

CARES Innovation Project List



Brief summaries of selected past projects supported through CARES innovation funding, including:

Local Energy Challenge Fund (LECF)

Infrastructure & Innovation Fund (IIF)

Rural Energy Challenge Fund (RECF)

Introduction

The following list of CARES innovation projects is provided as a support to developing project ideas, and to enable clear reference to appropriate projects and the learning from them, when making applications for CARES Innovation Funding.

Output reports from many projects are available and will be directly linked from list as they become available on the CARES website. In the meantime please contact Local Energy Scotland if there are specific outputs you are interested in reviewing.

In addition to the many case studies and the Friends of the Earth Community Power Report also available on the CARES website, we would like to draw your attention to the selection of Infrastructure & Innovation Fund Project Summaries and a summary of the Local Energy Challenge Fund, Capital Demonstration Projects available through the following links.

[Find your local contact here.](#)

[IIF Project Summaries](#)

[Case Studies](#)

[Friends of the Earth Community Power Report](#)

[Capital demonstration projects](#)

Innovation Project List

1

Project Name	Unst Smart On/Off Grid	Reference	3044
Applicant Organisation	Unst Partnership Ltd	Fund	Grant - IIF
Project Description	Energy storage to overcome grid constraints through production of H ₂ , N and O ₂ . Market analysis for sale of gas. Markets identified(a) Hydrogen Refuelling Station and Hydrogen Vehicles; (b) Hydrogen Buses; (c) Hydrogen Ferries; (d) Green Fertilisers; and (e) Public halls		
Link to project report	Link to project report		
Please contact Local Energy Scotland for available output.			

2

Project Name	Fintry Development Trust Smart Meter Feasibility Study	Reference	3065
Applicant Organisation	Fintry Development Trust	Fund	Grant - IIF
Project Description	Feasibility study to investigate the barriers to innovative deployment of Smart Meters in Fintry and at Strathendrick Biogas (Anaerobic Digestion) facility. Linking consumption of residents and businesses in Fintry with the electrical production from Strathendrick Biogas, through matching readings on the Smart Meters.		
Link to project report	Link to project report		
Please contact Local Energy Scotland for available output.			

3

Project Name **Low Carbon Inter-island Orkney Ferries 2** Reference **3068**
Applicant Organisation **Orkney Islands Council** Fund **Grant - IIF**

Project Description

Feasibility on how the current inter-island routes could be serviced by ferries powered from alternative fuels. A compilation of case studies of vessels powered from alternative fuels - LNG, CNG, h2, electric, liquid N, bio-fuels, compressed air, ammonia, nuclear, wind and wave. Also considers hybrid propulsion systems.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

4

Project Name **South Seeds Renewable Heat** Reference **3072**
Applicant Organisation **South Seeds SCIO** Fund **Grant - IIF**

Project Description

Replicable Project to investigate and, if feasible, deliver a low carbon and cost effective heat installation with technologies including solar thermal, biomass CHP, and/or geothermal, combined with a district heating network – to tenements in Glasgow. The study suggests the strong economic viability of a district heating solution

[Link to project report](#)

Please contact Local Energy Scotland for available output.

5

Project Name **Lochboisdale Warm Homes - District Heating Feasibility Study** Reference **3082**

Applicant Organisation **Lochboisdale Amenity Trust** Fund **Grant - IIF**

Project Description

Options Appraisal of Wind2Heat District Heating Scheme in Lochboisdale- examines technical requirements generation and distribution of energy and financial feasibility of using grid-connected wind turbine, and potentially a hydro scheme, to provide power for household and commercial heating.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

6

Project Name **Iona Community Energy Plan** Reference **3241**
Applicant Organisation **South West Mull & Iona Development (SWMID)** Fund **Grant - IIF**

Project Description

Feasibility study and implementation plan for generating and using energy locally.

SWMID held the grant on behalf of a partnership project including Iona Renewables Group, Iona Community Council, SWMID, HES, Iona Community (for the Abbey), NTS

Conclusions of the report identified two strong sites for wind turbine(s) and that this would be the best option to pursue first. Solar PV recommended to also be pursued but to prioritise the wind project because greater energy yield / kW installed.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

7

Project Name **New Cumnock Community Wind Turbine Improved Connection Study** Reference **3248**

Applicant Organisation **Improving New Cumnock** Fund **Grant - IIF**

Project Description

IIF study to overcome grid constraint. Greencat carrying out work. Project to overcome high grid cost due to constraints. SPEN monitoring of substation. Constraint overcome resulting in £43k offer for 900kW.

Successful project and although site specific, process is of value.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

8

Project Name **IIF grid specialist adviser** Reference **3251**
Applicant Organisation **Dalavich Improvement Group** Fund **Grant - IIF**

Project Description

Assessment and implementation of plan to remove grid constraint. Report exploring all the options for overcoming constraint completed. Funding extended to help with implementation of ANM solution work, up to financial close.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

9

Project Name	Integration of a 25 kW/50 kWh zinc-bromine battery	Reference	3282
Applicant Organisation	University of Strathclyde (Power Networks Demonstration Centre)	Fund	Grant - IIF

Project Description

Testing on Lotte Chemicals 25kW lithium ion battery to find optimum charge and discharge rates, and integration of battery into micro grid at Findhorn Foundaion College.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

10

Project Name	Electrical Energy Storage for Knoydart	Reference	3286
Applicant Organisation	Knoydart Renewables Ltd	Fund	Grant - IIF

Project Description

Grant to cover part cost of Flow battery design, construction, transportation, commissioning with 5 year guarantee on flow battery and 10 year guarantee on control system & power electronics.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

11

Project Name	Arran Community Energy IIF	Reference	3288
Applicant Organisation	Arran Community Energy	Fund	Grant - IIF

Project Description

Pico pumped storage hydro pilot for off grid residential properties. Intended to install system but due to time constraints and programming Planning applications at suitable sites, reverted to feasibility only. Feasibility report provided. Potential for replication if an appropriate amount of time is available to complete.

