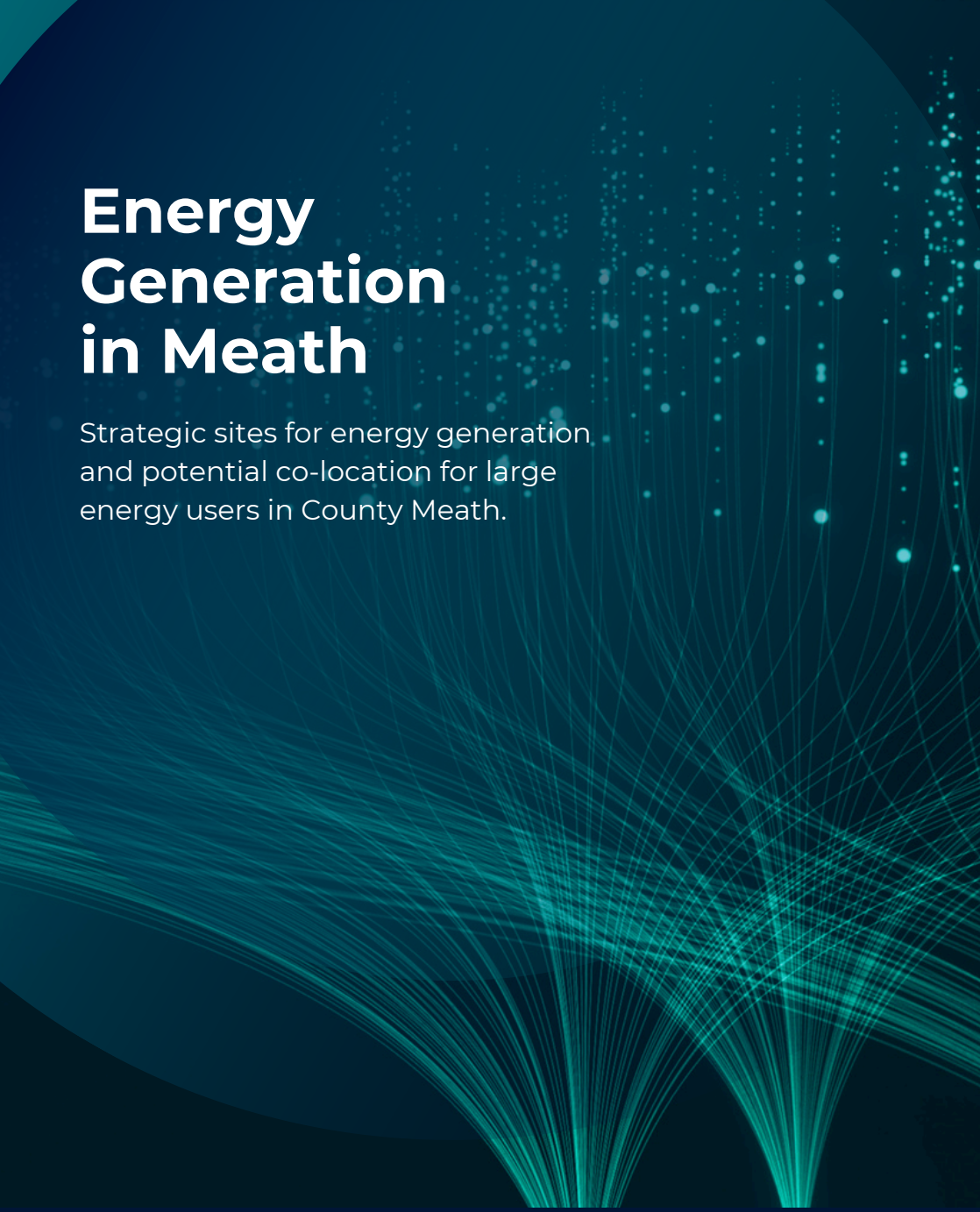
Energy Generation in Meath

Strategic sites for energy generation and potential co-location for large energy users in County Meath.



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comhairle chontae na mí
meath county council

Date	Version	Note
07/04/2026	FINAL	Final Version as agreed with Client

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Acronyms

ACP	An Coimisiún Pleanála
CRU	Commission for Regulations of Utilities
DCU	Dispatchable Consumption Unit
DETE	Department of Enterprise Trade and Employment
ECP	Enduring Connection Policy
EWIC	East West Interconnector
GNI	Gas Networks Ireland
LEU	Large Energy User
MEC	Maximum Export Capacity
MIC	Maximum Import Capacity
SEAI	Sustainable Energy Authority of Ireland

Executive Summary

Infranua & Engenuiti were engaged by Meath County Council to carry out an assessment within the council's jurisdictional area, to establish optimum locations to position a potential Energy Park to accommodate "Large Energy Users" (hereunder referred to as LEU's), with specific reference to capitalising on the existing infrastructure and capacity within the area and minimising the potential for lost energy.

The scope of the assessment as established by Meath County Council is as follows:

(i) Highlight areas where sites can support large energy users.
(ii) Identify important energy infrastructure assets to be protected and safeguarded in the County.
(iii) Identify strategic areas where the co-location of lower to zero carbon energy generation and assets can be combined with high energy users.
(iv) Propose sites and land use policy recommendations to combine large energy users with areas where capacity is available.

Following an initial assessment of at least 32 sites to determine existing and planned energy infrastructure developments within the County, four sites were identified for detailed study. Located at Woodland, Kinnegad, Meath Hill and Gorman, these sites were selected for consideration with LEU's in mind, based on proximity to suitable energy/lost energy and other infrastructure and geographical dispersion. Any existing or permitted substations with surrounding lands that are zoned were not highlighted as part of this study as these have already undergone infrastructure and constraints assessments as part of the zoning process.

In addition to energy and other infrastructure (water, gas, wastewater, fibre,) further criteria were considered such as proximity to transport/roads/airports and general planning criteria such as landscape character and capacity, flooding, archaeology, groundwater vulnerability and density of existing surrounding development were also considered.

The results of the criteria-based assessment established Woodland as the most suitable site for LEU's. From a power perspective, Woodland is adjacent to the 400kV substation

and has the benefit of an East West Interconnector from the UK connecting to the Irish grid. In terms of infrastructure, Uisce Eireann has a water network and a mains sewer network within 5km, while a gas line is located less than 5km to the north. Early indications suggest that there is sufficient gas capacity to provide for additional users. There is also fibre in the vicinity. Using information from providers such as Aurora telecoms shows a fibre line in the gas line in proximity and ESB telecoms has their Dark Fibre connecting directly to the Woodlands substation.

The criteria-based assessment within this report is based on current information that may be subject to future change. It is recommended that availability of services be established at the earliest possible stage of the planning process to allow respective utility companies to determine if suitable capacity is or can be made available. It is noted that access to resources such as power, gas, fibre and water, will require specific consents from each of the utility companies subject to respective application processes prior to preplanning stage.

Meath is in an enviable position of having large infrastructure assets in terms of the 400, 220 and 110kV network which comprises of the substations and powerlines. The gas grid is also required to support future LEUs as well as the residential growth of the county. It is therefore vital that these areas be safeguarded for future expansion and growth requirements. This report identifies the key areas which should be protected under Meath's future development plans.

A successful strategy and policy environment for the location of LEU's is dependent on the spatial alignment of available infrastructure. In recognising the need to achieve optimal synergies in this regard Meath County Council have taken the first step to assess the assets that they have within their jurisdiction to determine how best to use them for the people of Meath, and Ireland.

1. Meath's Energy Landscape

1.1. Energy

County Meath has a population of 220,826 and covers an area of 230,000 Hectares[1]. It has 10km of coastline and its proximity to Dublin is an important economic driver in terms of employment which also provides strong connections in terms of energy.

Energy demands in terms of gas and power form the primary factors assessed in this report. Meath accounts for 2% of the overall power demand for Ireland excluding the datacentre sector. This demand is evenly split between residential and non-residential customers[2] and has a baseload equivalent of 83MW.

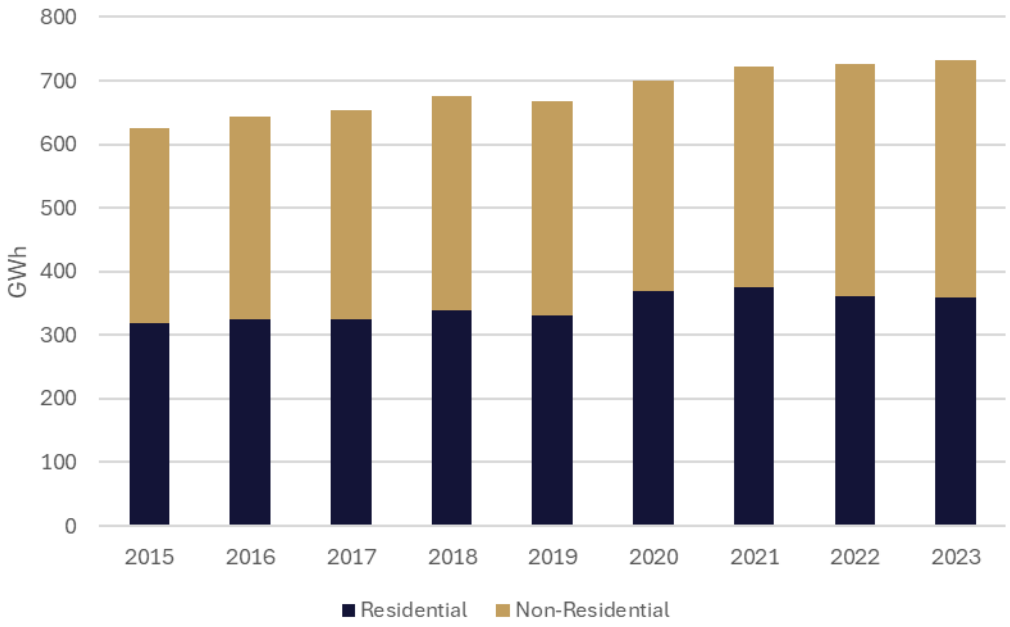

Figure 1 Meath Electricity Demand

Understanding how heat is utilised within the county is also essential. Data provided by SEAI shows that the overall heat load in the county is 2,700 GWh (compared to 700 GWh

[1] https://consult.meath.ie/en/consultation/consolidated-meath-county-development-plan-2021-2027-incl-variations-1-2-3/chapter/01-introduction

[2] https://www.cso.ie/en/statistics/energy/meteredelectricityconsumption/

for electricity) and reflects the overall size of the relative markets in terms of energy consumption. The following table shows the split of heat load in Meath. The Industrial heat load is large due to cement and other heat dependent processes[3].

