The Association for Decentralised Energy

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Bringing Energy Together

ADE response to Ofgem's Fuel Poor Network Extension Scheme consultation

June 2015

Summary

We welcome the opportunity to respond to Ofgem's consultation on the Fuel Poor Network Extension Scheme review.

The Association for Decentralised Energy is the leading advocate of an integrated approach to delivering energy locally, including through district heating, combined heat and power (CHP) and demand side energy services. The Association has more than 90 members, including district heating suppliers, CHP suppliers and operators, local authorities, and energy service providers.

We are limiting our response to questions 1, 2 and 3 under Section 4 in the consultation paper.

What is district heating?

A district heating scheme comprises a network of insulated pipes used to deliver heat, in the form of hot water or steam, from the point of generation to an end user. Heat from the network is commonly transferred to individual properties through a heat exchanger and then used in a separate conventional heating system controllable from within the property. Heat meters are usually used to measure the amount of energy that is taken from the network for billing purposes.

District heating networks provide the means to transport heat efficiently. They can currently be built up to around 30km from generating plant and distribution networks can be hundreds of kilometres long. This is sufficient to carry heat across our cities and smaller communities.

The Government's Heat Strategy sets out that heat networks have the potential to grow from a current level of 2% of the UK's heat demand to up to 30% by 2030[1]. Poyry analysis has found that district heating is particularly economic in high-rise flats[2] where individual gas connections may not always be suitable, helping to reduce fuel poverty by moderating heating bills in comparison with alternatives.

Questions

Question 1: How do you think the voucher calculation should be amended for funding district heating schemes? From which party would the future gas transportation revenue be recovered?

[1] "The Future of Heating: Meeting the challenge, DECC, March 2013"

[2] "The potential and costs of district heating networks", Poyry, April 2009, page 9

We support Ofgem's proposal to extend the fuel poor connection scheme to support district heating. We suggest the following principles should underpin the design of an extension of the fuel poor connection scheme to heat networks.

Enable Gas Distribution Networks to fund district heating assets owned by third parties

The current scheme does not allow heat networks to be adequately funded, even though they can be the most efficient solutions to connect tower blocks, communities or city centres.

Under the current scheme, Gas Distribution Networks (GDNs) can fund assets owned by Independent Gas Transporters (IGTs), which develop, operate and maintain local gas transportation networks. Provisions should be made for enabling GDNs to fund assets developed, operated and maintained by district heating operators.

The main benefit of the fuel poor connection scheme is to spread the gas connection costs over the lifetime of the infrastructure so that fuel poor households can switch to a lower cost source of heating without having to pay for the capital cost of connection (or the cost is lower than what consumers would normally have had to pay). Gas Distribution Networks recoup the cost of connection through the gas sales to fuel poor households year after year, as part of the revenues they are allowed to recover.

Under the current arrangements, the fuel poor connection scheme can pay for the gas connection to the householder's door or building's entrance. In the case of multi-building heat networks, where the heat generating unit is connected to the gas network and heat networks connect to each of the relevant buildings, the fuel poor network scheme should allow third parties, funded by the GDNs, to own these heat distribution assets.

If the Ofgem's scheme were to not fund the district heating distribution assets to the householder's door or building's entrance, consumers would have to pay the capital cost of the district heating connection, which would negate the benefits of the scheme.

Therefore, in the case of multi-building heat network opportunities, including both the upstream gas connection costs from the relevant gas main to the CHP energy centre and the downstream district heating connection costs from the energy centre to the building's entrance is a vital condition for putting district heating on an equal footing with gas.

It is our understanding that under the current fuel poor connection scheme arrangements, the costs of gas network installation within a building fabric are met by other appropriate parties, such as the building owner. Therefore we expect this similarly be the case for communal heating investments within the building fabric.

Ensure that an appropriate framework is in place to incentivise GDNs to fund district heating connections

Government should take a consistent and coordinated approach to energy and fuel poverty policies. With this in mind, GDNs should be mandated to engage in discussions with Local Authorities that received funding from the Heat Network Delivery Unit (HNDU) if that Local Authorities' eligible fuel poor consumers request a gas grid connection. The mandate should be used to explore opportunities for gas to district heating connections and ensure that GDNs talk to Local Authorities with district heating projects under way.

More than 115 Local Authorities have received funding from HNDU to explore the feasibility of district heating networks, many of which include aims to reduce fuel poverty. The list of Local Authorities that received HNDU funding is publicly available on DECC website[3].

Keep the scheme simple

District heating providers must be able to participate with low administration costs. Any administration costs would have to be passed on to consumers, which in turn would increase the cost of heat.

Contracts framework and district heating standards

Contracts framework

For heat networks schemes to develop that are not owned and financed by the same party, the scheme has to be commercialised. Business relationships have to be formed and made legally bindings to enable the risks associated with the establishment of the project and its subsequent management to be arranged between parties.

GDNs currently offer a framework of contracts to support the Independent Gas Transporters whose systems are connected to the gas grid. Provisions should be made to ensure that a similar framework is in place for GDNs and a third party.

The businesses and risks associated with heat distribution may be separated from that of heat generation[4]. Consequently, there is a need for a structure of control which recognises the role of parties as contractors, but at the same time accommodates their common reliance on the network's operation and economics.

Businesses structures

With more than 2,000 existing district heating schemes, including a wide variety of owners, operators and designs, we would suggest that arrangements in terms of ownership structure, duties and rights of parties would need to be agreed on a case by case basis, including the possibility of a GDN funding district heating pipework owned by the building owner. The building owner is best placed to ensure high-quality design, build and operation.

