

Climate Action Plan 2024

Public Consultation Submission | 05/04/2024



Table of Contents

Introduction.....	2
About IrDEA	2
About District Energy	3
1. Context.....	5
2. Response to the Climate Action Plan 2024	5
3. Conclusion	9
4. Sources Cited	10

Climate Action Plan 2024



Public Consultation Submission, Irish District Energy Association

Introduction

Decarbonising heat presents one of the most formidable challenges for Ireland's transition to net zero emissions. Collective CO₂ emissions from fossil-based heating account for 38% of overall energy-related CO₂ emissions and 24% of total greenhouse gas emissions (GHG), yet action has been slow to address this. With such a large proportion of Ireland's emissions profile at stake, we must prioritise heat decarbonisation as a matter of urgency.

The Irish District Energy Association was founded to promote and support the development of the district energy sector in Ireland as a key pathway for decarbonisation. We have been greatly encouraged by the continued policy-level commitments to building out the sector as we move towards our 2030 and 2050 climate targets. This is particularly the case with the ambitious but still achievable targets that have been set out in the Climate Action Plan, first in 2023 and again in the current iteration.

We welcome the ambition inherent in the aim to deliver up to 0.8 TWh of installed district energy capacity by 2025, 2.7 TWh by 2030, and that capacity be developed to such a degree that district energy and heat pumps together meet all building heat demand by 2050. Nevertheless, if these aims are to be realised, clear and consistent action is needed to create the regulatory, policy, and market environment needed to drive forward the rapid expansion of district energy in Ireland.

About IrDEA

Founded in 2017 to promote the development of low-carbon district energy in Ireland, IrDEA currently represents over 30 member organisations boasting a range of specialisms across the value chain of the district heating and cooling sector both in Ireland and abroad.

We are the only association in Ireland dedicated to supporting and representing the interests of the district energy sector. It is our role to identify and propose solutions to the barriers faced by the sector in meeting the Climate Action Plan 2023 target of supplying enough heat and hot water to serve the needs of up approx. 200,000 homes and 2500 public/commercial buildings by 2030 (i.e., 2.7 TWh of district energy).

Acting on behalf of our members, we support and promote the growth of the district energy sector in Ireland to aid the creation of a new heat market that offers greater opportunities to use indigenous low-carbon and renewable sources of heat.

Our activities include,

- Developing and promoting policy on district heating & cooling.
- Supporting the growth of the sector in Ireland.
- Building and sharing knowledge on district energy in Ireland.
- Stakeholder engagement.



- Commissioning and supporting research on district energy.
- Collaborating with organisations with similar missions to our own in Ireland and abroad, this includes Renewable Energy Ireland and Euroheat & Power.

About District Energy

As of mid-2023, there were just over 17,000 district heating networks across Europe supplying heat to 70 million people (Piel et al., 2023). It is no coincidence that some of the countries with the highest shares of renewable heat across Europe are also heavy users of district energy – they include Sweden, which boasts a renewable heat share of 68.6%, Estonia (61.3%), Latvia (57.4%), Finland (52.6%), and Denmark (51%). By contrast, Ireland has the lowest renewable heat share in Europe at 5.2% (Eurostat, 2023), with less than 1% of heat demand being met by district energy (SEAI, 2022).

SEAI's National Heat Study (SEAI, 2022) provides 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 indicates that up to 54% of Irish buildings could be suitable for connection to district heating networks.

The total investment required to achieve this is estimated at between €2.7 and 4 billion for the deployment of the heat networks and associated heat production plants (approx. 40% public piping, 20% homes & buildings, and 40% new low-carbon production plants) (Government of Ireland, 2023). With over 30 million homes currently connected to district energy across Europe, we estimate that for Ireland to achieve its 2030 district energy targets, less than 1% of what the industry has already delivered in Europe (Piel et al., 2023).

Beyond the decarbonised heat benefit promised by the sector, the rollout of district energy networks will likely lead to the creation of over 2,000 full-time jobs over the next decade. The skills and training for which already exist at the interface between energy, engineering, and construction. Significant cross-over is likely between the district energy sector and these three broad areas of skills and training, which presents a key avenue for workers seeking to transition from fossil intensive industries to renewables (Vogeley et al., 2020).

Benefits.



