An SP Energy Networks initiative

Green Economy Fund Interim Report







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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Report.

**Frank Mitchell** 

SP Energy Networks, CEO

Welcome to the

**Green Economy** 

**Fund's Interim** 

The award-winning Green Economy Fund (GEF)

allows us to invest in the communities that we

serve. In the two years since its conception, we

have made great strides in supporting projects

support Scotland in its green energy ambitions.

across Scotland, all with the same focus: to

We can't wait to see what the future holds.

Progress, learnings and plans As well as discussing what the GEF has achieved so far, this report will outline the projects that we have supported or financially committed to, and highlight key learnings and outputs that we've started to gather.

The Green Economy Fund isn't just about green projects; it's about creating and accelerating a green economy. At the centre of our journey to achieving this, will be four key aims:

1. Putting the planet and people first We want to help pave the way towards a decarbonised, green world. Fundamentally, this means reducing CO<sub>2</sub> emissions, and always keeping wider environmental





impacts at front of mind.

#### 2. We must keep evolving

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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.

#### Growing momentum on the drive to Net Zero

The £20m Green Economy Fund was established in 2018 to support the Scottish Government's ambitious energy strategy and the UK's drive to a low-carbon economy by 2050. With the growing momentum in the race to Net Zero, we as a network provider understand that we have a critical role to play. Crucially, we want to be part of this transition.

#### The fund's key objectives:

• To build the infrastructure needed for the changes in heating and transport expected over the next decade, and gather key learnings along the way

• Boost the economy and create jobs in Scotland

 Support the Scottish Government's ambitious energy strategy and the UK's drive to a low-carbon economy

• Work with communities in our operational area in Scotland, supporting both rural and urban areas that suffer from fuel poverty

• Provide access to funding for projects that may ordinarily struggle to obtain funding

#### **The Energy Saving Trust**

When establishing the fund, we brought in fund experts to help us get it up and running quickly. With the expert guidance of the Energy Saving Trust, we were able to establish the fund within six weeks of its conception and agreement with Ofgem.

So far, we have managed to commit all the funding available until March 2021 - which is incredible in such a short timescale. We have promised funding to 35 projects, with each falling into one of the following categories; decarbonisation of heat, decarbonisation of transport, renewables or education. A full list of the projects supported can be found in Appendix 1.

In just two years, the fund will have created 55 full-time green economy jobs with another 281 jobs created indirectly. We have facilitated 826 learning discussions with other organisations to help educate communities on green energy, see page 7, and we have generated 435MWh of low carbon energy. The fund is making a real impact on numerous fronts.

#### Driving our award-winning fund

Securing the Outstanding Project Award at the Scottish Green Energy Awards 2019 and the Planet Mark 2020 Award for Community Engagement has inspired us to progress further. We know the fund is already making an impact, and we intend to continue using it to support the communities that need it most, ultimately working towards a greener future for all.

# The story so far...

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

#### Choosing the right projects

The fund aims to support a variety of projects across the Scottish communities that we serve.

The projects we support through the GEF must support the fund's aims, and demonstrate that they will fundamentally reduce carbon emissions and have a positive environmental impact.

They should also:

Pa 4

- 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 don't need to be innovative, they must be unique in their approach. Most importantly, they should generate lessons that can be shared. This is key, because if the fund can help us to build a solid roadmap for others to follow, we can affect wider social. economic and environmental benefits.

#### The four project categories

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

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#### Transport

Heat

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



#### Renewables

Projects that centre on

communities we serve.

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.

SPT 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 will 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 management of the 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.







### **Engagement that** drives positive project relationships

Strong engagement is crucial to the success of the fund, and we're seeing it right across the projects. All types of engagement are 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 crosssharing information and working collaboratively, there's 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 8,385

Training sessions for stakeholders

## 111

Number of stakeholders engaged via GEF events:

1,280

Energy customers that have received support directly through the project

13,120

Awareness-raising

Learning discussions

with other organisations

events held by

GEF projects

318

887

Figures from June 2018 - October 2020



#### **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 can 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 have faced and discuss the steps taken to overcome them.

