

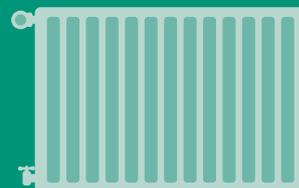
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LOCAL ENERGY IN AN AGE OF AUSTERITY

PRESERVING THE VALUE OF
LOCAL AND COMMUNITY ENERGY

Harry Armstrong
December 2015



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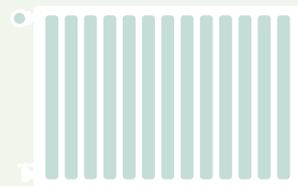
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FOREWORD

A reliable, affordable and sustainable energy supply is key to the long-term success and prosperity of a city. Before the national grid, many municipalities already provided energy to local customers in the same way they provided clean water, sanitation and public health as part of their social obligation. Councils today are again starting to play a bigger part in the energy system.

Changes to national policy, like the loss of the Green Deal for energy-saving home improvements, leave it up to others to drive the UK's clean energy agenda. New roles are emerging for cities, local authorities, communities and individuals as producers, suppliers and investors. But with further cuts to funding and the loss of renewable subsidies likely, it will be increasingly difficult to make the most of the opportunities local energy offers.

This report looks at the value of bringing energy infrastructure and technology under local governance. Local and community energy are vital to achieving an affordable, secure, low-carbon future and creating other wide-ranging economic, social and environmental benefits. Many local authorities are pushing the boundaries of what is possible in the current system. Most of the UK's biggest cities have pledged to run entirely on green energy by 2050. But as councils are put under further strain, it is unclear how this will happen.

This paper explores how closer partnerships with community energy groups could help local authorities to organise and benefit from local energy projects in the face of extensive funding cuts. These initiatives offer insights into how a future energy system could create opportunities that go beyond energy, putting people, communities and local resilience at its heart.

COUNCILS AND LOCAL ENERGY

Local authorities are well-placed to reduce emissions and change the way people use energy through their regulatory role and the services they deliver, as a social landlord and as an employer.¹ Through the Local Government Act in 2010 and the Localism Act in 2011, local authorities can implement any policies they believe will promote economic, social and environmental 'well-being'. The government's Cities and Local Government Devolution Bill and devolution deals are transferring new powers from ministers to town halls. Energy has become a focus for many councils² because of its high economic, social and environmental costs. Councils spend over £1 billion a year on energy (~3 per cent of total spending) and the cash total has more than doubled over the last ten years.³ As central government's green policies swiftly disappear, cities are now taking the lead on the green agenda.⁴

Some cities like Nottingham, Bristol and Peterborough have taken ambitious steps which push the boundaries of these new opportunities. But the prospects of local energy governance still come up against central government's sustained support for a predominantly centralised energy strategy. Impending deep cuts to local authority funding have put further barriers in the way of local energy.

There are lots of different ways in which local authorities can engage with the energy system. This could be anything from generating energy, district heating networks or energy efficiency initiatives. Economic growth, fuel poverty, regeneration and environmental concerns are some of the motivations that drive these local projects.⁵ There is a real appetite among local authorities to achieve these goals through local renewable energy schemes,⁶ but budget constraints and the need to prioritise other agendas are increasingly standing in the way.

Forms of municipal energy

Bulk buying energy

Greater Manchester's GM Fair Energy scheme has saved residents up to £350 on fuel bills by bulk buying energy from companies and selling it to residents at a cheaper price.

Energy Service Company (ESCo)

An ESCo is a commercial or not for profit business that provides its customers with energy services rather than selling energy as a unit. They can sit at arm's length from the local authority and are often associated with heat networks.⁷ The Thameswey Energy ESCo provides both heat and electricity to domestic (~1,200) and private sector customers (e.g. Network Rail) without having to comply with regulations, as it uses its own pipe and private wire network. It is 90 per cent owned by Thameswey and 10 per cent owned by Xergi Limited, a Danish company involved in the building and operation of the energy centres.

Energy Efficiency measures

Stockton on Tees Council ran its 'GoWarm' energy efficiency project through funding from the Community Energy Saving Programme (CESP) and the Energy Company Obligation (ECO) which have both now ended. External wall insulation was applied to almost 2,000 private sector rented homes at a cost of £3.85 million. As a result, fuel poverty rates fell from 20 per cent in 2009 to 15 per cent in 2012 with an average energy bill saving of £700 per year. The project created ~300 jobs and led to improved health outcomes. The scheme is being continued and offered to the borough's remaining 5,000 privately-owned, solid wall homes.⁸

Fuel poverty

Following the example of Chase Community Solar,⁹ fuel-poor households have received free electricity from solar PV installed on their roofs by the local authority. The scheme was supported by the Feed-in Tariff scheme and, in response, households have started to shift their electricity use to times when the solar panels are generating power.¹⁰

Supply

Bristol City Council plans to be the first council in the country to launch a municipal energy company, known as 'Bristol Energy', and become a fully licenced supplier of electricity and gas.¹¹

These kinds of initiatives have helped local authorities and communities achieve a range of benefits, from saving customers and the council money, to improving health. Tapping into local sources of low-carbon heat and electricity can lessen a local authority's dependence on the grid making hospitals, schools and businesses more resilient to any future supply disruptions. It is not just energy resilience that local generation can support.

