The Low Carbon Infrastructure Transition Programme (LCITP)

Call for Evidence to Support Development of Future Programme

February 2021

Scottish Government
Riaghaltas na h-Alba
gov.scot

The Low Carbon Infrastructure Transition Programme (LCITP) – Call for Evidence to Support Development of Future Programme

Contents

Ministerial Foreword

Reducing emissions from our homes and buildings is one of the most important things we can do to help end Scotland's contribution to climate change. Over the next 25 years we will transform Scotland's homes and workplaces so they are warmer, greener and more efficient. The draft Heat in Buildings Strategy, which updates the Energy Efficient Scotland Route Map, sets out how we will achieve that ambition through actions and proposals for transforming our buildings and the systems that supply their heat, ensuring all buildings reach zero emissions by 2045.

As set out in the draft Strategy, we must rapidly scale up deployment of zero emissions heating systems, such as heat pumps and heat networks. This accompanying Call for Evidence seeks views on our future funding and support programme for heat decarbonisation at scale, which will replace our successful Low Carbon Infrastructure Transition Programme (LCITP) from September 2021. Your views will help us understand the challenges and barriers in delivering large scale heat decarbonisation projects, as well as shaping the future support programme to ensure we maximise opportunities.

The responses to the Call for Evidence will be considered by an incoming Scottish administration following the Scottish Parliament elections in May this year. In the meantime, the Scottish Government will continue to take steps to support delivery through the LCITP and our other delivery programmes

We have posed questions throughout the document and encourage you to respond, we very much look forward to hearing your views.

Paul Wheelhouse, MSP
Minister for Energy, Connectivity and the Islands

Kevin Stewart, MSP
Minister for Local Government, Housing and Planning

Chapter 1 Call for Evidence

1.1 This Call for Evidence seeks input on actions to modify and enhance the range of support mechanisms currently provided by the Scottish Government through the Low Carbon Infrastructure Transition Programme (LCITP) for development and delivery of large-scale low and zero carbon heat in buildings projects. It seeks evidence on the support and interventions necessary to accelerate future deployment of low and zero carbon heat infrastructure projects in Scotland. This Call for Evidence focuses on the delivery of large scale heat decarbonisation projects for buildings, further consultation on future programme support for wider low and zero carbon energy projects will take place in 2021.

1.2 We will work with stakeholders to design and develop a successor programme offering a comprehensive range of financial and enabling support to large-scale heat decarbonisation and also innovative low and zero emissions heat demonstration projects. This Call for Evidence, published alongside the draft Heat in Buildings Strategy[1], is the first stage of this process.

1.3 In particular, evidence and views on the points below are welcome:

1. The barriers to the delivery of low and zero emissions heat infrastructure projects;
2. The challenges and risks to delivering large scale low and zero emissions heat infrastructure projects;
3. The priority areas identified for the future heat delivery programme;
4. Sustainable support mechanisms to enable increased uptake.

1.4 As set out in the 2020 Climate Change Plan Update[2], Scotland's long term climate change targets will require the near complete decarbonisation of our energy system by 2045, with renewable energy meeting a very significant share of our needs. By setting a 2045 target for net-zero emissions for all greenhouse gases, impetus is provided to markets, businesses and industries to shift towards low-carbon technologies and practices. Emissions for homes and non-domestic buildings will have to fall by 68% by 2030 as compared to 2020.

1.5 Our energy supply, and the ways in which we control and manage our demand for and consumption of that energy, are equally important factors. The Scottish Energy Strategy[3], published in 2017, sets two new targets for the Scottish Energy System by 2030:

[1] Draft Heat in Buildings Strategy: https://www.gov.scot/isbn/9781800045989
[2] Climate Change Plan: Securing a green recovery on a path to net zero: climate change plan 2018–2032 - update - gov.scot (www.gov.scot)
[3] Scottish Energy Strategy: The future of energy in Scotland: Scottish energy strategy - gov.scot (www.gov.scot)

- The equivalent of 50% of the energy for Scotland's heat, transport and electricity consumption to be supplied from renewable sources
- An increase by 30% in the productivity of energy use across the Scottish Economy

1.6 The Scottish Government published the draft Strategy for Heat in Buildings in February 2021. Building on the policies and actions set out in the 2020 Climate Change Plan Update, this draft Strategy sets out a pathway to zero emissions buildings by 2045 and details a series of near-term actions to put us on a clear path towards this, as well as a range of further, longer-term commitments to accelerate and further scale up the transformation of the nation's building stock.

