



Devon Community Energy Impact Report 2018

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▶▶ 1 Introduction

This report, commissioned by Devon County Council (DCC) on behalf of community energy organisations, provides a snapshot of community energy activity in Devon (including the unitary authority areas of Plymouth and Torbay). The aims of these organisations are focused on giving local communities greater control over how energy is generated and used and maximising the engagement and benefit from energy projects. The varied activities of community energy organisations to deliver these goals include reducing energy demand, improving energy efficiency and increasing the amount of energy generated locally from low-carbon and renewable sources.¹

Devon has been leading the way and has 23 community energy organisations active in the area, more than any other county in the UK.² Most of these organisations are grass roots and all are highly committed to delivering the social, economic and environmental benefits associated with community energy.

The data in this report was gathered by Regen and DARE in February 2018, using phone interviews and an online survey co-designed with local community energy organisations.

All the community energy organisations in Devon are unique and use a wide range of ownership and delivery models, from Yealm Community Energy buying an existing solar farm, to Totnes Renewable Energy Society's (TRESOC) shared ownership of hydro and PV on social housing, to 361 Energy's focus in the north of the county on energy efficiency and addressing fuel poverty. Despite their different approaches they collaborate more than any other regional community energy network in England, and their determination has led to some extraordinary projects that will continue making their communities more resilient for years to come. This report points to some key factors of success including the dedication of individual staff and volunteers, and the support networks facilitated by the South West Devon Community Energy Partnership (SWDCEP), Regen and DCC.



Totnes Renewable Energy Society (TRESOC) schools hydro project 2017

1 Based on the South West Devon Community Energy Partnership definition: <http://www.swdcep.org.uk/>

2 Based on this report compared with Community Energy England's State of the Sector report 2017: <https://communityenergyengland.org/pages/state-of-the-sector-report>

▶▶ 2 Summary of key findings

We surveyed 23 organisations (see section 11.0) which are believed to be all of the community energy organisations active in Devon: 17 are grass roots locally-controlled community energy organisations and six are pre-existing community organisations (such as a parish council or charity) developing energy projects or with some installed generation.

Community energy organisations are found across Devon and have:

- Installed 12.3 MW of capacity through 62 community owned renewable electricity generation projects (Figure 1)
- Generated 17,431 MWh of renewable energy to date, including 10,610 MWh in 2017
- Saved 6,080 tonnes of CO₂e emissions, including 3,701 tonnes saved in 2017
- Raised £14.1 million of investment, including £5.5 million raised through community shares
- Created 33 FTE jobs
- Supported 2,717 households with energy efficiency services or physical installations
- Run 250 events to share knowledge on energy efficiency, attended by more than 2000 people
- 3,457 members, 1,530 shareholders, 297 volunteers and over 8,079 people on their mailing lists.

Devon has approximately 905 MW of renewable electricity installed (as of March 2017).³ This means 1.3 per cent of total installed renewable electricity in Devon is community owned.

Aside from the social impacts highlighted in this report, community benefit funds from four organisations with community owned renewables will provide a total of £1,125,000 to tackle issues such as fuel poverty until 2030.



Plymouth Energy Community (PEC) public event

³ Based on March 2017 data for DCC Area from '2017 Regen – Renewable energy progress report Devon 2016 -2017 (Draft)' and March 2016 data for Plymouth and Torbay from '2016 Regen and Green Alliance – A renewable energy progress report for England'

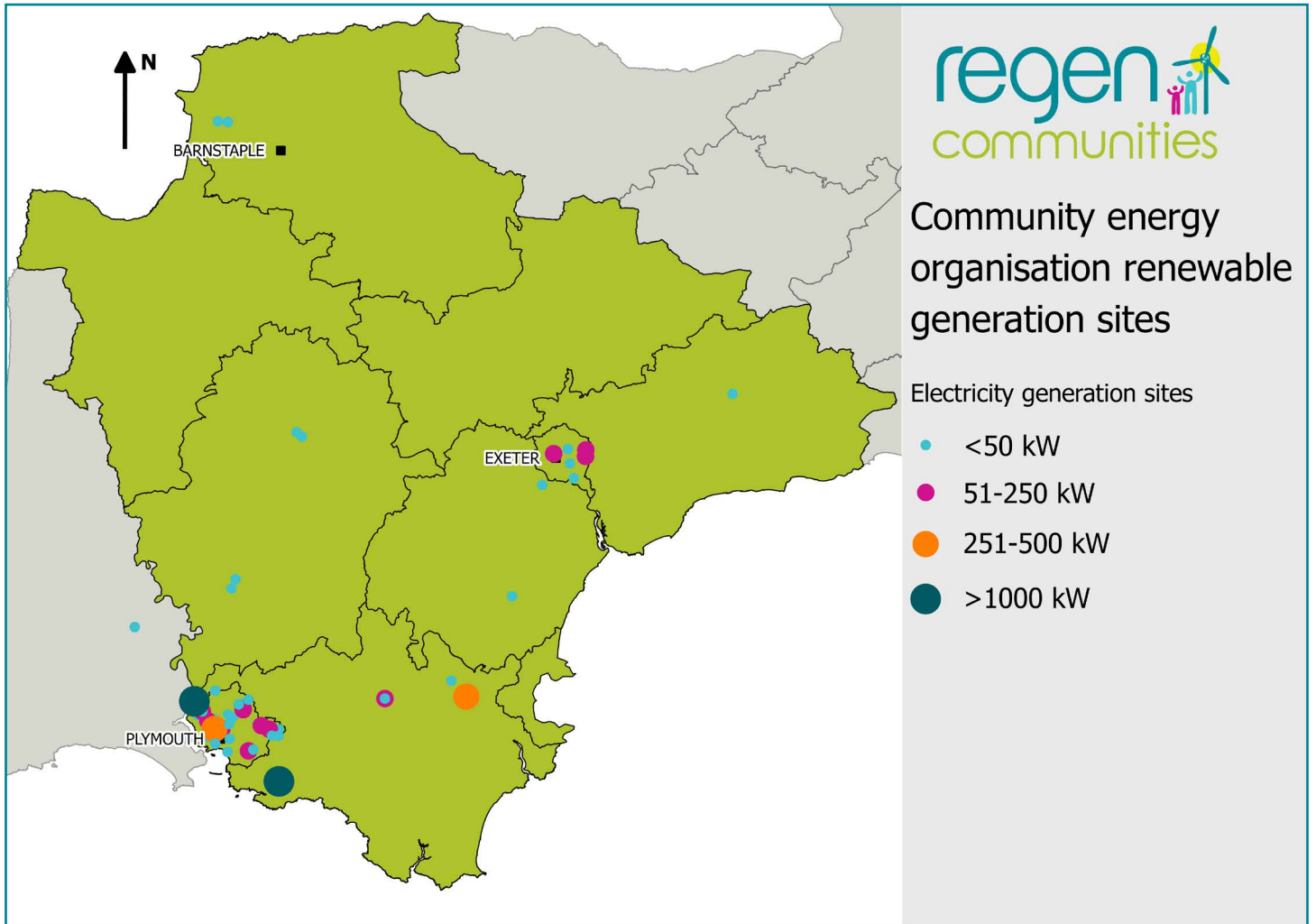


Figure 1. Map of community owned renewable electricity projects in Devon

▶▶ 3 Community energy organisations

▶ 3.0 Growth, membership and jobs

The number of community energy organisations active in Devon has almost doubled since 2011 from 12 to 23 in 2017 (Figure 2).

The 23 organisations have 3,457 members. The rules of most of the organisations mean that these members have paid a nominal fee to join. A majority of the organisations saw a small (<15 per cent) increase in the number of members in 2017. This is an average of 96 members per organisation, but Plymouth Energy Community (PEC) has the most with 1,200 members.

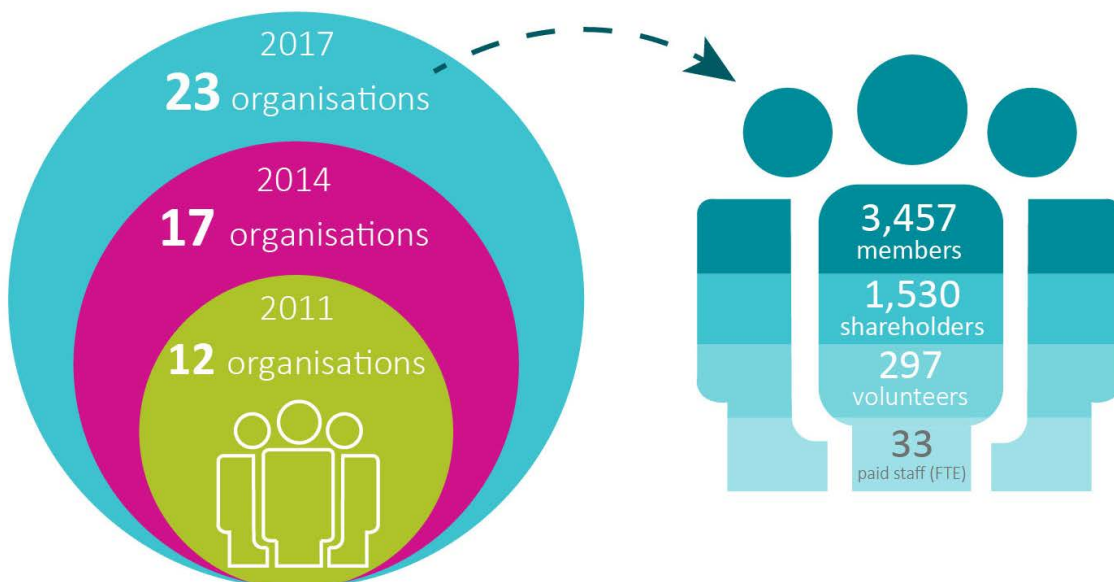
Shareholders, who have invested their own savings in community energy schemes, total 1,530.

