

UK Local Authority District Energy Vanguards Network

Next Steps in Financing District Energy: Workshop Report

Workshop organised by
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1. Introduction

This workshop brought representatives of local authorities, housing associations, finance providers, energy utilities and policy makers together to discuss innovative solutions to financing low carbon district energy.

Attendance was by invitation and the event was full to capacity: 70 delegates represented 18 local authorities and housing associations, Scottish Government and agencies, 20 financial institutions and commercial organisations and 4 universities. Delegates travelled from across the UK and as far afield as Calgary, Alberta. At the event, we had representatives of district energy schemes spanning private and public sector ownership, including in-house Local Authority schemes, non-profit and for-profit ESCos and public-private partnerships.

Presentations from expert practitioners preceded intensive roundtable discussions, with each session addressing aspects of the interaction between district energy project objectives, energy infrastructure, risk allocation, business models and finance.

This report synthesises the main points from discussions, which were conducted under the Chatham House Rule. The report draws out some key points raised in the workshop as a whole (section 2) and reflects some of the round table discussion in more detail (section 3). As a selected summary of discussion among delegates to the workshop, the report should not be considered fully representative of the views of the wider sectors referred to.

The Workshop was structured into four sessions according to the following main themes

- Matching project objectives to business structure and available finance
- Local authority finances: constraints, opportunities, policies and preferences
- External sources of funding and finance
- Packaging multiple finance sources, aggregating projects and refinancing

However, the interdependence of issues pertaining to financing district energy systems means discussion frequently cut across these themes.

2. Key points from the workshop

- All sectors are keen to make progress in financing local energy, but there is continuing need for mutual education to develop a clearer understanding of opportunities, costs and benefits.
- The gap between public and private sector expectations of rates of return on local energy infrastructure is significant and needs to be addressed through co-ordinated development of finance models.
- Economies of scale in district energy (DE) are recognised, but there are no over-arching policy or planning mechanisms to drive area-wide coordination of infrastructure to connect main heat sources with anchor loads. Opportunities to improve scheme economics are thus being missed.
- There is potential for a more coordinated approach through the UK Government DECC Heat Networks Delivery Unit (HNDU) and the Scottish Government Heat Network Partnership.
- The value of the Energy Company Obligation (ECO) as a funding source for housing retrofit using district energy was noted, but ECO is regarded as overly complex, subject to inconsistent application, and as under-valuing carbon savings from district energy. Political uncertainty over its future, as well as that of other incentives such as the non-domestic Renewable Heat Incentive (RHI), is also delaying projects and damaging investment.
- It was also noted that the tight administrative requirements of the ECO programme were perceived as hindering optimum deployment. In this respect, the UK Government's recent decision to extend the ECO project completion deadline may prove helpful for district energy retrofit, but the review of "green levies" on energy bills has resulted in reduced funding with uncertain implications.
- The value of local authority (LA) leadership in governance and coordination of local stakeholders is apparent, but coordination of multiple stakeholders and/or regional coordination among a number of LAs is demanding and resource-intensive, and, in the absence of clear central government direction and incentives, tends to be unproductive.
- LAs have highly constrained budgets with multiple competing demands, and many consider themselves ill-equipped to make decisions about investing in energy infrastructure and services. Given finite willingness to accrue debt, there is continuing uncertainty over the LA role in district energy, and over the appropriate position of DE in the hierarchy of local investment priorities.
- As energy prices rise, LAs nevertheless have increasing interest in self-supply, and see opportunities for local jobs and new revenue streams. There is a "do nothing" risk which should be avoided.

- There are corresponding needs for: a route map for DE investment, with more standardisation of delivery mechanisms, straightforward processes for funding applications for development and feasibility studies, shared contractual templates to reduce duplication of effort and due diligence costs, and an authoritative contingency model, matching area-based objectives and opportunities to available sources of public and private finance, for use in guiding decisions.

