

Data centres as demand anchors: Reducing dispatch down and strengthening Northern Ireland's grid

How data centres as flexible demand anchors can improve grid stability, reduce dispatch down and support Northern Ireland's transition to a cleaner, more resilient energy system.





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About

This white paper explores the interaction between grid infrastructure, renewable generation, and emerging large-scale electricity demand, highlighting how data centres, as flexible demand anchors, can improve grid stability, reduce dispatch down and support Northern Ireland's transition to a cleaner, more resilient energy system. This paper reflects GreenScale's perspective and analysis as a developer of data centre infrastructure and is intended to contribute to discussion on energy system development.

Key highlights



29.6%

Wind dispatch down rate in Northern Ireland in 2024. Nearly a third of available wind generation was reduced due to grid constraints and system balancing.



£110 million per year

Potential annual savings for consumers in Northern Ireland by 2030 if the 80% renewable electricity target is achieved.



945 TWh

Projected global data centre electricity demand by 2030, expected to more than double this decade.



Executive summary

Northern Ireland is entering a critical phase in its energy transition. While rising electricity demand from data centres is often viewed as a strain on power systems, when strategically located and designed to operate flexibly, data centres can instead be beneficial by unlocking the full potential of existing infrastructure, strengthening grid stability, and enabling greater use of renewable energy.

Northern Ireland, particularly the North West, possesses some of Europe's strongest wind resources, yet a significant share of this energy cannot be fully utilised due to transmission constraints and system limitations. At the same time, Northern Ireland has committed to sourcing [80% of electricity consumption from renewables by 2030](#), a target that will require both expanded renewable generation and a power system capable of efficiently integrating that energy. Against this backdrop, large electricity users such as data centres that cooperate with the grid present a significant opportunity.

01 Renewable energy potential in the North West is not fully realised

Northern Ireland has experienced rapid growth in wind generation over the past two decades, with wind now accounting for the [majority of renewable electricity production](#). However, much of the strongest wind resource is located in the North West, where local electricity demand is low and transmission capacity to other demand centres is limited.

Key challenges include:

- Limited transmission capacity between high-wind resource areas and demand centres
- Grid investment constraints, where network upgrades are typically triggered by confirmed demand, limiting proactive expansion
- Dispatch down of renewable generation during periods of high output

When renewable energy cannot reach demand centres, generation is reduced and the system relies more on conventional sources to meet demand. In Ireland, where there is limited alternative low-carbon flexibility such as battery storage, hydro, or nuclear, the grid must rely on gas generation as the source of stability. This raises costs for consumers and slows progress toward climate targets.



02 Large flexible demand can help unlock renewable energy

Data centres, which require significant and reliable electricity supply, can act as valuable demand anchors in regions with strong renewable resources. When located close to generation, they can make use of renewable energy that might otherwise be curtailed, reduce pressure on constrained transmission infrastructure and provide long-term, predictable demand that gives renewable projects the financial certainty needed to secure investment and proceed. System Operator for Northern Ireland (SONI) has recognised this opportunity, noting that large flexible demand in the West of Northern Ireland should be considered as part of wider policy solutions.

03 The North West is a strategic location for future data centre development

Across Europe, data centre development is now moving beyond traditional hubs including Frankfurt, London, Amsterdam, Paris, and Dublin (FLAP-D) where grid congestion limits further expansion. Developers are increasingly seeking locations with strong energy availability and faster connection timelines. The North West of Northern Ireland offers a combination of strong renewable resources, available land, and the potential to support new electricity demand that strengthens the grid rather than adding pressure to already constrained urban networks. The North West will also benefit in return from increased investment, job creation, and wider economic activity associated with data centre development.

When planned correctly and strategically located, data centres can act as demand anchors, turning underused renewable energy opportunities into a driver of economic growth while helping Northern Ireland move closer to its 2030 clean energy target.



Chapter 1

The all-island electricity grid: Structure and constraints

The All-Island Single Electricity Market (SEM) is the wholesale electricity market for both the Republic of Ireland and Northern Ireland. It is relatively small, isolated, and unevenly distributed. Limited interconnection and concentrated transmission infrastructure mean regional constraints can have a significant impact on system stability and the integration of renewable energy.

1.1 A small and isolated electricity system

The all-island electricity system, which includes both Northern Ireland and the Republic of Ireland, operates at a much smaller scale than many European power systems. Total installed capacity across all of Ireland is [around 16 GW](#), compared with [250+ GW in Germany](#) and around [75 GW in Great Britain](#).

Unlike many European countries, Ireland has no synchronous AC-to-AC interconnections with neighbouring electricity systems. Instead, it operates as its own synchronous grid. As a result, system frequency must be balanced independently from mainland Europe, making the network more vulnerable to disturbances and fluctuations in electricity generation. These characteristics have driven the development of world-leading approaches to system operation, renewable integration, and grid management. They also place particular importance on carefully balancing electricity generation, transmission infrastructure, and demand to maintain system stability while enabling continued decarbonisation.