Reasonable learning in the feasibility, and could be built upon.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

12

Project Name	Machrihanish Solar PV IIF	Reference	3293
Applicant Organisation	Machrihanish Airbase Community Company (MACC)	Fund	Grant - IIF

Project Description

Detailed feasibility work sized a solar PV system that would not need a smart energy management system. Detailed design work for smart grid and energy management system for MACC so that they can use electricity generated from a ground mounted solar PV array on site. A planning application and associated design work for the solar PV array were carried out in parallel.

Original intention to move to CARES loan for the solar PV installation, but have since decided to use funds from their own reserves.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

13

Project Name	Findhorn Renewable Energy District Heating IIF	Reference	3294
Applicant Organisation	Findhorn Foundation College	Fund	Grant - IIF

Project Description

Project to create decision-making roadmap covering main technical / financial features to determine development of 4 new district heating schemes and 3 schemes that integrate various energy sources. The roadmap makes comparisons between district and stand-alone heating systems.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

14

Project Name **Energyfields IIF** Reference **3299**
Applicant Organisation **University of Strathclyde** Fund **Grant - IIF**

Project Description

Partnership between Strathclyde University and Veitch Cooper to develop a business case for local energy projects on contaminated land, where renewables, storage and local supply are co-located with long term contamination remediation techniques. The aim is to identify where the two uses of the land would together create a viable business case.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

15

Project Name **University of Strathclyde & GAIA Wind IIF** Reference **3300**
Applicant Organisation **University of Strathclyde** Fund **Grant - IIF**

Project Description

Partnership with GAIA Wind to install and test two battery storage systems integrated with onsite renewables for small-medium scale industrial businesses and community projects, and to develop a learning tool that demonstrates the potential financial benefits of integrating different storage solutions with small-medium scale renewables.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

16

Project Name **Storas Uibhist Phase 2 IIF** Reference **3304**
Applicant Organisation **Storas Uibhist Ltd** Fund **Grant - IIF**

Project Description

The project secured funding to provide a comprehensive masterplan and development strategy to assist Storas Uibhist in developing a long term investment strategy to maximize the economic impact of the current turbine income.

Assessment included potential for future employment opportunities, generating a long term income stream for re-investment and providing income for investment in social fabric of the community.

Details of return on investment and whole life cost / benefits were developed for use by the whole community.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

17

Project Name **Carsphairn Community Energy Storage Scheme (CCESS)** Reference **3305**

Applicant Organisation **Carsphairn Community Council** Fund **Grant - IIF**

Project Description

Study into community energy storage options to provide an optimal business plan for the community installing a community storage scheme. Provision of a robust financial model and assessment of the legal mechanisms possible for community ownership of storage / solar panels and to draft key legal documentation / agreements.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

18

Project Name **West Harris and Barvas Local Supply** Reference **3307**
Applicant Organisation **West Harris Renewables Limited** Fund **Grant - IIF**

Project Description

Project investigating three options for matching supply and demand:

'On-site Supply', at Barvas, with a new turbine connected to a local load with an export limiting system.

A 'Sleeving' Model, with a licensed supplier providing agreements between specific demand and generation sites.

A 'Virtual MPAN' model, where smart data from two or more physical MPANs is aggregated to form a new 'virtual' MPAN for settlement purposes.

Completed project includes modelling work on the MPAN options by Energy Local.

Detailed design of Systems/Procurement of Legal Services and finalisation of commercial arrangements was not completed.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

19

Project Name	Energy Options for Habost Business Units	Reference	3308
Applicant Organisation	Pairc Trust Trading	Fund	Grant - IIF

Project Description

Energy feasibility study, preliminary design and development work for the four Hebridean Sea Salt units in Habost, South Lochs. Demand profile of the Hebridean Sea Salt (HSS) factory, and how local generation could be used to match that demand is investigated focusing on wind and solar generation options.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

20

Project Name	Heat From The Sound IIF	Reference	3310
Applicant Organisation	Iona Community Council	Fund	Grant - IIF

Project Description

Originally intended to provide a detailed design and planning application for a replacement marine source heat pump for Iona Abbey and a district heating feasibility study for Iona Village. Facilitated in part through match funding from Historic Environment Scotland.

Investigations moved to a financially viable proposal for a ground source heat pump system for the Abbey, using bore holes on the site of the historic marine source heat pump pipework. The project also found a financially viable plan for a village district heating scheme using communal bore holes and individual heat pumps at each property.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

21

Project Name	Community Share IIF	Reference	3319
Applicant Organisation	Upper Eskdale Development Group (UEDG)	Fund	Grant - IIF

Project Description

This project investigated the feasibility of community driven alternative energy sales models that could provide local sales whilst supporting a more attractive power purchase agreement (PPA) to a local wind farm offering shared ownership. A large customer base was anticipated with the intent of providing a Dumfries and Galloway local tariff.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

22

Project Name	Lochmaddy Warmth from Water Feasibility Study	Reference	3321
Applicant Organisation	North Uist Development Company Ltd	Fund	Grant - IIF

Project Description

Application of surface water heat pumps on Uist. This project aimed to link local energy demand in Lochmaddy with local renewable heat, stored in the sea and surface water.

