

# **Community Energy Policy Statement**

**Draft for public consultation**

**August 2014**

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The Scottish Government  
St Andrew's House  
Edinburgh  
EH1 3DG

# **Scottish Government Community Energy Policy Statement**

## **Draft for public consultation**

Contents

Ministerial Foreword

Note on text

1. Introduction and Overview
2. Direct community ownership
3. Shared ownership and investment
4. Community Benefits
5. Local Energy Economies
6. The Future of Community Energy

Annex

Information on this consultation and invitation to respond

Note on consideration under Environmental Assessment Act  
(Scotland) 2005

An overview of CARES support offered to communities, together with case studies, is published separately and is available on the Scottish Government website at [www.scotland.gov.uk/CARESoverture](http://www.scotland.gov.uk/CARESoverture).

## Ministerial Foreword

I am delighted to present for public consultation our first national Community Energy Policy Statement which builds on our record of more than a decade of support to set a clear statement of ambition, including the benefits which we want to see accrue to communities from commercially-owned schemes.

We are already powering towards our target to see 500 MW of community and locally-owned renewables by 2020, with 285 MW in operation this time last year. But this is not enough. We need to bring community energy in from the margins of energy policy to make it the central tenet of our future energy systems, where it has the potential to transform local economies.

To date, we have prioritised community renewables. I now want to broaden the challenge of community energy to encompass the whole energy system: energy efficiency and demand reduction, low carbon energy supply and distribution, heat systems and energy storage. Community energy systems can play a pivotal role in sustaining our communities, taking control and ownership of the system, with all the associated economic and social returns. Our ambition is the development of a localised, robust, more distributed energy system – a hallmark of Scotland's unique approach to its own energy needs.

There are a number of specific issues and problems arising in relation to energy generation and distribution which a local low carbon energy economy approach could tackle including security of supply; dependency on imported fossil fuels; the impact of rising wholesale and infrastructure costs on consumer heat and electricity bills; and the large numbers of Scottish energy consumers who are not on the national gas grid.

By building close links with energy consumers through community-based organisations, we have the potential to maximise the value of energy generated and to create socio-economic benefits, as well as contributing to our climate change targets.

The local energy economy solutions appropriate for the Highlands and Islands will not necessarily be the same as those required in the Central Belt. We should celebrate this diversity and encourage flexible solutions to suit. We can draw on our Community and Renewable Energy Scheme (CARES) support already going into remote communities which provides local solutions to grid constrained community energy projects, and we can also build on the multi-agency approaches we are seeing to energy-planning in the cities.

We are on the brink of a new surge in community energy and opportunities for community benefits and community investment in commercial schemes as part of a local energy imperative.

To provide an initial impetus, we are today announcing our intention to introduce a Local Energy Challenge Fund of up to £20m which will offer grant and loan funding from April 2015 for major demonstrator projects providing transformative innovative local energy solutions.

I am grateful for the input provided to this statement from our Community Renewables Implementation Group and we look forward to responses to our public consultation.

A handwritten signature in black ink, reading 'Fergus Ewing'. The signature is written in a cursive style with a large loop under the 'F' and a large loop under the 'E'.

Fergus Ewing

Minister for Energy, Enterprise and Tourism

## Note on Text

### Context

This national Community Energy Policy Statement is published for public consultation and should be viewed alongside the Scottish Government's existing Electricity Generation Policy Statement<sup>1</sup> and our draft Heat Generation Policy Statement<sup>2</sup>.

### Scope

This document uses terms such as “community energy” and “locally-owned energy” throughout:

- Community energy<sup>3</sup> refers to projects led by constituted non-profit-distributing community groups established and operating across a geographically defined community, including “Bencoms”.
- Locally-owned energy refers to projects led by regional organisations which are not profit-distributing and have charitable aims such as housing associations and educational institutions or local authorities, as well as commercial businesses including farmers, land managers, rural small and medium-sized enterprises and profit-distributing co-operatives.

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<sup>1</sup> [Electricity Generation Policy Statement – 2013](http://www.scotland.gov.uk/Publications/2013/06/5757) [www.scotland.gov.uk/Publications/2013/06/5757](http://www.scotland.gov.uk/Publications/2013/06/5757)

<sup>2</sup> Towards Decarbonising Heat: Maximising the Opportunities for Scotland: Draft Heat Generation Policy Statement for Consultation <http://www.scotland.gov.uk/Publications/2014/03/2778>

<sup>3</sup> While non-renewable resources may be included in the term “community energy”, Scottish Government support for community energy schemes to date has been restricted to those based on renewable resources. However, as will be seen later in this Statement, there may be an opportunity to promote community energy within a broader low carbon approach involving a wide range of local partners. Hence the distinction between “community energy” and “locally-owned energy” above may become more blurred in the future.

# Introduction and Overview

## Ambition

Community energy provides an opportunity to spread the benefits of the rich energy resource with which Scotland is blessed. Our support for community projects reflects their importance in empowering communities to take control of their own destiny and make the most of their own local resources.

Community energy covers a spectrum of activity – from direct ownership of energy assets, to community benefits payments. This national policy statement demonstrates our ambition to see community energy *systems*, with opportunity for community ownership and control across the full range of components in the system: generating low carbon energy, improving energy efficiency, distributing energy and even storing energy. The community can have a stake in the full range of heat and electricity generating technologies, from onshore wind, to solar PV and solar thermal, hydro, biomass and heat pumps.

Central to our task is the challenge to address climate change and reduce the carbon impact of energy in Scotland. Our main ambition is to see 500 MW of renewables in community and local ownership by 2020. This target is unique in the UK, recognising the huge economic return to Scottish communities who come together to make use of the green energy resource around them.

The total value of the target for 500 MW of community and locally-owned energy by 2020 has been independently estimated at up to £2.2 billion over the operational lifetime of those projects<sup>4</sup>.

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<sup>4</sup> The economic scale of community and locally owned renewable energy in Scotland and projections to 2020, Fraser of Allander Institute, University of Strathclyde, for ClimateXChange, July 2014.



## The different forms of community energy

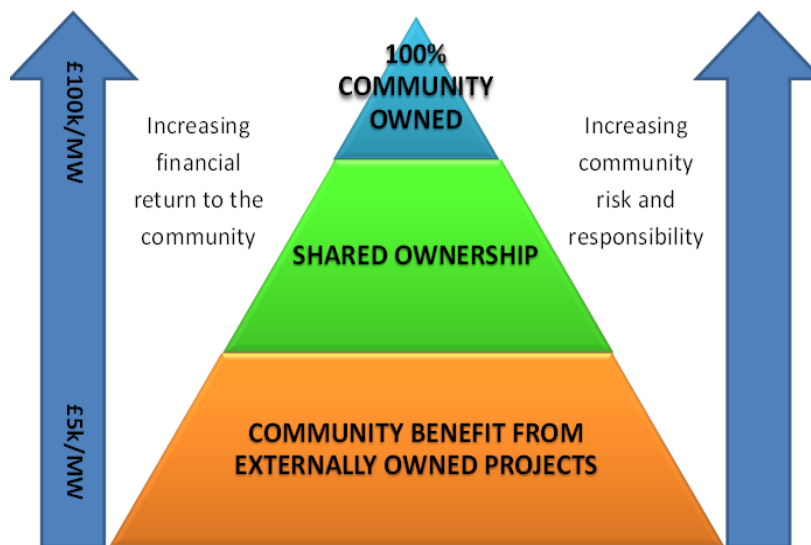


Figure 1: the 3 main models of community energy

Direct ownership of schemes, and community investment in commercial schemes are the main prizes for community energy, but they carry with them the need to bear risks, financial and legal, and there can be major barriers to bringing together communities to make the bold decision to invest and own. This is where the Scottish Government can play a crucial role: providing improved information, advice and reducing financial risk. The scale of social and economic return where there is ownership of commercial projects can be transformational for local communities, supporting regeneration and a stronger sense of community cohesion.

Community benefits from commercial schemes offer a smaller, but still valuable, opportunity to spread the benefits of our indigenous energy resource to Scotland's people. The Scottish Government's ambition in this area has transformed practice across the UK in terms of gaining industry commitment to national good practice guidance and a new baseline for community benefit from commercial projects.

### Direct Community Ownership of Renewables

The Scottish Government's community energy policy aims to mitigate and reduce risks of direct ownership.

Our flagship schemes for community energy are currently the Community and Renewable Energy Scheme (CARES) delivered by Local Energy Scotland, and the Renewable Energy Investment Fund (REIF) delivered by Scottish Investment Bank.

CARES offers end to end local support to community groups to encourage and support them to consider renewables projects and has been recognised by the Organisation for Economic Co-operation and Development (OECD) as a leading example of good practice.

**“Good Practice examples of bottom-up approaches to renewable energy**

There are some local experiences in which R[enewable] E[nergy] policy provides rural dwellers with specific policy tools to experiment with deployment and to gather direct benefits. For instance, the Scottish government is active in supporting bottom-up RE development through pioneering policy interventions. The Community and Renewable Energy Scheme (CARES)...supports community groups developing RE projects....Through CARES, community trusts, charities and volunteers active at the very local level can get involved in RE.”

[http://www.oecd-ilibrary.org/urban-rural-and-regional-development/linking-renewable-energy-to-rural-development\\_9789264180444-en](http://www.oecd-ilibrary.org/urban-rural-and-regional-development/linking-renewable-energy-to-rural-development_9789264180444-en)

CARES is already helping us to make progress towards our 500 MW community and locally-owned renewables target - with 285 MW operating in 2013, including 43 MW of community energy.

Scottish community experience of renewables is underpinned by a wider local engagement with the low carbon economy assisted by national initiatives such as the popular Climate Challenge Fund, and enhanced by a range of more general support to communities designed to increase community capacity and engagement.

**Shared ownership and investment in Renewables**

The Scottish Government is now encouraging new models of local investment in commercial renewables to reflect our ambition to spread the benefits of our indigenous renewable energy resource throughout the nation.

In Scotland a new relationship is emerging between energy developers and communities. On the national forest estate - land managed by Forestry Commission Scotland - communities now have the opportunity to invest up to 49% equity in forthcoming wind and hydro schemes.

Further tailored intervention will be required to make the most of the opportunity for communities to invest in commercial renewable energy schemes so that Scotland can continue to lead the way in this area. This policy statement invites comment on whether the Scottish Government’s Renewable Energy Investment Fund can be tailored to better support community ownership of new and existing projects.

## **Community Benefits**

Community benefits payments from commercial schemes also offer a financial return to communities, but commensurate with a much lower financial and legal risk than under the direct ownership model.

In the absence of clear powers over developers, the Scottish Government has focused on driving new standards of good practice. Industry practice has been transformed in recent years, setting a new baseline for community benefits across the UK – equivalent to at least £5k per MW, index-linked for the lifetime of projects - more than double the rate typically paid to communities until recently.

Our public Register of community benefits shows that, in the past 12 months, about £6 million has been provided to Scottish communities from over 3 GW of (mainly) onshore wind schemes.

The Scottish Government has published Good Practice Principles for developers designed to maximise community benefit from onshore renewable energy developments.

Public faith will only be maintained if the industry commitment to voluntary good practice, including the national recommended baseline rate, is demonstrated in as many new schemes as possible commissioned from now on.

The Scottish Government is currently consulting on Good Practice Principles for Community Benefits from Offshore Renewables.

## **Local Energy Economies and the Future**

Community energy faces a number of barriers to its growth: energy projects are often high capital cost and can be subject to delayed grid connection. The UK subsidy regime is currently under reform, creating uncertainty and new risks, particularly for smaller scale development.

The challenge is to encourage Scotland's communities to grasp the opportunities of a whole system approach to community energy. Low carbon energy systems can involve the integrations of a range of technologies: renewable energy generation – coupled with energy storage, the use of waste heat and community heat systems, smart grids and demand reduction measures, improvements to energy efficiency.

Together, these can lower fuel bills for consumers and even create new revenue schemes for community investment. By moving towards a more decentralised energy system, with local systems of energy production, distribution and use, Scottish communities have opportunities to attract new investment, reduce their carbon impact and take ownership and control of new assets, with revenue streams.

### **Local Energy Economy approach could be transformational for Scottish communities**

“The development of Local Energy Economies could transform the multiple challenges facing communities into opportunities for new collaborative business models that are capable of better integrating new renewable energy sources with existing infrastructure, and providing additional economic benefits to local consumers and businesses.”

Community Energy Scotland, report to the Scottish Government on Local Energy Economies: The Potential for Scotland, June 2014

The Scottish Government has been working in partnership with Highlands and Islands Enterprise and with advice from Community Energy Scotland to scope out what might be achievable through a ‘local energy economies’ approach. We have tapped into the growing momentum for innovation in decentralised energy systems designed to match local supply and demand that is apparent throughout Europe and other parts of the world.

We now require a wider approach to community energy, built on existing experience of community engagement, but focusing on new forms of collaboration with local authorities and local businesses, using ‘smart’ technologies, and new business models that capture and retain more value at the local level. These opportunities will be more difficult to conceive, but the benefits are potentially transformational – especially where we can find projects that combine heat, electricity, waste and transport solutions.

There is already activity at local authority scale, community scale, business scale and domestic householder scale, with some of the support in place through CARES and other schemes. This document invites feedback on how there can be greater impact for these programmes.

**To provide an early impetus, a Local Energy Challenge Fund has been established to invite demonstrator projects for new community low carbon energy systems, encouraging innovation in community projects in Scotland.**

## 2. Direct community ownership

We have **over a decade of experience of supporting communities in Scotland to develop their own renewables schemes**, resulting in over 400 operating installations across Scotland, with active projects ranging from small scale hydro schemes of under 100 kW to wind farms of up to 6.9 MW.

This has built up a wealth of experience in local communities in terms of “green” aspirations, as well as, of course, local understanding of the role that renewables can play in generating revenue as part of a low carbon economy.



While our transition to a low carbon society will be enabled by infrastructure and technology, the pace of the transition will be determined by how we, as individuals, households and communities, change our behaviours.

### Wider support for community development in a low carbon economy

Community experience in renewables is underpinned by a wider local engagement with the low carbon economy assisted by national initiatives such as the popular **Climate Challenge Fund**, which has supported nearly 500 communities with 676 awards since the scheme opened in 2008, to a value of nearly £60 million. Support from the Climate Challenge fund is scheduled to reach £80 million by 2016. Whether through refurbishments of community-owned buildings, energy efficiency advice, waste recycling, active travel projects or local food growing, community action is making an impact.

The Climate Challenge Fund is helping to build an understanding across the country of the nature of climate change, and what drives it, and how it can be arrested by a change in our own behaviours. Harmful greenhouse gas emissions are being steadily reduced and we are building more resilient communities. In addition, hard-pressed households are learning that energy efficiency in the home leads to reduced fuel bills.

This community experience has also been **enhanced by a range of more general support to communities** designed to increase community capacity and engagement. The Scottish Government has a range of funding programmes to support community-led regeneration and community empowerment, and the primary fund to support community led regeneration is the **People and Communities Fund**. This main grant element of the Fund supports community anchor organisations to grow and strengthen by delivering outcomes to meet and respond to the aspirations of their communities. The People and Communities Fund is currently £7.9 million and it will be increased by £1.5 million to £9.4 million in 2015-16.