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 key note speeches at our 'The Race To Net Zero' event at Scottish Power HQ, October 2019.

3. At our Green Economy Fund Awards, awardees had the opportunity to meet one another alongside senior SPEN personnel



#### **Expert collaboration**

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.



#### 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.

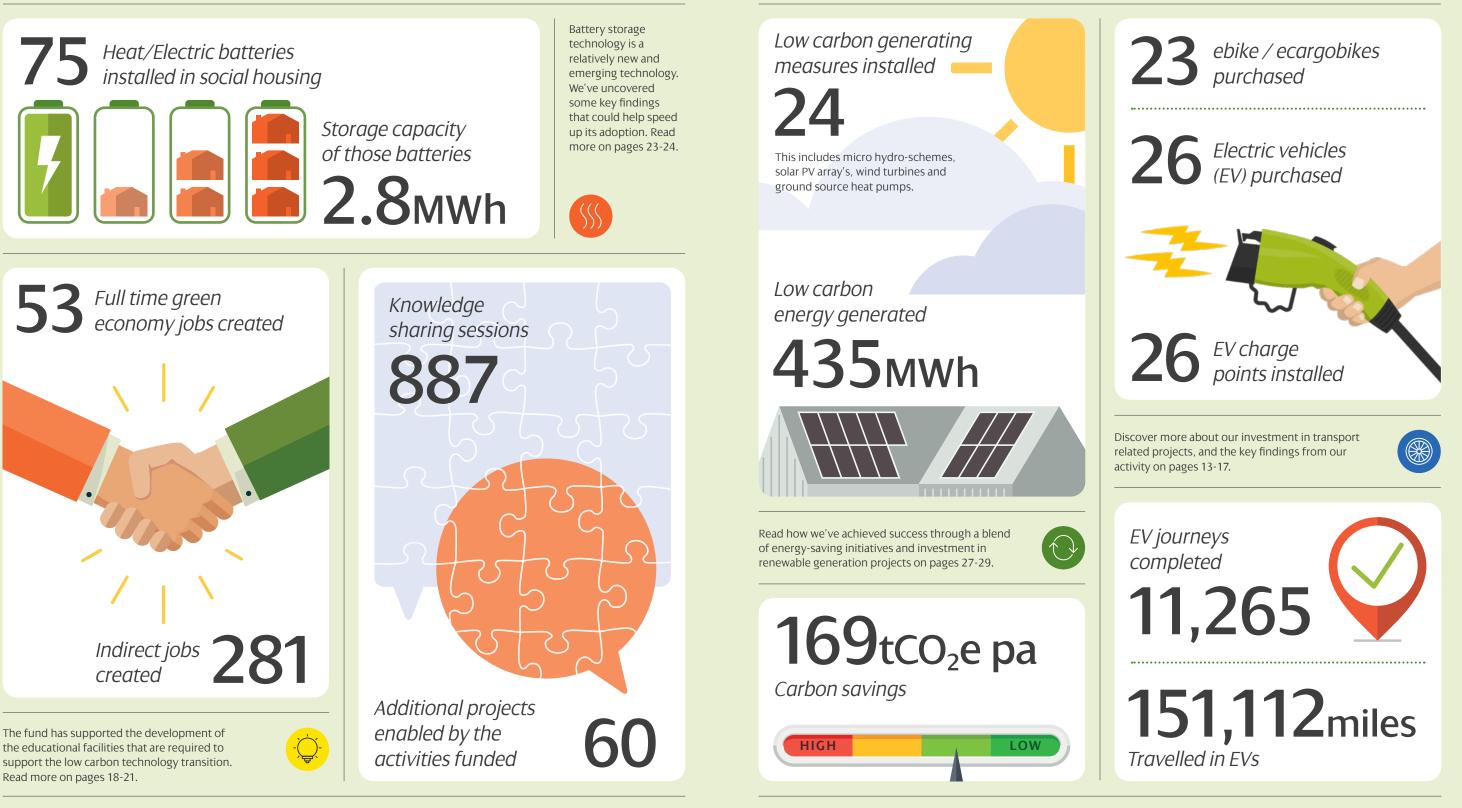
#### **Engaging with communities**

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

This engagement allows the fund's legacy to be continued and ensures that the projects have a positive effect on the wider communities they are working in. This helps support parts of communities that have not been directly linked to the fund.