Combining technologies, using micro-wind and solar PV to cover some of the running costs of the heat pump was also investigated.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

23

Project Name	Greenmyres Energy Hub IIF	Reference	3322
Applicant Organisation	Huntly and District Development Trust	Fund	Grant - IIF

Project Description

Study looking into the viability of developing an energy hub on Greenmyres farm, incorporating the existing 500 kW turbine, an Energy Storage System, onsite use by local businesses and a recently consented Solar PV array. The analysis considers potential customer energy use profiles that may show interest in relocating to the Greenmyres Farm.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

24

Project Name	Resource Efficient Solutions IIF	Reference	3323
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Applicant Organisation **Fife Council** Fund **Grant - IIF**
Project Description
Piloting the creation of a Burntisland Community Local Energy Masterplan.
Precursor to Local Energy Plans, area wide assessments and Local Heat and Energy Efficiency Strategies (LHEES).
[Link to project report](#)
Please contact Local Energy Scotland for available output.

25
Project Name **Local Energy Oban** Reference **3397**
Applicant Organisation **ALI Energy** Fund **Grant - IIF**
Project Description
Investigation into possible best use of an existing, accepted, unconstrained 850kW grid connection at Oban recycling centre.
Providing a renewable energy and innovation options appraisal with detailed feasibility study and business plan to provide information on integrated energy systems. Aims to combine the best mix of energy generation technologies, perhaps with storage, grid balancing services and local use.
[Link to project report](#)
Please contact Local Energy Scotland for available output.

26
Project Name **Localised Energy Supply** Reference **3398**
Applicant Organisation **Islay Energy Trust Ltd** Fund **Grant - IIF**
Project Description
Project to enable sale of power, generated by community wind turbines on Islay, to local loads through installation of smart metering systems and the creation & adoption of novel contracts between generators, energy suppliers and local loads. Testing the concept with business and commercial demands, rather than domestic.
Primary aim is to demonstrate a route to a commercially attractive local electricity market, within the existing regulatory regime.
[Link to project report](#)
Please contact Local Energy Scotland for available output.

27
Project Name **Exporting Knoydart's Energy** Reference **3403**
Applicant Organisation **Knoydart Renewables Ltd** Fund **Grant - IIF**
Project Description
Feasibility study exporting surplus energy from the community owned hydro-electric scheme using SLIQ flow batteries and the potential for transporting electrically charged & discharged electrolyte between locations of supply and demand.
[Link to project report](#)
Please contact Local Energy Scotland for available output.

28
Project Name **East Lothian Storage and Local Supply** Reference **3407**
Applicant Organisation **Markle Community Energy** Fund **Grant - IIF**
Project Description
Feasibility to study the integration of battery storage with existing generation from a 50kW solar array and 150kW woodchip combined heat and power (CHP) system.
Aiming to show the potential for increased income to the local generator and to develop a local energy supply model with local consumers. If successful the scheme could eventually provide renewable electricity direct to circa 200 homes.
[Link to project report](#)
Please contact Local Energy Scotland for available output.

29
Project Name **Barvas Local Supply** Reference **3411**
Applicant Organisation **Urras Sgìre Oighreachd Bharabhais Community Company** Fund **Grant - RECF**
Project Description

Project to design an electrical system integrating 50 - 100 kW wind turbine, storage (via battery or hydrogen generation) & controls to supply a local salmon hatchery. Creation of a business plan and detailed financial model. Develop MoU between project partners, procurement, commercial agreements and project management.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

30

Project Name	Coigach Community Powershare	Reference	3412
Applicant Organisation	Coigach Community CIC	Fund	Grant - IIF, Grant - RECF

Project Description

Match funded options appraisal investigating local supply and demand potential related to an existing 1 MW currently generated by wind and hydro locally. Generation consists of 500 kW wind, wholly owned by community, and 500 kW owned and operated privately with a profit share to Coigach Community and Scottish Wildlife Trust.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

31

Project Name	Sleat Biogas Project	Reference	3416
Applicant Organisation	Sleat Community Trust	Fund	Grant - RECF

Project Description

Feasibility study to determine the potential for local organic waste to be recycled in an anaerobic digestion (AD) system.

Main objectives were to conduct waste data research, undertake economic assessment, determine collection requirements, investigate generation potential, consult with Statutory undertakers and provide recommendations based analysis.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

32

Project Name	Wind-to-Hydrogen Feasibility Study	Reference	3419
Applicant Organisation	Farm in Aberdeenshire	Fund	Grant - RECF

Project Description

Study to assess feasibility and business case for the production of hydrogen from wind generation at farm in Aberdeenshire. Initially focusing on supplying hydrogen to Aberdeen City Council (for additional hydrogen buses, arriving in 2018). Additionally investigating the potential for use of hydrogen on, and local to, the farm for vehicles and the provision of a local hydrogen refueling station, and to investigate the case for using hydrogen to make fertiliser, to heat buildings and polytunnels, and /or in grid balancing.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

33

Project Name	Assessment of opportunities to max grid connection with Solar and Storage	Reference	3425
Applicant Organisation	A&J Wilson	Fund	Grant - RECF

Project Description

Study of technical and financial feasibility of installing ground mounted solar PV & battery energy storage to maximise spare grid capacity and utilise the existing grid connection.

Two existing 500kW turbines and a 1.7MW grid connection exist and the study looks at the co-location potential to provide additional generation on site and the impact, benefits and commercial case for storage.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

34

Project Name	Battery storage solution to maximise onsite solar electricity generation	Reference	3430
Applicant Organisation	Dowhill farm	Fund	Grant - RECF

Project Description

Feasibility study was carried out to assess the viability of increasing the scale of the solar PV system with a zero export technical solution and/or an innovative electricity storage as the site currently has an existing

50kW PV system and grid constraint of 50kW export.

