

# Future Power Markets

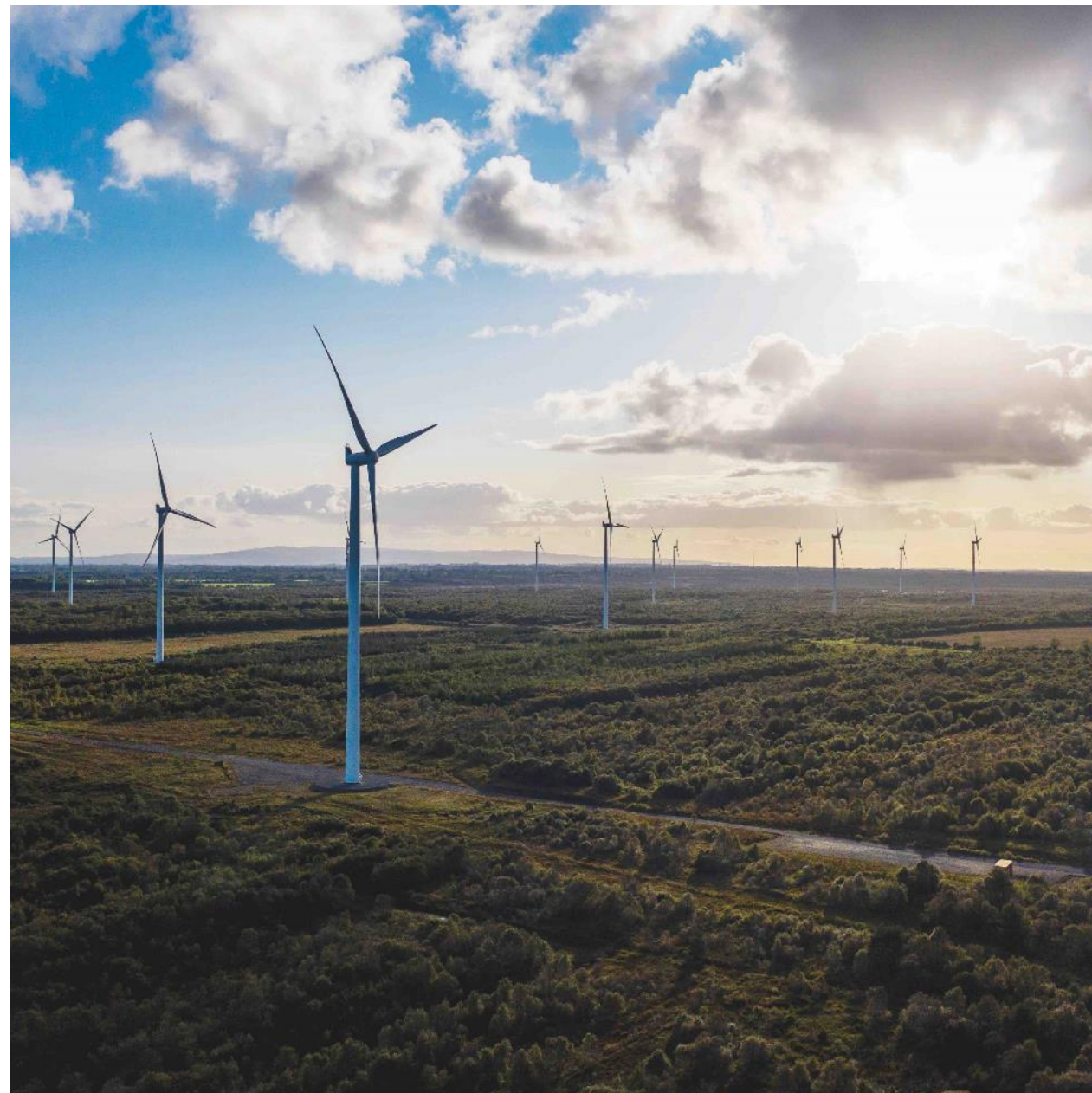
## Stakeholder Engagement

Industry Workshop

07 March 2024

This presentation provides updates on the Scheduling & Dispatch and Long Duration Energy Storage Programmes.

