

Future Power Markets

Stakeholder Engagement

Industry Workshop: 12th November 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 (12th November 2024)

Agenda for today's workshop

Time	Topic
11:00 - 11:05	Introduction & Housekeeping
11:05 - 11.20	Integrated Plan Update
11.20 - 11.35	SDP Status Update
11.35 - 11.50	FASS Status Update
11:50 - 12:30	Strategic Markets Program: Balancing Market Reform - Ops and Market Settlement of Enduring Storage

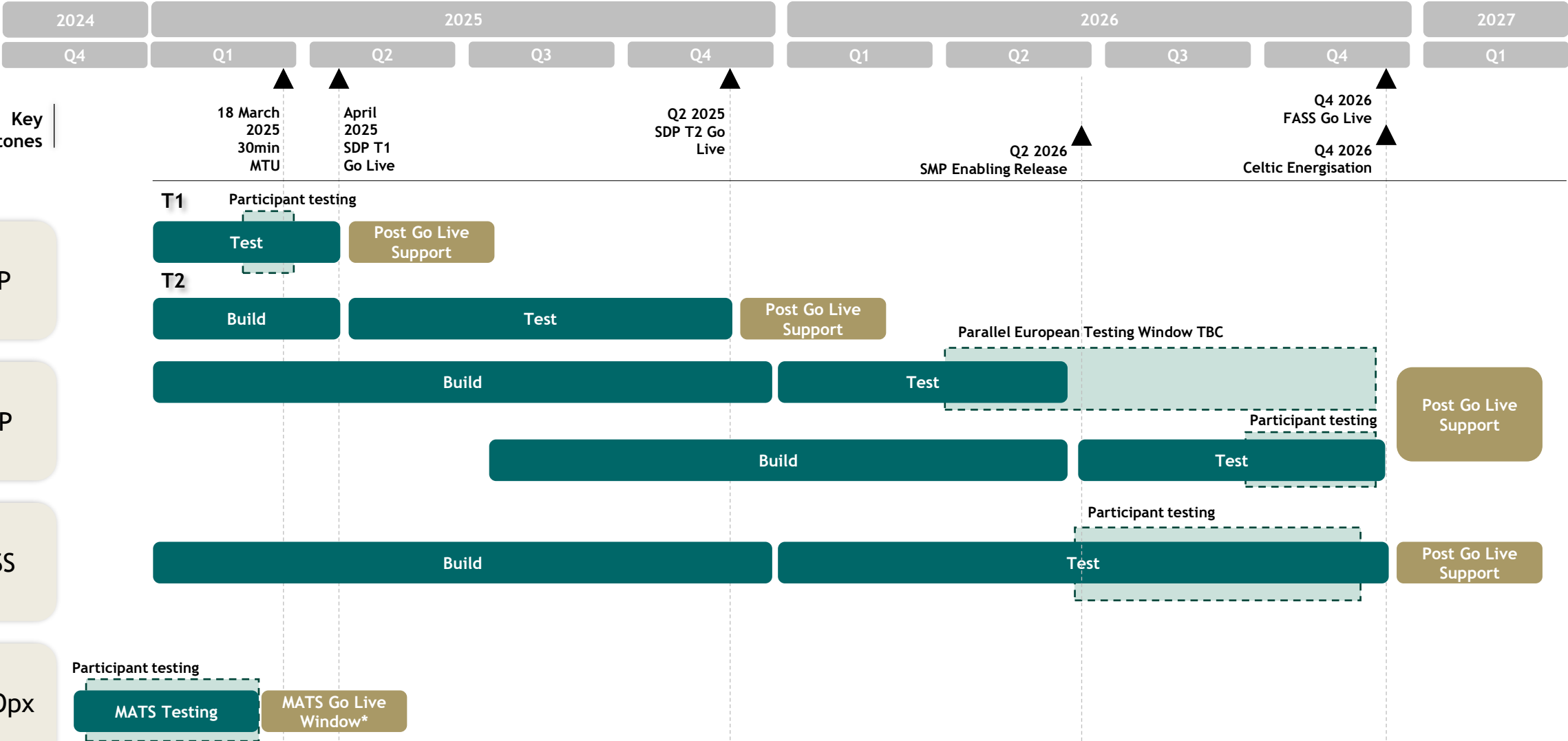
Integrated Planning Update

Market Programme Schedule

The below roadmap illustrates an indicative delivery plan for SDP, SMP, FASS and SEMOpX.

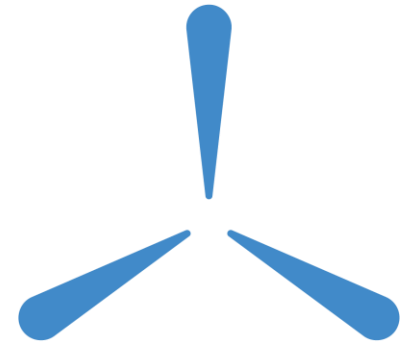
Legend

- Phase 3 Execution
- Phase 4 Acceptance & Close








*MATS go-live to be scheduled prior to 30min MTU go-live with 30 min MTU go-live subject to successful testing in SDAC.