A secure energy supply is vital for economic growth. Savings and revenue generated through local energy can be a big boost to the local economy. Councils have been able to generate new income streams which are re-invested in other local activities or services. Bristol Council's investment in solar PV for local schools cost £1 million, saving ~£60,000 per year in energy costs and raising £100,000 per year through the Feed-in Tariff scheme (FiTs).¹²

Some local authorities also support other local initiatives such as community energy projects. Community initiatives are driven by many of the same motivations and also create local economic benefits. A community-owned wind turbine in Scotland has been able to generate estimated revenue of between £125,000 and £280,000 per MW installed, during the operation of the wind farm.¹³ A typical small (~99kW) hydro scheme in Wales might generate a £12,000-£18,000 surplus per year with a larger project (~499kW) generating up to £40,000 - £60,000 per year from FiTs.¹⁴ These returns are reinvested into the local community and support anything from energy efficiency initiatives, sports organisations or even local businesses.¹⁵

The subsidies that underpin many of these initiatives are being eroded with early the loss of the Renewables Obligation (RO) and uncertainty around the future of FiTs. This lack of central government support will make existing business models unworkable, particularly as policy uncertainty has damaged investor confidence. It will only take around five years for solar PV to become an attractive investment without direct subsidies,¹⁶ and some reports suggest that onshore wind is fast becoming the cheapest form of energy.¹⁷ To overcome the current lack of support, new business models and partnerships will have to be developed. It will be increasingly difficult for local authorities, communities and individuals to go it alone.

Benefits beyond financial and energy security

Revenues generated by renewable installations are by no means the only benefit of local energy, or even the only way it can support economic growth. Planning, surveying and engineering work all provide local employment opportunities for local businesses,¹⁸ whether that is for a renewable installation or an energy efficiency project. The Repowering Brixton project was able to provide work experience and skills training in areas such as IT, finance and draught proofing to 15 young people, as well as paid work experience alongside professional solar panel installers.¹⁹ Developing these kinds of skills represents a key opportunity more widely for the UK, as it currently lacks a skilled renewable installation workforce.²⁰

Tackling cold homes can drastically improve the health of residents and reduce the pressure on local health and social care services. Fuel poverty causes serious health issues, with children from cold homes more likely to suffer from respiratory and mental health problems than those in warm homes.²¹ The annual cost to the NHS of treating cold home-related diseases over winter was estimated to be around £859 million in 2011.²² The social care cost of fuel poverty has not been calculated, but could be equally high. Despite the Government's rhetoric, little has been done to tackle fuel poverty with local authorities left to design their own policies. If fuel costs rise by £100 extra a year or wages drop by 5 per cent in real terms, an extra 500,000 people could join the 2.9 million households already in fuel poverty.²³

Local energy schemes can also create social benefits, building social capital and community cohesion around the project. Community energy projects in particular are associated with a strong social focus and inclusive approach to development, both of which are vital for local resilience.²⁴ Through community energy projects, local authorities can capture these opportunities which would otherwise be more difficult to achieve.

Supporting local energy

Through the government's Community Energy Strategy, local authorities have the remit to support community energy projects. Some local authorities have taken on a very active role in supporting these initiatives. Collaboration between the community, local groups and local authorities has helped many different projects succeed and achieve greater social, economic and environmental benefits.

There are a number of ways local authorities and community energy groups can support each other:

Staff and organisational support

Community energy groups struggle at the early developmental stages of a project as they rely mostly on volunteers or part-time staff. By providing access to council resources, expertise and even organisational infrastructure support, local authorities can help these projects succeed.

Sharing assets

Community energy groups often find acquiring land for energy projects difficult. Land rent can reduce the financial viability of a project, so access to affordable sites is key. Local authorities own many physical assets, such as schools or social housing which can be used for renewable energy installations. The local authority, in turn, benefits from the energy generated without having to directly manage the project.

Bristol has set up a pilot project to map roof space on council-owned buildings that could be used for solar panels, using data such as the Asbestos Management Survey.²⁵ This information was then made available and the sites opened up for development with local communities. The power generated from these installations will help keep residents' and the council's energy bills down.

Financing energy initiatives

Local authorities and communities both provide important funding options that, if used together, can generate substantial capital. Local authorities can provide startup loans and use pension fund investments or prudential borrowing to help finance local community initiatives, achieving a social and monetary return on investment. Lancashire County Council has invested £12 million from their pension fund into the Westmill Solar Co-operative in Oxfordshire in 2013.²⁶

Procurement agreements to buy electricity or heat generated by a local or community project can help guarantee an income, but must be done with a licenced supplier. Through the Social Value Act, local government has to consider how any service they procure might benefit the economic, social and environmental wellbeing of the area.²⁷

Community share offers have increased 20 fold in the last five years and energy was the largest single sector of investment.²⁸ The Bath & West Community Energy group was able to raise £10 million through community share offers and, combined with debt finance, was able to develop 15MW of community renewables. They have been able to pay members 7 per cent on their investments in the last three years.²⁹

The added value of community-owned projects

There are an estimated 5,000 community energy projects³⁰ currently in the UK, of which around 59 per cent are found in urban areas and 41 per cent in rural locations.³¹ Like councils, their motivations span economic, environmental, social and self-governance goals, sometimes all at the same time.³² For community groups in particular, the energy project may primarily be a way to achieve other local opportunities. The level and type of local ownership will ultimately determine who gets what kinds of benefits.