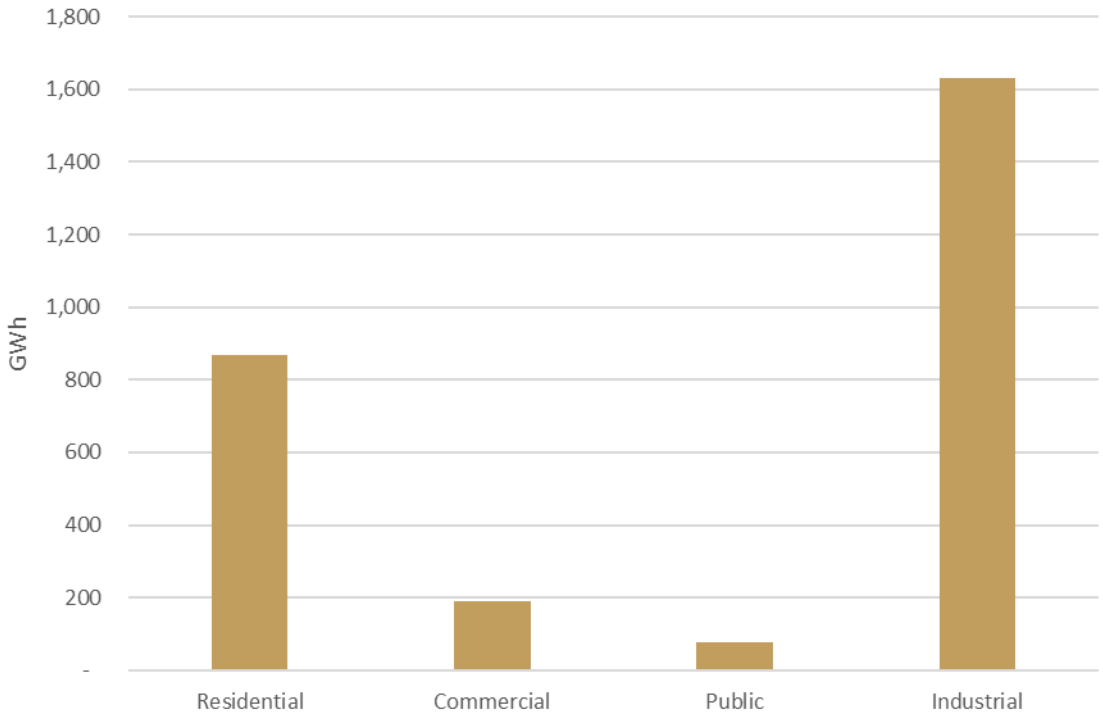

Figure 2 Meath Heat Load by sector

To supply this energy to customers, infrastructure must be in place. Energy is transported by powerlines, cables and pipes. Meath is in the enviable position of having large powerlines and pipelines transversing the county which are a prime resource for large energy users as well as supplying the residential sector. The following map shows the industrial heat load within the county and the table shows a selection of the larger substations within the county bounds.

[3] https://www.seai.ie/data-and-insights/seai-statistics/la-cap-dashboard

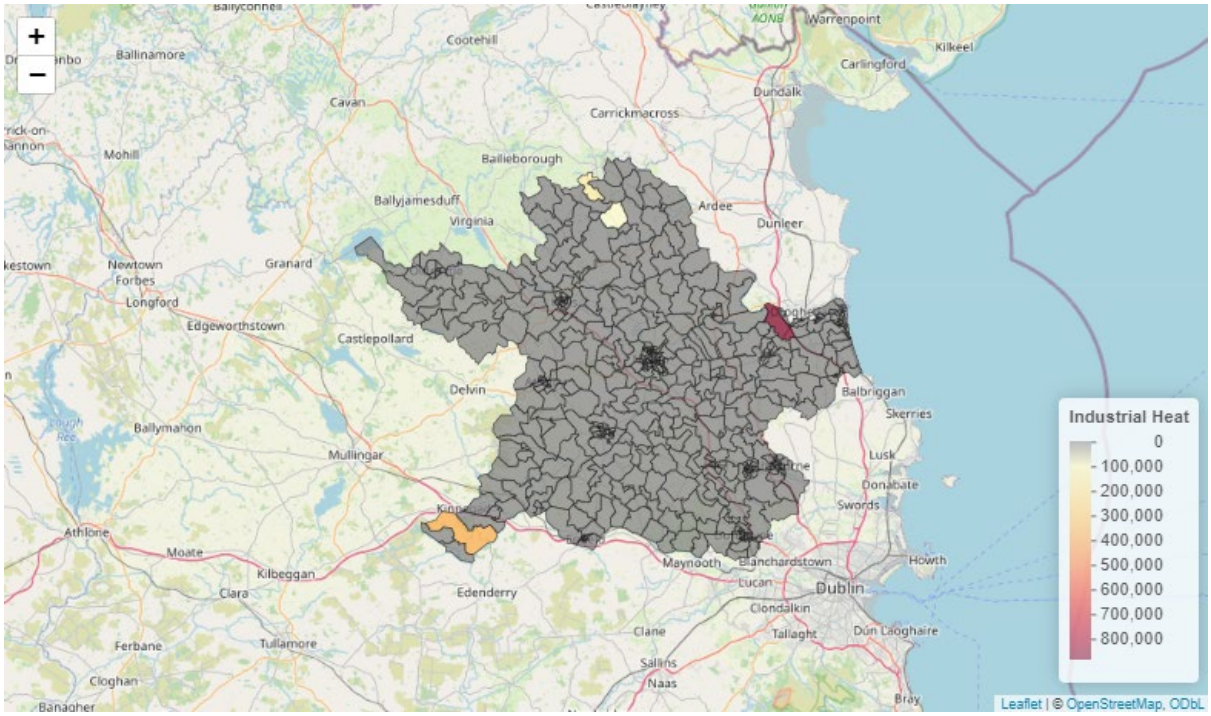

Figure 3 Industrial Heat Load by Location (MWh)

Name	Voltage
Woodland 400kV Transmission Substation	400
Portan Converter Station	400
Gorman 220kV Substation	220
Clonee 220kV Substation	220
Bracetown 220kV Substation	220
Kinnegad 110kV	110
Platin Substation	110
Navan 110kV Substation	110
Baltrasna 110kV Substation	110
Meath Hill 110kV Substation	110
Knockumber (1) 110kV Substation	110
Garballagh 110 kV Substation	110
Oldbridge 110 kV Substation	110
Blundelstown 110 kV Substation	110
Ballymacarney 110 kV Substation	110
Muckerstown Substation	110

Table 1 Substations 110kV and above

These substations are important. Like road networks these locations are like junctions where entities can connect. For the power sector this is where generators connect to deliver their power to the network, or where energy users connect to draw down their power requirements.

As the focus of this study is on large energy users, substations with 110KV capacity and above only are considered. Lower voltage substations which are more suitable for housing developments are not included in this assessment. However, capacities of the lower voltage substations are listed in the Appendices for reference.

Meath is well supported in terms of gas networks. High pressure gas lines cross over the County north of Dunshaughlin towards Mullingar. As previously stated, the gas lines also house fibre infrastructure. An existing gas line located in the northern part of the county supports Navan.

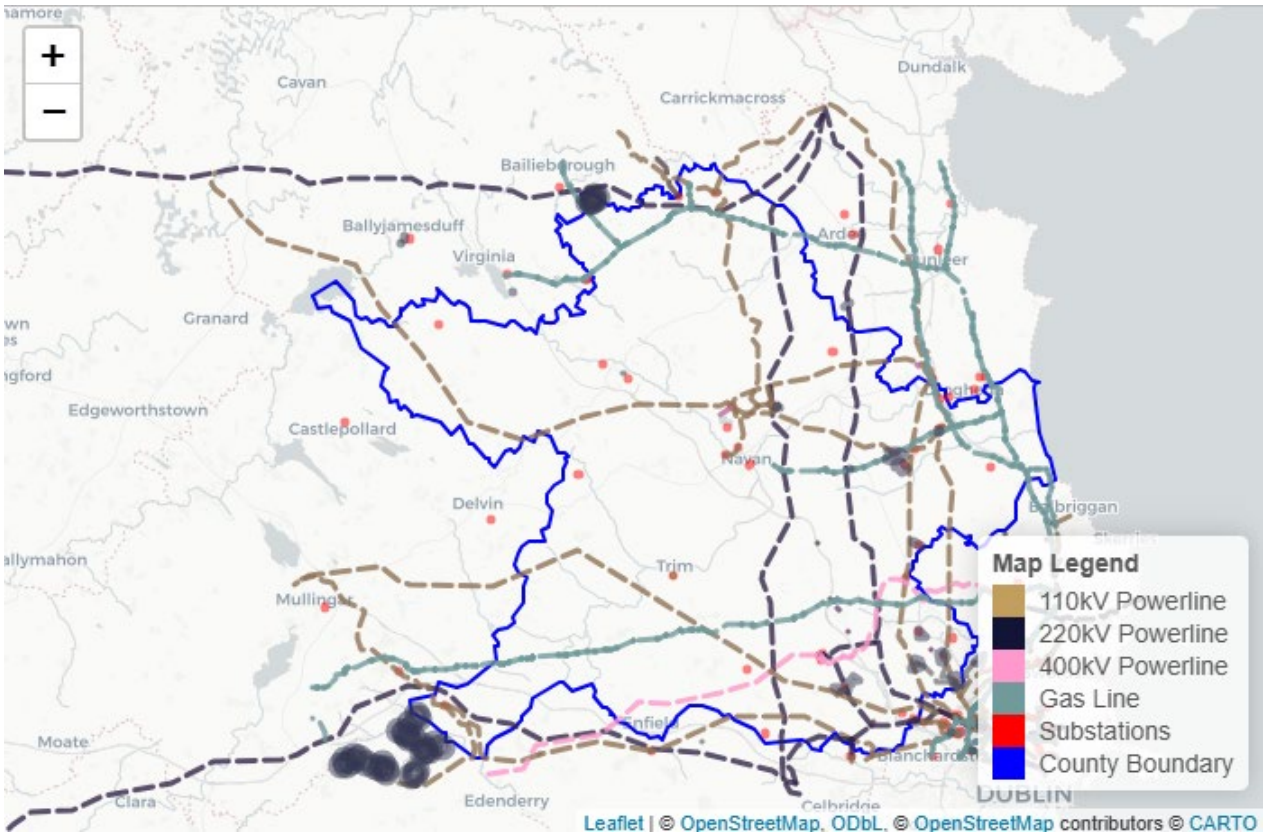

Figure 4 Meath Energy Infrastructure

1.2. Other Services

Large energy users are not only dependent on energy but also need other services such as water and fibre. The fibre network is more disparate with several providers operating within the County. To this end we have reviewed documentation from Aurora, ESB Telecoms, ENET and the National Broadband Ireland (NBI). The County is well serviced to

provide high speed services to customers. Many of the fibre lines follow those currently being used for other infrastructure. Aurora is linked with gas. The rail network is also utilised to bring high-capacity broadband to areas with a major fibre backhaul line tying into Dunboyne and moving west via Maynooth and Kilcock towards Kinnegad.