1.7 Over the next five years, the successor to the LCITP will play an important role facilitating the delivery of the aims of 2020 Climate Change Plan Update, the Energy Strategy and the finalised Heat in Buildings Strategy through the provision of targeted project support and funding.

1.8 You will find consultation questions at the end of each Chapter in this document requesting feedback We invite you to respond to these questions by 19 April 2021. We will use the consultation responses we receive to further develop and refine the programme prior to launch in September 2021.

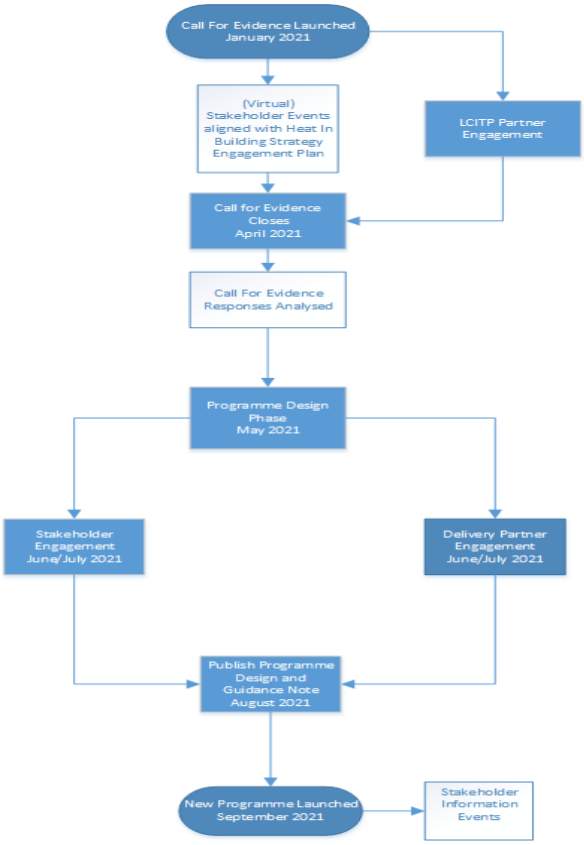


Diagram 1 - Programme Development Flow Chart

Chapter 2 LCITP Background

2.1 Since 2015, the LCITP has played an important role in providing support to large scale low carbon energy demonstrator projects. The LCITP has made expertise and financial support available for project development and capital investment in order to help projects secure investment in innovative low carbon infrastructure projects with potential for replication while helping Scotland to meet its climate change targets. The LCITP focuses on large scale multiple building projects that demonstrate partnership delivery, new business models and use individual technologies or integrated systems that are proven but have not yet reached commercial viability (see Technology Readiness Levels 7-9 shown in table below) and therefore face challenges in securing investment.

Table 1 Technology Readiness Levels

Technology Readiness Levels		
1	Research	Basic Principles Observed
2		Technology Concept Formulated
3		Experimental Proof of Concept
4	Development	Technology Validated in Lab
5		Technology Validated in Relevant Environment
6		Technology Demonstrated in Relevant Environment
7	Deployment	System Prototype Demonstration in Operational Environment
8		System Complete and Qualified
9	Operations	Actual System Proven in Operational Environment

2.2 The LCITP was developed to fill gaps in support for large scale projects to assist development of investment grade business cases and to share risk for innovative capital demonstrators using new technologies and business models in order to increase investor confidence and provide exemplars to encourage wider replication.

2.3 The LCITP has been funded by the Scottish Government, with some co-funding provided by the European Regional Development Fund (ERDF). The cessation of ERDF funding alongside emergence of new policy drivers on the scale and pace needed, in particular for heat decarbonisation, to meet our net zero targets requires consideration of the scope of a successor for the LCITP.