## Our fund dashboard

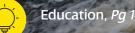
From the start of the Green Economy Fund, and throughout, we have captured key matrix which provides a snapshot of the full impact of the fund. These figures are calculated by Energy Saving Trust, based on the information provided by the projects.



Our work is already making an impact, and we're eager to keep paving the way towards a decarbonised, green future – paying close attention to the needs of the vulnerable as we do so. The success stories outlined in this section show how we have done just that, 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.



Transport, Pq 12





Heat, Pg 22



Renewables, Pg 26

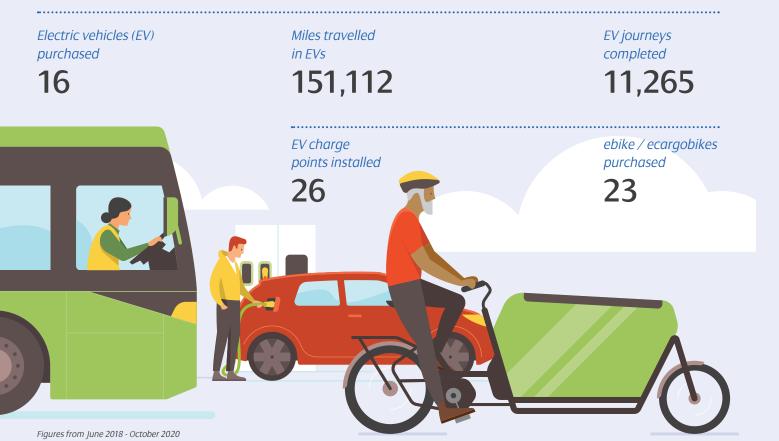
The projects leading by example



## 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 vehicles adoption, promoting positive change and understanding the network and environmental impacts.

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



The GEF has supported 18 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



#### **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 11 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.

1. In January 2020. First Bus launched their new M3 electric buses at an event at Glasgow's Riverside Museum.

2. Andrew Jarvis, MD for First Glasgow invited 14 lucky pupils from St Joseph's Primary School to be among the first to hop on board the new vehicles.

3. The event was attended by Councillor Anna Richardson, City Convener for Sustainability and Carbon Reduction at Glasgow City Council, and Scotland's First Minister Nicola Sturgeon MSP.







The projects leading by example

#### Bikes & e-cargo bikes

To help encourage the uptake of bikes as a method of transport, we are proud to support three organisations with the focus of using bikes as a way of reducing carbon emissions. Through these projects, we will directly purchase 47 eBikes, encouraging communities to consider new modes of low-carbon transport.

Through our partnership with SoulRiders – a cycling based charity – we will directly purchase five e-cargo bikes, providing Scotland's first integrated cargo bike delivery and waste service. This project will reduce the number of vans and lorries on our streets and provide a solution to many issues including traffic and pollution in cities. 1. June 2019, SoulRiders awarded funding as part of GEF Round 2 Project Awards.

2. August 2020, SoulRiders launch their integrated e-cargo bike service.

3. Through GEF, Transport for Edinburgh increased the number of hire points across the network to 101 by spring 2020.

4. The funding announcement of 21 projects held at The Great Polish Map of Scotland, Peebles, July 2019.



#### 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."





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 26 electric vehicles (including electric minibuses), helping to reduce carbon emissions alongside supporting our communities.





#### Car Club

Additionally, 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: 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 allelectric minibuses. This gave us an ideal test bed for the operation of electric minibuses across the country. CTG currently provides transport solutions to 75,000 passengers a year who will benefit from this project.

#### 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

issue in Scotland.

over a five-year period.

