

Draft Heat in Buildings

Strategy: Achieving Net Zero Emissions in Scotland's Buildings.

Consultation Webinar

March 2021



Draft Heat in Buildings Strategy

Achieving Net Zero Emissions in Scotland's Buildings
Consultation

February 2021



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[Heat in buildings strategy - achieving net zero emissions: consultation - Scottish Government - Citizen Space](#)

Consultation Closes: 30 April

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- **Background**
- **The Pathway to 2045**
- **Heat in Buildings Jigsaw**
- **Summary**
- **Q & A**



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Climate Change Emission Reduction Targets (Scotland) Act 2019

- Legally binding target to achieve net zero emissions by 2045
- Interim target 75% reduction by 2030
- 90% by 2040

Fuel Poverty (Targets, Definitions and Strategy) (Scotland) Act 2019

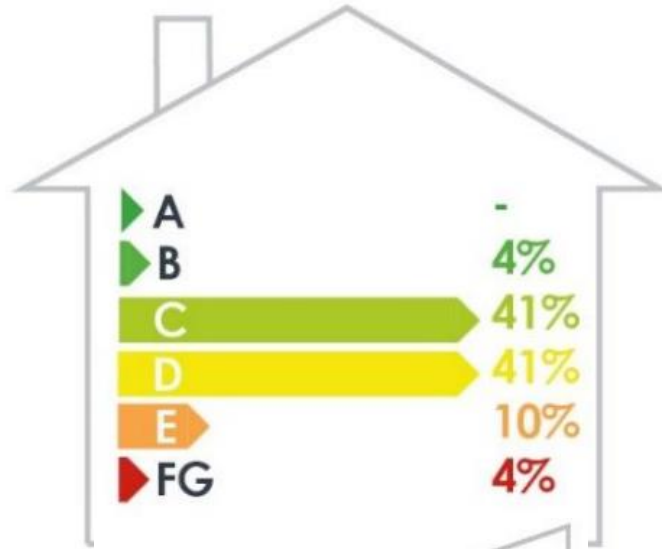
- In 2040 no more than 5% of households are fuel poor,
- no more than 1% in extreme fuel poverty, and
- fuel poverty gap is no more than £250 (in 2015 prices)



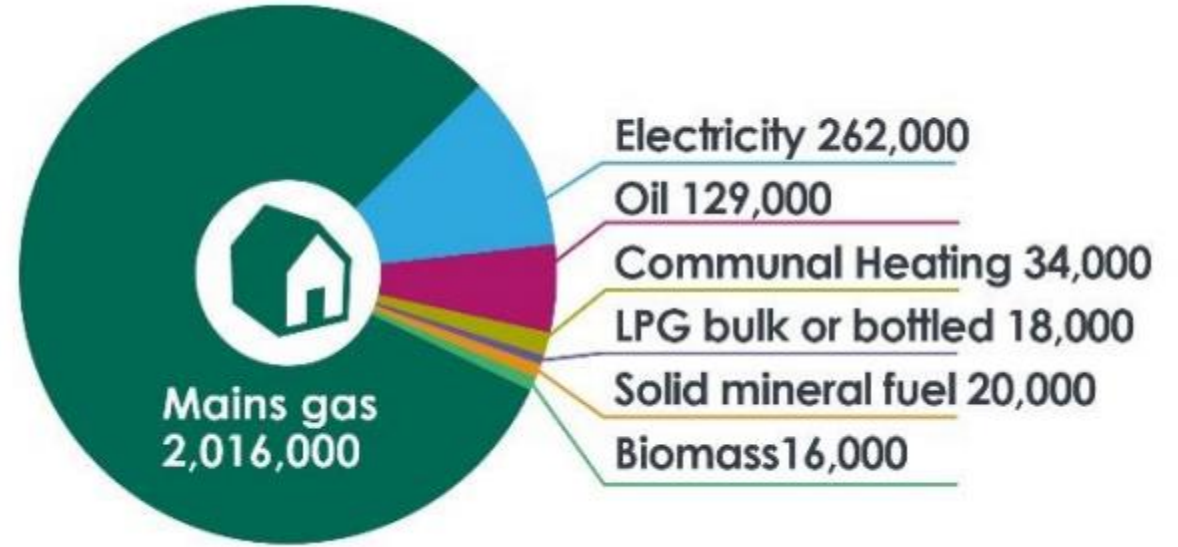
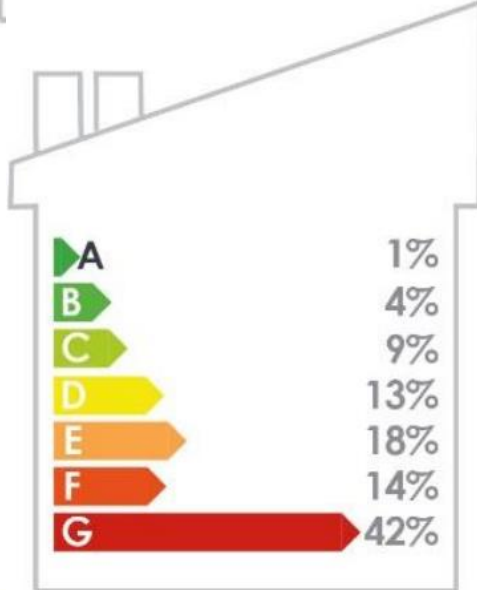
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Where are we now?

