Enduring Connection Policy 2.3

Solar and Wind Constraints Report: Results for Area G

Version 1.0

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Revision History						
Revision	**Date**	**Description**	**Originator**	**Reviewer**	**Checker**	**Approver**

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Document Structure

This document is for customers wishing to see the estimated Total Dispatch Down for Area G. For information on the study assumptions, methodology, abbreviations and terms used for the Constraint Analysis reports, please see the area non-specific Assumptions and Methodology report found on the ECP-2.3 webpage[1].

This document contains two main sections:

Section 1: Results for Area G: outlines the area covered by this report. This section provides a network diagram of Area G and an overview of the results for Area G.

Section 2: Area G Node Results: provides a table of results for every node in the area. This table documents the installed capacity, available energy, surplus, curtailment and constraint for every node in Area G.

[1] https://www.eirgridgroup.com/customer-and-industry/general-customer-information/ecp-2.3-constraint-report/index.xml

Important Note

This ECP-2.3 constraints report presents an estimate of the reduction in available solar and wind generation based on the study assumptions described. The reduction in available generation has been split into three categories for the purposes of this study: surplus, curtailment and constraint.

The treatment of renewable generation under these three categories of generation reduction will be determined by the implementation of Articles 12 and 13 of the EU Regulation 2019/943[2].

The SEMC decision on the 22nd of March 2022[3] (SEM-22-009 Decision Paper on Dispatch, Redispatch and Compensation Pursuant to Regulation EU 2019/943) has been successfully challenged in the High Court ([2023] IEHC 629)). Therefore, the detailed design of the implementation of Articles 12 and 13 has yet to be finalised, and may differ from the implementation for constraints used in this study. Therefore, an assumed interpretation has been included in this study, as detailed in this report.

This report uses the term "Total Dispatch Down" to refer to the total reduction in available solar and wind generation i.e. the sum of surplus, curtailment and constraint, and is considered the key indicator for the results. However, it is important to note that the term "dispatch down" is more correctly applicable only to TSO instructions to reduce generation output from a market position, as is the case for curtailment and constraint, and is not necessarily applicable to a generator reducing its own output from its availability to a market position so that supply and demand are balanced, as is the case for surplus.

The term "non-priority" and "not-priority" generators are used synonymously in the report.

The results presented in this report are based on the simulation and modelling assumptions described. The findings are indicative only and this report should in no way be read as a guarantee as to future levels of surplus, curtailment and constraint.

For wind and solar generation, values of Total Dispatch Down that are less than 5% are rounded up to 5% by adjusting the constraints for that generator. This is consistent with the approach used in the ECP-2.1 and ECP-2.2 constraints reports. However, in the ECP-2.3 constraints report, this adjustment to constraints is applied only to non-priority generation and not to priority generation.

[2] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019R0943&from=NL

[3] https://www.semcommittee.com/publications/sem-22-009-decision-paper-dispatch-redispatch-and-compensation-pursuant-regulation-eu

1 Results for Area G

1.1 Introduction

This section provides the surplus, curtailment and constraint results for Area G that are estimated by this analysis. There is a total of eight core ECP-2.3 studies and seven sensitivity studies (including without maintenance) presented in this report. The study scenarios and the associated assumptions can be found in the Assumptions and Methodology report. An overview and discussion of the results is provided in this Section. The surplus, curtailment and constraint results for each node in Area G are provided in Section 2 of this report.

1.2 Study Notes

A list of the major study assumptions is provided in the Assumptions and Methodology report. For Area G, there are a number of key assumptions which drive the results, including network outages and capacity factors. These are thus reiterated here. Similarly, it is worth highlighting again the differences between the various components of Total Dispatch Down.

1.2.1 Network Outages

The scenarios in this report are intended to give a view of average long-term levels of surplus, curtailment and constraint, subject to installed generation, demand, interconnection, operational constraints and reinforcement delivery.

The ECP-2.3 constraints forecast analysis applies a similar transmission outage schedule to the ECP-2.2 constraints analysis. This was kept consistent with last year's schedule following positive feedback from industry. This schedule allows a representation of outage impact in each geographical area to be included in the studies.

This representative transmission outage schedule is given in Appendix A of the Assumptions and Methodology report. However, at times, longer duration outages may be required for certain connections, reinforcement works or forced outages, these are not considered in this analysis and may result in higher wind and solar constraints.

1.2.2 Benefit of Capacity Factor

In practice, a specific windfarm may be located at a site with higher wind speeds or may have a better performing type of wind turbine; the result is a higher capacity factor than neighbouring windfarms. This report does not reflect this localised diversity between windfarm sites. In reality, a windfarm with a higher capacity factor may see lower percentage surplus, curtailment or constraint levels than an adjacent windfarm with a lower capacity factor. This is because at times of medium or low wind speed, the high-capacity factor windfarm can generate power when the low-capacity factor windfarm cannot.

1.2.3 Notes on Surplus, Curtailment and Constraint Modelling

1.2.3.1 Surplus

During generation reduction for surplus, a distinction is made between the treatment of priority and non-priority renewable generators, with non-priority generators being dispatched down ahead of priority generators. Within these two categories of generation, surplus is applied pro-rata across the all-island system for all renewable generators in the category.

For any hour of the study, the surplus level will depend on system demand and interconnector flow capacity. In general, surplus is expected to increase with increasing installed renewable capacity.

It is expected that the further interconnection of the all-Ireland network with mainland UK and Europe will decrease the frequency of surplus conditions occurring.

In general, increased interconnector capacity with mainland UK through the EWIC & LirIC projects will not necessarily eliminate surplus generation as solar and wind profiles in mainland UK will largely be in line with those in Ireland. In the Future Grid study year however, when both the Celtic and 2nd Ireland-France interconnectors are connected, there will be a greater export capacity during times of abundant renewable generation to mainland Europe where similar wind and solar generation in Ireland and mainland Europe is not expected.

Therefore, dispatch down due to surplus generation is not expected to occur as frequently once both the Celtic and 2nd Ireland-France interconnectors are connected.

1.2.3.2 Curtailment

In this report, for each hour of the study, the curtailment is shared pro-rata on a system-wide basis with no distinction made between priority and non-priority generators. This means that both curtailment reductions and curtailment increases are shared system wide.

Solar generation has different reported levels of curtailment compared to wind due to different capacity factors and annual profile shapes.

The applied curtailment is broadly constant across the system. However, due to differences in wind and solar profiles and capacity factors between areas, the percentage average curtailment differs between areas.

1.2.3.3 Constraints

During the constraint of renewable generation, a distinction is made between priority and non-priority generators, with non-priority generators being dispatched down ahead of priority generators across the relevant transmission nodes within the subgroup. More details on the approach assumed in this study for the application of constraints on priority and non-priority renewable generation can be found in the main ECP 2.3 Assumptions and Methodology report.

In general, there is a tendency for renewable bulk power to flow towards the demand in Dublin and the interconnectors. These flow patterns are relevant when seeking to understand constraint apportionment in the simulation.

When presented as percentage values, the constraint results look different for solar and wind, as they have a low correlation due to different profile shapes driven by weather patterns.

1.3 Generation Overview

A detailed system-level overview of the renewable generation scenarios used in these studies is given in Section 2 of the area non-specific Assumptions and Methodology report. The distribution of generation in each scenario based on technology, area and node is given in Appendix B of the Assumptions and Methodology report. The node-level installed wind and solar generation for Area G in the "ECP" scenario is given in Table 1-1.

Node	SO	Status	Solar	Wind
Balruntagh	TSO	due to connect	115	
Baltrasna	DSO	due to connect	17	
Drybridge	DSO	due to connect	39	
Drybridge	DSO	connected		6
Dundalk	DSO	due to connect	56	
Dundalk	DSO	connected		16
Garballagh	TSO	connected	95	
Garballagh	TSO	due to connect	48	
Gaskinstown	TSO	due to connect	85	
Gorman	TSO	due to connect	46	
Hawkinstown	TSO	due to connect	80	
Lisdrum	DSO	due to connect		33
Lislea	TSO	due to connect		49
Louth	TSO	due to connect	50	
Meath Hill	DSO	due to connect	3	
Meath Hill	DSO	connected		35
Meath Hill	DSO	connected		16
Meath Hill	DSO	connected		18
Navan	DSO	due to connect	16	
Oriel 220 kV	TSO	due to connect		160
Oriel 220 kV	TSO	due to connect		210
Paddock	TSO	due to connect	367	
Ratrussan	TSO	connected		79
Shankill	DSO	due to connect	11	
Shankill	DSO	due to connect		3
Shankill	DSO	connected		22
Shankill	DSO	connected		6
Total			1028	653

Table 1-1 Wind and Solar Generation Summary in Area G for Generation Scenario "ECP"

Table 1-2 and Table 1-3 show installed solar and wind generation for Ireland and Area G, and the available solar and wind generation for Area G for each generation scenario.

Solar	Initial	33%	66%	ECP	ECP + 3.1 GW offshore	ECP + 5 GW offshore
Installed Ireland (MW)	1563	3052	4542	6031	6031	6031
Installed Area G (MW)	224	492	761	1029	1029	1029
Installed Controllable Area G (MW)	224	492	761	1029	1029	1029
Available Controllable Area G (GWh)	288	632	976	1318	1318	1318

Table 1-2- Installed MW and Available GWh for Area G - Solar

Wind	Initial	33%	66%	ECP	ECP + 3.1 GW offshore	ECP + 5 GW offshore
Installed Ireland (MW)	5104	5678	6253	6827	9901	11827
Installed Area G (MW)	230	248	265	282	282	652
Installed Controllable Area G (MW)	201	218	235	253	253	623
Available Controllable Area G (GWh)	632	686	740	789	789	2340

Table 1-3 - Installed MW and Available GWh for Area G - Wind

1.4 Network Overview

Area G, in the east of the country, includes a mix of wind and solar generation. A summary of this generation is given in Table 1.1.

The transmission network in Area G and the surrounding areas is shown in Figure 1-1. The 400 kV circuits are shown in red, the 220 kV circuits in green and the 110 kV circuits in black. The area is connected to Northern Ireland through the North South Interconnector. Possible future transmission stations and lines for the connection of new generation are also shown on the map below.

Figure 1-1 Network Map for Area G

Area G is well connected to Area J which has Ireland's largest load centres. This includes the majority of Large Energy Users (LEU) demand that has been assumed for the study. The EWIC interconnector is also located in Area J and tends to be exporting when renewable generation is high.

In general, when renewable generation is high, power flows are predominantly from Area A and B towards Area G which then flows towards Area J to supply the demand and the EWIC flow. A transmission bottleneck between Area G and Area J is shared with power flows coming from other areas.

Constraints in Area G can be caused both by local and wider system issues. Constraints in the model are optimised on a system-wide basis so, in theory, an increase in the installed generation in another area can increase constraints in Area G.

1.5 Future Grid Sensitivity Scenario

In line with the ECP-2.1 and ECP-2.2 studies, and in response to feedback from industry, the Future Grid scenario is included in the analysis. All reasonable efforts have been made to align the network assumptions in the Future Grid scenario to the Shaping Our Electricity Future (SOEF) 1.1 Roadmap. The network projects included in the study are given in Appendix A of the Assumptions and Methodology report found on the ECP-2.3 webpage. Additionally, any project that has progressed to stage three of the six stage project planning process after the publication of the SOEF 1.1 Roadmap are also included in the Future Grid studies. Note

however, that the wind and solar generation portfolio in the ECP-2.3 Future Grid scenario differs from the wind and solar portfolio considered in the SOEF 1.1 Roadmap. This is done to maintain alignment with the ECP-2.3 process. The ECP study scenario includes all wind and solar projects which have applied through connection processes, whereas the SOEF 1.1 study includes generators up to and including ECP-2.3 applicants and then scaled renewable generation capacity to achieve the capacity volumes stated in the Climate Action Plan 23.

The Future Grid study includes a base renewable generation scenario (ECP), along with three sensitivity generation scenarios (ECP + 3.1 GW offshore, ECP + 5 GW offshore and a maintenance sensitivity study). The scenarios with additional offshore wind have been included to show the potential impact of increasing offshore wind on Total Dispatch Down levels.

The demand modelled for the Future Grid scenario is based on the medium demand scenario for 2030 as published in the All-Island Generation Capacity Statement 2023-2032.

The purpose of the Future Grid scenario is to provide insights on the potential impact of the SOEF 1.1 Roadmap network reinforcement portfolio on the dispatch down of wind and solar generators. This study is not intended to be exhaustive; it is not intended to remove all transmission constraints and it does not give individual generators guarantee that their Total Dispatch Down will change to the estimated levels.

1.6 Area G – Average Results

The Total Dispatch Down results for Area G are provided below in Table 1-5 to Table 1-8 and Figure 1-3 to Figure 1-6. These include the breakdown between surplus, curtailment and constraint. The Total Dispatch Down percentages are based on the total available energy. The Total Dispatch Down is the sum of surplus, curtailment and constraint. The node level breakdown of surplus, curtailment and constraint are given in Section 2. The results show that the system level Total Dispatch Down increases with additional installed capacity due to a significant increase in surplus. However, the Total Dispatch Down reduces when the 2028 studies are compared with 2026 and there is a further reduction in the Future Grid scenario owing to increased demand, network reinforcement, interconnection and relaxed system level operational limits.

For each generation type in Area G (solar non-priority, wind non-priority and wind priority), the total installed capacity in MW and total available generation in GWh are given in Table 1-5, Table 1-6, Table 1-7 and Table 1-8. The total generation in GWh after dispatch down and the corresponding percentage Total Dispatch Down are also included in the tables for each scenario. Details on the generation and network scenarios are given in Section 2 of the Assumptions and Methodology report.

1.6.1 Offshore Wind Sensitivity Studies

Results for the offshore wind-based sensitivity studies are included, along with results for the core scenarios. The general trend is that with increasing levels of offshore wind, Total Dispatch Down increases due to significant increases in the available wind energy, which in turn leads to increased levels of surplus.

1.6.2 Impact of Article 12 and 13

Higher Total Dispatch Down is observed for non-priority generators due to the impact of the implementation of Article 12 and 13 in the studies, which results in non-priority generators being reduced ahead of priority generators for surplus and constraint reasons. More detail on the Article 12 clause is available in Section 3.6 of the Assumptions and Methodology report.

Another factor that contributes to the higher total dispatch down for non-priority wind and solar units is the proportion of priority to non-priority units within a subgroup. If a subgroup has a high volume of priority wind/solar units to non-priority wind/solar units, this can result in the constraints that would usually be allocated to the priority units only allocated to the non-priority units (due to the grandfathering of constraints). This can result in high constraints for non-priority units within a subgroup.

1.6.3 Future Grid Sensitivity Study

The results of the Future Grid scenario show a notable reduction in Total Dispatch Down over the core study years (2026 and 2028) due to the impact of the SOEF 1.1 Roadmap network reinforcements, increased demand levels, increased interconnection, and the relaxation of operational constraints. However, increases in installed wind and solar generation, as seen in the offshore wind scenarios, result in rising surplus levels, causing an increase in Total Dispatch Down levels. A detailed breakdown of the Total Dispatch Down components for Area G under the Future Grid scenarios and associated sensitivity case is given in Table 1-5 to Table 1-8. Further node level details can be viewed in Section 2.

1.6.4 Area Subgroups

The constraint forecast study, which is performed using PLEXOS software, applies mathematical optimisation to find the lowest cost generator dispatch schedule to meet demand, subject to a number of system and transmission level constraints. To ensure the model is impartial, the assumptions on the cost of renewable generators remain the same, irrespective of technology or location, and are always lower than that of conventional plants. This ensures renewable generators are given priority in the PLEXOS optimisation. However, due to network congestion caused by line limits and N-1 contingency security checks, the power flows in certain lines are limited, causing dispatch down in RES generators which may affect one generator or multiple generators chosen by PLEXOS' internal logic. During various initial studies, it was observed that PLEXOS may repeatedly choose the same generator(s) to dispatch down to manage an issue in a region shared by multiple generators.

There is often a post-processing step between the PLEXOS simulation and this report to ensure an appropriate allocation of constraints among generators sharing the bottlenecks. This is done by creating constraint subgroups within an area or spanning multiple different areas. The subgroups are selected based on an assessment of the raw PLEXOS results and based on TSO experience of dispatch down on the real system. The subgroups are chosen to group those generators into a constraint group that are expected to experience similar constraint levels. The subgroups are selected on the basis that they share a common transmission bottleneck, or they are electrically close to a congested area within the network.

In Area G, any loss of the 220 kV circuits will put additional stress on the supporting 110 kV circuits, causing dispatch down of RES generators in the area. The 110 kV parallel paths are critical transmission infrastructure in these areas during times of high wind. Any loss of these 110 kV parallel lines results in additional dispatch down. The contingencies and overloaded lines associated with the area are included in Appendix C of the ECP-2.3 Assumptions and Methodology report. Additionally, the loss of a 220 kV or 400 kV circuit applies additional stress on the 110 kV circuits in the region. During the high-RES scenarios, the power from Areas A, B and C also flow onto the 220 kV circuits, and then towards the load centres in Dublin. Loss of 220 kV lines connecting the Gorman, Louth and Woodland stations can cause congestion in 110 kV parallel lines around Drybridge. Congestion also arises from loss of any parallel 110 kV lines (from Arva or Louth) as well. Hence a bottleneck is created around the Gorman – Drybridge region and forms a G North subgroup.

Additionally, the loss of the new North South 2 interconnector can also increase congestion in the region.

The G South region is affected by the loss of north Dublin 220 kV circuits and parallel 110 kV circuits from Drybridge to Corduff or Finglas. Hence, the south part of Area G is grouped together with Area J City to form the J City, G South Subgroup.

The subgroup nodes for Area G are given in Table 1-4. The constraints are shared on a pro-rata basis amongst the non-priority generators in the subgroup ahead of priority generators. The individual node level dispatch down is given in Section 2.

Subgroup	Nodes
G North	Balruntagh
	Dundalk
	Lisdrum
	Lislea
	Louth
	Meath Hill
	Navan
	Oriel 220 kV
	Ratrussan
	Shankill
J City, G South	Baltrasna
	Drybridge
	Garballagh
	Gaskinstown
	Gorman
	Hawkinstown
	Paddock

Table 1-4 Area G generator nodes and their subgroups

Figure 1-2 Subgroups G North and J City & G South (subgroups outlined by blue dashed line)

The solar non-priority data is given in the following table.

