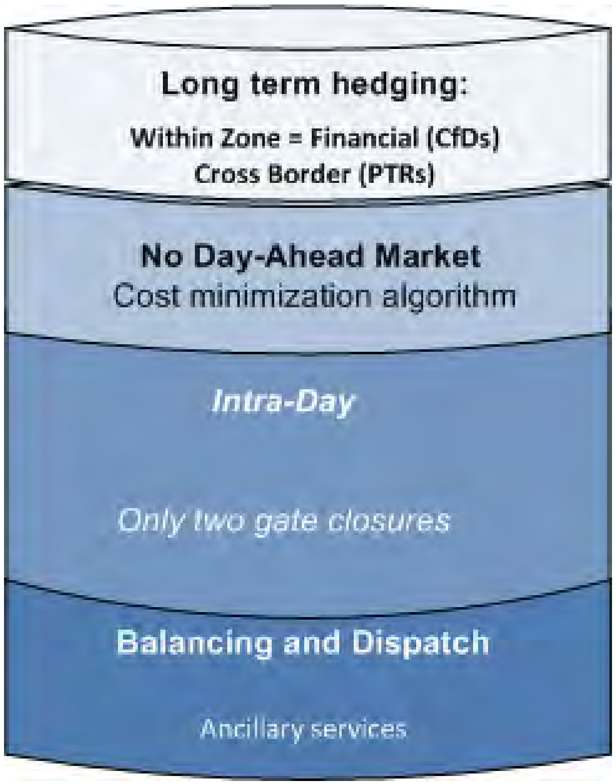


Delivery of
Secure,
Sustainable
System

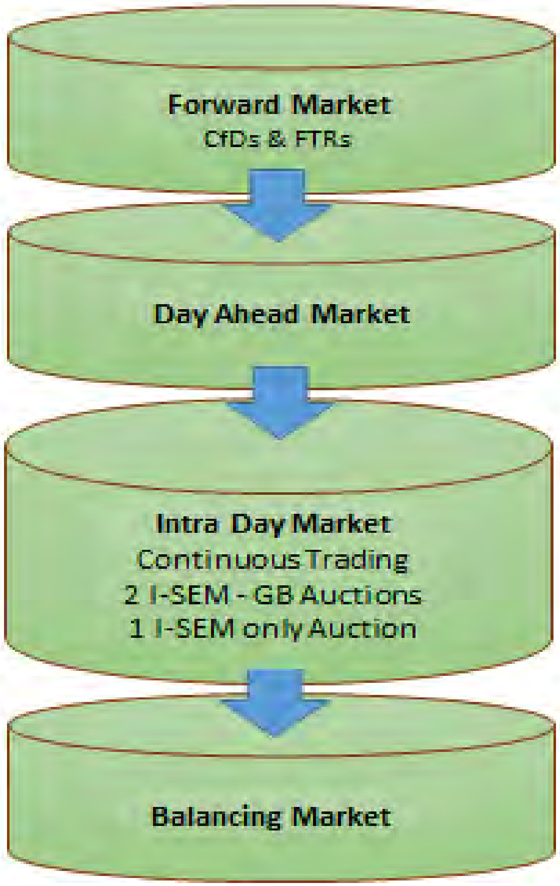
Capacity
Remuneration
Mechanism

Energy Market Revenues

Old SEM



New SEM



Capacity Market - Objectives

- **Key focus is on ensuring Security of Supply**
  - Will provide signals for entry and exit of plant

- **Needed to address 'missing money' issue**
  - High levels of zero marginal cost renewables leads to:
    - Lower energy prices; lower plant utilisation; more price volatility
  - Issue compounded by having a small market that is loosely interconnected
  - Tolerance to high prices and price caps

- **CRM based on Reliability Options**
  - Addresses this issue and provides investment certainty
  - Provides an incentive to deliver capacity when needed
  - Provides consumer protection from high prices