Homes



Non Domestic



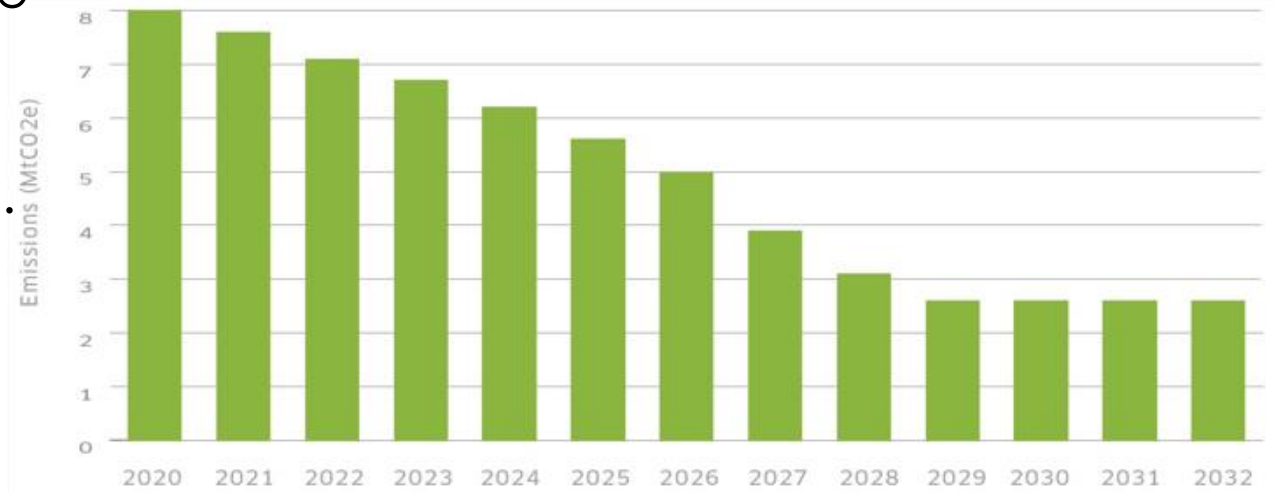
Around 50% of non-domestic buildings already use electricity for heating, often in form of HVAC.



