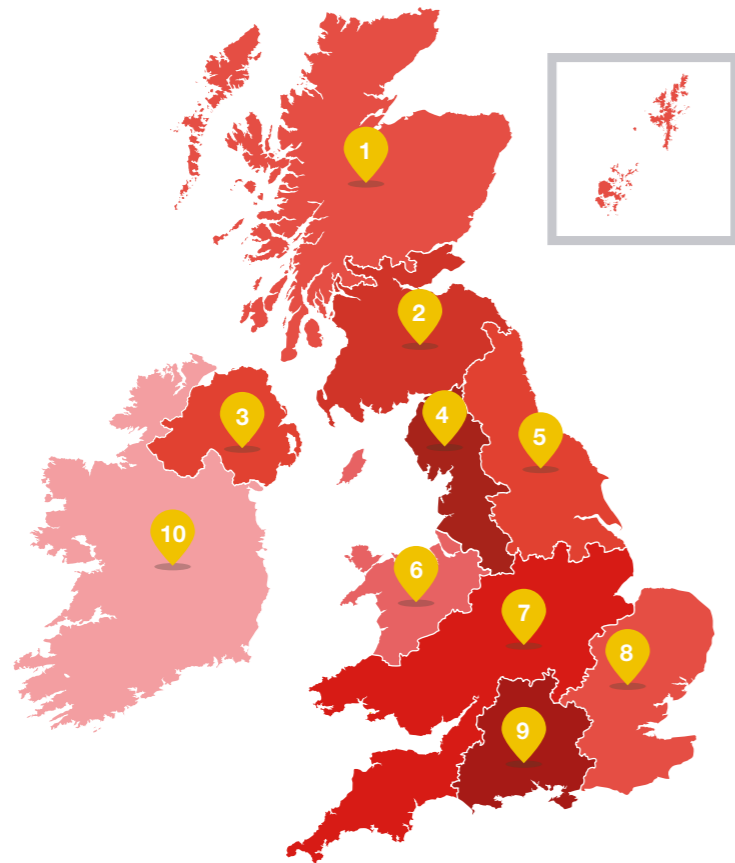




# Rough Guide to Engaging Communities in Energy Network Innovation



# Electricity Distribution



# The rough guide to engaging communities in network innovation

This guide is for communities and distribution network operators

The way we generate electricity is changing from a centralised system with a handful of large power stations, to a distributed network of over one million smaller renewable energy generators. Demand for electricity could double by 2050, and the way we are using it will be different, for example the amount of battery storage is set to increase, and more of us will be using electric vehicles.

All this creates challenges for the national grid and distribution network operators (DNOs) who have to balance supply and demand to make sure the lights stay on. Currently the network in some areas is constrained because it wasn't designed for two way flows of electricity. We have two options, we could generate more electricity and pay hundreds of millions to upgrade the network (via customer bills), or we could use the network we have more efficiently and find flexible smart solutions to balance the supply of electricity and our increasing demand. Ofgem estimate the latter option could save us between £3-8billion on our energy bills by 2030. The scale of change is vast, and this presents exciting opportunities for communities to get involved in finding smart solutions and innovative ways of using the network we have more effectively.

This guide explores how DNOs can positively engage local communities in innovation and how communities can get themselves into the best position to grasp the opportunity. It draws together seven case studies of innovation trials and information gathered at two ENA and Regen 'Engaging Communities in Network Innovation' event workshops with 178 participants in Manchester and Oxford in October 2016. The guide includes:

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## What is innovation?

Innovation in the electricity distribution network is about understanding how best to achieve value for money, security of supply, and environmental benefits. The introduction of smart meters, installation of renewable energy and technological progress, such as storage, are driving innovation. DNOs are adapting to the changes in the way we use and generate electricity to ensure the lights stay on, and improve the services and choices they offer customers. If you want to find out more about innovation have a look at the case studies in this guide, or your DNOs innovation strategy (see links on the last page).

### Examples of R&D innovation topics include:

- Network monitoring
- Low carbon generation and connections
- Low carbon technologies e.g. electric vehicles
- Network operations, comms & IT
- Energy storage and demand response
- Safety, health and environment

## What is an innovation trial?

An innovation trial is a project that aims to find a new way of using the electricity network to save customers and the DNO money, usually by overcoming a particular problem or 'constraint'. For example DNOs can use education, incentives, batteries or other technology, and energy efficiency measures to change customer behavior, reduce demand, and shift our electricity usage to different times to avoid peaks. For renewable energy generation the DNO might suggest an innovative solution to reduce the connection cost in areas where the network is constrained, such as storage, a private wire, collaboration with other generators or an 'alternative connection'. An alternative connection allows the DNO to temporarily reduce your capacity ('curtailment'), at times when the network is under pressure. Most trials led by DNOs are paid for by Network Innovation Allowance (NIA) or Network Innovation Competition (NIC) funding, Innovate UK, the Energy Systems Catapult, or universities. DNOs apply for the funding but suppliers, intermediaries, community groups and customers are often integral to the projects. Updates and final reports on all projects are published on the Energy Networks Association: Smarter Networks Portal

[www.smarternetworks.org](http://www.smarternetworks.org)



## Challenges

To bring together two different worlds, that of the DNO and communities, there needs to be some shared understanding of the challenges each party faces. This section is about helping each group understand and empathise with the other so that successful partnerships can develop.



### What's a MW?

A megawatt (MW) is a unit for measuring power that equals one million watts.

## Challenges that communities face

Geographical communities generally don't come together to tackle energy issues and so when DNOs approach them, they may not have thought about what they collectively want or how they might want to be involved. However, energy bills are a significant chunk of the cost of living, and more and more people are concerned about the effects of climate change. These factors have motivated some communities to think about energy as a collective asset and aim to localise the economic benefit. Some have started energy projects which range from MW scale solar farms to micro-hydro, to energy efficiency advice services. The groups running these projects are usually voluntary, have little or no money, and may not have any experience of connecting generation projects to the network. They are also often trying to get the general public interested in energy, but most people are so disconnected with where their energy comes from and how it gets to them, that this can be a challenge.





Often the first interaction between communities and DNOs is when a community energy group applies for a connection. If there is no available capacity left on the network (the network is 'constrained'), the DNO still by law has to make a connection offer but these can be prohibitively expensive. In contrast to other developers, community energy projects are locally sited by definition, so they can't move them to a more convenient place on the network. This all means DNOs and communities often have a negative interaction at the outset which is not conducive to forming a constructive relationship for collective problem solving.

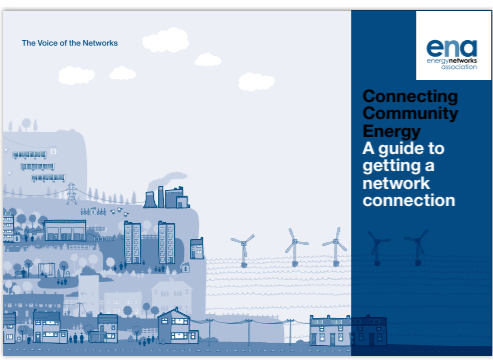


Community energy projects tend to take longer than commercial projects for various reasons including collaborative working, resource, time and experience. Some policy and tax incentives in the past have tried to level the playing field for community energy, however, DNOs are regulated by Ofgem and not allowed to discriminate amongst their customers.

“DNOs need to understand that community energy groups have to make a viable business case for any project, so need any help that will reduce costs or increase income to make a project work.”

For many people in communities the first hurdles are knowing where to start, “which DNO should I be talking to? Who within that DNO has the right skills and authority to help? I don't understand the technical jargon!”

DNOs have jointly produced 'Connecting Community Energy', a guide to getting a network connection and this is a really great place to start, particularly if you are interested in the types of innovative connections available.



The Community Energy Hub provides a link to all the DNO and ENA connection guides  
[hub.communityenergyengland.org/resources/grid-connection/](http://hub.communityenergyengland.org/resources/grid-connection/)

## Challenges that DNOs face

DNOs are moving away from their traditional roles behind the scenes, keeping the lights on, and instead are becoming much more interactive, having to engage with renewable electricity generators and communities. Furthermore DNOs are having to cope with an array of new technologies and requirements from those wanting to connect to the network. This move from DNO to Distribution Systems Operators 'DSO' presents new challenges. DNOs face penalties imposed by Ofgem if they can't evidence how they have engaged connection customers and responded to their needs, this is called the Incentive on Connections Engagement (ICE). See links at the end of this guide.