2.4 The LCITP provides three broad stages of project support for private, public, third sector and community lead projects:

- **Catalyst Support** can be applied for at any time and focuses on initial strategy development work and feasibility studies;

- **Development Support** can be applied for at any time and focuses on support for business cases, investment options and investment propositions. This stage has contributed towards completion of Investment Grade Business Cases through provision of specialist technical, legal, financial and project management support;

- **Demonstrator Support** can only be applied for in response to open calls for funding. Fair and open funding invitations are designed and launched periodically to support a specific policy aim and typically offer up to 50% of a project's capital costs.

2.5 Feedback received to date from supported projects has suggested that the programme has been instrumental in unlocking projects that may not have been developed without the comprehensive support and funding package provided. It has been identified that the LCITP has been key to:

- Bringing credibility and increasing investments in projects;
- Unlocking the potential for projects to gain national and international recognition;
- Increasing the ambition and impacts of projects;
- Helping to align infrastructure projects across Scotland with Scottish Government's policy and outcomes; and
- Motivating project teams to continue in the face of adversity.

2.6 It is intended that the replacement programme will be operational from September 2021 and will run for the next five years to support the deployment of large scale low and zero carbon heat projects using established technologies, as well as continuing to facilitate demonstration of innovative low and zero heat technologies.

Questions

1. Please provide views on the impact of the LCITP support to date, in particular on the three stages of support provided? Please explain your views.

2. How should the LCITP successor programme best reflect enhanced policy ambitions set out in the 2020 Climate Change Plan Update and the draft Heat in Buildings Strategy? Please explain your views.

Queens Quay, Clydebank

Led by West Dunbartonshire Council, the Queen Quay District Heat Project is the largest Water Source Heat Pump heat network in Scotland. Queens Quay is located at the former John Brown shipyard and is key to the regeneration initiative that is being supported by West Dunbartonshire Council. The network has been designed to accommodate future expansion to increase the number of buildings receiving heat from this exemplar heat network.

This project will utilise water source heat pumps manufactured in Glasgow using the River Clyde as an energy source. The heat network uses heavily insulated pipework to deliver heat to the new developments at Queens Quay and a number of pre-existing buildings. The project has received £6.1 million in funding from LCITP with match funding being provided by West Dunbartonshire Council.

Chapter 3 Scale of Challenge and Barriers to Delivery

3.1 As the current LCITP programme draws to a close in 2021, we must now consider how its successor can become the primary mechanism for deploying low and zero carbon heat at scale, co-ordinating our support for the roll-out of heat networks and heat decarbonisation infrastructure. Our future programme must effectively blend government support, including newer financial mechanisms such as the Green Growth Accelerator and the Scottish National Investment Bank with co-funding from the private sector to deliver our ambitious emissions reduction targets whilst delivering value for money and future financial sustainability.

3.2 As set out in in the draft Heat in Buildings Strategy, by 2045 emissions from heating our homes and buildings will have all but disappeared, with demand for energy reduced and space and water heating provided by zero emissions alternatives. In order to meet our interim climate targets and ensure long-term delivery of our net-zero objectives by 2030, we must rapidly scale up deployment of zero-emissions heating systems, such as heat pumps and heat networks, more than doubling installations each year so that by 2030 over 1 million homes and around 50,000 non-domestic buildings are converted to use these systems.

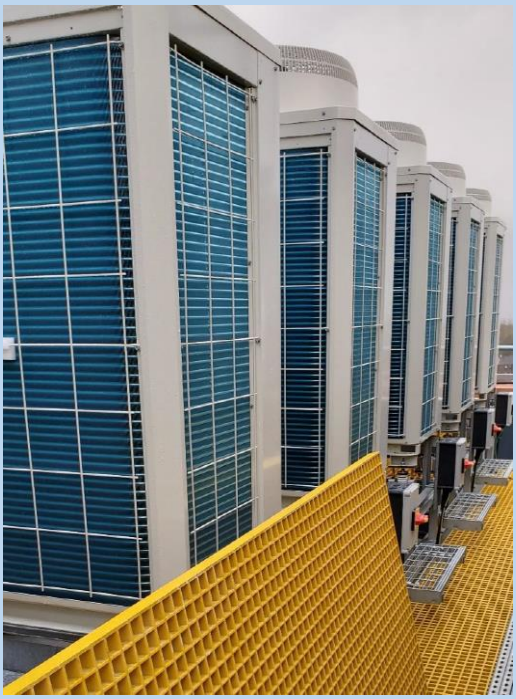
3.3 Whilst a growing share of Scotland's heat is met from low carbon and renewable sources, there remain a number of barriers to upscaling deployment and achieving our net-zero objectives. These barriers include:

- Innovative, untested technology with capacity constraints in design and construction, operations and maintenance services;
- Contractual challenges in delivering agreements across complex customer and supply chains;
- Lack of project skills, capacity and risk management experience to deliver complex energy systems;
- Commerciality of business models linked to revenue and demand risk, along with challenges accessing capital investment;
- Lack of consumer and supply chain knowledge and trust of low carbon energy technologies;
- The relatively high upfront costs of installing low carbon heat systems, relative to like-for-like replacement of incumbent fossil fuel systems.

North Glasgow Homes Air Source Heat Pump Project

North Glasgow Homes received £4.5 million in funding from the LCITP to install communal air source heat pumps on the roofs of six high rise properties in Springburn, Glasgow.

The project aims to deliver both a reduction in carbon emissions and economic savings to social housing tenants. Integral to this project is the development of a data tool that will help provide invaluable learnings on the way heat is being used in this type of housing. The scheme will support the decarbonisation of heat in Scotland, and provide an exemplar project for other social landlords.



Questions

3. Do you agree with the barriers outlined above? Please explain your views.

4. Are there additional barriers to low and zero carbon heat project delivery? Please explain your views.

5. What role should the new programme play in addressing challenges and barriers? Please explain your views.

Chapter 4 Proposed Programme Priorities and Structure

4.1 The future programme will deliver outcomes-based infrastructure investment and will complement the up-scaled support provided through our existing domestic, business, community and public sector programmes as detailed in the draft Heat in Buildings Strategy.

Diagram 2 – New Programme Strategic Priorities

The proposed strategic priorities are:

1. Developing Project Pipeline Through Pre-Capital Support

Enhance existing LCITP pre-capital support for heat decarbonisation projects to facilitate building a pipeline to be delivered over the next decade and beyond including development and provision of:

- solution development;
- business cases;
- financial expertise;
- technical expertise;

- legal expertise;
- project management;
- procurement expertise.

As set out in the draft Heat in Buildings Strategy, the Heat Networks Partnership will be re-established to act as a mechanism for supporting the development of a pipeline of projects across Scotland, co-ordinating support across the public sector, identifying and nurturing opportunities for new heat networks and considering the options for decarbonising existing fossil fuel powered networks. This Partnership will form part of the new programme's pre-capital support offer with potential to widen the scope to include more low and zero carbon heat projects.

2. Supporting at Scale Heat Decarbonisation

Accelerate deployment and rollout of heat technologies already tested through the LCITP and other programmes through provision of capital co-funding, with focus on the Strategic Technologies below identified in the draft Heat in Buildings Strategy where there is a demonstrable project funding gap.

Deployment of Green Heat networks	• the development of green heat networks (district heating and communal heating systems) in areas deemed suitable;
Heat Pump Deployment	• the deployment of heat pumps in certain buildings currently using mains gas – particularly in areas least likely to receive a mains hydrogen supply in the future and buildings for which heat pumps are likely to be cost effective relative to a future green gas supply.

During 2020, we launched the Social Housing Net Zero Heat Fund, delivered via the LCITP, to support social housing landlords across Scotland to deploy low carbon heat and to contribute towards our heat decarbonisation and fuel poverty objectives. As almost a quarter of Scotland's domestic dwellings are social housing, we will continue this fund for the next five years to deliver demonstrable progress with decarbonising social housing stock and we will also consider how to link this financial support for zero emissions heating with our domestic energy efficiency programmes. Our experience with the Social Housing Net Zero Heat Fund demonstrates that the learning and expertise of the LCITP approach can be effectively deployed to deliver at scale investment in heat infrastructure and we will seek to build on this in the successor programme.

3. Demonstrating Innovative Low and Zero Carbon Heat Infrastructure Projects

Continuing co-funded capital support for innovative demonstrator projects for heat decarbonisation in buildings . This will focus on large scale multiple building projects that demonstrate partnership delivery, new business models and utilise individual technologies or integrated systems that are proven but have not yet reached commercial viability (Technology Readiness Levels 7-9) and therefore face challenges in securing investment. This will include, heat recovery, geothermal, thermal storage and hydrogen for heating buildings.