Active volunteers are key for the successful operation of community energy organisations so that activities such as community engagement events, offering energy advice, finding host sites for renewables projects and undertaking initial project feasibility assessments can be undertaken at minimal cost. Each organisation has an average of 13.

This level of activity has enabled the sector in Devon to employ 33 full time equivalent staff, often on a part time and flexible basis.

Figure 2.

Growth of community energy organisations in Devon



It is fantastic to see so many successful community energy organisations active in Devon and gives us hope that we can achieve similar outcomes in North Devon and Torridge. Through our collective enthusiasm facilitated by Regen, we are slowly but surely attaining more sustainable and democratic energy markets in the region.

Joe Day, Atlantic Community Energy

► 3.1 Legal structure

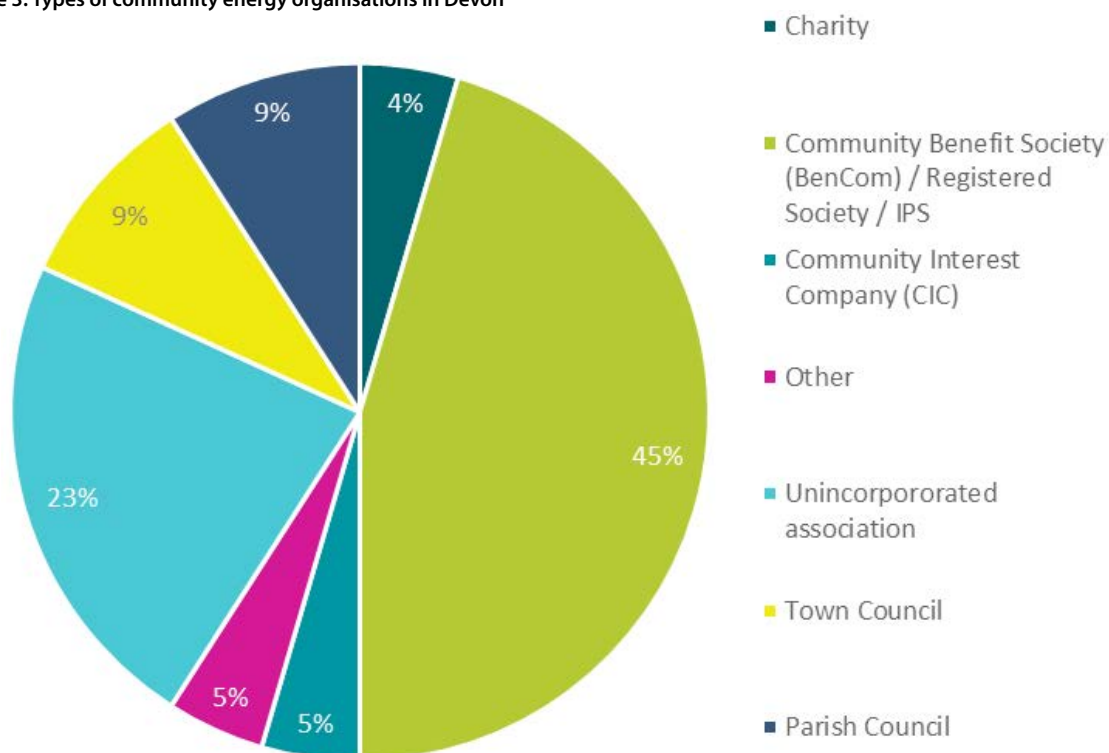
The types of legal structure selected by community energy organisations in Devon reinforce their aim of providing maximum local benefit from energy projects.

Half the community energy organisations in Devon are registered as Community Benefit Societies, Registered Societies, Industrial and Provident Societies, and Community Interest Companies (Figure 3). These types of legal structure are established to invest profits for public good or to benefit their members.

An Unincorporated Association is an organisation set up through an agreement between a group of people who come together for a reason other than to make a profit.

The 'other' category in Figure 3 refers to the energy subgroup of the Vision Group for Sidmouth that currently has no legal structure as its current activity does not necessitate formal registration.

Figure 3. Types of community energy organisations in Devon



► 3.2 Engagement with the wider community

Wider community engagement is fundamental to achieve the aims of the community energy sector to give local people greater understanding, involvement and control over where and how their energy is generated and how much it costs them. Table 1 summarises the wider community engagement activity since 2011.

In addition to formal members and shareholders, the community energy organisations maintain mailing lists which can be useful for finding specific skills that may not be held by the core team, rallying support for projects and raising the profile of the organisations' activities. People can sign-up via the organisations' websites or at community events.

Events have become a staple of community energy organisations' calendars. Events delivered by the organisations themselves will have varying purposes but will include: as a means to keep members engaged; get a steer from the community about which projects or issues to pursue; hear from guest speakers about innovations in the energy sector; inform about home retrofit, such as 'Green Open Home' events; launch a share offer; raise the profile of the organisation; or to find residents vulnerable to fuel poverty who may need assistance.

Community energy organisations will also attend events organised by other parties as exhibitors as an opportunity to engage and network with different communities to those that are likely to attend self-delivered events.

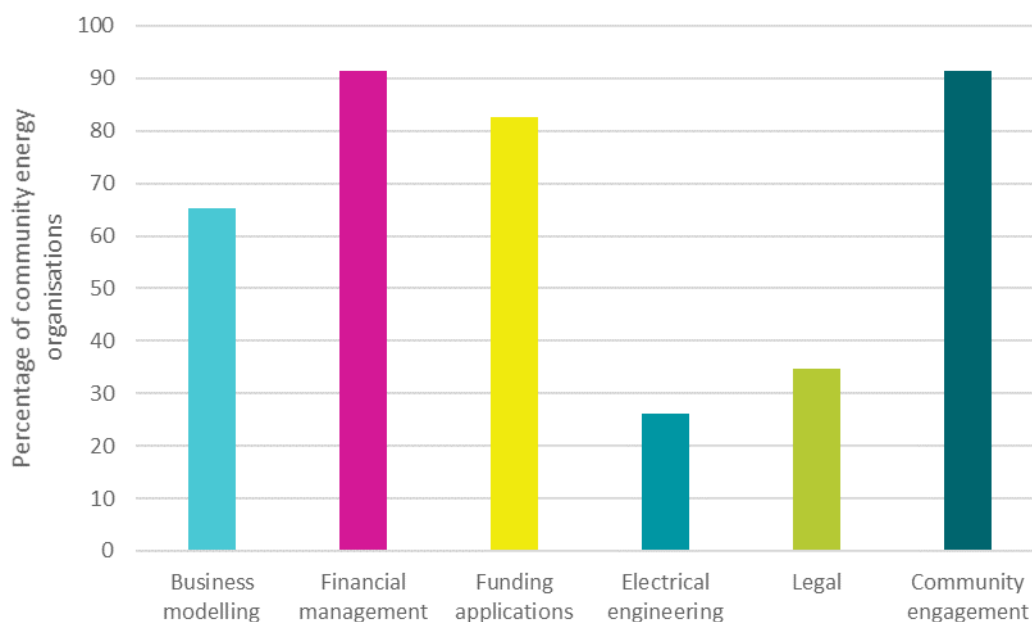
Table 1.

Wider community engagement since 2011	
Total number of people on community energy mailing lists	8,079
Events delivered by community energy organisations	257
Other events attended	>1,500

▶ 3.3 Skills

A variety of professional skills are needed for a community energy organisation to successfully develop renewable energy and energy efficiency projects. This means that the staff and volunteers working on community energy in Devon need to be highly skilled (Figure 4) because budgets for external consultancy are often not readily available. This has provided an opportunity for staff and volunteers to develop their skills through the projects they have been working on via networking, attending conferences and undertaking courses with trade and professional bodies.

Figure 4. Skills of people working in community energy organisation in Devon



Other skills, reported less frequently by respondents to the survey, include community housing and building, energy advice and education, consultancy, environmental engineering, industry management, sustainable architecture and design, engineering, hydropower installations, solar and wind development and small holding farming.