1.2 Transmission infrastructure and network resilience

Transmission infrastructure across Ireland is unevenly distributed. High-voltage lines are concentrated around the main demand centres, particularly Dublin and Belfast, while the North West and neighbouring areas of Donegal are connected to the wider grid largely through lower-capacity transmission lines. Much of Northern Ireland's electricity network was originally developed during the [1950s and 1960s](#), and reflects the original design approach of connecting a small number of large, centralised power stations to both major and local demand centres. As the generation mix has evolved, with renewable resources often located in different regions to these legacy assets, this has created new challenges for how power is transported across the system.



Both the Northern Ireland and the Republic of Ireland power grids are linked by a single major North–South interconnector, which plays a critical role in maintaining stability across the all-island electricity market. A second North–South interconnector has been planned but not yet built, leaving transfer capacity at only a fraction of the intended level.

As a result, the Northern Ireland system must retain sufficient local generation and system support services to maintain stability in the event of disruption. In addition, limited transfer capacity significantly restricts the volume of renewable electricity that can be exchanged, constraining the more efficient use of generation across Ireland.





- 400 kV Station
 - 275 kV Station
 - 220 kV Station
 - 110 kV Station
 - Station to be energised in 2025
 - 400 kV Overhead Line
 - 275 kV Overhead Line
 - 220 kV Overhead Line
 - 110 kV Overhead Line
 - - - 220 kV Underground Cable
 - - - 110 kV Underground Cable
 - - - HVDC Cable
- Transmission Connected Generation:
- Thermal
 - Wind
 - Hydro
 - Pumped Storage
 - Solar
 - Wind/Solar

