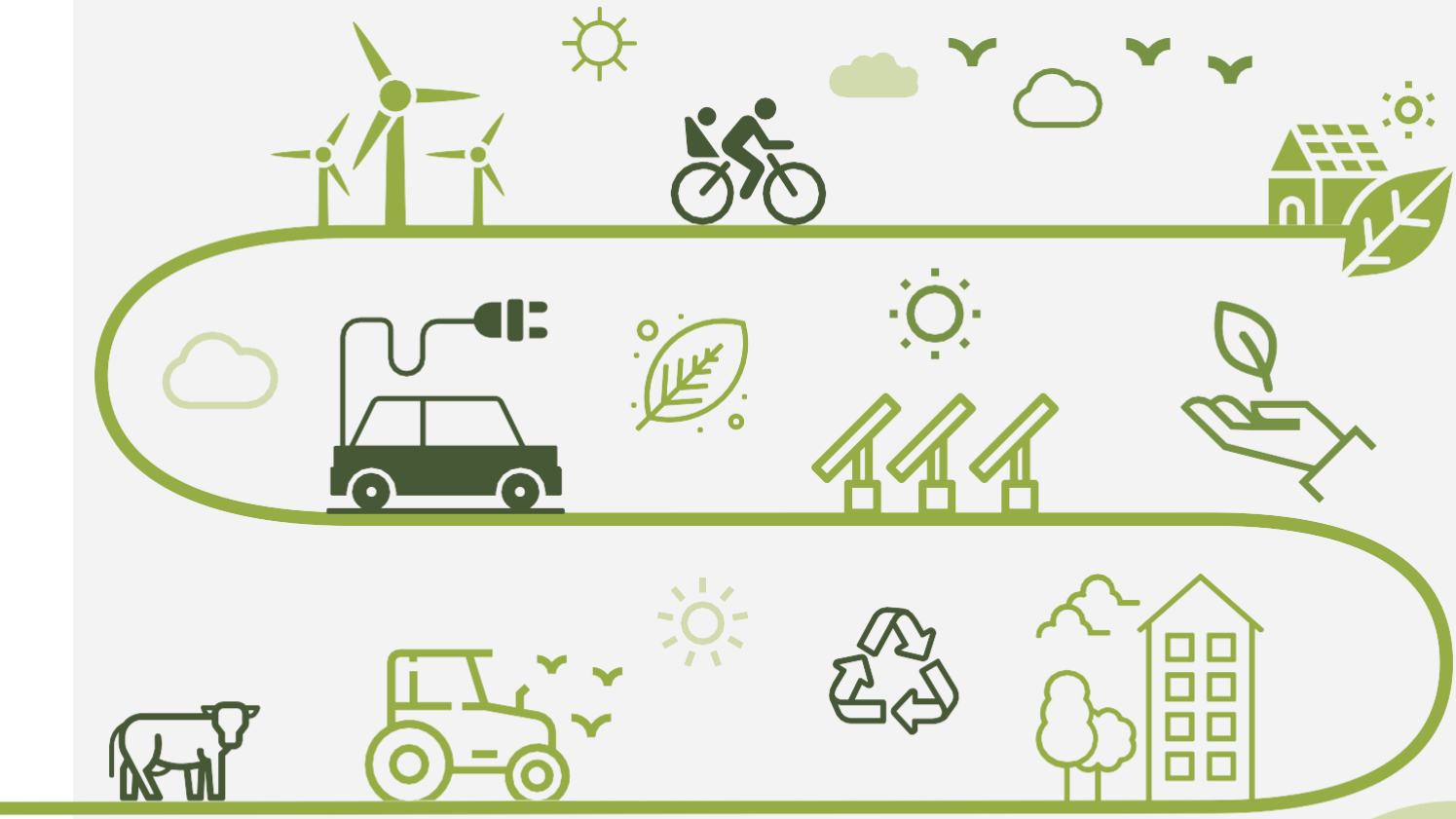
Mapping of Investment to Support Heat Decarbonisation in Glasgow City Region and Shetland Islands

CESAP Pathfinder Work package 2: Action 1.1

December 2023



Introduction

Building a better understanding and evidence base of future skills needs to support Scotland's transition to net zero is a priority area of focus for the Climate Emergency Skills Action Plan (CESAP)[1]. A detailed understanding is needed of the investment likely to create job opportunities and drive the demand for skills.

