IRELAND'S DATA HOSTING INDUSTRY

Host In Ireland

An Industry of Substance

Biannual Report

May 2021

In association with

bitpower
energy solutions

CORNWALL INSIGHT
CREATING CLARITY

Host In Ireland

IRELAND'S DATA HOSTING INDUSTRY

An Industry of Substance

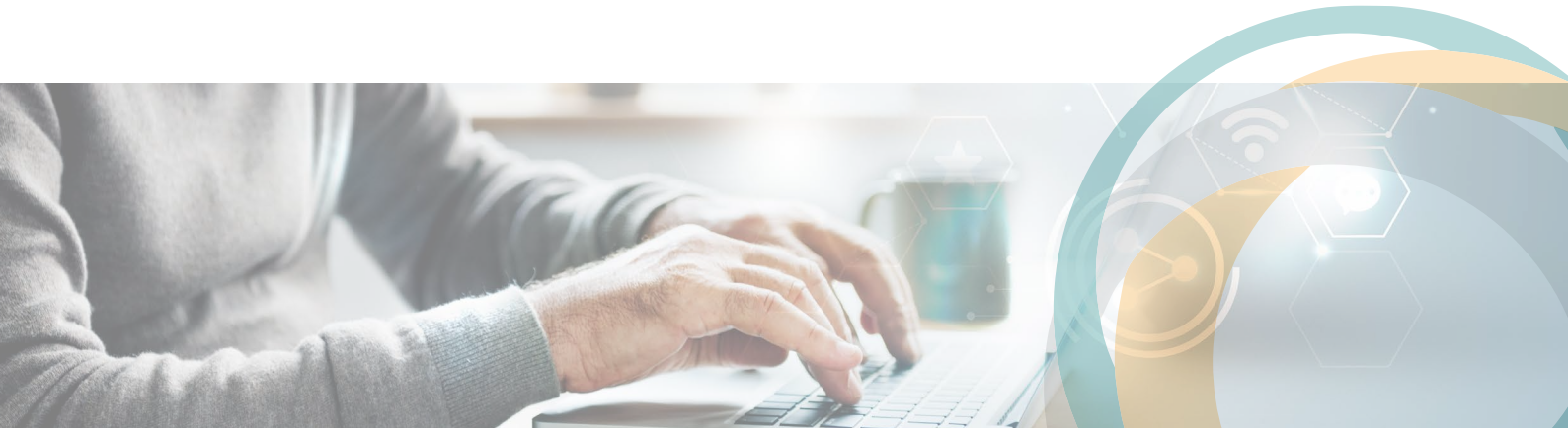
Biannual Report
May 2021

Foreword	3
Market Update	6
Grid Usage Index	8
Dashboard	10
Host In Ireland	11

bitpower
energy solutions

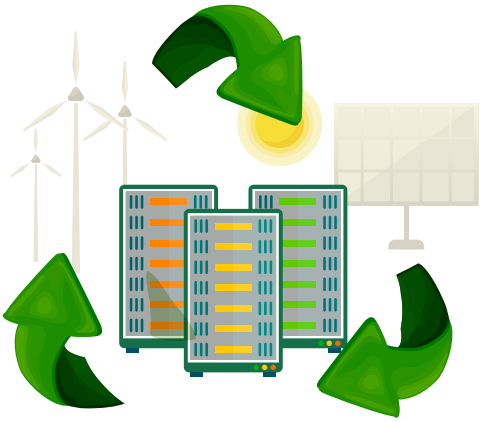
CORNWALL INSIGHT
CREATING CLARITY

Foreword



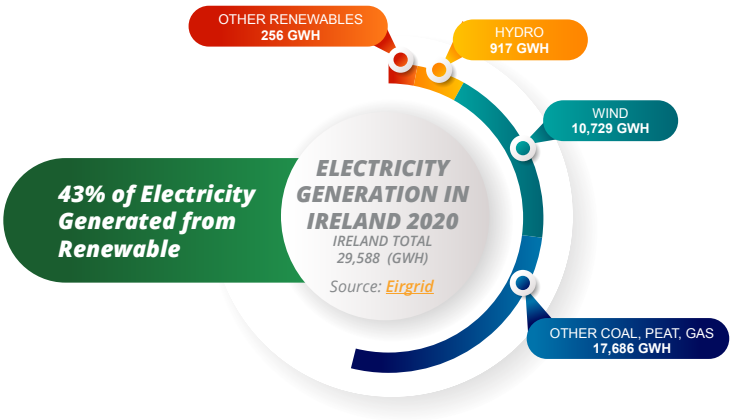
One of the long lasting effects of the pandemic has been the rapid digital transformation of businesses worldwide. Digital transformation is the process of using data and digital tools to enable new types of innovation and creativity to enhance or replace traditional services and business processes. Microsoft CEO, Satya Nadella, *noted* companies saw "two years' worth of digital transformation in just two months" after the pandemic struck. Companies are recognising that the need to innovate is not a short term fix, but rather a long term "digital first" strategy for the well-being and survival of their businesses. In fact, a recent *survey* found that 50% of Irish businesses believe their company won't be able to survive in 10 years without a digital transformation plan in place.

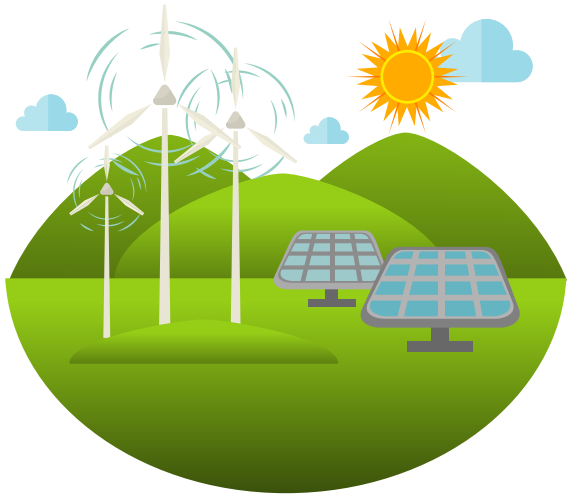
As data is at the core of this transformation, the centres supporting it will play an essential role and sustainability will need to be at the heart of it. To this end, by example, in 2021 we have seen several big initiatives announced in Ireland and Europe. The *Climate Neutral Data Centre Pact* was agreed upon by more than 30 data centre operators and 20 national associations to make data centres climate neutral in Europe by 2030. This is a good initial step to bring together the European data centre industry to actively play its part in addressing the serious climate challenges we face as individuals, an industry and society. Host in Ireland has always believed in the power of the collective. The commitment of data centre owners, operators and trade associations to work as a whole to achieve these goals provides the strongest foundation for success.



This type of initiative is not just aspirational, but can make a practical difference. Here in Ireland, the government's target of 40% annual green electricity generation was exceeded in 2020. Of Ireland's greenhouse emissions targets, electricity generation was the only renewable target met, and as a result, the only one not to incur penalties. That is no small feat, and there is certainly much more work to be done, but it does showcase how organisations can come together to make a difference.

