Data Centre Constrained Area Overview

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R1	20/05/2026	Original – published in response to CRU Decision Paper “Large Energy Users Connection Policy” (CRU/2025236)

Executive Summary

The Commission for Regulation of Utilities (CRU) published the *Large Energy Users Connection Policy* on 12 December 2025 (CRU/2025236), establishing a new structured framework for assessing and processing data centre connection applications.

In the Data Centre Technical Assessment document, EirGrid outlines the Transmission System Operator's approach to assessing a new data centre application and how the Transmission System Security and Planning Standards[1] (TSSPS) are utilised in determining whether an area is considered constrained. As required under CRU/2025236, EirGrid has also provided CRU with a proposed approach for locational information/heat maps to display demand capacity on the Irish transmission system. In advance of the publication of the heat maps, EirGrid has prepared this document, the "Data Centre Constrained Area Overview", in order to give an overview of the challenges that exist in accommodating further data centre demands on the Irish power system.

This document also provides industry and stakeholders with an overview of the conditions under which an applicant could expect to be successfully progressed under CRU/2025236 and the options available for the development of areas currently considered as constrained.

[1] https://cms.eirgrid.ie/sites/default/files/publications/EirGrid-Transmission-System-Security-and-Planning-Standards-TSSPS-Final-May-2016-APPROVED.pdf

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1 Introduction

Ireland's electricity system is experiencing a period of strong and sustained demand growth, reflecting the rapid expansion of data centres as a critical enabler of a technology-rich, innovative economy. Data centres have played a central role in Ireland's success in attracting high-value investment and supporting a broad range of sectors, contributing significantly to national economic growth over the past decade.

This success has been accompanied by a marked increase in electricity demand, with data centres now representing one of the most significant drivers of overall system growth. At the same time, this demand expansion is occurring in a context where the delivery of new grid infrastructure and generation capacity is increasingly complex, giving rise to challenges for network capability and security of supply. Addressing these challenges requires a clear, credible pathway that supports continued economic development while ensuring the resilience and sustainability of the electricity system.

In response to these pressures, the Commission for Regulation of Utilities (CRU) published a decision paper, the *Large Energy Users Connection Policy*[2] (CRU/2025236) on 12th December 2025. CRU/2025236 sets out a pathway for new data centre applications to the electricity system which addresses risks in relation to security of supply, system constraints and renewable energy targets, while minimising, where possible, the impact on national carbon emissions. This direction supersedes Direction CRU/21/124 and will apply to all new connection applications for new or additional capacity captured under the scope of the decision. Applications received prior to the publication of this decision, and which are currently being processed will continue to be processed under CRU/21/124.

The new direction sets out that the System Operators (SOs) shall publish an engagement and connection process for data centre connection applicants. Once published, new applicants will then have the transparency and clarity required to advance potential new data centre connection applications.

In response to CRU/2025236, EirGrid has developed four documents relating to the new engagement and connection process for data centre connection applicants, which are described as follows;

1. **Data Centre Connection Offer Process and Policy Version 3 (DCCOPP v3):** supersedes previous versions of the DCCOPP (version 2 published July 2020) and clearly outlines mandatory requirements that must be satisfied before a data centre application can formally enter the connection offer process to receive a connection offer. This policy establishes a clear, structured pathway for processing new large-demand connection applications, applying exclusively to data centres, with the aim of safeguarding security of supply, supporting renewable energy targets, and minimising impacts on national carbon emissions.
2. **Data Centre Technical Assessment**: outlines the EirGrid approach to assessing new data centre applications.
3. **Data Centre Constrained Area Overview**: provides an overview of the system limitations to accommodating further sustained data centre growth, details of areas where some level of growth may be possible and considerations of how the system can be planned to facilitate further growth.
4. **Heat maps for LEUs:** outlines EirGrid's proposed approach to deliver up-to-date locational information/heat maps to showcase demand capacity on the Irish transmission system.

The suite of documents will outline the mandatory requirements that must be satisfied before a data centre application can receive a connection offer, and describe how EirGrid will assess new data centre connection applications in a transparent and clear manner. The suite of documents will also set out an overview of the Irish transmission system limitations so all stakeholders have a common understanding of the demand capacity that the Irish transmission system can facilitate.