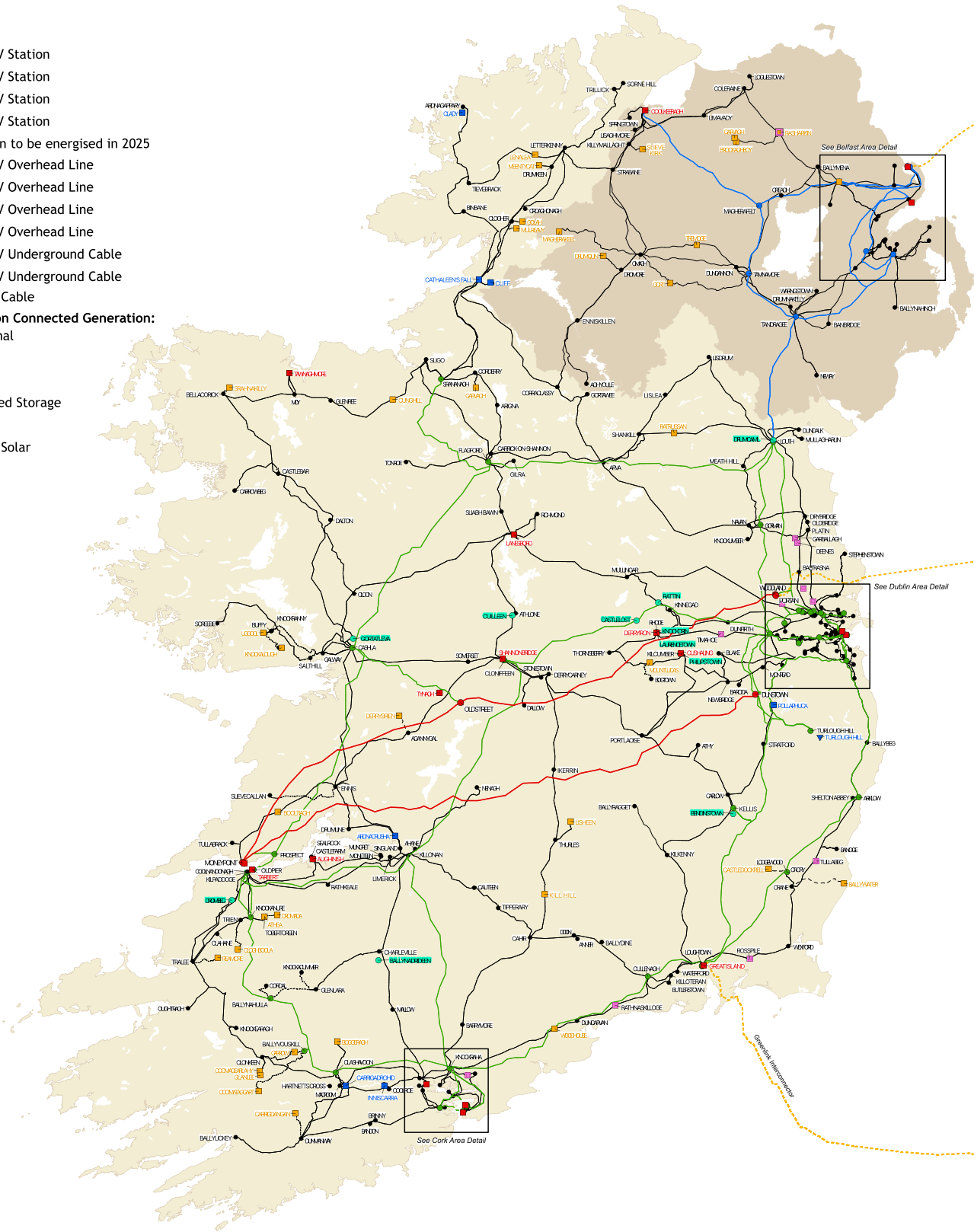


Figure 1: Map of the all-island electricity transmission system, illustrating the distribution of high-voltage lines (110–400 kV) and key substations, with notable clustering around Belfast and Dublin, and the North–South Interconnector providing a critical link between Northern Ireland and the Republic of Ireland, [Source: Eirgrid 2025.](#)



Chapter 2

Abundant renewable energy, limited local demand

Northern Ireland has developed significant renewable electricity capacity over the past two decades, yet electricity demand remains relatively low in many of the regions where renewable resources are strongest. At the same time, Ireland's largest demand centres are located elsewhere, creating a structural imbalance between where electricity is generated and where it is consumed.

2.1 Renewable energy growth and geographic concentration

Ireland is often described as the "Saudi Arabia of wind", particularly along its northern and western coastlines. These regions experience some of the strongest and most consistent wind speeds in Europe, resulting in high-capacity factors that make them well suited for large-scale wind generation.

The most productive wind regions on the island are concentrated in:

- The North West and along the western coast of Northern Ireland
- The West coast of the Republic of Ireland