Community energy organisations will search for Directors, staff and volunteers that can bring skills to the team that need enhancing. Of course, this is not always possible: to help address this issue the organisations have worked together through the Devon Community Energy Network to share a register of skills within each organisation that can be shared with others.

In response to a shared need for a number of skills, DCC and Regen provided a set of training days, as part of the Community Energy Accelerator project, delivered by industry experts on: financial modelling and business planning; establishing a legal entity; operating share offers; community engagement techniques; marketing and effective use of social media. [Checklists](#) were produced on a number of these topics.

Alongside this, in response to demand from the community energy organisations, the project provided a [Community Energy Legal Toolkit](#) (including template documents) to help community energy groups understand good practice in developing community energy projects so that their community's interests are properly protected. This has been used by several groups in Devon and beyond.



Community Energy Spring Gathering, Devon, 2017

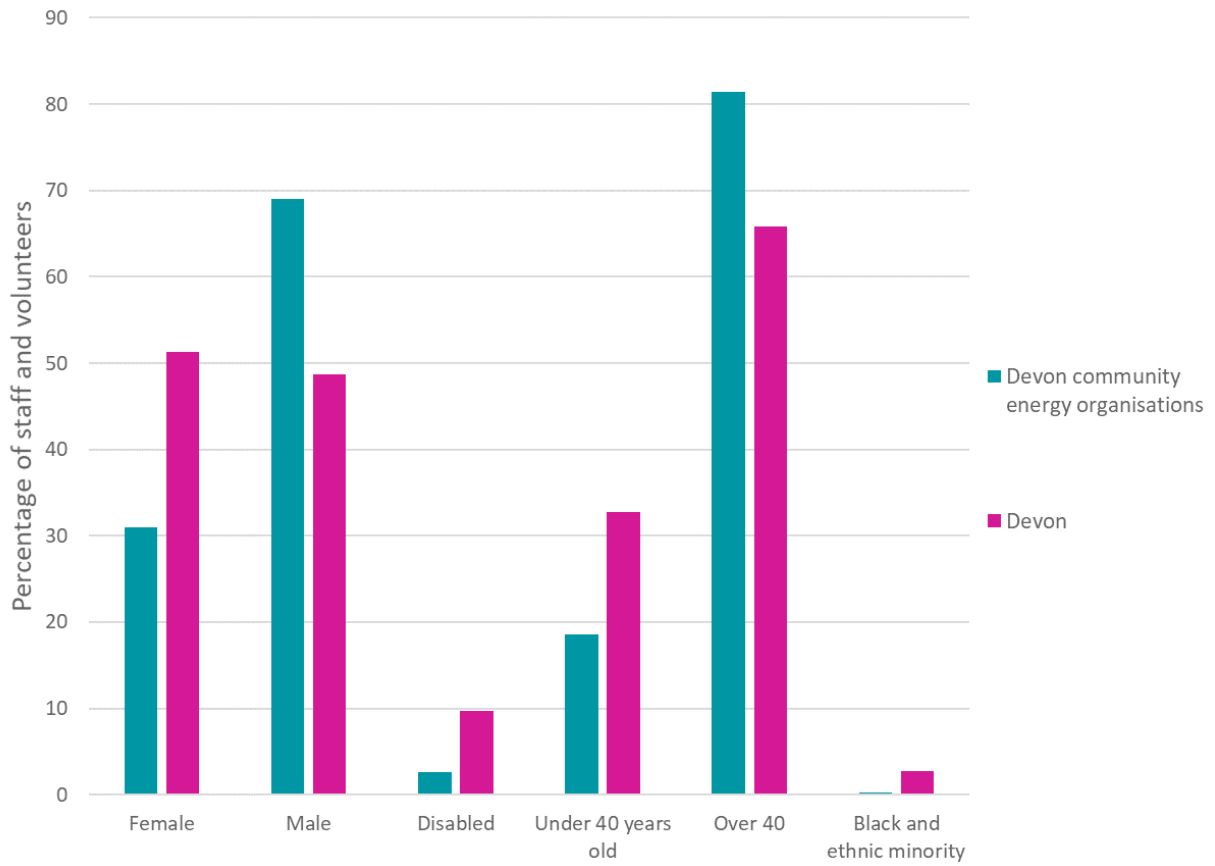
► 3.4 Diversity

People coming together with varying backgrounds to achieve a common objective are likely to be more successful and productive than a more similar group because they have a broader range of experiences and perceptions to draw upon to solve problems and generate new ideas. It's also important for organisations that aim to represent and engage a community, to reflect the make-up of the people they are working to communicate with.

Of all the staff and volunteers in the community energy organisations 30 per cent are female, 3 per cent are disabled, 19 per cent are between 15 and 40 and 1 per cent are from black and ethnic minority groups (Figure 5). Clearly greater representation of women in community energy organisations would be beneficial. In relative terms to Devon's demography, representation of younger people could be stronger as could those with a disability and from black and ethnic minority groups.

There was little to no change in the diversity of community energy organisations in 2017, however South Brent Community Energy Society saw a 17 per cent increase in the staff and volunteers under 40 after having made a conscious effort to recruit younger members.

Figure 5. Diversity of staff and volunteers working for community energy organisations in Devon.
 'Under 40' refers to between 15 and 40



Western Power Distribution community energy site visit to Castle Drogo hydro December 2017

▶▶ 4 Economic benefits of community energy

▶ 4.0 Finance and jobs

Finding funding for initial investigations into the feasibility of a renewable energy project can be one of the most difficult hurdles for community energy organisations. Many community energy organisations have benefited from the Rural Community Energy Fund, which is a government programme that provides a grant of up to £20,000 for this purpose; it has been awarded to more organisations in Devon than any other part of the country⁴ (Figure 6).

Community energy organisations in Devon have raised £14,150,734, mostly through loans (£8,003,000), which will be repaid from scheme profit or through a future share offer to refinance the project, and community shares (£5,459,141). These figures are likely to under estimate the total funding as some organisations have not given details for how they are funded (see Figure 7).

Most of the electricity generation projects are 100 per cent community owned. However, there is some shared ownership in partnership with commercial or social finance organisations. For example:

TRESOC have a 21 per cent stake in the Totnes Weir hydro installation and receive a dividend income as a result; and the Newton Downs Solar Farm has been bought by Community Owned Renewable Energy (CORE), which is funded by community and social impact focussed investors Big Society Capital and PTC Renewable Energy, and will be transitioned into full community ownership by Yealm Community Energy over the next two years.

Energy efficiency projects are funded mostly through grants from organisations including: Comic Relief, PEC, Bath and West Community Energy, Big Energy Saving Network, National Lottery Awards for All, Devon County Council Locality Budgets, Smart Energy GB and Devon and Cornwall Housing. In some cases, projects are privately funded or grants are supplemented by the income from community-owned electricity generation projects. The scale of grants brought into the sector demonstrates the high level of skill present in the community energy organisations at bid writing.

Four Community Energy Organisations are receiving payment to help deliver the Local Energy Advice Programme, which is the domestic energy efficiency scheme operating in Devon (excluding Plymouth) in partnership with Cosy Devon, the local-authority backed fuel poverty partnership.



Figure 6. Map of RCEF funded community energy projects in England

⁴ Rural Community Energy Fund Live Projects Map - <http://www.wrap.org.uk/content/rcef-live-projects-map>

Figure 7. Finance of community energy organisation in Devon



Finance

Total investment £14.1 million

Community shares £5.5 million

Loans £8 million

Grants £509,600

The organisations employ 33.5 full time equivalent (FTE) staff, 10.5 FTE work for PEC and the other organisations usually employ people on a part time and flexible basis. For a description of the skills that are developed by staff and volunteers of community energy organisations, see Section 3.3.

► 4.1 Profit distribution

The community energy organisations in Devon with renewable energy assets installed have varied financial models and approaches to profit distribution. Typically, they use the income from the sale of electricity and the Feed in Tariff (FIT) to pay running costs, repay loans and pay community shareholders a dividend. Shareholders are largely local people who invest in community energy (shares start from as little as £20) and receive a return (between around 4-8%); this helps retain the economic benefit in the community.

After the running costs, loans and shareholders have been accounted for, some organisations generate a small surplus which they use, or intend to use, for good works in the community. For example, some set up 'community benefit funds' which are grant funding pots awarded to local community projects, whilst others pay directly for renewable energy, energy efficiency, education and fuel poverty work or other community energy related activities.

Four of the 12 community energy organisations with income generating renewable energy projects have a community benefit fund. These funds are expected to channel approximately £1,125,000 into the local communities until 2030 (Table 2).

Table 2.