4. Facilitating Place Based Decarbonisation

A step change in our approach to decarbonisation is required, one that takes a more strategic overview, covering distinct geographical areas and recognising specific challenges in city, urban, rural and island communities. This will involve developing partnership arrangements at delivery level between local authorities, the public sector, the private sector, energy network companies and local communities. Projects seeking funding must look at developing partnerships and aggregating demand across specific locations and geographies and should cover the following elements: awareness raising at a local level and technology deployment across domestic and non-domestic buildings.

5. Support Delivery of Local Heat and Energy Efficiency Strategies

At the heart of a place based, locally-led and tailored approach will be Local Heat and Energy Efficiency Strategies (LHEES). Once in place these local strategies will provide a framework for taking an area-based approach to heat and energy efficiency planning and delivery.

LHEES will set out the long-term plan for decarbonising heat in buildings and improving their energy efficiency across an entire local authority area. The strategies will:

- set out how each segment of the building stock needs to change to meet national objectives, including achieving net zero GHG emissions in the building sector, and the removal of poor energy efficiency as a driver of fuel poverty;
- identify heat decarbonisation zones, setting out the primary measures for reducing emissions for an area; and
- prioritise areas for delivery, against national and local priorities.

LHEES will form the basis for local public engagement and involvement in decision making at the local level and will be developed through extensive engagement with local communities. We want Local Heat and Energy efficiency Strategies and Delivery Plans to be in place for all local authority

areas by the end of 2023. The LCITP successor programme will have a role in providing delivery support.

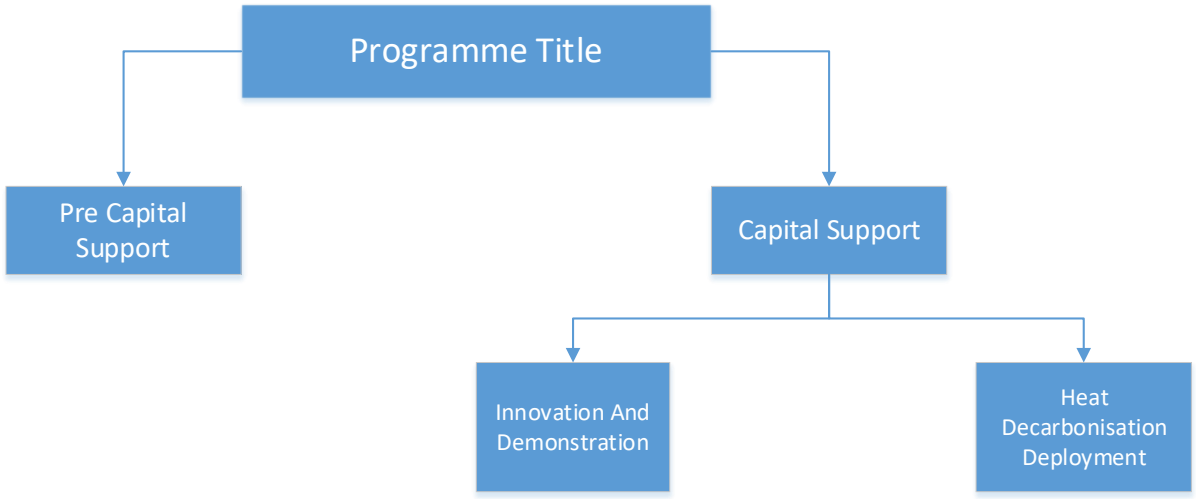


Diagram 3 - New Programme Structure

4.2 Eligible projects will require to meet the minimum criteria below:

- the potential to deliver a significant reduction of greenhouse gas emissions ($MtCO_2e$) and energy consumption;
- the ability to secure other sources of funding/finance that make a contribution towards the cost of final delivery costs of the project;
- the potential to have a positive and significant economic and social impact on Scotland;
- sets out clearly the requirement for and value added from programme support;
- the ability to demonstrate a contribution to the strategic aims of heat decarbonisation activity.