Water is another essential service required by LEU's. Uisce Eireann have been consulted as part of this study to determine the most proximate water infrastructure points. As per recommendations regarding other utilities early engagement with Uisce Eireann with specifics of water usage should be undertaken by any LEU as early as possible.

1.3. Existing and Planned Energy Infrastructure

This report has been developed with a view of maximising Meath's current and planned energy infrastructure to support LEUs. In the southeast portion of the county Meta has their Clonee Datacentre connected to the grid at the Clonee Substation. There are also plans submitted for future datacentres in this area to connect to the Bracetown 220kV substation and a further 220kV substation being developed by EngineNode that has planning permission in the Gunnocks/Bracetown area. The 220kV substation at Gunnocks is not constructed however has planning permission. Any existing or permitted substations with surrounding lands that are zoned were not highlighted as part of this study as these have already undergone infrastructure and constraints assessments as part of the zoning process.

Discussions would be required with Eirgrid to determine how large loads in close proximity will impact the grid. Fault ride issues have been flagged as something that Eirgrid are monitoring and developing the grid for and any grid capacity issued will be cognisant of these items.

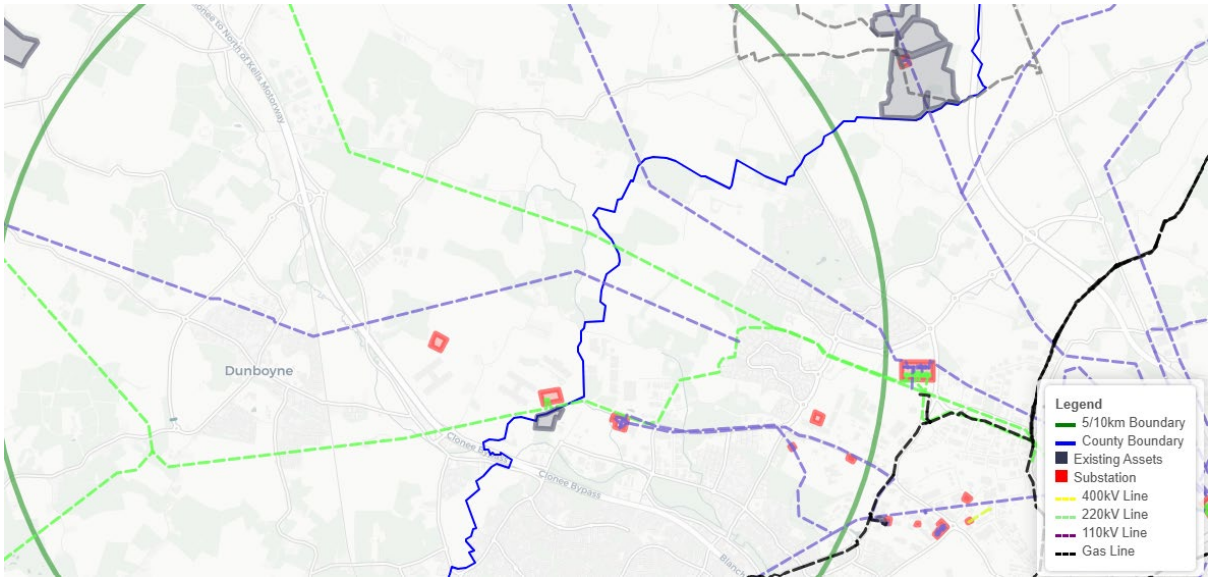

Figure 5 Clonee/Bracetown/Gunnock Location and Infrastructure

In the Platin area of the county there is a 170 MW Open Cycle Gas Turbine (OCGT) in construction. Having this infrastructure in place is important for the future development of the county providing stable generation sources, managing power quality and also facilitating growing demands.

Figure 6 Platin Location and Infrastructure

All of these areas, Clonee/Bracetown/Gunnocks and Platin, could be developed for future energy parks once they meet the criteria set out by Government in their national policy guidelines, and if they meet the requirements of Meath County Council. Another area of interest based on expected higher levels of dispatch down is the Paddocks/Culmullin area. As these substations have yet to be constructed, they were excluded from the study but could be a strategic location for energy parks in the future to avail of the energy in the area.

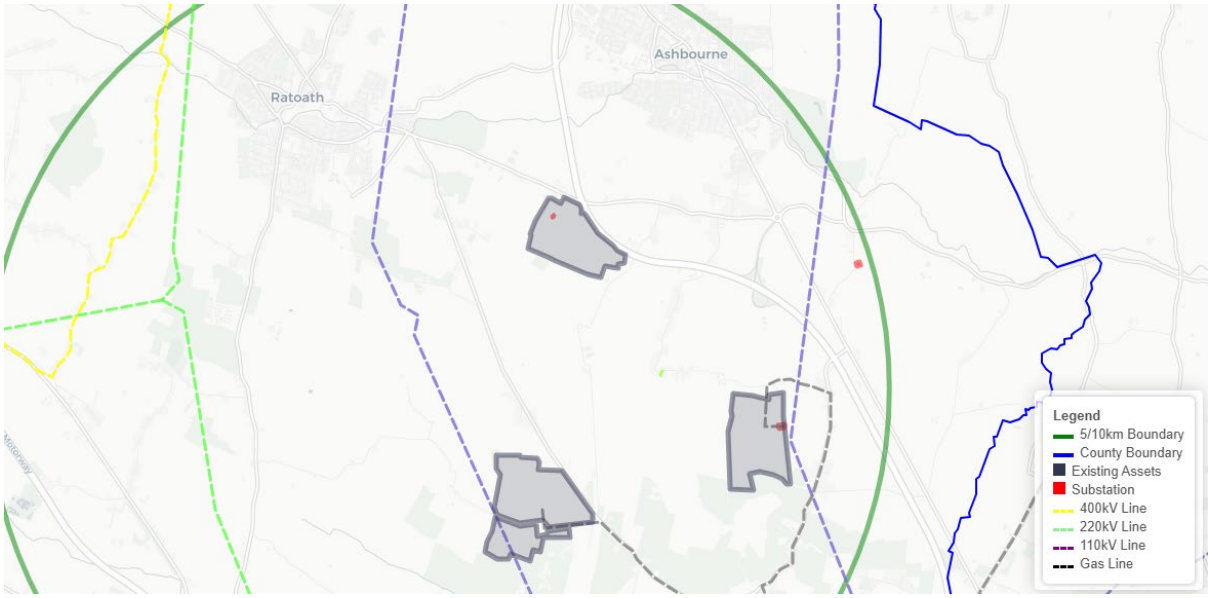

Figure 7 Paddocks area and infrastructure

2. National Policy

Meath County Council is currently the frontrunner in establishing a criteria-based assessment to identify the spatial alignment of available infrastructure to determine optimum locational characterises for LEU's and how associated national infrastructure might be delivered. The combination of planning, land use, and energy policies in determining the best use of our resources will establish how developments evolve in the future. The most relevant national policies are surmised below in terms of how they will be applied to large energy users in the future. The goal of Meath County Council is to align

national policy such as 2022 Data Centre Policy Statement[4] with the resources and constraints within the county,

2.1. Climate Action Plan

In 2021 the Climate Action and Low Carbon Development (Amendment) Act 2021 set into legislation binding targets in terms of carbon for the Irish state[5]. A major component of this was the decarbonisation of our power system. As a country the target is to reduce emissions by 51% by 2030.

For the power system this requires renewables to meet 80% of demand by 2030 to reach this target. Our emission levels are currently 7 MTonnes per annum which must be reduced to 2 MTonnes by the end of the decade to achieve our goals. To reach this target Ireland will have to install 5 GW of offshore wind, 9 GW of onshore wind and 8 GW of solar. The installation of this extent of renewables on the system has implications in that there are periods when the power cannot be used. This is called “lost energy” and typically constitutes oversupply, constraints and curtailment. Careful planning can reduce the impact of lost energy, save customers money and reduce our emissions as set out in the Climate Action Plan.

2.2. Large Energy Users Connection Policy

On an international level Ireland is leading the way in terms of the connection of large energy users from the data centre sector to the electricity grid. According to the CSO approximately 21% of our electricity demand in 2023 served the data centre sector. Eirgrid estimates that by 2030 this could reach 30% of our electricity demand. For context, the entire residential sector or Ireland currently accounts for 28% of national demand.

To manage these connections in a more effective way the CRU developed their Large Energy User (LEU) Connection Policy[6]. This sets out how these large energy users in the data centre sector can get access to grid capacity. While the report is focused on large

[4] https://enterprise.gov.ie/en/publications/publication-files/government-statement-on-the-role-of-data-centres-in-irelands-enterprise-strategy.pdf
[5] https://www.irishstatutebook.ie/eli/2021/act/32/section/15/enacted/en/html
[6] Large Energy User Connection Policy

energy users the applications are related solely to those in the data centre sector. While a moratorium has been applied to these assets accessing the grid, the decision paper sets out a means by which this moratorium could be lifted.