## Known operational renewable energy installations owned by Scottish community groups, as at June 2013

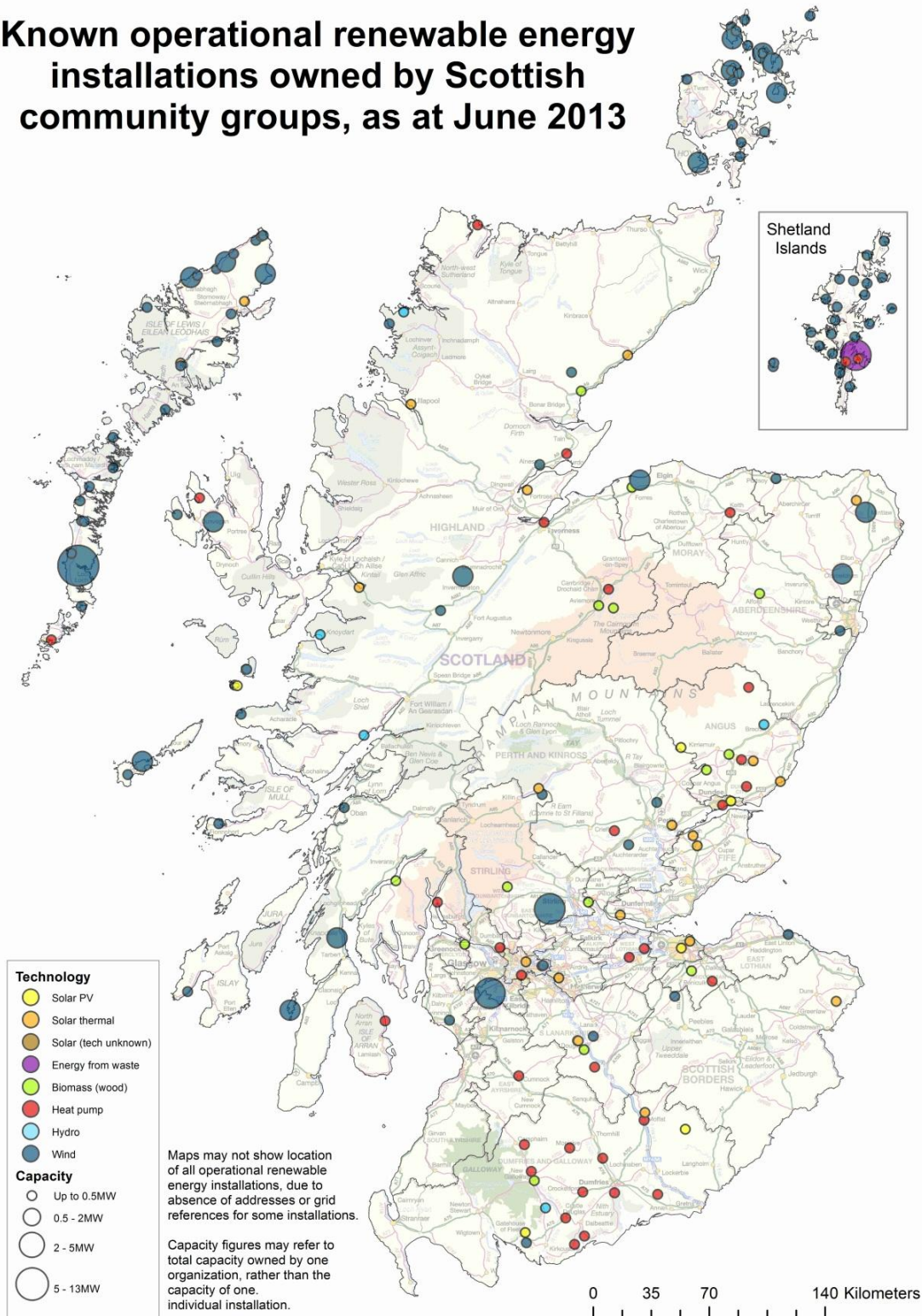


Figure 2: Known operational renewable energy installations owned by Scottish community groups as at June 2013<sup>5</sup>

<sup>5</sup> [Community and locally owned renewable energy PDF 2013](http://www.energysavingtrust.org.uk/scotland/Publications2/Communities/Community-and-locally-owned-renewable-energy-PDF-2013)

<http://www.energysavingtrust.org.uk/scotland/Publications2/Communities/Community-and-locally-owned-renewable-energy-PDF-2013>

The Scottish Government is taking an 'assets-based' approach to support for communities and has introduced the **Community Empowerment (Scotland) Bill** to the Scottish Parliament:

<http://www.scottish.parliament.uk/parliamentarybusiness/Bills/77926.aspx>

The Bill will encourage enterprising community development and will, in particular, help community bodies to acquire land which could be used for renewables schemes. The Bill will extend the existing community right to buy to cover all parts of Scotland, and will streamline and improve the procedures. It will introduce a right for community bodies to purchase abandoned or neglected land, even where the owner is not willing to sell, where this is in the interests of achieving sustainable development of the land. It will also make it easier for community bodies to take over public sector land and buildings where they can show they can deliver greater public benefit with those assets.

The main Scottish Government fund for awarding grants to assist rural communities in acquiring land and land assets is the **Scottish Land Fund**. The Scottish Land Fund is a £9 million, 4-year commitment (£1M in 2012-13; £2M in 2013-14, £3M in 2014-15 and £3M in 2015-16). It has recently been announced that the Scottish Land Fund will be extended to at least 2020.

The Scottish Land Fund supports rural communities to become more resilient and sustainable through the ownership and management of land and land assets. The Fund focuses primarily on the acquisition of land, from whole estates to small strategically important areas of land, and land assets including development sites for renewable energy opportunities.

### **New impetus and increased scale of ambition**

The assets-based approach that the Scottish Government has applied to community development policy has helped communities to set their sights higher in terms of scale of build and potential financial return and, bolstered by the introduction of the Feed in Tariff scheme (FITS) and the Renewable Heat Incentive (RHI), the opportunity to generate revenue for local benefit has gained a new impetus.

The **Feed in Tariff** is a UK Government initiative introduced in April 2010, which supports community organisations, businesses and individuals to generate low-carbon electricity using small-scale systems (up to 5 MW of total installed capacity). It provides a financial incentive to those organisations which would not traditionally become involved in the electricity market. Eligible technologies are:

- Wind
- Solar photovoltaic (PV)
- Hydro
- Anaerobic digestion
- Domestic scale microgeneration
- Combined heat and power (micro CHP) with a capacity of 2kW or less.

The scheme provides a fixed payment for the electricity generated, called the “generation tariff”. It also pays for any electricity that is not used on-site but is exported to the grid (the “export tariff”). These payments are in addition to the savings you can make by using the free electricity generated on site.

In Scotland the introduction of the FITs has seen an increase in community-owned projects, with the income generated supporting a wide range of social and economic activity in local communities.

The UK **Renewable Heat Incentive** (RHI) programme provides financial incentives to increase the uptake of renewable heat. For the non-domestic sector, it provides a subsidy, payable for 20 years, to eligible, non-domestic renewable heat generators and producers of bio-methane for injection based in Great Britain, subject to the detailed scheme rules. The non-domestic RHI presents a significant opportunity for businesses, the public sector and third sector to get a reasonable return on investment through installing renewable heat technologies.

In terms of take-up of the RHI, Scotland is punching above its weight, with £9.5 million paid to the growing number of accredited Scottish based organisations since November 2011, accounting for 19% of the total (UK) eligible heat generated (excluding biomethane). Over 18% of the eligible capacity is currently in Scotland, with around 15% of total non-domestic RHI payments going to installations in Scotland. As at 31 March 2014, 30% of non-domestic RHI installations (including both applications with preliminary approval and all full applications) that have been accredited are in Scotland.

The domestic Renewable Heat Incentive (RHI) scheme was introduced in April 2014 to encourage households to adopt renewable heat technologies to replace existing fossil fuel heat sources. For domestic properties, the subsidy is paid over 7 years, and is available to homeowners, private and social landlords and people who build their own homes. In the first 7 weeks of the domestic RHI scheme coming into operation, 1000 installations were accredited across GB, with 22% being accredited to Scottish households, many of which are located in off-gas areas.



### Progress to 500 MW target

As already highlighted, we are making good progress towards our 500 MW community and locally-owned target with 285 MW in operation by 2013 (an increase of 40% from the year before), and significant capacity in the scoping and planning “pipeline” as Figure 3 below illustrates. Community groups make up 43 MW of the 285 MW operating capacity, which is an increase of 65% from the year before.

It is important to highlight that the vast majority of community energy schemes operating in Scotland are in rural and remote areas, reflecting the availability of the resource, and capacity and demand to date.

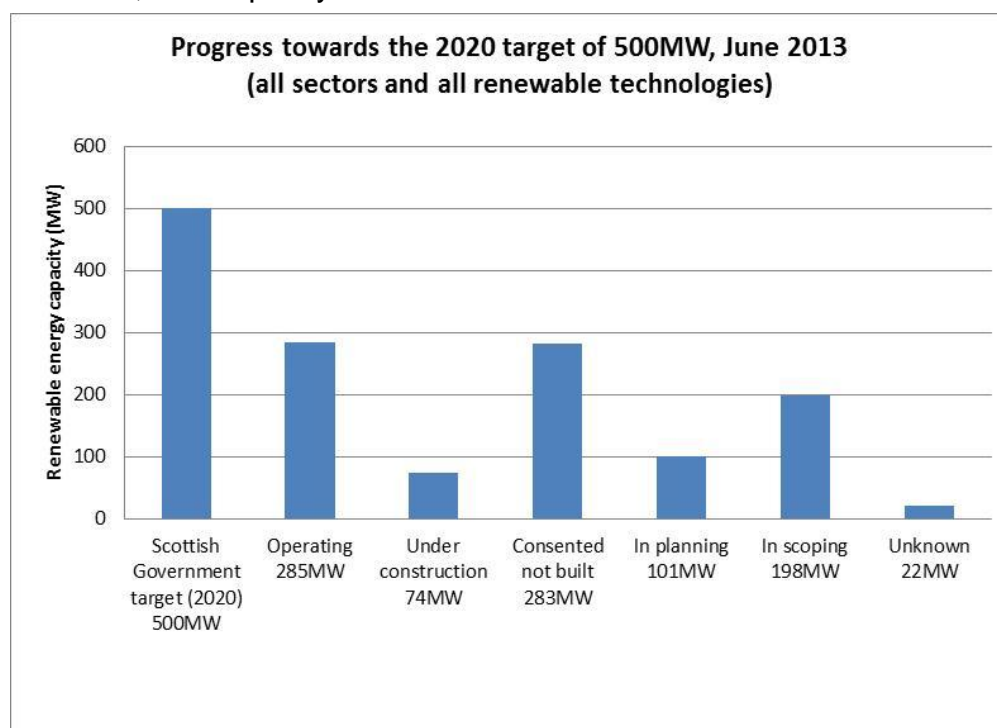


Figure 3: Progress towards the 2020 target of 500 MW, as at June 2013<sup>6</sup>

The latest Energy Saving Trust report<sup>7</sup> monitoring progress towards our 500 MW target, published in April 2014, shows that, by the end of June 2013, an additional 679 MW of community or locally owned renewable energy capacity was estimated to be in different stages of development.

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<sup>6</sup> ibid

<sup>7</sup> ibid

## History of support for community energy in Scotland

The progress that has been made to date in terms of community ownership of renewable energy and community investment in commercial schemes has been for the most part directly owing to support provided at a Scottish national and regional level from as early as 2002.

In its 2013 performance report on Renewable Energy, Audit Scotland records that, of the £209.5 m that the Scottish Government, Scottish Enterprise and HIE spent in the 11 years to 2012/13 on supporting renewable energy, almost a fifth (**£40 m**) was spent on supporting community and household projects (£38.4 m by Scottish Government and £1.4 m by HIE)<sup>8</sup>.

### Scottish Community and Householder Renewables Initiative

The first national community energy support scheme was provided under the Scottish Community and Householder Renewables Initiative (SCHRI) which opened in 2002. The community stream of SCHRI provided grants of up to £100,000 for communities and had a network of development officers who provided advice and support throughout the installation process. One of the objectives of the SCHRI programme was to support the development of community-scale renewable projects. This supported many communities across Scotland to start out on their journey with renewable technologies. **By May 2005, 146 community renewable energy projects had received capital funding worth £3.6 million**<sup>9</sup>. Several of these community projects have successfully moved from feasibility studies to installation of schemes and are now generating their own power and realising the benefits.

The vast majority of installations supported under SCHRI were at the microgeneration-scale (that is under 50 kW electricity or under 45 kW heat), a typical project being solar thermal panels installed onto a village hall.

However, some larger-scale scales projects were also supported, with notable successes including the following island-based schemes:

- The pioneering project on Gigha where three turbines were installed in 2003, becoming Scotland's first community owned, grid connected, windfarm. Finance was raised through commercial loans, public grants and the sale of preference shares. They have now fully paid for their capital costs, meaning that any income generated by the turbines can be passed straight on to the Isle of Gigha Heritage Trust. To date, income has been used primarily to support refurbishment and energy efficiency measures in community-owned properties on the island.

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<sup>8</sup> [Renewable Energy - Audit Scotland](#) report, 2013

<sup>9</sup> Evaluation of the Scottish Community and Householder Renewables Initiative, Scottish Executive Social Research, 2006

- Tiree where the community has installed a 900kw wind turbine at Ruaig Sliabh in the east of the island in March 2010. The single turbine, owned by Tiree Renewable Energy Ltd, generates revenues for the island's community. All surplus revenue is donated to Tiree Trust to finance community projects through the Windfall Fund. Over £80,000 was donated to community projects in 2013 alone.
- The islanders of Eigg started generating their own energy from renewable sources in 2008. This now integrates hydro, wind and solar sources of renewable energy to households and business via a community-owned island-wide high voltage grid.

## Community and Renewable Energy Scheme



The Scottish Government's flagship schemes for community energy are currently the Community and Renewable Energy Scheme or CARES, linked to capital support from the Renewable Energy Investment Fund or REIF. These schemes continue to act as practical mechanisms to realise the Scottish Government's strong ambition for community energy.

The Community and Renewables Energy Scheme (CARES) has been established by the Scottish Government to encourage local and community ownership of renewable energy across Scotland. CARES is designed to accelerate progress towards the Scottish Government's target of generating 500MW from community or locally-owned renewables by 2020, and to maximise the benefits to communities from commercially-owned energy. CARES has been designed to ensure that support is not based on the individual's ability to invest but to distribute benefits across the community<sup>10</sup>.

CARES launched in 2009 as a grants scheme and the CARES loan fund was announced in 2011 with support not only to community groups but also to rural businesses willing to commit to a high level of community benefit (at least £10,000 per MW).

Community Energy Scotland held the initial CARES contract to July 2013.






**Community Energy Scotland (CES)** is a charity and social enterprise which began as HIE's Community Energy Unit established in 2002, which itself became the Highlands and Islands Community Energy Company in 2004.

CES held the first CARES contract from April 2009 to July 2013. It has also delivered community renewables programmes for HIE and The Big Lottery Fund. Since 2008, CES has operated across the whole of Scotland and built up a membership of 333 community groups who vote to elect voluntary directors and 80 associate members – mostly from businesses associated with the energy sector.




<sup>10</sup> Hence Bencoms (all of which build in local community benefit) are treated under CARES as community applicants, while co-operatives which do not include integral local community benefit can apply for finance under CARES as rural businesses, whereby they will be required to offer local community benefit of at least £10,000 per MW of installed capacity.

Local Energy Scotland took over the running of the CARES contract in August 2013.



**Local Energy Scotland** is a consortium made up of 5 social enterprises led by Energy Saving Trust (EST), and including Changeworks, The Energy Agency, SCARF and The Wise Group. Local Energy Scotland administers and manages the Community and Renewable Energy Scheme (CARES) with support for delivery from Ricardo-AEA.



### Current CARES support available

A full specification of the support available under CARES has been published separately and is available on the Scottish Government website.

In summary, **through CARES, the Scottish Government aims to provide end to end support** to community groups from their initial engagement in the renewable journey through to installing technologies themselves or benefitting from commercial schemes.

