

Consultation Response: Draft Heat in Buildings Strategy

Scottish Renewables is the voice of Scotland's renewable energy industry. Our vision is for Scotland leading the world in renewable energy. We work to grow Scotland's renewable energy sector and sustain its position at the forefront of the global clean energy industry. The sectors we represent deliver investment, jobs, social benefits and reduce the carbon emissions which cause climate change. Our members work across all renewable energy technologies, in Scotland, the UK, Europe and around the world. In representing them, we aim to lead and inform the debate on how the growth of renewable energy can help sustainably heat and power Scotland's homes and businesses.

Scottish Renewables welcomes the opportunity to provide our views on the Scottish Government's current thinking on the Draft Heat in Buildings Strategy, as set out in the consultation document.

We have focussed on providing detailed answers for the specific chapters, which were of most concern to our members, rather than answering every question.

Chapter 2 – A 2045 Pathway for Scotland's Homes and Buildings

1. To what extent do you support the pathway set out for achieving the 2045 net zero target and the interim 2030 target?

2030 is only nine years away and we are concerned about the achievability of the targets. We are doubtful that work is happening fast enough to meet the reductions being suggested.

The Journey to Net Zero pathway set out in the consultation document is very ambitious and we are unclear about how the percentages add up to 75% reduction in carbon emissions by 2030. We would like to see further clarity on how a 50% of homes converting to zero or low emissions heating systems by 2030, plus a quarter of Scotland's non-domestic properties and 20% of the gas network to be decarbonised and replaced with green gas sets us on the right trajectory to net-zero. It is our view that The Scottish Government needs to increase their ambition in individual buildings and heat networks to get to that point.

The Scottish Government's commitment to setting a target of 20% green gas (combination of biomethane and potentially hydrogen) by 2030 does not seem ambitious enough compared to the other targets. This target is also unclear, and we would recommend that The Scottish Government separate out biomethane targets, low-carbon hydrogen targets, and green hydrogen targets to clarify the overall target.

We would also like to see more clarity on how The Scottish Government will ensure that there is enough biomethane to meet the gas network target. Failing to meet this would then have a knock-on effect to the interim target of 75% reduction of all carbon emissions by 2030. Scottish Renewables supports green hydrogen, and we have concerns that most funding is focused on supporting the infrastructure for blue hydrogen, which could effectively lock out green.

We are also concerned that blending 20% green gas into the gas network will undermine efforts to replace gas central heating in domestic buildings and concerned about how all this will be funded within that timescale.

We would also like to reiterate the points we made in the New Build Heat Standard consultation¹ where all new homes consented are to have zero direct emissions heating and are highly energy efficient by 2024. We called for this target date of 2024 to be clarified, as there is likely to be a three-year lag between consenting and build out. As a result, it could be as late as 2028 before this ambition takes full effect. We recommended setting an additional earlier deadline whereby no new planning consents or planning applications can be submitted for new homes with heating systems based on the combustion of fossil fuel after 2021.

There are also issues around offtake surety for heat networks, where all the buildings connected to a heat network use the available heat. It will be necessary to simplify the framework and direction of travel by introducing a meaningful carbon tax to balance the playing field between gas and electricity. This needs to be addressed if there is going to be any confidence in this sector. We welcome the recommendation that no new heat networks can be consented after 2023 unless they have a low-carbon heat source.

¹ <https://www.scottishrenewables.com/publications/814-consultation-response-new-build-heat-standard-scoping-consultation>

2. What are your views on any risks of unintended consequences from this pathway?

As we noted in our response to the Scottish Government’s New Build Heat Standard consultation², this is a complicated issue, as doing the ‘right thing’ may be more costly to implement and result in rising energy bills.

The externality costs of burning gas (for instance, climate change and environmental damage) are currently being ignored. The principle of retaining energy bills at their current levels based on a system that relies on externality costs of emissions outputs being ignored is false – somewhere, someone will have to cover these additional costs.

Housing developers will try hard to protect their current margins. As such, unless they are compensated through other means, it is likely that, at least in the short-term, housing costs would rise. If consumers are moving from a gas-based heating system to an electric one, even with significant energy efficiency improvements, an electric-powered system is likely to be more expensive. There could be the potential to introduce a heat benefit payment to those in extreme fuel poverty to overcome, at least in the short term, the extra burden that this may have on them. This could be paid for by some of the carbon tax that is raised on gas, for those who continue to use it.