District heating assets increase the value of buildings since they can provide a mean to reduce energy bills in off gas grid areas and also enhance the range of services that can be offered to occupants. The building owner (which may be a Local Authority or Housing Association) may therefore be interested in retrofitting district heating schemes.

We suggest that the building owner be an eligible third-party to the fuel poor connection scheme. The building owner can act as a broker, taking on the role of contracting suppliers or an Energy Service Company (ESCo) for building the district heating scheme on the one hand and generating heat on the other hand.

The boundaries of the fuel poor connection scheme, for multi-tower blocks district heating schemes, will likely at the building entrance, in line with our understanding of the existing fuel poor connections scheme. The building owner would take on the role of sourcing other funds and securing funding for the CHP plant and machinery and 'in house' pipework.

[3] DECC website, HNDU support up to the fourth round

[4] London Heat Network Manual, Greater London Authority, April 2014

However, it is essential that the fuel poor connection scheme facilitates access to existing pots of money that can help to alleviate fuel poverty. By linking the fuel poor connection scheme with other support mechanisms such as Energy Company Obligation (ECO), it will help facilitate new gas connection investments to fuel poor, linking the external gas or heat network connection to a building with the necessary communal heating system within the building.

District heating standards

We would recommend that any framework of contracts be linked to the Code of Practice for Heat Networks in the UK. The Code of Practice is being developed between the Chartered Institution of Building Services Engineers (CIBSE) and the ADE, with the aim of establishing common standards for the development of new and retrofitted district heating. It provides developers and designers with the information they need to consider throughout all the stages of a project, from feasibility studies to build and operation.

The Code of Practice covers minimum performance levels of system operation, minimum level of heat delivered and expected continuity of service. In aspects of design and built, it involves basic design parameters and future connectivity.

By setting the Code of Practice as a minimum standard which must be met within the framework of agreement, it will help to ensure that any CHP and communal heating scheme built under the fuel poor connection scheme is designed, built and operated to a high standard and that consumers' interests are protected. The document is going to be published on 8th of July 2015.

Proposed voucher calculation methodology

Connection costs

Provisions should be made for adding the district heating connections costs in the GDNs' special charging arrangements for connections to domestic premises designated as fuel poor. In the business structure proposed above, the risks and revenues associated with the generation of heat and electricity would be located with the GDNs' business partner.

The connection would cost cover:

- The total costs of providing gas connection from the closest gas distribution network to the CHP plant, including any upstream gas main reinforcement costs incurred, in GDNs systems; and,
- The costs of the district heating connection from the CHP plant to the building entrance, in district heating operators systems.

Forecast revenues

GDNs currently recover gas transportation revenues from IGTs. Provisions should be made to ensure that the future gas transportation revenues be recovered from district heating operators, who in turn recover revenues for the retail of heat and electricity.

The gas revenues for GDNs are likely to be higher where connecting a gas CHP heat generation unit than gas boilers, because CHP produces two streams of useful energy. The gas transportation revenues of GDNs should therefore account for the dual production of heat and electricity of the gas fired CHP plant. The electricity produced by the CHP plant should be used onsite to maximise the local value.

Question 2: What calculations and assumptions should be made for the gas consumption of the CHP unit and for the individual DH connected households, and for the asset life over which the connection costs are recovered. Please provide detailed suggestions in your response.

Gas consumption of the CHP unit

There is no set standard for a CHP's heat to power ratio, and therefore its overall gas consumption. A CHP with a high power to heat ratio, for example, will have a much higher gas consumption than a CHP with a higher heat to power ratio to meet the heating demand of the same building.

However, the common expectation in the sector is that communal heating schemes is that CHP will have a heat to power ratio of about two to one (for every kWh of power produced, there are two kWh of heat). Therefore, we would expect a CHP scheme, on average, to require a 33% increase in gas consumption than would be the case with boilers to produce the same output.

However, we would reiterate this will be highly site-specific, depending on the individual CHP scheme's overall efficiency and heat to power ratio.

Heat consumption for individual DH connected households

The assumption for heat consumption for individual DH connected households should be aligned with the average gas consumption value. The UK Housing Energy Fact File published by DECC[5] sets out that space heating and hot water supply account for the lion's share of energy use by domestic households. The only usage where district heating could not replace gas would be cooking, which would continue to be electric. Cooking's share of all household energy use represent only 2.5% over the 10 years period between 2000 and 2010.

Lifetime of assets

In the case of district heating it is the lifetime of the district heating infrastructure that should be considered rather than the plant, which is not included in the scheme. Ofgem has confirmed through the ECO 2 scheme the lifetime of a district heating asset at 40 years[6]. The lifetime of assets over which the connection costs will be recovered should be equal to this existing assessment.

However, an alternative option would be the lifetime of the district heating asset to be aligned with the lifetime of gas networks, which is 45 years. We are aware of existing heat networks where the pipework assets are over 50 years old and are still delivering a high quality of service.

Question 3: Do you think the partnership eligibility criteria for the Scheme should be amended to support the inclusion of DH and if so, how? Please provide detailed suggestions in your response.

Currently, partners identified by GDNs must provide funding for 'in-house' works and must have appropriate screening processes in place to ensure that funds are targeted at fuel poor households.

[5] United Kingdom housing energy fact file 2013, DECC, December 2013, see pages 35-36

[6] Energy Company Obligation, Measure table, the Ofgem website

We support Ofgem's proposed change (page 20 of the consultation document, Section 'Administrative aspects of the scheme') that eligible partners should also include partners that can *facilitate* funding for 'in-house' work.

This would allow GDNs to work with a variety of partners, including building owners that may not access various sources of funding but could link up with ESCOs (for ECO funding) or Local Authorities (for Central Heating Fund).

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