3. Highlights from round-table discussion

This section draws together some of the detail from the round-table discussions. As discussion took place in parallel at six tables, and many overlapping issues were raised at different times during the day, this section is not a chronological reflection of the discussions. Rather, it is an edited series of highlights arranged by the report authors.

Bridging the gaps between project development and finance

Delegates discussed several challenges in matching district energy projects developed by LAs with some of the expectations found within the finance sector. These included differences in scale (with most financiers seeking investments far larger than the projects most authorities are developing), the extent to which LAs are able to offer financiers “investment-ready” projects (as development of such projects itself requires considerable finance to be put at risk), and interactions between the requirements of finance providers and the objectives LAs seek to achieve through district energy projects. Each of these gaps is discussed in turn below.

Scale

While different sources of finance have different criteria, minimum figures of between £30m and £100m for significant private sector finance (such as pension fund annuities or asset management funds) were discussed. However, while some LAs have developed larger schemes, smaller projects progress more quickly and have value in their own right. For LA teams, these smaller projects become the most feasible ones to drive forward initially. It was recognised that, once financed and delivered, these small projects can develop into larger schemes, and it is important to factor this into the design process (including pipe sizes).

Some suggested the mismatch between the scale of projects and some finance sources could be addressed by aggregating with other investment opportunities, either by combining DE into an investment package with other kinds of project (such as roads, bridges or lighting in regeneration schemes), or by grouping several DE schemes into a larger investment package. However, some doubts were expressed as to whether the latter form of aggregation would work for DE. While other sectors (e.g. NHS) have successfully used this approach to create scale and security, translating this into district heating may be difficult, because each project alone can deal with multiple customers and stakeholders, and because district heating infrastructure typically requires longer pay back periods.

Investment-ready projects

While external funders often seek “investment ready” projects, delegates noted a number of challenges in developing these. Although sources of funding for project development are available (such as EIB’s ELENA fund), their terms and conditions (felt to be stringent) may not match local objectives, and funding applications can require considerable LA officer resources which may be lacking. Furthermore, there is difficulty in funding necessary post-feasibility technical, legal and financial modelling necessary to meet due diligence tests (particularly for equity funders). Due diligence costs can be as much as 10% of project costs.

Again, some form of coordinated development was suggested as a solution to this issue, with delegates raising the potential for LAs to share costs of due diligence work, though it was noted this may be challenging to achieve in practice. Some authorities may be resistant to this form of cooperation: "Authorities like to work together but not too closely."

Project objectives and finance requirements

One example of how project aims interact with finance centred on metering. Several government-initiated forms of financial support (such as ECO and RHI) require projects to meter heat consumption down to individual dwelling level. Metering is promoted as a means of encouraging energy saving, but non-metered systems may be both simpler and attractive to residents who value flat-rate payments collected with rent. Schemes of the latter type are regarded as "blue chip" lending from a bank's perspective, because the LA role de-risks the scheme. It was suggested that project teams need to articulate their aims early on to internal and external financial stakeholders in order to ensure clarity about the most suitable debt instruments and gearing of projects.

It appeared from discussion however that aims and objectives tend to develop iteratively in line with available technical solutions, and economic benefits may not be clear in advance. Several factors, raised at different points during discussions, may be interpreted as contributing to this iterative approach. Examples included:

- The components and configuration of projects can shift as projects develop. An example discussed involved a municipal CHP project, initially structured around sale of electricity via the public system. The project sponsor found negotiation with the utility became so convoluted they instead began investigating the potential for private wire supply (though in the event concerns about customers switching rights meant this was unable to proceed).
- Some projects stumble at design and system remodelling stage, because the time and resources needed to make funding applications are lacking, resulting in long lead times to bring projects to financial close. Furthermore, feasibility studies may become out-dated, and funding opportunities can change over the period of project development. ECO was mentioned as an example. Uncertainty over whether the obligation will be extended or changed hampers progress and makes it decisions difficult. To deliver in 2015 using ECO funding a LA would need to plan the work now.
- Roles and relationships between organisations involved in schemes develop over time. An example discussed concerned a scheme connecting a university with a LA, in which negotiations over scheme governance were particularly challenging.
- Project objectives may be re-oriented as opportunities become clearer. For example, a London borough initially explored a private sector scheme, but found they couldn't make the figures stack up. The question for the borough then became "could we take the risk in order to gain control"? Answering affirmatively, the LA is now developing the project as a not-for-profit ESCo.