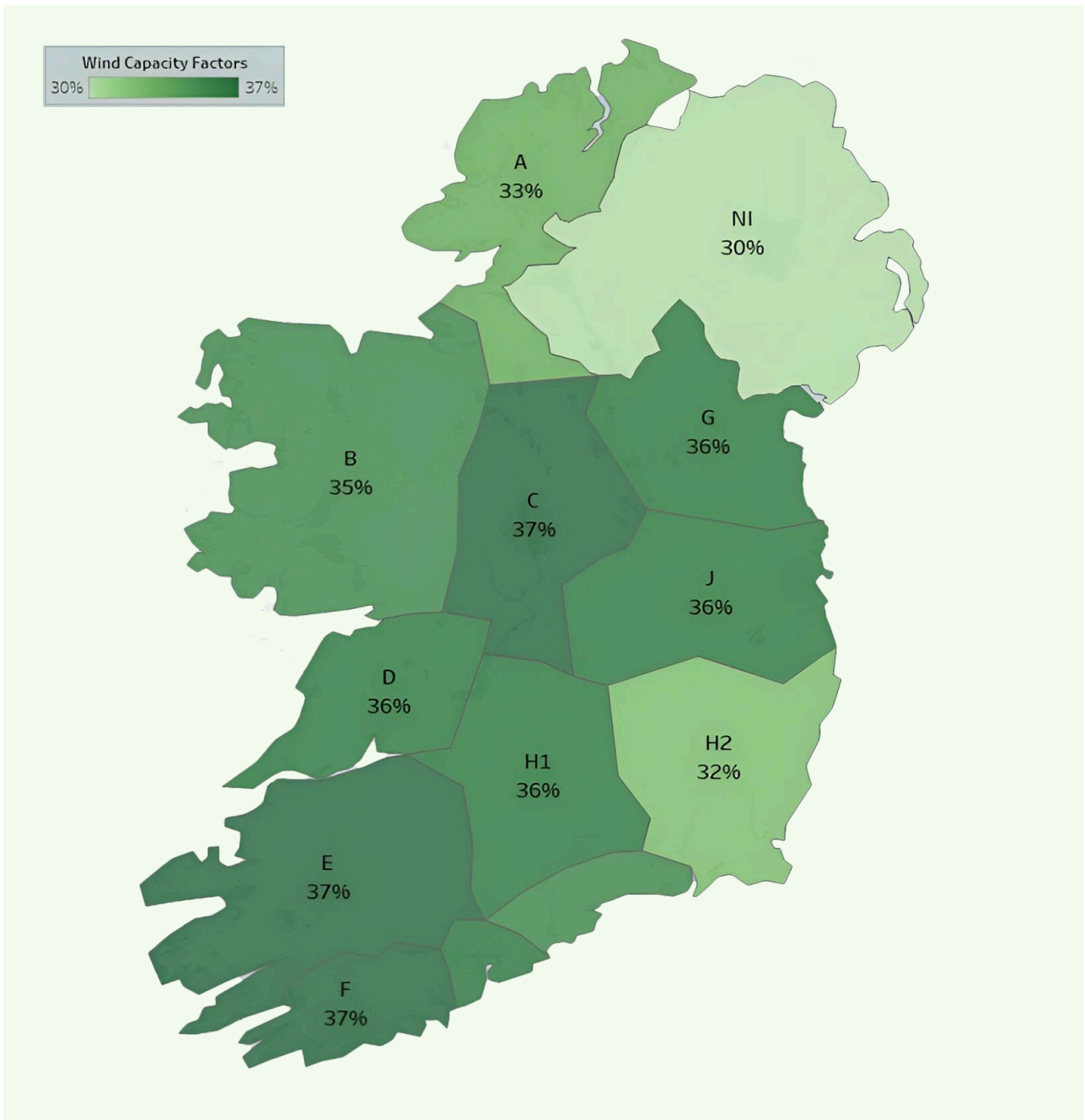


Figure 2: Onshore wind capacity factors across Ireland, with all regions exceeding 30%—a threshold generally considered high for onshore wind—indicating a consistently strong wind resource and underpinning Northern Ireland’s reputation as the “Saudi Arabia of wind.”
Source: SONI Northern Ireland Constraints Report, 2023.



Since the early 2000s, renewable electricity generation in Northern Ireland has expanded rapidly. From a near-zero starting point at the beginning of the millennium, renewable sources now account for [almost half of domestic electricity consumption](#). Wind energy dominates this growth. For the period from October 2024 to September 2025, [82.2% of all renewable electricity generated](#) within Northern Ireland came from wind power.

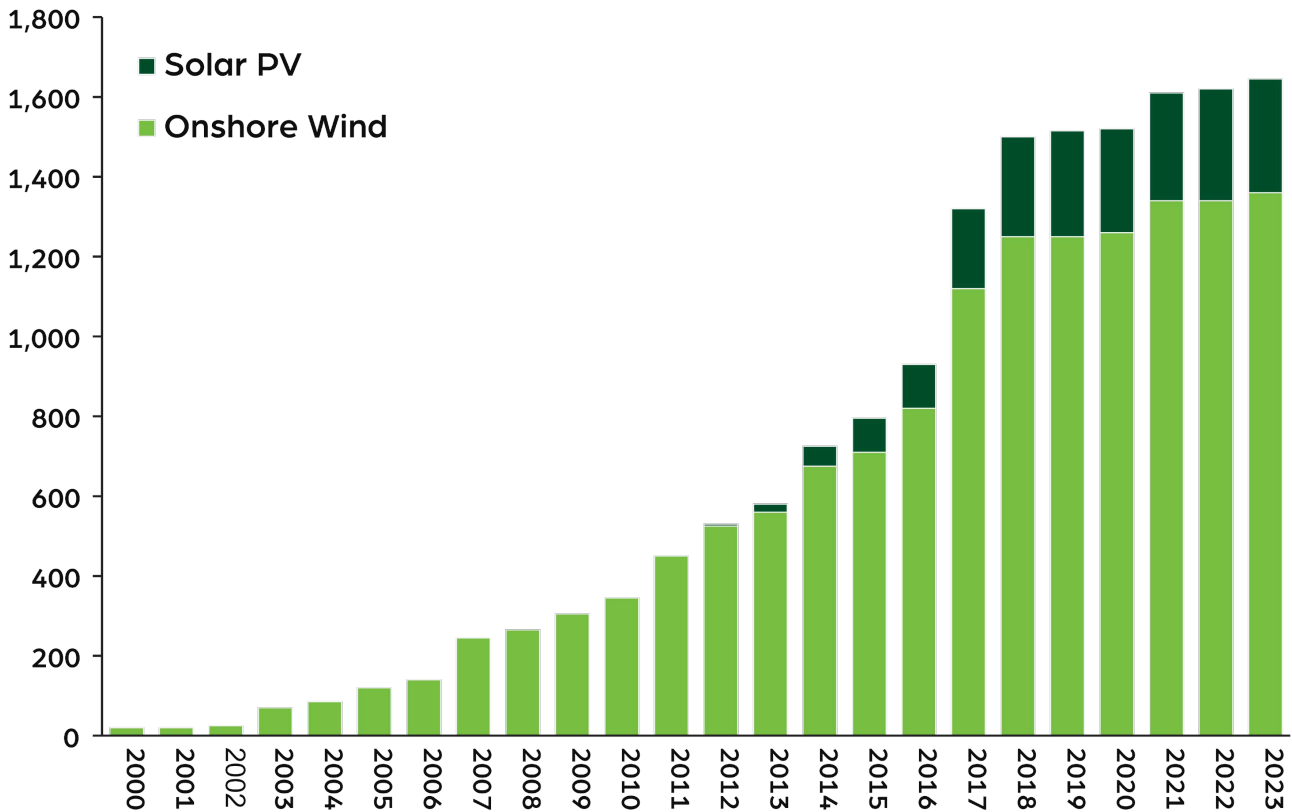


Figure 3: Approximate installed capacity of wind and solar generators in Northern Ireland, MW. This figure illustrates the rapid growth of renewable generation across Northern Ireland over the past two decades, particularly the expansion of onshore wind capacity. [Source: Renewable Rewards, September 2024.](#)



2.2 Dispatch down and the demand–generation imbalance

Many of the regions with the strongest renewable resources are sparsely populated and connected to the wider electricity network through relatively weaker transmission infrastructure. This limits the amount of electricity that can be transported to major demand centres during periods of high generation.