CRU/2025236 requires EirGrid to consider the location of a data centre application with respect to whether it is in a constrained or unconstrained part of the electricity network. This document, the 'Data

[2] CRU2025236_Large_Energy_User_connection_policy_decision_paper.pdf

Centre Constrained Area Overview', provides commentary on the system capability for accommodating new data centres.

2 Overview of the Irish Power System

With an All-Ireland peak demand of approximately 7.5 GW, the power system on the island of Ireland is considered a relatively small power system in comparison with countries in Europe and elsewhere in the world. The All-Ireland power system is a synchronous island with limited non-synchronous (High Voltage Direct Current) connections to other power systems. In other words, Ireland is not connected to the European power system with traditional alternating current (AC) circuits. This makes the All-Ireland power system more susceptible to the impacts and effects of disturbances on the power system and synchronised behaviours of the connected customers.

In electricity demand terms, Ireland is smaller than the entire greater London demand[3] and half the size of Paris (the Île-de-France region[4]) demand. In contrast to these large cities, which have strong, synchronous connections to very large power systems, operating the Irish power system is more challenging due to the fact that it is a synchronous island. The following sections describe how, despite these challenges, Ireland has successfully contracted a very large volume of data centres and outlines opportunities for connecting further data centres.

2.1 Data Centre Development in the Irish Power System

Ireland has 2 GW of contracted data centres mostly located in the greater Dublin area. This will represent nearly a third of the entire demand in Ireland once all of the contracted data centres connect and utilise their full contracted demand.

In order to understand how the greater Dublin network was able to accommodate such a significant volume of new demand, it is necessary to look at the historical evolution of the power system in Ireland. The evolution of Irish societal and industrial development resulted in the Dublin area having significantly more population and industry than other areas of the country. In turn, this societal and industrial development reflected in the development of the power system infrastructure in the country as a whole and specifically in and around Dublin. The greater Dublin network needed to evolve to have significantly more capacity than other parts of the power system. During the 1970s and 1980s, multiple 220 kV and 400 kV circuits were constructed to provide power into Dublin and to transport the power around the greater Dublin region to where it was needed. In particular, the development of the two 400 kV circuits from Moneypoint to Dublin in the 1980s created a significant amount of additional capacity for power flows into the Greater Dublin region. It is this feature of the evolution of the Irish power system that allowed the Dublin region to capitalise on the 220 kV and 400 kV infrastructure developments from the 1970s and 1980s and accommodate significant volumes of data centre development in recent times.

2.1.1 Future Interest in Connecting Data Centres in Ireland

As requested by the CRU[5], EirGrid recently completed a Market Intelligence Exercise which identified that there was a continued interest in the development of a further 6 GW of data centre demand in Ireland. If all of this potential interest was to materialise in the current Irish power system, it would double the current system peak. In addition to the existing reinforcement plans, the Irish power system will require a strategic and plan-led approach to accommodate future demand growth, including the coordinated development of the 400 kV and 220 kV network. This is consistent with the plan-led and coordinated approach set out in LEAP, which emphasises alignment between energy infrastructure delivery, renewable generation and the location of future demand. As recognised by the Government's Accelerating

[3] https://www.london.gov.uk/who-we-are/what-london-assembly-does/questions-mayor/find-an-answer/london-annual-energy-usage
[4] https://www.rte-france.com/actualites/bilan-electrique-2024-ile-france
[5] Large Energy Users Connection Policy Proposed Decision Paper CRU 2025/04, Feb 2025

Infrastructure Taskforce report, in today's environment, infrastructure developments of this nature will take considerable time to deliver.

3 Challenges on the Irish Power System

Section 2 described how, despite the small size of the power system, Ireland has successfully managed to provide connection contracts for over 2 GW of data centre demand without significant network reinforcements. Enabling the rapid deployment of data centre connections was fundamental to supporting Ireland's digital economy. It was only possible to accommodate such a significant volume of new demand by capitalising on earlier 220 kV and 400 kV infrastructure investments. Further development of the system is necessary to accommodate increasing demand needs.

