Renewable Energy Conversations Project

Report to National Infrastructure Commission for Wales

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National Infrastructure Commission Wales

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dulas

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Executive summary

Overview

This report presents the findings of a project that was delivered on behalf of the National Infrastructure Commission for Wales (NICW) as part of the *Preparing Wales for a Renewable Energy 2050* project. NICW wish to understand how the potential of Mid Wales, an area with the potential to generate significant amounts of renewable energy, can be unlocked in terms of infrastructure and community support. This specific project focused on testing bottom-up approaches to community engagement.

The project applied the 'Future Energy Landscapes'[1] (FEL) methodology to engage with communities in Ceredigion and Powys in order to understand their views on renewable energy, and to ascertain ambition for local generation and use. The project had no connection to any particular planning proposal; it was purely hypothetical and exploratory. It was a pilot project to help increase understanding of how best to bring communities together to discuss options for their area using a process that allows voices from across the community to be heard. The research will ultimately contribute towards the Welsh Government's approach to developing renewables in Wales.

This report summarises the outputs from workshops that took place during the months of January and February 2023 and subsequent surveys which sought to understand views from workshop attendees as well as people from the wider community who were unable to attend the workshop in person. The information gathered from the communities has been collated to inform this overarching report.

This report advises on public perception of renewables in the local landscape and explores bottom-up participatory approaches to community engagement, building informed public consent to significantly boost renewable energy deployment and decarbonise the energy system in Mid Wales.

Key findings

Overall energy generation and emissions reduction

Renewable Electricity Generation

In all the workshops, the majority of respondents were strongly supportive of renewable energy deployment being increased, accepting that the landscape is inevitably going to have to change to enable this, albeit with reservations and conditions regarding community benefits. Participants had strong feelings about the type and scale of renewable energy projects which might be acceptable around them, and about the locations in which these might be developed.

Renewable Heat Generation

There was support for renewable heat options, however the range of options was more limited and there was recognition that landscape impact is not the predominant barrier to

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[1] https://www.cse.org.uk/projects/view/1383

the rollout of most renewable heat technologies. The barriers are instead predominantly financial, technical, and structural.

The grid

Concerns were raised about current lack of grid capacity. This impacted negatively on the process as participants pointed out that there currently is not enough grid capacity to support the development of the renewable technologies being discussed in the workshops at a significant scale. Concern was also expressed about the impact of pylons on the landscape.

Large-scale renewable infrastructure

Hydro

Medium and micro hydro received considerable support and were considered acceptable by all communities. This was often accompanied by caveats within the workshops however that suitable rivers with sufficient flow would be required to make hydro a viable option, particularly year-round. The support of hydro in the landscape is likely to be because in many areas of Mid Wales there is historic evidence of hydro schemes, so it is more familiar to residents.

Anaerobic digestion

Anaerobic digestion was only included in one community scenario. It was noted that a number of farm-scale anaerobic digestion facilities already exist. Participants were strongly opposed to the anaerobic digester in their scenario being used to process imported compostable waste and were also opposed to crops being specifically grown to generate energy through this process.

Solar farms

Solar farms received mixed support from participants. General acceptance was secured with caveats that land used would not be grazing or crop land, with preference for brownfield land or opting for roof-based panels of an equivalent size to the solar farm.

Wind turbines

Wind turbines generated the most conversation, with all communities having in-depth discussions about them. Strong opinions were held on both sides. Although only three hypothetical scenarios included wind turbines once a consensus was reached, turbines were proposed by a significant number of participants in all of the workshops.

Domestic-level renewables

Solar PV and solar thermal

Domestic solar PV was supported by all communities. Whilst solar thermal still had support from most communities, the amount of solar thermal in scenarios was lower in all but one scenario.

Heat pumps

Heat pumps were included in most scenarios developed through the workshops, with three communities opting for the same percentage of properties being fitted with air source and ground source heat pumps.

Community benefits

In each of the workshops participants were very clear that if the local landscape was to be used for renewables there should be benefits awarded to the local communities. This was

felt particularly strongly if electricity was to be exported to other areas of Wales and the UK. Whilst most of the participants accepted that renewable energy generation needed to be considered at a UK scale, with Mid Wales being a prime location, they felt very strongly that companies and communities from elsewhere (England being predominantly cited) should not benefit at a cost to local communities.

Recommendations

Below we have provided recommendations exploring how the FEL methodology, or similar participatory processes, could best be utilised to increase renewable energy development, and recommendations for community engagement.

