
Submission to the Public Consultation to

Inform a Policy Framework for the Development of District Heating in Ireland

Report prepared by Codema - Dublin's Energy Agency

February 2020

Background

Codema is Dublin's Energy Agency and was founded in 1997 as a not-for-profit limited company. We are the energy adviser to the Local Authorities in Dublin; our role is defined around the core function of supporting the local authorities in their own sustainable energy use. A second role is engaging with EU and nationally funded energy programmes to bring innovation to the Dublin region. A third and increasingly important role is to increase energy awareness among the citizens and energy stakeholders in Dublin. Over the years, these three strands have become increasingly intertwined and integrated into a comprehensive local and regional service for energy and climate change. Examples of Codema's work include district heating system analysis, energy performance contracting, management of European projects, energy saving behavioral campaigns, detailed energy reviews and energy masterplanning. Codema is well networked in Europe and has been very successful in bringing European projects to Dublin with a local implementation for the Local Authorities.

Context

Codema is Ireland's leading expert in District Heating research and project implementation.

We have built the evidence-base to support the roll-out of DH in Dublin, developing the first heat demand and heat source maps in Ireland, based on European best practice methodologies. We have identified potential projects across Dublin and, working with Local Authority project champions, have **brought projects from idea to reality; from pre-feasibility, techno-economic analysis, business case through to securing funding, procurement, contracting and delivery**. We are the Dublin Local Authority's one-stop-shop for the roll-out of DH projects. Codema therefore very much welcome this opportunity to make a submission to this consultation to inform a policy framework for District Heating in Ireland. We fully understand the barriers at all stages of the project development process and hope our submission will be informative to DCCAE.

Based on our knowledge of best-practice in the European DHC market and our close collaboration with cities and energy agencies across Europe through involvement in multiple EU projects, **we feel strongly that the development and ownership of DHC systems should lie with Local Authorities**. Enabling LAs and giving them the autonomy and resources to act at a local level in the energy sector will not only help to overcome some of the many barriers facing the development of DHC in Ireland, but also importantly ensure the development of a low-cost, low-carbon heating solution that puts priority on the protection of customers. It enables a local, bottom-up energy utility to evolve who's core values are based on **making the region lower-carbon and a more attractive, healthier environment for its citizens**. It allows **fair and equal access** for the lowest carbon, lowest cost heat suppliers to supply the system. It also allows possibilities to open **investment opportunities to urban citizens to investment in a local low-carbon energy projects**.

We would also like to take the opportunity to **thank the DCCAE Heat & Transport Policy division for all of their support for district heating** over the last few years. DH was not on the

government agenda for many years and is now finally starting to gain traction and is now in the minds of policy makers and other stakeholders. The support within Project Ireland 2040, the Climate Action Fund and the District Heating Working Group has had a very positive effect on the industry.

Codema is a founding member of the **Irish District Energy Association (IrDEA)**, and our some of our response will also be reflected in the IrDEA submission.

Response to Consultation

1. Research

General Comments

Data Issues

Access to data on building heat demands or data to allow estimates of heat demand, is fundamental to developing DHC systems (and other low-carbon heating technology markets) - it has become increasingly difficult to obtain data, even public data, on buildings in order for heat demand modelling and mapping to be carried out.

Codema carried out research under the SEAI RD&D to create **Spatial Energy Demand Analyses (SEDAs) and are now trying to build upon this work to create the Dublin Region Energy Masterplan**. We have run into numerous issues now as Census data that was available at small area level, that we already had been granted access to previously, is now unavailable for 2016 Census due to misinformed use of GDPR. GDPR has become an excuse not to release data, as legal teams are overly cautious on releasing data. This is a problem for ALL energy research, not just DHC, but particularly relevant for DHC given its **reliance on locational data attributes for spatial analysis**.

SEAI legal teams have stopped access to the BER database that has been broken down to small area level rather than postcodes – SEAI carried out this work, which was not an easy task, for the purposes of supporting research, and now they cant release it. The CSO now hold **building level gas meter data** but it is only being made available at postcode level – postcode areas do not mean anything to energy analysis! It is hard to understand what the point of having this data is when it gives no useful insights at the level it is being broken down to.