### CARES end to end support

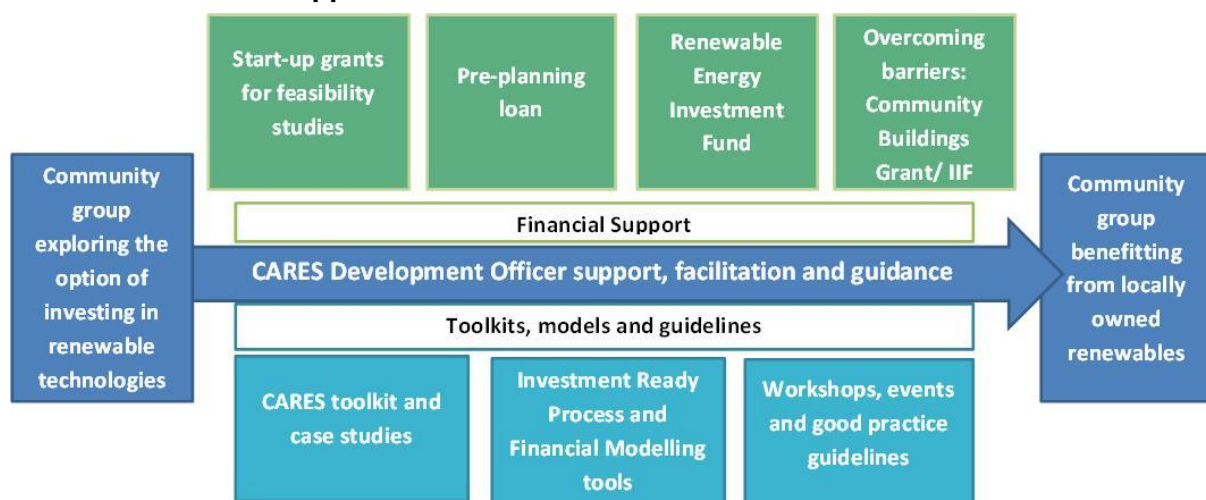


Figure 4: Overview of support offered under CARES

Through earlier consultation with community and rural business stakeholders, it was established that the high risk at the pre-planning stage of development was acting as a barrier to realising local aspirations for energy ownership. Hence the main financial instrument available under CARES - a **pre-planning loan** to help enable investment - is designed to mitigate that risk as it may, subject to State aid, be written off if the proposal is unable to proceed to operation.

Over  
**£12.5m**  
CARES loans  
offered

A pre-planning loan of up to £150,000 is available to support renewable energy generation schemes on land that communities or rural businesses own or could lease from a land owner. A total of 133 loans have been offered to date, worth over £12.5 m.

Within the portfolio of current projects currently receiving CARES loan funding Local Energy Scotland, using an estimated success factor, consider that 65 of these might progress to live projects which could generate around £35 million over 20 years in community or rural business income from local ownership.<sup>11</sup>

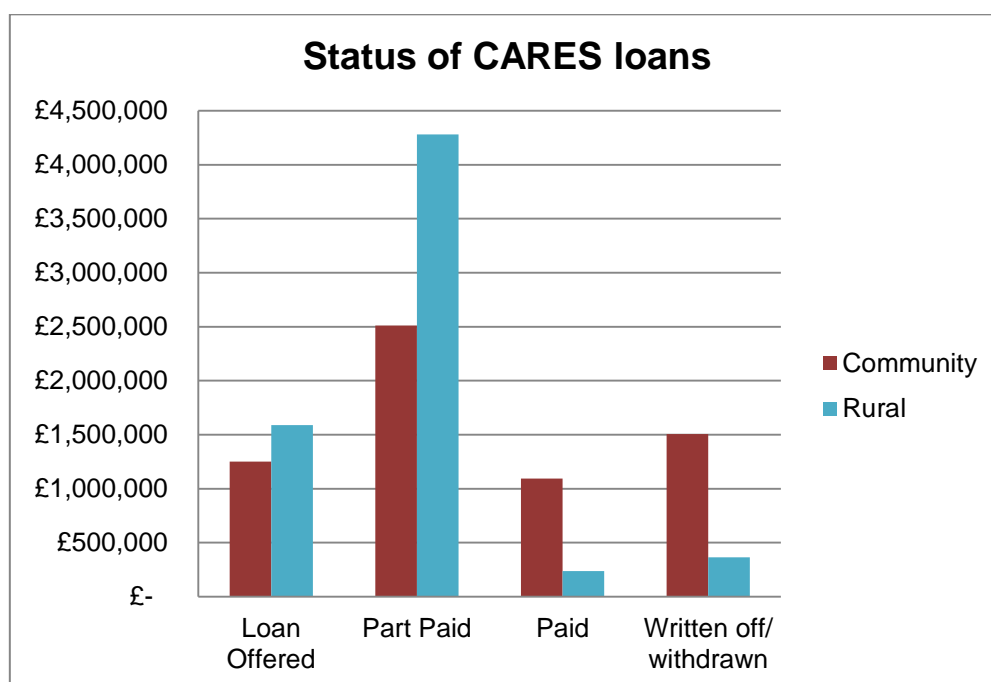


Figure 5: Analysis of pre-planning loans offered under CARES from inception (September 2011) to date (July 2014)

<sup>11</sup> Local Energy Scotland's estimate is based on a number of assumptions about the status of the pipeline projects including their installed capacity, cost of finance, Feed-in Tariff rates, debt/ equity ratios and the costs of development, construction and operation.

While the main pre-planning support available under CARES changed in 2011 from grants to loans, in order to maintain eligibility with the Feed in Tariff Scheme, communities can still benefit from specific **grant** support under CARES – in some cases without compromising their eligibility for FITS.

**Over £12m  
Grants offered  
through  
CARES**

Current CARES grant support ranges from feasibility and start-up aid, right at the beginning of the process, to grants for innovative infrastructure investment (see Chapter 5). In both these cases, eligibility for FITS or RHI is not affected.

CARES also currently offers grants for investment in community facilities in some of Scotland's most deprived areas. The Community Buildings grant available under CARES was introduced to encourage communities in deprived areas, who may not be prepared to take on loan finance, to get involved in small-scale renewables projects to local benefit. While they would not be able to register for FITS or RHI without paying back the grant, this support is making a difference particularly in urban communities where access to land for wind or hydro development, required for most larger income-generating projects, is more difficult, and where historically community engagement in renewables projects has been low<sup>12</sup>.

### **CARES Supporting Community Buildings**

CARES supports communities to enhance community buildings in Scotland's most deprived areas.

One community building to benefit from the grant is the Lochee Boxing Club in Dundee. Through a grant of just over £21,000, the building was given a full energy efficiency and renewables overhaul, with an Air Source Heat Pump, loft and cavity wall insulation, draught proofing and energy efficient lighting being installed. This allowed a previously draughty, cold and inefficient building to be brought back into community use.

#### **Lochee Boxing Club, Dundee**

It means we can offer our facilities to other groups within the community and turn it back into the thriving hub it once was. Just four years ago this club was on its knees and we had to reach out to the community to help us with funding to stay open. Now we're at the stage where we are ready to give them something back and thank them for their support.

Gordon Burns, vice-president of Lochee Boys' Club

Quote from The Evening Telegraph 09.04.13

<sup>12</sup> CARES is also introducing a Partnership Portal to match interested communities to available resource – see Chapter 3 – which should also help urban communities to share more equitably in Scotland's renewable energy potential.



The Scottish Government recognises how important it is for local communities to receive **on-the-ground advice and support** in order to help them understand the risks and rewards of direct ownership of renewable energy schemes.

Hence local support was a feature of the original SCHRI scheme, and continues as a central feature of CARES today, through a network of Local Development Officers which provides dedicated regional advice and support to projects across Scotland.

The Development Officers may have a technical specialism which can be called upon across the network to offer technology-specific expertise to local groups. As well as providing advice, the Development Officers are on hand to help communities (as well as rural businesses) to tap into the suite of financial support mechanisms available through CARES and facilitate and guide them throughout the process.

### **Keeping support up to date**

The Scottish Government is aware that for our community energy policy to continue to promote growth in ownership, the support available needs to be responsive to changing circumstances. Hence CARES (and REIF) are designed to be nimble and capable of being adapted to suit.<sup>13</sup>

CARES is constantly being reviewed and updated to ensure that it is providing communities (as well as rural businesses) with the support they need to get projects off the ground.

ClimateXChange published a report<sup>14</sup> on the success factors of community energy at the end of 2013 and Local Energy Scotland has undertaken an internal review to show specifically how CARES has been adapted to address the challenges that were identified.

A number of supporting mechanisms have been developed in the light of these reviews including updated toolkits, models and contractor frameworks, all designed to make the process of accessing funding and implementing projects more straightforward for communities and rural businesses.

While CARES was introduced in 2009 principally to sustain national support for community renewables, it has been adapted to meet the needs of rural businesses which, as locally-owned energy, make up an important component of the 500 MW target. Farmers and land managers have access to our nation's abundance of

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<sup>13</sup> As set out above, the most fundamental change to date has been the redesign of CARES from grants to loans which was made to ensure continuing eligibility with the Feed in Tariff Scheme (FITS) and the Renewable Heat Incentive (RHI), introduced by the UK Government. This change has ensured that communities can continue to benefit from the extra financial returns available from FITS and RHI-eligible generation.

<sup>14</sup> Haggett, C., Creamer, E., Harnmeijer, J., Parsons, M., and Bomberg, E. (2013) Community Energy in Scotland: the Social Factors for Success, . Report commissioned by ClimateXChange for the Scottish Government, available from: <http://www.climatexchange.org.uk/reducing-emissions/community-energy-scotland-social-factors-success/>



natural resources and are ideally placed to contribute towards growing Scotland's low carbon economy. Rural businesses are already making up 119 MW of the 285 MW deployed under our 500 MW community and locally-owned target<sup>15</sup>. Among farms and estates, the largest number of renewable technologies owned are wind turbines and biomass (wood) boilers, accounting for 99 % of installations.

CARES is providing support to rural businesses to cover the pre-planning consent (high risk) stage of project development. Rural businesses who benefit from the scheme must commit to provide a wider community benefit of £10,000 per MW per annum to the local communities.

An estimate of the community benefit value to local communities from the CARES applications approved to date is some £8.8 million over the next 20 years.

No. Approved	Total Loan Award	Technology	Total MW
64	£6.4 m	Wind (57) Hydro (6) AD (1)	44 MW

Figure 6: Summary of CARES rural applications

### CARES Supporting Rural Businesses

Rural businesses and landowners have a huge opportunity to be able to develop renewable schemes on their own land and contribute to local energy generation. Andrew Stewart, a farmer at Marshill Farm, South Lanarkshire, is doing just this. He secured a CARES loan to cover the pre-development costs of a planning application for a 2.3 MW turbine. With planning permission granted and a grid connection agreed the project is all set for construction in Summer 2014. CARES also provided an enhanced start up grant and Development Officer support to the Lesmahagow Development Trust to investigate options to invest in the turbine.

#### Andrew Stewart, Marshill Farm

The CARES loan I received has been the difference between pursuing a wind turbine project on our farm ourselves or renting the ground out to a developer 500 miles away to take forward the project, which would have meant 95% of any profit from the wind farm would have left our area. Before I received the CARES loan I was nearly signed up with a developer to build wind turbines on our farm as we felt the financial risk was too great to try and develop the project ourselves. The security of the CARES loan and the help from the officers has been instrumental in getting our project through the planning and grid process and now on to financial close. Through CARES we have also had a lot of contact with our local development trust – making it the beneficiary of the £10,000 per MW payment through CARES and leading to them taking a large stake in the development by getting funds through REIF. We only found out about REIF through CARES so the whole process has married to the point now where we have a project that is going ahead where 100% of any money made will stay in our local area and without the initial loan and subsequent advice from CARES this would not have happened.

<sup>15</sup> <http://www.energysavingtrust.org.uk/scotland/Publications2/Communities/Community-and-locally-owned-renewable-energy-PDF-2013>

## Highlands and Islands Enterprise Community Renewable Support Programme 2009 – 2013

This programme complemented CARES during the above period as it focused on providing additional support to groups wished to develop income-generating grid-connected projects of over 1 MW. More than 30 communities received support with 15 receiving financial assistance. The support ranged from scoping and feasibility studies, legal fees and writing up agreements to specific technical studies. These were mainly onshore wind and hydro projects.



## REIF

As well as offering commercial loans at the vital pre-planning stage, CARES also provides a link to the financial support available under the Renewable Energy Investment Fund, delivered on behalf of the Scottish Government and its enterprise agencies by the Scottish Investment Bank, the investment arm of Scottish Enterprise.

The Renewable Energy Investment Fund is a £103m fund, established in 2012 with funds from the Fossil Fuel Levy (FFL) account and operational until 2016. It is designed as a **capital support mechanism, offering loans, guarantees and equity to commercial renewables developers and community groups at market rates to address market failure in priority areas.**

The initial priority areas for REIF were announced as marine energy, renewable district heating, and community renewables – as all these face difficulties accessing finance directly from the market.

The Scottish Investment Bank is making good progress with developing a pipeline of projects for REIF, particularly in community energy as can be seen below. However, wider market uncertainty, largely caused by UK Electricity Market Reform, is delaying overall demand, and this has been factored into the REIF profile of spend by Scottish Ministers in extending the Fund for a further year to 2015-16.

Since it opened for business at the end of 2012, REIF has invested over £3m in community energy projects ranging from direct community-owned projects to financing community investment in commercial schemes. It is supporting one of the largest wholly-owned community wind farms in the UK – the Point and Sandwick scheme in the Isle of Lewis, and is helping well established community energy schemes, from Gigha to Fintry, to make the most of their resource and of investment opportunities.

<b>Project</b>	<b>Details</b>	<b>£ REIF loan</b>
Barra & Vatersay Wind Energy Ltd	900 kW wind turbine	300,000
Gigha Green Power Limited	330 kW wind turbine	59,000
Point & Sandwich Power Limited	9 MW windfarm	709,665
Callander Community Hydro	425 kW hydro on national forest estate	311,000
Galson	900 kW wind turbine	400,000
Fintry	Refinancing investment in Earlsburn windfarm	615,000
Islay Energy Community Benefit Society	300kW wind turbine	625,000

Figure 7: REIF loans offered to community renewable energy projects to date (December 2012 – July 2014)

### 3. Shared ownership and investment

**The Scottish Government wishes to encourage new models of investment in commercial renewables to reflect our ambition to spread the benefits of our indigenous renewable energy resource throughout the nation.**

We have already signalled our ambition through highlighting community investment opportunities as a key principle of our Good Practice Principles of Community Benefits from Onshore Renewable Energy Developments – which is summarised in Chapter 4.



As our guidance above sets out, we are keen to see communities get the chance to invest in local developments so that they have a direct stake in the energy being generated locally. In Scotland, there are currently 12 operational commercial renewable energy projects (onshore wind and biomass), that have seen some form of community or individual investment<sup>16</sup>. Seven of these involve local development organisations, and the remaining five involve co-operatives. Taken together, these projects account for just over 21 MW of current operational Scottish community renewables capacity.

After long negotiations, the village of Fintry became the first village in the UK to enter a joint-venture agreement with a wind farm developer that secured a wind turbine for the community. From the income stream the turbine generates, Fintry has given free insulation to more than half of all households in the village and is now embarking on new ambitious projects to eventually make the village carbon-neutral.

We want to encourage further projects so that we start to see the creation of a new paradigm of “mutual benefit” between communities and developers in commercial schemes.

This ambition is mirrored by enabling legislation proposed at a UK level<sup>17</sup> to oblige developers to allow community investment – this legislation will only be enacted by the UK Government if there is not enough progress by the market on a voluntary basis.

<sup>16</sup> Scene Connect Database, May 2014.

