

# Future Power Markets

## Stakeholder Engagement

Industry Workshop: 08 May 2024

This presentation provides an update on the Future Power Markets Programmes.

*Achievable - Valuable - “Simple”*



# Future Power Markets - Industry Outreach

## Why Are We Here?



### Inform

We are here to provide information about the ongoing programmes of work in the Future Power Markets space and the impact on the market participant community. We will provide a view of the programmes' drivers, functional details, structure, timelines, and stakeholder engagement.



### Discuss

We will discuss the changes and how this impacts you and your portfolio. We will discuss the functional, technical, and formal arrangement changes, stakeholder engagement, and programme management updates. 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 FPM programmes, the functional, technical, and regulatory 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.

# FPM - 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 FPM.



# FPM: Industry Workshop (8<sup>th</sup> May 2024)

## Agenda for today's workshop





Time	Topic
14:00 - 14:05	Introduction & Housekeeping
14:05 - 14:10	Future Arrangement System Services - Status Update
14:10 - 14:15	Scheduling & Dispatch - Status Update
14:15 - 14:20	Strategic Markets Programme - Status Update
14:20 - 14:55	Overview of Strategic Markets Programme Initiatives
14:55 - 15:00	AOB/Close out

## FASS Programme Update


# FASS: Status Update (April 2024 Industry Workshop)

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

 **FASS** Summary Status


<b>Overall Status</b>		Overall green status following the commencement of the DASSA Design Consultation period and publication of TSOs’ Phased Implementation Roadmap (PIR), providing clarity in terms of programme trajectory and scope.
<b>Schedule</b>		Schedule remains green, however extension of DASSA consultation increases the risk of programme delays and is challenging for the TSOs to accommodate due to the interdependent nature of business design workstreams.
<b>Resourcing</b>		TSO programme teams are staffed and engaged to continue work at pace. However, continued funding approval is required to maintain resources
<b>Finances</b>		Awaiting RA decision on Phase 2 Uplift and Phase 3 & 4 ROM Estimate Funding Application. Expectation that existing funding will be exhausted by June 2024.

**Key Messages**




**Service Provider Sentiment:**

- TBC. Survey to be issued at later date in addition to feedback gather through existing engagements channels.




**Key Activities for Immediate Action**

- Funding approval
- DASSA Consultation query responses



**Positive Developments (Since Last Report)**

- Publication of System Services Code Panel ToR
- DASSA Auction Design Industry Workshop
- IT System Procurement continues



**Challenges (Since Last Report)**

- Funding uncertainty persists

Note: DS3 System Services Tariff Consultation is outside of the scope of the FASS programme. This is covered under existing operations.

**Refreshed: 7<sup>th</sup> May 2024**

This update is provided to the FPM industry workshop on 8<sup>th</sup> May 2024.

# DASSA Design Consultation



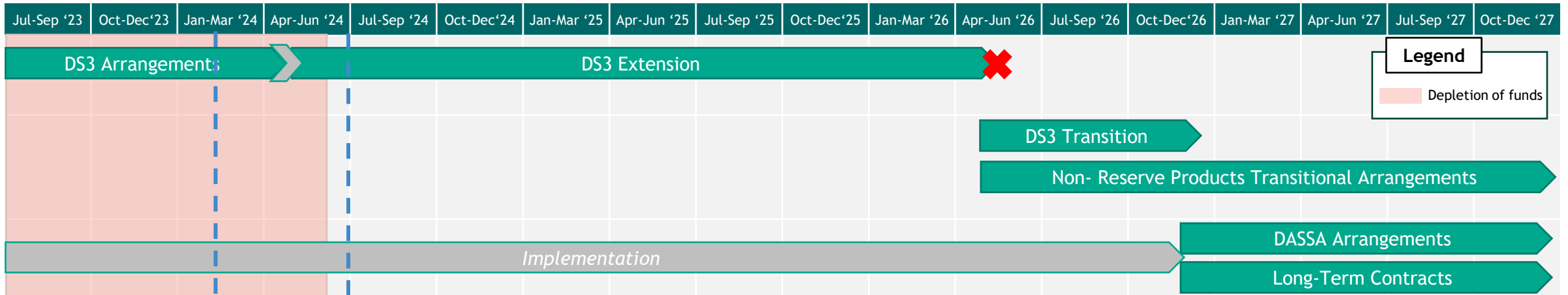
Extended 10-week consultation period remains underway. Responses to be submitted by May 24<sup>th</sup>.  
**Note:** Programme schedule remains very challenging and risk that further delays will have material impact to timelines.



Additional consultation material and written responses have now been published by the TSOs on the respective websites. Email notification issued.



We also welcome any further questions to be directed to [FASS@Eirgrid.com](mailto:FASS@Eirgrid.com) or [FASSProgramme@soni.ltd.uk](mailto:FASSProgramme@soni.ltd.uk). Queries are requested by the 15<sup>th</sup> May for responses to be issued ahead of consultation close.