Scheduling and Dispatch Programme



Scheduling and Dispatch - Status

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

 SDP		Summary Status
Overall Status		Overall programme status is Amber as Target date for Tranche 1 Modifications approval of June 2024 has not been met and Publication of additional milestones for Tranche 2 in September 2024 has been delayed. Progress has been made on Mod_02_24 “Battery Integration” and Mod_13_23 “Treatment of NPDRs”, RAs and SDP working together in order to bring the final recommendation to SEMC as soon as possible. The Programme remains committed to delivering the Tranche 1 initiatives in April 2025. Programme is working with its system vendor partners on the estimation and planning of Tranche 2.
Schedule		<p>Tranche 1: Target date for Tranche 1 Modifications approval of June 2024 has not been met. RAs, TSOs, and SEMO are working together to complete the modifications process as soon as possible. The Programme remains committed to delivering the Tranche 1 initiatives in April 2025. MMS Factory Testing has completed successfully, EMS Battery changes have completed FAT successfully. Factory test of Wind changes in EMS and EDIL Factory Test are in progress.</p> <p>Tranche 2: Publication of additional milestones for Tranche 2 in September 2024 has been delayed. The Programme is committed to delivering the Tranche 2 initiatives in quarter four of 2025 and at present the Programme is working with its system vendor partners on the estimation and planning of Tranche 2.</p>
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 but trending downwards

- Delay in RA approval of Tranche 1 modifications presents challenges to the programme
- Increase in volume of SDP queries is noted with Programme reviewing SDP query resolution process to ensure timely query responses.



Key Activities For Action Next Month

- RAs to approve Tranche 1 Modifications
- Completion of T1 Market Participant Training Plan



Positive Developments (Since Last Report)

- EMS Battery FAT completed; MMS FAT completed
- SDP Sandpit environment is in final access period



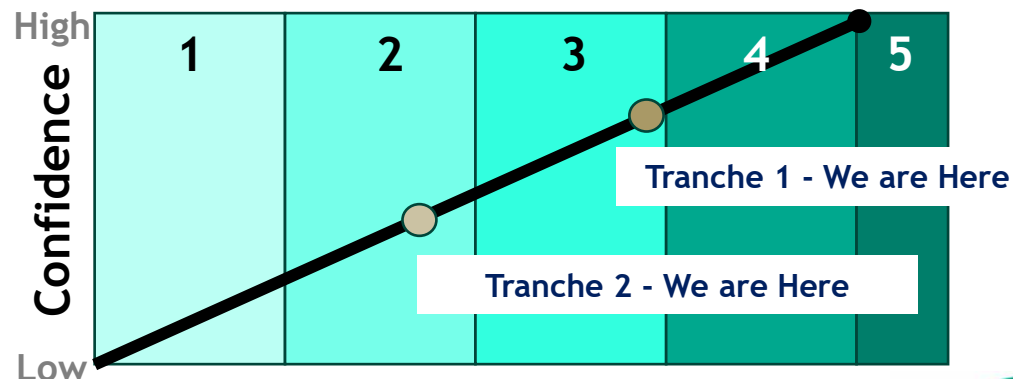
Challenges (Since Last Report)

- Target date for Tranche 1 Modifications approval of June 2024 has not been met

Scheduling and Dispatch: Phase 2 Milestones

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*

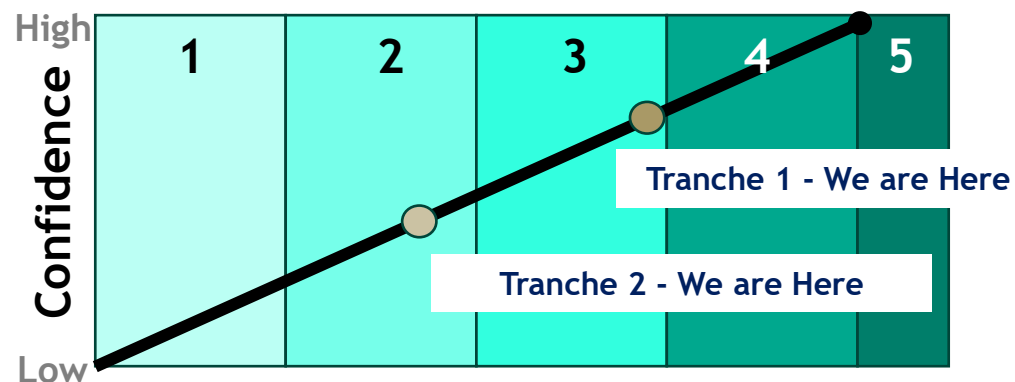
*The “Publication of milestones for Scheduling and Dispatch Programme Tranche 2 Initiatives” milestone was not completed in September 2024. The Programme is committed to delivering the Tranche 2 initiatives in quarter four of 2025 and at present the Programme is working with its system vendor partners on the estimation and planning of Tranche 2. The programme is not currently in a position to provide additional details regarding the delivery plan and milestones for Tranche 2. The programme has revised the target date to publish additional milestones for SDP Tranche 2 from September 2024 to November 2024



