

31/10/2023

Enduring Connection Policy (ECP) 2.3

Constraints Analysis for Wind & Solar

Assumptions



Agenda

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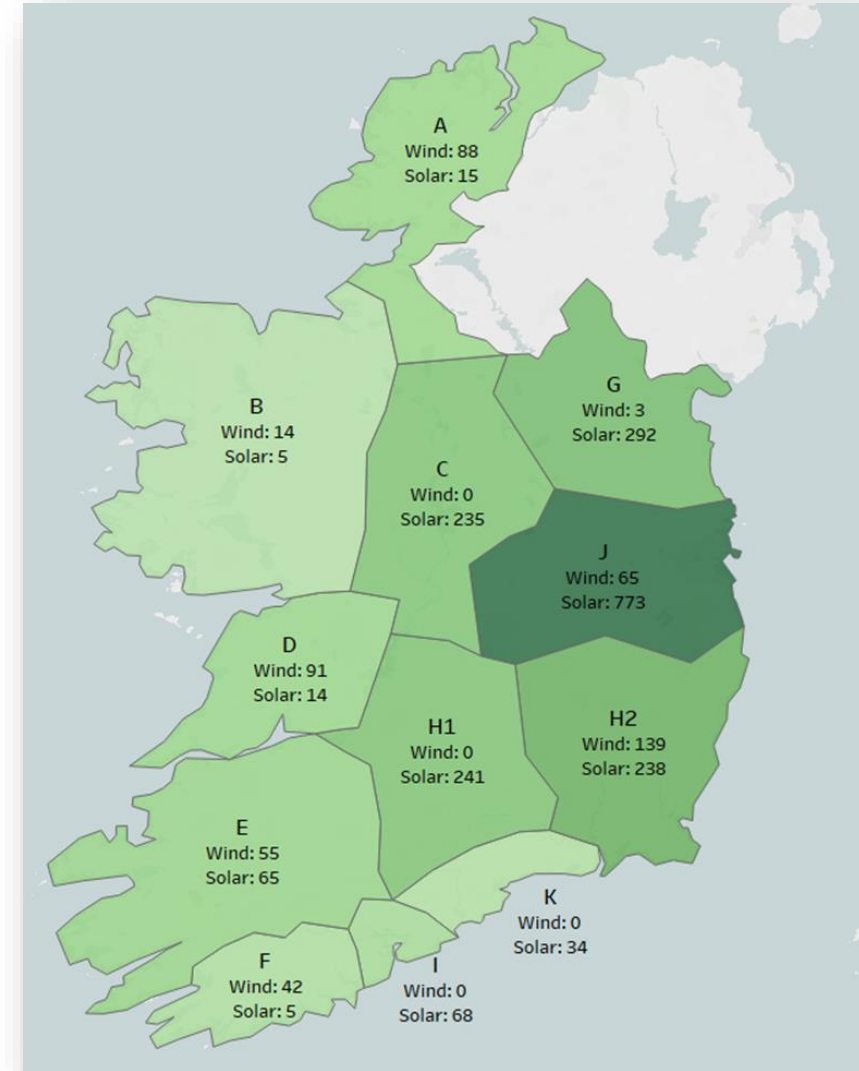


Background

The Enduring Connection Policy (ECP) 2.3 is the third batch of connection offers planned under the CRU's Enduring Connection Policy 2 for offering grid connections to new renewable generators in Ireland.

The ECP-2.3 Constraints Analysis is carried out by EirGrid (as mandated by CRU/20/060 decision on ECP 2) to forecast dispatch down levels for ECP-2.3 wind and solar projects.

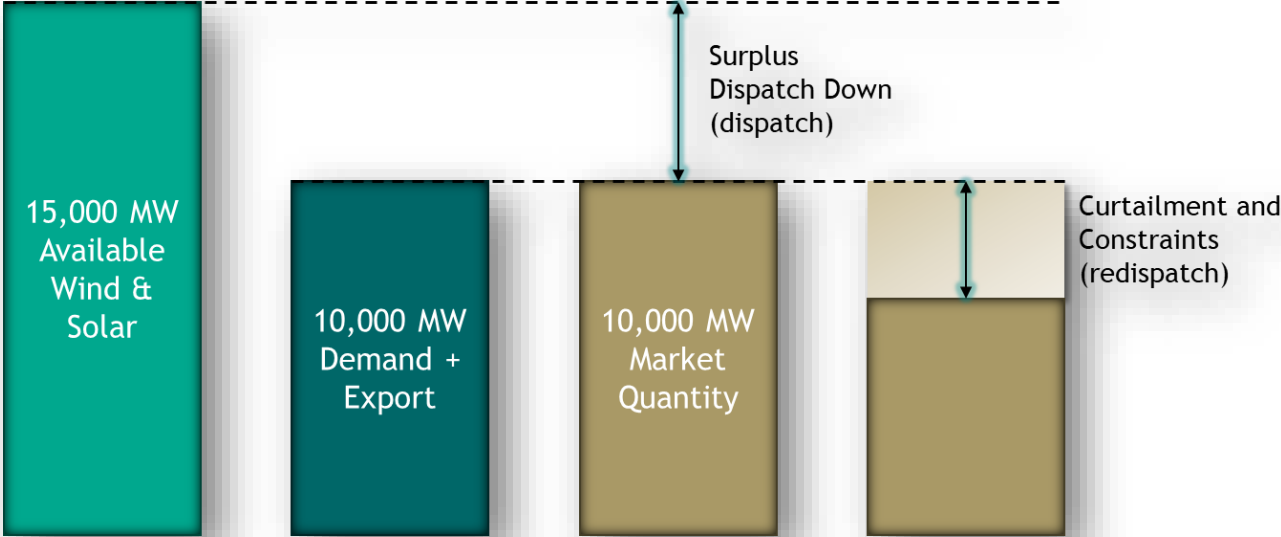
EirGrid plans to publish 12 regional constraints reports that will provide ECP-2.3 developers with information on forecasted dispatch down levels in each region.