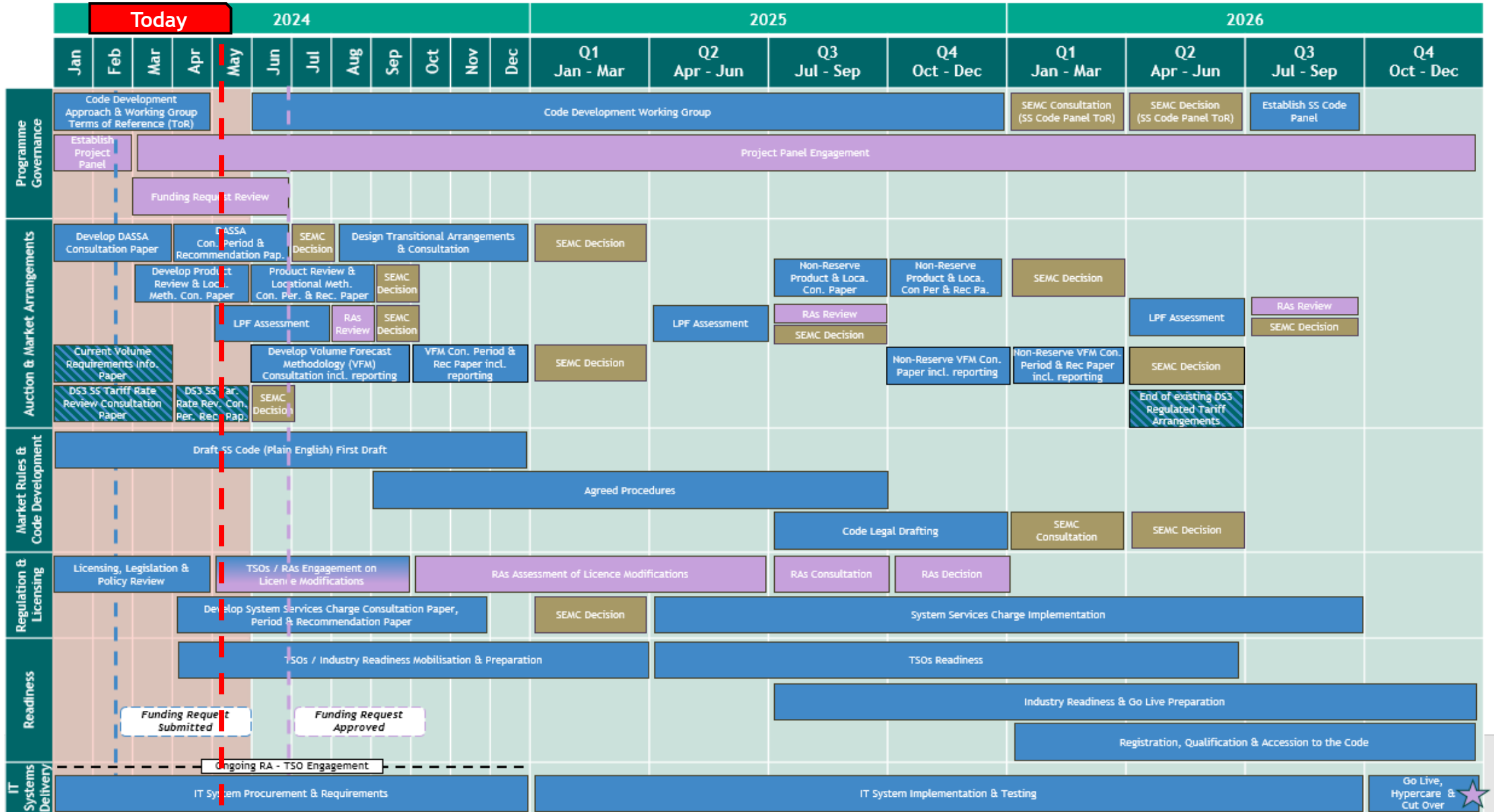




# Phased Implementation Roadmap - Level 1

**Legend**

- TSOs Led Activity
- SEMC Decision
- DS3 Activity
- RAs Led Activity
- RA TSOs Activity
- Depletion of Funds





# Milestone Reference List

\*Milestone closed internally, ongoing discussion with RAs re. next steps.

Milestone #	Milestone Description	Milestone Dependencies	Milestone Owner	Milestone Target Date	Status
FASS.01	Establish The Project Panel	-	RAs	February 2024	Complete
FASS.02	SEMC Decision On Phased Implementation Roadmap	-	SEMC	February 2024	Approved
FASS.03	Commence IT Systems Procurement	FASS.02	TSOs	February 2024	Complete
FASS.04	Publish Phased Implementation Roadmap 1	FASS.02	TSOs	March 2024	Complete
FASS.05	Publish FASS Daily Auction/Procurement Design Consultation Paper	FASS.04	TSOs	March 2024	Complete
FASS.06	Commence Detailed Requirements	-	TSOs	March 2024	Complete
FASS.07	Establish System Service Code Development Working Group ToR	FASS.04	TSOs	April 2024	Complete
FASS.08	Issue List of Proposed Licence Modifications to RAs	-	TSOs	April 2024	Complete
FASS.09	Publish FASS Daily Auction Product Review and Locational Methodology Consultation Paper	-	TSOs	May 2024	In Progress
FASS.10	FASS Programme Funding Request Approval	-	RAs	June 2024	Pending
FASS.11	Publish FASS Daily Auction/Procurement Design Recommendation Paper	FASS.05	TSOs	June 2024	In Progress
FASS.12	SEMC Decision on FASS Daily Auction/Procurement Design	FASS.11	SEMC	July 2024	
FASS.13	Publish Annual Layered Procurement Assessment Recommendations Paper 2024	-	TSOs	July 2024	
FASS.14	Publish FASS Daily Auction Product Review and Locational Methodology Recommendation Paper	FASS.09	TSOs	August 2024	
FASS.15	Commence Grid Code Review	FASS.14	TSOs	September 2024	
FASS.16	Publish Phased Implementation Roadmap 2	FASS.04	TSOs	September 2024	
FASS.17	SEMC Decision on FASS Daily Auction Product Review and Locational Methodology	FASS.14	SEMC	September 2024	
FASS.18	SEMC Decision on Annual Layered Procurement Assessment 2024	FASS.13	SEMC	September 2024	
FASS.19	Publish System Services Charge Recommendations Paper	-	TSOs	November 2024	
FASS.20	Publish High Level Readiness Approach	FASS.12	TSOs	November 2024	
FASS.21	Publish Volume Forecasting Methodology Recommendation Paper including Volumes Requirements Reporting	FASS.17	TSOs	December 2024	
FASS.22	Draft Plain English Version of SS Code	FASS.07 FASS.12 FASS.17	TSOs	December 2024	

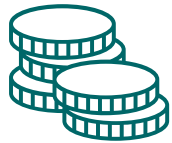
# DASSA Consultation Workshop



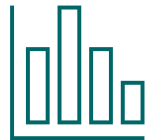
The DASSA Consultation workshop took place virtually on Wednesday 24th April.

The workshop gave a detailed overview of the DASSA auction design, mechanics, FAM and secondary trading with 'Day in the life' examples presented to support the discussion. The TSOs welcomed industry feedback on a number of topics and encouraged industry to send in any queries or feedback they might have to the FASS mailbox.

## Key Themes



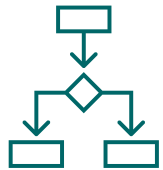
Bidding  
Process



Clearing  
Process



Commitment  
Obligations



Secondary  
Trading



Final Assignment  
Mechanism

### Key Stats

- 100+ attendees
- 90 queries received to date

## Next Steps

- Workshop slides and examples published to industry 25<sup>th</sup> April. *Complete*
- Workshop queries and minutes circulated with industry 1<sup>st</sup> May. *Complete*
- Address industry queries received through the FASS mailbox ahead of the consultation deadline. A two-week extension has now been granted at industry's request, responses to be submitted by May 24<sup>th</sup>

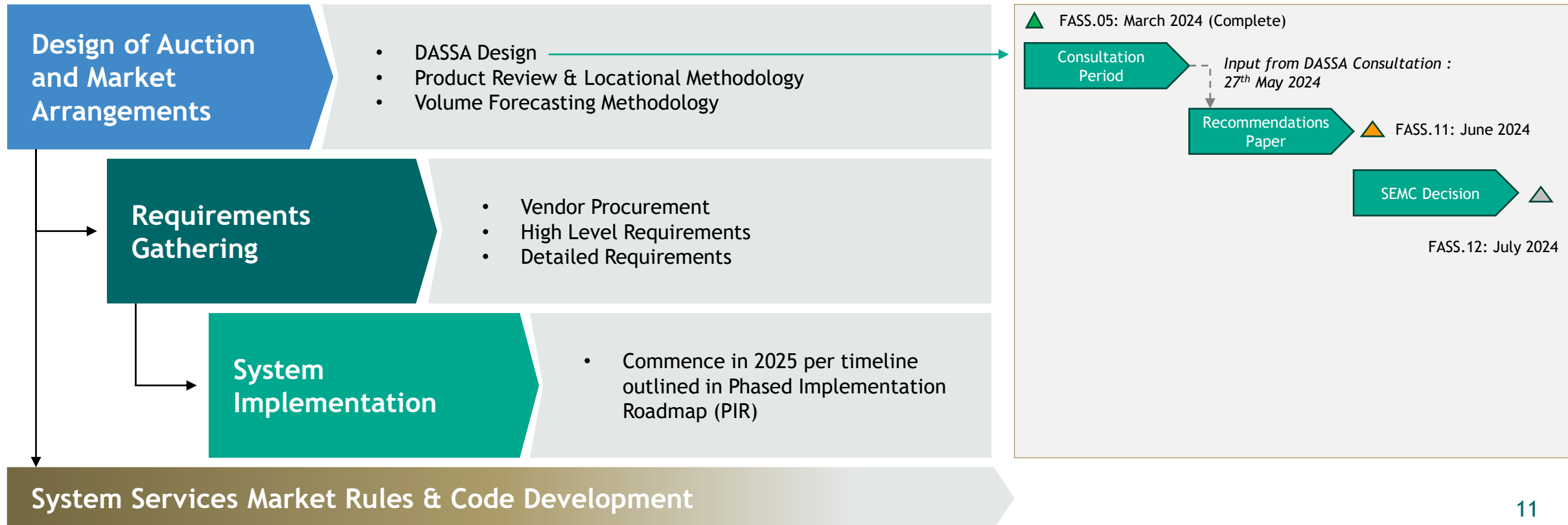
# Implementation sequence and interdependencies

- A two-week extension of the DASSA arrangements consultation has been granted following requests by industry.
- Schedule remains challenging and extension of any design activities increases the risk of programme delays
- Extensions are challenging for the TSOs / Ras to accommodate without mitigating actions due to the interdependent nature of business design workstreams.