We would therefore ask that DCCAE really seriously consider and **revise the policy on data control and advise relevant bodies such as the CSO & SEAI**. Semi-state energy utility companies, while they hold commercially sensitive customer data, have data that can be anonymised easily to allow researchers to assess the most cost-effective and low-carbon solutions for heating in Ireland. Allowing these companies (particularly fossil-fuel companies) to retain this data only for their own use reinforces the status-quo and does not allow a level playing field for new technologies and solutions to gain the same market insights. **This data needs to be made available to trusted bodies, such as Local Authorities, who are**

developing new DHC utilities for the public good and helping to meet national level emissions targets.

Q1: What additional research do you think needs to be carried out to support the development of district heating in Ireland?

In order for comparable feasibility studies to be carried out for renewable and low-carbon heating solutions (including DH) there needs to be **a comprehensive technology guide** available outlining average costs, emissions, efficiencies, lifetimes etc., of different technologies. An example of such Technology Catalogues are produced by the Danish Energy Agency, and can be found here: <https://ens.dk/service/fremskrivninger-analyser-modeller/teknologikataloger>

This resource allows project teams to assess the viability of a variety of technology options using impartial and nationally approved data, based on experience of technologies implemented in Ireland. It also allows the direct comparison of different projects when using the same assumptions. The research behind gathering this information and compiling it should be a priority for resources to support the roll-out of DH (and other low-carbon technologies).

At the moment the comprehensive assessment only includes large scale industrial waste heat from sources registered on the ETS. Further research into the existing indigenous heat sources available to supply proposed DH networks is also required. This would include information location, capacity, annual heat availability, temperature for sources across the country. An approach similar to that taken as part of the South Dublin Transition Roadmap - where 18 different heat sources were investigated - could be applied nationally.

This is also a requirement under the Recast RE Directive (49) *"To ensure that national measures for developing renewable heating and cooling are based on comprehensive mapping and analysis of the national renewable and waste energy potential and that such measures provide for increased integration of renewable energy, by supporting, inter alia, innovative technologies such as heat pumps, geothermal and solar thermal technologies, and waste heat and cold, it is appropriate to require that Member States carry out an assessment of their potential of energy from renewable sources and the use of waste heat and cold in the heating and cooling sector, in particular to promote energy from renewable sources in heating and cooling installations and promote competitive and efficient district heating and cooling."*

Geolocated point or street level data of building heat demand and use type. This higher granularity data would allow for more accurate heat mapping and feasibility studies. This point data is available in other EU countries such as Austria for energy planning purposes.

In order to plan for 4th or 5th generation DHC systems, DH system planners will need information on operating temperatures along with a general description of the building's heating. Data on new buildings should be collected through the planning application process - requiring a standard energy assessment form to be filled in and submitted with applications. This way the local authorities can manage and utilise this data for DH planning.

For existing buildings, it is obviously a much bigger challenge to collect data, but a system like the mandatory DEC's for public buildings above a certain size could also apply to

private sector commercial buildings and include other data such as heat demand and operating temperature.

We are **very disappointed to see the SEAI RD&D funding programme has been cut** this year and is not available to support much needed research in the low-carbon energy sector in general, but particularly for a fledgling industry such as DHC in Ireland which really needs the research grant support. Codema have made great use of this funding programme, which has supported much of our DH research to date.

Q2: How should research (including the upcoming comprehensive assessment) be used to inform/support the development of district heating in Ireland?

UCC/SEAI/Codema are currently collaborating to define a methodology to allow DH to be taken into account in national level energy models (IrishTIMES and SEAI energy model). Ensuring the contribution DH can make to Ireland's energy targets is accurately reflected in these models is fundamental to inform policy makers and gain a better understanding of the many benefits DH can provide, including impact on the electricity market with large scale demand side response utilising CHP, heat pumps, electric boilers and thermal storage capabilities.

The IrDEA Heat Atlas, and results of the upcoming comprehensive assessment, should be disseminated to local planning authorities for them to incorporate into their GIS systems and allow them to use them to meet planning requirements around DHC such as those outlined in the Eastern & Midlands Regional Assembly's RSES (RPO 7.38).

Q3: Are there relevant existing research projects into district heating, in the Irish context, which are not referenced in this document?