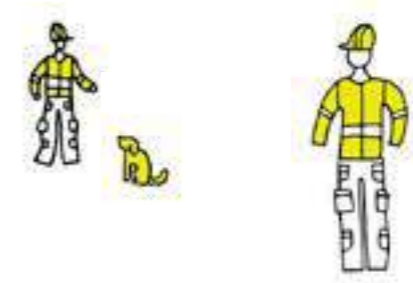
The first challenge for DNOs is knowing who the right stakeholders are. Communities are complex and it's not always obvious who the community activists are, if there is a community energy group they could be an informal group working on education around energy efficiency or a highly professionalised organisation who have installed MWs of renewable energy. Or, if there is no community energy group, should the DNO get involved in setting one up, or provide funding to stimulate activity?

DNO engineers and other staff are used to communicating with each other in technical language but are not used to explaining technical stuff to the general public. They are also increasingly expected to understand customer behaviour but do not have a social science background.

DNOs need to recruit people to take part in innovation trials, but how do they find the right customers to take part and motivate participants? How do they take ideas from community groups and make them fit with the funding criteria? How do they set the right expectations with customers (for example if they have to install smart kit and then remove it when the project ends)? How do they keep people engaged and informed?

“Customers are bored to tears by some of the technical aspects, but they are interested in talking to us about how they can save money. Energy efficiency offers 20 – 25% savings on bills, it's the low hanging fruit.”

**Steve Cox,**  
 head of innovation and engineering, Electricity North West (ENWL).





## What each party brings to the table - united by a common enemy

DNOs want to improve the services they offer, contribute to the low carbon energy transition and avoid costly network upgrades. Communities want lower bills and to connect renewable energy projects affordably. Motivation to save money, the environment and improved standards in the way things are done are mutual ambitions. These things can be achieved by working together and testing new ways of using electricity more flexibly such as at different times of day to avoid peak periods. Lots of great work has been taking place over the past few years, with DNOs and communities working together to overcome constraints on the network.



DNOs can access funding, have technical expertise, and incentives to work with local communities.

Community groups have local connections and knowledge, and where community energy groups exist they may have already done extensive engagement on energy issues with the local population. They are trusted familiar faces.

“We recognise the innovation potential that there is in working with communities. This is because groups can have original ideas, which then feed our innovation pipeline. They also provide value to the electricity system by adding up permanent or temporary energy reduction to a scale that is meaningful for a regional network.”

**Anne-Claire Leydier,**  
sustainability manager, Northern Powergrid

“It is important that community entities are clear that they will gain something from attending events, for example, insight into DNOs future investment strategy. There are clear benefits for both DNOs and Communities in working together and these benefits must be shared and exploited, the DSO world will accelerate these community opportunities”

**Steve Atkins,**  
lead commercial contract manager,  
Scottish and Southern Electricity Network (SSEN).

It's clear from the feedback from the two ENA and Regen 'Engaging Communities in Network Innovation' events that the first hurdle is identifying the right stakeholders, both communities and DNOs struggle to identify potential partners. One workshop group suggested DNOs “use intermediaries to provide an interface or help you find the right community activists to work with.”

There is a real willingness from both DNOs and communities to work together, community energy groups in particular are keen to be involved in trials because at the moment there are only a handful of renewable energy projects that are feasible and commercially viable. Most community energy groups are searching for a business model that works, this requires exploring new technologies and maximising every ounce of value from projects.

For example Applecross Hydro in Scotland, wanted to use the income to generate benefit for their own community. They couldn't get the grid access necessary to enable that income to be realised. In the meantime the Feed in Tariff (FIT) dropped so the group needed to add value to their generation by supplying electricity locally. To achieve this the group worked with the DNO and intermediaries to install kit that helped them manage the generation and supply electricity to local businesses. The kit could also be used to help suppliers and DNO's to balance load. If the group could generate revenue from this they could deliver their original mission.

“DNOs are technology agnostic, we want to facilitate customers to use the technology and solutions they want to use. We don't tell customers what to do but want to enable them to use our network the way they want.”

**Steve Cox,**  
head of innovation and engineering, ENWL.



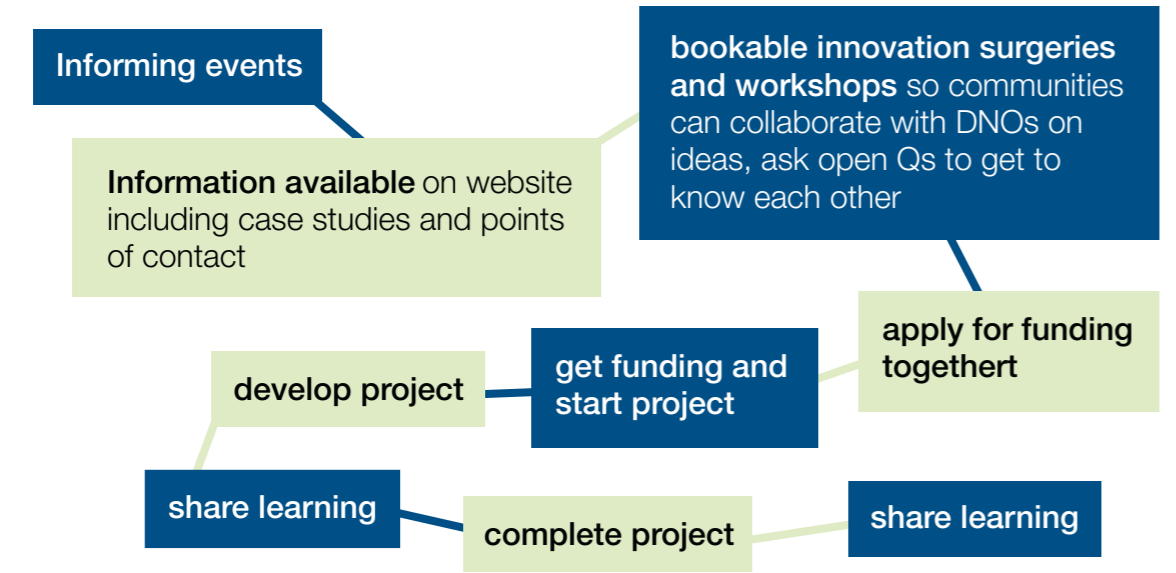


## How community groups want to be engaged on innovation trials

Many community groups don't know what innovation trials are so DNOs need to do a lot of work to explain in plain English what they are and why they are happening. The participants at the workshops showed a clear demand for more information about the trials are happening now, via more engaging events and workshops to raise awareness of the opportunities, case studies, and opportunities to learn from each other via peer to peer networks. Communities want to be able to share learning from existing innovation trials and explore ideas with DNOs for new trials. This information and opportunities to get involved should be shared across DNO areas and via intermediaries like Regen, Community Energy England, Community Energy Scotland, Community Energy Wales, and made available on the community energy hub.

[hub.communityenergyengland.org](http://hub.communityenergyengland.org)

"We'd like opportunities to start dialogue and then a structured process for taking that forward"



"Collaboration workshops to jointly develop projects please"

Some participants suggested DNOs involve communities earlier and are more proactive, so that constraints on the network are not just presented as unaffordable connections when it's too late, but potential solutions and opportunities to work together are offered to solve collective challenges. Some communities want DNOs to be more visionary and give communities opportunities to influence future plans and create masterplans that enable greater involvement.

DNOs need to be careful to manage expectations and be clear upfront about what they are looking for on trials, what's already been done and what they are planning in future. Communities would like increased transparency of available capacity/planned maintenance of the network, they want DNOs to actively define local network capacity issues and contract local community energy groups to help provide solutions. DNOs have made heat maps of constrained areas available, but these need to be shown and explained to community energy groups so that they can suggest what they could do to help.

- "Be clear on what benefit the DNO might get from alleviating grid constraints"
- Or the likely costs for capacity improvements
  - We'd like to explore constrained areas where a community project would provide significant benefit
  - There is a language barrier, we need to be able to understand each other and avoid using technical jargon
  - Help community groups understand what's important for DNOs"

There is clear demand for all DNOs to appoint a single point of contact for communities and to make information available in plain English, avoiding the use of technical jargon. This will help communities feel like they are valued and being taken seriously. This person needs to have the right skills for engaging communities but also the right level of authority to make decisions and enable the necessary action to take place, appointing a person with no authority to get stuff done would be tokenistic and unhelpful.

