

Scheduling & Dispatch

Stakeholder Engagement

Industry Workshop

05 October 2023

This presentation provides an update on the Scheduling & Dispatch Programme.

Achievable - Valuable - “Simple”



Scheduling & Dispatch: Industry Workshop (October 2023)

Agenda for today's workshop

Time	Topic
13:00	Introduction
13:15	Functional Discussion (ESPS, NPDR, W/SDT)
15:00	Market Arrangements Updates (10 mins) (Grace Burke)
15:00	Break
15:10	Stakeholder Engagement (10 mins) (Seve)
15:20	Upcoming Meetings (10 mins) (Seve)
15:30	Additional Q&A AOB



Since We Last Met

- Additional detail on functional changes
- On schedule for MODS changes (SDP_001 ESPS)
- Preparing MODS changes (SDP_001 NPDR)
- Submitted Plain English Changes for ESPS
- Progressing integrated delivery plan (with key milestones)
- Engaged with technology vendors on detailed design for system changes

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 - 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 SDP. No specific technology discussion today.



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.

1. **SDP_001**: Operation of non-priority dispatch of renewables (NPDR)
2. **SDP_002**: Energy Storage Power Station (ESPS) integration
3. **SDP_003**: Fast Frequency Response (FFR)
4. **SDP_004**: Wind/solar dispatchability improvements
5. **SDP_005**: Reserve services scheduling and dispatch
6. **SDP_006**: Synchronous condenser scheduling and dispatch