*Achievable - Valuable - “Simple”*



# Future Power Markets: Industry Workshop (March 2024)

## Agenda for today's workshop

Time	Topic
13:00	Introduction, Opening Remarks
13:30	Scheduling and Dispatch Programme Status Update
14:00	Market Arrangements Update
14:15	Long Duration Energy Storage Programme
14:45	Q&A
15:00	Meeting Adjourns



### Since We Last Met on Scheduling and Dispatch

- Mods changes for SDP\_001 NPDR voted out of Mods Committee in Feb 2024
- Preparations for SDP\_004 Annex SEM-13-011 Rebalancing/Redispatching consultation
- Continued engagement with technology vendors on detailed design for MMS, EMS, EDIL, and other system changes
- Continuing to develop MP and Business Readiness analysis
- Developing Training Plan
- Conducting bilateral meeting with stakeholders
- Progressing integrated delivery plan

# Future Power Markets - Industry Workshop

## Setting Expectations



### Meeting Rules

1. **Engage:** actively listen and ask questions. This session is for you.
2. **Show Courtesy:** allow everyone the time and space to participate in the discussion. Don't talk over another speaker.
3. **Scope Discipline:** maintain focus on programmes being discussed.



# Scheduling & Dispatch Programme - Industry Outreach

## Why Are We Here?



### Inform

We are here to provide information about the ongoing work with the SDP initiatives and the impact on the market participant community. We will provide a view of the programme's drivers, functional details, structure, timelines, and stakeholder engagement.



### Discuss

We will discuss the functional changes and how this impacts you and your portfolio. We will discuss the formal arrangement changes, and stakeholder management. We are happy to field all questions – and we may not be able to answer all of them today.



### Listen





We are here to listen. What are your thoughts on the SDP, the functional details and the impacts to your business? What questions do you need answers to? What clarity do you need?



### Ask

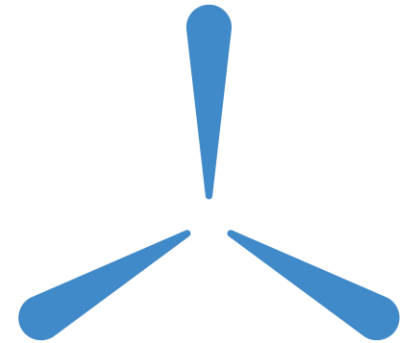
We will ask for your participation throughout – we are better together.

# Scheduling & Dispatch Programme Overview

 Key Principles	 SDP Objective & Drivers	  Scope of SDP
<p>For this complex programme...</p> <ol style="list-style-type: none"> <li>1. Be <b>pragmatic</b> about solution pathways.</li> <li>2. Solve the <b>immediate and urgent</b> problems at hand.</li> <li>3. Don't allow perfect to be the enemy of <b>good</b>.</li> <li>4. <b>Communicate</b> early and often - to all <b>stakeholders</b>.</li> <li>5. Maintain <b>support of industry</b>.</li> <li>6. <b>Actively manage</b> multidisciplinary delivery team.</li> </ol> <p><b>Achievable - Valuable - "Simple"</b></p>	<p>To enhance and improve the technology and capability of scheduling and dispatch in Ireland and Northern Ireland. This is driven by market participant needs, the EU Clean Energy Package mandates, and in support of the broader goals of renewables and System Non-Synchronous Penetration (SNSP) penetration targets.</p> <ul style="list-style-type: none"> <li>• Clean Energy Package requirements - NPDR treatment</li> <li>• Ireland and Northern Ireland Government renewables targets for the 80%/80% total renewable energy and 95+% system non-synchronous penetration (SNSP) on an instantaneous basis.</li> <li>• Market Participant requests for certainty on treatment of renewable assets, batteries - revenue certainty.</li> <li>• Market Participant requests for improvement in re-balancing and re-dispatching (prevailing weather).</li> </ul>	<p>One component of the broader SOEF programme.</p> <p><b>Tranche 1:</b> - SDP-01 Operation of Non-Priority Dispatch Renewables (NPDR)            - SDP-02 Energy Storage Power Station (ESPS) integration            - SDP-04 Wind dispatchability improvements</p> <p><b>Tranche 2:</b> - SDP-03 Fast Frequency Response (FFR)            - SDP-05 Reserve services scheduling and dispatch            - SDP-06 Synchronous condenser scheduling and dispatch</p>