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

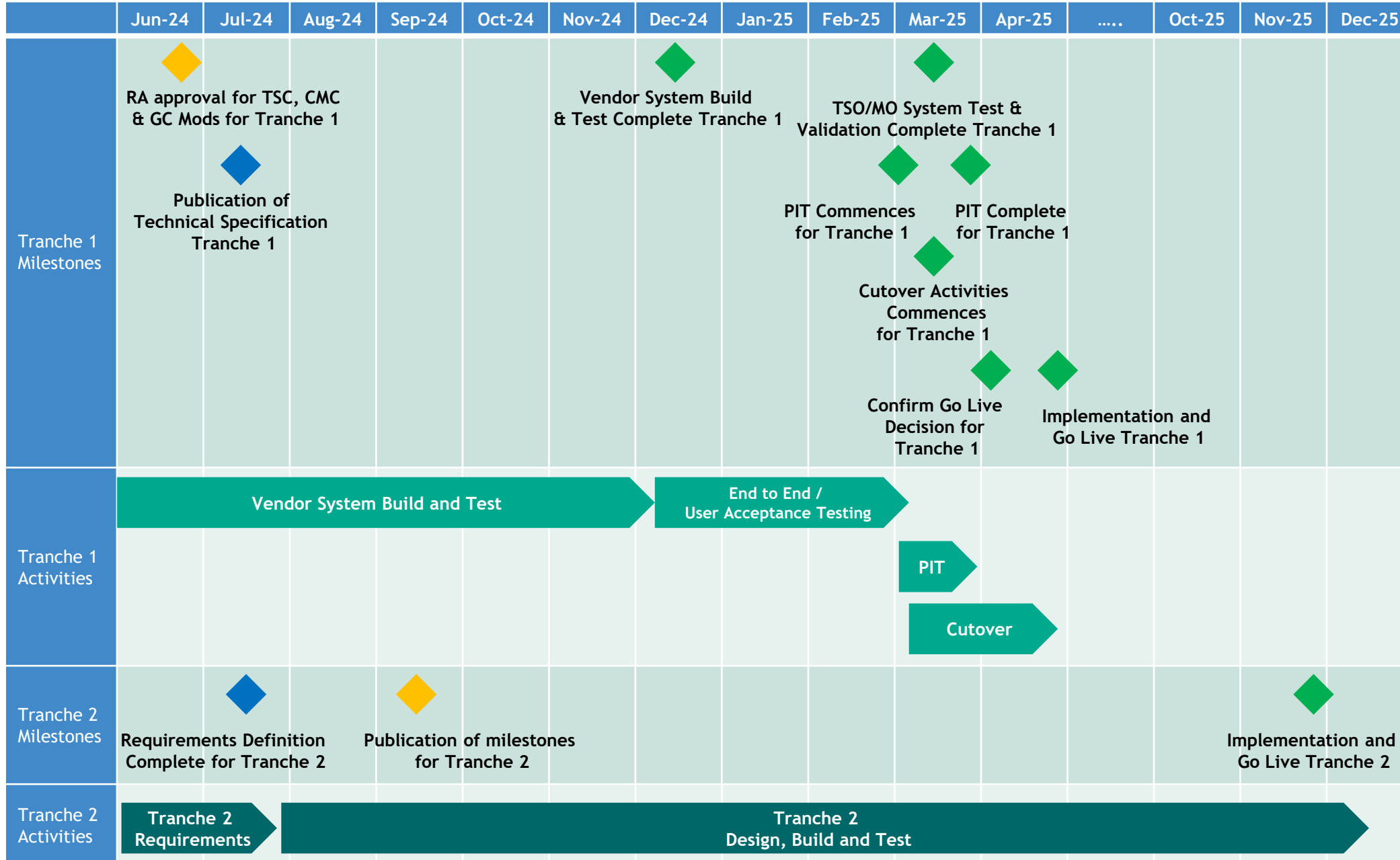
Scheduling and Dispatch: Phase 3 Milestones

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 Trading and Settlement Code (TSC), Capacity Market Code (CMC) & Grid Code Mods (GC) for Scheduling and Dispatch Programme Tranche 1 Initiatives	June 2024
Tranche 1	Publication of Technical Specification for Scheduling and Dispatch Programme Tranche 1 Initiatives	July 2024
Tranche 1	Vendor System Build and Test Complete for Scheduling and Dispatch Programme Tranche 1 Initiatives	Dec 2024
Tranche 1	TSO/MO System Test and Validation Complete for Scheduling and Dispatch Programme Tranche 1 Initiatives	Mar 2025
Tranche 1	Participant Interface Test (PIT) Commences for Scheduling and Dispatch Programme Tranche 1 Initiatives	Mar 2025
Tranche 1	Participant Interface Test (PIT) Complete for Scheduling and Dispatch Programme Tranche 1 Initiatives	Mar 2025
Tranche 1	Cutover activities Commences for Scheduling and Dispatch Programme Tranche 1 Initiatives	Mar 2025
Tranche 1	Confirm Go Live Decision for Scheduling and Dispatch Programme Tranche 1 Initiatives	April 2025
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 a **medium - high** level of confidence on the timelines for Tranche 1 and a **low - medium** level of confidence in timelines for Tranche 2. 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 - Programme Milestone Plan



Future Power Markets: Future Workshop Schedule

Future Discussion Topics

SDP

- Tranche 2 Overviews
- Tranche 2 Delivery Milestones

LDES

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

FASS

- System Services Supplier Charge consultation - workshop on paper
- Code Development Working Group - ongoing updates