3. What are your views on our assessment of strategic technologies in low and no regrets areas to 2030?

We note that the strategic technologies listed include action on energy efficiency, deployment of individual building heat pumps in buildings off the gas network, deployment of heat pumps in certain buildings currently using mains gas, and the development of low and zero emissions heat networks. One thing that is missing here however, is the ability to install or upgrade electric storage heating systems, a heat pump is not going to be suitable in all properties, especially in remote rural areas with a fragile power network.

There also needs to be guidance or assurance of the right technology in the right place approach. This will be partially dealt with through the Heat Networks (Scotland) Act 2021 by creating zones for heat networks and with Local Heat and

² <https://www.scottishrenewables.com/publications/814-consultation-response-new-build-heat-standard-scoping-consultation>

Energy Efficiency Strategies (LHEES). However, this needs to be broadened out to include describing which technology is needed in which circumstances and setting out in finer details some of the indicators that point to the right technology for each location.

Regarding the million homes being converted to either heat pumps or connecting to a heat network, there does not seem to be a driver or funding to make that happen at the scale and pace required. For example, with the RHI, there are approximately 3,000 installations per year. It will be incredibly challenging to double the number of installations year on year without additional funding.

The removal of choice of heating system is also part of the answer, whether this be through regulations or community engagement. The community needs to buy into the replacement technologies. There is nothing yet in regulations that requires a gas boiler to be replaced with a heat pump – such decisive regulation is needed to convert a million homes to a heat pump/heat network at the scale and pace required to meet net zero.

The Scottish Government needs to facilitate a mechanism that can effect change at certain points, for example, when people move to a new house or when their heating systems break thereby incentivising people to install heat pumps. Without such regulations, the conversion of a million homes is unlikely to happen. This also needs to be part of any planning process, with clear points of intervention where behaviours and choices can be directed. Suggestions of how to do this include looking at the potential of reducing people's council tax bands or increasing them depending on their heating system and effectively creating a local carbon tax.

Also omitted are bioenergy, hydrogen, hybrid systems and some systems such as PV and solar thermal which are only included as secondary technologies. Storage heaters are not mentioned anywhere, and clarity is needed on The Scottish Government's intention for the homes using these.

We understand that homes with storage heating have been accounted as not needing to be converted to electric heat, however some of these systems are not ideal, they can place a substantial strain on the electricity grid and would benefit from upgrading. We note that the funding is for the strategic technologies, if electric storage heating is not mentioned under strategic technologies, then it will not be eligible for any funding.

Regarding heat targets, we recommend that operators of heat networks using fossil fuels should account for the carbon emissions from their network and buildings connected to that network should have a proportion of the carbon emissions attributed to that building. It is essential that all existing heat networks become decarbonised by 2030, instead of the 2040-45 set out in the draft strategy. After 2023, this should be less of an issue as new networks will incorporate zero or low-carbon technologies.

4. What function should a new heat target serve?

The target is for a million homes to be converted to a low-carbon heating system, and that million to include all off-gas-grid properties. However, clarity is needed on the makeup of that million.

A more granular analysis of the target will make planning and implementing actions against the target much easier. In addition, there needs to be interim targets so progress towards the million homes target can be tracked. We also recommend that there are separate targets for on-gas grid properties and off-gas grid properties as the issues facing each property type are different. These targets need to be accompanied by an indication of funding and co-ordination support.

A specific target to replace the approximately 200,000 households using high emitting heating fuels is recommended. There needs to be much more focus on off-gas grid homes due to the high crossover between off-gas grid and fuel poverty. By framing the target around off-gas grid, progress can be made relatively quickly as data already exists on the location and number of such homes.

Technologies are already available that can provide low carbon heating for such homes but remedial work such as removing redundant hot water tanks will also be required. Such work could happen within a 5-year period and a specific target for that 5-year programme would support local jobs and address wider Scottish Government agendas.

These targets are unlikely to be met without a strong, central, coordinating role. They also cannot be met via individual action. There needs to be a street-by-street approach, similar to the Home Energy Efficiency Programmes for Scotland's area-based approach, using street-by-street and zone programmes. We would want to see a commitment from The Scottish Government on coordinating and programmatic resourcing to ensure such an approach is taken.

The LHEES opens a real opportunity to identify zones where electrification through heat pumps is possible. However, there is uncertainty about how the LHEES approach could support the delivery and supply chain of heat pumps. A zone approach can create confidence in communities to support the deployment of heat pumps.

Modelling to date has largely been based on consumer decisions; however, this approach is flawed as it negates the economies of scale that can be achieved through area-based approaches. Consumers are not able to make low carbon heating choices if they are presented with unmanageable economic choices. If the whole street is tackled together, economies of scale can be leveraged, and opt in or opt out choice can be offered and the choice becomes far more manageable.