Questions

6. Do you agree with the priorities outlined above? Please explain your views.

7. Are there further specific gaps in project support that should be filled? Please explain your views

8. What types of pre-capital support would help to support low and zero carbon heat projects? Please explain your views.

9. Do you support the widening of the scope of the Heat Network Partnership to cover other low and zero carbon heat projects? Please explain your views.

10. How can the programme best support delivery of LHEES from 2023? Please explain your views.

11. How can the programme best support place based integrated partnership delivery? Please explain your views.

Low Carbon Infrastructure Transition Programme Case Study 3

Stirling Renewable Heat Project

Stirling Council and Scottish Water Horizons came together to create, develop and deliver the Stirling Renewable Heat Project. The project brings low cost, low-carbon heat through a district heating network, delivering a range of significant environmental and economic benefits.

The Stirling Renewable Heat Project, which received £2 million support from LCITP, uses an existing aerobic digestion plant, with a combined heat and power plant and a waste water heat pump. This is the first time such technologies have been used in conjunction in Scotland.

Heat from this scheme is distributed in the Forthside area of Stirling to the Peak Leisure Centre, Forthbank Stadium, St Modan's High School, the Robertson Trust Barracks Development, Moray house and Jubilee House.

Chapter 5 Investing Strategically to Accelerate Delivery

5.1 The Programme for Government 2020 announced a £1.6 billion capital investment over the next Parliament to transform how we will heat our buildings setting us on a clear path to eliminate emissions from heating by 2045. The funding for the successor to LCITP will be met from this budget with the programme becoming the primary mechanism to support deploying low carbon heat at scale, co-ordinating our support for the roll-out of heat networks and heat decarbonisation infrastructure. To achieve this, we must make a financial commitment to the successor programme which matches the ambitions we need it to deliver. Therefore, LCITP and its successor programme will invest £400 million over the next five years in large-scale heat decarbonisation infrastructure.

5.2 Our future support will retain the need for co-funding. The scale of investment required means projects cannot be fully funded by public investment, we must seek to mobilise and work in partnership with the private sector to leverage the scale of investment needed and to develop innovative and new approaches to financing projects.

5.3 We will also seek to drive value for money and financial sustainability by using more diverse funding mechanisms including Green Growth Accelerator, a combination of grant funding, repayable assistance, loan funding and private investment. Intervention rates will also be flexible to match levels of support required, the maturity and risk of technologies and the commercial needs of projects.

5.4 To date the LCITP has launched periodic open and competitive capital calls. In future it is the intention to provide a timeline for the launch of these competitions to provide greater certainty to the sector and to enable clarity on the timelines for preparation of applications.

Questions

12. What types of financial mechanism would help to support low and zero carbon heat projects? Please explain your views.

13. Please provide evidence of how capital funding can be deployed to help attract private sector finance and accelerate the delivery of low carbon heat technologies.

14. Please provide your views on timings of competitive funding rounds.

Summary Of Call For Evidence Questions

Question Number	Question
1	Please provide views on the impact of LCITP support to date, in particular on the three stages of support provided. Please explain your views
2	How should the LCITP successor programme best reflect enhanced policy ambitions set out in the 2020 Climate Change Plan Update and the draft heat in Buildings Strategy? Please explain your views.
3	Do you agree with the barriers outlined above? Please explain your views.
4	Are there additional barriers to low and zero carbon heat project delivery? Please explain your views.
5	What role should the new programme play in addressing challenges and barriers? Please explain your views.
6	Do you agree with the priorities outlined above? Please explain your views.
7	Are there further specific gaps in project support that should be filled? Please explain your views.
8	What types of pre-capital support would help to support low and zero carbon heat projects? Please explain your views.
9	Do you support the widening of the scope of the Heat Network Partnership to cover other low and zero carbon heat projects? Please explain your views.
10	How can the programme best support delivery of LHEES from 2023? Please explain your views.
11	How can the programme best support place based integrated partnership delivery? Please explain your views.
12	What types of financial mechanism would help to support low and zero carbon heat projects? Please explain your views.
13	Please provide evidence of how capital funding can be deployed to help attract private sector finance and accelerate the delivery of low carbon technologies.
14	Please provide your views on timings of competitive funding rounds.

