Enduring Connection Policy 2.4

Solar and Wind Constraints Report: Results for Area C

Version 1.0

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Revision History		
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Document Structure

This document is for customers wishing to see the estimated Total Dispatch Down for Area C. 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-2.4 webpage[1].

This document contains two main sections:

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

Section 2: Area C 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 C.

[1] https://www.eirgrid.ie/industry/customer-information/ecp-constraint-forecast-reports#ecp-2.4-constraint-reports-for-solar-and-wind

Important Note

This ECP-2.4 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.

Following the Judicial decision on the SEM-22-009 Decision Paper on Dispatch, Redispatch and Compensation Pursuant to Regulation EU 2019/943, the detailed design for implementing Articles 12 and 13 is yet to be determined and may differ from the implementation for Total Dispatch Down used in this study. Therefore, an assumed interpretation will be used for ECP-2.4 Constraint Analysis that applies a grandfathering[2] approach to resolving Surplus and Constraint conditions. However, in addition to the Core ECP 2.4 constraint forecast studies a set of sensitivity studies are also included in the study scenarios which employs pro-rata allocation of constraints.

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 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.

The battery sensitivity is termed as "ECP Battery", in which the non-connected batteries from the ECP scenario has been removed.

[2] 'Grandfathering' is where an old rule continues to apply to some existing situations while a new rule will apply to future cases. In the context of Article 12 and Article 13, grandfathering refers to the distinction between how priority dispatch renewable generators (those installed prior to 4th July 2019) and non-priority dispatch renewable generators (those installed on and after 4th July 2019) are treated in the SEM.

1 Results for Area C

1.1 Introduction

This section provides the surplus, curtailment and constraint results for Area C that are estimated by this analysis. There is a total of six core ECP-2.4 studies and nine 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 C 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 C, 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-2.4 constraints forecast analysis applies a similar transmission outage schedule to the ECP-2.3 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 work. These are not considered in this analysis and may result in higher wind and solar constraints in reality.

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 such 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 non-priority renewable generators.

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-Island network with mainland UK and Europe will decrease the frequency of surplus conditions occurring.

In general, increased interconnector capacity with mainland UK may 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 may not 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 of average curtailment differs between areas.

1.2.3.3 Constraints

The constraints on the renewable generation are treated differently in different years. In 2029 and Future Grid scenario, for 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. Such application is termed as grandfathering of constraints. However, in 2027 study the constraints are allocated pro-rata to all renewable generator nodes within the subgroup. Additionally, in relevant sensitivity scenarios, grandfathering or pro-rata constraints allocation are applied accordingly. More details on the approach assumed in this study for the application of constraints to renewable generation can be found in the main ECP 2.4 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 C in the "ECP" scenario is given in Table 1-1.

Node	SO	Status	Solar	Wind
Athlone	DSO	due to connect	48	
Athlone	TSO	due to connect	80	
Athlone	DSO	Connected		1
Athlone	DSO	due to connect		5
Athlone	TSO	due to connect		122
Carrick On Shannon	DSO	due to connect	18	
Carrick On Shannon	DSO	due to connect		9
Dallow	DSO	due to connect		5
Dallow	DSO	connected		10
Dallow	DSO	connected		11
Derrycarney	TSO	due to connect	196	
Derrycarney	TSO	connected		34
Lanesboro	DSO	due to connect	4	
Lanesboro	TSO	due to connect	57	
Lanesboro	DSO	due to connect		5
Lanesboro	TSO	due to connect		90
Lanesboro	DSO	connected		5
Mullingar	DSO	due to connect	34	
Mullingar	TSO	due to connect		98
Richmond	DSO	due to connect	31	
Richmond	DSO	due to connect		5
Shannonbridge	TSO	due to connect	65	
Shanonagh	TSO	due to connect	70	
Sliabh Bawn	TSO	connected		58
Somerset	DSO	due to connect	8	
Somerset	DSO	connected		8
Stonestown	TSO	due to connect		105
Total			611	571

Table 1-1 Wind and Solar Generation Summary (MW) in Area C for Generation Scenario "ECP"

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

Solar	ECP	ECP + 3.1GW Offshore	ECP + 5GW Offshore	ECP + 5GW Offshore IC
Installed Ireland (MW)	7005	7005	7005	7005
Installed Area C (MW)	610	610	610	610
Installed Controllable Area C (MW)	610	610	610	610
Available Controllable Area C (GWh)	782	782	782	782

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

Wind	ECP	ECP + 3.1GW Offshore	ECP + 5GW Offshore	ECP + 5GW Offshore IC
Installed Ireland (MW)	7358	10432	12358	12358
Installed Area C (MW)	570	570	570	570
Installed Controllable Area C (MW)	546	546	546	546
Available Controllable Area C (GWh)	1754	1754	1754	1754

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

1.4 Network Overview

Area C, in the middle 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 C and the surrounding area 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. 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 C

For Area C, the dominant power flows tend to be towards the load centres on the east coast and the interconnectors. These flow patterns are relevant when seeking to understand constraint apportionment in the simulation. Constraints in Area C 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 may increase constraints in Area C.

In addition to the power flows out of Area C, there are also power flows across or through Area C. Renewable power from the west and northwest will flow across the transmission network and at least some of this power will flow through Area C.

Also, the power flowing out of Area C meets and joins with power flows from other areas, as the power flows towards the demand centres and interconnectors. A transmission bottleneck between Area C and the east is shared with power flows coming from other areas.

1.5 Future Grid Sensitivity Scenario

In line with the previous ECP constraint forecasts, 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-2.4 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-2.4 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-2.4 process. The ECP study scenario includes all wind and solar projects which have applied through connection processes, whereas the SOEF 1.1 study includes prospective list of generators 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 four sensitivity generation scenarios (ECP + 3.1 GW offshore, ECP + 5 GW offshore, ECP + 5 GW offshore without LirIC and 2nd France IC, 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 Resource Adequacy Assessment 2025-2034.

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 C – Average Results

The Total Dispatch Down results for Area C are provided below in Table 1-5 to Table 1-14 and Figure 1-3 to Figure 1-7. These include the breakdown between surplus, curtailment, and constraint. The Table 1-6, Table 1-8, Table 1-10, Table 1-12 and Table 1-14 gives the results of constraint sensitivity scenario. 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 2029 studies are compared with 2027 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 C (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, to Table 1-14. 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 grandfathering of surplus and constraints, 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, then 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 percentage for non-priority units within a subgroup.

1.6.3 Battery Sensitivity

The ECP 2.4 constraint forecast study scenarios include a battery sensitivity study. The installed capacity of wind and solar is same as that of ECP scenario while the network and demand are of 2029 study year. The constraint allocation is based on grandfathering. The results show a higher level of Total Dispatch Down especially contributed by the surplus component. During higher RES conditions, with the batteries included, the excess energy available are stored and utilized during low RES available. A detailed breakdown of the Total Dispatch Down components with batteries are given in the section 2 of this report.

1.6.4 Future Grid Sensitivity Study

The results of the Future Grid scenario show a notable reduction in Total Dispatch Down over the core study years (2027 and 2029) 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 C under the Future Grid scenarios and associated sensitivity case is given in Table 1-5 to Table 1-14. Further node level details can be viewed in Section 2.

1.6.5 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 several 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.

Flagford 220 kV station and Carrick on Shannon are considered a part of the C subgroup as these nodes are a major power flow path for Area A and Area B North towards Dublin. The contingencies and overloaded lines associated with the area are included in Appendix C of the Assumptions and Methodology report. One of the major issues in Area C is with respect to the Lanesboro busbar rating. This is improved in the Future Grid scenario with Lanesboro station redevelopment.

The Flagford 220 kV node isn't reported on as there is no renewable generation located at this node. Cashla, Cloon and Shantallow nodes, however, are considered in the Area C subgroup as they are well connected to Area C nodes and do not share a bottleneck to Area B.

The Mullingar station is included as a part of the J Country subgroup as the major contingency affecting this node is the loss of the parallel circuits in Area J.

Analysis of Area C identified a constraint subgroup for solar and wind generation spanning the majority of Area C, and the southeast section of Area B. The subgroup is collectively called C subgroup and the nodes in Area C that are included in this subgroup are given in Table 1-4. Mullingar and Shanonagh are included in the J Country subgroup. 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
C	Athlone
	Carrick on Shannon
	Dallow
	Derrycarney
	Lanesboro
	Richmond
	Shannonbridge
	Sliabh Bawn
	Somerset
	Stonestown
J Country	Mullingar
	Shanonagh

Table 1-4 Area C generators nodes and their subgroups

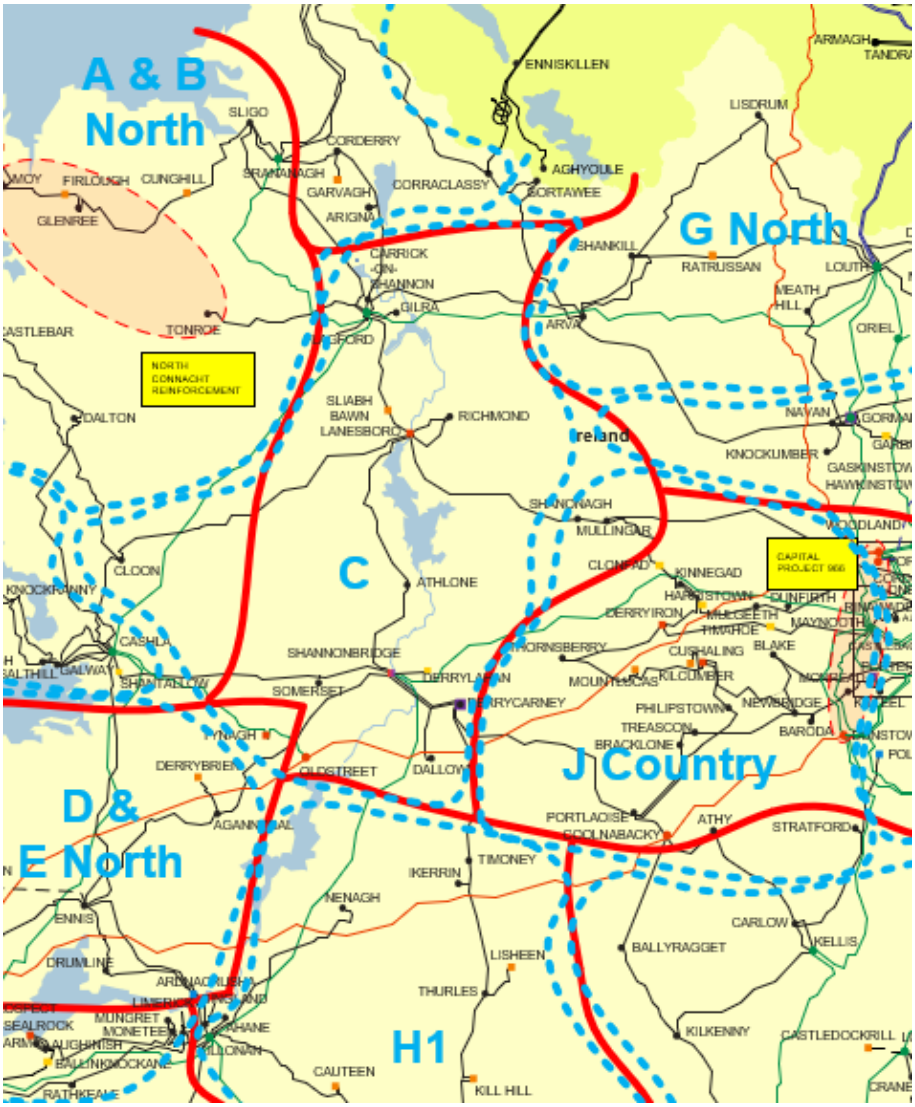

Figure 1-2 Subgroups C, J Country and H1 (subgroups outlined by blue dashed line)

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

Area C (C)	Year	Initial	50%	ECP	ECP Battery	ECP + 3.1GW Offshore	ECP + 5GW Offshore	ECP + 5GW Offshore IC
Installed Capacity (MW)	2027	93	300	506				
Installed Capacity (MW)	2029	93	300	506	506			
Installed Capacity (MW)	FG			506		506	506	506
Available Energy (GWh)	2027	119	384	649				
Available Energy (GWh)	2029	119	384	649	649			
Available Energy (GWh)	FG			649		649	649	649
Generation (GWh)	2027	116	346	516				
Generation (GWh)	2029	117	359	558	499			
Generation (GWh)	FG			598		565	535	495
Surplus (%)	2027	1 %	6 %	14 %				
Surplus (%)	2029	0 %	3 %	9 %	15 %			
Surplus (%)	FG			5 %		11 %	15 %	21 %
Curtailment (%)	2027	1 %	2 %	4 %				
Curtailment (%)	2029	0 %	1 %	3 %	5 %			
Curtailment (%)	FG			1 %		2 %	2 %	2 %
Constraint (%)	2027	1 %	2 %	2 %				
Constraint (%)	2029	1 %	2 %	2 %	3 %			
Constraint (%)	FG			1 %		0 %	0 %	0 %
Total Dispatch Down (%)	2027	3 %	10 %	20 %				
Total Dispatch Down (%)	2029	1 %	6 %	14 %	23 %			
Total Dispatch Down (%)	FG			8 %		13 %	17 %	24 %

Table 1-5 - Surplus, Curtailment and Constraint for Solar Non-priority with sensitivity in Area C (C)

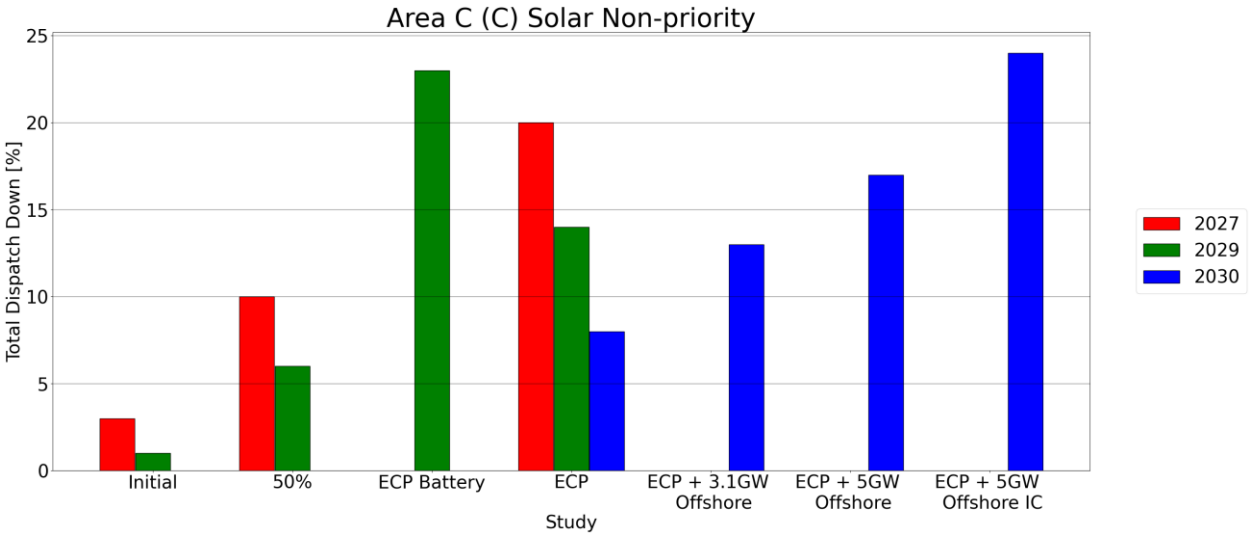

Figure 1-3 - Results Solar Non-priority Area C (C)

Area C (C)	Year	50%	ECP + 3.1GW Offshore
Installed Capacity (MW)	2027 (GF)	300	
Installed Capacity (MW)	2029 (pro-rata)	300	
Installed Capacity (MW)	FG (pro-rata)		506
Available Energy (GWh)	2027 (GF)	384	
Available Energy (GWh)	2029 (pro-rata)	384	
Available Energy (GWh)	FG (pro-rata)		649
Generation (GWh)	2027 (GF)	346	
Generation (GWh)	2029 (pro-rata)	359	
Generation (GWh)	FG (pro-rata)		565
Surplus (%)	2027 (GF)	6 %	
Surplus (%)	2029 (pro-rata)	3 %	
Surplus (%)	FG (pro-rata)		11 %
Curtailment (%)	2027 (GF)	2 %	
Curtailment (%)	2029 (pro-rata)	1 %	
Curtailment (%)	FG (pro-rata)		2 %
Constraint (%)	2027 (GF)	2 %	
Constraint (%)	2029 (pro-rata)	2 %	
Constraint (%)	FG (pro-rata)		0 %
Total Dispatch Down (%)	2027 (GF)	10 %	
Total Dispatch Down (%)	2029 (pro-rata)	6 %	
Total Dispatch Down (%)	FG (pro-rata)		13 %

Table 1-6 - Surplus, Curtailment and Constraint for Solar Non-priority with sensitivity in Area C (C)

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

Area C (C)	Year	Initial	50%	ECP	ECP Battery	ECP + 3.1GW Offshore	ECP + 5GW Offshore	ECP + 5GW Offshore IC
Installed Capacity (MW)	2027	40	210	381				
Installed Capacity (MW)	2029	40	210	381	381			
Installed Capacity (MW)	FG			381		381	381	381
Available Energy (GWh)	2027	128	675	1223				
Available Energy (GWh)	2029	128	675	1223	1223			
Available Energy (GWh)	FG			1223		1223	1223	1223
Generation (GWh)	2027	84	561	950				
Generation (GWh)	2029	15	550	1029	932			
Generation (GWh)	FG			1036		1032	893	798
Surplus (%)	2027	1 %	5 %	12 %				
Surplus (%)	2029	0 %	2 %	5 %	8 %			
Surplus (%)	FG			2 %		12 %	22 %	30 %
Curtailment (%)	2027	1 %	3 %	4 %				
Curtailment (%)	2029	0 %	1 %	2 %	3 %			
Curtailment (%)	FG			1 %		2 %	2 %	3 %
Constraint (%)	2027	32 %	9 %	6 %				
Constraint (%)	2029	88 %	16 %	9 %	13 %			
Constraint (%)	FG			12 %		2 %	3 %	2 %
Total Dispatch Down (%)	2027	34 %	17 %	22 %				
Total Dispatch Down (%)	2029	88 %	19 %	16 %	24 %			
Total Dispatch Down (%)	FG			15 %		16 %	27 %	35 %

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

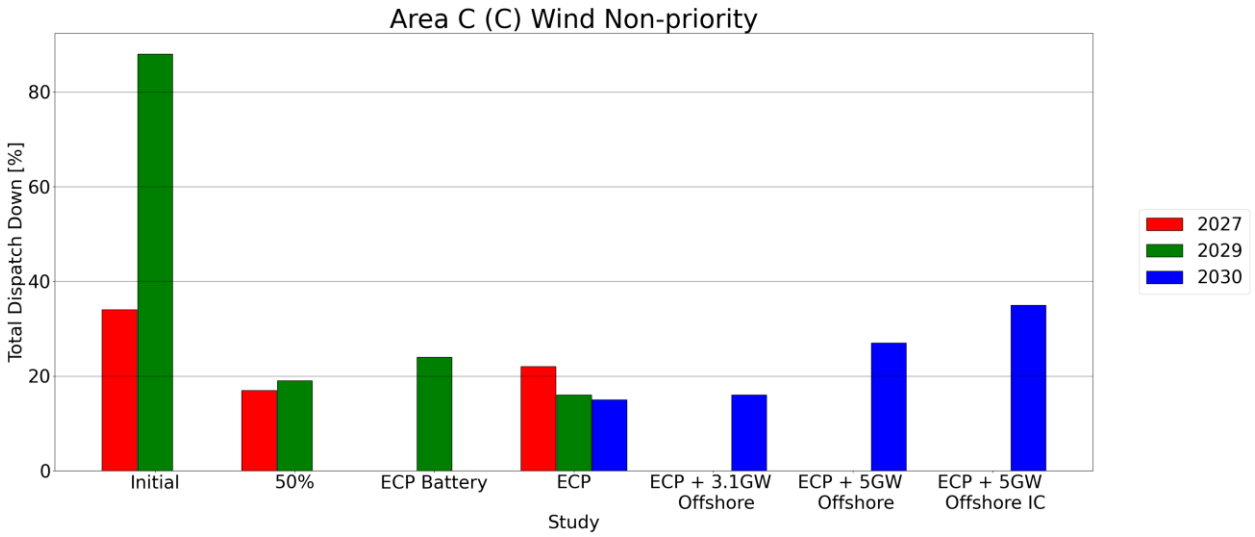

Figure 1-4 - Results Wind Non-priority Area C (C)

Area C (C)	Year	50%	ECP + 3.1GW Offshore
Installed Capacity (MW)	2027 (GF)	210	
Installed Capacity (MW)	2029 (pro-rata)	210	
Installed Capacity (MW)	FG (pro-rata)		381
Available Energy (GWh)	2027 (GF)	675	
Available Energy (GWh)	2029 (pro-rata)	675	
Available Energy (GWh)	FG (pro-rata)		1223
Generation (GWh)	2027 (GF)	542	
Generation (GWh)	2029 (pro-rata)	576	
Generation (GWh)	FG (pro-rata)		1036
Surplus (%)	2027 (GF)	5 %	
Surplus (%)	2029 (pro-rata)	2 %	
Surplus (%)	FG (pro-rata)		12 %
Curtailment (%)	2027 (GF)	3 %	
Curtailment (%)	2029 (pro-rata)	1 %	
Curtailment (%)	FG (pro-rata)		2 %
Constraint (%)	2027 (GF)	12 %	
Constraint (%)	2029 (pro-rata)	12 %	
Constraint (%)	FG (pro-rata)		2 %
Total Dispatch Down (%)	2027 (GF)	20 %	
Total Dispatch Down (%)	2029 (pro-rata)	15 %	
Total Dispatch Down (%)	FG (pro-rata)		15 %

Table 1-8 - Surplus, Curtailment and Constraint for Wind Non-priority with sensitivity in Area C (C)

The wind priority data is given in the following table.