Having a localised, local authority-led approach will also support the Distribution Network Operators (DNOs) as they need time to prepare for electrification. For example, if they know that approximately 800,000 homes will be migrating from the gas network, the DNOs can plan for the grid reinforcements required. Taking a localised, programmatic rollout approach will facilitate DNO readiness and should bring down the associated REPEX and reinforcement costs.

We support the underlying ambition for the target of doubling heat pump installations year on year. However, we have concerns about using a specific heat pumps target as the intention of the Heat in Buildings Strategy is to maximise the decarbonisation of buildings rather than maximise the number of heat pumps in Scotland.

As such we would recommend targets based on a specific number of dwellings converted to low-carbon heat to ensure the low carbon heat transition is achieved using the most appropriate low carbon heat technology for each building.

5. How do you think a new heat target should account for the need to deliver against our statutory fuel poverty targets?

While we are fully supportive of the fuel poverty targets, we have concerns about the linking of heat decarbonisation targets directly to fuel poverty targets. The reasons that fuel poverty exists are complex and while the type of heating technology used can be a factor, there is not a direct relationship between heating technology type and fuel poverty.

To link the two targets and use heat decarbonisation as a proxy for fuel poverty reduction overlooks the complexities of the relationship between the two and risks undermining of both targets. As such we recommend the targets are addressed separately but with reference to each other.

6. Do you agree that a new heat target should apply to heat in buildings, distinct from industrial heat?

Yes, as the issues inherent in decarbonising heat in buildings are distinct from those of industrial heat. We would support a separate strategy on the decarbonisation of industrial heat.

7. What form should a new heat target take and why?

We support the current form of the heat target and appreciate the monitoring reports produced annually by the Energy Saving Trust which we use to inform our work.

8. At what level should the target(s) be set and for what date?

While we do not have specific analysis on this issue, we would support the Climate Change Committee's position that early action is required if we are to stay on track to achieve net zero. We recommend that the target should be broken down into five-year increments with annual milestones set in line with climate change targets and Scottish Government policy commitments.

Chapter 4 -Place

21. What are your views on how we can support place-based deployment of zero emissions heat within our delivery programmes?

Please see our answer to Question 4

24. In your opinion, what steps can we take to ensure that policies set out in this strategy do not unfairly impact Island and other remote communities?

Measure will need to be put in place to address access issues in rural areas that present barriers to the installation of heat pumps. Additionally, the supply chain is very limited in these areas and this increases the cost for consumers who live there and can cause issues with maintenance and repairs.

Rural areas can also have technical issues associated with net metering arrangements, access to tariffs and with the available capacity of the electricity network. In this context, a strategic roll out plan is needed for ensuring that the network is ready, the tariffs are correct, consumers are ready and skilled tradespeople are available. This will involve coordination with DNOs, energy suppliers and tradespeople.

27. What are your views on what Permitted Development Rights might help enable in the heat transition, in addition to those we have already included in the Permitted Development Rights review programme?

Including low carbon heat technologies within Permitted Development Rights (PDR) is an important step in enabling the heat transition. We note from the PDR timetable that changes to micro-renewables, district heating and energy storage will be considered in Autumn 2021. These topics are of key interest to our members, and we would urge The Scottish Government to stick to the published timetable as any delays will compromise the ability to achieve the proposed heat transition targets.

Chapter 5 – Preparing our Energy Networks

33. What evidence can you provide on the potential for heat networks in Scotland that can help inform a new ambition for deployment within the final Heat in Buildings Strategy?

In 2019 Scottish Renewables carried out research³ examining the potential for heat networks in Scotland, the scale of the opportunity and what steps The Scottish Government should take to unlock it. Research conducted for this report identified 46 potential heat network projects in Scotland's seven cities. With the right Scottish Government support these could: deliver 600 GWh of heat per year, the equivalent to 45,000 households, save 100,000 tonnes of carbon per year, if using low-carbon sources from day one, grow to serve 8% of Scotland's heat demand by 2030, the equivalent to 460,000 households. The report is publicly available and Scottish

³ Scottish Renewables. Piping Hot: Building Heat Networks to Tackle the Climate Emergency. November 2019

Renewables is also willing to share the underpinning data with The Scottish Government.

36. With the sustainable market for heat networks described above in place by the early-2020s, are there any further gaps that must be filled to support subsequent delivery of heat networks? If so, what are these and are there particular types of organisation that would be key in filling these?

We welcome The Scottish Government's commitment to consult on proposals to require anchor buildings in the non-domestic sector to make adaptations to become 'heat network ready' to connect. It would have been our preference that this was dealt with in the primary legislation and recommend that this is included as a key issue in secondary legislation. Ensuring there is a robust 'anchor load' on each heat network is vital to ensuring the success of the heat networks aspect of decarbonising Scotland's heat use.