There are two EU projects on District Heating with Irish partners that have many useful research outputs and tools applicable to the Irish market and tested and disseminated by Irish stakeholders;

Hot Maps <https://www.hotmaps-project.eu/>

Codema are lead partner in the EU Interreg NWE project HeatNet: <https://www.nweurope.eu/projects/project-search/heatnet-transition-strategies-for-delivering-low-carbon-district-heat/>

An output of the HeatNet project for example was the South Dublin Transition Roadmap for DHC, which could be replicated for other local authority areas in Ireland: https://www.codema.ie/images/uploads/docs/HeatNet_NWE_Transition_Roadmap_Report_Final_-_Digital.pdf

A peer reviewed research paper in the Journal of Cleaner Production, and co-authored by Henrik Lund, was published in 2018 - *Implementing cleaner heating solutions towards a future low-carbon scenario in Ireland*¹ - which found that while DHC is more investment

¹ <https://vbn.aau.dk/en/publications/implementing-cleaner-heating-solutions-towards-a-future-low-carbo>

heavy, it is more fuel-efficient; the fuel savings more than compensate for the increased investments. The DHC scenario modelled is €300M cheaper in annual costs than the individual heating scenario for Ireland.

Codema have also been successful in securing another EU project on DHC called 'Decarb City Pipes' which looks to transition Dublin away from reliance on fossil fuel networks and instead utilising decarbonised heating supply networks. This project start in May 2020, and we are very happy to have DCCAE supporting and taking part in this project.

Q4: Can further research contribute to encouraging areas of compact urban growth to develop district heating projects?

Compact urban growth is a future-proofing step for feasibility of DHC systems, as the more compact an urban area, the less DHC pipe network infrastructure is required to connect those buildings to the same network, and therefore reduces the upfront capital costs. We therefore suggest that urban planners are made aware of the benefits of compact urban growth to support decarbonising the heating sector - compact urban areas have higher heat densities that support the roll-out of DHC schemes.

Compact growth is a key policy coming from the National Planning Framework (NPF) and the Regional Strategies now in place, and local authorities are obliged to work with sustainable densities. There does not seem to be any gap in implementing it within urban areas, though clearly it is a challenge in smaller towns and commuter belt areas where the market doesn't sustain higher density development.

2. Regulation

General Comments:

We feel that there may be a tendency to 'copy and paste' solutions from the UK experience because of institutional, regulatory and structural commonalities and may be seen as an easier option, but we would warn against this approach – the UK DH market is struggling to achieve growth and is not achieving the same connection levels or focus on carbon reductions as seen in other jurisdictions. Other emerging markets, such as Belgium and the Netherlands should also be examined for commonalities and their experience.

International Review Market of DHC Market Frameworks

Codema has found a recent report produced on behalf of the UK Dept. BEIS² gives a very good review of international DHC market frameworks, specifically focusing on those in new DHC markets that are more relevant for comparison to the UK (and Ireland).

This report shows that in countries where **DH has been most successful, the ownership of the heat network companies is at municipal (local authority) level**. This report also discusses the benefits associated with regulation in areas such as consumer protection, safety and price transparency. In many countries where municipality-led DH networks are developed self-regulation is common place as it is the duty of the municipality to serve its citizens and to

² <https://www.gov.uk/government/publications/international-heat-networks-market-frameworks-review>

deliver solutions that are in line with their socio-economic, energy efficiency, carbon reduction targets.

In relation to connection policy it is the conclusion of this BEIS report that mandatory connection does not appear to be essential, policies which in some way result in customers favouring heat networks are essential for investment to take place (e.g. from our members experience engaging with developers on new-build residential developments in Ireland, they see DH as a more cost-effective option than individual heating systems such as heat pumps). Mandatory connection as a last resort seems to be an important protection in those markets that use it sparingly - this may equate to using mandatory connection in designated DH zones where the cost and climate benefits are apparent.

Q5: What elements of Article 24 of the recast Renewable Energy Directive should be implemented in the near term (i.e. by the mid-2021 transposition deadline)?

Firstly we would like to highlight the **importance of Article 23(1)** which has not been referenced in this consultation document;

Ireland has a huge resource of zero-carbon waste heat that we are not putting to use and that could vastly off-set our use of imported fossil-fuels for heating. **In the Dublin region alone we have over 2000 MW of waste heat.**

Article 23(1) seeks to promote the use of renewable energy in the heating and cooling sector, whereby each Member State is to attempt to increase the share of renewable energy supplied for heating and cooling by an indicative 1.3% as a yearly average for the periods 2021-2025 and 2026-2030 (Art 23(1)). Waste heat can provide up to 40% towards the yearly target of the 1.3% increase of renewable heating and greatly assist Ireland to meet our targets and move from second-last place in Europe. In order to **ensure that waste heat contributes towards the renewable heat targets**, (a) and (b) in Article 23(4) should be transposed by the mid-2021 transposition deadline.

