

HARNESSING VALUE FOR SCOTLAND'S COMMUNITIES FROM HEAT NETWORKS

FROM STRATEGY TO DELIVERY



INTRODUCTION

The Scottish Council for Development and Industry (SCDI) with the support of Vattenfall Heat UK convened a round-table event using Glasgow as a case study to:

- Explore the opportunities for create the institutions and frameworks for delivery and build capacity and skills in the supply chain
- Test Vattenfall's vision for East Glasgow
- Demonstrate the impact that local heat networks can have on Glasgow's strategic objectives and those of participating organisations.
- Encourage participation in the project for Glasgow and the city region.
- Demonstrate the private sector's enabling role in sustainable economic recovery and mutual benefit to society and to organisations delivering for Glasgow city region

THE EVENT

01 March

Barclay's Offices, Glasgow

The event engaged key stakeholders in East Glasgow around the heat network opportunity, explored barriers and enablers to achieving an integrated heat network, and highlighted the opportunity from integrated energy infrastructure for the wider city region and other parts of Scotland.

SCDI brought 30 people from stakeholder organisations together for a round-table. Speaker presentations from the Minister and Glasgow City Council were followed by facilitated discussions. This document is a summary of the event and key themes emerging from discussions.



THE NATIONAL CONTEXT

BACKGROUND

The Committee on Climate Change 2021 progress [report](#) to the Scottish Parliament on reducing emissions calls for a comprehensive, detailed policy framework to shift the focus to implementation and delivery of real-world progress. The report also highlights the current gap between existing policies and proposals and whether and how they add up to the pathways for reduced sectoral emissions to 2032. Meaningful partnerships with key national, regional and local authorities are key to the delivery of such strategies.



Partrick Harvie MSP, Minister for Zero Carbon Buildings, Active Travel and Tenants' Rights

“

Our climate targets are ambitious because they have to be. The Climate Crisis is the greatest challenge of our times but it also represents a great opportunity for Scotland to do well and for Scotland to lead the way in tackling the climate emergency. Partnerships across the public, private and community sectors will be hugely important to meeting these targets. If we get it right collectively Scotland can prosper with jobs and skills – a 21st century industrial revolution which supports our environmental life-support system and restores our social fabric. ”

The minister set the scene by reminding participants of the binding targets Scotland has set itself to reach net zero by 2045 and achieve 75% reduction in emissions by 2030. Glasgow has an even more ambitious target of net zero by 2030. The minister expressed his pleasure at leading organisations coming together across Scotland to work together to collectively delivery net zero in Glasgow. He emphasised the shared endeavour which net zero represents. No organisation working alone will be successful. All of Scotland's homes and buildings must significantly reduce their energy use and almost all must be using zero emissions heat.

The minister focussed on how we might reduce emissions in our homes and buildings - a challenge which is going to touch every single one of us. We all have a role to play whether that's making the change ourselves at home, installing a renewable heating system in your business or growing our organisation to supply the new technologies and services for a growing domestic renewable heat market.

To meet our targets by 2030 a million homes and around 50,000 non domestic buildings from offices, to leisure centres to shopping centres will need to be connected to and using zero emission heating systems. In the short term this will be heat pumps and heat networks and in the longer term hydrogen produced from renewable electricity might have a role to play in some areas.

THE NATIONAL CONTEXT (CONTINUED)

Over the course of this parliamentary session the Scottish Government is committing £1.8 billion to accelerate the uptake of energy efficiency measures and zero emission heating. This includes:

- **The [Heat in Buildings Strategy](#)** which sets out a high level plan for retrofitting our homes and buildings to cut emissions and reduce energy consumption including clear commitments to bringing forward regulations to drive forward activity on the ground which will help take the risk out of investment and catalyse action in all sectors.
- **Regulation.** The Heat Networks (Scotland) Act 2021 will introduce a new licensing and consenting regime as well as requiring the designation of heat network zones to guide development. The act will drive confidence in heat networks, which will in turn drive investment and delivery at a much larger scale. Heat networks are a key deployment for delivery in this decade and we know from their extensive use in Northern Europe that they are a reliable and cost-effective option for supplying heat. They are a 'low regrets' option because the heat generation can be changed over time if new technologies come along. As such they'll have a pivotal role to play in meeting our ambitions to decarbonise heat in a way that is fair and affordable for Scotland's consumers. The Heat Network Act requires Scotland to reach 2.6 terrawatt hours that's about 3% of current heat demand by 2027 and 6 terrawatt hours about 8% of current heat demand by 2030. We are going to need to work together to deliver on these targets.
- **The £300 million Heat Network Fund** aims to kickstart the heat network supply chain and bring public and private investment to the table as well as helping to create high quality jobs. The fund offers capital grant funding to public and private organisations to support zero emission heat networks across Scotland. The fund is open to new zero emission heat networks and communal heating systems as well as existing heat networks that are looking to expand or switch to zero emissions sources of heat generation to cut their emissions. The fund will be open for a longer period to give those organisations developing projects time to design high quality schemes and to develop their business cases rather than chasing arbitrary grant deadlines. It is hoped that this change will give organisations confidence to develop new projects and work with the Scottish Government to bring them forward.
- **The Scottish Government will launch pre-capital support** to support organisations make projects viable and ready for investment which can be daunting. A fuller heat network support unit launched later this year. The new unit will work with projects and local government to identify opportunities and bring them forward for capital investment. Over time this will help to build a more visible programme of heat network projects for investment.
- **A National Assessment of Heat Network Zones** which will act as a guide to where heat networks may be more suitable in Scotland will be published in Spring 2022 including a series of maps showing areas of potential. The government is committed to continuing to work with local authorities and the heat networks to build on these opportunities.
- **The Clyde Mission Fund** will make £25 million available towards heat decarbonisation projects along the Clyde designed to help regenerate communities, create jobs, provide safer and more accessible active travel routes and contribute to



THE NATIONAL CONTEXT (CONTINUED)

Scotland's efforts to reach our net-zero targets.

- **Support is also available for social housing and the public sector.** Social landlords who provide around a quarter of the homes in Scotland have a really important role to play in supporting the rollout of zero emission heating technology. The social housing sector has already shown strong and early leadership in decarbonisation improving fabric energy efficiency in our social housing has reduced emissions while at the same time helping tenants reduce their energy bills. These improvements are helping to protect some of our most vulnerable citizens from the current energy price crisis.
- **The Social Housing Net Zero Heat Fund** is making at least £200 million available to social landlords to help install zero emission heating systems and improve energy efficiency in social housing.
- **A £500,000 development fund** will help social landlords produce investment grade business cases including support for stock surveys and the development of decarbonisation strategies.
- **The public sector is being asked to lead the way here by decarbonising its own estate.** Meeting the cost of retrofitting buildings across the public sector estate is challenging. The green public sector decarbonisation scheme will invest a minimum of £200 million between 2021 and 2026 supporting a wide range of projects. The scheme has already helped decarbonise buildings belonging to NHS boards, further education colleges and central government organisations. The next round of funding for capital and resource projects will be launched in the coming weeks.

The funding programmes outlined above contribute to the £1.8 billion pounds being allocated for heat and energy efficiency in the current parliament but the total

costs involved will be huge. The government estimates a cost of £33bn to convert homes and buildings to net zero by 2045 with additional investment required to strengthen the energy networks. The Scottish Government is committed to delivering the right policy and regulatory framework and financing mechanisms to unlock private investment and private action that is needed to drive delivery at pace.

The [Green Heat Finance Task Force](#) will explore innovative financing and delivery mechanisms to maximise individual and private sector investment. The Task Force will act as a catalyst partnering across the public sector, the heat sector industry, wider supply chain, building owners, investors and financial institutions. The minister shared details of Task Force [members](#). SCDI Chief Executive Sara Thiam is co-chairing the Task Force with Mr Harvie.