# Programme Status Update



# SDP: Status Update (March 2024 Industry Workshop)

- As planned, no issues
- Minor - moderate concern
- Significant issue / concern
- ↑ Improving
- ↔ Steady
- ↓ Worsening

Refreshed: 07 Mar 2024

This update is provided to the SDP industry workshop on 07 Mar 2024



**SDP**

Summary Status

Overall Status	<span style="color: green;">↑</span>	Overall programme status is upgraded to Green based on SEMC All-Island Programme sub-committee approving the full funding request for the S&D (phases 3-5) programme on Thursday 29th February. Strong support for SDP across stakeholder community.
Schedule	<span style="color: green;">↑</span>	SDP milestones have been shared with industry. SDP team are preparing detailed implementation plans and plan to publish additional milestones in June 2024. SDP continue to work with IT vendors on detailed design.
Resourcing	<span style="color: green;">↑</span>	TSO/MO programme teams are fully staffed and engaged to continue work at pace.
Finances	<span style="color: green;">↑</span>	SEMC All-Island Programme sub-committee approving the full funding request for the S&D (phases 3-5) programme on Thursday 29th February.

## Key Messages



### MP Sentiment is **Amber (Improving)**

- MPs actively engaged and driving forward solutions
- Strong support for SDP



### Key Activities For Immediate Action

- Consultation on SEM 13\_011 changes
- Tranche 2 design and engagement
- Preparation of detailed programme plan



### Positive Developments (Since Last Report)

- Phase 3-5 Funding Approval
- Mods changes for SDP\_001 NPDR voted out of Mods Committee
- Continuing Detailed Design at pace (T1), Detailed Requirements (T2)
- Strong stakeholder engagement and alignment on f(x) approach



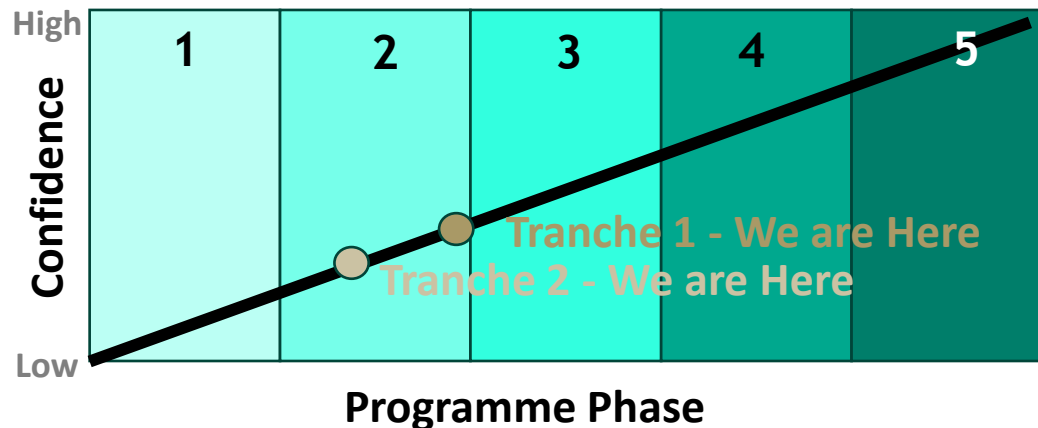
### Challenges (Since Last Report)