<sup>17</sup> <https://www.gov.uk/government/publications/infrastructure-bill-the-community-electricity-right>

This is not to underestimate the scale of the challenge. A preliminary report ‘Supporting Community Investment in Commercial Renewable Energy Schemes’ (May 2014)<sup>18</sup> on research led by the University of Edinburgh for ClimateXChange explores the factors which support and limit the ability of communities to invest in commercial renewable energy schemes. It includes analysis of a stakeholder survey to identify a range of factors which could potentially inhibit progress. These are illustrated in the graph below, and show the need to provide access to finance, information and advice, and to co-ordinate the timings of various parts of the project, as well as fostering trust on both sides to achieve “mutual benefit”.

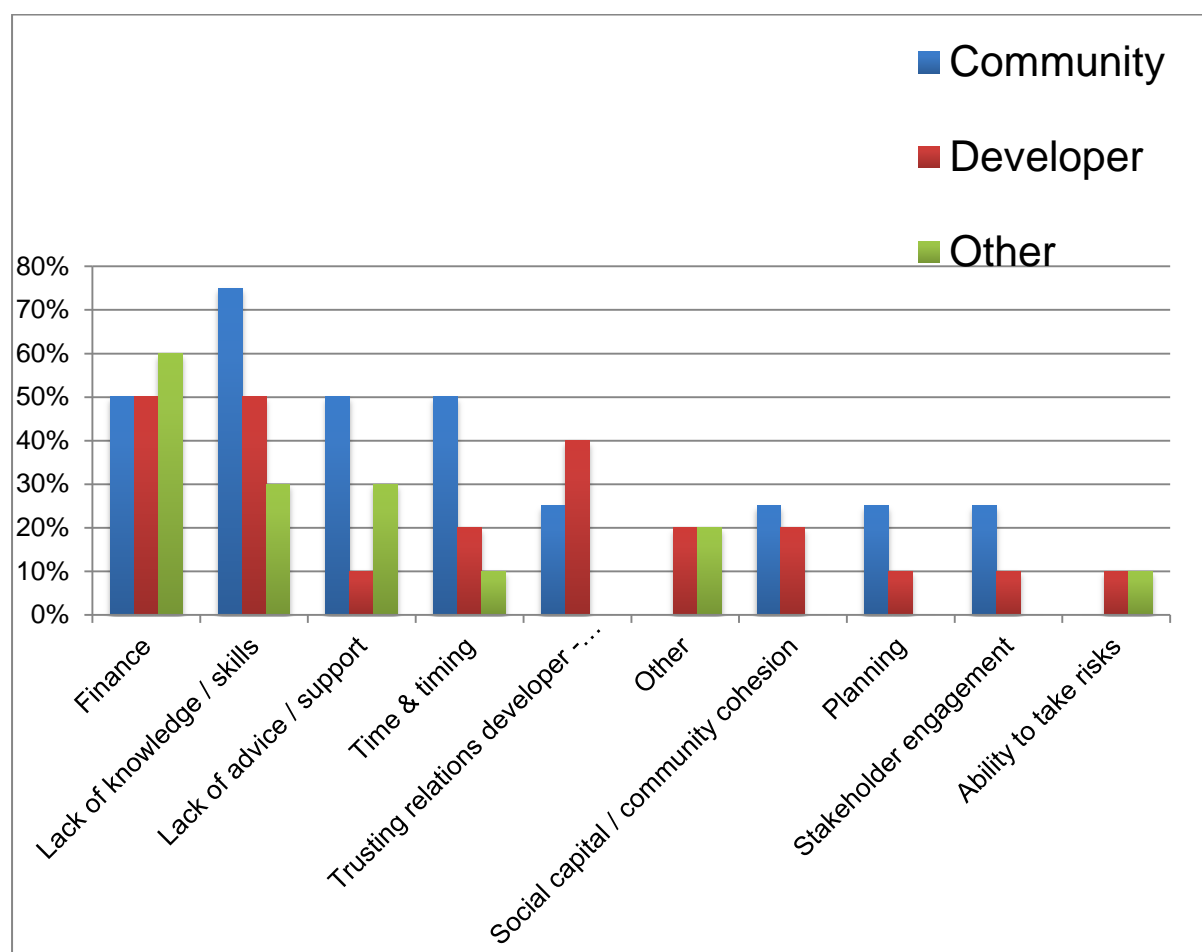


Figure 8: The main hurdles in progressing shared ownership projects, ‘Supporting Community Investment in Commercial Renewable Energy Schemes’, University of Edinburgh, May 2014.

This research is on-going and will report in Autumn 2014.

<sup>18</sup> Atiken, M., Haggett, C., Harnmeijer, J., Markantoni, M., Rudolph, D., and Van Veelen, B. (2014) Supporting Community Investment in Commercial Renewable Energy Schemes: Interim Report produced by the University of Edinburgh

**Scotland is leading the way as a testing ground for the new relationship between developer and community**, particularly on the national forest estate (land managed by Forestry Commission Scotland) where communities have the opportunity to invest up to 49% equity in forthcoming wind and hydro schemes.

The most recent set of agreements which Forestry Commission Scotland (FCS) has with windfarm and hydro scheme developers on the national forest estate require the developers to provide the opportunity for communities or FCS to purchase up to 49% ownership of the scheme. This option is in addition to the £5k per MW (installed capacity) community benefit payment which all developers on FCS land are required to make. The scale of this opportunity is difficult to estimate but FCS considers that around 700 MW of installed capacity may be developed under these arrangements

The participating developers are (wind): Partnerships for Renewables, Scottish Power Renewables, PNE Wind UK, E.ON Climate & Renewables UK, Fred. Olsen Renewables; and (hydro): Green Highland Renewables, Broadland Renewable Construction and Gilkes Energy.

For more information see [www.forestry.gov.uk/windhydro](http://www.forestry.gov.uk/windhydro)

Experience to date on the national forest estate suggests that there is much to be done at a practical level to facilitate the process and turn the opportunity into reality. Local Energy Scotland CARES officers, the REIF team, and Forestry Commission Scotland are all working together to remove barriers and provide support to both community groups and renewable energy developers.

A tailored package of support has been developed to support the community investment opportunity on the national forest estate and beyond:

- A free one stop shop advice service can be accessed through the Local Energy Scotland network providing support and advice to communities looking to share ownership of a commercial development.
- Funding can be sourced through the CARES scheme to investigate the opportunity, buy in specialised professional services and also purchase pre-consent ownership stakes in a development
- To make the process of locating professional services easier, CARES has developed a framework of legal and financial contractors, allowing community groups to identify and select contractors quickly and with confidence.

- In cooperation with stakeholders from the sector, a community investment toolkit has been developed to provide useful guidance to both communities and developers on legal structures and financial models, along with case studies to show what has already been achieved in Scotland.
- Local Energy Scotland coordinates support with the REIF team who offer a source of flexible finance for communities to buy in to a commercial development at financial close or beyond.
- A ground-breaking new online partnership portal is currently in development. This will be an online tool which will allow communities and developers to post and browse investment opportunities in renewable energy projects.

The Scottish Government and its agencies recognise that **further tailored intervention will be required** to make the most of the opportunity for communities to invest in commercial renewable energy schemes so that Scotland can continue to lead the way in this area.

REIF is currently working closely with Forestry Commission Scotland and the developer and funder market to introduce a strategic intervention that would preserve the ability of communities to secure a position in renewable projects on the national forest estate notwithstanding the need for projects to reach early financial close (which is being driven largely by the aggressive, imminent degeneration of support tariffs).

Lastly, the Scottish Government has convened an industry working group to consider what more can be done and to design additional good practice guidance to support take-up of shared-ownership and community investment opportunities.

## 4. Supporting Community Benefit

The Scottish Government wants to ensure that the benefits of renewable energy are spread to the people of Scotland. As well as promoting direct ownership of renewables by communities and local businesses, which brings the highest financial return, together with our new impetus to see shared ownership of and community investment in commercial

schemes, the Scottish Government has, of course played a major role in leveraging in community benefits payments from commercial schemes.



In the absence of clear powers over developers, our policy in this area has been very much founded on driving **new standards of good practice** and in so doing we have **transformed industry practice across the UK**:

- Our public Register of community benefits from renewables was the first of its kind in the UK and has been followed by a similar mechanism in Wales, and is being copied directly by the UK Government.
- We have committed to see exemplary rates of community benefit on the Scottish public estate and thus our national recommended baseline rate of at least £5,000 per MW has been built into contracts which Forestry Commission Scotland has with developers of new wind and hydro schemes on the national forest estate.
- The legacy wind energy schemes already operating on the national forest estate (i.e. not under the new contracts) are themselves making a significant contribution to community benefit provision in Scotland, making up about a third of all community benefits payments made across Scotland in the past 12 months.
- Our commitment has driven up rates of community benefit in the sector more widely, leading to the adoption of industry protocols in line with the Scottish Government recommended baseline rate both at a UK as well as at a Scottish level. Given that the average community benefit rate in wind farm applications under s36 was under £2,000 per MW only 2 years ago, this has been a significant achievement.
- We have led the way in the development of Good Practice Principles for Community Benefits from Onshore Renewable Energy Developments, and are consulting on similar guidance for the offshore sector.
- Scotland is also unique in the UK in offering free local support and advice to communities, under CARES, to negotiate with developers on community benefits.



## Scottish Government Register of Community Benefits from Renewables

The 2010 Scottish Government public consultation – “Securing the benefits of Scotland’s next energy revolution” set out the proposal to create an open, transparent and publically accessible register of community benefits from renewables. This would promote best practice commercially among developers of all renewables technologies and provide significant leverage to help communities negotiate on an equal footing. From this engagement, the Register of Community Benefits from Renewables, as well the associated Good Practice Principles have been developed.

These have made a real difference to both community groups and developers. Previously the process was disjointed and not transparent; now there is industry practice and national guidance that all parties can see and expectations are clear.

The Register shows renewable energy projects in Scotland, and allows developers and communities to upload community benefit details attached to these projects. The Register details fund spend, and provides ideas and advice for communities looking to ensure their funds are spent wisely.

The Register has enabled us to track the benefits that communities are receiving and that developers are willing to offer. Over the past year, £6,199,402 has been paid to communities, with an **average of £3,664 per MW** installed capacity per year from recent projects.

The case studies included in the Register have been helping other community groups to plan what they will do with the funds generated.

The Register also encourages groups to get in touch with Local Energy Scotland for further information, advice and support.



**£6,199,402**

**Community benefit  
payments over the  
past year**

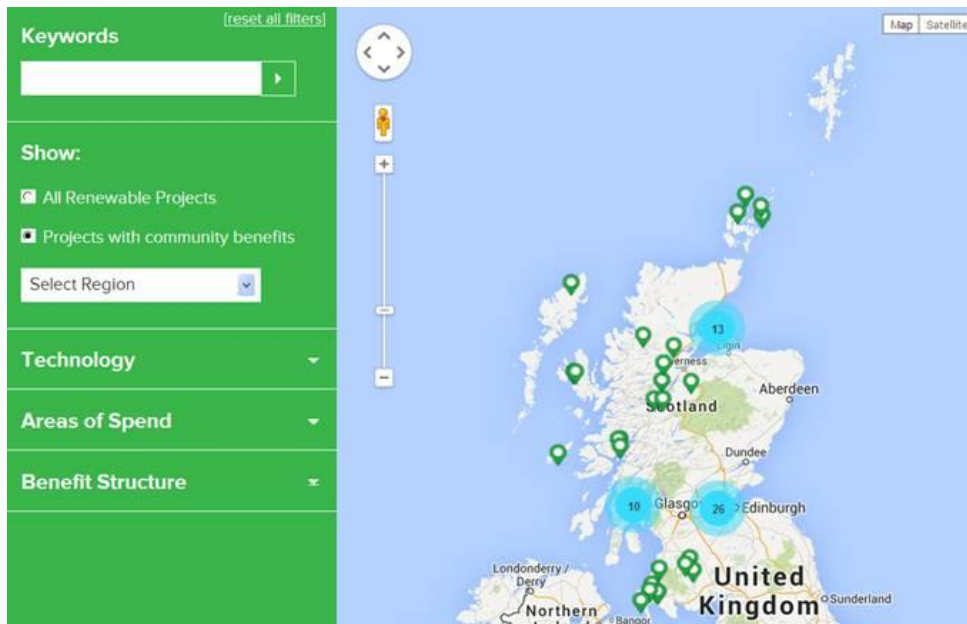


Figure 9: Screenshot from the Community Benefits Register held on behalf of the Scottish Government at [www.localenergyscotland.org](http://www.localenergyscotland.org)

By plotting known community benefits over time it is clear to see that these have been increasing.

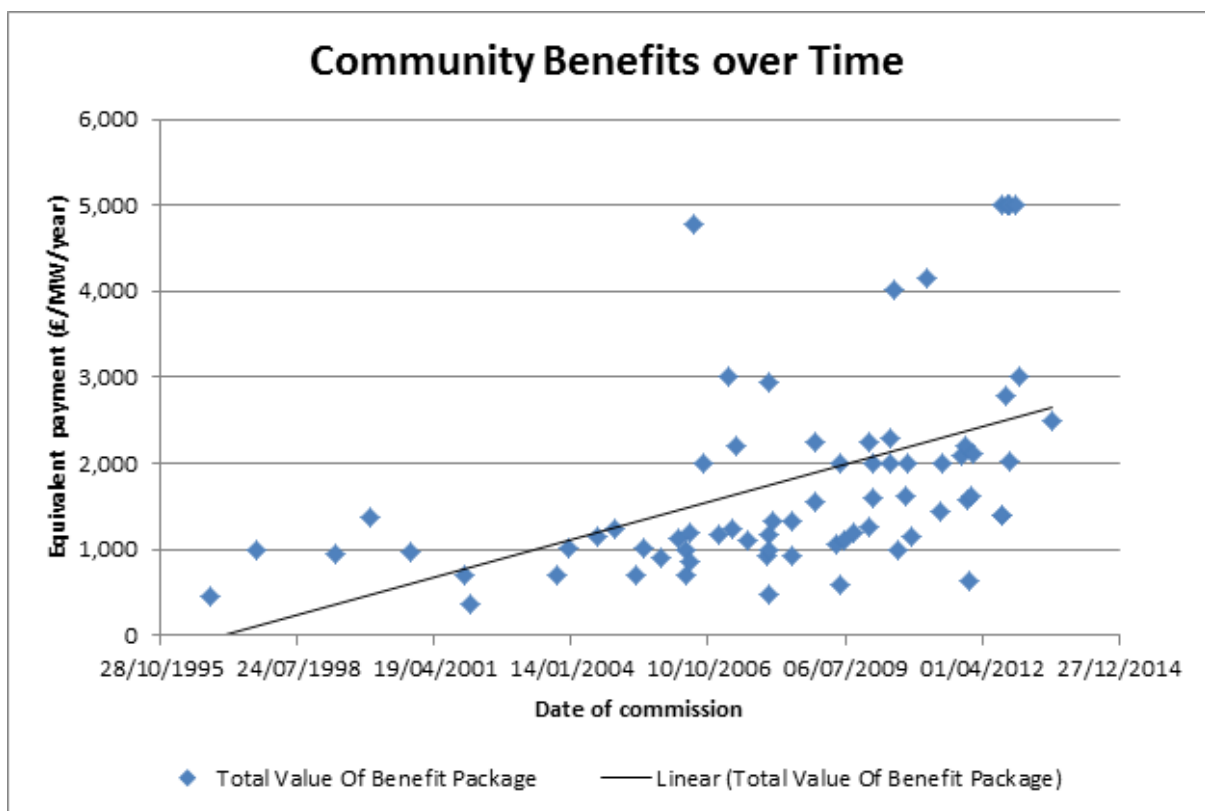
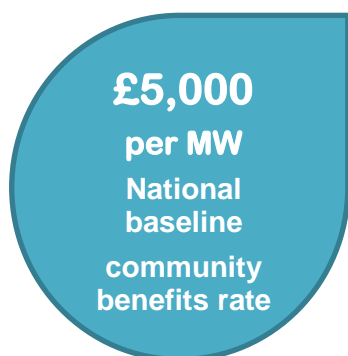


Figure 10: Community benefits payments analysis from Community Benefits Register

## Good Practice Principles for Community Benefits from Onshore Renewable Energy Developments

The Scottish Government has published Good Practice Principles for developers designed to maximise community benefit from onshore renewable energy developments.