Area C (C)	Year	Initial	50%	ECP	ECP Battery	ECP + 3.1GW Offshore	ECP + 5GW Offshore	ECP + 5GW Offshore IC
Installed Capacity (MW)	2027	68	68	68				
Installed Capacity (MW)	2029	68	68	68	68			
Installed Capacity (MW)	FG			68		68	68	68
Available Energy (GWh)	2027	218	218	218				
Available Energy (GWh)	2029	218	218	218	218			
Available Energy (GWh)	FG			218		218	218	218
Generation (GWh)	2027	146	191	191				
Generation (GWh)	2029	218	215	212	209			
Generation (GWh)	FG			217		212	210	208
Surplus (%)	2027	0 %	0 %	0 %				
Surplus (%)	2029	0 %	0 %	0 %	0 %			
Surplus (%)	FG			0 %		0 %	0 %	0 %
Curtailment (%)	2027	1 %	4 %	6 %				
Curtailment (%)	2029	0 %	1 %	3 %	4 %			
Curtailment (%)	FG			1 %		3 %	4 %	5 %
Constraint (%)	2027	32 %	9 %	6 %				
Constraint (%)	2029	0 %	0 %	0 %	0 %			
Constraint (%)	FG			0 %		0 %	0 %	0 %
Total Dispatch Down (%)	2027	33 %	13 %	12 %				
Total Dispatch Down (%)	2029	0 %	1 %	3 %	4 %			
Total Dispatch Down (%)	FG			1 %		3 %	4 %	5 %

Table 1-9 - Surplus, Curtailment and Constraint for Wind Priority in Area C (C)

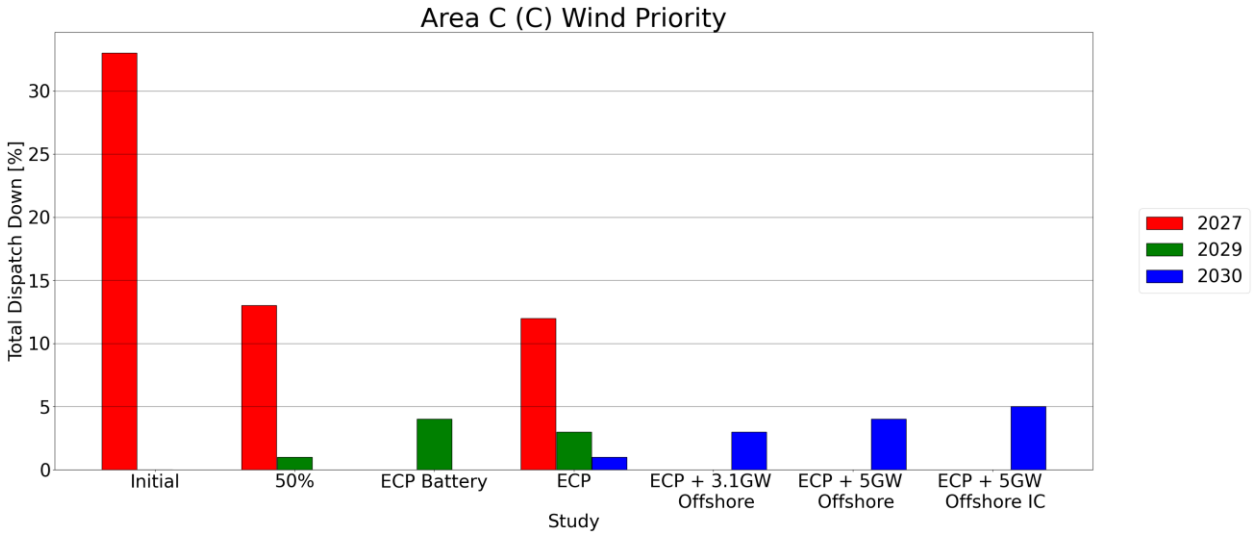

Figure 1-5 - Results Wind Priority Area C (C)

Area C (C)	Year	50%	ECP + 3.1GW Offshore
Installed Capacity (MW)	2027 (GF)	68	
Installed Capacity (MW)	2029 (pro-rata)	68	
Installed Capacity (MW)	FG (pro-rata)		68
Available Energy (GWh)	2027 (GF)	218	
Available Energy (GWh)	2029 (pro-rata)	218	
Available Energy (GWh)	FG (pro-rata)		218
Generation (GWh)	2027 (GF)	210	
Generation (GWh)	2029 (pro-rata)	189	
Generation (GWh)	FG (pro-rata)		209
Surplus (%)	2027 (GF)	0 %	
Surplus (%)	2029 (pro-rata)	0 %	
Surplus (%)	FG (pro-rata)		0 %
Curtailment (%)	2027 (GF)	4 %	
Curtailment (%)	2029 (pro-rata)	1 %	
Curtailment (%)	FG (pro-rata)		3 %
Constraint (%)	2027 (GF)	0 %	
Constraint (%)	2029 (pro-rata)	12 %	
Constraint (%)	FG (pro-rata)		2 %
Total Dispatch Down (%)	2027 (GF)	4 %	
Total Dispatch Down (%)	2029 (pro-rata)	13 %	
Total Dispatch Down (%)	FG (pro-rata)		4 %

Table 1-10 - Surplus, Curtailment and Constraint for Wind Priority with sensitivity in Area C (C)

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

Area C (J Country)	Year	Initial	50%	ECP	ECP Battery	ECP + 3.1GW Offshore	ECP + 5GW Offshore	ECP + 5GW Offshore IC
Installed Capacity (MW)	2027	29	66	104				
Installed Capacity (MW)	2029	29	66	104	104			
Installed Capacity (MW)	FG			104		104	104	104
Available Energy (GWh)	2027	37	85	133				
Available Energy (GWh)	2029	37	85	133	133			
Available Energy (GWh)	FG			133		133	133	133
Generation (GWh)	2027	33	40	45				
Generation (GWh)	2029	33	42	49	35			
Generation (GWh)	FG			66		68	66	63
Surplus (%)	2027	1 %	6 %	14 %				
Surplus (%)	2029	0 %	3 %	9 %	15 %			
Surplus (%)	FG			5 %		11 %	15 %	21 %
Curtailment (%)	2027	1 %	2 %	4 %				
Curtailment (%)	2029	0 %	1 %	3 %	5 %			
Curtailment (%)	FG			1 %		2 %	2 %	2 %
Constraint (%)	2027	10 %	45 %	48 %				
Constraint (%)	2029	10 %	45 %	51 %	54 %			
Constraint (%)	FG			44 %		36 %	33 %	29 %
Total Dispatch Down (%)	2027	11 %	53 %	66 %				
Total Dispatch Down (%)	2029	10 %	50 %	63 %	74 %			
Total Dispatch Down (%)	FG			51 %		49 %	50 %	52 %

Table 1-11 - Surplus, Curtailment and Constraint for Solar Non-priority in Area C (J Country)

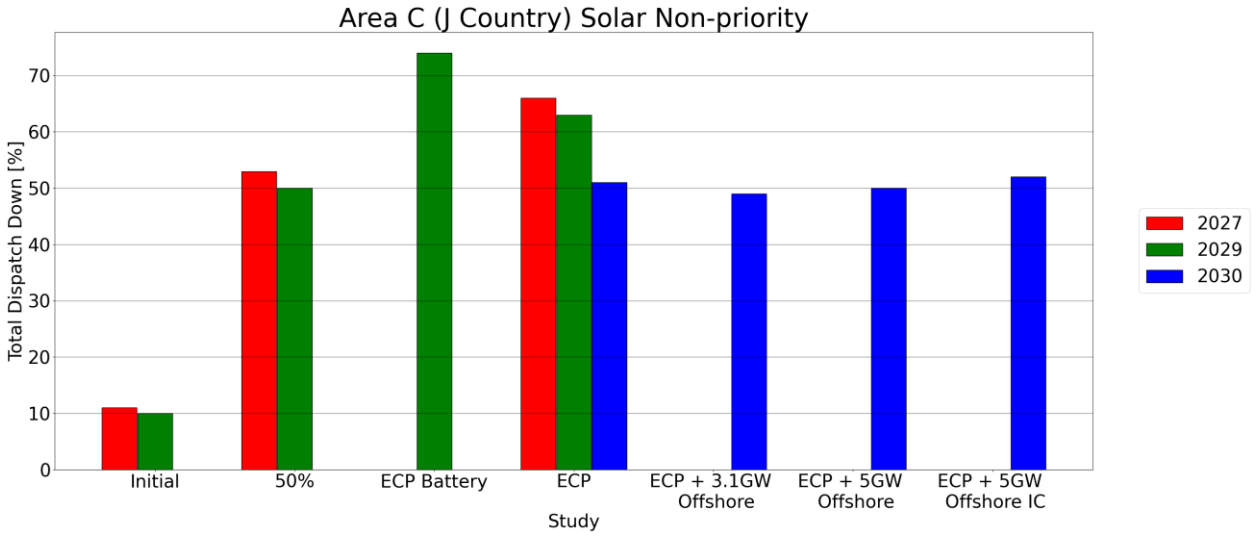

Figure 1-6 - Results Solar Non-priority Area C (J Country)

Area C (J Country)	Year	50%	ECP + 3.1GW Offshore
Installed Capacity (MW)	2027 (GF)	66	
Installed Capacity (MW)	2029 (pro-rata)	66	
Installed Capacity (MW)	FG (pro-rata)		104
Available Energy (GWh)	2027 (GF)	85	
Available Energy (GWh)	2029 (pro-rata)	85	
Available Energy (GWh)	FG (pro-rata)		133
Generation (GWh)	2027 (GF)	40	
Generation (GWh)	2029 (pro-rata)	42	
Generation (GWh)	FG (pro-rata)		68
Surplus (%)	2027 (GF)	6 %	
Surplus (%)	2029 (pro-rata)	3 %	
Surplus (%)	FG (pro-rata)		11 %
Curtailment (%)	2027 (GF)	2 %	
Curtailment (%)	2029 (pro-rata)	1 %	
Curtailment (%)	FG (pro-rata)		2 %
Constraint (%)	2027 (GF)	45 %	
Constraint (%)	2029 (pro-rata)	45 %	
Constraint (%)	FG (pro-rata)		36 %
Total Dispatch Down (%)	2027 (GF)	53 %	
Total Dispatch Down (%)	2029 (pro-rata)	50 %	
Total Dispatch Down (%)	FG (pro-rata)		49 %

Table 1-12 - Surplus, Curtailment and Constraint for Solar Non-priority with sensitivity in Area C (J Country)

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

Area C (J Country)	Year	Initial	50%	ECP	ECP Battery	ECP + 3.1GW Offshore	ECP + 5GW Offshore	ECP + 5GW Offshore IC
Installed Capacity (MW)	2027		49	98				
Installed Capacity (MW)	2029		49	98	98			
Installed Capacity (MW)	FG			98		98	98	98
Available Energy (GWh)	2027		156	313				
Available Energy (GWh)	2029		156	313	313			
Available Energy (GWh)	FG			313		313	313	313
Generation (GWh)	2027		69	92				
Generation (GWh)	2029		64	78	73			
Generation (GWh)	FG			117		187	174	162
Surplus (%)	2027		5 %	12 %				
Surplus (%)	2029		2 %	5 %	8 %			
Surplus (%)	FG			2 %		12 %	22 %	30 %
Curtailment (%)	2027		3 %	4 %				
Curtailment (%)	2029		1 %	2 %	3 %			
Curtailment (%)	FG			1 %		2 %	2 %	3 %
Constraint (%)	2027		48 %	55 %				
Constraint (%)	2029		57 %	68 %	66 %			
Constraint (%)	FG			60 %		27 %	20 %	15 %
Total Dispatch Down (%)	2027		56 %	71 %				
Total Dispatch Down (%)	2029		59 %	75 %	77 %			
Total Dispatch Down (%)	FG			62 %		40 %	45 %	48 %

Table 1-13 - Surplus, Curtailment and Constraint for Wind Non-priority in Area C (J Country)

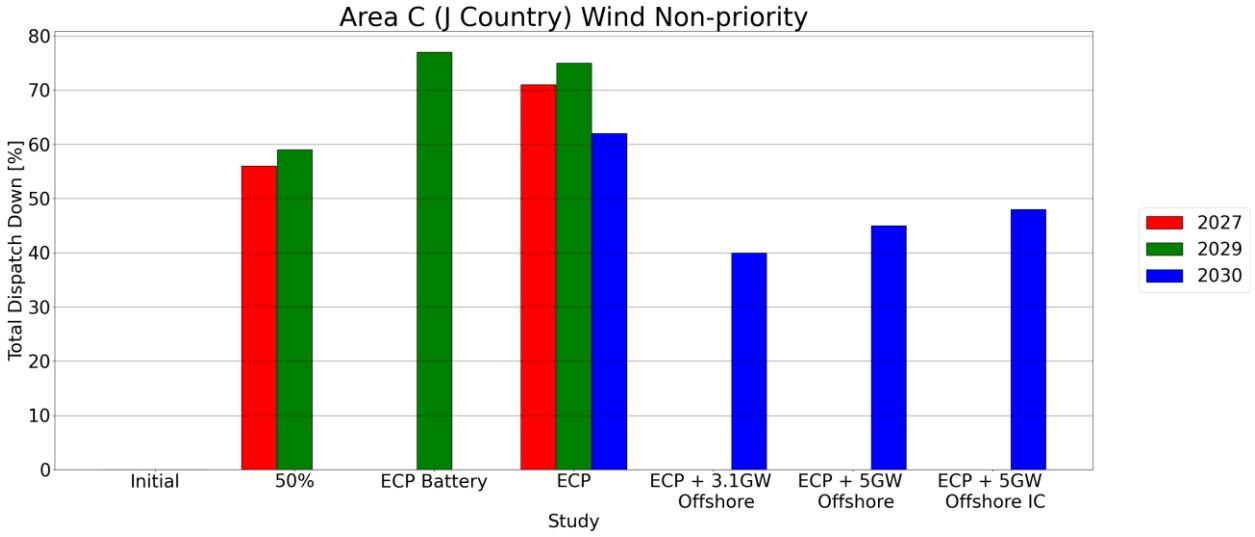

Figure 1-7 - Results Wind Non-priority Area C (J Country)

Area C (J Country)	Year	50%	ECP + 3.1GW Offshore
Installed Capacity (MW)	2027 (GF)	49	
Installed Capacity (MW)	2029 (pro-rata)	49	
Installed Capacity (MW)	FG (pro-rata)		98
Available Energy (GWh)	2027 (GF)	156	
Available Energy (GWh)	2029 (pro-rata)	156	
Available Energy (GWh)	FG (pro-rata)		313
Generation (GWh)	2027 (GF)	53	
Generation (GWh)	2029 (pro-rata)	79	
Generation (GWh)	FG (pro-rata)		196
Surplus (%)	2027 (GF)	5 %	
Surplus (%)	2029 (pro-rata)	2 %	
Surplus (%)	FG (pro-rata)		12 %
Curtailment (%)	2027 (GF)	3 %	
Curtailment (%)	2029 (pro-rata)	1 %	
Curtailment (%)	FG (pro-rata)		2 %
Constraint (%)	2027 (GF)	58 %	
Constraint (%)	2029 (pro-rata)	47 %	
Constraint (%)	FG (pro-rata)		24 %
Total Dispatch Down (%)	2027 (GF)	66 %	
Total Dispatch Down (%)	2029 (pro-rata)	49 %	
Total Dispatch Down (%)	FG (pro-rata)		37 %

Table 1-14 - Surplus, Curtailment and Constraint for Wind Non-priority with sensitivity in Area C (J Country)

1.7 Conclusion – Results for Area C

This section provides an overview of the estimated surplus, curtailment and constraint values for Area C 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 C.

2 Area C Node Results

This section presents the results of the modelling analysis for Area C. The levels of surplus, curtailment and constraint that controllable solar and wind generators in Area C 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.

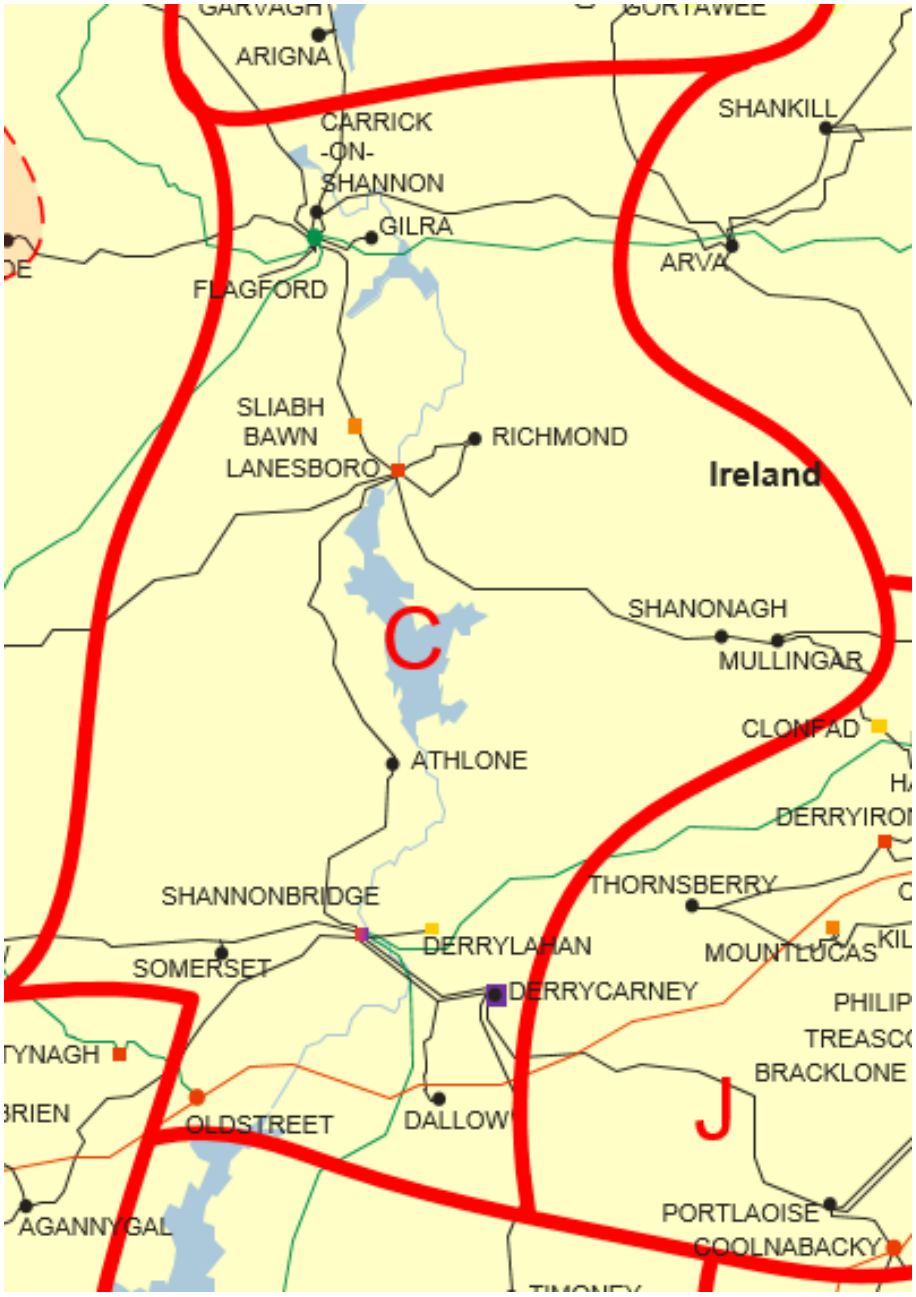

Figure 2-0 Area C

2.1 Athlone

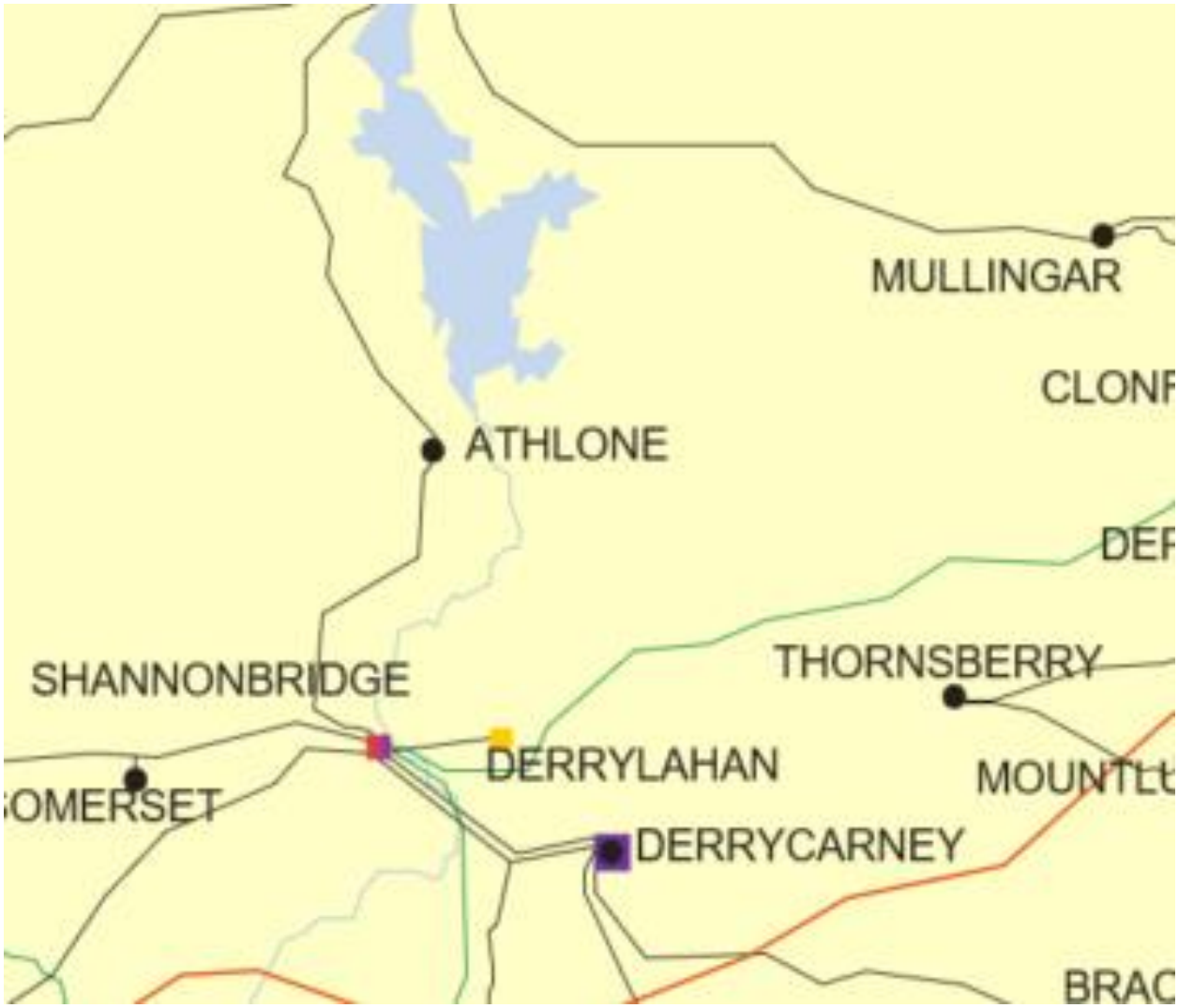

Figure 2-1 - Location of node Athlone

Generator	SO	Capacity	Type	Status
Shannagh Beg Solar Farm	DSO	4.0	solar not priority	due to connect
Clooncon East Single WTG	DSO	0.9	wind not priority	Connected
Rooaun Solar	DSO	4.0	solar not priority	due to connect
Derrymany Wind Farm	DSO	4.99	wind not priority	due to connect
Cuilmore Solar Park	DSO	40.0	solar not priority	due to connect
Taduff Solar Park	TSO	80.0	solar not priority	due to connect
Seven Hills Wind Farm	TSO	122.4	wind not priority	due to connect

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

The solar not priority data is given in the following table.

