Joint Oireachtas Committee on Environment and Climate Action
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There are currently 70 data centres operating in Ireland. This is an increase of 25 per cent compared to 2020[1]. Most are concentrated around Dublin which has become the largest data centre hub in Europe, accounting for 25% of the overall European industry market share at the end of 2018 (with the nearest competitor London, recording a market share of 24%)[2].

The 70 operational data centres have connection agreements for over 1800 MW, with up to 2,000 MW of additional requests received by Eirgrid. Approximately 1,000MW of this has been received within the last year[3].

Over the last 4 years there has been an annual increase in demand usage of around 600 GWh from data centres alone. This is equivalent to the addition of 140,000 households to the power system each year. An average data centre with a load of 60 MW would be comparable to the load usage of a large town/small city such as Kilkenny[4].

Data centres currently represent 11 per cent of grid capacity, but Eirgrid estimates this will be 28% by 2030 based on existing connections. If all proposed data centre projects were connected, this figure could be as high as 70% of grid capacity by 2030. This is compared with 2% of electricity consumed by data centres worldwide.

Data centres are currently responsible for 1.58% of Ireland's carbon emissions. Data centres are reliant on the national electricity grid, which remains largely powered by fossil fuels. The major component of this is gas, which represented over half of electricity generation last year[5]. As well as this, data centres require their own installed power generation or energy storage capacity as back up. This back up generation tends to be gas-fired. Natural gas is a fossil fuel and contributes to Ireland's emissions. Over 2020, data centres saw a 27% increase in gas demand.

Ireland is committed to achieving 70% renewable electricity by 2030. Even at this early stage, however, this looks overly ambitious. As the main source of this renewable energy (onshore and offshore wind) is intermittent, there will likely be a need to have other sources of energy generation available. In the short to medium term this is likely to be natural gas. Achieving ambitious emissions and renewables targets by 2030 will undoubtedly be far more difficult with the addition of more data centres to the grid.

Data centres also require large quantities of water. The average data centre uses a lower estimate of 500,000 litres per day[6]. This figure has the potential to rise to 5 million litres per day, although this is rare – for example, during the recent heatwave in the summer of 2021.

[1] Host in Ireland, Biannual Market Report, May 2021
[2] https://irishtechnews.ie/wp-content/uploads/2019/02/Host-in-Ireland-2018-Q4-report.pdf
[3] https://www.cru.ie/wp-content/uploads/2021/06/CRU21060-CRU-consultation-on-Data-Centre-measures.pdf
[4] https://www.cru.ie/wp-content/uploads/2021/06/CRU21060-CRU-consultation-on-Data-Centre-measures.pdf
[5] https://www.gasnetworks.ie/corporate/news/active-news-articles/2020-gas-demand-statement/
[6] https://www.businesspost.ie/utilities/data-centres-use-same-amount-of-water-as-large-towns-b1092219

This is particularly significant given the weak security of water supplies in parts of the country, particularly the Greater Dublin Region[7].

At the same time, Ireland faces more immediate challenges relating to security of energy supply. Two amber alerts have been issued this month and we have yet to enter the winter season. As energy supplies (particularly natural gas) are limited, prices have increased. Recent estimates suggest an increase in the average household electricity and gas bill of €400 this winter[8]. While the drivers of these current energy shortages and price increases may be contingent on specific conditions, there is no doubt that the energy demands of data centres exacerbates the problem, and will continue to if they are allowed to develop further.

In this context, serious concerns about the energy demands of data centres have been raised by Eirgrid and the CRU. One proposal by the CRU is for a moratorium on the development of any new data centres in Ireland. There are also two bills going forward to the Dáil next week calling for such a moratorium – one from Brid Smith (People Before Profit) and one from Jennifer Whitmore (Social Democrats). Ireland would not be the first country to do this. Singapore introduced a moratorium on data centres two years ago. Similarly placed as a tech and digital hub, with ambitious climate and renewable energy (solar) targets, the Government took the decision in 2019. The moratorium will be lifted when renewable energy capacity and/or data storage technologies develop enough to reduce the emissions and energy burden they represent. In 2014, data centres represented 7% of Singapore's grid capacity (compared to the projected 28% by 2030 in Ireland).

From these figures it is evident that Ireland shoulders more than a fair share of the energy and water burden of global digital activities. What is less evident is what this concentration of data centres contribute in terms of long term employment or regional economic development[9]. At this stage, the prospects of energy insecurity may carry greater reputational and economic damage than a moratorium on data centre development[10]. Further down the line, there is also the reputational damage and financial penalties for Ireland if it fails to meet its 2030 climate and renewable energy targets.

There is a wider context to this debate which also needs to be considered. Ireland is committed to a just transition under the Paris Climate Agreement. This means that the Irish state must ensure the fair distribution of costs and benefits associated with large-scale decarbonisation efforts. In a context where households are facing increasing energy bills and carbon taxes, the continued granting of planning permission to energy-intensive data centres is already being perceived as an unfair distribution of costs and benefits[11]. Objections to onshore wind farms are also being articulated in terms of the perceived benefit of these projects to energy companies and large end users (i.e. tech companies), rather than to the public or action on climate[12]. As more attention focuses on data centres and their energy (and water) usage, it may be harder to gain the support of the Irish population for decarbonisation

[7] https://www.water.ie/iw-documents/our-projects/WSSP_Final.pdf
[8] https://www.independent.ie/business/personal-finance/households-face-paying-400-more-this-winter-as-energy-crisis-intensifies-40862452.html
[9] The IDA commissioned a report on the economic benefits of data centres in 2018. https://www.idaireland.com/newsroom/publications/ida-ireland-economic-benefits-of-data-centre-inves
[10] https://www.irishtimes.com/news/politics/if-intel-do-not-build-mega-plant-in-ireland-it-won-t-be-for-lack-of-energy-infrastructure-1.4678282
[11] https://www.clareecho.ie/environmental-groups-slam-ennis-data-centre-as-climate-disaster-waiting-to-happen/
[12] https://www.thejournal.ie/readme/climate-change-and-data-centres-5392847-Mar2021/

efforts. There is a danger that the public will perceive climate action as serving the interests of a few, with the burden carried by the majority.