Area G (J City, G South)	Year	Initial	33%	66%	ECP	ECP + 3.1 GW offshore	ECP + 5 GW offshore
Installed Capacity (MW)	2026	209	398	588	777		
Installed Capacity (MW)	2028	209	398	588	777	777	
Installed Capacity (MW)	2030				777	777	777
Available Energy (GWh)	2026	268	511	753	996		
Available Energy (GWh)	2028	268	511	754	997	997	
Available Energy (GWh)	2030				996	996	996
Generation (GWh)	2026	255	483	684	851		
Generation (GWh)	2028	255	486	715	907	848	
Generation (GWh)	2030				889	897	853
Surplus (%)	2026	1%	2%	5%	9%		
Surplus (%)	2028	<1%	<1%	2%	5%	11%	
Surplus (%)	2030				2%	6%	10%
Curtailment (%)	2026	1%	1%	2%	4%		
Curtailment (%)	2028	<1%	1%	1%	2%	3%	
Curtailment (%)	2030				1%	1%	1%
Constraint (%)	2026	4%	2%	2%	2%		
Constraint (%)	2028	5%	4%	2%	2%	1%	
Constraint (%)	2030				8%	3%	3%
Total Dispatch Down (%)	2026	5%	5%	9%	15%		
Total Dispatch Down (%)	2028	5%	5%	5%	9%	15%	
Total Dispatch Down (%)	2030				11%	10%	14%

Table 1-5 - Surplus, Curtailment and Constraint for Solar Non-priority in Area G (J City, G South)

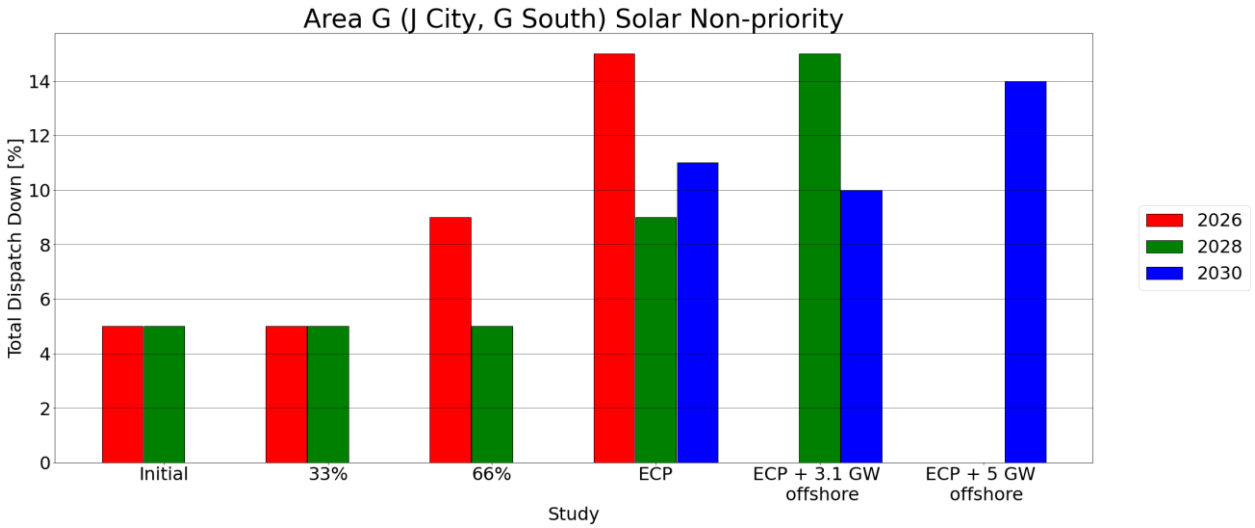

Figure 1-3 - Results Solar Non-priority Area G (J City, G South)

The solar non-priority data is given in the following table.

Area G (G North)	Year	Initial	33%	66%	ECP	ECP + 3.1 GW offshore	ECP + 5 GW offshore
Installed Capacity (MW)	2026	15	94	173	252		
Installed Capacity (MW)	2028	15	94	173	252	252	
Installed Capacity (MW)	2030				252	252	252
Available Energy (GWh)	2026	19	120	221	322		
Available Energy (GWh)	2028	19	121	222	323	323	
Available Energy (GWh)	2030				322	322	322
Generation (GWh)	2026	18	114	200	273		
Generation (GWh)	2028	18	115	211	298	276	
Generation (GWh)	2030				306	298	284
Surplus (%)	2026	1%	2%	5%	9%		
Surplus (%)	2028	<1%	<1%	2%	5%	11%	
Surplus (%)	2030				2%	6%	10%
Curtailment (%)	2026	1%	1%	2%	4%		
Curtailment (%)	2028	<1%	1%	1%	2%	3%	
Curtailment (%)	2030				1%	1%	1%
Constraint (%)	2026	4%	1%	2%	3%		
Constraint (%)	2028	5%	4%	1%	1%	<1%	
Constraint (%)	2030				2%	<1%	<1%
Total Dispatch Down (%)	2026	5%	5%	10%	15%		
Total Dispatch Down (%)	2028	5%	5%	5%	8%	14%	
Total Dispatch Down (%)	2030				5%	8%	12%

Table 1-6 - Surplus, Curtailment and Constraint for Solar Non-priority in Area G (G North)

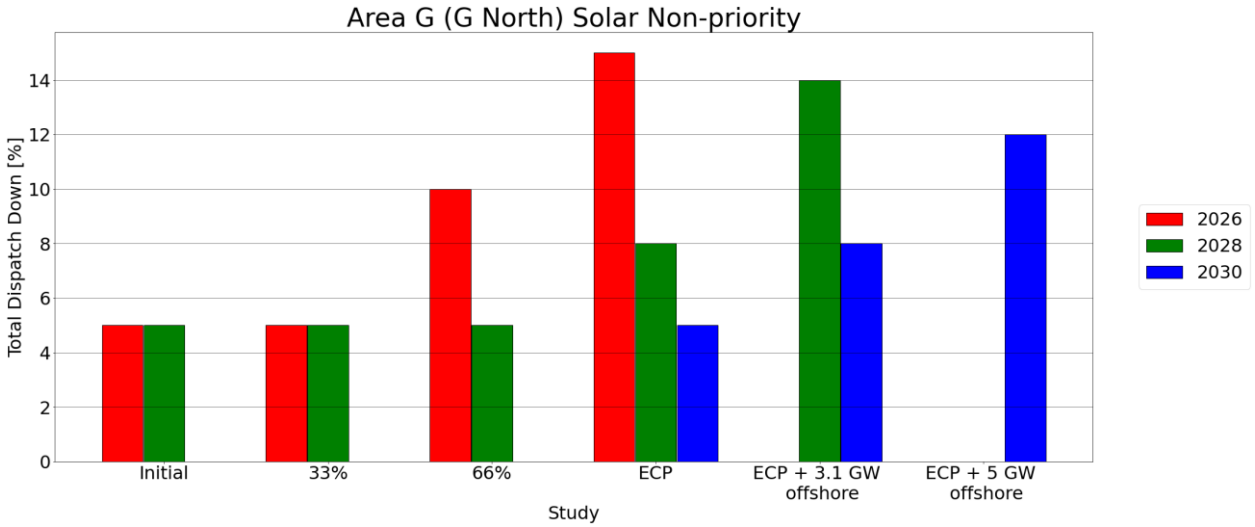

Figure 1-4 - Results Solar Non-priority Area G (G North)

The wind non-priority data is given in the following table.

Area G (G North)	Year	Initial	33%	66%	ECP	ECP + 3.1 GW offshore	ECP + 5 GW offshore
Installed Capacity (MW)	2026	68	85	102	119		
Installed Capacity (MW)	2028	68	85	102	119	119	
Installed Capacity (MW)	2030				119	119	489
Available Energy (GWh)	2026	211	265	319	373		
Available Energy (GWh)	2028	213	267	321	376	376	
Available Energy (GWh)	2030				373	373	1923
Generation (GWh)	2026	192	231	256	277		
Generation (GWh)	2028	202	254	298	337	276	
Generation (GWh)	2030				332	318	1504
Surplus (%)	2026	2%	5%	9%	14%		
Surplus (%)	2028	<1%	1%	2%	5%	21%	
Surplus (%)	2030				2%	10%	20%
Curtailment (%)	2026	2%	3%	4%	5%		
Curtailment (%)	2028	<1%	1%	2%	3%	5%	
Curtailment (%)	2030				<1%	2%	2%
Constraint (%)	2026	5%	5%	7%	8%		
Constraint (%)	2028	5%	3%	3%	3%	1%	
Constraint (%)	2030				9%	3%	1%
Total Dispatch Down (%)	2026	9%	13%	20%	26%		
Total Dispatch Down (%)	2028	5%	5%	7%	10%	26%	
Total Dispatch Down (%)	2030				11%	15%	23%

Table 1-7 - Surplus, Curtailment and Constraint for Wind Non-priority in Area G (G North)

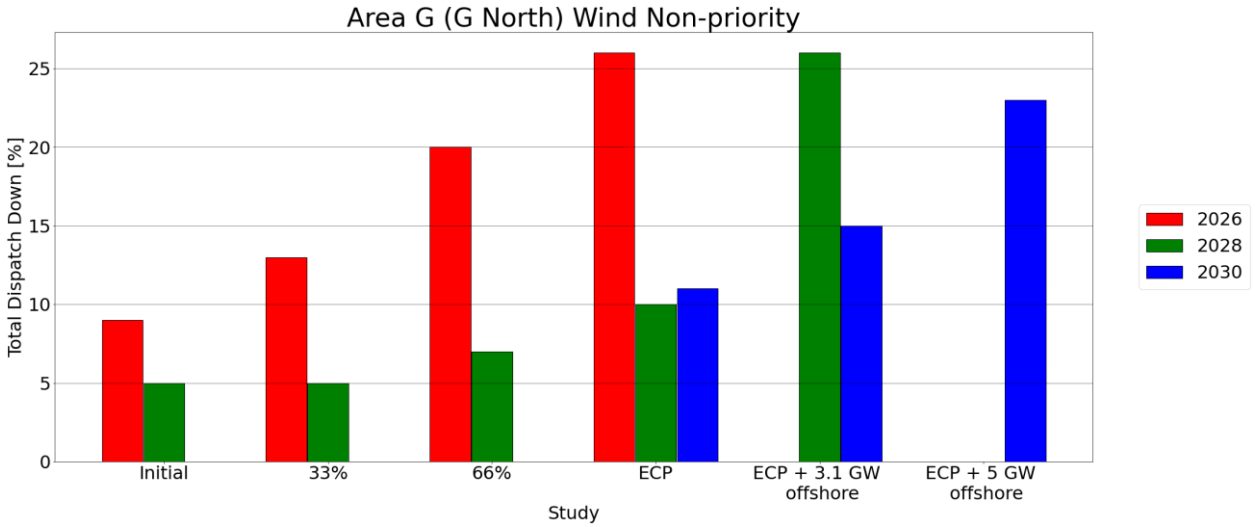

Figure 1-5 - Results Wind Non-priority Area G (G North)

The wind priority data is given in the following table.

Area G (G North)	Year	Initial	33%	66%	ECP	ECP + 3.1 GW offshore	ECP + 5 GW offshore
Installed Capacity (MW)	2026	133	133	133	133		
Installed Capacity (MW)	2028	133	133	133	133	133	
Installed Capacity (MW)	2030				133	133	133
Available Energy (GWh)	2026	416	416	416	416		
Available Energy (GWh)	2028	419	419	419	419	419	
Available Energy (GWh)	2030				416	416	416
Generation (GWh)	2026	407	400	394	388		
Generation (GWh)	2028	418	414	410	405	389	
Generation (GWh)	2030				414	394	402
Surplus (%)	2026	<1%	<1%	<1%	<1%		
Surplus (%)	2028	<1%	<1%	<1%	<1%	<1%	
Surplus (%)	2030				<1%	<1%	<1%
Curtailment (%)	2026	2%	4%	5%	7%		
Curtailment (%)	2028	<1%	1%	2%	3%	7%	
Curtailment (%)	2030				1%	5%	3%
Constraint (%)	2026	<1%	<1%	<1%	<1%		
Constraint (%)	2028	<1%	<1%	<1%	<1%	<1%	
Constraint (%)	2030				<1%	<1%	<1%
Total Dispatch Down (%)	2026	2%	4%	5%	7%		
Total Dispatch Down (%)	2028	<1%	1%	2%	3%	7%	
Total Dispatch Down (%)	2030				1%	5%	3%

Table 1-8 - Surplus, Curtailment and Constraint for Wind Priority in Area G (G North)

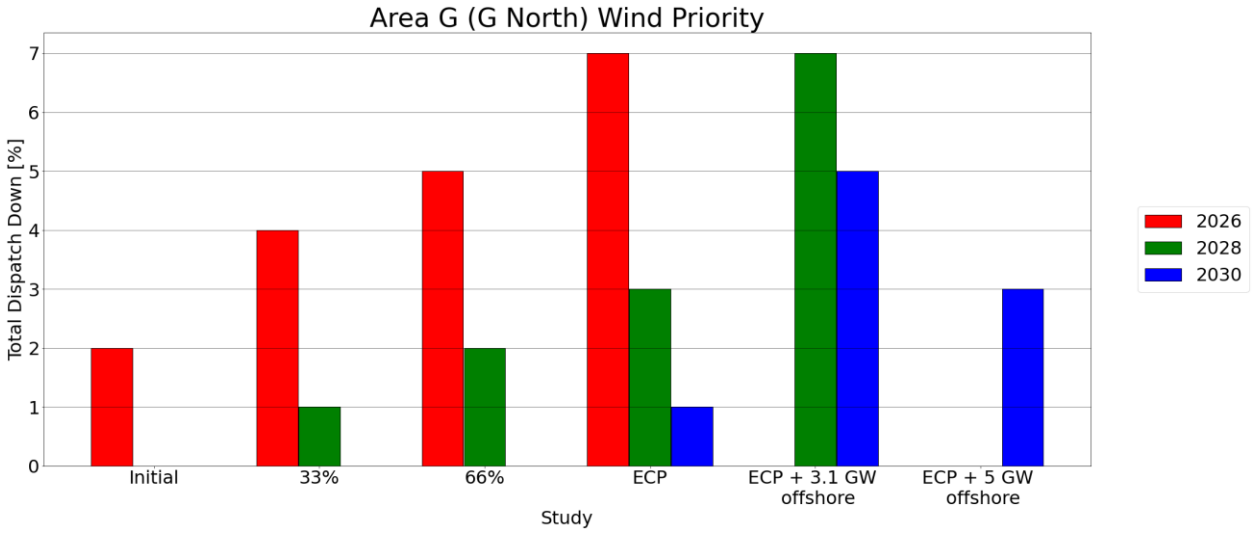

Figure 1-6 - Results Wind Priority Area G (G North)

1.7 Conclusion – Results for Area G

This section provides an overview of the estimated surplus, curtailment and constraint values for Area G for a range of scenarios based on a number of installed generation assumptions (generation scenarios) and the study year (network and demand assumptions). The results highly depend on the study assumptions, which are described in the Assumptions and Methodology report.

Section 2 contains the detailed results consisting of available energy (GWh) and percentage surplus, curtailment, and constraint values for each node for both solar and wind in Area G.

2 Area G Node Results

This section presents the results of the modelling analysis for Area G. The levels of surplus, curtailment and constraint that controllable solar and wind generators in Area G might expect to experience are reported on a nodal basis for the study scenarios. Details on the generation capacity at each node are also provided along with the assumed amount of controllable generation.

This section also presents a list of the generators at each node that are included in the study.

Figure 2-0 Area G

2.1 Balruntagh

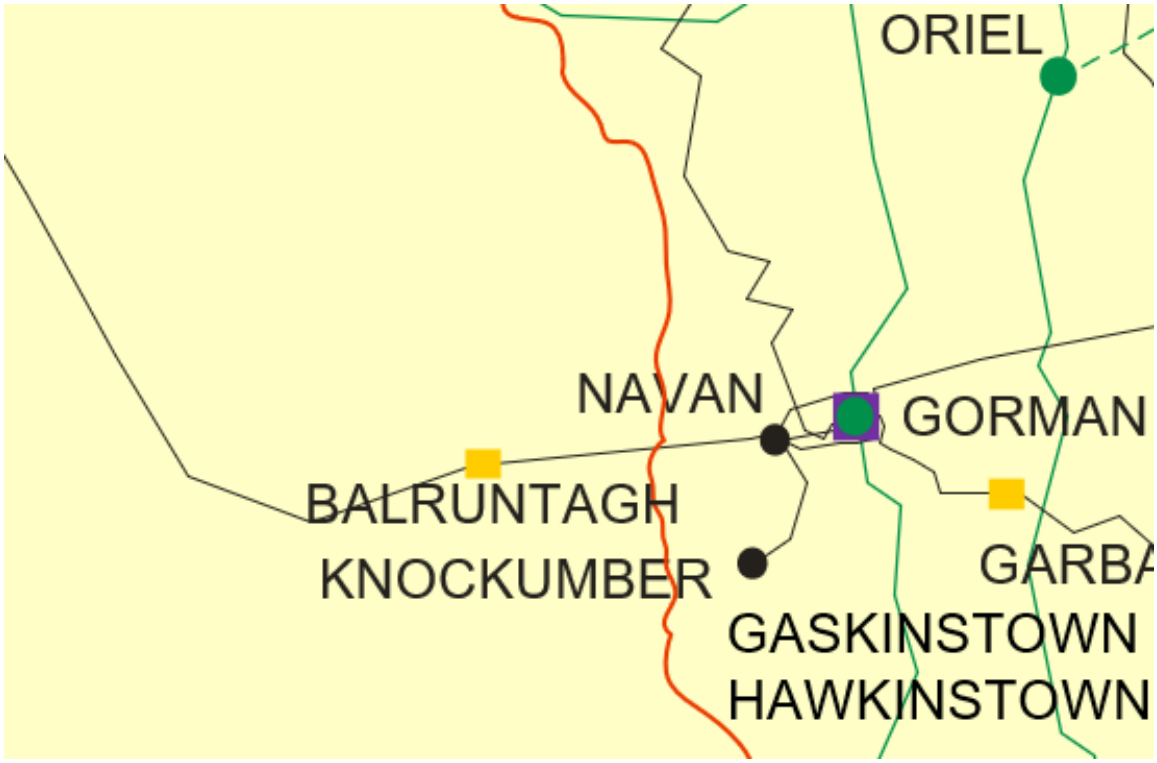

Figure 2-1 - Location of node Balruntagh node (this location is indicative and may be subject to change due to planning)

Generator	SO	Capacity	Type	Status
Milltown Solar	TSO	115.0	solar non-priority	due to connect

Table 2-1 - Generation Included in Study for Node Balruntagh

The solar non-priority data is given in the following table.