We're already making

fuel and maintenance costs.

an impact, and will

continue to do so

helps to reduce social isolation and

will be 43.22 tonnes per annum.

This equates to 216.1 tonnes saved

Overall costs for CTG have been reduced

through the savings made in relation to



We must keep evolving Building this transportation framework in Glasgow has allowed us to test how electric minibuses could work across the

loneliness – a major mental health country – a huge step towards supporting economic development and the journey to Net Zero. The estimated CO<sub>2</sub> emissions saved

#### 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 low floor accessible vehicles.









# 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



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 will target nurseries, primary and secondary schools in the Forth Valley area, providing a range of activities through a co-ordinated programme of STEM engagement and outreach work with a focus on renewables. The second STEM hub is at Dumfries and Galloway College, and will provide modern heat and power technologies as teaching aids. We are also supporting Dundee and Angus College to develop a network of specialised renewable and energy efficiency training centres across colleges in central and southern Scotland.

#### **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.

#### 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 placed to be the first college to completely power a building using renewable energy and to utilise these technologies for teaching purposes."





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.

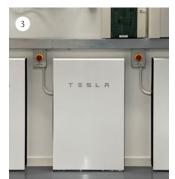
#### **EDUCATION CASE STUDY:** Dumfries and Galloway College

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 is 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 students will begin using the facility in the 2020/21 academic year.

#### 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-atheight 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.

and energy efficient technologies feature within the STEM hub.



#### How this project serves the GEF aims

#### Putting the planet and people first

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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 will be used to upskill and train at least 25 tradespeople and apprentices in its first year. The college will consider increasing this number once initial courses have been evaluated.

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

3-4. A variety of renewable





#### EDUCATION **Key findings**

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

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

To enable the Green Recovery post covid, 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 have also recommended a focus on ground and air source heat pumps including upskilling for the workforce which will influence teaching curriculum.

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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.

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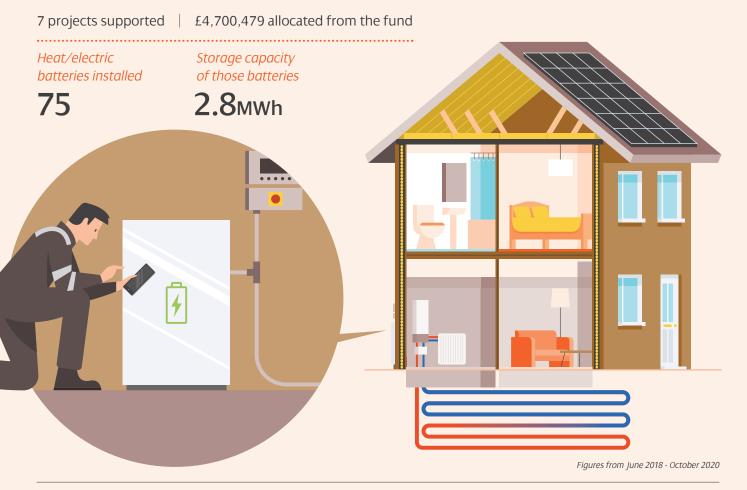
Colleges must be able to provide access to low carbon technology and appropriate facilities that enables them to support learning and hands on experience.



FOCUS AREA:

## Heat

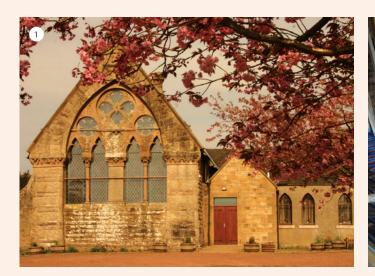
The decarbonisation of heat is crucial in the transition to a low carbon economy and the most challenging. Because of this, we were particularly interested in supporting energy projects, which had a focus on those affected by fuel poverty, energy system innovation, or the low carbon heating of our homes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



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 are upgrading 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 20 properties in Edinburgh. The project aims to reduce heating bills for fuel-poor and vulnerable customers, and reduce carbon emissions.

