

An SP Energy Networks initiative

Green Economy Fund

Final Report 2021





The Green Economy Fund launched across Scotland with the dramatic uplighting of several key landmarks. Glasgow's Riverside Museum, The Kelpies in Falkirk, Melrose Abbey and Edinburgh Castle, all turned green to mark the occasion.



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The Green Economy Fund isn't just about green projects; it's about creating and accelerating a green economy. These four aims lie at its centre.

1. Putting the planet and people first

We want to help pave the way towards a decarbonised, green world. Fundamentally, this means reducing CO₂ emissions, and always keeping wider environmental impacts at front of mind.



2. We must keep evolving

We must embrace proper collaboration to keep moving forward, to make the network more dynamic, and to boost economic development. This demands investment ahead of need, and continued positive project relationships.



3. We're already making an impact, and will continue to do so

Our success so far inspires us to keep our ambitious plans in motion. We know the excellent work we're doing is having an impact, which is why keeping up momentum is so important.



4. Support where it's needed most

Supporting the most vulnerable means leading by example, and building a roadmap for others to follow. We don't want anyone to be left behind.



Welcome to the Green Economy Fund's Final Report.

Our award-winning Green Economy Fund (GEF) has allowed us to invest in the communities that we serve. Since we started the GEF in 2018, we've supported a diverse mix of projects across Scotland. They all have one thing in common: they support Scotland's green ambitions.

During the COVID-19 pandemic, our projects faced a challenging time, however they were still able to make incredible progress. This report highlights some of the projects we've supported, as well as sharing our key learnings.



Driving the transition to Net Zero

As a network provider, we have a critical role to play in helping the Government reach its Net Zero target. We're committed to supporting the network transition, while making sure no one is left behind. At a time when many projects are struggling to source funding, the GEF has been especially important in helping us move forward – providing support to projects which could not go ahead otherwise.

I'm extremely proud of what we've achieved. We've funded 35 projects, which have supported the decarbonisation of transport and heat. In addition, we've helped educate the workforce of the future with crucial skills in low carbon technologies.

Together, we've also been able to reduce carbon output by 637 tCO₂e while creating 58 jobs across Scotland. These figures show that we've made a truly significant impact.

Built on real engagement

As part of the fund, both the GEF team and the projects we've funded have directly engaged with communities. This is helping to forge stronger relationships with our communities and grow our stakeholder group.

It's vital to us that all these projects have a positive effect on the wider communities – supporting everyone, not just the areas directly linked to the fund.

We're just getting started

As a principal partner of COP 26, we are well placed to demonstrate our commitment to tackling climate change. Given the success and impact we've achieved through the fund, we want to continue this good work. We have secured an additional £5m through our transmission business for a Net Zero Fund (NZF) and we've included plans for a distribution NZF in our RII0-ED2 business plan submission too.

This will help us to continue our good work and support the Net Zero ambitions of all our communities.

Frank Mitchell
SP Energy Networks, CEO

The GEF story

We're proud of the relationships we've built and the achievements we've made. Through the Green Economy Fund, we committed to voluntarily contribute up to £20m over a two-year period. We backed initiatives that have benefitted the people of Scotland, the country's ambitious green energy plans, and local economic growth.

Choosing the right projects

The fund has supported a variety of projects across the Scottish communities that we serve.

The projects we supported through the GEF supported the fund's aims, and demonstrated that they would fundamentally reduce carbon emissions and have a positive environmental impact.

We also needed to be sure that they would:

- Deliver clear social benefits with any income generated being reinvested into activity with good social outcomes
- Support the most vulnerable in our society
- Boost local economic growth, leading to new jobs and businesses across Scotland

Whilst projects didn't need to be innovative, they had to be unique in their approach. Most importantly, they needed to generate lessons that could be shared. This was key, because if the fund could help us to build a solid roadmap for others to follow, we would have the ability to affect wider social, economic and environmental benefits. An additional 96 projects have been enabled through the funds activities.

The four project categories

All the projects we backed sit within one of the following focus areas:

Transport

Projects promoting the uptake and infrastructure provision of electric vehicles or other low-carbon solutions.



Heat

Projects that centre on the provision of affordable low-carbon energy for the communities we serve.



Renewables

Projects that look at innovative low-carbon solutions, and energy utilisation at a local level.



Education

Projects focusing on the creation of a low-carbon workforce.



SP Transmission is the licensed transmission owner (TO) responsible for the transmission of electricity in Central and Southern Scotland, including two major cities, Glasgow and Edinburgh.



A wide-reaching invitation

To attract a wide range of projects that would deliver long-term benefits, we made eligibility for the fund as inclusive as possible.

Applicants had to be a Scottish organisation, or a UK organisation with a Scottish footprint – for example, staff based in Scotland within SP Energy Networks' operating boundaries.

We invited a wide range of organisations to apply – from charities, community groups, housing associations and local authorities to schools, academic institutions and businesses.

The full criteria for fund applications can be found in Appendix 2.

The application process

The GEF grant application process was designed around the principles of an open and fair competition. We wanted to select projects that would have the maximum positive impact, demonstrate a range of different aspects of the green economy, and have a realistic chance of succeeding within the scheme's timescale.

With these principles in mind, the Energy Saving Trust (EST) helped us to facilitate the application rounds, fund awards and manage engagement with ongoing projects, including reporting, evaluation and funding claim processes.

The full application process is outlined in Appendix 3.

The GEF is underpinned by robust governance of the fund. Details can be found in Appendix 4.



Funding awarded

After 3 rounds of funding, we committed the full funding amount across 35 projects.

35

The full details of awards per funding round can be found in Appendix 1.



Engagement that has driven positive project relationships

Strong engagement has been crucial to the success of the fund, and we've seen it right across the projects. All types of engagement have been significant, from the direct engagement between the GEF team and the projects, to the engagement between the projects and their communities.

Engagement between the Green Economy Fund team and those working on the projects has helped to forge stronger relationships, bring us closer to the communities we serve, and grow our stakeholder group. This open dialogue is now built into what we do as a team, resulting in more transparent ways of working and ultimately, better results.

In addition, thanks to projects efficiently cross-sharing information and working collaboratively, there has been a strong sense of community across the fund. The benefits of this are palpable as we continue to move forward. Projects that weren't initially aligned have come together, expanding their knowledge and building relationships.

Vulnerable customers engaged about energy issues

7,825

Awareness-raising events held by GEF projects

406

Training sessions for stakeholders

147

Learning discussions with other organisations

1,130

Number of stakeholders engaged via GEF events:

1,280

Energy customers that have received support directly through the project

22,605

Figures from June 2018 - October 2021



Engaging from the start

As well as reaching out to and engaging with those interested in applying to the fund, we realised it was equally as important to engage with a wider stakeholder group to gain support and promote the fund.

We also identified that engaging with projects at the beginning of the process was going to be beneficial in making sure that strong applications would be submitted. The team held numerous workshops to support applicants with their applications, providing them with helpful insight into what the fund was striving to achieve.

Building support systems

In October 2019, we held a project networking event in Glasgow. The focus was to bring all the projects together in one room and share learnings and progress updates.

This was also an opportunity to reiterate the help that we could provide, including:

- Ongoing project support
- Managing scope changes
- Processing payments
- Reporting
- Press releases
- Events and marketing

This event offered projects the opportunity to raise any challenges they had faced and discuss the steps taken to overcome them.

In November 2019, we held a Net Zero event attended by over 300 stakeholders. We brought together the country's top energy experts, policymakers and influencers for a debate on the race to Net Zero.

The primary objective was to stimulate discussion not only from a policy and regulation perspective, but at a practical level, as this event also allowed us to showcase some of the great work being supported through our fund.

1. In July 2019 we held an event at Dynamic Earth where all project leads came together to receive their funding awards.

2. Carol Kirkwood, BBC Weather Presenter, led the keynote speeches at our 'The Race To Net Zero' event at Scottish Power HQ, October 2019.



Expert collaboration

The way in which we engaged with projects changed significantly during the COVID-19 crisis. We quickly adapted and started engaging digitally with our projects on a daily basis, as well as hosting virtual collaboration sessions.

We hosted four 'Green Power Hour' sessions throughout the pandemic with a wide range of our key stakeholders across Scotland. A range of topics were covered during these sessions, including discussions around how innovative green projects can support the green economic recovery from COVID-19 and reach net zero targets.

Engaging with communities

The projects consistently increased the fund's engagement by building relationships and directly engaging with their communities. This was reported to the Green Economy Fund team on a regular basis.

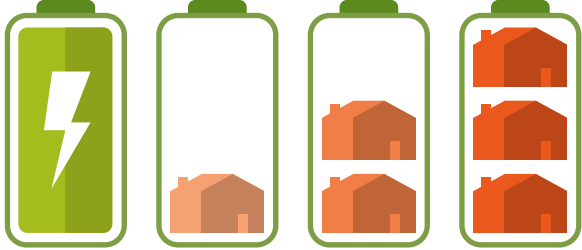
This engagement allowed the fund's legacy to be continued and ensured that the projects had a positive effect on the wider communities they were working in. This helped support parts of communities that had not been directly linked to the fund.

Our fund dashboard

Since the start of the Green Economy Fund, we captured a key matrix which provides a snapshot of the fund's full impact.

These figures are calculated by Energy Saving Trust, based on the information provided by the projects.

148 Heat/Electric batteries installed in social housing



Energy stored by those batteries

9.8MWh

Battery storage technology is a relatively new and emerging technology. We've uncovered some key findings that could help speed up its adoption. Read more on pages 26-31.



58 Full time green economy jobs created




indirect jobs supported **647**

The fund has supported the development of the educational facilities that are required to support the low carbon technology transition. Read more on pages 20-25.



Knowledge sharing sessions

1130



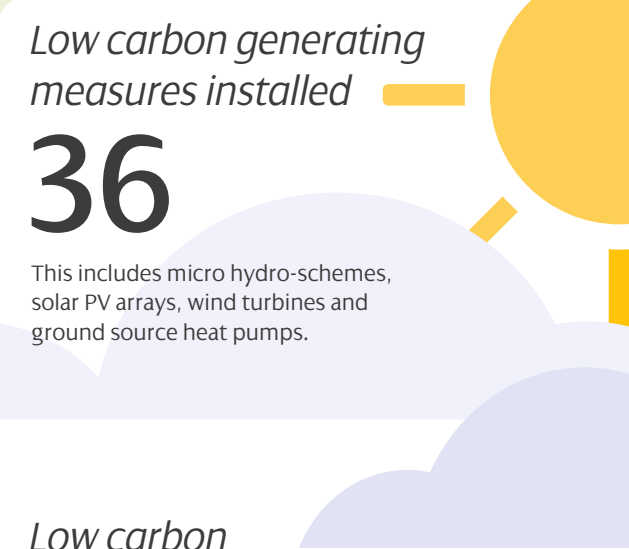
Additional projects enabled by the activities funded

96

Low carbon generating measures installed


36

This includes micro hydro-schemes, solar PV arrays, wind turbines and ground source heat pumps.



