IRELAND – national policy framework

Current state of District Heating in Ireland

<0.8% of heat demand is covered by DH * 11% share of CHP in DH generation * 19,205 GWh total heat demand for space heating

Ireland has a target of 12% of heat demand to come from renewable sources by 2020 this proportion currently stands at 6.9%. The majority of the existing district heating systems were built in the last ten years. Two planned DH schemes in Dublin have received approximately €25 million in government funding through the Climate Action Fund. Initial results from the 'Heat Atlas for Ireland' study suggest that up to 57% of the country's total heat demand could be covered by district heating networks, if the necessary government regulations are put in place. As seen on the following graph, the majority of heating is delivered to buildings through individual gas and oil boilers. Only 6.9% of total final consumption of thermal energy is met by renewable sources (2017 figures latest). Renewable heat energy is dominated by solid biomass which accounts for 79% of renewable heat production. The next biggest renewable heat source are heat pumps which account for 15%, followed by Solar Thermal (5%), and Biogas (3%). CHP met 6.3% of the total thermal energy requirements, mostly for large industry, particularly the non-ferrous metals and food industries. 258 of 298 operational CHPs in 2017 in Ireland use natural gas, which equates to 91.65% of the operational capacity.

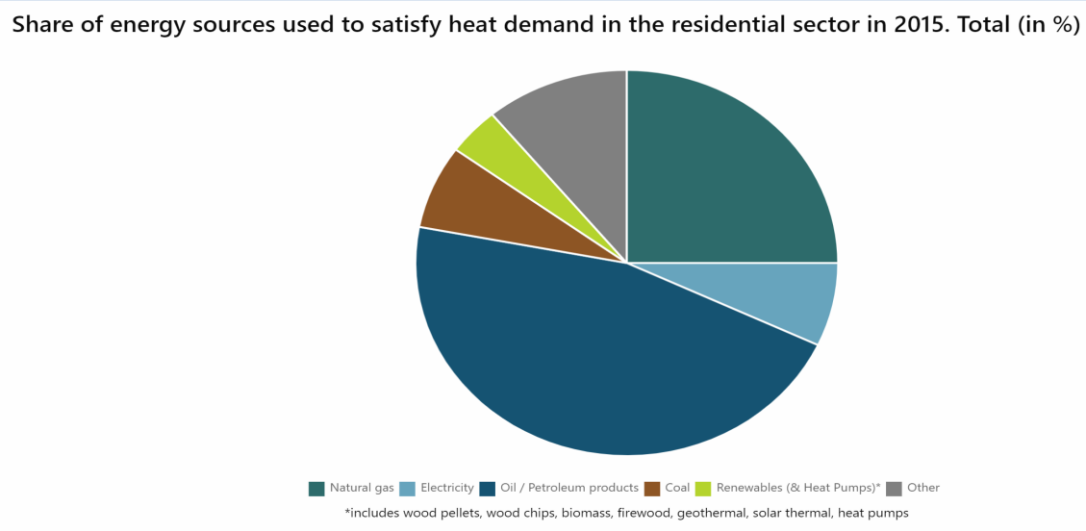

***Figure 1**: Share of renewable energy sources used to satisfy head demand in the residential sector in 2015. Source: Euroheat & Power, Country profiles, 2019*

National policies affecting 4DHC development

Codema produced the first 'Guide to District Heating in Ireland' which outlines the key features of the DH market in Ireland.

- Currently there are no supports for any kind (3rd or 4th generation) of District Heating (DH) in Ireland.
- No National Heat Strategy or Plan, as the results of the national level cost-benefit analysis of CHP and DH (as required under Art.14 EED) showed that DH is only cost-beneficial in some areas of the country (dense city areas) and therefore there is no call for national level planning or support for DH. This analysis did not take into account 4th generation DH potential and sources of recoverable waste heat, which greatly impact the cost-benefits for DH. The results of this analysis therefore hinders the development of national level policy, strategy and supports for DH.
- In Ireland, the focus is on the development of Bioenergy for heating, with a Draft National Bioenergy Plan produced in 2014

Other national regulations influencing energy efficiency and renewable energy investments, funding programs

- National Energy Efficiency Action Plan

  The Energy Efficiency action plan has influenced the use of energy in new buildings, introducing minimum energy requirements for new builds. This supports the use of low temperature heat supply from 4GDH systems to new developments. It has also had the effect that many new apartment blocks and commercial buildings have centralised heating systems based on CHP or other low-carbon technologies, and centralised water based systems are easier to retrofit to DH connections than those with electric or individual heating systems. The action plan also requires all public buildings to reduce their energy use by 33% by 2020, which is a driver for energy saving actions in the public sector, including looking into DH supply to replace old inefficient heating technologies.

- National Renewable Energy Action Plan

  The renewable energy action plan sets targets for RE in each sector. For heating, the target is 12% by 2020. It has proved quite difficult to achieve this target through policies introduced, and CHP and DH can play a big role in helping to deliver this target going forward, if recognised by the government.

