Response to Scottish Government's "Local Energy Policy Statement: A Consultation"

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GENERAL

1. Are you clear on the purpose of the statement? Please explain your view.
We understand that the Statement is a position paper setting out key principles of 'local energy' and 'local energy systems'. However, throughout the document, there is a blurring between what a local energy system is and different mechanisms that might help to create local energy systems. It is not clear whether this document is intended to be the primary resource for developing local energy systems, or whether stakeholder guidance will be more substantive than the current draft.

In the statement, 'local energy systems' are defined as: "*ones which find ways to link the supply and demand of energy services within an area across electricity, heat and transport, delivers real value to everyone in local areas, and support the growth of vibrant, net zero local economies"* (p.1). Within this, the terms: '*real value'* and *'area/local area'* need further definition. Where value is referred to, it should be made clear that this extends beyond monetary/financial value and includes social benefits such as health and well-being, and jobs. A local area could be interpreted in a variety of ways (a neighbourhood, street, local authority area); this needs to be defined. The distinction between 'community' and 'local energy system' also needs to be explained; existing local energy businesses for example are not necessarily community-owned, but are a mix of community, not-for-profit, public and commercial enterprises, which may or may not own heat, power and storage assets. What '*community'* implies in the definition of '*community energy*' also needs to be clearer (for example, this may specifically refer to 'civic society').

Overall there is confusion within the policy statement about whether Scottish Government is aiming to achieve net zero local economies in every area of Scotland, or aggregate net zero activity to meet goals for Scotland as a whole. The latter implies that some local areas might deliver negative emissions while others do not meet the zero carbon standard; this needs clarifying. The policy statement also needs to clarify the method for differentiating between 'national' emissions reductions produced in specific locations as part of national energy infrastructure, and local emissions reductions attributable to local energy activity. Furthermore, the policy statement could be strengthened by further emphasising the interconnections between national/central energy and local energy and energy saving for net zero goals (i.e. within a whole energy system).

2. What are your views on the 10 principles?
The 10 principles are reasonable, but remain high level and lack a clear framework to *guide development* of a feasible local energy plan or local energy system. If the aim is for stakeholders to coalesce around this statement and develop local energy systems, then the document needs to establish the procedures for this.

Theme 1 focuses on people. Principles in this Theme should include more focus on the broad benefits of local, decarbonised energy: security, health, well-being, decent work etc. '*Inclusive, empowered, resilient and safe*' communities are listed as an outcome under the People Theme on page 5 – this should be reflected in the Principles listed on page 4. The principles on page 4 would also benefit from clarifying that 'consumers' include the owners *and* occupants of domestic and non-domestic buildings. Given this focus on people in

Theme 1 and 'values and principles' throughout the policy statement, Scottish Government should go beyond referring to people as only *consumers* (which also implies assumptions about individuals and monetary metrics of success), and also include reference to the people of Scotland as *citizens* (i.e. thus also referring to civic society).

Energy literacy, engagement, willingness and untested appetite for 'prosumerism' should not be relied upon as the basis for meeting energy and climate policy goals. The recognition that not 'Not everyone will want to engage with local energy projects in the same way' signals a role for public agencies, intermediaries and 'honest brokers' (i.e. public bodies such as local authorities) working on behalf of, or in some capacity for, citizens/consumers (i.e. going beyond individual vulnerable customers). This needs to be clarified and strengthened, going beyond consideration of consumer protection only, to ensure Scottish Government's ambitions for a just transition are achieved.

We agree that local characteristics should be reflected in any local energy planning (Principle 3). However, Principle 4 needs to be more strongly phrased, to ensure that those developing local energy strategies engage with different stakeholder groups. The principle could be re-phrased to state: "Collaborative approaches and partnership working on local energy plans will *be required* to ensure all stakeholder groups are represented…".

Heat and energy efficiency are however fundamental to all local energy planning across Scotland and need to be more strongly embedded within the policy statement. A low energy building stock and renewable heating will also require area-based planning rather than relying on individual consumer-based solutions. This includes consideration of new heating systems for each individual building are being installed throughout an area, as opposed to ad hoc installations. The role of, and connection to, Local Heat and Energy Efficiency Strategies (LHEES) and Energy Efficient Scotland (EES), more broadly needs to be firmly established in the local energy policy statement.

Furthermore, recognition of opportunities for learning across different local areas needs to be in the policy statement to streamline scaling up and replication (where appropriate). Whilst every area is different, there are also common problems amenable to shared learning (i.e. in relation to options for decarbonisation of building stock), reducing development costs and timelines, for example. The policy statement lacks clarity on potential for synergies across different areas.

We agree that existing infrastructure should be considered and incorporated into future local energy systems, where possible (as detailed in Principle 5). Principle 6 refers to '*energy networks*' – it is the first use of this term in the text and it needs to be clarified. For example, an 'energy network' could be conflated with a 'heat network' which refers to a specific technology (District Heating), with the potential subsequent interpretation that local energy systems are primarily about district heating. All relevant network infrastructures need to be referenced.

