Local Energy Oxfordshire



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D3.10 Companion Piece: Designing Smart and Fair Neighbourhood Trials Ethically

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Context

The UK Government has legislated to reduce its carbon emissions to net zero by 2050. Meeting this target will require significant decarbonisation and an increased demand upon the electricity network. Traditionally an increase in demand on the network would require network reinforcement. However, technology and the ability to balance demand on the system at different periods provides opportunities for new markets to be created and for new demand to be accommodated through a smarter, secure and more flexible network.

The future energy market offers the opportunity to create a decentralised energy system, supporting local renewable energy sources, and new markets that everyone can benefit from through providing flexibility services. To accommodate this change, Distribution Network Operators (DNOs) are changing to become Distribution System Operators (DSOs).

Project Local Energy Oxfordshire (LEO) is an important step in understanding how new markets can work and improving customer engagement. Project LEO is part funded via the Industrial Strategy Challenge Fund (ISCF) who set up a fund in 2018 of £102.5m for UK industry and research to develop systems that can support the global move to renewable energy called: Prospering From the Energy Revolution (PFER).

Project LEO is one of the most ambitious, wide-ranging, innovative and holistic smart grid trials ever conducted in the UK. LEO will improve our understanding of how opportunities can be maximised and unlocked from the transition to a smarter, flexible electricity system and how households, businesses and communities can realise the benefits. The increase in small-scale renewables and low-carbon technologies is creating opportunities for consumers to generate and sell electricity, store electricity using batteries and even for electric vehicles (EVs) to alleviate demand on the electricity system. To ensure the benefits of this are realised, Distribution Network Operators (DNO) like Scottish and Southern Electricity Networks (SSEN) are becoming Distribution System Operators (DSO).

Project LEO seeks to create the conditions that replicate the electricity system of the future to better understand these relationships and grow an evidence base that can inform how we manage the transition to a smarter electricity system. It will inform how DSOs function in the future, show how markets can be unlocked and supported, create new investment models for community engagement and support the development of a skilled community positioned to thrive and benefit from a smarter, responsive and flexible electricity network.

Project LEO brings together an exceptional group of stakeholders as Partners to deliver a common goal of creating a sustainable local energy system. This partnership represents the entire energy value chain in a compact and focused consortium and is further enhanced through global leading energy systems research brought by the University of Oxford and Oxford Brookes University consolidating multiple data sources and analysis tools to deliver a model for future local energy system mapping across all energy vectors.

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1 Introduction

To fully unlock the potential benefits of flexibility at the grid edge, mass participation is needed. This in turn requires tailored opportunities to meet the interests and needs of different individuals, organisations and communities. The Smart and Fair Neighbourhood trials (SFNs) have been testing different approaches to delivering flex. However, learnings from the trials relate as much to the process of designing and delivering flexibility trials, as to the finding of the trials themselves.

At the core of the SFN trials were two sets of ethical principles – one relating to trial delivery and a second to designing and delivering equitable local energy service offerings. These are set out in more detail in the report *Developing an ethical framework for local energy approaches* (Nov 2020).

Low Carbon Hub, the lead LEO-partner on these trials, developed a number of tools and approaches to put these principles into practice as the SFN trials, and the products and services we tested through them, were designed and delivered. This is a companion piece to the D3.10 report, *Learning from the Smart and Fair Neighbourhood Trials*, focusing on our approach to putting the ethical principles into practice. It sets out the key take-homes from the process, and shares some of the challenges experienced on the way.

Low Carbon Hub takes a 'learning by doing' approach, and we believe we can learn as much when things go wrong as when they go right. We should therefore make it clear that:

- the approach to trial delivery documented below was developed in part through trial and error
- it has been documented as much as possible to ensure we build on this learning in future activities.

We are grateful to the groups that patiently worked with us as the trials developed, and are mindful that in future activities finding ways to minimise the potentially negative impact of trial participation on groups will be an important consideration.

1.1 Key definitions:

Catalysing community group
The steering group was often built around an existing local low carbon group, sometimes referred to as 'the catalysing community group', who had already been active within the community, were trusted, well networked and had objectives aligned to those of Project LEO.

Steering group
The group of individuals and organisational representatives who designed, and supported, the delivery of an SFN trial. The group was formally constituted, with a memorandum of Understanding setting out its role and remit and met regularly throughout the project.

Participant
An individual or organisation who took part in a trial, specifically by testing a particular service offering or product.

Stakeholder
Anyone with an interest in the project and its outcome.

Delivery partner
Any organisation with a formal role in the delivery of an aspect of the trial.

2 Ethical trial delivery: From principles to practice

2.1 Principle 1: Clarity of scope

Stakeholders are clear about the anticipated scope of the project – what it can and can't address or deliver within the available resourcing and timeframe.

Insight: Identifying all the potential stakeholders in a project, and then categorising them in relation to their likely role in project's success, is key for identifying what engagement activity to prioritise and at what time

Implicit in this principle is the need to identify stakeholders and their relationship to the project. We developed a simple stakeholder mapping technique, using the 'power-change matrix' to categorise stakeholders according to:

a) their power over the success of a project, and
b) the degree to which the project required them to change from business as normal.

Stakeholders may fulfil three different roles in relation to the project:

- **Keyholders:** powerful stakeholders with financial, operational, technical or regulatory power to make decisions that can prevent or allow an activity from taking place
- **Amplifiers:** people and organisations, who have influence over others, and can use this to amplify or dampen any positive project outcomes
- **Learner-actors:** parties who can either directly participate, provide useful feedback and learning on project developments, or help replicate or take up findings in future projects.

Whereas most stakeholders would fulfil just one of these roles, on some occasions stakeholders could have multiple potential roles in relation to the project – for example being both a keyholder and amplifier.