"We want to develop a long term relationship/partnership with a contact who can give expertise, engineering, sustainability, and legal support in a language we understand"





## The best ways of engaging geographical communities

### Lessons from innovation trials and workshops

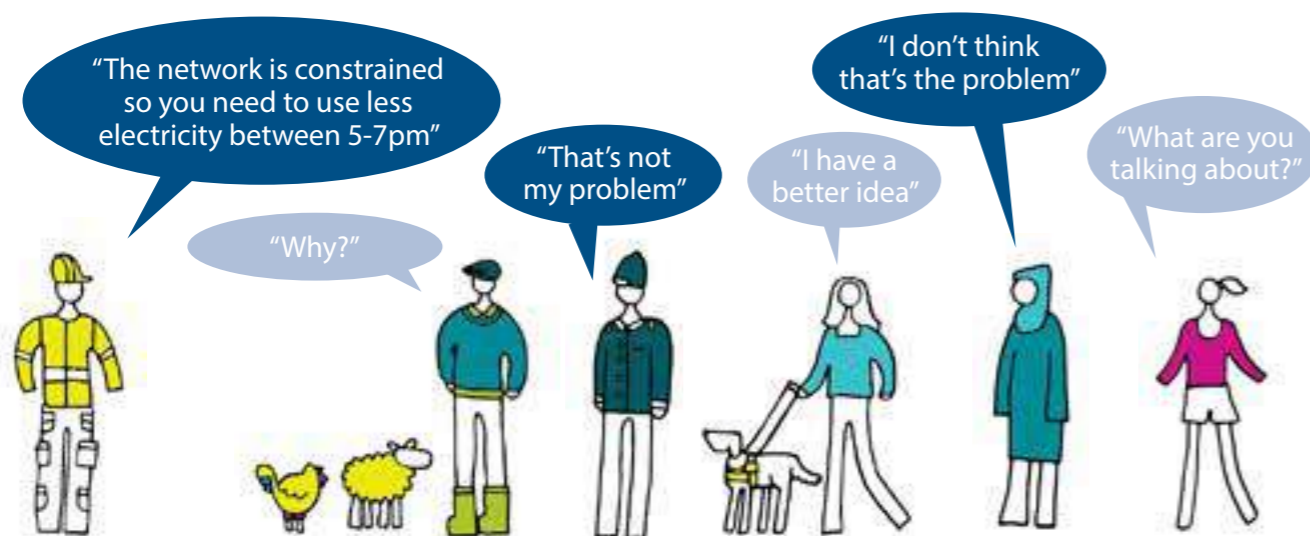
#### Start from where they are

It's all too easy to start with our own problem and offer our own solution, but the best engagement is really collaborative and starts with listening. What do people want? What might motivate people to be involved or change their behaviour and electricity use? People dislike being told what to do, but working with people to understand their needs and then finding a collective challenge, such as learning about energy efficiency to save money, can enable everyone to work together to solve the problem. Ideally both parties need to work towards a clear picture of what they want to achieve together. This is easier if both the DNO and community are clear about what they can offer and/or of what they are asking for.

Customers are much more likely to be properly engaged in the long term if they have ownership of a project, presenting people with a readymade project makes ownership difficult. **Tailoring the approach in each community is an issue for mass roll-out as it is resource intensive, but without it, ownership and long term behaviour change is difficult.**

"If you want to work effectively with communities you need to have the right approach, and that requires investing in that relationship over time. The benefits are extensive"

**Felix White,** Community Energy Scotland (CES).



## Timing is everything

The importance of engaging early is widely recognised, Western Power Distribution (WPD) did this through their SoLa Bristol trial by getting the community at the start of the project to develop branding, and help develop a display showing the battery charge, weather and savings. This helped the participants take ownership. On other trials like the Sunshine Tariff short timescales have had significant impacts on recruitment, the length of time needed for participants to switch electricity suppliers was a real barrier, as was the length of the trial itself. Some customers were unwilling to participate for a 6 month period as this was seen as too much of a faff! **It takes time to develop relationships, recruit participants and refine the process, DNOs and Ofgem need to be able to work flexibly and extend the timescales of projects where necessary.**



## Lessons from the Sunshine Tariff

A demand side response (DSR) time of use trial looking at shifting demand to when sunshine was generating lots of power from solar farms in Cornwall.

- 380 enquiries, 89 households signed up, which resulted in 61 participants
- Huge marketing campaign – using a local trusted brand – WREN (Wadebridge Renewable Energy Network)
- Monetary incentive is not enough on its own – most participant were early adopters, 55 households were WREN members, it's easier to engage people who are energy aware
- Due to technical and regulatory delays, the 9 month in planned engagement period was reduced to 3 months
- Switching took a lot longer than expected
- Changes in the market during that time meant a more competitive market offer became available
- The most common reason for customers not signing up was that it didn't make financial sense
- The trial period was 6 months and this wasn't long enough for most customers



## Expectation setting

The Applecross Hydro project paints a negative picture of DNO engagement. In the community group's opinion, the DNO failed to communicate the right information with the community group when they needed it. Communication needs to be timely and concise, small community projects don't have the resource to chase DNOs for information. **Managing expectations by setting out what DNOs need from communities, and what communities need from DNOs, at the start can help avoid poor engagement.**



## The right language

On one innovation trial SSEN ran, they found that if they only talked about reducing electricity use and balancing, people weren't interested, but if they talked to communities about energy saving as a whole, engagement was easier. They found they needed to build relationships with groups and use a mixture of methods for different people.

The approach and language used can have a huge effect in levels of engagement. The challenge for DNOs is how to get more electricity and demand through the existing network that's already paid for, it's about doing more with the assets we own, and avoiding costly upgrades. Most customers will not see this as a problem unless they know that the cost of upgrades ultimately falls on all of us. So to get the message across to consumers in a meaningful way the rhetoric that ENWL has used in the Power Saver Challenge project is around helping people reduce the amount of energy consumed, reduce carbon emissions, and save money.

**Jargon should be avoided**, DNOs need to remember to explain the acronyms they use and try to put things in plain English when talking to communities. Most people do not know what DUOS and TUOS are, what a constrained network is, and why frequency matters!

Communicating with communities can be labour intensive, WPD were really challenged by the effort of engagement in the SoLa Bristol trial for example. However, on the SSEN Solent Achieving Value from Efficiency (SAVE) trial energy coaches are encouraged to make energy efficiency messages locally relevant and connected to wider community issues like literacy and refurbishing a local sport ground. **Linking the communications about a project with something people care about locally can make a big difference to how it is received** and mean people want to engage rather than it feeling like an effort to get people involved.

UK Power Networks (UKPN) Energywise trial in Tower Hamlets, east London, involved a large proportion of the Bangladeshi community so they worked with local partners who spoke Bengali and were sensitive to cultural differences.

## Positive reinforcement



No one likes being told what to do or being made to feel guilty about not being green. SSEN have found **giving participants positive responsibility can encourage long term behaviour change**, on their SAVE trial. People given the role of 'energy champion', are self-motivated to save energy and they have less need for external intervention. SSEN passively referred to the recipient of the communication as someone with good energy practice, comparing them to someone with poor energy practices; thus reinforcing their positive self-perception.

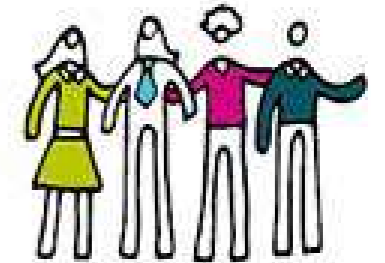


## Working with local trusted intermediaries

Compiling feedback from the event workshops and current innovation trials, the overwhelmingly clear lesson is that **DNOs should work together with existing locally based organisations who already have established networks and are trusted in their local communities.** Community engagement is easier when there is already a community energy project in the area as people may be more energy aware as a result.

