

# Decarbonising Heat: The Potential of District Heating for Ireland



Submission: Joint Oireachtas Committee on Environment & Climate Action

## Introduction

At approx. 60 TWh per annum, heat makes up 42% of final energy demand in a typical year for Ireland (SEAI 2019). Decarbonisation in the sector has, however, trailed electricity, with total fossil fuel-based CO<sub>2</sub> emissions from building and industrial process heating staying around 14.1 MtCO<sub>2</sub>. This equates to approx. 38% of total energy-related CO<sub>2</sub> and 24% of total national greenhouse gas emissions – natural gas (39%), oil (36%), and coal and peat (25%) (SEAI 2019). We must take significant action to address this to realise Ireland’s net zero emissions ambitions.

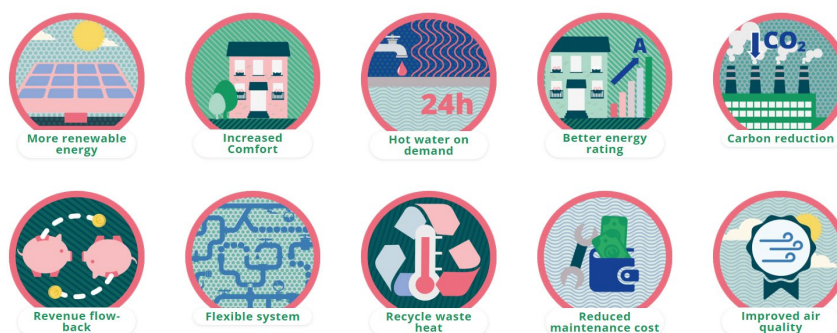
The Irish District Energy Association (IrDEA) aims to help address this problem by driving the development of the Irish district energy sector. Though relatively new and underdeveloped in Ireland, district heating is well-established as means of supplying sustainable heating solutions to industrial, commercial, and residential energy consumers across Europe. With between 54% (SEAI 2022) and 58% (Europa-Universitat Flensburg 2019) of Irish buildings identified as being suitable for district energy, this form of heating is primed to lead the decarbonisation of the sector.

## About IrDEA

The Irish District Energy Association (IrDEA) was founded in 2017 to promote the development of low-carbon district energy in Ireland. IrDEA currently has 27 member organisations who, between them, boast a range of specialisms including consultancy and technology providers, the public sector, and academia. We are the only association in Ireland dedicated to supporting and representing the interests of the district energy industry.

Countries across Europe with similar climates, populations, and energy systems to Ireland have proven that district energy can deliver sustainable and cost-effective heating to urban areas serving millions of people. There is, however, currently a shortage of knowledge, policy support, capacity, and standards and regulations to facilitate the implementation of large-scale district energy networks in Ireland.

## About District Energy



Benefits of district heating<sup>1</sup>

<sup>1</sup> (HeatNet North-West Europe 2021)

**District energy is a proven low-carbon solution for the heating sector, it has existed for over 100 years, and is facilitating the highest shares of renewable heat in Europe.**

Dubbed ‘central heating for towns and cities’, district energy is a network of insulated pipes that delivers heat from a central energy source to provide space heating or cooling and hot water to buildings. It has the flexibility to combine multiple locally available, renewable heat sources and it can also recycle surplus heat from applications such as electricity generation, industrial processes, data centres, wastewater treatment plants, and breweries. As a result, district heating offers economic, environmental, and social benefits, such as lower carbon emissions, reduced maintenance costs, increased comfort, and less fuel poverty.

**District energy enables higher shares of renewable heat and lower carbon emissions.**

The countries with the highest shares of renewable heat in Europe – i.e., Sweden, Finland, Latvia, Estonia, Lithuania, and Denmark – are also the top six countries in Europe in terms of district heating. Each of these countries has a renewable heat share above 40%, while Ireland has the worst renewable heat share in Europe at 5.3 (SEAI 2002).

**Evidence shows 54% of the buildings in Ireland could benefit from district heating.**

SEAI’s National Heat Study (2022) supplies a comprehensive assessment of the options available to decarbonise Ireland’s energy used for heating and cooling homes, businesses, and industry. Published in February 2022, the study shows that up to 54% of Irish buildings could be suitable for connection to district heating networks. This is in line with similar findings from the Irish Heat Atlas developed by Flensburg University on behalf of the Irish District Energy Association (2020). According to this work, 36% of the heat used for buildings in cities, towns, and villages in Ireland is suitable for district heating technology that is widely deployed across Europe today, with a further 21% of the heat demand capable of being satisfied through more advanced 4<sup>th</sup> generation district heating, bringing the total predicted potential to 57%.

**The district heating industry is ready to deliver district heating in 10% of buildings by 2030.**

Delivering 10% district heating by 2030 will mean the connection of approximately 200,000 homes and 2500 public/commercial buildings with low-cost, low-carbon heat. The total investment needed is estimated to be €2.5 billion (€1 billion in public piping and €1.5 billion in homes/supply) for the deployment of the heat networks and associated heat production plants (mostly surplus heat recovery systems). This investment, together with the operation, maintenance, and heat supply to district heating networks would lead to the creation of over 2,000 full-time jobs over the next decade.

This target can be met primarily due to the well-established district heating industry in Europe, which can be used for the rapid roll out of district heating in Ireland. For example, there are already over 30 million homes with district heating in Europe, so connecting 200,000 in Ireland by the end of the decade will require less than 1% of what the industry has already delivered in Europe.

**Unlocking the potential of district energy to decarbonise heating in Ireland.**

Chief of what is needed to do this are clear market signals in the form of,

- State-led financial supports to offset the significant cost of CAPEX and keep competitiveness with other technologies, including gas and individual heat pumps.
- An effective regulatory framework that will protect consumers and keep industry standards high.
- Planning and development innovations to address licensing and consenting barriers to network development, particularly to help the installation of pipes in roads by private entities like the provisions in place for electricity, gas, water, and telecoms.
- Strategic zoning to promote the efficient deployment of the most suitable decarbonised heating solution on an area-specific basis.
- Removing barriers for customers to buy heat, such as addressing the 3-year contracting constraint for the provision of energy services in multi-unit developments, which currently impedes the ability to make a long-term business case for district energy provision in multi-unit developments.

Members of the Irish District Heating Association are willing and keen to invest hundreds of millions of Euros in district heating in Ireland if there is a clear long-term commitment for the sector. Our members will invest in local people, facilities, and infrastructure to ensure that Ireland can reduce its carbon emissions in the heat sector, which historically has been extremely slow to decarbonise.

## Conclusion

We are heartened to see that the Committee is focusing on heat decarbonisation as part of its work in addressing the policy imperative of climate action and would be most happy to provide any further information the Committee or its members may have with respect to district energy both in Ireland and abroad. For now, we wish the Committee well in its deliberations and very much look forward to viewing the proceedings due to take place on Tuesday 13<sup>th</sup> June.

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## References

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