Among some of the proposals set out in the decision paper are that:

- Depending on the connection size will determine the requirements. Sites with a connection less than 1 MVA will be exempt from the policy but may be subject to the location requirements of the System Operator (i.e Eirgrid). Sites between 1 to 10MVA will be subject to requirements to register as an Autoproducer in the market. Sites greater than 10MVA will have to have on-site or proximate generation/storage to the site and this should encourage the development of energy parks more broadly. Connection for demand will only be allowed once the generation is online.
- Datacentres will be mandated to procure 80% of their power from renewable sources. This power should be for additional capacity to meet the additional demand. There is a glide path process to achieve this power.
- Any connections to account for Eirgrid's view on constrained parts of the grid which would limit access for large energy users. Eirgrid are to share their process for providing this locational information on the market, to the CRU in March 2026.
- That applications for demand (or Maximum Import Capacity (MIC)) will be linked to a corresponding capacity of on-site generation. This generation would be available to be called in the Irish Single Electricity Market (SEM). The renewable capacity procured can be used to offset the onsite generation/storage required on a derated basis.
- Demand flexibility is not mandated in the final policy decision document.
- LEU to report on their emissions and renewable energy usage. This is a reporting requirement only, not a target for mitigation as the CRU does not have the power to control emissions of specific sectors, only to report on them.

The work carried out in this report highlights the areas where there is expected to be capacity to connect to the grid. But it is only when Eirgrid engage with the CRU as per the published decision paper that these locations will be clear.

The publication of the final decision paper by the CRU for the LEU Connection Policy has been welcomed by industry. It is important for any industry to have a clear direction, and this decision paper finally brings it. The work carried out by Meath County Council and their assessment of sites is in line with this policy subject to the final input from the relevant stakeholders such as Eirgrid, Uisce Eireann and Gas Networks Ireland.

2.3. Energy Parks

A clear strategic planning policy environment in terms of the relationship between where we develop energy and where we consume energy at scale, needs to be more closely aligned. Historically, Ireland has been energy resource poor, depending on gas fields from Kinsale and Corrib to support most of our indigenous energy needs. Indeed, Ireland has one of the highest fossil fuel import dependencies in Europe at 86% of our energy needs coming from abroad according to the SEAI[7].

The development of indigenous renewable sources gives Ireland the opportunity to capture energy within its own borders, but it also gives rise to another challenge as to how to use this energy effectively. The Government published their industrial strategy entitled "Powering Prosperity" from the Department of Enterprise Trade and Employment (DETE) where they identified energy parks as an essential component of tying Irelands industrial development and energy together[8].

The most recent update from the DETE begun consideration of the following:

- Criteria for definition of Green Energy Park
- Proposed criteria for the development and location of Green Energy Parks
- Sectors that will be part of Green Energy Parks
- Economic assessment and Gross Value Add of energy parks

[7] https://www.seai.ie/sites/default/files/publications/Energy-in-Ireland-2023.pdf
[8] https://enterprise.gov.ie/en/publications/powering-prosperity.html

This technical report has been completed and was published in 2025 as part the Governments Large Energy Action Plan[9][10]. The Department is considering industrial policy measures to implement Programme for Government commitment to "establishing a comprehensive plan to accelerate renewable energy generation, connectivity, and planning processes" aligned with a green energy parks approach.

2.4. Private Wire

The delivery of national renewable targets is proving difficult with the planning process and access to grid capacity highlighted as major barriers to development. Demand customers are also seeing barriers in terms of accessing grid capacity to support their businesses. With increased onus on electrification of our society, with the benefits in terms of efficiency and meeting environmental targets, changes must be deployed to ensure we build the electricity generation system that serves the customers that need it.

The Irish Government has consulted and published a policy statement on Private Wires[11]. In this document the Government sets out its support for potential scenarios where a generator and demand customer can connect directly rather than both entities independently connecting to the electricity grid. This will speed up the development and deployment of generation while also facilitating demand growth. It will apply to larger entities such as factories or data centres but will also allow for smaller solutions such as electric vehicles.

The Policy Statement sets out the basis by which generation, and demand can connect directly while also supporting the wider transmission and distribution network in terms of fees, safety and development. The document also provides for hybrid connections where more than one generation technology can share a connection to the grid. This is

[9]https://enterprise.gov.ie/en/publications/publication-files/powering-prosperity-implementation-progress-report.pdf
[10] https://enterprise.gov.ie/en/publications/leap.html
[11] https://www.gov.ie/en/department-of-climate-energy-and-the-environment/publications/private-wires-policy-statement

another sensible approach to maximising existing grid infrastructure and will ensure that these resources are utilised to their maximum capacity.

2.5. Planning and Development Act

The Planning and Development Act 2024 will have a significant positive impact on the delivery of development in Ireland. Focusing on the energy sector, and a subsection of the LEU market for data centres as an example it looks to provide clarity.

There is no Irish legal definition for a "data centre". However, Section 49 of the Planning and Development Amendment Act (2018) defined Communications and Data Infrastructure as a development comprising of the following:

"A facility consisting of one or more than one structure, the combined gross floor space of which exceeds 10,000 square metres, used primarily for the storage, management and dissemination of data, and the provision of associated electricity connections infrastructure."

However, this section was never commenced and is no longer in effect as the relevant legislation has since been superseded. Therefore, it is now obsolete, and data centre applications are handled under current legislation, which has undergone several amendments.

Under Section 37A of the Planning and Development Act 2000, certain large developments of strategic economic or social importance to the State or region can be made directly to An Coimisiún Pleanála (ACP), bypassing the local authority.

A data centre over 10,000 sq.m may qualify as Strategic Infrastructure if it:

- Is of strategic economic importance,
- Requires an Environmental Impact Assessment (EIA) or Appropriate Assessment (AA), and
- Is considered by the Board to impact more than one planning area or have national/regional significance.

In such cases, the developer first seeks a “pre-application consultation” with An Coimisiún under Section 37B.If ACP determines that it is strategic infrastructure, the planning application is lodged directly with ACP, not the local council.

3. Site Selection and Recommendation

3.1. Sites

Having understood the physical infrastructure assets in Meath, and accounting for the regulatory and policy environment on a national basis it was possible to assess areas most suitable for supporting large energy users within the county. This process led to four areas being identified within the county. Sites with existing planning for large energy users were not assessed, but could form an energy park in their own right subject to the criteria set out by Government in their national policy on large energy users. Futher detailed analysis of each of these sites were then carried out by way of a scoring system as detailed below The four areas identified are:

3.1.1 Woodlands

A major crossing point of high voltage power lines in Meath. South of Dunshaughlin the area has the Woodland 400kV transmission substation. The Portan DC Converter station where the EWIC interconnector from the UK connects to the Irish electricity power station is also located in the area. This interconnector reduces power to 220kV and these power lines head east towards Dublin. The high-pressure gas network is also within 5km of the Woodland substation.

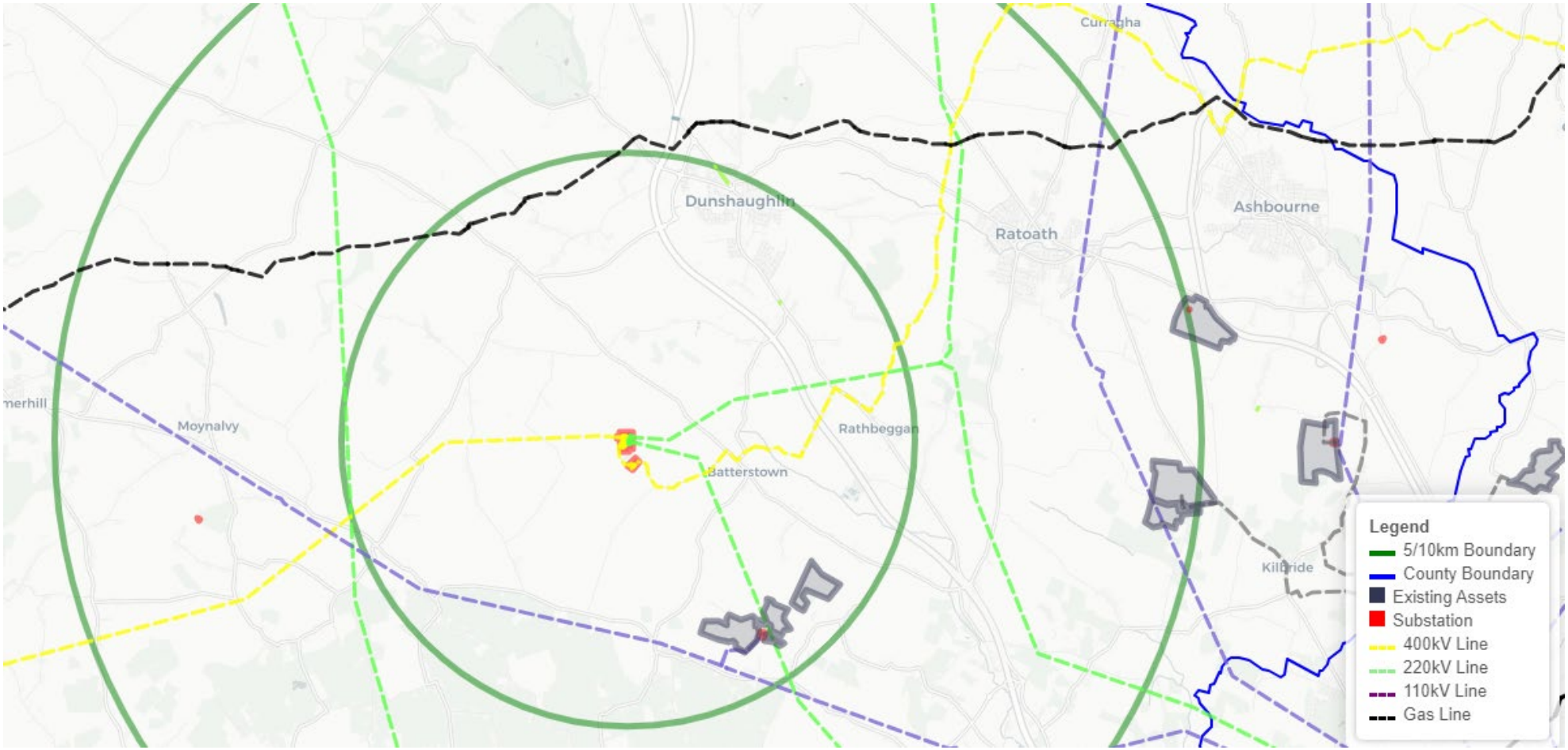

Figure 8 Woodland Location and Infrastructure

3.1.2 Kinnegad

Even though Kinnegad is in Westmeath a critical 110kV substation is within Meath's boundary. The area also has a large heat load with large scale cement works in the area. The 220kV Shannonbridge to Maynooth line crosses the area. It also within 5km of gas network to support large energy users.