In addition to the growing demand from contracted data centres there are also demand increases occurring on the distribution system driven by residential needs, electrification of heat & transport and various other commercial requirements (farms, business, hospitals, schools etc.)

The following sections summarise some of the main challenges currently being experienced on the Irish power system in relation to increasing demands:

3.1 Network Capacity

The transmission system has accommodated significant growth in the last ten years, with significant growth in renewables in addition to a c.20% increase in electricity demand. The availability of capacity on the Irish power system to accommodate very large point loads, such as new data centres, at individual locations is becoming more challenging. While there is a significant volume of capital projects scheduled for delivery in PR6 (2026-2030), the projects cover a multitude of different drivers and system needs such as to accommodate offshore generation, support the distribution system, and/or refurbish/maintain existing infrastructure. These works will need to be supplemented with further transmission works to accommodate the levels of additional data centres sought above those already contracted.

3.2 Short Circuit

As described in the *Short Circuit Issues in Dublin*[6] document, high short circuit currents, exceeding the capability of the *switchgear (circuit breakers)* designed to interrupt them, pose a major risk to the power system and personal safety if not managed correctly. Dublin, in particular, is experiencing significant short circuit challenges. To mitigate short circuit issues, the transmission system in the greater Dublin area needs to be reinforced with a comprehensive level of 400 kV network. This level of reinforcement would enable generation to be transferred to the 400 kV level and allow the underlying 220 kV network to be sectionalised thereby reducing fault levels. A number of the required 400 kV reinforcements are progressing from the consenting phase to the delivery phase and work is ongoing to finalise further 400 kV plans. In advance of these works, generator connections on the 220 kV and 110 kV network cannot be accommodated in the greater Dublin region and this will restrict developments that include new generation capacity such as new data centres.

3.3 System Stability

Recent fault ride-through issues have occurred on the power system due to data centres rapidly reducing their demand in response to voltage fluctuations. The impact of these large demand reductions is an imbalance of supply and demand which results in a frequency deviation that is experienced by the whole power system. Given the volume of data centre demand already connected to the relatively small Irish power system, such large demand fluctuations have the potential to compromise the overall stability of the power system. Failure to resolve these issues will also significantly impact the ability to evolve operational policy to facilitate higher levels of renewable generation. Industry is currently expediting a technological response to this fault ride-through challenge.

[6] https://cms.eirgrid.ie/sites/default/files/publications/Short-Circuit-Summary-for-Industry-27032025.pdf

The oscillating demand characteristics of Artificial Intelligence data centres could also pose a risk to the stability of the Irish system.

In addition, large demands concentrated in specific locations of the power system have the potential to create low voltage and voltage stability issues. In the most extreme cases, during certain contingency conditions, very large loads could cause voltage collapse.

3.4 Security of Supply

A sufficient volume of dispatchable power generation is required in order to ensure that the power system can generate enough electricity to meet the instantaneous demand. Ireland has experienced recent security of supply challenges associated with the delivery of new capacity awarded through the capacity market. Data centres processed under CRU/2025236 are not expected to add to the security of supply concerns, due to the fact that they are required to provide dispatchable onsite or proximate generation and/or storage capacity which matches their MIC (subject to derating requirements).

3.5 Outages

In the coming years, the Irish power system must accommodate outages to facilitate the connection of a significant volume of capital projects scheduled for delivery in PR6 (2026-2030). These projects include connecting renewable projects required to meet climate action targets, connection of conventional generation to ensure security of supply, connecting system services devices to allow the power system to run with increased volumes of renewables, connecting new projects required to support the distribution system associated with demand growth and support of the distribution system, connecting new circuits, transformers and substations to reinforce the power system as well as prudent maintenance/asset replacements to maintain the security and reliability of the transmission system. Accommodating the equipment outages that will be required to facilitate all this work, while also keeping the power system operating securely is a major challenge. A comprehensive programme of work has been developed to ensure all this work can be completed as efficiently as possible. As new connection contracts emerge, the outage programmes will need to be updated and refreshed to accommodate these connections and enable applicants to incorporate these requirements into their own timelines.