Delivery Groupings

Group 1

- SDP_001
- SDP_002
- SDP_004

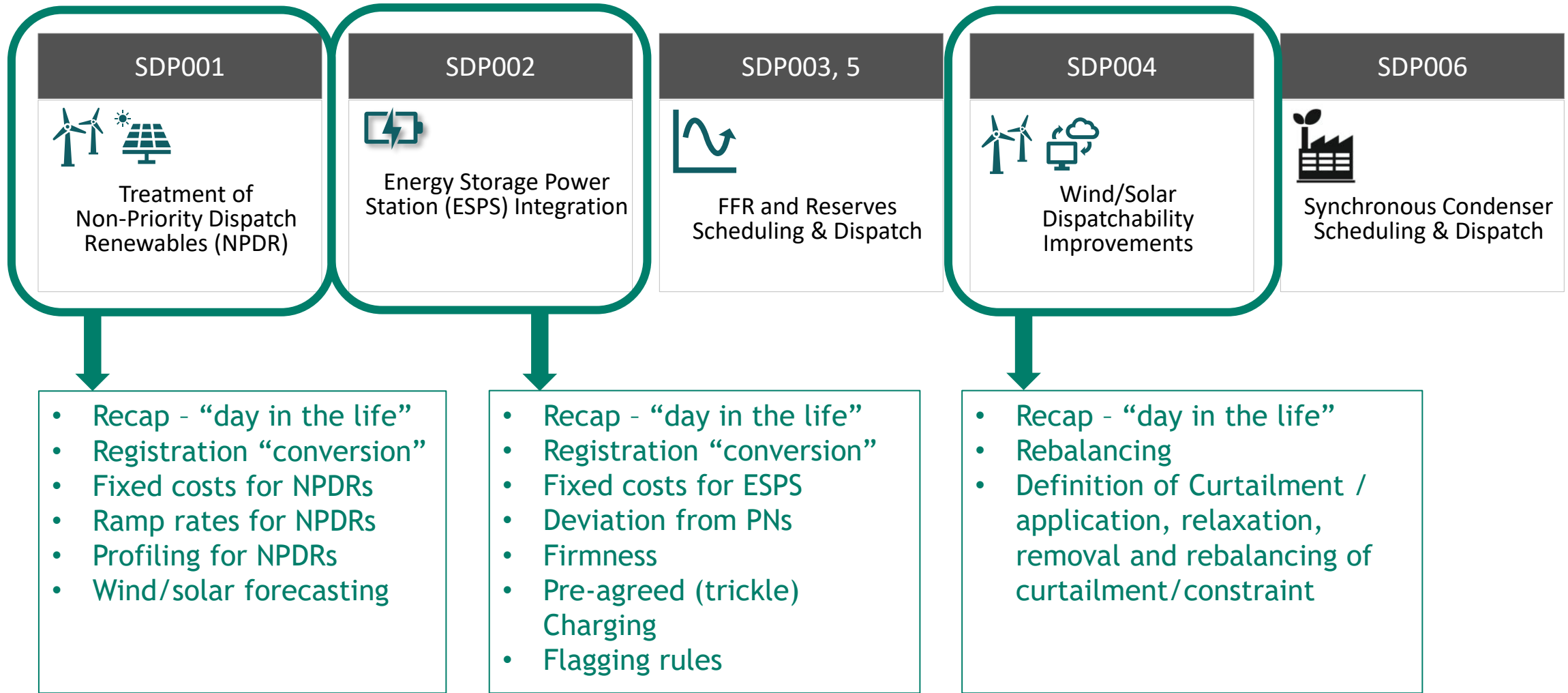
Group 2

- SDP_003
- SDP_005
- SDP_006

SDP Timeline

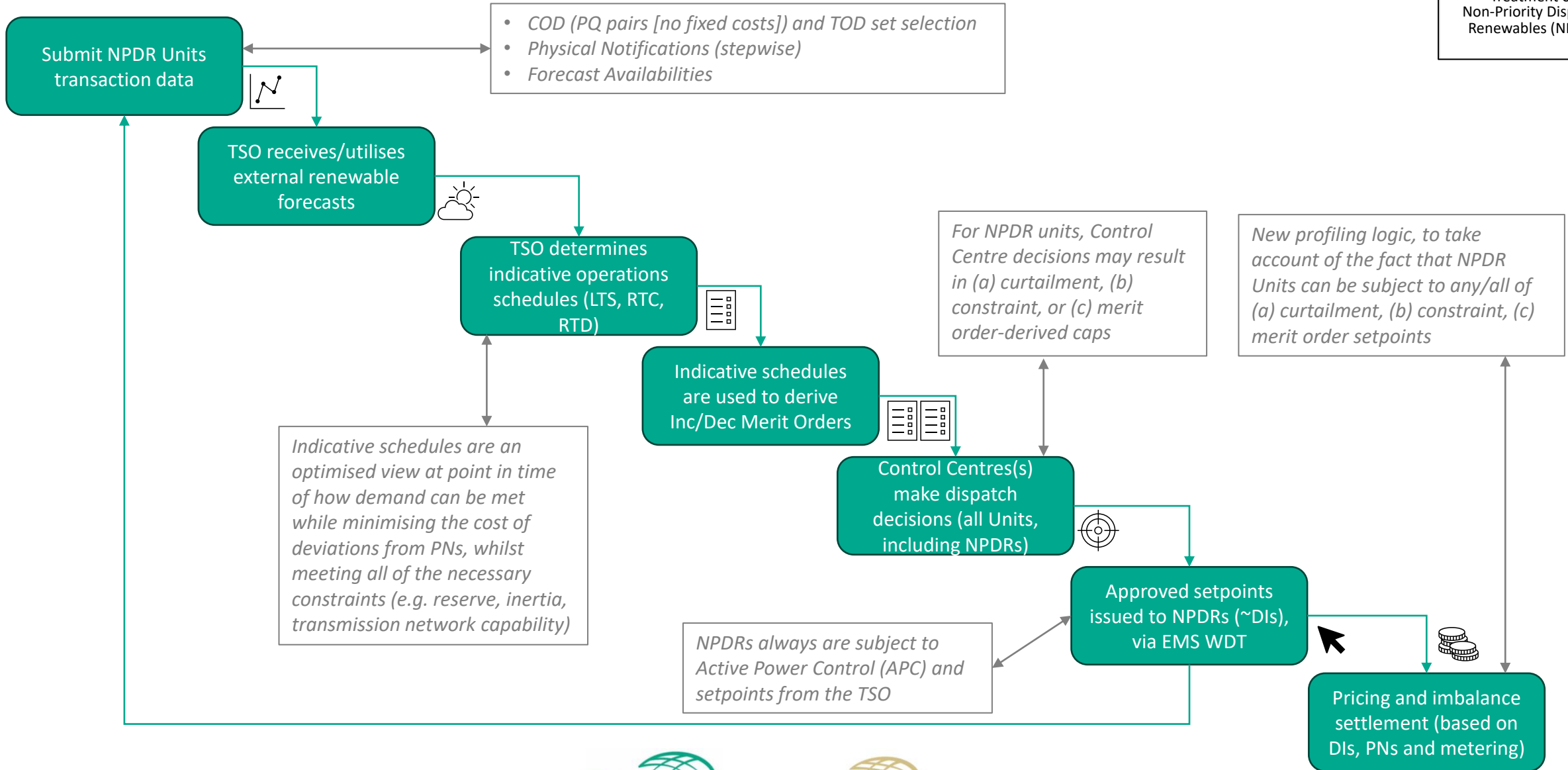


Functional Updates - what will we cover today?





SDP_001: Day in the life



SDP_001: Scope of registration “conversion”

Query from 6 Sep 2023 workshop regarding whether existing units will be “converted” automatically, or whether a re-registration process will be required

- As explained in the last workshop, “conversion” would be ideal
- However, there are many aspects to consider. In particular for NPDRs, data contained within a “gate”, valid data will need to be in place as of the cutover time, including:
 - *Default Data (Standing Data of type = ALL or day-specific)*
 - *Complex COD*
 - *PNs*
 - *Forecast Availability*
 - *TOD sets (up to 5, at least 1)*
 - *TOD set selection*
- **Discussions are ongoing to determine what degree of “conversion” is possible. Updates will be provided at subsequent industry workshops**
- The working assumption at present is that no new flag will be required to identify NPDRs, only a combination of Fuel Type, Priority Dispatch, Controllable and Dispatchable flags.
- Solar units will continue to be registered as “Wind” under this programme.

SDP_001: Fixed costs for NPDRs

Query from 6 Sep 2023 workshop regarding zero fixed costs for NPDRs

- **Technology considerations**

- T&SC: Start up means the process of bringing a Generator Unit to a Synchronised state, from a cold, warm or hot (Desynchronised) Warmth State.
- Grid Codes: The action of bringing a Generation Unit from Shutdown to Synchronous Speed.
- Start-up costs primarily represent additional fuel costs associated with a thermal generator moving from a desynchronised state to its minimum stable generation.
- No-load costs also relate to a unit's commitment status (synchronised or desynchronised).
- Wind and solar units will not synchronise or desynchronise, do not have warmth states.
- These units will be permanently energised and subject to a control set point unless on outage.

SDP_001: Query on ramp rates

Query from 6 Sep 2023 workshop regarding infinite ramp rates for NPDRs

- Instantaneous ramp rates already apply to constraint and curtailment instructions on priority dispatch wind and solar units at present; no proposal to change this.
- **Dispatch**
 - From experience, when control centre issues control set-points wind farms will typically achieve the target MW within seconds.
- **Settlement**
 - Tolerance bands in Uninstructed Imbalance calculations should ensure that any difference will not be material.
 - Uninstructed Imbalance parameters are kept under review and can be updated if appropriate.