•

# Scheduling and Dispatch: Milestones

## Phase 2

SOEF Milestone ID	Milestone	Dates
Tranche 1	Requirements Definition Complete for Scheduling and Dispatch Programme Tranche 1 Initiatives	September 2023
Tranche 1	System Design Complete for Scheduling and Dispatch Programme Tranche 1 Initiatives	March 2024
Tranche 1	TSC, CMS & GC Mods Review Complete for Scheduling and Dispatch Programme Tranche 1 Initiatives by the relevant review group (Mods Committee, Grid Code Review Panel, Capacity Market Workshops respectively)	March 2024
Tranche 2	Requirements Definition Complete for Scheduling and Dispatch Programme Tranche 2 Initiatives	July 2024
Tranche 2	Publication of milestones for Scheduling and Dispatch Programme Tranche 2 Initiatives	September 2024



We currently have an overall **low – medium** level of confidence on the timelines. More detailed timelines cannot be provided until the following are all completed:

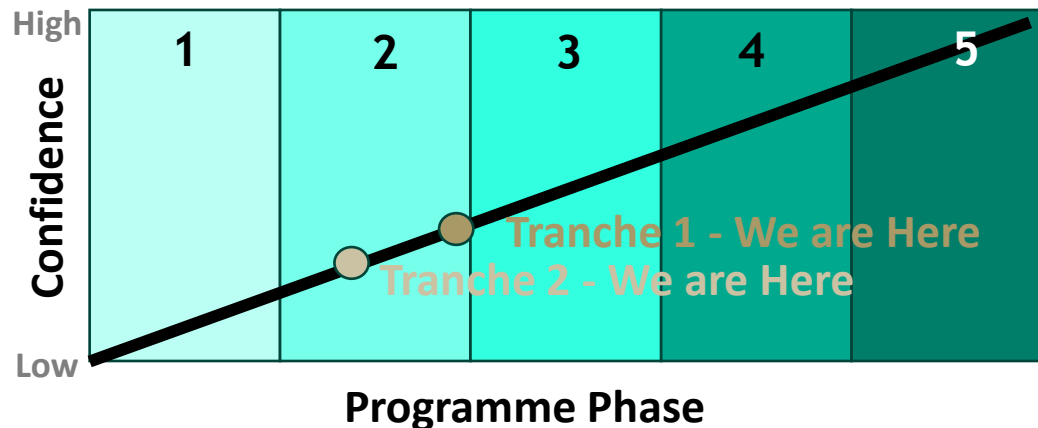
- We are engaging with industry in parallel on the changes, code modifications, etc and these need to be finalised as soon as possible to finalise the design
- We are engaging with our IT Vendors on the detailed design and delivery schedules and are awaiting final timelines



# Scheduling and Dispatch: Milestones

## Phase 3

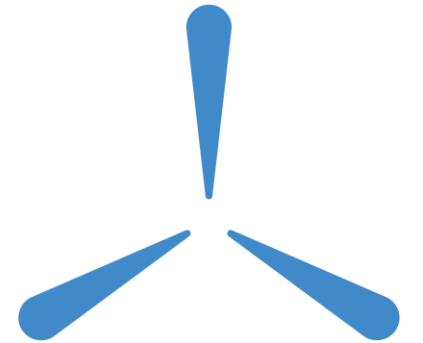
SOEF Milestone ID	Milestone	Dates
Tranche 1	System Build Commenced for Scheduling and Dispatch Programme Tranche 1 Initiatives	March 2024
Tranche 1	Publication of key milestones for testing and go-live, including revised ISEM Technical Specification of Scheduling and Dispatch Programme Tranche 1 Initiatives	June 2024
Tranche 1	Regulatory Authority approval for TCS, CMC & GC Mods for Scheduling and Dispatch Programme Tranche 1 Initiatives	June 2024
Tranche 1	Implementation and Go Live for Scheduling and Dispatch Programme Tranche 1 Initiatives	April 2025
Tranche 2	Implementation and Go Live for Scheduling and Dispatch Programme Tranche 2 Initiatives	Oct – Dec 2025