Low carbon energy generated

785MWh

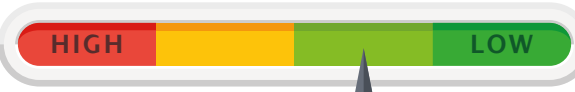


Read how we've achieved success through a blend of energy-saving initiatives and investment in renewable generation projects on pages 32-37.



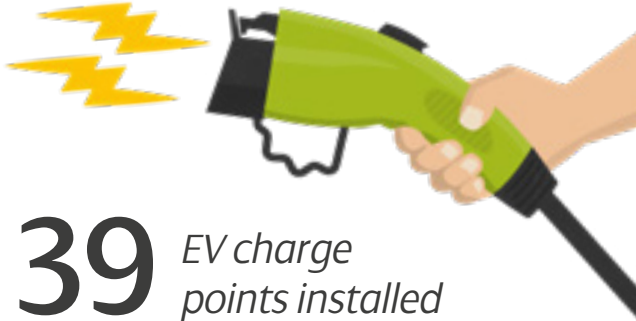
637tCO₂e

Carbon savings



29 ebike / ecargobikes purchased

53 Electric vehicles (EV) purchased




39 EV charge points installed

Discover more about our investment in transport related projects and the key findings from our activity on pages 12-19.



EV journeys completed

42,916







437,751 miles

Travelled in EVs

Our impactful work has helped pave the way towards a decarbonised, green future – paying close attention to the needs of the vulnerable along the way. The success stories outlined in this section demonstrate how, and inspire us to keep progressing in the journey to Net Zero. After all, the future of the planet and its people is what has – and always will – drive us.

The Saughton Park project in Edinburgh, page 28, is one example of the renewable initiatives funded through GEF.

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FOCUS AREA:

Transport

Transport has a huge part to play in the drive to Net Zero, therefore funding projects with this objective was vital – encouraging electric vehicle adoption, promoting positive change and understanding the network and environmental impacts.

17 projects supported | £11,192,440 allocated from the fund

Electric vehicles (EV) purchased

53

Miles travelled in EVs

437,751

EV journeys completed

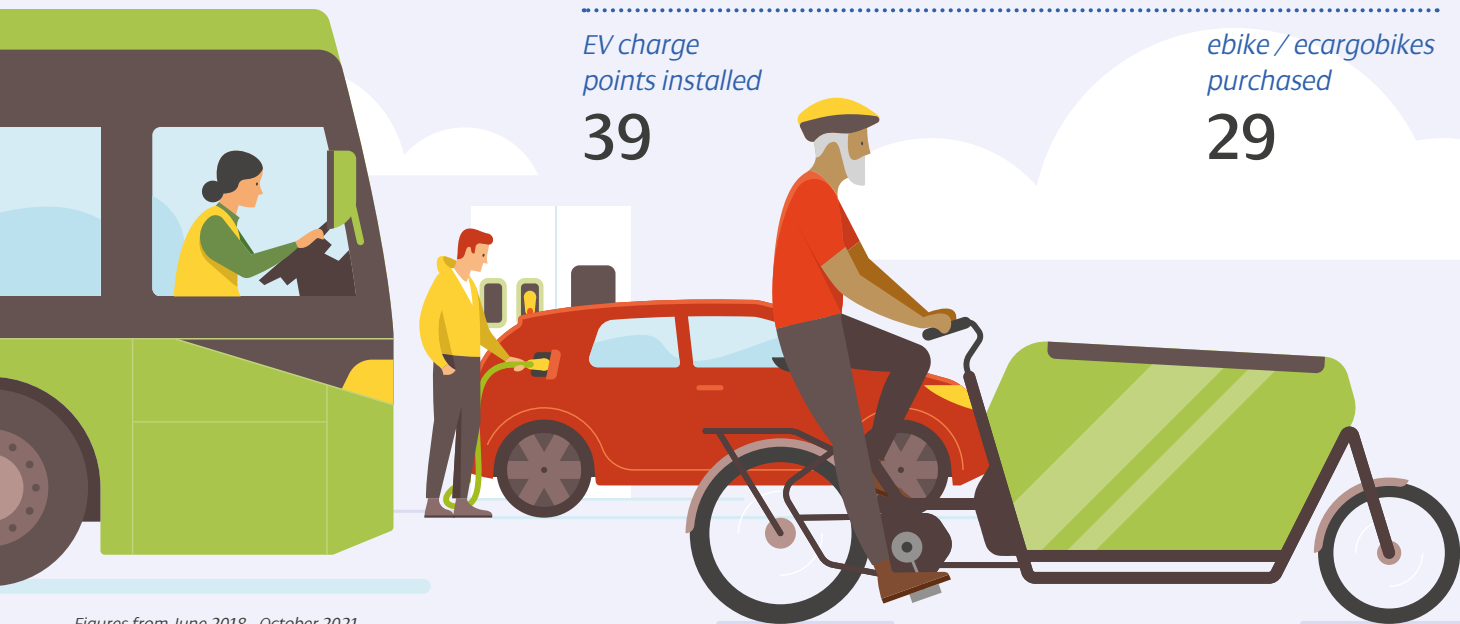
42,916

EV charge points installed

39

ebike / ecargobikes purchased

29



Figures from June 2018 - October 2021

The GEF has supported 17 transport projects – each of which have either installed or purchased new assets focused on the decarbonisation of transport.

Funding these projects has been beneficial to us as a company, as it has given us the chance to learn more about the impact electric vehicles and charge points will have on the network.

There were three different approaches to decarbonising transport across these projects, including:

- Purchasing electric vehicles
- Improving access to EV charging infrastructure
- The promotion of active transport



Our Green Fleet

From our electric bin lorries to our electric double decker buses, the launch of our green fleet demonstrates just one of the ways we are making a better, cleaner future a reality.

Buses

We have committed funding to four transport organisations to introduce electric vehicles to their fleet and help reduce carbon emissions across the country. Through these projects we will purchase 13 electric buses.

It was clear that funding these projects would bring immediate benefits to the communities and areas in which they operate, and give us more of an insight to the impact on our network.

In partnership with First Bus, we launched Glasgow's first two all-electric vehicles onto a commercial bus route that has existed since the 1960s. These buses will be operating in Glasgow's Low Emission Zone. Feedback from the project highlighted that the support from the Green Economy Fund has given them the confidence to roll out more electric vehicles across their fleet.

We launched Edinburgh's first fully electric double decker buses, enabling the city to take a major step in its journey towards becoming Net Zero by 2030. These buses will bring immediate benefits to the city and the communities in which they operate,

helping improve the city's air quality and delivering multiple health benefits.

We also launched the UK's first fleet of six fully electric buses serving rural communities in partnership with transport group Stagecoach West Scotland.

Electric Refuse Collection Vehicles

We also launched the country's first rural all-electric refuse vehicles in partnership with Dumfries & Galloway Council. The brand-new electric refuse vehicles are the country's first for a rural area and will be introduced onto routes serving local communities across both Dumfries and Stranraer, the two largest towns in Dumfries and Galloway. Using the vehicles to collect waste is part of the drive to reduce carbon emissions and improve air quality across the region, with the added benefit of reducing noise pollution in residential neighbourhoods.



1. Lothian Bus launch, June 2021
2. Transport Scotland Project PACE Launch, August 2020.

TRANSPORT

Key findings

Through analysis of the projects monthly reporting, we were able to identify the following key findings:

The manufacturing of electric minibuses is limited due to this being fairly new technology on the market.

The car club projects highlighted the difficulty of obtaining car insurance due to no previous insurance history.

Car clubs found there was a need for volunteer drivers, but they were hard to come by.

Procurement stages can be time consuming and may cause delays to project timescales.

Long lead times for EVs have been a common challenge for GEF projects. This delayed the arrival of vehicles and had an impact on their delivery plans.

Successfully operating electric vehicles provides confidence for future purchasing decisions.





Rashid Khaliq, Chief Executive at SoulRiders

“Based in Glasgow, and with three councils across Scotland declaring a climate emergency, I believe drastic new, innovative measures are required to tackle the issues we are facing; these measures need to perpetuate and not disrupt the economy, and at the same time improve social and green environments. I believe that this is the essence of the Green Economy Fund.”

Bikes & e-cargo bikes

To help encourage the uptake of bikes as a method of transport, we are proud to have supported three organisations with the focus of using bikes as a way of reducing carbon emissions. Through these projects, we directly supported 29 eBikes, encouraging communities to consider new modes of low-carbon transport.

Through our partnership with SoulRiders – a cycling based charity – we directly purchased five e-cargo bikes, providing Scotland’s first integrated cargo bike delivery and waste service. This project helped to reduce the number of vans and lorries on our streets, providing a solution to many issues, including traffic and pollution in cities.

- 1-2. August 2020, SoulRiders launch their integrated e-cargo bike service.
3. Through GEF, Transport for Edinburgh increased.



1. Transport Scotland Project PACE Launch, August 2020.
2. South Ayrshire Community Car Club Launch, August 2019.
3. Teviot Car Club Launch, February 2020.

Community Transport Organisations

We have supported a number of Community Transport Organisations through the fund, all with the aim to directly benefit the local communities in which they operate. By supporting these projects, we have allowed the purchase of 25 electric vehicles (including electric minibuses), helping to reduce carbon emissions alongside supporting our communities.



Car Club

Additionally, we provided funding to two car clubs, purchasing a total of four electric vehicles for them. Both of these projects help support their communities by encouraging people to consider sustainable modes of transport. In turn, this helps to reduce congestion, reduce emissions and improve air quality.

South Ayrshire Car Club received funding to help give the local community access to two low-carbon electric vehicles. In a bid to improve transport options for vulnerable people in an area of low car ownership, the Community Car Club make vital transport to medical appointments, job interviews or even just shopping less expensive and easier for those who need additional support.



TRANSPORT CASE STUDY:

Essential food deliveries to our communities with Food Train

Allocated funds: £452,413



Gaynor Grant, Food Train

“The project has made a significant difference to our organisation, the communities we operate within and, importantly, to the lives of hundreds of vulnerable individuals and their families – particularly during one of the most difficult times our country has seen.”

“Our GEF project has been a magnificent opportunity to start our ‘going electric’ journey while extending our reach to many more older people.”

THE ASK

Food Train applied for funding to replace their fleet of diesel-fuelled delivery vehicles with electric vehicles. They also wanted to expand their support for older people in Stirling and Renfrewshire to cover neighbouring Clackmannanshire and East Renfrewshire.

WHY IT WAS SELECTED

Food Train supports older people and informal carers through its grocery delivery service and signposting to other support. This support for community, combined with their aim to reduce the carbon emissions associated with these activities, made it a good fit for the fund.

THE PROJECT

Our grants enabled the replacement of nine ageing diesel vans with 100% electric alternatives and seven vehicle charging points. These vehicles now deliver grocery shopping to more than 600 older people every week.

How this project serves the GEF aims

We’re already making an impact and will continue to do so
Replacing older diesel vehicles has saved more than 4 tonnes of carbon to date, while improving the reach and impact of the service.



Support where it’s needed most
Over 600 older people are benefiting from improved access to food, with 60% reporting feeling more independent and 17% feeling less alone.