We are also concerned with the lack of emphasis on existing heat networks in the draft strategy. One of our points raised during the Parliamentary scrutiny of the Heat Networks (Scotland) Bill was that it was unclear what retrospective changes would be applied to existing heat networks, this was partially dealt with at Stage 3 but remains an issue of concern.

We note that there is an intention to support heat networks via introducing a Non-Domestic Rates Relief for renewable and low-carbon heat networks until 2023/24 and this is very welcome. However, it would be preferable to extend this beyond 2024 as this is an emerging sector in Scotland and strong early growth will lay the foundations for ongoing success.

Chapter 6 – Kick-starting the Investment in the Transition

37. What are your views on the range of actions identified above to kick start the investment in the transition over the next 5 years?

We are very supportive of a replacement scheme for the Low Carbon Infrastructure Transition Project (LCITP). While the current scheme has had some issues and can be frustrating for some projects, it has delivered a range of projects and is the only funding that is available for projects at scale. We recommend that the new programme incorporates the lessons learned from LCITP and gives equal weight to innovative projects and existing projects.

The Community and Renewable Energy Scheme (CARES) tends to be mainly innovation funding to explore business cases and in terms of the capital amount, this is not enough to implement systems, it is more to develop the ideas. There needs to be a support system in place to ensure the ideas in which CARES invests are realised.

We note that although CARES is mentioned in the strategy, the amount of funding is not clear and would welcome more clarity on this. We welcome that it will have more of a focus on heat decarbonisation in community-led projects and supporting community engagement in LHEES.

While The Scottish Government's intention to convert one million homes and around 50,000 non-domestic buildings to zero-emission heating systems by 2030 is welcome, the cost of doing so will require in excess of the £1.6 billion investment to which The Scottish Government has committed. The Scottish Government's own estimate is that converting our building stock to zero emissions by 2045 will require a total investment of £33 billion.

Given the mismatch between these figures, clarity is urgently needed on how the heat transition is to be funded. Such clarity is vital for building the investor confidence needed to leverage private investment into the heat transition.

38. Do you agree with the strategic funding priorities set out above?

Yes.

39. In your view, should equal funding be allocated across these priorities or should certain priorities be weighted in terms of impact for Scotland?

Rather than weighting the priorities, we recommend consolidating programmes into focused support schemes that target a set of well-defined strategic objectives derived from the heat decarbonisation targets.

40. What are the opportunities and challenges we face in maximising our £1.6 billion investment?

In the consultation document, it says that a mix of public and private funding will be needed to meet the transition, which is estimated to cost at least £33 billion. This is expected to peak at £2.5–3 billion per annum, therefore £1.6 billion for 5 years falls

far short of where we need to be. The Scottish Government expects investment towards the end of the 2020s of £2–2.5 billion per annum.

There is a lack of clarity on how The Scottish Government intends to use the £1.6 billion investment they have committed to leverage private investment and on the scale of private investment expected.

The transition to low-carbon heat needs a coordinated approach. For example, a utility or supplier would oversee the whole scheme, tell consumers their options for their area, the company accesses grants on behalf of the customers and then install the infrastructure and the heating system. The customer then pays ‘Heat as a service’ for the next 20 years. This is not a dissimilar model to how the telecommunications transition to mobile phones was achieved albeit on a different timescale.

To make this approach possible, there would need to be a mechanism which allowed businesses access to individual funding and administration. The role of the proposed public sector energy company could achieve this approach. It could be one of the major coordinators and be the overseer that coordinates the whole programme.

Also fundamental to the transition, will be the reform of the EPC (Energy Performance Certificate) process. Homes generally need to have an EPC rating of C or above to be suitable for low carbon heating and only 45% of Scotland’s currently have this rating⁴. It is essential that improvements in energy efficiency and the heat transition are addressed in a coordinated way.

41. What are your views on the role of government funding over the next five years? For example, should it be focused towards significant increases in the volume of renewable heat and energy efficiency measures installed or more targeted at specific priority groups or technologies?

We are concerned that the funding put in place by The Scottish Government does not adequately address the cost disparity between gas boilers and low carbon heating systems. A gas boiler and accompanying heating system costs around £2,500

⁴ <https://scotland.shinyapps.io/sg-scottish-energy-statistics/?Section=EnergyEfficiency&Subsection=EfficiencyMeasures&Chart=DomEPCs>

while a heat pump-based system is over £10,000. The UK Government's Clean Heat Grant only provides £4,000, and the householder is expected to pay the rest.