- There is much uncertainty in relation to investigating and accessing affordable forms of external funding and finance, and discussions were marked by a range of experiences. Participants variously suggested that different informants gave different advice on opportunities, that some sources of finance (such as commercial debt) had rarely been used for DE, that criteria used by financiers were unclear, and that clear advice on options for structuring and allocating risk and control is lacking.

Local government approaches to financing DE

A wide range of issues internal to local government were discussed which influence LA's options and preferences for financing projects (and the related issues around business structures and governance).

Perspectives on LA capacities to finance DE from their own borrowing were varied. LA borrowing is governed by the Prudential Code: where borrowing is demonstrated to be prudential it is allowable (in contrast with earlier arrangements whereby central government imposed borrowing caps on each LA). However, delegates felt that many councils nonetheless operate with self-imposed debt ceilings, reflecting their aversion to risk in a context where borrowing may be required for "core" activities (such as school building or elderly care facilities). Some delegates discussed examples of authorities who in the past had financed large investments and now had little scope for new service provision, as opposed to servicing debt.

The pressure on LA borrowing is exacerbated by declining budgets from central government. Some delegates, however, suggested that austerity budgets may be forcing new logics and leading to renewed interest (among some LAs) in revenue generating investments. Whether DE fits this mould is itself variable across authorities, with some considering it beyond their remit to supply to third parties (particularly private sector subscribers), and many understanding DE as an energy efficiency (and hence cost saving) measure rather than revenue generating. Contrasts were drawn between DE and solar PV or wind turbines which generate predictable, immediate and reliable income, allowing for debt to be serviced. There is a challenge to promote DE in this way, because of the considerable gap between initial investment and generation of financial surplus.

There was some discussion about how the costs and benefits of DE projects are appraised. Participants perceived a lack of understanding of GVA in relation to smart grids and district heating. Such area-wide economic benefits of DE (job creation in particular) were considered important to justifying schemes, though such benefits need to be captured somehow to meet accounting requirements. Some benefits which can accrue to LAs may not be widely understood, particularly the impact of "green buildings" on business rates, and rules allowing LAs to retain these. More "holistic" accounting approaches are required to capture such benefits in LA finance models.

Finance officers are often wary of DE projects perceived to be "unconventional". Trust in the capabilities and expertise of all parties to the project is critical; in-house teams tended to be more trusted, but elements of necessary expertise may be missing. Concomitantly, some delegates raised the importance for scheme promoters to recognise the "huge reputational risk" supportive finance directors are taking. One LA delegate overcame internal doubts over district energy investments by including a finance officer

on the project team, who in turn ensured that proposals were fully understood by the finance team.

Several discussions noted how the current public finance issues were leading to increasing interest in private finance for DE. Grants for infrastructure were perceived to be less likely now than in the past with loans becoming more common. In some cases this, coupled with debt ceilings, could lead to projects with identifiable returns being shifted to Special Purpose Vehicles (SPV's) or Public-Private Partnerships (PPP's) due to the "off balance sheet" nature of these vehicles to free up investment in more traditional estate functions. Some of the comments on the interaction between finance and business structures are presented in the following section.