Theme 4, Pathways to Commercialisation includes Principle 7**: Projects that demonstrate a commercially viable and replicable opportunity, in line with the principle of inclusive growth, should be prioritised.** The phrasing of this statement could mean that any action

that is not immediately commercially viable could be overlooked. Examples include hard-to-treat properties, and implementation of District Heating networks, despite the potential of these actions to support the Scottish Government's ambitious emission reduction goals. This Principle needs to be re-phrased to encompass 'exploring commercial viability, but not *prioritising*'. Scottish Government also needs to clarify its meaning of 'commercialisation' and 'commercially viable' and how this is interpreted within the policy statement. These terms have different meanings among, and between, public bodies, private sector and third sector organisations; for example, does this mean without any form of public investment or subsidy, or is this only in relation to a specified return on investment? This is a particular weakness of the policy statement and could exclude a range of local energy initiatives which deliver affordable energy, and serve climate and just transition goals. One starting point would be to clarify the role of public funding/subsidy for projects that deliver 'inclusive and clean growth'. Inclusive growth principles should be further defined and then prioritised. The focus on commercial viability also suggests the policy statement is not considering the role of aggregating local energy initiatives to meet affordability/viability criteria across a portfolio of projects (such as blending multiple energy efficiency and low carbon heat measures together under a single investment package). This represents a missed opportunity. For elaboration see our comments about the societal case for investment in response to Questions 10 and 13.

Principle 8 should also be updated to reflect the urgency of the challenge ahead. 'As soon as possible' is not sufficient to prompt action within the short timeframes now available to Scottish Government to achieve climate goals. Instead, a specific timeframe should be set, for example: **8. Low regret opportunities that support a net zero emissions future should be identified and acted upon *within 2 years*.**

3. How can the Scottish Government encourage stakeholders to adopt the principles set out within this document?

Scottish Government needs to define 'a local energy system', and how such systems can be developed. This includes a strategic approach, which avoids overlapping projects with potential for stranded assets. Benefits will not be realised if local area Energy Plans remain optional, and the space becomes crowded if options include: LHEES, Energy Plans and Community-led Local Energy Plans - it would be more effective to consolidate these into one *required* strategy that includes input from different stakeholders. For example, a required Local Energy Plan should include LHEES evaluation, coupling this with transport, storage and industrial decarbonisation.

The delivery of any local energy strategy needs to be through collaboration with multiple stakeholders, but placed within the remit of a single stakeholder. If the development of a strategy remains optional and open to multiple stakeholders taking responsibility for development, there is a high risk that no actor-group will accept responsibility or that efforts will be doubled[1]. Key public stakeholders need to be identified (for example, local authorities) and provided with sufficient resource to develop strategic plans for delivering

[1] (2017) Webb, J. and Hawkey, D. On (not) assembling a market for sustainable energy: heat network infrastructure and British cities, *Journal of Cultural Economy*, 10:1, 8-20 http://dx.doi.org/10.1080/17530350.2016.1226193

local energy systems. One approach already trialled by Scottish Government is Local Heat and Energy Efficiency Strategies (LHEES). Our evaluation of the first round of LHEES pilots[2] found that local authority officers thought that their authorities were in a good position to undertake strategic energy planning. However, in order to deliver this (and adopt the principles set out in this draft statement), local authority officers supported LHEES becoming a statutory duty. They highlighted that it was only through a statutory duty that strategic local energy planning would be prioritised in the council. Officers also highlighted that any statutory duty would need to be coupled with:

- More detail and guidance on exactly what is expected
- Support in establishing chains of accountability
- Support in engaging senior management and councillors
- Sufficient resource to deliver an in-depth and useful strategy. Some suggestions made by local authority officers included: the addition of one or two full time officers; support for development of necessary skills; additional consultancy support; resource should be in-house with the local authority.

There also needs to be further support for the development of Heat Network regulations to facilitate the development & delivery of local heat planning; this is discussed more in response to Questions 10 and 11.

4. Are you clear about the roles of all the different stakeholders who may be involved in the development of local energy systems?

No – the different stakeholders involved in the development of local energy systems are identified, but no effort is made in the report to identify their different responsibilities. The roles of different stakeholders are likely to overlap; it may be possible to develop a typology of activities that are likely and identify which groups should/ could be involved in those activities, as a guide. This current consultation for a Local Energy Policy Statement does not go far enough to acknowledge earlier consultations and plans for different stakeholders in the delivery of area-based energy planning (for example the work that has been done on LHEES).

PEOPLE

5. What options should we consider to ensure that the local energy transition is fair and inclusive for all consumers?

- Revise EES Programme targets and time frames to accelerate work on high standards of thermal retrofit of housing, particularly regulation of private rental sector and social housing, and offering tax incentives and low cost loans for private landlords.
- Introduce a 'warm homes' welfare benefit for low income groups, repurposing the Winter Fuel Payment budget. This is in line with the recommendations of the Fuel Poverty Definition Review to use a minimum income standard as a basis for ameliorating

[2] Wade F, Webb J & Creamer E. 2019. Local Heat and Energy Efficiency Strategies: Phase 1 Pilots Social Evaluation Report. Available at: https://www.gov.scot/publications/local-heat-energy-efficiency-strategies-phase-1-pilots-social-evaluation/

fuel poverty[3].