The Journey to Net Zero - The Scale of the Challenge

- By 2045 all homes and buildings in Scotland must have significantly reduced their energy use, and almost all buildings must be using a zero emissions heating system.
- By 2030 emissions from homes and buildings will have to fall by 68% against 2020 levels. This requires:
 - Significant progress toward **all homes reaching EPC C** by backstop 2035
 - Reduced emissions intensity of the gas grid by **blending green gas to at least 20% volume**
 - the **vast majority of the 170,000 off-gas homes** that currently use fossil fuels switching to zero emissions heat
 - **At least 1 million on-gas homes** switching to zero emissions alternatives.
 - An estimated **50,000 non-domestic buildings** switching to zero emissions alternatives

Emissions Reduction Pathway to 2032, CCPU 2020



Low and Zero Emissions Heating Systems

systems that have **zero direct greenhouse gas emissions** such as individual electric heat pumps and connection to heat networks, or electric systems such as storage heaters, and systems that have very low emissions such as those that use hydrogen.

We need to quickly ramp up installation of low and zero emissions heating systems

- The most cost-effective pathway will require **several different approaches**
- Progress in the near-term will rely on tried and tested measures where they are **no or low regrets**
- Other technologies, such as hydrogen, may develop through the 2020s but are **unlikely to play a large part in reducing emissions before 2030**
- At current rates **around 3,000 households per year** install low and zero emissions heating
- This needs to grow rapidly:
 - At least 64,000 per year in 2025
 - Peak at over 200,000 per year in the late 2020s

No and low regrets strategic technologies

Energy efficiency

Heat pumps in off gas areas

Heat pumps in on gas areas

Low and zero emissions heat networks



The Heat in Buildings Jigsaw – Whistle Stop Tour

- A series of near term actions and a range of longer term commitments to put Scotland on a clear path towards zero emissions buildings by 2045.
 - We will continue to build the evidence base and prepare for further accelerated action beyond 2025.
- **People**
 - **Place**
 - **Energy Networks**
 - **Investment**
 - **A Long-Term Market Framework**
 - **A Regulatory Framework**
 - **The Economic Opportunity**
 - **Working with the UK Government**
 - **Monitoring, Evaluation and Future Decision Making**



- **Key areas**

- An inclusive approach
- Informed choices
- Consumer protection
- Continue to reduce fuel poverty



- **Key Strategy actions:**

- **expand our support offer** on energy efficiency and zero emissions heating, including advice services, funding and finance.
- implement a **public engagement strategy** and action plan for heat decarbonisation, and will **enable people to actively participate** in decisions that affect them
- work with **consumer groups and Energy Consumers Commission**
- publish a set of **guiding principles to underpin our commitment to ensure that no one is left behind** in the heat transition
 - Our approach neither increases the rate nor depth of fuel poverty
 - Those on lower incomes and at risk of fuel poverty are protected
 - Effective design and targeting of our fuel poverty and heat in buildings programmes



Key Strategy Actions:

- **Continue to deliver energy efficiency measures**, lowering the costs of heating as well as enabling low and zero emission systems
 - We want to reach equivalent of EPC C for fuel poor households by 2030, and EPC B by 2040
- **Increase the number of zero emissions heating systems installed through our fuel poverty programmes** with delivery targeted at those households who can benefit most.
 - **Phase out funding for fossil fuel heating systems by 2024**, where this is not detrimental to our fuel poverty objectives.
- **Continue to work with energy retailers to**
 - ensure households have access to **suitable tariffs**
 - encourage energy retailers to **develop new tariffs** tailored to zero emissions heating systems
 - press for **pre-payment meter customers to have access to similar tariffs to direct debit customers** and to benefit from smart meters
- Work with network companies to ensure vulnerable households moving to heat pumps are identified in **companies' vulnerable customer strategies**
- Examine the cost-effectiveness of **onsite power generation and storage** to reduce bills and enable zero emissions heat



• Key areas

- The transition may look different in different communities and require approaches tailored to place
- Local Heat & Energy Efficiency Strategies (LHEES) will provide a long-term framework:
 - area-based approach to planning, delivery and regulation
 - a basis for local public engagement and involvement in decision making
 - collectively act as a national plan for reducing emissions and improving efficiency
- Development planning
- The role of communities, and community 'heat' models.