By engaging the local community and retaining governance over the project, community energy initiatives can create additional social benefits, even strengthening local capabilities beyond the energy project itself. Communities can be more responsive than local authorities to changing environments and can ensure the project can still support the community's economic, social and environmental goals. Community-owned schemes offer between 12–13 times as much community value re-invested back into local areas as would be achieved through 100 per cent commercial models.³³

A number of projects from the Government's Low Carbon Communities (LCC) Challenge programme reported the most positive outcomes to be social. This was partly because the projects led to other community-related activities. Financial return was the initial pull for many people but, once the project had started, the sense of community became a more important driver of activity.³⁴ From a survey of 80 community energy groups in England, 88 per cent of people are now actively involved in wider local initiatives.³⁵

Community energy projects have helped keep communities together in remote rural areas, like the Island of Eigg, through local development and greater social cohesion. A sense of local pride in the energy project because it is owned and governed by the community is very powerful and reportedly has led to a greater sense of wellbeing throughout the community. Not enough has been done to fully evaluate the impact of these social benefits, but anecdotal evidence from many different projects indicates it can be significant.

Inclusivity is an important part of community projects. Compared to revenue and employment generated from tourism, community hydro schemes in Wales are considered more valuable because the revenue and benefits are distributed more evenly to the wider community.³⁶ A number of groups, such as Repowering Brixton, are also working hard to open up community share offers to more people. Gen Community is launching larger projects in areas of low income or high deprivation, such as Barnsley, and lowering the minimum cost of shares. They are also working with the local council to ensure the community fund delivers maximum social impact, and will measure and report on the social impact to review the benefits of each project.³⁷

Re-engaging people with their energy use

Community participation helps create local support and appreciation for renewable infrastructure.³⁸ Understanding the additional benefits of addressing climate change has been shown to motivate people to act, regardless of whether they are convinced or unconvinced about climate change itself.³⁹ Community energy projects consistently show an increase in engagement and acceptance of renewable energy, adoption of energy efficiency behaviours, and impact beyond the limits of the project. Initiatives which focus on environmental responsibility tend to be more successful than those that focus on possible financial rewards.⁴⁰

A survey of 63 community energy groups in Scotland found that 87 per cent saw an increase in the community's awareness of the benefits of using renewable energy technology. On top of this, 62 per cent of these groups reported a decrease in CO₂ emissions, and 49 per cent indicated there had been a reduction in energy use.⁴¹ The LCC project saw a reduction in energy use compared to the average national reduction over the same period, despite a number of these projects starting from a lower baseline. Reductions in energy use and carbon emissions were made at the community and household levels through the LCC initiative, and indirectly through the downstream effects of the main projects. Distributed generation from wind and solar, combined with a reduction in energy use, generated an annual saving of 181 tonnes of CO₂ through the project.⁴²

Community energy groups are also at the forefront of demand management innovation. Through a partnership between the Wadebridge community energy group WREN, RegenSW and Tempus Energy, a trial is underway to explore the potential of an 'offset connection agreement' and 'sunshine tariff' to encourage energy use when WREN's local solar farm is generating energy.⁴³ Not only does this help the community group make the most of the energy it generates and pay far less for energy, it also helps reduce pressure on the grid.

The Island of Eigg has taken a different and unique approach to matching supply with demand: a stand-alone grid with 90 per cent of the island's energy generated by hydroelectric, wind and solar resources, with a battery bank and diesel generators as a back-up. The Eigg community made a collective decision to restrict electricity use to 5kW per household and 10kW per business to ensure demand wouldn't exceed supply. There is an onus on personal energy management which is supported by smart meters, and if a household goes over its limit, they are automatically switched off and have to be reconnected manually. For residents this restriction is well above what they were used to before the project, so the energy use limit is not a disruptive policy, but does show collective community decisions may be an effective route to demand management. One of the key drivers that makes this work is the sense of ownership that people on Eigg have for the project.

2020 AND THE FUTURE OF LOCAL ENERGY

Councils need to make more financial savings over the next five years, while still protecting essential services and delivering on their goals. Efficiency savings and staff reductions will help cut costs, but a leaner council will also have to limit its ambitions. For some councils further efficiency savings will not be enough to cover the shortfalls. Along with reforms or reductions to frontline services, other strategies like maximising the income from investments or reviewing how assets can be used more effectively are being considered, though even all of these together may not be enough to fill the financial hole.^{44, 45}

By 2020 the extent of financial cuts and the added pressures on services will fundamentally change the nature of a council, what they can do and how they operate. As councils are forced to make further cuts and staff levels fall, it will become difficult for them to continue with existing energy initiatives, and almost impossible to start new ones. A leaner future council will have to be more open and work more closely with local partners to achieve aspirations that sit outside of its core frontline services.