- Use Scottish Investment Bank and proposed public energy company as foundations to develop locally owned not-for-profit district heating in areas of high heat density and high social deprivation. Our work shows that the scale economies of DH, which are fundamental to heat cost and carbon savings, are only achieved through a planned approach to investment (Bush, Hawkey and Webb, 2019[4]). Forthcoming DH regulation will need to be strengthened to include a requirement to connect to DH in designated areas, and stronger requirements on waste heat producers to capture and supply heat to local networks. Developments can emulate and extend the success of Aberdeen Heat and Power Ltd (AHP)[5], where typical fuel costs to tenants have been reduced by up to 50% compared with previous electric heating. AHP was set up by the city council in 2002 and used the 40% capital grant offered under the UK Community Energy Programme.
- Include local jobs and community benefit criteria in public procurement contracts for any local energy technologies and services.

6. How can we ensure that people and communities across the whole of Scotland can participate in local energy projects?

It is critical that actions to decarbonise across different aspects of the energy system are clearly communicated to all of the different stakeholders. For example, knowledge about current legislation for decarbonising buildings is uneven; social housing providers and local authorities are likely to be most aware of the range of powers and duties. It would be beneficial to launch a local energy planning strategy with concise guides to current legislation for the different property sectors, and a clear public information campaign about Scottish Government plans for an energy transition (for example, clearly advertising and promoting the Energy Efficient Scotland programme). It is only through awareness amongst different groups that they will each be able to engage in the transition process. This includes members of the supply chains involved in delivering retrofit; for example, assessors, advisors, and installers need to be aware of current legislation. This will involve engaging with actors across the supply chain[6] to ensure that messages are filtered to all those working in this space.

Existing legislation also needs to be systematically enforced through a unitary system, with independent assessors. A key institution for ensuring compliance in building decarbonisation is re-trained and reinforced local Building Control Officers. A single system with independent assessors will help to minimise corrupt practice, poor quality work and distrust by buyers[7]. There is a need for independent resources to identify supply chain, service, performance guarantee and contractual options, as well as information on standards, reliability and quality of work by businesses in the sector. Building owners need

[3] https://www.gov.scot/publications/new-definition-fuel-poverty-scotland-review-recent-evidence/
[4] https://heatandthecity.org.uk/resources/page/2/#resources
[5] https://www.aberdeenheatandpower.co.uk/
[6] Wade F, Hitchings R, & Shipworth M (2016) Understanding the missing middlemen of domestic heating: installers as a community of professional practice in the United Kingdom. *Energy Research & Social Science*, 19, pp.39-47.
[7] Webb J (2016) Heat and Energy Efficiency: Making Effective Policy. Advisory Group Report for the Committee on Climate Change. Available at: https://www.theccc.org.uk/wp-content/uploads/2016/10/Heat-and-Energy-Efficiency-Advisory-Group-Report-Making-Effective-Policy.pdf

to know that work will be carried out to highest quality standards and that long term guarantees and remediation for any problems will be available. Tools that support building owners in identifying accredited and trusted tradespeople, and appropriate products, will be critical to the success of the retrofitting programme. This is an essential part of ensuring that local sole traders and Small and Medium Enterprises (SMEs) are able to engage in the programme and matched up with jobs, which can be overwhelming for householders in a heavily occupied market place. However, in order to allow this, it is also essential that accreditation requirements do not preclude sole traders and SMEs through overly-burdensome costs and processes.

Alongside online tools, this information should be promoted throughout local communities and word of mouth. Through collaboration with Local Authorities, community groups, and tradespeople, 'trader lists' and information about standards and quality should be provided at a local level. For example, information can be developed for distribution in community centres, health facilities, and libraries.

A similar approach needs to be applied for stakeholders involved in decarbonisation from industry and transport.

PLACES

7. What do you think the wider benefits of developing local area energy plans might be?
Wider benefits for Scotland as a whole:

- New clean energy and carbon reduction activity across Scotland, creating economic opportunities across the country beyond the central belt.
- Systematic opportunities for shared learning, replication and scaling up between local areas could be created under appropriate governance conditions
- Making best use of Scotland's natural resources including natural carbon stores; expanding foresting etc.
- Delivering appropriate solutions in each area, i.e. in densely and sparsely populated areas
- More clearly outlining investment opportunities to create 'net zero places' (see for example, Bristol's city leap prospectus https://www.energyservicebristol.co.uk/cityleap/)
- Avoiding potential for 'developer flight' and competition between different areas to attract inward investment
- Potential for more innovation and new businesses with direct benefits to people

Wider benefits for individual areas:

- Interlinking, LHEES within local energy systems across heat, power, transport and storage
- Moving beyond demonstrations to more systematic change
- Local economic regeneration (implying specific social and economic benefits delivered to communities or areas)
- Strengthening social cohesion and relationships among the incumbents/stakeholders
- Democratising capitalism and benefits derived from projects

8. How can we encourage greater collaboration between the key parties involved in the development of local energy plans?

Consolidate efforts so that relevant stakeholder groups are able to coalesce around a single strategy, rather than potentially doubling efforts, moving in different directions, and limiting communication across different strategies. A single stakeholder group needs responsibility for the development and delivery of a local energy plan (and adequate resources to do so), but with a requirement to coordinate input from a variety of different local and national stakeholders. Such collaboration can also be supported through the provision of centralised resources, for example tools for stakeholder engagement and shared databases.