Community Benefit Funds
Yealm Community Energy
Minimum of £400,000 over 25-30 years
South Brent Community Energy
Maximum of £400,000 over 20 years
Exeter Community Energy
£175,000 over 20 years
Tamar Community Energy
£125-150,000 20 years

The community benefit funds are used to:

- Support education and engagement around energy use
- Administer grants to other local community projects that contribute to a more sustainable community
- Grants to install energy generation and saving measures such as LED lighting, Solar PV and more efficient boilers such as those administered by South Brent Community Energy (see case study at Section 11.1)

▶ 4.2 Economic resilience

The economic benefit from community energy projects is about more than generating community benefit funds, creating jobs and developing skills.

The South West Devon Community Energy Partnership (SWDCEP) commissioned a strategic energy study in May 2013 from the Centre for Energy and Environment at Exeter University, which highlighted that “£0.4 billion is spent on energy in south west Devon [Teignbridge, South Hams, West Devon and Dartmoor National Park areas], equivalent to about a fifth of the economic output of the area or about 15,000 full time jobs, and £2,600 per person per year is spent on energy in Devon.”⁵ Under the current energy system this expenditure leaves Devon and indeed the UK (depending upon the energy company). In contrast, the ownership, operation and maintenance of local energy projects by community energy organisations keeps revenue circulating in the local economy.

Additionally, these projects help reduce energy costs (through either offering host sites of renewable energy projects a cheaper unit price than they are getting from the market or by delivering energy efficiency measures) and hedge against future energy price rises; this can be critical for the future running costs of key community assets e.g. schools and community centres.

5 South West Devon Community Energy Partnership - <http://www.swdcep.org.uk/strategic-energy-study-of-the-sw-devon-community-energy-partnership/>

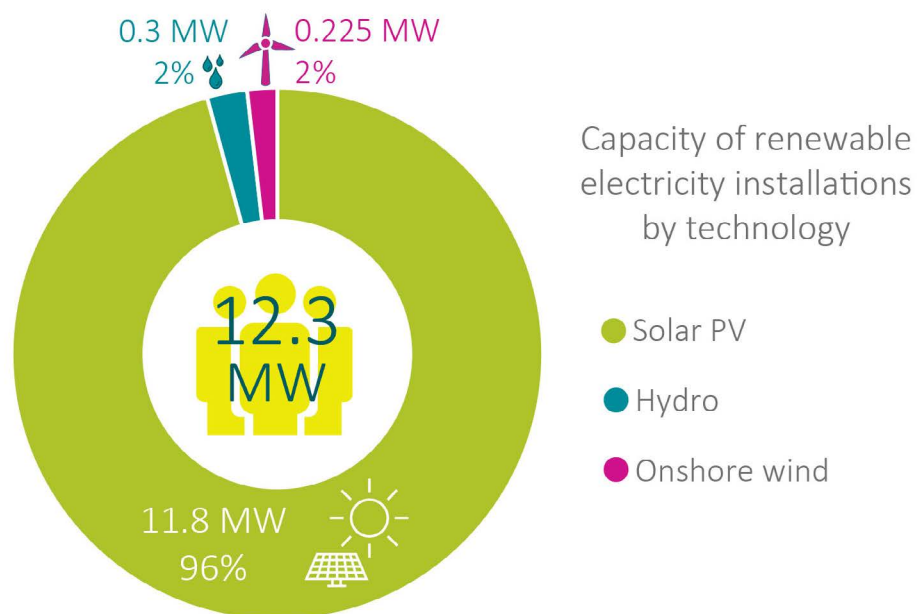
▶▶ 5 Environmental benefits of community energy

▶ 5.0 Capacity of community renewable electricity installations by technology

Twelve of the 23 community energy organisations in Devon have renewable energy projects installed.⁶ These 12 currently have 62 renewable electricity installations and a total installed capacity of 12.3 MW. The 62 projects are mainly rooftop PV on community buildings such as schools and community centres, but there is also ground mounted solar, like the 5 MW Newton Downs Solar Farm, a 225 kW wind turbine in South Brent and a 300 kW hydro scheme at Totnes Weir (Figure 8).

As of March 2017, Devon has approximately 910 MW of renewable electricity installed. Therefore, 1.3 per cent of renewable electricity in Devon is community owned. Of the 11 community organisations that currently don't have any electricity generation projects, six have expressed an ambition to install some.

Figure 8. Capacity of community renewable electricity installations in Devon by technology



Devon community energy organisations visit solar farms with Regen and DCC 2015 – 2017



⁶ Based on March 2017 data for DCC Area from '2017 Regen – Renewable energy progress report Devon 2016 -2017 (Draft)' and March 2016 data for Plymouth and Torbay from '2016 Regen and Green Alliance – A renewable energy progress report for England'

► 5.1 Number of community renewable electricity installations by technology

Community energy organisations in Devon have installed 62 projects. Sixty of these are solar PV, of which the majority are roof mounted installations less than 50 kW (Figure 9). At the other end of the scale there are two community owned ground mounted solar farms – 5 MW at Newton Downs (Yealm Community Energy) and 4.1 MW at Ernesettle (PEC). The remaining projects are TRESOC’s share in a 300 kW hydro project and South Brent Community Energy Society’s 225 kW wind turbine which is 100% community owned.

Figure 9. Number of community renewable electricity installations in Devon by technology

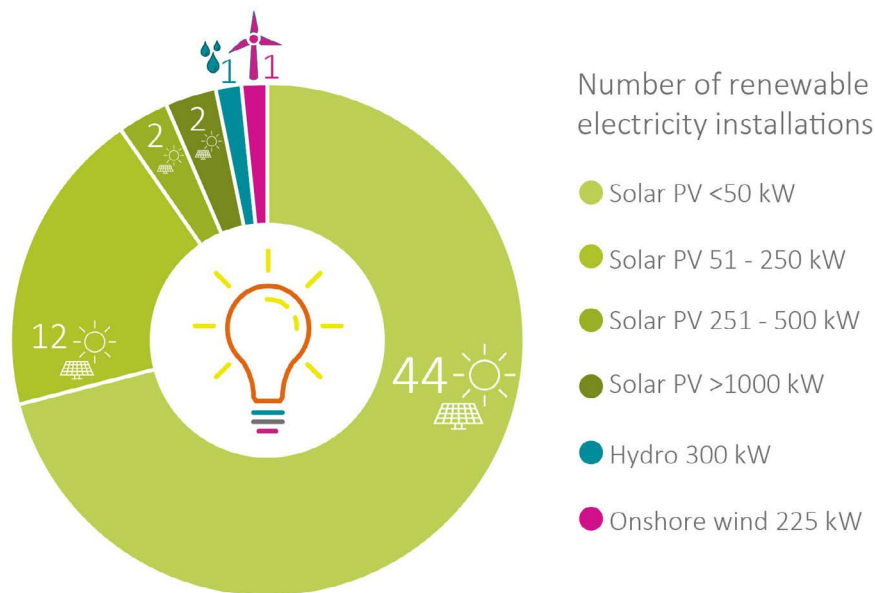
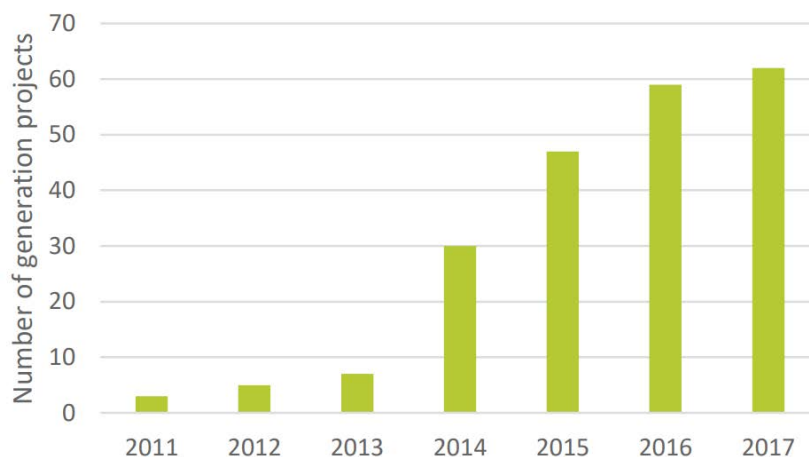


Figure 10. Growth of community energy renewable electricity generation installations in Devon



