

# WHO PAYS FOR RENEWABLES? THE EFFECT OF DATACENTRES ON RENEWABLE SUBSIDIES

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## BACKGROUND AND MOTIVATION

Ireland faces several targets for renewable energy usage, across the heating, transport and electricity sectors. These targets are set as a proportion of total energy usage. In the case of electricity, 40% of electricity must be generated from renewable sources by 2020. To meet this target, renewable electricity generation is subsidised through the Public Service Obligation levy, which appears on all consumers' bills. The PSO is levied on residential consumers, commercial consumers and large industrial consumers according to their contribution to peak demand – the more the sector contributes to peak demand, the higher the portion of PSO that they pay.

Since the renewable targets are set as a percentage of total electricity usage, any increase in electricity demand automatically gives rise to an increase in the renewable generation required to meet the renewable target. For example, if electricity demand increases by 100MWh, the total amount of renewable electricity that must be generated in that year increases by 40MWh. Electricity demand growth in Ireland is projected to greatly increase due to large numbers of datacentres locating here. Datacentres are large numbers of computers that are located and networked together and are used for storing digital data. The proliferation of new data that is accessed remotely via the “cloud”, rather than stored on personal computers and devices, has given rise to new requirements by tech companies for physical infrastructure to store the data centrally. This research examines the degree to which datacentres themselves will bear the cost of this increased renewable subsidisation, and the degree to which it will be

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<sup>1</sup> This Bulletin summarises the findings from: Muireann Á. Lynch and Mel T. Devine (2019): Who pays for renewables? Increasing renewable subsidisation due to increased datacentre demand in Ireland, *World Journal of Applied Economics*, 5(1), pp. 25-29. Available online: <http://journal.econworld.org/index.php/econworld/article/view/113>

borne by other electricity customers, such as the residential and small and medium enterprise (SME) sectors, given the current structure of the PSO.

## RESULTS AND INSIGHTS

We simulate the extra cost of renewable subsidisation for three different levels of datacentre capacity (low, median and high), as projected by EirGrid, the transmission system operator. The low demand scenario is in effect the status quo, while the median and high scenarios assume that all datacentre connection requests that are in process and all datacentres for which there are material enquiries ongoing are connected, respectively. We assume in the first instance that the extra renewable generation required is met by onshore wind generation, which is the cheapest form of renewable electricity. We also consider a scenario where the new generation required is instead met by photovoltaic solar generation, which is more expensive and therefore requires a higher subsidy to be competitive.

Our results show that the extra subsidisation costs are not borne exclusively by datacentre owners themselves, but are in part borne by residential and other commercial consumers. If the extra generation is met by onshore wind generation, subsidisation costs for the residential sector increase by 3% for the median demand scenario, and 7% for the high demand scenario, relative to the low demand scenario. If, however, the extra renewable generation requirement is met by solar energy, the increase in subsidisation costs for the residential sector is much greater, at 20% and 41% for the median and high demand scenarios, respectively. These figures are based on the PSO levy for 2016, which was €6.62 per month for residential customers and €23.29 per month for small commercial customers. The PSO levy itself varies from year to year depending on renewable generation output and on fuel prices. Given that the analysis assumes that the residential sector does not increase its own electricity usage, this increase in subsidisation costs could be considered an unfair imposition on this sector.

There are several ways to remedy this. At present, the PSO costs are recouped by charging the different consumer categories according to their contribution to peak electricity demand. If, instead, they were levied according to their average demand, each sector would be responsible for paying for only that proportion of renewable electricity that they gave rise to, and there would be no cross-subsidisation.

Alternatively, recouping PSO costs on the basis of a charge on each unit of electricity consumed, rather than on a per household or per business basis, would achieve the same result. There are, however, legal difficulties in implementing this change, because the original PSO levy supported peat and gas generation as well as renewable generation, and this generation was located in Ireland. It was therefore not possible, under EU State Aid rules, to levy a charge on all electricity, including electricity imported over the interconnectors, but give the benefit of the PSO exclusively to generators located in Ireland.

Finally, datacentre owners may choose to invest privately in renewable electricity generation to meet the renewable obligations that their electricity usage necessitates.

Regardless of the mechanism chosen, this research suggests that finding an alternative method of calculating and apportioning PSO costs amongst consumer groups is prudent, and may inform discussions on such an alternative.

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