SMP

- Additional details on functional approach
- Overview of functional impacts of EU Reintegration on SEM Market Participants

EMP

- CACM 2.0
- Net Zero Further Update
- FCA 2.0
- CRM27 + (guided by SEMC)

Indicative Date	Location
12 December 2024	Virtual
14 January 2025	Virtual


Future Arrangement System Services - Status Update

FASS: Programme Summary Status

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


FASS		Summary Status
Overall Status		The Future Arrangements for System Services (FASS) Programme is progressing at pace; however, an amber programme status remains due to requirements for additional consultations and workstreams and the associated risk to schedule until these details are confirmed.
Schedule		Programme schedule is amber reflecting risk of delay to schedule. Capacity challenges remain due to busy schedule with overlapping programme activities and additional design / consultative activities.
Resourcing		Resourcing remains green, following notice of approval of programme funding. SME availability remains a risk.
Finances		TSOs notified that programme funding has been approved. Formal funding approval expected shortly. This is also a prerequisite for engaging with IT vendors.

Key Messages




Service Provider Sentiment:

- Readiness survey has been issued to industry. The results from this survey will inform High Level Readiness Scope Document to be published end of November 2024 (FASS.20).




Key Activities for Immediate Action

- Continued RA/ TSO discussions on the 'gap' and transition from the current DS3 System Services Regulated Arrangements to DASSA go-live.
- TSOs & RAs are exploring an alternative solution for key design components (Alternative to the FAM)



Positive Developments (Since Last Report)

- SEMC Decision on DASSA Product Review & Locational Methodology was published 22nd October
- Industry Readiness survey has been shared with industry.



Challenges (Since Last Report)

- Final DASSA Design uncertainty

Status of Consultations

As part of the FASS Programme there are a number of consultations and publications in flight. PIR V2.0 was published on the 11th of October which provides clarity on the timing of future consultations in level 2 of the programme plan.

Consultations

Status

Product Review & Locational Methodology (Reserves)	Product Review and Locational Methodology Recommendations Paper was issued to the RAs early September and published on the TSOs' websites on the 4 th of October. A SEM Committee Decision paper was published 22 nd October. (SEM 24-074)
Volume Forecasting Methodology	The DASSA Volume Forecasting Methodology Consultation Paper was published Friday the 4 th of October. A 6-week consultation period is now open. Industry are encouraged to respond to the consultation, due to close November 15 th .
System Services Charge	System Services Charge Consultation has now closed with development of the System Services Charge Recommendations Paper underway and on track for issuing to the RAs by the end of November. A January SEMC Decision is expected.
DS3 SS Tariffs to DASSA (Transition Period)	TSOs will publish a consultation on the arrangements to be in place for the period between the current DS3 Regulated Arrangements end date (April 2026) and DASSA Go Live (December 2026). Drafting of the paper underway.
Readiness	Industry readiness survey issued on the 4 th of November followed by a two-week response period. TSOs to publish a high-level overview document setting out the summary scope of the programme's readiness activities.

Thank You

Questions can be submitted to

FASS@Eirgrid.com or
FASSProgramme@soni.ltd.uk

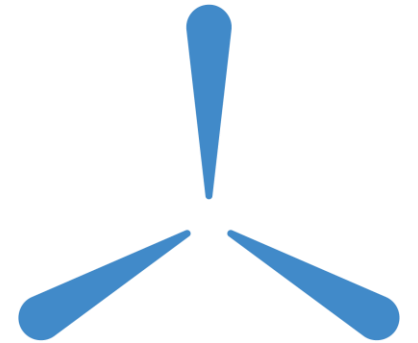
Next Steps:

- DASSA Volume Forecasting Methodology Consultation Period is currently open closing Friday 15th November.
- Industry survey issued 4th of November with a two-week response period. Industry are encouraged to complete the survey to gauge current stakeholder readiness.



Strategic Markets Programme

Balancing Market Reform - Ops and Market Settlement of Enduring Storage



Introduction and Context



Introduction

In the publications ‘Shaping our Electricity Future v1.1’ and ‘A Call for Evidence on the Market Procurement Options for LDES’, EirGrid and SONI have highlighted the importance of Long Duration Energy Storage (LDES) solutions in reducing dispatch down across the SEM.

Additionally, the Irish Government’s ‘Electricity Storage Policy Framework for Ireland’ and the UK Government’s ‘Long Duration Electricity Storage: Proposals to Enable Investment’ have highlighted LDES as key to supporting the integration of renewable generation on the power system.

Based on these publications an updated ESPS (Energy Storage Power Station) solution has been proposed to meet the following objectives:

- **Ensure Adequate Investment** - Explore the potential for procurement frameworks that attract adequate investment in ESPS
- **Maximise Renewable Energy Use**- Operate ESPS units efficiently to maximise the utilisation of renewable energy
- **Facilitate Effective Operations** - Implement advanced scheduling and dispatch processes to support Control Rooms decisions
- **Provide Clear Settlement Mechanisms** - Establish a settlement process supporting both market activity and contract-based engagements, where implemented, for ESPS units

Operations

Under this potential solution, it is proposed that ESPS Units shall be operated in the same way from a scheduling and dispatch perspective - i.e., each scheduling run would include an end of horizon storage target for each ESPS Unit. The main difference would be in how storage targets are determined for unit types.