The Principles have drawn mainly on experience from the onshore wind sector, but the Scottish Government would like to see community benefits promoted across all onshore renewables technologies.

The key principle is the promotion of a national community benefits package rate equivalent to **at least £5,000 per Megawatt per year**, index linked to inflation for the operational lifetime of the development. So for example, a 20 Megawatt windfarm of eight turbines will generate at least £100,000 a year for the local community. We are already seeing this in action. Another key component of the guidance encourages renewable energy developers to submit information on potential community benefits as early in the development process as possible. This is considered a vital step in allowing time for the community to consider properly and to develop ideas for implementation of the community benefit package.

The Good Practice Principles encourage the development of community strategic action plans to achieve effective spend of community benefits payments. To date, a high proportion of community benefits payments have been made from schemes in the Highlands and Islands, and thus communities there have a good deal of experience in directing spend. To further guide this process, Highlands and Islands Enterprise, in partnership with community bodies, has produced an information resource '*Investing in your community – a guide to managing community funds*'. There are plenty of examples of local community initiatives funded through community benefits payments.

"Home to the widest spread of SSE community funds, the Highlands and Islands region hosts seven developments that provide community benefit, including two hydro schemes, comprising a total capacity of 265 MW. Approximately £23 million will be invested through these funds in their lifetime."

Community benefit funding awarded by SSE in this region will support projects ranging from an apprenticeship scheme co-ordinator in Lairg, a youth work placement in Brora, taking over and repairing the village hall in Muir of Ord, to larger-scale regional projects including science and technology activities in schools delivered via the University of the Highlands and Islands, redeveloping the Scottish Canals visitor centre in Fort Augustus, and installing solar panels on community buildings in the Highlands.

SSE Community Investment Review 2013/14

Advice and support to communities across Scotland is available through a dedicated CARES Community Benefits Officer and through the local CARES Development Officers. Groups are encouraged to link up and learn from each other. For example, in Dumfries and Galloway a group received support from Local Energy Scotland who helped them to negotiate with the developer. They successfully renegotiated a deal from £3,000 per megawatt per year to £5,000 per megawatt per year based on the good practice principles.

#### Industry support for the new guidelines

“AES Wind Generation welcomes the clarity and positive direction provided by Scottish Government’s guidelines on community benefits from onshore wind. CARES understanding of the needs and opportunities facing Scotland’s communities and renewable energy sector was an invaluable element of support in the development of the guidelines. As a developer, CARES engaged with us to ensure that the guidelines were workable and ambitious, creating a meaningful two way process. We are pleased to support the key principles of the promotion of a community benefits package rate equivalent to £5,000 per MW per year, index linked, and have increased our funds for development projects accordingly.”

Claire Addison, AES Wind Generation

#### Maintaining public faith in industry good practice

Much progress has thus been made in driving up community benefits on a voluntary basis, and communities all across Scotland are benefitting from this revenue.

However it is arguable that **public faith will only be maintained if the industry commitment to good practice, including the national recommended baseline rate, is demonstrated in as many new schemes as possible commissioned from now on.**

**£17.7m**

The total annual income to communities in Scotland if all approved sites paid £5k/MW

There is about 4 GW of onshore wind capacity consented but not yet built so these will be obviously be in the spotlight as far as community benefits are concerned over the next couple of years. Looking at the 50 largest approved but not yet operational sites by proposed MW capacity (as stated in DECC Renewable Energy Planning Database March 2014), only 31 projects have a publicly available community benefit rate, and the total benefits

expected to accrue from these schemes at those declared rates amount to £9 million per year.

If all of the 31 projects were all to pay the recommended £5,000/MW, the total annual income to local communities would be £11.7million. If all 50 of the projects on the database paid the same amount the total annual income to Scotland would be £17.7million.

### **In development: Good Practice Principles for Community Benefits from Offshore Renewables**

The Scottish Government is currently (summer 2014) consulting on Good Practice Principles to guide community benefits from offshore renewables.

Our draft guidance is designed to promote good practice in shaping and delivering community benefits from offshore renewable energy projects, complementary to supply chain and other socio-economic benefits to Scotland.

The context is that Scotland is estimated to have around a quarter of Europe's potential offshore wind resources. While the majority of infrastructure will be based offshore, benefits are set to accrue to onshore communities through investment and job creation associated with manufacturing, operations and maintenance activities and the establishment of global centres of excellence.

However, there is an opportunity for the benefits of exploiting Scotland's renewable energy resource to be shared more directly with Scottish communities. **The Scottish Government believes that the benefits of renewable energy should be shared across Scotland, and should be invested in our communities for long-term stability. For this reason, the Scottish Government encourages a community benefit package to be created for offshore renewable energy projects.**

There are a range of challenges and barriers in providing community benefits from offshore renewables such as identifying the community, working with a diverse set of stakeholders, considering onshore infrastructure and the critical stage of development in which the industry finds itself. Our draft community benefit principles are intended to reflect and accommodate the sensitive and early-stage nature of the industry. As with the Scottish Government's Good Practice Principles for Community Benefits from Onshore Renewable Energy Developments, it is anticipated that this document will be refined and reviewed in the coming years.

It should be noted that the new draft guidance is intended to apply to developers in the offshore wind industry, but will be of interest to those in wave and tidal technologies as the marine energy sector grows.

### **In development: Policy for community energy on the Scottish Government Crofting Estate**

The Scottish Government is currently investigating how to identify and develop opportunities for community energy on its crofting estates.

## 5. Supporting Local Energy Economies

### Potential for community energy within local energy economies

While support for community energy in Scotland is recognised internationally as a leading example of good practice, and CARES and REIF are working together to maximise opportunities, nevertheless **the community energy sector is facing a number of challenges**, primarily resulting from high cost and significantly delayed grid connections in grid-constrained areas, as well as a volatile UK support regime. Without intervention, this is likely to result in slower or smaller scale development of electricity generating projects by the community sector.

Beyond the community sector, there is a wider interest in innovation to create decentralised energy systems, and this could help expand community energy and give it a new role, with opportunities for community ownership and control across the full range of components in the system: generating low carbon energy, improving energy efficiency, distributing and storing energy.

‘Local energy economies’ refers to the concept of integrating low carbon energy sources in local energy systems and supply chains in a way that maximises system efficiency and adds value for local stakeholders.

Examples of adding value include retailing heat or electricity directly to local consumers, overcoming grid constraints, increasing local skills or employment, or increasing the resilience of the local energy supply chain.

**Our ambition is the development of a localised, robust, more distributed energy system to meet Scotland’s energy needs.**

### Challenges

While many of the challenges facing community energy, as highlighted below, are rural, a new local energy economies approach may also help to extend Scottish community energy from its traditional stronghold in rural and remote communities to urban areas.

#### Grid constraints

According to Community Energy Scotland, long lead times (over 18 months) to grid access may be faced by up to two thirds of the total number of community energy projects looking to get CARES support<sup>19</sup>.

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<sup>19</sup> Local Energy Economies: the Potential for Scotland, a report for the Scottish Government by Community Energy Scotland, June 2014

Of course there is much effort currently being expended to mitigate the impacts of constrained grid capacity in rural and remote parts of Scotland. As well as building the new connections for the customers which have contracted for them, the Distribution Network Operators (DNOs) have recently trialled Active Network Management technology which has the potential to connect more generation to the distribution network than otherwise would have been possible.

The DNOs publish work plans regularly, showing areas where they are introducing improvements to their systems and processes. For example, both are developing enhancements to the provision of information for those considering connection to their networks. Online network heat maps and data showing the capacity of existing substations and lines are now available.

Both DNOs have also taken steps to help those with long-standing connection offers that are not being progressed – in some cases this has enabled capacity to be reallocated to newer projects much closer to deployment which were previously behind them in the queue. This is in addition to other changes which have been proposed and are being trialled that may improve the feasibility and quote processes for customers.

In their business plans for the next distribution price control period (2015 – 2023) both DNOs set out proposals for improvements for connection customers, many of which have come about through feedback from customers and other stakeholders. This includes the adoption of Active Network Management as “business as usual” in areas where it is appropriate.

Active Network Management has its pros and cons and may not be an option in some places, nevertheless a more general focus on matching local generation to local demand, supplemented by innovative storage solutions, could potentially bypass grid constraints while creating additional local value.

### Fuel Poverty

Community energy projects are under increasing pressure to deliver their social and economic objectives in the face of rising retail energy costs, often associated with food, fuel and transport poverty. The additional income from community and local ownership of renewables may not have the potential to rise as fast as households’ and businesses’ expenditure on electricity, oil and petrol bills. However, in deprived areas, these assets may provide the opportunity to help fund measures to alleviate fuel poverty and this is a key point, noted by the **Fuel Poverty Forum** in its recent report of its review of the Scottish Government’s fuel poverty strategy<sup>20</sup>. The Forum recommended that greater links should be made between Scottish Government programmes and initiatives so that funding can be maximised and there can be greater coherence across housing, energy and skills policies in tackling fuel poverty.

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<sup>20</sup> <http://www.scotland.gov.uk/Topics/Built-Environment/Housing/warmhomes/fuelpoverty/ScottishFuelPovertyForum/final-report>

Off gas grid and rural areas have a higher proportion of homes likely to be fuel poor, particularly those where electricity or heating oil is their main source of heating. It is important that support continues to be directed to areas which are off the gas grid and where households are more likely to find it difficult to heat their home but we recognise that there are challenges associated with that. For example, we have seen evidence that delivery under the Energy Company Obligation (ECO) can often be difficult in rural and remote areas because it is more expensive for utility companies to fund energy efficiency measures in remote and island areas than in urban areas. Companies will therefore concentrate activity where it is most cost effective to meet their obligations. We have raised this issue with DECC on a number of occasions and have welcomed their proposals to widen eligibility and include additional incentives for delivery in areas off the gas grid. However, we remain concerned that this may not go far enough and it is clear that additional support for these areas is necessary.

**£5 m**

Additional  
funding this  
year to local  
authorities in  
off-gas-grid  
areas

The Scottish Government is of course taking action to mitigate where we can. We have enhanced support to ensure our funding programmes best meet the needs of off-gas grid households, including by providing significant additional investment for more remote parts of Scotland. Local Authorities in these areas are receiving over £5 million more in off gas grid funding than in 2013/14.

The Scottish Government recently consulted on a draft Heat Generation Policy Statement (HGPS) "Towards decarbonising Heat: Maximising the Opportunities for Scotland. The draft Heat Generation Policy Statement proposes targets for extending the number of households benefiting from affordable low carbon heat from district heating networks from around 10,000 currently to 40,000 households by 2020. This is part of an overarching target of 1.5 TWh of heat delivered from district heating for both business and domestic users by 2020. The proposed targets are underpinned by an increase in the funding for the District Heating Loan Fund by over £4 million to make a total of £8 million available between 2014 and 2016.

While many of the opportunities for large scale district heating networks are in our towns and cities, the Heat Generation Policy Statement recognises the significant contribution smaller rural schemes, mainly renewable, are making to reduce carbon emissions and fuel poverty. Renewable district heating is delivering substantial fuel bill savings to farms, estates and communities in off-gas rural areas. Towns such as Lerwick, Wick and Oban now have a significant numbers of homes and public buildings on district heating.

Clearly, if a local energy economies approach has potential to mitigate fuel poverty, then this is worth testing, including through drawing on the measures above.



### Market constraints

For many communities, their aspirations to directly participate in the retail of energy (whether electricity, heat, or transport) to local customers, supported by a suitably trained local workforce, have not been realised to date. While there are a growing number of small, independent suppliers of gas and electricity in the GB retail energy market, there remains a range of barriers to entry into the retail market that may limit the opportunities for improving the balance between supply and demand on a community scale, enhancing local supply-chain and employment opportunities.

### Capacity challenge

If a local energy economies approach is to be based on community energy, then the limited capacity of local community volunteers will need to be addressed. Research led by the University of Edinburgh for ClimateXChange (Haggett et al, 2013<sup>21</sup>) on the social factors which influence the success of community energy projects emphasised the importance of community capacity in developing a community energy project. Community groups need people with the confidence, enthusiasm, and leadership skills to be able to take a project forward. Projects can often be largely reliant on volunteers, but it can be difficult to find people with sufficient skills and time - this involvement can put significant strain on individuals, and it makes projects vulnerable to sudden departures of key skilled members. Some very active community groups have dedicated, paid, project officers with the time and expertise to navigate the range of funding, planning and political hurdles. This vital resource may be time-limited though, and dependent on fixed-term appointments associated with grant awards.

The research also found that community cohesion and identity is a critical factor in the conception and success of a project, but that a shared community identity underpins (rather than results from) group action. Pre-existing community groups were more likely to be able to realise a project, rather than groups specifically set up to run one. Community identity helps to foster action on renewables projects, and can help overcome problems of collective action which might otherwise stymie community energy efforts.

### Systemic challenge

The various challenges facing the community energy sector are mirrored at a UK level in terms of debates around the contribution of renewable energy to the national economy, the rising retail cost of electricity despite an increasing proportion from indigenous sources, and the investment required to create resilient energy infrastructure capable of accommodating a wide range of generation sources and scales.

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<sup>21</sup> Haggett, C., Creamer, E., Harnmeijer, J., Parsons, M., and Bomberg, E. (2013) Community Energy in Scotland: the Social Factors for Success, . Report commissioned by ClimateXChange for the Scottish Government, available from: <http://www.climateexchange.org.uk/reducing-emissions/community-energy-scotland-social-factors-success/>

The scale of the challenge and the opportunity is particularly acute in Scotland, owing to the size of the renewable energy generation potential, the limitations of existing energy distribution and transmission infrastructure, and the number of households either off the gas grid or unable to connect to it, which is far higher than the UK average.

## **Opportunities**

### Local innovation

One of the most effective ways of tackling these macro challenges is through creative experimentation and collaboration at a local level, through the identification of niches where different technical or economic considerations currently apply, compared to the mainstream energy market.

**The Scottish Government has been working in partnership with Highlands and Islands Enterprise, and with advice from Community Energy Scotland, to scope out what might be achievable through a local low carbon energy economies approach.**

Orkney is an example of the kind of opportunity which might be created. On the one hand, the ambition of the Orkney community and the deployment by Scottish Hydro Electric Power Distribution (SHEPD) of a 'world first' smart grid has led to renewable electricity generation exceeding 100% of local electricity demand on an annual basis. On the other, the full potential of Orkney's renewable resources remains limited by a lack of available grid capacity, and fuel poverty levels remain among the highest in the UK.

Large-scale storage is already being trialled here (see "Where we are starting from" below). Another solution being considered locally is to use wind energy that would otherwise be constrained off, to provide affordable heating to households currently heated by oil or night storage heaters or in areas where heat demand is high enough to use thermal stores and district heating to provide low cost heat. However such local solutions may only be delivered by effective collaboration between a wide range of stakeholders, combined with the application of cutting edge new technologies.

### New public sector entrants to the market

Remote and rural communities often have fewer choices when it comes to their energy supplier, so the formation of Local Authority Energy Supply Companies (ESCOs) may be an opportunity to improve competition and offer a wider range of tariffs. CARES support has recently been awarded to Comhairle nan Eilean Siar to explore the potential to establish an Outer Hebrides Energy Supply Company (ESCO), which could enter the UK electricity market in 2016-2017 retailing clean, green Hebridean electricity to local and export markets.

New municipal entrants to the energy market may also benefit urban economies through engaging in local energy supply and investing in low carbon infrastructure.

Cities should consider engaging in the energy supply market where this can support efforts to tackle energy affordability and promote local generation.