Area G	Year	Initial	33%	66%	ECP	ECP + 3.1 GW offshore	ECP + 5 GW offshore
Installed Capacity (MW)	2026		38	77	115		
Installed Capacity (MW)	2028		38	77	115	115	
Installed Capacity (MW)	2030				115	115	115
Available Energy (GWh)	2026		49	98	147		
Available Energy (GWh)	2028		49	98	148	148	
Available Energy (GWh)	2030				147	147	147
Generation (GWh)	2026		47	89	125		
Generation (GWh)	2028		47	93	136	126	
Generation (GWh)	2030				140	136	130
Surplus (%)	2026		2%	5%	9%		
Surplus (%)	2028		<1%	2%	5%	11%	
Surplus (%)	2030				2%	6%	10%
Curtailment (%)	2026		1%	2%	4%		
Curtailment (%)	2028		1%	1%	2%	3%	
Curtailment (%)	2030				1%	1%	1%
Constraint (%)	2026		1%	2%	3%		
Constraint (%)	2028		4%	1%	1%	<1%	
Constraint (%)	2030				2%	<1%	<1%
Total Dispatch Down (%)	2026		5%	10%	15%		
Total Dispatch Down (%)	2028		5%	5%	8%	14%	
Total Dispatch Down (%)	2030				5%	8%	12%

Table 2-2 - Surplus, Curtailment and Constraint for Solar non-priority in Area G

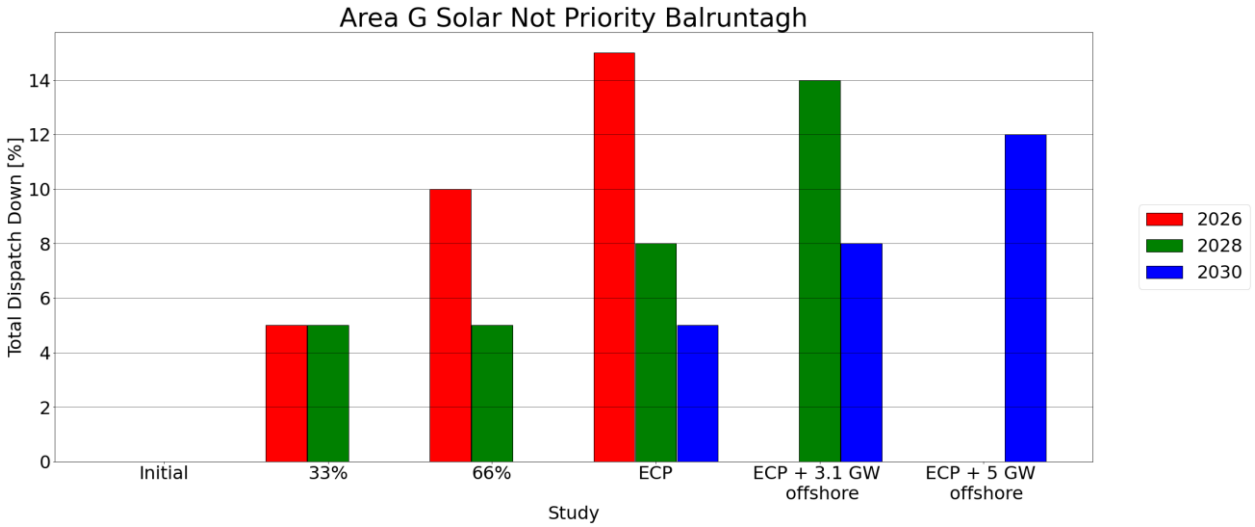

Figure 2-2 - Total Dispatch Down for Solar non-priority for Node Balruntagh

2.2 Baltrasna

Figure 2-3 - Location of node Baltrasna

Generator	SO	Capacity	Type	Status
Hilltown PV	DSO	10.0	solar non-priority	due to connect
Painestown Hill Solar Farm	DSO	7.14	solar non-priority	due to connect

Table 2-3 - Generation Included in Study for Node Baltrasna

The solar non-priority data is given in the following table.

Area G	Year	Initial	33%	66%	ECP	ECP + 3.1 GW offshore	ECP + 5 GW offshore
Installed Capacity (MW)	2026	17	17	17	17		
Installed Capacity (MW)	2028	17	17	17	17	17	
Installed Capacity (MW)	2030				17	17	17
Available Energy (GWh)	2026	22	22	22	22		
Available Energy (GWh)	2028	22	22	22	22	22	
Available Energy (GWh)	2030				22	22	22
Generation (GWh)	2026	21	21	20	19		
Generation (GWh)	2028	21	21	21	20	19	
Generation (GWh)	2030				20	20	19
Surplus (%)	2026	1%	2%	5%	9%		
Surplus (%)	2028	<1%	<1%	2%	5%	11%	
Surplus (%)	2030				2%	6%	10%
Curtailment (%)	2026	1%	1%	2%	4%		
Curtailment (%)	2028	<1%	1%	1%	2%	3%	
Curtailment (%)	2030				1%	1%	1%
Constraint (%)	2026	4%	2%	2%	2%		
Constraint (%)	2028	5%	4%	2%	2%	1%	
Constraint (%)	2030				8%	3%	3%
Total Dispatch Down (%)	2026	5%	5%	9%	15%		
Total Dispatch Down (%)	2028	5%	5%	5%	9%	15%	
Total Dispatch Down (%)	2030				11%	10%	14%

Table 2-4 - Surplus, Curtailment and Constraint for Solar non-priority in Area G

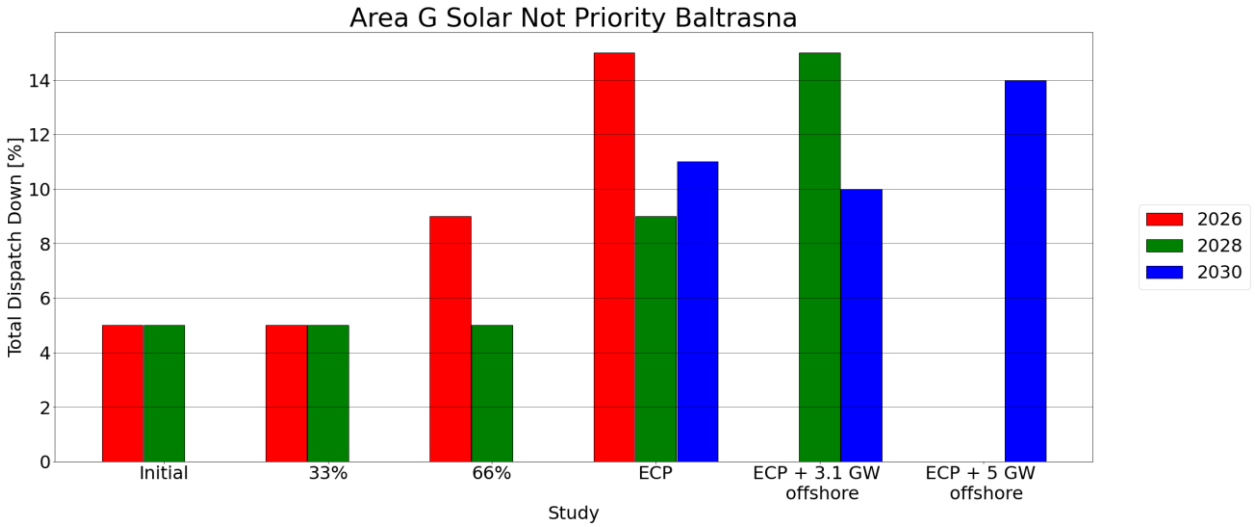

Figure 2-4 - Total Dispatch Down for Solar non-priority for Node Baltrasna

2.3 Drybridge

Figure 2-5 - Location of node Drybridge

Generator	SO	Capacity	Type	Status
Beaulieu PV	DSO	3.99	solar non-priority	due to connect
Cluide Solar	DSO	4.0	solar non-priority	due to connect
Collon Wind Power	DSO	2.3	wind uncontrolled	connected
Dunmore (1)	DSO	1.7	wind uncontrolled	connected
Dunmore (2)	DSO	1.8	wind uncontrolled	connected
Grangegeeth Solar	DSO	4.0	solar non-priority	due to connect
Stamullen Solar Park	DSO	3.99	solar non-priority	due to connect
Glenamoy Solar	DSO	20.0	solar non-priority	due to connect
Rathdrinagh Solar Farm	DSO	3.0	solar non-priority	due to connect

Table 2-5 - Generation Included in Study for Node Drybridge

The solar non-priority data is given in the following table.

Area G	Year	Initial	33%	66%	ECP	ECP + 3.1 GW offshore	ECP + 5 GW offshore
Installed Capacity (MW)	2026	12	21	30	39		
Installed Capacity (MW)	2028	12	21	30	39	39	
Installed Capacity (MW)	2030				39	39	39
Available Energy (GWh)	2026	15	27	38	50		
Available Energy (GWh)	2028	15	27	38	50	50	
Available Energy (GWh)	2030				50	50	50
Generation (GWh)	2026	15	25	35	43		
Generation (GWh)	2028	15	26	36	46	43	
Generation (GWh)	2030				45	45	43
Surplus (%)	2026	1%	2%	5%	9%		
Surplus (%)	2028	<1%	<1%	2%	5%	11%	
Surplus (%)	2030				2%	6%	10%
Curtailment (%)	2026	1%	1%	2%	4%		
Curtailment (%)	2028	<1%	1%	1%	2%	3%	
Curtailment (%)	2030				1%	1%	1%
Constraint (%)	2026	4%	2%	2%	2%		
Constraint (%)	2028	5%	4%	2%	2%	1%	
Constraint (%)	2030				8%	3%	3%
Total Dispatch Down (%)	2026	5%	5%	9%	15%		
Total Dispatch Down (%)	2028	5%	5%	5%	9%	15%	
Total Dispatch Down (%)	2030				11%	10%	14%

Table 2-6 - Surplus, Curtailment and Constraint for Solar non-priority in Area G

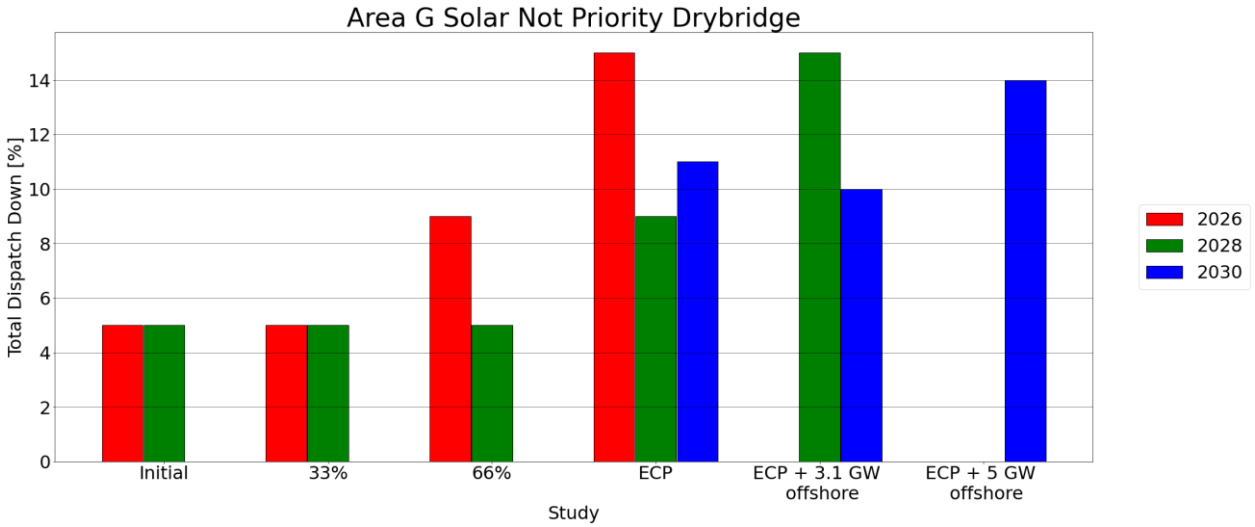

Figure 2-6 - Total Dispatch Down for Solar non-priority for Node Drybridge

2.4 Dundalk

Figure 2-7 - Location of node Dundalk

Generator	SO	Capacity	Type	Status
Grove Hill (1) formerly Tullynageer	DSO	16.1	wind priority	connected
Willville Extension Solar Park	DSO	1.0	solar non-priority	due to connect
Willville Solar Park	DSO	3.99	solar non-priority	due to connect
Kilcurly Solar	DSO	51.0	solar non-priority	due to connect

Table 2-7 - Generation Included in Study for Node Dundalk

The solar non-priority data is given in the following table.

Area G	Year	Initial	33%	66%	ECP	ECP + 3.1 GW offshore	ECP + 5 GW offshore
Installed Capacity (MW)	2026		19	37	56		
Installed Capacity (MW)	2028		19	37	56	56	
Installed Capacity (MW)	2030				56	56	56
Available Energy (GWh)	2026		24	48	72		
Available Energy (GWh)	2028		24	48	72	72	
Available Energy (GWh)	2030				72	72	72
Generation (GWh)	2026		23	43	61		
Generation (GWh)	2028		23	46	66	61	
Generation (GWh)	2030				68	66	63
Surplus (%)	2026		2%	5%	9%		
Surplus (%)	2028		<1%	2%	5%	11%	
Surplus (%)	2030				2%	6%	10%
Curtailment (%)	2026		1%	2%	4%		
Curtailment (%)	2028		1%	1%	2%	3%	
Curtailment (%)	2030				1%	1%	1%
Constraint (%)	2026		1%	2%	3%		
Constraint (%)	2028		4%	1%	1%	<1%	
Constraint (%)	2030				2%	<1%	<1%
Total Dispatch Down (%)	2026		5%	10%	15%		
Total Dispatch Down (%)	2028		5%	5%	8%	14%	
Total Dispatch Down (%)	2030				5%	8%	12%

Table 2-8 - Surplus, Curtailment and Constraint for Solar non-priority in Area G

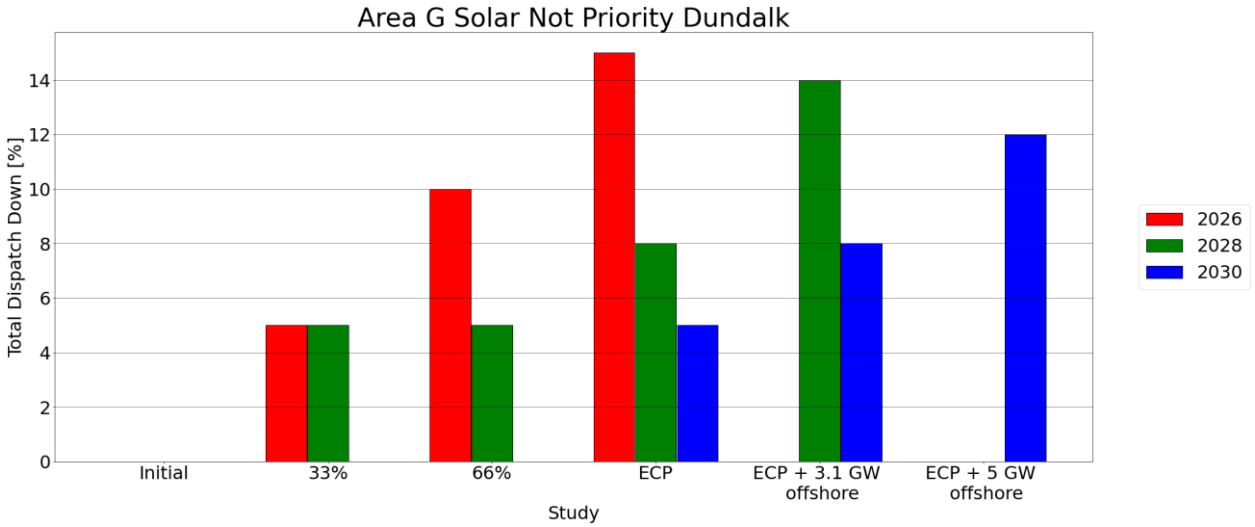

Figure 2-8 - Total Dispatch Down for Solar non-priority for Node Dundalk

The wind priority data is given in the following table.

Area G	Year	Initial	33%	66%	ECP	ECP + 3.1 GW offshore	ECP + 5 GW offshore
Installed Capacity (MW)	2026	16	16	16	16		
Installed Capacity (MW)	2028	16	16	16	16	16	
Installed Capacity (MW)	2030				16	16	16
Available Energy (GWh)	2026	50	50	50	50		
Available Energy (GWh)	2028	51	51	51	51	51	
Available Energy (GWh)	2030				50	50	50
Generation (GWh)	2026	49	48	48	47		
Generation (GWh)	2028	51	50	50	49	47	
Generation (GWh)	2030				50	48	49
Surplus (%)	2026	<1%	<1%	<1%	<1%		
Surplus (%)	2028	<1%	<1%	<1%	<1%	<1%	
Surplus (%)	2030				<1%	<1%	<1%
Curtailment (%)	2026	2%	4%	5%	7%		
Curtailment (%)	2028	<1%	1%	2%	3%	7%	
Curtailment (%)	2030				1%	5%	3%
Constraint (%)	2026	<1%	<1%	<1%	<1%		
Constraint (%)	2028	<1%	<1%	<1%	<1%	<1%	
Constraint (%)	2030				<1%	<1%	<1%
Total Dispatch Down (%)	2026	2%	4%	5%	7%		
Total Dispatch Down (%)	2028	<1%	1%	2%	3%	7%	
Total Dispatch Down (%)	2030				1%	5%	3%

Table 2-9 - Surplus, Curtailment and Constraint for Wind priority in Area G

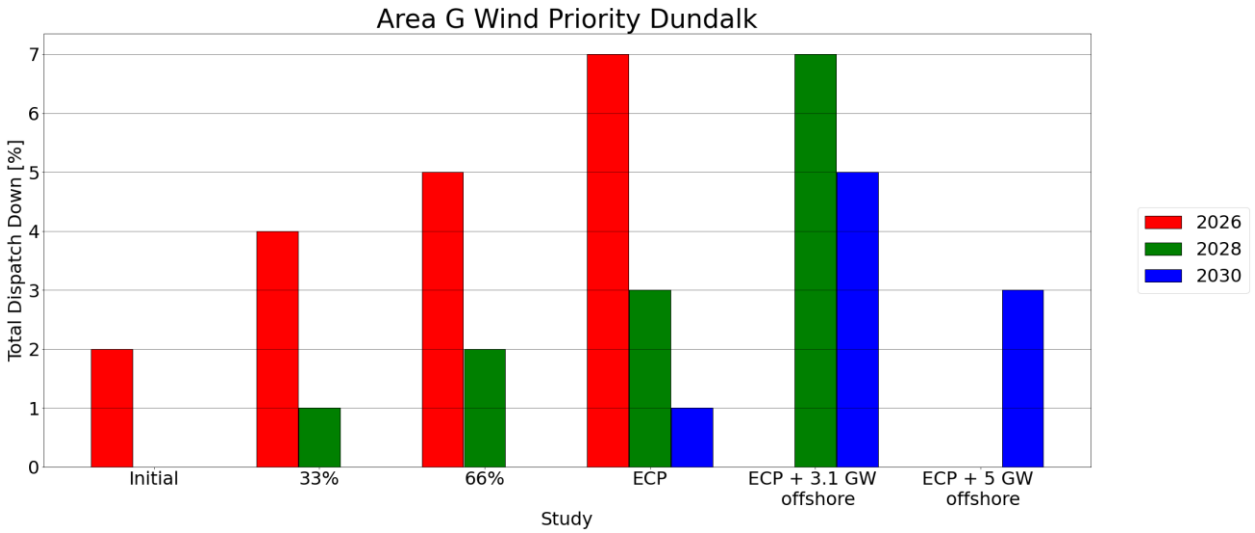

Figure 2-9 - Total Dispatch Down for Wind priority for Node Dundalk

2.5 Garballagh

Figure 2-10 - Location of node Garballagh

Generator	SO	Capacity	Type	Status
Garballagh 2 Solar Farm	TSO	48.0	solar non-priority	due to connect
Gillinstown Solar	TSO	95.0	solar non-priority	connected

Table 2-10 - Generation Included in Study for Node Garballagh

The solar non-priority data is given in the following table.