These stakeholders were then plotted against the 'degree of change', that is the amounts by which a stakeholder has to deviate from business as usual for the activity to take place. Figure 1 illustrates the full stakeholder mapping undertaken.

Many of the trials involved the recruitment of participants to test or trial the use of service offerings or products. Potential project participants could fall into any one of these stakeholder categories. The smaller the potential pool of participants, the greater the degree of power any one potential participant had over the success of the trial.

LOW Degree of Power HIGH	KEYHOLDERS	All keyholders need to say yes for an activity to take place. Keyholders requiring the greatest degree of change from business-as-usual are those requiring the greatest level of engagement.
	AMPLIFIERS	These influential groups or individuals can help or hinder your project. Their buy-in isn't crucial but can impact on the success or otherwise of activity.
	LEARNER-ACTORS	Learner-actors are unlikely to have a big influence on the direct delivery of an activity, but may have a significant influence on its long-term impact in terms of supporting dissemination, replication or scaling.
	LOW Degree of Change HIGH	

Figure 1: LEO Power-Change Matrix

<u>Insight:</u> Having clear objectives regarding the purpose of any communication to, or engagement with, stakeholders helped in deciding the most effective form of communication

Having identified key stakeholders, each SFN was supported in devising a communications and engagement plan. For the purpose of the trials, the project defined:

- an 'engagement' as being a bi-directional interaction, tailored to a particular audience, that is intended to change awareness, understanding or elicit action
- whereas a 'communication' was a one-way flow of information which didn't Include an immediate opportunity for dialogue and 'real time' interaction (e.g. a leaflet or article).

Over its 4-year lifetime Project LEO undertook several hundred engagements with stakeholders, many of which were focused on the delivery of the SFN trials. Two simple concepts were found to be useful in shaping these engagements:

2.1.1 Know Feel Do

A simple 'Know Feel Do' mantra was used to identify what the project wanted to achieve with any engagement activity which was undertaken:
What did the project want the audience to know, how did it want them to feel and ultimately, what did it want them to do – what was the 'ask'?

2.1.2 RACI Principles

Remembering the RACI principles – understanding if the stakeholder is responsible, accountable, consulted or simply being informed about an activity – also helped in identifying what was being asked of each stakeholder.

For the SFN trials, one set of stakeholders, representatives of the local community, were particularly key when it came to agreeing what was in, or out, of scope of each trial. This initial trial outline was then explored further, applying the second ethical principle.

2.2 Principle 2: Collaborative design

We will work with the community such that the trial meets both the needs of Project LEO and the catalysing community group.

Insight: Collaboration with existing local groups and partners was key to the successful delivery of the trials, enabling the pooling of collective expertise to identify opportunities and deliver trials

The active participation of local stakeholders within the SFN steering groups was key to the success of trials, in particular creating local buy-in and access to local knowledge. The steering group was often built around an existing local low carbon group, sometimes referred to as 'the catalysing community group', who had already been active within the community, were trusted, well networked and had objectives aligned to those of Project LEO.

Trials were most successful when they focused on the delivery of an activity that helped achieve a key aim of each party represented on the steering group. Understanding not only the interests, but also the amount of resource each party was willing or able to commit to the project was also important for expectation management on all sides.

When successful delivery of a project hinged on the support of a number of keyholder stakeholders, one option was to invite each of them to join the steering group. If they did not wish to get actively involved in the management of the project, identify other opportunities for them to input into the project design and delivery. In particular, spending time to understand how the activity aligns with their aims meant the project was more likely to garner their support.

Insight: You need to invest significant time and resources at the start of a project to work with key stakeholders on the scope of the activity. This is likely to be an iterative process and may need to be revisited once the activity is underway – the more so the more innovative it is

Trials were co-designed with a community-based steering group. These usually comprised members of a local low carbon group, plus other key community and local stakeholders with support from expert mentors and a Project Manager. Often other partners with specific expertise were then involved in helping develop and/or deliver particular elements of the project being steered by the group and overseen by the manager.

A 'Scoping Template' (link to template) was used to set out the aim and objectives of the project. This was co-written with the steering group and used to inform the creation of a 'Trial Specification Document' (link to template) which was signed off by the steering group.

The process was collaborative to whichever extent the steering group wanted it to be. It certainly required mutual agreement of all parties to progress. Some of the challenges we faced are outlined here, together with potential solutions.

Challenge

Getting the balance right between ensuring the steering group were fully involved in the creation process, whilst being respectful of the fact that many were volunteers.

Possible solutions

- Ensure the activity helped to achieve key needs of all on the steering group so it was time well spent.
- Provide all admin and co-ordination support, plus source other expert help as and when required (technical, engagement, marketing etc.).
- Ask volunteers to be explicit about:
    - what they feel able to do, and not do to, to support the trial(s) and
    - which decisions or activities they feel they do, or don't, need to be involved in.
- Maintain open communications channels to make it easy for group members and trial participants to say whether their ability to be involved changes at any point.
- Consider paying honorarium to key stakeholders.

Challenge

The innovative nature of the trials meant many of the concepts involved were new to stakeholders, resulting in a steep learning curve. This could also lead to an imbalance in power on the steering group, with the group deferring to Project LEO partners, e.g. "You're the expert, you tell us what we should do".

Possible solutions

- Identify what is an appropriate level of detail of technical information needed for steering group to make decisions.
- Recognise that community group members bring a different expertise – intel regarding their locality – and the trial design needs to reflect this.

Challenge

Narrowing the aims of the trials sufficiently, in the face of a smorgasbord of possible learning outcomes and activities, due to their highly innovative nature.

Possible solution

- Choice-edit to help communities with choosing appropriate strategies, but it needed to be done in a way that was still transparent and consultative.

Challenge

The need to adapt a trial's scope in light of challenges that arose during the programme delivery.