Capacity Auction Timetable

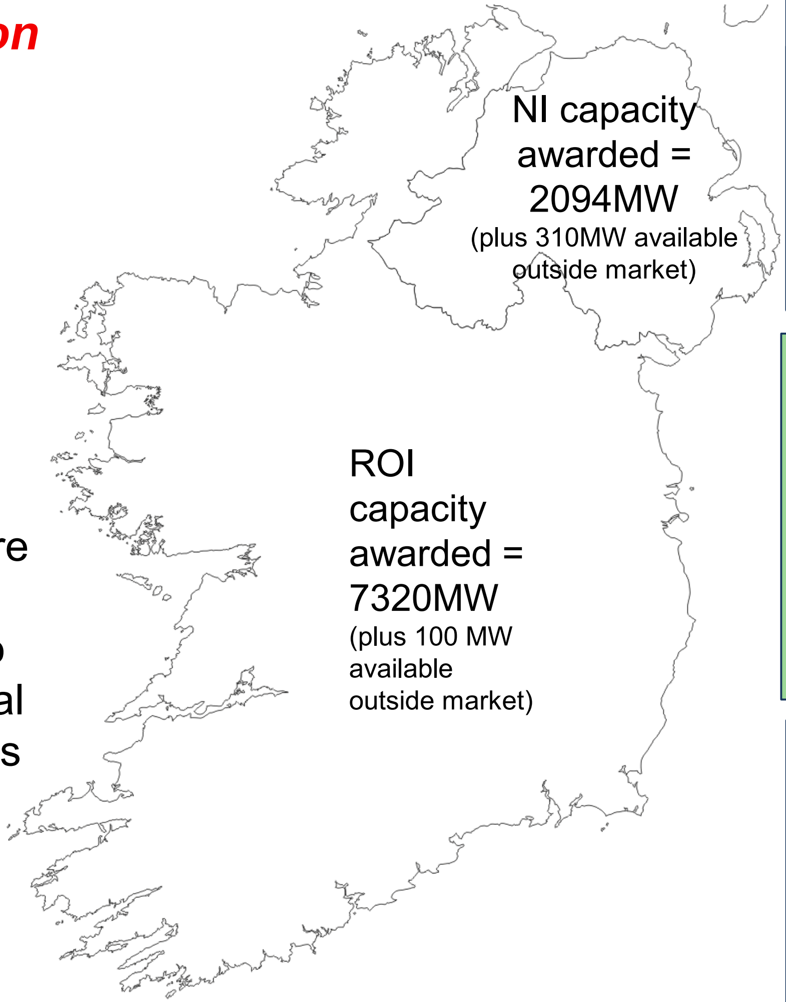
T-1 Auction Dec 2017	To cover	Oct 2018 – Sept 2019
T-1 Auction Dec* 2018	To cover	Oct 2019 – Sept 2020
T-4 Auction March* 2019	To cover	Oct 2022 – Sept 2023

* Timeline subject to approval and publication by SEM Committee.

All-island capacity auction results

Competitive auction process results in annual consumer savings of £200m (£50m for NI)

Post auction there were separate jurisdiction analyses conducted to establish any additional locational requirements e.g. blackstart, transmission constraints.



Total NI peak demand 1760MW Total capacity available 2404MW
Total ROI peak demand 7100MW Total capacity available 7420MW
Total All-island peak demand 8860MW Total capacity available 9824MW

System services revenues

Purpose of System Services/DS3 revenue

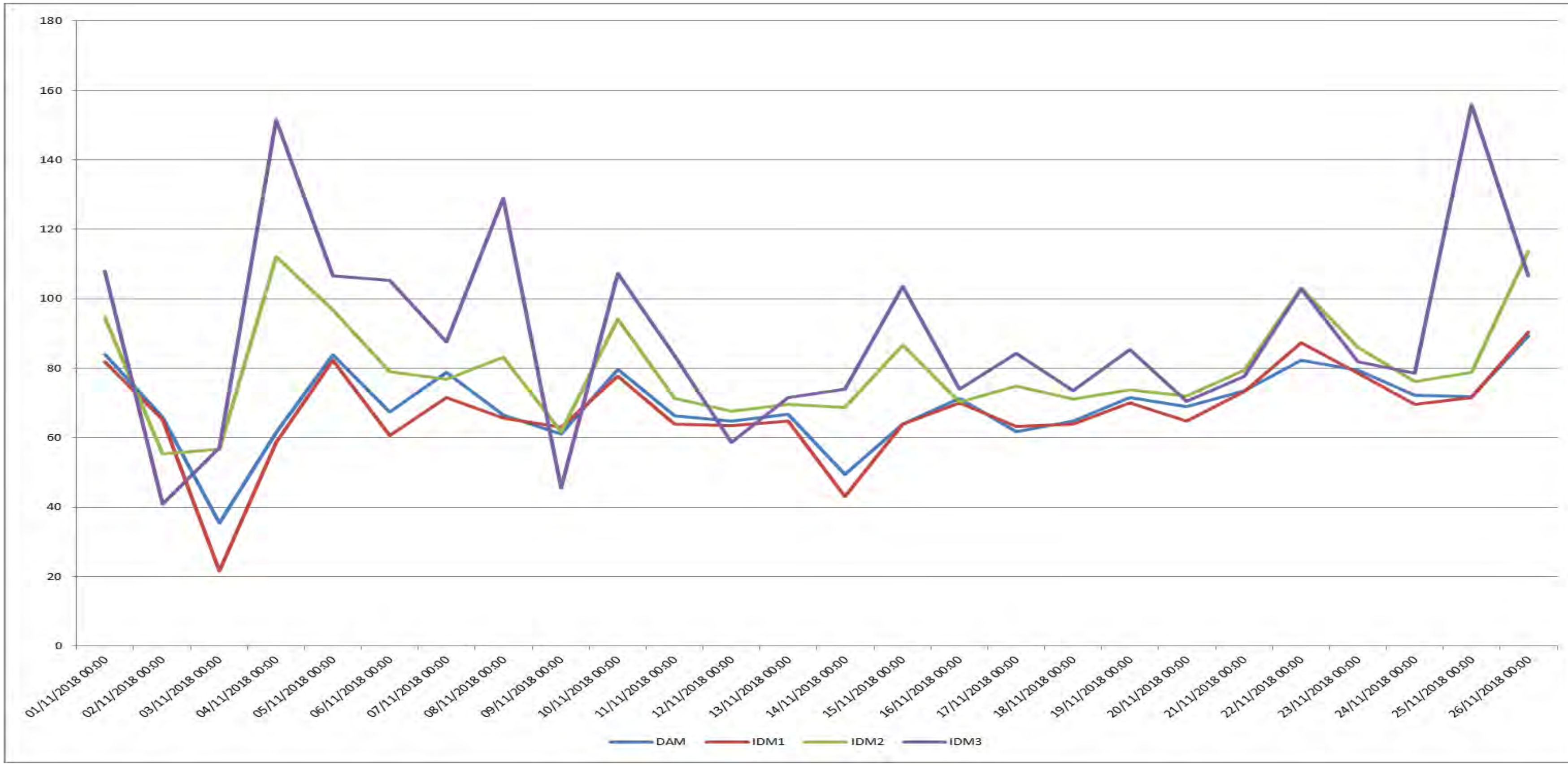
- To value units which can provide necessary services to support stable and reliable system, particularly in context of increasing levels of wind penetration
- Values flexibility and pays for necessary services