As part of the feasibility study a Solarlog monitoring kit was installed to monitor the energy profile on site and provided useful data on electricity imported, exported and generated at site – this data was then used to provide a more robust assessment on the financial viability of the proposed project. Financial appraisal and specification of the solar PV extension, zero export solution and storage was provided.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

35

Project Name **Comrie Croft Smart Energy Grid Demonstrator Project** Reference **3432**

Applicant Organisation **Comrie Croft Ltd** Fund **Grant - RECF**

Project Description

Comrie Croft is a social enterprise in Crieff focusing on eco-tourism. The project involved the supply and installation of 50kW PV array on frames within the site car park to provide electricity for electric vehicle (EV) charging and croft buildings.

The energy system includes 4 x EV charges, battery storage, smart controls and PV generation.

PV installation element was not funded through CARES.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

36

Project Name **Argyll Islands - Energy Audit** Reference **41984**

Applicant Organisation **Mull and Iona Community Trust Limited** Fund **Grant - IIF**

Project Description

Funding a Consortium, made up of Mull & Iona Community Trust, Jura Development Trust, Islay Energy Trust, Isle of Gigha Heritage Trust, Conlonsay Community Development Company.

Energy audit / study across five islands assessed energy demand with a view to increasing locally generated electricity, increasing energy demand and more efficient use of electricity through demand side management.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

37

Project Name **Levenmouth Community Energy Project - phase 2** Reference **GCF004b**

Applicant Organisation **Bright Green Hydrogen Ltd** Fund **Challenge Fund Grant**

Project Description

Hydrogen production demonstration facility. Provision of low carbon transport and energy storage. Uses locally produced green electricity from its wind turbine (750kW) and supplemented by solar electricity, to produce green hydrogen by electrolysis.

Use of the hydrogen is split between re-use as electricity through fuel cells (during low generation periods) to maintain supply to the local microgrid, and to fuel a hydrogen vehicle fleet.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

38

Project Name **Fuel Poverty Reduction: Heat Storage Innovation - phase 2** Reference **GCF065b**

Applicant Organisation **Sunamp Limited** Fund **Challenge Fund Grant**

Project Description

Project to research, develop and implement local solutions to address fuel poverty, designed around the use of innovative heat batteries. This technology aims to enable more efficient use of different renewable technologies, making a bigger impact for tenants as they seek to reduce energy costs, and works across a range of different property types.

In a sheltered housing block, 3 different energy saving solutions using Heat Batteries, on-site micro-CHP and Heat Pumps.

Solar PV aligned with a Heat Pump and Heat Battery to reduce gas consumption in individual properties.

Heat Batteries installed in individual sheltered housing apartments to replace electric immersion and electric showers.

The project aims to demonstrate the benefit of local heat storage and the value of integrated renewable energy solutions by providing tenants with access to lower cost heating and hot water.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

39

Project Name	Orkney Surf 'n' Turf - phase 2 grant	Reference	GCF071b
Applicant Organisation	Community Energy Scotland	Fund	Challenge Fund Grant

Project Description

Using both the tidal power devices located at the European Marine Energy Centre test site at the Fall of Warness just west of the island of Eday, and the Eday Renewable Energy community owned onshore wind turbine, the project provides hydrogen through electrolysis from surplus electricity to a 500kW electrolyser. The hydrogen is transported by road and sea to Kirkwall to supply a fuel cell to supply power locally at the destination.

The project now operates a viable system for local hydrogen shipments, has developed local hydrogen uses, with social and training value, and provides learning for future expansion of hydrogen in a sector particularly relevant and timely for Orkney and the development of alternative fuels for ferries.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

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Project Name	Sustainable Cupar Renewable Energy ESCO (SCREE)	Reference	GCF092
Applicant Organisation	Sustainable Cupar	Fund	Challenge Fund Grant

Project Description

Proposing extensive use of PV, integrated into a new development in Cupar.

Excess summer generation planned to charge a borehole thermal energy store, supplying a district heating scheme all year round.

Aiming for Zero Energy Buildings within a new development of houses and commercial properties powered by wind and PV generation and supplying heat, power and transport (through EV charging).

[Link to project report](#)

Please contact Local Energy Scotland for available output.

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Project Name	ACCESS - phase 2	Reference	GCF099b
Applicant Organisation	Community Energy Scotland	Fund	Challenge Fund Grant

Project Description

Challenge fund project: The ACCESS model will enable new community and locally owned generation that otherwise could not connect to the grid. New 'virtual district heating' option for customers who can't connect to gas or conventional district heating networks. Supports local and national economic development by creating new markets for locally generated electricity in grid constrained areas. The project will trial a new system for balancing local renewable energy generation with local energy demand. The field trial aspect of the project will be based on the Isle of Mull in Argyll and Bute. The project will run for three years (April 15-April 18), with installations scheduled to commence in September 2015 and live generation following due to start from April 2017. Project Aims 1. To demonstrate real time balancing of renewable generation (a 400kW community owned hydro generator) and distributed demand from local homes and businesses. 2. To develop an affordable network protection and communications system for enabling 'non-firm' grid access to transmission constrained generators. 3. To engage with and provide benefit to local homes and businesses. 4. To create the commercial arrangements required for future deployment and roll out ('local heat tariffs').

[Link to project report](#)

Please contact Local Energy Scotland for available output.

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Project Name	Ensuring Future Energy Security for Knoydart	Reference	GCF118
Applicant Organisation	Power Migration Partners Ltd	Fund	Challenge Fund Grant

Project Description

Project to demonstrate the technical and financial feasibility of the Electron Tunnelling flow battery (ELTUN). Primarily a feasibility study based on a micro grid, located on the Knoydart peninsula, which distributes electricity to 120 members of the local community. The electricity is supplied from hydro generation, supplemented by a diesel generator.