## Workstream

## Summary Activities

## Sequencing of consultation activities



# Thank You

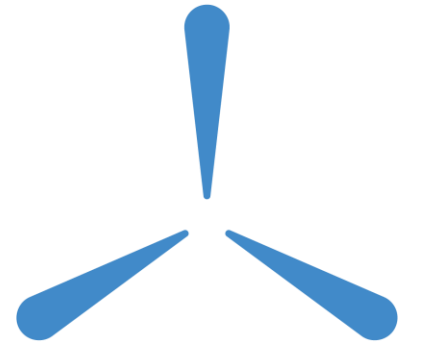
*Questions can be submitted to*

[FASS@Eirgrid.com](mailto:FASS@Eirgrid.com) or  
[FASSProgramme@soni.ltd.uk](mailto:FASSProgramme@soni.ltd.uk)

## Next Steps:

- The DASSA consultation will be open for an additional 2 weeks closing on **24<sup>th</sup> May 2024**. Industry queries are requested by the 15<sup>th</sup> May in order to be addressed ahead of consultation close.
- Following this consultation the TSOs will publish a recommendation paper in advance of the SEM Committee Decision in **July 2024** as per the timelines set out in the PIR.
- Product Design and Location Methodology Consultation Paper to be published end of May 2024 as per the timelines set out in the Phased Implementation Roadmap.

# Programme Status Update



# Scheduling & Dispatch Programme Overview

## Key Principles

For this complex programme...

1. Be **pragmatic** about solution pathways.
2. Solve the **immediate and urgent** problems at hand.
3. Don't allow perfect to be the enemy of **good**.
4. **Communicate** early and often - to all **stakeholders**.
5. Maintain **support of industry**.
6. **Actively manage** multidisciplinary delivery team.

**Achievable - Valuable -  
"Simple"**



## SDP Objective & Drivers

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.

- Clean Energy Package requirements - NPDR treatment
- Ireland and Northern Ireland Government renewables targets for the 80%/70% total renewable energy and 95+% system non-synchronous penetration (SNSP) on an instantaneous basis.
- Market Participant requests for certainty on treatment of renewable assets, batteries - revenue certainty.
- Market Participant requests for improvement in re-balancing and re-dispatching (prevailing weather).



## Scope of SDP



**One component of the broader SOEF programme.**

**Tranche 1: - SDP-01 Operation of Non-Priority Dispatch Renewables (NPDR)**

- SDP-02 Energy Storage Power Station (ESPS) integration
- SDP-04 Wind dispatchability improvements

**Tranche 1 Go Live: April 2025**

**Tranche 2: - SDP-03 Fast Frequency Response (FFR)**

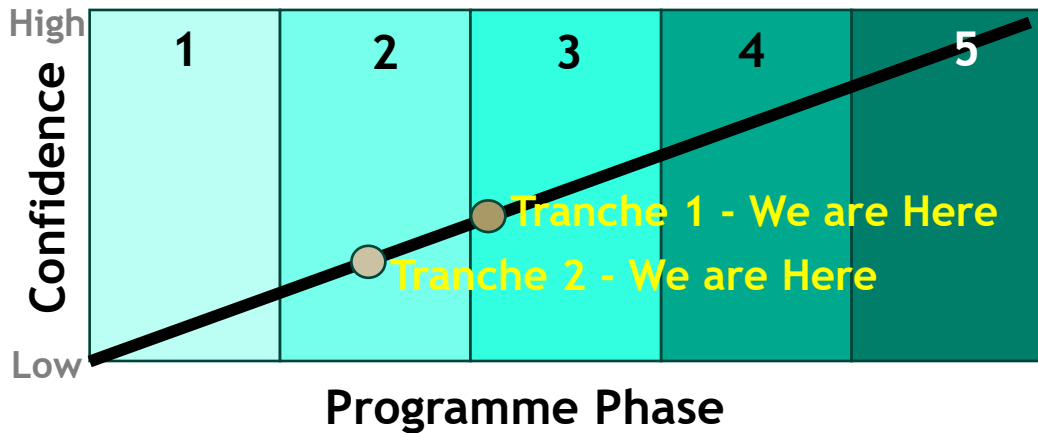
- SDP-05 Reserve services scheduling and dispatch
- SDP-06 Synchronous condenser scheduling and dispatch

**Tranche 2 Go Live: October - December 2025**

# 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	



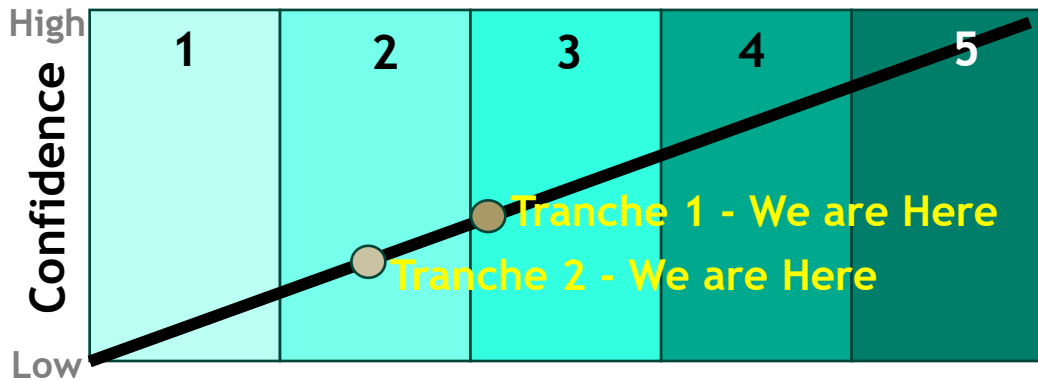
We currently have an overall **low - medium** level of confidence on the timelines. Confidence levels will increase as milestones are achieved and programme progresses further into Phase 3 for Tranche 1 and Phase 2 for Tranche 2



# 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. Confidence levels will increase as milestones are achieved and programme progresses further into Phase 3 for Tranche 1 and Phase 2 for Tranche 2

# SDP: Status Update (April 2024 Industry Workshop)

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

Refreshed: 07 May 2024

This update is provided to the SDP industry workshop on 08 May 2024



SDP

## Summary Status

Overall Status		Overall programme status is Green. Design is almost complete for Tranche 1 initiatives, remaining design documents to be completed over the next couple of days. Strong support for SDP across stakeholder community.
Schedule		SDP milestones have been shared with industry. SDP are progressing detailed implementation plans and plan to publish additional milestones in June 2024. Detailed design with IT vendors almost complete. Potential change to AMBER status if Modifications approval extends beyond planned date.
Resourcing		TSO/MO programme teams are fully staffed and engaged to continue work at pace.
Finances		SEMC All-Island Programme sub-committee approved the full funding request for the S&D (phases 3-5) programme on 22nd March 2024.

## Key Messages



### MP Sentiment is Green (steady)

- 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)

- Detailed Design complete (T1), Detailed Requirements under review (T2)
- ESPS Modification recommended for approval by mods committee on 23-Apr
- Progressing SEM-13-011 annex changes



### Challenges (Since Last Report)

- No new challenges

# SDP Tranche 1 Initiatives - Modifications Update

SDP\_01 Operation of Non-Priority Dispatch Renewables (NPDR)

SDP\_02 Energy Storage Power Station (ESPS) Integration

SDP\_04 Wind Dispatchability Improvements

## Trading and Settlement Code

SDP\_01 T&SC mod was recommended for approval by the Modifications Committee on 08-Feb and was sent for RA decision.