In Dalmarnock, Clyde Gateway is producing a district heating system that will achieve significant reductions in carbon emissions. The system will provide 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 also utilise their space for the community to enjoy.

1-2. Auchengray Church, South Lanarkshire, low carbon renovation. 3. Sunamp heating system.

4. Edinburgh World Heritage Trust, Canongate World Heritage site, September 2020.







The projects leading by example

#### HEAT CASE STUDY: Warmworks, Dumfries and Galloway

#### Allocated funds £1,250,000



#### THE ASK

Through this project, we plan to install battery storage technology in 150 off-gas homes in the Stewartry area, where fuel poverty is disproportionately high. A major Kirkcudbright substation is also being upgraded nearby.

#### WHY IT WAS SELECTED

The target properties 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 should have a significant positive impact on the lives of residents.

#### 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."

#### THE PROJECT

The project will allow us to better understand what effect a decentralised storage facility would have on managing demand and reducing carbon emissions. We'll also take on valuable learnings for grid management and the incorporation of future-facing technologies.

We'll be able to evaluate the real-life performance and reliability of battery storage equipment and controllers. 150 batteries have been bought and 75 have been installed to date, 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.

#### How this project serves the GEF aims

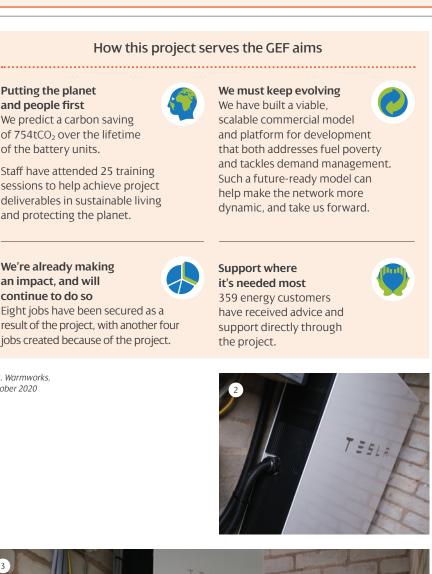
#### **Putting the planet** and people first We predict a carbon saving of 754tCO<sub>2</sub> over the lifetime of the battery units.

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

We'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.

1–3. Warmworks, October 2020











#### HEAT **Key findings**

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

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Encouraging residents and owners to engage with free energy advice can be difficult.

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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.

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Currently there is a limited understanding within the mechanical and electrical consultancies and installations companies of demand side response (DSR) controlled hybrid communal heating systems.

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

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There needs to be more choice and competition attracted to this sector to make the procurement of required project elements easier.



## 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 wanted to make sure that the projects we support through the GEF look at energy generation and its utilisation at a local level. We have 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



1. KPT Development Trust, August 2020.

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

#### Hydro

We are supporting two hydro projects. The first one is within Edinburgh's Saughton Park, where the hydro scheme is being installed to power the buildings within the park. The second project is 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 are 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 support 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.

The initial phase of our Agile City project has been completed with the installation of 158 PV modules (panels). Solar technology will also form part of projects at Halo (Kilmarnock, West Lothian Council HQ (Livingston) and Ettrick & Yarrow. These projects involve the installation of multiple low carbon technologies, including battery storage, to match at a local level energy being produced and stored with consumption.

So far, we are proud to have installed 11 sets of solar panels generating 169,724 kWh.

The projects leading by example

#### **RENEWABLES CASE STUDY:** Edinburgh City Council, Saughton Park

Allocated funds £482,107



#### THE ASK

City of Edinburgh Council are undertaking a £7m restoration of Saughton Park. The restoration will 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 microrenewables 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.

2

#### 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, lowcarbon 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.

#### Putting the planet and people first The hydro scheme has

generated 70,500kWh of low carbon electricity, saving the equivalent of 10,970kg 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.