Area G	Year	Initial	33%	66%	ECP	ECP + 3.1 GW offshore	ECP + 5 GW offshore
Installed Capacity (MW)	2026	95	111	127	143		
Installed Capacity (MW)	2028	95	111	127	143	143	
Installed Capacity (MW)	2030				143	143	143
Available Energy (GWh)	2026	122	142	163	183		
Available Energy (GWh)	2028	122	142	163	184	184	
Available Energy (GWh)	2030				183	183	183
Generation (GWh)	2026	116	135	148	157		
Generation (GWh)	2028	116	135	154	167	156	
Generation (GWh)	2030				164	165	157
Surplus (%)	2026	1%	2%	5%	9%		
Surplus (%)	2028	<1%	<1%	2%	5%	11%	
Surplus (%)	2030				2%	6%	10%
Curtailment (%)	2026	1%	1%	2%	4%		
Curtailment (%)	2028	<1%	1%	1%	2%	3%	
Curtailment (%)	2030				1%	1%	1%
Constraint (%)	2026	4%	2%	2%	2%		
Constraint (%)	2028	5%	4%	2%	2%	1%	
Constraint (%)	2030				8%	3%	3%
Total Dispatch Down (%)	2026	5%	5%	9%	15%		
Total Dispatch Down (%)	2028	5%	5%	5%	9%	15%	
Total Dispatch Down (%)	2030				11%	10%	14%

Table 2-11 - Surplus, Curtailment and Constraint for Solar non-priority in Area G

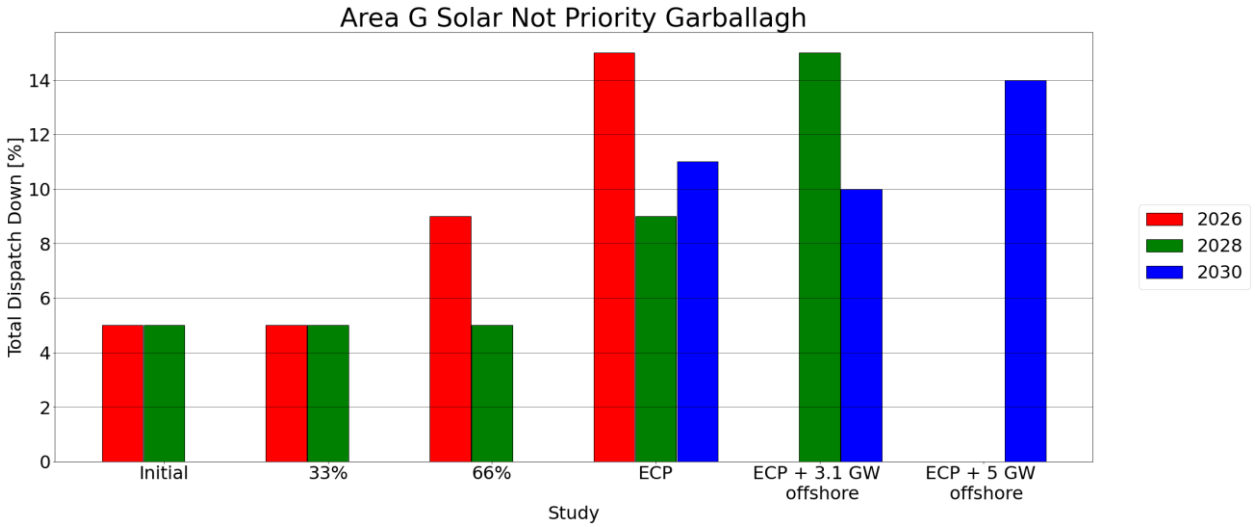

Figure 2-11 - Total Dispatch Down for Solar non-priority for Node Garballagh

2.6 Gaskinstown

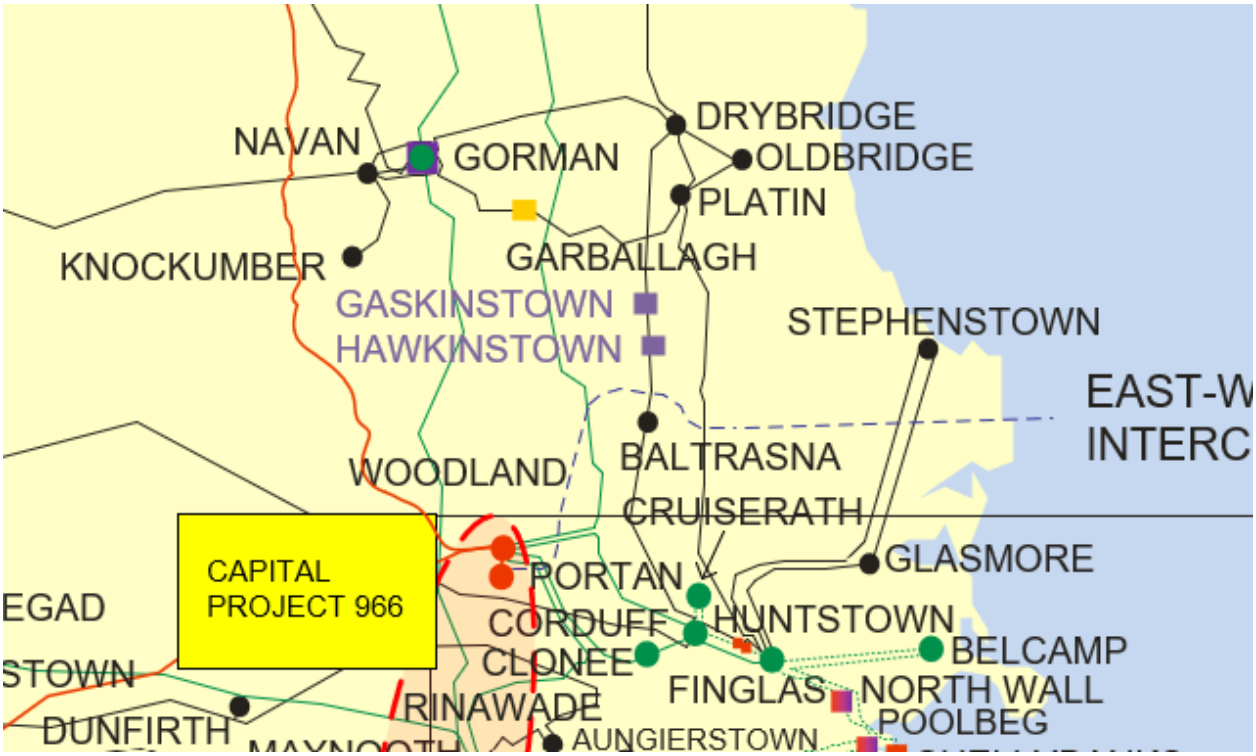

Figure 2-12 - Location of node Gaskinstown

Generator	SO	Capacity	Type	Status
Gaskinstown Solar Farm	TSO	85.0	solar non-priority	due to connect

Table 2-12 - Generation Included in Study for Node Gaskinstown

The solar non-priority data is given in the following table.

Area G	Year	Initial	33%	66%	ECP	ECP + 3.1 GW offshore	ECP + 5 GW offshore
Installed Capacity (MW)	2026	85	85	85	85		
Installed Capacity (MW)	2028	85	85	85	85	85	
Installed Capacity (MW)	2030				85	85	85
Available Energy (GWh)	2026	109	109	109	109		
Available Energy (GWh)	2028	109	109	109	109	109	
Available Energy (GWh)	2030				109	109	109
Generation (GWh)	2026	103	103	99	93		
Generation (GWh)	2028	104	104	103	99	93	
Generation (GWh)	2030				97	98	93
Surplus (%)	2026	1%	2%	5%	9%		
Surplus (%)	2028	<1%	<1%	2%	5%	11%	
Surplus (%)	2030				2%	6%	10%
Curtailment (%)	2026	1%	1%	2%	4%		
Curtailment (%)	2028	<1%	1%	1%	2%	3%	
Curtailment (%)	2030				1%	1%	1%
Constraint (%)	2026	4%	2%	2%	2%		
Constraint (%)	2028	5%	4%	2%	2%	1%	
Constraint (%)	2030				8%	3%	3%
Total Dispatch Down (%)	2026	5%	5%	9%	15%		
Total Dispatch Down (%)	2028	5%	5%	5%	9%	15%	
Total Dispatch Down (%)	2030				11%	10%	14%

Table 2-13 - Surplus, Curtailment and Constraint for Solar non-priority in Area G

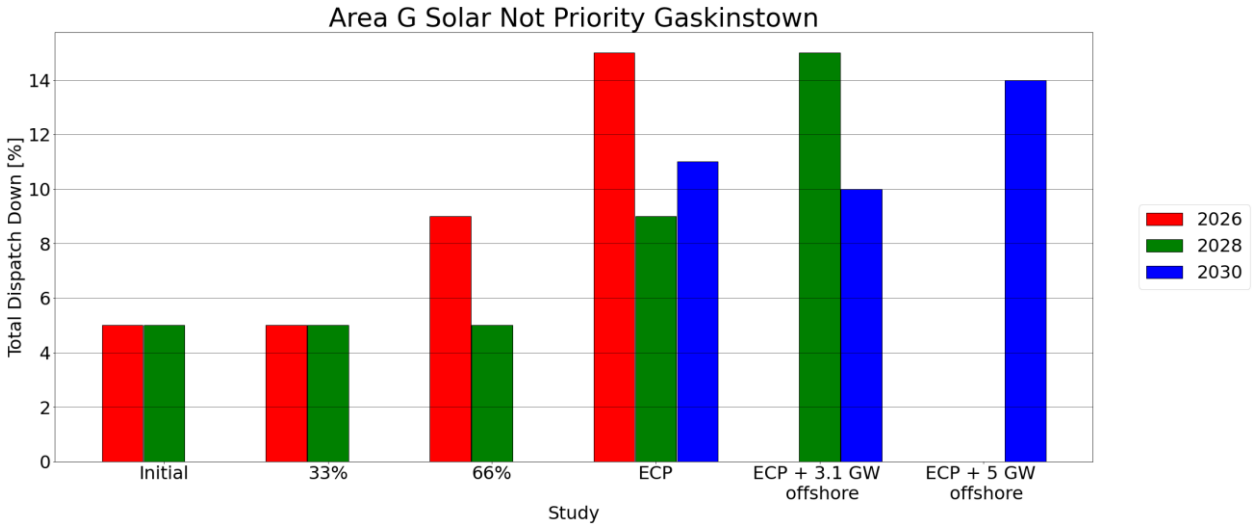

Figure 2-13 - Total Dispatch Down for Solar non-priority for Node Gaskinstown

2.7 Gorman

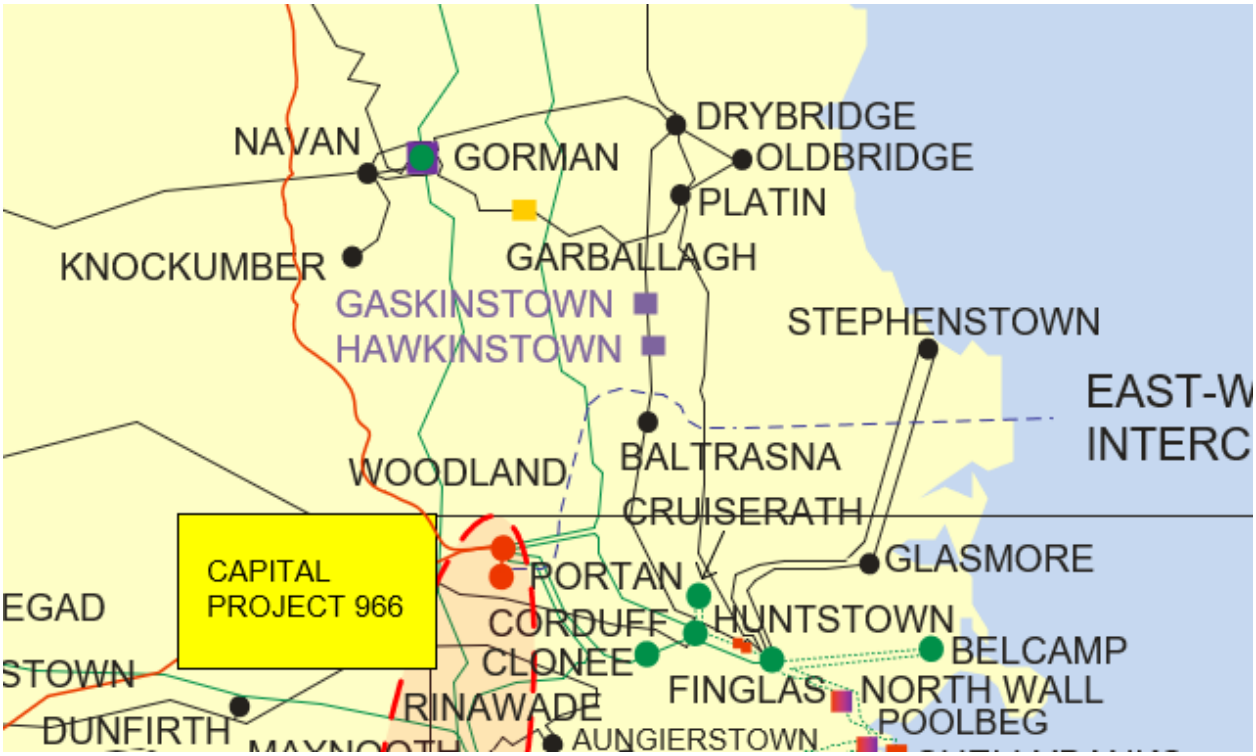

Figure 2-14 - Location of node Gorman

Generator	SO	Capacity	Type	Status
Gorman Solar Farm	TSO	46.0	solar non-priority	due to connect

Table 2-14 - Generation Included in Study for Node Gorman

The solar non-priority data is given in the following table.

Area G	Year	Initial	33%	66%	ECP	ECP + 3.1 GW offshore	ECP + 5 GW offshore
Installed Capacity (MW)	2026		15	31	46		
Installed Capacity (MW)	2028		15	31	46	46	
Installed Capacity (MW)	2030				46	46	46
Available Energy (GWh)	2026		20	39	59		
Available Energy (GWh)	2028		20	39	59	59	
Available Energy (GWh)	2030				59	59	59
Generation (GWh)	2026		19	36	50		
Generation (GWh)	2028		19	37	54	50	
Generation (GWh)	2030				53	53	50
Surplus (%)	2026		2%	5%	9%		
Surplus (%)	2028		<1%	2%	5%	11%	
Surplus (%)	2030				2%	6%	10%
Curtailment (%)	2026		1%	2%	4%		
Curtailment (%)	2028		1%	1%	2%	3%	
Curtailment (%)	2030				1%	1%	1%
Constraint (%)	2026		2%	2%	2%		
Constraint (%)	2028		4%	2%	2%	1%	
Constraint (%)	2030				8%	3%	3%
Total Dispatch Down (%)	2026		5%	9%	15%		
Total Dispatch Down (%)	2028		5%	5%	9%	15%	
Total Dispatch Down (%)	2030				11%	10%	14%

Table 2-15 - Surplus, Curtailment and Constraint for Solar non-priority in Area G

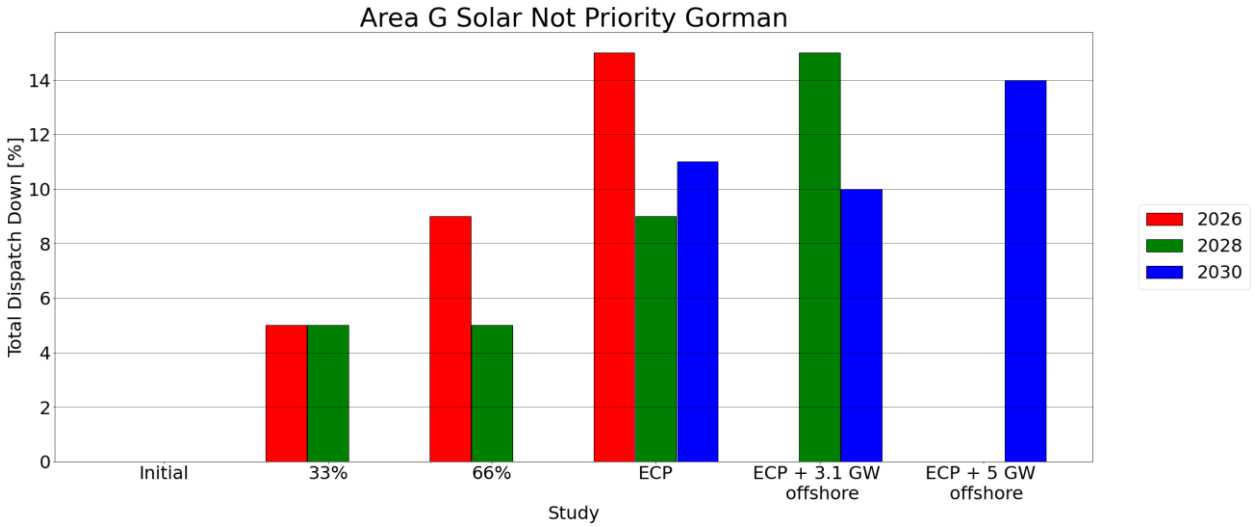

Figure 2-15 - Total Dispatch Down for Solar non-priority for Node Gorman

2.8 Hawkinstown

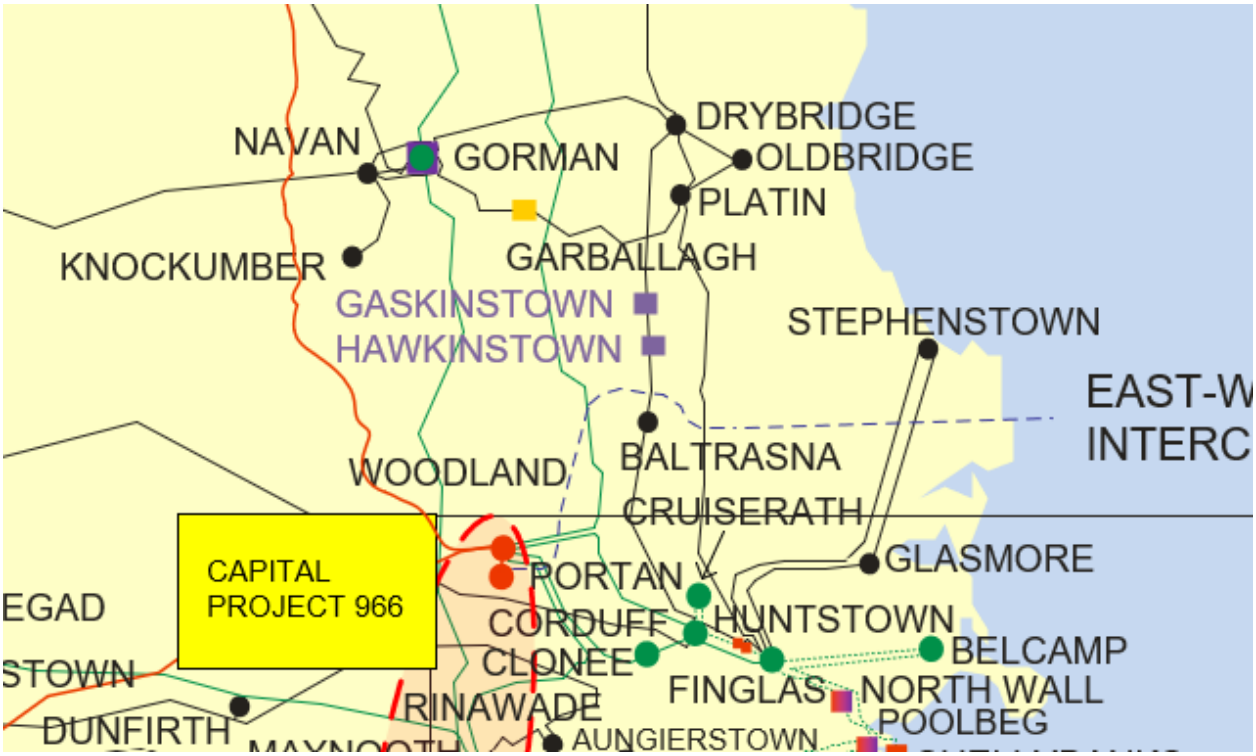

Figure 2-16 - Location of node Hawkinstown

Generator	SO	Capacity	Type	Status
Duleek Solar plus Storage Facility	TSO	80.0	solar non-priority	due to connect

Table 2-16 - Generation Included in Study for Node Hawkinstown

The solar non-priority data is given in the following table.