Article 24:

The percentage contribution of DH to overall heat & cooling demand in Ireland is unlikely to meet the 2% in the short term, and we agree that introducing overly complex regulation aimed at existing large DHC markets could be more of a hindrance to establishing DHC as a new market player in the heat sector in Ireland.

The elements of Article 24 that should be introduced in the short term are;

1. *Member States shall ensure that district heating and cooling suppliers provide information to end-consumers on their energy performance and the share of renewable energy in their systems. Such information shall be in accordance with standards used under Directive 2010/31/EU.*

Q6: What elements of the Article 24 of the recast Renewable Energy Directive should be implemented in the medium term (i.e., by 2025)?

2. Member States shall lay down the necessary measures to allow customers of those district heating or cooling systems which are not 'efficient district heating and cooling' within the meaning of Article 2(41) of Directive 2012/27/EU to disconnect from the system in order to produce heating or cooling from renewable energy sources themselves, or to switch to another supplier of heat or cold which has access to the system referred to in paragraph 4.

3. Member States may restrict the right to disconnect or switch supplier to customers who can prove that the planned alternative supply solution for heating or cooling results in a significantly better energy performance. The performance assessment of the alternative supply solution may be based on the Energy Performance Certificate as defined in Directive 2010/31/EU.

4. Member States shall lay down the necessary measures to ensure non-discriminatory access to district heating or cooling systems for heat or cold produced from renewable energy sources and for waste heat or cold. This non-discriminatory access shall enable direct supply of heating or cooling from such sources to customers connected to the district heating or cooling system by suppliers other than the operator of the district heating or cooling system.

5. An operator of a district heating or cooling system may refuse access to suppliers where the system lacks the necessary capacity due to other supplies of waste heat or cold, of heat or cold from renewable energy sources or of heat or cold produced by high-efficiency cogeneration. Member States shall ensure that where such a refusal takes place the operator of the district heating or cooling system provides relevant information to the competent authority according to paragraph 9 on measures that would be necessary to reinforce the system.

6. New district heating or cooling systems may, upon request, be exempted from the application of paragraph 4 for a defined period of time. The competent authority shall decide EN 91 EN on such exemption requests on a case-by-case basis. An exemption shall only be granted if the new district heating or cooling system constitutes 'efficient district heating and cooling' within the meaning of Article 2(41) of Directive 2012/27/EU and if it exploits the potential for the use of renewable energy sources and of waste heat or cold identified in the comprehensive assessment made in accordance with Article 14 of Directive 2012/27/EU.

7. The right to disconnect or switch supplier may be exercised by individual customers, by joint undertakings formed by customers or by parties acting on the behalf of customers. For multi-apartment blocks, such disconnection may only be exercised at whole building level.

8. Member States shall require electricity distribution system operators to assess at least biennially, in cooperation with the operators of district heating or cooling systems in their respective area, the potential of district heating or cooling systems to provide balancing and other system services, including demand response and storing of excess electricity produced from renewable sources and if the use of the identified potential would be more resource- and cost-efficient than alternative solutions.

9. Member States shall designate one or more independent authorities to ensure that the rights of consumers and the rules for operating district heating and cooling systems in accordance with this Article are clearly defined and enforced.

Q7: Who should have the right to own the district heating networks?

There are multiple parts of a DHC system and it is good to ensure that each is highlighted when speaking about ownership so there is no confusion;

- **Heat supply** - there are typically multiple heat suppliers into a large DHC network which may or may not be owned by the DHC network operator. The back-up or peak load heat supply is often owned by the DHC operator, but this can also be provided by third parties.
- **Heat (and/or cooling) Network** - the main transmission and distribution network pipelines are often owned by the operator directly or can be contracted by owners to operators to operate on their behalf. Network owners are typically local authorities or local authority utility companies, and we would suggest that the network assets should follow this trend and be owned and kept in public ownership in Ireland. DHC networks, like electricity networks, are a vital infrastructure to decarbonise the energy sector and need to be able to develop and connect to customers that are outside the very feasible 'high returns' areas. It is also likely that the development of new networks will require significant public investment given private capital comes at too high a cost for the returns on a system competing with low-cost fossil-fuel alternatives.
- **Customer Heat Substations** - There are mixed experiences in other markets with substation ownership - some operators prefer to own the substation to retain more control to ensure efficient operation and to incentivise connection by taking on the upfront capital costs for retrofit customers, while some schemes the customers prefer to own their own substation and the operators do not want the hassle of the maintenance and access to private property. We do not see a need to define this ownership as it should come down to what suits each operator/customer agreement.