Updated SDP\_02 T&SC mod was recommended for approval by the Modifications Committee on 23-Apr and was sent for RA decision.

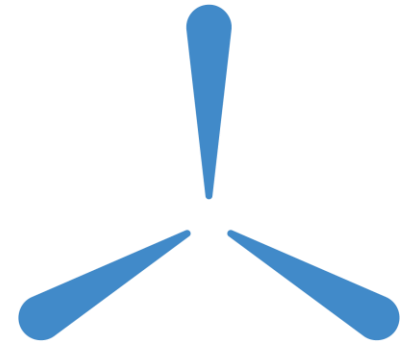
TSO has provided proposed text for updates to SEM-13-011 annex to RAs, which is expected to be published for consultation in summer 2024.

## Grid Codes

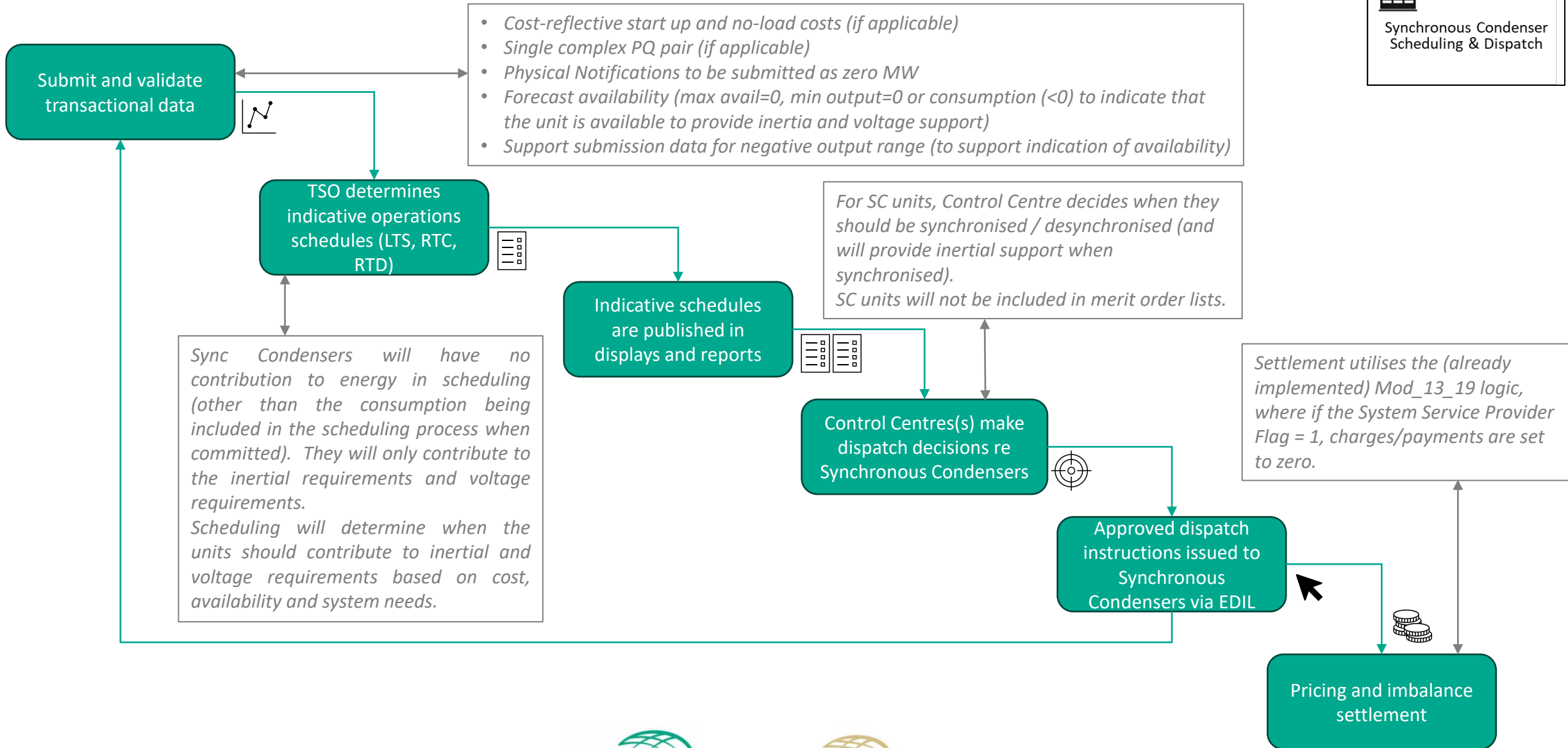
The SDP\_01 Grid Code mod has been reviewed by the Grid Code Review Panels/Joint Grid Code Review Panel on 20-Mar. Was recommended for approval by EirGrid panel, currently going through public consultation in NI. Following consultation, recommendation paper will be issued to CRU and UR.

The SDP\_02 Grid Code mod has been reviewed by the Grid Code Review Panels/Joint Grid Code Review Panel on 20-Mar. Panel members requested more time to review, may need to be brought back to panels in June/July if changes are required.

# SDP\_06 Synchronous Condenser Scheduling and Dispatch



# SDP\_006: Synchronous Condensers Scheduling and Dispatch - Day in the Life



## SDP Tranche 2: Treatment of Synchronous Condensers

Design Element	Description
Forecast Availability	<ul style="list-style-type: none"> <li>• Max Availability = 0.</li> <li>• Min Stable Generation = 0.</li> <li>• Minimum Output = 0 or consumption level (&lt;0) to indicate that the unit is available to be committed to provide inertia and voltage support.</li> </ul>
Simple COD	<ul style="list-style-type: none"> <li>• Single PQ Pair (zero prices).</li> </ul>
Complex COD	<ul style="list-style-type: none"> <li>• Cost-reflective start-up cost and no-load cost (if applicable).</li> <li>• Single PQ pair (if applicable).</li> </ul>
PNs	<ul style="list-style-type: none"> <li>• Zeros always (or not submitted, therefore defaulting to zero).</li> </ul>
Declarations (EDIL)	<ul style="list-style-type: none"> <li>• MNMW=0 or consumption level (&lt;0) to indicate that the unit is available to be committed to provide inertia and voltage support.</li> </ul>
Operational Scheduling	<ul style="list-style-type: none"> <li>• LTS, RTC and RTD can determine when synchronous condensers are needed to meet inertia requirements based on costs, availability and system needs.</li> </ul>
Dispatch	<ul style="list-style-type: none"> <li>• Will be synchronised/dispatched to negative MW to run.</li> </ul>
Settlement	<ul style="list-style-type: none"> <li>• Already implemented settlement logic (per MOD_13_19) continues.</li> <li>• Fixed costs (if applicable) to be paid/recovered via Fixed Cost Charge.</li> </ul>

