

# Flexibility Markets in SEM

## Agenda

### Learning and development objectives:

- 1 Why the all-island electricity system increasingly needs service providers to help manage the integration of low-carbon technologies
- 2 How System Operation in the SEM procures services now and in the future to manage energy imbalance, curtailment and constraints
- 3 The technologies that are active in this space, including Battery Energy Storage Systems (BESS), and the potential for stacking revenues across different markets
- 4 An understanding of major current topics and workstreams in the SEM to reform market arrangements to open system services markets and the Balancing Market

## Session 1 – Introduction to the SEM System Operation and the increasing need for flexibility

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|-----------------|--|
| <b>10 am</b>    | <p><b>Introduction &amp; welcome</b></p> <ul style="list-style-type: none"> <li>• Tech check!</li> <li>• Aim and objectives</li> </ul>   |
| <b>Module 1</b> | <p><b>Introduction to flexibility fundamentals</b></p> <ul style="list-style-type: none"> <li>• Flexibility fundamentals               <ul style="list-style-type: none"> <li>○ What is it and why is it important?</li> <li>○ Frequency</li> <li>○ Inertia and the Rate of Change of Frequency (RoCoF)</li> <li>○ System Non-Synchronous Penetration (SNSP)</li> <li>○ Minimum number of Conventional Units (MUON)</li> </ul> </li> <li>• Industry programmes and aspirations – accommodating more renewable generation and greater electrification of demand in the SEM               <ul style="list-style-type: none"> <li>○ Energy Storage Policy</li> <li>○ Shaping our Electricity Future</li> <li>○ Climate Action Plan and Energy Strategy Plan</li> </ul> </li> </ul> <p><b>Discussion and Q&amp;A</b></p> |
| <b>Break</b>    | <p><b>Challenges that flexibility is looking to address</b></p> <ul style="list-style-type: none"> <li>• Who are the Transmission System Operators in SEM and what is their role?               <ul style="list-style-type: none"> <li>○ SEMO</li> </ul> </li> </ul>   |
| <b>Module 2</b> | <ul style="list-style-type: none"> <li>• An overview of               <ul style="list-style-type: none"> <li>○ Capacity Market</li> <li>○ Balancing Market</li> <li>○ System Services – response and reserve</li> </ul> </li> <li>• Current electricity system challenges</li> </ul>   |

- Curtailment vs. constraints
- 'Dispatch Down' – what is it and why is it increasing?

*Discussion and Q&A*

- 11.45 Q&A
- 12.00 What we will cover off in future sessions and close

**Session 2 – System Operation: Balancing Market and System Services**

**Introduction & welcome**

- 10 am • Tech check!
- Aim and objectives

**Overview**

- The Balancing Market
  - What is it?
  - How does it work and who can participate?
    - Commercial Offer Data (CODs)
- Module 1
  - How Battery Energy Storage Systems (BESS) , Long Duration Energy Storage (LDES), Demand Side Units, and Dispatchable Consumption Unit can participate
  - A day in the of the BM
- What's next for the BM?

*Discussion and Q&A*

**Break**

**Future Arrangements for System Services (FASS)**

- Aims of the FASS programme
- Day Ahead System Services Auction (DASSA)
  - How it differs from the outgoing DS3 arrangements
- Module 2
  - DASSA procurement timelines and initial system services procured
    - DASSA and the Residual Availability Mechanism
  - How to participate in DASSA
  - Latest on DASSA

*Discussion and Q&A*

- 11.45 Q&A
- 12.00 Close

**Session 3 – Capacity Market and future developments**

**Introduction & welcome**

- 10 am • Tech check!
- Aim and objectives

**Overview**

- Module 1 **Capacity Remuneration Mechanism**
  - How the CRM works

- Auction overview
- Reliability Option – how capacity is provided when needed
- Auction results
- How the CRM has evolved and future changes
- Bringing it all together
  - Revenue stacking across CRM, DASSA and SEM

*Discussion and Q&A*

**Break**

**Future Markets Programme**

- Introducing the Future Markets Programmes
  - Scheduling and Dispatch Programme (SDP) – enabling BESS to participate in the SEM
  - Long Duration Energy Storage (LDES) – frameworks to procure 4hr+ storage assets
  - Strategic Markets Programme (SMP) – pricing reforms in wholesale and balancing markets
- Electricity network charging for storage assets
- ESB Networks Flexibility Plan
- Private wires, behind-the-meter assets and hybrid sites

**Module 2**

*Discussion and Q&A*

11.45 Q&A

12.00 Close