• Key actions

- We want **LHEES to be in place by 2023** for all Local Authorities on a statutory basis
- We will ensure the **planning system is aligned with LHEES** and supports low and zero emissions heating, including network infrastructure.
- We will explore the role of **Climate Action Towns** and **Community Climate Action Hubs**
- **Support cities** deliver a pipeline of projects



• Key issues

- Electricity network capacity and the need for upgrades
- Emerging evidence around the feasibility and cost of replacing natural gas with hydrogen
- The Heat Networks Bill was passed unanimously on 23 February
- Gas and electricity are reserved, heat networks are devolved

• Key actions

- Working with gas and electricity network companies and Ofgem
- Supporting development and demonstration projects, including on hydrogen for heat
- Understanding place dimensions of infrastructure, including identifying areas most and least likely to have access to hydrogen in future
- Heat networks:
 - **90% relief from non-domestic rates** until 2024 for networks using renewable and waste sources
 - Delivery Plan and consultation on securing demand in 2022
 - Regulatory regime to be in place by **2023**
 - **New heat networks will need to be powered using low and zero emissions sources of heat from 2023**





Domestic support		Business support	Communities and Public Sector	Multi-sector support
<p>Home Energy Scotland Free independent advice and referral scheme</p>	<p>Home Energy Scotland: Loans and Cashback Interest free loan with 40% cashback grant for energy efficiency and 75% cashback for renewable heating system</p>	<p>Energy Efficiency Business Support Service Free advice and support to SMEs for energy efficiency and heat decarbonisation</p>	<p>Community and Renewable Energy Scheme (CARES) Advice and funding support for renewable energy</p>	<p>Low Carbon Infrastructure Transition Programme Range of support from advice to financial support for low carbon projects, including heat network capital support and social landlord heat decarbonisation</p>
<p>Area Based Schemes Fuel poverty scheme delivering energy efficiency, leveraging ECO and private investment. Particularly effective for mixed tenure multi-occupancy buildings.</p>	<p>Warmer Homes Scotland Fuel poverty scheme delivering heating improvements and energy efficiency. Recent grant level extension to support heat pumps.</p>	<p>Energy Efficiency Business Support SME Loan and Cashback Low-cost loan and cashback for energy efficiency and renewable heat</p>	<p>Public Sector Non-Domestic Energy Efficiency Framework Energy Performance Contract Framework for larger public sector projects</p>	<p>District Heating Loan Fund Open to local authorities, social landlords, SMEs and ESCOs with fewer than 250 employees.</p>





- We have committed to **investing almost £1.6bn** to build upon, expand and improve our heat and energy efficiency programmes **over the next five years**.
- We propose to expand existing delivery programmes, focusing on four strategic priorities:
 1. **Supporting those least able to pay**
 2. **Investing in strategic technologies in low and no regrets areas**
 3. **Showcasing net zero leadership through early adoption**
 4. **Investing in innovation and demonstration**
- We will strike **the right balance to ensure fairness**, particularly between those who make the transition early (and so potentially face higher lifetime costs) and those who transition much later.
- LCITP call for evidence.



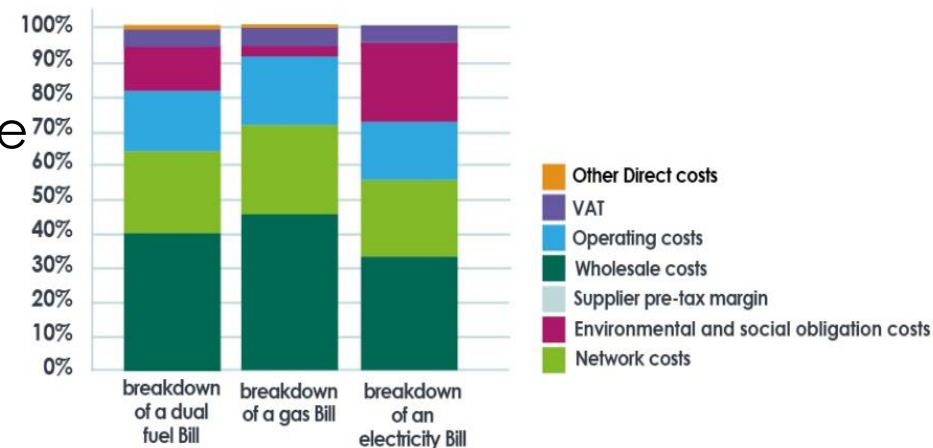
Working towards a long term market framework