Area C	Year	Initial	50%	ECP	ECP Battery	ECP + 3.1GW Offshore	ECP + 5GW Offshore	ECP + 5GW Offshore IC
Installed Capacity (MW)	2027	4	66	128				
Installed Capacity (MW)	2029	4	66	128	128			
Installed Capacity (MW)	FG			128		128	128	128
Available Energy (GWh)	2027	5	85	164				
Available Energy (GWh)	2029	5	85	164	164			
Available Energy (GWh)	FG			164		164	164	164
Generation (GWh)	2027	5	76	130				
Generation (GWh)	2029	5	79	141	126			
Generation (GWh)	FG			151		143	135	125
Surplus (%)	2027	1 %	6 %	14 %				
Surplus (%)	2029	0 %	3 %	9 %	15 %			
Surplus (%)	FG			5 %		11 %	15 %	21 %
Curtailment (%)	2027	1 %	2 %	4 %				
Curtailment (%)	2029	0 %	1 %	3 %	5 %			
Curtailment (%)	FG			1 %		2 %	2 %	2 %
Constraint (%)	2027	1 %	2 %	2 %				
Constraint (%)	2029	1 %	2 %	2 %	3 %			
Constraint (%)	FG			1 %		0 %	0 %	0 %
Total Dispatch Down (%)	2027	3 %	10 %	20 %				
Total Dispatch Down (%)	2029	1 %	6 %	14 %	23 %			
Total Dispatch Down (%)	FG			8 %		13 %	17 %	24 %

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

Area C	Year	50%	ECP + 3.1GW Offshore
Installed Capacity (MW)	2027 (GF)	66	
Installed Capacity (MW)	2029 (pro-rata)	66	
Installed Capacity (MW)	FG (pro-rata)		128
Available Energy (GWh)	2027 (GF)	85	
Available Energy (GWh)	2029 (pro-rata)	85	
Available Energy (GWh)	FG (pro-rata)		164
Generation (GWh)	2027 (GF)	76	
Generation (GWh)	2029 (pro-rata)	79	
Generation (GWh)	FG (pro-rata)		143
Surplus (%)	2027 (GF)	6 %	
Surplus (%)	2029 (pro-rata)	3 %	
Surplus (%)	FG (pro-rata)		11 %
Curtailment (%)	2027 (GF)	2 %	
Curtailment (%)	2029 (pro-rata)	1 %	
Curtailment (%)	FG (pro-rata)		2 %
Constraint (%)	2027 (GF)	2 %	
Constraint (%)	2029 (pro-rata)	2 %	
Constraint (%)	FG (pro-rata)		0 %
Total Dispatch Down (%)	2027 (GF)	10 %	
Total Dispatch Down (%)	2029 (pro-rata)	6 %	
Total Dispatch Down (%)	FG (pro-rata)		13 %

Table 2-3 - Surplus, Curtailment and Constraint for Solar non-priority with sensitivity in Athlone

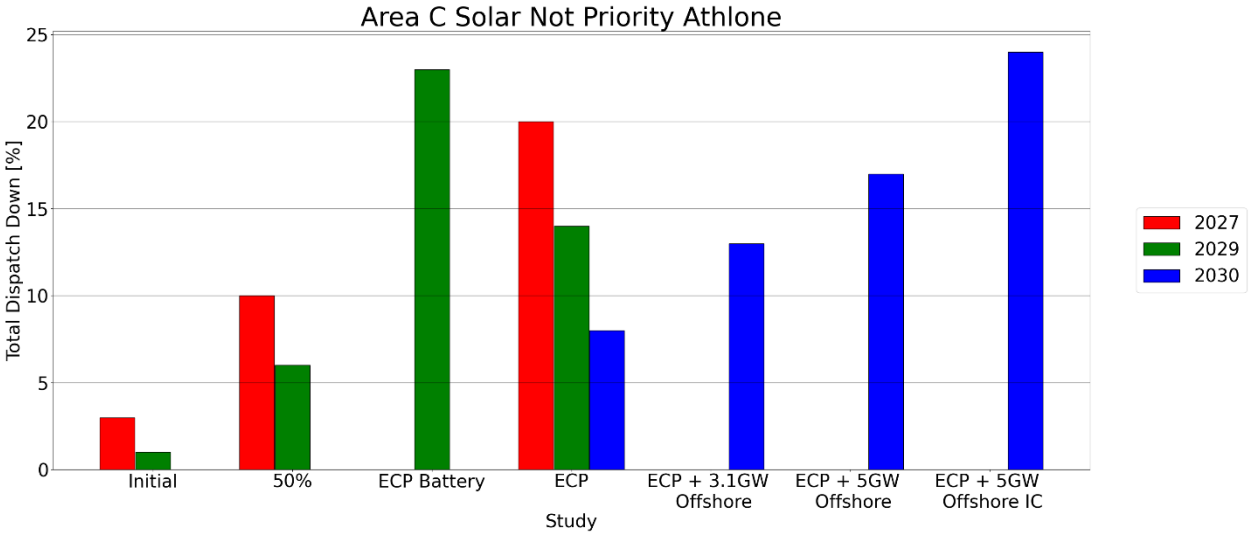

Figure 2-2 - Total Dispatch Down for Solar not priority for Node Athlone

The wind not priority data is given in the following table.

Area C	Year	Initial	50%	ECP	ECP Battery	ECP + 3.1GW Offshore	ECP + 5GW Offshore	ECP + 5GW Offshore IC
Installed Capacity (MW)	2027	1	65	128				
Installed Capacity (MW)	2029	1	65	128	128			
Installed Capacity (MW)	FG			128		128	128	128
Available Energy (GWh)	2027	3	207	412				
Available Energy (GWh)	2029	3	207	412	412			
Available Energy (GWh)	FG			412		412	412	412
Generation (GWh)	2027	2	172	320				
Generation (GWh)	2029	0	169	346	314			
Generation (GWh)	FG			349		348	301	269
Surplus (%)	2027	1 %	5 %	12 %				
Surplus (%)	2029	0 %	2 %	5 %	8 %			
Surplus (%)	FG			2 %		12 %	22 %	30 %
Curtailment (%)	2027	1 %	3 %	4 %				
Curtailment (%)	2029	0 %	1 %	2 %	3 %			
Curtailment (%)	FG			1 %		2 %	2 %	3 %
Constraint (%)	2027	32 %	9 %	6 %				
Constraint (%)	2029	88 %	16 %	9 %	13 %			
Constraint (%)	FG			12 %		2 %	3 %	2 %
Total Dispatch Down (%)	2027	34 %	17 %	22 %				
Total Dispatch Down (%)	2029	88 %	19 %	16 %	24 %			
Total Dispatch Down (%)	FG			15 %		16 %	27 %	35 %

Table 2-4 - Surplus, Curtailment and Constraint for Wind non-priority for Node Athlone

Area C	Year	50%	ECP + 3.1GW Offshore
Installed Capacity (MW)	2027 (GF)	65	
Installed Capacity (MW)	2029 (pro-rata)	65	
Installed Capacity (MW)	FG (pro-rata)		128
Available Energy (GWh)	2027 (GF)	207	
Available Energy (GWh)	2029 (pro-rata)	207	
Available Energy (GWh)	FG (pro-rata)		412
Generation (GWh)	2027 (GF)	166	
Generation (GWh)	2029 (pro-rata)	177	
Generation (GWh)	FG (pro-rata)		349
Surplus (%)	2027 (GF)	5 %	
Surplus (%)	2029 (pro-rata)	2 %	
Surplus (%)	FG (pro-rata)		12 %
Curtailment (%)	2027 (GF)	3 %	
Curtailment (%)	2029 (pro-rata)	1 %	
Curtailment (%)	FG (pro-rata)		2 %
Constraint (%)	2027 (GF)	12 %	
Constraint (%)	2029 (pro-rata)	12 %	
Constraint (%)	FG (pro-rata)		2 %
Total Dispatch Down (%)	2027 (GF)	20 %	
Total Dispatch Down (%)	2029 (pro-rata)	15 %	
Total Dispatch Down (%)	FG (pro-rata)		15 %

Table 2-5 - Surplus, Curtailment and Constraint for Wind non-priority with sensitivity for Node Athlone

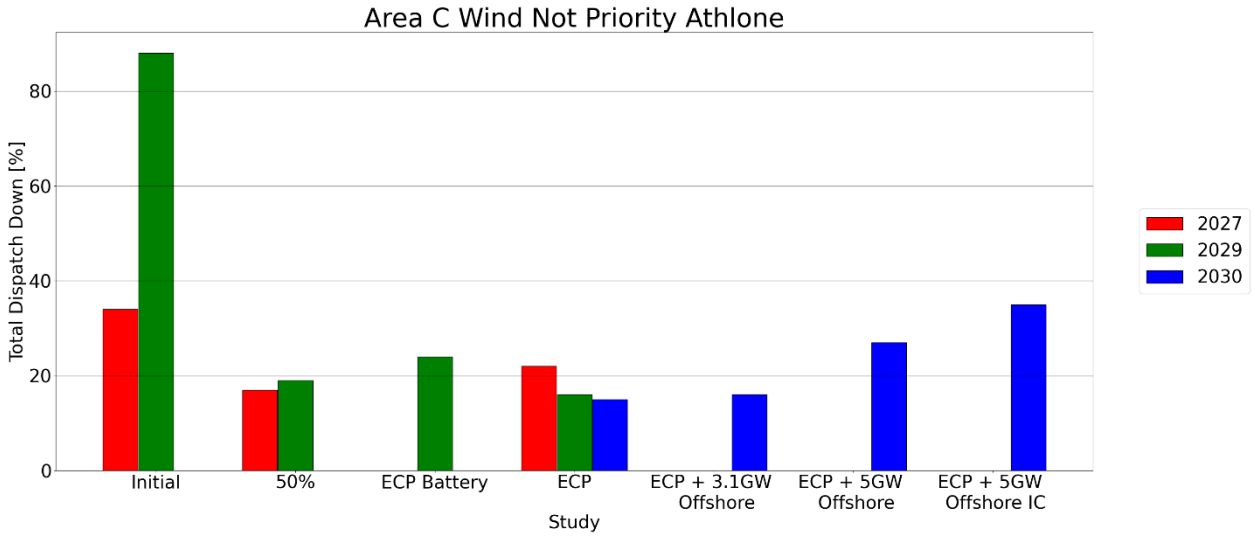

Figure 2-3 - Total Dispatch Down for Wind not priority for Node Athlone

2.2 Carrick on shannon

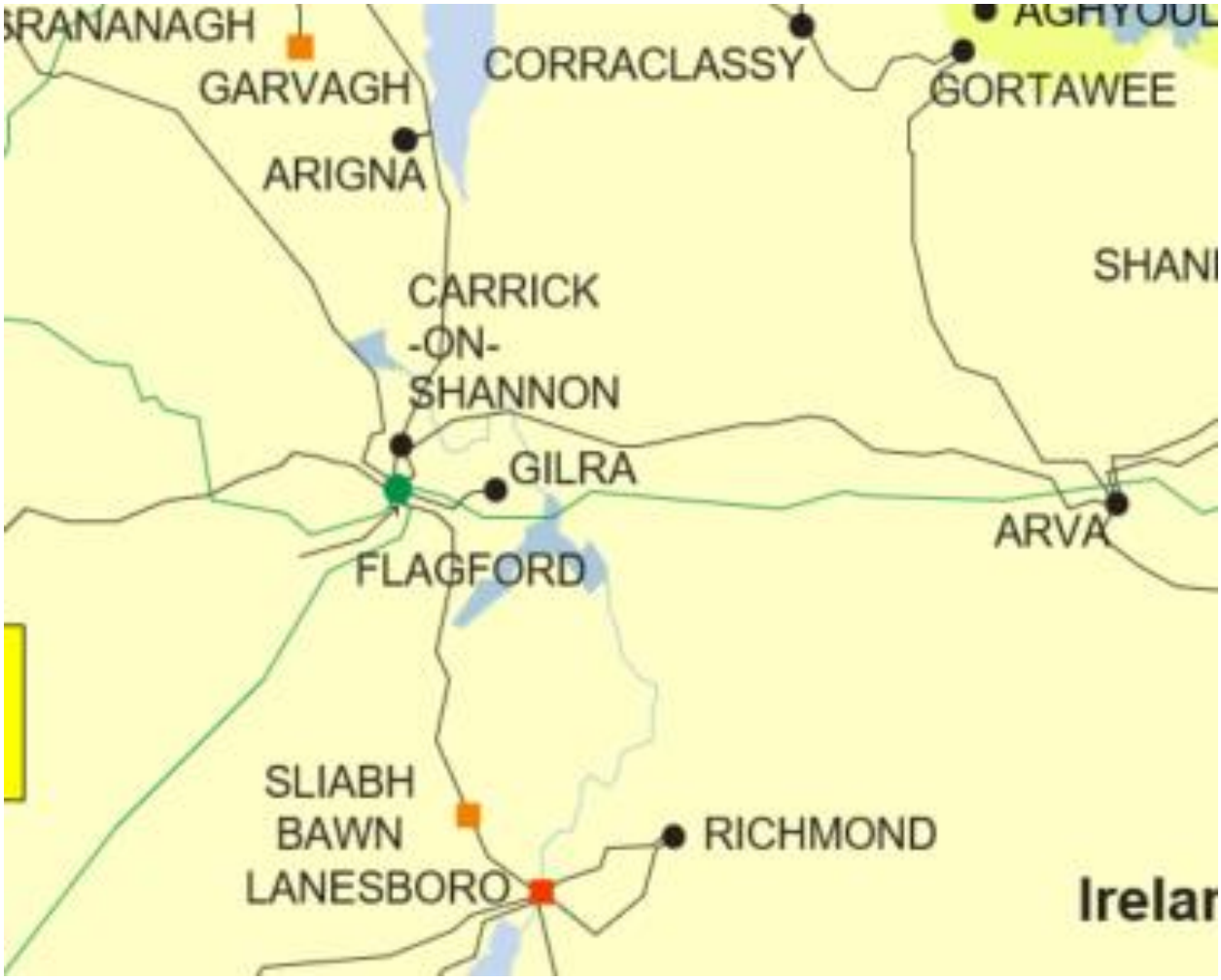

Figure 2-4 - Location of node Carrick on shannon

Generator	SO	Capacity	Type	Status
Rathleg Solar Farm	DSO	4.0	solar not priority	due to connect
Castlerea Trust Solar Project	DSO	4.99	solar not priority	due to connect
Lissavilla Polecat Solar	DSO	0.14	solar not priority	due to connect
Polecat Community PV	DSO	4.99	solar not priority	due to connect
Leam Windfarm	DSO	8.7	wind not priority	due to connect
Ardass Solar Ext.	DSO	3.39	solar not priority	due to connect

Table 2-6 - Generation Included in Study for Node Carrick on shannon

The solar not priority data is given in the following table.

Area C	Year	Initial	50%	ECP	ECP Battery	ECP + 3.1GW Offshore	ECP + 5GW Offshore	ECP + 5GW Offshore IC
Installed Capacity (MW)	2027	4	11	18				
Installed Capacity (MW)	2029	4	11	18	18			
Installed Capacity (MW)	FG			18		18	18	18
Available Energy (GWh)	2027	5	14	22				
Available Energy (GWh)	2029	5	14	22	22			
Available Energy (GWh)	FG			22		22	22	22
Generation (GWh)	2027	5	12	18				
Generation (GWh)	2029	5	13	19	17			
Generation (GWh)	FG			21		20	19	17
Surplus (%)	2027	1 %	6 %	14 %				
Surplus (%)	2029	0 %	3 %	9 %	15 %			
Surplus (%)	FG			5 %		11 %	15 %	21 %
Curtailment (%)	2027	1 %	2 %	4 %				
Curtailment (%)	2029	0 %	1 %	3 %	5 %			
Curtailment (%)	FG			1 %		2 %	2 %	2 %
Constraint (%)	2027	1 %	2 %	2 %				
Constraint (%)	2029	1 %	2 %	2 %	3 %			
Constraint (%)	FG			1 %		0 %	0 %	0 %
Total Dispatch Down (%)	2027	3 %	10 %	20 %				
Total Dispatch Down (%)	2029	1 %	6 %	14 %	23 %			
Total Dispatch Down (%)	FG			8 %		13 %	17 %	24 %

Table 2-7 - Surplus, Curtailment and Constraint for Solar non-priority for Node Carrick on shannon

Area C	Year	50%	ECP + 3.1GW Offshore
Installed Capacity (MW)	2027 (GF)	11	
Installed Capacity (MW)	2029 (pro-rata)	11	
Installed Capacity (MW)	FG (pro-rata)		18
Available Energy (GWh)	2027 (GF)	14	
Available Energy (GWh)	2029 (pro-rata)	14	
Available Energy (GWh)	FG (pro-rata)		22
Generation (GWh)	2027 (GF)	12	
Generation (GWh)	2029 (pro-rata)	13	
Generation (GWh)	FG (pro-rata)		20
Surplus (%)	2027 (GF)	6 %	
Surplus (%)	2029 (pro-rata)	3 %	
Surplus (%)	FG (pro-rata)		11 %
Curtailment (%)	2027 (GF)	2 %	
Curtailment (%)	2029 (pro-rata)	1 %	
Curtailment (%)	FG (pro-rata)		2 %
Constraint (%)	2027 (GF)	2 %	
Constraint (%)	2029 (pro-rata)	2 %	
Constraint (%)	FG (pro-rata)		0 %
Total Dispatch Down (%)	2027 (GF)	10 %	
Total Dispatch Down (%)	2029 (pro-rata)	6 %	
Total Dispatch Down (%)	FG (pro-rata)		13 %

Table 2-8 - Surplus, Curtailment and Constraint for Solar non-priority with sensitivity for Node Carrick on shannon

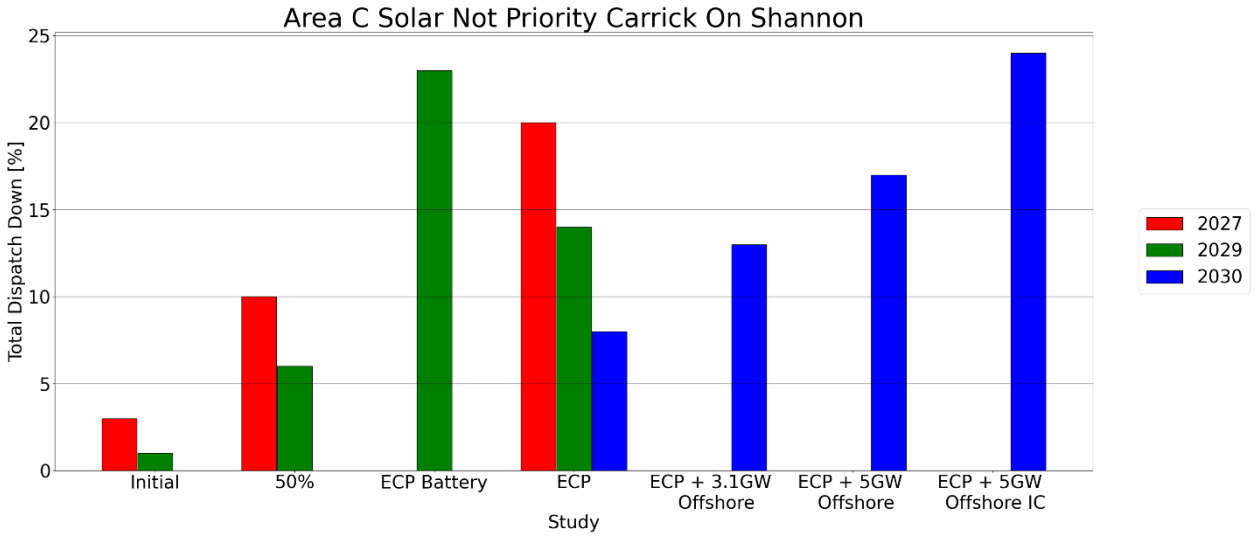

Figure 2-5 - Total Dispatch Down for Solar not priority for Node Carrick on Shannon

The wind not priority data is given in the following table.