We currently have an overall **low – medium** level of confidence on the timelines. More detailed timelines cannot be provided until the following are all completed:

- We are engaging with industry in parallel on the changes, code modifications, etc and these need to be finalised as soon as possible to finalise the design
- We are engaging with our IT Vendors on the detailed design and delivery schedules and are awaiting final timelines

# Scheduling and Dispatch Market Arrangements Update



# Market Arrangements Status Update

	Trading and Settlement Code	Grid Codes
SDP_01 Operation of Non-Priority Dispatch Renewables (NPDRs)	Proposed modification recommended for approval in February Modifications Committee.	Proposed modification submitted for Grid Code Review Panel and Joint Grid Code Review Panel meetings on 20/03.
SDP_02 Energy Storage Power Station (ESPS) Integration	Proposed modification recommended for approval in December Modifications Committee. Discussion ongoing between TSOs and RAs on detail.	Proposed modification submitted for Grid Code Review Panel and Joint Grid Code Review Panel meetings on 20/03.
SDP_04 Wind and Solar Dispatchability Improvements	SEM-13-011 Annex	



# Proposed ESPS Grid Code Modification

## MPID318

- Amendments to ensure alignment with SDP approach and Trading and Settlement Code mod.
- Some minor changes included in mods for EirGrid and SONI Grid Codes are outside of the scope of SDP, not in SDC sections (Sections of Common Governance).
- ESPS units are considered Dispatchable PPMs which are Centrally Dispatched Generator Units (CDGUs).
- References to ‘Energy Storage Power Station Demand’ removed. Importing batteries will be considered non-RfG generators with negative output, demand requirements will not apply. Where appropriate, the term has been replaced with Energy Storage Power Stations or, in limited instances, Energy Storage Power Station acting as demand.
- Appendix A of SDC1 (Technical Parameters) fields updated to better reflect characteristics of ESPS units and align with Technical Offer Data fields in Trading and Settlement Code for ESPS units.



# Proposed ESPS Grid Code Modification

## MPID318

- Definitions:
  - Availability definition updated to reflect negative and positive availability for ESPS units.
  - Ramp rate definitions updated to cover full operating range (import and export) for ESPS units.
  - Central Dispatch and CDGU definition updated to explicitly include ESPS units.
  - Technical Parameters fields definitions added, renamed or removed to better reflect characteristics of ESPS units and align with Technical Offer Data fields in Trading and Settlement Code for ESPS units.
  - Energy Storage Power Station (ESPS) Demand definition removed.



# Proposed NPDR Grid Code Modification

## MPID320

- Amendments to ensure alignment with SDP approach and Trading and Settlement Code mod.
- NPDRs are considered Controllable PPMs. Where necessary they are referred to as Controllable PPMs without Priority Dispatch.
- Controllable PPMs are added to the list of unit types required to submit Commercial Offer Data, Technical Offer Data and Physical Notifications.
- Where necessary, Active Power Control Set-points are listed alongside Dispatch Instructions to include Controllable PPMs.
- Definition of Available Active Power updated to include instructions based on Merit Order as a reason that a Controllable PPM may deviate from Available Active Power, along with Constraint and Curtailment.
- Definition of MW Set-point to be added to SONI Grid Code to align with EirGrid Grid Code.