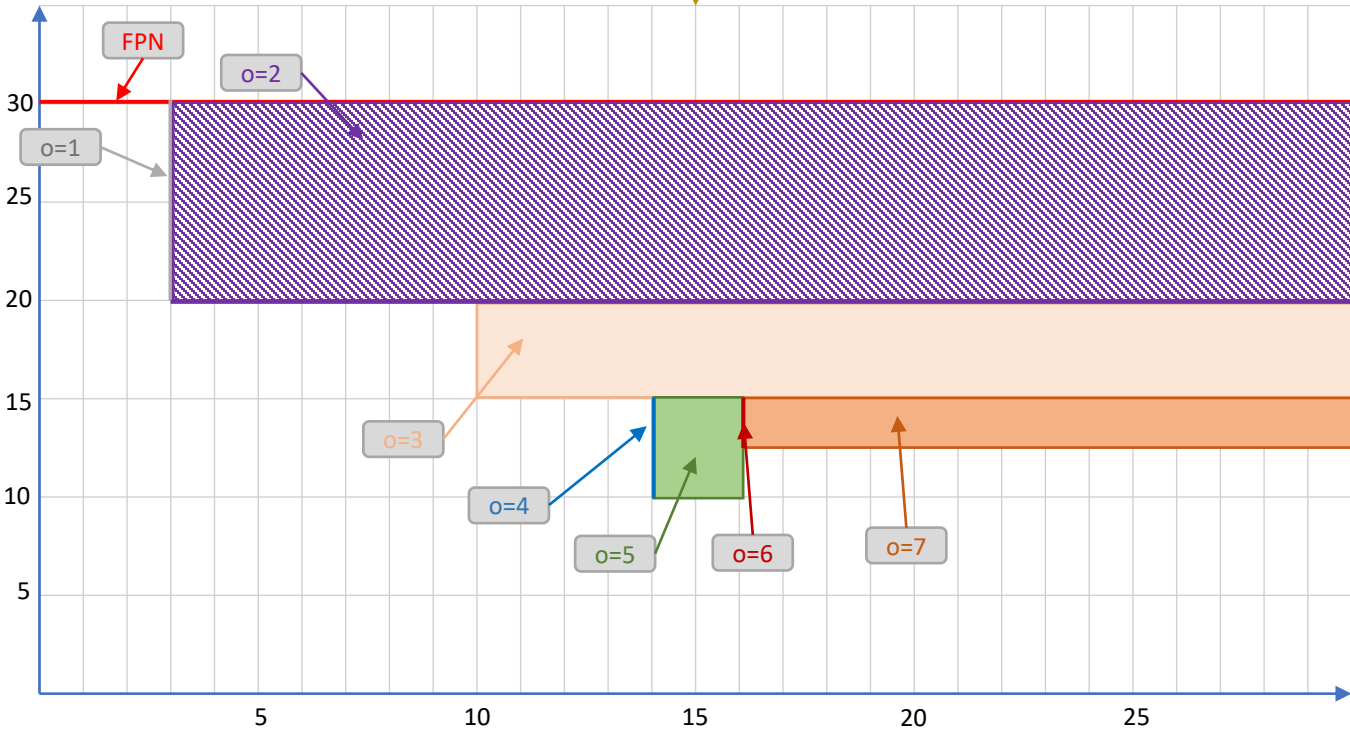
SDP_001: Treatment of NPDRs in profiling/BOA

NPDRs will be subject to balancing [new], curtailment [existing] and constraint [existing] actions as per SEM-21-027

- NPDRs will receive:
 - *MWOF instructions (balancing actions)*
 - *CURL/CRLO instructions (Curtailment)*
 - *LOCL/LCLO instructions (Constraint)*
- Principles to be applied in profiling:
 - *Maintains existing logic for profiling of constraint and curtailment instructions based on regulatory decisions.*
 - *Additional logic required to profile merit order/energy balancing set points alongside constraint and curtailment.*
 - *Pseudo instructions are not closed when MWOF instructions are not adjacent when a new instruction is applied (where adjacent means there is no LOCL or CURL between the MWOF actions).*
 - *MWOF will (when issued) always be below the lowest active curtailment / constraint.*
 - *LOCL or CURL instructions cannot result in Incremental actions.*
 - *Where instructions persist across Trading Period boundaries, PISP will continue to be used to close MWOF instructions and to persist the action in the new Trading Period (allowing correct assignment of COD to the volumes in each Trading Period). Existing PISP existing logic will be enhanced to ensure that ordering of the instructions is maintained pre and post the Trading Period boundary.*

SDP_001: Profiling example #1 (“multiple MWOFs with reducing DEC”)