Area C	Year	Initial	50%	ECP	ECP Battery	ECP + 3.1GW Offshore	ECP + 5GW Offshore	ECP + 5GW Offshore IC
Installed Capacity (MW)	2027		4	9				
Installed Capacity (MW)	2029		4	9	9			
Installed Capacity (MW)	FG			9		9	9	9
Available Energy (GWh)	2027		14	28				
Available Energy (GWh)	2029		14	28	28			
Available Energy (GWh)	FG			28		28	28	28
Generation (GWh)	2027		12	22				
Generation (GWh)	2029		11	23	21			
Generation (GWh)	FG			24		24	20	18
Surplus (%)	2027		5 %	12 %				
Surplus (%)	2029		2 %	5 %	8 %			
Surplus (%)	FG			2 %		12 %	22 %	30 %
Curtailment (%)	2027		3 %	4 %				
Curtailment (%)	2029		1 %	2 %	3 %			
Curtailment (%)	FG			1 %		2 %	2 %	3 %
Constraint (%)	2027		9 %	6 %				
Constraint (%)	2029		16 %	9 %	13 %			
Constraint (%)	FG			12 %		2 %	3 %	2 %
Total Dispatch Down (%)	2027		17 %	22 %				
Total Dispatch Down (%)	2029		19 %	16 %	24 %			
Total Dispatch Down (%)	FG			15 %		16 %	27 %	35 %

Table 2-9 - Surplus, Curtailment and Constraint for Wind non-priority for Node Carrick on shannon

Area C	Year	50%	ECP + 3.1GW Offshore
Installed Capacity (MW)	2027 (GF)	4	
Installed Capacity (MW)	2029 (pro-rata)	4	
Installed Capacity (MW)	FG (pro-rata)		9
Available Energy (GWh)	2027 (GF)	14	
Available Energy (GWh)	2029 (pro-rata)	14	
Available Energy (GWh)	FG (pro-rata)		28
Generation (GWh)	2027 (GF)	11	
Generation (GWh)	2029 (pro-rata)	12	
Generation (GWh)	FG (pro-rata)		24
Surplus (%)	2027 (GF)	5 %	
Surplus (%)	2029 (pro-rata)	2 %	
Surplus (%)	FG (pro-rata)		12 %
Curtailment (%)	2027 (GF)	3 %	
Curtailment (%)	2029 (pro-rata)	1 %	
Curtailment (%)	FG (pro-rata)		2 %
Constraint (%)	2027 (GF)	12 %	
Constraint (%)	2029 (pro-rata)	12 %	
Constraint (%)	FG (pro-rata)		2 %
Total Dispatch Down (%)	2027 (GF)	20 %	
Total Dispatch Down (%)	2029 (pro-rata)	15 %	
Total Dispatch Down (%)	FG (pro-rata)		15 %

Table 2-10 - Surplus, Curtailment and Constraint for Wind non-priority with sensitivity for Node Carrick on shannon

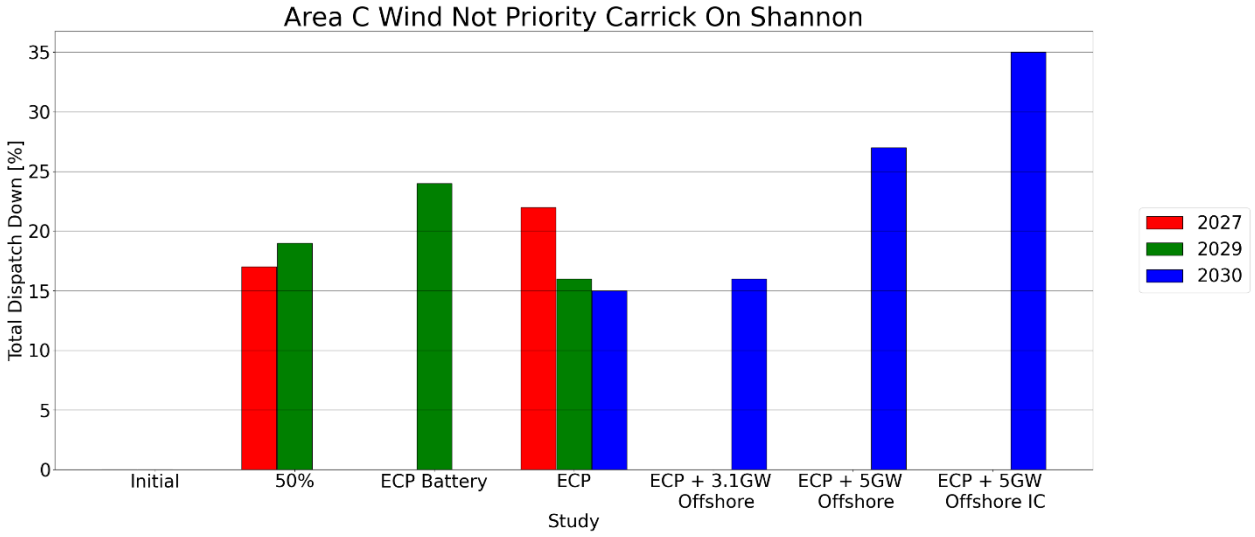

Figure 2-6 - Total Dispatch Down for Wind not priority for Node Carrick on shannon

2.3 Dallow

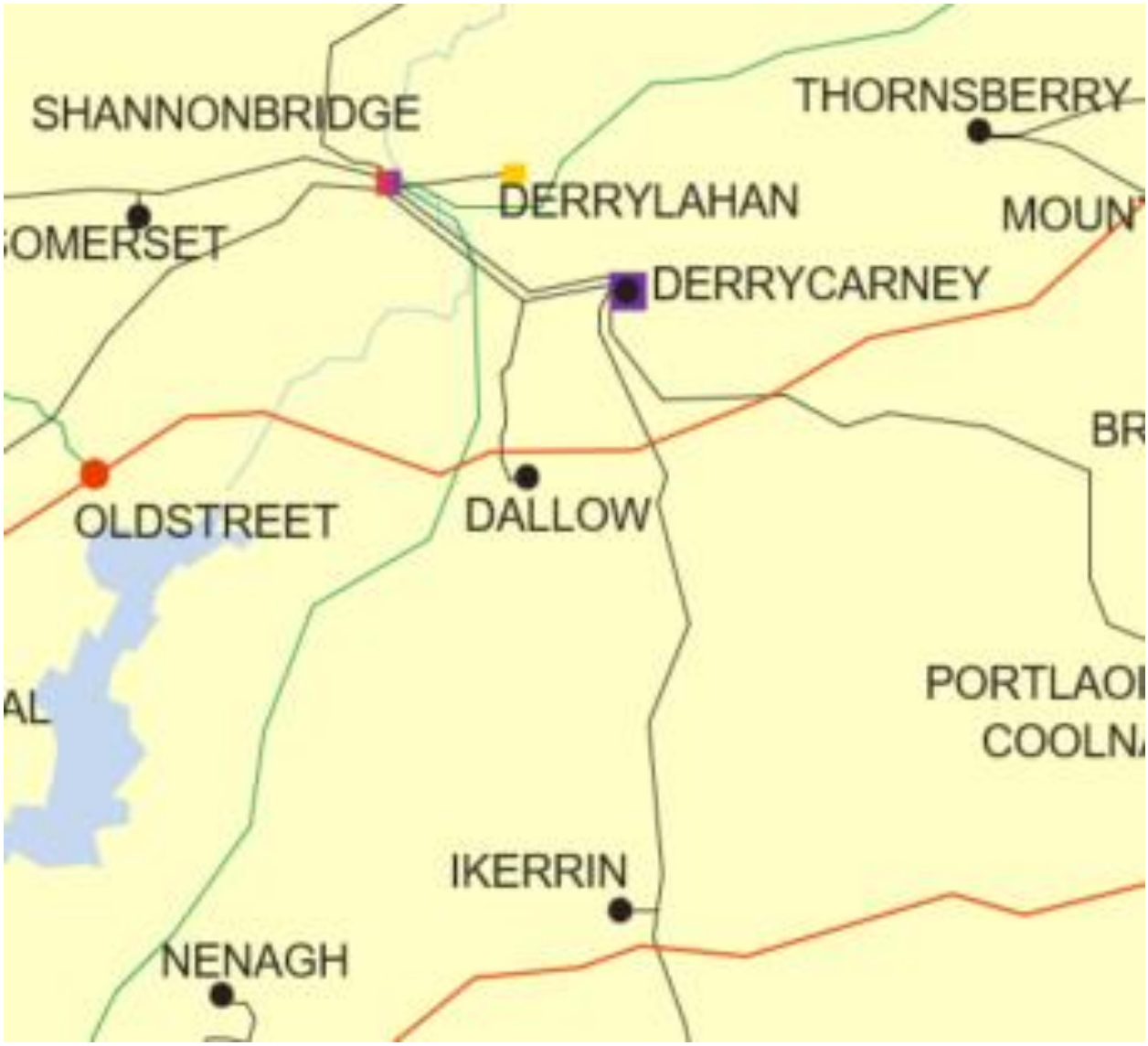

Figure 2-7 - Location of node Dallow

Generator	SO	Capacity	Type	Status
Carrig (1)	DSO	2.55	wind uncontrolled	connected
Skehanagh (1)	DSO	4.25	wind uncontrolled	connected
Leabeg (1)	DSO	4.25	wind uncontrolled	connected
Meenwaun WF	DSO	9.99	wind priority	connected
Leamór Community Wind Turbine	DSO	4.99	wind not priority	due to connect

Table 2-11 - Generation Included in Study for Node Dallow

The wind not priority data is given in the following table.

Area C	Year	Initial	50%	ECP	ECP Battery	ECP + 3.1GW Offshore	ECP + 5GW Offshore	ECP + 5GW Offshore IC
Installed Capacity (MW)	2027		2	5				
Installed Capacity (MW)	2029		2	5	5			
Installed Capacity (MW)	FG			5		5	5	5
Available Energy (GWh)	2027		8	16				
Available Energy (GWh)	2029		8	16	16			
Available Energy (GWh)	FG			16		16	16	16
Generation (GWh)	2027		7	12				
Generation (GWh)	2029		7	13	12			
Generation (GWh)	FG			14		14	12	10
Surplus (%)	2027		5 %	12 %				
Surplus (%)	2029		2 %	5 %	8 %			
Surplus (%)	FG			2 %		12 %	22 %	30 %
Curtailment (%)	2027		3 %	4 %				
Curtailment (%)	2029		1 %	2 %	3 %			
Curtailment (%)	FG			1 %		2 %	2 %	3 %
Constraint (%)	2027		9 %	6 %				
Constraint (%)	2029		16 %	9 %	13 %			
Constraint (%)	FG			12 %		2 %	3 %	2 %
Total Dispatch Down (%)	2027		17 %	22 %				
Total Dispatch Down (%)	2029		19 %	16 %	24 %			
Total Dispatch Down (%)	FG			15 %		16 %	27 %	35 %

Table 2-12 - Surplus, Curtailment and Constraint for Wind non-priority for Node Dallow

Area C	Year	50%	ECP + 3.1GW Offshore
Installed Capacity (MW)	2027 (GF)	2	
Installed Capacity (MW)	2029 (pro-rata)	2	
Installed Capacity (MW)	FG (pro-rata)		5
Available Energy (GWh)	2027 (GF)	8	
Available Energy (GWh)	2029 (pro-rata)	8	
Available Energy (GWh)	FG (pro-rata)		16
Generation (GWh)	2027 (GF)	6	
Generation (GWh)	2029 (pro-rata)	7	
Generation (GWh)	FG (pro-rata)		14
Surplus (%)	2027 (GF)	5 %	
Surplus (%)	2029 (pro-rata)	2 %	
Surplus (%)	FG (pro-rata)		12 %
Curtailment (%)	2027 (GF)	3 %	
Curtailment (%)	2029 (pro-rata)	1 %	
Curtailment (%)	FG (pro-rata)		2 %
Constraint (%)	2027 (GF)	12 %	
Constraint (%)	2029 (pro-rata)	12 %	
Constraint (%)	FG (pro-rata)		2 %
Total Dispatch Down (%)	2027 (GF)	20 %	
Total Dispatch Down (%)	2029 (pro-rata)	15 %	
Total Dispatch Down (%)	FG (pro-rata)		15 %

Table 2-13 - Surplus, Curtailment and Constraint for Wind non-priority with sensitivity for Node Dallow

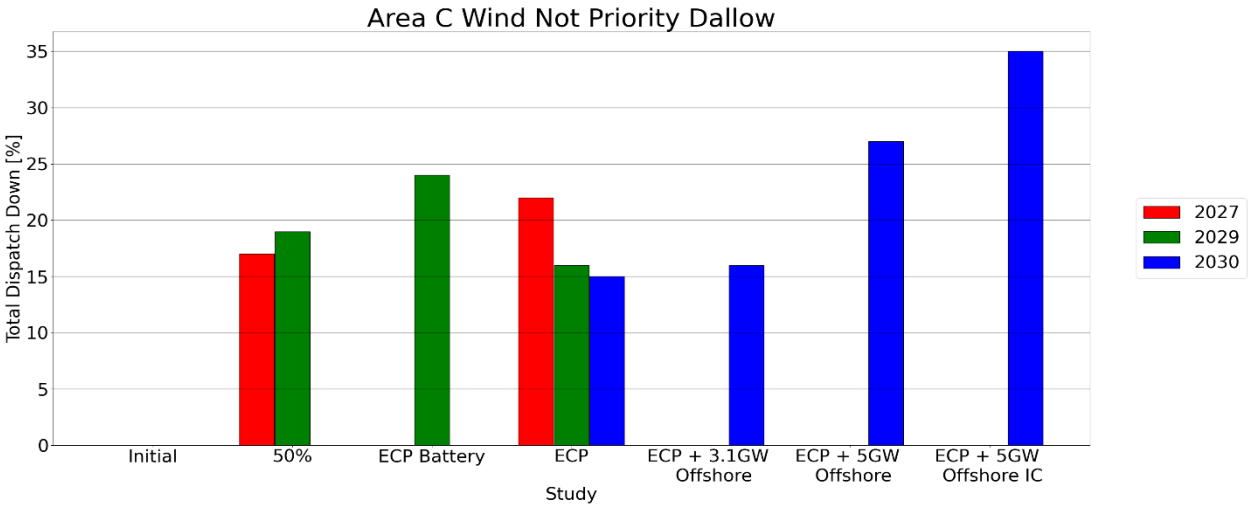

Figure 2-8 - Total Dispatch Down for Wind not priority for Node Dallow

The wind priority data is given in the following table.

Area C	Year	Initial	50%	ECP	ECP Battery	ECP + 3.1GW Offshore	ECP + 5GW Offshore	ECP + 5GW Offshore IC
Installed Capacity (MW)	2027	10	10	10				
Installed Capacity (MW)	2029	10	10	10	10			
Installed Capacity (MW)	FG			10		10	10	10
Available Energy (GWh)	2027	32	32	32				
Available Energy (GWh)	2029	32	32	32	32			
Available Energy (GWh)	FG			32		32	32	32
Generation (GWh)	2027	21	28	28				
Generation (GWh)	2029	32	32	31	31			
Generation (GWh)	FG			32		31	31	31
Surplus (%)	2027	0 %	0 %	0 %				
Surplus (%)	2029	0 %	0 %	0 %	0 %			
Surplus (%)	FG			0 %		0 %	0 %	0 %
Curtailment (%)	2027	1 %	4 %	6 %				
Curtailment (%)	2029	0 %	1 %	3 %	4 %			
Curtailment (%)	FG			1 %		3 %	4 %	5 %
Constraint (%)	2027	32 %	9 %	6 %				
Constraint (%)	2029	0 %	0 %	0 %	0 %			
Constraint (%)	FG			0 %		0 %	0 %	0 %
Total Dispatch Down (%)	2027	33 %	13 %	12 %				
Total Dispatch Down (%)	2029	0 %	1 %	3 %	4 %			
Total Dispatch Down (%)	FG			1 %		3 %	4 %	5 %

Table 2-14 - Surplus, Curtailment and Constraint for Wind priority for Node Dallow

Area C	Year	50%	ECP + 3.1GW Offshore
Installed Capacity (MW)	2027 (GF)	10	
Installed Capacity (MW)	2029 (pro-rata)	10	
Installed Capacity (MW)	FG (pro-rata)		10
Available Energy (GWh)	2027 (GF)	32	
Available Energy (GWh)	2029 (pro-rata)	32	
Available Energy (GWh)	FG (pro-rata)		32
Generation (GWh)	2027 (GF)	31	
Generation (GWh)	2029 (pro-rata)	28	
Generation (GWh)	FG (pro-rata)		31
Surplus (%)	2027 (GF)	0 %	
Surplus (%)	2029 (pro-rata)	0 %	
Surplus (%)	FG (pro-rata)		0 %
Curtailment (%)	2027 (GF)	4 %	
Curtailment (%)	2029 (pro-rata)	1 %	
Curtailment (%)	FG (pro-rata)		3 %
Constraint (%)	2027 (GF)	0 %	
Constraint (%)	2029 (pro-rata)	12 %	
Constraint (%)	FG (pro-rata)		2 %
Total Dispatch Down (%)	2027 (GF)	4 %	
Total Dispatch Down (%)	2029 (pro-rata)	13 %	
Total Dispatch Down (%)	FG (pro-rata)		4 %

Table 2-15 - Surplus, Curtailment and Constraint for Wind priority with sensitivity for Node Dallow

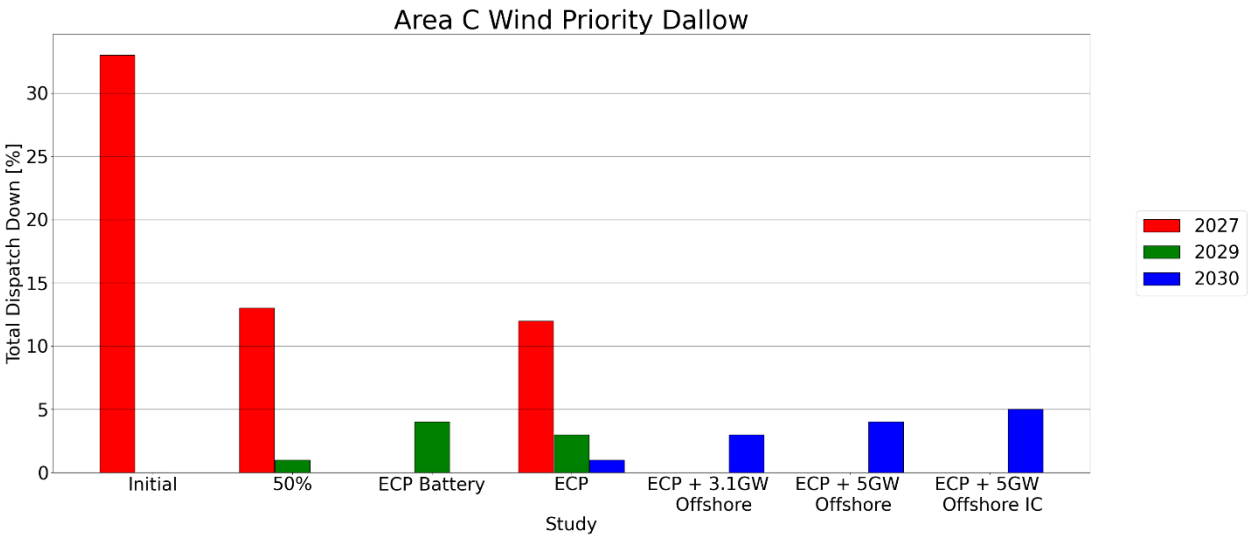

Figure 2-9 - Total Dispatch Down for Wind priority for Node Dallow

2.4 Derrycarney

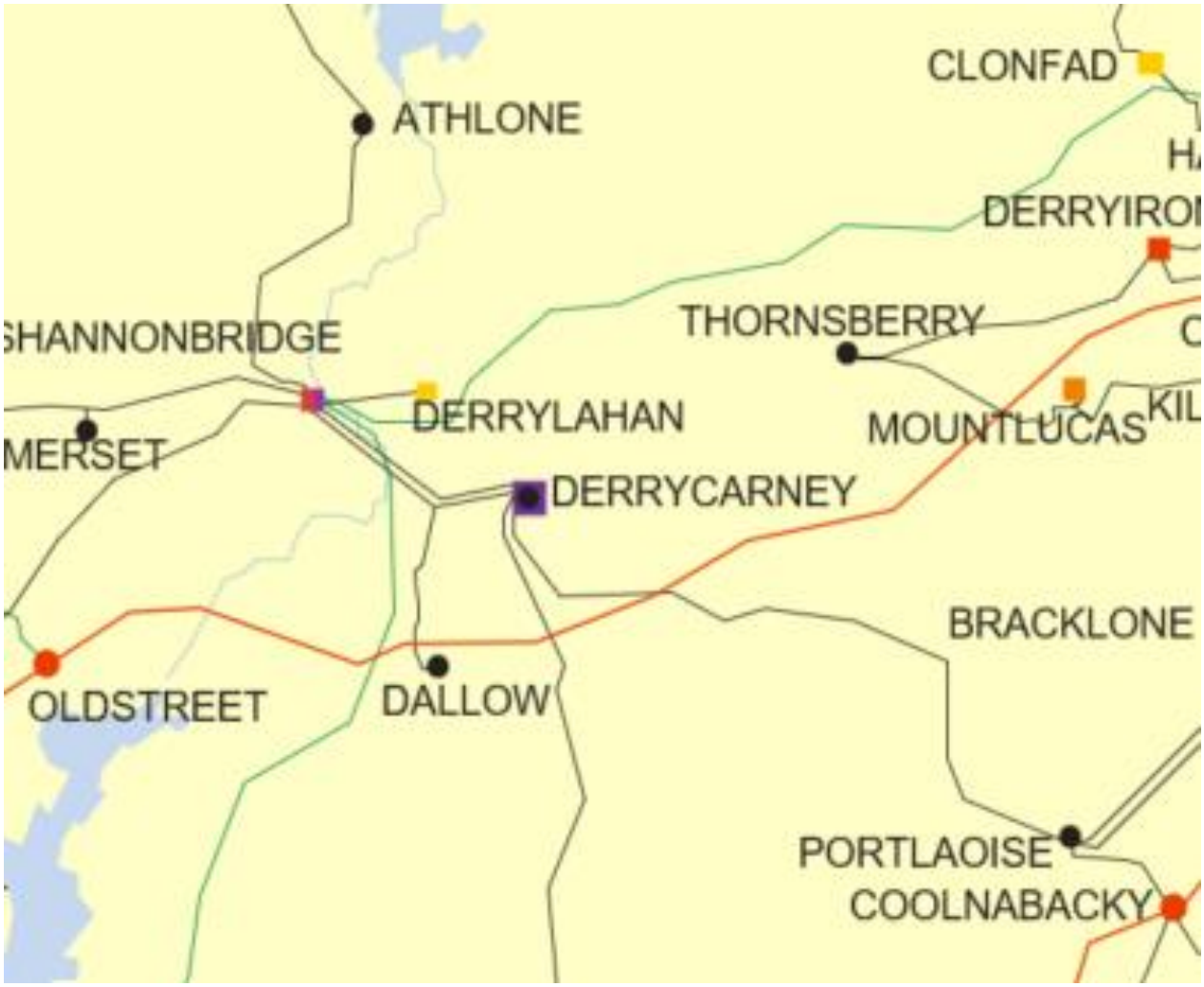

Figure 2-10 - Location of node Derrycarney

Generator	SO	Capacity	Type	Status
Cloghan Wind Farm	TSO	34.0	wind not priority	connected
Kilcormac Solar	TSO	125.0	solar not priority	due to connect
Rath Solar PV Extension	TSO	71.25	solar not priority	due to connect

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

The solar not priority data is given in the following table.