Figure 1. Benefits of District Energy (HeatNet NWE, 2021)

District heating has many economic, environmental, and social benefits, such as carbon reduction, reduced maintenance costs, increased comfort, and reduced fuel poverty. Local authorities, building developers, building managers and customers can all benefit from the development of a district heating network in their area, this includes:

1. Easier integration of renewable and low-carbon heat sources without disruption to customers/homeowners as access to each individual dwelling is not required.
2. Lower local air pollution as buildings fossil fuel boilers would no longer be required.
3. Facilitates utilisation of indigenous low-carbon resources which would not make sense at a smaller (individual building) scale such as deep geothermal and industrial waste heat resources – leading to more efficient operation of both industrial plants and heat production and supporting a more circular economy.
4. Provides storage and demand side response for the electricity grid at a fraction of the cost of battery storage when supplied by large-scale heat pumps, electric boilers etc. This also facilitates greater production of renewable electricity (e.g., curtailment of wind turbines can be reduced) due to the flexibility provided by this thermal storage capacity.
5. Increased customer safety as there is no risk of gas leaks or carbon monoxide due to on-site combustion of fuels.
6. Benefits local economy by providing low-cost heating to customers (reduced overheads) and residents (reduced fuel poverty), potential revenue from waste heat for local industries and providing new local employment in the construction, operation, and maintenance of the network.
7. Efficient operation of heat production plants is ensured by constant monitoring, operation and maintenance being carried out by trained professionals – this is not possible with solutions located in individual homes where equipment is often not maintained to regularly achieve high operating efficiencies.

Climate Action Plan 2024



Public Consultation Submission, Irish District Energy Association

1. Context

A range of important and timely policy signals have emerged over the past two years to encourage the establishment and growth of district energy in Ireland. This includes the District Heating Steering Group Report (2023) and Climate Action Plan 2023, and the active commitment to produce a Heat Act. For us, three specific areas of policy will be the key to opening the market and kick-starting the delivery of projects on the ground. They are,

A robust and transparent regulatory framework to help de-risk projects and safeguard consumers.

- An efficient and effective consenting regime to facilitate the rollout of district energy networks under public roads. This is vital to facilitate the connection of individual buildings, campuses, and communal heating schemes to a wider district energy network that can create economies of scale.
- A funding regime for CAPEX and OPEX to underwrite affordability for consumers choosing heat networks and support the establishment and growth of heat networks across Ireland.
- This consultation response ties into these aims by outlining how the Climate Action Plan 2024 can and should set a clear pathway for the sector's development throughout the rest of this decade and in the drive beyond that to 2050. To remain relevant to our mandate as an organisation, we have limited our response to the aspects of the plan that are of most relevance to district energy and the heating sector in general.

2. Response to the Climate Action Plan 2024

There are several key aspects of the Climate Action Plan 2024 that IrDEA welcomes, we view it as important to highlight them in acknowledgement of the significant policy-level progress with respect to district energy in recent years. A continuation of this level of progress is important, and we would advise greater urgency in resolving the key impediments to project development and delivery to ensure best use of the short window for delivery before 2030. They are:

- The sector continues to need a clearly articulated process for obtaining permission to open public roads for putting heat network infrastructure in place. There are a range of potential solutions to this problem, but until resolved it will continue to function as a significant impediment to sectoral development.
- Given the public interest nature of heat network infrastructure development, it is important that a clear mechanism be set out for developers to access grant aid for CAPEX and OPEX. Until such time as a funding mechanism is in place and open for applications, its absence is likely to function as a chilling factor for developers.
- Regulatory clarity is necessary for the sector. This is again to provide a level of investment certainty for those seeking to develop networks within the 2025 to 2030 window that is so crucial to meeting our 2030 targets.

District Heating Steering Group Report – Network Ownership

It is positive to see that government has adopted and is proceeding with implementation of the District Heating Steering Group Report recommendations.

We, however, offer a note of caution with respect to the recommendation to adopt a state-led utility model approach to network ownership in the longer term. We are not aware of any jurisdiction that operates such a model and the viability of doing so would be questionable given the localised nature of how heat networks are developed and operated. For example, well known as an exception due to the high level of local government involvement in heat network development and ownership, even the Danish system is not operated by a single utility provider. Rather, locally led and run systems are the norm, with local authorities rather than a national operator leading the way.

In jurisdictions beyond Denmark, there is a tendency to regulate networks in a broad range of ways to ensure adequate and robust consumer protections, affordability, and reliability in the sector. Some of the most successful examples of which can be seen in Sweden and Finland, neither of which confines network ownership to the public sector or a single operator.

We would suggest that it is important to see the distinction between network ownership and control over how networks operate. If the aim is to ensure the protection of heat networks through robust consumer protection measures, sector-leading safety and optimisation standards, reliability, affordability, and environmental standards, control is more important than ownership; and is possible through well planned and executed regulatory framework development and deployment. We urge that this approach not be dismissed too readily and that broad ranging comparative analysis be engaged in to determine the best approach to developing an Irish approach to district energy sector development and ownership.

Consistency in Policy Ambitions

As identified in the SEAI's National Heat Study, district energy could satisfy just over 50% of existing building heat demand (SEAI, 2022). This technology is well-proven, dependable, available for immediate deployment, and has delivered significant affordability and climate dividends in jurisdictions where it has been deployed. IrDEA supports the aim of transitioning Ireland's building heat demand to heat pumps and district energy by 2050 and to achieve this it is important that all policy work backwards from that end point. Unfortunately, we do not believe the current plan quite achieves that.