At the same time, electricity demand across Ireland remains concentrated in Dublin and Belfast, where most population, industry, and legacy thermal generation assets are located. Gas-fired power plants in particular are clustered near these demand hubs.

This geographic mismatch between where renewable electricity is generated and where demand is located increases pressure on the transmission system and contributes to higher levels of dispatch down during periods of strong wind generation. Dispatch down is when generators are instructed by the system operator to reduce output to maintain system balance or protect network security. In practice, this means that wind or solar generators may be required to lower production even when renewable energy is available, with wider system implications including the need for alternative generation and associated costs.



Chapter 3

Constraints, curtailment, and dispatch down

Northern Ireland has some of the strongest renewable energy resources in Europe, yet a significant share of that potential is not currently being fully utilised. When electricity generated from renewable sources cannot be transported, balanced, or used by the system, generation must be reduced. This leads to dispatch down. The result is that clean electricity is lost, fossil fuel generation continues to operate, consumer electricity costs rise, and the economic value of renewable resources is not fully realised.

3.1 Northern Ireland's dispatch down rate



[Wind dispatch down rate in Northern Ireland \(2024\)](#). Nearly a third of available wind generation was reduced due to grid constraints and system balancing.

In 2024, the dispatch down rate for wind energy in Northern Ireland reached its highest level on record. This means that almost a third of available wind generation could not be utilised by the electricity system during the year.

This imbalance between renewable generation and electricity demand highlights a key challenge for the energy system: the areas with the greatest renewable potential are not always the areas with the greatest electricity demand.



3.2 The causes of dispatch down

There are two primary drivers of dispatch down within the electricity system:

Curtailement

Curtailement is when not all available renewable electricity can be used, to protect overall grid stability. Electricity systems must remain balanced at every moment, with supply matching demand. When renewable generation exceeds what the system can safely accommodate, and there is insufficient storage or export capacity available, output must be reduced in real time.

Curtailement is therefore primarily a system balancing issue, reflecting the challenge of integrating variable renewable generation into a power system that must remain stable at all times.

Constraints

Constraints occur when available renewable electricity cannot be used because the network cannot transport it to where it is needed. In these situations, the wider electricity system may still require the energy, but local transmission limitations prevent it from being delivered. As a result, generators must reduce output even though demand exists elsewhere on the system.

Constraints are therefore driven by transmission infrastructure limitations. In Northern Ireland, since 2021, constraints have accounted for the [largest share of renewable dispatch down](#), reflecting the importance of transmission capacity in determining how renewable electricity can be used across the network.

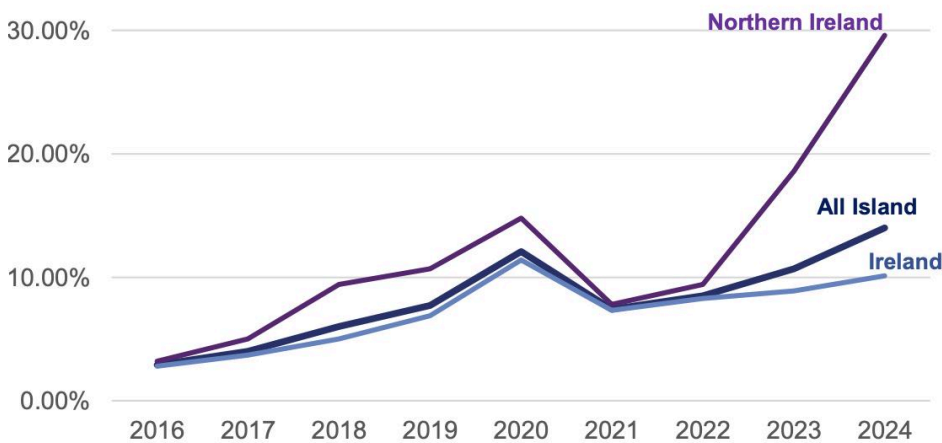


Figure 4: Dispatch down rates across the all-island electricity system 2016 – 2024, showing significantly higher levels in Northern Ireland. Source: [Northern Ireland Assembly Research and Information Service \(2025\)](#).

3.3 The consequences of dispatch down

Dispatch down has several important implications for the electricity system, affecting consumer costs, renewable investment, and environmental outcomes.

Consumer costs

When renewable generators are dispatched down, they may still receive compensation for the electricity they could have produced, depending on their contractual arrangements and grid connection status. At the same time, the system must rely more on stabilising sources such as gas turbines to replace this lost generation and maintain system stability. These generators often incur high start-up costs, and because electricity prices are set by the marginal generator, this can drive up wholesale prices. The overall effect is higher system costs, which are ultimately passed on to consumers through electricity bills.