Area C	Year	Initial	50%	ECP	ECP Battery	ECP + 3.1GW Offshore	ECP + 5GW Offshore	ECP + 5GW Offshore IC
Installed Capacity (MW)	2027		98	196				
Installed Capacity (MW)	2029		98	196	196			
Installed Capacity (MW)	FG			196		196	196	196
Available Energy (GWh)	2027		126	251				
Available Energy (GWh)	2029		126	251	251			
Available Energy (GWh)	FG			251		251	251	251
Generation (GWh)	2027		113	200				
Generation (GWh)	2029		118	216	193			
Generation (GWh)	FG			232		219	207	192
Surplus (%)	2027		6 %	14 %				
Surplus (%)	2029		3 %	9 %	15 %			
Surplus (%)	FG			5 %		11 %	15 %	21 %
Curtailment (%)	2027		2 %	4 %				
Curtailment (%)	2029		1 %	3 %	5 %			
Curtailment (%)	FG			1 %		2 %	2 %	2 %
Constraint (%)	2027		2 %	2 %				
Constraint (%)	2029		2 %	2 %	3 %			
Constraint (%)	FG			1 %		0 %	0 %	0 %
Total Dispatch Down (%)	2027		10 %	20 %				
Total Dispatch Down (%)	2029		6 %	14 %	23 %			
Total Dispatch Down (%)	FG			8 %		13 %	17 %	24 %

Table 2-17 - Surplus, Curtailment and Constraint for Solar non-priority for Node Derrycarney

Area C	Year	50%	ECP + 3.1GW Offshore
Installed Capacity (MW)	2027 (GF)	98	
Installed Capacity (MW)	2029 (pro-rata)	98	
Installed Capacity (MW)	FG (pro-rata)		196
Available Energy (GWh)	2027 (GF)	126	
Available Energy (GWh)	2029 (pro-rata)	126	
Available Energy (GWh)	FG (pro-rata)		251
Generation (GWh)	2027 (GF)	113	
Generation (GWh)	2029 (pro-rata)	118	
Generation (GWh)	FG (pro-rata)		219
Surplus (%)	2027 (GF)	6 %	
Surplus (%)	2029 (pro-rata)	3 %	
Surplus (%)	FG (pro-rata)		11 %
Curtailment (%)	2027 (GF)	2 %	
Curtailment (%)	2029 (pro-rata)	1 %	
Curtailment (%)	FG (pro-rata)		2 %
Constraint (%)	2027 (GF)	2 %	
Constraint (%)	2029 (pro-rata)	2 %	
Constraint (%)	FG (pro-rata)		0 %
Total Dispatch Down (%)	2027 (GF)	10 %	
Total Dispatch Down (%)	2029 (pro-rata)	6 %	
Total Dispatch Down (%)	FG (pro-rata)		13 %

Table 2-18 - Surplus, Curtailment and Constraint for Solar non-priority with sensitivity for Node Derrycarney

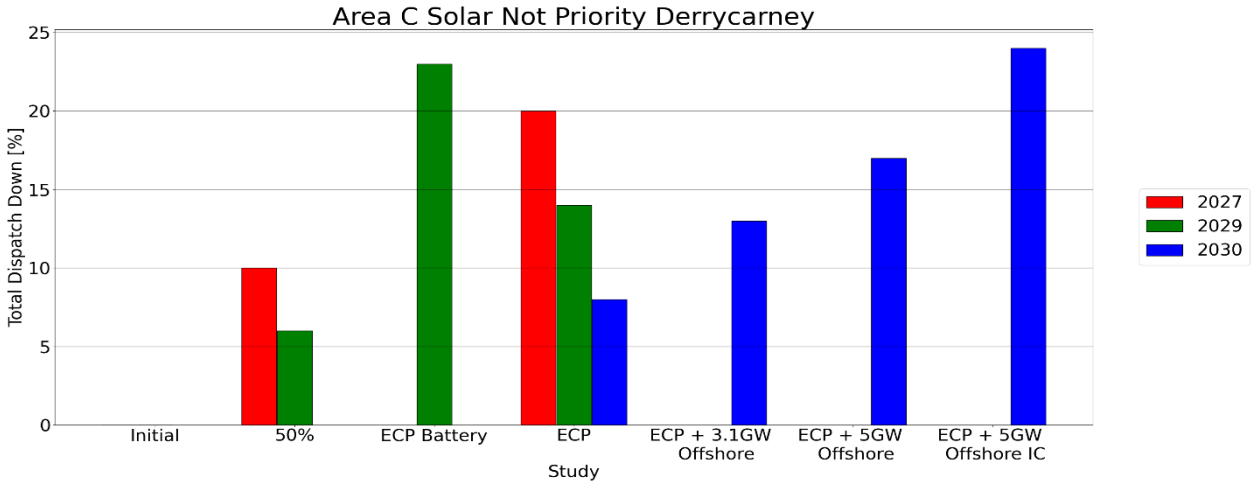

Figure 2-11 - Total Dispatch Down for Solar not priority for Node Derrycarney

The wind not priority data is given in the following table.

Area C	Year	Initial	50%	ECP	ECP Battery	ECP + 3.1GW Offshore	ECP + 5GW Offshore	ECP + 5GW Offshore IC
Installed Capacity (MW)	2027	34	34	34				
Installed Capacity (MW)	2029	34	34	34	34			
Installed Capacity (MW)	FG			34		34	34	34
Available Energy (GWh)	2027	109	109	109				
Available Energy (GWh)	2029	109	109	109	109			
Available Energy (GWh)	FG			109		109	109	109
Generation (GWh)	2027	72	91	85				
Generation (GWh)	2029	13	89	92	83			
Generation (GWh)	FG			92		92	80	71
Surplus (%)	2027	1 %	5 %	12 %				
Surplus (%)	2029	0 %	2 %	5 %	8 %			
Surplus (%)	FG			2 %		12 %	22 %	30 %
Curtailment (%)	2027	1 %	3 %	4 %				
Curtailment (%)	2029	0 %	1 %	2 %	3 %			
Curtailment (%)	FG			1 %		2 %	2 %	3 %
Constraint (%)	2027	32 %	9 %	6 %				
Constraint (%)	2029	88 %	16 %	9 %	13 %			
Constraint (%)	FG			12 %		2 %	3 %	2 %
Total Dispatch Down (%)	2027	34 %	17 %	22 %				
Total Dispatch Down (%)	2029	88 %	19 %	16 %	24 %			
Total Dispatch Down (%)	FG			15 %		16 %	27 %	35 %

Table 2-19 - Surplus, Curtailment and Constraint for Wind non-priority for Node Derrycarney

Area C	Year	50%	ECP + 3.1GW Offshore
Installed Capacity (MW)	2027 (GF)	34	
Installed Capacity (MW)	2029 (pro-rata)	34	
Installed Capacity (MW)	FG (pro-rata)		34
Available Energy (GWh)	2027 (GF)	109	
Available Energy (GWh)	2029 (pro-rata)	109	
Available Energy (GWh)	FG (pro-rata)		109
Generation (GWh)	2027 (GF)	88	
Generation (GWh)	2029 (pro-rata)	93	
Generation (GWh)	FG (pro-rata)		92
Surplus (%)	2027 (GF)	5 %	
Surplus (%)	2029 (pro-rata)	2 %	
Surplus (%)	FG (pro-rata)		12 %
Curtailment (%)	2027 (GF)	3 %	
Curtailment (%)	2029 (pro-rata)	1 %	
Curtailment (%)	FG (pro-rata)		2 %
Constraint (%)	2027 (GF)	12 %	
Constraint (%)	2029 (pro-rata)	12 %	
Constraint (%)	FG (pro-rata)		2 %
Total Dispatch Down (%)	2027 (GF)	20 %	
Total Dispatch Down (%)	2029 (pro-rata)	15 %	
Total Dispatch Down (%)	FG (pro-rata)		15 %

Table 2-20 - Surplus, Curtailment and Constraint for Wind non-priority with sensitivity for Node Derrycarney

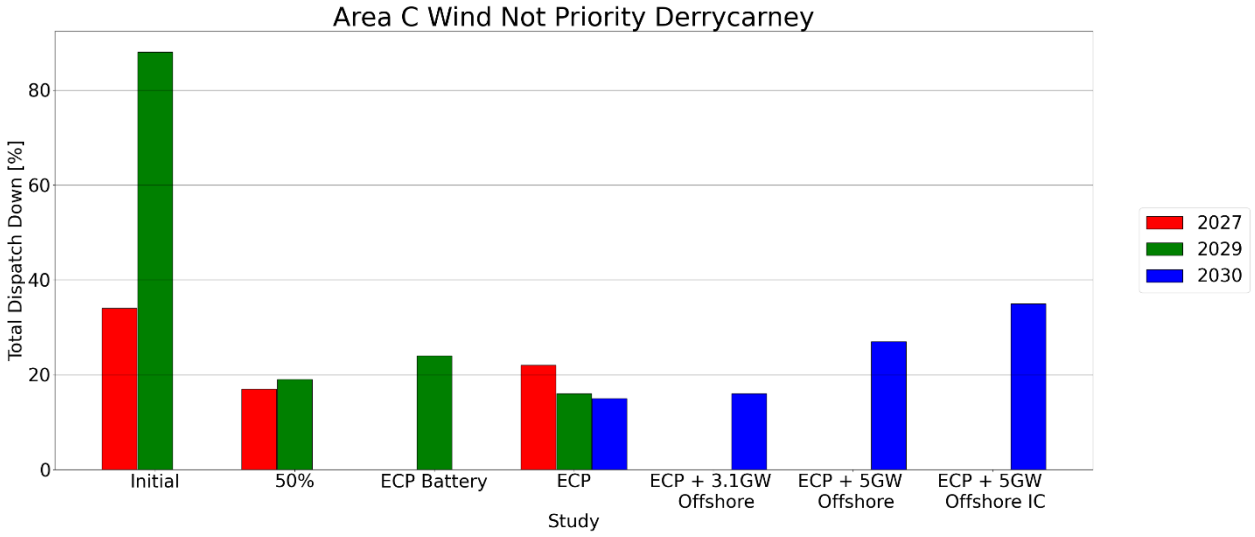

Figure 2-12 - Total Dispatch Down for Wind not priority for Node Derrycarney

2.5 Lanesboro

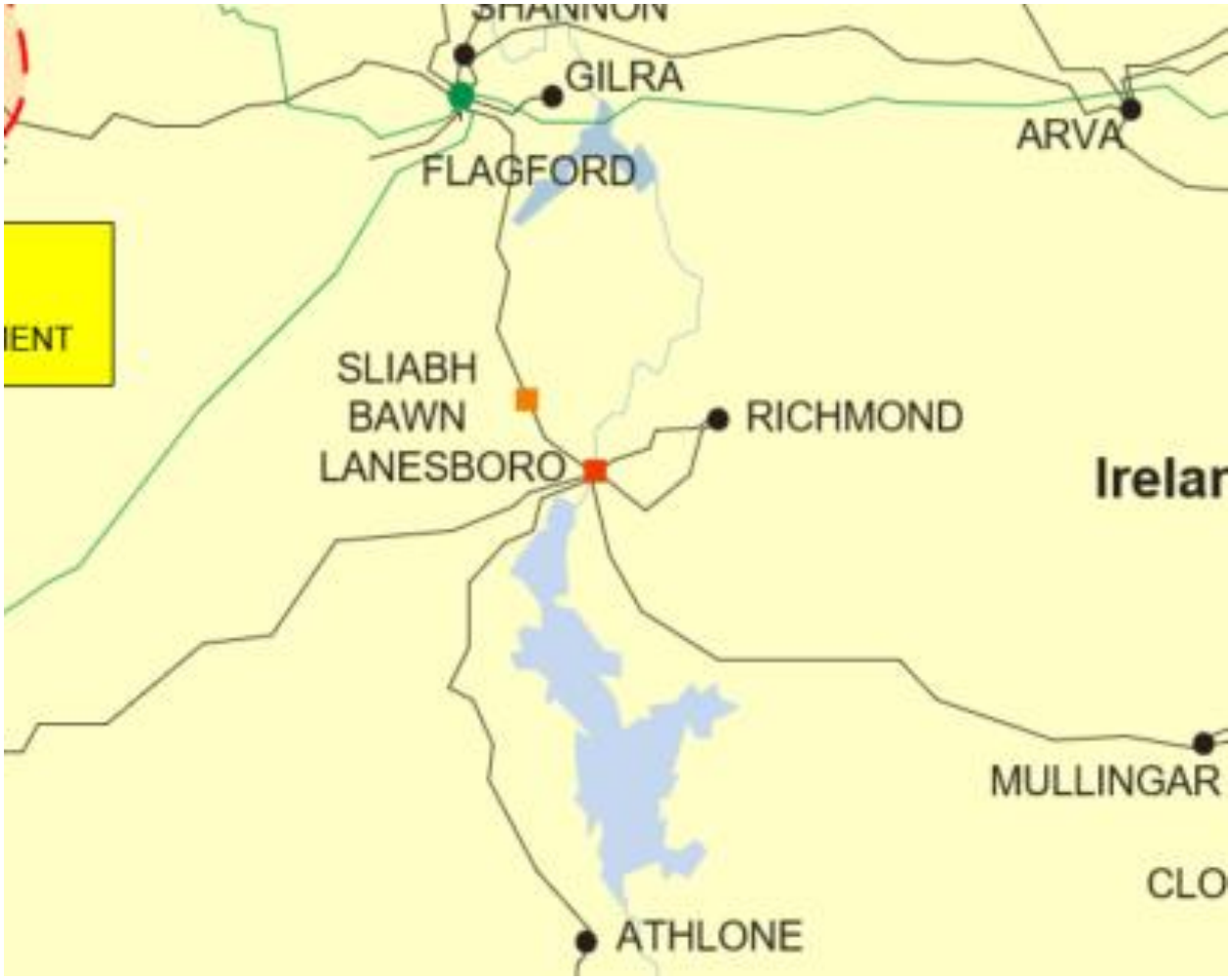

Figure 2-13 - Location of node Lanesboro

Generator	SO	Capacity	Type	Status
Skrine (1)	DSO	4.6	wind uncontrolled	connected
Creevy Solar	DSO	4.0	solar not priority	due to connect
Roxborough	DSO	4.95	wind not priority	due to connect
Middleton solar (Longford)	TSO	56.6	solar not priority	due to connect
Derryadd wind	TSO	90.0	wind not priority	due to connect

Table 2-21 - Generation Included in Study for Node Lanesboro

The solar not priority data is given in the following table.

Area C	Year	Initial	50%	ECP	ECP Battery	ECP + 3.1GW Offshore	ECP + 5GW Offshore	ECP + 5GW Offshore IC
Installed Capacity (MW)	2027	4	32	61				
Installed Capacity (MW)	2029	4	32	61	61			
Installed Capacity (MW)	FG			61		61	61	61
Available Energy (GWh)	2027	5	41	78				
Available Energy (GWh)	2029	5	41	78	78			
Available Energy (GWh)	FG			78		78	78	78
Generation (GWh)	2027	5	37	62				
Generation (GWh)	2029	5	39	67	60			
Generation (GWh)	FG			72		68	64	59
Surplus (%)	2027	1 %	6 %	14 %				
Surplus (%)	2029	0 %	3 %	9 %	15 %			
Surplus (%)	FG			5 %		11 %	15 %	21 %
Curtailment (%)	2027	1 %	2 %	4 %				
Curtailment (%)	2029	0 %	1 %	3 %	5 %			
Curtailment (%)	FG			1 %		2 %	2 %	2 %
Constraint (%)	2027	1 %	2 %	2 %				
Constraint (%)	2029	1 %	2 %	2 %	3 %			
Constraint (%)	FG			1 %		0 %	0 %	0 %
Total Dispatch Down (%)	2027	3 %	10 %	20 %				
Total Dispatch Down (%)	2029	1 %	6 %	14 %	23 %			
Total Dispatch Down (%)	FG			8 %		13 %	17 %	24 %

Table 2-22 - Surplus, Curtailment and Constraint for Solar non-priority for Node Lanesboro

Area C	Year	50%	ECP + 3.1GW Offshore
Installed Capacity (MW)	2027 (GF)	32	
Installed Capacity (MW)	2029 (pro-rata)	32	
Installed Capacity (MW)	FG (pro-rata)		61
Available Energy (GWh)	2027 (GF)	41	
Available Energy (GWh)	2029 (pro-rata)	41	
Available Energy (GWh)	FG (pro-rata)		78
Generation (GWh)	2027 (GF)	37	
Generation (GWh)	2029 (pro-rata)	39	
Generation (GWh)	FG (pro-rata)		68
Surplus (%)	2027 (GF)	6 %	
Surplus (%)	2029 (pro-rata)	3 %	
Surplus (%)	FG (pro-rata)		11 %
Curtailment (%)	2027 (GF)	2 %	
Curtailment (%)	2029 (pro-rata)	1 %	
Curtailment (%)	FG (pro-rata)		2 %
Constraint (%)	2027 (GF)	2 %	
Constraint (%)	2029 (pro-rata)	2 %	
Constraint (%)	FG (pro-rata)		0 %
Total Dispatch Down (%)	2027 (GF)	10 %	
Total Dispatch Down (%)	2029 (pro-rata)	6 %	
Total Dispatch Down (%)	FG (pro-rata)		13 %

Table 2-23 - Surplus, Curtailment and Constraint for Solar non-priority with sensitivity for Node Lanesboro

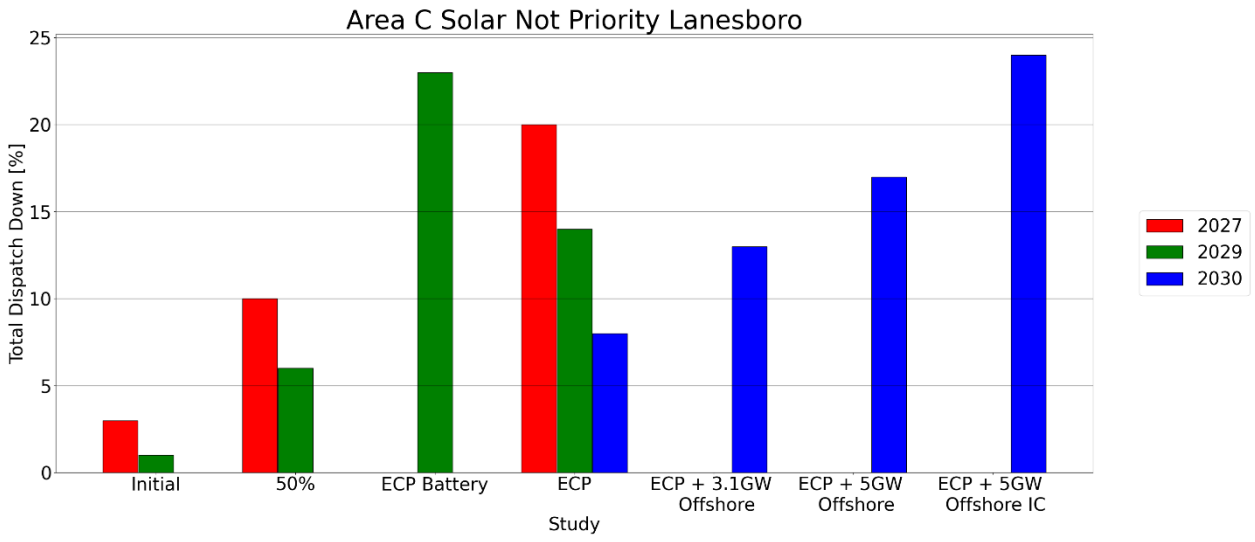

Figure 2-14 - Total Dispatch Down for Solar not priority for Node Lanesboro

The wind not priority data is given in the following table.