Putting the planet and people first
The savings of over £2,000 Food Train has made so far on fuel has been reinvested in the community.



We must keep evolving
More than 3,000 older people have been directed to other services to support with home energy and affordable warmth advice.



1-4. Foodtrain, April 2020



TRANSPORT CASE STUDY:

Accessible travel goes all-electric with Community Transport Glasgow

Allocated funds £900,000



THE ASK

Community Transport Glasgow (CTG) applied for funding to upgrade its ageing fleet from diesel to low-carbon passenger vehicles.

WHY IT WAS SELECTED

CTG's social purpose is to provide not-for-profit transport solutions to enable affordable, reliable and accessible transport to the vulnerable communities we serve. This made them a good fit for the fund.

THE PROJECT

We launched Glasgow's first ever all-electric minibuses. This gave us an ideal test bed for the operation of electric minibuses across the country. CTG provided transport solutions to 75,000 passengers. As our communities recover from COVID we anticipate that these passenger figures will at least be the same.

Graham Dunn, Manager at Community Transport Glasgow

"As a third sector organisation, this funding is transformational to Community Transport Glasgow (CTG), as it has enabled us to renew our ageing fossil fuel fleet with a new fully electric fleet. The funding from the Green Economy Fund not only enables CTG to build on our social purpose, it also reduces our service's environmental impact on our local communities."



How this project serves the GEF aims

Putting the planet and people first

By keeping vulnerable communities connected, this project helps to reduce social isolation and loneliness – a major mental health issue in Scotland.



The estimated CO2 emissions saved will be 43.22 tonnes per annum. This equates to 216.1 tonnes saved over a five-year period.

As at the end of September 2021, over the last 18 months, the actual reduction in CO2 emissions from making use of the electric fleet supplied by this project is 182 tonnes which has exceeded the original estimated savings.

We're already making an impact, and will continue to do so

Overall costs for CTG have been reduced through the savings made in relation to fuel and maintenance costs.



We must keep evolving

Building this transportation framework in Glasgow has allowed us to test how electric minibuses could work across the country – a huge step towards supporting economic development and the journey to Net Zero.



Support where it's needed most

The project helps vulnerable, disadvantaged and elderly people across the city access vital appointments and community activities.

Reliable bus services are being provided for the communities in Scotstoun, east end and greater Glasgow.



1-4. Community Transport Glasgow unveiled its new fleet at Glasgow Botanic Gardens in January 2020. Graham Dunn, Manager at CTG, gave SPEN CEO Frank Mitchell, members of the local community and Glasgow actress Elaine C Smith a tour of the new Orion E lowfloor accessible vehicles.





FOCUS AREA:

Education

When establishing the fund, it was clear that the transition to a green economy would require a workforce with the right skills, therefore education plays an important role in the move to a low carbon economy.

4 projects supported | £850,474 allocated from the fund

Number of colleges **11**

Number of students to date **2,041**



Figures from June 2018 - October 2021

The GEF has a total of four projects working to build awareness of low carbon technologies across Scotland. These projects can be broken down into three different approaches:

- Educating the workforce of the future in the installation of low carbon technologies
- The community benefits of installing community-owned renewable energy assets
- Inspiring young people to consider a future career in science, technology, engineering or maths
- The integration of multiple low carbon technologies



STEM Education

We are supporting the development of two key STEM projects. One of these targets nurseries, primary and secondary schools in the Forth Valley area, providing a range of activities through a coordinated programme of STEM engagement and outreach work with a focus on renewables. The second STEM hub is at Dumfries and Galloway College, and provides modern heat and power technologies as teaching aids. We are also supporting Energy Skills Partnership (ESP) to develop a network of specialised renewable and energy efficiency training centres across colleges in central and southern Scotland. This funding will help provide opportunities for developing skills within the energy, engineering, and construction sectors.

Community Action Plans

Working with eight community organisations, Community Energy Scotland have produced a programme of 'smart energy' action plans and briefing sessions on smart energy systems, highlighting opportunities for reducing costs and improving energy efficiency.

1. Forth Valley College, STEM education programme 2019.

2-3. Dumfries and Galloway College, STEM hub, August 2020. The hub will provide a unique modern facility for teaching and development of renewable technology.

William Currie, Dumfries and Galloway College

"I believe the Green Economy Fund has given us the opportunity to realise an ambition that was simply unachievable without the funding. We are pleased to be the first college to completely power a building using renewable energy and to utilise these technologies for teaching purposes."

EDUCATION

Key findings

Through analysis of the project's monthly reporting, we were able to identify the following key findings:

Colleges will play a crucial and pivotal role in training and upskilling to achieve Net Zero and, home energy efficiency targets which has been a long-term priority for the Scottish Government.

To enable the Green Recovery post COVID-19, education facilities need to be readily available to reskill a workforce in the wake of the pandemic to help with local job creation and alleviate the economic impact of the crisis.

The Scottish Government has also recommended a focus on ground and air source heat pumps including upskilling for the workforce, which will influence teaching curriculum.

Colleges need to be able to adapt to Government priorities, the new Skills Competency Framework, and Changes to the college curriculum – which meant from August 2020 the inclusion of low carbon technologies is now mandatory.

Colleges must be able to provide access to low carbon technology and appropriate facilities that enable them to support learning and hands-on experience.



EDUCATION CASE STUDY:

Closing the skills gap with Energy Skills Partnership (ESP)

Allocated funds £500,000

THE ASK

ESP applied for funding to develop a network of training centres focused on renewables and energy efficiency. The centres are strategically positioned at nine colleges across our network area.

WHY IT WAS SELECTED

For a successful transition to Net Zero, it's crucial that we close the energy skills gap and develop a workforce for the future. ESP's project will have a positive impact on the Scottish energy supply chain and economy, making it a good fit for the fund.

THE PROJECT

Our funding supported ESP to employ a project manager and support staff, complete a skills gap analysis, establish a Continuous Professional Development programme for staff, and to buy and install renewable equipment for the nine participating colleges. This equipment and the training courses are expected to benefit more than 10,000 students in the centres' first year of opening¹.

Across six new and two upgraded training centres, one new diagnostic centre and four centres of excellence for insulation, our funding secured the installation of the following equipment:

- eight air/ground source heat pumps
- six solar thermal systems
- five solar panels
- four insulation specialist training systems
- five battery storage units
- two mechanical heat and ventilation systems
- two rainwater harvesting systems



¹ESP Annual Report 2019-20



How this project serves the GEF aims

Putting the planet and people first

High quality, up-to-date technical equipment for learning is vital to the development of a workforce skilled in renewable energy.



We're already making an impact and will continue to do so

Since the launch of this project, similar funding has been granted to colleges beyond the SP Energy Networks network area, ensuring wider access to technical equipment for learning.



We must keep evolving

ESP worked with the nine colleges to establish the Energy Efficiency Training Network. This group met every month during the project's development and has continued to meet since, setting up further working groups to share knowledge.



Support where it's needed most

New equipment needs qualified staff to teach students, so ESP helped 17 college staff to achieve Train the Trainer certification on solar thermal and heat pump technologies.



Jim Brown, Director, ESP

“With investment from the Green Economy Fund, colleges are in a strong position to help drive the skills needed to create green jobs and accelerate transition to Net Zero by 2045.

We appreciated the flexibility afforded to ESP and the colleges during the unprecedented COVID-19 situation.”

1-4. Energy Skills Partnership, 2021

EDUCATION CASE STUDY:

Low carbon learning at Dumfries and Galloway College

Allocated funds £195,000

Dumfries and Galloway College in the South of Scotland has two campuses in Dumfries and Stranraer. The college considers action on climate change one of its core duties and has committed to reducing its carbon emissions. The college also wants to make sure that its students understand climate change issues.



THE ASK

Dumfries and Galloway College identified a lack of quality training facilities on renewable and energy efficient technologies in Dumfries and Galloway. As a result, engineers and apprentices were forced to travel out of the area for training courses.

The college also realised that it had limited ability to properly educate students and community organisations about climate change and the available solutions. By having more renewable technologies on site, it could really increase its impact.

Using funding from the South of Scotland Digital Skills Network, the college built a state-of-the-art renewable technology hub. The hub is a modern facility equipped with multiple renewable and energy efficient technologies which makes it as low carbon as possible.

THE PROJECT

The GEF provided £195,000 in funding. This enabled the college to purchase a wider range of renewable and energy efficient technologies than they'd have been able to otherwise.

These technologies include:

- Wind turbine (7.5kW)
- Solar photovoltaic panels (PV) (15kWp)
- Ground source heat pump (11kW)
- Air source heat pump (11kW)
- Battery storage system (40.5kWh)
- Electric vehicle (EV) charge points

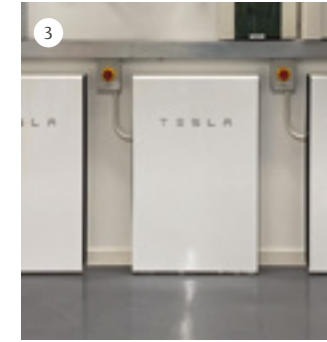
The college successfully overcame various challenges, installing and commissioning all the technologies they originally intended to showcase. The renewables hub is now formally open and being utilised by students.

THE BENEFITS AND PROGRESS

The hub is the first facility of its kind in Scotland, filling a definite gap in the market. It is used by students, businesses and the wider community to learn about renewable and energy efficient technologies, addressing crucial skill gaps which exist both within the region and across Scotland. We anticipate multiple benefits as a result, but they are still being recorded and gathered at this stage.

The college worked with its supply chain and design team to integrate as many renewable and energy efficient technologies into the new hub building as possible. A lack of local installers resulted in the college expanding its procurement options and inviting firms from outside the region.

The college also found it difficult to balance the design requirements with teaching requirements. For example, planning restrictions prevented the installation of a wind turbine that would allow working-at-height training. However, the college was able to install a slighter smaller capacity wind turbine.



1. Aerial view of Dumfries and Galloway College's on campus renewables hub.

2. The hub was launched in August 2020 by Joanna Campbell, Principle, Dumfries and Galloway College, MSP Joan McAlpine and Frank Mitchell, CEO of SP Energy Networks.

3-4. A variety of renewable and energy efficient technologies feature within the STEM hub.

How this project serves the GEF aims

Putting the planet and people first

The new technologies provide the college with 137,800kWh of renewable energy each year; so the hub building won't need to use electricity from the grid or mains gas, saving 56 tonnes of carbon dioxide each year.

The college expects the new EV charge points will lead to further carbon savings as it switches its fleet to electric vehicles.

We must keep evolving

The hub is used by students, businesses and the wider community to learn about new technologies, addressing crucial skill gaps which exist both within the region and across Scotland.



We're already making an impact and will continue to do so

The college plans to hold 36 events each year to raise awareness of its courses with local schools and small and medium sized businesses.



Support where it's needed most

The new hub has launched its 'Green Skills Academy' and has been used to upskill and train a number of students already within it's first year.



The EV chargers will be available to the public to encourage more people to switch to low carbon transport.