Renewable investment

High levels of dispatch down can affect investment in new renewable projects. If generators expect a significant portion of their electricity output to be curtailed, the financial viability of projects becomes less certain. Lower realised output reduces the capture rate for renewable generators – the proportion of potential market value that they can secure – making future projects more difficult to finance.



System operators must also manage overall dispatch down levels to control costs. This can limit the volume of new generation that is able to secure grid connections, meaning that in some cases projects may not proceed at all.

Environmental impact

Dispatch down also has environmental consequences. When renewable electricity is reduced and replaced by fossil fuel generation, emissions increase and progress toward renewable energy targets slows. In effect, some of the island's strongest renewable resources remain underutilised while higher-carbon generation continues to operate.





Chapter 4

Growing data centre energy demand

Data centres are among the fastest-growing sources of electricity demand globally. As consumers and businesses make increasing use of digital services, including artificial intelligence, demand for reliable and large-scale electricity supply is rising rapidly.

4.1 Rapid growth in data centre electricity demand

According to the [International Energy Agency \(IEA\)](#), global investment in data centres has accelerated significantly in recent years. Investment has nearly doubled since 2022, reaching approximately \$500 billion in 2024 as demand for digital infrastructure continues to expand.

The electricity required to power these facilities is also increasing rapidly.

 **945 TWh**

[Projected global data centre electricity demand by 2030](#). This is more than double current levels and slightly higher than Japan's total electricity consumption today.

A key driver of this growth is the rapid expansion of artificial intelligence. Traditional computing workloads primarily relied on central processing units (CPUs), which historically consumed relatively small amounts of power. For example, Intel's first commercially available microprocessor, the 4004, required roughly [0.5 watts of power](#).

Modern AI workloads rely heavily on graphics processing units (GPUs), which are far more energy intensive. [NVIDIA's latest AI chips](#) can draw between 1.8 and 2.3 kW per chip, representing a dramatic increase in power demand compared with earlier computing technologies. And at the rack level, where a standard server rack in the early 2000s might have required 1–5 kW, AI-focused racks of over 100 kW are now increasingly common.



This shift is also reflected in the scale of modern data centre developments. A decade ago, a 20 MW facility would have been considered large. Today, AI-driven facilities are being designed at dramatically larger scales. In 2024, [OpenAI announced](#) plans for a 1.2 GW data centre campus in Texas, illustrating how quickly electricity requirements for digital infrastructure are expanding.

At the same time, the geographic distribution of data centre capacity across Europe is beginning to change. Historically, around [62% of European data centre capacity](#) has been concentrated in the traditional FLAP-D markets – Frankfurt, London, Amsterdam, Paris and Dublin.

However, as electricity grids in these locations become increasingly congested, and the power more expensive, operators are beginning to look beyond these established hubs. By 2035, the share of Europe’s data centre capacity located in FLAP-D markets is projected to [fall to around 51%](#), as developers seek locations with stronger power availability and shorter grid connection timelines for large-scale facilities.





Chapter 5

How policy is reshaping data centre development

Across Ireland, public policy is increasingly shaping where large electricity users locate and how they interact with the power system. Recent policy developments in the Republic of Ireland signal a shift toward encouraging large energy users to locate in areas where their electricity demand can support new renewable energy hubs rather than place additional strain on already constrained networks. This shift has been driven in part by the rapid growth of data centres in the Dublin region and the pressure this has placed on the electricity system.

5.1 Data centre demand and grid pressure in Dublin

Dublin is one of Europe's major FLAP-D data centre markets. As the sector has expanded rapidly, electricity demand from data centres has grown to become a significant component of Ireland's overall power consumption.

In 2024, data centres accounted for approximately [22% of metered electricity consumption](#) in the Republic of Ireland, highlighting the scale of their impact on the national electricity system. As demand increased, concerns grew about the ability of the Dublin electricity network to accommodate additional large-scale connections without significant reinforcement of grid infrastructure. In response, Ireland effectively introduced a moratorium on new data centre grid connections in 2021, limiting further expansion in areas where the grid was already constrained. Although this restriction was formally lifted in 2025, the policy approach that followed signalled a different direction for future development.

The large proportion of total electricity demand represented by data centres has also become a system stability issue. During periods of grid instability or short outages, data centres have historically disconnected from the grid and switched to backup power. When many large facilities respond simultaneously, this can worsen the disturbance. To address this, Ireland, along with markets such as France, Denmark, Finland and Texas, are introducing new [Fault Ride Through requirements](#) to ensure that large electricity users remain connected.

A key constraint is that traditional grid connections require operators to ensure sufficient capacity is always available. Delivering this level of certainty requires time, investment and network resources, which can slow down both data centre projects and other developments seeking connection.