Area C	Year	Initial	50%	ECP	ECP Battery	ECP + 3.1GW Offshore	ECP + 5GW Offshore	ECP + 5GW Offshore IC
Installed Capacity (MW)	2027	5	50	95				
Installed Capacity (MW)	2029	5	50	95	95			
Installed Capacity (MW)	FG			95		95	95	95
Available Energy (GWh)	2027	16	160	305				
Available Energy (GWh)	2029	16	160	305	305			
Available Energy (GWh)	FG			305		305	305	305
Generation (GWh)	2027	10	133	237				
Generation (GWh)	2029	2	131	256	232			
Generation (GWh)	FG			258		257	223	199
Surplus (%)	2027	1 %	5 %	12 %				
Surplus (%)	2029	0 %	2 %	5 %	8 %			
Surplus (%)	FG			2 %		12 %	22 %	30 %
Curtailment (%)	2027	1 %	3 %	4 %				
Curtailment (%)	2029	0 %	1 %	2 %	3 %			
Curtailment (%)	FG			1 %		2 %	2 %	3 %
Constraint (%)	2027	32 %	9 %	6 %				
Constraint (%)	2029	88 %	16 %	9 %	13 %			
Constraint (%)	FG			12 %		2 %	3 %	2 %
Total Dispatch Down (%)	2027	34 %	17 %	22 %				
Total Dispatch Down (%)	2029	88 %	19 %	16 %	24 %			
Total Dispatch Down (%)	FG			15 %		16 %	27 %	35 %

Table 2-24 - Surplus, Curtailment and Constraint for Wind non-priority for Node Lanesboro

Area C	Year	50%	ECP + 3.1GW Offshore
Installed Capacity (MW)	2027 (GF)	50	
Installed Capacity (MW)	2029 (pro-rata)	50	
Installed Capacity (MW)	FG (pro-rata)		95
Available Energy (GWh)	2027 (GF)	160	
Available Energy (GWh)	2029 (pro-rata)	160	
Available Energy (GWh)	FG (pro-rata)		305
Generation (GWh)	2027 (GF)	129	
Generation (GWh)	2029 (pro-rata)	137	
Generation (GWh)	FG (pro-rata)		258
Surplus (%)	2027 (GF)	5 %	
Surplus (%)	2029 (pro-rata)	2 %	
Surplus (%)	FG (pro-rata)		12 %
Curtailment (%)	2027 (GF)	3 %	
Curtailment (%)	2029 (pro-rata)	1 %	
Curtailment (%)	FG (pro-rata)		2 %
Constraint (%)	2027 (GF)	12 %	
Constraint (%)	2029 (pro-rata)	12 %	
Constraint (%)	FG (pro-rata)		2 %
Total Dispatch Down (%)	2027 (GF)	20 %	
Total Dispatch Down (%)	2029 (pro-rata)	15 %	
Total Dispatch Down (%)	FG (pro-rata)		15 %

Table 2-25 - Surplus, Curtailment and Constraint for Wind non-priority with sensitivity for Node Lanesboro

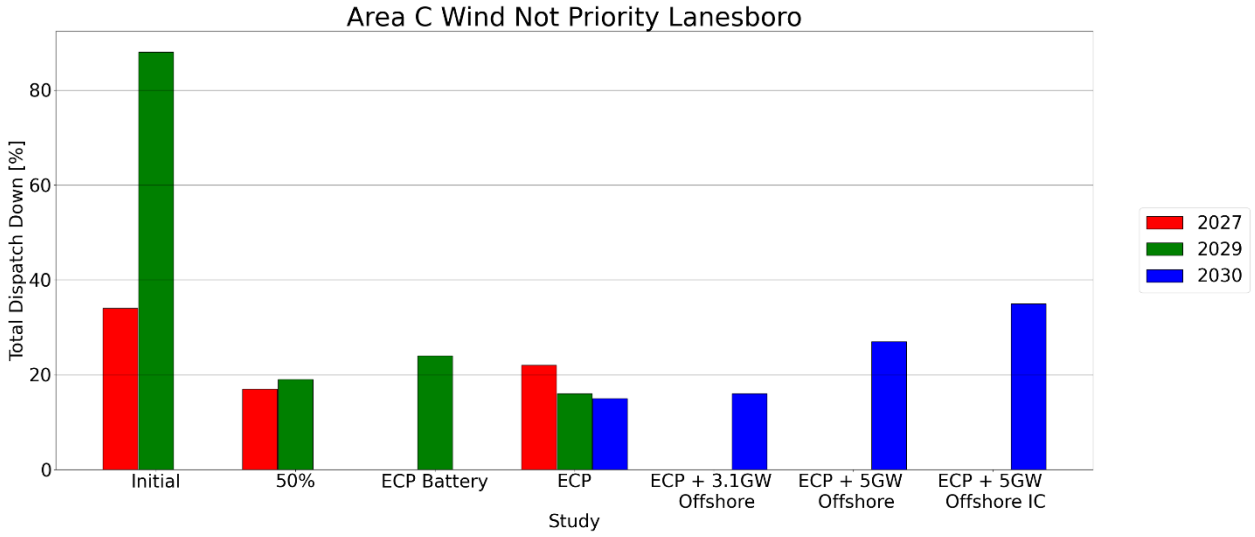

Figure 2-15 - Total Dispatch Down for Wind not priority for Node Lanesboro

2.6 Mullingar

Figure 2-16 - Location of node Mullingar

Generator	SO	Capacity	Type	Status
Marlinstown Solar Farm (prev Russellstown)	DSO	4.0	solar not priority	due to connect
Liss Solar Farm (prev Lands at Liss)	DSO	4.0	solar not priority	due to connect
Tullynally Estate	DSO	4.0	solar not priority	due to connect
Coole wind	TSO	88.0	wind not priority	due to connect
WEP Solar Slanemore Mullingar	DSO	16.85	solar not priority	due to connect
Coole Wind Farm - Extension	TSO	9.5	wind not priority	due to connect
Curraghmore Solar Park (prev. Marlinstown SF)	DSO	4.99	solar not priority	due to connect

Table 2-26 - Generation Included in Study for Node Mullingar

The solar not priority data is given in the following table.

Area C	Year	Initial	50%	ECP	ECP Battery	ECP + 3.1GW Offshore	ECP + 5GW Offshore	ECP + 5GW Offshore IC
Installed Capacity (MW)	2027	29	31	34				
Installed Capacity (MW)	2029	29	31	34	34			
Installed Capacity (MW)	FG			34		34	34	34
Available Energy (GWh)	2027	37	40	43				
Available Energy (GWh)	2029	37	40	43	43			
Available Energy (GWh)	FG			43		43	43	43
Generation (GWh)	2027	33	19	15				
Generation (GWh)	2029	33	20	16	11			
Generation (GWh)	FG			21		22	21	21
Surplus (%)	2027	1 %	6 %	14 %				
Surplus (%)	2029	0 %	3 %	9 %	15 %			
Surplus (%)	FG			5 %		11 %	15 %	21 %
Curtailment (%)	2027	1 %	2 %	4 %				
Curtailment (%)	2029	0 %	1 %	3 %	5 %			
Curtailment (%)	FG			1 %		2 %	2 %	2 %
Constraint (%)	2027	10 %	45 %	48 %				
Constraint (%)	2029	10 %	45 %	51 %	54 %			
Constraint (%)	FG			44 %		36 %	33 %	29 %
Total Dispatch Down (%)	2027	11 %	53 %	66 %				
Total Dispatch Down (%)	2029	10 %	50 %	63 %	74 %			
Total Dispatch Down (%)	FG			51 %		49 %	50 %	52 %

Table 2-27 - Surplus, Curtailment and Constraint for Solar non-priority for Node Mullingar

Area C	Year	50%	ECP + 3.1GW Offshore
Installed Capacity (MW)	2027 (GF)	31	
Installed Capacity (MW)	2029 (pro-rata)	31	
Installed Capacity (MW)	FG (pro-rata)		34
Available Energy (GWh)	2027 (GF)	40	
Available Energy (GWh)	2029 (pro-rata)	40	
Available Energy (GWh)	FG (pro-rata)		43
Generation (GWh)	2027 (GF)	19	
Generation (GWh)	2029 (pro-rata)	20	
Generation (GWh)	FG (pro-rata)		22
Surplus (%)	2027 (GF)	6 %	
Surplus (%)	2029 (pro-rata)	3 %	
Surplus (%)	FG (pro-rata)		11 %
Curtailment (%)	2027 (GF)	2 %	
Curtailment (%)	2029 (pro-rata)	1 %	
Curtailment (%)	FG (pro-rata)		2 %
Constraint (%)	2027 (GF)	45 %	
Constraint (%)	2029 (pro-rata)	45 %	
Constraint (%)	FG (pro-rata)		36 %
Total Dispatch Down (%)	2027 (GF)	53 %	
Total Dispatch Down (%)	2029 (pro-rata)	50 %	
Total Dispatch Down (%)	FG (pro-rata)		49 %

Table 2-28 - Surplus, Curtailment and Constraint for Solar non-priority with sensitivity for Node Mullingar

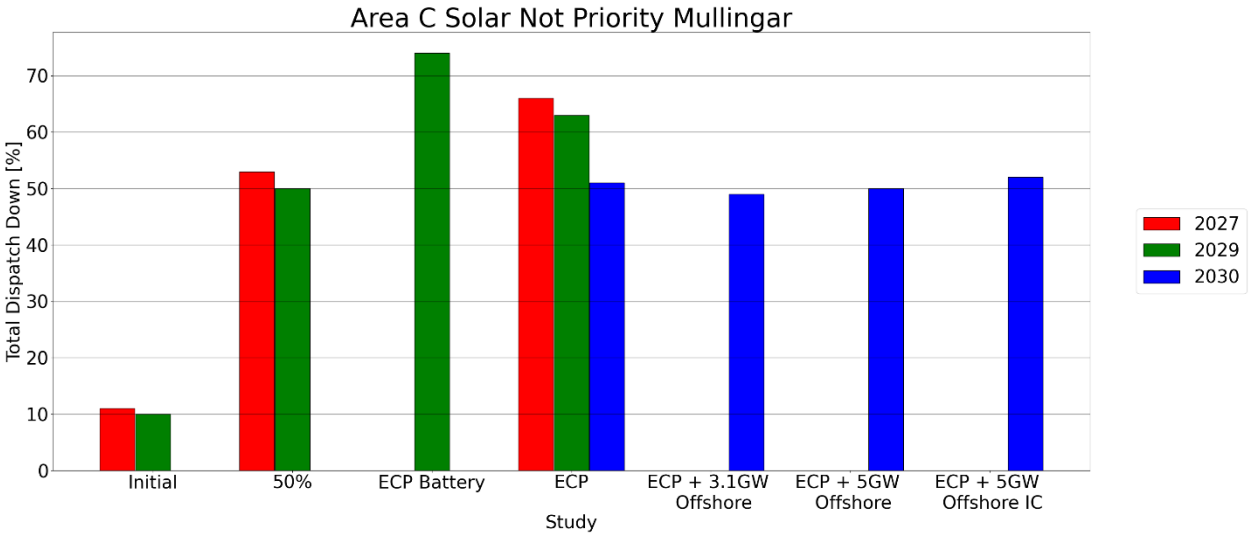

Figure 2-17 - Total Dispatch Down for Solar not priority for Node Mullingar

The wind not priority data is given in the following table.

Area C	Year	Initial	50%	ECP	ECP Battery	ECP + 3.1GW Offshore	ECP + 5GW Offshore	ECP + 5GW Offshore IC
Installed Capacity (MW)	2027		49	98				
Installed Capacity (MW)	2029		49	98	98			
Installed Capacity (MW)	FG			98		98	98	98
Available Energy (GWh)	2027		156	313				
Available Energy (GWh)	2029		156	313	313			
Available Energy (GWh)	FG			313		313	313	313
Generation (GWh)	2027		69	92				
Generation (GWh)	2029		64	78	73			
Generation (GWh)	FG			117		187	174	162
Surplus (%)	2027		5 %	12 %				
Surplus (%)	2029		2 %	5 %	8 %			
Surplus (%)	FG			2 %		12 %	22 %	30 %
Curtailment (%)	2027		3 %	4 %				
Curtailment (%)	2029		1 %	2 %	3 %			
Curtailment (%)	FG			1 %		2 %	2 %	3 %
Constraint (%)	2027		48 %	55 %				
Constraint (%)	2029		57 %	68 %	66 %			
Constraint (%)	FG			60 %		27 %	20 %	15 %
Total Dispatch Down (%)	2027		56 %	71 %				
Total Dispatch Down (%)	2029		59 %	75 %	77 %			
Total Dispatch Down (%)	FG			62 %		40 %	45 %	48 %

Table 2-29 - Surplus, Curtailment and Constraint for Wind non-priority for Node Mullingar

Area C	Year	50%	ECP + 3.1GW Offshore
Installed Capacity (MW)	2027 (GF)	49	
Installed Capacity (MW)	2029 (pro-rata)	49	
Installed Capacity (MW)	FG (pro-rata)		98
Available Energy (GWh)	2027 (GF)	156	
Available Energy (GWh)	2029 (pro-rata)	156	
Available Energy (GWh)	FG (pro-rata)		313
Generation (GWh)	2027 (GF)	53	
Generation (GWh)	2029 (pro-rata)	79	
Generation (GWh)	FG (pro-rata)		196
Surplus (%)	2027 (GF)	5 %	
Surplus (%)	2029 (pro-rata)	2 %	
Surplus (%)	FG (pro-rata)		12 %
Curtailment (%)	2027 (GF)	3 %	
Curtailment (%)	2029 (pro-rata)	1 %	
Curtailment (%)	FG (pro-rata)		2 %
Constraint (%)	2027 (GF)	58 %	
Constraint (%)	2029 (pro-rata)	47 %	
Constraint (%)	FG (pro-rata)		24 %
Total Dispatch Down (%)	2027 (GF)	66 %	
Total Dispatch Down (%)	2029 (pro-rata)	49 %	
Total Dispatch Down (%)	FG (pro-rata)		37 %

Table 2-30 - Surplus, Curtailment and Constraint for Wind non-priority with sensitivity for Node Mullingar

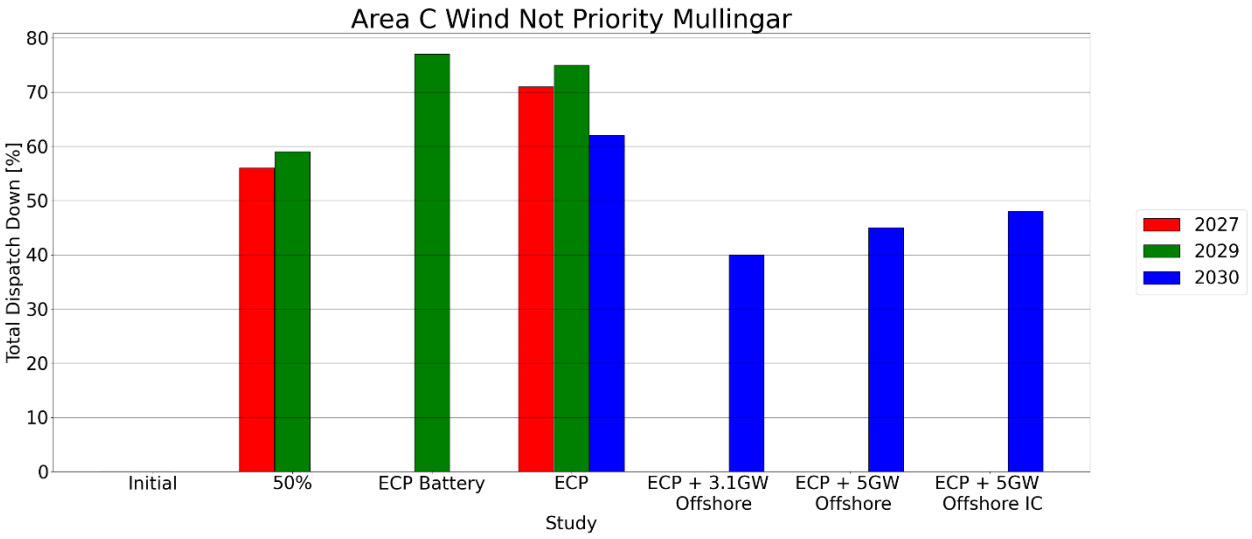

Figure 2-18 - Total Dispatch Down for Wind not priority for Node Mullingar

2.7 Richmond

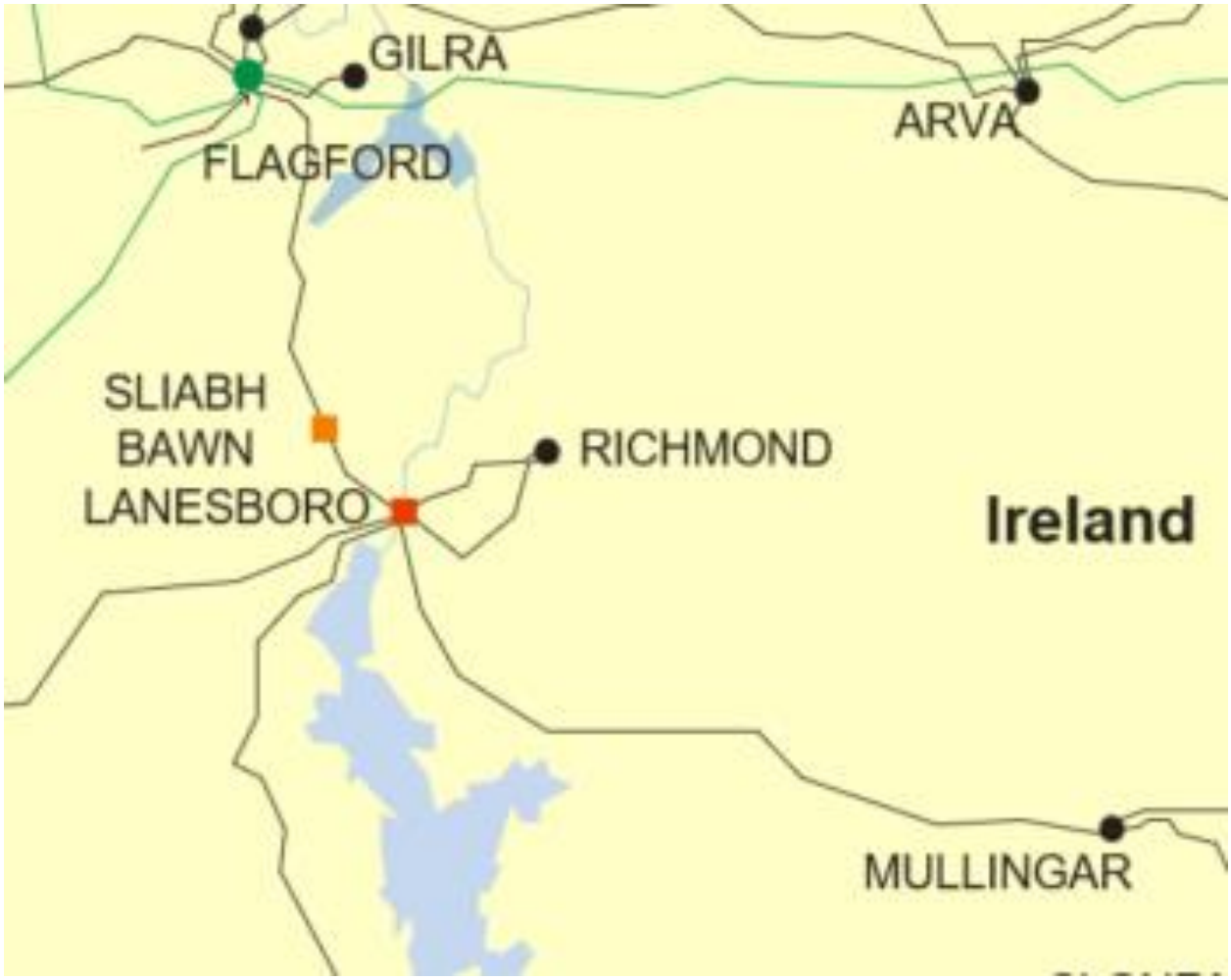

Figure 2-19 - Location of node Richmond

Generator	SO	Capacity	Type	Status
Lisnageeragh Solar Farm	DSO	4.0	solar not priority	due to connect
Cleggill Solar Park	DSO	8.0	solar not priority	due to connect
Lissanore Community Wind Turbine	DSO	4.99	wind not priority	due to connect
Ballykenny Solar	DSO	9.0	solar not priority	due to connect
Cloondara Solar Park	DSO	4.0	solar not priority	due to connect
Ballykenny Solar	DSO	6.0	solar not priority	due to connect

Table 2-31 - Generation Included in Study for Node Richmond

The solar not priority data is given in the following table.

Area C	Year	Initial	50%	ECP	ECP Battery	ECP + 3.1GW Offshore	ECP + 5GW Offshore	ECP + 5GW Offshore IC
Installed Capacity (MW)	2027	12	22	31				
Installed Capacity (MW)	2029	12	22	31	31			
Installed Capacity (MW)	FG			31		31	31	31
Available Energy (GWh)	2027	15	28	40				
Available Energy (GWh)	2029	15	28	40	40			
Available Energy (GWh)	FG			40		40	40	40
Generation (GWh)	2027	15	25	32				
Generation (GWh)	2029	15	26	34	31			
Generation (GWh)	FG			37		35	33	30
Surplus (%)	2027	1 %	6 %	14 %				
Surplus (%)	2029	0 %	3 %	9 %	15 %			
Surplus (%)	FG			5 %		11 %	15 %	21 %
Curtailment (%)	2027	1 %	2 %	4 %				
Curtailment (%)	2029	0 %	1 %	3 %	5 %			
Curtailment (%)	FG			1 %		2 %	2 %	2 %
Constraint (%)	2027	1 %	2 %	2 %				
Constraint (%)	2029	1 %	2 %	2 %	3 %			
Constraint (%)	FG			1 %		0 %	0 %	0 %
Total Dispatch Down (%)	2027	3 %	10 %	20 %				
Total Dispatch Down (%)	2029	1 %	6 %	14 %	23 %			
Total Dispatch Down (%)	FG			8 %		13 %	17 %	24 %

Table 2-32 - Surplus, Curtailment and Constraint for Solar non-priority for Node Richmond

Area C	Year	50%	ECP + 3.1GW Offshore
Installed Capacity (MW)	2027 (GF)	22	
Installed Capacity (MW)	2029 (pro-rata)	22	
Installed Capacity (MW)	FG (pro-rata)		31
Available Energy (GWh)	2027 (GF)	28	
Available Energy (GWh)	2029 (pro-rata)	28	
Available Energy (GWh)	FG (pro-rata)		40
Generation (GWh)	2027 (GF)	25	
Generation (GWh)	2029 (pro-rata)	26	
Generation (GWh)	FG (pro-rata)		35
Surplus (%)	2027 (GF)	6 %	
Surplus (%)	2029 (pro-rata)	3 %	
Surplus (%)	FG (pro-rata)		11 %
Curtailment (%)	2027 (GF)	2 %	
Curtailment (%)	2029 (pro-rata)	1 %	
Curtailment (%)	FG (pro-rata)		2 %
Constraint (%)	2027 (GF)	2 %	
Constraint (%)	2029 (pro-rata)	2 %	
Constraint (%)	FG (pro-rata)		0 %
Total Dispatch Down (%)	2027 (GF)	10 %	
Total Dispatch Down (%)	2029 (pro-rata)	6 %	
Total Dispatch Down (%)	FG (pro-rata)		13 %

Table 2-33 - Surplus, Curtailment and Constraint for Solar non-priority with sensitivity for Node Richmond

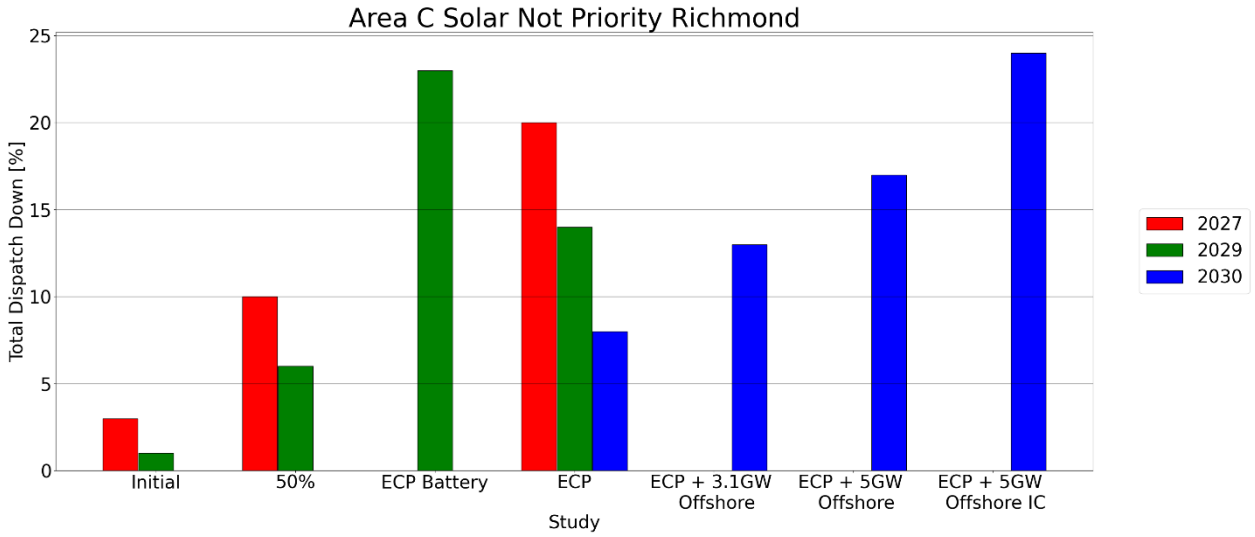

Figure 2-20 - Total Dispatch Down for Solar not priority for Node Richmond

The wind not priority data is given in the following table.