Key Metric: Total Dispatch Down

Total Dispatch Down = Surplus + Curtailment + Constraint

Type of Dispatch Down	Definition
Surplus	Dispatch down applied for energy balancing when generation exceeds demand + interconnector export.
Curtailment	Dispatch Down applied to ensure operational limits are met.
Constraint	Dispatch Down applied to manage network constraints.

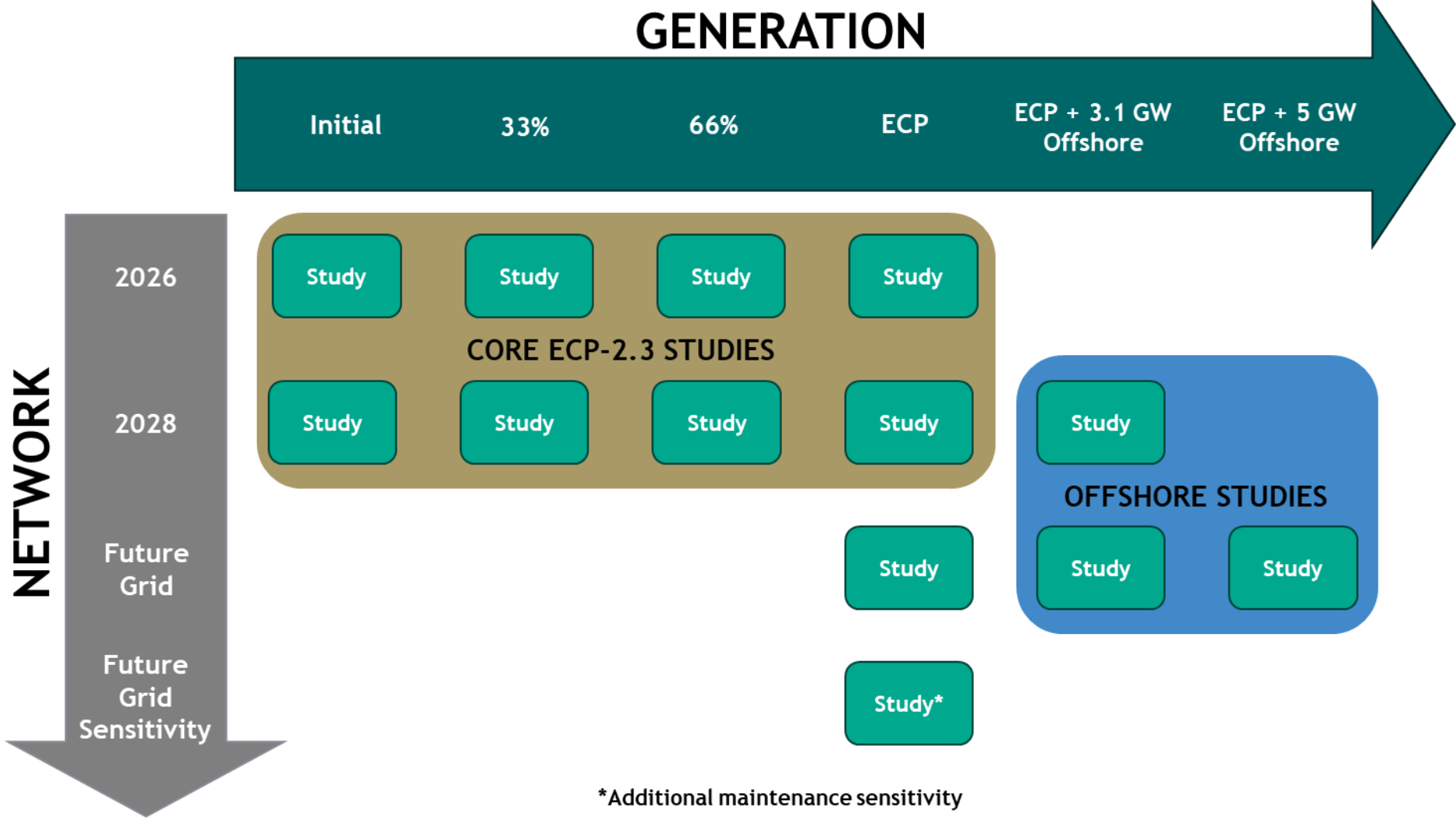


Articles 12 and 13 in ECP-2.3

	1. Surplus	2. Curtailment	3. Constraint
ECP-2.2 Approach	<ul style="list-style-type: none"> • Non-PD to reduce output on a pro-rata basis. • If surplus is unresolved by non-PD reduction, PD reduce output on a pro-rata basis. 	<ul style="list-style-type: none"> • PD and non-PD reduce output equally on a pro-rata basis. 	<ul style="list-style-type: none"> • PD and non-PD reduce output equally on a pro-rata basis within a constraint group or area.
ECP-2.3 Approach	<ul style="list-style-type: none"> • As per ECP-2.2. 	<ul style="list-style-type: none"> • As per ECP-2.2. 	<p>Proposed according to Enduring approach from SEM-22-009:</p> <ul style="list-style-type: none"> • Non-PD to reduce output on a pro-rata basis. • If constraint is unresolved by non-PD reduction, PD reduce output on a pro-rata basis.



Study Scenarios



Updates to the Model from ECP-2.2

Assumption	Changes
Article 12 and 13	Grandfathering of constraints has now been applied to the modelling.
Demand	GCS 2023 - 32, shape based on 2022 profile (subject to approval, currently submitted to the UR).
Conventional Generation	GCS 2023 - 32 (subject to approval, currently submitted to the UR).
RES generation (Ireland)	Updated with ECP-2.3 list.
Onshore Wind Profile	Based on 2020 data.
Offshore Wind Profile	Synthesised 2020 offshore profile (procured from an external vendor).
Solar Profile	Synthesised 2020 solar data (procured from an external vendor).
Outage assumptions (Transmission)	Consistent with ECP-2.2.
Reinforcement Assumptions	2026 and 2028 - Network Delivery Portfolio (NDP) Future Grid - SOEF 1.1 Roadmap.
Northern Ireland Assumptions	Northern Ireland Constraints Report.



Generation Assumptions