Institute for Public Policy Research: City Energy, A new Powerhouse for Britain, July 2014

Recently, a partnership of 7 Registered social landlords, working together with the Renewable Power Exchange and others, obtained development funding from the Scottish Government's Warm Homes Fund to test the potential of establishing a vertically integrated Energy Services and Supply company to generate renewable energy and target supply to low income households. The feasibility study - More than Warm Wishes – is available on the Energy Saving Trust Warm Homes Fund website.

#### New focus

**The Scottish Government and its partners believe that we require a wider approach to community energy**, built on existing experience of community engagement, but focusing on new forms of collaboration with local authorities and local businesses, new 'smart' technologies for heat and electricity, and new business models that capture and **retain more value at the local level**.

What we need is a pipeline of pilot community energy innovation projects across Scotland, which simultaneously address immediate, practical challenges for communities, while creating a body of experience and knowledge that can be transferred to other sectors and regions, and scaled up.

It is clear that there is already a lot happening at all scales - from local authorities, communities, businesses and housing associations to individual domestic householders. We need to tap into this. We can make a bigger impact if we look at how these activities and programmes can be joined together.

#### **Where we are starting from**

We already have some of the building blocks in place through CARES and wider national regulatory structures and support, as set out below.

##### CARES Infrastructure and Innovation Fund (IIF)

The main building block on which we can begin to construct new local energy economies is CARES. The support already available from the CARES Infrastructure and Innovation fund has been instrumental in enabling a number of innovative demonstration projects to explore a range of technical and commercial solutions, particularly in areas suffering grid constraints.

The overall aim of the CARES Infrastructure and Innovation Fund is to stimulate innovative approaches to unlock potential for local renewable energy generation.

The following areas are priorities for the fund and are integral to any future wider development into local energy economies:

- overcoming barriers relating to grid capacity issues;
- energy storage and active network management;
- linking local energy demand with local renewable energy generation;
- delivering renewable heat and electricity to local consumers;
- addressing barriers that communities face in areas of constrained electricity networks.

The CARES IIF selection panel includes District Network Operators and Strathclyde University which adds real expertise and insight to the deliverability of projects.

The Fund is already making a difference in more remote areas.

**The Abernethy Trust** have been supported through both SCHRI and CARES IIF to provide a renewable source of energy for their outdoor centre at Ardgour. The project involved the installation of a 89kW run-of-river hydro electrification scheme. This is principally for on-site use at their School of Adventure Leadership at Ardgour. Revenue will be specifically directed at improving the energy efficiency status of their buildings and upgrading/replacing their aged, existing oil-fired heating system with an electric heating system powered by their own hydro scheme. The efficient integration of the hydro scheme and the on-site demand requires new thermal storage capacity and smart controls, which have been funded by the CARES IIF grant. Over time, the aim is to provide electricity to all the Abernethy Trust buildings on the site.

#### **Ardgour Outdoor Centre**

As we are attempting to do something new, something that has not been done in the UK before, our major hurdles have been finding new and innovative solutions to the issues we encountered as the projects developed. Throughout this the Development Officer has provided invaluable support specific to our project. They were able to provide contacts to other projects, as well as bringing their own experience to our project. The funding from CARES has made the whole thing possible, without this our projects would not have gone ahead.

Barry Edmondson, Abernethy Trust

The CARES Infrastructure and Innovation Fund has already awarded nearly £550,000 in grants to 12 projects as below, and a further batch of applications is currently being considered, with funding decisions to be made over the summer.

Area	Project Name
Comhairle nan Eilean Siar	Outer Hebrides Energy Supply Company (ESCO)
Shetland Islands	Shetland Islands Council Demand Side Management - Thermal Storage Shetland Islands
Orkney Islands	Shapinsay Innovation Consortium Grid-Smart Low Carbon Marine Transport Project, Orkney
Highland	SMILEGOV Island Energy Audits, National
Orkney Islands	Rousay Egilsay and Wyre Innovation Consortium Grid-Smart EV Charging Project, Orkney
Orkney Islands	Orkney Innovation Consortium Energy Audit Project
Orkney Islands	Hoy Innovation Consortium Grid-Smart Demand Side Management Project
Highland	KCDC Hyrdo - private wire connection and modification to Golf Clubhouse distribution system
Shetland Islands	Fetlar Green Energy
Highland	Ardgour Outdoor Centre Hydro Power Utilisation Project (HYPUP)
Highland	Applecross Hydro 2 Heat
Orkney Islands	Orkney Innovation Consortium

Figure 11: Projects awarded funding through CARES Infrastructure and Innovation Fund in January 2014

**As well as CARES, the Scottish Government also provides funding to other areas of renewable energy generation and energy efficiency.** To maximise the opportunities to reduce Scotland's carbon emissions these programmes need to be strategically integrated to ensure that fossil fuels can be substituted with renewable sources while overall energy demand is reduced.

Demand reduction sits at the top of both the Scottish Government Energy and Heat Hierarchies. As well as being a significant contributor in terms of reducing greenhouse gas emissions from heat, It also helps to minimise energy bills and realise wider economic benefits. An improvement in the efficiency of housing helps to reduce fuel poverty and nationwide heat demand reduction reduces our reliance on fossil fuels.

Hence the second building block for a new local energy economies approach is the existing framework to promote energy efficiency:

Scotland's **Sustainable Housing Strategy** was published on 21 June 2013 by the Minister of Housing and Welfare. The Strategy sets out an ambitious programme and route map to 2030 to meet our vision for warm, high quality, affordable, low carbon homes and a housing sector that helps to establish a successful low carbon economy across Scotland. This covers a range of actions including :

- incentives : our £79m Home Energy Efficiency Programmes for Scotland (HEEPS), as well as our £15m Green Homes Cashback scheme
- setting ambitious standards : we published a new Energy Efficiency Standard for Social Housing (EESH) in March 2014; and we have plans to consult on minimum energy efficiency standards for existing private sector housing in Spring next year. Achievement of the EESH by 2020 is projected to save tenants up to £210 annually on fuel costs and reduce domestic carbon emissions.
- encouraging market transformation: promoting behaviour change to drive the market for more efficient forms of house building and to add value to sustainable housing.

**Scottish building regulations**<sup>22</sup> set minimum requirements for energy performance for building fabric and fixed building services where building work, to construct, alter, extend or convert a building is undertaken. Standards were most recently improved in 2007 and 2010 and will be further improved in 2015.

**Section 63 of the Climate Change (Scotland) Act 2009**<sup>23</sup> places a duty on Ministers to provide by regulations for the assessment of the energy performance of non-domestic buildings and the emissions of greenhouse gases produced; and require owners of existing non-domestic buildings to improve the energy performance of such buildings and reduce such emissions. Regulations under development will initially apply to buildings over 1,000 m<sup>2</sup> which are subject to sale or to a new lease. Following assessment, owners would either have to implement building improvements or annually report their operational ratings.

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<sup>22</sup> [www.scotland.gov.uk/bsd](http://www.scotland.gov.uk/bsd)

<sup>23</sup> <http://www.legislation.gov.uk/asp/2009/12/contents>

Section 63 has the scope ultimately to mandate energy performance improvements to all existing non-domestic buildings.

Through **Home Energy Efficiency Programmes for Scotland**: Area Based Schemes, local authorities are providing areas of fuel poverty with energy efficiency measures. This can help individual households to reduce their energy consumption. There is an opportunity to link this area based approach to locally-owned renewables projects. With behaviour change linked to this type of integrated programme significant benefits could be realised for local communities.

The Scottish Government also supports householders, communities, housing associations, local authorities and businesses to reduce their energy consumption and to think about renewable energy generation through **Home Energy Scotland** and **Resource Efficient Scotland**. Resource Efficient Scotland covers energy, water and material resource efficiency.

The **Warm Homes Fund** provides options for feasibility studies and loans to support local authority and housing association-led renewable energy generation projects that provide benefits for communities and help to reduce fuel poverty.

Thirdly, we can also learn from existing UK-wide programmes which support local energy systems, innovation and storage, such as the Technology Strategy Board's Local Energy Systems Fund, the Energy Storage Technology Demonstration Programme, and Ofgem's Low Carbon Networks Fund. Indeed the Low Carbon Networks Fund is already supporting the trial of the UK's first large scale grid-connected battery (2 MW lithium ion) which was connected to the electricity distribution network on Orkney in 2013. (The innovative trial will investigate how large scale batteries can help get more renewable generation connected to the grid as well as how it can effectively store excess renewable energy to help keep the lights on.) Other storage projects are being supported.

The Gigha battery project is an example of a community energy project that has found an innovative solution to a grid constraint by using flexible on-site demand. The project will have a connection capacity that is smaller than its peak output. With funding from the Energy Storage Technology Demonstration Competition, a vanadium flow battery next to the turbine will store surplus power, which can then be exported to the grid at low wind speeds, without breaching the generator's permitted export capacity.

## Next Steps

To deliver the kind of proposals being made under the CARES Infrastructure and Innovation Fund, we will need to see sustained partnerships between community groups and a wide range of stakeholders, particularly network operators and local authorities. The technical, commercial and regulatory complexity of projects, and the limited number of specialist suppliers and contractors, makes the delivery of innovation projects more challenging than conventional community energy, and this requires a high level of community capacity and commitment.

The number of communities and local businesses fully aware of the potential opportunities for an energy systems approach to local energy and economic challenges needs to grow; and the regulatory context and technology supply chains need to shift towards the encouragement and facilitation of local low carbon energy.

We also need to transfer the model for local energy economies which CARES IIF is helping to develop in remoter areas to communities elsewhere in Scotland with different needs which, nevertheless, may benefit from a holistic local low carbon energy approach. There is potential for strong synergies with existing urban projects, such as Aberdeen Heat and Power which operates a local authority-owned gas combined heat and power district heating scheme, and STEP UP in Glasgow which focuses on local energy planning.

STEP UP is a European energy and sustainable city planning project that aims to help cities improve their sustainable energy plans. The project is a partnership of twelve organisations consisting of municipal, research and commercial partners in the cities of Ghent, Glasgow, Gothenburg and Riga. Glasgow City Council's partners are University of Strathclyde and Scottish Power. The project brings together excellence and shared knowledge of energy planning and low carbon energy projects to create a coherent model for sustainable city energy plans that help to deliver greater impact on Europe's 2020 energy efficiency, renewable energy and carbon emission reduction targets.

**STEP UP - Glasgow City Council**

[www.glasgow.gov.uk/index.aspx?articleid=11066](http://www.glasgow.gov.uk/index.aspx?articleid=11066)



**The Energy Infrastructure Framework** is a piece of work being led by Scottish Enterprise focussed on decentralised energy production and distribution technologies and projects.

The Framework will cover:

- a stocktake of current and proposed decentralised energy generation infrastructure which will feature a map by area and technology
- the identification of good practice approaches to planning and developing decentralised energy infrastructure projects (ie energy master-planning approaches)
- through engagement with partners, the development of proposals for action to support further adoption of good practice approaches

To avoid duplication with other areas of on-going work, the scope currently excludes grid transmission, sustainable transport, construction and energy efficiency.

The way heat is provided and used in different places already varies significantly, depending on the types and density of the buildings, the different temperatures of heat required and the types of fuel available in the area. This will affect the options going forward.

We are building up resources for identification of opportunities for low carbon heat use, including, through the Heat Network Partnership, on district heating: [www.districtheatingscotland.com](http://www.districtheatingscotland.com). In addition, Resource Efficient Scotland have set up a framework for decentralised energy and district heating consultants, which can be accessed by all Heat Network Partnership partners.

The **Scotland Heat Map** is an important resource that can be used to identify the opportunities for energy efficiency, efficient supply and renewable energy projects and support their development. The map provides geographical information on heat demand and existing and potential sources of renewable heat and electricity projects. Developed with data provided by public and private sector organisations including all local authorities, a version of the heat map is publically available at [www.scotland.gov.uk/heatmap](http://www.scotland.gov.uk/heatmap). The Scotland heat map dataset has been offered to every Scottish local authority to create a local heat map for their area and officers from every local authority have received training on how to access and use the data. The development of local heat or energy maps will allow local authorities to ensure that their development plans identify opportunities where heat networks would be appropriate and ensure an area's full potential for electricity and heat from renewable sources is achieved as expected by the Scottish Planning Policy published in June 2014.

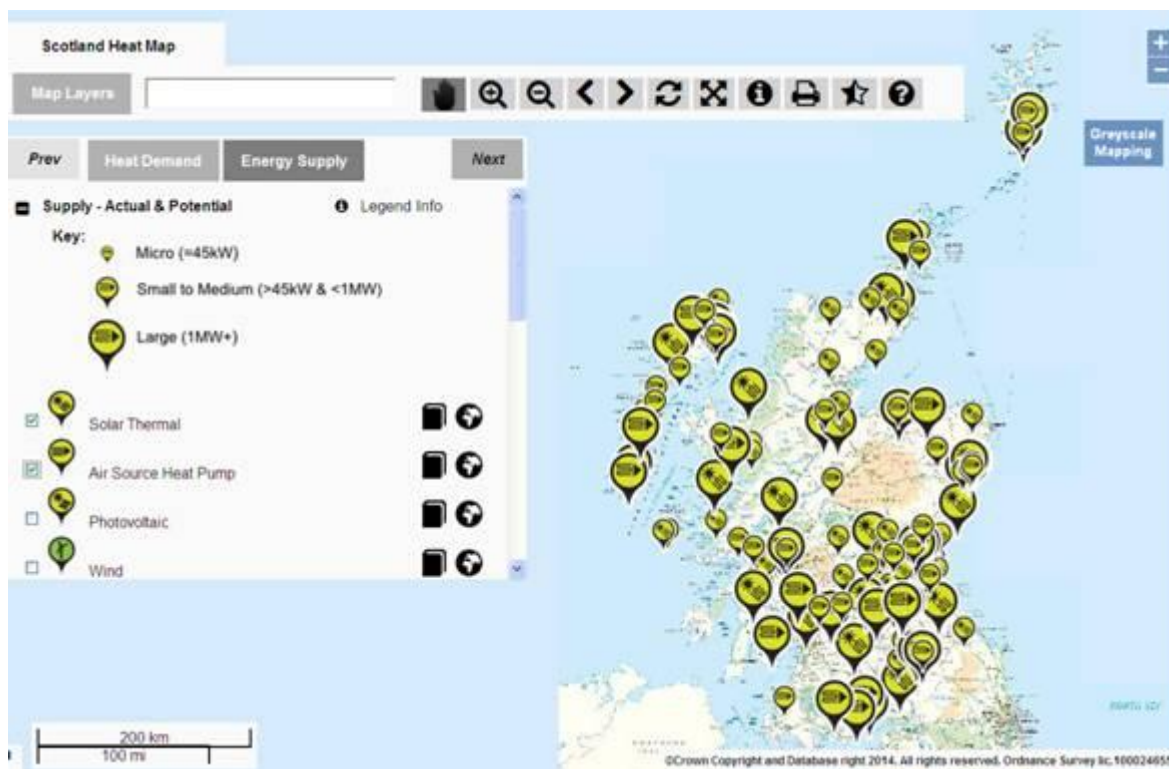


Figure 12: Screenshot from the Scotland heatmap, [www.scotland.gov.uk/heatmap](http://www.scotland.gov.uk/heatmap)

### Local Energy Challenge Fund

**What we need first is to showcase what can be done.** A programme of major innovation demonstrators will have this purpose. The Scottish Government will put in place a new **Local Energy Challenge Fund** which will be designed to help to aggregate community-led projects, such as those being supported under CARES IIF, with other local initiatives, including those led by local authorities, housing associations, universities and private businesses, in order to demonstrate a holistic local low carbon energy approach.