Managed Exit - Grid Code Requirements

- Require 3 year notice period for units >50MW
- Derogations can be sought from regulators
- Transmission System Operators assessment of system informs regulatory decisions

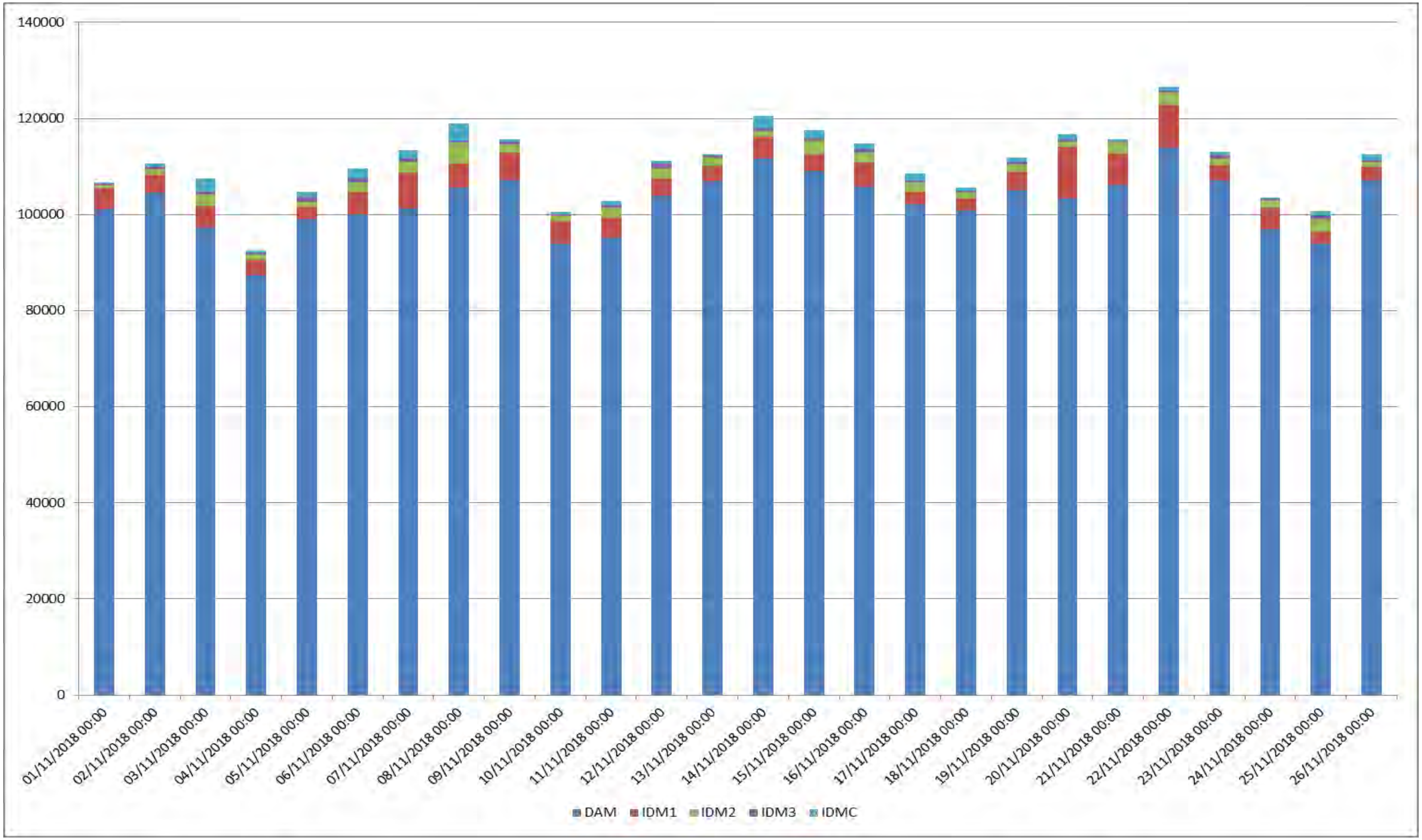