As energy becomes more expensive and less secure, local systems will be more important than ever. Partnerships with community energy groups will help local authorities continue local energy initiatives and capture the social opportunities community action brings. Councils and community groups will develop their own partnership arrangements which support the strengths of each organisation, and help overcome their limitations. This will help local authorities to deliver better energy services more efficiently.

It will still be a big challenge to develop business models that work with limited support for both local authorities and green energy schemes. National policy will still ultimately decide how successful these initiatives are, but by working closely together, councils and communities can build greater resilience to wider policy changes. Existing forms of support, such as co-financing projects or utilising local assets, will still be important, but the nature of these relationships will have to change as local authority funding is cut.

Towards a co-operative council

One possible model for a closer collaboration between community groups and the local authority is the Co-operative Council.⁴⁶ In practice, this will mean more councils start to make more of their relationships with local community energy groups, to do things they increasingly can't. This may be by sharing and co-funding staff who sit between the community group and the council, handing over the management of certain resources to community groups, and even bringing down costs of energy projects by avoiding a council's lengthy procurement procedure. Volunteers from the community will have to form an important part of these local energy schemes as staff numbers fall. Nesta's Cities of Service project has shown how valuable and effective volunteer action can be when deployed effectively.⁴⁷

Co-operative Councils

The Co-operative Council model aims to change the relationship local authorities have with local communities. By working closely together they can harness the strength of communities to help design services, decide how funds are spent and react to local concerns. This approach is a way of efficiently spending limited public resources, but still achieving the maximum local benefit. A recent report by the Co-operative Council Innovation Network's Policy Commission on Community Resilience, Jobs and Growth suggested that if these co-operative approaches were used across the UK, they could reduce the cost of employment support by 25 per cent, create 90,000 jobs, and increase the contribution of private sector developers to employment and skills by a factor of 15.⁴⁸

The Plymouth Energy Community (PEC)⁴⁹ is a particularly successful version of the Co-operative Councils model and Nesta's Cities of Service project,⁵⁰ showing how advantageous close connections between a local authority and a community can be.⁵¹ In the development of PEC, Plymouth Council provided critical support in a number of ways. In the sensitive early-development stage the council provided seed funding, a loan of £500,000 and council staff with access to council resources. They also helped provide professional support to help launch the shares scheme. PEC is still made up of many staff that sit in between PEC and the council. This has allowed them to set up the organisation quickly and draw from a great deal of experience (something often lacking with community energy projects). PEC was able to set up the community shares offer within three months of the initial decision, thereby maintaining momentum and generating the required fund quickly. As the project has generated more funds it has been able to support these cross-council positions, removing the financial burden from the council. PEC was also able to get Solar PV installers to offer significantly reduced prices to the community group than was offered to the council, as they could avoid the council's lengthy procurement procedure, thereby bringing down the cost of the project.

The local political and authority backing has allowed PEC to flourish and provide many benefits to the local community, including energy efficiency measures, fuel debt support and the ability to generate energy locally. Importantly, working with the council has helped PEC to reach more people within the local community through marketing and other activities, opening up the possibility of local ownership to many more people through lower minimum share prices.

Other local authorities will set up new ESCos in partnership with communities. Initially community groups and the council will take joint responsibility over its management, contributing staff and resources. Successful ESCos will be able to fund themselves and become more independent of the local authority but in many instances, as local authority capabilities decrease, community groups and volunteers will have to take on greater responsibility for its running. Greater community ownership and governance will help build local pride in the project and social capital.

Green transport is one of the key aims of many cities and is often harder to achieve than other goals. Community groups have been innovative in this area and these partnerships will help change the concept of an energy service to encompass other areas like transport. Energy projects in Orkney and Talybont have used revenue from renewable generation, community investment and innovation funding to acquire green transport systems such as hydrogen-powered ferries, electric cars and electric bikes. Local energy is used to power these vehicles, so they are resilient to national supply disruptions and greener than transport plugged into the national grid. Transport is cheaper and cleaner, while also maintaining community involvement and the benefits that brings.

Recommendation

- 1. Local authorities should look to community energy partnerships for innovation, greater social impact and a way for local energy schemes to survive damaging council budget cuts.**

Planning for the future

Whether through the co-operative council model, or jointly run ESCOs, an important part of these new partnerships will be to develop forward-thinking, long-term, local energy strategies that meet the goals of local authorities and communities. These will help councils make larger, longer-term investments and ensure they use existing resources in the most efficient way. The push from national government for local authorities to sell off assets is short-sighted. In most instances, councils will be able to create greater, longer-term economic and social value out of their assets by holding on to them and using them to drive local growth.⁵² Southampton Council used its buildings for sustainable energy projects, and for every £1 it invested, it created a further £5 of external investment and 1,200 jobs.⁵³ Long-term planning will be key to making the most of existing assets and avoiding having to sell them.