Area G	Year	Initial	33%	66%	ECP	ECP + 3.1 GW offshore	ECP + 5 GW offshore
Installed Capacity (MW)	2026		27	53	80		
Installed Capacity (MW)	2028		27	53	80	80	
Installed Capacity (MW)	2030				80	80	80
Available Energy (GWh)	2026		34	68	103		
Available Energy (GWh)	2028		34	68	103	103	
Available Energy (GWh)	2030				103	103	103
Generation (GWh)	2026		32	62	88		
Generation (GWh)	2028		33	65	93	87	
Generation (GWh)	2030				92	92	88
Surplus (%)	2026		2%	5%	9%		
Surplus (%)	2028		<1%	2%	5%	11%	
Surplus (%)	2030				2%	6%	10%
Curtailment (%)	2026		1%	2%	4%		
Curtailment (%)	2028		1%	1%	2%	3%	
Curtailment (%)	2030				1%	1%	1%
Constraint (%)	2026		2%	2%	2%		
Constraint (%)	2028		4%	2%	2%	1%	
Constraint (%)	2030				8%	3%	3%
Total Dispatch Down (%)	2026		5%	9%	15%		
Total Dispatch Down (%)	2028		5%	5%	9%	15%	
Total Dispatch Down (%)	2030				11%	10%	14%

Table 2-17 - Surplus, Curtailment and Constraint for Solar non-priority in Area G

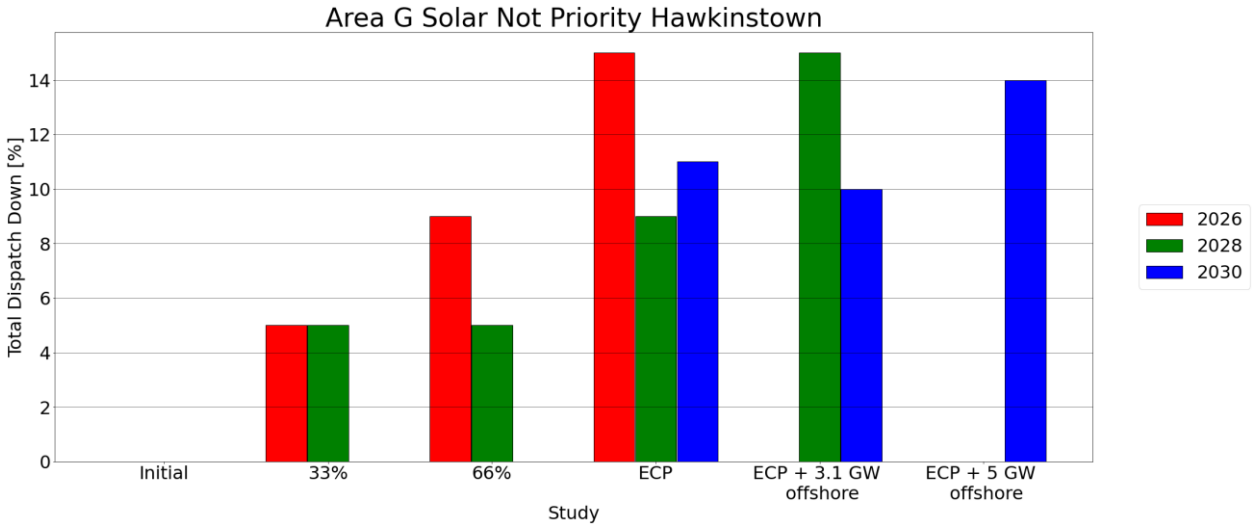

Figure 2-17 - Total Dispatch Down for Solar non-priority for Node Hawkinstown

2.9 Lisdrum

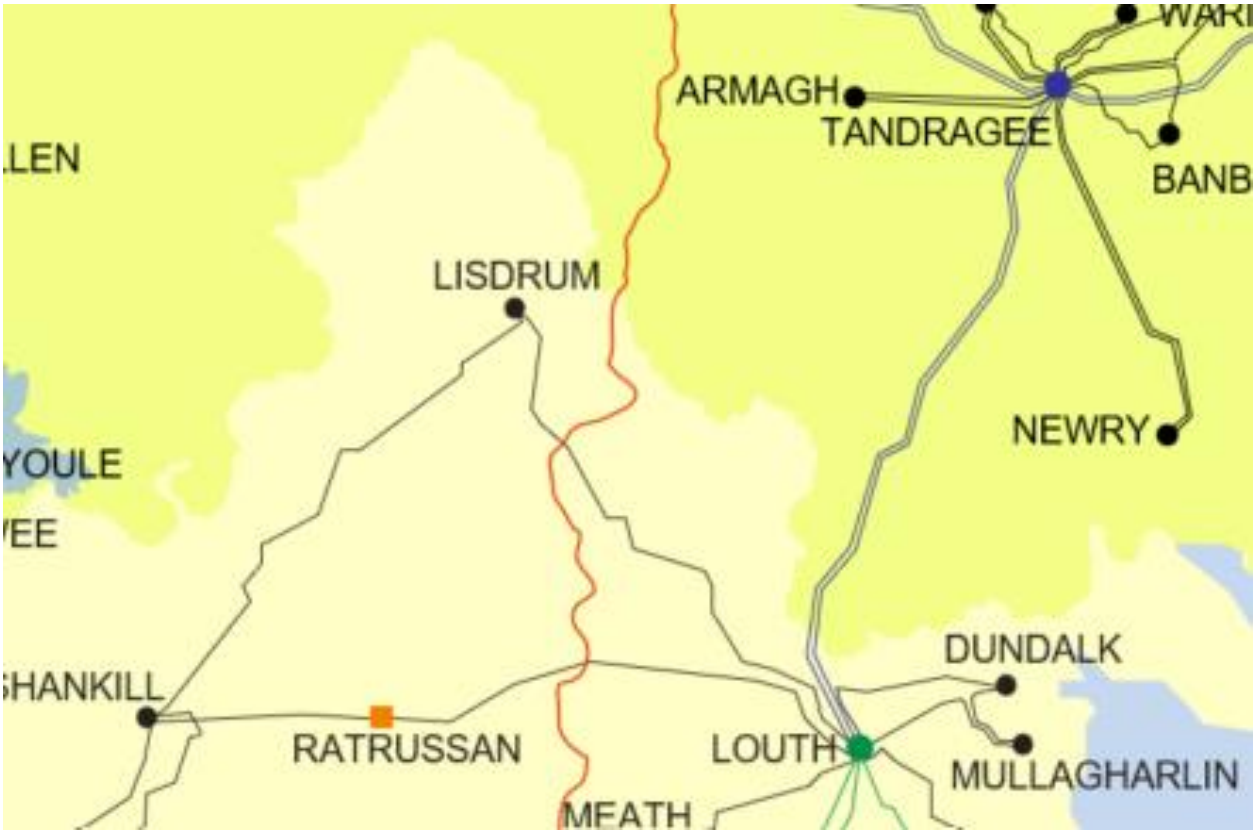

Figure 2-18 - Location of node Lisdrum

Generator	SO	Capacity	Type	Status
Coolberrin Wind Farm (formerly Bragan Wind Farm)	DSO	33.1	wind non-priority	due to connect

Table 2-18 - Generation Included in Study for Node Lisdrum

The wind non-priority data is given in the following table.

Area G	Year	Initial	33%	66%	ECP	ECP + 3.1 GW offshore	ECP + 5 GW offshore
Installed Capacity (MW)	2026	33	33	33	33		
Installed Capacity (MW)	2028	33	33	33	33	33	
Installed Capacity (MW)	2030				33	33	33
Available Energy (GWh)	2026	103	103	103	103		
Available Energy (GWh)	2028	104	104	104	104	104	
Available Energy (GWh)	2030				103	103	103
Generation (GWh)	2026	94	90	83	77		
Generation (GWh)	2028	99	99	97	93	77	
Generation (GWh)	2030				92	88	79
Surplus (%)	2026	2%	5%	9%	14%		
Surplus (%)	2028	<1%	1%	2%	5%	21%	
Surplus (%)	2030				2%	10%	21%
Curtailment (%)	2026	2%	3%	4%	5%		
Curtailment (%)	2028	<1%	1%	2%	3%	5%	
Curtailment (%)	2030				<1%	2%	2%
Constraint (%)	2026	5%	5%	7%	8%		
Constraint (%)	2028	5%	3%	3%	3%	1%	
Constraint (%)	2030				9%	3%	1%
Total Dispatch Down (%)	2026	9%	13%	20%	26%		
Total Dispatch Down (%)	2028	5%	5%	7%	10%	26%	
Total Dispatch Down (%)	2030				11%	15%	24%

Table 2-19 - Surplus, Curtailment and Constraint for Wind non-priority in Area G

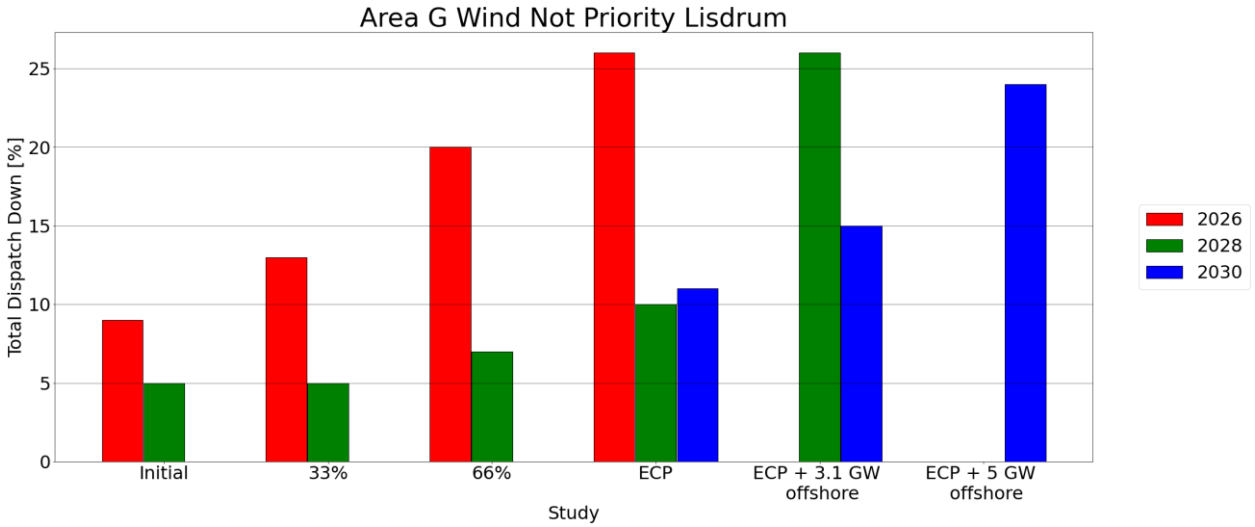

Figure 2-19 - Total Dispatch Down for Wind non-priority for Node Lisdrum

2.10 Lislea

Figure 2-20 - Location of node Lislea

Generator	SO	Capacity	Type	Status
Drumlins Park wind	TSO	48.8	wind non-priority	due to connect

Table 2-20 - Generation Included in Study for Node Lislea

The wind non-priority data is given in the following table.

Area G	Year	Initial	33%	66%	ECP	ECP + 3.1 GW offshore	ECP + 5 GW offshore
Installed Capacity (MW)	2026		16	33	49		
Installed Capacity (MW)	2028		16	33	49	49	
Installed Capacity (MW)	2030				49	49	49
Available Energy (GWh)	2026		51	102	152		
Available Energy (GWh)	2028		51	102	153	153	
Available Energy (GWh)	2030				152	152	152
Generation (GWh)	2026		44	82	113		
Generation (GWh)	2028		49	95	138	113	
Generation (GWh)	2030				136	130	116
Surplus (%)	2026		5%	9%	14%		
Surplus (%)	2028		1%	2%	5%	21%	
Surplus (%)	2030				2%	10%	21%
Curtailment (%)	2026		3%	4%	5%		
Curtailment (%)	2028		1%	2%	3%	5%	
Curtailment (%)	2030				<1%	2%	2%
Constraint (%)	2026		5%	7%	8%		
Constraint (%)	2028		3%	3%	3%	1%	
Constraint (%)	2030				9%	3%	1%
Total Dispatch Down (%)	2026		13%	20%	26%		
Total Dispatch Down (%)	2028		5%	7%	10%	26%	
Total Dispatch Down (%)	2030				11%	15%	24%

Table 2-21 - Surplus, Curtailment and Constraint for Wind non-priority in Area G

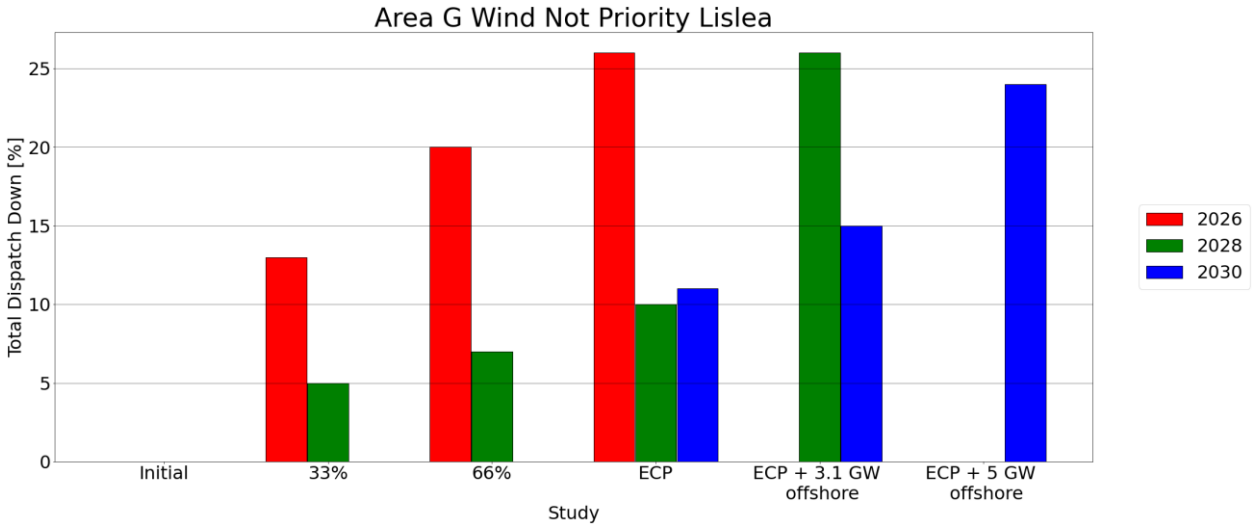

Figure 2-21 - Total Dispatch Down for Wind non-priority for Node Lislea

2.11 Louth

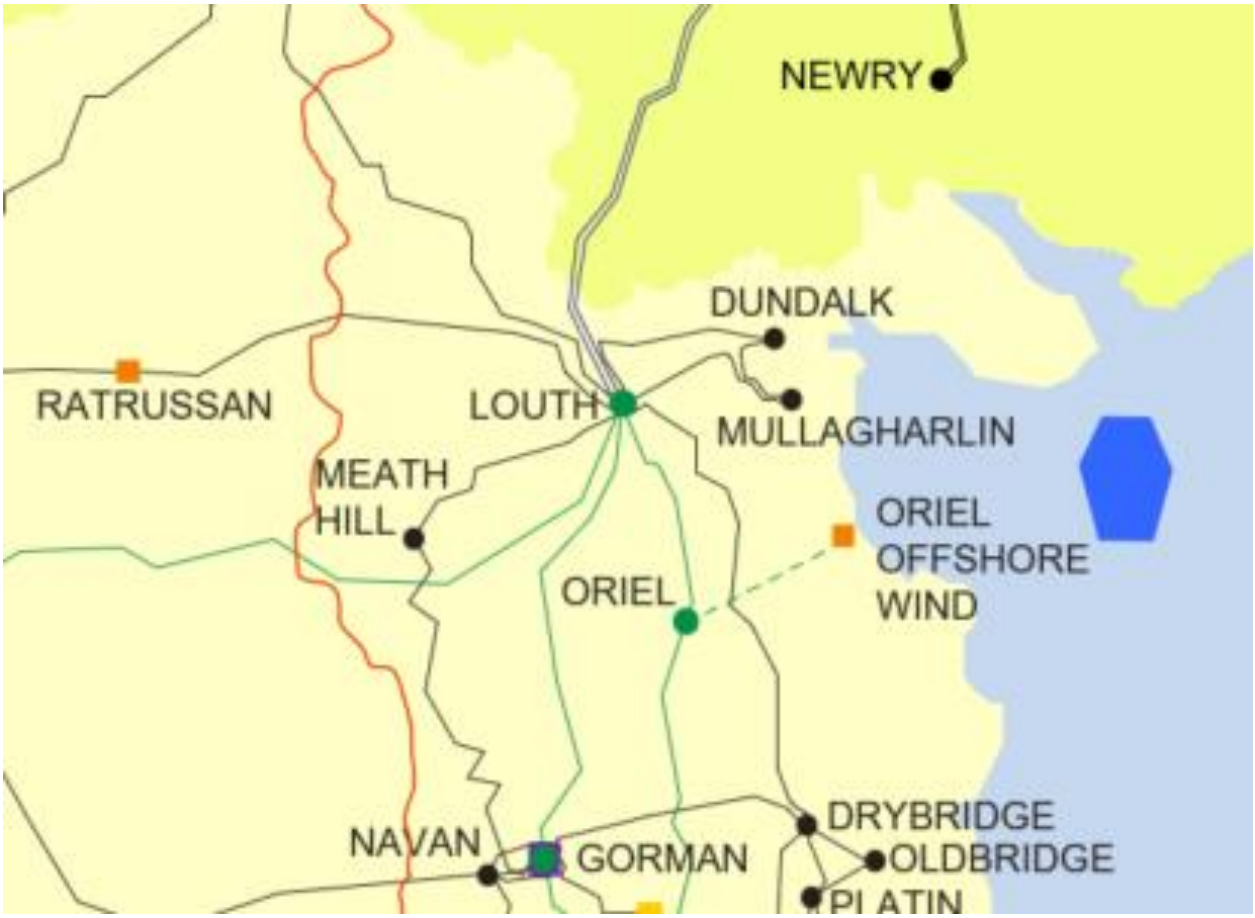

Figure 2-22 - Location of node Louth

Generator	SO	Capacity	Type	Status
Monvallet Hybrid Solar & Battery Farm	TSO	50.0	solar non-priority	due to connect

Table 2-22 - Generation Included in Study for Node Louth

The solar non-priority data is given in the following table.