INITIAL ASSESSMENT OF ENERGY TRADING

Average Ex-Ante Auction Prices

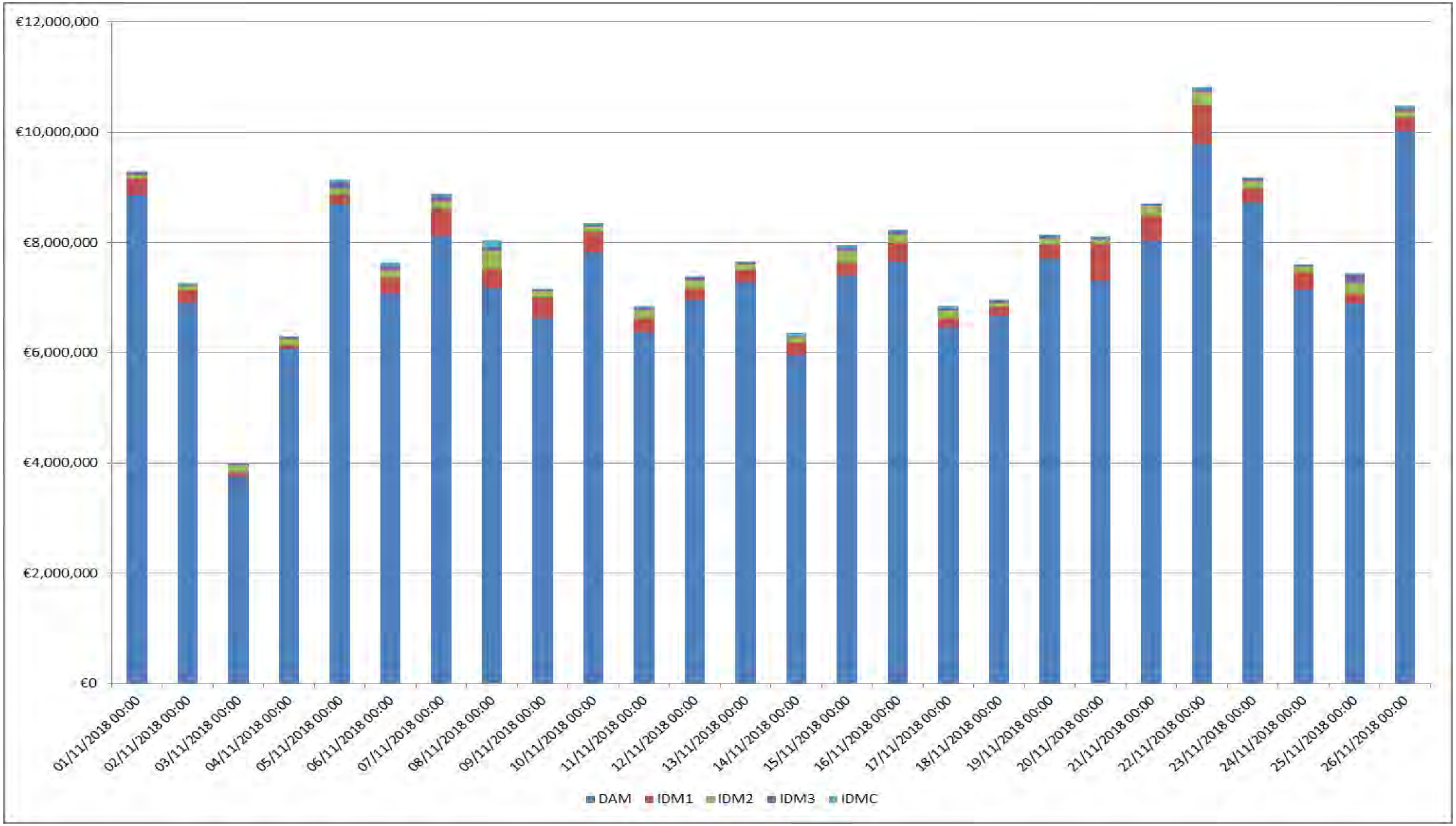


- Average DAM Price: €69.31/MWh
- Average IDA1 Price: €67.30/MWh
- Average IDA2 Price: €79.72/MWh
- Average IDA3 Price: €72.95/MWh