Recommendations For the National Infrastructure Commission for Wales

- **Consider using FEL, or similar participatory approaches, to build consent for renewable energy deployment within pre-assessed areas for wind. Encourage Local Planning Authorities (LPAs) to use FEL to inform planning policies and Local Area Energy Plans**
  The FEL methodology (undertaken so that the community has genuine choice) can be used in the early stages of policy formulation, to build public support for the increased deployment of renewable energy and to tailor local plan policy to meet local concerns and aspirations. The FEL methodology (or similar) could also be incorporated within Local Area Energy Plans (LAEP's), gauging the appetite of local communities to host renewable energy and the acceptability of policy outputs from Local Area Energy Plans. FEL is an open-source engagement process, available for local planning authorities, community groups or any other body to adapt and use without cost.[2]

- **Explore the potential for the Welsh Government to fund local authorities, existing communities, local community energy and climate groups to run Future Energy Landscape processes or similar bottom up or participatory engagement processes around the deployment of renewable energy.** Training and support should be provided and Local Authorities would be well placed to act in a convening role (see below).

- **Encourage Local Planning Authorities and the Energy Service to proactively support community energy projects in accordance with Government guidance.** Explore the potential for the Welsh Government to make funding available to support the development of community energy projects.

- **Encourage LPAs to use FEL, or similar participatory processes, to inform Local Area Energy Plans and local planning policies**
  The FEL methodology can be used in the early stages of policy formulation, to build public support for the increased deployment of renewable energy and to tailor policy to meet local concerns and aspirations. The FEL methodology could also be

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[2] All resources needed to plan and run the process and detailed guidance and facilitation notes are available here: www.cse.org.uk/projects/view/1383.

incorporated within Local Area Energy Plans (LAEP's), gauging the appetite of local communities to host renewable energy and the acceptability of policy outputs from Local Area Energy Plans. Our experience suggests that the use of participatory engagement approaches like FEL can build trust and public understanding of renewable energy technologies.

- **Encourage Local Authorities to act in a convening role**
Beyond their statutory role, Local Authorities can also play a significant role in convening debate and supporting community action on climate and energy and supporting communities to take proactive approaches to renewable energy. For example:

  - o Inviting willing communities to host FEL processes, and linking together communities and renewable energy developers (commercial or community energy organisations) to co-create mutually acceptable proposals;
  - o Facilitating and supporting civic climate action and skills- and knowledge-sharing amongst these groups;
  - o Supporting the formation of community energy groups;
  - o Sharing data (for instance constraint mapping and mapping from renewable energy capacity studies) and offering support to help community-owned or community-led projects to come forward.

- **Encourage renewable energy developers to use FEL or similar participatory approaches to refine their projects where options are open and to co-create joint ownership projects with local communities.**
There is considerable potential for jointly owned projects to come forward (jointly owned by the community and private renewable energy developers), using the FEL process to explore what might be acceptable locally.

- **Make the process real, and ensure that the menu of choices offered are likely to be feasible / viable**
To maximise the value of FEL workshops as a basis for finding viable, developable projects, efforts should be made to source project level feasibility and viability data to inform the menu of choices, including (where possible) from the community and commercial renewable energy sectors. This could be instigated on a district wide basis by local authorities or could be funded by the Welsh Government. If data is sought in relation to specific parishes, the buy-in of that community or parish council to the FEL process should be established first before approaches are made to the commercial / community energy sectors.

- **Frame communications about renewable energy to rural communities around narratives of local self-sufficiency, independence and resilience.** This may be more effective than framing communications primarily around a climate change narrative or around the perspective of increasing energy security at a national level. **Such a narrative is likely to be more resonant in rural communities.**

- **Allow time: Effective engagement takes time and should be authentic.**
Any potential developments need to be brought to the attention of the community early on and the community's concerns need to be heard. It should be made clear to developers that a successful planning application is dependent on effective engagement with the local community and clear community benefits. Communities should be engaged from the outset and throughout the process. Communities do not want to be consulted only once plans have been finalised. Engagement should not be seen as a tokenistic box ticking exercise, but a fundamental part of the process. Use co-creation to properly engage communities in the development plans. Developers need to factor effective engagement into their programme and budget accordingly.

- **Ensure that heat pump installations (particularly those funded by government grant schemes) are carried out correctly and supported by any associated retrofitting measures to ensure that energy bills don't rise following installation.**
This will ensure that heat pumps run to maximum efficiency. Update messaging to reflect that safeguards are in place to protect homeowners.