Area G	Year	Initial	33%	66%	ECP	ECP + 3.1 GW offshore	ECP + 5 GW offshore
Installed Capacity (MW)	2026		17	33	50		
Installed Capacity (MW)	2028		17	33	50	50	
Installed Capacity (MW)	2030				50	50	50
Available Energy (GWh)	2026		21	43	64		
Available Energy (GWh)	2028		21	43	64	64	
Available Energy (GWh)	2030				64	64	64
Generation (GWh)	2026		20	39	54		
Generation (GWh)	2028		20	41	59	55	
Generation (GWh)	2030				61	59	56
Surplus (%)	2026		2%	5%	9%		
Surplus (%)	2028		<1%	2%	5%	11%	
Surplus (%)	2030				2%	6%	10%
Curtailment (%)	2026		1%	2%	4%		
Curtailment (%)	2028		1%	1%	2%	3%	
Curtailment (%)	2030				1%	1%	1%
Constraint (%)	2026		1%	2%	3%		
Constraint (%)	2028		4%	1%	1%	<1%	
Constraint (%)	2030				2%	<1%	<1%
Total Dispatch Down (%)	2026		5%	10%	15%		
Total Dispatch Down (%)	2028		5%	5%	8%	14%	
Total Dispatch Down (%)	2030				5%	8%	12%

Table 2-23 - Surplus, Curtailment and Constraint for Solar non-priority in Area G

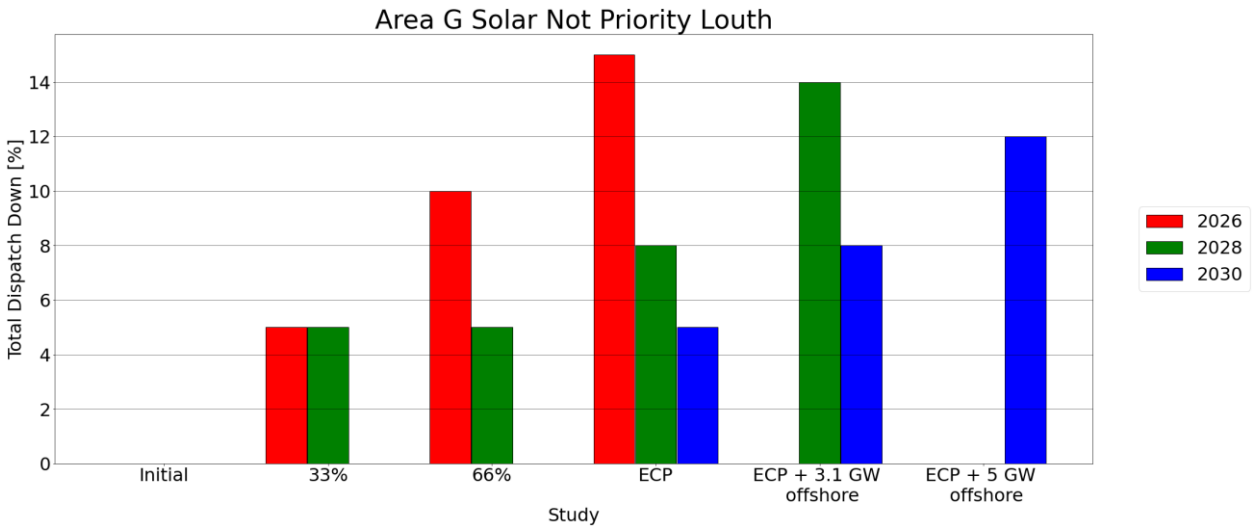

Figure 2-23 - Total Dispatch Down for Solar non-priority for Node Louth

2.12 Meath Hill

Figure 2-24 - Location of node Meath Hill

Generator	SO	Capacity	Type	Status
Gartnaneane (1)	DSO	10.5	wind uncontrolled	connected
Gartnaneane (2)	DSO	4.5	wind uncontrolled	connected
Mullananalt (1)	DSO	7.5	wind priority	connected
Raragh (2)	DSO	11.5	wind non-priority	connected
Taghart (1)	DSO	23.06	wind non-priority	connected
Teevurcher	DSO	9.0	wind priority	connected
Tullynamalra (1)	DSO	2.638	wind uncontrolled	connected
College Export AutoProducer (solar)	DSO	3.2	solar non-priority	due to connect

Table 2-24 - Generation Included in Study for Node Meath Hill

The solar non-priority data is given in the following table.

Area G	Year	Initial	33%	66%	ECP	ECP + 3.1 GW offshore	ECP + 5 GW offshore
Installed Capacity (MW)	2026		1	2	3		
Installed Capacity (MW)	2028		1	2	3	3	
Installed Capacity (MW)	2030				3	3	3
Available Energy (GWh)	2026		1	3	4		
Available Energy (GWh)	2028		1	3	4	4	
Available Energy (GWh)	2030				4	4	4
Generation (GWh)	2026		1	2	3		
Generation (GWh)	2028		1	3	4	4	
Generation (GWh)	2030				4	4	4
Surplus (%)	2026		2%	5%	9%		
Surplus (%)	2028		<1%	2%	5%	11%	
Surplus (%)	2030				2%	6%	10%
Curtailment (%)	2026		1%	2%	4%		
Curtailment (%)	2028		1%	1%	2%	3%	
Curtailment (%)	2030				1%	1%	1%
Constraint (%)	2026		1%	2%	3%		
Constraint (%)	2028		4%	1%	1%	<1%	
Constraint (%)	2030				2%	<1%	<1%
Total Dispatch Down (%)	2026		5%	10%	15%		
Total Dispatch Down (%)	2028		5%	5%	8%	14%	
Total Dispatch Down (%)	2030				5%	8%	12%

Table 2-25 - Surplus, Curtailment and Constraint for Solar non-priority in Area G

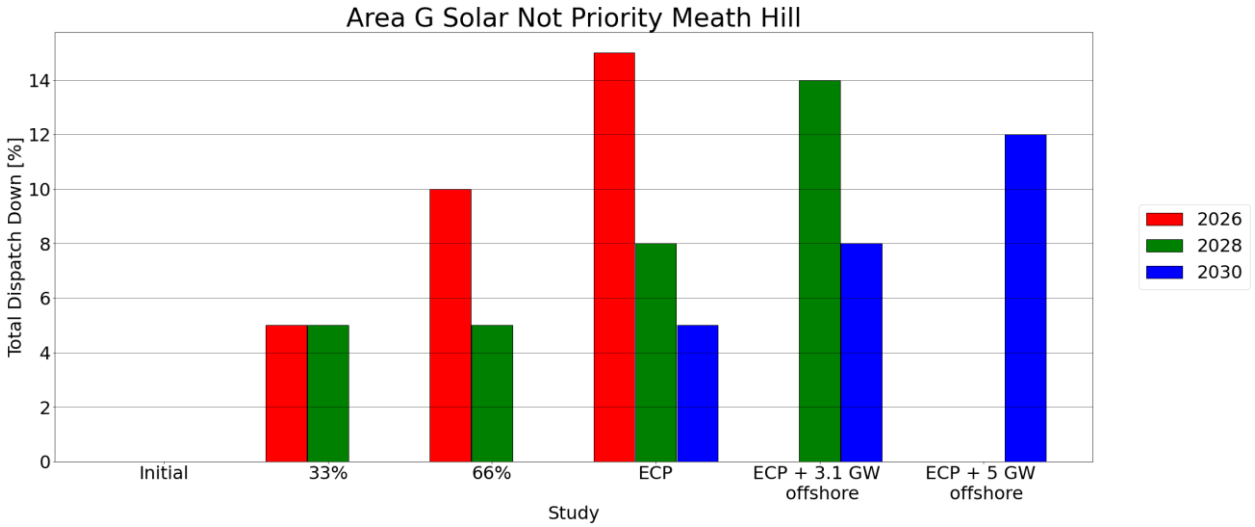

Figure 2-25 - Total Dispatch Down for Solar non-priority for Node Meath Hill

The wind non-priority data is given in the following table.

Area G	Year	Initial	33%	66%	ECP	ECP + 3.1 GW offshore	ECP + 5 GW offshore
Installed Capacity (MW)	2026	35	35	35	35		
Installed Capacity (MW)	2028	35	35	35	35	35	
Installed Capacity (MW)	2030				35	35	35
Available Energy (GWh)	2026	108	108	108	108		
Available Energy (GWh)	2028	109	109	109	109	109	
Available Energy (GWh)	2030				108	108	108
Generation (GWh)	2026	98	94	87	80		
Generation (GWh)	2028	103	103	101	97	80	
Generation (GWh)	2030				96	92	82
Surplus (%)	2026	2%	5%	9%	14%		
Surplus (%)	2028	<1%	1%	2%	5%	21%	
Surplus (%)	2030				2%	10%	21%
Curtailment (%)	2026	2%	3%	4%	5%		
Curtailment (%)	2028	<1%	1%	2%	3%	5%	
Curtailment (%)	2030				<1%	2%	2%
Constraint (%)	2026	5%	5%	7%	8%		
Constraint (%)	2028	5%	3%	3%	3%	1%	
Constraint (%)	2030				9%	3%	1%
Total Dispatch Down (%)	2026	9%	13%	20%	26%		
Total Dispatch Down (%)	2028	5%	5%	7%	10%	26%	
Total Dispatch Down (%)	2030				11%	15%	24%

Table 2-26 - Surplus, Curtailment and Constraint for Wind non-priority in Area G

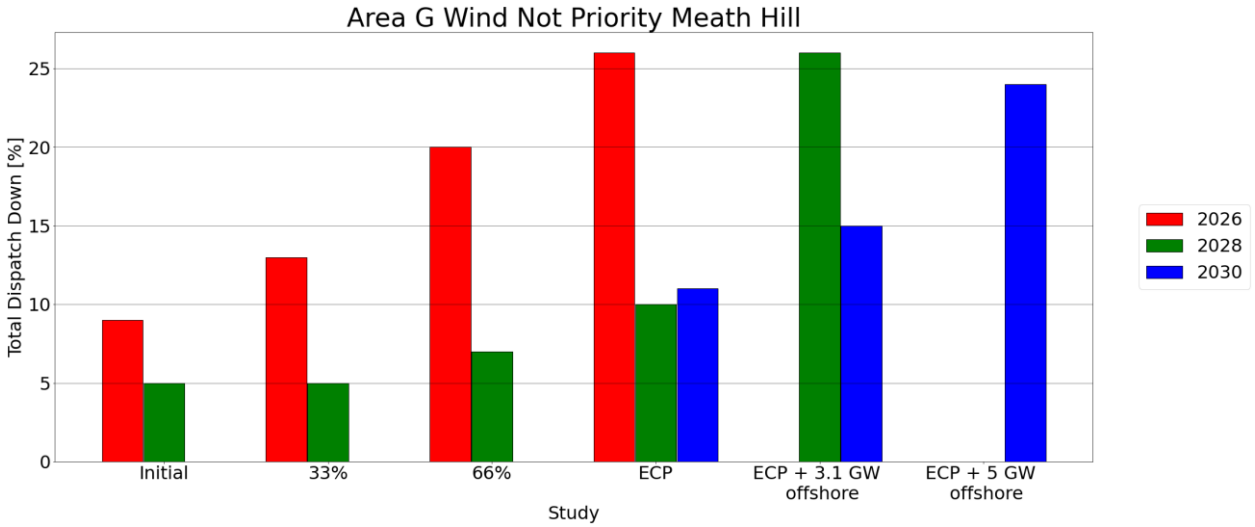

Figure 2-26 - Total Dispatch Down for Wind non-priority for Node Meath Hill

The wind priority data is given in the following table.

Area G	Year	Initial	33%	66%	ECP	ECP + 3.1 GW offshore	ECP + 5 GW offshore
Installed Capacity (MW)	2026	16	16	16	16		
Installed Capacity (MW)	2028	16	16	16	16	16	
Installed Capacity (MW)	2030				16	16	16
Available Energy (GWh)	2026	52	52	52	52		
Available Energy (GWh)	2028	52	52	52	52	52	
Available Energy (GWh)	2030				52	52	52
Generation (GWh)	2026	50	50	49	48		
Generation (GWh)	2028	52	51	51	50	48	
Generation (GWh)	2030				51	49	50
Surplus (%)	2026	<1%	<1%	<1%	<1%		
Surplus (%)	2028	<1%	<1%	<1%	<1%	<1%	
Surplus (%)	2030				<1%	<1%	<1%
Curtailment (%)	2026	2%	4%	5%	7%		
Curtailment (%)	2028	<1%	1%	2%	3%	7%	
Curtailment (%)	2030				1%	5%	3%
Constraint (%)	2026	<1%	<1%	<1%	<1%		
Constraint (%)	2028	<1%	<1%	<1%	<1%	<1%	
Constraint (%)	2030				<1%	<1%	<1%
Total Dispatch Down (%)	2026	2%	4%	5%	7%		
Total Dispatch Down (%)	2028	<1%	1%	2%	3%	7%	
Total Dispatch Down (%)	2030				1%	5%	3%

Table 2-27 - Surplus, Curtailment and Constraint for Wind priority in Area G

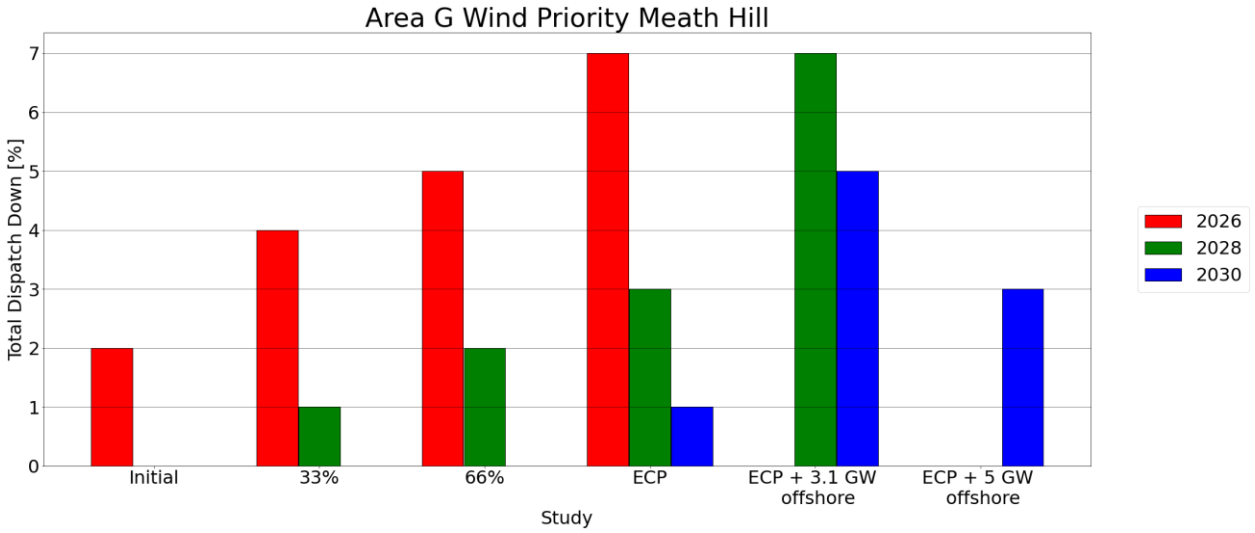

Figure 2-27 - Total Dispatch Down for Wind priority for Node Meath Hill

2.13 Navan

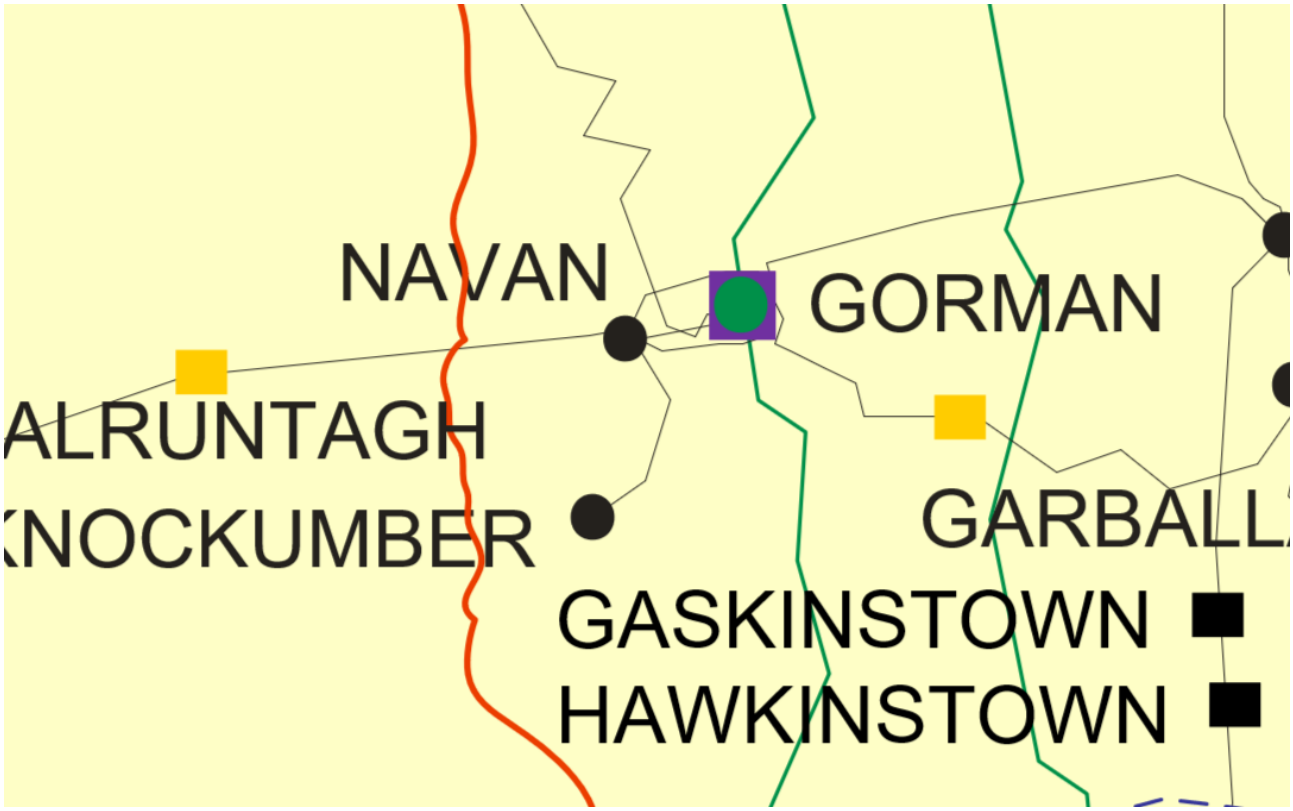

Figure 2-28 - Location of node Navan

Generator	SO	Capacity	Type	Status
Friarspark (was Glebe Golf Course)	DSO	4.0	solar non-priority	due to connect
Friarspark Solar 2	DSO	2.1	solar non-priority	due to connect
Kilkeelan Phase 2 Solar Farm	DSO	1.35	solar non-priority	due to connect
Kilkeelan Solar Farm	DSO	4.0	solar non-priority	due to connect
Martinstown Solar formerly Crowinstown Great wind	DSO	4.999	solar non-priority	due to connect

Table 2-28 - Generation Included in Study for Node Navan

The solar non-priority data is given in the following table.