With regard to decarbonising buildings, there is a need for a centrally maintained database of the energy performance and repair standards of public and non-domestic buildings (like that available for domestic properties: https://www.scottishepcregister.org.uk/). Ideally relevant stakeholders would also be able to access such a register on all commercial buildings in an area for the same purpose. In addition, up-to-date socioeconomic assessments can be a valuable element in LHEES planning and justification. It could be useful to consider possibilities for linking Energy Performance Certificate (EPC) assessment methodologies with the methodology used in Local Heat and Energy Efficiency Strategies (LHEES) for low carbon heating planning[8]. At present EPC and Standard Assessment Procedure (SAP) methodologies do not consider the available low carbon heating options beyond household-level technologies, and the least-cost calculus currently used includes a replacement gas boiler. They therefore miss opportunities to recommend connection to a nearby district heating network or hydrogen supply. It could be useful to consider how to link these two methodologies so that householders do not receive mixed messages or counter-productive recommendations from EPC certificates. Equally, at present there are no clear routes for residents in tenement blocks to install onsite renewable heat and/or electricity technologies and integrate storage. For example, tenement blocks could install and use solar photovoltaic onsite with battery storage.

9. How do we ensure that whoever is leading a local energy plan is fully integrated into the LHEES process?

- Integrate local energy plans and LHEES, rather than treating them as two separate activities.
- Create (resourced) statutory roles and responsibilities for both local energy plans and LHEES with implementation monitoring.
- Ensure workshops, or other opportunities for shared learning, between different local energy plan and LHEES teams, and provide a central resource to support high quality, ambitious and achievable plans that have cohesion at national level, making best use of existing infrastructure and achieving national energy, climate and just transition goals.
- Explore further how local energy plans/LHEES might be developed at combined authority/regional scale, where appropriate, and/or regionally coordinated.

[8] Bush, R. & Webb, J. 2018, LHEES pilots evaluation – interim report. Available at: https://beta.gov.scot/publications/lhees-pilots-evaluation-interim-report/

- Support heat and energy efficiency innovation within local energy projects in order to deliver integrated solutions.

NETWORKS & INFRASTRUCTURE

10. What infrastructure challenges are you aware of that present an obstacle to delivering local energy projects? What actions would help solve the issue?
As per our response to the Energy Efficient Scotland – March 2019 Consultation[9]:

Planning for all electric or hydrogen heating infrastructure is not practical for achieving change. Instead, it is crucial to think about how much electricity use can be managed through smart grids and how alternative technologies may become available, for example, for carbon sequestration. It is likely that future infrastructures will present a mix of individual heating, heat networks, more energy efficient properties, electric vehicles and potentially some hydrogen technologies. It is sensible for Government to think in terms of what is currently available and consider flexible sources and uses of energy – one element of this flexibility is District Heating which can offer more flexibility (for example, than individual gas boilers) in terms of energy input. Area-based planning for energy efficiency and heat decarbonisations through LHEES and EES will thus be critical to resolving current infrastructure challenges.

District heating (DH) is recognised in UK Government Clean Growth Strategy and Scottish Government Energy Strategy as a 'low-regrets' contribution to low carbon heat for homes, businesses and public facilities. LHEES proposals include potential for zoning areas of high heat demand and diversity for district heating networks (DHNs), and issuing of concessions for developers. These areas are however usually served by the gas grid, and the cost competitiveness, and extensiveness, of single building gas-fired heating means there is little or no incentive for building owners to connect to district heating, and therefore no business case for DHN investment.

In the absence of high carbon pricing of methane gas, and longer term UK decisions on the future of the gas grid, other forms of incentive need to be brought into play.

One form of (little used) incentive is to build the societal case for DHNs in specific places, simultaneously contributing to a new heat policy narrative, which is essential for Scotland's new 2045 net zero carbon targets. At present, DH development is typically framed as economic or business opportunity for users and investors, rather than as a necessary or best value/optimal contribution to a societal project of heat decarbonisation.[10] This is apparent for example in the current terminology of 'consents' and 'concessions', rather than a

[9] Wade F, Webb J, Tingey M & Myers M, 2019. Heat and the City response to Energy Efficient Scotland March 2019 Consultation. Available at: https://heatandthecity.org.uk/wp-content/uploads/2019/06/Heat-and-the-City-response-to-Energy-Efficient-Scotland-%E2%80%93-March-2019-Consultation_2019.05.31.pdf
[10] Hawkey, D. and Webb, J., 2018 Comments on the Competition and Market Authority's "Heat Networks Market Study – statement of scope". Available at: https://heatandthecity.org.uk/resource/cma-scope-statement-response/

terminology of societal necessity and obligation. A first step towards developing such societal incentives for DH is to use the LHEES process for systematic heat planning and cross sector consensus building about best available area-based solutions for decarbonising heat. Participatory mechanisms that give local people a say over choices made (such as citizens' juries) should be included to ensure responsiveness of planning to local conditions, and to improve acceptability of decisions and local commitment to change. This approach means taking the long term context into account, including potential for local scale economies from future-proofed DHNs, anchored first by supplying large heat loads, and then building out to smaller heat users nearby. It can also take into account continuing improvements to thermal efficiency of buildings; the potential role of other low carbon heat technologies (e.g. hydrogen or electrification), and plans for decarbonisation of other sectors including transport. Our research[11] shows the socio-economic benefits of this approach, which creates potential for connecting **50% more heat demand** than the current business case model, with considerable cost efficiencies and carbon savings, including resource economies derived from using fewer energy centres. The incentive here is however based on societal need and obligation to act.