Further information, including how to register interest, is on the Local Energy Scotland website; [www.localenergyscotland.org/challenge](http://www.localenergyscotland.org/challenge)

## 6. The Future of Community Energy

**The Scottish Government has a clear ambition to see community energy flourish within an assets-based approach to community empowerment, and at the heart of new local low carbon energy economies, based on local energy systems.**

A local energy economies approach may be transformative in terms of creating value at a local level. The James Hutton Institute with Gilmorton Rural Development has done some preliminary work to look at the additional value that might be created at a local level, taking one example – a 900 kW community wind turbine, and found that there may be an opportunity to increase community income by 35% through using local finance or by 52% by selling electricity generated locally.

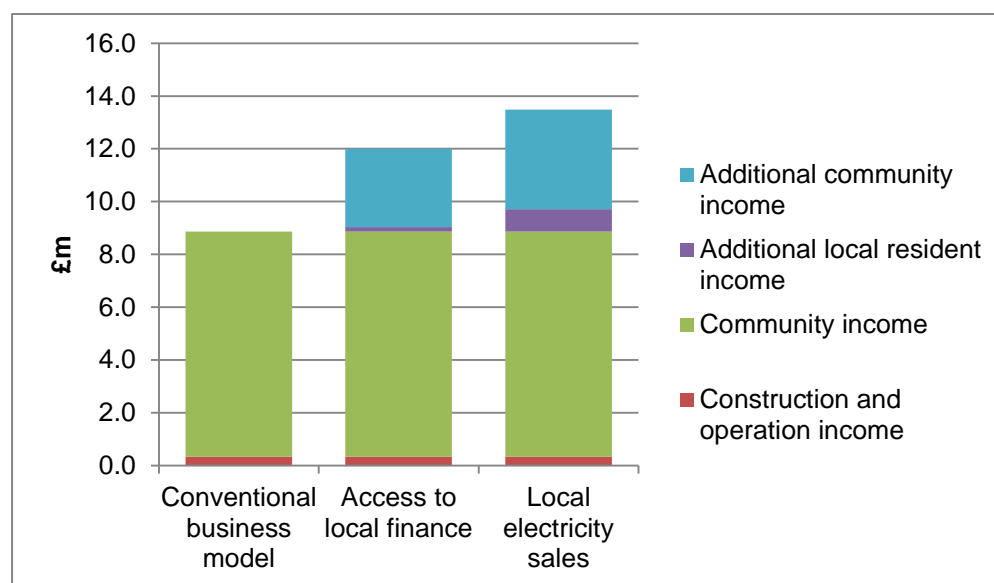


Figure 13: Lifetime NPV of income to local community under three alternative business models: The Tiree Case study (900kW wind turbine) (£m)<sup>24</sup>

<sup>24</sup> Entwistle, G., Roberts, D. and Xu, Y. (2014) *Measuring the Local Economic Impact of Community-Owned Energy Projects*. Contract Report for Community Energy Scotland, August 2014.

### Explanation of legend:

**Construction and operation income:** NPV of income to local community from the construction, operation and maintenance of the turbine

**Community income:** NPV of income arising from community projects funded through the operational income from electricity generation plus associated leveraged-in funding.

**Additional local resident income:** NPV of income generated from increased spend of local residents arising from increased income for local investors (Access to local finance model) or reduced electricity costs (Local electricity sales model).

**Additional community income:** NPV of income from projects funded through additional operational income from electricity generation (plus associated leveraged-in funding) due to either lower interest charges on the funds raised or higher income from the sale of electricity at preferential rates.

To test this, we can build on the decade of community energy experience in Scotland and be inspired by the success of the local low carbon energy economies approach demonstrated by a number of pioneer projects around the world.

### **International examples of local energy economies**

Three leading examples show the technical feasibility and potential financial savings of a local energy economy:

#### **Feldheim, Germany**

Feldheim is a small agricultural village with around 130 inhabitants located 80 km southwest of Berlin. It owns and manages its own heat and electricity networks through an independent local utility company established in partnership with a local private developer (Energiequelle Ltd.), local agricultural cooperatives, the local government and the citizens of Feldheim. Feldheim hosts a number of wind turbines (74.1 MW) which were developed by Energiequelle, some of which feed into Feldheim's community-owned electricity network. The community owns a biogas plant (500 kW) which runs on the by-products of pig and cattle farming and feed into Feldheim's community-owned district heating network. The output of the plant is in turn used as agricultural fertilizer. The town has a woodchip boiler and an electric battery in planning stage for back-up of heating and electricity respectively.

Among the many benefits of Feldheim's approach is the considerable lower cost of energy compared to normal private utility rates (17€ct/kWh vs. 28€ct/kWh - a 40% saving) increasing local value to the region in the form of local tax revenue, job creation, and long-term security of energy supply



### **Summerside, Prince Edward Island, Canada**

Summerside is the second largest city in Prince Edward Island off the south east of Canada. The city operates a municipally owned Electric Utility (Summerside Electric) serving around seven thousand customers (approximately one third of the population of Orkney). The utility owns 12 MW of wind capacity and has an additional 9 MW of wind from a private developer. Using diesel generation as a back-up, the utility claims to be able to run fully on wind for up to 40% of the time during the year. To maximise wind utilisation, the utility has put in place an innovative Smart Grid Pilot programme, using remotely controlled domestic hot water and space heating systems. The smart grid communications system uses optic fibre and the utility is therefore also able to offer high-speed broadband services to their customers. Summerside Electric provides low cost electricity services ( c. 5p/kWh for heat and 9p/kWh for electricity) which are guaranteed for 5 years, and claims to have reduced local greenhouse gas emissions by 50%. As a municipally-owned organisation, a proportion of profits from the utility are reinvested in local community projects through a grants scheme. Summerside is widely regarded as the greenest community in North America and Canada.



Vestenskov is a small village of 200 inhabitants in the island of Lolland, Denmark. The surplus of local wind generation is more than double local electricity demand, providing the resource for a hydrogen electrolyser to capture the surplus generation and store it as hydrogen, to be used for providing heat or electricity. The project has been sponsored by the Danish government and involves private developers such as SEAS-NVE (the wind and electrolyser developer) and IRD Fuel Cells (the Fuel cell provider). The project uses a centralised electrolysis plant to produce the hydrogen from the excess wind and then feeds it through an underground hydrogen pipe network to local consumers. Each household is fitted with a hydrogen micro-CHP unit to produce electricity or heat according to demand, the operation of which is coordinated centrally but subject to individual household preferences. Overall efficiency of the system producing electricity is 37% and 85% for heat, with claimed cost savings of 30-40% per household.



- strong partnership models for collaborative working between communities and third parties;
- local authority involvement, for instance in development of local energy services companies (ESCOs);
- commercial models for grid “capacity sharing “ between generators;
- technical and financial models for linking renewable generation and local demand
- technical evaluation of the role of energy storage in facilitating the connection of new generation

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## **A local energy economies vision for Scotland**

A local low carbon energy economies approach in Scotland could be demonstrated in a number of ways, ranging from a focus on demand-side management at the domestic level to transport solutions and large-scale storage. A number of possible scenarios are set out below, together with examples of Scottish projects which are starting to realise these opportunities.

### Domestic demand-side management

Large numbers of high rises in Scotland are heated electrically by convection or night storage systems, owing to the safety risk of using gas in 'system built' tower blocks. A number of district heating projects are currently being developed in order to provide a lower cost alternative to electric heating. However from an energy system perspective, this means that a valuable grid balancing asset is being lost - the cumulative capacity of night storage heating far exceeds the UK's total pumped storage capacity.

Housing associations could consider how electric heating could be retained in parallel to district heating (as in Germany), or incorporated into district heating systems that have large thermal stores with the water heated by large electric boilers (as in Denmark). If the constrained energy is from rural wind projects, this approach has the potential to create new relationships between rural and urban communities, for mutual benefit.

Additionally, thermal storage could utilise intermittent energy sources such as wind and (in the future) wave generation, potentially bringing down the cost of decarbonisation through greater efficiency. Thermal storage can enable combined heat and power (CHP) or biomass boilers to run at maximum capacity, reducing the number of hours run at part load which enhances overall efficiency.

A combination of both a large thermal store as part of a district heating scheme heated with a combined heat and power engine (CHP) can provide 'grid balancing services' by enabling electricity generation equipment to be switched on and off at short notice without negatively affecting the heat supply that users need.

Sunamp, a Scottish SME in East Lothian, and Berwickshire Housing Association (BHA) are conducting a trial of innovative 'heat batteries' that can store heat from a range of electrical and non-electrical sources. This can be used to create flexible electrical demand that can provide a better fit with variable renewable generation, potentially leading to lower cost heating, without impacting on levels of comfort.

### Energy storage and decarbonised heat

With the increased deployment of renewables and increased demand for electricity for heat and transport, energy storage technologies could play an important role in

balancing electricity generation and demand and enabling the capture of increasing quantities of waste heat.

Pumped storage hydroelectricity presents the opportunity to store energy generated at times of excess supply for when it is needed most. Increasing pumped storage hydroelectricity can complement our ambitions for more renewable energy capacity which will strengthen Scotland's balanced energy mix and can also enhance security of supply right across GB.

The National Planning Framework 3 (NPF3) Proposed Framework identified new and expanded **pumped storage** facilities, including Cruachan, as a national Development, recognising its nationally significant potential for enhanced capacity.

The NPF3 also highlighted that we are currently exploring the potential role of other storage technologies within the future energy mix.

The Scottish Government has commissioned ClimateXChange to conduct a literature review and summary of recent papers on the subject of energy storage. This is expected to be provided to the Scottish Government in Autumn 2014, and this will provide a helpful platform upon which we will – with the aid of expert stakeholders – develop our energy storage strategy as well as practical and deliverable policy options.

Energy systems balancing could play an enabling role which supports the effective integration of renewable energy. This makes use of technology opportunities to bridge between different energy systems; for instance with 'grid-to-gas' using electrolyzers to convert electrical power into "green" gases such as hydrogen and synthetic methane for distribution via the existing gas networks.

The conversion of surplus renewable generation to hydrogen could reduce the carbon content of the gas consumed by homes nearby and, if the electrolyser is owned by the local community, would represent a world-first for Scotland. This technology offers the potential for using the gas network to absorb excess renewable generation, as an alternative to grid reinforcement, and potentially adding greater value than exporting electricity at wholesale prices.

The Scottish Government's Routemap for Renewable Energy identifies the potential for hydrogen to play a significant role in Scotland's energy future. A wide range of potential applications includes storing excess power as hydrogen for use as a transport fuel, or enabling integrated energy systems in grid-constrained locations such as islands or other remote communities, as demonstrated in the world's first community owned renewable hydrogen scheme, the PURE Energy Project in Unst.

#### Using electric vehicles for grid balancing

A key advantage of plug-in electric vehicles (EVs), is that much of the infrastructure to support their operation is already in place in the form of the national electricity grid. But this can work both ways, with electric vehicles themselves potentially providing a support infrastructure to the grid. As increasing numbers of vehicles enter the market in Scotland, plug-in vehicles could support the development of a



cleaner and smarter energy system. Smart and controlled recharging of electric vehicles can be matched to the fluctuating levels of generation from renewable sources of different scales, helping to balance energy systems and use excess green electricity.

National policy development by Transport Scotland is supporting the development of this supply-demand model, with the “Switched on Scotland” EV policy roadmap including two specific commitments:

- “Scottish Government to continue to work with energy suppliers to encourage the deployment of tariffs and technologies to manage recharging behaviours and maximise the emission reduction benefits across Scotland.”
- “Transport Scotland to establish a multi-stakeholder group on energy systems to review the challenges and opportunities and prepare necessary guidance and advice for public and private sector organisations.”

At a local level, with funding from CARES IIF, a consortium of operational community generators facing greater than predicted levels of grid constraint have leased 4 electric vehicles and are currently installing new ‘smart’ charging points. Charging times for the electric vehicles will be linked to the availability of the wind generation. The vehicles are available for any member of the community to use for free to encourage local confidence in the technology.

This kind of project could be scaled up and connected via smart charging points to provide a significant new controllable load that could be used for balancing the local grid, while also supporting affordable, low carbon transport where vehicles are made publicly available through a car club.

### Using hydrogen for sustainable transport

The growth of renewable energy in Scotland presents new opportunities to help decarbonise the transport sector, while at the same time helping to utilise renewably generated electricity which may not otherwise be used.

The Aberdeen Hydrogen Bus Project will deliver Europe’s largest fleet of hydrogen-fuelled buses as well as state-of-the-art hydrogen production and refuelling facilities. It will also explore the role hydrogen could play in the wider energy system, such as managing electrical grid constraints and decarbonising the gas network.

Scotland is taking a leading role in developing hybrid ferries, which will create new commercial opportunities for our companies and universities, as well as generating environmental solutions for sustainable marine transportation. A number of private and public sector organisations are working together to develop hydrogen powered ferries, using fuel generated entirely from renewable energy. Currently, a consortium led by Caledonian Maritime Assets Limited (CMAL) is developing the hybrid systems for a world leading, zero emission ferry, with the support of the Scottish Government and Scottish Enterprise. Ultimately this offers the opportunity to link hydrogen powered transport applications with the storage of intermittent renewable energy. It is expected that the programme, linking transport with energy generation, storage

and use in commercial and domestic applications could have great potential to strengthen the sustainability of island and rural communities.

#### Developing generator consortia for sharing grid costs

The way that grid connections are priced by DNOs can lead to individual connection offers cumulatively costing more for the same capacity than a single offer. However in general a single offer can only be made to a single applicant, meaning that multiple generators need to form a consortium and establish a SPV. In the absence of publicly available information on connection applications or contracted capacity it is very difficult to identify prospective partners, and the risk of the consortium not being successful deters individual parties from investing time or money, leading to market failure.

There may be potential for a consortium approach where several prospective community energy projects that are facing high-cost connections could potentially join a consortium if there were cost savings. The challenge is to develop a methodology for facilitating data sharing by the DNO and the Local Authority planning department with a third party, that is scalable and could be reproduced in other parts of Scotland.

REIF is investigating the scope for a strategic approach.

#### Local finance for new energy infrastructure

From a local energy economy perspective, the next step for some communities will be to invest in their own energy distribution, supply and storage infrastructure. As this is an emerging area it is not clear what the risk profile and cost of these assets will be, or finance sources. One potential route is an extension of the type of model used by Balerno.

Balerno Village Trust established a 'community benefit society' (a form of cooperative) in order to finance their small scale hydro scheme on the water of Leith through a 'crowd financed' community share offer. This was the first time this model had been used in Scotland for a community energy project, and the combination of ring fenced community benefit, lower cost finance, and a stable return to investors, has ignited considerable interest in the use of local finance models for community energy. With the rapidly changing risk profile of small scale projects in light of planning risk, grid costs and FITS degeneration, local finance can provide an alternative to traditional lenders who may consider a project to be too small or high risk for their commercial criteria.

Local finance could potentially increase the level of local economic benefit from generation projects and create a strong relationship between the community generator and local residents.

## Energy Master-planning

The Energy Infrastructure Framework described above shows how Scotland is taking action to scope the potential for decentralised energy production and distribution technologies and projects. Some local authorities are already taking this approach.

Comhairle nan Eilean Siar (Western Isles Council) have recently undertaken a comprehensive energy audit and are considering how to include this alongside the local generation pipeline and potential opportunities for local energy supply in forthcoming updates to their Local Development Plan. This holistic approach to LDP development could be described as energy master-planning, and in the context of trying to foster local energy economies it is seen as a key tool in creating the right environment for the identification of opportunities and collaborative working.

Glasgow City Council have included in their Proposed City Development Plan<sup>25</sup> areas where there is the greatest potential for district heating alongside policy to support the delivery of district heating from low carbon and renewable sources.

## **Achieving the vision**

One of the main principles of this Community Energy Policy Statement is to build policy on our long experience of supporting the community energy sector in Scotland. Hence the first steps towards local energy economies will be through adapting and improving existing mechanisms.