Recommendation

- 2. Where possible, local authorities should avoid selling off assets and use council-owned buildings and land to develop local energy schemes.**

Forward thinking strategies will be needed to make the most of emerging opportunities and technology such as smart meters. Central government's £295 million fund to improve the energy efficiency of public sector buildings like schools or hospitals, and the support for up to 200 heat networks, are important opportunities for local energy. Communities will play a vital part in these initiatives, especially as smart meters are rolled out through to 2020 and beyond. Smart meters and the data they generate create opportunities for bringing down energy costs, delivering the right services to people who need them, changing energy behaviours and identifying households most at risk of falling into fuel poverty. By working together, communities and local authorities will be able to engender greater trust among residents to share their data.

Lastly, long-term planning will help to ensure a market and successful business models exist to help the renewable energy market grow past grid parity. Even when onshore wind and solar PV reach grid parity in the UK, it doesn't necessarily guarantee these sectors will be fully self-sustaining as international examples such as Italy, Spain and Greece show.⁵⁴ Policies and partnerships that local authorities develop now will continue to support the future renewable energy market.

Recommendation

- 3. Local authorities and community groups should work together to create long-term local energy strategies and forward-thinking policies which can make the most of emerging opportunities and technology.**

Public, private and community partnerships

Pension fund investments and community share offers will still be important sources of capital, but austerity and the sudden loss of community energy investment tax relief are likely to limit how effective they are. Building public, private and community partnerships will help make new local energy projects more financially feasible. Local Enterprise Partnerships (LEPs) have a potentially important role to play. LEPs have largely not taken advantage of the freedom they have to be more innovative and forward-thinking.⁵⁵ Local energy needs investment, innovation and local enterprise support. The Local Growth Fund of £12 billion aimed at LEPs could be invested in local energy initiatives as a route to local resilience.

While they may be an important way to deliver some projects, local community groups will still need to form an important part of the partnership. One criticism of LEPs is that they have failed to deliver the social growth needed for local resilience,⁵⁶ which is where community energy has real value.

Other forms of public, private and community partnerships would be directed at specific renewable companies. Private companies could be offered some level of ownership of a municipal/community energy scheme in return for investment, the opportunity to scale-up the project (which will make it more economically viable) and expert support in the early stages of development. Supportive local policies and long-term energy strategies will help attract private investment. A mix of private and public sector funding alongside community investment could deliver larger-scale projects in the absence of renewable subsidies, but the business models behind this will need to be developed more fully for local energy.

Recent evidence shows communities can get more MWs of generation for their investment by working with private companies.⁵⁷ The town of Friedheim in Germany⁵⁸ formed a close relationship with a private wind turbine company in the region and as a result has been able to develop its local energy economy. It now generates all of its energy and owns a private wire grid with any extra generation providing revenue for both the community and the local renewable company Energiequelle GmbH.

Recommendation

- 4. LEPs could be playing a more important role in developing local energy projects, but local authority and community involvement are essential to develop local resilience.**
 - a. New forms of public, private and community partnerships should be explored.**

Collective co-operatives and local supply

Larger collaborations between regionally-linked local authorities/community partnerships could help councils do more with less. Sharing resources and co-ordinating energy projects between larger networks will make them easier and cheaper to deliver by benefiting from economies of scale. With the loss of FiTs and a desire among a number of councils and community groups to supply cheap energy to local residences, becoming a fully-licensed supplier has become an attractive model. Bristol and Nottingham councils are in the process of becoming fully-licensed suppliers, but high costs and a lack of expertise among other local authorities will prevent this model being replicated.

A collective or intermediary organisation could perform the costly electricity supply licence functions for many local authorities. A larger collective organisation would also have more leverage when lobbying national government, or Ofgem, over policy and regulatory changes that might support local supply.

The creation of an umbrella energy co-operative in Denmark to market the electricity co-operatives generate, has helped small generators minimise risks and improve the economic environment for new community and local groups. Similar models are followed in Germany, where 24 citizen-led energy initiatives have created the Bürgerwerke (citizen utilities) to pool resources and market their electricity independently of the fixed FiTs, and purchase obligations which are part of the Renewable Energy Sources Act (EEG).⁵⁹

Despite a recent Ofgem consultation on non-traditional business models, it's unlikely a new regulatory framework that would support local supply will be introduced in the near future. There are other innovative approaches emerging such as Piclo, the UK's first online peer-to-peer renewable energy trading service, which local authorities and community energy groups can start to make the most of in order to sell affordable energy locally.⁶⁰ The service will allow renewable generators to sell their electricity directly to local customers, local businesses or schools for the best price. It should give customers more choice and make the process of buying energy more transparent. The technology will be tested during a six-month trial supported through DECC's Energy Entrepreneurs Fund scheme and the Nominet Trust.

Leaders in local energy innovation

While most councils and community groups will struggle over the coming years, it is likely that Scotland will still see local energy grow. The Scottish Government has set a target of 500MW generating capacity to be owned locally by 2020, and is on track to hit this target.⁶¹ The Scottish Government see local energy not only as a way of creating a greener, fairer society, but also as an important testbed for new technology. Local Energy Scotland through the Local Energy Challenge Fund has supported a number of innovative approaches to support large-scale, local, low-carbon demonstration projects.⁶² Battery storage, hydrogen, active network management, smart meters, demand-side response and electrification of transport are just some of the technologies that have been demonstrated.