The ELTUN aims to allow 100% utilisation of the renewable energy, reducing or removing the need for diesel generation and the number of blackouts due to demand exceeding supply.

Phase 2 of the project plans to provide the design, manufacture and installation of the ELTUN flow battery.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

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Project Name	Montrose Local Energy Project	Reference	GCF119b
Applicant Organisation	Rosemount Farms	Fund	Challenge Fund Grant

Project Description

The project aimed to assess the feasibility of drying used animal bedding and processing it to produce pellets for combustion in multi-fuel biomass boilers to provide space heating and domestic hot water heating at Rosemount farms and other businesses and individuals in the local community.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

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Project Name	Blackwood Grey Fleet to Green Fleet	Reference	GCF122
Applicant Organisation	Blackwood Homes and Care	Fund	Challenge Fund Grant

Project Description

Blackwood Housing is a registered social landlord (RSL) and is a leading national housing and care provider specialising in homes and care services for people with disabilities. This project aims to reduce the organisations running costs and carbon emissions associated with car / vehicle transport in providing care to residents within the community.

Through the provision of PV generation, storage and EV chargers, located at a Blackwood Housing care home, the aim is to reduce transport costs but also provide an Uninterruptible Power Supply (UPS) backup to Blackwood Housing's new Telecare/ Smartcare digital platform. The target is to support Blackwood Housing to become self-sufficient for transport power, and support their overall power needs.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

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Project Name	SMART Fintry	Reference	GCF124b
Applicant Organisation	Fintry Development Trust	Fund	Challenge Fund Grant

Project Description

Project aimed at balancing local renewable electricity generation with local demand by introducing near real time management of both electricity generation and demand.

Looking to use locally generated renewable electricity in the community to reduce energy costs and alleviate fuel poverty; to overcome contractual barriers within the electricity market that prevent direct linkage of production and consumption; to investigate the impact of communities moving from price takers to price setters on energy bills and assess how this changes the role of the energy supplier; to provide improved comfort and reduce fuel bills and emissions within Fintry, and; to retain and enhance local value and economic resilience.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

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Project Name	Wind to Agri Energy	Reference	GCF125
Applicant Organisation	Shapinsay Development Trust (SDT)	Fund	Challenge Fund Grant

Project Description

Aiming to address the high cost of shipping both diesel and fertiliser to the island by demonstrating how the use of surplus electricity from the island wind turbine might be used to produce synthetic diesel for local farm transport and urea for use as fertiliser.

Studying the potential to connect a rapid response PEM electrolyser to the existing turbine (behind the

meter) and operating this at times of curtailment. A Fischer-Tropsch (FT) reactor is then anticipated to produce synthetic diesel through combining stored hydrogen and carbon dioxide (produced at a local distillery) and using pressure swing absorption combine nitrogen with hydrogen (to produce ammonia) and carbon dioxide to produce urea (fertiliser).

[Link to project report](#)

Please contact Local Energy Scotland for available output.

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Project Name	Large scale ASHP district heating exemplar	Reference	GCF134
Applicant Organisation	Glasgow Housing Association	Fund	Challenge Fund Grant

Project Description

Feasibility and technological exemplar of district heating to dwellings in Hillpark Drive and Pentland Road multi-storey blocks, comprising 350 homes built in 1971, in South Glasgow.

Glasgow Housing Association and partners will demonstrate the use of Large Scale Air Source Heat Pump technology as a practical alternative to fossil fuel heating. Support provided to develop prototype, resolve technical aspects, develop project plan and business plan, and implement scheme.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

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Project Name	Linlithgow Energy Corridor	Reference	GCF135
Applicant Organisation	Linlithgow Natural Grid Ltd	Fund	Challenge Fund Grant

Project Description

Project aimong to develop the first node in a Linlithgow Heat Network, comprising a new Energy Centre with heating links connecting 6 local and prestigious historic community buildings in the centre of Linlithgow. The new infrastructure will provide renewable heat from local sewer wastewater, using the SHARC or an equivalent system, with electrical power supplied by new Solar PV panels to be installed on the adjacent Vennel blocks flat roofs.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

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Project Name	Heat Smart Orkney	Reference	GCF138b
Applicant Organisation	The Rousay, Egilsay and Wyre Development Trust (REWDT)	Fund	Challenge Fund Grant

Project Description

By using grid-smart systems and technology, The project aimed to realise the available potential of existing community wind turbines for the benefit of fuel poor communities. The principle is to supplement their domestic heating with the supply of significantly discounted energy that would otherwise have not been generated due to curtailment.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

50

Project Name	Wellpark (Glasgow)- Community Heat and Power	Reference	GCF141
Applicant Organisation	Craighall Energy Limited	Fund	Challenge Fund Grant

Project Description

Craighall Energy Ltd aim is to develop a large, highly innovative and sustainable community energy scheme to bring together stakeholders from Government, Local Authority, Further Education and private industry to develop a localised not-for-profit business model. It involves integrated District Heat network and thermal energy storage system to make heat and power more affordable to residential and public service buildings within Glasgow City Centre.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

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Project Name	Energise Galashiels Hydro	Reference	GCF147b
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Applicant Organisation **Energise Galashiels Trust** Fund **Challenge Fund Grant**

Project Description

Project looking at the potential to install a series of low-impact hydro-electric generators on the Gala Water and its historic mill lades. Using Water Engine Technology units, suited to low head sites, the generation would provide power to nearby premises and aims to aggregate about 400kW of installed power overall. Project progressed to CARES loan, for installation at one site.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

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Project Name **Tower Power** Reference **GCF150b**
Applicant Organisation **Community Energy Scotland** Fund **Challenge Fund Grant**

Project Description

Project aiming to support; residents or landlords of multi-occupancy blocks to form new Local Energy Supply Companies (LESCOs); enable local renewable generation to be 'netted' from the consumption of LESCO customers; empower communities to negotiate the cost of their imported electricity with national energy suppliers through access to accurate data, and; incentivising energy efficiency and demand side management for LESCO customers through 'benefit sharing' business models.