This research is part of Work Package 2 of the CESAP Pathfinder, which has a focus on the decarbonisation of domestic and commercial heating. The data used in this study was the most recently available at the time of analysis. The study was carried out over a ten-week period from mid-September 2022 to mid-November 2022. The work set out to identify:

- The anticipated **scale of investment** in the decarbonisation of key domestic and commercial heating projects[2] in the Glasgow City Region and Shetland in the **short to medium term**.
- The **certainty** and **clarity of timelines** in terms of the budget available to support these plans in the Glasgow City and Shetland Regions.
- The extent to which the ambitions for the decarbonisation of domestic and commercial heating are **in line with the realities of budget** to support them.

It also looked to determine the types of jobs likely to be created as the result of current or planned investment to support heat decarbonisation across the two regions.

Heat decarbonisation investments were identified as:

- All types of energy efficiency measures including double and secondary glazing, external wall insulation, cavity wall insulation, loft and under floor insulation, draught proofing etc.
- All types of heat technologies, including but not limited to heat pumps, smart control of electric heating, solar photovoltaics (PV) and battery storage to support green electrification of heat, heat batteries etc.
- Investment by both public and private sector organisations and by individuals.
- Commercial and domestic heat decarbonisation but excluding industrial decarbonisation.
- Measures applied to new buildings and retrofitted to existing buildings.

Findings

In relation to investment in heat decarbonisation across Glasgow City Region and Shetland, key findings of the research facilitate a better understanding of:

- Investment drivers and key funding sources.
- Identified investment by geography.
- Factors impacting on investment values.
- Potential implications for job requirements.

Investment Drivers and Key Funding Sources

The main drivers for heat decarbonisation investment in Scotland are the Scottish Government's plans for a transition to Net Zero, coupled with the imperative for a reduction in fuel poverty, but there are a range of other factors with the potential to impact.

- The Capital Spending Review and Medium-Term Financial Strategy sets out that the Scottish Government is on target to deliver against the National Infrastructure Mission, which includes £34bn of capital investment over the 5-year spending review period. This includes significant investment in heat decarbonisation across a range of programmes including through Energy Efficient Scotland (£465 million 21/22 to 25/26), Social Housing Net Zero Heat Fund (in excess of £200 million), Scottish Green Public Sector Estate Decarbonisation Scheme (a minimum committed budget of £200 million), Heat in Buildings (£427m 21/22 to 25/26).
- Local authority Net Zero targets can act as a driver for identifying and developing heat decarbonisation investment opportunities in their areas.
- For homeowners and private landlords the main driver is environmental protection, rather than economic motivation.
- Economic drivers may also be a limited consideration for businesses, which may be responding to supply chain pressure to demonstrate carbon reduction.
- In the absence of strong economic drivers, the role of regulation takes on greater importance. The Heat and Buildings strategy points to bringing forward regulations for private sector properties to achieve Energy Performance

[1] Skills Development Scotland (2020). Climate Emergency Skills Action Plan.

[2] These projects are those that were identified as being in the scope for this study.

Certificate (EPC) C by 2028 and consultations on proposals affecting owner occupiers to deliver similar by 2033. However, this will only have a significant impact after the mandatory deadline of 2033.

- External factors, including the recent global rises in energy costs may also have a role to play.

Identified Investment by Geography

The detail of the investment activity set out in this research relates to 35 heat decarbonisation investment projects and programmes identified through desk-based analysis and stakeholder consultations. Indicative investment values have been provided for 25 projects and are categorised by the level of certainty associated with them going ahead.[3]

The heat decarbonisation investments have been categorised by sub-sectors across building energy efficiency, combined energy efficiency and low carbon heat, district heat networks, heat pumps and other low carbon heat technologies (e.g., heat batteries, smart control of electric heating etc.) As projects typically follow a whole systems approach, most of the investment value relates to projects that are a combination of both energy efficiency measures and low carbon heat.

Across both regions the bulk of the project value relates to funding available through national schemes including Energy Efficient Scotland: Area based Scheme, Warmer Homes Scotland, Energy Company Obligation 4, Home Energy Scotland Loans/Cashback, Business Energy Scotland Loans, Let's Do Net Zero Community Buildings Fund and the Scottish Green Public Sector Estate Decarbonisation Scheme. In addition, a number of specific investments identified by stakeholders in the regions have been included.

