Constraint Forecast Studies for Enduring Connection Policy (ECP)

Plain English Summary

Applicable from ECP 2.5

January 2026

EirGrid

The Oval, 160 Shelbourne Road, Ballsbridge, Dublin D04 FW28
Telephone: +353 1 677 1700 | www.eirgrid.ie

Contents

1 Introduction

1.1.1 Enduring Connection Policy (ECP)

Connecting new generators and storage technologies to the grid is essential for meeting electricity demand and supporting the transition to a decarbonised power system in line with Government targets.

In order to accelerate the integration of renewables onto the transmission system to meet the Government's Climate Action targets, the Commission for Regulation of Utilities (CRU) introduced the Enduring Connection Policy (ECP) which outlines the process for grid connection in Ireland.

The ECP governs how renewable generators and battery storage apply and get connected to Ireland's electricity grid.

As mandated by the CRU's decision paper on ECP 2, EirGrid provides information on dispatch down in our annual Constraints Forecast Reports which detail the possible levels of dispatch down that solar and wind generation might experience in the future.

The level of dispatch down is affected by a number of factors which can vary, such as the amount of energy scheduled via markets, weather patterns, system demand, interconnector flows, scheduled grid maintenance works, and the capacity factor of the renewable generation.

There are a number of factors that will impact the level of dispatch down in the future that we can analyse and prepare for, to support planning in the industry. Through our research, we have factored in an increase in installed generation capacity, higher demand and updated operational policy, along with grid reinforcements.

Through our reports, we aim to keep customers and the broader industry, informed regarding dispatch down levels while contextualising reported figures regionally and nationally.

1.1.2 Evolution of the ECP framework

The ECP is the framework introduced by the Commission for Regulation of Utilities (CRU) in Ireland to manage and process applications for grid connections to the electricity network. It was introduced to replace previous connection policies and aims to provide a structured, transparent, and fair approach for connecting new generation. ECP plays a critical role in supporting Ireland's renewable energy targets and ensuring system security while accommodating diverse technologies such as wind, solar, batteries, and other ancillary service providers.

The first stage, ECP-1, was launched in 2017 following the publication of its decision paper. In 2020, ECP-2 was introduced through a second decision paper, continuing the structured approach to processing new applications, both mandating that one batch of applications is processed each year.

In 2024, CRU introduced the successor to ECP, 'Electricity Connection Policy for Generation and System Services (ECP-GSS)' to support the growing need for generation connection to the transmission grid. Under the ECP-GSS, two batches of applications are required to be processed every year, starting in 2026.

An indicative timeline for ECP-GSS Constraint Forecasting is shown below:

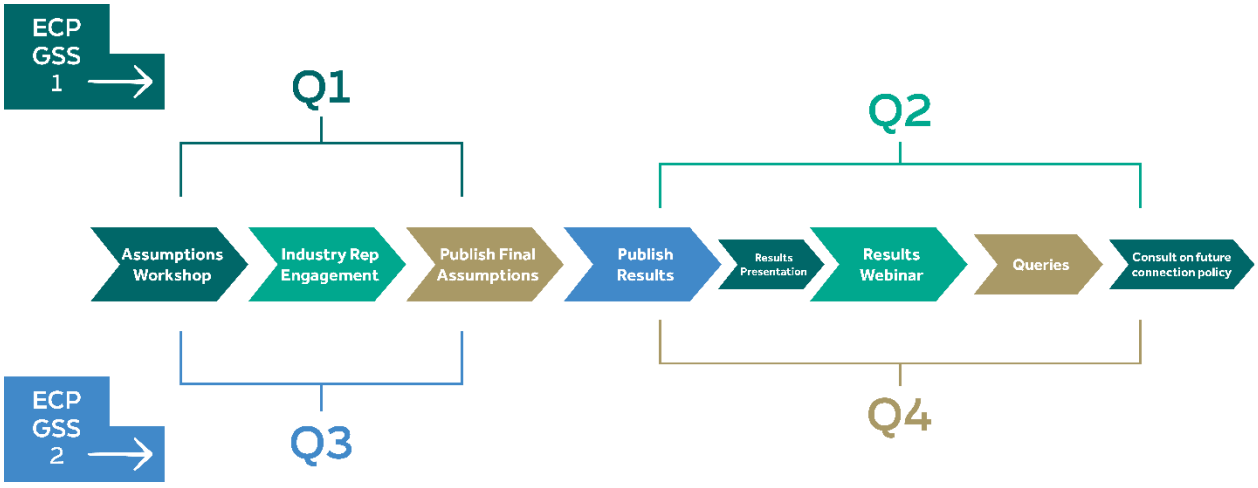

Figure 1: Indicative timeline for ECP-GSS Constraints Forecasting

2 What is dispatch down?

'Dispatch down' occurs when an electricity generator produces less electricity than it can or to shut down entirely. The primary factors that can result in dispatch down are 'constraints', 'curtailments' and 'surplus'.