A second incentive is to ensure that high standards of consumer protections, including transparency over price and tariff structures, as well as service standards, are introduced and enforced. At present, the main weakness of the Heat Trust scheme is the absence of transparency in heat tariffs; stronger price protection should be provided, based for example on Danish practice of publishing heat tariffs online so that customers can compare prices. Minimally, the structure of tariffs, and the rationale for price setting and price increases should be set out in heat supply contracts. Standard transparent accounting practices for DH operators (as in the Netherlands Heat Act), separating out heat supply from other activities, would support inspection of financial surpluses arising from heat sales, and be a route to securing user confidence that a monopoly heat supplier is not extracting monopoly rents. Further protection, included for example in the Norwegian regulatory framework, is an option for collective switching and provider of last resort, if the service is deemed unsatisfactory.

Scottish proposals for licensing are a valuable step, but Scottish Government lacks the necessary powers to regulate on specific standards of protection. UK consideration of heat regulation[12] should however support progress. Such regulation could include potential for socialising the costs of heat transition through taxation and/or energy bills, and hence sharing the cost of new heat networks (as well as other new heat infrastructure) across a large population of heat users. This would reduce the typically high fixed charge element of DH tariffs, when pay back is based on a small population of customers.

A third incentive is to keep heat tariff prices down by avoiding sole reliance on commercial finance. Public funding could be direct investment, or structured as a form of bond issue (such as a low carbon heat bond). For example, a survey of heat network users

[11] Bush, R., Hawkey, D., and Webb, J. 2019. Meeting Strategic Challenges of UK District Heating; https://heatandthecity.org.uk/resource/meeting-the-strategic-challenges-of-uk-district-heating-research-briefing-and-practitioner-resources/

[12] BEIS, 2018. Heat Networks: Ensuring Sustained Investment And Protecting Consumers. Department for Business, Energy and Industrial Strategy.

commissioned by the UK Department for Business, Energy and Industrial Strategy[13] in 2017 found that more negative attitudes to district heating were concentrated in commercially-operated systems: 30% of this group of heat network customers wanted to switch supplier; this fell to 11% and 8% for local authority and social landlord schemes respectively. (Note within the control group, households with gas boilers, 22% said they wanted to switch supplier.)

11. What other actions could the Scottish Government take to ensure Scotland will have the necessary infrastructure in place to enable resilient, local energy systems?
As per our response to the Energy Efficient Scotland – March 2019 Consultation[14]:

For DH to play a significant part in the decarbonisation of heat a number of additional measures are needed: development of the supply chain; reduction of perceived risk and thus financing costs; linking to the availability of low carbon heat sources, and development of models for effective integration of local heat, electricity and gas networks. The key starting point is use of the LHEES process for systematic heat planning and cross sector consensus building.

A long-running difficulty for district heating business development has been the level of business rates, which the Scottish Government has permanently reduced via the Non-Domestic Rates (District Heating Relief) (Scotland) Regulations 2017[15]. This contribution to district heating business cases should be established as a long term benefit. The main problem however remains 'demand risk'. DHN developers require a means of securing the commitment of building owners to connect, hence ensuring that the system will be both economically viable, and effective in reducing greenhouse gas emissions. In the absence of a form of obligation to connect, our research shows DH developments will not occur through voluntary routes[16]. Minimally the public sector estate needs to be connected to networks in areas/zones where heat planning identifies DH as best value means to decarbonisation. Heat planning processes and socioeconomic assessment methodologies should take into account the potential need to establish objective justification for public tendering whose effect is to restrict the ability of parties other than a DHN concession holder to bid.

As per our response to the Scottish Government's earlier 'Second consultation on local heat & energy efficiency strategies, and regulation of district and communal heating'[17], the

[13] https://www.gov.uk/government/publications/heat-networks-consumer-survey-consumer-experiences-on-heat-networks-and-other-heating-systems
[14] Wade F, Webb J, Tingey M & Myers M, 2019. Heat and the City response to Energy Efficient Scotland March 2019 Consultation. Available at: https://heatandthecity.org.uk/wp-content/uploads/2019/06/Heat-and-the-City-response-to-Energy-Efficient-Scotland-%E2%80%93-March-2019-Consultation_2019.05.31.pdf
[15] https://www.legislation.gov.uk/ssi/2017/61/made
[16] Webb, J. & Hawkey, D. (2017) On (not) assembling a market for sustainable energy: heat network infrastructure and British cities. *Journal of Cultural Economy*. [Online] 10 (1), 8–20. Available from: doi:10.1080/17530350.2016.1226193 [Accessed: 30 March 2017].
[17] Hawkey, D., Bush, r., Tingey, M. & Webb, J., 2018. Response to Scottish Government's "Second consultation on local heat & energy efficiency strategies, and regulation of district and communal heating" Available at: https://heatandthecity.org.uk/wp-content/uploads/2018/02/HatC-response-to-LHEES-2-consultation-submitted-version.pdf

Energy Efficient Scotland Programme notes one route to connecting anchor loads to a heat network within a Heat Network Zone would be for the public estate to commit to a system. While we believe there is a case for general powers of compulsory connection, if these are not taken forward, the approach to securing public sector connections should be strengthened. Public procurement rules are interpreted in the 2018 second consultation on LHEES and DH Regulation as confining the ability of public bodies to make such commitments: energy supply to public bodies has to be procured through a tendering process in which district heating operators have to compete. Holding an area-based consent would not automatically mean public bodies' buildings would connect to the heat network with the consultation referencing *"public sector buildings as the 'anchor load' for networks and future expansion, within the confines of public procurement regulations"* (p25). Scottish Futures Trust (SFT) guidance expands the issue.[18] Several work-arounds are discussed in the guidance, including arrangements which keep the district heating operator as an in-house or arms-length organisation (e.g. the Teckal exemption). These approaches are likely difficult to adapt to connection of private sector heat demand and would perpetuate the current fragmented approach to district heating.