The Scottish Government is prioritising low-interest loans and green mortgages. There is also some grant funding being offered for consumers and SMEs but not nearly enough for the investment that is required, apart from in hard to pay areas where they are covering the cost.

The cost of low carbon heating is expected to fall as the volumes of low carbon heating systems increase; similar to the pattern of cost reduction seen in onshore and offshore wind technology. However, as low carbon heat is in its early stages in Scotland, it is our view that more support will be required to drive early take up and initiate the cost reduction pathway.

42. What are your views on how we can use our funding to leverage and encourage private sector and other forms of investment?

Key to unlocking private sector investment is a stable, supportive policy environment and a clear pipeline of projects. This creates the confidence needed for private companies to invest in the skills and infrastructure needed to drive cost reduction.

Consolidating heat transition initiatives into packages of area-based work is an effective mechanism for creating a clear project pipeline. Having activity spread across wide geographic areas and based on proactive, early-adopters creates a piecemeal approach that is unlikely to drive investment.

We welcome the setting up of a Green Heat Finance Taskforce to address the considerable shortfall between the £1.6 billion committed by The Scottish Government and the £33 billion needed to fund the heat transition. The Taskforce faces a significant challenge, but lessons can be learned from the onshore and offshore wind industries and their transition from pre-commercial technologies to now being the cheapest forms of electricity generation.

43. What are your views on the effectiveness of our existing delivery programmes in supporting different client journeys, including for those in or at risk of fuel poverty? (for example, landlords, homeowners, non-domestic building owners – public and private, domestic and non-domestic tenants). In your opinion, are there any gaps in support?

There are currently a number of schemes in existence and navigating through them can be difficult. Our recommendation is that these programmes be consolidated to make it easier for consumers to understand and access the funding that is available to them. This would also save on administration costs and would help to aggregate the cost of deployment.

The cashback schemes are good, but the application process can be onerous and time-consuming which is a barrier.

44. Is there any action we can take to further tailor our support to meet the ambitions set out in this strategy, including in relation to fuel poverty? (Please include any evidence you may have to show what this might achieve.)

This question falls outside of our area of expertise.

Chapter 7 – Working Towards a Long Term Market Framework

45. What are your views on the approach outlined above to take action towards a long-term market framework for net zero emissions in buildings?

Please also see our answer to Question 42

We are concerned that the outlined approach is fragmented and unstructured, which could result in a piecemeal approach. The transition to low-carbon heat needs a programmatic approach.

We support the public sector energy company driving this and working with the energy companies to drive this transition through ‘heat as a service’. However, greater clarity is needed on its role and functions. The remit set out for this energy company in the draft Heat in Buildings Strategy is large and needs to cut across the public and private sector and differs from the original plan for this company.

What is needed is an organisation that can take on the administration and run ‘heat as a service’ rather than expecting individual change and choice. We would want to see the public energy company working with the major suppliers in Scotland to facilitate this approach.

The energy company could potentially take on local authority capital programmes, as resourcing of local authorities, especially considering extra consenting obligations which came out of the Heat Networks (Scotland) Act 2021, continues to be constrained.

Local authorities' capacity is already constrained and a joined-up, national approach rather than multiple local approaches could help to alleviate this. An organisation to champion and coordinate the heat transition would be desirable otherwise. Common Weal suggested a Scottish Energy Development Agency⁵ with the public sector energy body being the delivery arm.

46. What are your views on how we can achieve a fair and equitable cost distribution for the net zero transition, including ensuring we tackle fuel poverty?

Please also see our answer to Question 5 on decoupling heat targets from fuel poverty targets.

Work is still needed at UK level to address the price disparity between gas and electricity, and we would urge The Scottish Government to work with their Westminster colleagues to ensure effective carbon pricing is put in place.

As has been the case with both onshore and offshore wind, subsidies will be required in the early stages of the heat transition to ensure a project pipeline and drive cost reductions. The expectation is that over time these subsidies will become price stabilisation mechanisms as has happened with the Contracts for Difference mechanism. This will support infrastructure investment and also drive cost reductions.

47. What financing mechanisms are needed to encourage investment from householders, businesses and the private sector?

In terms of individual commercial and consumer investment the key issue is the disparity in cost between gas-based systems and low carbon systems as set out in our answer to Question 41. Electric vehicles cost slightly more than petrol and diesel and the running costs are less, so switching to a low-carbon vehicle is easy. Switching to renewable heat is still cost prohibitive.