Further details of the performance of this area can be seen in the scoring table but initially this area was to be the connection point of the Ballivor Wind Farm and was subsequently going to see high levels of lost energy. This wind farm now looks to be connecting to the Mullingar-Blundelstown 110kV line and this therefore impacted the scoring of the site.

Figure 9 Kinnegad Location and Infrastructure

3.1.3 Gorman

The Gorman 220kV substation is located northeast of Navan town and is a crossing point between the 220kV and 110kV networks. The gas line is within 10km of the substation but the capacity on this line is limited.

As this area is a “crossroads” in power terms of 220 and 110kV network it was viewed positively. The fact that the area serves Tara Mines, an industrial load, was also seen in its favour. Limitations in terms of the capacity of the gas network and the potential risk for flooding in lands adjacent to the substation impacted the scoring of this site.

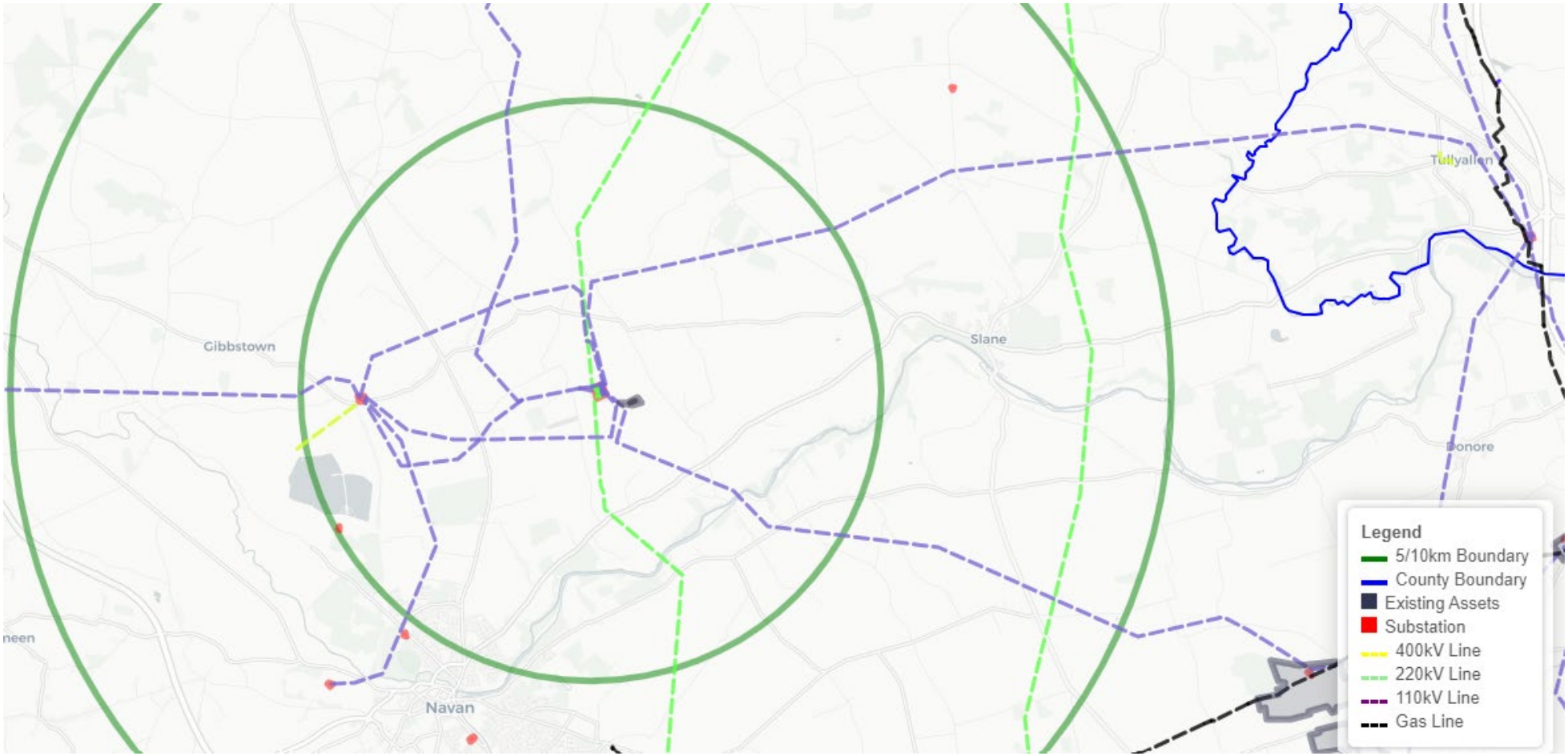

Figure 10 Gorman Location and Infrastructure

3.1.4 Meath Hill

Meath hill is located to the northeast of the county. There is a significant heat load in the area. Larger windfarms are planning to connect to this location so it will have high potential for green energy. Kingscourt in Cavan is the largest urban area relative to the substation.

As this location in the county has the greatest volume of wind makes it an attractive location in terms of siting LEU's. The landscape capacity of the area coupled with limitations in terms of transport and infrastructure meant that this site did not score well in the scoring system.

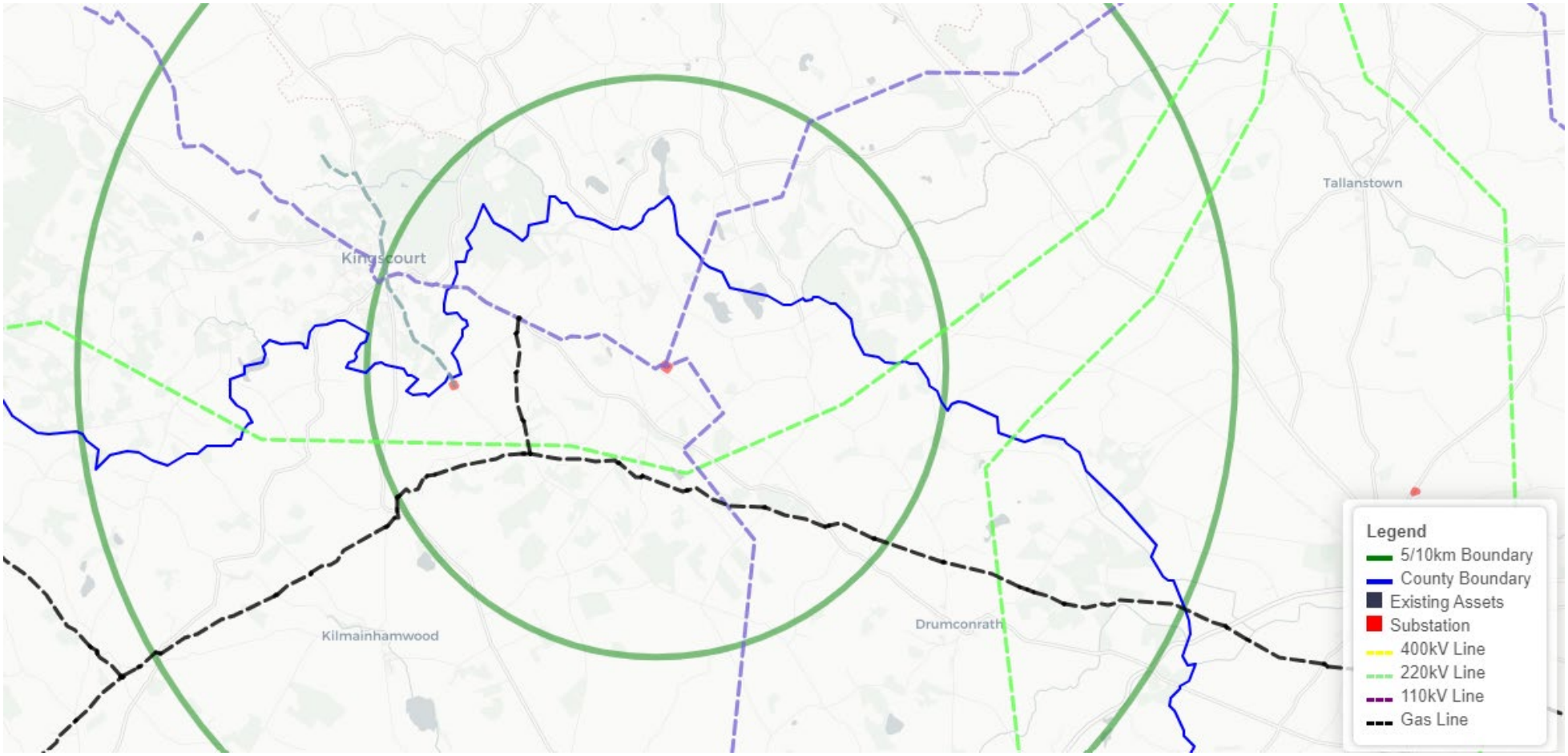

Figure 11 Meath Hill Location and Infrastructure

3.2. Scoring System

To prioritise areas for the development of LEUs each of the 4 sites were assessed and scored having regard to 18 different criteria. Details on each of the criteria that the four sites were scored against are shown below.

3.2.1 Power Connection

Access to electricity is growing in importance for our communities and businesses. Proximity to the power grid will be essential for large energy users. The scoring reflects those locations that are closest to the 400kV network having increased importance as we step down to 220kV and 110kV. The 38kV network has not been assessed as suitable for large energy users for the purposes of this report.

3.2.2 Lost Energy

With renewables being a larger part of our energy mix there will be times when it cannot be used, and this is called lost energy/total dispatch down in this report. Eirgrid have published their forecasts as to where this energy will be lost in oversupply, constraints and curtailment. Locating demand in these locations will help reduce this issue. Demand at the exact location is ideal, but locating in the proximity of the area of lost energy will also benefit the county in terms of competitiveness.

