



Comhairle Cathrach  
Bhaile Átha Cliath  
Dublin City Council

Environment and Transportation Department,  
Block 2, Floor 6,  
Dublin 8.

05<sup>th</sup> May 2021.

To Each Member of the Climate Action, Environment and Energy Strategic Policy Committee

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## Report on the Dublin District Heating Project

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### 1 Introduction:

The Dublin District Heating System (DDHS) will be a thermal energy network that uses energy from waste heat and distributes it as hot water through insulated dual (supply and return) pipe lines to homes and business for space heating, hot water and industrial purposes.

District Heating (DH) systems offer advantages in terms of higher energy efficiencies and reduced consumption of energy resources. They are fully compatible with European and National policies and objectives for carbon dioxide (CO<sub>2</sub>) reduction, energy efficiency, security of energy supply, sustainability and competitiveness. DH can also offer capital cost savings and reduced operating and maintenance costs to customers, ensuring a just transition to a low-carbon heat energy solution. DH is the most 'appropriate energy source' to heat a home.

### 2 Irish Government Policy Position in respect of District Heating and the drivers for change.

#### 2.1 National Policy and Programme for Government

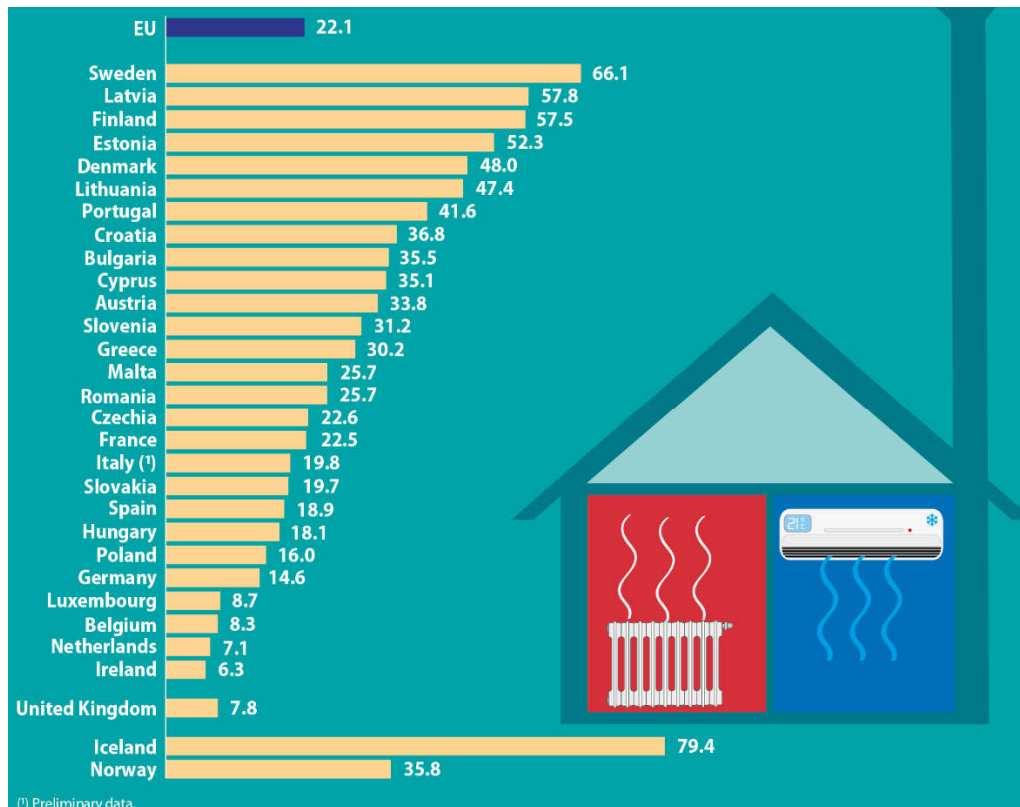
The Programme for Government has committed to an average 7% per annum reduction in overall greenhouse gas emissions from 2021 to 2030 and to achieving carbon neutrality by 2050. The Climate Action Plan to Tackle Climate Breakdown, highlights the role of district heating in achieving this goal and in particular through the use of renewable and waste heat and has also identified the Dublin District Heating System (DDHS) as a key project to achieve these targets.



Further, while EirGrid’s commitment to reach 70% renewable generation on the transmission network by 2030 is an important step, the Climate Change Advisory Council in its Annual Report 2020 recommends investment in infrastructure to support renewable penetration, as well as diversification of energy sources and innovation. DH is a low carbon alternative that can contribute to the transition away from fossil fuels for heating in residential and commercial buildings.