⁵ Common Weal. The Common Home Plan - A Green New Deal for Scotland. 2019

As set out in our answer to Question 46, subsidies will be needed in the early stages of the heat transition. The Danish 'heat as a service' model provides examples of how costs can be managed, and a similar model could be implemented in Scotland.

There are also opportunities to create an incentive through council tax and business rates. For example, a city centre hotel could be offered a discount on their business rates for a period to offset investment in a renewable heating system or connecting to a heat network.

The aggregating of demand also offers a route to cost reduction. For example, local authorities could aggregate demand for heat networks to create the market for businesses to invest by creating the anchor loads and signing up households, creating that demand to sell onto heat network operators.

If The Scottish Government can improve demand risk by requiring large anchor loads for heat network to connect to networks over time, then the network infrastructure can be funded more efficiently. There may still be a need for some upfront grant for a spine network.

Chapter 8 – A Regulatory Framework

48. What are your views on the regulatory actions set out in the proposed regulatory framework?

With regards to the regulatory framework, we welcome the commitment to the reform of the EPC assessment process, however it must be recognised that EPC is an energy efficiency tool, not a tool for heat decarbonisation. As such the SAP calculation also needs modified. Without modifications to the SAP, EPC obligations risk driving more energy efficiency but not necessarily low carbon measure. For example, increasing insulation to achieve a higher EPC while still installing a LPG boiler.

The table on regulatory proposals and standards on page 117 of the consultation document have a large amount of time set aside for consulting and legislation to come forward. Even accounting for the time for the legislative process, this is still a longer duration than expected.

While we understand the intent behind The Scottish Government's commitment to allow sufficient periods of transition to allow people and the market to adjust and prepare for new standards coming into force, the amount of time set aside for this is too long if we want to meet the 2030 decarbonisation target. Our concern is that there are four years of consultations when there are just nine years remaining until 2030. To try and implement policy immediately after the consultation period and still achieve the 2030 target is unlikely. Mechanisms need to be put in place to speed up the transition process and ensure action begins now and does not wait until a four-year consultation process has been concluded.

We note that action will be taken almost immediately for public sector buildings, and this is an important part of the framework. Public sector buildings have an important role in providing anchor loads for heat networks and there will be projects where they take the initiative. We would want to see such examples used as exemplar pathfinder projects.

It is important that buildings do not become low carbon in isolation but do so as part of a broader strategy to leverage wider change. Integrating buildings with high heat demands into heat networks supports wider decarbonisation of the surrounding buildings, while undertaking an individual approach to decarbonising their heating will not.

There was commitment from The Scottish Government to consult later this year on public sector anchor loads, yet this is not mentioned in this diagram. The public sector can lead the way, especially in the case of retrofitting buildings, to help build up the supply chain and the numbers of installations ahead of these regulations coming into force. More information and clarity around activity in the public sector in the short term, for example from 2022–2024 would be helpful in building private sector investment interest.

The cut-off date for net-zero heating systems in the new build sector needs to happen earlier than 2024. 2024 should be the date that a last set of keys to a home with a fossil fuel-based heating system is handed over to the new owner. It should not be the date when the last house with for a fossil fuel-based heating system is consented.

Public perception is vitally important – there needs to be a shift in thinking from buying a new home with gas central heating to buying one with a heat pump or other

low-carbon heating system that is climate friendly, similar to how people are thinking twice about buying new petrol and diesel cars.

We noted that the social housing sector has a lot of targets and seems to be the testing ground for new initiatives and new obligations. There are different segments within social housing and each segment has different practical solutions (new build, versus high-density domestic are examples). Recognising these differences and expanding initiatives to encompass other aggregated groups of buildings would be desirable.

We are concerned that regulations do not match up with the targets. Everything suggested on the regulatory framework diagram is too slow with dates being pushed back. For example, The Scottish Government proposal to strengthen the existing framework to achieve a good level of energy efficiency by 2035, equivalent to EPC C for homes, was initially meant to be 2030. At the current rate of regulation, we are doubtful that the push that is required to move a million homes to low-carbon heating by 2030 will be achieved. There is also no mention of using mechanisms like council tax banding or stamp duty as potential incentives to encourage uptake of low carbon heating.

Clarity around dates is also needed for this aim: 'As we develop our regulatory approach for buildings we will consult on area or zone-based triggers to complement those at the individual property level'.

We are concerned that the complex and time-consuming nature of amending regulations could hold back early action on the heat transition. We recommend that The Scottish Government uses its powers to introduce financial incentives and penalties ahead of regulation.