However, one route is discussed in the guidance which has not been tested: specifying characteristics of the energy supply when issuing a tender. Public authorities are generally able to make specifications in procurement (e.g. for sustainability), but the difficulty highlighted by SFT arises when specifications "have the effect of creating unjustified obstacles to the opening up of public procurement to competition." The issue, then, appears to be whether a procurement process that restricts the number of eligible suppliers is objectively justified. SFT states there is no directly applicable precedent for energy supply. Where the NHS has been permitted to issue a tender that restricted the number of eligible suppliers to one this was justified on objective grounds relating to the needs of the contracting authority (in that case, only one supplier was able to supply equipment compatible with existing systems). The SFT guidance suggests the risk of challenge to a public authority whose tender for energy had the effect of restricting competition to one supplier (the district heating concession holder) would be that "the justification would not relate to the functionality or characteristics of the energy, but rather its means of production." This appears to be based on the assumption that the tender would specify the energy had to be supplied by district heating. However, Scottish Government should explore what might be possible in this area, particularly in the context of socioeconomic assessment and long-term heat planning under LHEES. For example, public authorities requiring energy supply to contribute to the objectives of an LHEES, or to demonstrate optimality in socioeconomic terms. Where strategic district heating zones have been identified, these should already be based on such considerations. This would mean the risk of an energy supplier other than the concession holder winning the tender would be low, but this restriction would be justified by reference to the duty of public bodies to act in "the way best calculated to contribute to delivery of the [Climate Change] Act's emissions reduction

[18] Available at http://www.districtheatingscotland.com/wp-content/uploads/2015/12/DistrictHeatingLegalPowerReportV2Nov2014.pdf.

targets," (Climate Change (Scotland) Act 2009 §44). The importance of de-risking heat demand by connecting (at least) the public sector estate to networks in concession areas means (a) this possibility should be explored fully and (b) design of heat planning processes and socioeconomic assessment methodologies should take into account their use in establishing objective justification for a tender whose effect is to restrict the ability of parties other than the concession holder to bid.

PATHWAY TO COMMERCIALISATION

12. What significant barriers are there to the replication of existing local energy projects and systems in Scotland that this policy statement should take account of?

- Scottish Government needs to ensure that there are financing routes for the full range of energy efficiency and local energy activities including well established approaches and more innovative new approaches.
- Lack of robust net zero energy building standards: Ensuring every building is required to improve energy performance under an area-based planning approach (i.e. LHEES), to facilitate the roll out of no regrets options such as district heating and energy efficiency measures, and also to provide appropriate market signals.
- Lack of robust net zero planning policies: planning policies across Scotland need to be easier to enforce to deliver net zero developments; Local Development Plans also need to fully integrate and reflect achieving net zero targets.
- Resourcing and clear mandate for local energy in local authorities: Local authorities and other public bodies often lack resources to even replicate energy projects on their own estate. Replication and scaling up thus lags behind potential because of lack of resourcing and mandate for *implementation*.
- Inconsistent adoption of methodologies: introduce, for example, required use of socio-economic assessment criteria for investment in local energy systems.
- Uncertainty about routes to planning, business case and financial close: LHEES could have a role in providing consistency to other actors including private sector, who can find the organisation of local government confusing and hard to navigate.[19]

From a community energy perspective, despite the finance and project support made available by the Scottish Government through schemes like CARES or Low Carbon Infrastructure Transition Programme, there are still barriers affecting the replication of this type of project. Recent evidence shows that the "lack of resources/expertise/resilience" plays a significant part[20]. To deal with this scarcity, it is necessary to develop projects that are capable of generating sufficient income to cover costs. Even when aid schemes like Feed-in-Tariffs (FiT) are available in several markets, evidence reveals levels of inequality

[19] Tingey M (2017) *Local Heat & Energy Efficiency Strategies and Regulation of District Heating: Workshop report to Scottish Government*. Edinburgh: University of Edinburgh

[20] Brummer, V. 2018. Community energy–benefits and barriers: A comparative literature review of Community Energy in the UK, Germany and the USA, the benefits it provides for society and the barriers it faces. *Renewable and Sustainable Energy Reviews,* 94:187-96.

related to the implementation of policy[21] [22]. Therefore, the focus should be on three aspects: more effective and fair funding routes to access the necessary capital; free access to the market to generate income and innovate (unless the project is an innovation itself); and stronger participation in the market by promoting more than fixed-price income generation via FiT schemes.

