Shaping our Electricity Future
Consultation Submission by Cloud Infrastructure Ireland

About Cloud Infrastructure Ireland

Cloud Infrastructure Ireland (CII) is a trade association within Ibec focused on the infrastructure policy issues that affect cloud providers. Ireland's cloud infrastructure enables much of the Irish and global digital economy worth billions and is responsible for tens of thousands of jobs. A thriving cloud infrastructure is vital to Ireland's economic success, as a growing number of businesses locate in regions with well-developed cloud infrastructure. CII seeks partnership with national and local governments to protect and nurture cloud infrastructure to enhance Ireland's global economic standing.

Introduction

Cloud Infrastructure Ireland welcomes the opportunity to respond to the "Shaping our Electricity Future" consultation ("Consultation"). A stable, planned electricity grid is critical to our sector's ability to grow and thrive in Ireland. Our members have been investing in cloud infrastructure in Ireland for almost two decades and would like to continue to do so. Our submission provides background to our industry and our views in relation to the options outlined in the consultation document.

While cloud computing has grown globally by 550% between 2010 and 2018, energy consumption rose in tandem during the same period by 6%, clearly demonstrating the energy efficiency gains of the industry, most notably by hyperscale data centres.[1] Further, the same hyperscale data centres are spearheading carbon free energy initiatives, thus supporting the clean energy transition. That means that a person or company can immediately reduce the energy consumption and emissions impact associated with their computing simply by switching to cloud-based software.

Dependable energy supply is vital to cloud infrastructure for continued growth of the industry. Cloud infrastructure hyperscale companies have demonstrated their willingness to be part of the energy solution and applaud EirGrid for their proactive steps to listen and respond.

To date, the only policy document outlining a plan for the cloud infrastructure sector is the Department of Enterprise, Trade and Employment's 2018 *Government Statement on the Role of Data Centres in Ireland's Enterprise Strategy* ("Enterprise Strategy"*)*. While welcome in its robust acknowledgement of

[1] Masanet, Eric; Shehabi; Arman, Lei; Nuoa, Smith, Sarah; Koomey, Jonathan; "Recalibrating global data center energy-use estimates", Sciencemag.org, February 28, 2020, Vol. 367, Issue 6481; ("Expressed as energy use per compute instance, the energy intensity of global datacenters has decreased by 20% annually since 2010….").

our industry's contribution, it does not provide the detail we need to make future business decisions, particularly given the current grid challenges.

In Ireland, data centres were classified as essential services in 2020 with the realisation that much of Ireland's economy would move to the cloud as a way to navigate the Covid pandemic to mitigate risk. In addition, the importance of the sector has been acknowledged at the highest political levels with Tánaiste Leo Varadkar saying; "Data centres are an increasingly important part of the digital and communications sectors and are core infrastructure in the remote working and digital services economy. The transition to a digital economy is well underway. It is impacting all sectors of the economy, and Ireland is well positioned as a digital gateway to Europe. Data centres and the services they provide act as a 'hook' for further investment and job creation."

We welcome and support a new, detailed plan from EirGrid resulting from this Consultation and recommend it is supported by a clear statement of policy from government – to update the Enterprise Strategy – which enables our sector to continue to invest in Ireland as a centre of excellence for cloud infrastructure. At the same time, we recognise that the CRU has released the CRU Proposed Direction to the System Operators Related to Data Centre Grid Connection ("CRU Consultation"). CII looks forward to thoroughly reviewing the CRU Consultation. As a preliminary matter, we appreciate CRU's engagement on this important issue. We will further consider the information provided in the CRU Consultation and welcome the opportunity for future engagement and alignment.

The Importance of the Cloud

The COVID-19 pandemic demonstrated the central importance of cloud infrastructure to the economy and society. Within days, work, school, commerce, and entertainment moved seamlessly from in-person to the cloud. 15 months later the cloud is embedded as fundamental to how we live, work, and interact. Ireland has world-leading cloud infrastructure, which positions it at an advantage in Europe in terms of high-tech job creation, large-scale investments, and innovative technologies.