## SDP Tranche 2: Initial view of VTOD parameters relevant to Synchronous Condensers

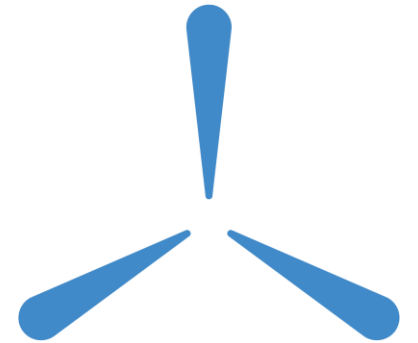
Generator VTOD Field	Inclusion	Low limit	High limit	XSD element	Synchronous Condensers
Participant Name	Mandatory	length=2	length=12	ParticipantName	<i>Per registered Participant list</i>
Resource Name	Mandatory	length=2	length=32	ResourceName	<i>Per assigned GU reference</i>
Set Number	Mandatory	1	6	SemSetNumber	<i>Must be one of 1-6</i>
Block Load Flag	Mandatory	boolean	boolean	SemBlockLoading:flag	<i>Must be set to False for Synchronous Condensers</i>
Maximum On Time	Optional	0	99999999.999	SemTimeF11C3	<i>Valid and to be included (will signify the maximum time for a Synchronous Condenser to provide inertia)</i>
Minimum Off Time	Optional	0	99999999.999	SemTimeF11C3	<i>Valid and to be included (will signify the maximum time for a Synchronous Condenser to be scheduled off, therefore not providing inertial support)</i>
Minimum On Time	Optional	0	99999999.999	SemTimeF11C3	<i>Valid and to be included (will signify the minimum time that a Synchronous Condenser can be scheduled once committed to provide inertia)</i>
Ramp Up Rate 1	Optional	0	99999.999	SemRampRate	<i>Applicable to Synchronous Condenser Units, between max=0 and min=consumption level when providing inertial contribution</i>
Ramp Down Rate 1	Optional	0	99999.999	SemRampRate	<i>Applicable to Synchronous Condenser Units, between max=0 and min=consumption level when providing inertial contribution</i>
Start Forbidden Range 1	Optional	0	99999.999	SemTodQuantity	<i>Assumption is that a Forbidden Range is needed to enforce being run at 0MW or -xMW (consumption level)</i>
End Forbidden Range 1	Optional	0	99999.999	SemTodQuantity	<i>Assumption is that a Forbidden Range is needed to enforce being run at 0MW or -xMW (consumption level)</i>
Minimum Stable Generation	Optional	0	99999.999	SemTodQuantity	<i>Must be zero for Synchronous Condenser units</i>

Remaining technical parameters are assumed not to be relevant to Synchronous Condensers:

- All parameters reflecting output ranges between 0 and Min Stable Generation (loading and deloading)
- Start-up times (assumed to be close to instantaneous)
- Warmth states
- Dwell times (given the assumed running at 0 MW or -x MW (consumption level))

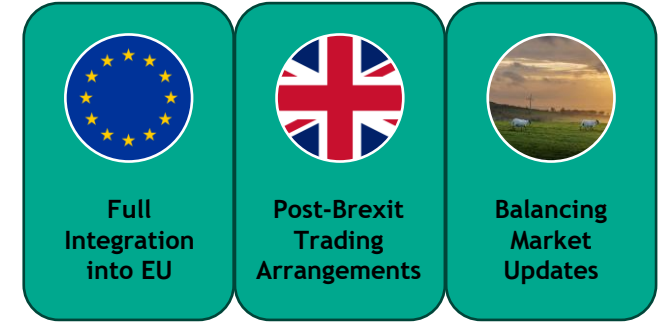


# Q&A



# Strategic Markets Programme

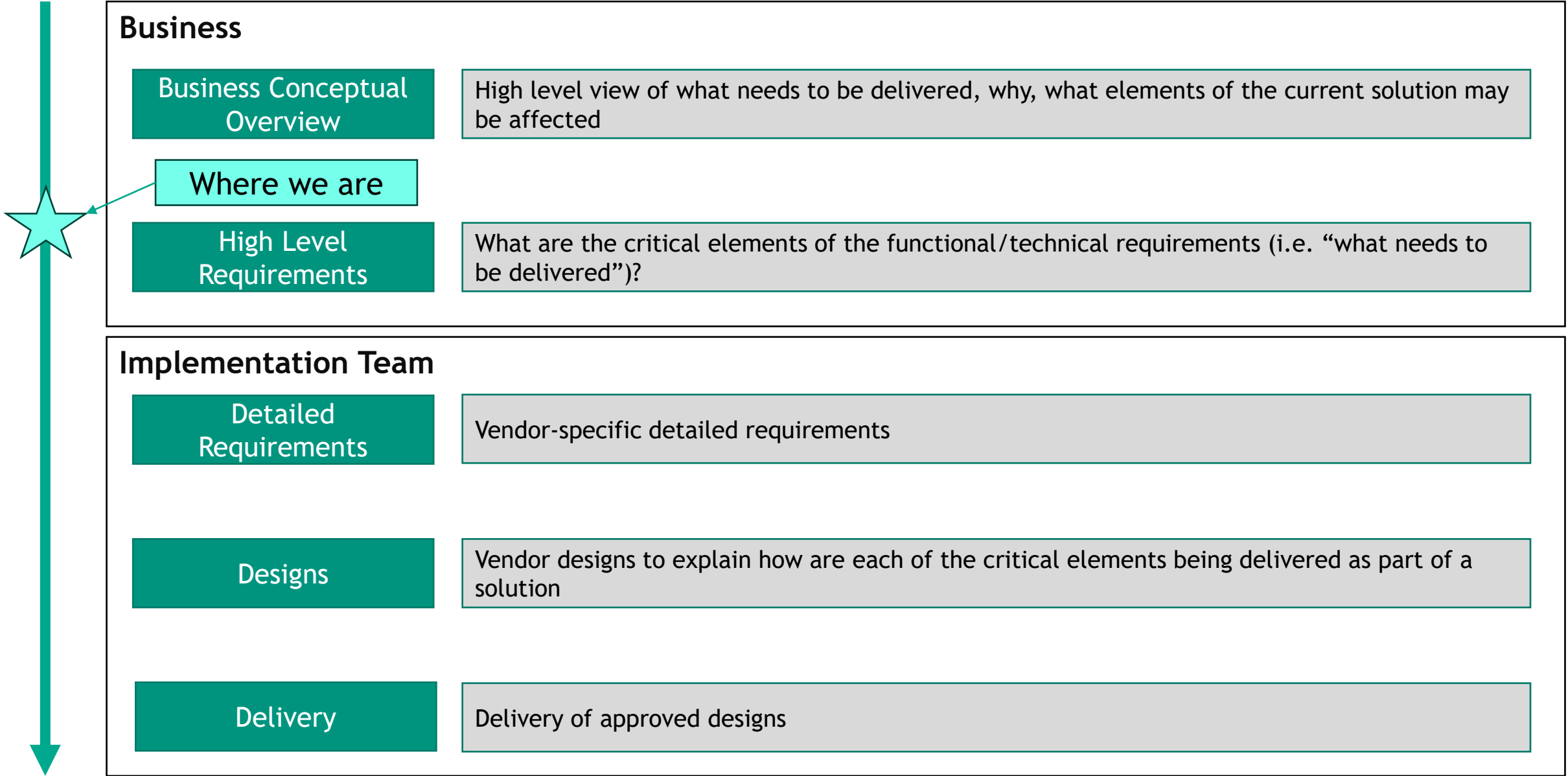
SMP has a wide scope, a significant portion of which are changes required for Celtic Interconnector Go-Live and enabling increased flexible technology



The following updates since last industry forum:


- **EU Integration:**
  - Work ongoing to develop High Level Requirements for EU Integration - requiring changes to market rules and schedules, operating processes and system scheduling;
  - Current Celtic Interconnector go-live is planned for Q4 2026, and integration with EU markets will need to be in place for this date
- **Post-Brexit Trading Arrangements:**
  - No update
- **Balancing Market Reform Updates:**
  - High level requirements for Balancing Market Reform initiatives are under development;
  - Once agreed, these will be assessed for code and system changes required and put into project delivery plans.