Firstly, accessing the required capital is critical to what technologies, machinery, human capital, etc. will be available to the project. With proper resources, the project might be capable of participating in the market. Such participation should be replicable, namely investable and profitable, so the funding should be provided fairly according to the nature of the project; the involvement of financially stronger actors; and the future cash flows of the project. Secondly, free access to the market should encourage the entrance of community energy projects, as well as a higher citizen participation, not only through FiT-based initiatives. Once the funding structure is resolved and resource generation capability is used in the market, any community energy project should be able to diversify its business lines (like larger companies but at a smaller scale) and then have reasonably assured revenue sources. This might allow more innovation as the project (and its members) should permanently look for new ways of creating (and retaining) value to survive in the long term. Finally, any community energy initiative should not be constrained by a fixed-price income activity, as this might affect the project's future cash flows and funding. Thus, the policy statement should take account of (and encourage) the diversity and growth of projects' business lines. As shown above, the main barrier seems to be access to resources, so funding and economic feasibility are key. Thus, the project's ability of generating cash flows should be based on diversity of activities, rather than just one fixed-price income activity.

13. What actions can we take to accelerate the focus on economically and commercially viable low carbon local energy solutions in an inclusive way?

- The societal case for local energy solutions should be prioritised rather than a primary/sole focus on financial value. Carbon pricing, socio-economic assessment methodologies, and net zero assessment criteria within investment and procurement decisions would all facilitate this; as would greater commitment to 'no regrets' options. See response to Question 10 for elaboration.
- Continue and expand the debate about the role of ownership of local energy solutions including public and civic ownership models.[23]

From a community energy perspective, and with reference to the answer to Question 12, the following actions might be considered:

- Strengthen the current funding schemes by drawing in finance from the private sector - where possible - improving the current terms & conditions of schemes like CARES,

[21] Grover, D., Daniels, B. 2017. Social equity issues in the distribution of feed-in tariff policy benefits: A cross sectional analysis from England and Wales using spatial census and policy data. *Energy Policy*, 106:255-65.
[22] Winter, S., Schlesewsky, L. 2019. The German feed-in tariff revisited-an empirical investigation on its distributional effects. *Energy Policy*, 132:344-56.
[23] Hawkey D, Tingey M, and Webb J (2018) *Workshop report – International workshop on public ownership of energy*. Edinburgh: University of Edinburgh; Tingey M (2017) *Local Heat & Energy Efficiency Strategies and Regulation of District Heating: Workshop report to Scottish Government*. Edinburgh: University of Edinburgh

setting special benefits (tax discounts, for instance) for funding providers (outside the public sector), establishing advanced financial mechanisms (similar to employees stock options, for example) to foster citizen participation/ownership, encouraging alliances or partnerships with other developers and government (but always focusing on communities' ownership), etc.

- Funding criteria should include social benefits as well as the project's capacity to generate resources and pay the investment back. Once any project is categorised as feasible, interest rates should allow profitability and operation through its lifecycle, which involves not only a for-profit function, but also a social one.
- It would be necessary to adapt current market regulations in order to encourage the entry of feasible citizen-led projects, fostering projects that might participate in the electricity spot market (and other markets) rather than only in the 'FiT-based initiatives subsector'. The main idea is to increase (implicitly or explicitly) income generation capacity to allow projects to create and retain value (unless the project is an innovation itself).

OPPORTUNITY

14. How can we ensure that Scotland capitalises on the economic opportunities from the development of local energy systems?
As per our response to the Energy Efficient Scotland – March 2019 Consultation[24]:

Tradespeople, particularly Small and Medium Enterprises (SMEs), have strong affiliations to their professional communities and trade bodies[25]. These affiliations can be used as a route to advertise and promote engagement with the development and delivery of any local energy system, and any necessary upskilling and accreditation that will be required. Raising awareness amongst industry professionals will be critical to supporting their involvement. In addition, the pipeline for works needs to be as secure and predictable as possible. Legislating building standards to 2030/ 2040 will help provide certainty to suppliers that there will be market growth in this area and thus encourage their participation.

The procurement frameworks and timeframes for completion of projects need to be designed to support engagement from a wider mix of contractors. For example, our evaluation of the Energy Efficient Scotland Phase 1 pilots[26] found that:

- Short project (funding) timescales lend themselves to larger contractors, who are able to mobilise a larger workforce at short notice. This has the potential to exclude local contractors.
- Work at the end of the financial year (in accordance with funding timescales) impacts on job security for contractors, and the ability to retain and build institutional knowledge

[24] Wade F, Webb J, Tingey M & Myers M, 2019. Heat and the City response to Energy Efficient Scotland March 2019 Consultation. Available at: https://heatandthecity.org.uk/wp-content/uploads/2019/06/Heat-and-the-City-response-to-Energy-Efficient-Scotland-%E2%80%93-March-2019-Consultation_2019.05.31.pdf
[25] Wade, F., Hitchings, R., Shipworth, M. 2016. Understanding the missing middlemen of domestic heating: Installers as a community of professional practice in the United Kingdom. *Energy Research & Social Science*, 19: 39-47.
[26] Bush, R., McCrone, D., Webb, J., Wakelin, J., Usmani, L., Sagar, D. 2018. Energy Efficient Scotland – Phase 1 pilots evaluation final report.

and professional standards (because individuals are recruited on a short term basis and released at the end of the financial year).

- Participants noted that contracts are often won by the same contractor. This indicates a lack of competitive market for contractors. New procurement frameworks need to present an opportunity for more contractors to participate.
- Procurement routes for non-domestic works were ad hoc in many cases; this needs to be resolved for future larger scale non-domestic programmes.