Data from the generation connections team.

- Offers from non-GPA, Gate 3, pre-gate, ECP-1, ECP-2.1, ECP-2.2 and ECP-2.3.

ECP 2-3 Breakdown of IE Generation Capacity (MW)

	Initial Study	33% Study	66% Study	ECP All Study	ECP + 3.1 GW offshore	ECP + 5 GW offshore
Battery	896	1,358	1,819	2,295	2,295	2,295
Solar	1,563	3,046	4,528	6,056	6,056	6,056
Wind	5,144	5,728	6,312	6,913	6,913	6,913
Wind Offshore	-	-	-	-	3,100	5,000
Totals	7,604	10,132	12,660	15,264	18,364	20,264

- 3.1 GW offshore is reflective of the ORESS 1 successful offshore generation.
- 5 GW offshore to align with the SOEF 1.1 offshore assumption.



Operational Constraints

Active System Wide Constraints	Brief Description	Assumption
<p>Non-Synchronous Generation</p>	<p>There is a requirement to limit the instantaneous penetration of asynchronous generation to the All-Island system.</p>	<p>2026 - 85% 2028 - 90% Future Grid - 95%</p>
<p>Operational Limit For Inertia</p>	<p>There is a requirement to have a minimum level of inertia on the All-Island system.</p>	<p>2026 - 20,000 MWs 2028 - 20,000 MWs Future Grid - 20,000 MWs</p>
<p>Minimum Sets (IE, NI)</p>	<p>There is a requirement to have a minimum number of conventional generators in Ireland and Northern Ireland.</p>	<p>2026 - 6 2028 - 4 Future Grid - 3</p>
<p>Reserve</p>	<p>The amount of spare capacity on the system to manage any system disturbance.</p>	<p>POR, SOR, TOR I, and TOR II</p>



Additional Assumptions

■ Wind & Solar Profiles

- Onshore profiles are based upon 2020 output data - representative wind farm in that area.
- Offshore profiles - purchased from an external vendor - synthesized from 2020 data.
- Solar profiles - also purchased from an external vendor - synthesized from 2020 data.

■ Interconnectors

- 2026 - EWIC, Greenlink, Moyle
- 2028 - EWIC, Greenlink, Moyle, Celtic, North-South 2.
- Future Grid - EWIC, Greenlink, Moyle, Celtic, North-South 2, LirIC, 2nd France - Ireland.

■ Batteries

- Used for maintaining reserve (POR, SOR, TOR1, TOR2).
- 1 cycle per day limit.
- Batteries with 2+ hours of generation can also provide energy arbitrage.



Questions