Time (minute)	Type	MW
3	MWOF#1	20
10	LOCL	15
14	MWOF#2	10
16	MWOF#3	12



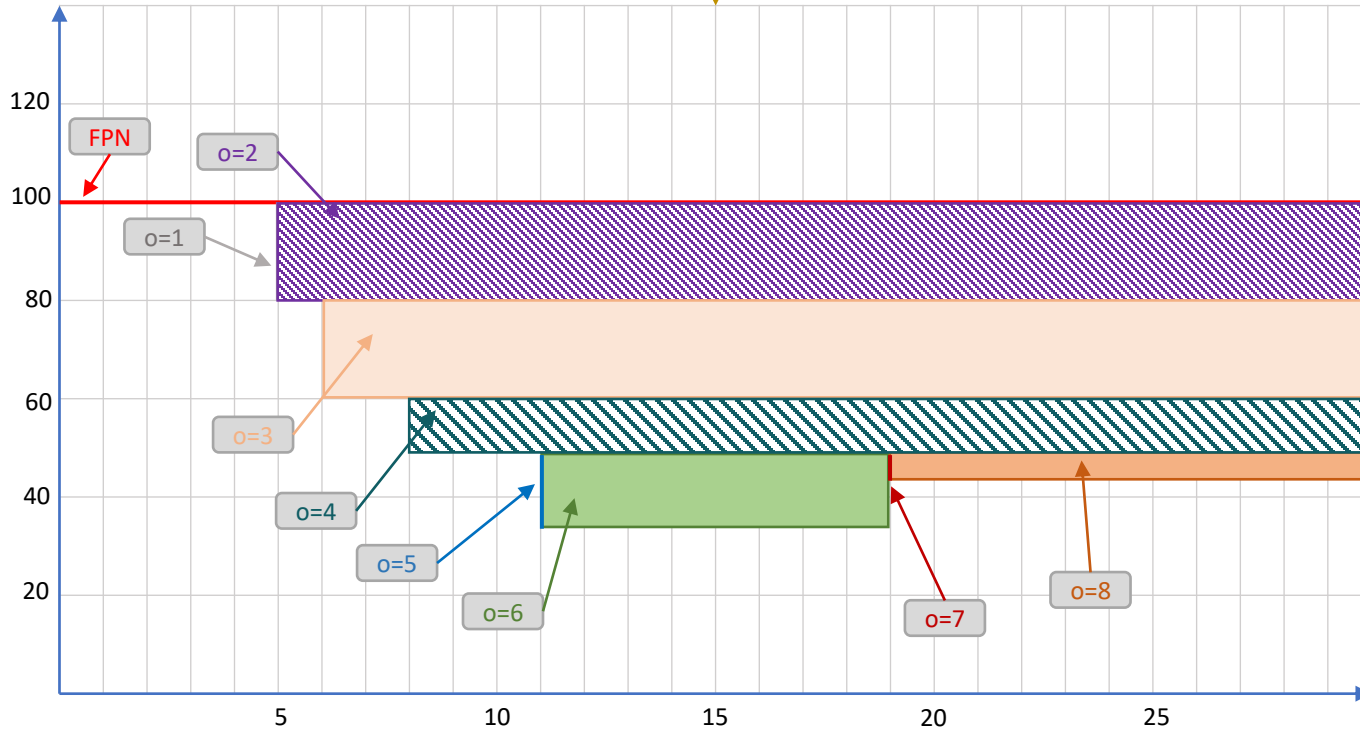
Order	Profile						Notes
FPN	30						re: FPN (30)
o=1	30 @ 1-3	20 @ 3	30 @ 3-30				Profile to MWOF#1 target, return to previous profile
o=2	30 @ 1-3	20 @ 3-30					Create PMWO#1 profile (follow previous profile until MWOF target is met, then extend)
o=3	30 @ 1-3	20 @ 3-10	15 @ 10-30				Profile LOCL (go to target level and persist)
o=4	30 @ 1-3	20 @ 3-10	15 @ 10-14	10 @ 14	15 @ 14-30		Profile to MWOF#2 target and return to previous profile (do not close existing PMWO)
o=5	30 @ 1-3	20 @ 3-10	15 @ 10-14	10 @ 14-16	15 @ 16-30		Create PMWO#2 profile (follow previous profile until MWOF target is met, then closed to previous profile when subsequent MWOF profiled)
o=6	30 @ 1-3	20 @ 3-10	15 @ 10-14	10 @ 14-16	12 @ 16 15 @ 16	15 @ 16-30	Profile to MWOF#3 target, return to previous profile
o=7	30 @ 1-3	20 @ 3-10	15 @ 10-14	10 @ 14-16	15 @ 16	12 @ 16-30	Create PMWO#3 profile (follow previous profile until MWOF target is met, then extend)

SDP_001: Profiling example #2 (“multiple MWOFs with reducing DEC (extended version)”)

Issued Instructions		
Time (minute)	Type	MW
5	MWOF#1	80
6	LOCL	60
8	CURL	50
11	MWOF#2	35
19	MWOF#3	45

Important Notes:

- (1) assumption is that MWOF will always be below the lowest active curtailment / constraint
- (2) PMWO is not closed when MWOF instructions are not adjacent



Order	Profile						Notes
FPN	100						re: FPN (30)
o=1	100 @1-5	80 @ 5	100 @ 5-30				Profile to MWOF#1 target, return to previous profile
o=2	100 @1-5	80 @ 5-30					Create PMWO#1 profile (follow previous profile until MWOF target is met, then extend)
o=3	100 @1-5	80 @ 5-6	60 @ 6-30				Profile LOCL (go to target level and persist)
o=4	100 @1-5	80 @ 5-6	60 @ 6-8	50 @ 8-30			Profile CURL (go to target level and persist)
o=5	100 @1-5	80 @ 5-6	60 @ 6-8	50 @ 8-11	35 @ 11	50 @ 11-30	Profile to MWOF#2 target and return to previous profile (do not close existing PMWO)
o=6	100 @1-5	80 @ 5-6	60 @ 6-8	50 @ 8-11	35 @ 11-19	50 @ 11-30	Create PMWO#2 profile (follow previous profile until MWOF target is met, then closed to previous profile when subsequent MWOF profiled)
o=7	100 @1-5	80 @ 5-6	60 @ 6-8	50 @ 8-11	35 @ 11-19 45 @ 19 50 @ 19	50 @ 19-30	Profile to MWOF#3 target, return to previous profile
o=8	100 @1-5	80 @ 5-6	60 @ 6-8	50 @ 8-11	35 @ 11-19	45 @ 19-30	Create PMWO#3 profile (follow previous profile until MWOF target is met, then extend)