- **Consider developing the FEL process further**, in light of these findings, with the Local Authority acting as convenor (see above) and acceptable levels of engagement throughout the process, as shown in figure 1 below
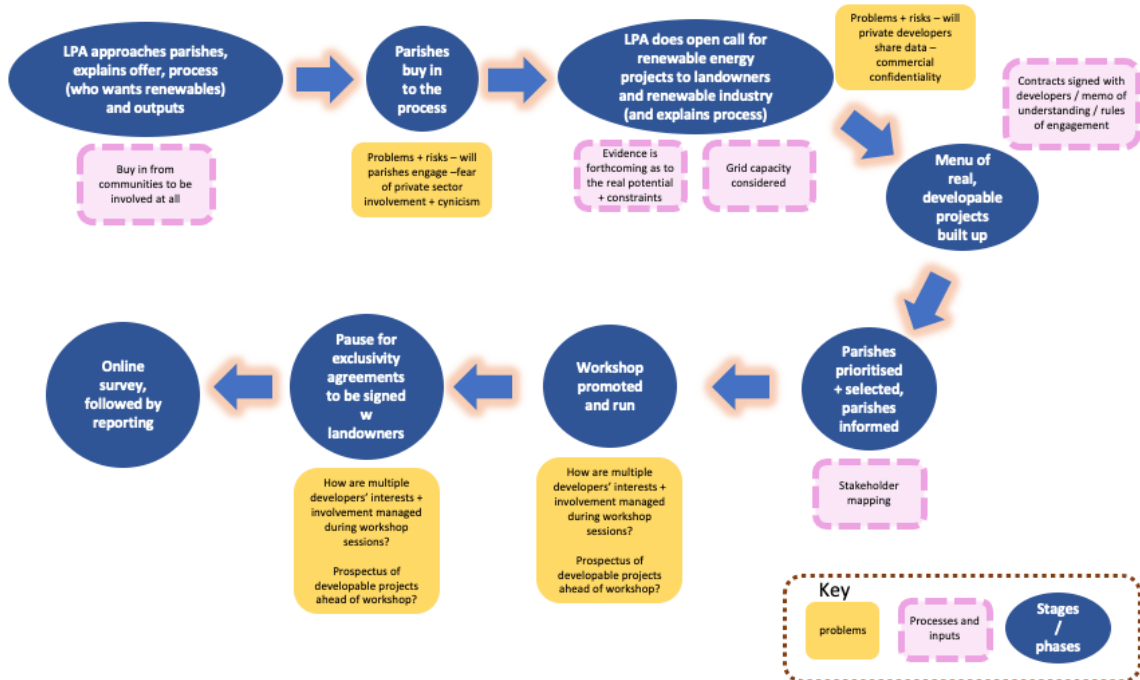

Figure 1: A potential FEL process, developed by CSE, which brings together Local Authority planning, developers and community

Recommendations for a good practice guide on community engagement using participatory approaches

- **Keep it local:** This engagement approach works because it localises the problem of how to decarbonise the energy system to the scale of a community. It asks the

people likely to be affected by renewable energy development what might be acceptable and what landscape impacts they might be prepared to accept. As a result, it would not be effective to attempt to run this sort of workshop covering a very extensive area. It should also be noted that we did not discuss transmission of electricity across the local landscape, with the actual renewable energy technologies located elsewhere; further work would need to be done to assess how best to approach this.

- **Use known and trusted local organisations to facilitate and promote workshops:** Engaging the community, "building a crowd" for a workshop and engaging hard to reach groups is much easier if the organisation facilitating the event is already known and trusted.

- **Reach a diverse audience**: One size engagement does not fit all. Carry out a thorough stakeholder mapping exercise to ensure you have identified all the key stakeholder groups, which together will represent a broad sector of the community. From experience, the hardest group to reach is generally the 30 – 50 year olds. Adapt your engagement methods, timings and venues to the groups you are reaching out to. Not everyone will come to the local village hall in the evening. Identify your key stakeholder groups and how best to reach them. Be prepared to go to them in their own environment.

- **Engage future generations:** Young people are our future generations and as such the future stewards of the landscape. In keeping with the Well-Being of Future Generations (Wales) Act it is imperative that their voices are included in all engagement. Furthermore, if handled sensitively, the wider public and older generations who typically form the majority of the public engaged, recognise this and generally respond positively to their opinions. Extra efforts need to be taken to ensure that their voices are heard, by putting on workshops hosted in schools, but sixth form pupils are able to engage with the workshop structure and give considered views without any need for the materials to be simplified.

- **Be inclusive:** Make extra effort to ensure different language and community subgroups are engaged. Within mixed Welsh communities with a mixture of Welsh and English language speakers, long-time residents and relative newcomers to the area, farming and non-farming groups, the community may not be fully integrated. Ensure that attendees can communicate in the language of their choice. Be aware of any sub-groups present on the night and seek to ensure they have the opportunity to contribute and feel comfortable sharing their views.

- **Group size is important**: Do not try to address a village hall full of people – split people into small groups to discuss issues in depth. This avoids the loudest voices dominating and enables quality discussions about the issues.