Contrasting with a preference for "off balance sheet" funding, some delegates suggested that external financing can restrict capacity to achieve DE objectives. LA project teams often identify DE benefits beyond the revenue stream, but private lenders and shareholders prioritise stable revenues, limiting the flexibility to meet affordable warmth and regeneration objectives, or local carbon targets. Public Works Loans Board (PWLB) or other public finance and internal capital budgets were perceived to offer more flexibility for cross-subsidy to meet these goals.

Interaction between finance and business structures

One of the themes recurring in discussion throughout the day concerned the creation of, and models for, local Energy Service Companies (ESCo's) as a device for managing DE initiatives. A wide variety of models were discussed, tailored to project opportunities, the capacities and preferences of organisations involved and finance opportunities. ESCo structures also offer one means of working with private suppliers, but experience suggests a steep learning curve, and legal fees for development adds additional cost early on in DE initiatives. In all cases, there is a perceived need for contractual templates to accelerate project development to investable stage.

Joint investment with a private partner in a SPV allows risk sharing and enables LAs to keep investment "off balance sheet", but other comments suggested that many SPVs are perceived as entailing higher risk which banks are unwilling to finance. One specific reputational risk discussed was the potential that indirect service delivery may be less publically acceptable, regardless of its quality. Furthermore, public-private partnerships typically need support from government underwriting to provide comfort for private sector investors (as in original UK PFI structures).

An example of an existing private concession network operator in one city illustrated further interaction between business structure and risk. In this case the risk of an extendable scheme stagnating was raised by the possibility of the private partner becoming unable to finance expansion or improvements, as the remaining contractual period decreased. Long term risk management requirements for the private partner to access finance had led the municipality to a preference for public ownership of the network, because the risk-return profiles and finance terms available to LA's are preferable to those available to private partners. This had changed the attitude to ownership and control within the municipality. Other delegates also noted ways in which LA ownership increased confidence in quickly exploiting new opportunities.

The issue of ownership was further discussed in terms of separating ownership (and hence financing) of retail, distribution infrastructure and generation of heat. While there was some suggestion that retail could be separated from distribution and generation (with established utility companies interested in retail but not the latter activities as DE scaled up), most discussion focused on separating heat generation from distribution infrastructure. Danish models, where not-for-profit infrastructure creates a competitive market for various heat generators, were discussed and some delegates suggested this model allows expansion of networks to more difficult areas. This avoids companies "sitting back" delivering one heat load and not expanding any further. Such models in the UK, which would also enable supply of excess heat from existing public sector CHP schemes, are perceived to be lacking, but would minimally be beneficial in enabling constructive discussions between public sector bodies about pooling supplies of heat from existing installations. However, other delegates suggested that transaction costs could be higher in a disaggregated ownership model.

Additional benefits of public sector ownership were perceived by some delegates. In contrast with pursuit of short-term cost efficiencies, it was suggested that LA ownership would increase scope for building resilience into projects by specifying a level of redundancy or "headroom" in the generation technology or network infrastructure. Future revenues could also be used either for other municipal functions or for project maintenance/expansion.

Discussion of specific finance sources

Discussions were marked by different experiences, and uncertainty, in relation to investigating and accessing affordable external funding and finance, and there is a need for more informed understanding of when, how and why to use private finance. UK DECC HNDU and Scottish Government Heat Network Partnership may be significant in systematic development of this knowledge. The "stop start" nature of government incentives and the impact on project planning was generally regarded as unhelpful.

Pension Funds

DE infrastructure should be attractive for pension fund investment, because of its long term revenues. The returns are however very sensitive to the capital cost, which has to be assessed accurately and kept to a minimum.

LA delegates had investigated pension fund investment, with three structural barriers emerging:

- The scale of many district energy schemes was too small for pension funds; aggregation would be required to reach investable levels.
- The funds are unaccustomed to DE or distributed generation.
- The funds have a legal requirement to seek the highest return on investment, which prohibits disinvestment from fossil fuels for example on social or environmental grounds, and may similarly inhibit investment in DE if better returns are available.