CARES and REIF are constantly being reviewed for effectiveness and adapted to improve performance.

For CARES, support currently being scoped which could help move us towards local energy economies ranges from establishing banks of community energy “mentors” – both from the community and developer fields of practice – to coach communities through the development process, to strengthening links with local authority officers to make them aware of the opportunities presented through CARES. We have also asked DECC to consider if our pre-planning loans might be offered interest-free under the current State aid cover for the Feed in Tariff scheme, as we think that this would help strengthen project viability and accelerate progress.

For REIF, Scottish Investment Bank are working on market solutions to help fund smaller projects under £1 million through partnership working or through grouping projects into portfolios for investment, as well as considering strategic interventions to help communities invest in commercial projects and to reduce the barriers to grid access.

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<sup>25</sup> <http://www.glasgow.gov.uk/CHttpHandler.ashx?id=19258&p=0>

## New local energy economies support

But reshaping existing support may not be enough to achieve the paradigm shift we need to grasp the local energy economy opportunity. We need to direct partnership working towards visionary project design to show what can be achieved.

ResPublica's 2013 publication *The Community Renewables Economy: Starting up, scaling up and spinning out* argues that a key to achieving scale is joint ownership, where communities are able to partner with private developers, local authorities or businesses, with greater capacity, resource and financial capability. But it stresses that there are a number of barriers to be addressed, including funding, financial know-how and legal advice. Local and national Government must work together to understand the financial benefits and help catalyse growth.

<http://www.respublica.org.uk/item/The-Community-Renewables-Economy-Starting-up-scaling-up-and-spinning-out-zlbz#sthash.xqYWWywN.dpuf>

The technologies and commercial models required to deliver innovative local energy systems need to be demonstrated in practice in order to de-risk this approach and unlock further commercial investment.

That's why we are putting in place a one year Local Energy Challenge Fund to fund demonstrator projects to show the potential.

Significantly, the Local Energy Challenge Fund will act as the forerunner to the community stream of a major 6 year programme of wider area-based support for low carbon infrastructure in Scotland, aiming to convert proposals into investible propositions through project management and partnership-working.

The **Low Carbon Infrastructure Transition Programme (LCITP)** is a new strategic intervention which will support the development of projects and drive investment in Low Carbon Infrastructure. It will build on the collective experience of:

- mainstream project support delivered through Scottish Enterprise, and Highlands and Islands Enterprise;
- current pilot programmes, funded by Scottish Government which have been delivered the past 2 years (Scottish Green Investment Portfolio and Scottish futures Trust Low Carbon Workstream; and
- work between Scottish Government and HIE in relation to local energy economies based on community-led pilots.

The programme will operate via a Scotland-wide low carbon project development unit active across the public, private and community sectors where there exists significant potential for de-carbonisation and enterprise growth. The focus will be on infrastructure projects including low carbon, community or local-scale renewable electricity and heat generation, energy efficiency, resource efficiency and materials recycling and re-use.

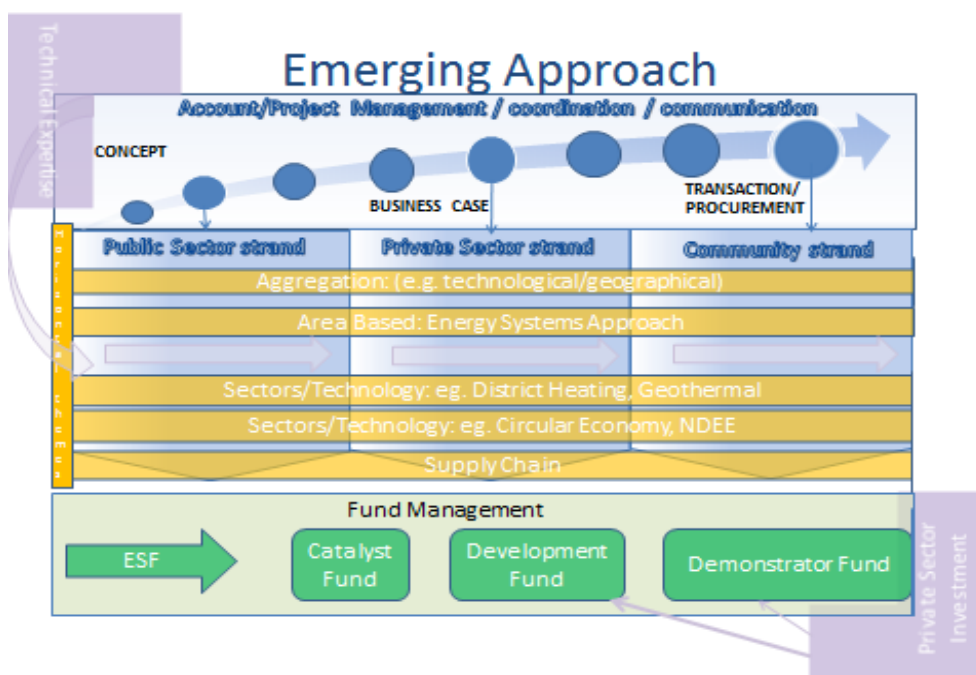


Figure 14: Low Carbon Infrastructure Transition Programme emerging approach

Aligned with existing schemes, including CARES and REIF, community energy proposals will be able to join-up with interest in the private and public sector to accelerate delivery and maximise impact.

## Conclusion

Scotland has led the way in the UK in our policy development and support for community energy. Our community and locally-owned renewables target is unique and is helping us to monitor progress. We have put in place a comprehensive support framework based on our experience of the sector and, where we do not currently have powers to intervene directly – as in obliging community benefits – we have used all the levers we can access, including exemplary commitments on the public estate, to encourage good practice. The result is over 400 community energy schemes operating across Scotland, at least 679 MW of local and community-owned projects in the pipeline, and a new industry baseline for community benefits that is bringing additional benefits to communities across the UK.

To continue to lead the way, we need to take what we have learned and apply it to transform the way we use energy locally.

As the environmental activist Bill McKibben argues in his book, *Deep Economy*, we can generate local power more efficiently, more reliably, and we can tap into the power of community.<sup>26</sup> By matching local low carbon power generation to local demand and forging collaborative partnerships between local agencies in the private as well as the public sector, we can create a new energy systems model. Scotland is well-placed to test this new model and our communities are well-placed to benefit from it.

<sup>26</sup> [\*DEEP ECONOMY: The Wealth of Communities and The Durable Future\*](#) by Bill McKibben. Copyright © 2007 by Bill McKibben.

### Information on this consultation and Invitation to Respond

#### Responding to this consultation paper

We are inviting written responses to this consultation paper by 10 November 2014.

**Please send your response with the completed Respondent Information Form (see "Handling your Response" below) to:**

Jamie.macleod@scotland.gsi.gov.uk

or

Jamie Macleod  
Onshore Renewables and Community Energy  
Scottish Government  
4th Floor  
5 Atlantic Quay  
150 Broomielaw  
Glasgow  
G2 8LU

If you have any queries contact Jamie Macleod on 0300 244 1257.

We would be grateful if you would use the consultation questionnaire provided or could clearly indicate in your response which questions or parts of the consultation paper you are responding to as this will aid our analysis of the responses received.

This consultation, and all other Scottish Government consultation exercises, can be viewed online on the consultation web pages of the Scottish Government website at <http://www.scotland.gov.uk/consultations>.

The Scottish Government has an email alert system for consultations, <http://register.scotland.gov.uk>. This system allows stakeholder individuals and organisations to register and receive a weekly email containing details of all new consultations (including web links). It complements, but in no way replaces SG distribution lists, and is designed to allow stakeholders to keep up to date with all SG consultation activity, and therefore be alerted at the earliest opportunity to those of most interest. We would encourage you to register.

## Handling your response

We need to know how you wish your response to be handled and, in particular, whether you are happy for your response to be made public. Please complete and return the **Respondent Information Form** which forms part of the consultation questionnaire as this will ensure that we treat your response appropriately. If you ask for your response not to be published we will regard it as confidential, and we will treat it accordingly.

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

## Next steps in the process

Where respondents have given permission for their response to be made public and after we have checked that they contain no potentially defamatory material, responses will be made available to the public in the Scottish Government Library. (see the attached Respondent Information Form), these will be made available to the public in the Scottish Government Library by 8 December 2014 and on the Scottish Government consultation web pages by 18 December 2014. You can make arrangements to view responses by contacting the SG Library on 0131 244 4552. Responses can be copied and sent to you, but a charge may be made for this service.

## What happens next?

Following the closing date, all responses will be analysed and considered along with any other available evidence to help us reach a final version of the Community Energy Policy Statement (CEPS). We aim to issue a final CEPS in 2015.

## Comments and complaints

If you have any comments about how this consultation exercise has been conducted, please send them to:

Jamie.macleod@scotland.gsi.gov.uk

or

Jamie Macleod  
Onshore Renewables and Community Energy  
Scottish Government  
4th Floor  
5 Atlantic Quay  
150 Broomielaw  
Glasgow  
G2 8LU

**The Scottish Government Consultation Process**

Consultation is an essential and important aspect of Scottish Government working methods. Given the wide-ranging areas of work of the Scottish Government, there are many varied types of consultation. However, in general, Scottish Government consultation exercises aim to provide opportunities for all those who wish to express their opinions on a proposed area of work to do so in ways which will inform and enhance that work.

The Scottish Government encourages consultation that is thorough, effective and appropriate to the issue under consideration and the nature of the target audience. Consultation exercises take account of a wide range of factors, and no two exercises are likely to be the same.

Typically Scottish Government consultations involve a written paper inviting answers to specific questions or more general views about the material presented. Written papers are distributed to organisations and individuals with an interest in the issue, and they are also placed on the Scottish Government web site enabling a wider audience to access the paper and submit their responses. Consultation exercises may also involve seeking views in a number of different ways, such as through public meetings, focus groups or questionnaire exercises. Copies of all the written responses received to a consultation exercise (except those where the individual or organisation requested confidentiality) are placed in the Scottish Government library at Saughton House, Edinburgh (K Spur, Saughton House, Broomhouse Drive, Edinburgh, EH11 3XD, telephone 0131 244 4565).

All Scottish Government consultation papers and related publications (eg, analysis of response reports) can be accessed at: Scottish Government consultations (<http://www.scotland.gov.uk/consultations>)

The views and suggestions detailed in consultation responses are analysed and used as part of the decision making process, along with a range of other available information and evidence. Depending on the nature of the consultation exercise the responses received may:

- indicate the need for policy development or review

- inform the development of a particular policy

- help decisions to be made between alternative policy proposals

- be used to finalise legislation before it is implemented

Final decisions on the issues under consideration will also take account of a range of other factors, including other available information and research evidence.

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



## Respondent Information Form and Consultation Questions

Please Note this form **must** be returned with your response to ensure that we handle your response appropriately

**we welcome both complete responses to the consultation and responses that focus on specific questions or areas.**

### **1. Name/Organisation**

**Organisation Name**

**Title** Mr ☐ Ms ☐ Mrs ☐ Miss ☐ Dr ☐ *Please tick as appropriate*

**Surname**

**Forename**

### **2. Postal Address**

<input type="text"/>		
<input type="text"/>		
<input type="text"/>		
<input type="text"/>		
<b>Postcode</b>	<b>Phone</b>	<b>Email</b>

### 3. Permissions - I am responding as...

Individual / Group/Organisation

☐

*Please tick as appropriate*

☐

- (a) Do you agree to your response being made available to the public (in Scottish Government library and/or on the Scottish Government web site)?

*Please tick as appropriate* ☐

Yes ☐ No

- (b) Where confidentiality is not requested, we will make your responses available to the public on the following basis

*Please tick ONE of the following boxes*

Yes, make my response, name and address all available ☐

**or**

Yes, make my response available, but not my name and address ☐

**or**

Yes, make my response and name available, but not my address ☐

- (c) The name and address of your organisation **will be** made available to the public (in the Scottish Government library and/or on the Scottish Government web site).

Are you content for your **response** to be made available?

*Please tick as appropriate* ☐

Yes ☐ No

- (d) We will share your response internally with other Scottish Government policy teams who may be addressing the issues you discuss. They may wish to contact you again in the future, but we require your permission to do so. Are you content for Scottish Government to contact you again in relation to this consultation exercise?

*Please tick as appropriate*

☐ Yes

☐ No

## 1. Introduction and Overview

a) Are the ambitions of the Scottish Government clearly set out in this section when viewed alongside the Scottish Government's existing Electricity Generation Policy Statement and our draft Heat Generation Policy Statement?

Comments

b) Are the ambitions of the Scottish Government correct to focus on support at differing levels of risk/benefit to the community while encouraging transition to Local Energy Economies? (e.g. mitigating risks of local ownership and encouraging community benefits paid by operators)

Comments

c) Do you think that the Scottish Government's ambition for community energy can be achieved within the limits of our current powers?

Comments

d) If not what powers do you think the Scottish Government needs?

Comments

e) Do you think the Scottish Government's ambition for community energy can be achieved within current regulatory and other systems?

Comments

f) If not, what changes do you think need to be made?

Comments

g) Do you believe that the current and proposed support mechanisms and programmes will have the required impact on community energy in Scotland?

Comments

h) If not, what changes do you think need to be made?

Comments

## **2. Direct community ownership**

a) Is the support available for direct community ownership and the Scottish Government's aim for this clearly and fully explained?

Comments

b) Do you agree with the Scottish Government's aims for community ownership?

Comments

c) Do you believe that the current and proposed support mechanisms and programmes will have the required impact on direct community ownership?

Comments

d) If not, what changes do you think need to be made?

Comments

### 3. Shared ownership and investment

a) Is the support available and future ambitions for shared ownership and investment clearly and fully explained?

Comments

b) Do you agree with the Scottish Government's aims for Shared ownership and investment?

Comments

c) Do you believe that the current and proposed support mechanisms and programmes will have the required impact on shared ownership and investment?

Comments

d) If not, what changes do you think need to be made?

Comments

#### 4. Community benefits

a) Does this section clearly and fully explain the current support available and the Scottish Government's aims for community benefits?

Comments

b) Do you agree with the Scottish Government's aims for community benefits?

Comments

c) Do you believe that the current and proposed support mechanisms and programmes will have the required impact on community benefits?

Comments

d) If not, what changes do you think need to be made?

Comments

## 5. Local Energy Economies

a) Is the concept of Local Energy Economies and the Scottish Government's ambitions for them clearly and accurately described?

Comments

b) Do you agree that Scottish Government's ambition to promote Local Energy Economies is the correct way to tackle the issues highlighted?

Comments

c) Do you believe that the current and proposed support mechanisms and programmes will have the required impact on Local Energy Economies?

Comments

d) If not, what changes do you think need to be made?

Comments

## 6. The Future of community energy

a) Is the Scottish Government's vision for the future of community energy clearly described?

Comments

b) Do you agree with the aims of the Scottish Government's ambition for the future of community energy?

Comments

c) Do you believe that the current and proposed support mechanisms and programmes will have the required impact on the future of community energy?

Comments

d) If not, what changes do you think need to be made?

Comments



### **Note on consideration under the Environmental Assessment Act (Scotland) 2005**

The draft Community Energy Policy Statement has been considered under the terms of the Environmental Assessment Act (Scotland) 2005. We have concluded that the draft policy statement can be pre-screened in terms of Strategic Environmental Assessment (SEA), as the policies and the likely environmental effects stem from the Scotland's Renewable Energy Routemap and Electricity Generation Policy Statement which has already been subjected to SEA and public consultation. The draft Policy Statement has been pre-screened out of requiring a SEA. A copy of the pre-screening report can be found on the Scottish Governments SEA Database (<http://www.scotland.gov.uk/Topics/Environment/environmental-assessment/sea/SEAG>).



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This document is also available on the Scottish Government website:  
**[www.scotland.gov.uk](http://www.scotland.gov.uk)**

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