1. **Constraints** occur due to localised network reasons, impacting the amount of wind or solar that can be brought onto the grid in a certain area. This can happen due to local upgrades that are taking place to make the grid renewable ready.
2. **Curtailments** occur as a result of system-wide issues, when it is necessary to limit the maximum level of renewable generation on the system for security or safety reasons.
3. The reduction of available renewable generation for **surplus** reasons is necessary when the total available generation exceeds system demand plus interconnector export flows.

3 Meeting the challenges

The level of dispatch down is affected by a number of factors which can vary from month to month such as the amount of wind and solar installed on the system and weather patterns, system demand, interconnector flows, scheduled grid maintenance works, and the capacity factor of the renewable generation.

It is important to note that in order to reduce dispatch down, EirGrid is committed to supporting and facilitating the timely delivery of an unprecedented amount of new infrastructure over the coming years to transform Ireland's power system.

We also need to increase the amount of renewable energy we can allow on the system, while also ensuring it remains secure and stable. At the moment, 75% of energy to the power system can be from renewable sources at any one time. This is very high by international standards, and our aim is to further increase additional operational changes.

Dispatch down is not unique to Ireland and is increasing globally because more renewable energy, which is variable in nature, is being brought onto transmission systems around the world.

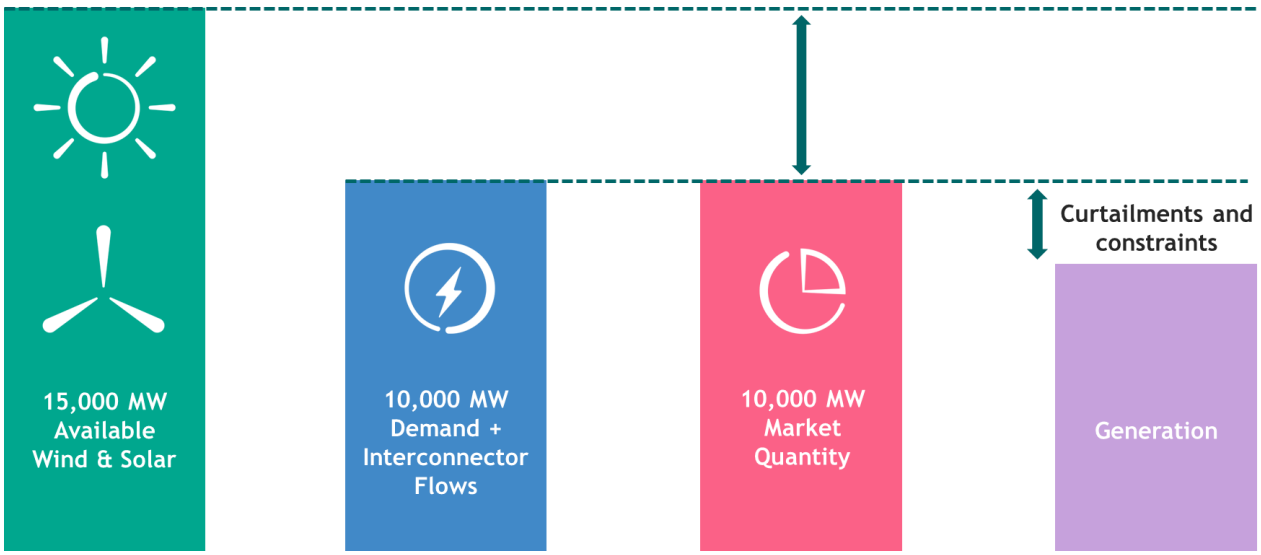

Figure 2: Demonstration of surplus, curtailment and constraint. This image is for illustration purposes only and is not a forecast of dispatch down.