Eirgrid are looking to develop solutions such as Dispatchable Consumption Units (DCUs) which will reward customers who can react flexibly to absorb this vital resource. This reward to end users in electricity should be seen in reduced bills. Potential savings are in relation to the reduction of pass-through charges[12]. Customers who are supporting the grid, providing flexibility and reducing Lost Energy should be rewarded. This reward is not limited to areas designated as Energy Parks but can be availed of wherever an end user of electricity provides flexibility.

[12] https://www.cru.ie/about-us/news/cru-approves-annual-electricity-network-charges/

The design of the DCUs in the electricity market is still being finalised[13].

The following table shows the substations within Meath which are subject to lost energy which will have renewable energy connected directly (Woodlands does not have renewables connected directly but as a conduit to move power to areas of need and hence is not in the table). The areas highlighted in green are those with the highest levels of lost energy so would benefit the most from having a demand solution at these locations to reduce this figure.

	Nearest Town	Oversupply (GWh)	Curtailment (GWh)	Constraint (GWh)	Total Dispatch Down (GWh)
Balruntagh	Navan	12.71	4.51	1.44	18.66
Baltrasna	Ratoath	1.89	0.67	0.65	3.22
Blundelstown	Dunboyne	6.63	2.35	39.58	48.57
Fosterstown	Kinnegad	8.71	3.09	51.99	63.78
Gallanstown	Ratoath	20.22	7.17	6.95	34.35
Garballagh	Duleek	15.80	5.61	5.43	26.84
Gaskinstown	Duleek	9.39	3.33	3.23	15.95
Gorman	Navan	5.08	1.80	1.75	8.63
Harristown	Kinnegad	4.67	1.66	27.91	34.24
Meath Hill	Kingscourt	6.10	4.39	11.65	22.15
Navan	Navan	2.37	0.84	0.27	3.48
Paddock	Ratoath	43.87	15.56	15.08	74.51

Table 2 Selection of Lost Energy per substation in Meath

3.2.3 Gas Connection

As per the Large Energy User Connection access to gas or backup power will be essential in receiving a grid connection. Locating large energy users near a gas line will therefore be important in any site selection. Sites with gas lines directly adjacent to them score the highest while areas within 5km are also deemed technically viable.

3.2.4 Water

Water is essential for all energy users in terms of their process and cooling. Sites with access to water within 2.5km are deemed suitable for large energy users.

[13] https://cms.eirgrid.ie/sites/default/files/publications/EirGrid-FPM-Industry-Workshop-October-2024.pdf

3.2.5 *Wastewater*

Another imperative piece of infrastructure is wastewater facilities. Sites directly adjacent to wastewater treatment plants score highest while those more than 2.5km away score lowest.

3.2.6 *Road Access*

Sites with national roads within 2.5km of area for large energy user deemed the most suitable for development for large energy users.

3.2.7 *Sustainable Transport Option*

Sites located adjacent to areas served by sustainable transport options were scored higher than those sites further away from sustainable transport routes.

3.2.8 *Proximity to Airport.*

Sites closest to the airport in terms of travel times were scored higher than those further away

3.2.9 *Fibre*

Data is a growing requirement for all business functions from the data centre sector itself to pharmaceuticals and food production. Existing fibre infrastructure has been assessed using publicly available information provided by suppliers of fibre. Sites in direct proximity of the fibre infrastructure scored highest. Sites with several alternative sources are used to differentiate sites with distance also considered to final site selected.

3.2.10 *Infrastructure*

Scoring system is based on likelihood of delivery of infrastructure. In cases where the infrastructure is already in place and no further development is required this ensures that the area receives a high score. If, in the case where the infrastructure must be delivered and there is a risk that this is not achieved it will impact the scoring of the site.

3.2.11 *Landscape Sensitivity*

Sensitivity Ratings as set of in the Landscape Character Assessment Appendix 5 of the Meath County Development Plan 2021-2027

3.2.12 Landscape Value

Landscape Value is defined in the Landscape Character Assessment Appendix 5 of the Meath County Development Plan 2021-2027 as *'Value takes account of scenic quality, tranquillity, remoteness, rarity, cultural associations, history, conservation, recreational interests and broader social, economic and environmental aspects*[14]*'*. Exceptional Value is given a score of 0 whereas low value is given a score of 5.

3.2.13 Landscape Capacity

Landscape Capacity takes account of the form of the landscape and its ability for large scale development to integrate into same. Low Capacity is given a score of 0 whereas High Capacity is given a score of 5

3.2.14 EU Habitats Directive

Takes into account the proximity of sites to Natura 2000 sites and whether there is a potential hydrological connection to same. A score of 0 is given to sites within Natura 2000 sites whereas sites over 15km away with no hydrological connection are given a score of 5.

3.2.15 Flooding

Sites located within Flood Zone A were allocated a poor score - 0 whereas sites located within areas designated Flood Zone C were given high scores - 5.

3.2.16 Archaeology

The concentration/density of archaeology in a defined area of 100ha around each of the five substations. Dense concentrations of archaeology were given a poor score i.e. more than 20 monuments within an area of 100ha whereas less dense concentrations of archaeology were given high scores i.e. less than 20 monuments.

3.2.17 Groundwater Vulnerability

The importance of groundwater and its vulnerability rating are considered. High Extreme Groundwater vulnerability ratings are given a low score whereas Low Groundwater Vulnerability is given high scores

[14] Page 3 Landscape Character Assessment (Meath County Development Plan)

3.2.18 Density of Housing

The number of houses in an area of 100ha around each of the substations were measured and those with a higher density of houses were given low scores whereas those sites with a lower density of houses were given high score.

3.3. Scoring Table

Criteria	Details	Score Rating	Woodlands	Kinnegad	Gorman	Meath Hill
Power Connection	Related to physical infrastructure in the area to support energy users	0 - Not Available 3- 110kV Available 4 – 220 kV Available/Planned 5 - 400kV Available	5	3	4	3
Lost Energy	Refers to excess renewables which cannot be used due to physical limits of grid and markets	0 - None Available 3 – Available in area <10km 5- Available at site	3	0	0	3
Infrastructure	Whether a substation is in place or not	0 - Not in Place 3 - Planned and Not in Place 5 - In Place and Operational	5	5	5	5

Criteria	Details	Score Rating	Woodlands	Kinnegad	Gorman	Meath Hill
Gas Connection	Proximity to Gas Transmission Line/Gas Pressure	0 - Not Available >5km from site 3 - Available < 5km from site 5 - Available on site	3	3	0	3
Water	Proximity to Water Mains	0 - Not Available <2.5 3 - Available >2.5km 5 - Available at site	3	0	5 (250 meters away)	5 (at site)
Wastewater	Proximity to Mains Wastewater	0 - Not Available 3 - Available within 2.5km 5 - Available at site	3	0	0 (3.6km away)	0
Road Access	Proximity to Roads	0 - Regional Road > 5km from site 3 - Regional Road < 2.5km from site 5 - National Road < 2.5km from site	3	0	5	3
Sustainable Transport Options	Location of site in relation to sustainable modes of	0 – Available >5km away 3 – Available < 1km away 5 – Available at site	3	0	0	0

Criteria	Details	Score Rating	Woodlands	Kinnegad	Gorman	Meath Hill
	transport i.e. Bus or Train					
Proximity to Airport	Commuting Times by Private Car to Dublin Airport	0 – > 60 minutes 3 – between 30 mins and 60 mins 5 – between 15 minute and 30 mins	5	0	3	0
Fibre	Based on existing public information on fibre lines	0 - None Available 3 – Weight of services in area 5- Most services in area	5	3	2	1
Landscape Sensitivity	Sensitivity Ratings as set of in the Meath County Development Plan 2021-2027	0 - High Sensitivity 3 - Moderate Sensitivity 5 - Low Sensitivity	2 (Moderate Sensitivity to east High to West)	0	3	4 Low and Moderate

Criteria	Details	Score Rating	Woodlands	Kinnegad	Gorman	Meath Hill
Landscape Value	Value takes account of scenic quality, tranquillity, remoteness, rarity, cultural associations, history, conservation, recreational interests and broader social, economic and environmental aspects[15]	0- Exceptional Value 1 – Very High Value 2- High Value 4- Moderate Value 5 – Low Value	0.5 (between land designated exceptional and very high value)	2	4	4
Landscape Capacity	The form of the landscape and its ability for large scale development to integrate into the same	0- Low Potential Capacity 3 – Medium Potential Capacity 5 – High Potential Capacity	3	3	4	0

[15] Page 3 Landscape Character Assessment (Meath County Development Plan)

Criteria	Details	Score Rating	Woodlands	Kinnegad	Gorman	Meath Hill
EU Habitats Directive	Proximity to Natura 2000 sites	0 -Located over Natura 2000 site 3 - Located within 5 km of Natura 2000 site with potential hydrological connection to same 5 - Located over 15km and no hydrological connection to same	5	5	3	5
Flooding		0- Flood Zone A 3 - Flood Zone B 5 - Flood Zone C	5 (Flood Zone A to northeast)	5	0 (Flood Zone A is directly adjacent to substation	5
Archaeology	Density of Recorded Monuments at Location	0 - Dense Concentration > 20 monuments on site 3 - Low Density Concentration < 10 monuments on site 5 - Very Low Concentration < 5 monuments on site	5	5	5	5

Criteria	Details	Score Rating	Woodlands	Kinnegad	Gorman	Meath Hill
Groundwater Vulnerability	Importance of Groundwater	0 - High/Extreme Groundwater Vulnerability 3- Moderate Groundwater Vulnerability 5 Low Groundwater Vulnerability	5	3	0	5
Density of Housing	Concentration of Housing within designated area (100ha)	0 - High Density-> 25 houses 3 - Moderate Density 10-25 houses 5 - Low Density < houses	5	5	5	3
Total Score			68.5	42	48	54
Comment & Assessment			This site obtained the highest score and is therefore considered the most suitable site. Woodlands has the highest power output and is located within a	Heat load in place but lost energy will be in co. Westmeath and therefore this site is generally	While there is mains water proximate to the site, wastewater and gas are at a distance from the site (< 5km) The	The site is only served by 110kV power network and is located within an area designated with a Low Potential Capacity in terms of Landscape

Criteria	Details	Score Rating	Woodlands	Kinnegad	Gorman	Meath Hill
			reasonable distance to the settlements of Batterstown and Dunshaughlin where there are services available – Water, Wastewater and Gas	unsuitable in this context.	site and substation is also partially located within an area designated as Flood Zone A and is located within 5km of a Natura 2000 site with a potential hydrological connection to the same.	Capacity. The site is also peripheral to primary settlements in Co. Meath is at a distance from National Road Networks.