Investments are already happening including Queens' Quay in Clydebank being developed in partnership between Scottish Government and West Dunbartonshire Council to deliver a zero emissions network. West Dunbartonshire's ambition, innovation and vision have driven this project and more like this will be required if we are to achieve our climate goals.

The minister ended his speech by encouraging the participants to be bold.

Every organisation involved in the round-table brings its own knowledge and insight. Collaboration and sharing of learning are key to achieving our shared net-zero goals. Round-table discussions and future action will not only benefit Glasgow but also communities right across Scotland.

The Minister wished those present a successful event and looks forward to ongoing collaboration.





HARNESSING THE VALUE OF DISTRICT HEATING FOR GLASGOW

Kit England, LLB Hons MA MIEMA CEnv,
Green Economy Manager, Glasgow City Council

The Glasgow context:

- Climate change is a strategic risk to the City's economy and way of life. Impacts on GDP projected to worsen without emissions reduction and adaptation
- Need to make a significant reduction in the City's emissions *and* ensure that transition is just and climate resilient
- Emissions from buildings make up a third of overall city total – so major area of focus, alongside mobility
- Scottish Government has set a clear pathway to net zero – but Glasgow has committed to go further, faster to realise the significant benefits of doing so
- The global and regional climate and socio-economic pathways are uncertain - depending on the global and local progress on limiting emissions, a range of different economic impacts
- Glasgow's planning assumption is of a rapid transition (with appropriate adaptation), but mindful that assumptions and economic development approach may need to change as the transition plays out

The Economic Opportunity of Decarbonising Heat

- The net zero transition of heating is a significant economic opportunity and risk for the region
- Up to 16,400 jobs could be created across Scotland (11,600 lost, but 28,000 created via higher demand for low-carbon technologies and fuels)
- Wider benefits: climate security = economic and national security
- Significant concentration of energy employment in the City Region - electrical equipment manufacture (33%), electricity supply (39%) and gas supply (53%), and machinery with higher concentration of medium-low and low skilled workers than Scottish average
- Specific nature of the jobs created will largely determine whether the new jobs can provide replacements or additional employment opportunity for those jobs lost in the shift

HARNESSING THE VALUE OF DISTRICT HEATING FOR GLASGOW (CONTINUED)

Regional Delivery Framework

- The city and wider region is implementing a delivery framework where climate action is increasingly city's economic growth strategy
- Regional Economic Strategy highlights the climate emergency as one of three grand challenges, alongside productivity and inclusive growth - targets to create an additional 8,000 green jobs by 2030
- Regional Adaptation Strategy highlights the need to climate-proof the net zero transition for long term asset performance
- Glasgow Climate Plan - Overarching targets of Net Zero Carbon by 2030
- Green Deal - Economic development programme of work to transform the economy to tackle the climate emergency whilst addressing inequality
- Draft Local Heat and Energy Efficiency Strategy - establishing the frameworks for decarbonising heat and increasing energy efficiency
- All guided by wider Scottish Government policy - Scottish Energy Strategy, Climate Change Plan, Heat in Buildings Strategy, Draft Heat Networks Delivery Plan

Glasgow's Local Heat and Energy Efficiency Strategy

- Participated in Phase 1 of LHEES Pilot - explored the background of the whole city
- Draft LHEES strategy already prepared - now needs to be updated with new LHEES methodology. Final version due Summer 2022
- Identifies opportunity zones - zoning will allow testbeds for trialling projects that reduce the carbon footprint of the built environment, with a view to scaling to City Level
- Developed through extensive consultation - centres around areas of existing or planned activity. Will be further revised in line with Scottish Government's national assessment of heat network zones



Accelerating District Heating Market in Glasgow

Currently taking a range of roles:

- Making the market and setting the rules of the game - Working in partnership with Scottish and UK Government to the market for District Heating in Glasgow and wider city region via LHEES and Heat Networks Act and Delivery Plan. Establishing concession zones and exploring the potential to provide consents and permits
- Removing barriers to the uptake of district heating - e.g. working with Scottish Government on regulation, development of skills through Just Transition Action Plan, Greenprint for Investment, and green business support programme
- Supporting others to demonstrate and establish the technology - (e.g. Climate Neutral Innovation District, Queens Quay, Glasgow Recycling and Renewable Energy Centre)
- Considering direct entry into the market - exploring potential roles for City Council in providing energy services arrangements to kick start the market, and possibly work as an active participant - e.g. through GRREC, or Climate Neutral Innovation District
- Establishing a Green Economy Unit - new capacity focused on addressing barriers to delivery - skills and supply chains, innovation and market making, funding and financing. Working in partnership with Sustainability team to collectively unlock the opportunities from net zero carbon. Priorities to be set but District Heating likely to be a focus area

THE KEY THEMES

To integrate district heating into local and national energy strategies and plans

- Accelerate delivery to meet 2030 targets
- Government nationally has a role to play through strategy setting, clear targets, certification and a responsive regulatory framework
- Government locally should bring partners together, lead energy masterplans, minimise opt-out and setting out local preferences
- Aggregated demand is a pre-requisite to enabling schemes and work is needed to build buy in with both developers and end consumers
- A skills pathway needs to be developed to support all stages
- Infrastructure investment including 5G networks



To progress procurement

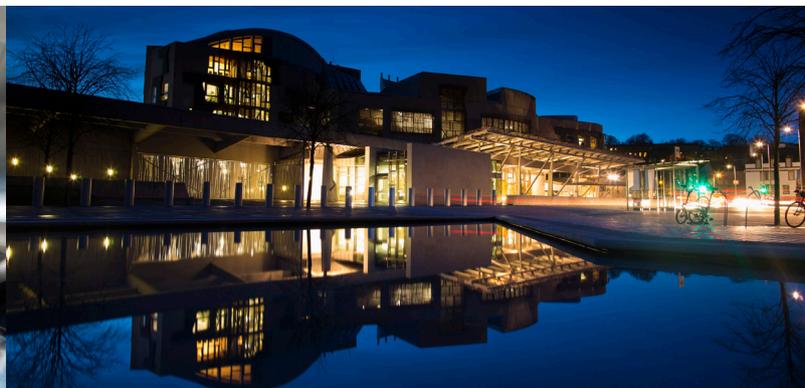


- Government needs to set out clear procurement routes and options DHN including options for risk sharing for public sector partners
- Consider how costs can be managed and purchase prices made more consistent across the country
- Build the capability across the supply chain and in procurement in Scotland – consider community wealth not just lowest cost
- Include procurement in local Heating Strategies and resource local authorities to upskill/deliver
- Consolidate current procurement frameworks and raise awareness of heat networks
- Invest now in skills in building services, gas grid performance and encouraging private sector contractors to invest

Optimising private/public investment

- Map what funding is available and unlock pre-project funding to support private/public collaboration
- Clarify role for SNIB and for investment banks in longer term funding
- Public sector convening power to scale investment, provide demand security and entice investors
- Demonstrator public sector investment models and options to share risk
- Use 2023 revaluation to reward not disincentivise greener buildings
- Profitability key – Norwegian models driven by financial viability
- Link to social and environmental KPIs
- Consider models for investment in supporting infrastructure e.g. pipe company
- Blended funding pots and pilot projects are needed to demonstrate how it can work





DISCUSSION 1:

What needs to happen to integrate district heating into local and national energy strategy and plans? What are the enablers?

What needs to be done?

- Accelerate Delivery
- Scottish Government Energy Company
- Is a crowded agenda a risk to transition?
- LHEES Zones:
 - Anchor Loads
 - Long-term commitment from government
- Focus on something scalable
- Decide on technology - pumps or wait for hydrogen transition?
- Aggregate customer demand
- Address challenges of designing new building vs. transitioning the old
- Regulatory framework that is responsive and flexible
- Skills development as part of building pathway to transition
- Develop confidence with developers:
 - Leadership buy-in
 - Resilience

Enablers

- Clear targets
- District heating
- National Legislation
- Energy cost levelling
- Certification schemes
- An institutional investment standard
- 5G networks - although power grid would struggle to handle 5G onsite power
- Public pressure vs. know-how and leadership – need to educate potential users
- New tech needs to be ready when it arrives
- Minimise loopholes (used to opt out)
- Large-scale masterplans / whole system planning
- Clarity of leadership in policy space:
 - Role of councils? More intervention?
 - Government setting over-arching policy?
- Deciding what sources should work for different councils and areas



DISCUSSION 2:

What needs to be done to progress procurement?
 What barriers need to be overcome?