SDP_001: Scheduling Approach

Not currently possible to use
forecasts submitted by Participants

- **Renewable forecasts**

- Control centre engineers will be able to better utilise external forecasts from vendor **and/or availability submitted by Participants via the MPI**
- Additional flexibility for control centre engineers to enable greater control of weighting and blending of forecasts from different forecast vendors / participant-submitted availability

- **Scheduling**

- NPDR units will be scheduled based on submitted COD, TOD, and PN (and will have zero start-up costs and no-load cost)
- NPDR units will be considered ON

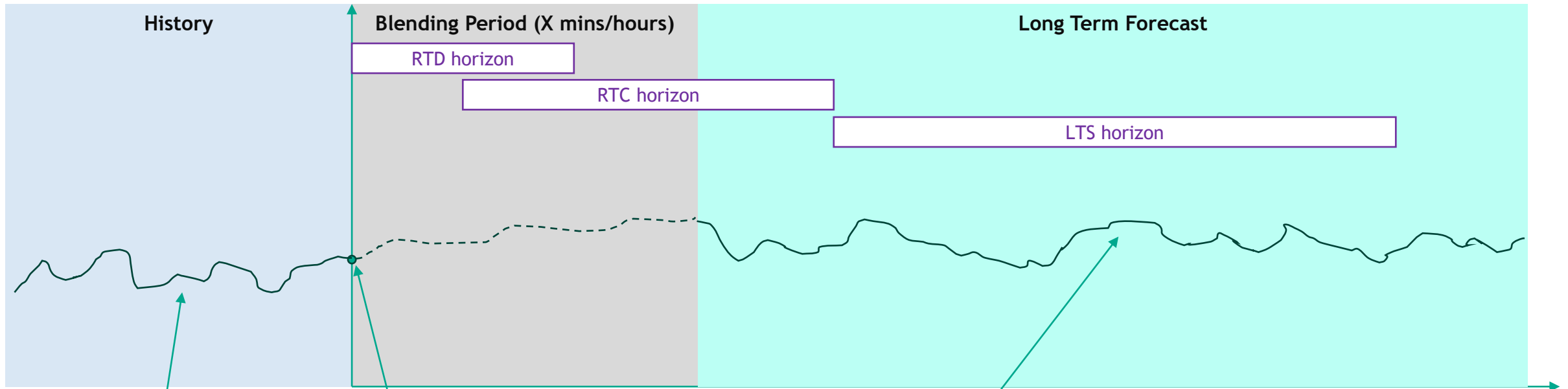
Suggestion from industry workshop 6 Sep 2023 was to publish the wind forecast that was used in each scheduling process

- **Dispatch**

- Given the volume of NPDR Units, they will be grouped within control centre online merit orders, grouped into price bands
- Control centre engineers will be able to select constraint, curtailment or merit order (MWOFF) actions
- NPDRs will always have an MWOFF instruction in place (and may also have curtailment/constraint)

SDP_001: Wind/Solar Forecasting

- The TSOs' short-term forecasting system (WPRED) runs every minute, joining together the real-time situation (via telemetry collected in the EMS) to the long-term forecast through a blending period
- The short-term forecast is ONLY used to support scheduling processes, real time availability is used for dispatch and settlement
- Given the frequency of update, publication of forecasts every minute is impractical



History

Current availability
(from EMS)

Long Term Forecast, using:
(a) External forecast provider #1
(b) External forecast provider #2
(c) Participant forecast (via Forecast Availability submitted to the MPI)

Not currently possible to use forecasts submitted by Participants; will be delivered via SDP