3.4. Recommendations

Having regard to the scoring outlined above the Woodlands site is deemed the most suitable for the location of a large energy user. From an energy perspective this is a logical solution. The Woodland substation is the location where power from Moneypoint in County Clare was historically brought from this location to the Meath/Dublin region. It is therefore one of the strongest points in the grid in Ireland to connect a large energy user. This, coupled with the fact that power from the UK connects to Ireland via the East West Interconnector (EWIC) further emphasises this point.

As this is an area of strategic importance for Meath, but also for Ireland it should be protected such that future development can be facilitated within county and national plans.

There is gas capacity within 5km of the site as well as a major gas main transversing Meath north of Dunshaughlin. The Large Energy User Paper from the CRU highlighted that these types of facilities require the owner to have back up power on the site such that the presence of gas is essential.

Water will also be a key requirement. The Batterstown Wastewater Treatment Plant is within 2. 7km of the site and there are also mains water located here. This may need to be upgraded depending on the final energy usage of the site (and subsequent water requirement), but the infrastructure is there to support future development. There is also water capacity at Dunshaughlin if required.

The final recommended location will likely be between the power and gas grid, and this should also account for landscape sensitivities and costs within the area. Eirgrid, for instance do publish the contestable and non-contestable charges associated with developing their infrastructure in terms of lines and stations. The distinction between

contestable and non-contestable relates to development that Eirgrid must do (non-contestable) and those which a developer can do (contestable)[16].

Heading	Description	Total Non-Contestable (1km line/cable) includes fibre & cable sealing ends/terminations x2 1	Additional Non-Contestable charge per km (includes fibre)
New 110kV Lines	110kV Overhead line	€ 991,000	€ 909,000
New 220kV Lines	220kV Overhead line	€ 1,486,000	€ 1,404,000
New 110kV Cables	110kV - 1600mm^2 Al	€ 2,352,000	€ 2,268,000
New 110kV Cables	110kV - 1000mm^2 Al	€ 2,057,000	€ 1,973,000
New 110kV Cables	110kV - 1600mm^2 Cu	€ 6,097,000	€ 6,013,000
New 220kV Cables	220kV - 2500mm^2 Al	€ 4,047,000	€ 3,963,000
New Fibre	Fibre UGC	€ 97,000	€ 13,000
New Fibre	Fibre OHL	€ 116,000	€ 34,000

Table 3 Line and Cable Costs

While the initial indications are there is energy capacity at the Woodland site to support large energy users this can only be confirmed when a formal application is submitted to Eirgrid and GNI respectively. It is at this stage when a more detailed study is carried out, but indications from this report is that there is sufficient capacity.

Finally, it is prudent to indicate that sites with existing planning for large energy users were not assessed but could form an energy park in their own right subject to the criteria set out by Government in their national policy on large energy users. Any existing or permitted substations with surrounding lands that are zoned were not highlighted as part of this study as these have already undergone infrastructure and constraints assessments as part of the zoning process.

16 https://consult.cru.ie/en/system/files/materials/234/CRU202538a%20EirGrid%20Response%20to%20CRU2024101%20Costs%20%26%20Charges_420282_0.PDF

4. Policy Suggestions

4.1. High level aims

- Prioritise sites with access to sufficient energy that is locally available, surplus, or proximate to low-carbon energy (including waste heat, lost renewable output or suitable for private-wire generation/storage).
- Require demonstrable plans for grid impact mitigation, heat reuse, water conservation, and realistic decarbonisation pathways.
- Pre-application consultation with the Planning Authority, the transmission/distribution operator, and Irish Water will be required for all LEU proposals.
- Permissions may include phased energisation, annual reporting, and financial securities to ensure compliance with policy objectives in line with national policies.
- To identify and protect important energy infrastructure assets such as those identified at Woodlands, Meath Hill, Gorman, Kinnegad, Bracestown, Clonee, Gunnocks and Platin and allow for their future expansion.
- To make provision for the safeguarding of important energy infrastructure assets that are vital to the future growth of the County through the provision of a zoning objective or policy/objective framework in the County Development Plan.
- To recognize the strategic importance of Woodlands substation and allow for the potential co-location of high energy users, through the provision of an Energy Park, adjoining same.

4.2. Policy Rationale

- The Council recognises that **spatial alignment of LEUs with adequate energy availability and excess energy sources** is key to achieving decarbonisation, system efficiency, and community benefit.

- Such sources (e.g. windfarms, CHP plants, industrial facilities with stranded heat/power, or grid-scale storage) may not coincide neatly with lands already zoned for employment.
- A strict zoning-only approach could **block optimal synergies**. Therefore, the plan seeks to provide a controlled pathway for considering LEUs in proximity to energy sources, while still managing landscape, environmental, and infrastructure impacts.

4.3. Draft Policy: Large-Energy Users (LEUs)

Policy Objective LEU 1

Facilitate the sustainable location and operation of high-energy users (including data centres and other large electricity loads) on appropriate lands where adequate infrastructure capacity (electricity, water, gas, fibre, transport) exists or can be provided without adverse environmental impact.

Policy Objective LEU 2

Require proposals for LEUs to demonstrate:

- Availability of firm power capacity or delivery of new capacity without adverse impact on the grid.
- A clear energy strategy that prioritises proximate low-carbon sources, private-wire renewable generation, and/or storage in line with Government policies.
- Measures to maximise renewable energy use, reduce lost energy from this resource and potentially reduce redispatch costs on the grid. Maximise efficient use of energy by means such as including export of waste heat where feasible (A Heat Reuse Feasibility Report should accompany any planning application.)
- Efficient water use, with preference for public water supply and for low-water or closed-loop cooling technologies.
- Compatibility with gas or alternative fuels infrastructure, with preference for dual-fuel or low-carbon readiness.
- Adequate digital connectivity and network resilience.

- Design solutions that mitigate environmental, landscape, biodiversity, noise, and traffic impacts.
- A decommissioning and site restoration plan, and where feasible, provision for adaptive reuse.
- Community benefit measures, including local employment, skills, or energy initiatives.

Policy Objective LEU 3

Require all planning applications for LEUs to be accompanied by a Development Statement addressing:

- Anticipated electrical and gas demand profile (peak MW, annual MWh).
- Grid operator engagement and confirmation of capacity solution.
- Renewable energy procurement and decarbonisation pathway.
- Efficiency plans
- Heat-reuse feasibility and identified off-takers.
- Water demand and cooling technology specification.
- Connectivity (fibre and network resilience).
- Environmental, transport, and biodiversity assessments.
- Decommissioning and community benefit commitments.

Policy Objective LEU 4 – Co-Location with Energy Sources

The Council will consider proposals for high-energy users on lands generally within **5 km of excess/stranded energy sources or at locations which are technically feasible with given constraints** (e.g. renewable generation facility, industrial waste-heat source, CHP, or storage) where:

- The proposal demonstrates a firm contractual or physical connection (private wire, heat network, or equivalent).
- The development would achieve substantial reductions in carbon intensity compared with a grid-only supply.
- Adequate transport access, water services, and fibre connectivity can be provided.

- The site does not compromise designated environmental or landscape sensitivities.
- A full Development Statement is provided as per LEU 3.

4.4. Land use requirements

The use of land will be determined by the final large energy user developer. Recent examples in the data centre sector show how this land can be used. An application in Westmeath (Application Number 2560344) had a site of 209 Ha which comprised of a datacentre, solar farm and battery storage development. The solar farm availed of 168Ha of the site to service the data centre. Details of this application are below.

	MW	Area(ha)	ha/MW
Datacentre	250	39	0.16
Solar	180	168	0.93
Battery	250	2.6	0.01
		209.6	

Table 4 Westmeath Datacentre Application Details

A recent successful application for the Herbata Datacentre in Kildare (Application Number 2460787) was for a 180MW facility which had a gross floor area of ~150,000m^2

Looking further at a selection of datacentres in Ireland shows the relationship between gross floor area and power which reflects a linear relationship. This can change over time as chip power increases. Currently NVIDIAs power requirements for their latest chips are between 650-750 W and there is increased capability in terms of energy storage.

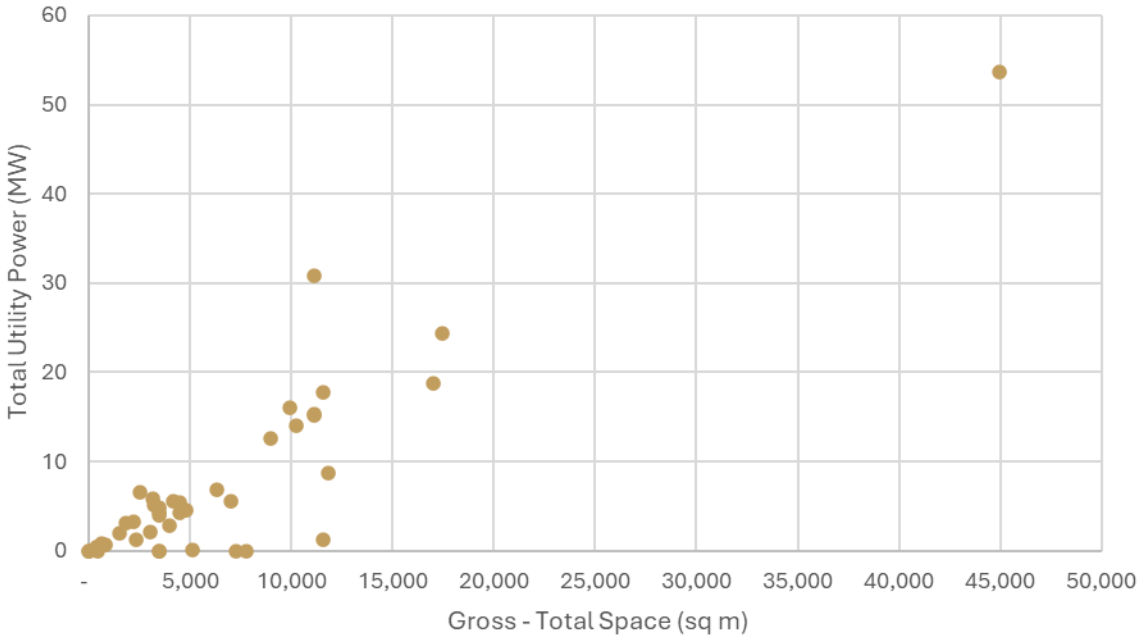

Figure 12Gross Total Space vs Power

Focusing on Energy Paks in Offaly their County Development plan allows for Rhode Energy Park. This has an overall area of 5.3ha and is adjacent to the Derryiron 110kV substation. This also sets out the potential usage for this site, and also items deemed unsuitable.