Q8: Should there be a district heating market regulator?

A recent report produced on behalf of the UK Dept. BEIS gives a review of international DHC market frameworks, specifically focusing on those in new DHC markets that are more relevant for comparison to the UK (and Ireland).

This report shows that in countries where DH has been most successful, the ownership of the heat network companies is at municipal (local authority) level. This report also discusses the benefits associated with regulation in areas such as consumer protection, quality of service, safety and price transparency. In many countries where municipality-led DH networks are developed self-regulation is common place as it is the duty of the municipality to serve its citizens and to deliver solutions that are in line with their socio-economic, energy efficiency, carbon reduction targets.

Q9: Should there be guidelines/Code of Practice around district heating and if so, who should be responsible for their development and implementation?

Given the current knowledge gap in Ireland regarding DH it is vitally important that guidelines are developed to ensure a minimum standard is reached in regard to projects at all stages of the process feasibility, design, business models, legal agreements, procurement, construction & installation, commissioning, operation & maintenance, guidance on relevant qualifications & regulations. In relation to the feasibility stage, having an approved somewhat standardised procedure will provide greater confidence in investment decisions.

Similar work developing such guidance documents has been done in the UK, Denmark, and elsewhere in the past. This could be drawn upon as a source for much guidance. However, this information should be curated by an Irish body with expertise in the DH industry in Ireland (e.g. the Irish District Energy Association, Codema) which fully appreciates the differences between Ireland and these other countries and the challenges in delivering projects in Ireland. This would ensure the most applicable international information and Irish-specific content is included in the guidance.

Another area which would help remove barriers for those who wish to develop DH networks is a guidance and templates for letters of support/commitment from potential customers, customer supply agreements, energy supply contracts and maintenance contracts. Again drawing on both national and international experience to arrive at a best practice solution.

3. Planning

Q10: What changes, if any, are required to existing planning and building regulations in order to support the development of district heating? In particular what changes might be required in order to promote the type of high density development that is seen as providing the most suitable conditions for development of district heating?

High density development is of course helpful to support the roll-out of DH systems, but the Heat Atlas research has already shown the heat demand densities are already there in Ireland to support the roll-out of DHC, so density at this time is not the most pressing planning or regulatory issue.

Planning authorities could better support DHC by applying planning conditions similar to those used in London in areas where heat density is suitable for DHC - such as applying conditions that buildings must be 'DH enabled' in these zones, that they must connect to the DHC network if it is a lower carbon solution to an individual solution, and importantly ensuring any new industrial development with a useful waste heat source is future proofed to connect to a DHC network. These types of planning requirements have already been used and trialled in Dublin scheme development and are absolutely fundamental to de-risking and laying the foundations for future DHC development. These practices need to become mainstream for planning departments in all local authorities, starting with those with large dense urban areas.

The EMRA's RSES policies requirements around DH and heat mapping have greatly assisted the development of DH planning going forward for LAs within this region, and should be replicated in the other regional assembly areas.

As an example, the Scottish government have also provided guidance³ on developing local development plans and planning policy which states:

Local development plans should:

- Use heat mapping to identify the potential for co-locating developments with a high heat demand with sources of heat supply.
- Support the development of heat networks in as many locations as possible, even where they are initially reliant on carbon-based fuels if there is potential to convert them to run on renewable or low carbon sources of heat in the future.
- Identify where heat networks, heat storage and energy centres exist or would be appropriate and include policies to support their implementation.

Planning Policy should:

- Support safeguarding of pipe runs within developments for later connection and pipework to the curtilage of development.
- Give consideration to the provision of energy centres within new developments.
- Where a district network exists, or is planned, or in areas identified as appropriate for district heating, policies may include a requirement for new development to include infrastructure for connection, providing the option to use heat from the network.
- Secure provision for a heat storage tank from non-renewable sources if there is potential to switch to renewable sources within the lifetime of the development.
- Encourage micro-generation and heat recovery technologies associated with individual properties where heat networks are not viable.