However, there are lots of other groups and organisations including transition groups, schools, parish councils, citizens' advice, social housing providers etc. who have valuable networks and existing infrastructure. Norther Powergrid (NPG) partnered with existing community groups, turning them into energy communities by encouraging demand reduction through a competitive game process, on their ACE trial. People involved in one organisation are usually involved in other local groups and can have excellent local knowledge which is extremely valuable to DNOs for recruiting customers to trials and communicating complex messaging.

There were several participants at the workshops who recognised the need for DNOs to pay local groups for their support in developing appropriate local engagement strategies and working together with the DNOs on communications about projects.



"Community energy groups are seen by DNOs as jam in the sandwich to contact customers. There is no financial model to generate ongoing revenue for community energy groups. If community energy groups are helping DNOs save millions. Then how do they benefit beyond the trials, ultimately who pays and who gets the benefit?"

**Peter Capener,**  
Bath and West Community Energy





“Trusted local parties are critical, in an ideal world the interest would come from community groups, this requires DNOs to be open and transparent about opportunities to engage.”

“People listen to organisations they trust and respect”

Not all locally representative groups may have the existing levels of engagement needed for success, so it's important to make the right partnerships. SP Energy Networks (SPEN) have been working with Community Energy Scotland (CES) on their Accelerating Renewable Connections (ARC) project to trial active network management (ANM) by connecting local customers and generators. Working with an intermediary like CES who have been working in the area for years to build capacity and support communities to get involved is an efficient route to identifying the right stakeholders and building trust for trials like this.

“People who are the actual community linchpins aren't always the most visible – take time to figure it out”

We are more likely to talk to people like us, so if you want to talk you young people get a young person to do the talking. If you are planning door knocking, don't go overboard on branding as sales teams do, get local people to do the door knocking instead so that people recognise each other and are more likely to want to chat.



## One size does not fit all

**Every community is different which is why understanding the local context and working with local organisations is so important. They will help identify the best engagement methods for the area and audiences you want to reach.** It's easy to make assumptions about what engagement methods will work for each group of people, but in reality what works in one area, won't necessarily work in another. For example door knocking led to an 82% sign up rate for the UKPN Energywise trial, but in a different SSEN trial door knocking in more affluent areas wasn't appreciated, people felt like they were being sold to, and in the less affluent areas people felt like they had too many people trying to engage them. Similarly drop-in workshops in some areas work well and don't in others.



**Face-to-face and one-to-one communication is recognised by many as the main engagement methods in successful innovation trials** and is preferred by most local organisations, but it is resource intensive, requires clarity and the right level of information. Ideally multiple communication channels are used including social media, websites, leaflets, drop in sessions, and one-to-one interactions. This will mean different people can interact and get involved in the way and at a time that suits them.

One of the key lessons from the Applecross Hydro SSEN trial was that the emphasis in communications needed to be on benefits to the individuals in the community. “We used a variety of methods – social media, newsletters and public meetings, but find that face-to-face conversations are the most useful.”

## Generosity

Incentives can work well in the short term, but they can also make people suspicious so be clear about why you are giving things to people, and be honest about what you want in return. Generosity can be a really sensible approach if you are asking someone to do something, for instance one DNO sent a book of first class stamps to people when asking them to fill in a survey. Cash incentives can affect people's benefits so try and find alternatives like vouchers. NPG are offering cash for community groups and individual prizes for winners of the GenGame competition in their Activating Community Engagement (ACE) trial. In this project, the motivator is a mix of financial incentive and competition amongst participants. Incentives don't need to be costly, we are all motivated to an extent by what our friends, neighbours, work colleagues and family are doing. Transition Towns have used this approach on street level energy savings competitions with excellent results.





## Testing

Testing and piloting an approach before rolling it out as essential, this can really help everyone understand how the project will be received and fix any problems before lots of people are affected. UKPN tested Energywise branding before the trial began, with a focus group. “Our initial branding was really disliked in the focus groups and we changed it as a result” Lynn McDonald, programme manager, distribution system operator readiness, smart grid development team, UKPN.

## Education

Lots of participants at the events talked about the need for more education as well as an awareness raising campaign to enable communities to engage in network innovation projects. Most people don't know what to do to save energy/money so basic education is really important. NPG had to put a lot of time and effort into helping participants fully understand the concept and objectives of the ACE trial. There is a lack of understanding about what a DNO does, the connections process and what the potential market is. For community energy groups in particular they want to know how they can generate income from supporting DNOs on innovation trials, now that the business model for community energy has been so affected by the declining FIT.



## Repeat, repeat, repeat

Most trials require customers to change their behaviour in some way and the messaging to enable this needs to be regularly repeated and via a variety of methods as mentioned above. On the UKPN Energywise trial 91% of participants signed up after 4 interactions, and that's just to get them signed up before getting them to change their behaviour.

## Feedback

It's a really common mistake to gather a lot of information from a community and not report back on what they said or what the outcome was. It's easily avoided with proper planning and the right methods of feedback to share the results locally. If this is done well people are more likely to engage in future, but if you haven't shown you're listening then why would anyone spend more time talking to you? ENWL gave weekly feedback to participants in their Power Savers Challenge by sharing how much energy had been saved by groups of customers in each area, this was supported with advice, hints and tips to help people save more energy and participants said they felt motivated by the support and working as a team.

## Checklist of lessons learned

-  Start by listening
-  Let communities co-design the project so they have ownership
-  Engage early
-  Give it time - good engagement takes time
-  Manage expectations
-  Communicate concisely and proactively
-  Avoid jargon
-  Use messages people are interested in
-  Connect your messages to other things people care about
-  Use positive reinforcement
-  Work with local trusted intermediaries
-  One size does not fit all – each community is different
-  Use multiple communication channels - people in communities are different
-  Be generous
-  Test to save time
-  Don't assume people know what to do – help them learn
-  Repeat messages using different formats
-  Give feedback





## Communicating innovation with communities

The Energy Networks Association and Regen 'Engaging Communities in Network Innovation' events enabled local energy groups to provide feedback on how they would like DNOs to communicate with them around innovation. The most favoured and useful form of communication is face to face at events where people can interact and ask questions, there needs to be space for participatory workshops and joint problem solving sessions "DNOs could present the problems and community energy groups could help solve them." There is also demand for other methods including one to one surgeries, videos, webinars, podcasts, social media and briefing sessions on particular issues e.g. storage, and a guide to initiating projects.

Participants suggested using intermediaries more such as Regen, Community Energy England, Community Energy Scotland and Community Energy Wales. These organisations have existing networks and newsletters that should be used where possible and DNOs can work with these organisations to get news of innovation trials out there, in accessible formats and using the right language. Some groups want information from trials that are happening now, rather than just reports of trials that are complete.

Making information centrally available in places communities are likely to look for it, such as the community energy hub, is essential. This needs to be interactive so people can upload content, and would require a bit of effort pulling together all the useful information from all DNOs, as well as translation into plain English.

There is a lot of demand for more case studies, with a particular focus on commercial viability and replicability, e.g. what do you need to make storage work, and what's the learning from trial projects. Community groups need to be able to access learning from innovation projects and as one participant stated: it's important for projects to be genuinely transparent and honest about learning." There is a real need to this type of information to help communities understand what's possible and get inspiration, this needs to be in varying levels of detail and could start with an ideas list for what communities can do, right through to detailed case studies with open source data at the back end.

Good communication using a variety of methods is all very well but ultimately communities want to know how to get involved in working with DNOs on innovation projects, so they need a clear route and the right information about what the DNO needs from them to be able to make that approach.



## Summary of findings

We are in a state of flux. DNOs are making the transition to DSOs, having to move away from an engineering world focussed on keeping the lights on, to getting involved with customers at the coal face, helping them reduce demand and use electricity in ways that won't cause black outs. On the flip side, consumers are becoming 'prosumers' (producing and consuming electricity), as well as needing to become more engaged in how electricity is used, to make savings and avoid escalating bills in the future.

These fundamental changes are challenging and exciting. It's difficult to change how large organisations like DNOs work, innovation teams are receptive to change by definition but it takes time to filter out the necessity of collaboration and proactive working to network engineers on the ground. Communities are hugely diverse. There is a niche revolution of community energy taking place, among people who want to find ways of retaining economic benefit locally, from the electricity we are all paying for. There is also a huge proportion of the population who have no idea what a DNO is, or why they should care about changing a system that on the surface seems to be working fine. There is very little awareness among customers of how and who pays for our network.