Detail around project timescales was also sought, as the timing of investments is important to understand the demand for skills. However, stakeholders typically found it very challenging to profile projected spend, particularly where investments were at early feasibility stage.

Projects have been categorised into those that are already underway, those with a high or medium likelihood of going ahead and those with significant uncertainties.

Figure 1 provides an overview of total investments by region across each of the categories.

Whilst recognising that there is the potential for significantly larger sums to be involved, Figure 1 provides a minimum value of investment which will drive the demand for skills across Glasgow City Region and Shetland.

Figure 1: Total Investment (£m) Identified by Region and Likelihood of Proceeding

		1.Already proceeding	2.High likelihood	3.Medium Likelihood	4.Significant uncertainty	Total
Glasgow City Region	Scale	370	53	10,000	298	10,721
	Budget	370	53			423
Shetland Islands Council	Scale	19				19
	Budget	19				19
Total Scale (£m)		389	53	10,000	298	10,740
Total Budget (£m)		389	53	0	0	442

Source: Optimat SDS Mapping of Green Investments across Scotland

Glasgow City Region

A total of £370m (£289m commercial and £80m domestic) of current investment was identified. There is also a very significant programme of investment linked to the £10bn Home Energy Retrofit Programme. Whilst a feasibility study has been carried out and it has a key role to play in delivering Glasgow's Net Zero target by 2023, there is currently no confirmed budget in place. However, it is acknowledged that progress is needed in the next two years if the target is to be realised, although this investment has not been included as a consideration in the pilot.

Shetland

£19m (£18m domestic and £1m mixed) of current investment was identified focused on combined energy and low carbon heat. The majority is committed to retrofit projects.

Factors Impacting on Investment Values

Significant uncertainty exists around investment values and timings, with several factors having the potential to impact on the identified level of investment both positively and negatively.

[3] The remaining 10 investment projects have not been included in the analysis because they did not have an investment value attached to them.

- Increased levels of identified investment could result from:
  - The approach taken to the attribution of money from the Heat Network Fund to individual projects.
  - Changes to the eligibility criteria and value of national funds.
  - Identification of additional funding sources with the potential to support heat decarbonisation measures.
  - The level of the contribution of homeowners or private landlord to domestic retrofit projects.
  - External factors including increasing energy costs that could drive greater private investment in energy efficiency measures.

- Decreased levels of identified investment could result from:
  - Potential for change in rent cap policy (currently effective to April 2023) to impact on available levels of investment in heat decarbonisation for housing associations in the short term.
  - Impact of the cost-of-living crisis on individual households that need to make a contribution to retrofit projects.
  - Increasing costs of materials and labour affecting the scale of project delivery.
  - Challenges with specialist labour supply for some heat decarbonisation measures has the potential to constrain demand and lower the levels of investment.
  - Insufficient knowledge amongst stakeholders around the best decarbonisation technologies to pursue, which may delay investment.

Alongside investment uncertainties, stakeholder feedback also provides a sense of the relative importance of issues and barriers to heat decarbonisation in the two regions. A clear understanding of these challenges is critical, as each of the issues identified could affect the extent to which planned investments may be realised. These are shown in Figure 2, with an increasing number of dots indicating the extent to which this is considered a barrier by stakeholders.

Figure 2: Key Barriers to Heat Decarbonisation by Region[4]

Skills Need	Glasgow City	Shetland	Comment
Basic Trades	●●●	●●●	Competition for labour significant in Glasgow, important but less of an issue in Shetland.
Installation Engineers	●●●	●●●	Clearly identified skills need in both regions, but limited appetite to support Shetland from mainland.
Project development	●●	●●	Greater issue in Glasgow overall, although staff mobility less able to address the issue in Shetland

Source: Employer Interviews (2022)

Potential Implications for Jobs Required

The type of jobs required to deliver on heat decarbonisation projects is dependent on the types of measures undertaken, e.g., Floor insulation, heat pumps, heating systems repair, draught proofing etc. But in broad terms:

- The measures to support EC04 scheme highlights the need for installers of heating controls, cavity wall insulation and external wall insulation.
- District heating schemes require a range of job roles, with skills shortages reported across strategic planning, land use development, legal and contracts, procurement and client project management.
- Stakeholders also highlighted experiencing skills shortages around surveys, civil, mechanical and electrical engineers, ground investigation, construction project management and clerk of works.