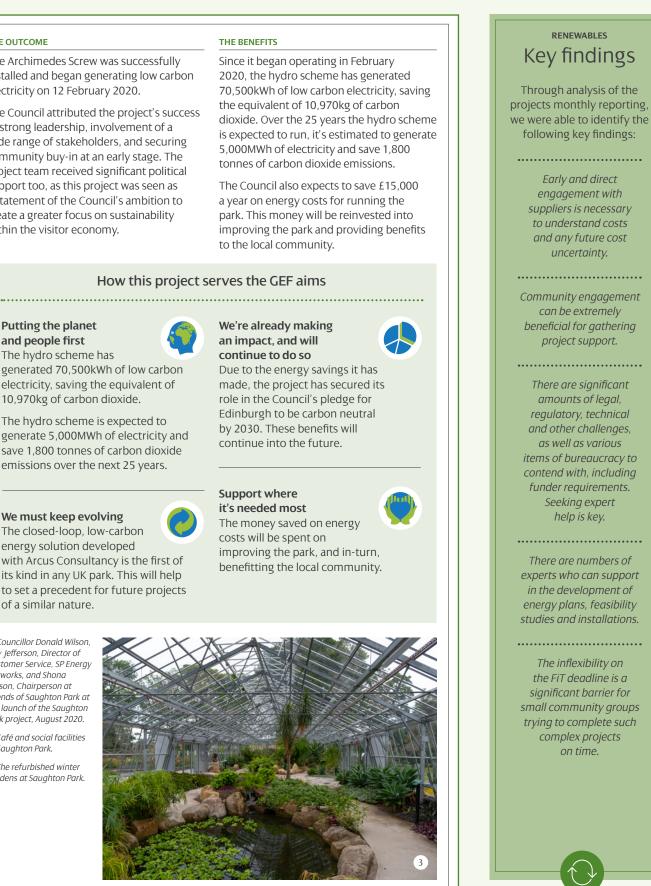
#### We must keep evolving The closed-loop, low-carbon

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.

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

2. Café and social facilities at Saughton Park.

3. The refurbished winter gardens at Saughton Park.







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.

#### We've taken big steps in a short time

In just two years, we have made a huge impact in our communities. That includes stimulating the economy by creating more than 50 full-time green economy jobs, and supporting a host of green projects that may otherwise struggle to obtain funding.

We supported an additional 60 projects through GEF funded activities, with each of them indirectly benefitting from funding. We have also engaged with 887 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 hope to establish a Net Zero Fund as part of our T2 business plan.

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 CO<sub>2</sub> emissions, but the success of the Green Economy Fund has shown we can make incredible progress when resources are applied in the right way.



1. 'The Race To Net Zero' event, Scottish Power HQ October 2019, attended by over 300 stakeholders

2-3. Green Economy Fund Awards, Dynamic Earth, July 2019.



#### Key learnings and opportunities for further support

In just two years 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 new 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**

These projects 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.

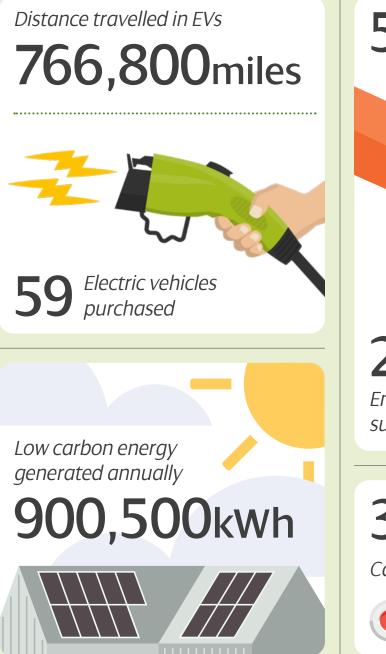
#### Key areas of opportunity

- 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

#### SUMMARY AND CONCLUSION Things we've learned

As part of the application process projects submitted the impacts that they projected they would achieve. These figures were collated into an overall future impact report and an extract of these figures are shown below.

#### Projected benefits of the Green Economy Fund during project lifetimes





**3,682**tCO<sub>2</sub>e pa

IOW

#### Carbon savings

HIGH

# <image>

#### Building a greener future, together

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

Gathering project feedback was crucial in ensuring the success of the fund. Therefore we issued a project learning questionnaire to all Green Economy Fund projects which had formally been awarded funding by December 2019 – a total of 22 projects<sup>\*</sup>.