This guide reflects the willingness of DNOs and community groups to work proactively together to find the best ways of engaging the wider population, even though there is no obvious answer yet. The challenge is complex and means DNOs have to define the problems in plain English for the conversation to even begin. Community groups are facing their own challenges, and where they are working on energy projects this is centred on the lack of viable business models. DNOs have already learned that working with trusted local intermediaries is highly valuable. If DNOs work collaboratively with communities on projects, mutual benefit can be realised and shared as current innovation trials are demonstrating. This requires honesty, trust, excellent communication, and using a multitude of methods for engaging the general public. These partnerships take time to establish and are a learning process, but if expectations and ambition is clearly articulated by all involved at the start, then we have a much greater chance of success.

Being receptive to feedback and learning lessons as we go are critical to achieving a smart flexible energy system that clearly benefits everyone. To do this we will need more opportunities to get together and talk about what's working and what's not. This report and the lessons from trials already being shared demonstrate a real willingness on all sides to continue the conversation and collaborate.





## Recommendations for DNOs

### • Run national innovation events every year

The Energy Networks Association and Regen 'Engaging Communities in Network Innovation' event demonstrated huge demand for opportunities like this to share national learning between DNOs and community groups of what's been learned and achieved.

### • Commission a thought leadership piece

Be visionary and show ambition for what the network will look like in the future. Demonstrate how communities can play a fundamental role in innovation, taking a local approach and delivering at scale, so that communities feel inspired and empowered and know how to get involved.

### • Involve the private sector

Suppliers and technology providers are key stakeholders in many innovation trials and we need to do more at events like the ones above to ensure they are involved.

### • Local engagement

Helping local groups understand what you are up to in your own DNO area is just as important as sharing learning nationally. There is a lot of demand for face to face events and one to one surgeries backed up by information online. If there are community networks in your area already, get involved to utilise and support these.



### • Case studies

Inspiration is essential. Everyone wants to know what others are doing so there is a real need for more community friendly case studies in a language they understand. These should have summaries and analysis of what the learning is.



### • Podcasts

We all love a good story and community groups love hearing personal reflections from others about cool projects they have been involved in.

### • Videos

Not everyone has time to attend events, so animated videos or films about projects can be a good way of sharing learning, and getting people inspired and motivated to get involved.

### • Site visits

There is no substitute for seeing live projects in action and you could maximise on profile by hosting these in community energy fortnight.

### • Share information in places communities already look for it

Be proactive in sharing information about your work, not just on your own website or the Energy Networks Association Smarter Networks Portal ([www.smarternetworks.org](http://www.smarternetworks.org)) which will only reach the most engaged who are looking for it, but in places like the community energy hub.



### • Continue working with local trusted intermediaries

Energy groups, social landlords and councils can help you engage wider communities who might not know who you are or why you are trying to communicate with them.

### • Update heat and constraint maps

Make sure communities know what these are, that they are accessible, online and alternative options are presented.

### • Help people understand innovation – education

Explain clearly what demand side management, storage, local supply, alternative connections, active network management etc. all means for communities.

### • Appoint a human being who can help communities

Feedback shows that having a point of contact with the authority and skills to help makes a massive difference to communities, it show you take them seriously and value them enough to invest properly in developing the relationship.

Community energy groups are key allies for innovation projects, so engaging early with these groups and supporting the sector to grow 'upstream' will mean it's easier to approach groups with innovation ideas and projects will have more likelihood of success.

"Generally it is easier if the community body is an existing entity, but if you are starting from scratch it can be problematic to manage a project at the same time as setting up the community body"

**Steve Atkins,**

lead commercial contract manager, SSEN



## Recommendations for communities

- **Be visionary**

It's much easier for DNOs to start a conversation with organised communities who have thought about energy and know what they want to achieve.



- **Be proactive**

Seize the opportunities through intermediaries to engage with the DNOs, come to events, and carry on actively participating in a positive way.

- **Make sure your expectations are realistic**

DNOs can't solve all the problems communities have, but innovation teams in DNOs can be great allies, if you can find the common problems and work on collective solutions.

- **Engage early**

If you are thinking about starting a local energy project, talking to your DNO is one of the first things you should do, certainly before you spend thousands on a feasibility study.

“Conversations are free”

**Alison Sleightholm,**  
regulatory & government affairs manager, WPD

- **Get really good at engaging your own community**

Do you really represent your local community? Make sure you have a very clear message about what you are trying to achieve. Demonstrate your track record and local links through events, mailing lists, and other activities.

- **Think big and be creative**

Make a wish list of your project ideas. We need to help DNOs find creative solutions to network constraints that work for all of us. Come up with ideas for projects you want to do that might help people understand their energy bills, reach vulnerable customers, help people with energy efficiency, help communicate complex ideas like shifting when people use energy to less busy times of the day etc.

- **Refine your offer**

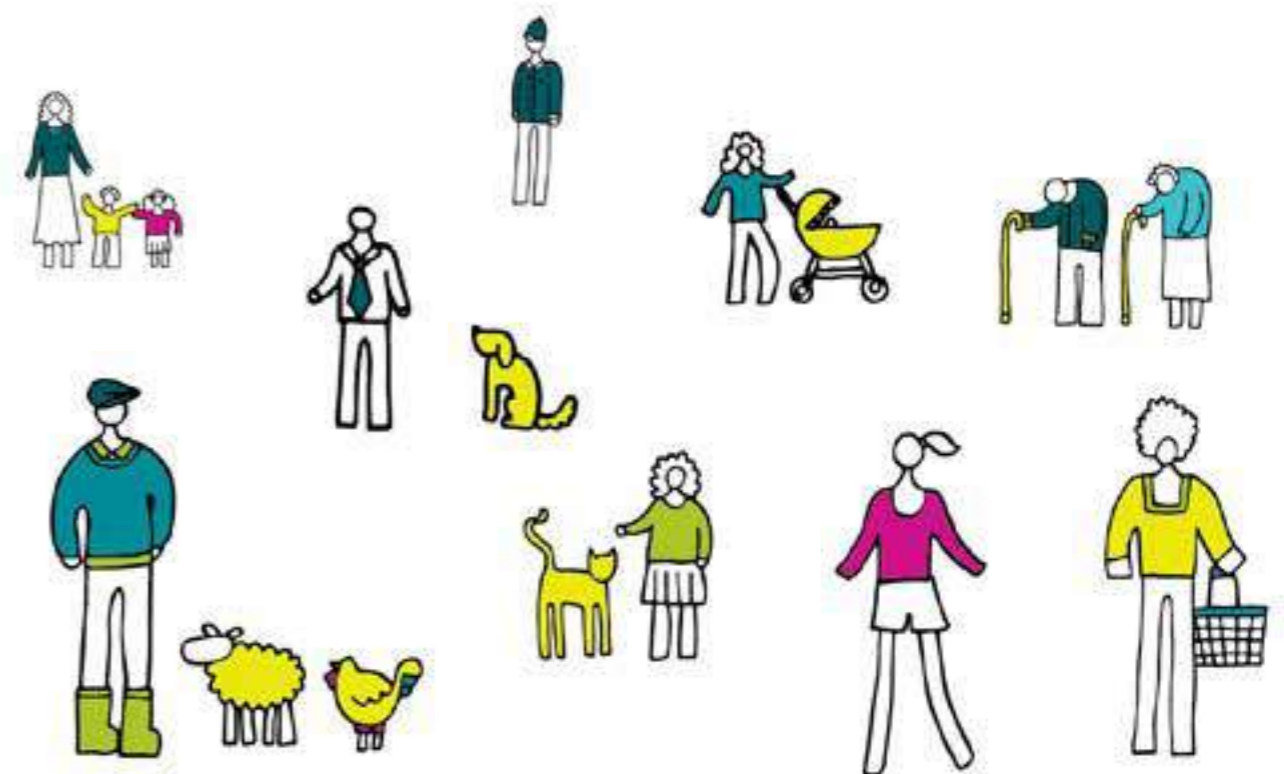
Think about the skills and networks you have that are valuable to DNOs. Be clear about what you can offer and/or of what you are asking for in return.

- **Record your impact**

The transition from passive, to active participants/consumers is complicated, can you demonstrate your impact?

“We need more social impacts research and learning form this work”

**Peter Capener,**  
Bath and West Community Energy





## Case Study

This selection of case studies will help you learn more about innovation trials taking place, and will hopefully inspire you about what's possible.