Possible solutions

- Have a process by which the steering group could be regularly updated
- Understand which changes meant a trial had changed so significantly as to require renewed approval by the steering group.

Because of the steep learning curve for all participants including LEO partners, the design phase of the project took significantly longer and was more resource intensive than anticipated. For some catalysing communities, participation in the trial development and delivery was hugely resource intensive, and no doubt resulted in the local group member having to turn down, or not pursue, other alternative opportunities.

Insight: There is a very varied level of understanding of the energy system amongst most of the general public, and the base level is usually very low. There was almost no awareness of the concept of flexibility or the potential value it can deliver to system users, the energy system or a decarbonisation agenda

For some stakeholders, especially those involved in the design of a trial, understanding how their particular activity contributed to challenges faced by the energy system was important context that had to be provided to enable buy-in and, in most cases, collaboration.

Simple explanations of key concepts were developed for stakeholders. The project also considered whether it was necessary that they understood the key technical features that underpinned a trial, and when – on the other hand – focusing on the action or activity required, and the potential benefits, was more appropriate. This was particularly the case with trial participants rather than steering group members.

Explaining flexibility was particularly challenging. First, a consistent and non-technical vocabulary to communicate flexibility was lacking, not least because the understanding and thinking of Project LEO partners were also evolving during the trial delivery period. This made it challenging to keep stakeholders, many whom were volunteers with limited time to dedicate to the projects, up to date with the thinking as it evolved.

Secondly, flexibility is not a single thing – it is a range of different strategies – which increases the complexity of communication. What awareness existed in relation to flexibility tended to be in relation to balancing the grid at a national level, rather than in a distribution network context as relevant to the SFNs.

Activities the project undertook to address these issues included:

Creating 'plainer English' definitions and descriptions
Activities designed to help communicate the overall aims of Project LEO provided the project team the opportunity to work with partners and community groups to agree standardised definitions of key terms – and then de-jargonise them. The tongue-in-cheek term 'plainer English' was coined by the communications team on the project in response to the Plain English definitions that had been initially adopted within the programme, which required making even plainer, for a non-technical audience. This could take several iterations of testing and adaptation before they were fit for purpose.

Creating a range of different communication tools

Creating shared common definitions and explainer text for the LEO website was a very useful process in terms of helping the Project LEO team reach a shared understanding of key terms and concepts. The website now includes:

- sections dedicated to helping non-technical audience understand flexibility services and the benefit they can deliver including simple PowerPoint explainers, describing different flexibility services (https://project-leo.co.uk/the-context/flexibility-services/)
- a glossary (https://project-leo.co.uk/glossary/.)
- using animation to set out the overall aim of Project LEO in under 2 minutes (https://youtu.be/4DHtkHxDt7Q?si=4HQzh7hYB7H-rUkf)
- videos giving bitesize introductions to key topics, such as understanding the grid edge (https://www.youtube.com/@_Project_LEO).

In some instances, stakeholders already had a pre-existing knowledge of the energy system, or technical expertise. But others involved in the project often did not. Communicating to a group with very varied levels of understanding, or bridging between experts and non-experts, can bring its own challenges. Taking time to explain jargon or technical terms which only some group members may be familiar with can help enable everyone to fully participate in conversations.

Where required, materials were designed for use within specific SFNs along similar principles to those employed across Project LEO. Local materials included:

- posters and presentations visualising and 'boiling down' the particular aims of the trial, for public or other local stakeholder engagement
- competitions and a 3D adaptation of the 'Watt's the Deal' energy balancing game (https://wattsthedeal.org) to explain electricity balancing between local generation and demand in a playful way.

Just as trials were concluding in winter 2022/23, National Grid launched its Demand Flexibility Service and, in partnership with a number of energy suppliers, encouraged households to participate in grid balancing activities and be rewarded for their efforts. This has seen wide coverage across mainstream media, and as a result there now is far greater awareness of the importance of collective action to support grid balancing and reduce the need for fossil fuel generation. We anticipate this will make dissemination of our final results, and future communication around grid-edge flexibility activities, significantly easier for people to understand and relate to.

2.3 Principle 3: Inclusive participation

We aim to make it possible for a wide number of stakeholders to have a voice in the design and delivery of the trial, including the service offering that it will test, even if they do not directly participate.

Insight: Involving all possible stakeholders in the design of a trial can be resource-intensive. Focus on those most likely to be interested, influential in its success or at risk of being dis-benefitted by an activity

Power-change and power-interest matrix stakeholder mapping can help identify where to focus efforts on engagement. It can also help in thinking about the most appropriate make-up of the SFN steering group.

For all but one of the SFNs, the steering group was developed in conjunction with a catalysing community group. The pragmatic decision was made that members of a low carbon group had already self-identified as people from within a community with an interest in a low carbon agenda. Depending on what the stakeholder mapping suggested, other local key partners were also invited to participate at steering group level – for instance a local authority representative, as well as LEO independent experts.

These steering groups then helped identify how it might be possible to make participation within the trials more inclusive, supported by communications experts from within Low Carbon Hub. The one exception was Springfield Meadows SFN, a new build small estate, where there was no local low carbon group, and a very specific issue had been identified by the property developer.

Based on the advice of the steering group, in some SFNs community meetings, existing community networks and community surveys were used to encourage a wider participation in the trial, enabling more people to become informed and where relevant get involved.

The project learnt and had to respect the fact that not everyone wants to, or has the time to, get involved.

Insight: One size doesn't fit all: to increase participation in the delivery of flexibility we will need a range of different services, each tailored to the needs and interests of different individuals and the places they live

The SFNs tested a range of different flexibility products and services, each designed to meet the particular needs of one group of householders.