5.2 The large energy user action plan

The Irish government's [Large Energy User Action Plan \(LEAP\)](#) sets out a new framework for managing the impact of electricity-intensive developments such as data centres.

Rather than relying solely on grid expansion to accommodate demand growth, the policy emphasises a more coordinated approach in which large electricity users are expected to actively support the operation of the electricity system.

Under this framework, large energy users are expected to:

- Bring their own power so they do not place additional strain on the grid
- Participate in grid-support mechanisms, including flexibility services or demand response
- Implement the Fault Ride Through requirements
- Manage their electricity demand in ways that support overall system stability

This approach reflects a broader policy objective: ensuring that large electricity users contribute to the resilience and flexibility of the power system.

Alongside LEAP, the Irish government has also introduced policy measures to enable direct connections between large electricity users and renewable energy generation. A new [Private Wires policy](#), approved in July 2025 and expected to be legislated in 2026, will allow developers to build private infrastructure that connects electricity-intensive facilities directly to renewable energy sources. By allowing large users such as data centres to connect directly to renewable generation, private-wire arrangements can reduce pressure on the public transmission network while enabling electricity demand to be aligned more closely with renewable supply.



5.3 Implications for future data centre development

Taken together, these policy signals indicate that future data centre development is unlikely to continue concentrating in already congested urban hubs such as Dublin. Instead, policymakers increasingly favour developments that make a positive contribution to the electricity system.

This is likely to shift investment toward regions with strong renewable resources and available grid capacity. It also aligns with the interests of data centre developers, as securing a traditional grid connection can take years, and at the pace of the industry this is time they cannot afford to wait.

As a result, there is a growing incentive to develop projects that bring their own energy and adopt more flexible connection models. This creates a more positive outcome for the system overall, where large electricity demand can help unlock renewable energy, improve system flexibility and support grid development, rather than intensify existing constraints.



Chapter 6

Unlocking Northern Ireland's renewable energy potential

Addressing Northern Ireland's high levels of dispatch down requires both infrastructure investment and better alignment between electricity generation and demand. Strategically locating large electricity users, such as data centres, in regions with strong renewable resources can play an important role in unlocking renewable energy and improving overall system efficiency.

6.1 Dispatch down caused by network constraints

In Northern Ireland, the majority of renewable dispatch down is driven by grid constraints. Even when electricity demand exists elsewhere on the system, limitations in transmission infrastructure prevent renewable power from being transported from where it is generated, mostly the windy North West, to where it is needed. As a result, generators may be instructed to reduce output despite favourable renewable generation conditions.

One solution is grid upgrades. The proposed [second North–South interconnector](#), a 400 kV transmission line connecting the electricity grids of Northern Ireland and the Republic of Ireland, would significantly increase the ability to move electricity across the all-island system from areas of high generation to areas of high demand. Analysis suggests the project could save Northern Ireland consumers approximately [£19 million per year](#) equivalent to around £52,000 per day, by reducing grid constraints and improving overall system efficiency.

There are alternative pathways forward. Rather than building new transmission lines to move power to demand centres, demand can instead be located closer to where renewable energy is generated. Large electricity users such as data centres can act as demand anchors, connecting to the local grid, or directly to renewable energy through private-wire connections and creating immediate local demand for clean electricity.



6.2 The benefits of co-locating data centres with renewable generation

Locating large electricity users near renewable generation can help reduce pressure on the transmission system while improving the utilisation of clean energy resources. When demand is placed close to generation, electricity that might otherwise be constrained can be used locally.

Co-locating large electricity loads near wind generation can:

- Reduce congestion on the transmission network
- Lower levels of dispatch down
- Improve utilisation of existing renewable assets
- Reduce transmission losses by minimising the distance electricity needs to travel.
- Improve the investment case for renewable generation by providing stable, local demand
- Reduce overall system and consumer costs by limiting network expansion and dispatch down costs
- Encourage the development of battery storage and other flexibility assets that help stabilise prices and support the local grid

The role of large electricity demand in addressing dispatch down has also been recognised by the system operator. In SONI's [2024 Dispatch Down Action Plan](#), it notes the importance of considering opportunities for flexible demand in regions with strong renewable resources.



“It is important to understand the interaction of demand in the context of dispatch down... the opportunities for large flexible demand in the West of Northern Ireland should be considered as policy opportunities.”

– SONI Dispatch Down Action Plan (2024)



Large-scale electricity demand can also support renewable investment through long-term power purchase agreements (PPAs).

PPAs provide stable and creditworthy demand for renewable electricity, reducing revenue uncertainty for developers and helping accelerate project deployment. Major technology companies, including Amazon, Microsoft, Google and Meta, have become some of the world's largest purchasers of renewable energy through these agreements.

Amazon alone has contracted [more than 45 GW of renewable capacity globally](#), making it the largest corporate purchaser of clean electricity. These purchases have displaced an estimated 35.5 million tonnes of CO₂, illustrating the scale at which corporate demand can support renewable energy development.