Area G	Year	Initial	33%	66%	ECP	ECP + 3.1 GW offshore	ECP + 5 GW offshore
Installed Capacity (MW)	2026	11	13	15	16		
Installed Capacity (MW)	2028	11	13	15	16	16	
Installed Capacity (MW)	2030				16	16	16
Available Energy (GWh)	2026	14	17	19	21		
Available Energy (GWh)	2028	14	17	19	21	21	
Available Energy (GWh)	2030				21	21	21
Generation (GWh)	2026	14	16	17	18		
Generation (GWh)	2028	14	16	18	19	18	
Generation (GWh)	2030				20	19	19
Surplus (%)	2026	1%	2%	5%	9%		
Surplus (%)	2028	<1%	<1%	2%	5%	11%	
Surplus (%)	2030				2%	6%	10%
Curtailment (%)	2026	1%	1%	2%	4%		
Curtailment (%)	2028	<1%	1%	1%	2%	3%	
Curtailment (%)	2030				1%	1%	1%
Constraint (%)	2026	4%	1%	2%	3%		
Constraint (%)	2028	5%	4%	1%	1%	<1%	
Constraint (%)	2030				2%	<1%	<1%
Total Dispatch Down (%)	2026	5%	5%	10%	15%		
Total Dispatch Down (%)	2028	5%	5%	5%	8%	14%	
Total Dispatch Down (%)	2030				5%	8%	12%

Table 2-29 - Surplus, Curtailment and Constraint for Solar non-priority in Area G

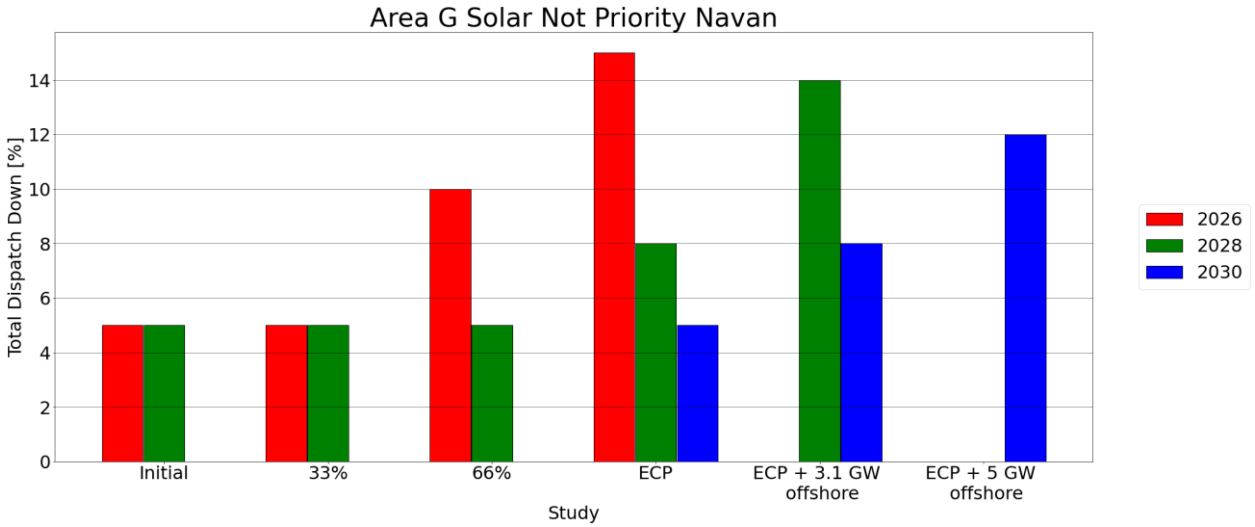

Figure 2-29 - Total Dispatch Down for Solar non-priority for Node Navan

2.14 Oriel 220 kV

Figure 2-30 - Location of node Oriel 220 kV

Generator	SO	Capacity	Type	Status
Oriel 1	TSO	210.0	wind non-priority	due to connect
Oriel offshore new A	TSO	160.0	wind non-priority	due to connect

Table 2-30 - Generation Included in Study for Node Oriel 220 kV

The wind non-priority data is given in the following table.

Area G	Year	Initial	33%	66%	ECP	ECP + 3.1 GW offshore	ECP + 5 GW offshore
Installed Capacity (MW)	2026						
Installed Capacity (MW)	2028						
Installed Capacity (MW)	2030						370
Available Energy (GWh)	2026						
Available Energy (GWh)	2028						
Available Energy (GWh)	2030						1550
Generation (GWh)	2026						
Generation (GWh)	2028						
Generation (GWh)	2030						1220
Surplus (%)	2026						
Surplus (%)	2028						
Surplus (%)	2030						19%
Curtailment (%)	2026						
Curtailment (%)	2028						
Curtailment (%)	2030						2%
Constraint (%)	2026						
Constraint (%)	2028						
Constraint (%)	2030						1%
Total Dispatch Down (%)	2026						
Total Dispatch Down (%)	2028						
Total Dispatch Down (%)	2030						21%

Table 2-31 - Surplus, Curtailment and Constraint for Wind non-priority in Area G

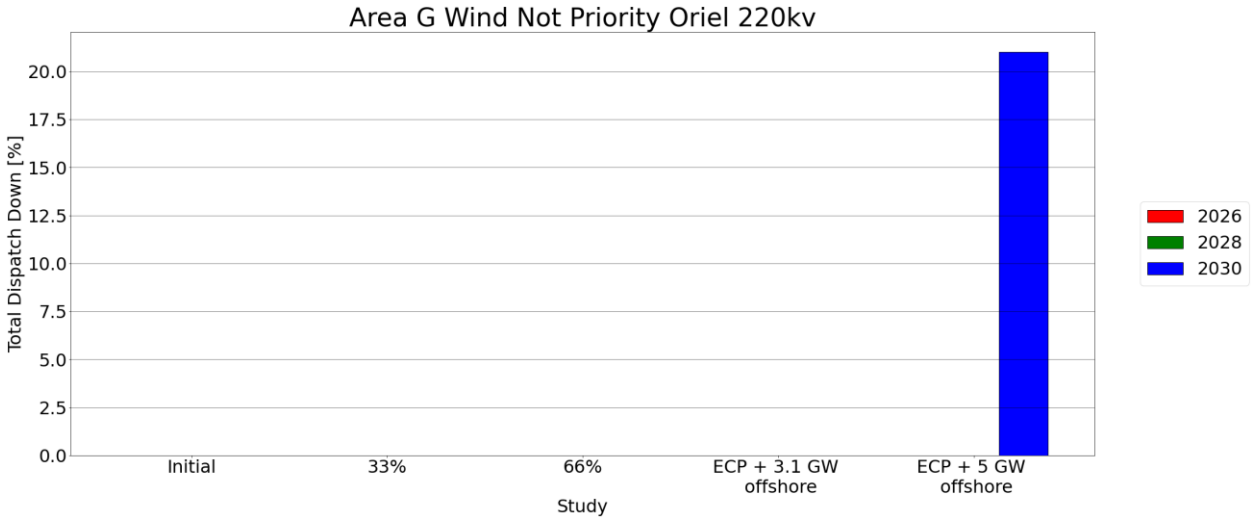

Figure 2-31 - Total Dispatch Down for Wind non-priority for Node Oriel 220 kV

2.15 Paddock

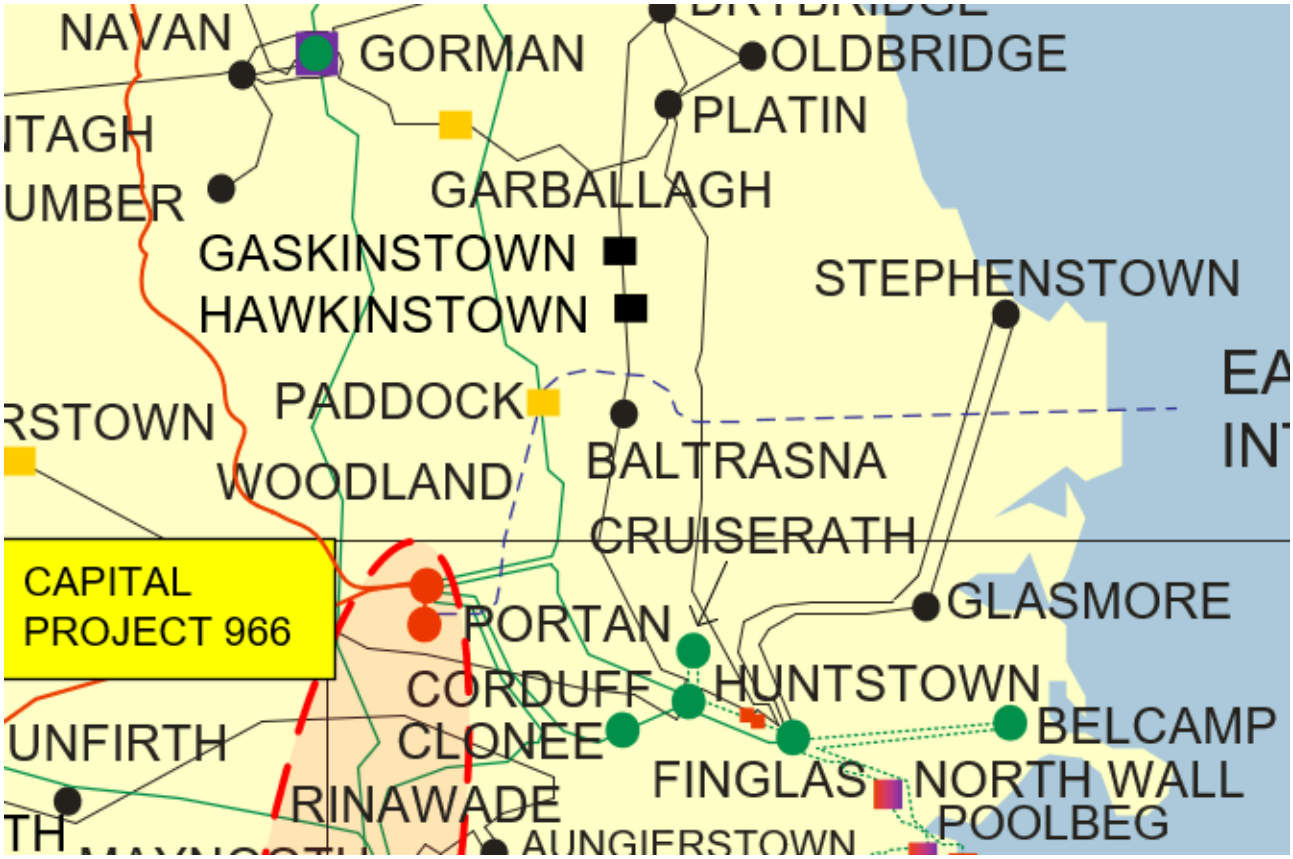

Figure 2-32 - Location of node Paddock (this location is indicative and may be subject to change due to planning)

Generator	SO	Capacity	Type	Status
Darthogue Solar Farm	TSO	47.0	solar non-priority	due to connect
Darthogue Solar Farm Extension	TSO	70.0	solar non-priority	due to connect
Kilrue Solar	TSO	195.0	solar non-priority	due to connect
Reask Solar Farm	TSO	55.0	solar non-priority	due to connect

Table 2-32 - Generation Included in Study for Node Paddock

The solar non-priority data is given in the following table.

Area G	Year	Initial	33%	66%	ECP	ECP + 3.1 GW offshore	ECP + 5 GW offshore
Installed Capacity (MW)	2026		122	245	367		
Installed Capacity (MW)	2028		122	245	367	367	
Installed Capacity (MW)	2030				367	367	367
Available Energy (GWh)	2026		157	313	470		
Available Energy (GWh)	2028		157	314	471	471	
Available Energy (GWh)	2030				470	470	470
Generation (GWh)	2026		148	285	402		
Generation (GWh)	2028		149	298	429	400	
Generation (GWh)	2030				420	423	403
Surplus (%)	2026		2%	5%	9%		
Surplus (%)	2028		<1%	2%	5%	11%	
Surplus (%)	2030				2%	6%	10%
Curtailment (%)	2026		1%	2%	4%		
Curtailment (%)	2028		1%	1%	2%	3%	
Curtailment (%)	2030				1%	1%	1%
Constraint (%)	2026		2%	2%	2%		
Constraint (%)	2028		4%	2%	2%	1%	
Constraint (%)	2030				8%	3%	3%
Total Dispatch Down (%)	2026		5%	9%	15%		
Total Dispatch Down (%)	2028		5%	5%	9%	15%	
Total Dispatch Down (%)	2030				11%	10%	14%

Table 2-33 - Surplus, Curtailment and Constraint for Solar non-priority in Area G

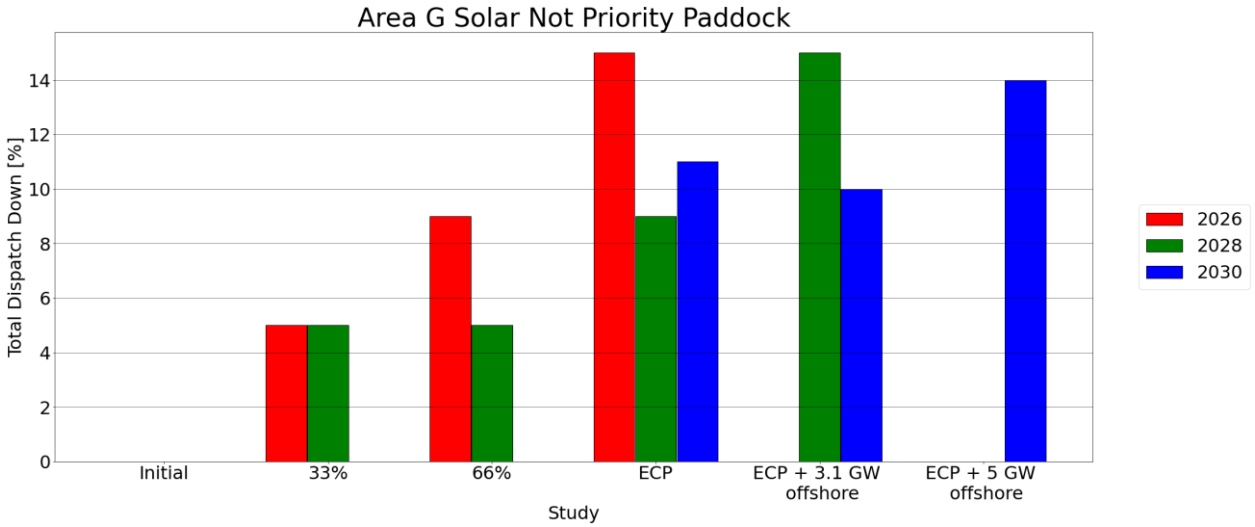

Figure 2-33 - Total Dispatch Down for Solar non-priority for Node Paddock

2.16 Ratrussan

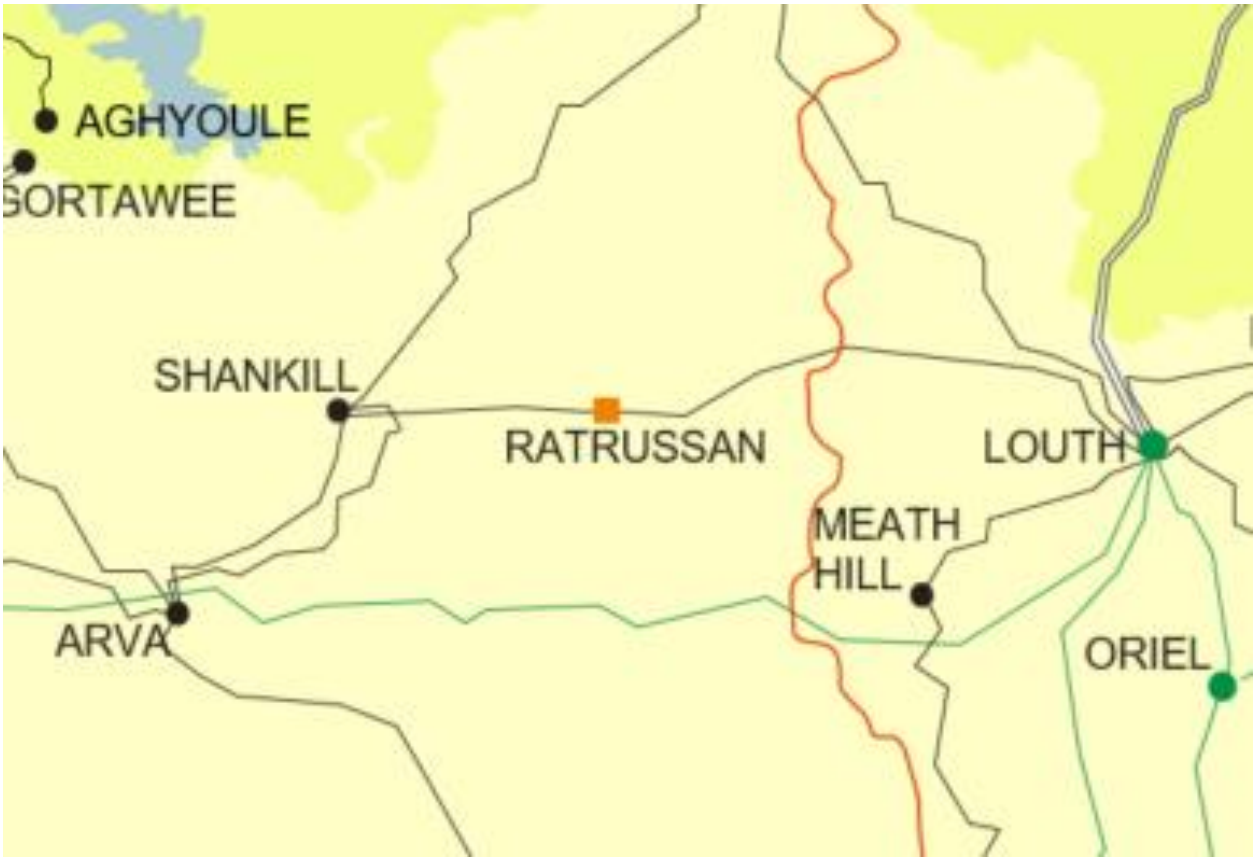

Figure 2-34 - Location of node Ratrussan

Generator	SO	Capacity	Type	Status
Mountain Lodge (1)	TSO	24.8	wind priority	connected
Mountain Lodge (3)	TSO	5.82	wind priority	connected
Ratrussan (1a)	TSO	48.0	wind priority	connected

Table 2-34 - Generation Included in Study for Node Ratrussan

The wind priority data is given in the following table.