## 2.2 Ireland’s use of renewable heat, by comparison to our European Neighbours:

According to Eurostat, Ireland has the lowest share of energy from renewable sources for heating and cooling compared to other EU member states’.<sup>1</sup>

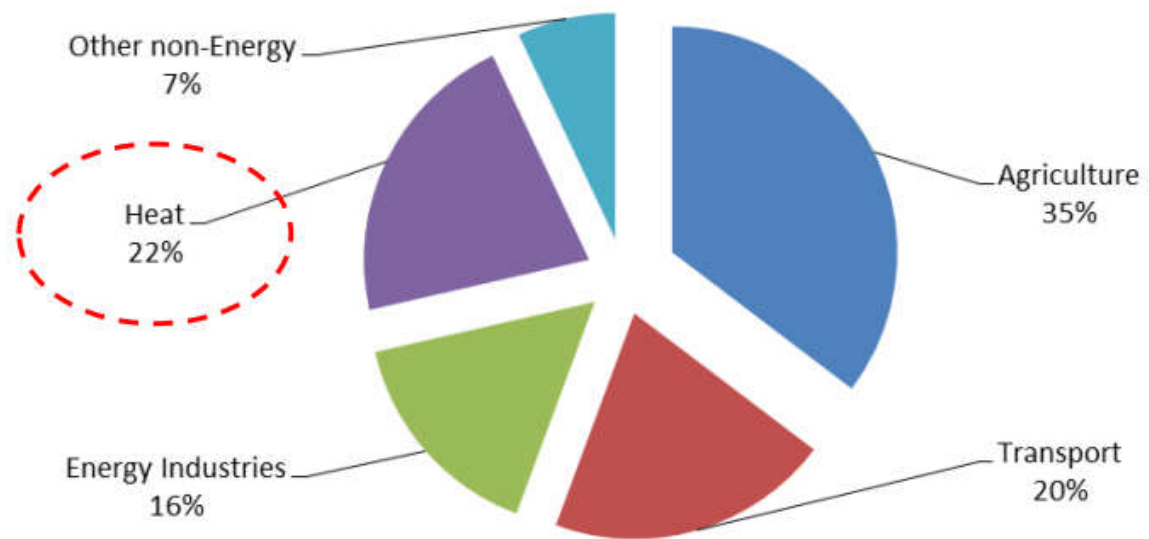


## 2.3 Ireland’s Green House Gas emissions by sector:

The heating sector currently contributes to approximately 22% of Ireland’s greenhouse gas emissions:

<sup>1</sup> <https://ec.europa.eu/eurostat/web/products-eurostat-news/-/ddn-20201229-1?redirect=%2Feurostat%2Fnews%2Fwhats-new>

# Greenhouse Gas Emissions



*\*Source: Ireland's Provisional Greenhouse Gas Emissions 2019 (EPA, November 2022); Heat category includes residential, manufacturing combustion, commercial services and public services; Other non-Energy includes industrial processes, F-gases and waste.*

### 3 District Heating in Dublin City Council Plans and Policy's:

Dublin City Council and the State has committed to progressing the DDHS, focusing on supplying district heating to residential and commercial buildings in the Dublin Docklands and Poolbeg Peninsula. The strategic importance of the DDHS is recognized and support by key policies at national, regional and local levels, namely:

- National Development Plan 2018 - 2027
- Dublin City Development Plan 2016 – 2022
- North Lotts and Grand Canal Dock Strategic Development Zone (SDZ) Planning Scheme 2014
- Poolbeg West Strategic Development Zone (SDZ) Planning Scheme 2019
- Dublin City Council Climate Change Action Plan 2019-2024.

### 4 The District Heating Opportunity in Dublin

Codema, Dublin's Energy Agency has undertaken a number feasibility and analysis studies in respect of delivering DH within Dublin City Council's functional area and they have identified that 75% of the city is considered suitable for district heating, utilising Scandinavian standards. They have further identified that there are enough heat sources to cover double the heat demand of the city. When

excluding environmental sources there is enough wasted heat in the city to potentially supply about 175% of the city's heating needs.

## 5 The Dublin District Heating Scheme:

### 5.1 Project Description

Building on the Dublin City Council Climate Change Action Plan 2019-2024, Dublin City Council is

*"committed to safeguarding the environment and increasing the City's capacity to reduce greenhouse gas emissions and adapt to the impacts of Climate Change, in order to increase economic competitiveness and attract inward investment."*

Dublin City Council has identified the Dublin Waste to Energy (DWtE) Facility as the primary heat source for the network. The Facility is currently managing 600,000 tonnes of non-hazardous residual and industrial waste and export approximately 60 MW of electricity to the national grid. The boilers, turbine and condensers installed at the Facility have been designed to operate as a high efficient combined heat and power facility with the ability to export up to 90MW of thermal energy to heat buildings. Additionally, it is envisaged that the network will be developed with a thermal energy storage capacity to optimise the efficient use of any primary heat source, and allowing us to develop potential storage capacity for the renewable electricity sector, in the form of heat.