A marketing and value proposition template was used to support the development of each service. The framework is divided into five sections, each designed to guide the design of a service around the needs of a clearly identified target audience:

1. defining your audience
2. creating value
3. barriers to participation
4. product development
5. customer journey.

Insight: A capability lens approach can be used to widen participation in an activity

As part of the *Defining your Audience* exercise in the marketing and value proposition template the Centre for Sustainable Energy's (CSE) offer-profiling tool was used. The *Smart and Fair?* offer-profiling tool provides a framework to assess systematically the capabilities and characteristics required for households to participate in one or multiple smart energy offers. By identifying these

characteristics it can suggest potential opportunities for mitigation – interventions which would allow more people to participate in an offer.

CSE's offer-profiling tool was originally designed to help flexibility service providers assess the capabilities required to use a particular service. In the LEO SFN trials this was then flipped round to use as a means to assess the likely capabilities of a particular audience, and then design a service based on their likely capabilities.

A section of the SFN marketing and value proposition template focuses on identifying, and then mitigating against, potential barriers to participation. This includes considering what it might cost for someone to participate in a given service, in both financial and non-financial terms. This is covered further in Section 3.

A key challenge which presented in the trials was that under iUK rules Project LEO was unable to use grant funding to incentivise participation by households in trials, which meant that it became harder to make participation possible for those unable to afford upfront costs or to de-risk participation. In some instances, the project was able to overcome this, for example:

- using alternative sources of funding to cover incentives
- developing a no-cost loan option using third-party funding.

Insight: There's nothing quite like meeting people face to face in their communities to support strong communication and trust

The trials were planned, and in a large part delivered, during the Covid pandemic and various lockdowns severely restricting an ability to meet in person. A range of communication channels were used to reach people and the SFNs made significant use of remote meeting technologies such as Zoom, especially for steering group meetings.

Online meetings made it far simpler for people to join for briefings and meetings as they could log in from their homes. This broke down a barrier, as it reduced travel time to zero, making it easier for those who work full time to attend. It also reduced project cost as the software is less expensive than meeting rooms and could help in terms of allowing access to recordings. This was especially useful where experts had joined the discussions which made it helpful to be able to relisten to their input, as well as allowing anyone unable to make a particular meeting to catch up in their own time.

However, inability to meet in person made it harder to reach out to new contacts, especially as some of the community-based activities and networks that the project would have tapped into to reach new audiences were on hold or reduced. Once Covid restrictions permitted, outdoor engagement activities were carried out and the team was able to participate in community-based meetings and events. Although it was more labour-intensive, meeting face to face with potential participants and stakeholders brought with it particular benefits, including:

- increased efficacy in terms of building trust and a rapport with people, including through the support and presence of members from the catalysing community
- it was easier to convey more complex information face to face, or with games or demonstrations

- it was easier to encourage people to ask questions
- it enabled the project to reach people who may not be reached via digital channels
- it allowed the project to reach people in their own environment where they were more likely to feel comfortable.

2.4 Principle 4: Do no harm

We aim to protect all participants directly involved in the trial, and ensure that no one from the wider community is worse off as a result of the trial. Although this does not preclude individuals from being exposed to some level of risk through their involvement in the trial (e.g. financial), as long as it is with full information regarding the risk. Participation is their own free will, and, should it arise, the risk does not cause significant, lasting harm.

Insight: It is impossible to rule out any risk – but it can be mitigated

Risk covers an extremely wide spectrum of potential issues, from financial loss and safety to knocking someone's heating out for a weekend or wasting their time. It is almost impossible to reduce risk to zero, so perhaps 'Minimise and mitigate risks' would be a more accurate title for this principle. Approaches we took included:

a) Design out risk where possible

In some instances, it was possible to design a service in such a way as to reduce exposure to risk. For example, in the heat-flex trial in the Deddington and Duns Tew (and wider) SFN, participants' homes were surveyed to understand the energy efficiency measures recommended to go with the switch to a heat pump, to enable it to operate optimally.

The project worked from the assumption it would be up to it, or a specific partner, to rectify and make good any issues a participant might suffer as a direct result of participation that was not covered by other contractors or warranties.

Where a residual risk remained, Principle 6 'Informed consent' became particularly pertinent.

b) Set risk assessment protocols

Standard risk assessment templates were developed for engagement events.

c) Buy in expert services

We used third-party technical experts to deliver key elements of the trials and held them to account on behalf of the participants should issues arise, as indeed they did.

d) Lone-working and safeguarding

As the trials were delivered, especially when in-person events were possible again, it became apparent that this principle also was applicable to anyone involved in it – including those working for Project LEO partners and contractors. So this principle may need rephrasing to recognise this. Action taken to mitigate was to given consideration to issues such as lone working and safeguarding.

e) Planning for the end of the trial period is as important as the trial itself

Trial participants need to be aware where liabilities lie once the trial is over, and importantly, who to contact. For example, should kit installed have a technical issue once a trial is over, the participant needs a direct relationship with the third-party installer.

2.5 Principle 5: Rewarding experience

We want to see fair distribution of the benefits arising from the trial and make each touch point rewarding for the participant.

Project LEO needed to address three key questions as it explored the potential for a flexibility service to successfully contribute to the decarbonisation of the energy system:

1. Is it **technically feasible**?
2. Is there a **financially viable** business model to underpin the commercial delivery of the service?
3. Is the service **desirable** – to society, the energy system and the flex provider?

The design process of the SFN helped identify the potential benefits at a societal and energy system level.

Value propositions enabled the project to explore this last point: How can we make a service sufficiently desirable, or valuable, to the flex provider such that they will participate in the service in a sustained way, and to understand what benefits accrue to other stakeholders?

a) Build the value proposition for the service or product to be tested with the service user at its heart

When developing a product or service, the project team started with the service user as the starting point, asking: Why might someone want to use your proposed service? In particular, what benefits might it deliver that they would genuinely value, and how might it meet a particular need of theirs? Engagement and communications messages to potential participants then focused on highlighting these anticipated benefits, rather than the needs of the trial organisers. Focus groups of potential service users can also be used at this stage to learn what might be key benefits to aim to deliver.