The project planned to use new metering systems and communications technology to link the demand of multiple households, local generation, and treat them as a single (collective / aggregated) customer in contracting with a traditional electricity supplier.

Suitable housing blocks in Edinburgh, comprising over 100 properties, were planned to be the model for aggregation.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

53

Project Name **Clyde Gateway Community Renewable Energy Initiative** Reference **GCF158**
Applicant Organisation **Clyde Gateway Developments Limited** Fund **Challenge Fund Grant**

Project Description

A partnership project between Scottish Water Horizons (SWH), SSE and Link Group Ltd., supported by Glasgow and Glasgow Caledonian Universities seeking to recover heat from wastewater to deliver heat to priority regeneration areas within the Clyde Gateway.

Water source heat pump(s) and energy from waste technology planned to support the development of a new district heating scheme.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

54

Project Name **Outer Hebrides Local Energy Hub (OHLEH)** Reference **GCF160b**
Applicant Organisation **Comhairle nan Eilean Siar** Fund **Challenge Fund Grant**

Project Description

The vision for the Outer Hebrides Local Energy Hub (OHLEH) is to support regional scale, community led hydrogen infrastructure.

Aiming to deliver renewable power, heat, and transport to the local community by using new and existing hydrogen-generation infrastructure to release generation capacity at two key sites near Stornoway, presently constrained, and to increase energy recovery from a waste management site.

The project will demonstrate the use of two hydrogen CHP technologies (fuel cell and internal combustion engine), demonstrate the use of hydrogen for transport fuel for light vehicles and buses, and develop the local supply chains and skills required to generate, transport and use local electricity and hydrogen.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

55

Project Name **Action Highland Highway** Reference **GCF161**
Applicant Organisation **The Highland Council** Fund **Challenge Fund Grant**

Project Description

ACTION – Alternative Community Transport In Our Neighbourhood

Initiated by Transition Black Isle and Caithness Voluntary Group. Highland Council agreed to lead a feasibility study into renewable generation from wind / solar, charging battery storage, to supply electric vehicle (EV) charging.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

56

Project Name	Algal Solutions for a Local Energy Economy (ASLEE)	Reference	GCF173b
Applicant Organisation	Xanthella Ltd	Fund	Challenge Fund Grant

Project Description

Project aiming to develop a model for local circular energy economies by using renewable electricity to produce high value products from algae, including carbon neutral liquid fuels. The model aims to improve local energy security and the local energy economy by converting low-value, surplus (or constrained) electricity into a high value multi-use liquid fuel, which could displace widely used high-carbon fossil fuels such as diesel oil.

Designing and installing a modular array of internally lit photobioreactors (PBR's) then producing, high value lipid by-products which can be used for feed and pharmaceutical industries, enabling the creation of new rural enterprises and strengthening the local economy. Locally available waste carbon dioxide and nutrients (such as from whisky distilleries) will be looked at for use as feedstocks in the process, to further reduce costs and improve sustainability.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

57

Project Name	Glasgow Infrared Heat Demonstration Project	Reference	GCF174
Applicant Organisation	Glasgow City Council	Fund	Challenge Fund Grant

Project Description

Project proposing to demonstrate savings (both in fuel costs and carbon emissions) from the installation of a graphene infrared (IR) heating system and to evaluate the potential for this as a solution to the high energy costs within a hard to treat stone tenement building in social rented property and off gas areas. The aim is to prepare an in depth project plan to investigate the feasibility of using graphene infrared heating technology, combined with Solar PV and battery storage in a domestic setting.

Early feasibility evaluation carried out by Ecodyn on behalf of GCC indicated that graphene IR heating technology is not yet ready for the commercial market.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

58

Project Name	Orkney Innovation Consortium Energy Audit Project	Reference	P41650
Applicant Organisation	Orkney Renewable Energy Forum (OREF)	Fund	Grant - IIF

Project Description

Project to carry out an audit of current energy demand across energy sectors in Orkney (heat, electricity and transport) and across economic sectors (domestic, commercial, industrial, agricultural and public sector) with the intention to understand current energy demand.

Aims to identify opportunities for increasing use of locally generated energy, reducing energy costs and more efficient use of the electricity network through demand side management. To establish the energy dynamics and demand across the whole of Orkney and the potential for energy conversion, switching, grid balancing and best use of resources.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

59

Project Name	Applecross Local Use Feasibility	Reference	P41974
Applicant Organisation	Applecross Community Company Limited	Fund	Grant - IIF

Project Description

Technical support to undertake an assessment of the surplus energy, and options for the supply of heat or electricity to off-grid loads in the local area via a private wire network or wet district heating system. Includes compiling a detailed annual generation profile for electricity from the hydro scheme; assessing the potential for surplus electricity to be absorbed by off-grid electrical or heating loads in the area, and; to estimate costs for any recommended approaches.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

60

Project Name	Community Power Orkney Electric Vehicles	Reference	P42048
Applicant Organisation	The Rousay, Egilsay and Wyre Development Trust (REWDT)	Fund	Grant - IIF

Project Description

the initial stages of the CPO EV project (P42048) aimed to demonstrate the viability of electric vehicles (EV) in an island context for other island inhabitants and to encourage further EV trials in Orkney. Leased vehicles were utilised.

this developed into the Grid Smart EV Charging project (P42236) where the aim was to enable charging systems to take advantage of local energy use and co-ordinate this with curtailment patterns. This included the design and installation of smart electric vehicle charging and control equipment.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

61

Project Name	Fetlar Green Energy	Reference	P42221
Applicant Organisation	Fetlar Developments Ltd	Fund	Grant - IIF

Project Description

Initially a feasibility study into the potential for a renewable energy system installation on the applicant's site, considering constraints and potential solutions.