The recast Renewable Energy Directive 2018/2001 (48) states, in relation to meeting the energy requirements of new building and renovation regulations, that “Member States should allow, inter alia, the use of efficient district heating and cooling or, where district heating and cooling systems are not available, other energy infrastructure to fulfil those requirements.”

Currently the requirements for new dwellings, under Part L, require an energy performance (the EPC), carbon performance (the CPC) and renewable energy (the RER) target to be met. There is a problem with having a carbon coefficient and a separate renewable energy requirement when utilising waste heat. Waste heat is not classified as renewable, but is zero-carbon as it has no fuel associated with producing it as it is a waste product of a primary process. A dwelling which is supplied by a DHC scheme utilising waste heat will far over-achieve in terms of energy efficiency and carbon, but will not meet the renewable energy element. This means that you could have a near zero-carbon home - supplied fully with zero-carbon heat, but it will still require an investment in an on-site renewable technology to meet the RER threshold.

The typical developer response to meeting the RER now is to install a number of PV panels on the roof (with no batteries) as it is the cheapest solution, regardless if this is the best operational solution, for example, if there is nobody home during the day to actually use the PV generated. If carbon emission reductions are the primary driver of the building regulation, and not sales of PV, the assessment should be based purely on efficiency and carbon emissions. This can easily be adjusted in the Dwelling Energy Assessment Procedure (DEAP) which produces the Building Energy Rating (BER).

³ <https://www.gov.scot/binaries/content/documents/govscot/publications/advice-and-guidance/2013/06/heat-demands-planning-advice/documents/heat-pdf/heat-pdf/govscot%3Adocument/heat.pdf>

Another issue which is pressing for the development of current schemes is meeting the connection timelines for new developments - in other jurisdictions in Europe, there is an allowance for buildings to connect to a temporary supply (provided by the DH provider) until the network pipes are laid to connect the building to the main low-carbon network. There is typically a window of 3-5 years given for the DH operator to switch the building from the temporary supply to the main DHC supply. The temporary supply is typically the cheapest solution - i.e. gas boilers. At the moment there is no allowance for a temporary supply to be provided to new buildings using a temporary higher-carbon source such as gas boilers. This means that many DHC schemes will miss out on connections to many new buildings as the network may not always be close enough to connect within the building delivery timeline. This is a big issue when heat demand connections are the biggest risk for DHC financial viability and new developments are a key foothold in the market.

Q11: Is there potential for the revised building Regulations to act as a driver for district heating?

The latest update of Part L of the building regulations has gone a long way to incentivise developers to utilize DHC over other options, where DHC is available. The changes suggested above will improve the situation for DHC schemes.

Q12: Given the importance of the public sector taking a lead role in developing district heating in Ireland, as highlighted in the 2015 Comprehensive Assessment, what, if any, additional powers are required by local authorities in order to ensure they have the necessary vires to develop and operate district heating networks?

The Office of Government Procurement (OGP) needs to produce clear guidance for public authorities which allows them to choose DHC supply over other heating fuel supply such as oil and gas that are procured centrally through the OGP. There is a fear in public procurement departments that connection to a heat supply that has not been procured through the OGP will be in breach of public procurement rules. In the case where DHC supply comes at a higher price than fossil fuel heating but has significantly lower emissions, the public authority should be allowed to use green procurement methods to ensure the lowest carbon supply, rather than the cheapest supply, is used.

Under the Local Government Act and Local Government Reform Act 2014 the local authorities have powers to take measures or engage in activity that is necessary in the interests of the local community; these interests are defined as promoting social, economic and environmental development, including providing utilities or equipment for specific purposes. Developing local DHC systems falls under this legal remit and therefore LAs have the powers to implement DHC schemes.

The main barrier is, as there is no defined DHC utility owner/owners, DHC is not afforded the same rights in the Planning and Development Act as other utility developers. The LAs need to be named as the legally licensed DHC utility owner and operator in each LA area and given the same rights as gas/elec network utilities to lay pipes.

Suggested amendment to the planning regulations has already been drafted by Dublin County Council planners and given to DHPLG but has not moved any further than this. We suggest that this amendment is given higher priority by DHPLG or this could cause delay to

projects that are specifically named and outlined in Project Ireland 2040 and supported by DCCAE and SEAI.

Right to supply energy to citizens within their region but also form agreements with other local authorities (LA) to supply across borders in areas where a proposed network is located near LA boundaries.