4 Constraint forecast studies for ECP

Within the ECP decision paper, EirGrid, as Ireland's Transmission System Operator, has been directed to provide batch connection applicants with an estimate of potential levels of dispatch down (including surplus, curtailment and constraints) that a generation project may face once they are connected to the grid under assumed conditions.

In order to do this, EirGrid conducts a set of forecast studies called 'Constraint Forecast Studies' which estimate the potential dispatch down under multiple generation and network scenarios. These studies assess how often and to what extent a project could be subject to curtailment or dispatch restrictions due to network congestion, system security requirements, or surplus availability. Through this analysis, we aim to provide industry and developers with a forward-looking view of possible constraints.

These studies use power system models to simulate future network conditions, considering factors such as demand growth, renewable penetration, interconnections and planned grid reinforcements.

5 How dispatch down is forecasted

EirGrid uses a simulation tool called Plexos to forecast how often renewable generators might be asked to reduce output in the future years for a range of possible generation and network scenarios.

For each studied scenario, three model runs are executed to understand the potential dispatch down levels of surplus, curtailment and constraints.

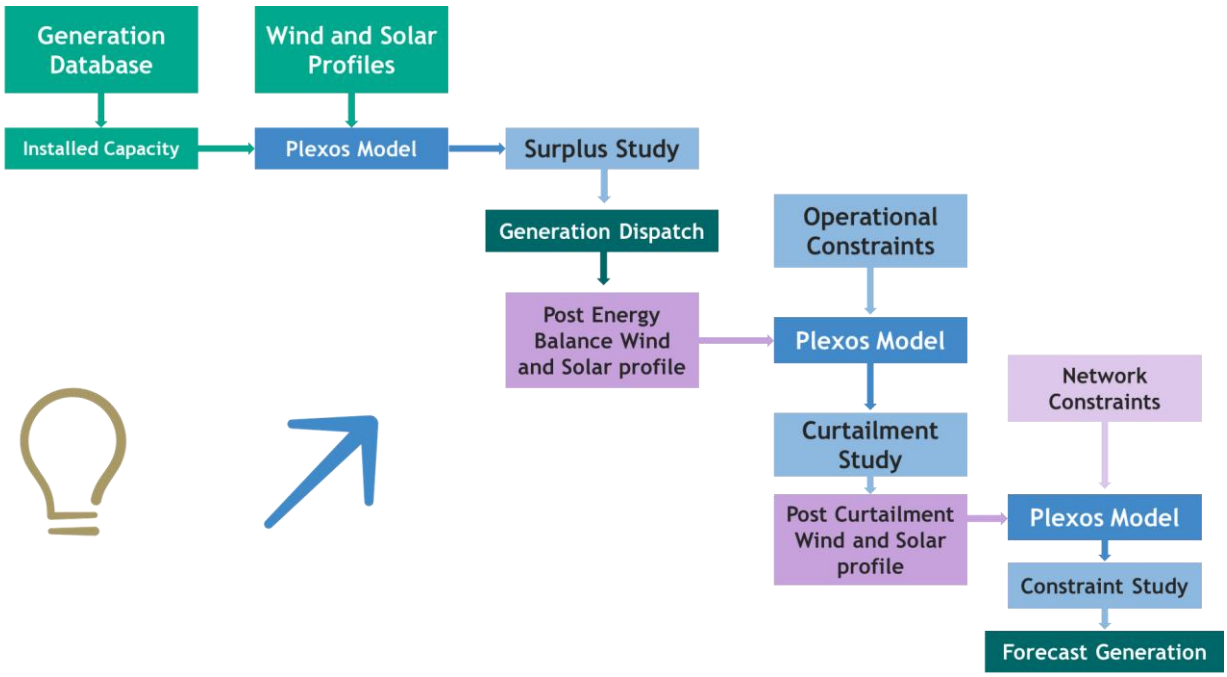

Figure 3: Example of Flow chart of the Constraints Forecasting modelling process

6 Snapshot of what is modelled

In order to support industry decision-making, we model a range of forecast years and generation portfolios.

By varying the forecast year, we're able to analyse the impact of different network and operational developments, interconnection and demand assumptions. We aim to model three forecast years per ECP iteration and outline our assumptions for each forecast year.

Varying the installed capacity assumptions or generation portfolio allows us to analyse the changes in dispatch down as more renewable capacity is installed. We aim to model three core generation portfolios in each ECP iteration to provide a range of potential outcomes.