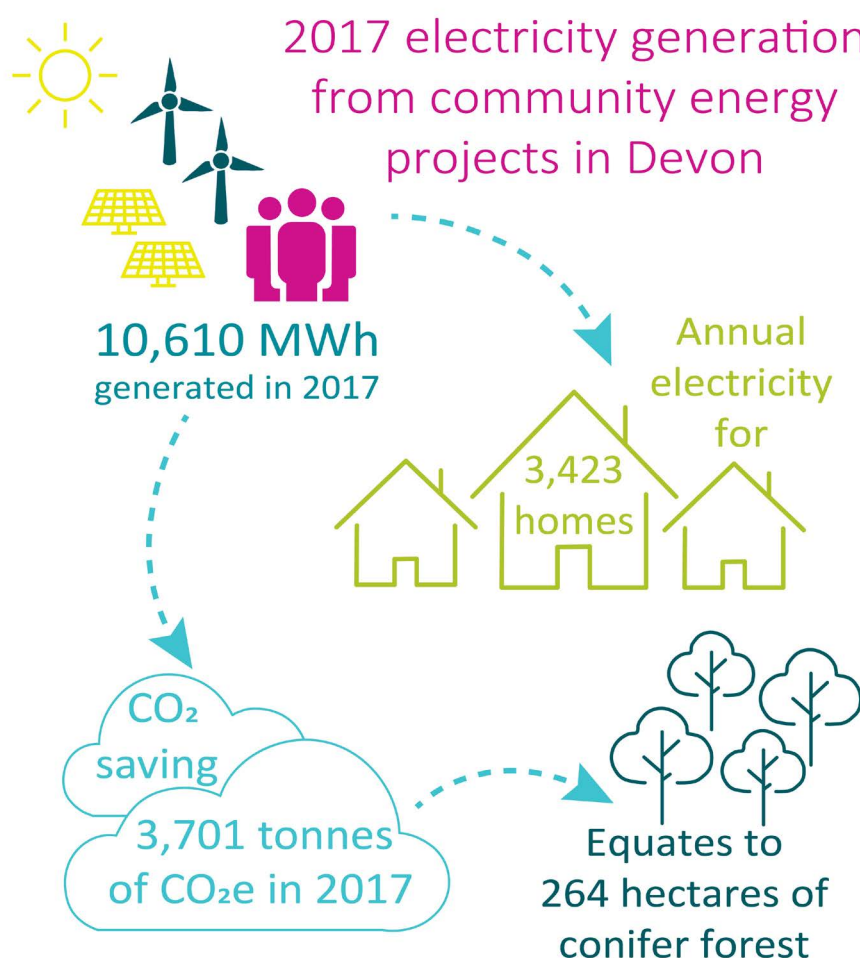
Installations start appearing in 2011 due to the introduction of the Feed in Tariff (FIT) subsidy from government. There is then a steep increase in the number of projects completed between 2014 and 2016 as confidence and experience in the sector increased along with the availability of the Rural and Urban Community Energy Funds that have assisted with feasibility studies in Devon. This growth tails off in 2017 which follows a national trend of decreasing numbers of renewable installations due to FIT cuts in 2016. This is not including Upcott House as they have not provided a year of installation.

► 5.2 Electricity generation and carbon savings from community energy

Community energy organisations in Devon have generated 17,431MWh of electricity from renewables up to December 2017. In 2017 they generated 10,610 MWh of renewable electricity which is about 0.01 per cent of renewable electricity generation in Devon. Future years will generate closer to 12,000 MWh as some projects were commissioned part-way through 2017.

In total, 6,080 tonnes of CO₂ equivalent emissions⁷ have been saved up to December 2017. In 2017, 3,701 tonnes of CO₂ equivalent emissions have been saved (Figure 11).

Figure 11. 2017 Environmental benefits from community energy projects in Devon



⁷ Calculated using 2017 BEIS kg CO₂e per kWh from - Greenhouse gas reporting: conversion factors 2017 - <https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2017>

► 5.3 Heat generation projects

No community organisation has installed a heat generation project in Devon yet. Six of 23 community energy organisations have expressed an ambition to install heat projects.

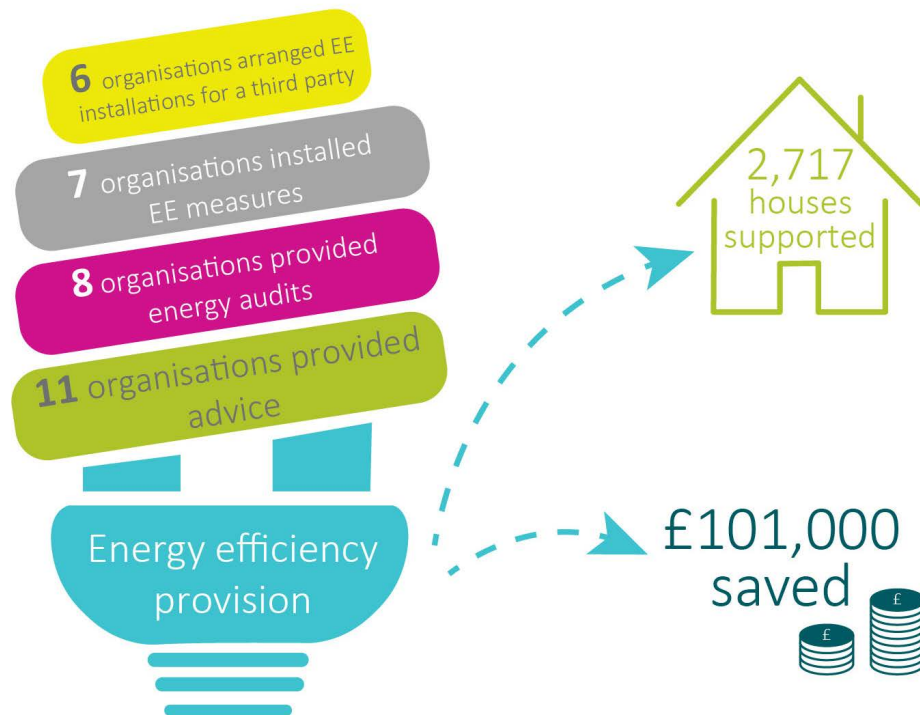


Community energy organisations visit wood fuel projects in Devon 2016

▶▶ 6 Social impacts

▶ 6.0 Energy efficiency

Figure 12. Energy efficiency (EE) projects and impacts of community energy organisations in Devon



Energy efficiency projects, ranging from energy advice, installation of energy efficiency measures and energy audits, are delivered by 11 of the community energy organisations in Devon. Of the 12 organisations that don't have energy efficiency projects, two organisations want to start one. All the organisations involved in energy efficiency are supporting 'able to pay' and vulnerable customers except for 361 Energy in northern Devon who specifically target people in fuel poverty. Out of the organisations working in energy efficiency, seven install physical energy efficiency measures delivered by volunteers and staff doing home visits (Figure 12). This work included draught exclusion, LED lighting, radiator panels, chimney balloons, standby plugs, shower aerators, pipe lagging and energy monitors. All of the organisations that are engaged in energy efficiency run events or attend other organisations' events to provide information and advice to people about energy saving (see Section 3.2 for further information on wider community engagement).

In 2017 these organisations have supported 2,717 households in Devon, which, cumulatively, will save more than £101,000 per year through energy savings.

The methods of measuring impact of energy efficiency work include financial savings, CO₂ emissions savings, EPC rating improvement, welfare, electricity and water consumption monitoring and wellbeing improvements. However only four of the organisations measure the value of the energy efficiency works they provide. Anecdotally, the organisations working on energy efficiency report benefits including better physical health of beneficiaries linked to better housing conditions, improved mental health and reduced stress on frontline services like the NHS.

The energy efficiency work is funded by grants, income from renewable electricity generation, contracts with fuel

poverty organisations, internal funding and private funding. For example, four community energy organisations receive payment for each home visit they deliver for the Local Energy Advice Programme (LEAP), which is operated in partnership with the local-authority fuel poverty partnership, Cosy Devon. Cosy Devon has a representative from a Devon community energy group on its board to provide a closer link to the on the ground activities. The community energy organisations' intelligence of vulnerable households in their areas has been valuable in increasing the number of vulnerable people being referred into the scheme; the organisations have made links with frontline health workers and housing associations to provide 52% of the 470 referrals in the 6 months to January 2018.

Some organisations also receive funding from Western Power Distribution (WPD) for signing people up to the Priority Service Register (PSR). The PSR service, provided by Distribution Network Operators (DNOs), ensures vulnerable people are reconnected fast in the event of a power cut and offers them help with meter readings and accessing billing information.



As an organisation we have been engaged in community education about climate change and energy reduction, and now with the opportunity of the community owning the production of more clean energy than we actually use, we feel that the many hours of work put in by volunteers has suddenly become well worthwhile. And we have not forgotten the natural environment either.

Peter Brown, Yealm Community Energy

Cold realities exhibition on fuel poverty commissioned by PEC 2017



Our energy advice for vulnerable people helps people switch and save money. Last week we helped a lady in fuel debt who was really upset and stressed about it and this has had a profound effect. Even helping someone switch really empowers them to own their energy and feel more self-confident. This is the first step to them improving the energy efficiency of their homes.

Kate Royston, Tamar Energy Community

Community energy improves health and makes people happier!

There are 15,000 people in fuel poverty in Plymouth. Of the Plymouth residents helped by PEC's Energy Team in the first year, 60 per cent had a long-term illness or disability. PEC wanted to reduce the impact of fuel poverty and cold, damp homes on residents who have existing health condition, so they ran a healthy homes project in 2016 that helped 123 vulnerable low-income people with their energy. Curiously, even just having a conversation and some advice, made participants feel happier. Nearly half (46 per cent) suffered from depression or anxiety, so this was a big win from one conversation, 50 per cent reported visits to GP were less frequent, and 38 per cent reported their general health had improved. Public Health England thought the methods used 'demonstrate the cumulative benefits of taking a holistic approach to fuel poverty', but it's not easy working with an overstretched healthcare service.