**Project name:** energywise

**Company name:** UK Power Networks

**Where:** Tower Hamlets, East London

**When:** 2014 – 2017

**Investment:** £5.49 million

**What is the issue:** Ensuring the delivery of smart and the low carbon transition is inclusive - vulnerable or fuel poor customers can benefit greatly from energy efficiency initiatives and the smart meter roll-out but often have limited ability to access energy saving technologies.

**What is the innovation:** energywise is the first Low Carbon Network Fund project to test how a Distribution Network Operator (DNO), in collaboration with an energy supplier and trusted local intermediaries, can effectively engage with fuel poor customers on initiatives that can support them in the management of their energy use.

energywise is engaging with a diverse group of fuel poor and hard to reach customers in Tower Hamlets, East London to explore how they can better manage their household energy usage and consequently their energy bills by changing the way they use electricity through the implementation of energy saving measures and trialling of demand side response (DSR).

The effectiveness of these measures will be tested and successful engagement will ultimately benefit DNOs both in shaping their engagement strategies and managing networks using flexible alternative solutions.

### Background

The trial is designed to test the effects of demand reduction techniques when working with fuel poor and hard to reach customers. Demand reduction and peak shifting can help reduce reinforcement costs, and vulnerable and fuel poor customers have the chance to reduce their bills through improved home energy management.

Around 4.5 million people live in fuel poverty in the UK, so the development of sensitive and appropriate engagement practices are key, especially as new technologies are rolled out and grid constraints increase.

The project explores how low income households who may be struggling with fuel bills can better manage their household energy usage. It involves two trials which will test firstly engagement with smart and more efficient devices. Secondly it will test how receptive those households are to demand shifting, using a time-of-use tariff pricing system.

The project aims to investigate:

- How DNOs can support fuel poor customers and allow them to participate in energy efficiency and DSR opportunities.
- The best role DNOs can play in facilitating energy efficiency measures.
- How this can ultimately benefit DNOs both in shaping their engagement strategies and managing networks using flexible alternatives.

### Community engagement focus

The energywise engagement strategy is based on:

- Contact from a local trusted organisation with an excellent understanding of the local area and languages.
- An engagement strategy and materials tailored to the target population.
- Face-to-face communication and support.

To achieve this, a team of dedicated, locally based, community-centred 'customer field officers' was set up to lead the recruitment and the engagement activities under the 'energywise' brand. This community-based approach proved very successful and appropriate to the target population – out of the 1,352 approached, a total of 538 households signed-up achieving an impressive 40 per cent sign-up rate while ensuring inclusive recruitment to different ethnic groups and age bands.

In the trial area, a significant number of the community spoke Bangladeshi, and the presence of a community field officer who could speak Bengali and had appropriate cultural awareness was appreciated. The majority (82 per cent) of sign-ups were achieved through door-to-door contact.

Main reasons for taking part in the project include:

- Chance to reduce their energy costs
- Better visibility of energy use
- Offer of free energy devices

The project experienced a higher number of participants dropping out than envisaged (227 at the time of writing, resulting in 311 active participants). It is important to understand the reasons for this to improve future engagement strategies.

These include:

- Reasons for leaving the project: change of mind of participation or wanting a smart meter; installation process perceived as hassle.
- Reasons for disengaging participants: change of supplier/house moving; no customer's availability/no access provided to complete installations.

energywise offers a flexible approach to engagement that can be tailored for different groups. This has been successful in recruiting participants that are considered hard to reach in the context of the smart meter rollout.

Given the diversity of Great Britain's population, an inclusive approach will support the government's target to rollout smart meters by 2020.

### What do you think about being part of the energywise project?

"Everything has run smoothly. I think the new meters are good. I've heard the scare stories, but I wouldn't want to change it."

### What did you think about the recruitment approach?

"I wasn't sure of the offer when I read the letter, and had never heard of energywise, but an amazing lady came and explained in detail the process and that it would fit around my schedule."



### Project name: Accelerating Renewable Connections (ARC)

### Company name: SP Energy Networks (SPEN)

The ARC project is an exciting initiative to help green energy projects connect to the local network more quickly by working with local communities and electricity consumers to proactively manage the flow of energy on the local network.

**Where:** East Lothian and Borders in Scotland

**When:** A four year trial running from 2012 to December 2016

**Investment:** £8 million

**What is the issue:** Whether active management of local generation and demand can free up capacity for local energy projects to connect to the network.

**What is the innovation:** ARC achieves earlier and more cost effective renewable connections by matching locally produced energy with local electricity demand.

Because the energy produced is used closer to source, it reduces the need for the upgrades to the network that can be needed to bulk export energy further afield, reducing the cost and the time to connect.

ARC achieves this in two ways – by Active Network Management, where we ask generators to reduce or increase the amount of energy they produce to meet local electricity demand and respond to network constraints; and by working with local community organisations to develop new ways of matching locally-produced energy with local energy demand.

The ARC project received the Scottish Green Energy award for Best Innovation 2015.





## Background

The project is led by SP Energy Networks (SPEN) working in association with Community Energy Scotland, Smarter Grid Solutions and the University of Strathclyde.

In some areas of East Lothian and the Scottish Borders, our network is approaching capacity because of the high uptake of renewable generation. These regions have relatively low populations, meaning generation can exceed demand.

This can mean that those wishing to connect renewable energy projects have to pay for the reinforcement of the network; that they cannot connect as soon as they would like; or that once they are connected, the amount of energy they are able to generate is constrained. Before the trial started, connecting more generation to the local grid supply point at Dunbar would have triggered a major reinforcement investment.

Through a blend of innovative approaches, ARC has enabled the connection and commissioning of the UK's largest actively managed connection at Aikengall Wind Farm with a combined generation capacity of 49.5MW. In addition to this, the project has enabled the installation of 749 PV arrays equalling 2.2MW onto local homes, saving the tenants of these homes around £1.9 million in energy costs over the lifetime of the systems.

**Explanation of innovation:** The key objectives of the project are to:

- Improve network access and capacity available to accommodate distributed generation;
- Accelerate the time taken to connect distributed generation;
- Enable connection of distributed generation to be facilitated around constraints; and
- Create an enduring process and learning tool that can be rolled out across our distribution networks and the UK.

ARC delivers these objectives in two main ways – by Active Network Management, where generators are asked to reduce or increase the amount of energy they produce to meet local electricity demand and respond to network constraints; and by working with local community organisations to develop new ways of matching locally-produced energy with local energy demand.

**Enablers include:**

- Empowering customers
- Review of connection design policy and enabling technology
- Delivery of a community demonstration project
- Delivery of non-firm capacity connection agreements
- Deployment of active network management network connection trials
- Knowledge transfer and industry policy reviews.

## Community engagement focus

The success of the project relied upon developing in-depth knowledge of the needs of the community and the opportunities that they wished to pursue, whilst also taking technical and aspects into consideration. To do this, the project developed detailed mapping of stakeholders and delivered a tailored and timely engagement programme, including community workshops, a stakeholder forum, dedicated website pages featuring a wide range of easy-to-understand project information and frequently asked questions, and connections heat maps to improve visibility of network constraints. All of this was provided with the support of a dedicated local Community Energy Scotland intermediary and technical and academic support from Smarter Grid Solutions and Strathclyde University.

## Key lessons learned

- If ARC were to be applied to 16 constrained grid supply points between 2015 and 2023, there would be an estimated saving of £260 million for customers and the network. SPEN are now investigating the potential benefit of rolling out this approach across their area.
- Community engagement and active involvement gives an additional driver for the timely completion of projects
- The findings and new technologies from this project have now been built into investment and design plans across the business to provide innovative solutions to various projects across SP Distribution (SPD) and SP Manweb (SPM) licence areas.
- A number of small projects are taking the learnings from the ANM project and developing further commercial solutions to fully implement innovative solutions for customers.

“SP Energy Networks are committed to facilitating generation connections, stimulating competition and improving our service to our customers, both larger developers and the smaller community based projects. We are at the forefront of driving change to meet evolving customer requirements, adapting to a changing market environment because we realise innovation is key to driving improvements for our customers and developing an electricity network that that continues to be fit for purpose in an ever-changing industry.”