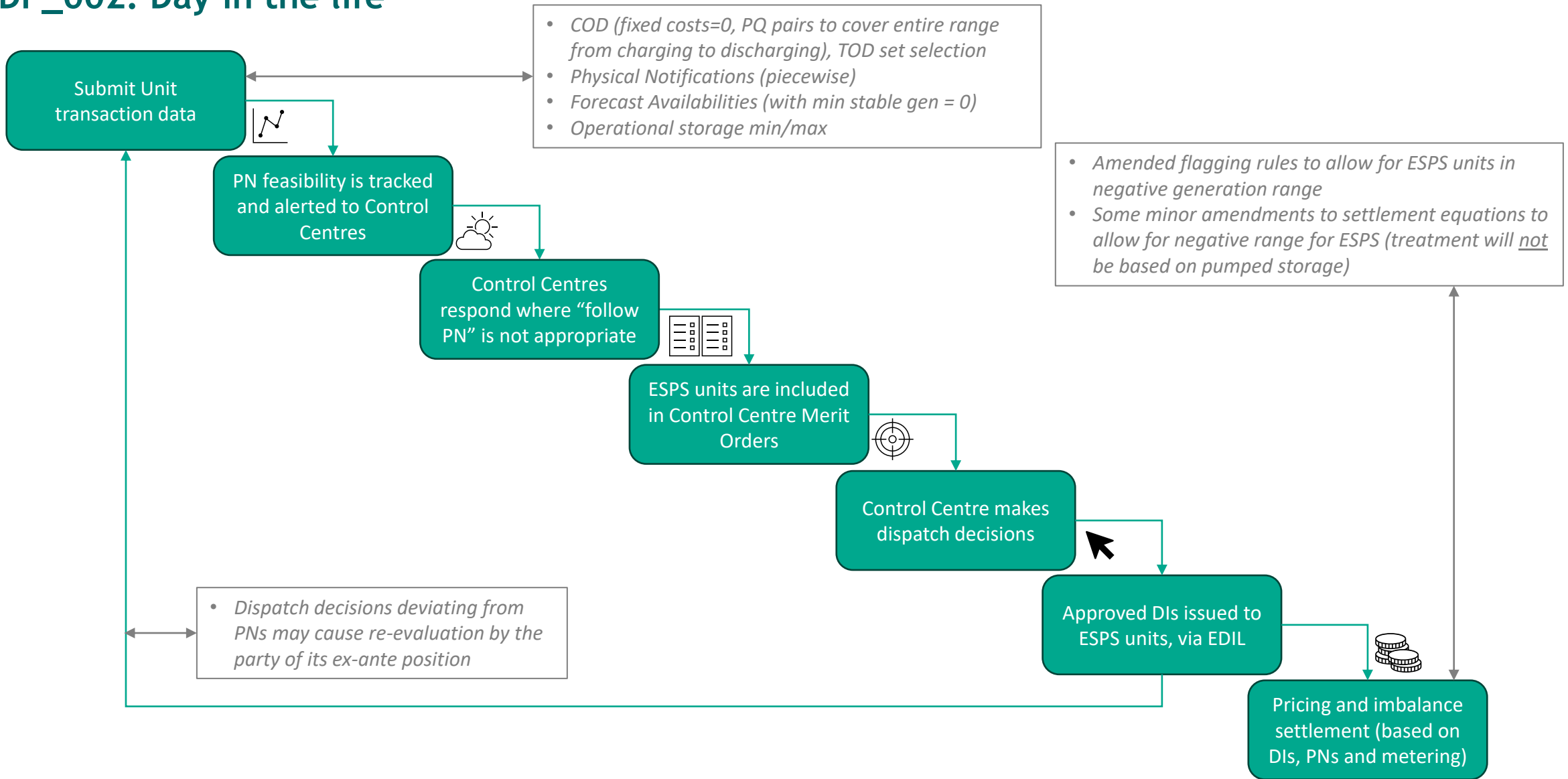


SDP_001: Current wind/solar forecast publications

Report	Report Name	When published?	Member Private	Member Public	General Public
REPT_012	Forecast Availability	Ex-post for previous Trading Day		Y	Y
REPT_027	Four Day Rolling Wind Unit Forecast Report (includes solar)	4 times per day, covering next 4 Trading Days		Y	
REPT_028	Four Day Aggregated Rolling Wind Unit Forecast Report (includes solar)	4 times per day, covering next 4 Trading Days		Y	Y
REPT_075	Aggregated Wind Forecast Report (includes solar)	4 times per day, covering next 4 Trading Days		Y	Y
REPT_082	Average Outturn Availability	Ex-post for previous Settlement Day		Y	Y

- Information relating to renewables forecasts (from external providers) is already published (both to Participants and to the general Public)

SDP_002: Day in the life



SDP_002: Scope of registration “conversion”

Query from 6 Sep 2023 workshop regarding whether existing units will be “converted” automatically, or whether a re-registration process will be required

- As explained in the last workshop, “conversion” would be ideal
- However, there are many aspects to consider. For ESPS units, initial view is that conversion is likely to be simpler than for NPDRs, as current battery units (registered as Multi-Fuel) already have COD, TOD, PNs etc (although some additional fields are required).
- **Discussions are ongoing to determine what degree of “conversion” is possible. Updates will be provided at subsequent industry workshops**

SDP_002: Query on Fixed Cost recovery

Query from 6 Sep 2023 workshop regarding zero fixed costs for ESPS units

- T&SC already requires fixed costs to be entered as zero for battery storage and pumped storage units, no proposed change to this.
- **Technology considerations**
 - These units will be permanently energised unless on outage.
 - Units can traverse through zero from charging to discharging and vice versa.

SDP_002: Firmness

Query from 6 Sep 2023 workshop regarding treatment of firmness for ESPS Units

- The treatment of firmness for ESPS units will be the same as all other generator units. As such, there is no expectation of a change to rules or systems on this topic.
- If a battery unit is the only unit on a trading site, charging quantities will always be considered firm.
- If there are multiple units on a trading site, the site non-firm quantity will be distributed across all dec actions as it is today.
- Firm Access allocation is outside of the scope of SDP and will follow SEMC policy.



Firm Access Methodology in Ireland decision
“EirGrid – proposed methodology”

Batteries and other system service providers

Agree with proposed approach of treating batteries and other service providers as outside the scope of this Firm Access methodology.

Following completion of Electricity Storage Policy Framework by DECC a review will be carried out.

SDP_002: Query on “Trickle Charging”

Query from 6 Sep 2023 workshop regarding application of “trickle charging” for battery units

- Currently, there is an arrangement in place by which battery units can “trickle charge” up to the $\min(5\text{MW}, 20\% * \text{MEC}, \text{MIC})$. This is in place particularly as these units cannot currently have negative quantities to reflect charging (e.g., negative PNs, inability to dispatch to charge)
- SDP_002 addresses this limitation so that ESPS units will be able to reflect negative quantities and dispatch to charging will be possible
- As a result, the current “trickle charging” arrangement will no longer be applicable once the SDP_002 changes are implemented

SDP_002: Query on Deviation from PNs

Query from 6 Sep 2023 workshop regarding obligation on Participants to update PNs following TSOs dispatching away

- Participant concerns that PNs may not be able to be updated (i.e., gate closed or insufficient ex-ante liquidity)

Key considerations:

- TSOs must be able to dispatch ESPS units
- PNs must reflect ex-ante trading position and must be physically feasible
- Participants can reflect any commercial risk in their Simple COD, including prices which indicate the desire (or not) of being dispatched by the TSOs away from PNs
- This principle exists already for pumped storage, by which the effects/risks of dispatch away from PNs is managed by the participant
- Initial discussions by TSOs suggests that there would be no practical means to address in balancing market settlement situations where PNs across the day become infeasible as a result of TSO actions