4. Financing

Q13: What sources of financing are currently available to the Irish district heating market?

DH networks that are currently under development in Ireland have gained grant funding through DCCAE's Climate Action Fund (CAF) and also from the EU's Interreg programme. The Support Scheme for Renewable Heat (SSRH) is also open for District Heating heat supply from bioenergy & grant for heat pump technologies, but not the network infrastructure.

Q14: What are the most appropriate financing mechanisms for developing district heating in Ireland?

This is completely dependent on the particular circumstances of each scheme - unfortunately there is no one answer to finance the DH sector. The only obvious and common thing across all large DH scheme development is that these schemes will require a level of government financial support until such a time that DHC can compete fairly in the market. DHC is competing against heating fuel supplies from fossil-fuel utility providers such as gas, with gas networks having had decades of government support to roll-out the network across Ireland. A fundamental support for DHC, along with all other low-carbon heating solutions, is to fairly price the cost of carbon and introduce taxes that reflect that cost. We strongly feel that carbon taxes collected from fossil-based heating fuel providers be used to support the uptake and development of low-carbon heating solutions, in much the same way that the PSO supports the integration of renewable electricity.

Q15: What are the most appropriate business delivery models for the Irish context?

Again, there is no one-size-fits-all solution, and a range of template contracts and business models should be piloted and supported to gain insight and establish guidance to developing a range of DHC type schemes in the Irish market.

A recent report produced on behalf of the UK Dept. BEIS gives a review of international DHC market frameworks and shows that in countries where DH has been most successful, the ownership of the heat network companies is at municipal (local authority) level.

Q16: In addition to those listed above, what are the other main challenges to raising non exchequer financing for district heating projects in Ireland? What measures should Government consider putting in place in order to mitigate these challenges?

One of the barriers to the non-exchequer financing for district heating is uncertainty regarding the timing and quantity of heat demand to be served by the network, often

referred to as connection risk. This is important because of the need to make returns on the up front capital expenditure on these networks. This connection risk can be helped in a number of ways:

- One of the key factors in mitigating this risk is ensuring that the heat network can supply these buildings within the buildings completion date and therefore prevent alternative heating technologies being installed in these buildings. Providing greater certainty around DH utilities statutory powers to open roads, install infrastructure and supply energy in the same way that other utilities do. These rights may include, easement rights, rights to install pipes in roadways, streetworks rights, rights to supply energy to customers.
- Having a greater certainty in terms of heat demand by having defined district heating zones where buildings are required to be DH-enabled/connected can also help build a really solid business case.
- Lack of knowledge and training in DH specific elements of hydraulic modelling, hydronic systems, welding, trenching requirements, commissioning. Additional modules to existing courses in similar areas could bridge this knowledge gap and provide people with the skills and qualifications needed to design, install and maintain this major new renewable energy infrastructure. This would enable DH contractors to recruit local, highly-skilled workers.

Q17: Other than providing direct exchequer funding, what incentives might Government consider implementing in order to drive the development of district heating? For example, should major energy users be allowed to offset their carbon taxes on energy demand by supplying waste heat to local communities?

Yes, in effect offsetting against carbon tax results in an increased system efficiency (combined heat and power efficiency) and should be treated as such. Another option would be to tax the waste heat from industries with large amounts of heat to give it a value and to incentivise its use.

In general an effective carbon tax, which should fully take all negative externalities fossil fuel use into account, will incentivise the move to low-carbon solutions. The new Government needs to send a clear message to the markets that carbon taxes are part of the long-term policy plan and will at least reach €80/tonne by 2030.

Customer heat exchanger units (HIUs) should be added to the SEAI homeowner grant list for low-carbon heating solutions to support retrofit of DH supply.

Require public buildings to connect to low-carbon heat networks where the heat supplied is lower carbon than their alternative.

Provide low-cost green loan facility for local authorities to develop DHC networks, similar to the HFA loan facility.

Establish a dedicated unit to aid local authorities and public sector organisations to meet requirements in planning, feasibility assessment and project development (similar to the Heat Unit in BEIS in UK gov).

Require cost benefit analysis for further infrastructure development on gas networks to consider a heat network alternative in all investment applications.

Work with Trade training providers (FET, SOLAS, FÁS, Technical Colleges) to establish a DHC trade program module that fits into existing mechanical trade training.

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