Settlement

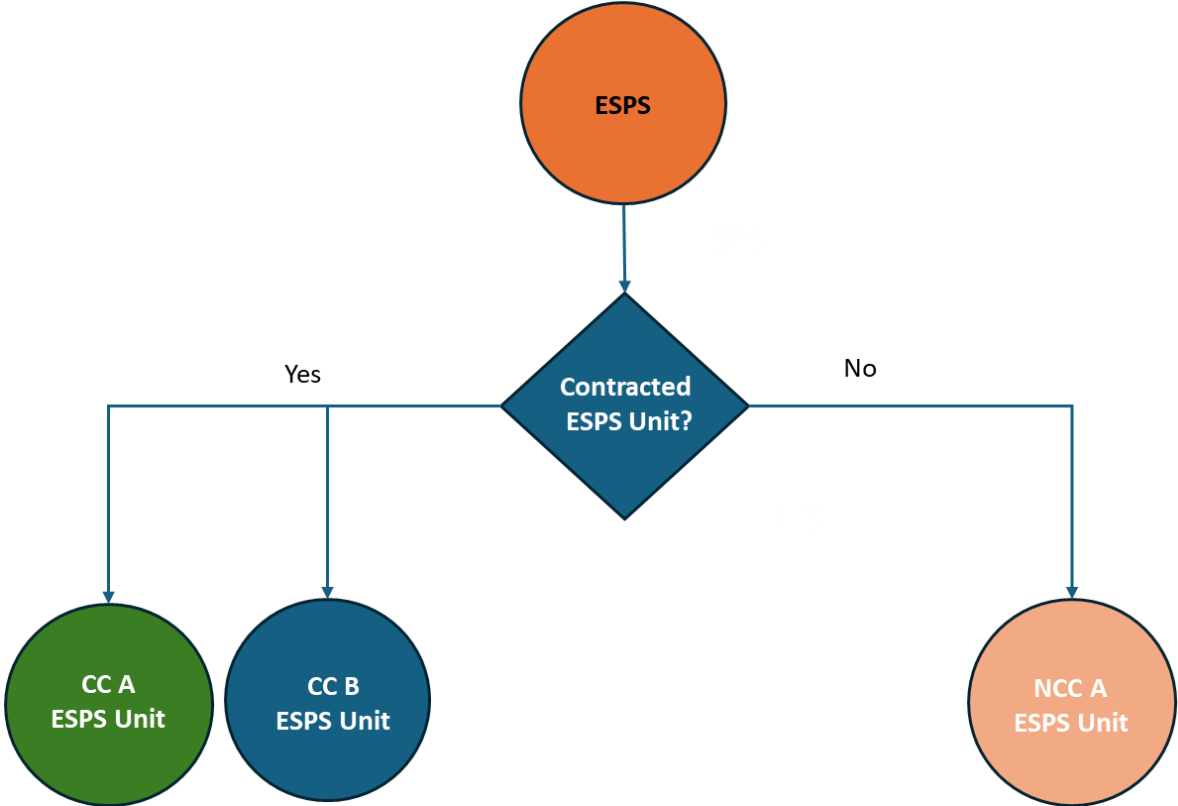
Market Settlement: There are no proposals for changes to how units will be settled by SEMO for market-based activity under this proposal.

Categorisation of ESPS Units

It is important to understand in this ESPS proposal the categorisation of ESPS Units. Conceptually, there may be three ESPS categories as described below.

This approach is based on options considered in the TSOs call for evidence paper. Categories are based on models developed in other European territories. No firm decisions have yet been made in the development of this proposal.

<p>Non-contracted Category A ESPS Units (NCC A)</p>	<p>Not procured via procurement framework. Will be operated in the same way as Contracted Category A ESPS Units.</p>
<p>Contracted Category A ESPS Units (CC A)</p>	<p>Contracted under procurement framework. Active participation in Capacity, Ex-Ante, Balancing, and System Services markets.</p>
<p>Contracted Category B ESPS Units (CC B)</p>	<p>Contracted under procurement framework. No active participation in Capacity, Ex-Ante, Balancing, and System Services markets. TSOs determine use of charging/ discharging.</p>