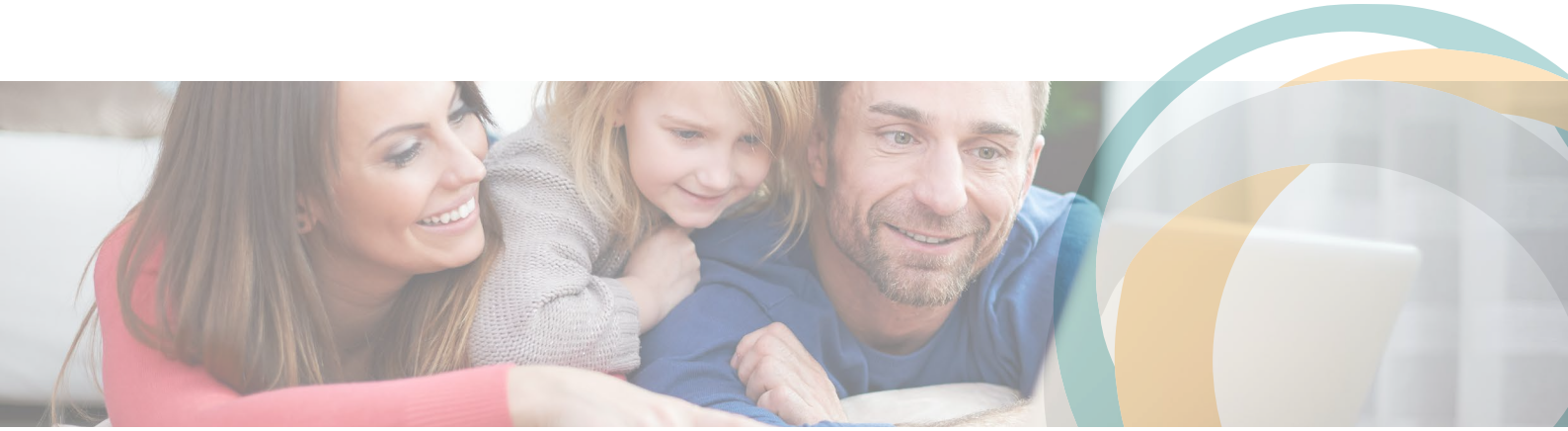
The Electrical Generation and Distribution companies and their customers – including large scale electricity users like data centres – needed to be aligned to make this happen.





That type of collaboration will be put to the test even more in the near future. Here in Ireland proactive steps are being taken to revolutionise the electricity grid to ensure there is the right type and amount of electricity to support a minimum target of 70% renewables by 2030.

Eirgrid has launched an open consultation, *Shaping Our Electricity Future*, to ensure at least 70% of Ireland's electricity comes from renewable targets by 2030. The government has also passed the *Climate Action Plan* to set Ireland on the path to net-zero emissions no later than 2050, and to a 51% reduction in emissions by the end of this decade. We commend these actions and believe they are critical and non-negotiable steps to ensure a strong decarbonised society for Ireland, including the electrical system.



With these plans and initiatives, we will see more design and operational changes in Ireland's electrical grid over the next decade than in the past 80 years. There has not been such a significant change since the electrification of Ireland in the 1940s. The industry is responding by looking to disrupt itself before it is disrupted for them. The engineers are innovating, designing and exploring new ways to not only decarbonise the grid, but create a prosumer led one that will allow users to also become suppliers. Ultimately it is going to require a greater level of collective purpose between the electricity producers and the emerging data-led industries to not only co exist but benefit from each other.

So now it's time once again for the data centre industry to be brave, creative and relentless to meet this challenge. As our dependence on data grows, so too does our need for data centres and the people who make the magic happen. The *"this is how we've always done it"* mindset is not going to maintain and grow one of Ireland's largest export industries. The more relentless we are today, the more we will reap the benefits and define the success of the industry in years to come.

When all is said and done, let's get more done than said.

Garry Connolly

Founder – Host in Ireland

Host In Ireland

Market Update

2020 saw Ireland reaching a key milestone in its target to reach 70% renewable electricity by 2030. In 2020, Ireland produced over 40% of its electricity by renewable means[1].

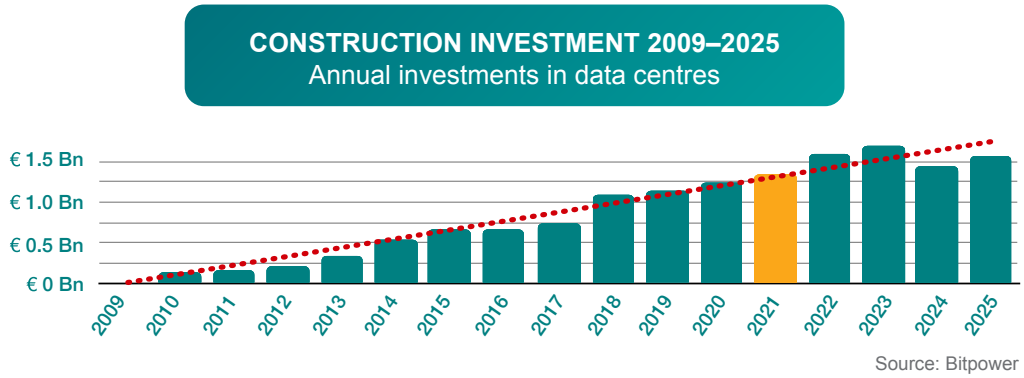
We have seen a 25% increase in completed data centre capacity over the past 12 months. The 70 operational data centres total 900 MW of connected power capacity. Ten new data centres came on line since this time last year. We estimate the industry represented about 1.85% of Ireland's total carbon emissions in 2020[2].