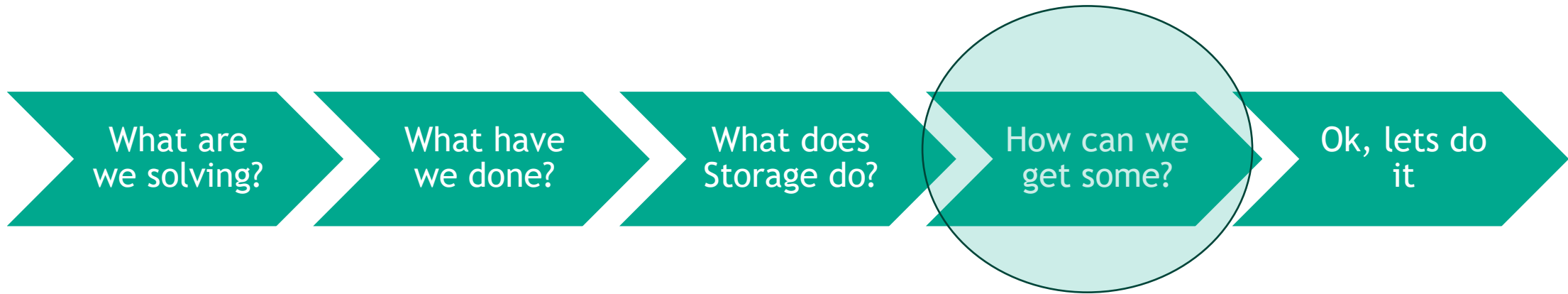


07/03/2024

## Market Considerations: Long Duration Energy Storage (LDES)



# The Journey





# Call for Evidence Results

- Gave us some important insights
- Opinions split on procurement method, aligned with asset type
- A lot of interest in how we will factor in locational element
- Reservations about delivery timeline of 4 years
- Definition of LDES needs agreement needed

# Additional developments

- Work completed by Jacobs on timeline feasibility
- CAP24 mandated EirGrid to create a route to market by Q3
- Setting up of LDES Programme Board & hiring additional resource
- Redrawing of plan for delivery



# New delivery plan

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Call for Evidence Summary	■	■										
Consultation			■	■								
Recommendations					■	■						
RA Decision							■	■	■			
Implementation										■	■	■

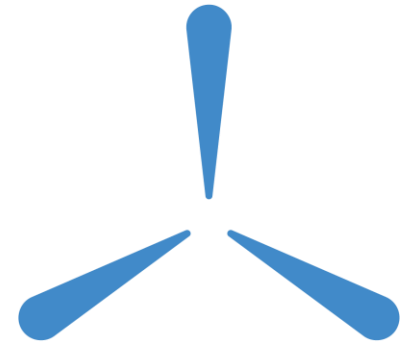
- We are currently working on publishing a Call for Evidence Summary
- Jump straight into writing the consultation - seeking modelling support for this
- Recommendations paper with Ras by end of Q2 - decision sought by Q3
- Implementation to kick off in Q4 - engage legal & start to design auction tool



# Q&A

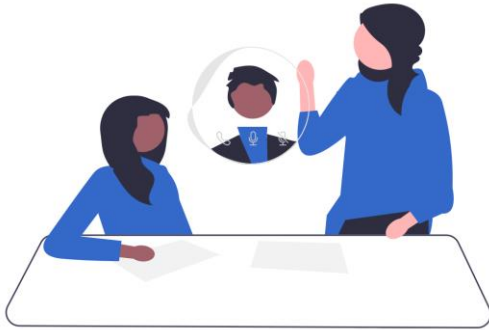


Questions? .....



# Stakeholder Engagement: Industry Workshop

## Ongoing Stakeholder Engagement



### Stakeholder Engagement

Stakeholder Engagement will continue.

We will host more industry-wide workshops and focused sessions for different groups (technical, programme management).

Engagement is bi-directional.

We need to hear from you! You will hear from us.

### Bilateral Meetings

Ongoing bilateral meetings to discuss SDP details.