FOCUS AREA:

Heat

The decarbonisation of heat is crucial in the transition to a low carbon economy, and the most challenging endeavor. Because of this, we were particularly interested in supporting energy projects with a focus on those affected by fuel poverty, energy system innovation, or the low carbon heating of our homes and buildings.

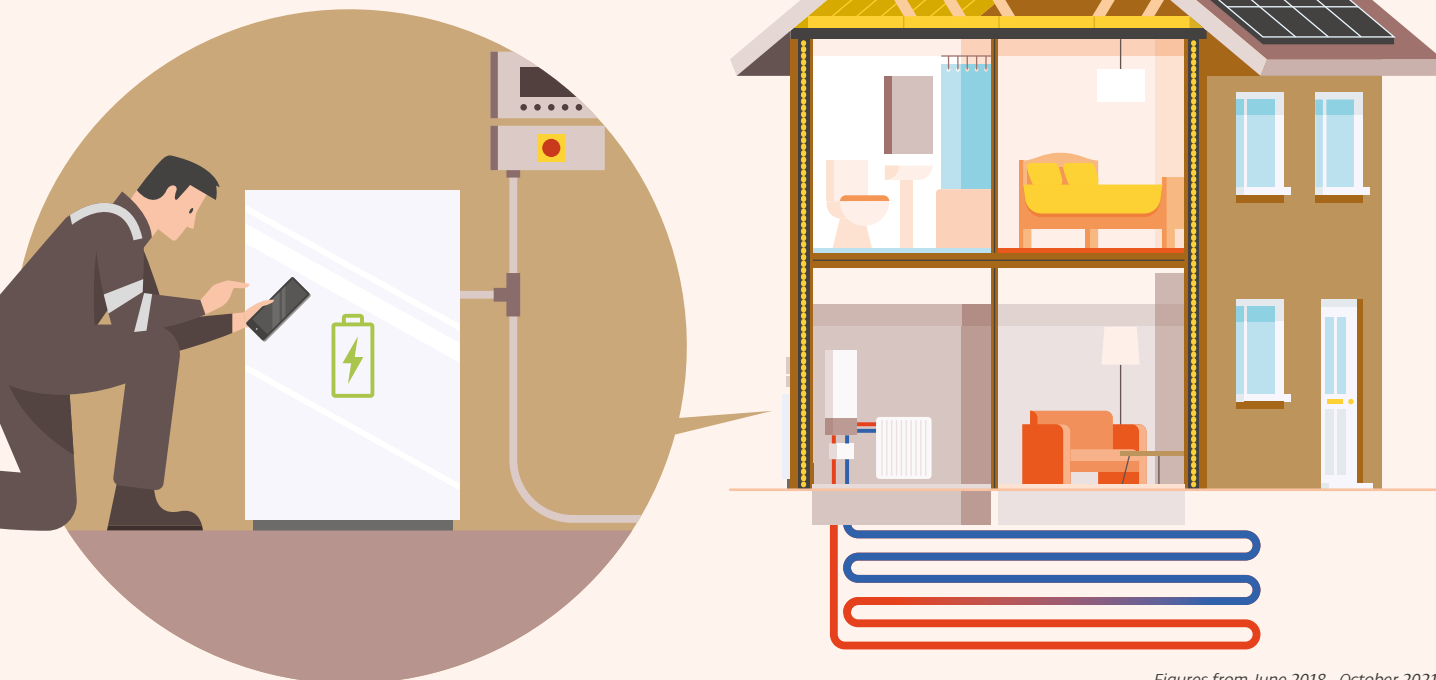
7 projects supported | £4,700,479 allocated from the fund

Heat/electric batteries installed

148

Energy stored by those batteries to

9.8MWh



Provision of heat currently contributes around a quarter of all UK gas emissions and will take a combined effort from government, regulator and industry to find a solution.

Seven of our projects are working towards the general objective of decarbonising heat through the use of:

- Renewable technologies
- Battery storage and time-of-use tariffs
- Low carbon technologies and heat networks

Key projects

The GEF is funding various projects that focus on the decarbonisation of heat. Edinburgh World Heritage Trust upgraded properties in the Canongate World Heritage site. Making these post-war buildings more carbon friendly will allow existing buildings to benefit from the project's findings.

Sunamp are delivering micro-district heating networks, providing heat to 36 properties in Edinburgh. The project aims to reduce heating bills for fuel-poor and vulnerable customers, and reduce carbon emissions.

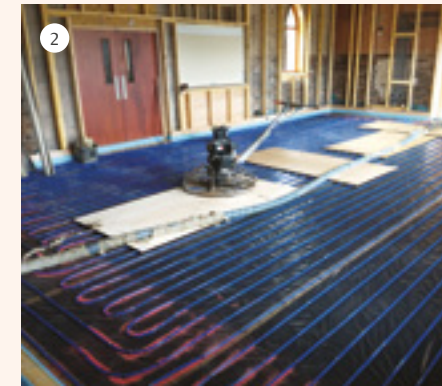
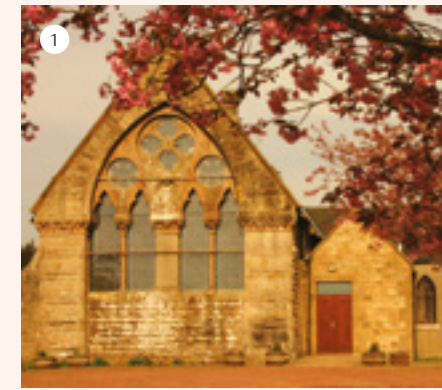
In Dalmarnock, Clyde Gateway has produced a district heating system that will achieve significant reductions in carbon emissions. The system provides an instant supply of heat and hot water using a metered system that ensures residents and businesses only pay for the energy they use. The system has been designed to be considerably more efficient than conventional heating and should significantly reduce energy bills in the near future.

Auchengray Church Centre Trust have installed a ground source heat pump which will allow the project to not only cut carbon emissions and improve insulation, but create a space that the community can enjoy.

1-2. Auchengray Church, South Lanarkshire, low carbon renovation.

3. Sunamp heating system.

4. Sunamp launch, October 2021



HEAT

Key findings

Through analysis of the project's monthly reporting, we were able to identify the following key findings:

Understanding the historical and architectural significance of a historic building at the start of the project is crucial, with the design phase being the most important part of the project.

Microgeneration and low carbon solutions are extremely complicated to implement in historic properties.

Electricity costs much more than mains gas, making it difficult to present a strong business case for choosing low carbon heating options over a modern gas boiler.

A comprehensive engagement plan, and early, honest engagement with homeowners is key. This includes preliminary engagement, which takes a significant amount of time.

Developing case studies is crucial for projects as they help us understand and anticipate challenges and establish good practices.

There is a requirement as an industry to improve installation training of emerging energy technologies.

Coherent legal advice is required for installing low carbon heat solutions in multi-ownership properties.



HEAT CASE STUDY:

Future-proofing tenements with Edinburgh World Heritage

Allocated funds £330,256

1-2, Edinburgh World Heritage Trust, 2021

THE ASK

Edinburgh World Heritage (EWH) applied for funding to support a complex energy efficiency improvement project in a post-war block of flats. The project was complicated by its location: a World Heritage Site.

WHY IT WAS SELECTED

EWH's project improved energy efficiency and comfort levels for people in these properties, while providing useful insights that will help with future retrofit projects in listed buildings.

THE PROJECT

A range of energy efficiency and conservation measures were applied as part of the whole house retrofit of a block of flats. A total of 83 improvements were installed, with 12 flats and two commercial units benefiting from external works, and 11 of the flats and one commercial unit from additional internal works.

Improvements included double or triple glazed windows which echoed Basil Spence's original design for the building, the insulation of attic and flat roof and cavity walls, LED lighting, Mechanical Ventilation with Heat Recovery (MVHR), and more efficient heating systems with smart controls.

Yann Grandgirard, EWH

"Without this support, we probably wouldn't have been able to complete this complex project. We're grateful for the trust the GEF team had in this project throughout, despite the various challenges we faced. The project's success is also the GEF's success."



How this project serves the GEF aims

Putting the planet and people first

Occupants now have increased levels of comfort in flats that were previously damp and draughty.



We're already making an impact and will continue to do so

Expected new Energy Performance Certificate bands range from B to C for the 12 flats and the commercial unit. Before the works, they were C to D for the flats and G for the commercial unit.



We must keep evolving

The whole house approach means multiple measures contribute to carbon savings, delivering an estimated 67% decrease in carbon emissions.



Support where it's needed most

Navigating energy efficiency improvements in listed buildings is a major challenge in the transition to Net Zero, and this project has shown it's possible to get it right.



HEAT CASE STUDY:

Tackling fuel poverty with Warmworks

Allocated funds £1,250,000

WHY IT WAS SELECTED

This project saw Warmworks target properties that are electrically heated and have been specifically identified as in or at risk of fuel poverty. By helping to make energy bills more affordable, the project has made a significant positive impact on the lives of residents.

THE ASK

Through this project, we installed battery storage technology in 133 off-gas homes in the Stewartry area, where fuel poverty is disproportionately high. A major Kirkcudbright substation is also being upgraded nearby.

THE PROJECT

The project has helped us better understand what effect a decentralised storage facility would have on managing demand and reducing carbon emissions. We have also taken on valuable learnings for grid management and the incorporation of future-facing technologies.

We can now evaluate the real-life performance and reliability of battery storage equipment and controllers. 133 batteries have been installed, creating a unique opportunity to reduce energy bills for fuel-poor householders, all while creating a virtual power plant to support the further development of network balancing services for DNOs.

Simon Kemp, Warmworks

“The Green Economy Fund event in Glasgow provided some insight into the successes and challenges of other projects, and was an excellent way to learn how others have overcome obstacles and led the way to deliver. Communications and support from the GEF team have always been open and accessible, supported by the knowledge that their aims are aligned to those of the projects in supporting consumers and the sustainability of the energy network.”

How this project serves the GEF aims

Putting the planet and people first

We predict a carbon saving of 754tCO₂ over the lifetime of the battery units.

Staff have attended 25 training sessions to help achieve project deliverables in sustainable living and protecting the planet.



We must keep evolving

We have built a viable, scalable commercial model and platform for development that both addresses fuel poverty and tackles demand management. Such a future-ready model can help make the network more dynamic, and take us forward.



We're already making an impact, and will continue to do so

Eight jobs have been secured as a result of the project, with another four jobs created because of the project.



Support where it's needed most

423 energy customers have received advice and support directly through the project.



1-3. Warmworks, October 2020





FOCUS AREA:

Renewables

At a macro level, the introduction of renewable generation has been transformational in making sure the energy we generate in Scotland is carbon-free. We made sure that the projects we supported through the Green Economy Fund (GEF) looked at energy generation and its utilisation at a local level.