As a result, the TSOs' current assumption is that existing mechanisms will be used by Participants to manage/reflect the commercial risk of deviations from PNs

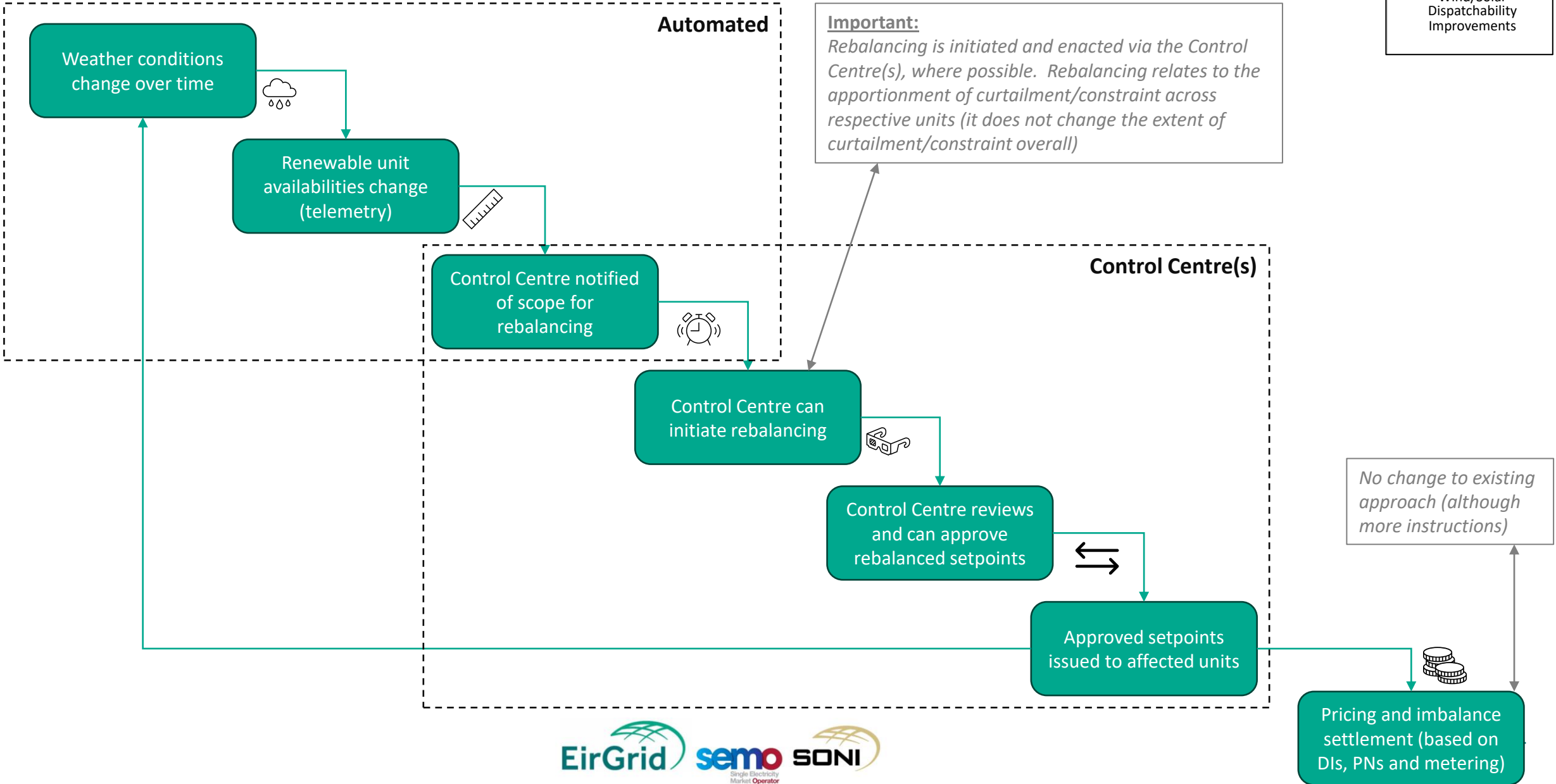
SDP_002: Amendments require to flagging rules

Updates to the existing Non-Marginal Flagging and Non-Energy Flagging rules are needed to allow for ESPS units operating below 0MW

Flagging Rule Type	Flagging Rule	Change Required
Non-Marginal	-	Clarify for ESPS that HOL = declared EDIL MDMW and LOL = declared EDIL MNMW
Non-Energy	Primary Operating Reserve Secondary Operating Reserve Tertiary 1 Operating Reserve Tertiary 2 Operating Reserve Fast Frequency Response	In FPN test, change: “unit is non-energy flagged if $0 < QRTD \leq GRMN$ ” to “unit is non-energy flagged if QRTD is not equal to 0 and $QRTD \leq GRMN$ ”
Non-Energy	Ramp Margin 1 Ramp Margin 3 Ramp Margin 8	In FPN test, change: “unit is non-energy flagged if $QRTD > 0$ ” to “unit is non-energy flagged if QRTD is not equal to 0”
Non-Energy	STL	In FPN test, change: “ $0 < QRTD \leq GRMN$ ” to “QRTD is not equal to 0 and $QRTD \leq GRMN$ ”



SDP_004: "Day in the life"



SDP_004: What is rebalancing? Why is rebalancing important?