In addition to our core scenarios, we model a number of sensitivities to further analyse the impact of factors such as interconnector flows, offshore wind generation or changes to the generation mix such as reduced installation of battery capacity. Industry representatives also request additional studies to support their decision-making. They also share insights which supports EirGrid's understanding of industry needs.

Below is a sample of study scenarios which demonstrates our process.

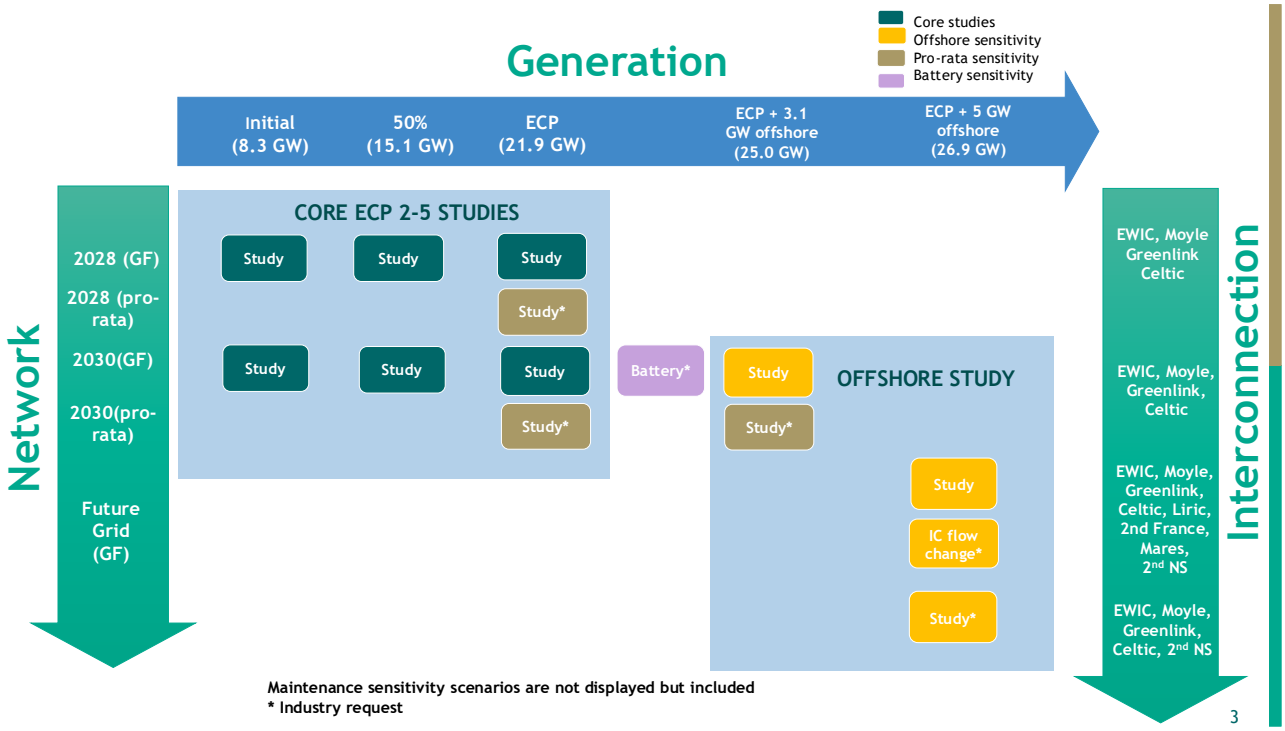

Figure 4: Sample Study matrix (from ECP-2.5)

7 Reporting and engagement

Once our data is ready, the next step is to engage with key industry stakeholders to share our findings, as well as answer queries and gather insights which we can use for future iterations.

We also publish our findings on the EirGrid website.

At the system level, charts show the input capacity and the dispatch down quantities as a percentage of the total available energy. At the area level, similar metrics are provided to highlight regional variations caused by local network constraints. The individual station level reporting offers even more granular insights, showing how specific clusters or nodes are impacted by constraints.

Throughout this process, our engagement with industry is key. By working closely with stakeholders EirGrid aims to create a space for open dialogue and knowledge sharing, as well as greater alignment as we navigate this highly complex topic.

For more information or to be added to the distribution for ECP Constraints Forecast Studies, please email **info@eirgrid.com**.