The value proposition and marketing template developed for this purpose was used to help us tease out the different benefits and identify the most important ones. This was explored further in the in the Equitable Service Offerings section below, under the principles 'Inclusive offering' (3.2) and 'Fair distribution of benefits and costs' (3.3).

b) Use a cascading approach to roll out to test assumptions in the value proposition

The initial value propositions we created were often based on the project's assumptions as to what would be considered beneficial by service users. By taking a staggered approach to service delivery learning from the initial one or two users could quickly be fed back and used to modify the offering, based on what was actually valued by service users.

c) Build the wider trial so that it delivers benefits to all its key stakeholders

Understanding what benefits the trial can deliver to other stakeholders involved in the trial delivery was still important. The collaborative design process helped identify the key objectives of all the key stakeholders in the trial, which could then be designed in a way that enabled them to be met.

d) Barrier busting

Reducing the upfront and ongoing cost of participation, whether financial, time or other, increases the net benefit of participation. A well-designed customer journey can help with this in part.

e) Understanding competitors

Finally, the team sought to identify competing factors that might prevent sign-up or participation in a service – and how might they be mitigated. Competitors could include:

- competing behaviours
- competing benefits or motivations
- personal influences
- hassle factors
- everyday life getting 'in the way'
- wider forces (social-cultural, technical, economic, environmental political, legal or ethical).

2.6 Principle 6: Informed consent

We will ensure participants in the trial have adequate information, presented in a clear and accessible way, about the benefits, costs, and risks associated to make an informed decision about participation.

a) Provide people with all the information they need to make an informed decision

As part of the customer journey, the project provided potential participants with information in a variety of formats to let them know about the trial. This included:

- understanding the purpose of the trial
- who was involved
- what the financial implications might be
- how data would be shared.

Formats included information on the website, and written literature as well as briefing sessions for those who wanted to know more, both online and/or in person (once possible).

Working with one of the steering groups provided an opportunity to test the language in which the consent forms were written, to make them as simple and clear as possible. And the iterative approach of refining and fine-tuning materials based on feedback proved useful, meaning materials continued to be improved as they were used.

b) Provide the right to withdraw at any time

As is common good practice in research projects, participants and local steering group members were given the right to withdraw, at any point, and without having to give a reason.

2.7 Principle 7: Respect

We will treat participants and other stakeholders fairly, sensitively and with respect throughout the trial. This includes being respectful of their time, views and property.

Our aim was to develop trials that were beneficial to all the key stakeholders – so needed to address the interests and needs of the local community, the steering group members, participants (if any) and any other key stakeholders. At the heart of this was the aim of co-creation – so that the trials were designed and delivered *with*, rather than *done to*, communities (see Principle 2).

a) Design trials so they meet both our project needs, and local needs and interests

Trials can be very time intensive, and take up a lot of volunteer time within a community. This may be easier for local volunteers to justify if time spend on the trials is helping them meet local needs and interests and not just the needs of the trials. When volunteers are contributing to trial design and delivery, it can become extremely time intensive. A recommendation going forward would be to understand what options might exist to compensate volunteers for their time, or to focus volunteer effort where it is most efficiently used.

b) Design clear customer journeys

A customer journey template was developed as part of the Value Proposition and Marketing Template, to map the customer journey(s) of service users through the four phases of the project: Engagement; Sign-Up; Delivery; and Exit. This ensured potential participants had the information they needed to make informed decisions, to understand what expectations were placed on them and their rights.

For each phase different touch points, communication channels and key messages relevant to support a customer on to the next stage of the journey were mapped out.

The aim was to keep participants updated of any deviations from the original plans, and to ensure clear exit strategies for any participants who no longer wished to continue, without loss of face (see Principle 6). Tactics used included:

- having a named point of contact for queries they may have
- offering briefing sessions so people could find out more about what it might involve, prior to signing up
- informing participants when things deviated from the expected (e.g., when issues arose with compatibility between monitoring equipment and certain makes of heat pumps), and asking them to reconsider if they wished to continue to participate
- offering follow-up support to facilitate the resolution of any technical snagging issues post installation of low carbon technology, which could include offering support beyond the end of the trial period.

c) Listen to, and respect the views, of local stakeholders

Local stakeholders can bring a huge amount of expertise, and valuable intelligence about their community. Involving a catalysing community in and through the steering groups (except in one case, Springfield Meadows) meant the SFNs benefitted from that expertise, networks and intelligence. One challenge when working on quite technical or innovation-led trials is that it can lead to an imbalance of power with technical "experts" holding the reins. Holding up the non-technical members of a steering to be the experts on their community and on the "user experience" can help to redress that balance. However, it is then crucial to be prepared to listen to, and act on, that expertise.

Two particular challenges were faced:

- The innovative nature of the trials meant that the team were often learning alongside the participants and steering group. As a result, some trials took up more time than anticipated – and the team are very conscious of the additional burden this placed on those involved.
- The fact that the project itself was unable to directly reward domestic participants due to grant conditions was not clear at the outset. It was difficult to have to change some of the original plans and not being able to share the benefits of participation with communities to the extent that had been originally envisaged. Building in review points to recap and refresh original objectives, explain any changes, and ensuring stakeholders understand and feel comfortable with changes can help. However, this can be hard to do well, especially when time is short and information available is incomplete.

d) Provide clarity as to who is responsible for supporting participants with unexpected issues that may arise

When multiple delivery partners are involved, it is useful to agree in advance where responsibilities lie. For example, what issues might be covered by equipment warranties, what is the responsibility of installers and what responsibilities fall to the trial organisers – and for how long.

e) Build in time to feed back results and findings

Communications plans were developed for each SFN which covered how key findings could be shared appropriately with different stakeholder groups.