Policy frameworks are also beginning to recognise the benefits of aligning electricity demand with renewable generation, alongside a shift towards more proactive, plan-led grid development. This includes enabling transmission system operators to coordinate ahead of demand by planning in tandem with large energy users and generators, rather than relying solely on reactive connection applications. The Irish government's [Large Energy User Action Plan \(LEAP\)](#) highlights the importance of co-locating large electricity users with renewable energy infrastructure:



“Pro-active planning to co-locate very energy intensive industrial sites with renewable energy generation and other energy infrastructure will substantially improve coordination of private and public investment decisions.”

— Large Energy User Action Plan (LEAP)



6.3 The role of flexible electricity demand

Electricity system operators increasingly value flexibility and balancing services, not just energy supply.

These services can include:

- Injecting electricity during supply shortfalls
- Absorbing electricity during periods of excess renewable generation

Large electricity users such as data centres can be designed to provide these capabilities.

Data centres can operate as flexible demand, adjusting workloads or energy consumption in response to grid conditions. They can also participate in capacity markets or provide ancillary and balancing services through backup generation and energy management systems.

By providing flexibility during periods of excess renewable generation, these facilities can help reduce the need for curtailment and improve overall system efficiency. Lower curtailment levels can also improve the economics of renewable energy projects. Strong local data centre demand can shield renewable investors from unpredictable changes in power prices or constrained dispatch, enhancing revenue certainty and making projects more attractive and financeable.





Conclusion

The path forward

Northern Ireland possesses some of the strongest renewable energy resources in Europe. However, as this report has shown, a significant share of this potential is not currently being fully utilised. High levels of dispatch down, caused by both transmission constraints and system balancing requirements, mean that renewable electricity is regularly reduced even when it is available. This not only limits the utilisation of existing assets, but also slows the build-out of new renewable capacity and prolongs the period during which consumers are exposed to electricity prices set by gas-fired generation.

This inefficiency has several consequences. It slows progress toward climate targets, increases reliance on fossil fuel generation, and weakens investor confidence in new renewable projects. In effect, some of the region's best renewable resources remain underused while higher-carbon generation continues to operate.

Without improvements to grid infrastructure, increased system flexibility, and better alignment between electricity generation and demand, Northern Ireland risks continuing to waste renewable energy while struggling to meet its 2030 renewable electricity target.

Achieving that target is not only an environmental objective but also an economic one. Analysis suggests that reaching 80% renewable electricity by 2030 could deliver consumer savings of approximately [£110 million per year](#), while reducing carbon emissions by around two million tonnes annually.

Strategically located large electricity users can play an important role in addressing this challenge. When paired with private-wire connections, energy storage, and flexible operation, facilities such as data centres can help reduce dispatch down, create stable demand for renewable electricity, and improve utilisation of existing renewable assets.

Rather than placing additional strain on the electricity system, large electricity users have the potential to act as demand anchors, supporting a cleaner, more efficient and more resilient electricity network.



Recommendations

To fully unlock Northern Ireland's renewable energy potential, a coordinated approach across infrastructure, policy and system design is required.

1. Accelerate grid infrastructure upgrades

Investment in transmission infrastructure will help reduce grid constraints and allow renewable electricity to move more efficiently across the all-island system.

2. Encourage strategic demand location

Energy-intensive developments should be encouraged to locate in regions with strong renewable resources and available network capacity, particularly in areas currently experiencing high levels of dispatch down.

3. Enable direct renewable connections

Policies that support private-wire connections between renewable generation and large electricity users can help align demand with generation and reduce pressure on constrained transmission infrastructure.

4. Expand system flexibility

Greater use of demand response, storage, and flexible consumption can reduce curtailment and improve system stability. This should be enabled by regulatory and market reforms, including non-firm connections for data centres paired with co-located renewables or storage to accelerate access while enhancing flexibility. In parallel, frameworks should support multi-investor energy hubs, allowing behind-the-meter trading without grid charges, while still enabling participation in wider electricity markets and grid services.

5. Support demand anchors for renewable growth

Strategically located data centres and other large electricity users can provide long-term demand that supports renewable investment and improves utilisation of existing clean generation assets.

In this context, the North West of Northern Ireland represents a significant opportunity. With strong renewable resources and relatively lower levels of demand, the region is well positioned to host developments that align electricity demand with renewable supply. Projects such as [GreenScale's Derry Campus](#) demonstrate how flexible demand located close to renewable generation can help unlock stranded renewable energy, improve regional grid efficiency, and support Northern Ireland's transition to a cleaner, more resilient, and more affordable electricity system.

Disclaimer

This paper reflects GreenScale's perspective and analysis as a developer of data centre infrastructure and is intended to contribute to discussion on energy system development. It is based on publicly available information believed to be reliable; however, its accuracy and completeness cannot be assured.

Acknowledgements

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