• Key issues

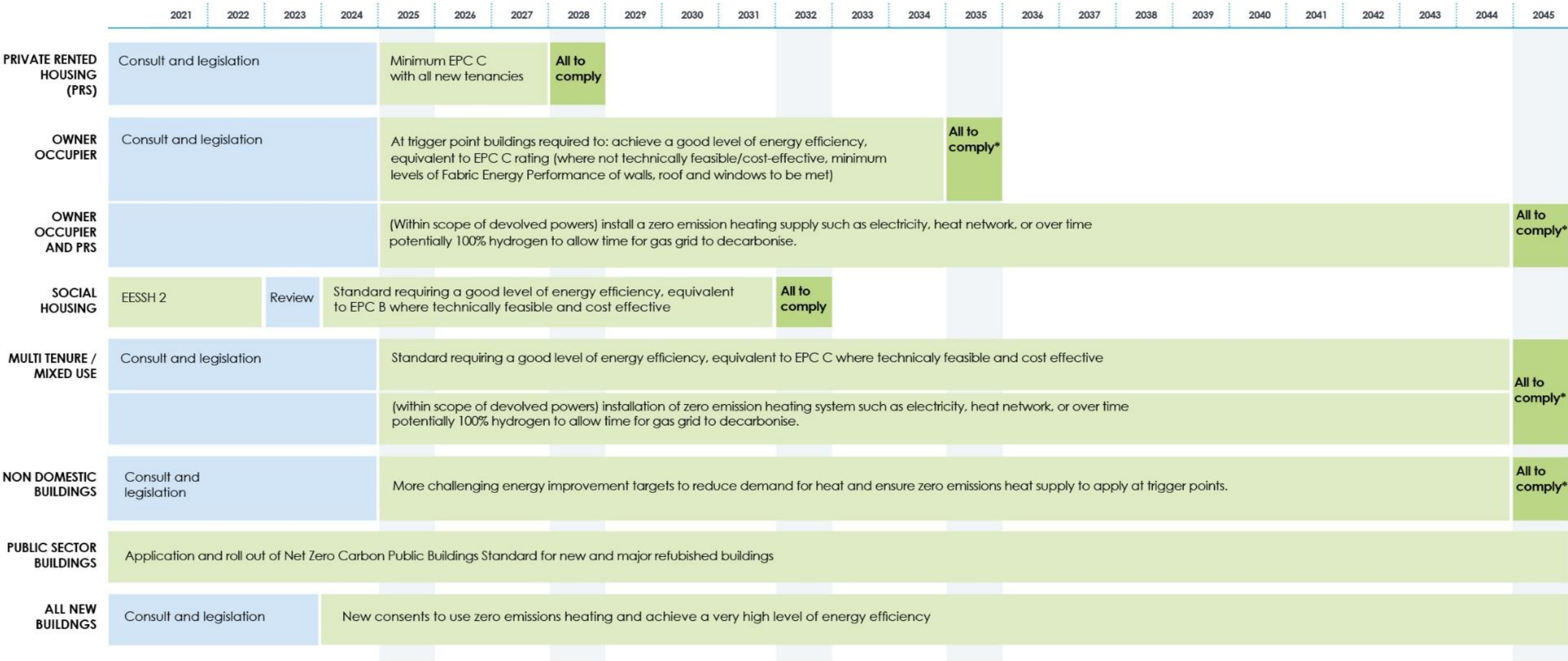
- The total cost of converting the building stock is in the region of £33bn
- Annual investment estimated to peak around £2-2.5bn in late 2020s.
- As we scale up deployment it will be important to move towards an **appropriate market framework**.
 - create demand for energy efficiency, low and zero emissions
 - help consumers overcome the upfront cost of investment
 - attracting and securing other private investment and finance