# Development Process



# Dispatchable Consumption: Day in the life

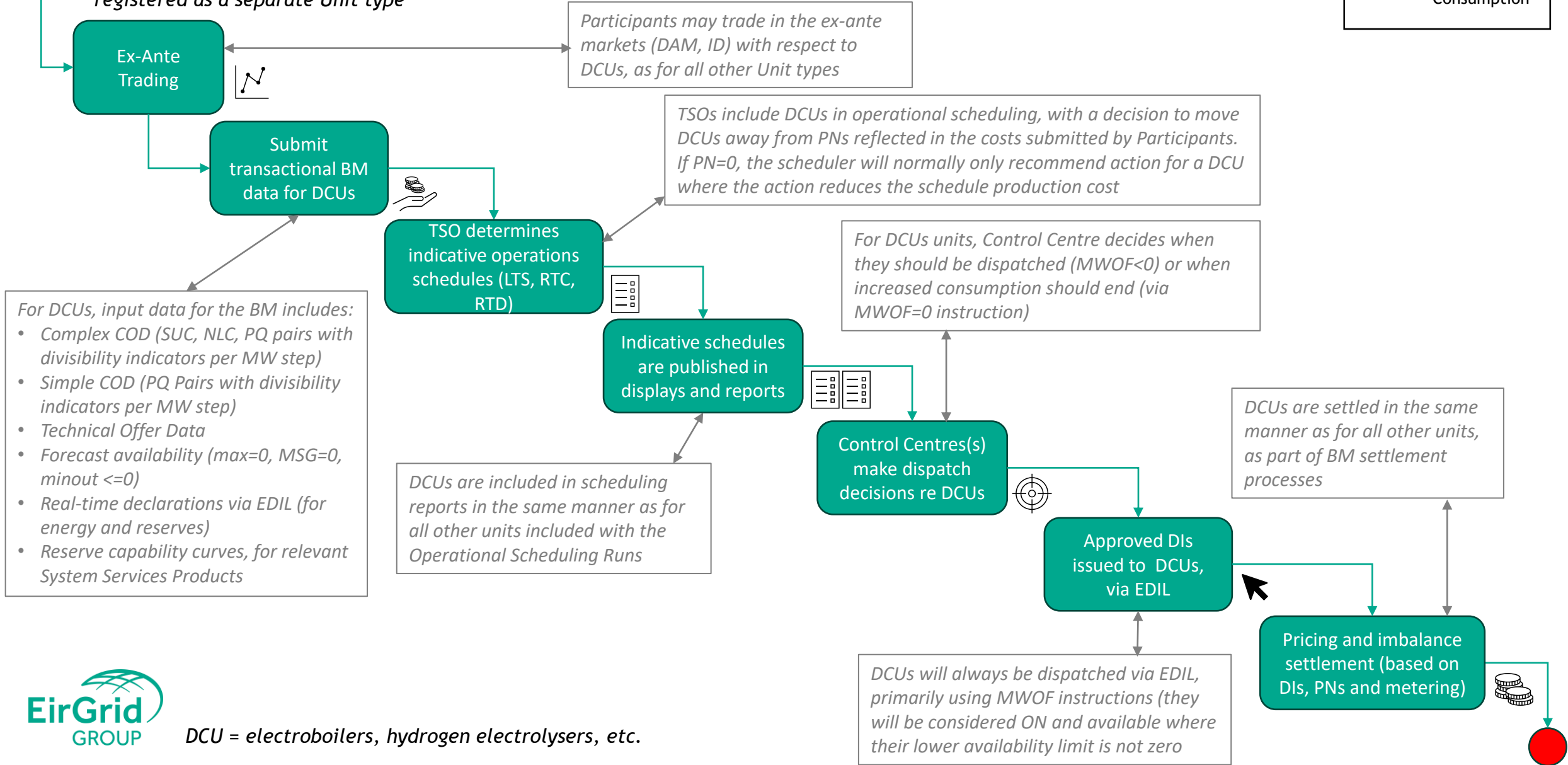
**Dispatchable Consumption**



Treatment of Dispatchable Consumption



**Note:** DCUs are not Generator Units or Supplier Units; they are registered as a separate Unit type

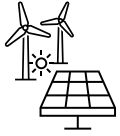


DCU = electroboilers, hydrogen electrolyzers, etc.

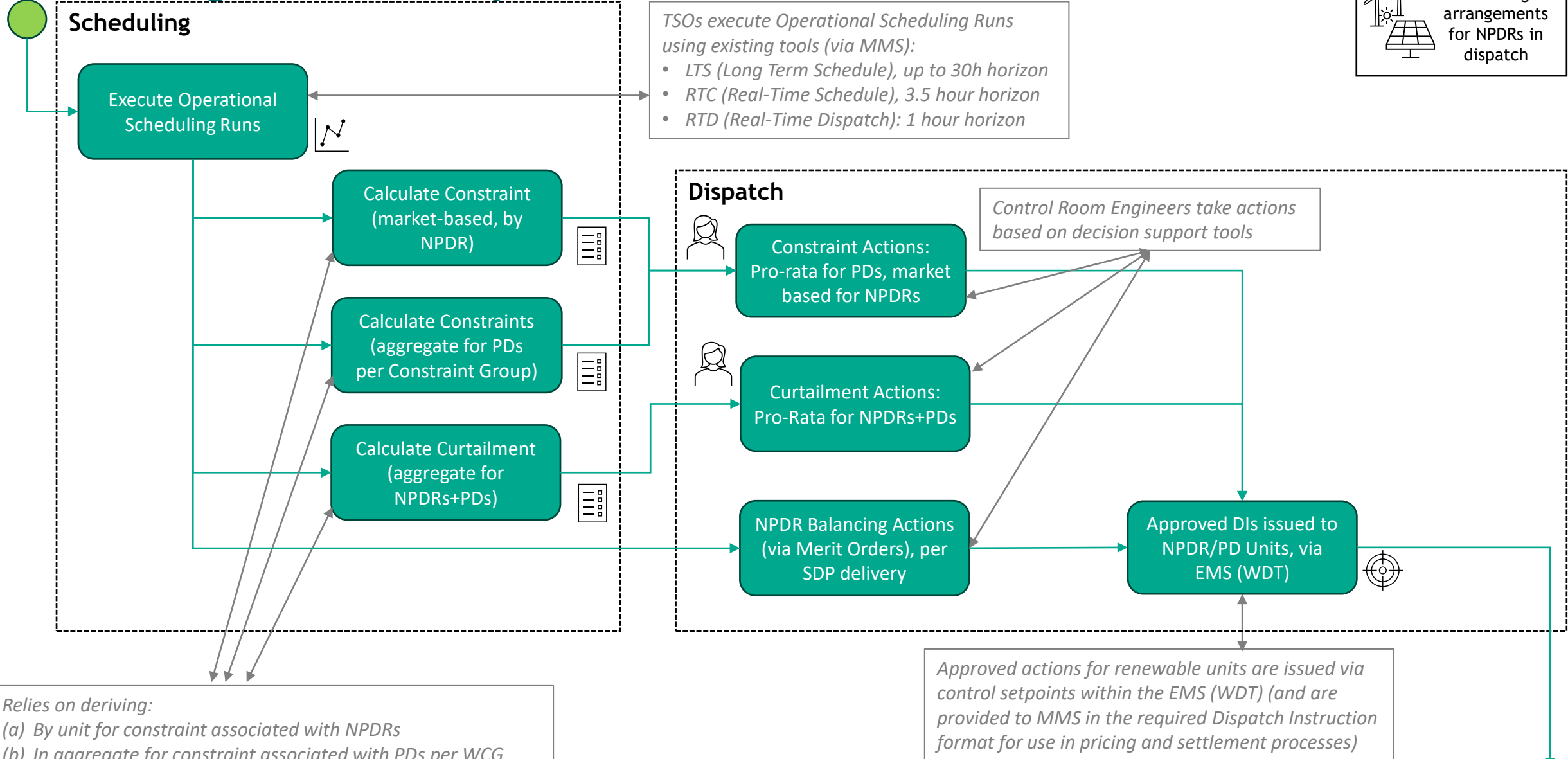


# Enduring NPDRs: Day in the life

**Enduring NPDR**



Enduring arrangements for NPDRs in dispatch



TSOs execute Operational Scheduling Runs using existing tools (via MMS):