Cork County Council in their development plan allocated a Special Policy Area of 388 ha in the Whitegate/Aghada area which could be suitable for large scale energy developments but also consider how this could be used in relation to the port facilities.

Indeed, Energy Parks reflect the broader development that they will support. In the UK the Saltend Energy Park is 150 ha and reflects their coastal location and onus on the chemical industry. In Teesside the Wilton International Park provides a full end to end solution in terms of land, energy and utilities but is focused on the chemicals and heavy industries. The area of this park is 800 ha.

Name	Area (ha)	Energy Uses
Rhode Energy Park	5	Datacentre, Peaking Plants, Anaerobic Digester, Horticulture/Agri business
Saltend Energy Park	150	Chemical production
Cork Special Policy Area	388	Support energy intensive industries
Wilton International Area (Teesside)	800	On site energy generation to support energy intensive industries

Table 5 Energy Park Parameters

Appendix

Substation Details

Kilcock 38 kV Substation

Site	1
Transformer GroupID	Kilcock [T421,T422]
Transformer configuration	2x10 MVA @ 20 kV
Installed Capacity MVA	20.00
Demand FirmCapacity MVA	15.00
Demand Available MVA	-
Generation Firm Capacity MW	12.40
Generation NonFirm Capacity MW	4.75
Generation Total Committed MW	2.77
Gen Available Firm MW	12.45
Gen Available NonFirm MW	4.87
TSO Interface Station	GRIFFINRATH

Navan 110 kV Substation

Site	1
Transformer GroupID	Navan [T141,T142]
Transformer configuration	2x63 MVA @ 38 kV
Installed Capacity MVA	126.00
Demand FirmCapacity MVA	88.20
Demand Available MVA	15.24
Generation Firm Capacity MW	77.90
Generation NonFirm Capacity MW	-
Generation Total Committed MW	43.06
Gen Available Firm MW	48.03
Gen Available NonFirm MW	-
TSO Interface Station	NAVAN

Baltrasna 110 kV Substation

Site	1
Transformer GroupID	Baltrasna [T121,T122]
Transformer configuration	2x20 MVA @ 20 kV
Installed Capacity MVA	40.00
Demand FirmCapacity MVA	30.00
Demand Available MVA	-
Generation Firm Capacity MW	24.70
Generation NonFirm Capacity MW	9.50
Generation Total Committed MW	20.26
Gen Available Firm MW	8.44
Gen Available NonFirm MW	9.62
TSO Interface Station	BALTRASNA

Meath Hill 110 kV Substation

Site	1
Transformer GroupID	Meath Hill [T141,T142]
Transformer configuration	2x63 MVA @ 38 kV
Installed Capacity MVA	126.00
Demand FirmCapacity MVA	88.20
Demand Available MVA	27.80
Generation Firm Capacity MW	78.30
Generation NonFirm Capacity MW	-
Generation Total Committed MW	82.33
Gen Available Firm MW	10.72
Gen Available NonFirm MW	-
TSO Interface Station	MEATH HILL

Abbeylands 38 kV Substation

Site	1
Transformer GroupID	Abbeyland [T41,T42]
Transformer configuration	2x10 MVA @ 10 kV
Installed Capacity MVA	20.00
Demand FirmCapacity MVA	15.00
Demand Available MVA	2.93
Generation Firm Capacity MW	12.40
Generation NonFirm Capacity MW	4.75
Generation Total Committed MW	1.55
Gen Available Firm MW	12.78
Gen Available NonFirm MW	4.80
TSO Interface Station	NAVAN

Lloyd 38 kV Substation

Site	1
Transformer GroupID	Lloyd [T41,T42]
Transformer configuration	2x5 MVA @ 10 kV
Installed Capacity MVA	10.00
Demand FirmCapacity MVA	7.50
Demand Available MVA	3.27
Generation Firm Capacity MW	6.20
Generation NonFirm Capacity MW	2.38
Generation Total Committed MW	0.24
Gen Available Firm MW	6.66
Gen Available NonFirm MW	2.39
TSO Interface Station	NAVAN

Kells 38 kV Substation

Site	1
Transformer GroupID	Kells [T41,T42]
Transformer configuration	2x5 MVA @ 10 kV
Installed Capacity MVA	10.00
Demand FirmCapacity MVA	7.50
Demand Available MVA	1.40
Generation Firm Capacity MW	6.20
Generation NonFirm Capacity MW	2.38
Generation Total Committed MW	0.71
Gen Available Firm MW	6.47
Gen Available NonFirm MW	2.40
TSO Interface Station	NAVAN

Oldcastle 38 kV Substation

Site	1
Transformer GroupID	Oldcastle [T41,T422]
Transformer configuration	2x5 MVA @ 10 kV
Installed Capacity MVA	10.00
Demand FirmCapacity MVA	7.50
Demand Available MVA	2.68
Generation Firm Capacity MW	6.20
Generation NonFirm Capacity MW	2.38
Generation Total Committed MW	3.73
Gen Available Firm MW	3.27
Gen Available NonFirm MW	2.39
TSO Interface Station	MULLINGAR

Ashbourne 38 kV Substation

Site	1
Transformer GroupID	Ashbourne [T421,T422]
Transformer configuration	1x10,1x15 MVA @ 20 kV
Installed Capacity MVA	25.00
Demand FirmCapacity MVA	18.75
Demand Available MVA	-
Generation Firm Capacity MW	12.40
Generation NonFirm Capacity MW	7.13
Generation Total Committed MW	10.49
Gen Available Firm MW	5.50
Gen Available NonFirm MW	6.40
TSO Interface Station	FINGLAS

Julianstown 38 kV Substation

Site	1
Transformer GroupID	Julianstown [T421,T422]
Transformer configuration	2x5 MVA @ 20 kV
Installed Capacity MVA	10.00
Demand FirmCapacity MVA	7.50
Demand Available MVA	-
Generation Firm Capacity MW	6.20
Generation NonFirm Capacity MW	2.38
Generation Total Committed MW	2.50
Gen Available Firm MW	5.93
Gen Available NonFirm MW	2.58
TSO Interface Station	DRYBRIDGE

Duleek 38 kV Substation

Site	1
Transformer GroupID	Duleek [T421,T422]
Transformer configuration	2x5 MVA @ 20 kV
Installed Capacity MVA	10.00
Demand FirmCapacity MVA	7.50
Demand Available MVA	-
Generation Firm Capacity MW	6.20
Generation NonFirm Capacity MW	2.38
Generation Total Committed MW	6.37
Gen Available Firm MW	1.54
Gen Available NonFirm MW	0.76
TSO Interface Station	DRYBRIDGE

Clarkstown 38 kV Substation

Site	1
Transformer GroupID	Clarkstown [T41]
Transformer configuration	1x5 MVA @ 10 kV
Installed Capacity MVA	5.00
Demand FirmCapacity MVA	4.50
Demand Available MVA	-
Generation Firm Capacity MW	4.80
Generation NonFirm Capacity MW	-
Generation Total Committed MW	-
Gen Available Firm MW	4.76
Gen Available NonFirm MW	-
TSO Interface Station	GRIFFINRATH

Randalstown 38 kV Substation

Site	1	2
Transformer GroupID	Randalstown [T422]	Randalstown [T41]
Transformer configuration	1x5 MVA @ 20 kV	1x5 MVA @ 10 kV
Installed Capacity MVA	5.00	5.00
Demand FirmCapacity MVA	4.50	4.50
Demand Available MVA	1.09	1.82
Generation Firm Capacity MW	4.80	4.80
Generation NonFirm Capacity MW	-	-
Generation Total Committed MW	0.35	0.13
Gen Available Firm MW	4.84	5.00
Gen Available NonFirm MW	-	-
TSO Interface Station	NAVAN	NAVAN

Trim 38 kV Substation

Site	1	2
Transformer GroupID	Trim [T421]	Trim [T41,T42]
Transformer configuration	1x5 MVA @ 20 kV	2x5 MVA @ 10 kV
Installed Capacity MVA	5.00	10.00
Demand FirmCapacity MVA	4.50	7.50
Demand Available MVA	0.33	-
Generation Firm Capacity MW	4.80	6.20
Generation NonFirm Capacity MW	-	2.38
Generation Total Committed MW	0.76	6.18
Gen Available Firm MW	4.54	1.56
Gen Available NonFirm MW	-	0.85
TSO Interface Station	NAVAN	NAVAN

Kingscourt 38 kV Substation

Site	1	2
Transformer GroupID	Kingscourt [T41,T42]	Kingscourt [T423]
Transformer configuration	2x10 MVA @ 10 kV	1x15 MVA @ 20 kV
Installed Capacity MVA	20.00	15.00
Demand FirmCapacity MVA	15.00	13.50
Demand Available MVA	4.45	13.00
Generation Firm Capacity MW	12.40	14.60
Generation NonFirm Capacity MW	4.75	-
Generation Total Committed MW	1.37	11.50
Gen Available Firm MW	10.72	3.05
Gen Available NonFirm MW	-	-
TSO Interface Station	MEATH HILL	MEATH HILL

Slane 38 kV Substation

Site	1	2
Transformer GroupID	Slane [T421]	Slane [T42]
Transformer configuration	1x10 MVA @ 20 kV	1x5 MVA @ 10 kV
Installed Capacity MVA	10.00	5.00
Demand FirmCapacity MVA	9.00	4.50
Demand Available MVA	-	-
Generation Firm Capacity MW	9.80	4.80
Generation NonFirm Capacity MW	-	-
Generation Total Committed MW	7.87	3.89
Gen Available Firm MW	3.12	0.86
Gen Available NonFirm MW	-	-
TSO Interface Station	DRYBRIDGE	DRYBRIDGE