2.8 Principle 8: Continuous improvement

We will actively seek feedback during the process. We will monitor and review the trial as it is underway, and use the learning to modify and improve elements if necessary.

a) Learn from mistakes – and pivot

With six Smart and Fair Neighbourhood trials being developed over several years, there were plenty of learning opportunities. We have a 'learning by doing' ethos at Low Carbon Hub and part of that inevitably means occasionally doing things wrong, especially when it comes to innovation which by definition is about doing things that have not been done before.

Project LEO has been built on the agile approach – which includes the concept 'fail fast'. Although none of the SFNs failed, on several occasions progress was assessed and objectives revisited in the

face of external challenges. In future, the next challenge would be to fail faster – and find more agile ways to consult with trial stakeholders to enable them to 'pivot' with the project and in a direction that works for everyone.

b) Build in review periods for the ethical principles

As well as regular project reviews, it was useful to have a specific 'ethical principles' review to ensure the project and the team were living the principles throughout the trials, and on occasion to challenge ourselves to identify opportunities to do better. These review points were particularly useful to help team members who may have been focused on the technical aspects of a trial to also consider the 'socially desirable' strand.

2.9 Ethical trial delivery: Conclusion

The ethical principles proved powerful concepts to help guide Project LEO, and especially the lead partner in the SFN, Low Carbon Hub, in the design and delivery of the Smart and Fair Neighbourhood trials.

We know we didn't always get it right – and in line with our eighth Principle of continuous improvement a key purpose of this report is to enable us to capture the learning from what we achieved from the trials, so we and others can build on it for future activities.

As part of this learning, one of the final activities Low Carbon Hub will be carrying out in Project LEO will be a survey with the SFN steering group members where we can hear from them about their experience about being part of the trials – and what we can do to improve our approach, and make it a valuable and rewarding experience for communities.

3 Equitable service offering: From principles to practice

The Smart and Fair Neighbourhood trials also aimed to test a set of principles relating to equitable service offerings set out in the table below.

Principle	Description
Collaborative design	We will design service offerings in partnership with the community in which they are to be delivered, so everyone potentially impacted by the service can influence its design.
Inclusive offering	When we design a service offering we will seek ways to minimise the barriers to individuals benefiting from the offering.
Fair distribution of benefits and costs	The success of a service offering will depend on the efforts of many stakeholders. The value created by the service, and costs that arise should be fairly distributed amongst these stakeholders.
Minimise risk	No one should be materially worse off as a result of the service. This does not preclude individuals being exposed to some level of risk through their involvement in the trial (e.g. financial), as long as it is with full information regarding the risk, participation is their own free will, and should it arise, the risk does not cause significant or lasting harm.
Informed consent	We will ensure potential service users have adequate information, presented in a clear and accessible way, about the benefits, costs, and risks associated with using the service to make an informed decision about participation, including influencing decisions around the wider infrastructure.
Respect	We will treat all those affected by the service with respect and sensitivity.
Data fairness	We will be open and transparent about the data we are collecting through the use of a service, how it will be used, managed, owned and shared, and seek informed consent from service users.

Three of the trials included the development of a flexibility service offering:

- Deddington and Duns Tew SFN – Heatflex
- Osney SFN – Osney Supercharge
- Rose Hill SFN – a Solar Saver

Case studies for these projects can be found in the *D3.10 Companion Piece: Smart & Fair Neighbourhood Trials case studies*.

Challenges in trialling service offerings

The discovery that iUK funding rules meant it was not possible to benefit domestic participants significantly impacted on the ability to develop fully inclusive service offerings. It meant the project was unable to use grant funding to provide low carbon technologies that would enable those unable to afford them to participate.

Given the lack of an established flexibility market for small scale flex providers, it also meant the trials became focused on proof of concept, rather than the delivery and scale-up of financially sustainable service offerings.

Nevertheless, the trials gave rise to number of opportunities to test key elements of the ethical principles. Due to significant overlap between the equitable services and ethical trials principles many of the techniques used have already been discussed. So the following aims to focus mainly on approaches that were used specifically relation to service offering design.

3.1 Principle 1: Collaborative design

We will design service offerings in partnership with the community in which they are to be delivered so everyone potentially impacted by the service can influence its design.

Techniques used included:

- actively involving steering groups (except for one involving members of the catalysing community) in the design of service offerings
- using a sequential, rather than a parallel approach to on-boarding service users enabled the team to quickly build in feedback to improve the customer journey and service offering for subsequent users
- identifying additional opportunities for those who might not be willing or able to test the service offerings to still participate in the trials: for example, by taking part in surveys, comment on proposals, or by making a commitment to share the results of a service offering trial with the wider community.

The service offering trials run in Project LEO did not specifically factor in the wider impact, in terms of who might be at risk of 'losing out' should a particular service offering be rolled out at scale. Local Area Energy Planning approaches might provide a way in the future to better identify potential winners and losers at a community or energy system scale.

3.2 Principle 2: Inclusive offering

When we design a service offering we will seek ways to minimise the barriers to individuals benefiting from the offering.

The aim was to test the opportunity for flexibility at the grid edge with a wide range of settings and participants through the range of SFNs undertaken.

Although no single flexibility service or offering will be suitable for everyone, as part of the design process the project team actively worked to find ways to make participation as inclusive as possible.

The barrier-busting technique (described in section 3.3 c) can be used to identify potential barriers to participation. The service offering can then be designed to build in barrier-reducing features, to widen participation and increase inclusiveness. For example, Osney Supercharge created a community-owned offering to enable households who might not already have the low carbon technologies in place to take part – or the capital available – to fund to the kit they needed.