AWS, Google, and Microsoft all invested in data centres in Ireland in the early 2000s. Since then, those companies and others have grown their infrastructure, investment, and technical employee base here, making the cloud industry a leading employer and contributor to the Irish economy. In 2018, an IDA study found that data centres contributed a total of €7bn in economic activity over the previous seven years and that there are more than 20,000 jobs in the computer, electronics and optical equipment sector; which are largely supported by those operating data centre infrastructure here.[2] IDA Ireland estimates that there are 80 major companies providing services to data centre operators in Ireland and abroad and the export value of those contracts is worth €2bn to the Irish economy.[3]

Cloud computing is the engine that will power the digital economy over the coming decades. Increasingly businesses are seeking to locate in regions where they have access to the cloud computing resources needed to support them to scale. For Ireland to maintain its status as one of Europe's leading digital hubs it is essential that the digital infrastructure needed to deliver cloud services can keep up with growing consumer and business demand by developing in the regions where it is needed.

[2] idaireland.com/newsroom/publications/ida-ireland-economic-benefits-of-data-centre-inves

[3] daireland.com/newsroom/blog/october-2020/ireland-at-the-heart-of-the-digital-economy

Cloud Infrastructure Ireland Submission to Shaping Our Electricity Future Consultation

As a global centre of excellence for cloud infrastructure, Ireland must mitigate the challenges that come with scale. Growth in electricity demand is a global phenomenon, driven by the electrification of transport, heat and industry, and in part by increased demand for the digitised products that we have all come to rely on. Each of these will make important contributions to decarbonizing the global economy. In Ireland, the capacity and resilience of the power grid is critical given the global infrastructure based here. Cloud Infrastructure Ireland wants to play its part, by working with Eirgrid to find the right solution to facilitate our sector to grow and thrive while contributing to Ireland's renewable energy goal of 70% by 2030. Already, our members have ambitious global climate targets, which will help Ireland achieve its equally ambitious 2030 goals.

Shaping our Electricity Future

EirGrid has put forth four possible options for the future of the Irish grid. CII does not believe that any one approach is the right choice for the Irish grid. A blended plan that identifies and selects the best possible aspects of all four approaches is essential. The final plan should prioritise a grid that can reliably and cost effectively support 70% renewable energy by 2030; be delivered at pace with minimal risks of delays from permitting; rely on market signals to encourage customer behavior; and allow continued opportunities for business growth - from both demand side customers and renewable energy developers. Taking those aspects into account, we see positive and negative elements across all four options.

The **Generation-led approach** will support investments in offshore wind development, a valuable source of renewable energy. Offshore wind may also create a generation source that can produce green hydrogen, which could displace natural gas generation in the future. The Generation-led plan can also alleviate grid congestion in the Dublin metro area and allow for business growth in the region. Given the importance of the Dublin area for business investment, this should be a priority focus for the plan. We also recognize that the Generation-led plan presents different risks of project delay that need to be considered. Developing offshore wind in Ireland is new, and EirGrid needs to assess and understand the permitting challenges that may arise from this new resource, while also ensuring continued improvements in efficiency of permitting for onshore wind. Both technologies play an important role in the renewable energy economy of Ireland. The revised network development framework must also account for the role of other renewable and carbon-free energy resources, such as solar PV, hydrogen, battery energy storage, and 'firm' carbon-free resources. Ireland's long-term objective will be to completely decarbonize electricity supply, and there must be potential for the market to deliver this goal in a way that is cost-effective for consumers by deploying the optimal mix of resources.

CII Members are buyers of renewable energy through corporate power purchase agreements (CPPAs). Onshore wind projects can be good candidates for CPPAs and draw private capital to finance these projects and support the pathway to 70% by 2030. We caution that the Generation-led approach should not foreclose opportunities for offshore wind CPPAs. The development of offshore wind should be competitive, be open to different contracting models, and leverage market forces to keep costs low for Irish electricity customers.

The **Demand-led approach** is of great importance to CII since it suggests that our members make siting decisions based on the electricity grid. In practice, many other critical factors, including access to fibre

network, other utilities, transport connections and suitable land are crucial considerations when selecting the most suitable site within a country. We recognise the importance of a reliable and resilient electricity grid to support our business operations. CII members have worked closely with EirGrid to be participatory customers in grid planning and remain ready to collaborate and partner with EirGrid on the future of the Irish grid. Electricity, and most importantly, renewable, and carbon-free electricity are a priority for our members. We realise that locating energy intensive facilities near generation can reduce the need for additional transmission infrastructure. We believe this option can become part of the plan for the Irish grid and that customers can be encouraged to locate near generation.