Latterly with some focus on wind generation (2 x 20 kW turbines) the project looked to provide sufficient generation capacity to meet the electricity, hot water and space heating needs of the school, the house and a local electric mini-bus, providing charging facilities, electrical supply and a wet system for heat provision. Project is now complete.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

62

Project Name	Shapinsay Innovation Consortium Grid-Smart Low Carbon Marine Transport Project, Orkney	Reference	P42223
Applicant Organisation	Shapinsay Development Trust (SDT)	Fund	Grant - IIF

Project Description

The Shapinsay Development Trust (SDT) operates a grid-connected 900kW wind turbine on the island which experiences high levels of curtailment due to its non-firm grid-connection and constraints applied by the distribution network operator. SDT, amongst others, funds an 'out-of-hours' passenger ferry service linking Balfour Village with Kirkwall on the Orkney Mainland. The Shapinsay Low Carbon Transport Project sought to make better use of the turbine by capturing some of the curtailed output as fuel or energy suitable for a sea-going passenger vessel. The project conclusions are in three key areas: vessel design study, shore side design study and economic feasibility study.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

63

Project Name	Outer Hebrides Energy Supply Company (ESCO)	Reference	P42229
Applicant Organisation	Comhairle nan Eilean Siar	Fund	Grant - IIF

Project Description

The key aim of this study was to provide a comprehensive overview of the viability or otherwise of establishing an Outer Hebrides Energy Supply Company and to provide best practice recommendations in terms of establishing and operating such a company.

The study objectives were to; examine the potential viability of establishing an Energy Supply Company for the Outer Hebrides; explore the business case for an Outer Hebrides Energy Supply Company; assess the optimal trading arrangements for the successful operation of the venture, and ; provide recommendations on governance, legal agreements, ownership and operational structure.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

64
Project Name **Hoy Innovation Consortium Grid-Smart Demand Side Management Project** Reference **P42233**

Applicant Organisation **Hoy Energy Limited** Fund **Grant - IIF**

Project Description

Project assessing the potential for demand side management on Hoy using V-charge equipment (V-Pak), Dynamos and metering modules. Installation and testing included as part of the project, particularly in regard to real time monitoring. Project now complete.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

65
Project Name **Shetland Islands Council Demand Side Management - Thermal Storage** Reference **P42235**

Applicant Organisation **Shetland Islands Council (SIC)** Fund **Grant - IIF**

Project Description

Feasibility of implementing Demand Side Management (DSM) (including the use of thermal storage) at council sites and domestic properties, and the benefits that this could provide with regard to reduction in the curtailment of the proposed Garth Wind Farm & other potential community generation projects.

Using network models, together with time-series load and generation data, to determine the nature of the constraint and the amount of generation that could potentially be alleviated through the use of demand side management techniques.

A technical assessment of the DSM techniques used in the NINES study, the technical viability of distributed demand side management, and an understanding of how ANM will work in practice including a review of regulatory and commercial issues.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

66
Project Name **Rousay Egilsay and Wyre Innovation Consortium Grid-Smart EV Charging Project, Orkney** Reference **P42236**

Applicant Organisation **The Rousay, Egilsay and Wyre Development Trust (REWDT)** Fund **Grant - IIF**

Project Description

Project developed from Community Power Orkney Electric Vehicles (P42048) into this Grid Smart EV Charging project.

This looks to create charging systems to take advantage of local energy use and co-ordinate this with curtailment patterns.

The design and installation of smart Electric Vehicle charging and control equipment was included.

It is intended that the installations will allow operational assessment, refining and development of the equipment involved and will demonstrate how the principle can be replicated.

Combined final report (October 2015) covers the learning from both P42048 and P42236.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

67
Project Name **Ardgour Outdoor Centre Hydro Power Utilisation Project (HYPUP)** Reference **P42238**

Applicant Organisation **Abernethy Trust** Fund **Grant - IIF**

Project Description

To investigate the use of generation from an on-site 90 kW hydro scheme to offset existing oil fired wet central heating in the Abernethy Trust outdoor building. The project reviewed technical feasibility and design options to divert surplus generation to use on-site and minimise power exported to grid. Project also reviewed the existing heating and hot water systems in the building.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

68

Project Name **SMILEGOV Island Energy Audits, National** Reference **P42241**
Applicant Organisation **Scottish Islands Federation (SIF)** Fund **Grant - IIF**
Project Description
Project to assess and characterize local energy demand, and planned and future potential generation, through an island energy audit. Consortium of 10 islands included in the study to provide information to form Island Sustainable Energy Action Plans (ISEAPs), to be used as a tool in planning local energy options (efficiency, generation, fuel substitution) and increasing community resilience.
[Link to project report](#)
Please contact Local Energy Scotland for available output.

69
Project Name **Applecross Hydro 2 Heat** Reference **P42243**
Applicant Organisation **Applecross Community Company Limited** Fund **Grant - IIF**
Project Description
Project to review the potential for using surplus (curtailed) electricity generated by the hydro scheme currently under development by ACC. The connection is limited to 90kW and generation above this would need to be used locally, off grid. ACC were interested in the possibility of using excess generation to provide heat to the buildings in the vicinity of the hydro scheme, or is appropriate, an electric vehicle charging point.
[Link to project report](#)

70
Project Name **KCDC Hydro - private wire connection and modification to Golf Clubhouse distribution system** Reference **P42244**
Applicant Organisation **Kingussie Community Development Company (KCDC)** Fund **Grant - IIF**
Project Description
Project to connect hydro generation through a private wire connection to the local golf club. Including changes to the Golf Club electrical system and the installation of a data logger. Aiming to optimise the system and allow monitoring for educational purposes and to promote energy efficiency.
The output is a private wire Electricity Supply Agreement in addition to the installed hardware, and the project is now complete.
[Link to project report](#)
Please contact Local Energy Scotland for available output.