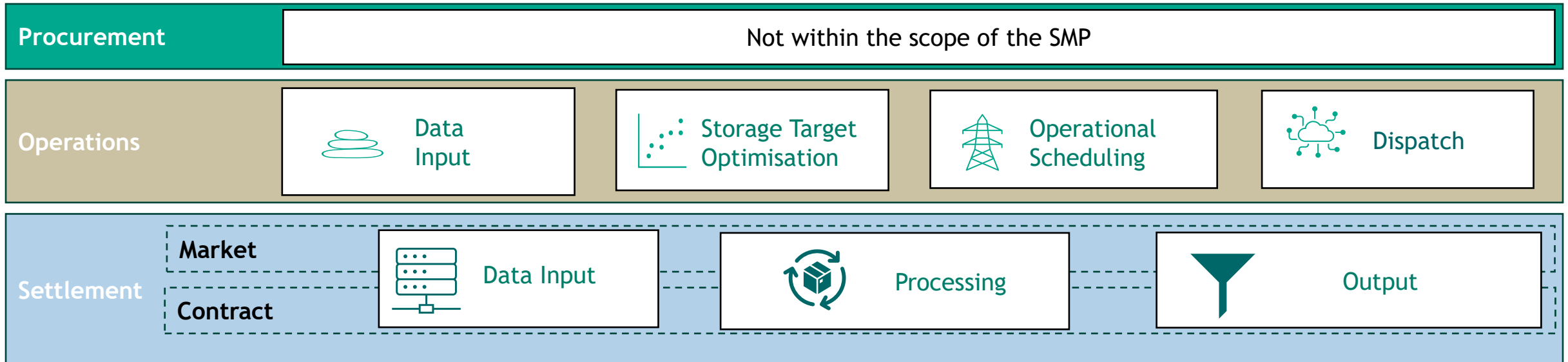


ESPS overview

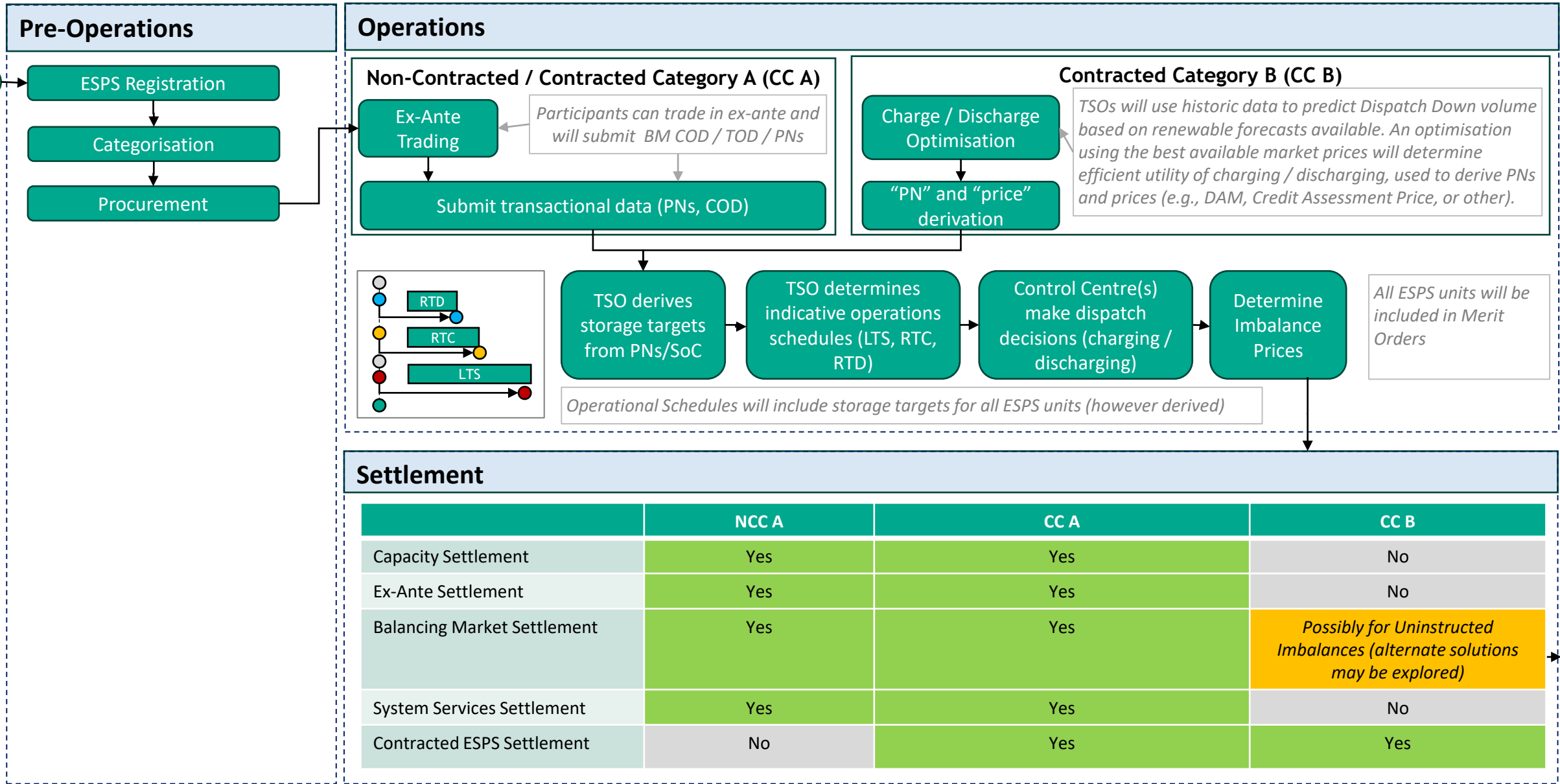
The ESPS solution is made up of three elements:

1. Procurement (outside scope of SMP)
2. Operation
3. Settlement
 - a) *Market: for Non-contracted Category A & Contracted Category A ESPS Unit via the existing Capacity, Day-Ahead, Balancing, System Services*
 - b) *Contract: for Contracted Category A & Contracted Category B ESPS units, settlement of contracts awarded through any procurement mechanism implemented*

Each element has a set of high-level requirements that meet the business needs.