The increased opportunity to network and build new partnerships came back as the most common non-financial benefit of the fund. Another popular non-financial benefit was the chance to test new and innovative ideas.

Projects were asked to comment on ways the fund might support them further. The key areas were:

- Holding additional workshops and networking events
- Extra support with marketing and design of collateral
- Further help during the application and procurement phases
- Making more funding available

We will take this feedback into account to develop any future funds.

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



## The beginning of a better future

In just two 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 – in a few short months we have seen cities with cleaner air and flourishing wildlife.

As the UK begins to rebuild, 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 ensuring that no communities are left behind.

We recognise the huge challenge that remains ahead of us all to reduce CO<sub>2</sub> emissions, but our success so far inspires us to keep moving forward – to build a greener future, together.

#### APPENDICES

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	<i>Outreach work focusing on renewables, aimed at nurseries, primary and secondary schools.</i>	£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	<i>Delivery of a sustainable, low carbon energy system to support site and community.</i>	£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	<i>Delivery of five innovative, DSR-enabled, micro-district heating networks, providing heat to 20 properties.</i>	£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	<i>Five electric buses with opportunity charging.</i>	£2,000,000
GEF0137	Glasgow City Council	Two EV minibuses to continue the Riversider 100 service.	£420,000
GEF0035	Ettrick and Yarrow CDC	<i>Pilot project to connect locally generated renewable energy to EV charge points, public transport and storage heating.</i>	£90,272
GEF0042	West Lothian Council	PV and battery storage to power an EV fleet.	£200,000
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

#### **Appendix 3:** *The application process*

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

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.

The EOIs are used 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**

Full applications are invited 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.

The contents of the application forms are processed and stored in a database, so key information can be pulled out efficiently for scheme monitoring and reporting.

#### Criteria

All projects are scored 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 handle and 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 a review of each project and organisation is carried out by SP *Energy Network's compliance team to* make sure that all funded organisations have appropriate health and safety and procurement policies in place

#### 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 that 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. This risk register is updated regularly to reflect developing circumstances.

A project learning questionnaire was developed by EST and sent to all 22 GEF projects who had formally been awarded funding by December 2019.

The aim was to understand how funded projects perceived the environment they operate in, to reflect on any external threats or opportunities, and to gain feedback on the management and process of the GEF. Respondents were also asked to reflect on the challenges and successes of their projects.

These questionnaires have been used to build this report and bring out the real findings and challenges from these projects. They will also be used as a company to gather any feedback from the GEF.

#### Reacting to industry developments

Graph 1 outlines responses from projects when they were asked which energy sector development they see as the greatest opportunity for their project.

Projects see the requirement for flexible energy and increased amounts of storage as the greatest opportunity within the energy sector, followed by Net Zero legislation and renewable sources of heat, transport and electricity.

The projects focussing on education of low carbon technologies and the decarbonisation of heat see flexible energy and storage as a significant opportunity.

Projects focused on the decarbonisation of transport and heat feel that both legislation to reach Net Zero by 2045 and increasing the use of renewables in heat, transport and electricity to 50% by 2030 are key opportunities for their projects.

#### Project challenges and solutions

Green Economy Fund projects reported that procurement issues were the most frequently-occurring challenge, as shown in Graph 2. The second most common response was "other" – responses to this included stakeholder engagement and technical challenges.

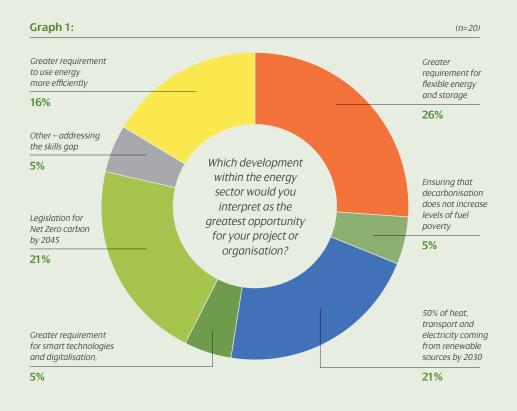
Projects focused on the decarbonisation of transport faced issues with procurement, with qualitative data from projects revealing that there is increasing demand and a restricted supply of certain types of electric vehicles, such as minibuses, which has increased lead times.