Area C	Year	Initial	50%	ECP	ECP Battery	ECP + 3.1GW Offshore	ECP + 5GW Offshore	ECP + 5GW Offshore IC
Installed Capacity (MW)	2027		2	5				
Installed Capacity (MW)	2029		2	5	5			
Installed Capacity (MW)	FG			5		5	5	5
Available Energy (GWh)	2027		8	16				
Available Energy (GWh)	2029		8	16	16			
Available Energy (GWh)	FG			16		16	16	16
Generation (GWh)	2027		7	12				
Generation (GWh)	2029		7	13	12			
Generation (GWh)	FG			14		14	12	10
Surplus (%)	2027		5 %	12 %				
Surplus (%)	2029		2 %	5 %	8 %			
Surplus (%)	FG			2 %		12 %	22 %	30 %
Curtailment (%)	2027		3 %	4 %				
Curtailment (%)	2029		1 %	2 %	3 %			
Curtailment (%)	FG			1 %		2 %	2 %	3 %
Constraint (%)	2027		9 %	6 %				
Constraint (%)	2029		16 %	9 %	13 %			
Constraint (%)	FG			12 %		2 %	3 %	2 %
Total Dispatch Down (%)	2027		17 %	22 %				
Total Dispatch Down (%)	2029		19 %	16 %	24 %			
Total Dispatch Down (%)	FG			15 %		16 %	27 %	35 %

Table 2-34 - Surplus, Curtailment and Constraint for Wind non-priority for Node Richmond

Area C	Year	50%	ECP + 3.1GW Offshore
Installed Capacity (MW)	2027 (GF)	2	
Installed Capacity (MW)	2029 (pro-rata)	2	
Installed Capacity (MW)	FG (pro-rata)		5
Available Energy (GWh)	2027 (GF)	8	
Available Energy (GWh)	2029 (pro-rata)	8	
Available Energy (GWh)	FG (pro-rata)		16
Generation (GWh)	2027 (GF)	6	
Generation (GWh)	2029 (pro-rata)	7	
Generation (GWh)	FG (pro-rata)		14
Surplus (%)	2027 (GF)	5 %	
Surplus (%)	2029 (pro-rata)	2 %	
Surplus (%)	FG (pro-rata)		12 %
Curtailment (%)	2027 (GF)	3 %	
Curtailment (%)	2029 (pro-rata)	1 %	
Curtailment (%)	FG (pro-rata)		2 %
Constraint (%)	2027 (GF)	12 %	
Constraint (%)	2029 (pro-rata)	12 %	
Constraint (%)	FG (pro-rata)		2 %
Total Dispatch Down (%)	2027 (GF)	20 %	
Total Dispatch Down (%)	2029 (pro-rata)	15 %	
Total Dispatch Down (%)	FG (pro-rata)		15 %

Table 2-35 - Surplus, Curtailment and Constraint for Wind non-priority with sensitivity for Node Richmond

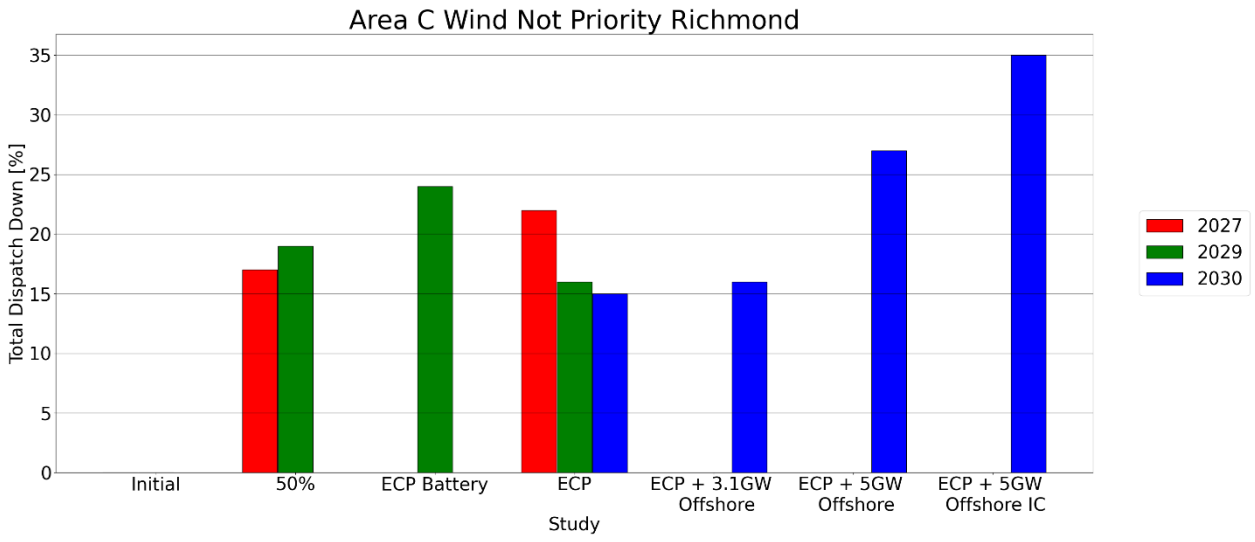

Figure 2-21 - Total Dispatch Down for Wind not priority for Node Richmond

2.8 Shannonbridge

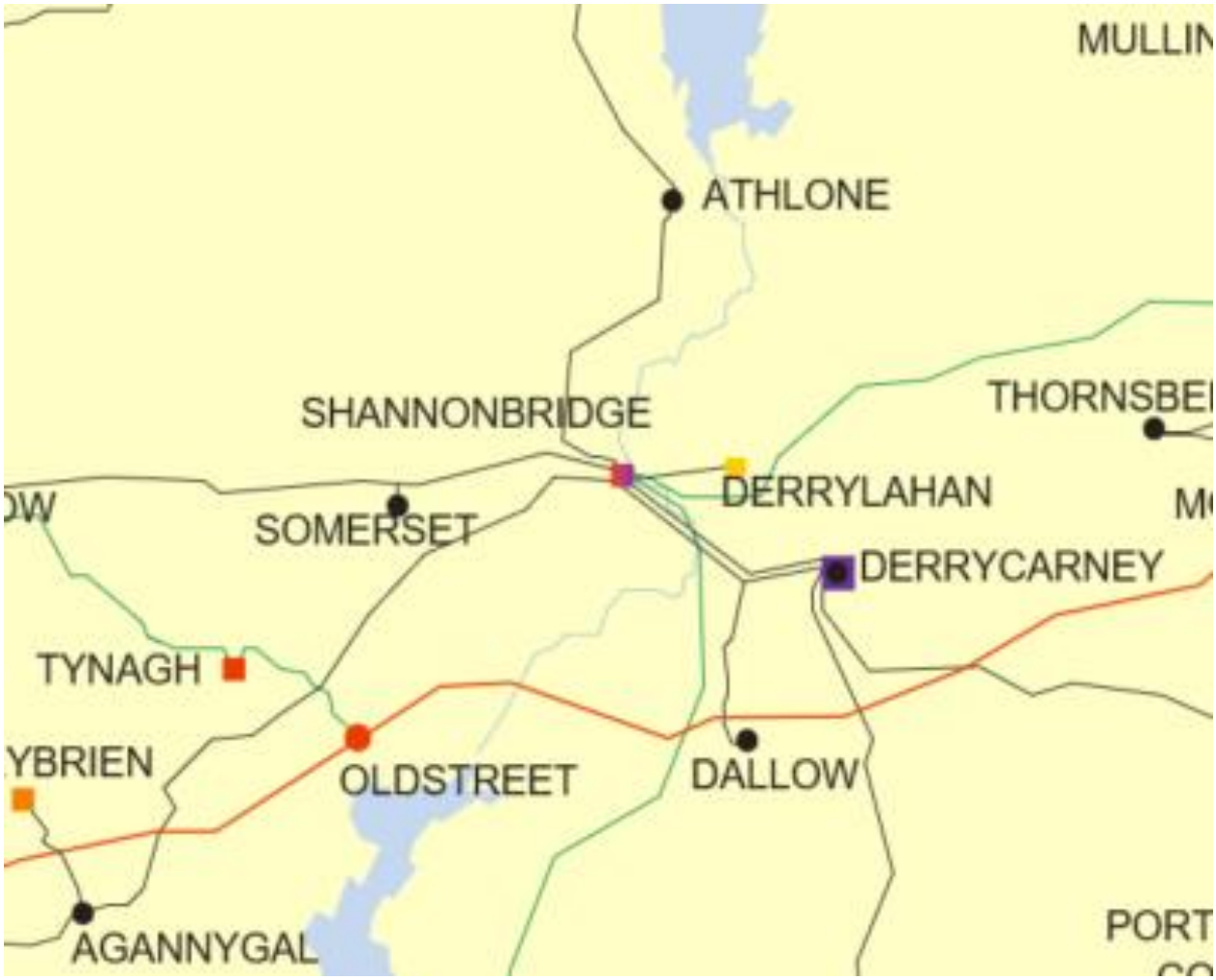

Figure 2-22 - Location of node Shannonbridge

Generator	SO	Capacity	Type	Status
Blackwater Bog Solar 1	TSO	65.0	solar not priority	due to connect

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

The solar not priority data is given in the following table.

Area C	Year	Initial	50%	ECP	ECP Battery	ECP + 3.1GW Offshore	ECP + 5GW Offshore	ECP + 5GW Offshore IC
Installed Capacity (MW)	2027	65	65	65				
Installed Capacity (MW)	2029	65	65	65	65			
Installed Capacity (MW)	FG			65		65	65	65
Available Energy (GWh)	2027	83	83	83				
Available Energy (GWh)	2029	83	83	83	83			
Available Energy (GWh)	FG			83		83	83	83
Generation (GWh)	2027	81	75	66				
Generation (GWh)	2029	82	78	72	64			
Generation (GWh)	FG			77		73	69	64
Surplus (%)	2027	1 %	6 %	14 %				
Surplus (%)	2029	0 %	3 %	9 %	15 %			
Surplus (%)	FG			5 %		11 %	15 %	21 %
Curtailment (%)	2027	1 %	2 %	4 %				
Curtailment (%)	2029	0 %	1 %	3 %	5 %			
Curtailment (%)	FG			1 %		2 %	2 %	2 %
Constraint (%)	2027	1 %	2 %	2 %				
Constraint (%)	2029	1 %	2 %	2 %	3 %			
Constraint (%)	FG			1 %		0 %	0 %	0 %
Total Dispatch Down (%)	2027	3 %	10 %	20 %				
Total Dispatch Down (%)	2029	1 %	6 %	14 %	23 %			
Total Dispatch Down (%)	FG			8 %		13 %	17 %	24 %

Table 2-37 - Surplus, Curtailment and Constraint for Solar non-priority for Node Shannonbridge

Area C	Year	50%	ECP + 3.1GW Offshore
Installed Capacity (MW)	2027 (GF)	65	
Installed Capacity (MW)	2029 (pro-rata)	65	
Installed Capacity (MW)	FG (pro-rata)		65
Available Energy (GWh)	2027 (GF)	83	
Available Energy (GWh)	2029 (pro-rata)	83	
Available Energy (GWh)	FG (pro-rata)		83
Generation (GWh)	2027 (GF)	75	
Generation (GWh)	2029 (pro-rata)	78	
Generation (GWh)	FG (pro-rata)		73
Surplus (%)	2027 (GF)	6 %	
Surplus (%)	2029 (pro-rata)	3 %	
Surplus (%)	FG (pro-rata)		11 %
Curtailment (%)	2027 (GF)	2 %	
Curtailment (%)	2029 (pro-rata)	1 %	
Curtailment (%)	FG (pro-rata)		2 %
Constraint (%)	2027 (GF)	2 %	
Constraint (%)	2029 (pro-rata)	2 %	
Constraint (%)	FG (pro-rata)		0 %
Total Dispatch Down (%)	2027 (GF)	10 %	
Total Dispatch Down (%)	2029 (pro-rata)	6 %	
Total Dispatch Down (%)	FG (pro-rata)		13 %

Table 2-38 - Surplus, Curtailment and Constraint for Solar non-priority with sensitivity for Node Shannonbridge

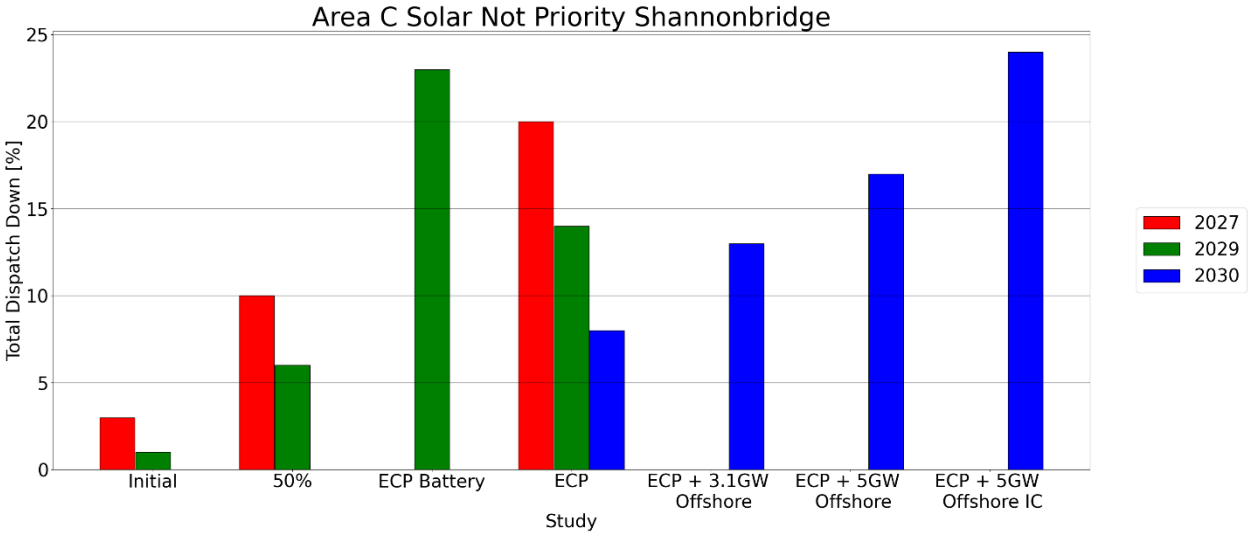

Figure 2-23 - Total Dispatch Down for Solar not priority for Node Shannonbridge

2.9 Shanonagh

Figure 2-24 - Location of node Shanonagh

Generator	SO	Capacity	Type	Status
Clondardis Solar	TSO	58.6	solar not priority	due to connect
Clondardis Solar Extension	TSO	11.4	solar not priority	due to connect

Table 2-39 - Generation Included in Study for Node Shanonagh

The solar not priority data is given in the following table.

Area C	Year	Initial	50%	ECP	ECP Battery	ECP + 3.1GW Offshore	ECP + 5GW Offshore	ECP + 5GW Offshore IC
Installed Capacity (MW)	2027		35	70				
Installed Capacity (MW)	2029		35	70	70			
Installed Capacity (MW)	FG			70		70	70	70
Available Energy (GWh)	2027		45	90				
Available Energy (GWh)	2029		45	90	90			
Available Energy (GWh)	FG			90		90	90	90
Generation (GWh)	2027		21	31				
Generation (GWh)	2029		22	33	24			
Generation (GWh)	FG			44		46	44	43
Surplus (%)	2027		6 %	14 %				
Surplus (%)	2029		3 %	9 %	15 %			
Surplus (%)	FG			5 %		11 %	15 %	21 %
Curtailment (%)	2027		2 %	4 %				
Curtailment (%)	2029		1 %	3 %	5 %			
Curtailment (%)	FG			1 %		2 %	2 %	2 %
Constraint (%)	2027		45 %	48 %				
Constraint (%)	2029		45 %	51 %	54 %			
Constraint (%)	FG			44 %		36 %	33 %	29 %
Total Dispatch Down (%)	2027		53 %	66 %				
Total Dispatch Down (%)	2029		50 %	63 %	74 %			
Total Dispatch Down (%)	FG			51 %		49 %	50 %	52 %

Table 2-40 - Surplus, Curtailment and Constraint for Solar non-priority for Node Shanonagh

Area C	Year	50%	ECP + 3.1GW Offshore
Installed Capacity (MW)	2027 (GF)	35	
Installed Capacity (MW)	2029 (pro-rata)	35	
Installed Capacity (MW)	FG (pro-rata)		70
Available Energy (GWh)	2027 (GF)	45	
Available Energy (GWh)	2029 (pro-rata)	45	
Available Energy (GWh)	FG (pro-rata)		90
Generation (GWh)	2027 (GF)	21	
Generation (GWh)	2029 (pro-rata)	22	
Generation (GWh)	FG (pro-rata)		46
Surplus (%)	2027 (GF)	6 %	
Surplus (%)	2029 (pro-rata)	3 %	
Surplus (%)	FG (pro-rata)		11 %
Curtailment (%)	2027 (GF)	2 %	
Curtailment (%)	2029 (pro-rata)	1 %	
Curtailment (%)	FG (pro-rata)		2 %
Constraint (%)	2027 (GF)	45 %	
Constraint (%)	2029 (pro-rata)	45 %	
Constraint (%)	FG (pro-rata)		36 %
Total Dispatch Down (%)	2027 (GF)	53 %	
Total Dispatch Down (%)	2029 (pro-rata)	50 %	
Total Dispatch Down (%)	FG (pro-rata)		49 %

Table 2-41 - Surplus, Curtailment and Constraint for Solar non-priority with sensitivity for Node Shanonagh

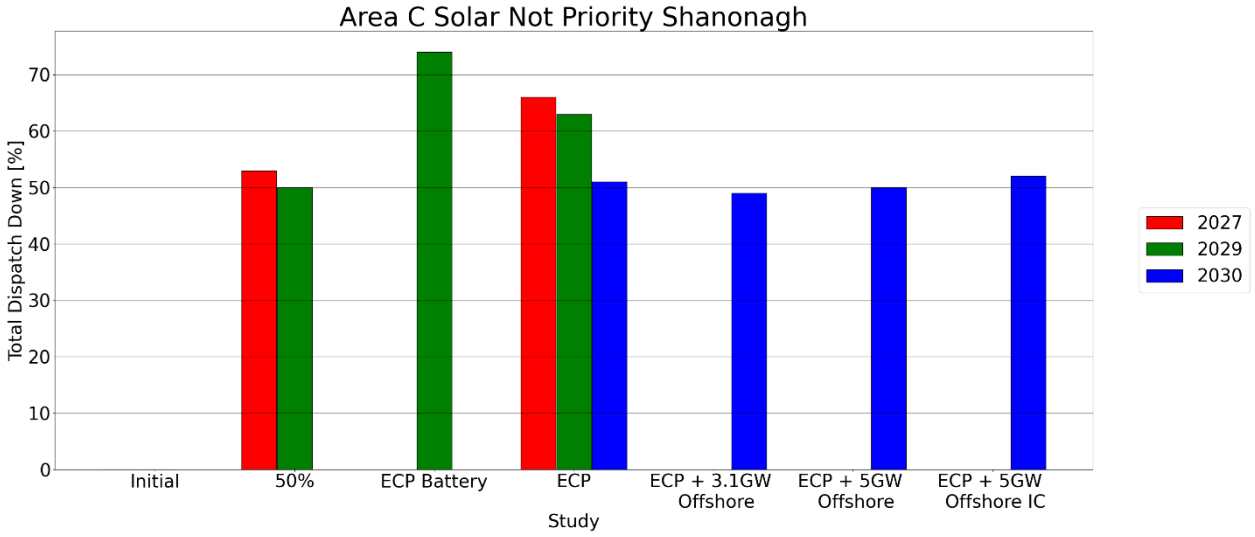

Figure 2-25 - Total Dispatch Down for Solar not priority for Node Shanonagh

2.10 Sliabh bawn

Figure 2-26 - Location of node Sliabh bawn

Generator	SO	Capacity	Type	Status
Sliabh Bawn (1)	TSO	58.0	wind priority	connected

Table 2-42 - Generation Included in Study for Node Sliabh bawn

The wind priority data is given in the following table.