Well-documented[3] corporate commitments to carbon neutrality and 100% renewable energy open the door to Irish renewable energy assets, both through the existing grid mechanisms and through corporate Power Purchase Agreements. Ireland's abundant renewable energy resources (especially offshore wind and new solar) will form an important piece of the solution to increased power demand in the future. In 2020, almost 800MW of new solar power and 500MW of onshore wind was granted grid access. With 6 to 8 GW of offshore wind capacity expected to be built off the east coast over the next decade, there will be an abundance of renewable electricity to service demand.

In March 2021, *EirGrid opened up a new public consultation* on the future development of Ireland's power system to help create an agreement on an approach to reach 70% renewable electricity by 2030.

Construction Investment

Construction Investment in data centre facilities in Ireland totalled €7 billion in the decade between 2010 and 2020. In the coming five years, we anticipate a further €7 billion of investment, based on data centres with approved planning permission. €1.33 billion will be spent in 2021, and €1.5 billion in 2022 and 2023.



Source: Bitpower

Planning and Development Activities:

Since our last update, Amazon Web Services (AWS) received approval for and commenced construction of a development in west Dublin, to add another zone to the three already developed in the Dublin Metro area. When the previously approved Drogheda development is built, AWS will have a presence in five clusters around Dublin. Two new data centres are also planned in Clonshaugh.

Microsoft submitted a planning application for a further two data centres in West Dublin to add to the ten already built on the site. Facebook continued to progress its development in Clonee, Meath.

Wholesale operator EdgeConneX received planning permission in West Dublin following an appeal to An Bord Pleanala. The CyrusOne development of two data centres is largely complete, with additional planning approved for a further two on the site. Echelon also applied for planning for two new facilities in West Dublin.

As always, we hope these insights are helpful. More detailed analysis of the industry is available through ***bitpower.ie***.

David McAuley
Founder & CEO – Bitpower
bitpower
energy solutions

1 *https://smartgriddashboard.eirgrid.com/*

2 Based on 50% utilisation of the circa. 820MW operational through 2020, and on expected 2020 CO2 intensity levels (300gCO2/kWh), in line with our CO2 analysis in our *Nov 2020 Biannual Report*.

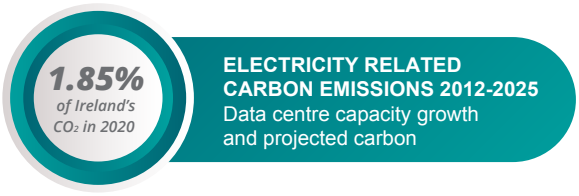
3 *Microsoft Sustainability microsite*, *Apple Sustainability*, *Google Sustainability*, *AWS Sustainability*

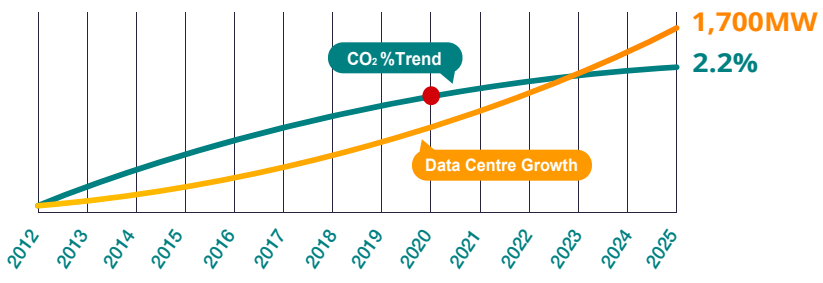
Grid Usage Index

As Ireland moves towards net-zero carbon emissions by 2050, questions are being raised as to how data centres fit into those ambitions. There is a concern data centres are growing at an unsustainable rate relative to net-zero targets. Let's examine where the numbers really take us and understand why.