Annex A - Overview of the Low Carbon Infrastructure Transition Programme

Launched in 2015, the LCITP is a collaborative partnership led by the Scottish Government, working with Scottish Enterprise, Highlands and Islands Enterprise, Scottish Futures Trust and Resource Efficient Scotland.

The Programme aims to stimulate commercial interest and investment and maximize Scotland's vast potential in the low carbon sector whilst contributing to the positive progress of the Scottish Government in reducing Scotland's greenhouse gas emissions.

Since 2015, LCITP has awarded over £58 Million of funding to low carbon demonstration projects across Scotland which encourage replication and wider uptake of innovative renewable technology.

Further information on the programme can be found on the LCITP Website.

Annex B - Responding to This Call for Evidence

We are inviting responses to this consultation by 19 April 2021

Please respond to this consultation using the Scottish Government's consultation platform, Citizen Space. You can view and respond to the consultation at: https://consult.gov.scot/energy-and-climate-change-directorate/low-carbon-infrastructure-transition-programme/

You can save and return to your responses while the consultation is still open. Please ensure that the consultation responses are submitted before the closing date of 19 April 2021

If you are unable to respond online, please complete the Respondent Information Form (see 'Handling your Response' below) and return to:

Scottish Government

3F South

Victoria Quay

Edinburgh

EH6 6QQ

It would be most helpful to have your response submitted by email or by using the electronic response form.

The electronic response form can be accessed at the following website address: https://consult.gov.scot/energy-and-climate-change-directorate/low-carbon-infrastructure-transition-programme/

You can also email your response to LCITP@gov.scot.

Handling your response

If you respond using Citizen Space (https://consult.scotland.gov.uk), you will be directed to the Respondent Information Form. Please indicate how you wish your response to be handled and, in particular, whether you are happy for your response to be published.

If you are unable to respond via Citizen Space, please complete and return the Respondent Information Form included in this document. If you ask for your response not to be published, we will regard it as confidential, and we will treat it accordingly.

All respondents should be aware that the Scottish Government is subject to the provisions of the Freedom of Information (Scotland) Act 2002 and would therefore have to consider any requests under the Act or information relating to responses made to this consultation exercise.

To find out how we handle your personal data, please see our privacy policy:

https://beta.gov.scot/privacy/

Next Steps in the process

Where respondents have given permission for their response to be made public, and after we have checked that they contain no potentially defamatory material, responses will be made available to the public at https://consult.scotland.gov.uk

If you use Citizen Space to respond, you will receive a copy of your response via email.

Following the closing date, all responses will be analysed and considered along with any other available evidence to help us. Responses will be published where we have been given permission to do so.

Comments and complaints

If you have any comments about how this consultation exercise has been conducted, please email them to LCITP@gov.scot OR send them to:

Scottish Government
3F South
Victoria Quay
Edinburgh
EH6 6QQ

Scottish Government consultation process

Consultation is an essential part of the policy-making process. It gives us the opportunity to consider your opinion and expertise on a proposed area of work.

You can find all our consultations online: https://consult.scotland.gov.uk. Each consultation details the issues under consideration, as well as a way for you to give us your views, either online, by email or by post.

Responses will be analysed and used as part of the decision-making process, along with a range of other available information and evidence. We will publish a report of this analysis for every consultation. Depending on the nature of the consultation exercise the responses received may:

- indicate the need for policy development or review;
- inform the development of a particular policy;
- help decisions to be made between alternative policy proposals; and
- be used to finalise legislation before it is implemented.

While details of particular circumstances described in a response to a consultation exercise may usefully inform the policy process, consultation exercises cannot address individual concerns and comments, which should be directed to the relevant public body.

Next steps

The Scottish Government will review responses to the call for evidence and the issues raised during engagement with stakeholders to inform the establishment of a successor scheme to the Low Carbon Infrastructure Transition Programme, information on which will be published in due course.

This publication is available at **www.gov.scot**

Any enquiries regarding this publication should be sent to us at
The Scottish Government
St Andrew's House
Edinburgh
EH1 3DG

ISBN: 978-1-80004-651-1 (web only)

Published by The Scottish Government, February 2021

Produced for The Scottish Government by APS Group Scotland, 21 Tennant Street, Edinburgh EH6 5NA
PPDAS828226 (02/21)