Figure 3 summarises stakeholder feedback in Glasgow City Region and Shetland of the key current and future skills issues related to heat decarbonisation, with the greater the number of dots indicative of the strength of the issue.

[4] The dots in the table refer to the level of importance attached to each of these barriers and skills issues, according to stakeholder feedback.

Figure 3: Skills Issues Identified[5]

Issue/Barrier	Glasgow City Region	Shetland Islands
Fabric First Approach	●●●	●●●
Fear of inducing fuel poverty	●●●	●●●
Changing rules of schemes	●●	●●
Lack of supply chain capacity	●●●	●●
Increasing material and labour costs	●●	●●●
Local authority rent cap	●●	-
Achieving homeowner participation	●●●	●●
Match funding	●●	●
Conflicting information on best decarbonization approaches and technologies	●●●	●●●
Lack of economic driver	●●	●●

Source: Employer Interviews (2022)

Evidence gaps and lessons learned

The uncertainties around the likelihood of progression and timelines for many of the projects identified make it very challenging to identify the scale and timing of job opportunities, and specific skills demands that will flow from them in the future. The key lessons learned from the research are summarised below.

1. Through a holistic approach that combines desk-based research, sectoral expertise and industry and regional stakeholder engagement, it is possible to build a framework to capture planned investment in heat decarbonisation projects by type, volume, and location.

2. Evidence of demand is a key component in looking to develop a dynamic skills response. This requires meaningful engagement with industry and stakeholders.

3. Clarity on the scale, focus and timelines for investment is critical in understanding the potential job opportunities and resulting skills demand to support decarbonisation of heat and buildings. However, the uncertainties around the likelihood of progression and timelines for many of the projects identified, make it very challenging to understand the scale and timing of job opportunities and specific skills demands that will flow from them. This is a particular issue for large scale investments which would require a response at scale if they were to come on stream, e.g. the £10bn Home Energy Retrofit Project in Glasgow.

4. Whilst uncertainties remain around several potential investments, the amount of current investment that has been identified in the two regions, supported by the prospects of further investment in the next 3-5 years is significant enough to support the development of a focused partner response.

5. The enhanced understanding of the relative issues and barriers to heat decarbonisation in the two regions provides a useful focus for engagement with stakeholders in the co-design of a skills response.

About the study

This study was commissioned by Skills Development Scotland to support the Climate Emergency Skills Action Plan (CESAP) Pathfinder Work Package 2: Decarbonisation of Domestic and Commercial Heating Pilot. This research supports CESAP Action 1.1, which looks to map planned investment to support the decarbonisation of domestic and commercial heating (clean heat and improved energy efficiency) in Glasgow City Region and the Shetland Islands. The work was undertaken by Optimat Limited. The study was carried out over a ten-week period from mid-September 2022 to mid-November 2022.

The study used a combination of desk research and 29 stakeholder consultations across 17 organisations to understand the nature and value of heat decarbonisation investments across the two regions.

A spreadsheet was created to record details of each of the 35 investments identified to capture type, (sub)sector, location, scale, project status (underway, approved, defined in detail, high level intention etc.), partners, timescales, domestic versus commercial and indication of the type of jobs. Investment was identified using a combination of:

[5] The dots in the table refer to the level of importance attached to each of these barriers and skills issues, according to stakeholder feedback.

- A ‘top-down’ approach which identified sources of funding available to support heat carbonisation investment and liaising with local stakeholders to understand appropriate attribution.
- A ‘bottom up’ approach which identified individual heat decarbonisation projects in the two regions, taking care to avoid duplication.

Linked research

This precis forms part of a suite of research undertaken as part of the CESAP Pathfinder across Work Package 1 and 2, to share the insights, intelligence and lessons learned. These can be found here.

This precis is supplemented by:

- *Preces Reports* for *Work Package 2* - covering Demand and Provision.
- *Pathfinder Report Work Package 1* - a comprehensive overview of the full range of activity that constituted the Pathfinder and the opportunities identified for further action.
- *Preces Reports for Work Package 1* (Investment, Demand and Provision) – succinct, accessible documents which provide the background to the work, summarise the main findings and identify key lessons learnt.
- *Mapping of Green Investments* – further detail on identified investments in Scotland to support the transition to net zero.
- *Supplementary Demand Evidence* – additional technical data from activity to estimate demand.
- *Supplementary Provision Evidence* – additional technical data from activity to quantify provision.