There is a lack of clear instruction on how, when, and where to deliver different decarbonisation solutions, which is a key shortcoming of the 2024 Plan and the wider climate and energy policy framework. For example, while we would agree that there is a complementarity in decarbonising heat using individual building heat pumps in some areas and district energy in others, it is vital that the roll out of these technologies is done on a planned basis. Doing so, would allow for optimal efficiency and affordability for consumers. It would also vitally ensure that consumers whose needs could be better met by one technology are not placed in a position of having to adopt the other, or, where they must do this on a short to medium term basis, that their eventual transition to the most cost effective and efficient solution is planned for now.

The Plan refers to the already considerable move to heat pump technology from fossil fuelled boilers in new builds in recent years. It also points to a further phasing out of fossil fuelled boilers through the introduction of standards that will require a move to more sustainable heating options. These are goals we welcome. However, there is a danger that setting out indiscriminate targets of this sort has resulted and will continue to result in the widescale conversion of individual heat pumps in areas district energy networks would be more optimal. The problem with this is twofold.

Hollowing-out Demand

The first is that the lack of coordination and planning in how and where we deliver these important heat decarbonisation options means we are eroding away the demand base for district energy networks. If this approach continues, it may risk undermining the future efficiency and economic benefit of heat networks in these areas, which would be a loss for consumers, developers, operators, and government alike.

Retrofitting vs Planned Delivery

Second, there is no requirement to make buildings district heating-ready in areas where the heat demand shows this would be the optimal decarbonised heat solution. As a result, we are missing an opportunity to set down vital district energy infrastructure when new builds are under construction. We are also failing to build or retrofit buildings in a way that is consistent with the future need to connect to heat networks in those areas.

This is likely to either result in a future retrofitting of these buildings to make them suitable for connection to heat networks, or it will preclude the roll-out of networks in areas that would otherwise be the best decarbonised heating solution. Both outcomes are predictable and avoidable if heat mapping linked to the planning and development process were mandated.

It is, therefore, vital that specific guidance be embedded at the point of development planning and within the national retrofitting guidelines to ensure we mandate or promote district energy readiness in areas that are easily identified as suited to this form of heat delivery.

IrDEA would have liked to see this type of coordinated action mandated through the Climate Action Plan 2024. However, there is still time to put this vital action in place through the planned National Heat Policy Statement and Heat Bill, both of which are imminently due for publication.

Energy System Demand Flexibility

The Plan refers in several sections to the need to produce work on approaches to market options on Long Duration Energy Storage and demand flexibility. It also sets out a plan to establish an Energy Efficiency and Demand Management Working Group, and a *Future Energy System Working Group*, both for purpose of addressing the currently unallocated emission savings. Given the vital role that district energy can and does play in other jurisdictions with respect to balancing energy demand and providing much needed grid flexibility through thermal energy storage solutions, we would recommend that district energy and thermal energy storage systems be given due regard within the context of this work. The benefits of which are summarised in brief below.

Demand Reduction

District energy systems can employ various strategies to reduce energy demand during peak periods. For example, they can implement energy efficiency measures in their infrastructure, such as optimising heat transfer processes, improving insulation, or using more efficient equipment like combined heat and power (CHP) units. By reducing overall energy consumption, district energy systems can alleviate stress on the grid during peak demand periods.

Demand Shifting

District energy systems can also shift energy demand to off-peak periods by using thermal energy storage (TES) systems. TES allows for the storage of excess thermal energy generated during periods of low demand for later use during peak hours. This flexibility enables district energy systems to align their energy production with demand patterns, thereby reducing strain on the grid during peak times.

Injection of Power

Some district energy systems incorporate renewable energy sources such as solar thermal, geothermal, or biomass, along with conventional energy sources like natural gas or district heating and cooling networks. These systems can generate surplus power beyond their immediate demand requirements. This excess power is then available to support local energy needs during peak periods, contributing to overall grid stability and reliability.

Overall, district energy systems play a crucial role in supporting energy system demand reduction, demand shifting, and injection of power by optimizing energy use, integrating renewable energy sources, and maintaining reliable operation in alignment with contractual commitments.

3. Conclusion

The Irish climate and energy policy landscape has undergone significant evolution in recent years with respect to the incorporation and prominence of district energy as a heat decarbonisation solution. This is encouraging, as is the opportunity it offers for developers, operators, government, and, vitally, consumers to work together to create a secure, decarbonised, heating system that can provide in the long-term for the needs of Irish consumers in a sustainable and efficient way. We welcome the aspirations set out the Climate Action Plan 2024 and urge government to press harder and move quicker to see them realised as soon as possible.

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