3.3 Principle 3: Fair distribution of benefits and costs

The success of a service will depend on the efforts of many stakeholders. The value created by the service, and costs that arise, should be fairly distributed amongst these stakeholders.

Flex provision usually involves two different services that need to work together to deliver flex successfully into a market, and the costs and benefits need to be distributed between a number of different stakeholders in these services.

Flex provision is not a simple transaction between two parties. There are multiple stakeholders involved in flexibility, all of whom can potentially derive benefit from increased active participation of users at the grid edge.

Often there are two 'services' to be considered when flexibility is mentioned:

1. the provision of flex into the energy system
2. the flexibility-enabling service, or 'route to market' which enables that flex to be unlocked.

For example, when a householder temporarily turns off their appliances to reduce demand, they are providing a service to the energy system: "Demand-Side Flexibility". In order for them to be able to deliver this service, they need to have signed up to a flex-enabling service provided by either an energy supplier or a third-party provider that enables them to sell their flexibility.

Understanding the costs and benefits involved in the transaction therefore is more complex than a simple buyer–seller transaction.

a) For many at the grid edge, providing flexibility to the system is unlikely to be a core activity

Through the SFN trials opportunities were identified to generate flex as a secondary by-product of a more valued service, or a core activity people are already undertaking.

For example, householders don't purchase an air-source heat pump to enable them to participate in flexibility services. Any flexibility these pumps provide will be a secondary by-product of the core purpose of heating homes.

As a result, a layered approach was used to build the value proposition for a service offering, based on a number of different roles service users might adopt. The value proposition then considered how a service might benefit a participant depending on the role that participant was playing. The roles considered were defined as follows:

- **Daily jobs**
  These are the day-to-day tasks that are central to energy system users' daily lives, many of which are already being achieved thanks to their interaction with that system. How can we offer a service that relieves the pains or generates gains in relation to these core jobs? For example, a more cost-effective way to heat their homes for householders or enabling greater self-consumption of roof-top PV generation to reduce overall energy bills.

- **Flex provider**
  This is the job that we want system users to do for us, from a Project LEO and grid edge balancing perspective. So how can they directly benefit from delivering the flexibility we need when they stop being simply 'system users' and become 'flex providers'?

- **Community member**
  How might the service be perceived to deliver value to the wider community in which they live, a value that the service user too may directly or indirectly benefit from? For example, reducing local parking issues, supporting their local school, avoiding the road being dug up, reducing the risk of black-outs or doing their bit to tackle climate change.

- **Trial participant**
  In the context of SFNs we also needed to consider another 'job to be done' – that of taking part in our trials, and the additional rewards or pains that this might accrue. In such trials one needs to be aware that, when a value proposition is heavily weighted to the benefits accruing from an individual's role as a trial participant, this may affect the ease of replication in a non-trial scenario where the same cost-benefit balance is not achievable or realistic. It is important therefore to identify which benefits arise purely because of the trial situation.

For some participants there may be a high level of overlap between these roles, for others none at all.

b) Identify the full range of benefits a service might offer

Whilst understanding the potential financial incentives that might be available is important, there are two reasons we need to look beyond financial reward when building our value propositions:

- The financial reward available may be very low, especially if the amount of flex any individual user can generate is small – which is likely to be the case especially in household settings.
- Financial reward alone is unlikely to be sufficient to drive the level of mass participation we may need, as evidenced by the poor uptake of tariff switching.

Two different approaches to framing benefits used in the trial included:

The Business Model Canvas

The Business Model Canvas approach highlights a range of different forms in which value can be created:[1] newness, performance, customisation, 'getting the job done' design, brand, status, price cost reduction, risk reduction, accessibility/convenience and usability.

[1] Strategizer support: How do I use the Value Propositions building block of the Business model canvas? Viewed 25.2.21 https://strategyzer.uservoice.com/knowledgebase/articles/1194370-how-do-i-use-the-value-propositions-building-block

Community Energy Co-benefits

The report *Building stronger and fairer communities: sharing the co-benefits for local action on climate change*[2] by Ruth Mayne of University of Oxford's Environmental Change Institute (ECI) highlights the wide range of co-benefits that can arise from community-focused energy projects.

By working with local community groups and potential participants, the SFN flex trials tested which of the range of potential benefits that a service could deliver were anticipated to be the most attractive. This information was then be used to inform the design of the service, and promotional messaging.

c) Barrier busting: Identify and minimise barriers to participation

The following framework can help think through the design of the service and customer journey, specifically to identify and reduce or remove barriers to participation at each of the following stages of engagement in relation to the service:

- aware: becoming aware of the service
- interest: developing an interested in the service
- desire: wanting to use the service
- commitment: committing to using it
- set up: getting ready to use it
- participation: using the service
- sustained participation: repeatedly taking part, using the service time after time.

For each stage, and each service, the project team identified barriers that might prevent take-up and continued participation by the target audience. It then explored how these barriers might be mitigated at each stage of the customer journey.

Barriers often took the form of a cost associated with participation. The project tried to identify the costs associated with participation in a service, and how it might be possible to reduce those through the design of the service offering. Costs could come in a number of forms including:

- financial
- lack of time
- the need to have certain capabilities such as access to capital or broadband
- psychological barriers such as competing behaviours
- any 'hassle factor' of participation like inconvenience and disruption
- opportunity costs (making one choice rules out being able to take another)
- search costs (the effort it takes to find out about the right service or opportunity)
- wider cultural, technological, economic, environmental, political, legal and ethical forces
- or simply everyday life getting in the way.