Energy Company Obligation (ECO)

Many participants had some experience of ECO. There were however, high levels of scepticism about its current format and potential future. ECO can assist in getting schemes up and running in a short period, although DE is regarded as being at the “esoteric” end of the spectrum of measures. Short timescales also often lead to sub-optimal technical solutions, for example, the use of multiple biomass energy centres on a small estate. Nonetheless ECO can be a catalyst and source of opportunity.

A number of sources of uncertainty around ECO were discussed. It was suggested that political uncertainty over the lifetime of ECO is damaging to developments. Understanding of ECO is limited and different informants were perceived as giving different information. Earlier schemes were perceived as having offers of better rates for carbon savings than later schemes, which were described as being “lowballed” as companies began to reach their quotas. Carbon values provided by Ofgem were thought to be low in comparison with observed savings recorded by municipalities for previous projects. It was felt a reassessment by Ofgem of carbon reduction and efficiency rates, based on real data, would significantly increase the viability of schemes.

It was suggested that the complexity and effort required to find both compliant properties within and outwith the LA estate make it difficult to achieve a borough-wide single supplier scheme. In addition, the upfront cost of carrying out the energy efficiency ratings at individual household level was seen as a significant barrier, even where this was likely to unlock further funding.

Commercial (bank) lending

There were relatively few direct experiences of accessing bank funding. In one case a bank loan had been used as a component of project funding for a community ESCo; the loan was underwritten by the LA to reduce its cost, and had now been paid off.

Banks were understood to require tangible assets to secure a loan, and while plant would make a suitable asset district heating pipes would not. However, delegates were uncertain how this would work for projects with multiple ownership or complex organisation: for example, if a subsidiary company fails, what would happen when its assets are part of an interconnected network. The timescales for commercial lending were also raised as an issue. Currently, “long term debt” typically means 7 years from the banking perspective. Experience of some had shown that the commercial debt market is challenging; lenders share a collective memory of projects which went wrong.

One bank representative commented that the question is whether the aim is to bring in external funders because of risks which the project developers do not wish to take responsibility for. If this is the case, then it is unlikely that any external funder will take the risks either.

Energy Company perspectives on DE funding and risk.

There was uncertainty about the extent of interest in DE from the “Big Six” utilities. They have an interest in long term customer supply contracts and may perceive opportunities in certain cities, but may prefer not to be involved

in network ownership. Where a utility is involved in development, the rate of return sought depends on a number of factors, including the company position in the supply chain and their wider business portfolio. Utility representatives commented that they look for early, significant, commitment from a LA (or housing association) and clear signals about objectives, in order to add certainty over project development. This usually means a champion or a team at senior level that will show commitment to a project timeline of 5 – 10 years with very long term future contracts. The stature of the champion within an authority or housing association is important, because this makes the prospect of a 30 year contract look less at risk from a change in priorities.

Energy utilities have funded schemes directly, but it was suggested that this seems unlikely in future. Components of DE schemes will be owned and invested in by other parties, and energy companies will pay to use the infrastructure. This will help to mitigate utility company risk, as well as risk taken by the network owner. Utilities will continue to seek involvement in DE network design, to ensure its suitability and they may contribute to maintenance costs.

4. Conclusion

Feedback from the Workshop was highly positive, with everyone finding the event helpful. Three quarters said they would do something different as a result of the workshop, based on new relationships and contacts and/or new knowledge derived from the event. Other delegates also referred to the value of the Vanguards Network and Workshops in building confidence among project teams by addressing the complexities of a major energy infrastructure project. Roundtable discussions indicated both the immense commitment and interest from all sectors represented, and their mutual willingness to explore different ways forward to more effective DE project development and affordable finance. However, it is apparent that there is much still to learn on all sides. There is continuing need for a route map for DE investment, including clarity about the roles and responsibilities of LAs for project co-ordination, and over the instruments to optimise productive collaboration at local and regional scales.