CURRENT DEFINITIONS OF CONSTRAINT AND CURTAILMENT:

Extract from SEM-13-011

- **Constraint:** *“If the Control Centre assumed it had control over every price taking generation unit in tie break on the island of Ireland and the security issue presented could only be resolved by reducing the output of one or a small group of price taking generation units in tie break then that reduction is deemed a constraint and logged as such”*
- **Curtailement:** *“If the Control Centre assumed it had control over every price taking generation unit in tie break on the island of Ireland and the security issue presented could be resolved by reducing the output of any or all of the price taking generation units in tie break then that reduction is deemed a curtailment and logged as such”*



CURRENT APPROACH TO APPLICATION/REMOVAL OF CONSTRAINT AND CURTAILMENT:

Extract from SEM-13-011

- **Application:** *“Active Power Control setpoints are both calculated on the basis of distributing a reduction in output between price taking generation unit in tie break using the Active Power output of each price taking unit in tie break to be curtailed or constrained”*
- **Removal (part or all):** *“Active Power Control setpoints are calculated on the basis of distributing an increase in output between price taking unit in tie break on a pro-rata basis whilst ensuring that following the removal of a curtailment the Active Power Control setpoint for no unit exceeds any constraint setpoint that was already in place”*



WHAT IS REBALANCING? WHY IS REBALANCING IMPORTANT?

- Rebalancing is a process by which redistribution of Curtailment or Constraint is performed. The TSOs are are looking to introduce rebalancing to address treatment deemed to be inequitable by the industry.
- Discussions with various parties with renewable generator units have confirmed that the current approach to application of Constraint and Curtailment does not take appropriate account of prevailing weather conditions
- Effective rebalancing should redistribute constraint and curtailment volumes across relevant renewable units accounting for the variation of weather conditions (as measured by varying unit availability, real time telemetered Available Active Power) when practical to do so.

SDP_004: Definition of Curtailment - requirement to update

- Original definitions of Curtailment were approved as part of SEM-13-010 and its annex (referred to as SEM-13-011)
- As part of the developments in the Scheduling and Dispatch Programme (SDP), two of its constituent initiatives affect the definition of Curtailment:
 - *Treatment of Non-Priority Dispatch Renewables (NPDRs), which will be subject to Curtailment, Constraint and Balancing Actions (required per SEM-21-027)*
 - *In response to industry feedback, amendment to how Constraint/Curtailment are fairly distributed (particularly to address the “prevailing wind” issue)*
- **SEM-21-027 requires the TSOs to update the annex to SEM-13-010 (SEM-13-011) to reflect current requirements/terminology**



SEM
committee

Single Electricity Market
(SEM)

**Proposed Decision on Treatment
of New Renewable Units in the
SEM**

**SEM-21-027
23 April 2021**

The TSOs' ruleset to distinguish between constraint and curtailment events was approved by the SEM Committee and published as an **Annex** to SEM-13-010 in 2013⁷ and it would be expected that the terminology used may require some updates given the number of changes to the market that have occurred to date. On this basis, the RAs request that as part of the submission of the TSOs on the design and implementation of the treatment of new renewable units in the SEM, this document is reviewed and updated as required.

SDP_004: In-progress activities

- Clarification of Curtailment in the context of Curtailment / Constraint / energy balancing actions and how these apply to priority dispatch and non-priority dispatch units (to respond to the action on TSOs from SEM-21-027)
- Logic for interaction between balancing actions and actions for Constraint/Curtailment (NPDRs)
- Amendments to calculation for Constraint/Curtailment (apply/relax/remove/rebalance)

	Applicable for NPDRs	Applicable for PDs
Merit Order Setpoints (Energy Balancing Actions)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Curtailment	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Constraint	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

SDP_004: Some principles for apply/relax/remove/rebalancing calculations

IMPORTANT NOTE: below is part of design discussions and may be amended

- **Take Availability into account where possible (to reflect changing weather conditions)**
 - Application/relaxation/removal/rebalancing must be with respect to already approved “actions”
 - *For NPDRs: availability, Merit Order setpoints, Curtailment, Constraints*
 - *For PDRs: availability, Curtailment, Constraints*
 - A change in availability may not change a unit’s setpoint (if it is bound by another action)
- **Scope for rebalancing will be calculated and provided to Control Centre engineers**
 - Scope for re-balancing will be calculated by the systems and provided to CC engineers
 - Re-balancing must be Control Centre-led/approved, as it can require changing the output of large numbers of units across the jurisdiction (impacting on system security). Re-balancing cannot be automated.

Stakeholder Engagement: Industry Workshop

Code Change Schedule

Initiative	T&SC Mods Committee	Grid Code Review Panel/ Joint Grid Code Review Panel
SDP_02 - ESPS Integration	19/10/2023	Q1 2024 (TBC)
SDP_01 - Operation of Non-Priority Dispatch of Renewables and SDP_04 - Wind/Solar Dispatchability Improvements	Feb 2024 (TBC)	Feb 2024 (TBC)



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:



Contact 	SDP Queries SchedulingandDispatch@Eirgrid.com
	Operating Hours 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">• Your Name• Your email & phone number• Your organisation• Topic of Issue/Query• Description of the issue or query• Any additional information to aid in understanding the issue or query

Scheduling & Dispatch: Industry Workshop (October 2023)

Future Workshops and Topics

Date	Meeting Location / Time
01 Nov 2023	Belfast, 1100 - 1500
06 Dec 2023	Dublin, 1300 - 1600
10 Jan 2023	Dublin, 1300 - 1600
07 Feb 2023	Dublin, 1300 - 1600
06 Mar 2023	Belfast, 1100 - 1500

Future Discussion Topics

- Delivery Plan (w/ milestones)
- Market Participant Readiness
- Programme Readiness
- Technical Details (test environment, qualifications)
- Transition Plan (Registration, Data Readiness)
- Tranche 2

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.



Stakeholder Engagement: Industry Workshop

Actions and Open Questions

SDP: Glossary

Term	Definition
APC	Active Power Control
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