4 Connection Opportunities

As discussed in section 2.1.1, the Market Intelligence Exercise identified that there is a continued interest in the development of further data centre demand in Ireland. With this significant level of interest and the recognition that the available headroom of capacity in the Irish power system has largely been exhausted, it is prudent to set out the approaches available to identify further opportunities for connecting data centres in Ireland. It is important for developers to consider this information when exploring opportunities under CRU/2025236 to ensure developments are not progressed in unsuitable areas.

4.1 Development Opportunities Under CRU/2025236

The Shaping Our Electricity Future Roadmap[7] (Version 1.1) from 2023 identified that 300 MW of additional data centre demand could be accommodated outside of the greater Dublin area. This assumed that the existing contracted data centres within the Dublin area did not grow beyond 1.3 GW. It also assumed a sufficient volume of renewable generation was installed to ensure that 80% of annual electricity consumption was met by renewable generation. EirGrid has carried out a high-level desktop assessment and determined that data centres processed under CRU/2025236 (thereby providing adequate dispatchable and renewable generation) could be accommodated on the 220 kV network in the Galway, Limerick and Cork areas. The potential capacity for each of these sites could be in the order of 50 MW to 100 MW, thereby enabling a potential total of 150 MW to 300 MW of new data centres to be accommodated on the western part of the power system. These figures may potentially be larger depending on how the resources required under CRU/2025236 are combined, particularly in scenarios where the renewable generation can be connected at the same transmission node as the data centre demand.

Applications will still be subject to individual technical assessment as per the Data Centre Technical Assessment document. These detailed assessments will consider the data centre proposal, including the generation elements and in particular the short circuit implications as a result of this generation. The progression of any new capacity is based on the assumptions that the existing data centre fault ride-through issues are resolved, that any new data centre connections do not contribute to fault ride through issues and that they do not introduce any new issues in relation to the behaviour of their demand profile. In addition to ensuring compliance with the proposed MPID345 Grid Code requirements, developers are encouraged to include provision in their designs and consenting for devices such as E-Statcoms or Synchronous Compensators in order to minimise the risk of instability problems.

New capacity is not secured until a connection agreement contract is executed. In advance of a contractual position, any indicative capacity figures in this document are subject to change. The capacity values indicated in this report may change if other power system variables change (for example network, generation or demand assumptions).

While some volume of capacity may be available at specific 220 kV nodes, it is important to clarify that many 220 kV substations already have significant programs of refurbishment, maintenance and connections laid out for them over the coming years. It is prudent to assume that these areas will only be able to facilitate new connections from the mid-2030s. This would also apply to any potential loop-in connections which would result in major outages of the 220 kV circuits feeding these stations as there is already a significant volume of works planned for the coming years. It is considered that new data centre developments requiring dedicated loop-in connections will be extremely challenging to integrate into development plans.

The greater Dublin region is considered fully constrained. This is due to the fact that the required nominated conventional generators accompanying any potential data centre developments would increase the already compromised short circuit levels in the area.

[7] Shaping Our Electricity Future Roadmap: Version 1.1

In addition to the short circuit issues, there continues to be issues with the transmission of large power flows across the system without causing overloads on transmission system equipment (lines, cables, busbars & transformers). As a result, the greater Dublin area and surrounding areas are expected to be constrained for large data centre developments.

As described in the Data Centre Technical Assessment document, the increasing size of modern data centre demands in excess of 50 MW of continuous demand are considered extremely large for the 110 kV network in Ireland. Any potential new data centre developments requiring this level of power will need to focus on connection voltages above 110 kV.

4.2 Plan-Led Development Opportunities

CRU/2025236 outlined how a plan-led approach to infrastructure development will help ensure utility infrastructure is planned in a coordinated and efficient manner and will provide certainty to the investment community in relation to planning of future projects.

A longer-term plan-led approach could comprise spatial planning for large demands, plan-led infrastructure development, and synergies between energy, environmental and enterprise policy.

As described in the Large Energy User Action Plan[8] (LEAP), strategically prepared, nationally planned locations and Green Energy Parks have the potential to unlock additional volumes of data centre opportunities. For example, the infrastructure associated with the south coast offshore developments should create capacity opportunities.

[8] LEAP – Large Energy User Action Plan