The right easy-to-understand financial stimulus would have a positive knock-on effect on the supply chain and jobs and start to bring direct investment in. Without the correct fiscal stimulus packages that reward the right behaviours, the Scottish market will not be big enough to attract significant investment. The Scottish market for heat pumps is small compared to other member states or the rest of the world so to drive businesses to come to Scotland can only be done through the right stimulus measures.

Regarding the actions set out for non-domestic buildings in the diagram, we are concerned that the main emphasis is on energy improvement targets to reduce

demand for heat. It is our view that actions on carbon reduction should also be included, as energy efficiency can only go so far. City centre buildings should be encouraged to join better sources of heat rather than think of themselves as individuals. If, in the next 5 years, a significant number of city centre buildings pledged to join district heating when it becomes available, this would then be an indicator to investors and district heating network operators that there will be value in investing in that LHEES zone when it finally gets decided.

It is also important that the new rules do not rule out heat networks from Energy from Waste (EfW) plants. EfW plants exist and will exist until the wider waste problems are fully addressed. While they exist, it is most efficient to use the waste heat they produce. When they cease to exist then heat networks established can convert to other generation sources. We are aware the focus is on zero emissions at the point of use, but it would seem counter-productive to prevent the investment in heat networks using EfW heat now when those networks could be much easier to decarbonise later.

49. What are your views on the timeframes set out for the application of the regulation set out above?

As set out above, we are concerned that the timescales are too long for consulting and legislation. There are no interim targets and milestones, and these are needed to ensure that the early action net zero requires is taken. There is also no driver for making changes now and this is a concern for business as such a long-term strategy without early action will not support businesses to invest.

50. What are your views on how our Delivery Programmes could support compliance with regulation?

As set out above, particularly regarding non-domestic buildings, the focus is weighted towards energy efficiency, but this needs to be balanced with actions to reduce heating-generated carbon emissions.

51. What other mechanisms/support may be required to ensure that regulation is fair and equitable for all?

Please see our answers to Questions 5, 46 and 47.

Chapter 9 – The Economic Opportunity

52. What are your views on the plans set out to maximise the economic benefits to Scotland from the heat transition?

In answering this question, it is important to treat heat networks and heat pumps separately as they offer different economic opportunities.

With heat networks, ground loops and interconnected heat pumps, there is both a utility construction and maintenance opportunity and a domestic opportunity around which business models can be built and jobs created.

Using gas as an example, a utility owns infrastructure in the ground and an individual buys a gas boiler off the shelf to utilise it. This model works because a large utility company can access the longer-term finance needed to pay for the utility-side infrastructure. Installing this infrastructure requires civil works which generates local jobs in the short term. It also requires an ongoing programme of maintenance and repair works that supports jobs over the longer term. On the domestic side there are ongoing local jobs both installing boilers/heating system and maintaining/repairing them.

This model can be replicated for heat networks. As set out in our answer to Question 42, the key to unlocking the economic benefits of the heat transition is ensuring there is a clear pipeline of projects coming forward that will give Scottish companies the confidence they need to invest and take advantage of the economic opportunities offered. As set out in our answer to Question 33, there are 46 heat networks in various stages of development in Scotland's seven cities. Ensuring these projects come to fruition would create such a pipeline.

With regards to heat pumps, The Scottish Government needs to be more specific about how they intend to address segments within the different tenures of housing; for example, new builds, the recently built, high density domestic, low density domestic, industrial, high density commercial. Each segment has different business models to reach net-zero and some segments are relatively easy to address while others will be more challenging for achieving net-zero.

Taking the segment of recent builds, it is difficult to formulate a strategy for the supply chain if there is doubt over what the supply chain is expected to deliver. For this segment, it is reliant on whatever the homeowner chooses to install, depending

on grants received or not. Such an approach relies on ad hoc solutions that will not support the emergence of business models or drive cost reduction. A more strategic, segment wide strategy that creates a critical mass of work makes it easier to establish a business model for a longer-term approach.

With regards to ground source heat pumps, there will need to be a scaling up of the number of companies equipped to do the necessary drilling work. Scotland already has a good community of drillers ready to scale up, but they would need to have sight of a clear pipeline of projects to be able to invest in this scaling up.

53. What role could technology-specific milestones (for example, by 2025) play in supporting supply chain development, and how should these milestone levels be developed?

Interim targets are helpful for growth of the supply chain, but they need to be more granular so that the supply chain can respond. A target such as 64,000 heat pumps with no detail about where those will be and in which property segments, makes it difficult for the supply chain to know where and when to invest. Interim targets are also helpful as they give an indication where and when market growth is expected.