Area C	Year	Initial	50%	ECP	ECP Battery	ECP + 3.1GW Offshore	ECP + 5GW Offshore	ECP + 5GW Offshore IC
Installed Capacity (MW)	2027	58	58	58				
Installed Capacity (MW)	2029	58	58	58	58			
Installed Capacity (MW)	FG			58		58	58	58
Available Energy (GWh)	2027	186	186	186				
Available Energy (GWh)	2029	186	186	186	186			
Available Energy (GWh)	FG			186		186	186	186
Generation (GWh)	2027	124	163	163				
Generation (GWh)	2029	186	184	181	179			
Generation (GWh)	FG			185		181	179	177
Surplus (%)	2027	0 %	0 %	0 %				
Surplus (%)	2029	0 %	0 %	0 %	0 %			
Surplus (%)	FG			0 %		0 %	0 %	0 %
Curtailment (%)	2027	1 %	4 %	6 %				
Curtailment (%)	2029	0 %	1 %	3 %	4 %			
Curtailment (%)	FG			1 %		3 %	4 %	5 %
Constraint (%)	2027	32 %	9 %	6 %				
Constraint (%)	2029	0 %	0 %	0 %	0 %			
Constraint (%)	FG			0 %		0 %	0 %	0 %
Total Dispatch Down (%)	2027	33 %	13 %	12 %				
Total Dispatch Down (%)	2029	0 %	1 %	3 %	4 %			
Total Dispatch Down (%)	FG			1 %		3 %	4 %	5 %

Table 2-43 - Surplus, Curtailment and Constraint for Wind priority for Node Sliabh bawn

Area C	Year	50%	ECP + 3.1GW Offshore
Installed Capacity (MW)	2027 (GF)	58	
Installed Capacity (MW)	2029 (pro-rata)	58	
Installed Capacity (MW)	FG (pro-rata)		58
Available Energy (GWh)	2027 (GF)	186	
Available Energy (GWh)	2029 (pro-rata)	186	
Available Energy (GWh)	FG (pro-rata)		186
Generation (GWh)	2027 (GF)	179	
Generation (GWh)	2029 (pro-rata)	161	
Generation (GWh)	FG (pro-rata)		178
Surplus (%)	2027 (GF)	0 %	
Surplus (%)	2029 (pro-rata)	0 %	
Surplus (%)	FG (pro-rata)		0 %
Curtailment (%)	2027 (GF)	4 %	
Curtailment (%)	2029 (pro-rata)	1 %	
Curtailment (%)	FG (pro-rata)		3 %
Constraint (%)	2027 (GF)	0 %	
Constraint (%)	2029 (pro-rata)	12 %	
Constraint (%)	FG (pro-rata)		2 %
Total Dispatch Down (%)	2027 (GF)	4 %	
Total Dispatch Down (%)	2029 (pro-rata)	13 %	
Total Dispatch Down (%)	FG (pro-rata)		4 %

Table 2-44 - Surplus, Curtailment and Constraint for Wind priority with sensitivity for Node Sliabh bawn

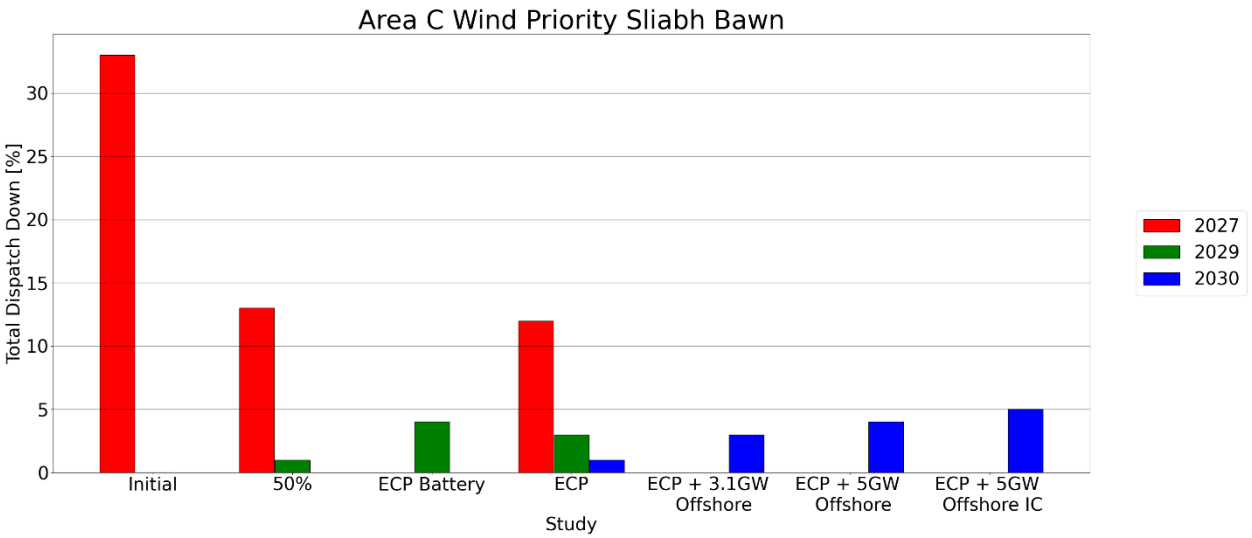

Figure 2-27 - Total Dispatch Down for Wind priority for Node Sliabh bawn

2.11 Somerset

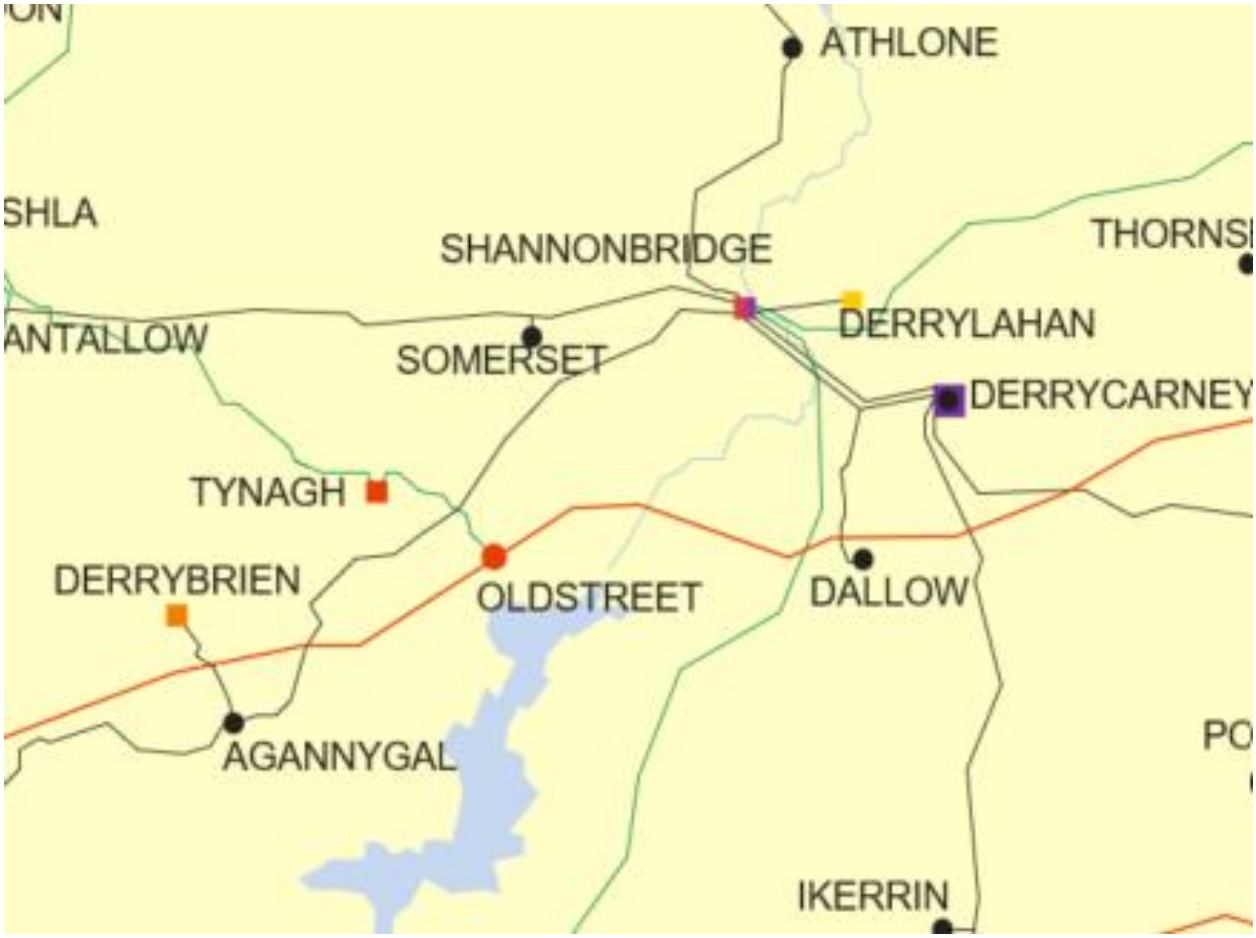

Figure 2-28 - Location of node Somerset

Generator	SO	Capacity	Type	Status
Sonnagh Old (1)	DSO	7.65	wind uncontrolled	connected
Ballycrissane Solar Farm	DSO	4.0	solar not priority	due to connect
Ardnadoman Solar Farm	DSO	4.0	solar not priority	due to connect

Table 2-45 - Generation Included in Study for Node Somerset

The solar not priority data is given in the following table.

Area C	Year	Initial	50%	ECP	ECP Battery	ECP + 3.1GW Offshore	ECP + 5GW Offshore	ECP + 5GW Offshore IC
Installed Capacity (MW)	2027	4	6	8				
Installed Capacity (MW)	2029	4	6	8	8			
Installed Capacity (MW)	FG			8		8	8	8
Available Energy (GWh)	2027	5	8	10				
Available Energy (GWh)	2029	5	8	10	10			
Available Energy (GWh)	FG			10		10	10	10
Generation (GWh)	2027	5	7	8				
Generation (GWh)	2029	5	7	9	8			
Generation (GWh)	FG			9		9	8	8
Surplus (%)	2027	1 %	6 %	14 %				
Surplus (%)	2029	0 %	3 %	9 %	15 %			
Surplus (%)	FG			5 %		11 %	15 %	21 %
Curtailment (%)	2027	1 %	2 %	4 %				
Curtailment (%)	2029	0 %	1 %	3 %	5 %			
Curtailment (%)	FG			1 %		2 %	2 %	2 %
Constraint (%)	2027	1 %	2 %	2 %				
Constraint (%)	2029	1 %	2 %	2 %	3 %			
Constraint (%)	FG			1 %		0 %	0 %	0 %
Total Dispatch Down (%)	2027	3 %	10 %	20 %				
Total Dispatch Down (%)	2029	1 %	6 %	14 %	23 %			
Total Dispatch Down (%)	FG			8 %		13 %	17 %	24 %

Table 2-46 - Surplus, Curtailment and Constraint for Solar non-priority for Node Somerset

Area C	Year	50%	ECP + 3.1GW Offshore
Installed Capacity (MW)	2027 (GF)	6	
Installed Capacity (MW)	2029 (pro-rata)	6	
Installed Capacity (MW)	FG (pro-rata)		8
Available Energy (GWh)	2027 (GF)	8	
Available Energy (GWh)	2029 (pro-rata)	8	
Available Energy (GWh)	FG (pro-rata)		10
Generation (GWh)	2027 (GF)	7	
Generation (GWh)	2029 (pro-rata)	7	
Generation (GWh)	FG (pro-rata)		9
Surplus (%)	2027 (GF)	6 %	
Surplus (%)	2029 (pro-rata)	3 %	
Surplus (%)	FG (pro-rata)		11 %
Curtailment (%)	2027 (GF)	2 %	
Curtailment (%)	2029 (pro-rata)	1 %	
Curtailment (%)	FG (pro-rata)		2 %
Constraint (%)	2027 (GF)	2 %	
Constraint (%)	2029 (pro-rata)	2 %	
Constraint (%)	FG (pro-rata)		0 %
Total Dispatch Down (%)	2027 (GF)	10 %	
Total Dispatch Down (%)	2029 (pro-rata)	6 %	
Total Dispatch Down (%)	FG (pro-rata)		13 %

Table 2-47 - Surplus, Curtailment and Constraint for Solar non-priority with sensitivity for Node Somerset

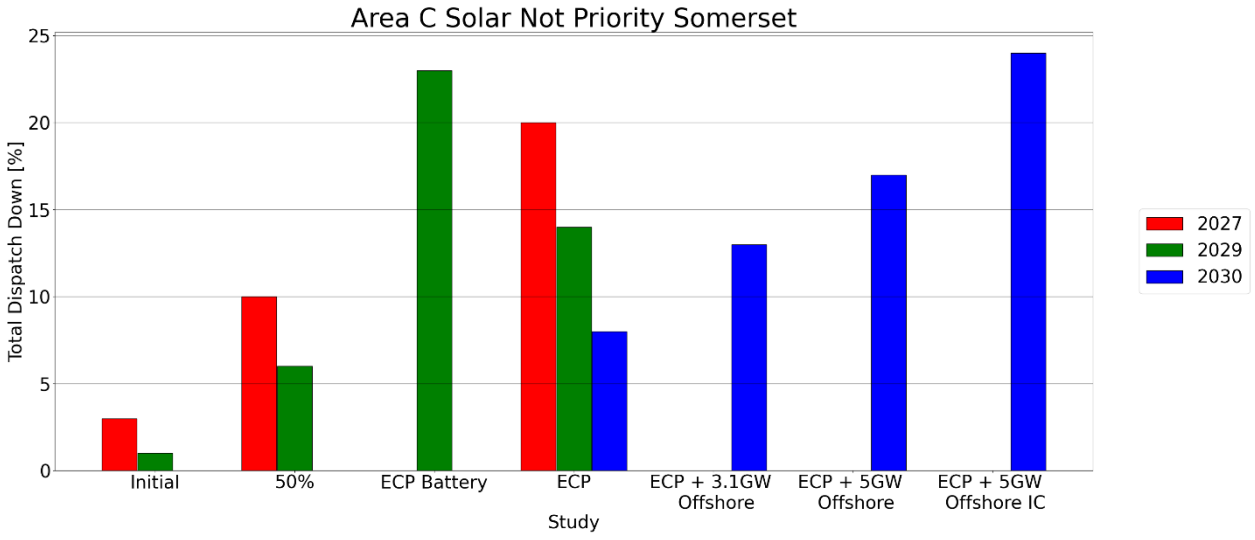

Figure 2-29 - Total Dispatch Down for Solar not priority for Node Somerset

2.12 Stonestown

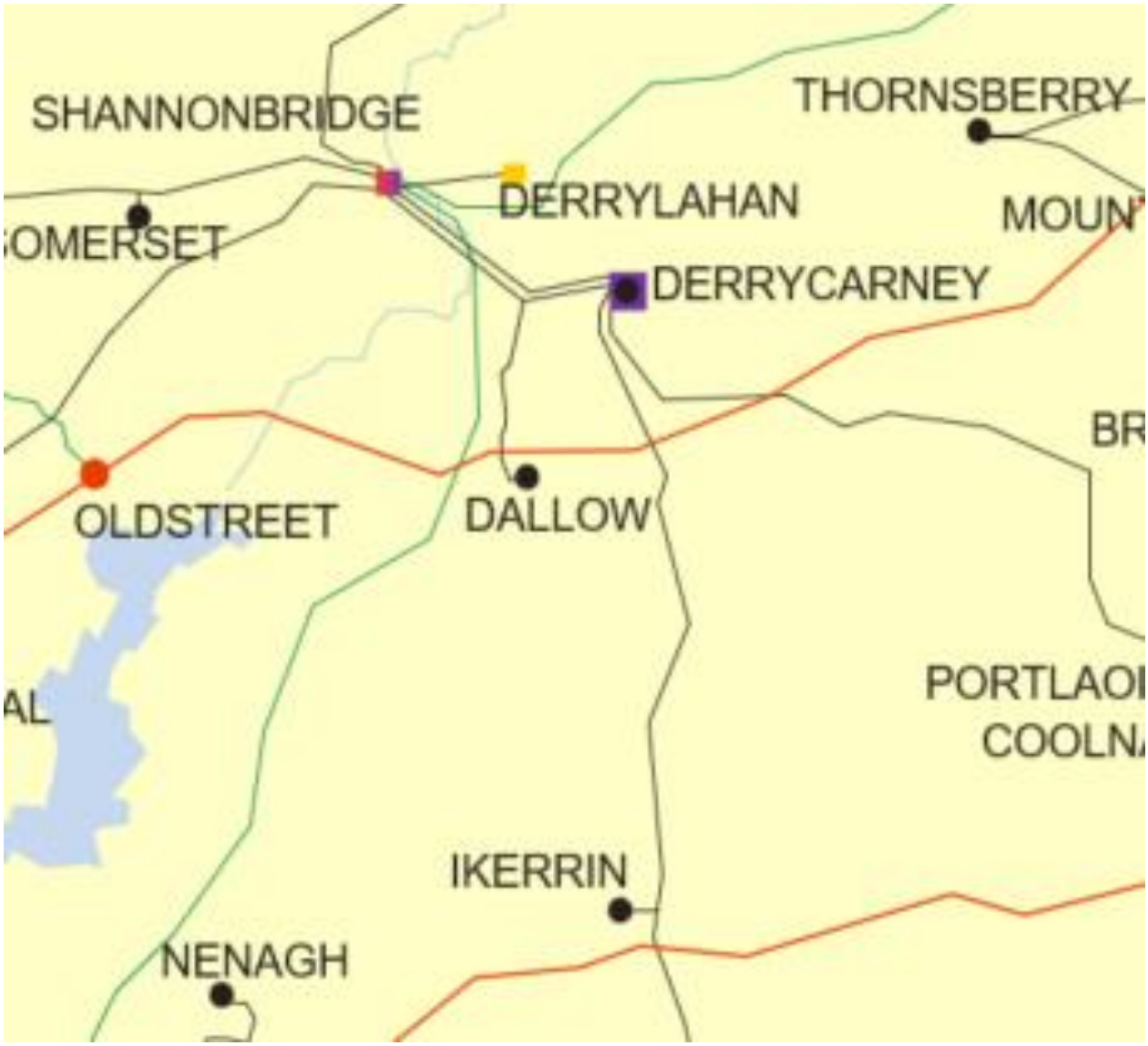

Figure 2-30 - Location of node Stonestown

Generator	SO	Capacity	Type	Status
Derrinlough Wind Farm	TSO	105.0	wind not priority	due to connect

Table 2-48 - Generation Included in Study for Node Stonestown

The wind not priority data is given in the following table.

Area C	Year	Initial	50%	ECP	ECP Battery	ECP + 3.1GW Offshore	ECP + 5GW Offshore	ECP + 5GW Offshore IC
Installed Capacity (MW)	2027		52	105				
Installed Capacity (MW)	2029		52	105	105			
Installed Capacity (MW)	FG			105		105	105	105
Available Energy (GWh)	2027		168	337				
Available Energy (GWh)	2029		168	337	337			
Available Energy (GWh)	FG			337		337	337	337
Generation (GWh)	2027		140	262				
Generation (GWh)	2029		137	284	257			
Generation (GWh)	FG			285		284	246	220
Surplus (%)	2027		5 %	12 %				
Surplus (%)	2029		2 %	5 %	8 %			
Surplus (%)	FG			2 %		12 %	22 %	30 %
Curtailment (%)	2027		3 %	4 %				
Curtailment (%)	2029		1 %	2 %	3 %			
Curtailment (%)	FG			1 %		2 %	2 %	3 %
Constraint (%)	2027		9 %	6 %				
Constraint (%)	2029		16 %	9 %	13 %			
Constraint (%)	FG			12 %		2 %	3 %	2 %
Total Dispatch Down (%)	2027		17 %	22 %				
Total Dispatch Down (%)	2029		19 %	16 %	24 %			
Total Dispatch Down (%)	FG			15 %		16 %	27 %	35 %

Table 2-49 - Surplus, Curtailment and Constraint for Wind non-priority for Node Stonestown

Area C	Year	50%	ECP + 3.1GW Offshore
Installed Capacity (MW)	2027 (GF)	52	
Installed Capacity (MW)	2029 (pro-rata)	52	
Installed Capacity (MW)	FG (pro-rata)		105
Available Energy (GWh)	2027 (GF)	168	
Available Energy (GWh)	2029 (pro-rata)	168	
Available Energy (GWh)	FG (pro-rata)		337
Generation (GWh)	2027 (GF)	135	
Generation (GWh)	2029 (pro-rata)	144	
Generation (GWh)	FG (pro-rata)		286
Surplus (%)	2027 (GF)	5 %	
Surplus (%)	2029 (pro-rata)	2 %	
Surplus (%)	FG (pro-rata)		12 %
Curtailment (%)	2027 (GF)	3 %	
Curtailment (%)	2029 (pro-rata)	1 %	
Curtailment (%)	FG (pro-rata)		2 %
Constraint (%)	2027 (GF)	12 %	
Constraint (%)	2029 (pro-rata)	12 %	
Constraint (%)	FG (pro-rata)		2 %
Total Dispatch Down (%)	2027 (GF)	20 %	
Total Dispatch Down (%)	2029 (pro-rata)	15 %	
Total Dispatch Down (%)	FG (pro-rata)		15 %

Table 2-50 - Surplus, Curtailment and Constraint for Wind non-priority with sensitivity for Node Stonestown

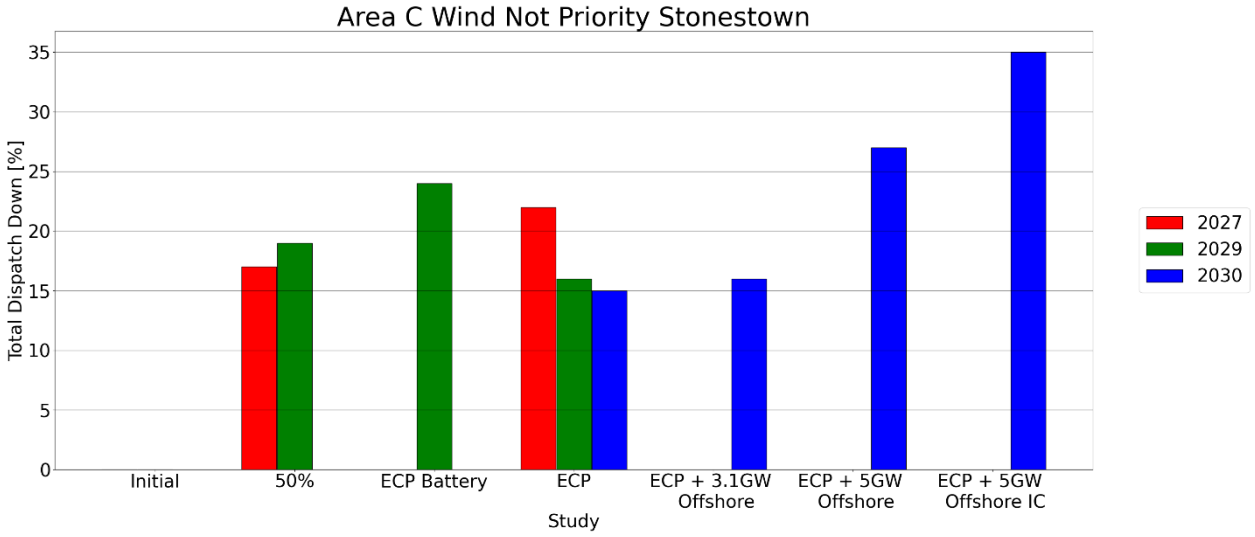

Figure 2-31 - Total Dispatch Down for Solar not priority for Node Stonestown