EVERSHEDS SUTHERLAND

Data Centres and District Heating
How District Heating schemes can contribute to solving the climate change crisis with help from data centres

Ireland is now undoubtedly a key data centre hub and Dublin in particular hosts major cloud providers such as Amazon Web Services, Microsoft, Google and IBM. This core industry is excellent for Ireland, and the reality is that data centres can be part of the climate change solution.

This article focuses on District Heating, its role in de-carbonising Ireland and how data centres can contribute to this.

How to heat a home

When it comes to heating buildings in Ireland, there are a number of concerns, including the climate crisis, security of supply, cost to consumers and waste.

Those living in Ireland will be aware that heating homes and offices can be an expensive household and business cost. This is carbon intensive, given the majority of homes are still heated by individual oil and gas boiler systems. Replacing these on a large scale is a difficult task, but District Heating provides a potential solution, particularly in large urban areas.

What is District Heating?

District Heating is a method of delivering thermal energy in the form of hot water through a network of insulated pipes.

So, rather than delivering fuel, which must then be converted into heat, the heat itself is delivered. This makes heating plants within buildings redundant - no open fires, gas boilers, oil boilers or flues are required.

The heat supplied can be used for both space heating and hot water.

Since pipes are part of the District Heating solution, the physical infrastructure for District Heating systems work best in urban areas where lots of people live and where the demand for heat is high. Such a centrally managed system will have a wider reach and ultimately drive down costs, both in terms of replacing old heating systems in multiple buildings and in terms of end user costs. (The usage is metered at each building.)

The carbon reduction impact of replacing oil and gas in homes is significant, and the ability to improve buildings "in bulk" is an efficient and cost-saving approach.

Critically, the heat can come from various sources, including data centres.

Aside from the carbon reduction and cost benefits, the security of supply benefit should not be overlooked. 75% of the average household's final energy consumption in Ireland is used for heating. It is estimated that 87% of the heat demand in buildings in Ireland could be satisfied using waste from existing power plants and, for example, industrial processes.[1]

To be able to rely on heat waste from indigenous industries rather than oil and gas supply from abroad can only be positive for Ireland's energy supply.

---

[1] Associate of Irish Energy Agencies' submission to the DCCAE's Consultation "Ireland's Draft National Energy and Climate Plan (NECP) 2021

Is there such opportunity in Ireland?

The Guide to District Heating produced by Codema (Dublin's Energy Agency) notes that Ireland has one of the lowest shares of District Heating in Europe at less than 1% of the heat market. This compares to 90% of heating being delivered by District Heating needs in cities like Copenhagen and Stockholm famous for their sustainability.

There is significant scope, therefore, to engage with this solution and drive it forward.

Where do data centres come in?

One of the big problems with heat is waste. Often, heat is produced as a by-product of industry or in electricity production, and the heat simply goes to waste. It is estimated that there is enough heat currently going to waste from electricity production and large industries in Europe to meet all of Europe's heating demands.

There are 66 data centres currently operational in Ireland and a pipeline of 29 data centres with approved planning permission in Ireland. Host in Ireland's Q1 Report for 2020 predicts that by the end of 2025, there will be 1,700 MW of data centre capacity operational in Ireland.

We are all familiar with the concepts of recycling paper and plastic. When large amounts of heat are created, for example by data centres, this can also be recycled through District Heating. This has benefits for emission reduction targets and also for the ultimate cost to the consumer.

The Guide to District Heating cites typical sources of excess and waste heat connected to District Heating systems are thermal power plants, waste incineration and large industrial facilities with excess heat such a food industries. But with the increasing prevalence of data centres in Ireland, the heat waste from data centres have the potential to contribute to the District Heating solution.

What has been done so far?

Ireland's first large-scale District Heating scheme (2020) shows the potential for data centres.
This scheme will see an energy centre and pipelines built to supply heat to South Dublin County Council's offices in Dublin. Importantly, the supply of heat to the network will include waste heat from the nearby Amazon data centre. Nearby offices, buildings and the TU Dublin Tallaght Campus will also benefit from the heat supply. Dublin's Energy Agency Codema, whose aim is to accelerate Dublin's low-carbon transition in order to mitigate the effects of climate change and improve the lives of citizens, support the project. The project will receive funding through the Government's Climate Action Fund, there is a not-for-profit element and it is estimated the project will save 1,441 tonnes of C02 each year.

More work needs to be done to utilise District Heating as an option in Ireland. Europe is driving the change, for example through the EU Renewable Energy Directive and the Energy Efficiency Directive. Additionally, the EU Strategy for Energy System Integration (2020) specifically mentions data centres in relation to the reuse of waste heat via District Heating.

Ireland does not currently have regulations in place in Ireland in relation to District Heating. However, the minimum energy requirements for buildings currently in place provide an impetus for efficient and cost-saving solutions like District Heating. The SEAI's 2019 Support Scheme for Renewable Heat supports the adoption of renewable heating systems including District Heating in the form grants for installation and ongoing operational costs. A Consultation to Inform a Policy Framework for the Development of District Heating in Ireland was launched in early 2020 and is currently under review.

Conclusion

District Heating schemes, particularly in large urban areas, have clear cost, security of supply and carbon reduction benefits. This is one way in which Data Centres can lead the way in contributing to the alleviation of the climate crisis.

For further information, please contact:

Mark Varian
Partner, Construction & Projects

T: +353 1 6644 341
MarkVarian@
eversheds-sutherland.ie

Jennifer Burke
Senior Associate, Construction & Projects

T: +353 1 6644 254
JenniferBurke@
eversheds-sutherland.ie

Disclaimer
The information is for guidance purposes only and should not be regarded as a substitute for taking legal advice. Please refer to the full terms and conditions on our website.

Data protection and privacy statement
Your information will be held by Eversheds Sutherland. For details on how we use your personal information, please see our Data Protection and Privacy Policy.

eversheds-sutherland.ie