**Project name:** Applecross Hydro

**Company name:** Scottish & Southern Electricity Networks (SSEN)

**Where:** Applecross, Scotland

**When:** The scheme started generation at the end of 2015.

**Investment:** Successful share offer of £803,000 which closed in November 2015.

**What is the issue:** Limited grid connection offer, 50 kW for 90 kW system.

**What is the innovation:** They are using a diversion load at the moment which is heating a communal area at a local campsite, however the overall long term plan is to run a private wire to local loads, such as housing.

A 90 kW hydro turbine has been installed as part of a community initiative located in Applecross, Scotland. The scheme started generation at the end of 2015, part funded by grants and a successful share offer. None of the construction costs were funded by the grant however, instead by the share offer raising £803,000, above the original target of £780,000.

The Distribution Network Operator (DNO) for the area is Scottish and Southern Electricity Networks (SSEN) who offered them the 50 kW connection, through participation in a consortium with SSEN. Their innovation is to seek a connected load, whilst planning for a private wire connection, to avoid constraints. This process allowed them to start construction and generation without delaying for further infrastructure costs. Due to the limited grid offer the scheme powers a community space at a local campsite with the surplus power, the next steps are a consultation and fundraising period for a private wire to possibly power local homes and businesses.

## Background

The Applecross community worked with a consortium of energy groups through Community Energy Scotland when contacting the local Distribution Network Operator SSEN. They were originally offered a 99 kW connection but as this was too expensive they were advised to apply for a 90 kW connection. Though they paid 90 kW connection in full, they were unfortunately partially refunded and limited to 50 kW.

Different innovation options were considered, such as hot water heating and private wire connections. Generating for over 6 months, the surplus generation powers a communal space at a local campsite, though planning is under way for the development of private wire connections. The infrastructure needed for the hot water heating option was deemed too expensive for the community scheme.

**The story towards innovation:** An innovation project in two halves, this solution demonstrates the challenges faced by community schemes. The second part to the innovation is a desire for a private wire to a local group of houses and a hotel nearby, planning for a consultation and fundraising process is underway. The long-term hope is for nearby land to be developed, so that the full generation can power local and social projects.

## Community engagement focus

Applecross Community Company ran 1-on-1 engagement sessions with those who could connect to the plant, as well as community meetings in the community hall, and a drop-in event with engineers from on the project. A challenge of this project was communicating the various complications and technicalities to the members of the community, balancing between informative but engaging, and technical but relatable.

## Key lessons learned

There are important lessons to be learned for other community groups in receiving communication from the DNOs. In regards to the grid connection, an unexpectedly significant part of the community effort was spent in approaching and requesting information from the DNO. Successful engagement with the Applecross community was done by emphasising the benefits to the individuals within the local community, through social media, newsletters and public meetings. For this project, emphasising the economic benefits and the social good was a key part of the communication strategy.

“We use a variety of methods- social media, newsletters and public meetings - but find that face to face conversations are the most useful. Information needs to be accurately but concisely explained; many people lose interest immediately if faced with a page or pages of text, especially if abbreviations or technical terms are used.

We were lucky to have a good local graphic designer involved who produced a strong logo and identity for Apple Juice (our community benefit society) which we used on everything. This allowed people to immediately recognise any written communication about the scheme.”

**Alison Macleod**



**Project name:** SoLa Bristol

**Company name:** Western Power Distribution (WPD)

A technological innovation testing the potential for distributed storage and flexible tariffs.

**Where:** Bristol

**When:** 2011 - 2016

**Investment:** £2.8million

**What is the issue:** Whether new technologies and storage management can help with integration of low-carbon technologies.

**What is the innovation:** Trial of PV, storage, DC lighting, Time of Use tariffs.

WPD ran an innovation project examining the impacts of operating and integrating high densities of low carbon technologies into the distribution network.

Solar panels, energy storage, and DC circuits were trialled in homes to test the potential impacts and cost-effectiveness of these technologies and techniques. The participants also trialled a Time of Use tariff for their electricity consumption.

The project received the Clean Energy award for Best Residential Energy Storage Project 2016.

## Background

This programme was a WPD partnership with Bristol City Council, Knowle West Media Centre, Siemens and Bath University. The programme ran from Dec 2011 to Jan 2016, starting with design and installation phases followed by the data collection phase during the trial.

The houses were installed with solar PV panels, electricity storage, internal DC networks, and operated on time-of-use tariffs. The energy storage systems were set up in the households to be used by both the consumer and WPD.

**Explanation of innovation:** Several innovative concepts were tested, relating to both engagement practices and the low-carbon technologies.

One part of the customer engagement was done through a display showing information such as the battery charge, weather, and savings, the design of which was informed by community consultation. Designing and branding a project with community involvement allowed them to take ownership of the project.

The storage device is owned jointly by WPD and the customer, remote management of the storage by WPD tests the potential to reduce the impact of solar generation. The storage-linked DC lighting systems were also appreciated by the households during power outages.

## Community engagement focus

The trial demonstrated the benefits of storage and Time-of-Use tariffs, however the results showed distributed generation needed to have much higher density to be cost-effective for WPD. Though such developments may not be the best suited to a distribution network operator, WPD have highlighted many areas for further development and improvement. Significant effort was put into successful engagement, working with customers to maintain commitment to their load management, and to understand fully their perspective. There was positive feedback for many parts of the trial, though the range of opinions was unexpected and shows the value of real-world innovative trials.

## Key lessons learned

- Individual Customer Load profiles vary considerably to industry generic profiles. A customer's use profile can drastically affect the benefits of a domestic battery installation. One size does not necessarily fit all. It is important to understand how a customer uses their energy to maximise and tune the energy/battery management in their home.
- Time of use Tariffs will be a crucial part of the development of domestic energy storage.
- The effect on the DNO LV network from a 2 kw (4.8 kwh) installation within an urban underground system, is not really noticeable. Analysis from Bath University concluded that you would need around 60 per cent of customers to have such a system to see any significant effect on Demand side response.

“Sola Bristol has been a challenging project from the outset, working within customers’ homes on their side of the meter is not an area that DNOs have much experience at so customer engagement was crucial for the project. To have a local community group like Knowle West Media Centre on board made this so much easier. The success of Sola Bristol is a testament to the commitment and hard work put in by all the project partners and the participants of Knowle West.”



## Case Study

**Project name:** Power Savers Challenge

**Company name:** Electricity North West (ENWL)

**Where:** The Stockport area

**When:** 2013 - 2015

**What is the issue:** Grid reinforcement possibly needed, thus reduced capacity on the network.

**What is the innovation:** Reducing overall and peak demand to defer network reinforcement and thus increase capacity for renewable generation on the distribution network.

ENWL has worked with customers to reduce demand in the Stockport area, deferring the costs of network reinforcement and increasing the available capacity on the local network. Through active engagement with customers such as target setting and incentives, most teams achieve significant reductions in energy consumption.

### Background

ENWL identified an opportunity in the Stockport area to avoid replacement of grid infrastructure and the associated extra costs to consumers by engaging local customers in a demand-reduction programme called the Power Savers Challenge. Working with Stockport Homes, Stockport Council, and NEA Action for Warm Homes, ENWL engaged with 251 households, split into 10 teams by area, working together to reduce their combined demand.

**Explanation of innovation:** The programme started in 2013 with baseload monitoring of the homes taking part. The challenge itself ran from late-2014 to mid-2015. Consumers were encouraged to reduce their demand relative to the previous year with incentives, online forums, and events. ENWL had good experiences engaging with the customers, 251 households took part in the challenge, with a total demand reduction of 201 MW.

Freeing capacity on the grid by engaging with consumers to reduce demand can reduce constraints on new generation. Education and engagement with consumers can open up new opportunities to reduce demand as well. The development of the challenge with community groups was shown to build trust, and customers were more flexible than previously expected.

### Community engagement focus

ENWL engaged with households directly, they were grouped into teams by geographical area. Contact between ENWL and the customers was made through a regular newsletter, online tips and hints, events and advice with help on energy conservation, as well as an on-line forum where the weekly reduction totals were published and discussed.

Feedback from the participants suggested that the level of support offered greatly helped with engagement and the prospect of working together to achieve a bigger aim motivated them. The average reduction in energy demand was over 4 per cent, compared to the data collection period in 2013, with 7 of the 10 areas meeting their reduction targets as well.