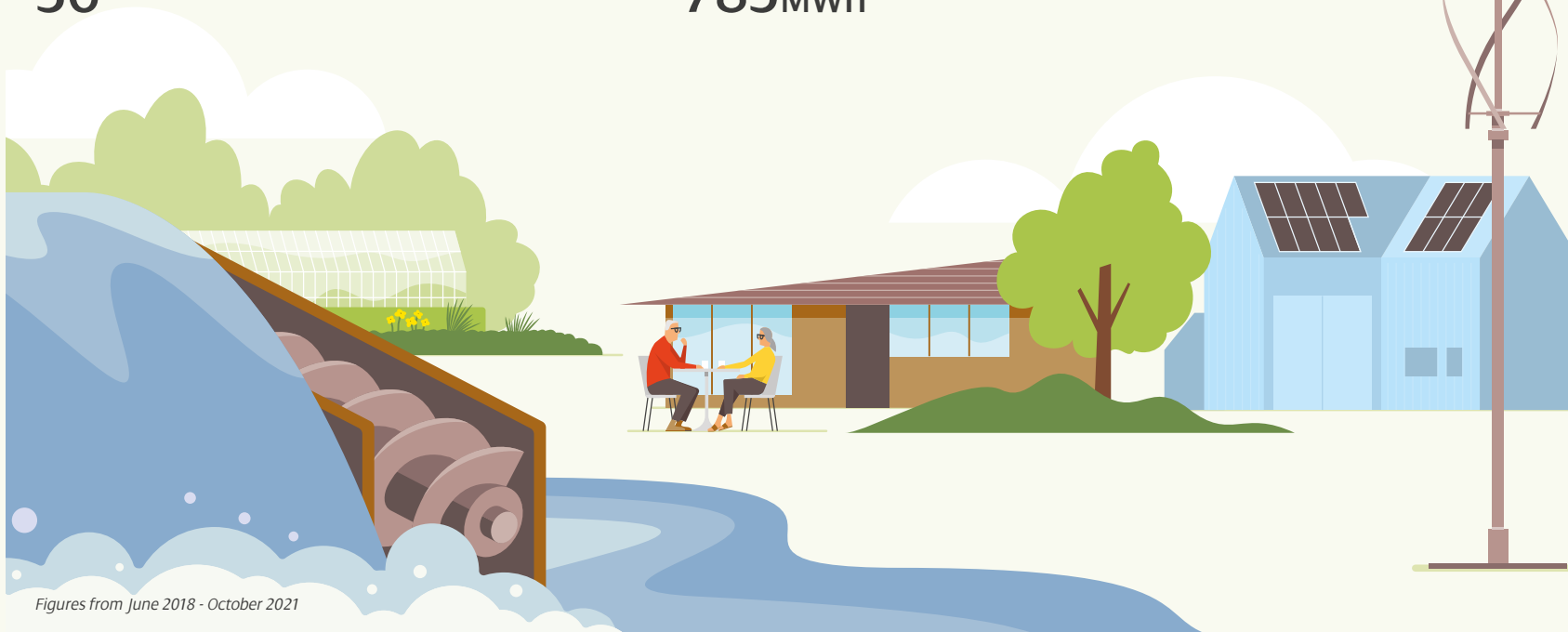
7 projects supported | £2,063,638 allocated from the fund

Low carbon generating measures installed

36

Low carbon energy generated

785MWh



Figures from June 2018 - October 2021

We supported seven projects with renewable technologies being installed through the fund. These projects can be broken down into three different approaches:

- Hydro schemes for community benefit and education
- Supporting the installation of solar PV arrays, to generate community revenues
- Installation of multiple low carbon technologies in conjunction with renewable generation to match local supply with demand



Hydro

We supported two hydro projects. The first one is within Edinburgh's Saughton Park, where the hydro scheme was installed to power the buildings within the park. The second project was to build a small hydroelectric scheme that will benefit three small rural communities (Keir, Penpont and Tynron) in South West Scotland. As well as generating electricity, this hydro scheme will generate income that can be reinvested back into the three communities. Both projects were designed to lead to economic growth and have societal benefits, as well as strong learning outcomes for their communities.



Solar

We are also proud to have supported numerous solar installations through our Local Energy Scotland project. Twelve communities have been able to fit solar installations, with the income generated being reinvested back into the work these community groups undertake.

Our funding also allowed the installation of 158 PV modules (panels) to Civic House in Glasgow, helping transform the iconic 1920s building into a modern energy-efficient community hub. An Agile City project was completed with the installation of 158 PV modules (panels). Solar technology also formed part of projects at Halo (Kilmarnock) and Ettrick & Yarrow. These projects involved the installation of multiple low carbon technologies, including battery storage, to match at a local level energy being produced and stored with consumption.



1. KPT Development Trust, August 2020.

2-3. MensShed Local Energy Scotland Project, August 2020.

RENEWABLES

Key findings

Through analysis of the projects monthly reporting, we identified these key findings:

Early and direct engagement with suppliers is necessary to understand costs and any future cost uncertainty.

Community engagement can be extremely beneficial for gathering project support.

There are significant amounts of legal, regulatory, technical and other challenges, as well as various layers of bureaucracy to contend with, including funder requirements. Seeking expert help is key.

There are numbers of experts who can support in the development of energy plans, feasibility studies and installations.

The inflexibility on the Feed in Tariff (FIT) deadline is a significant barrier for small community groups trying to complete such complex projects on time.



RENEWABLES CASE STUDY

Building low carbon hubs with HALO

Allocated funds: £415,000

THE ASK

As part of the regeneration of the 23-acre former Johnnie Walker facility in Kilmarnock, HALO applied for funding to contribute to the development of a low carbon energy and transport system for the new Enterprise and Innovation Centre.

WHY IT WAS SELECTED

This regeneration project offered an opportunity to explore the interaction between multiple renewable and low carbon technologies in a flagship business site. This can set a standard for future developments while providing local economic growth.

THE PROJECT

GEF funding supported the project management and design of this unique development in Scotland. We also contributed to the purchase and installation of:

- A solar carport – a canopy of solar panels covering the car park and enabling PV charging of electric vehicles
- Rooftop solar PV panels
- Battery storage
- Electric vehicle charging unit and infrastructure
- Electric bus and two electric cars
- Battery storage and energy management system



Gary Deans, HALO

“The Green Economy Fund has been an essential partner in the first phase of development – without their funding it’s doubtful the infrastructure systems could have been put in place.”

“The team at GEF have been very supportive and willing to assist at all times. This was hugely appreciated as we all faced significant challenges throughout the past two years.”

How this project serves the GEF aims

We’re already making an impact and will continue to do so

Renewable technologies and electrification of transport keeps the operational carbon footprint of the building low. Once finalised, this will become a unique zero carbon building.



We must keep evolving

The GEF aspects of this project have created five new jobs, with an average of 140 people employed per week on construction, using local businesses wherever possible.



Putting the planet and people first

The Energy and Innovation Centre will create employment, provide digital education and share learnings. The full HALO site is expected to stimulate 1,500 local jobs.



Support where it’s needed most

HALO are providing educational activities to help school children learn more about renewable energy technologies.



RENEWABLES CASE STUDY

Building greener parks with Edinburgh City Council

Allocated funds £482,107



THE ASK

City of Edinburgh Council wanted to undertake a £7m restoration of Saughton Park. The restoration would provide high quality facilities and create a focal point for a wide range of people and activities.

The Council wanted to work out how they could reduce the energy costs associated with running the park. Any savings could be reinvested back into the park to secure:

- Affordable venue hire for community groups
- Lower energy costs for the café tenant
- Free or low-cost activities benefiting the 24,000 people living in the local catchment area

THE PROJECT

The Council wanted to install a micro-renewables system which would allow Saughton Park and its community facilities to be operated off-grid. This was part of a strategy to:

- Future-proof the park's energy system
- Ensure security of supply
- Protect against future cost increases of grid electricity prices

The park's refurbishment also needed to be compatible with the Council's pledge for the city to be carbon neutral by 2030.

THE SOLUTION

The park's proximity to the Water of Leith river offered an ideal opportunity to harness hydropower to meet the energy demands of the site's buildings. In fact, the weir running through Saughton Park had previously supplied both water and energy to 17 mills, breweries and other works in Gorgie – beginning in 1790. This meant that the project also offered a fittingly low carbon tribute to Scotland's industrial revolution.

The Council worked with Arcus Consultancy to design a closed-loop, low-carbon energy solution – the first of its kind in any UK park. The system is made up of a 39kW Archimedes Screw on the Water of Leith, and provides all the electricity the park needs, including two ground source heat pumps which heat the park's buildings. Any spare electricity generated is sold back to the grid, providing the Council with extra revenue for running the park.

Initially, project development was halted due to a lack of funding, despite the project team trying several funding routes. The Council eventually applied to the GEF; requesting £482,107 to support the purchase and installation of the Archimedes Screw. The application was approved, and the project went ahead.



THE OUTCOME

The Archimedes Screw was successfully installed and began generating low carbon electricity on 12 February 2020.

The Council attributed the project's success to strong leadership, involvement of a wide range of stakeholders, and securing community buy-in at an early stage. The project team received significant political support too, as this project was seen as a statement of the Council's ambition to create a greater focus on sustainability within the visitor economy.

THE BENEFITS

Since it began operating in February 2020, the hydro scheme has generated 70,500kWh of low carbon electricity, saving the equivalent of 10,970kg of carbon dioxide. Over the 25 years the hydro scheme is expected to run, it's estimated to generate 5,000MWh of electricity and save 1,800 tonnes of carbon dioxide emissions.

The Council also expects to save £15,000 a year on energy costs for running the park. This money will be reinvested into improving the park and providing benefits to the local community.

How this project serves the GEF aims

Putting the planet and people first

The hydro scheme has generated 190,800kWh of low carbon electricity, saving the equivalent of 29,858kg of carbon dioxide.

The hydro scheme is expected to generate 5,000MWh of electricity and save 1,800 tonnes of carbon dioxide emissions over the next 25 years.



We're already making an impact, and will continue to do so

Due to the energy savings it has made, the project has secured its role in the Council's pledge for Edinburgh to be carbon neutral by 2030. These benefits will continue into the future.



We must keep evolving

The closed-loop, low-carbon energy solution developed with Arcus Consultancy is the first of its kind in any UK park. This will help to set a precedent for future projects of a similar nature.



Support where it's needed most

The money saved on energy costs will be spent on improving the park and, in-turn, benefitting the local community.



1. Café and social facilities at Saughton Park.

2. Councillor Donald Wilson, Guy Jefferson, Director of Customer Service, SP Energy Networks, and Shona Nelson, Chairperson at Friends of Saughton Park at the launch of the Saughton Park project, August 2020.

3. The refurbished winter gardens at Saughton Park.



What we've learned

The Green Economy Fund and our Net Zero fund will play a major role in the green economic recovery and preparing our communities for the transition to a low-carbon economy. We have already achieved so much – and we're just getting started.

1. 'The Race To Net Zero' event, Scottish Power HQ, October 2019, attended by over 300 stakeholders.
2. Auchengray Church Engagement, South Lanarkshire.
3. Agile City Engagement, Civic House.



We've taken big steps in a short time

In just three years, we have made a huge impact in our communities. That includes stimulating the economy by creating more than 58 full-time green economy jobs, and supporting a host of green projects that may otherwise struggle to obtain funding.