Using these projects as small-scale, flexible and agile testbeds is a powerful way to understand how local energy and a number of emerging technologies work in the real world. As intermittent renewable energy and distributed installations becomes a larger part of energy systems across the world, the lessons learnt from these projects will help inform how emerging technologies like smart grids and battery storage support the system. Local authorities and communities like Orkney will become world leaders in developing the technology and social innovation that can make this happen, and get the most out of renewable generation.

Recommendation

- 5. Part of DECC's innovation programme fund should be targeted at local authorities and community projects which are developing innovative solutions to the problems of distributed energy systems.**

CONCLUSION

Local authorities have a vital part to play in local energy systems and can actively shape them to achieve wider public good. Without government support and adequate funding it will be harder and harder to realise this potential. But by working closely with community groups, there are ways local authorities can explore the value of local energy.

The UK is well-positioned to lead the world in these kinds of initiatives with increasingly strong city and regional governance,⁶³ as well as funding for urban infrastructure innovation.⁶⁴ It is also a nation that houses world-leading experiments in community and social innovation, from volunteering in cities⁶⁵ to community-run public spaces.⁶⁶

Designing programmes that make the most of the diverse benefits of local – especially community – energy is not going to be easy. Local government is not always set up to respond to the subtle dynamics of communities, or to evaluate and tweak emerging approaches and ideas. The second section of this report includes suggestions for where to start out:

Recommendations

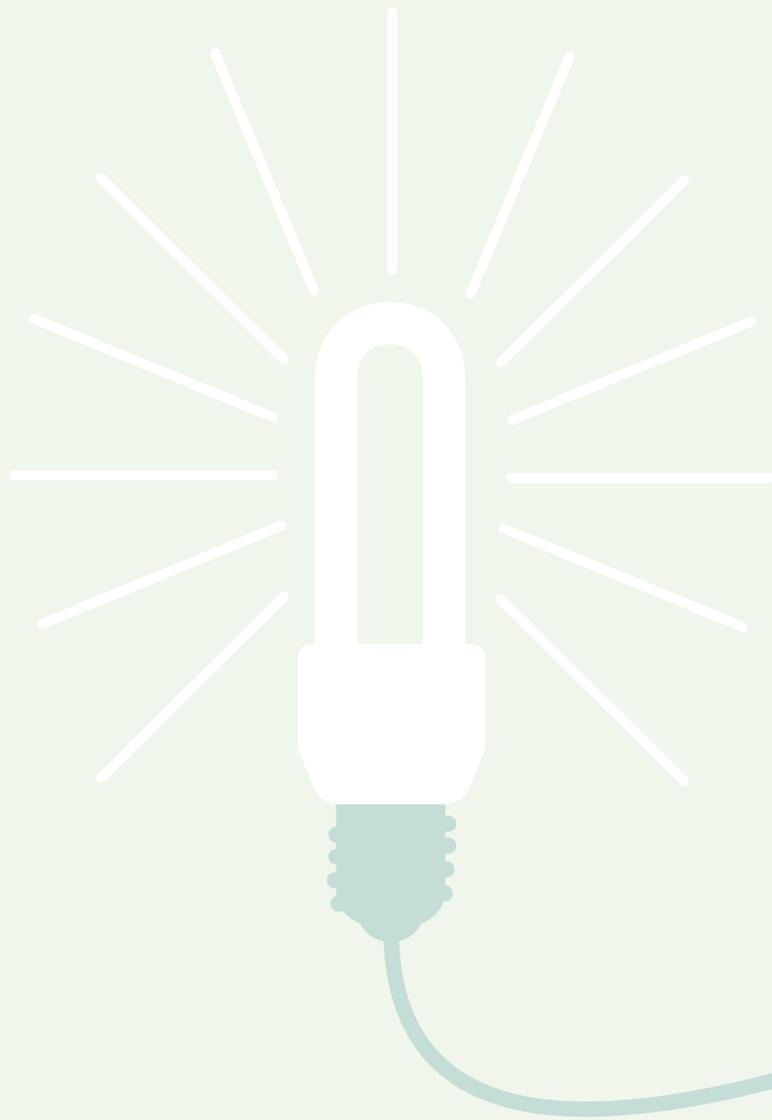
- 1. Local authorities should look to community energy partnerships for innovation, greater social impact and a way for local energy schemes to survive damaging council budget cuts.**
- 2. Where possible, local authorities should avoid selling off assets and use council-owned buildings and land to develop local energy schemes.**
- 3. Local authorities and community groups should work together to create long-term local energy strategies and forward-thinking policies which can make the most of emerging opportunities and technology.**
- 4. LEPs could be playing a more important role in developing local energy projects, but local authority and community involvement are essential to develop local resilience.**
 - a. New forms of public, private and community partnerships should be explored.**
- 5. Part of DECC's innovation programme fund should be targeted at local authorities and community projects which are developing innovative solutions to the problems of distributed energy systems.**

Nesta will be thinking more about these kinds of approaches as part of our wider research on the future of local authorities. Pressures on energy security and sustainability, as well as the added advantages of decentralised energy projects, make the case for local government reform that can take up these issues and opportunities where national policy has failed.