One of the challenges of success for Ireland is that whilst our grid is relatively small in comparison to others in Europe, the demand for renewable electricity is growing. In 2020, the renewable portion accounted for more than 40% of the total grid generation. This includes requests from the data centre industry which currently consumes 11% of the energy generation on the grid today. Based on the latest version of our "All-Island forward curve" - a forecast of the future market structure - we expect this number to increase to 19% in 2026. While this represents an 8% increase in the proportion of data centre megawatt power consumption versus the available energy generation, it is important to note in this same five year time frame data centre growth is expected to double. Data centre power consumption will not grow at the same rate as industry growth.

The National Electrical Grid in Ireland is looking to transform at an unprecedented rate between now and 2030 to meet the target of annualised minimum 70% renewable electricity. To accommodate this transition, large energy users, such as data centres, are likely to become more "prosumer" in nature, meaning they will both consume and generate





Source: Bitpower

electricity for the grid. Given that renewables are intermittent, data centres' power quality and generation assets could be used to increase the effectiveness or reliability of renewable generators. This has a double benefit of providing a balance on the grid and a reduction in grid owned power generation assets, which ultimately can reduce the total price of electricity the consumer pays.

As has been highlighted in this report, the government targets were not only met in 2020, but exceeded. In fact, in February 2021, we achieved 46% renewable energy generation for the month. If we continue along these lines, the need for concern about large scale power users will not be warranted. Working together we have an opportunity to ensure Ireland meets its net-zero emissions targets.

Peter Connolly

Managing Director

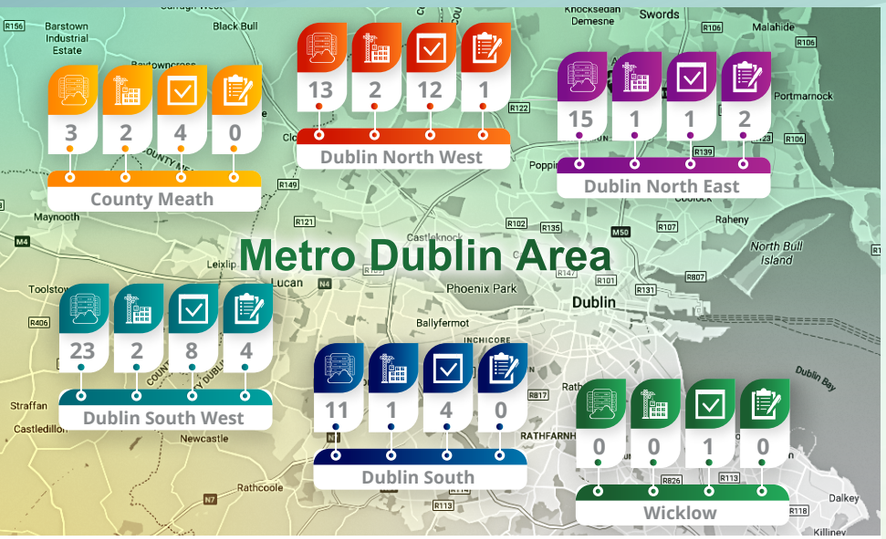
CORNWALL INSIGHT
CREATING CLARITY

BIANNUAL REPORT – MAY 2021

Host In Ireland

bitpower energy solutions

CORNWALL INSIGHT
CREATING CLARITY



ELECTRICITY GENERATION IN IRELAND 2020

IRELAND TOTAL 29,588 (GWH)
Source: Eirgrid

- OTHER RENEWABLES 256 GWH
- HYDRO 917 GWH
- WIND 10,729 GWH
- OTHER COAL, PEAT, GAS 17,686 GWH

43% of Electricity Generated from Renewable

BUSINESS IMPACT

ICT in the Economy

- **€132 Bn** ICT Exports in 2020 *Source: CSO*
- **96%** Positive Sentiment in 2020 Source: Host in Ireland August 2020 Survey
- **€1.33 Bn** Projected Construction Spend in 2021 Source: Bitpower
- **€7 Bn+** Construction Growth 2021-2025