It is essential that any targets create an ongoing stream of work and avoid the ‘boom-and-bust’ situation that has happened previously with changes in policy plus the opening and closing of financial support mechanisms. If this is not achieved, then companies risk overstretching and overemploying to deliver a target that then does not materialise. This happened with the Renewable Heat Incentive and the Feed-in Tariff scheme, with companies having to make teams redundant, then employing new teams again.

Each segment should have targets per year or every 3-5 years. A key issue is that the easy-to-do buildings are either new builds or the recently built, both of which are relatively heat efficient. Changing these two segments to low carbon heat technologies would deploy a large amount of technology but not reduce climate change emissions a great deal as such homes already have relatively low emissions. What will make a difference is tackling the early easy segments then the tougher ones (buildings from the 1950s and older).

The key objective of the Heat in Buildings strategy is to reduce climate change emissions for heating, and it is essential that there is a clear rationale for how

technology specific targets will achieve this. It is our view that focusing on emission reduction targets is preferable to technology specific targets.

54. Is there anything further that can be done to ensure that Scotland realises the economic opportunity available from the heat transition?

If there is a strategic approach to each building segment that facilitates the emergence of associated business models, there then is an opportunity for an organisation such as the Scottish National Investment Bank (SNIB) to provide the finance needed for companies to invest.

As stated in previous answers, we recommend a zoning and a street-by-street approach, which local authorities can support, rather than ad-hoc individual consumers going out and looking for information. A climate emergency collective approach from the local authorities would support network operators to engaged and plan a much more strategic approach. This approach facilitates economies of scale.

It would be useful to replicate the online BT registration tool, allowing domestic households to register their interest in low-carbon heat or energy efficiency solutions. This would build momentum within particular streets or settlements establishing a threshold-level of interest demonstrating to developers that there is sufficient interest to prioritise particular areas.

55. What more can be done to support the development of sustainable, high quality and local jobs in the heat and energy efficiency supply chain across the breadth of Scotland?

The role of LHEES in driving efficiencies will be important as will having adequate funding behind them. Core to that will be allowing the regulated utilities to fund heat pumps - facilitating asset infrastructure financing for heat pumps will drive the volume of deployment.

To enable that dense deployment of low-carbon heat, it would be beneficial to link up the regulated utilities with LHEES which would help to achieve volume deployment. These assets need to be financed by institutional investors.

56. In your view, what are the opportunities and constraints presented by the role of the wider public sector in maximising the economic benefits to Scotland?

The public sector is likely to have targets to decarbonise already, but this may not be obvious to the renewables sector. There may also be conflict of specific public sector decarbonisation targets with renewable heat targets similar to those that could potentially arise from changes to the EPC (see Question 48). We recommend a carbon assessment be part of the public sector tendering process for heat and related systems to ensure work both reduces energy use and decarbonise heat use.

57. In recognition of the proposals in the forthcoming skills consultation, what further action can be taken to support skills development in Scotland over the lifetime of this strategy?

There needs to be a more strategic approach as courses and processes need to be in place in advance if the heat transition is to happen at the proposed pace. We welcome the Climate Emergency Skills Action Plan (CESAP) which was published in December 2020 and see this as a positive step.

Sectors are often very protective of their skills pathways and stipulate that everybody must go through an apprenticeship and then be upskilled. Given the scale of the heat transition there is concern that the current approach will not deliver the number of installers that will be required. There is a need for more agile, flexible, programmes to bring people into the sector, if the number of installations is to be sufficient.

We welcome The Scottish Government intention to give Scottish colleges more funding for training and capital investment. ESP-Scotland secured funding under ScottishPower's Green Economy Fund, to support colleges through central and northern Scotland. This was a small project but provides an exemplar of how the skills agenda can be advanced.

In rural Scotland there are likely to be significant issues. For example, the islands have real challenges in getting any interest to deliver such training. It is our expectation that capital funding to install and develop facilities and the staff to deliver training will be required.

58. Are you aware of any barriers to the reskilling of existing oil and gas heating engineers to equip them to install low and zero emission heating?



Existing oil and gas workers are well placed to transition into the low carbon heat sector and the National Transition Training Fund (NTTF) could provide the mechanism to enable this transition.

This transition to low-carbon heat also offers a significant opportunity for companies currently focused on the hydrocarbon sector to develop the skills of their existing staff skills to transition to the energy efficiency and low carbon heat sectors.

59. How can we support the development of more opportunities for young people?

A fast-track mini apprenticeship would be useful to rapidly get school-leavers engaged in the industry. Companies such as SNIPEF and BESA are protective of their four-year apprenticeship but there needs to be more agility in the system than this. Looking at the number of installations that are needed to reach the 2030 target and looking at the number of installers there currently are, it is obvious that rapid mobilisation will be required.