We supported an additional 96 projects through GEF funded activities, with each of them indirectly benefitting from funding. We have also engaged with 1,130 other organisations in discussion – helping communities to understand the exciting opportunities offered by the green economy.

Ofgem's support has been instrumental in allowing SP Energy Networks to establish the Green Economy Fund and then maintain its positive impacts in our communities. We have also secured an additional £5m through our Transmission business for a Net Zero Fund (NZF) and have included plans for a Distribution fund in our RIIO-ED2 business plan submission.

Establishing this fund has helped us take proactive steps in preparing for the major network changes to come, and making sure our most vulnerable are not left behind.

We still face many challenges to reduce CO₂ emissions, but the success of the Green Economy Fund has shown we can make incredible progress when resources are applied in the right way.



Key learnings and opportunities for further support

We have worked across a broad range of projects, engaging with many communities and stakeholders. During this time, we identified recurring challenges where we see an opportunity for us to provide valuable support in the future. Notable learnings, observed over numerous projects, include:

Limited availability of technology in the market

It's vital to attract new entrants to the market – the lack of choice drives up cost and extends project timescales. However, availability should improve as certain technologies become mainstream.

Procurement is challenging

Procurement was mentioned as an issue by most projects – including issues related to costs, lead times and availability. Early and direct engagement with suppliers is essential when it comes to understanding costs and future cost uncertainty.

A focus on education

Our industry has a duty to improve training on emerging technologies, and to widely promote the benefits of these skills within communities.

Engaging experts makes a big difference

Outside help can transform a project. A wide range of experts can support planning and delivery, guiding projects to a successful outcome.

Building a roadmap

The projects we have funded can act as exemplars for future projects to learn from, with case studies being developed and widely shared.

We must encourage early adoption and pilot projects of new technologies. Sharing findings will be key in building widespread market confidence to adopt low carbon technologies.

Key areas of opportunity

- Flexible energy and increased storage were the two greatest opportunities identified by Green Economy Fund project stakeholders
- Legislation to reach net-zero carbon by 2045 was cited as an important opportunity
- Increasing the use of renewables in heat, transport and electricity to 50% by 2030 was also identified as an opportunity
- The Green Recovery has the potential to create many opportunities for income, jobs and growth, and at the same time accelerate action on long-term environmental goals, following the global pandemic



What we've learned

Projected benefits of the Green Economy Fund during project lifetimes

Distance travelled in EVs

790,700 miles pa



59* Electric vehicles purchased
*already exceeded target

Low carbon energy generated annually

908,600kWh



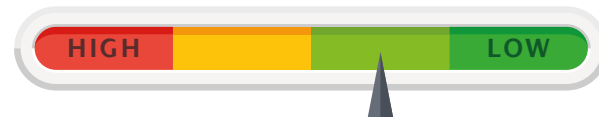
55* Full time green economy jobs created

*already exceeded target



3,700pa

Carbon savings



As part of the application process, projects submitted their forecasted impacts. These figures were collated into an overall future impact report and an extract of these figures are shown below.



Building a greener future, together

1. The Green Economy Fund awardees at our event at Dynamic Earth, Edinburgh in 2019.

The beginning of a better future

Gathering project feedback was crucial in ensuring the success of the fund. Therefore we issued a questionnaire to all Green Economy Fund projects on receiving their final funding claim in order to gain feedback on the outcomes, learnings and experiences of using the fund. We received 33 responses.

The most key social impacts were improved networks between community groups, improved technical knowledge of those groups and enabling the provision of an essential service came back as the most common social impact of the fund, which reducing CO₂ emissions was seen as the most important environmental impact.

Feedback on project delivery and fund management was largely very positive, and some recommendations included:

Allowing projects greater turnaround time to resolve legal queries and challenges.

Projects should consult with experts whenever possible in the planning and delivery phases.

Aligning mission and plans with more established projects can help smaller projects be seen as a safe bet by stakeholders.

More project intercommunication and networking events would have been welcome.

We have* taken this feedback into account when developing the plans for our future funds.

In just three years, the community impact of the Green Economy Fund has been huge. Now is the time to double-down on our investment in new green energy initiatives.

The COVID-19 crisis caused sudden and dramatic changes to our way of life, with the impact felt across every industry. Yet one small positive has been the revelation that things can improve if we take timely action against the climate crisis – during lockdown we saw cities with cleaner air and flourishing wildlife. We have seen cities with cleaner air and flourishing wildlife.

As the UK recovers from the impact of the pandemic, it's crucial that green energy is at the heart of our plans. By taking the right approach now, the UK can unlock significant economic benefits on the path to Net Zero – educating the workforce of the future, creating jobs, improving access to a green supply chain, and making sure that no communities are left behind.

We recognise the huge challenge that remains ahead of us all to reduce CO₂ emissions, but our success so far inspires us to keep moving forward – to build a greener future, together.

*The full data for questionnaire can be found in Appendix 5.

Appendix 1: The projects

Reference	Project organisation	Summary	Funding amount
GEF0019	South Ayrshire Community Transport	Launching the KA8 Electric Car Club, with two electric vehicles.	£65,005
GEF0023	Sanctus Media Ltd	Development of an Android version of the WattsUp App, which provides real-time charge point data.	£36,000
GEF20001	Glasgow City Council	Sustaining the Route 100 electric bus route.	£25,000
GEF0001	City of Edinburgh Council	Micro-hydro scheme to power park buildings and GHSP.	£482,107
GEF0004	Dumfries and Galloway College	Provision of heat and power technologies as teaching aids for STEM hub.	£195,000
GEF0017	Teviot Electric Car Club	Co-op owned community Car Club: four EVs.	£107,488
GEF0030	Community Energy Scotland	A programme of local 'smart energy' action plans developed with community councils in Dumfries and Galloway, the Scottish Borders, Fife and Glasgow.	£111,747.13
GEF0041	Auchengray Church Centre Trust	Borehole GHSP installation in community centre.	£40,000
GEF0052	Forth Environment Link	A network of eBikes in Falkirk.	£161,230
GEF0060	Coalfield Community Transport	Pilot electric minibus in existing diesel fleet.	£160,000
GEF0070	Transport for Edinburgh TFE	Additional push and eBike blocks across Edinburgh to widen existing scheme.	£494,870
GEF0077	Dundee and Angus College / ESP	Developing renewable technology training centres for students, industry, and the public sector.	£500,000
GEF0080	Forth Valley College	Outreach work focusing on renewables, aimed at nurseries, primary and secondary schools.	£43,727
GEF0085	Warmworks	Installation of battery storage technology in 150 off-gas, electrically-heated, homes, enabling lower fuel bills.	£1,250,000
GEF0087	The HALO Kilmarnock Ltd	Delivery of a sustainable, low carbon energy system to support site and community.	£415,000
GEF101	Little Kerse	Installation of low carbon alternatives to reduce carbon footprint at this community sports centre.	£380,000
GEF0129	Agile City CIC	Conversion of a 1920s' industrial printworks to a community hub, using a PassivHaus approach.	£319,550
GEF0136	Food Train	Eight electric vans replacing diesel and staff support to widen this service.	£452,413

GEF0009	Edinburgh World Heritage Trust	Energy efficient upgrade of a world heritage site in Edinburgh, comprised of 12 flats and seven business units.	£330,256
GEF0012	Community Transport Glasgow	Replacement of 10 diesel minibuses from a fleet of 16.	£900,000
GEF0021	Clyde Gateway Developments Ltd	Supporting the development of an ambitious district heat scheme in Dalmarnock.	£2,100,000
GEF0079	KPT Development Trust	A ~30kW hydroelectric scheme benefitting three small rural communities.	£181,259
GEF0127	University of Strathclyde	Combining 5G technology and smart metering to manage energy usage across residential heat networks.	£264,414
GEF0058	The Rural Development Trust	Electric minibuses and associated charging infrastructure (renewably-powered).	£343,000
GEF0075	Sunamp Ltd	Delivery of five innovative, DSR-enabled, micro-district heating networks, providing heat to 20 properties.	£396,259
GEF20002	First Buses Project	Introduction of Glasgow's first large electric bus route operating within the city centre.	£1,461,174
GEF0056	Dumfries & Galloway Council	Pilot of two leased electric refuse collection vehicles.	£1,150,000
GEF0061	SoulRiders	Funding for eight cargo bikes to secure delivery and waste contracts with local businesses.	£140,615
GEF0102	Western Buses Limited TA Stagecoach West Scotland	Five electric buses with opportunity charging.	£2,000,000
GEF0137	Glasgow City Council	Two EV minibuses to continue the Riversider 100 service.	£420,000
GEF0035	Ettrick and Yarrow CDC	Pilot project to connect locally generated renewable energy to EV charge points, public transport and storage heating.	£90,272
GEF0042	West Lothian Council	PV and battery storage to power an EV fleet.	£15,000
GEF0138	Lothian Buses	Purchase of four fully electric double decker buses. These buses will run on a newly developed city centre electric route which takes in a number of Air Quality Management Areas.	£1,700,000
GEF0139	Local Energy Scotland	The vision is to create a lasting environmental, economic and social benefit for communities across SP Energy Network's area through the installation of solar PV as part of energy system projects. SP Energy Network funding will result in community-led PV installations.	£500,000
GEF0141	Transport Scotland	This trial will explore and demonstrate the role a DNO can play in the process of planning and delivering a universal public EV charging network to support communities in the transition to electrified transportation.	£1,500,000

Appendix 2: The criteria

The projects selected for funding needed to meet the following minimum criteria:

- All projects will be considered, but they must demonstrate a strong link to the energy sector
- The projects should be able to run independently with little input from SP Energy Networks. However, at the discretion of SP Energy Networks, they may accept a mentor from SP Energy Networks' senior team and/or The Energy Saving Trust
- Projects must be based in the SP Energy Networks area in Scotland and the applicant's team must have a majority Scottish footprint
- Projects should produce tangible, physical outcomes within the desired timeframe
- There must be clear additionality demonstrating the need for funding
- An experienced project manager must be assigned by the applicant to manage the project. The Green Economy Fund can contribute to this cost and the project management budget should be in line with the award amount and project complexity
- All applications should have a match funding contribution. For all-but-local community applicants, this must be a clear funding commitment (not just in-kind support)
- Value for money should be demonstrated through a defined formal procurement process or through benchmarked rates for project partners
- Research projects can be funded as part of the GEF, but they must produce a tangible physical outcome. For example, carbon savings from the generation of low carbon power, or journeys made by electric vehicles

Appendix 3: The application process

A two-stage application process was established, where Expressions of Interest (EOI) were submitted first, and then full applications were invited from projects scoring the highest after a robust review.

Expressions of Interest

A relatively simple EOI form was introduced to keep the scheme accessible to a wide range of applicants. The form includes some yes/no questions and seven questions requiring short, descriptive answers on the outline and impacts of the project.

We use the EOIs for shortlisting and screening out projects that do not meet the scheme criteria. This prevents ineligible projects spending valuable time on a full application form, and allows the GEF team to provide applicants with feedback on their project ideas before they submit a full application.

Full application

We invite full applications from projects that are successful at EOI stage. These require a more detailed description of project activities and impacts to better inform the final decision on which projects should be funded.