However, we are strongly opposed to the suggestion that a Demand-led dimension of the revised, blended development plan should be realized via government restrictions or regulatory requirements. The introduction of hard locational limits should only be considered as a last resort. EirGrid should instead develop market signals that encourage CII members and other businesses to consider locations where the grid has excess capacity. We appreciate the proposals made regarding solutions-oriented market and tariff reforms that could facilitate the greater market transparency and granularity necessary to incentivize consumer-action. We also support EirGrid considering tariff revisions that could enable rate structures, efficient transmission build-out, and firm transmission products. Grid operators commonly use market signals to incentivize different behaviors. This is the principle behind the demand-side participation program in Ireland and it is the same principle that underlies time variable rate structures around the world. This principle can be applied to the Demand-led option. EirGrid can develop locational pricing programs that encourage large energy users to develop near available generation. Such reforms should be implemented with safeguards to ensure that locational pricing does not result in significant cost increases for customers in congested regions who cannot easily relocate. CII stands ready to work with EirGrid to structure these programs and create market signals that will be meaningful to our members.

It is also essential that the Demand-led dimension of the revised development framework does not restrict Dublin's ability to serve growing demand from businesses and consumers, including cloud computing and other digital services. Developing the cloud infrastructure needed to serve Dublin's digital growth requires proximity to its fibre network and customers. Capacity constraints and generation adequacy issues must be urgently resolved in the Dublin region to allow the city to retain its position as one of Europe's leading digital hubs. EirGrid must continue to invest in reinforcements in the Dublin region. It should also review international best practices and make any necessary reforms to capacity markets to ensure they deliver the supply needed to meet Dublin's electrification demands.

The **Developer-led approach** presents a continuation of how grid planning and development takes place today. It aims to support the expansion of the grid for investments in new generation, with a focus on transmission to move power from sources of renewable generation to demand centres. Though the study makes clear that the Developer-led option will not be adequate to meet the current and future needs of the Irish grid, there are important aspects of the Developer-led option that need to be retained in the final plan. Transmission infrastructure ensures grid reliability, is the lifeblood of a thriving renewable energy economy and is necessary to enable a competitive market for new wind and solar projects. It is also important to facilitate projects that can be financed via CPPAs. EirGrid should identify and prioritise the

construction of the projects identified under the Developer-led option that will have the greatest impact in unlocking new renewable generation. These projects should focus on providing the infrastructure necessary to facilitate efficient utilization of the greatest quantity of new renewable energy across Ireland. EirGrid should also look ahead to which projects included in the Developer-led option could be necessary to support business growth in the future and consider advanced planning that puts these projects on a path to rapid deployment. Ireland's future for business investment remains important beyond 2030 and projects included within the Developer-led option may be vital to facilitate that growth in the future.

Elements of the **Technology-led approach** must also feature in the revised framework for network planning and development. CII is a coalition of technology companies that focus on delivering best in class cloud computing to customers around the world. We strongly support using technology to solve tough problems on the Irish grid. There are a variety of new technologies that can play a role on the EirGrid system. These include battery storage, hydrogen, and data processing and management systems to better manage power flows on the transmission system. Some of these technologies may require EirGrid to lead, while others could be deployed by customers that are encouraged by price signals. We believe that technology must play a sizable role in the EirGrid plan and that additional technologies need to be considered and included in the final plan. We strongly encourage EirGrid to take a broader view of technology and consider additional solutions that can play a role in the future of the Irish grid.

Conclusion

Cloud Infrastructure Ireland applauds EirGrid for putting forth the Shaping Our Electricity Future Consultation. As customers and buyers of renewable energy, the future of the Irish grid is important for our business growth and investment. Creating the optimal grid plan from the best characteristics of the four approaches is important for addressing the near-term grid challenges facing Ireland and enabling a power system that can support long-term growth and investment. We strongly support creating a plan that ensures meeting Ireland's 70% by 2030 targets, provides reliability for all customers, enables continued economic growth including in the Dublin region, leverages market-signals to drive customer action, can be delivered quickly and efficiently, and prioritises carbon-free and renewable energy. We stand ready to work with EirGrid and other stakeholders to achieve our shared goals.