ENDNOTES

1. Committee on Climate Change (2012) 'How Local Authorities Can Reduce Emissions and Manage Climate Risk'. London: Committee on Climate Change.
2. Local Authority Energy Index. See: <http://laenergyindex.co.uk/>
3. Local Government Association (2015) 'Waste and energy. Why is this a priority?' See: http://www.local.gov.uk/productivity/-/journal_content/56/10180/3510540/ARTICLE
4. Mason, R. (2015) Most of Britain's major cities pledge to run on green energy by 2050. 'The Guardian.' See: <http://www.theguardian.com/environment/2015/nov/23/britain-cities-green-energy-pledge-2050-climate-change-paris-talks>
5. Local Climate Actions: http://www.local.gov.uk/c/document_library/get_file?uuid=04b031f9-5802-4d18-8fcd-40383fbe7638&groupId=10171
6. APSE (2012) 'The ensuring council: An alternative vision for the future of local government.' Manchester: APSE.
7. Hannon, M. and Bolton, R. (2014) UK Local Authority engagement with the Energy Service Company (ESCO) model: Key characteristics, benefits, limitations and considerations. 'Energy Policy.' 78; 198-212
8. Stockton-on-Tees Borough Council (2013) UK's largest ECO scheme to benefit 5000 Stockton Borough homes. 'News.' See: <https://www.stockton.gov.uk/news/2013/may/uks-largest-eco-scheme-to-benefit-5000-stockton-borough-homes/>
9. <http://chasesolar.org.uk/>
10. DECC (2015) 'Performance and Impact of the Feed in Tariff Scheme: Review of Evidence.' London: DECC.
11. Stephen Scown and RegenSW (2015) 'Local supply: Options for selling your energy locally.'
12. CHPA (2014) 'Reversing the current: A manifesto for putting energy users first.'
13. Entwistle, G., Roberts, D. and Xu, Y. (2014) 'Measuring the Local Economic Impact of Community-Owned Energy Projects.' Inverness: Community Energy Scotland.
14. Bere, J., Jones, C. and Jones, S. (2015) 'The Economic and Social Impact of Small and community Hydro in Wales.' Cardiff: CREW.
15. <http://www.localenergyscotland.org/view-the-register/>
16. KPMG (2015) 'UK solar beyond subsidy: the transition.'
17. Randall, T. (2015) Solar and Wind Just Passed Another Big Turning Point. 'Bloomberg Business.' See: <http://www.bloomberg.com/news/articles/2015-10-06/solar-wind-reach-a-big-renewables-turning-point-bnef>
18. Mills, P. (2012) 'Community Energy Projects 2012 Impact Survey.' Inverness: Community Energy Scotland.
19. DECC (2014) 'Community Energy Strategy.' London: DECC.
20. Spitzley et al., (2015) 'Keep-On-Track! Project analysis of derivations and barriers 2014/2015.' see: http://www.keepontrack.eu/contents/publicationsanalysisdeviationsbarriers/kot_deviations-and-barriers-report-2015.pdf
21. Marmot Review Team (2011) 'The Health Impacts of Cold Homes and Fuel Poverty.' London: Friends of the Earth and the Marmot Review Team.
22. Department of Health (2009) '2009 Annual Report of the Chief Medical Officer.' London: Department of Health.
23. Centre for Sustainable Energy (2014) 'The implications of meeting the fourth carbon budget. Report to the Committee on Climate Change.'
24. CLES (2014) 'Developing Local Economic Resilience The Role of Local Enterprise Partnerships (LEPs).' Manchester: CLES.
25. Bristol City Council (2011) 'Bristol Sunshine: An Analysis of Solar Rooftop Mapping Techniques & Outputs.'
26. Lancashire County Council (2013) Lancashire County Pension fund invests £12m in the world's largest community-owned solar power station. 'News.' see: http://www3.lancashire.gov.uk/corporate/news/press_releases/y/m/release.asp?id=201302&r=PR13/0065
27. Rabinowitz, R., Germanis, A. and Marvel, A. (2014) 'Introductory guide: Community Energy For Local Authorities.' London: Pure Leapfrog.
28. Community shares (2015) 'Inside the Market Report.'
29. <http://www.bwce.coop/>
30. Community energy is broadly defined as a community of place or interest which benefits collectively from some level of ownership and control over a bit of the energy system.
31. DECC (2015) 'Community energy strategy update.' London: DECC.
32. Seyfang, G., Park, J. and Smith, A. (2013) A thousand flowers blooming? An examination of community energy in the UK. 'Energy Policy.' 61; 977-989
33. Capener, P. (2014) 'Community Renewable Electricity Generation : Potential Sector Growth to 2020.'
34. DECC (2012) 'Low Carbon Communities Challenge Evaluation Report.'
35. Quantum Trust (2015) 'Community Energy: Generating More than Renewable Energy.' See: <http://www.greenpeace.org.uk/sites/files/gpuk/CEE-Survey-FITs-Impact-pdf.pdf>