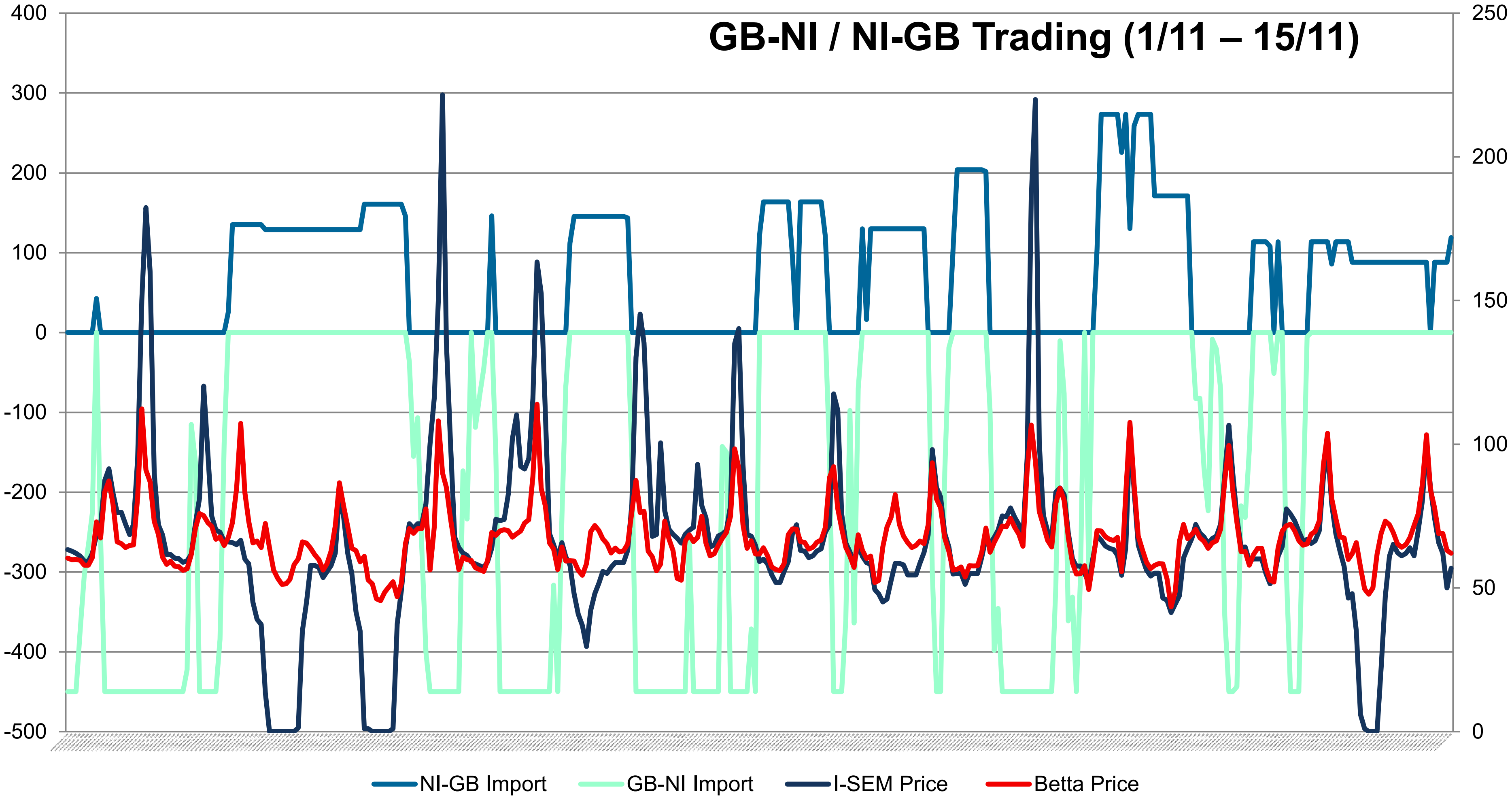
Ex Ante Volumes



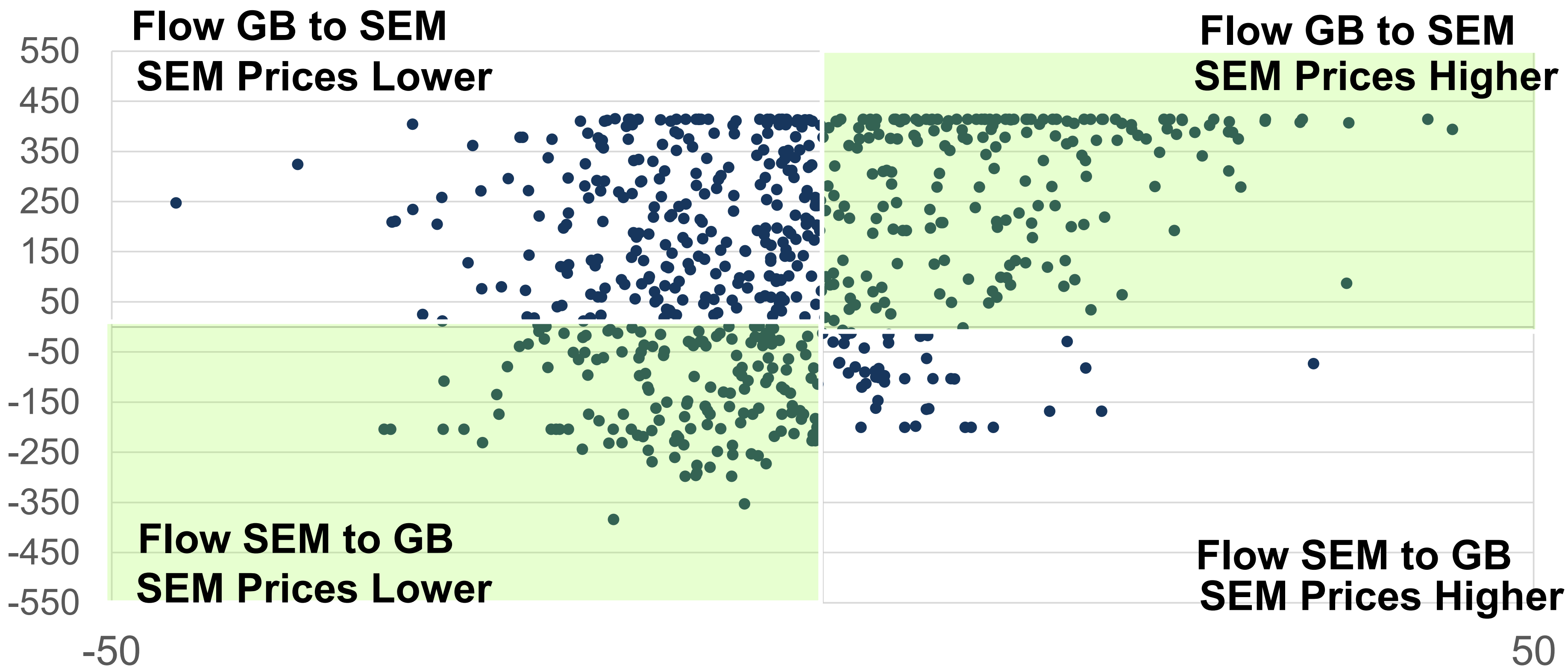
Ex Ante Value (Nov 1st to 26th)