Thus longer-term, predictable funding and project timescales would be beneficial for a wider variety of contractors. Existing procurement frameworks and the requirement to demonstrate particular accreditation in order to participate (e.g. PAS 2030) can exclude smaller contractors who do not have the time, capacity or financial resource to undertake additional accreditation. Thus, any new accreditation framework needs to account for the existing skills and qualifications that a range of trades and organisations hold and explore how these can be acknowledged when appropriate and upgraded for entry onto the frameworks.

Although procurement itself is not new to local authorities, they lack expertise and experience in procuring energy initiatives[27]. As a result, procurement is commonly presented as a 'problem', being highly technical, costly and time consuming. In multi-agency projects a lack of coherence and clear decisions from public sector partners can delay the procurement process. In cases where in-house procurement expertise is lacking, outsourcing procurement roles may introduce additional complexity into the supply chain, which may have unforeseen costs. Because local energy is perceived as new to local government, senior managers and councillors also need confidence in expert procurement to reduce (perceptions) of financial and political risk, and improve risk management.

There is a rationale for shared procurement for development of local energy strategies to keep costs down, streamline processes, and avoid counter-productive competition between local authorities where prices may increase as a result. To support delivery of strategic plans and achieve economies of scale across local authorities, Scottish Government in partnership with local authorities and public sector agencies should therefore consider establishing a hub of procurement expertise for local energy. This could be delivered via the proposed National Delivery Mechanism, and/or specialist procurement organisations to support coordination, and identify opportunities for shared project delivery. Feedback from public sector procurement 'users' would aid identification of key strengths and weaknesses of existing procurement services and frameworks .

Local authorities need cost effective and high quality procurement routes for district energy infrastructure and area-based retrofit of buildings. Specialist procurement would enable public sector actors to be intelligent buyers and competent negotiating partners, and should help reduce costs and delays, ensuring best value for the local economy. Suppliers would

[27] Webb, J., Tingey, M., & Hawkey, D. (2017). *What We Know about Local Authority Engagement in UK Energy Systems: Ambitions, Activities, Business Structures & Ways Forward*. London and Loughborough: UKERC and ETI. Retrieved from http://www.ukerc.ac.uk/publications/what-we-know-about-local-authority-engagement-in-uk-energy-systems.html

also have approved routes, assisting in quality assurance, high standards and performance guarantees. Local authorities need to be both an 'intelligent buyer' — knowing how to design and complete a procurement exercise to deliver the project, and a 'competent negotiating partner' — with the knowledge and expertise to participate in contractual arrangements with supplier(s) delivering works and services (including design consultancies). Significantly local authorities need to hold contractors to account if, and when, issues arise. This goes beyond procurement itself to include legal, finance and professional services. In general, local authorities may not have sufficient in-house legal and procurement experts for contracting, hence the need for an expert hub. Equally they may lack skills and expertise for in-house supervision of technical design aspects and for ensuring high quality delivery of project verification, monitoring and enforcement.

Existing support structures and procurement models include the Danish Energy Agency which has coordinated central and local government development of extensive district heating; the Norwegian agency Enova which supports transition to a low emission society and provides development support and funding for local authorities; and Sinfra, formerly Värmek, a Swedish non-profit procurement organisation for district heating, water and electricity. UK Proposals for district energy procurement specialist services previously discussed include a non-profit local authority mutual enterprise District Energy Procurement Agency and the Crown Commercial Service proposal at UK Government level.

In addition, there is need for a coordination role to ensure that the area-based approach can include smaller, bespoke/specialist suppliers sub-contracting to deliver specific elements of retrofit upgrades and/or new energy systems.

There is also a potential tension between securing economies of scale across the Energy Efficient Scotland programme and awarding numerous small contracts to suppliers. To mitigate this, high quality procurement routes are needed to manage and coordinate. For example, there is evidence of cost saving when district heating system procurement is broken down into smaller components.[28] In the UK project costs are considerably higher than elsewhere in mainland Europe where district heating is more established (Pöyry and DECC, 2009).[29]

Above all, it is important to ensure that any local energy initiative or system provides direct social, environmental, and economic benefits to the Scottish community, which can be retained in the surrounding area. The replication of these initiatives and their benefits to communities should ensure that Scotland is capitalising on the emergence and deployment of local energy. The corresponding monitoring and review process should demonstrate the development and wide acceptance of appropriate indicators related to employment, pollutant emissions, energy savings and efficiency, cash flows towards people, etc., which will help assess the effectiveness of local energy initiatives.

[28] Sinfra (formerly Värmek) is one example where district heating costs are lowered through specialist procurement agency. See presentations from this event: https://heatandthecity.org.uk/event/district-energy-vanguards-network-heat-networks-investment-programme-district-energy-procurement-agency/

[29] Pöyry Energy and DECC. 2009. *The potential and costs of district heating networks: A report to the Department of Energy and Climate Change.* Oxford and London: Pöyry Energy and DECC. Retrieved from http://www.nationalarchives.gov.uk/webarchive/

15. Do you have any opinions on the initial focal typologies chosen?

16. How can local energy considerations become business as usual for industry?
A way to make local energy considerations business as usual is the effective replication of these types of initiatives and their real participation in the market. Such replication has to be successful in order to ensure the sustainability of this subsector (local energy projects). Therefore, it is important to develop a strong policy statement that sets out the fundamentals and guides the establishment of a more profound energy market shift, integrating local energy projects, as well as the current incumbent suppliers and large generators.