- There are many supports for the production of renewable electricity in the form of Renewable Energy Feed-In Tariffs (REFIT). The REFIT 3 supports the use of heat from renewable CHP, with a higher tariff available when using a high proportion of waste heat, but the payment is made on the amount of electricity produced rather than the heat produced. This means, in cases where the CHP operator is not also the DH system operator, the REFIT only benefits the CHP owner. The REFIT can also add to the cost of waste heat from power plants, as when operating in CHP mode there is a reduction in electricity output, the cost of which must be recovered; therefore REFIT hinders the use of waste heat from renewable power plants.

- Under the new Irish building energy regulations, all dwellings must have a share of renewable energy, either for heating, electricity, or a combination of both to meet 10 kWh/m2. When heating is supplied by DH, any waste heat used is not taken into account to meet this requirement, and therefore onsite

renewables are required. Using low-carbon and lower-cost waste heat is therefore not an advantage for building energy ratings. Also in many cases the losses accounted for in the first phases of DH schemes decrease the energy efficiency of the dwelling. These issues mean DH can negatively affect building energy ratings and is therefore not an attractive option for developers or households. This therefore hinders DH development, but is currently under review by the relevant departments.

- There are national funding streams available for community energy efficiency retrofit schemes, through the Sustainable Energy Authority of Ireland (SEAI) which could include retrofits for connection to DH, along with other energy reducing measures on building envelope.
- Grants for energy efficiency measures for individual households do not include equipment for DH connection, neither provide grants for DH substations. This hinders DH development, as customers will choose other technologies that are supported by grants, and installing these systems now locks them into these technologies for 10-15 years.

Regional or local policies influencing 4DHC development

In Ireland, the local and regional authorities do not have high levels of autonomy, and do not deliver any utility services to populations in their areas. There is no obligation on the local authorities to address energy use in their regions, and the only obligations relate to their own building stock and use of energy.

- In **Dublin**, the local authorities are more pro-active to encourage DH then at a national level. Both Dublin City and South Dublin (2 of 4 municipalities in Dublin region) have local planning policies to support the use of DH in their areas. South Dublin County Council have introduced policies specifically for low carbon DH: Energy Chapter in South Dublin County Council planning, Dublin City Council Development Plan
- Codema, as the energy agency for Dublin, produced Heat Demand Density analyses for the Dublin region, and have shown there are many areas suitable for DH development in Dublin.
- There are 2 Strategic Development Zones (SDZs) in Dublin City where the planning conditions require that the new developments must be 'DH enabled' - that is they must be centralised water based systems that have the equipment and space to connect to a DH network when it becomes available in the area.

Local and regional good practices

- Spatial Energy Demand Analysis of Dublin local authority areas, created by Codema, which outlines the areas which have heat demand densities suitable for DH development: Example Dublin City
- Creating planning conditions for 'DH enabled' buildings, such as Dublin's strategic development zones.
- The only successful DH project in Ireland, it is a 100% local biomass system in the south of Ireland.

BARRIERS to development of 4GDHC

Policy or legal barriers

- Currently, there are **no guidelines, regulations, policies, frameworks or standards for DH in Ireland**. This creates high risk and uncertainty when planning medium-to-large scale systems.

- **Building energy ratings are not improved with district heating** due to the taking account of the losses in the systems, even if 100% renewable heating fed into the district heating. Waste heat is not classified as renewables and therefore waste heat delivered through DH cannot meet building regulation requirements for RE.

Financial and market barriers

- **Competition and lobbying from existing heating solution players**, namely gas and electricity sectors (so called 'green' solutions for heating that are not oil).
- The **carbon tax has not been effective** and gas heating remains cheapest option.
- There are **no national level supports for district heating**, and no green low-cost loans.
- **Organisational:** The drivers for district heating are expected to be municipalities, who have little resources, no knowledge of district heating and no experience providing a utility, and see district heating investment as high risk.
- **Market perception:** Bad experiences with old inefficient district heating in the 1970s social housing schemes have tarnished the reputation of district heating in Ireland.
- **Awareness:** The whole energy system benefits of district heating (4th generation district heating) are not considered at a high level.

Recommendations for policy makers

- There needs to be ***national level acknowledgement of the benefits of DH*** and particularly the whole energy system benefits of 4GDH.
- There needs to be ***obligatory energy planning carried out at a local and regional level*** - this benefits DH as well as all other energy sources and systems.
- ***Analysis of heat and energy system options*** from a societal perspective and in terms of long term planning - at the moment it is concentrated around short term economics (suited to the political parties length of time in government)
- ***Clear guidance on design and standards for DH*** in Ireland to ensure successful projects
- ***More resources and autonomy given to Local Authorities*** to develop DH networks
- ***Low cost loans facilities*** and start-up grants for DH needed in a market with less than 0.8% share
- ***Start construction of*** heat networks in parts of the city with ***high density urban developments***
- Allow renewable and waste heat from ***DH networks to account for the renewable energy requirements in building regulations***
- ***Increased carbon tax*** to allow DH systems using RE and waste heat to be cost competitive