I-SEM Prices, GB Prices & IC Flows (MOYLE)

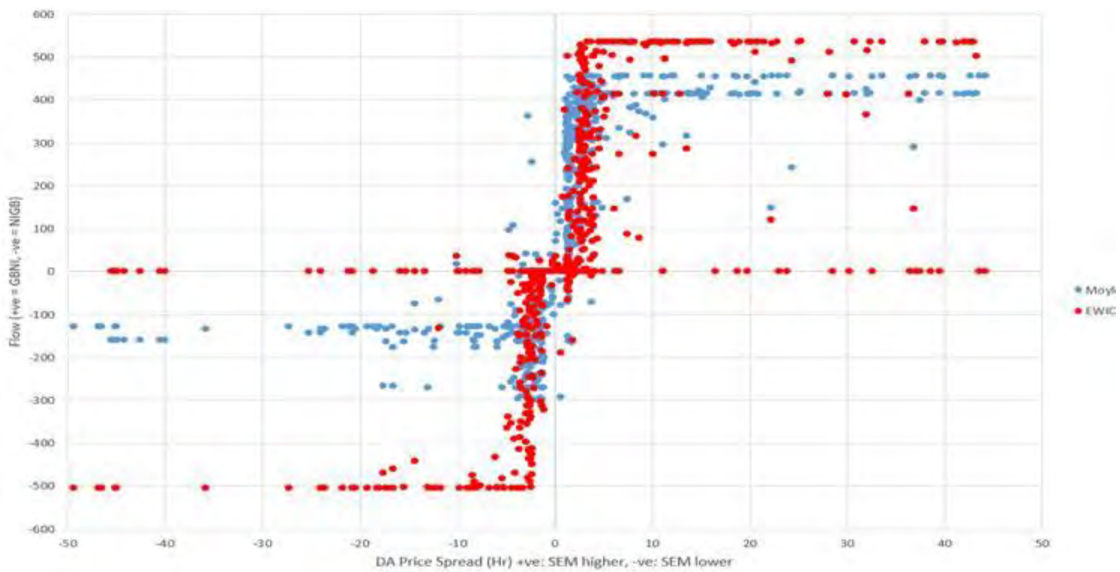


Moyle Flows Pre-ISEM:

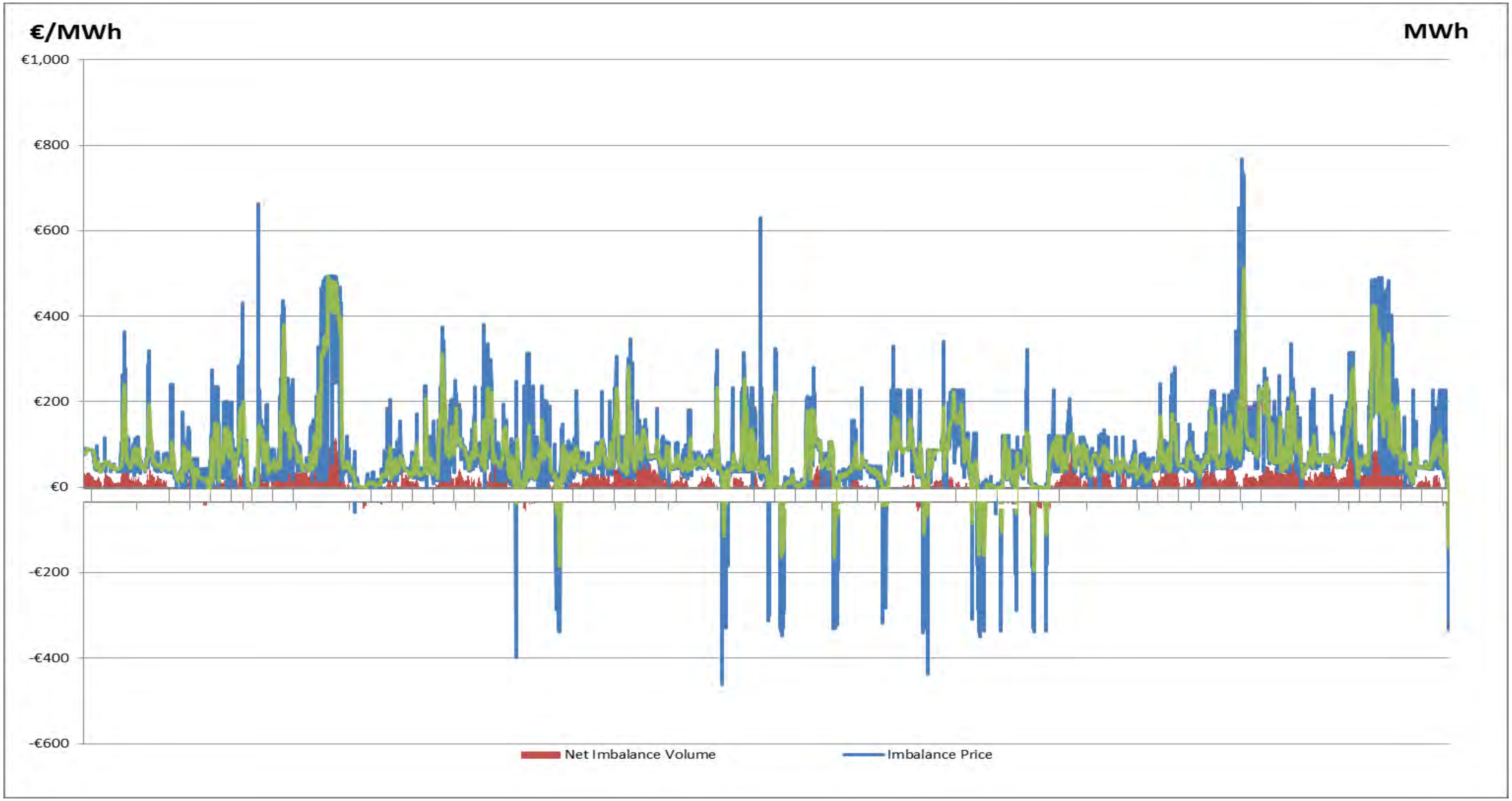


Interconnector Flow Efficiency – EWIC and Moyle

Interconnector Flows/Market Price Differences

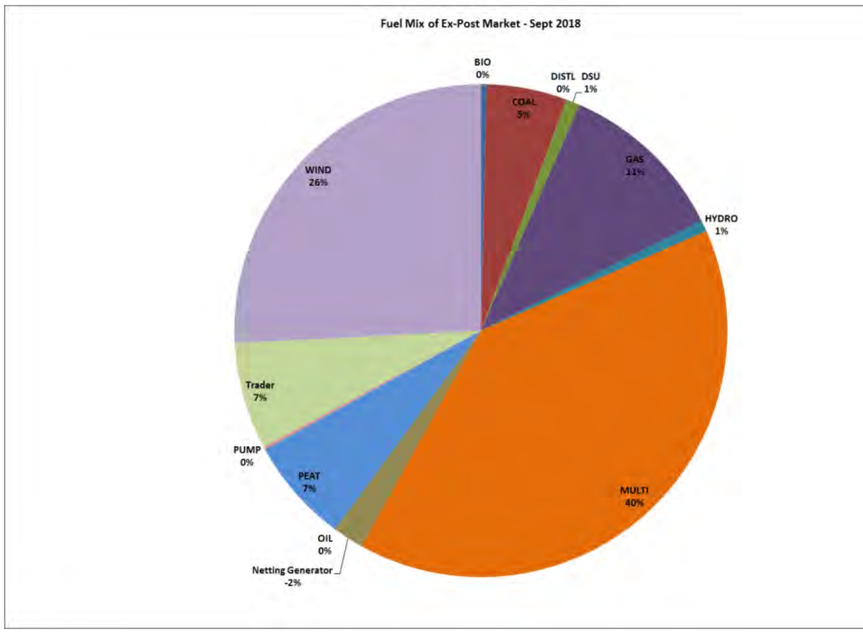


Imbalance Pricing & Net Imbalance Volume

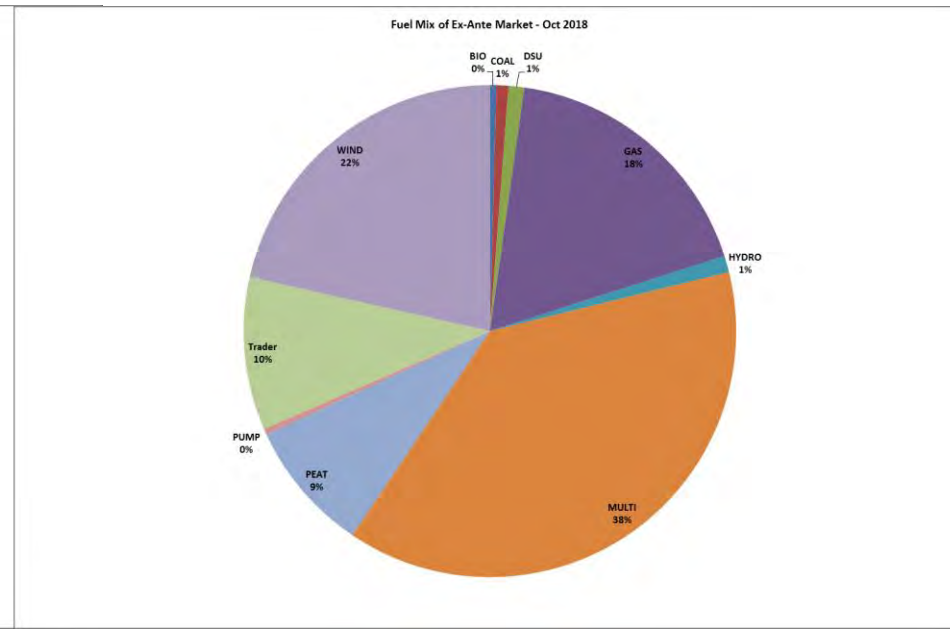


Fuel Mix of Ex-Post Market

- Coal units are only major change in market fuel mix
- Additional traders representing drop in wind traded in old arrangements