Dublin City Council has a long-term goal to expand district heating throughout the City and Dublin area. The objective of Dublin City Council in relation to the Project is to develop a highly efficient district heating system which minimises carbon emissions, improves air quality, reduces dependence on imported fossil fuels and is accessible to as many customers in the Dublin City Area as possible.

### 5.2 The initial Project Phase

The initial project phase is focused on the, Poolbeg West, North Lotts and Grand Canal Dock SDZ's as set out in the map presented in Appendix 1. In order to service this area, it will require the installation of about 14.6Km of pipework, 7.3 km of flow and 7.3 km of return, so the trench length is about 7.3km. Pipe designs are similar to a water main, having a design pressure of 16bar, but a working pressure of between 1 to 14 bar.

The area encompasses approximately, 120 development blocks consisting of roughly 10,000 apartments, & 1,000,000m<sup>2</sup> of commercial space, at a minimum. This area will utilise circa 2/3 of the 90MW available from the DWtE, so we are actively investigating potential other areas of Dublin where we can supply heat to.

The initial project has the potential to reduce Carbon (CO<sub>2</sub>) emission by approximately 16,000 tonnes per annum, with an almost 80% reduction in emissions in Poolbeg, Ringsend, Docklands and wider catchment when the project is fully realised.

### 5.3 Implementation Period

The Project is expected to take up to five years (between 2021 and 2026) to install and commission the initial network, with customer connection and realisation of the benefits being delivered on a phased basis, over the next ten years in line with development within the catchment areas.

### 5.4 Project Structure and Investment Requirements

Dublin City Council intend to develop the DDHS through the establishment of a Joint Venture company with a Private Partner. The Joint Venture Company will be responsible for designing, building, funding, operating and retailing the district heating scheme.

The project has an overall estimated capital investment of approximately €73m, which will be invested in the development of the distribution network, Energy Center customer connections and training and upskilling of staff within the traditional energy sector for this new utility in Ireland.

The funding is anticipated to be a combination of a loan secured by Dublin City Council of €43m, an equity investment by a private partner of potentially €10m and the €20m CAF grant. It is envisaged that Dublin City Council will retain full ownership over the distribution network, given the level of investment and that the loan will be fully repaid in due course from project generated revenues.

- The procurement process for the JV Partner, will commence in Q3 2021, it is anticipated that the procurement will take 18 to 24 months to complete,
- In parallel with procuring the project partner, Dublin City Council will obtain the necessary statutory approvals, including planning for the project,
- It is anticipated that the DH network will be operational in late 2024, early 2025 in line with completion of the Poolbeg West Development.

### 5.5 Government Support

The DDHS is the first city wide district heating scheme of scale to be developed in the Irish market. The Project faces a number of challenges as follows: scale of project, uncertainty of project revenues, unregulated market, new utility, and development timescales:

There are government and local authority initiatives underway which could assist in meeting these challenges and allowing the project to proceed at pace:

- **Regulation:** Department of Environment, Climate and Communications (“DECC”) are currently undertaking a review of regulation requirements for the sector to support the development of district heating to ensure developers opt-in to the use of district heating in their developments and are reviewing initiatives to encourage end users to switch to district heating.
- **Funding:** DECC Climate Action Fund (to date €20m has been allocated under the DECC Climate Action Fund).
- **Securing long term demand:** Dublin City Council have entered into discussions to secure long term demand from a hospital campus. Additionally, the planning authority has placed a planning obligation on a large new development located in the target market area to ensure the development is district heating enabled.

## 5.6 Job Creation

The construction of the Dublin District Heating System will create between 100-150 jobs, requiring significant specialised labour during the construction period. This construction would also support further employment in ancillary services which are required for a project like this. Associated employment in the local area and expenditure in local business is also expected while the construction works are taking place.

It is also expected the project will generate job creation through:

- Operation and maintenance of the network
- Retail & Billing
- Operation and management of the new utility company

Employment for these areas would be enduring jobs over the lifetime of the network, expected to be in excess of 50 years. The operation/monitoring and maintenance elements are highly skilled jobs, requiring a high degree of specialisation and knowledge of district heating systems. In addition, the new utility company will have a number of specialised and highly skilled employees to manage the company with responsibility for contract management.