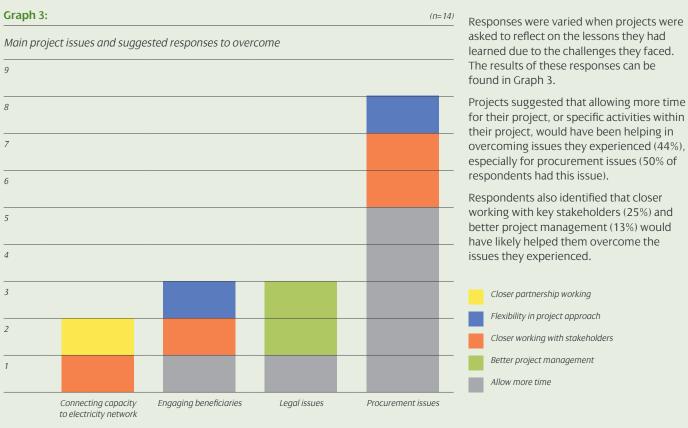
Some projects required more legal support due to the unique nature of the assets being procured, which added time to the process.

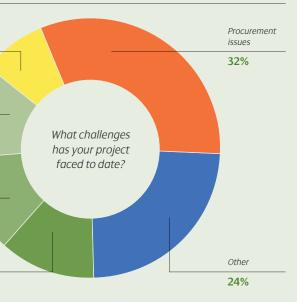
It should be noted that SP Energy Networks is unable to provide funding or management support for connection to the electricity network due to conflict of interest.

#### Graph 2: Securing match funding 8% Legal issues 12% Engaging beneficiaries 12% Connecting capacity

to electricity network 12%







#### APPENDICES

#### Appendix 5: Project questionnaire Continued

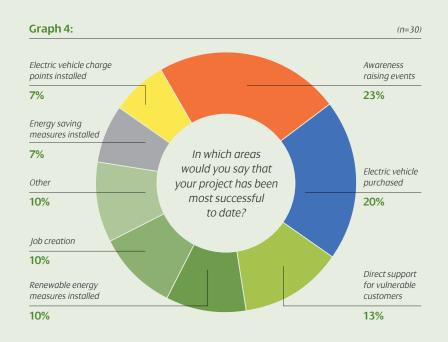
#### **Project successes**

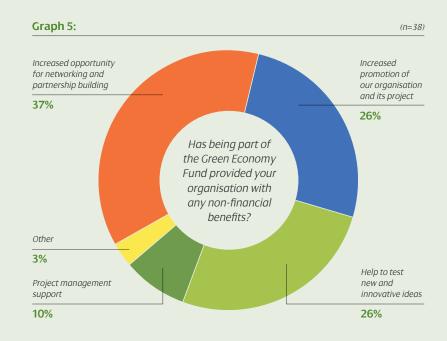
Graph 4 shows that GEF projects reported that they have had the most success in holding awareness-raising events. The second and third most commonly cited successes was the purchase of electric vehicles and the direct support for vulnerable customers.

Interestingly, only a few projects identified the installation of renewable energy measures, energy efficiency measures and electric vehicle charge points as key success areas. This reflects the longer lead times required to design and commission these projects and the complexities associated with their delivery, meaning that for most projects, these key parts have not yet been completed. We can therefore expect these to be reported as more successful in the next annual report (2020/21).

#### Non-financial benefits of the GEF

Responses to the questionnaire, shown in Graph 5, indicated that increased opportunity to the network and the building of new partnerships was the most common non-financial benefit provided by the fund. Increased promotion and help with testing new and innovative ideas were the joint second most common nonfinancial benefit.







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