Application form

The GEF has a broad scope covering a wide range of projects, and so requires a flexible application form. The form is designed around the principles of "Theory of Change", encouraging applicants to focus on the changes they want to bring about and develop a rationale for how their project will achieve that change. The Theory of Change approach is flexible, so can be applied to most project types.

The form asks applicants to explain the aims, objectives and intended outcomes of their projects and how they think the project will achieve its aims. This allows assessors to understand whether the project addresses clearly defined issues, and whether the intended work programme is appropriate for addressing those issues.

The application form also asks questions about the project's quantifiable impacts, with a focus on the reduction of carbon emissions and social impact.

The other key areas covered by the application form is the capacity and experience of applicants, enabling assessors to more accurately evaluate whether the delivery of the work programmes proposed is truly achievable.

We store the contents of the application forms in a database so key information can be pulled out efficiently for scheme monitoring and reporting.

Criteria

We score all projects against a common list of criteria (see Appendix 2). These are designed to make sure applications are judged on:

- The strength of the project concept and rationale
- The applicant organisation's experience and capacity to deliver the project
- How well the project has been planned
- The project's cost effectiveness in terms of the impacts being created

This approach encourages consistency and objectivity in decision-making, and guarantees that funding decisions are appropriately backed-up.

Scoring and shortlisting

Panel members with appropriate expertise were chosen from across the EST to assess and score applications. These assessors are matched with projects linked to their area of expertise (e.g. transport team members review EV projects, and renewables team members review projects focused on renewable energy and energy storage). In the few cases where a conflict of interest is identified, a third-party contractor will carry out the reviews, following the same process. The scores are then used to inform a shortlist which is then passed to the independent assessment panel.

Independent assessment panel

The Green Economy Fund independent assessment panel is comprised of independent experts from various organisations. Their expertise lies in a range of different aspects of the green economy, including renewable energy, the green economy and fuel poverty. This panel reviews all shortlisted applications and recommends projects to the executive governance panel for the final award of funding.

Due diligence

Four types of due diligence work are carried out before funding is awarded:

- Financial – *applicant organisations must submit two years of recent accounts or equivalent evidence to so their capability to work with the amounts of funding in question can be reviewed. This is carried out by both EST and SP Energy Networks staff*
- Legal – *where relevant, applicant organisations are asked to provide evidence of appropriate access to the properties and land where work is to be carried out as part of the funded project*
- Technical – *technical experts within EST and relevant sub-contractors are employed to carry out technical due diligence work on applications to the Green Economy Fund to check that any projects funded by the scheme are technically robust and feasible*
- Compliance – *background checks are undertaken for each project or organisation by SP Energy Network's compliance team, to ensure all recipients are operating in an ethical and compliant manner supported by appropriate policies. Conflicts of interest are noted to ensure appropriate actions can be implemented as required.*

Appendix 4: Governance

Transparency is key to the management of the GEF and all funding criteria is publicly available on the SP Energy Networks website. This report is part of our commitment to transparency and we will highlight not only the successes of the programme, but the challenges and the lessons we have learned through the management of it.

The Green Economy Fund team report quarterly to governance panels within SP Energy Networks at two levels: senior and executive. These panels are responsible for final fund allocation and the steering of the project.

Throughout the management of this fund, panel members and programme staff are required to actively consider and declare any conflicts of interest. The conflicted parties then recuse themselves from the relevant discussion. This applies to both application reviews and later discussions of projects.

There is a robust risk management process for this programme, including the maintenance of a risk register detailing the risks associated with this programme for both EST and SP Energy Networks, and outlining mitigation and recovery plans. For example, innovative or higher risk projects have gateway reviews to allow the project managers and the funder to step back and review the situation and options for going forward. We update this risk register regularly to reflect developing circumstances.

Appendix 5: Learnings reported by funded projects

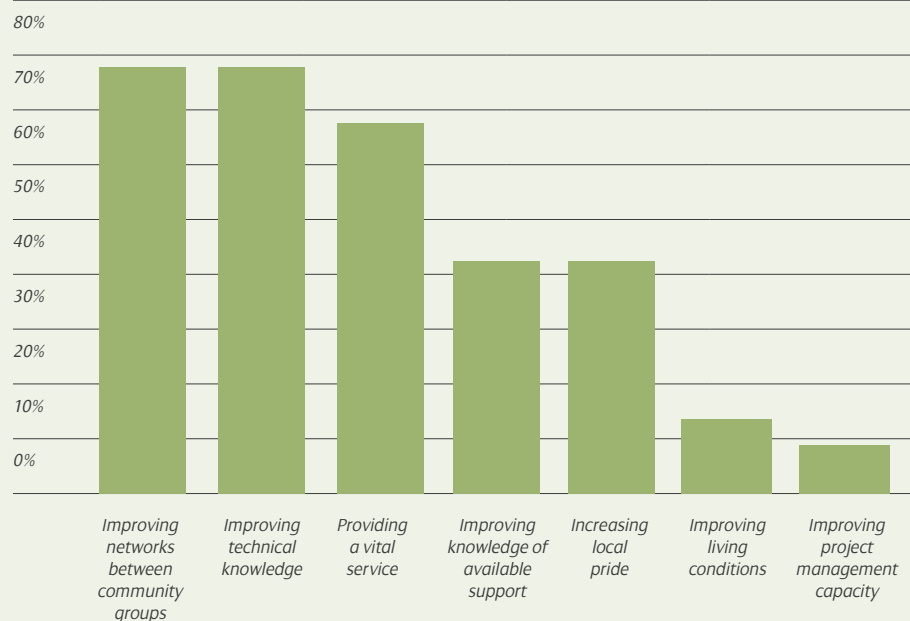
Energy Saving Trust developed a questionnaire which was sent to all projects either on project completion or on drawdown of their final Green Economy Fund (GEF) claim, if the project continued beyond the timeframe of the Fund. The aim was to collect projects' feedback on outcomes, learnings and their experiences of using the fund.

The questionnaire encouraged projects to reflect on whether their original aims were met, their successes, challenges, and the potential legacy of the project – their answers formed a detailed completion report. We issued questionnaires to all projects that had formally been awarded funding by October 2021 and received 33 responses.

We then coded and analysed the written responses to this questionnaire to bring out the impacts of the Green Economy Fund, any challenges the projects encountered, potential solutions to those challenges, and overall feedback on fund governance. Below are our key findings.

Graph 1: (Based on 59 responses from 22 projects that mentioned social impacts)

Social impacts of the Green Economy Fund



Social impacts

Graph 1 outlines projects' responses when asked to summarise the impact of their activities, looking at social good provided to the community or wider sector in which the project operates.

There were two common social impacts:

- Improving awareness and understanding of low carbon technologies among stakeholders.
- Improving networks for working together and sharing learnings between community groups.

Specifically, there was improvement in technical knowledge around installing renewable technologies, legal processes for applying to schemes like Feed in Tariff (FiT), and planning requirements for the installation of technologies like solar PV.

52% of projects that mentioned social impacts said that key services were established by project-funded activities. Key services includes Covid-19 test supply, food deliveries, school drop offs or simply helping to reduce rural isolation. Several of the decarbonised transport projects offered a greater variety of services due to the COVID-19 lockdowns, like medicine drop-offs.

Social impacts are a clear legacy of the fund, with numerous vital services established –improving the welfare of communities, improving stakeholder capacity by increasing technical knowledge and access to novel services, and encouraging communities to share knowledge and learnings themselves.

Economic impacts

Graph 2 shows the key impacts reported by projects which fall into the economic impact category.

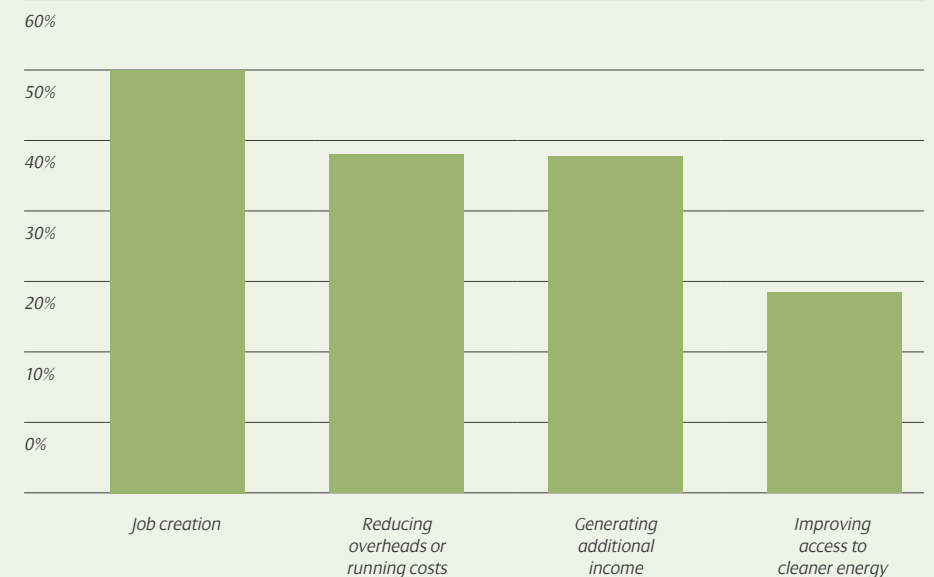
One of the two cited economic legacy was the creation of new jobs – including officers for community energy projects and longer-term roles like drivers for low carbon transport projects.

Transport projects have often led to reduced running and maintenance costs compared to previous vehicles, the other most cited economic impact. While other projects where equipment has been installed to support households, such as the Warmworks project, will result in lower energy bills.

Over 30% of projects have also been able to generate new revenue by using the GEF as match funding to apply for further grant funding or securing FiT and Renewable Heat Incentive (RHI) payments.

Graph 2: (Based on 23 responses from 16 projects that mentioned economic impacts)

Economic impacts of the Green Economy Fund



Environmental impacts

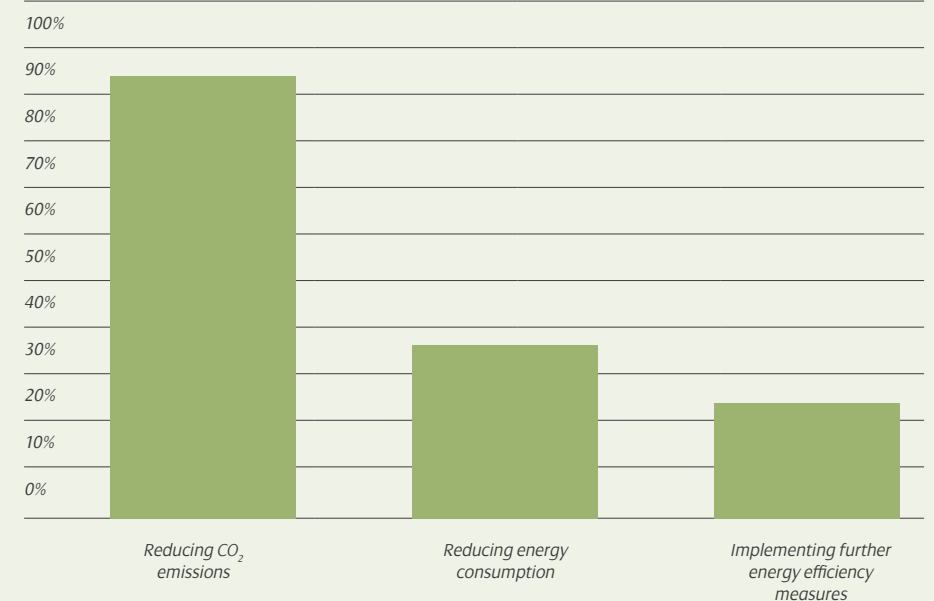
Graph 3 shows the key environmental impacts reported by projects. 86% of projects cited reduction in their CO₂ emissions as their main impact, particularly low carbon transport projects.