Area G	Year	Initial	33%	66%	ECP	ECP + 3.1 GW offshore	ECP + 5 GW offshore
Installed Capacity (MW)	2026	79	79	79	79		
Installed Capacity (MW)	2028	79	79	79	79	79	
Installed Capacity (MW)	2030				79	79	79
Available Energy (GWh)	2026	246	246	246	246		
Available Energy (GWh)	2028	247	247	247	247	247	
Available Energy (GWh)	2030				246	246	246
Generation (GWh)	2026	240	236	232	229		
Generation (GWh)	2028	247	244	242	239	230	
Generation (GWh)	2030				244	232	237
Surplus (%)	2026	<1%	<1%	<1%	<1%		
Surplus (%)	2028	<1%	<1%	<1%	<1%	<1%	
Surplus (%)	2030				<1%	<1%	<1%
Curtailment (%)	2026	2%	4%	5%	7%		
Curtailment (%)	2028	<1%	1%	2%	3%	7%	
Curtailment (%)	2030				1%	5%	3%
Constraint (%)	2026	<1%	<1%	<1%	<1%		
Constraint (%)	2028	<1%	<1%	<1%	<1%	<1%	
Constraint (%)	2030				<1%	<1%	<1%
Total Dispatch Down (%)	2026	2%	4%	5%	7%		
Total Dispatch Down (%)	2028	<1%	1%	2%	3%	7%	
Total Dispatch Down (%)	2030				1%	5%	3%

Table 2-35 - Surplus, Curtailment and Constraint for Wind priority in Area G

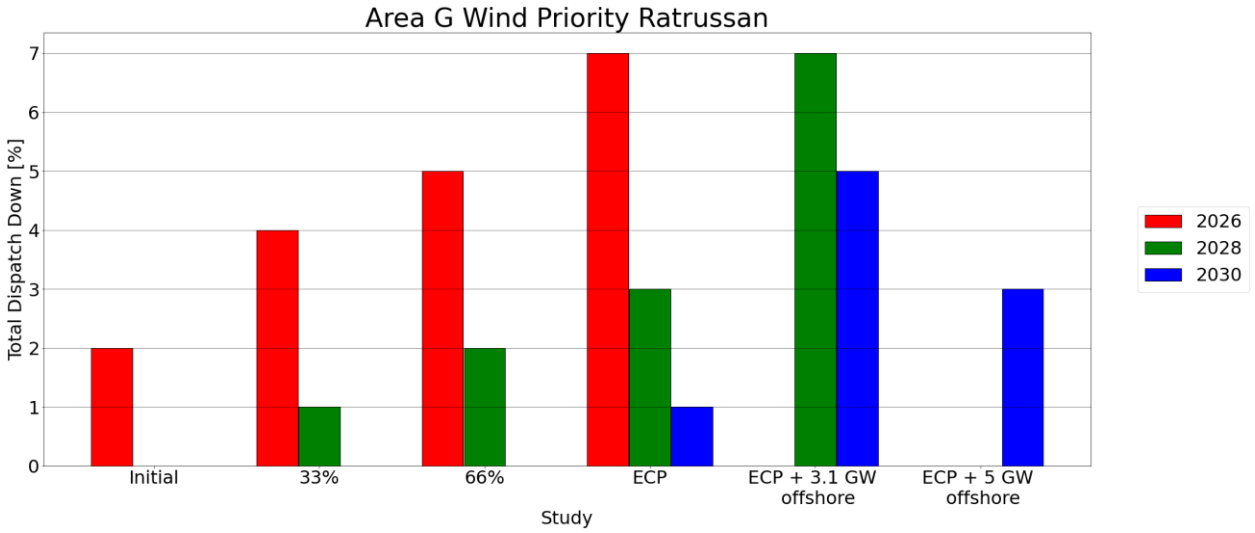

Figure 2-35 - Total Dispatch Down for Wind priority for Node Ratrussan

2.17 Shankill

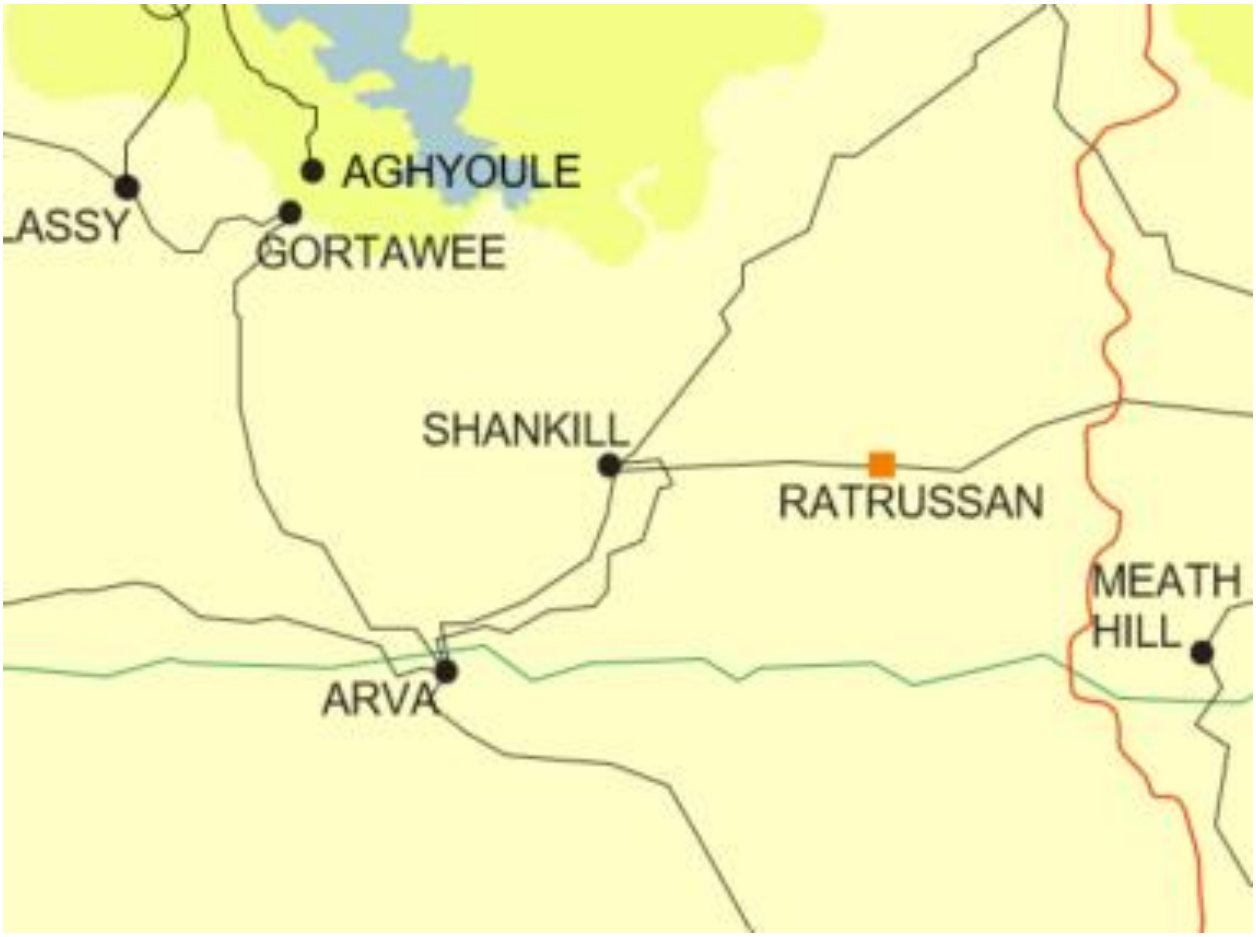

Figure 2-36 - Location of node Shankill

Generator	SO	Capacity	Type	Status
Carrickabane Solar Farm	DSO	4.0	solar non-priority	due to connect
Carrickallen Wind Farm	DSO	22.0	wind priority	connected
Drumman Solar Farm	DSO	7.0	solar non-priority	due to connect
Liffey Autoproduction Project	DSO	1.6	wind uncontrolled	connected
Liffey Autoproduction Project (extension)	DSO	1.417	wind uncontrolled	connected
Mountain Lodge (2)	DSO	3.0	wind uncontrolled	connected
Carrickallen Phase 2	DSO	3.0	wind non-priority	due to connect

Table 2-36 - Generation Included in Study for Node Shankill

The solar non-priority data is given in the following table.

Area G	Year	Initial	33%	66%	ECP	ECP + 3.1 GW offshore	ECP + 5 GW offshore
Installed Capacity (MW)	2026	4	6	9	11		
Installed Capacity (MW)	2028	4	6	9	11	11	
Installed Capacity (MW)	2030				11	11	11
Available Energy (GWh)	2026	5	8	11	14		
Available Energy (GWh)	2028	5	8	11	14	14	
Available Energy (GWh)	2030				14	14	14
Generation (GWh)	2026	5	8	10	12		
Generation (GWh)	2028	5	8	11	13	12	
Generation (GWh)	2030				13	13	12
Surplus (%)	2026	1%	2%	5%	9%		
Surplus (%)	2028	<1%	<1%	2%	5%	11%	
Surplus (%)	2030				2%	6%	10%
Curtailment (%)	2026	1%	1%	2%	4%		
Curtailment (%)	2028	<1%	1%	1%	2%	3%	
Curtailment (%)	2030				1%	1%	1%
Constraint (%)	2026	4%	1%	2%	3%		
Constraint (%)	2028	5%	4%	1%	1%	<1%	
Constraint (%)	2030				2%	<1%	<1%
Total Dispatch Down (%)	2026	5%	5%	10%	15%		
Total Dispatch Down (%)	2028	5%	5%	5%	8%	14%	
Total Dispatch Down (%)	2030				5%	8%	12%

Table 2-37 - Surplus, Curtailment and Constraint for Solar non-priority in Area G

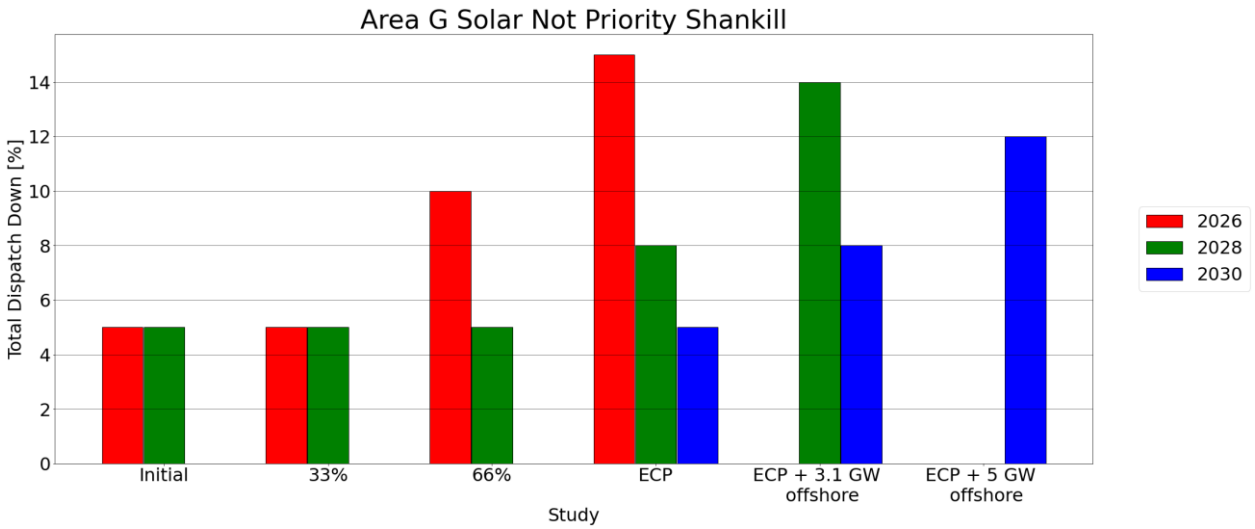

Figure 2-37 - Total Dispatch Down for Solar non-priority for Node Shankill

The wind non-priority data is given in the following table.

Area G	Year	Initial	33%	66%	ECP	ECP + 3.1 GW offshore	ECP + 5 GW offshore
Installed Capacity (MW)	2026		1	2	3		
Installed Capacity (MW)	2028		1	2	3	3	
Installed Capacity (MW)	2030				3	3	3
Available Energy (GWh)	2026		3	6	9		
Available Energy (GWh)	2028		3	6	9	9	
Available Energy (GWh)	2030				9	9	9
Generation (GWh)	2026		3	5	7		
Generation (GWh)	2028		3	6	8	7	
Generation (GWh)	2030				8	8	7
Surplus (%)	2026		5%	9%	14%		
Surplus (%)	2028		1%	2%	5%	21%	
Surplus (%)	2030				2%	10%	21%
Curtailment (%)	2026		3%	4%	5%		
Curtailment (%)	2028		1%	2%	3%	5%	
Curtailment (%)	2030				<1%	2%	2%
Constraint (%)	2026		5%	7%	8%		
Constraint (%)	2028		3%	3%	3%	1%	
Constraint (%)	2030				9%	3%	1%
Total Dispatch Down (%)	2026		13%	20%	26%		
Total Dispatch Down (%)	2028		5%	7%	10%	26%	
Total Dispatch Down (%)	2030				11%	15%	24%

Table 2-38 - Surplus, Curtailment and Constraint for Wind non-priority in Area G

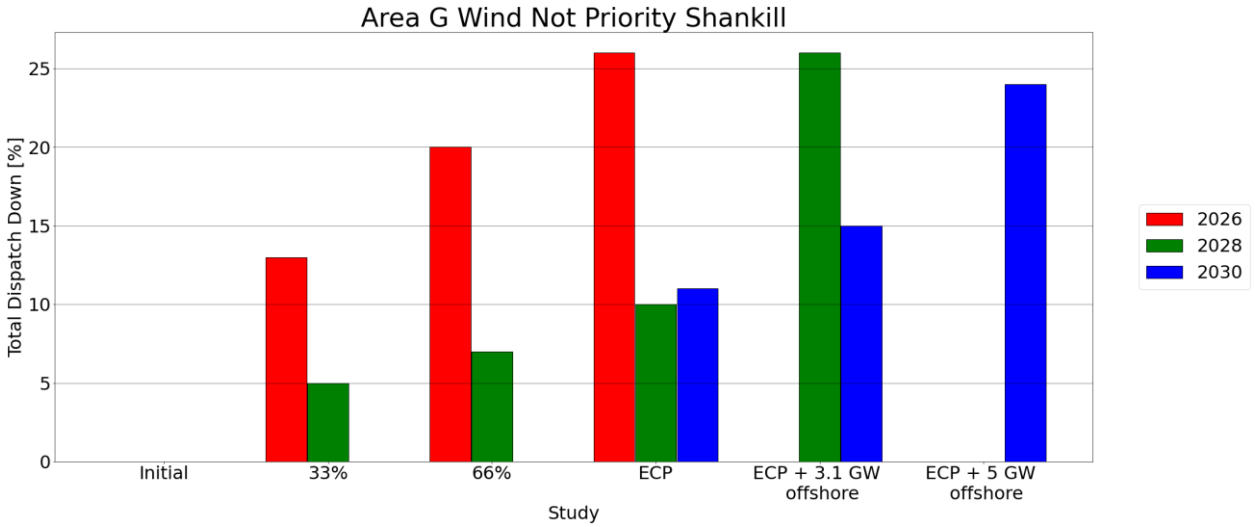

Figure 2-38 - Total Dispatch Down for Wind non-priority for Node Shankill

The wind priority data is given in the following table.

Area G	Year	Initial	33%	66%	ECP	ECP + 3.1 GW offshore	ECP + 5 GW offshore
Installed Capacity (MW)	2026	22	22	22	22		
Installed Capacity (MW)	2028	22	22	22	22	22	
Installed Capacity (MW)	2030				22	22	22
Available Energy (GWh)	2026	69	69	69	69		
Available Energy (GWh)	2028	69	69	69	69	69	
Available Energy (GWh)	2030				69	69	69
Generation (GWh)	2026	67	66	65	64		
Generation (GWh)	2028	69	68	68	67	64	
Generation (GWh)	2030				68	65	66
Surplus (%)	2026	<1%	<1%	<1%	<1%		
Surplus (%)	2028	<1%	<1%	<1%	<1%	<1%	
Surplus (%)	2030				<1%	<1%	<1%
Curtailment (%)	2026	2%	4%	5%	7%		
Curtailment (%)	2028	<1%	1%	2%	3%	7%	
Curtailment (%)	2030				1%	5%	3%
Constraint (%)	2026	<1%	<1%	<1%	<1%		
Constraint (%)	2028	<1%	<1%	<1%	<1%	<1%	
Constraint (%)	2030				<1%	<1%	<1%
Total Dispatch Down (%)	2026	2%	4%	5%	7%		
Total Dispatch Down (%)	2028	<1%	1%	2%	3%	7%	
Total Dispatch Down (%)	2030				1%	5%	3%

Table 2-39 - Surplus, Curtailment and Constraint for Wind priority in Area G

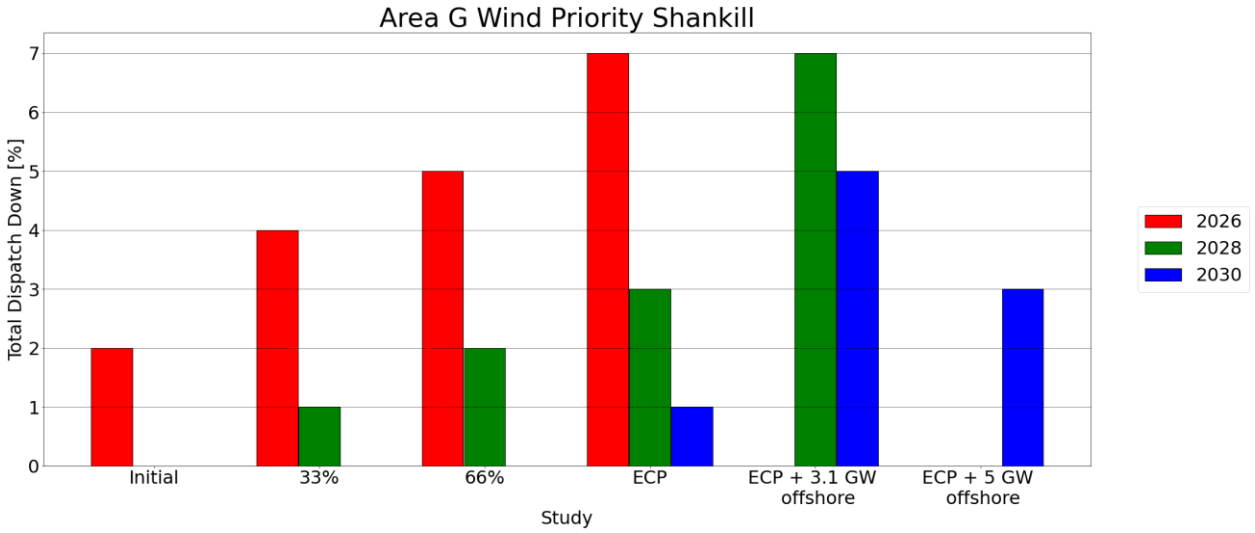

Figure 2-39 - Total Dispatch Down for Wind priority for Node Shankill