• Key actions

- New finance mechanisms – Green Heat Finance Taskforce
- Investigating options around local tax powers
- Publicly owned energy company – potential provision of heat as a service
- Balance between gas and electricity prices, including levies (UK Government)



A Regulatory Framework



* Backstops could be set earlier for example for zones for zero emissions heating.



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• The opportunity

- **As many as 24,000 jobs** could be supported each year in Scotland by the roll-out of zero emissions heat.
- We want to ensure that the economic opportunities that the heat transition creates, are captured by Scottish businesses
- We are committed to building **local supply chains, maximising local job creation** across the breadth of Scotland, and ensuring a **just transition**.

• Key actions

- heat pump sector deal expert advisory group.
- new entrants and inward investment.
- new supply chain action plan
- potential for generating export growth
- call for evidence on a new framework of support for innovation
- *Skills consultation* published alongside this Strategy.





Case study: Manufacturing Heat Pumps in Scotland - Mitsubishi Electric Air Conditioning Systems Europe Ltd

Mitsubishi Electric has a long association with Scotland, being based in Livingston since 1979. The Livingston manufacturing campus produces a range of air source heat pump technologies, marketed under Ecodan. The Livingston campus currently operates within a footprint of 54,000 thousand m² across 5 separate production sites and employs circa. 1,400 people, with a doubling in the number of employees over the last 6 years.

Image of Mitsubishi plant in Scotland, sourced from Mitsubishi (January 2021)



Case study: Innovation in our supply chain - supporting heat decarbonisation through innovative heat batteries.

Sunamp is a Scottish company that designs and manufactures thermal batteries using phase change material that cuts fuel costs and carbon emissions by storing available energy from renewable and non-renewable sources as heat and releasing it to deliver hot water and space heating on demand.

Their heat batteries are up to four times smaller and more efficient than conventional hot water cylinders, freeing up space in homes and saving energy. The patented technology, developed in collaboration with University of Edinburgh, also has wide applications in commercial, industrial and automotive settings.



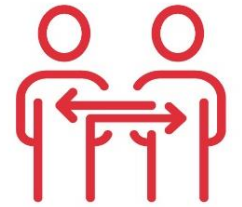
Scottish Enterprise has supported Sunamp from its inception, with a total of £2m invested to date via R&D and commercialisation grants, and is now working with the company to develop a heat battery factory with the potential to produce 500,000 heat batteries per year for Scottish, UK and export markets. Scottish Government funding has enabled the installation of heat batteries in over 800 Scottish homes. The technology has been eligible for support through Home Energy Scotland loans since 2018, acknowledging the role of thermal storage in the decarbonisation of heat.

Through these made-in-Scotland products, Sunamp aims to transform how we generate, store and use heat in order to make a significant impact on tackling climate change both in Scotland and beyond.

Image of Cupboard Comparison showing space saving using water cylinder. Provided by Sunamp (January 2021)



- Market framework (taxes and levies)
- Whole system (gas network, electricity generation)
- Regulation
- Heat Network customer protection
- Hydrogen ready boilers
- Bioenergy
- UK wide support schemes – ECO and Clean Heat
- Access to data



Summary

- The pace and scale of the trajectory we must take to meet our net zero ambitions is unprecedented and will touch the lives of almost everyone in Scotland.
 - 185 pages, 100 plus actions
 - The Heat in Buildings Jigsaw – multi faceted approach to bring together the action and developing solutions needed to realise change.
 - **People**
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-
- The range of areas of work this will necessitate from policy design through regs to delivery.



Thank you.

- Q&A

- Email contact: heatinbuildings@gov.scot



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