### Industry-Wide Engagement

- Monthly cadence for Industry workshops
- Standing placeholder at Market Operator User Group

# Stakeholder Engagement: Industry Workshop

## Contacting SDP

To raise an issue or query for the Scheduling & Dispatch Programme:


<b>Contact</b> 	<b>SDP Queries</b> <a href="mailto:SchedulingandDispatch@Eirgrid.com">SchedulingandDispatch@Eirgrid.com</a>
	<b>Operating Hours</b> 9:00am - 5:00pm IPT (Mon-Fri)
	<i>Queries received outside of operating hours will be addressed the next business day.</i>

Information to Provide
<ul style="list-style-type: none"><li>• Your Name</li><li>• Your email &amp; phone number</li><li>• Your organisation</li><li>• Topic of Issue/Query</li><li>• Description of the issue or query</li><li>• Any additional information to aid in understanding the issue or query</li></ul>

# Future Power Markets: Industry Workshop (March 2023)

## Future Workshop Schedule

Date	Day of Week	Time	Location
10 April 2024	Wednesday	1:00 p.m. - 4:00 p.m.	Dublin + Virtual Option
08 May 2024	Wednesday	1:00 p.m. - 4:00 p.m.	Dublin + Virtual Option
12 June 2024	Wednesday	1:00 p.m. - 4:00 p.m.	TBC



### Future Discussion Topics

- Detailed Delivery Plan (w/ key milestones)
- Market Participant Readiness Criteria and Results
- Business Readiness
- Programme Readiness
- Technical Details (test environment, qualifications)
- Transition Plan (Registration, Data Readiness)
- Go-Live Plan

# Stakeholder Engagement: Industry Workshop

## Next Steps

### Next Steps

Please provide feedback when you have reviewed and considered the information from today's discussion.

Follow-up from any "Listen" item discussed today.

Be on the lookout for the next Industry Workshop, to be scheduled at a monthly cadence.





# SDP: Glossary

Term	Definition
BA	Business Analyst
BM	Balancing Market
CC	Control Centre
CCT	Control Centre Tools (LSAT, RMT & VTT)
COD	Commercial Offer Data
CSB	Counterparty Settlement and Billing
DI	Dispatch Instruction
DRDQ	Dispatch Regime Dispatch Quotient
EG	EirGrid / SONI / SEMO
EMS	Energy Management System
ESPS	Energy Storage Power Station
FFR	Fast Frequency Response
GDX	Group Data Exchange
GSP	Generator Setpoint
HIS	Historical Information Server
HLR	High Level Requirements
IPO	Innovation and Planning Office
IPQBOA	Instruction Profile Quantity Bid Offer Acceptance
JAPR	Jurisdictional Active Power Ratio
MI-STL	MMS to CSB integration
MMS	Market Management System
MOL	Merit Order List
MPI	Market Participant Interface
NF	Non-Functional
NPDR	Non-Priority Dispatch of Renewables Unit
OMS	Outage Management System

Term	Definition
OUI	Operator User Interface
PD RES	Priority Dispatch. Renewable Energy Source
PIMB	Imbalance Price Calculation
PIO	People and Information Office (IT)
PN	Physical Notification
PS	Pumped Storage
QD	Dispatch Quantity
QM	Metered Quantity
RMT	Ramping Margin Tool
ROM	Rough Order of Magnitude
RSD	Reserve Scheduling Dispatch
RT	Real Time
RTQBOA	Real Time Quantity Bid Offer Acceptance
RTU	Remote Terminal Unit
S&D	Scheduling and Dispatch
SCADA	Supervisory Control and Data Acquisition
SDP	Scheduling and Dispatch Programme
SEMO	Single Electricity Market Operator
SME	Subject Matter Expert
TOD	Technical Offer Data
TSO CSB	Transmission System Operator Counterparty Settlements & Billing
UC	Use Case
WDT	Wind Dispatch Tool
WEF	Wind Energy Forecast
WPRED	Wind Predictor