### Key lessons learned

Engagement was easier than expected, and households were generally more flexible than expected. The participants were well supported and engaged; all managed to reduce their demand; and the feedback suggested that the high levels of support helped; as well as the prospect of working together as part of a team.

“Demand in electricity is set to double by 2050, and building a bigger network to meet predicted demand could cost hundreds of millions – which would ultimately come from customers’ bills. We wanted to work with the community to encourage customers to reduce consumption so that there’s less need to invest in costly new infrastructure.”





## Case Study

**Project name:** Solent Achieving Value from Efficiency

**Company name:** Scottish and Southern Electricity Networks (SSEN)

**Where:** The Solent area

**When:** Ongoing, finishes 2018

**Investment:** £7 million

**What is the issue:** Grid upgrade costs etc.

**What is the innovation:** Testing the cost effectiveness of energy efficiency measures and engagement.

The Solent Achieving Value from Efficiency (SAVE) programme is being run by SSEN in the Solent area in the South of England up to 2018. The project seeks to establish the extent to which widespread energy efficiency measures can be considered a cost-effective method of reducing constraints on the network in this innovative trial.

### Background

SSEN is testing on a large-scale, whether long term reductions in demand through improvements in behaviour and technologies can be considered a cost-effective alternative to traditional network reinforcement.

Across the UK, distribution substations are thought to be operating at close to capacity, resulting in the need for costly reinforcement to the distribution network.

The SAVE project monitors 4,600 homes at the household level, and around 4,000 at the substation level. This project seeks to identify how different types of consumers might be expected to react to different types of energy efficiency measures. Though the project is ongoing, significant learning has already been established in regards to effective engagement with consumers.

**Explanation of innovation:** In one part of the project 'energy coaches' work in the areas to encourage more successful and sustained behaviour change. SSEN work with a third-party group to engage customers through written contact, followed by one-on-one contact with the participants.

The energy coaches work with existing local community groups to link local issues with demand reduction. Existing community groups are more trusted locally and working with them can increase the effectiveness and sustainability of behavioural change.

Energy coaches are tasked with combining the energy efficiency 'messages' with local drivers, such as increasing literacy, integrating communities and practical engagement such as refurbishing a local sports ground to ensure the behavioural change is embedded and sustainable.

### Community engagement focus

SSEN have identified some key lessons in creating successful customer engagement.

- 1. Customers cannot be treated as a single homogenous group.** Their diversity means that engagement must be flexible enough to suit different styles.
- 2. Education and awareness levels among participants are of key importance.** Customers need to feel confident about their energy use, and how it can be reduced. This is one of a range of barriers, including educational, technological, and external factors.
- 3. It is important that the information provider is trusted by the participants.** Partnerships with community groups can improve trust, but the messaging must have a common theme if coming from multiple sources.
- 4. There will be a range of motivations for energy reduction among the participants.** Financial incentives can be effective but often do not produce long term commitment.
- 5. Customers' self-perception will influence their long-term behavioural trends.** Messaging must be balanced appropriately so that the participants already feel engaged and feelings of guilt and blame are avoided.

### Key lessons learned

Working with local communities provides a trusted point of contact for the project, as electricity providers and the 'Big 6' are not trusted by consumers. However, working through communities does not directly improve public perception of network operators, an important consideration when long-term, post-project change, is the goal. As the project develops, periodic reports will be reported.

"SAVE is an exciting project for so many reasons; its size and the statistical significance of results; the methods and what they mean for customers; and its approach – a true reflection of the level of priority DNOs place against improving customer engagement and the services we offer. SAVE takes a technical problem which all DNOs face and places our relationship with our customers at the heart of the proposed solution."



## Case Study

**Project name:** Activating Community Engagement (ACE)

**Company name:** Northern Powergrid

**Where:** County Durham

**When:** Project runs from 1 January 2015 – 31 December 2017 The Feasibility trial's current competition runs from 30 May to 30 October 2016. ACE plan to run further competitions based on the success of and learning from the current trial in terms of customer engagement.

**Investment:** The total value of the the project is £1.1 million; comprising DSR platform development (GenGame), equipment procurement (smart plugs) and recruitment.

**What is the issue:** Distribution network capacity constraint management through peak shifting using demand-side response (DSR).

**What is the innovation:** A community engagement programme, an online 'game' through which participants earn points for load reduction at certain times. Points convert to cash for a chosen community group and individual participants can also win cash prizes.

### Background

Resolving capacity constraints on the network is traditionally done through network reinforcement. This project is testing if DSR done through this particular technology, and engagement method can provide long terms benefits and how they compare from a cost-effectiveness point of view. The solution tested provides an alternative to "time-of-use" tariffs and does not require participants to purchase "smart appliances".

### The trial consists in several parts:

- Participants who join and "play" mainly as a group: Players are able to invite and compete with friends, for prizes, charity, or just for fun.
- The GenGame: an online platform which allows Northern Powergrid to disconnect a load remotely in exchange of points. Points awarded for participation in the DSR scheme are used in a community league table. GenGame has evolved during the trials and the newest version looks like a regular mobile game – there's even an integrated 'match 3' style puzzle phone app game for players to earn bonus powerups and score boosts! It will be available as an Android or IOS app for mobile devices, and launched in early 2017 at the commencement of the final trial phase.
- Smart plugs: Customers who allow devices connected to smart plugs to be switched off see a benefit in The GenGame competition tables.
- Energy monitoring clamps: The latest version of the GenGame will use whole home energy data, obtained through energy monitoring clamps. This means that players are not limited to one or two appliances to earn GenGame points anymore, but will earn based on how much they reduce their whole home energy usage during peak times.

[www.npg-ace.com](http://www.npg-ace.com)

### Community engagement focus

A wide range of groups across county Durham have participated including; Scout groups; clothing banks; disability charities; museum support groups; and sports clubs. There was engagement both at the individual level, for instance using local representatives, and at the community level through regular group meetings. The community engagement is performed through a successful close working partnership with Durham County Council.

The trial was publicised through the ACE website, through social media (Facebook) and the local media. Northern Powergrid has received tremendous support form Durham County Council and has attended community shows, forum meetings and council events. Incorporating feedback from the 2015 winter trial has allowed Northern Powergrid to refine the project message and improve the GenGame platform.

### Key lessons learned

This trial has demonstrated the need for complete understanding at a participant level. Sufficient time was necessary to allow for participants to fully understand the concept and objectives, and to engage with each step of the process.

It is important to strike a balance between providing adequate but not unnecessary information early on in the project. Targeted, concise information avoids overwhelming the participants while maintaining their interest at each stage of the project.

Face-to-face dialogues were very successful in explaining the concepts to participants and crucial in enabling Northern Powergrid to take learning on to the next stage of the trial.

"Theoretically, anyone could help reduce demand for electricity during the peak time, and support the UK's transition to a low carbon economy."



The Cowshill Village Hall team led by Jeffrey Bailey receiving their prize award from Andrew Spencer and Emma Burton of Northern Powergrid



The Staindrop Scouts team led by Jacqui Nicholson receiving their prize award from Andrew Spencer and Emma Burton of Northern Powergrid



## DNO innovation strategy links

## Notes



### UKPN

<http://www.ukpowernetworks.co.uk/internet/en/about-us/documents/UKPN-2015-16-Environment-and-Innovation-Commentary.pdf>



### NPG

<http://www.northernpowergrid.com/your-powergrid/article/environment>



### WPD

[https://www.westernpower.co.uk/docs/About-us/WPD-Innovation-and-Environment-Report\\_2015-16.aspx](https://www.westernpower.co.uk/docs/About-us/WPD-Innovation-and-Environment-Report_2015-16.aspx)



### ENWL

<http://www.enwl.co.uk/about-us/regulatory-information/environment-report>



### SPEN

<http://www.spenergynetworks.co.uk/userfiles/file/ED1%20Environment%20and%20Innovation%20Report.pdf>



### SSE

<https://www.ssepd.co.uk/Library/StakeholderEngagementPublications/>

Series of horizontal dotted lines for taking notes.

## Further reading

[www.regensw.co.uk/local-supply-options-for-selling-your-energy-locally](http://www.regensw.co.uk/local-supply-options-for-selling-your-energy-locally)



[www.regensw.co.uk/storage-towards-a-commercial-model](http://www.regensw.co.uk/storage-towards-a-commercial-model)





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