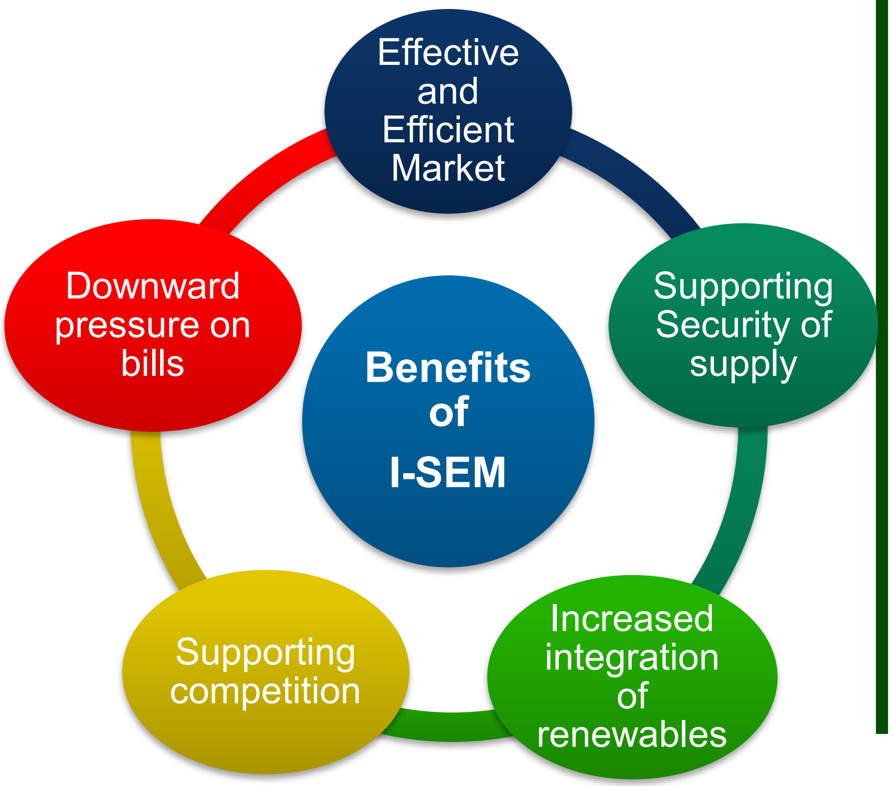


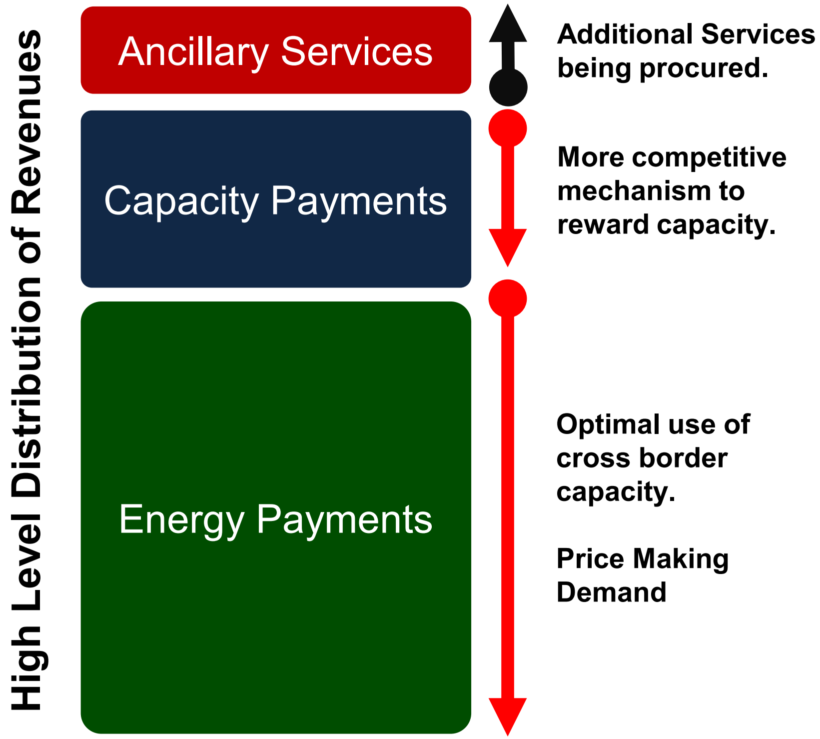
Sept 2018



Oct 2018

SEM Positive outcomes





Looking Forward

- Balancing Market
  - System issues
  - Investigations
  - Design outcomes what we expected
- North/South Interconnector – major constraint
- T-4 Auctions / new investment / Locational Signals
- The Energy Transition / Future Scenarios / government policy