36. Bere, B., Jones, C. and Jones, S. (2015) 'The Economic and Social Impact of Small and community Hydro in Wales.' Cardiff: CREW.
37. Ward (2015) £10m community energy project to power 5,000 homes in the UK. 'Pioneers post.' see: <http://www.pioneerspost.com/news-views/20150828/10m-community-energy-project-power-5000-homes-the-uk>
38. Walker, G. and Devine-Wright, P. (2008) Community renewable energy: What should it mean? 'Energy Policy.' 36, pp.497-500
39. Bain, P. et al., (2015) Co-benefits of addressing climate change can motivate action around the world. 'Nature climate change.'
40. Haggett, C., Creamer, E., Harnmeijer, J., Parsons, M. and Bomberg, E. (2013) Community energy in Scotland: the social factors for success. 'ClimateXChange.'
41. Mills, P. (2012) 'Community Energy Projects 2012 Impact Survey.' Inverness: Community Energy Scotland.
42. Gupta, R., Eyre, N., Darby, S., Lucas, K., Barnfield, L., Hamilton, J., Mayne, R., Gregg, M., Fratter, C. and Irving, B. (2015) 'Evaluating the impacts, effectiveness and success of low carbon communities on localised energy behaviours (EVALOC).' Final Report. Oxford: Oxford Brookes University and University of Oxford.
43. Bourne, T. (2015) 'The Sunshine Tariff Trial.' See: <http://www.regensw.co.uk/wp-content/uploads/2015/06/Regen-SW.pdf>
44. Local Government Association (2014) 'Under Pressure: How councils are planning for future cuts.' London: Local Government Association.
45. Local Government Association (2014) 40 percent funding reduction would devastate local services and communities, councils warn. 'Media Release' See: http://www.local.gov.uk/media-releases/-/journal_content/56/10180/7534443/NEWS
46. <http://www.coopinnovation.co.uk/>
47. <http://www.nesta.org.uk/project/cities-service-uk>
48. CCIN (2015) 'A Cooperative deal for community resilience, jobs and growth: Document of supporting information.' See: http://www.coopinnovation.co.uk/wp-content/uploads/2015/03/CCIN_Commission_Evidence_Document_Final1.pdf
49. <http://www.plymouthenergycommunity.com/>
50. <http://www.nesta.org.uk/project/cities-service-uk>
51. Regen SW (2014) 'Lessons from Regen SW Local Authority Forum on 25 September: how local authorities can support community energy.' See: <http://www.regensw.co.uk/blog/2014/10/lessons-from-regens-local-authority-forum-on-25-september-how-local-authorities-can-support-community-energy/>
52. CLES (2014) 'Enhancing the value of local authority assets in town centres.' Manchester: CLES.
53. ASPE (2014) 'Local authority assets can be the key to solutions in our town centres.' Blog Post. See: <http://www.apse.org.uk/apse/index.cfm/news/2014/local-authority-assets-can-be-the-key-to-solutions-in-our-town-centres/>
54. KPMG (2015) 'UK solar beyond subsidy: the transition.'
55. IPPR (2015) 'Developing resilient local economies: Good practice among local enterprise partnerships.' London: IPPR.
56. CLES (2014) 'Developing Local Economic Resilience The Role of Local Enterprise Partnerships (LEPs).'
57. Harnmeijer, J. et al., (2015) 'The Comparative Costs of Community and Commercial Renewable Energy Projects in Scotland.' ClimateXChange. See: <http://www.climateexchange.org.uk/reducing-emissions/comparative-costs-community-and-commercial-renewable-energy-projects-scotland/>
58. Guevara-Stone, L. (2014) Why a small German village bet big on renewables. 'GreenBiz.' See: <http://www.greenbiz.com/blog/2014/02/13/rural-german-village-feldheim-power-clean-energy>
59. Gotchev, B. (2015) Civic participation in the Energiewende: What Germany can learn from Denmark. 'Blog' See: <http://energytransition.de/2015/03/danish-civic-participation-energiewende-lessons-for-germany/>
60. <https://piclo.uk/>
61. Energy Saving Trust (2015) 'Community and locally owned renewable energy in Scotland at June 2014.' See: <http://www.energysavingtrust.org.uk/reports/community-and-locally-owned-renewable-energy-scotland-2014>
62. Scotland's Low Energy Challenge Fund: <http://www.localenergyscotland.org/funding-resources/funding/local-energy-challenge-fund/>
63. For example current Government's City and Growth Deals. See: <https://www.gov.uk/government/policies/city-deals-and-growth-deals>
64. For example recently announced funding for novel approaches to integrated infrastructure design at the city-level. See: <https://interact.innovateuk.org/-/cities-integrated-by-design>
65. Nesta's Cities of Service programme. See: <http://www.nesta.org.uk/project/cities-service-uk>
66. Nesta's Rethinking Parks programme. See: <http://www.nesta.org.uk/project/rethinking-parks>



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