- LTS (Long Term Schedule), up to 30h horizon
- RTC (Real-Time Schedule), 3.5 hour horizon
- RTD (Real-Time Dispatch): 1 hour horizon

Relies on deriving:

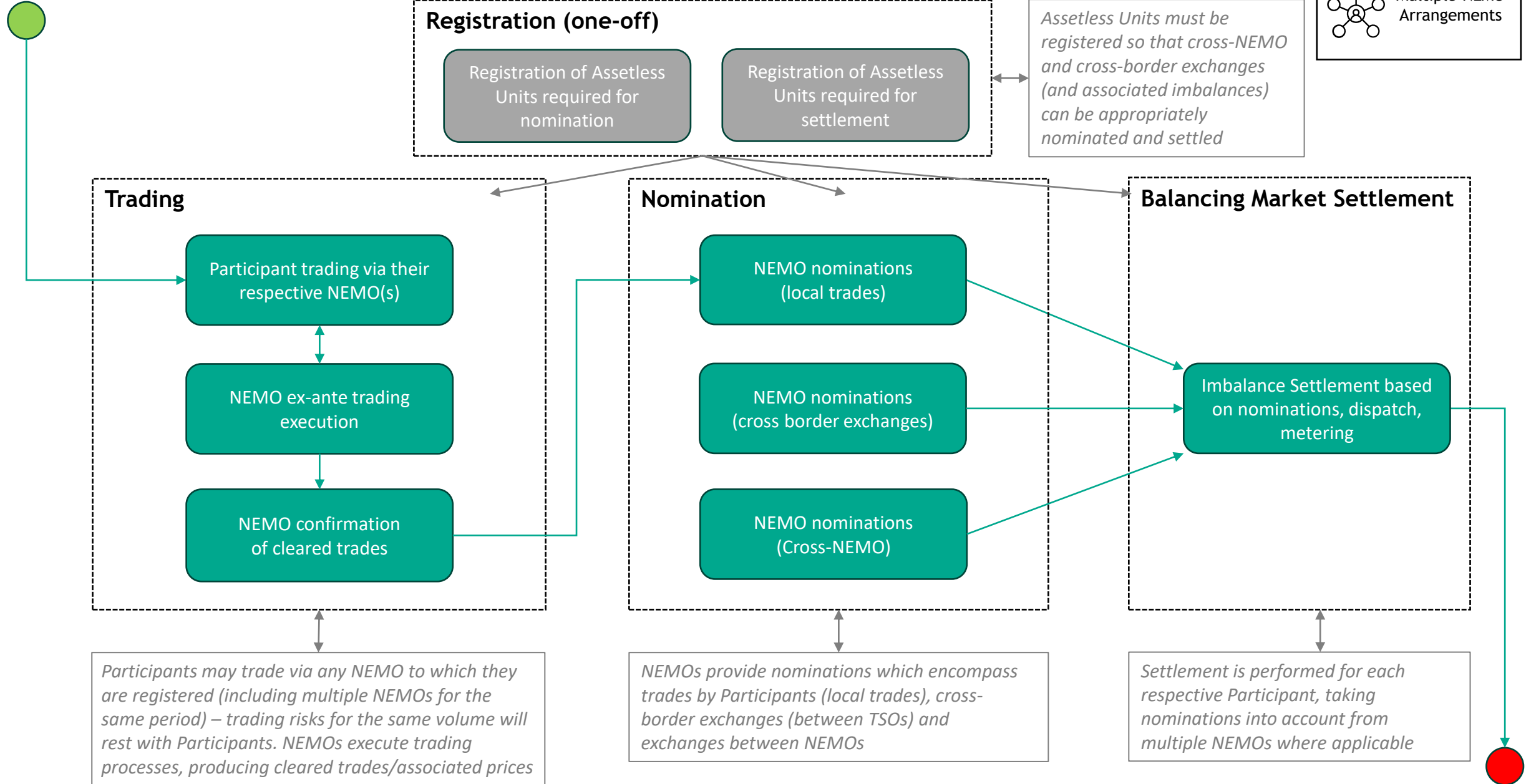
- By unit for constraint associated with NPDRs
- In aggregate for constraint associated with PDs per WCG
- In aggregate across NPDR+PD for curtailment per jurisdiction

Approved actions for renewable units are issued via control setpoints within the EMS (WDT) (and are provided to MMS in the required Dispatch Instruction format for use in pricing and settlement processes)

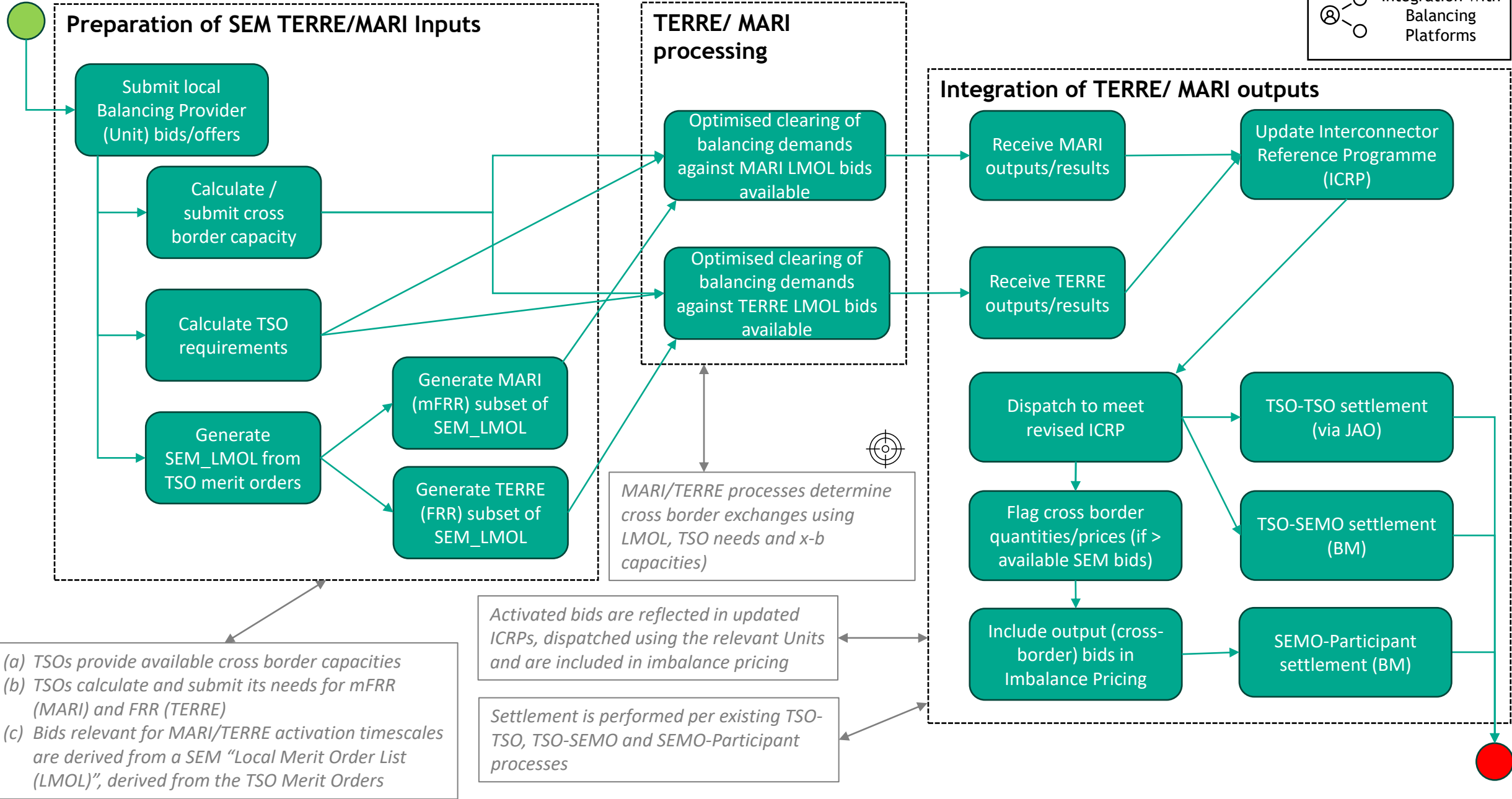
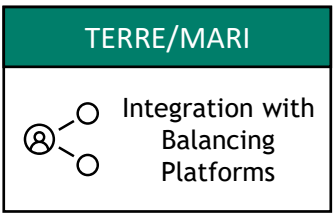
**Key:**  
 LTS = Long Term Schedule  
 NPDR = Non Priority Dispatch Renewable  
 PD = Priority Dispatch  
 RTC = Real-Time Commitment  
 RTD = Real-Time Dispatch  
 WDT = Wind Dispatch Tool