When the direct gains from participation are minimal, even the smallest cost of participation can be a barrier. The facilitating services we design need to focus on removing these barriers and creating 'stickiness' in order to encourage sustained participation. The "7P marketing framework" (product,

[2] http://lowcarbonoxford.org/wp-content/uploads/2016/10/Building-Stronger-and-Fairer-Communities_Final-report.pdf

price, promotion, place, people, process, physical evidence) can be used to identify ways to reduce these barriers.

The CSE Offer profiling tool[3] can be used to help identify the capabilities needed to access a service. This in turn can offer insights as to where lack of key capabilities might prevent participation, so we can develop strategies to help overcome this lack, to broaden accessibility and inclusion.

d) Lots of little actions added together can be significant

In many cases, individual system users will be delivering very small amounts of flexibility which only become significant in aggregate.

This was true in the SFNs trials, where the amount of flex provided during the trial period was often very small. However, the results gave valuable insights as to what the impact might be if the activity continued over longer periods of time or with greater uptake.

The motivational factor of collective action has been a notable feature of the communication of some energy companies currently encouraging participation in Demand Flexibility Service sessions, showing the difference their customer made by working together.

3.4 Principle 4: Minimise risk

No one should be materially worse off as a result of the service. This does not preclude individuals being exposed to some level of risk through their involvement in the trial (e.g. financial), as long as it is with full information regarding the risk, participation is their own free will, and, should it arise the risk does no cause significant or lasting harm.

A particular challenge for the trials was that some of the services being trialled did not exist beyond the life of the trial. It was important to communicate clearly to participants what benefits or opportunities existed purely within the trial, and what would remain after the trial had ended. For example, when participation involved capital outlay by a homeowner to install a heat pump at their own expense, we commissioned a whole house plan to understand what additional measures might be required to support the efficient operation of a heat pump going forward, without any flex services.

There was also a tension between balancing the principle of inclusion with that of minimising risks. To this end communication about the trial needed to fully spell out the potential costs or downsides of participation.

The project also had to consider unintended consequences. For example as part of Osney Supercharge, the team worked through how the three households who participated in the flex trials using their batteries to export electricity on demand would always be paid more for taking part in the SPM or SEPM than it would cost them to charge the battery from the grid beforehand. That enabled us to feed confident they would not be out of pocket as a result of their participation.

[3] The Smart and Fair? Offer Profiling Tool https://www.cse.org.uk/projects/view/1371

3.5 Principle 5: Informed consent

We will ensure the potential service users have adequate information, presented in a clear and accessible way, about the benefits, costs, and risks associated with using the service to make an informed decision about participation. Including influencing decisions around the wider infrastructure.

The approach used is covered under the ethical trial principles, where "Informed consent" is Principle 6.

3.6 Principle 6: Respect

We will treat all those affected by the service with respect and sensitivity.

Insight: Spending time to think through and design clear customer journeys makes the process of participation as easy as possible for service users, and is respectful of their time and effort.

A customer journey template was developed as part of the Value Proposition and Marketing Template, to map the customer journey(s) of service users through the four phases of the project: Engagement; Sign-Up; Delivery; and Exit. This ensured potential participants had the information they needed to make informed decisions, to understand what expectations were placed on them and their rights.

For each phase different touch points, communication channels and key messages relevant to support a customer on to the next stage of the journey were mapped out.

The aim was to keep participants updated of any deviations from the original plans, and to ensure clear exit strategies for any participants who no longer wished to continue, without loss of face (see Principle 6). Tactics used included:

- having a named point of contact for queries they may have
- offering briefing sessions so people could find out more about what it might involve, prior to signing up
- informing participants when things deviated from the expected (e.g., when issues arose with compatibility between monitoring equipment and certain makes of heat pumps), and asking them to reconsider if they wished to continue to participate
- offering follow-up support to facilitate the resolution of any technical snagging issues post installation of low carbon technology, which could include offering support beyond the end of the trial period.

Insight: things go wrong – it's what you do next that matters

When things didn't go quite as planned project managers aimed to:

- be as honest and transparent with participants as possible
- keep participants informed, resolving issues as quickly as possible
- said sorry when things went wrong.

3.7 Principle 7: Data fairness

We will be open and transparent about the data we are collecting through the use of a service, how it will be used, managed, owned and shared, and seek informed consent form service users.

Thinking through the General Data Protection Regulation (GDPR) implications of each service offering and its associated trial was one of the hardest elements of the trial design. This was made particularly difficult due to the multiple parties involved in both the collection and analysis of results.

A data consent form was developed for use in the trials clearly setting out the purpose for which data was collected and the role of each party with whom it would be shared. Building in a reviews step, that enabled the local steering group to comment on the text, was particularly helpful in terms of ensuring it was easy to understand and avoided jargon.

The three flex trials faced a number of challenges:

- MPANs could not be used as a way of anonymising participants because they can be used to identify participants directly.
- It was hard to balance between providing full explanations of the way in which data was being collected and used, and the degree of tenacity required by potential participants to wade their way through all that supporting information before signing up to a trial.
- The data we required for the trials was not always accessible or immediately available, even if participants were happy to share it. For example, smart meter data is only half hourly and it took some time to understand how it could be assessed without having to involve the energy supplier.

3.8 Equitable service offerings: Conclusion

Due to their innovative nature, and lack of access to established flexibility markets for participants, the SFN trials focused on proof of concept rather than roll out of services.

This meant Low Carbon Hub were unable to fully test these ethical principles for service offerings in the way initially envisaged. Nevertheless, they proved a useful touchstone as we developed and trialled three service offerings. This experience has strengthened the belief that inclusivity and fair distribution of costs and benefits need to proactively be built into the way we develop flexibility markets and service offerings if we are going to achieve high levels of sustained delivery of flexibility at the grid edge.

4 Next steps

Low Carbon Hub will be creating a practical guide for ethical trial delivery based on our experience in the SFN trials of Project LEO, which we will use to guide the development of future trials and potentially service offerings.