ESPS/LDES (Day in the Life)



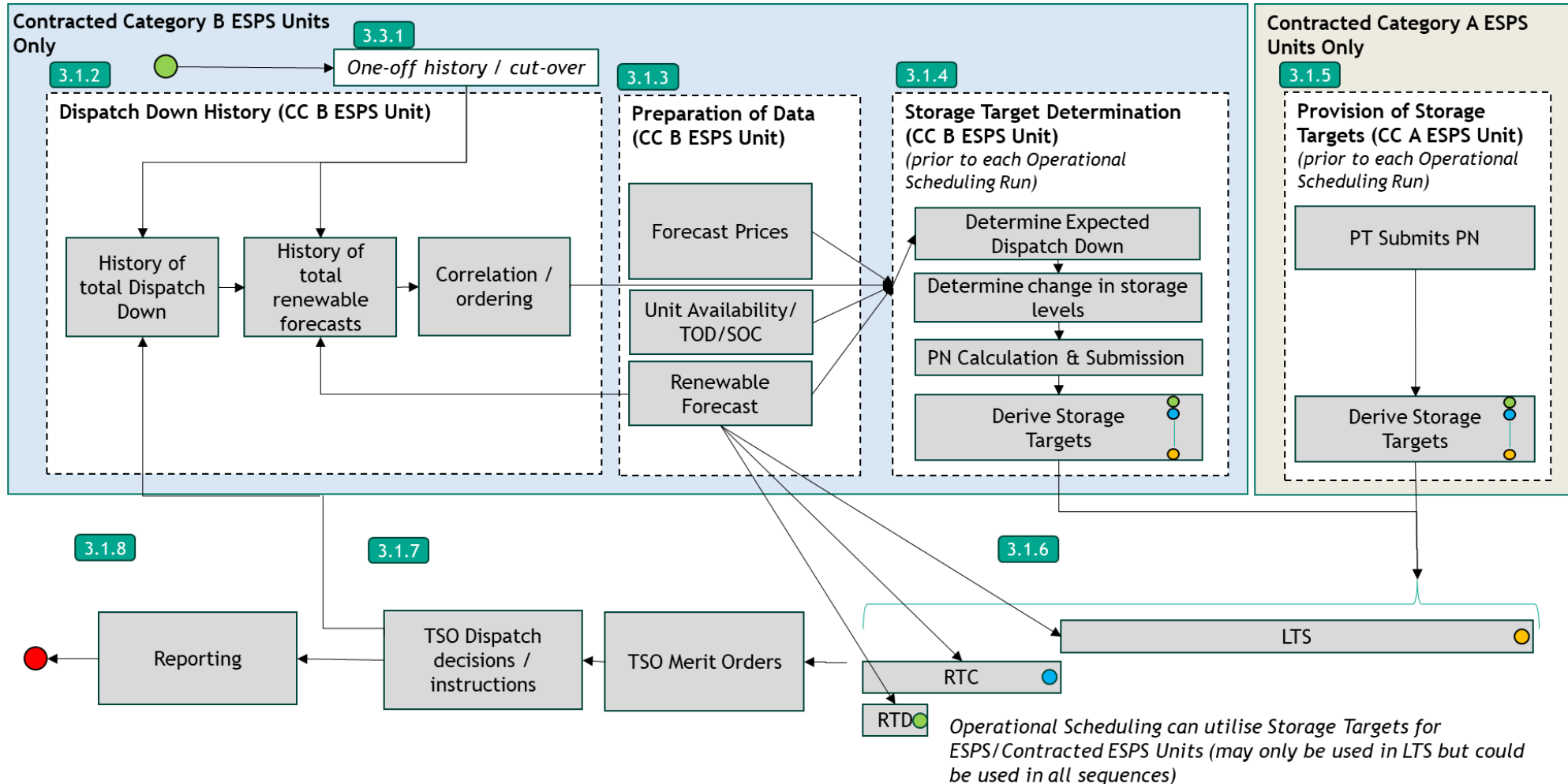
- **Operations**

- Settlement

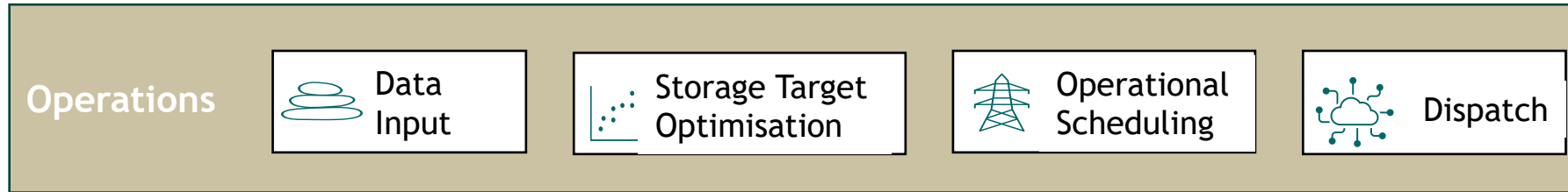


ESPS Operations - End to End Overview

The diagram below further illustrates the way in which Storage Targets are obtained based on Contracted ESPS Unit Categorisation, and how the end of scheduling horizon targets are considered.