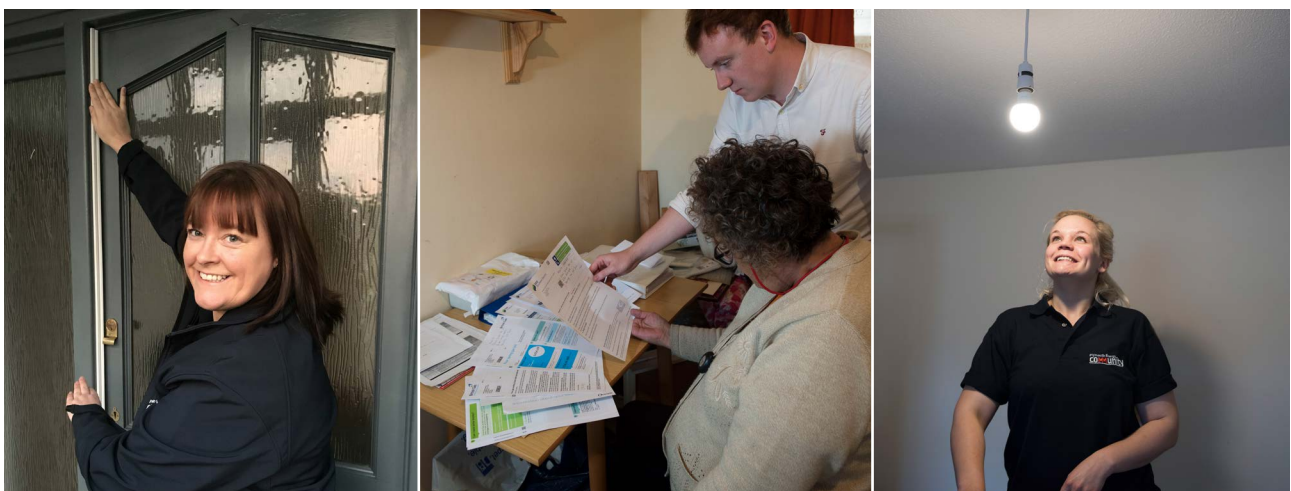
South Dartmoor Community Energy and 361 Energy giving energy advice in community centres 2017



We have raised awareness, engaged and involved our members so that they are more aware and able to talk to others about energy, which has created a network. Our primary objective was engaging young people, but that is still a work in progress.

Fuad Altawil, Teign Energy Communities

PEC home energy visits supporting people with cold and damp homes and fuel debt



► 6.1 Community energy connections to other organisations

Figure 13. Connections diagram of organisations and services that community energy organisations are working with in Devon



The community energy organisations in Devon increase their reach and impact by attending other community events and networks, for example supper clubs, flu clinics, social groups etc. They have also formed partnerships with health, wellbeing, and money advice organisations to support people in fuel poverty and with energy efficiency advice.

▶▶ 7 Success factors

▶ 7.0 Key Factors

Figure 14 demonstrates that a dedicated core team is the most critical success factor, followed by support from the local community, expertise in the range of skills required to get a project off the ground and access to grant funding for renewable energy feasibility studies and energy efficiency programmes. It should be noted that most of the success factors described in Figure 14 are needed for a successful community energy project – a dedicated, expert team will not achieve a great deal without a host site, trained volunteers, and the opportunity to access friendly external advice.

There is a list of key achievements of community energy organisations in Devon in appendix 11.1.

Figure 14. Key success factors for community energy organisations in Devon. The size of the shapes are relative to the popularity of the answer in the survey



Exeter Community Energy's success is due to the support from our local community and our close connections with other community energy organisations in Devon, we never could have done it alone particularly with the change in government policy. Collaborating and being part of a Devon-wide network has been invaluable.

Gill Wyatt, Exeter Community Energy

► 7.1 Networks



Castle Drogo hydro and biomass tour and community energy feast with WPD and Regen 2017

Community energy activity in Devon has been supported by DCC initially through the SEACS project (2011-2014) which helped establish the South West Devon Community Energy Partnership (SWDCEP). This network, formed in 2012, initially brought together community energy organisations and local authorities from across West Devon, South Hams, Teignbridge and Dartmoor National Park to work together on local energy issues. SWDCEP commissioned a strategic energy study in May 2013, which identified environmental, social and economic energy issues for the area. Subsequently, the partnership brought in the help of Communities for Renewables to advise on viable business models to generate income for the community energy organisations so that they could start acting to address some of the issues identified in the study. This solidified the concept of communities owning renewable energy assets as a means to generate income, which some communities in south west Devon were already pursuing. Its membership has subsequently been expanded to include Plymouth and regularly invites organisations from other parts of Devon to contribute. The network has been a vital component in the success of community energy in Devon and continues to meet quarterly to share experience and ideas.

Alongside this, Regen have been supporting community energy networks in Devon since 2012. Regen have leveraged funding from the Esmée Fairbairn Foundation for the Community Energy Accelerator, and Power to Change for the Peer Power Project which, with contributions from DCC, have both provided intensive networking, training and business support for community energy organisations across Devon. This developed a more extensive network than the SWDCEP, the Devon Community Energy Network, which is open to community energy organisations in Devon and the south west as well as anyone interested in community energy including individuals, sustainability groups, local authorities and local businesses. Members are able to share resources, expertise and learning from each other by sharing ideas, solutions, best practice, inspiration, support and encouragement.

▶ 7.2 Awards

Tamar Energy Community (TEC) won Best South West Community Energy Initiative at the Green Energy Awards 2017 for its work in installing 325 kW of community owned solar PV on six rooftops across the Tamar Valley and raising £350,000 investment.



We are absolutely delighted that as a small organisation we have done something that has been recognised. We believe supporting work to enable people to benefit from the local energy economy and do something about climate change is extremely important, and community energy organisations have a vital role to play in achieving these things.

Kate Royston, Tamar Energy Community

Alistair Macpherson from PEC won 'South West sustainable energy champion' at the Green Energy Awards 2017

Here in Plymouth, we continue to prove that local authorities and community energy organisations can partner as an unstoppable force for good in the battle for a fairer and cleaner energy system.

Alistair Macpherson, CEO PEC

361 Energy CIC won the National Energy Action's Warm Homes Campaign award for innovation for its Empower project. This has been tackling the problem of cold homes and high energy bills across northern Devon. Since September 2016, 361 Energy has helped residents save close to £100,000 and to stay warmer at home this winter. The Empower project aims to give local people help and advice to tackle the problem of cold homes and high energy bills.

Devon County Council won a Devon Environmental Business Initiative Award in 2016 for helping communities start up their own renewable energy projects through the SEACS project and the Devon Community Energy Accelerator Fund.

Community ownership of energy schemes helps raise awareness and understanding of energy issues, retains money in local economies, enhances skills, improves resilience and lowers carbon emissions.

Councillor Roger Croad, Devon County Council

▶▶ 8 Stalled projects

Figure 15. Key reasons for stalled projects in community energy organisations in Devon. The size of the shapes are relative to the popularity of the answer in the survey.



Over half (14) of organisations have a stalled project ranging from: installations of electricity generation, such as solar PV on community buildings and hydro projects; district heating systems; and biomass boiler installations. The principal reasons for stalled projects are:

- Many of the electricity generation sites have been stalled due to cuts in government subsidies therefore making them not financially viable or high risk for stakeholders
- Lack of cooperation or interest from the host sites
- Lack of suitable host site
- Awaiting legal proceedings
- Unwillingness of host site signing long term contracts in the current economic climate and facing Brexit.

For example, Bude Community Energy started a feasibility study on a 200 kW ground mounted solar installation at a Tamar Lakes, a South West Water site in Devon. However, due to cuts in government subsidy the project has been stalled as the business model is no longer viable.

Yealm Community Energy has an option to buy the 7.3 MW solar farm at Creacombe on the Yealmpton/Holbeton border, which is the subject of a current planning application but has temporarily been put on hold while they await legal proceedings.

▶ 8.0 Barriers and risks

The main barriers and risks highlighted by community energy organisations in Devon include:

- Lack of viable business model due to cuts in FIT and government support for renewables
- Economic uncertainty due to current economic climate and Brexit
- Access to suitable sites that are willing to take on a long-term lease at current payback rate
- Attracting and keeping volunteers to maintain a sufficient skill base.

▶▶ 9 Future opportunities

With the drastic reduction in the level of the FIT and the ending of the scheme in 2019 we have already seen the installation of renewable energy projects by community organisations tail off significantly. However, organisations have not responded by closing down but by seeking out new opportunities.