OPERATIONAL SCALE SNAPSHOT

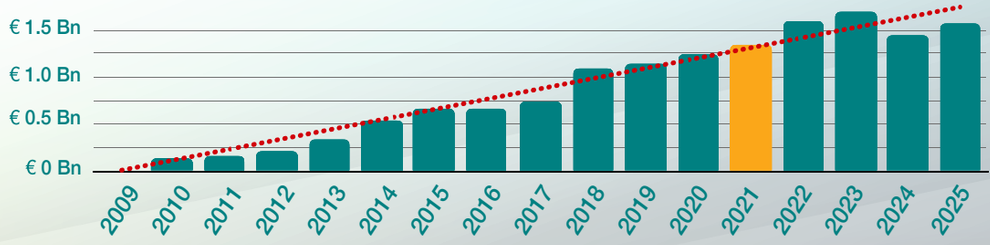
Capacity and footprint of operational data centres
Source: Bitpower

- COLO WHOLESALE 16.3%, 146 MW
- COLOCATION 8.4%, 75 MW
- PRIVATE 1.4%, 13 MW
- HYPERSCALE 73.9 % 664 MW

Data Centre Types by Designed Power Capacity (MW)

CONSTRUCTION INVESTMENT 2009–2025

Annual investments in data centres

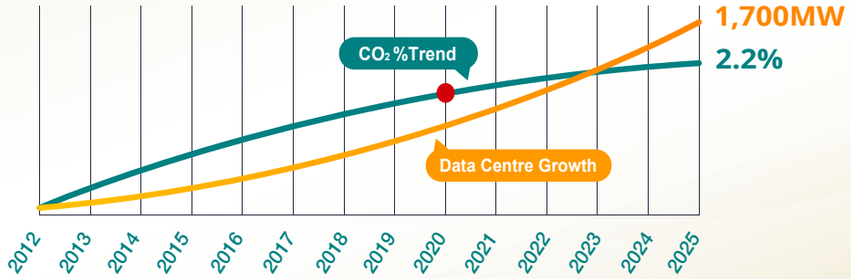


Source: Bitpower

1.85% of Ireland's CO_2 in 2020

ELECTRICITY RELATED CARBON EMISSIONS 2012-2025

Data centre capacity growth and projected carbon



Source: Bitpower

8 Under Construction Data Centres — 255 MW
Source: Bitpower

70 Operational Data Centres — 900 MW
Source: Bitpower

Host in Ireland

Host in Ireland is an award-winning strategic global initiative created to increase awareness of the benefits of hosting digital assets in Ireland as well as Irish companies that are designing, building, and operating data centres globally. There are many benefits to hosting in Ireland: access to affordable power; redundant network and bandwidth capacity; along with a variety of data centre providers that offer an array of services sustained by the "6 Ps": Policy, People, Pedigree, Pipes, Power, and Proximity. Ireland is not only the optimum location to host data, but as a global centre of excellence, it is also exporting data centre related products and services all over the globe.

Host in Ireland Partners

Although many of Host in Ireland's partners are competitors, they have come together as a collective through Host in Ireland. This collective work together to promote the capabilities of Ireland as a centre of data excellence.

CONTACTS:

GARRY CONNOLLY
Host in Ireland
garry@hostinireland.com
www.hostinireland.com

DAVID MCAULEY
Bitpower
david@bitpower.ie
www.bitpower.ie

PETER CONNOLLY
Cornwall Insight
p.connolly@cornwall-insight.ie
www.cornwall-insight.com

Host In Ireland

bitpower
energy solutions

CORNWALL INSIGHT
CREATING CLARITY