ESPS Operations: Summary



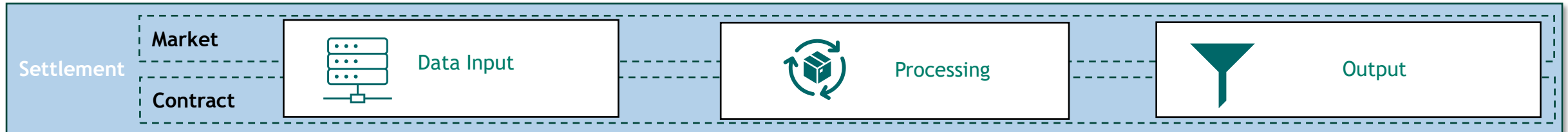
- All ESPS Units shall be operated in the same way from a scheduling and dispatch perspective - i.e. each scheduling run will include an end of horizon storage target for each ESPS Unit. The difference is in how storage targets will be determined.
- For Non-contracted Category A ESPS Units and Contracted Category A ESPS Units - storage targets will be derived from participant-submitted PNs.
- For Contracted Category B ESPS Units, the storage targets (and resulting PNs) are derived by TSOs based on optimised use of these ESPS units. This will be done with the objective reducing dispatch down as much as possible. The creation/provision of these storage targets is considered an automatic pre-process for each operational scheduling run.
- Depending on the operational scheduling run, a storage target will be taken for each ESPS Unit that aligns to the last trading period for that scheduling run. These targets can then be used as decision support for the Control Centre Operators as they schedule and dispatch as per their current processes.
- All Contracted ESPS Units will be considered dispatchable and will be included as part of the existing Merit Order lists. There is no proposal as part of these requirements to change the fundamental way in which scheduling and dispatch processes are carried out.

- Operations

- **Settlement**



ESPS Settlement: Summary (1/2)



- Market Settlement:
 - For Non-contracted Category A & Contracted Category A ESPS Units via the existing Capacity, Day-Ahead, Balancing, System Services, there are no changes to existing processes and charges foreseen;
 - For Contracted Category B, there will need to be some accounting in respect of uninstructed imbalances. This may utilise existing SEM settlement or be managed outside of normal market settlement;
- Contract Settlement:
 - For Contracted ESPS units, settlement of contracts awarded through any selected procurement framework
 - Contract settlement will contain some standard elements, such as -
 - Dual currency - likely to have a pre-defined exchange rate for currency conversion between GBP and EUR.
 - Settlement timetable to be determined at a later date.
 - The TSOs may settle ESPS Units in line with other TSO or SEMO settlement processes.

ESPS Settlement: Summary (2/2)

	Non-contracted Category A ESPS Unit	Contracted Category A ESPS Units	Contracted Category B ESPS Units
Capacity Settlement	Yes	Yes	No
Ex-Ante Settlement	Yes	Yes	No
Balancing Market Settlement	Yes	Yes	<i>Possibly for Uninstructed Imbalances (alternate solutions may be explored)</i>
System Services Settlement	Yes	Yes	No
Contracted ESPS Settlement	No	Yes	Yes

Summary

Categorisation of ESPS Units



- ESPS units may fall into one of three categories

- Contracted (via a procurement process) Category A
- Contracted (via a procurement process) Category B
- Non-Contracted Category A

e.g., two-way CfD arrangement
e.g., system-services arrangement
same as now

Operations



- Scheduling and Dispatch processes will likely remain unchanged; however, scheduling tools will utilise storage targets for ESPS units that are derived from PNs

- PNs for category A units will be as submitted to the Balancing Market
- PNs for category B units will be derived from storage targets determined by an optimisation of usage of the assets to utilise dispatch down volumes

Settlement



- Market Settlement (Balancing Market) is unchanged
- Contract Settlement will depend on the unit category and clarifying what contract provisions may apply

ESPS Operations: different treatment re: ESPS categories

Activity	Approach for Contracted Category A / Uncontracted ESPS Units	Approach for Contracted Category B ESPS Units
1. Confirmation of Physical Notifications	<ul style="list-style-type: none"> Submitted by the Participant (as currently for other units) based on ex-ante market participation 	<ul style="list-style-type: none"> Prior to each Operational Scheduling Run, the TSO will run a separate optimisation (based on renewable forecasts, correlation to historic dispatch down volumes and best available view of imbalance prices). This optimisation will which seek to maximise use of Category B Units to reduce/eliminate expected dispatch down volumes. The outcome of this optimisation will be converted to derived-PNs for each Category B ESPS Unit.
2. Derivation of future storage targets	<ul style="list-style-type: none"> Derived for each scheduling interval (for LTS, RTC, RTD) until end of TD+1 (covering LTS, RTC, RTD horizons) based on submitted PN and starting State of Charge. 	
3. Optimisation of ESPS Units in Operational Scheduling horizons	<ul style="list-style-type: none"> Each Operational Scheduling run would optimise charging/discharge within the schedule and seek to meet the storage target corresponding with its final scheduling interval. 	
4. Dispatch of ESPS Units	<ul style="list-style-type: none"> All Contracted ESPS Units would appear in the TSO Merit Order lists. 	