Three projects said the fund helped create an appetite from communities and project partners to scale up on delivering low-carbon technologies. A notable example is the proposed solar car port, through a local group working with Local Energy Scotland.

Warmworks highlighted that the fund may continue to indirectly support householders through stakeholder decision making. Their project has served as useful reference material for changes being considered in the Scottish Government's fuel poverty schemes. Data from Warmworks' heat battery installs will enable this potential rollout and ultimately benefit more householders.

Graph 3: (Based on 20 responses from 15 projects that mentioned environmental impacts)

Environmental impacts of the Green Economy Fund



Appendix 5: Learnings reported by funded projects

Project challenges

Projects were asked to comment on the challenges they faced in delivering their projects. There were challenges in three main areas: meeting legal requirements, procuring project resources, and engaging with stakeholders.

Legal challenges

- 67% of projects that mentioned any legal challenges stated that obtaining a grid connection was a challenge. Common issues encountered during this process included obtaining wayleave consent, applying the correct type of metering and being able to meet grid capacity requirements.
- Establishing ownership of development and access sites was a challenge mentioned in 42% of responses.
- 42% of renewable energy projects that mentioned legal challenges encountered difficulties meeting deadlines for obtaining planning consent and submitting Feed-in Tariff applications.
- One project also commented that the legal documents required by statutory agencies, such as Ofgem, were difficult to understand – leading to delays in the applications process.

Extending deadlines was the most common solution suggested to help resolve these legal challenges, and we were able to implement this for later projects. Consulting with experts and effective communication were also seen as valuable ways to mitigate such legal challenges.

Procurement challenges

- Obtaining or raising match funding (a requirement of the GEF) was a challenge for 31% of respondents.
- Exceeding budgets or finding insurance caused key issues for 15% of projects.
- 38% also stated that a limited amount of choice and availability of the chosen technology (such as electric vehicles) was an issue. This increased the risk of missing project milestones for several projects.
- Contractors making changes to work programmes (46%) or contractors pulling out (8%) was also a challenge for project managers.

A strong project management team and plan was considered key to managing project changes, while detailed research helped to pre-empt many technical procurement challenges. Several projects consulted experts in their planning stage or when issues arose, and Energy Saving Trust were also able to support.

Raising project profiles by aligning with more established projects was another suggestion to help secure buy-in from stakeholders and ease procurement challenges.

Stakeholder engagement challenges

More than half of the projects reported difficulties getting “buy-in” from key stakeholders for their projects. This included, for example, not attaining public support at the scoping stage and failing to secure clear community group support.

Six projects experienced significant delays in decision making from key stakeholders, such as landowners and community boards. One project also cited difficulty getting support from stakeholders with the fund application process, partly because there was little expertise available.

Respondents suggested multiple solutions here, including more effective and continual communication, stakeholder events, and consulting with experts. Solutions for engaging with GEF specifically were to extend deadlines and allow more flexibility. Although we had a tight timeline to allocate and spend funding, we did extend overall timelines by six months to allow for delays due to COVID-19.

Feedback on fund governance

Overall feedback on the fund and its management has been good:

- “The whole process from the initial Expression of Interest, the workshops, the full application process and the overall support and management throughout the delivery of our project should be a blueprint for other funders.”
- “We found the fund very flexible in the way it’s been designed: it really allowed [for] innovation.”
- “The team has done an excellent job of keeping us informed about what we need to report on and the open communications were very welcome, especially whilst we were navigating the delivery of the project through a pandemic.”
- “On the occasions when we attended events with them, it was super to be greeted by first name and instantly recognised. GEF was not in any sense an anonymous, hands-off, grant-maker.”

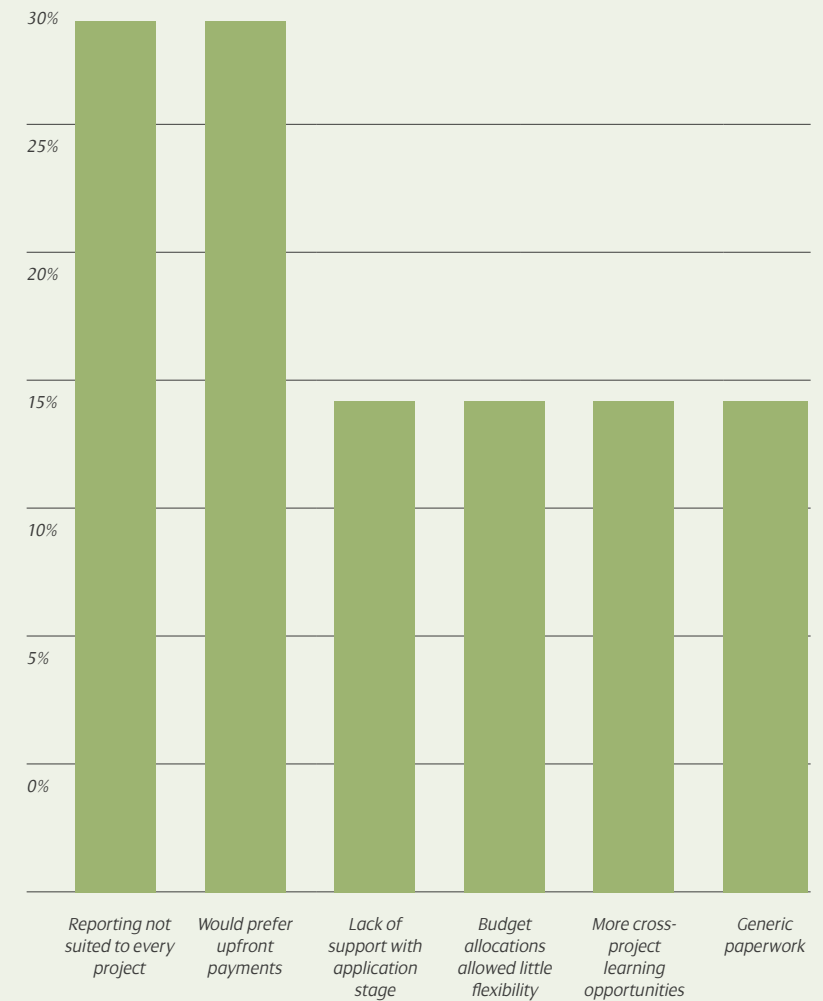
Graph 4 shows improvements suggested by the funded projects (not all projects suggested improvements). Some, like budget allocations being required in advance allowing little flexibility (11% of respondents) and reporting paperwork being designed for all projects rather than bespoke (33%), are a product of the size and variety of eligible project types for this fund.

It is, however, valuable to understand the most challenging areas, so we can incorporate this knowledge into future fund management. This applies to projects preferring upfront payments (22%) – the GEF’s financial management would not allow this except for where proof of order was provided (such as paying upfront for future delivery of a vehicle).

The two areas with the scope to improve are: providing support at the application stage, and facilitating more cross-project learning. We could expand support beyond group workshops for applicants including support while carrying out due diligence. Physical project interactions were limited by Covid-19 meaning plans for networking events were unfortunately scaled back.

Graph 4: (Based on 8 responses from 7 projects who gave specific responses about governance)

Feedback on Green Economy Fund governance



“We found the fund very flexible in the way it’s been designed: it really allowed [for] innovation.”

What the Green Economy Fund team has learned

Thanks to the experience of managing the fund and the insight provided from the respondents' questionnaires, we have our own learnings to carry into future fund management.

Keep application forms and aims as simple as possible

The Green Economy Fund had a wide-ranging aim: "to support Scottish Government's ambitious energy strategy and the UK's drive to a low-carbon economy".

All projects with tangible impacts were able to apply. This meant the GEF management team had to be experts on multiple technologies, commercial and social stakeholder situations and had to oversee the development of reporting and claim documents that would work for everything from education projects to the installation of multiple interacting technologies.

Consider the supply chain

The scale of the GEF created a challenge for the limited low carbon supply chain in Scotland, especially in terms of electric vehicles. Future funds could include supply chain briefings to inform on the scale of potential funding and help people prepare to bid for funded projects. This might reduce build and delivery times for certain technologies as we wait for them to become mainstream.

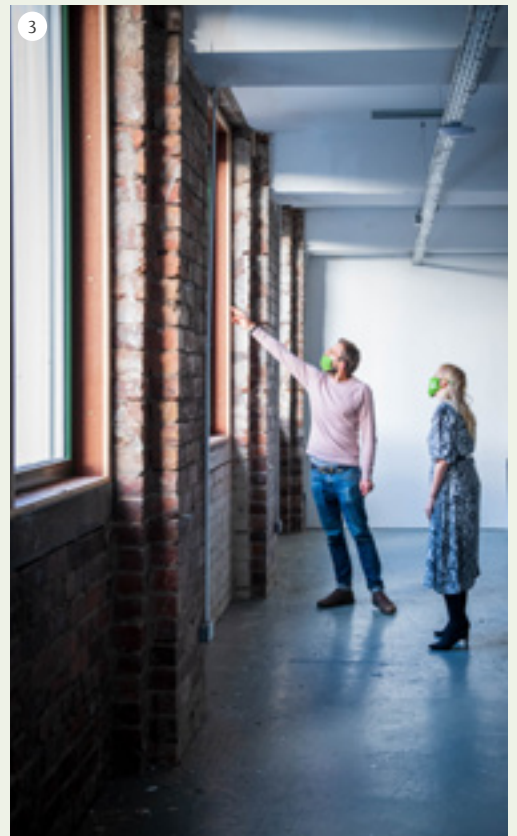
Projects need management experience

Some projects lack project and contractor management experience and we should be prepared to provide guidance and support where required, especially in the event of unforeseen challenges like contractors pulling out or COVID-19. Simplifying change and extension request processes wherever possible could also reduce the burden on project managers.

Longer timescales are needed

Our original target of allocating and spending £20M within two years was very ambitious. Due diligence and legal discussions time consuming. We are now in our third year of GEF management (due largely to the pandemic). A key learning is to allow longer timescales, with a clear expectation of what constitutes the start, middle and end of the fund. This would improve management, especially around closing the fund.

The Green Economy Fund had a wide-ranging aim: "to support Scottish Government's ambitious energy strategy and the UK's drive to a low-carbon economy".



1. Sunamp launch, October 2021.

2. Auchengray Church Engagement, South Lanarkshire.

3. Agile City Engagement, Civic House.



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