Asset ownership and management

A key focus of organisations now is to consolidate the projects they have built and to ensure they are efficiently and effectively managed. This will be important for the confidence in the sector. Those organisations that own larger MW scale solar farms have a significant asset that will require oversight, which is an opportunity to develop capacity and expertise. Large schemes will require professional asset management, however there are opportunities for community energy organisations to upskill and carry out some of these operations themselves. There are also opportunities to collaborate to share 'back-office' services.

Purchasing constructed schemes

Yealm Community Energy has recently purchased the Newton Downs solar farm from Good Energy in partnership with CORE, which is a new grant funded initiative set up with the aim of bringing schemes into community ownership.

The market for solar farms is very competitive with large commercial operators with access to low cost capital active in the market. It would be valuable, however, to review whether any of the commercial schemes in Devon would be open to considering selling to the local community.

Energy efficiency

Some organisations are focussing more on energy efficiency and fuel poverty work. Around half the community energy organisations in Devon have energy efficiency and fuel poverty projects and there is a huge opportunity for collaboration on delivery of this work. There is still a possibility of using the RetrofitWorks co-operative model to deliver energy efficiency activity measures; a more joined-up approach would be beneficial as it would enable them to approach and bid to larger commissioning organisations with greater credibility and strength in numbers.

Rooftop solar

The economics of solar projects on community buildings, potentially with battery storage, can still stack up without subsidy if there is a high degree of on-site usage of the power generated. Community energy organisations in Devon have already carried out extensive searches for suitable rooftop solar opportunities, however with less pressure from FIT deadlines there is the potential to revisit some of those opportunities.

Ground mounted solar

One subsidy-free solar farm has already been constructed in the UK by the developer Anesco at Clay Hill and a pipeline of further schemes is coming forward. Regen ran an event on "Utility Scale Solar: getting the pipeline flowing" in March that was well attended by developers.

The economics of these schemes is, however, extremely challenging. At present, viable schemes for community energy organisations would need either a private wire (such as the Wadebridge Renewable Energy Network project connected to South West Water's Nanstallon treatment site in Cornwall) or a long-term Power Purchase Agreement with a corporate off-taker. Access to the constrained local distribution network could also be an issue. Support for organisations to review if there is the potential for such schemes would be valuable.

Heat and hydro

Community heat and hydro projects are notoriously more challenging than solar, however, there is a pipeline of projects including the Peter Tavy hydro and TRESOC's plans for 100 kW of hydro at Staverton with installation in 2019. There is also a pipeline of heat projects including plans by TRESOC and Thurlestone Parish Council. TRESOC is doing an RCEF funded feasibility study on anaerobic digestion at Dartington Dairy, which will use mixed feed stock from farm material, the bakery, whey from the dairy and waste from five food outlets on the Dartington estate. This will generate 100 kW electricity and 150 kW heat; the heat would be used next door at Foxhole by Schumacher College. TRESOC are joining an Interreg bid for the next phase of this project. Thurlestone and Holsworthy Parish Councils have done feasibility study for district heating projects but the economics of these mean they are unlikely to progress.

Energy strategy

With 23 organisations and a significant asset base there is the potential for the Devon community energy sector to play a significant role in local energy policies and strategies. Some of the organisations have been feeding into the development of the Heart of the South West Local Enterprise Partnership Energy Strategy. Once this strategy is in place there can be expected to be projects and actions taken forward to which organisations may be able to contribute.

Working with local authorities

There is already a strong collaboration between Devon County Council and the community energy organisations. As local authorities look at further energy investment opportunities there could be opportunities for collaboration with community energy organisations.

Innovation and flexibility

The energy system is changing rapidly to respond to the spread of decentralised generation and new technologies including storage and electric vehicles. This shift is creating new opportunities for revenue streams but is also a challenging and rapidly developing area.

The focus of the commercial sector now is on the emerging opportunities to provide flexibility to the energy system through storage and demand side response. More advanced community energy organisations are beginning to consider these opportunities. Regen recently carried out work with PEC to look at the business case for installing batteries – a 'ready reckoner' developed from this work has been published on the Community Energy England website.

These innovative business models are more complex and potentially more risky than generation projects. Given the uncertainty on many of the available revenue opportunities, it would currently be sensible for community energy organisations to look for opportunities to participate in trials in order to develop learning and expertise.

▶▶ 10 Acknowledgments

Thanks to all the community energy organisations in Devon who took part in this study and helped co-design the survey. Thanks to DARE for supporting the data collection process. Special thanks to DCC for its continued support of community energy in Devon.




Devon community energy organisations enjoy a Regen feast following a day of heat workshops

▶ 11.0 Organisations surveyed


1. Totnes Renewable Energy Society (TRESOC) – existing 300kW hydro, rooftop solar and looking at AD and district heating. Education and awareness raising
2. Transition Town Totnes – Energy efficiency, education, and housing
3. Teign Energy Communities (TECs) – 50 kW solar on school and community buildings
4. Community of Okehampton Renewable Energy Society (CORES) – Solar installation and RCEF funded feasibility
5. 361 Energy – addressing fuel poverty as well as providing energy efficiency education
6. Bovey Climate Action – was dormant but being revived as Bovey Futures, looking for projects
7. SidEnergy – failed to find suitable projects due to FIT cuts, raising awareness and fundraising for fuel poverty
8. South Devon Coastal Renewable Energy Network – woodfuel from hedges
9. Peter Tavy Community Hydro – developing hydro
10. South Dartmoor Community Energy – energy efficiency, advice, education, housing, no generation projects yet
11. Atlantic Community Energy (ACE) – RCEF feasibility underway
12. Yealm Community Energy – buying existing solar farm and educational work
13. Exeter Community Energy (ECO) – 404 kW of rooftop solar mostly installed on community buildings and energy efficiency projects. Also investigating hydro at Trews Weir, Exeter, with expected installation in 2019/2020
14. Greener Teign (part of TECs) – raising awareness and education
15. South Brent Community Energy Society – 225 kW wind turbine plus 10 kW rooftop solar and energy advice
16. Plymouth Energy Community (PEC) – 2 MW of rooftop solar, 4.1 MW solar farm, education, fuel poverty work
17. Tamar Energy Community – 325 kW of rooftop solar, energy advice
18. Bude Community Energy (mainly Cornwall but they looked at a project in Devon) – projects on hold due to FIT cuts including wind in Devon
19. Thurlestone Parish Council – heat project in pipeline
20. Braunton Parish council – 14 kW of solar PV installations
21. Upcott House, Okehampton – 36 kW of solar PV installed
22. Buckfastleigh Town Council – Plans for hydro and rooftop solar on community buildings
23. Holsworthy Town Council – RCEF funded feasibility for district heating

▶ 11.1 Case studies

Community organisation name	Description of project	
South Brent Community Energy	South Brent Community Energy Society are a community owned organisation with 180 members and 6 volunteers. The aim of the society is to save energy and generate renewable energy for the benefit of South Brent.	
Project name	With the money raised from community shares, a 225 kW wind turbine was installed in 2013 and a 10 kW solar array was commissioned in 2014. These installations generate a profit of up to £20,000 a year depending on wind turbine output. These profits are distributed to local causes through grant funds.	
South Brent Community Energy Fund		
Funding - £430,000	Impacts of project	
Community Shares	<ul style="list-style-type: none"> • To date 1,640 MWh of electricity from the wind and solar installation – saving 889 tonnes of CO₂ emissions. 	
Dates of projects	<ul style="list-style-type: none"> • Based on 2017 electricity generation, the renewable energy assets generated enough electricity to power 94 homes per annum. 	
2011-Present	<ul style="list-style-type: none"> • £3,500 grant has been given towards the installation of LED lamps in the old school centre. This is due to reduce electricity consumption by 50 per cent. • £725 grant to the church rooms – a community space, to install LED lights and do some rewiring. • £9,250 grant to the South Brent St Petrocs church PCC towards the cost of re-wiring and installing energy saving LED lighting and to replace the gas heating boiler with more efficient boilers saving 6 tonnes of CO₂ a year. • £16,800 grant funded the installation of 10 kW Solar PV installation on the South Brent Village Hall in 2016. • £6,500 grant to install 3.4 kW PV on the Old School Centre. • £15,955 grant has been given to install Solar PV and LED lighting in the South Brent Health Centre in February 2018. 	
More information		
http://www.sbc.es.org.uk/Community%20Energy%20Fund.html		
		
	Future plans	Top tips
	To review and revise the society's objects and make further grants towards community building improvements	Community engagement and support is essential, and pace yourself - it takes a long time.