# Multiple NEMOs: Day in the life



# TERRE / MARI: Day in the life



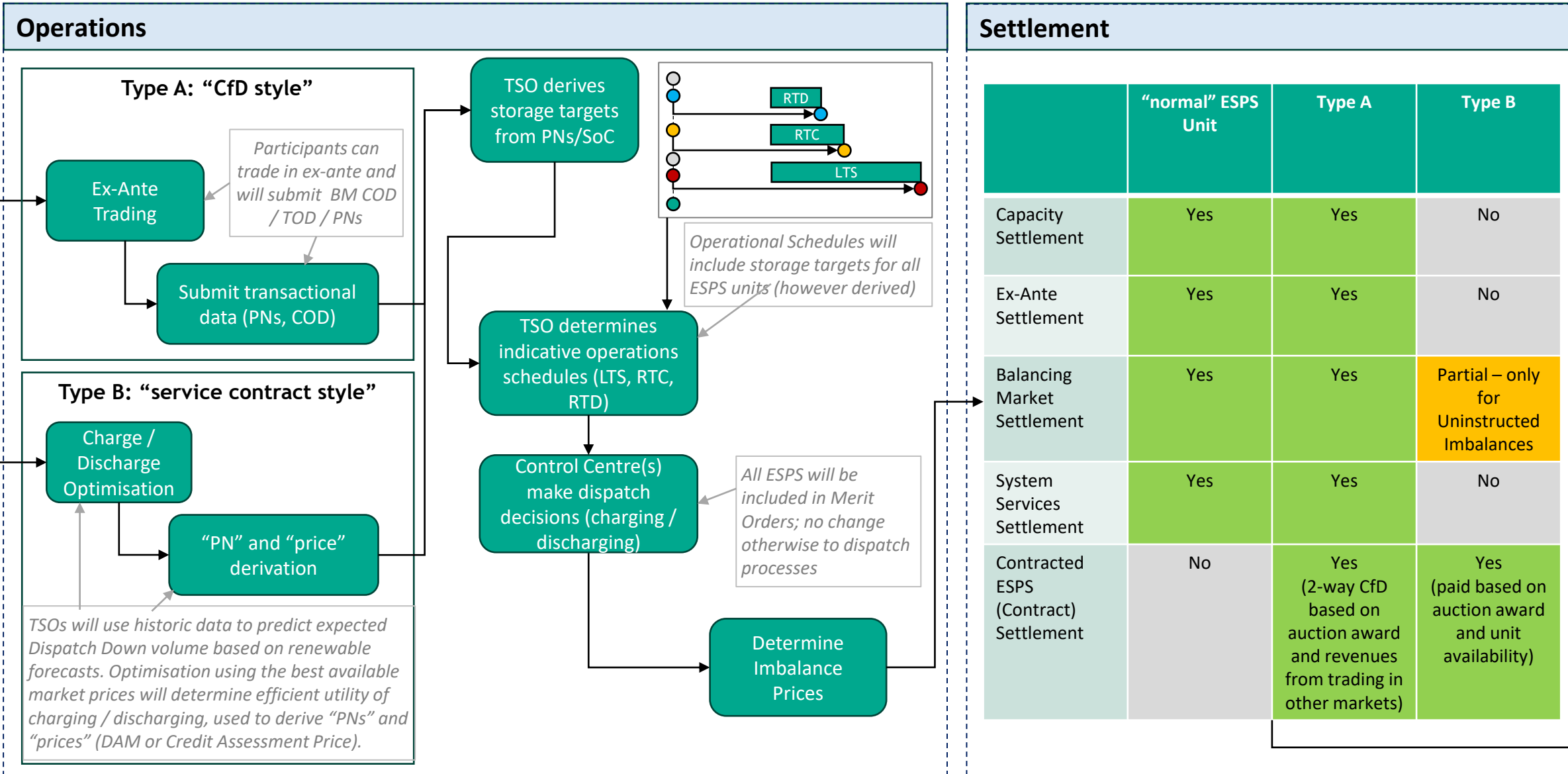


# ESPS/LDES (“enduring storage”): Day in the Life

LDES Call for Evidence provided valuable feedback to TSOs; as procurement discussions remain open, design considerations current retain both primary options (Type A + B). This focus on primary elements could be subject to change based on RA direction

ESPS/LDES

Energy Storage Power Stations/  
Long Duration Energy Storage



# Further Presentation / Engagement

- We are in the early stages of the design and no final decisions / commitments have been made
- Plan to continue to engage through this forum going forward
- Would welcome feedback for future engagement, e.g. dedicate future sessions to deeper dive on one topic?

# Stakeholder Engagement: FPM Industry Workshop

## Contacting FPM Programmes

To raise an issue or query for the Future Markets Programmes:

### Contact



#### SDP Queries

[SchedulingandDispatch@Eirgrid.com](mailto:SchedulingandDispatch@Eirgrid.com)

#### LDES Queries

[FuturePowerMarkets@Eirgrid.com](mailto:FuturePowerMarkets@Eirgrid.com)

#### FASS Queries

[FASS@Eirgrid.com](mailto:FASS@Eirgrid.com)

[FASSProgramme@soni.ltd.uk](mailto:FASSProgramme@soni.ltd.uk)

#### SMP Queries

[SMP.PMO@Eirgrid.com](mailto:SMP.PMO@Eirgrid.com)

#### FPM Policy

[FuturePowerMarkets@Eirgrid.com](mailto:FuturePowerMarkets@Eirgrid.com)

### Information to Provide

- Your Name
- Your email & phone number
- Your organisation
- Topic of Issue/Query & Programme Name
- Description of the issue or query
- Any additional information to aid in understanding the issue or query

# Future Power Markets: Industry Workshop

## Future Workshop Schedule

Date	Time	Location
08 May 2024	14:00 - 15:00PM	Online
05 June 2024		Dublin
03 July 2024		TBD - Dublin, Belfast, Dundalk
07 August 2024		TBD - Dublin, Belfast, Dundalk
11 September 2024		TBD - Dublin, Belfast, Dundalk
09 October 2024		TBD - Dublin, Belfast, Dundalk
06 November 2024		TBD - Dublin, Belfast, Dundalk
04 December 2024		TBD - Dublin, Belfast, Dundalk



## Future Discussion Topics

### SDP

- ESPS and NPDR Modification Approval - Updates
- Detailed Implementation Plan
- Ongoing NPDR designation process updates

### LDES

- Continuing to liaise with the RAs and Departments on next steps

### FASS

- DASSA Design consultation to close 24th May 2024.
- Product Design and Location Methodology Consultation Paper to be published end of May 2024 as per the timelines set out in the

### SMP

- Additional details on functional approach
- Additional topics TBD based on feedback

### EMP

- TBD