71
Project Name **Vatersay District Heating Scheme** Reference **P42282**
Applicant Organisation **Coimhearsnachd Bharraidh agus Bhatarsaidh Ltd** Fund **Grant - IIF**
Project Description
Study into a 100 kW wind powered district heating scheme, by private wire connection to Vatersay village from one or two local wind turbines. The aim is to supply the electric space and water heating in each property. All properties would retain their existing electrical supply connections for non-heating loads, and would be able to switch their heating circuits between grid supply and the District Heating Scheme supply. The financial modelling showed that the project was not viable but it was agreed that monitoring meters be installed in the properties so that data could be captured in case a viable project could be developed in the future.
[Link to project report](#)
Please contact Local Energy Scotland for available output.

72
Project Name **Knoydart Off-grid Hydro Optimisation** Reference **P42283**
Applicant Organisation **Knoydart Renewables Ltd** Fund **Grant - IIF**
Project Description
As a completely isolated grid Knoydart offers some unique challenges compared other areas of grid constraint in Scotland. This project intends to investigate the potential for Demand Side Response on the Knoydart network. The process comprises of matching local energy demand to local generation of the hydro scheme. Two potential methods have been identified, the first using a data visualisation tool to communicate the availability of hydro resource to the Knoydart community and encourage behaviour change response in

residents, and the second to provide a centrally controlled aggregation system to actively switch electric heating loads to manage demand.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

73

Project Name	Gerrannan Innovative Heating Project	Reference	P42284
Applicant Organisation	Urras nan Gerrannan	Fund	Grant - IIF

Project Description

Aiming to use wind generation to provide additional electric heating to an existing mini district heating system. A new control system and a high capacity Phase Change buffer will store heat to help balance the heat load.

Project complete and equipment installed.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

74

Project Name	Cupar North Solar Community (CNSC)	Reference	P42287
Applicant Organisation	Sustainable Cupar	Fund	Grant - IIF

Project Description

Project to consider the potential heat demand in existing areas of Cupar, based on available information from the Fife Council heat map, and from basic information available in the Cupar North Development Plans.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

75

Project Name	Argyll Community Owned Network Monitoring	Reference	P42289
Applicant Organisation	Community Energy Scotland	Fund	Grant - IIF

Project Description

The project looks to install community owned 'live line' distribution level power flow sensors to provide detailed data on current power flows through the distribution network associated with the Islands of Mull and Gigha.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

76

Project Name	Foula Electricity Trust Phase 3 Upgrade	Reference	P42292
Applicant Organisation	Foula Electricity Limited	Fund	Grant - IIF

Project Description

Foula Electricity Trust have developed the local micro-grid in Foula, the current grid delivers electricity to households on Foula and the energy mix is currently Wind, Hydro, Solar and diesel generator. The trust have desires to reduce the reliance on diesel but currently cannot do so without de-stabilising the energy supply. the project looks at the development of an active network management (ANM) system and technology, building from learning in the NINES project.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

77

Project Name	Dalavich Hydro	Reference	P42295
Applicant Organisation	Dalavich Improvement Group	Fund	Grant - IIF

Project Description

Study is to identify a way around power transmission constraints so that the hydro project can connect to the grid. Quantify local demand to the Grid Supply Point at Taynuilt (site of transmission grid constraint). Identify high demand users en route e.g. farms, other businesses. Investigate the feasibility of supplying electricity via a private wire to local domestic properties. Investigate if/where it would be possible to install monitoring equipment to determine if active network management would be worthwhile.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

78

Project Name	Rumster Innovation Consortium	Reference	P42297
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Applicant Organisation **Latheron, Lybster and Clyth Community Development Company (LLCCDC)**

Fund **Grant - IIF**

Project Description

Latheron, Lybster and Clyth Community Development Company (LLCCDC) looking to identify the business options available to make best use of curtailed energy from Rumster Community Wind farm. Grid constraints and planned upgrades in the area mean that the wind farm has been offered an earliest potential connection date in 2022. This project looks to carry out a feasibility study for the addition of a woodchip drying facility and / or a microgrid in order to maximise the use of electricity generated earlier. The study provides a business model for each option investigated and highlights the opportunities and risks with further development.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

79

Project Name **Unst Energy Audit**

Reference **P42298**

Applicant Organisation **Unst Partnership Ltd**

Fund **Grant - IIF**

Project Description

Unst Partnership (UP) project to undertake energy audits on 8 community facilities in Unst. Aim is to identify and evaluate potential energy demands in Unst, this will allow the group to assess the feasibility of local renewable energy generation projects, within the constraints on the Shetland Island electricity grid.

[Link to project report](#)

Please contact Local Energy Scotland for available output.

80

Project Name **Creed Park Micro Grid**

Reference **P42333**

Applicant Organisation **Comhairle nan Eilean Siar**

Fund **Grant - IIF**

Project Description

Project aiming to design an innovative local energy management system which will integrate different generation and storage activities and technologies, thereby using this integration to maximise the benefits and value of the available renewable energy generation in and around the council-owned Creed Enterprise Park near Stornoway.

[Link to project report](#)

Please contact Local Energy Scotland for available output.