Community organisation name	Description of project
361 Energy	<p>361 Energy is a social enterprise based in Northern Devon delivering projects and services which save the local community energy, money and carbon. Their aim is to promote and raise awareness of climate change and fuel poverty at a local level.</p> <p>Currently 361 Energy have the equivalent of 2 full time equivalent staff, 8 volunteers. With this core team, 361 energy focus on providing energy efficiency services such as energy audits and advice, tariff switching, installation of energy efficient measures such as LED lighting and draught exclusion.</p>
Funding - £360,000	Impacts of project
<p>Ebico Trust, Smart Energy GB, The Big Energy Saving Network, Comic Relief Community Cash, Tesco Bags of Help, Centre for Sustainable Energy and North Devon Councillor grants. A contract was also secured to deliver home energy visits through the Local Energy Advice Project (LEAP)</p> <p>Grant contract - £80 000</p>	<ul style="list-style-type: none"> Organised 50 events including energy advice clinics, educational events for schools and colleges in 2017 - attended by more than 500 people. 200 households have been helped to date. Total savings from Warm Home Discount Applications £10,780. 111 people were registered for Priority Service. Total savings from debt write off and income enhancement from energy and water bills: £15,251. Trained 5 advisors and volunteers who are City and Guilds qualified home energy advisors.
Dates of projects	<ul style="list-style-type: none"> In 2017 361 carried out: 520 one to one energy advice sessions, 205 home visits and provided 600 people with advice on smart meters.
2012-Present	<ul style="list-style-type: none"> Total ECO funding towards new boilers and building insulation: £41,943. Heating control improvement with annual saving of £180. Savings of £94,000 have been made by people in fuel poverty through energy saving measures and switching help - an average saving per person of £180. Carried out feasibility studies for 6 sites but due to FiT subsidy cuts they were not financially viable. Provided education activities to schools and colleges.
More information	Future plans
<p>http://www.361energy.org/projects/empower/</p>	<ul style="list-style-type: none"> Ambition to install solar PV on community buildings and local businesses. Continue with fuel poverty projects, education-based activities.



Community organisation name	Description of project
<p>Tamar Energy Community</p>	<p>Tamar Energy Community (TEC) is a Community Benefit Society serving the communities of Tavistock (Devon) and Callington (Cornwall) and their parishes across the Tamar Valley.</p> <p>Their aim is to encourage local engagement with, and benefit from, energy and support transformative change towards 2050 climate targets. They do this through renewable energy generation, energy usage reduction and tackling fuel poverty.</p> <p>TEC has 6 roof top solar installations on schools and other buildings in the area, with a total installed capacity of 325 kW.</p> <p>The 6 host sites include: Mount Kelly Senior and Prep schools and Abbey Garden Machinery in Tavistock, Plymstock School in Plymouth, Carbeile Junior School in Torpoint and Tesco Stores in Callington.</p>
<p>Funding - £360,000</p>	<p>Impacts of project</p>
<p>Devon County Council and Regen Accelerator Programme - £25,000</p> <p>Community Funding</p> <p>Rural Community Energy Fund Grant of £20,000</p> <p>Cornwall Council's Low Carbon Society – £315,000</p>	<ul style="list-style-type: none"> • Forecasted to generate 300 MWh each year - enough to power the equivalent of 76 homes and save 135 tonnes of CO₂ emissions per annum. • Sharing of knowledge and encouraging people to think about where their energy comes from, the impact this has, and the difference they can make. This is done through mailing lists (500 people), organisation of events (attended by over 200 people), local press, social media, website and farmers markets. • Local empowerment through its 24 active volunteers and 71 members - it has provided an opportunity for local people to invest in a local cause and receive a 4-5 per cent return.
<p>Dates of projects</p>	<ul style="list-style-type: none"> • Reduced energy costs and carbon footprint for host sites.
<p>2014-Present</p>	<ul style="list-style-type: none"> • TEC's energy advice service has helped over 200 people through various energy efficiency measures. The income from renewable energy projects will help fund this service in future years.
<p>More information</p>	<ul style="list-style-type: none"> • Funded the lease of multiuse community space – Local Matters, which is run as an energy advice centre, HQ for TEC and Transition Tavistock, promotion of local economy, local growing and climate awareness.
<p>http://tamarenergycommunity.com/projects/community-solar/</p> <p>http://tamarenergycommunity.com/local-energy-advice-programme-leap/</p>	<p>Future plans</p> <ul style="list-style-type: none"> • Feasibility of hydro site and district heating. • Open LV project. • Continuing to support fuel poverty. 

Community organisation name	Description of project	
Plymouth Energy Community	<p>Plymouth Energy Community (PEC) are a community benefit society aiming to give people in Plymouth the power to change how they buy, use and generate energy. This mission is achieved through generating renewable energy, improving energy efficiency and reducing energy bills.</p> <p>Currently PEC have 10.5 Full Time Equivalent staff, 15 volunteers, and 1800 members. They operate 33 solar PV installations with a total installed capacity of 6.1 MW. The largest of which is the 4.1 MW Ernesettle solar farm.</p>	
Funding - £5,920,000	Impacts of project	
Community Shares £2,400,000 Loans - £3,500,000 Grants - £500,000	<ul style="list-style-type: none"> • The renewable energy assets generated 8,097 MWh of electricity in 2017 – Equivalent of 4,389 tonnes of CO₂ emissions saved or enough energy to power 2,056 homes powered for a year. • Share knowledge and educate people on the methods to reduce energy bills through: Energy audits, Talks and the fuel debt program. • Reduction in residents and businesses bills. • Helped over 12,700 households, saving c £586,000 from bills, clearing over £250,000 debt. • 1,600 households have been provided with energy efficiency services. • Improving the local economy by keeping more spend locally. • Provided 12 new jobs. • More than 1,600 members. • Trained 84 volunteers. • Installed 33 community-owned solar arrays (6 MW roof and ground mounted) saving host schools and organisations £90,000pa. • 72,500 t of CO₂ saved through solar. 	
Dates of projects		
2013-Present		
More information		
http://www.plymouthenergycommunity.com/generate-energy		
	Future plans	Top tips
	More rooftop solar installations and large scale domestic advice programme.	<p>Seek positive partnerships with your Local Authority.</p> <p>Believe in your mission and others will too.</p>



▶ 11.2 Key achievements

- Supporting neighbourhood plan to develop robust planning document including policy of renewable energy installations in the community
- Feasibility study into sustainable community heating
- Supporting Parish hall install Solar PV
- Transition Streets project
- Set up of organisation with successful 50 kW solar PV
- Fuel poverty services and outcomes
- TRESOCs Shine Project which saw the installation of solar PV on the roofs of 40 SDRHA (South Devon Rural Housing Association) homes across the area– which means cheaper electricity bills for tenants and welcome relief from rising energy prices. And thanks to SDRHA, the majority of properties also receive a device for solar-heated hot water. The project includes arrays on Forder Lane House and a 25-bed care home and SDRHA's HQ (also home to Devon County Council's Totnes Work Hub). Expected annual generation is 148,000 kWh which equates to a saving of £16,000 on electricity bills. CO₂ equivalent avoided by the use of clean energy will be 71,000 kg or 71 tonnes per year
- Success of community garden and woodfuel group reducing use of fossil fuel and food miles, while promoting the health and wellbeing of local residents involved in these projects
- Training and development of staff
- There are church buildings and vicarages, for example, with solar installations, biomass heating schemes, composting toilets, and plug-in solar panels
- Coordinating the South Devon wood fuel hub which helped investigate and initiate the first building blocks of a local wood fuel hub where local farmers, land owners and the community can work together to source affordable wood fuel boost the local economy and create employment
- Reducing the electricity consumption of the house. Installing monitoring systems to look at consumption on a daily basis and work out who's using what and why
- Delivering the RCEF funded feasibility study
- Community engagement in energy advice and fuel poverty. We are now receiving referrals from the health sector for vulnerable people. We also have a great relationship with local press and community organisations. Setting up, securing funding and creating 2 part time jobs
- Seeing the proposals and financial models for sites gave a sense of (premature) accomplishment. Also the name/branding and giving presentations to stakeholders
- Newton Downs Solar Farm
- No one achievement rather several: running innovative events that are well attended, launching successful, healthy homes project and raising over £100,000 in 24 hrs with our share offer for the 8 solar sites
- Supporting Christow School in its campaign to raise £10,000 for solar PV panels. Thanks to hard work from parents, pupils, governors and the community, with guidance and inspiration from Solar Schools (10:10 campaign) almost £15,000 was raised putting 10 kWp set of panels on the roof and with digital displays in the school showing the amount of energy being generated and carbon being saved, allowing the topic of sustainability to be taught in the classroom in new ways
- Getting the project up and running
- Successful fuel debt program, building of Ernesettle solar farm

▶ 11.3 Devon County Council Area Statistics

Excluding Plymouth and Torbay, there are 22 community energy organisations active in the Devon County Council area. Eleven have installed 46 renewable electricity projects.

They have:

- Supported 1,117 households with energy efficiency services or installations
- Provided 52% of the referrals into the Cosy Devon fuel poverty scheme in the 6 months to December 2017
- 6,479 people on their mailing lists
- Established community funds with the profits from their renewables projects, worth £1,125,000 between now and 2030
- Installed 6.2MW of renewable electricity capacity, which will generate approximately 6000MWh annually which equates to 2,109 tCO₂e.
- Raised £8.2m investment