What needs to be done?

- Regulatory and legislative framework needs to have basis within implementation of solutions
- Consistency of purchasing prices across the country should be a priority
- Costs will always be a factor so whatever else new costs need to be manageable
- Procurement has a role in influencing demand and supply
- Build Scottish companies' capability
- Don't always pursue lowest cost – keep money in the economy
- Accepting a mix of sub-optimal solutions
- Openness to experimentation within infrastructure and getting power where it needs to be
- Inclusion of procurement within a Heating Strategy
- LA resource for LHEES
- Aim for parity of purchasing prices across the country
- Look at new ways to build pace for delivery
- Risk held by public sector?
- District heating
- Procurement model from Scottish Government

Barriers to this

- No clear routes to setting up own networks
- Competition for procurement tenders shouldn't be counter-productive and should help achieve policy outcomes
- Investment needs to be matched with policy and intent
- Resistance to change – short-term and long-term cost
- Shared confusion and misinformation about heat
- No route / how to procure DHN
- NHS cannot sell heat to third parties
- Fragmentation of current procurement framework and lack of awareness of heat networks
- Waiting for regulation – (estimated) 100 months to 2030 – need to accelerate
- Skills:
 - Building services
 - Gas grid performance
 - Enough contractors to meet demand?
- Allocation of risk weighted against

DISCUSSION 3:

What steps need to be taken to maximise private/public investment? What funding models could be considered?

Public/Private	Funding Model
<ul style="list-style-type: none"> • Mapping of/knowledge of public sector and other funding • Embed social value within regulation, i.e. health benefits • Define roles for securing demand • More collaboration between national banks and private sector • Cost of net zero pipeline • Public sector convening power in scaling investments • Role of government in facilitating and making problems go away • Leadership shown within public and private sector funding and investment mechanisms • Run public campaign to build appetite for network to reduce investment risk • Not all levers can be held by local authorities – wider planning and frameworks key • Public sector can set up models for investment • Greener building costs should never be higher than others • Skills in growing public bids and partnerships • Private sector needs public sector to underwrite investment • Private sector seeking demand security • Role of consolidating and risk sharing • Revaluation coming up in 2023 – better buildings for the environment pay more rent – this can change • Responsibility lies with those that have the power • Unlocking pre-project funding for public sector to serve public / private capital 	<ul style="list-style-type: none"> • Private sector role in making smaller strategic investments as part of diversifying their wider portfolios • Social and environmental KPIs • Rate of return of investments – shouldn't underestimate that it's better for institutions that they invest in something rather than put it in a bank given returns, especially for long-term low risk • Projects of scale and their financing portfolio – regulatory framework should play role in setting projects of scale according to necessity • Profitability key in public as well as private investments in the long term as well – Norway's models driven by financial viability • Leasing out heat as a service? • Clyde metro – public revenues can support less commercially attractive propositions • Link to social and environmental benefits • Values linked with funding • Scale investments large enough to attract large institutions • UK investment banks can borrow at lower rates, opportunity there? • 90% incentive should be longer than 2 years • Better private sector understanding of what funding is available • Infrastructure easier for private sector to invest in – revenue streams easier • Disaggregation of costs across number of heat networks • Blended funding pots and pilot projects to demonstrate how it works

HARNESSING VALUE FOR SCOTLAND'S COMMUNITIES FROM HEAT NETWORKS

FROM STRATEGY TO DELIVERY

**THANK YOU TO
OUR PARTNERS
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