- **Good facilitation is essential:** Your facilitators should be highly experienced and independent. They should be armed with facts, not opinions, to enable participants to learn about the issues and come to informed views, and should not seek to direct

any particular outcome. Facilitators should be honest and authentic and clear about what is negotiable and what is non-negotiable. Allow enough facilitators for small group discussions (see above).

- **Be prepared to bust myths:** There are still a lot of myths about renewables that often form the basis of objectors' arguments. Be prepared to address these myths with facts about how the technology in question works, its likely impacts, and how these impacts are assessed and mitigated through planning processes. Be honest about the adverse impacts that can arise from renewable energy projects and encourage workshop participants to learn from one another.

- **Change the language:** NIMBY labels are generally unhelpful, inaccurate and leave the reasons for opposition unexplained**.** Much of the time, people have good reasons as to why they might be concerned about particular forms of renewable energy or particular locations. If these concerns are aired and addressed in policy making and/or in the formulation of renewable energy projects, ambitious policies and proposals can be drawn up, hugely increasing supply. The views of a given individual are not always unchangeable; people's views on the acceptability of energy infrastructure can change, particularly when allowed to learn how these issues are addressed through planning processes, and when exposed to the views of their peers. Workshops should therefore be open and welcome all viewpoints.

- **Community benefits:** Community benefits should be integral to any development; but be transparent about what is and isn't possible in relation to them. Ensure that communities fully understand their options and what is involved in pursuing things like community ownership. Work with the community to co-create community benefits suitable to that particular community. Ensure that successful planning permission is dependent on the inclusion of significant community benefits, which should be co-designed with the community.

1. Introduction

Wales has a goal of having net zero carbon emissions by 2050 (Welsh Government, 2021)[3]. Net zero means emitting as close to zero greenhouse gas emissions as possible and ensuring that any remaining emissions are balanced by removals from the atmosphere. This project focuses on Powys and Ceredigion, County Councils that have both declared a climate emergency and aim to be net zero local authorities by 2030.

One of the key solutions to reducing carbon emissions and tackling the climate crisis is to increase the amount of energy generated from renewable sources like wind or sun, alongside reducing overall energy use. Developing these resources can lower our fuel bills, reduce carbon emissions and increase energy security.

The identification of suitable sites for renewable energy projects is not just a technical issue; it is also a social one. This project is about understanding the perceptions local communities have of potential developments, if and how community benefits should be considered, and the ways in which communities should be engaged in the planning of renewables schemes in the future.

1.1 About the project

The project was delivered jointly by the Centre for Sustainable Energy (CSE) and the Centre for Alternative Technology (CAT), which are both independent charities. The project was funded by the National Infrastructure Commission for Wales (NICW) as part of the *Preparing Wales for a Renewable Energy 2050* project. NICW wish to understand how the potential of Mid Wales to generate significant amounts of renewable energy can be unlocked in terms of infrastructure and community support.

This specific project focused on testing a bottom-up approach to community engagement. The project applied the 'Future Energy Landscapes'[4] (FEL) methodology to engage with communities in Ceredigion and Powys in order to understand their views on renewable energy, and to ascertain ambition for local generation and use.

The project had no connection to any particular planning proposal; it was purely hypothetical and exploratory. It was a pilot project to help increase understanding of how best to bring communities together to discuss options for their area using a process that allows voices from across the community to be heard and in turn to gain a better understanding of the types and scale of renewable energy schemes that communities would find acceptable in the local landscape. The research will help the National Infrastructure Commission understand the complexities of community engagement and enable it to make recommendations to the Welsh Government on its approach to developing renewable energy in Wales.

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[3] Welsh Government (2021) Net Zero Wales Carbon Budget 2 (2021-25) Available at: https://www.gov.wales/sites/default/files/publications/2021-10/net-zero-wales-carbon-budget-2-2021-25.pdf
[4] https://www.cse.org.uk/projects/view/1383

1.2 About this report

This report summarises the outputs from workshops that took place during the months of January and February 2023 and subsequent surveys which sought to understand views from workshop attendees as well as people from the wider community who were unable to attend the workshop in person. The information gathered from the communities has been collated to inform this overarching report. This report advises on public perception of renewables in the local landscape and explores a bottom-up participatory approach to community engagement, building informed public consent to significantly boost renewable energy deployment and decarbonise the energy system in Mid Wales.

This report summarises the renewable technologies suggested in the workshops and tested with the wider community. It presents details of the methodology employed, the findings generated from the workshops and follow up survey, and the conclusions and subsequent recommendations.

2. Methodology

The project employed the Future Energy Landscapes (FEL) methodology, a methodology designed by CSE specifically for the purpose of engaging communities in the planning and development of renewables in the local landscape. The methodology applies a three-stage approach to engaging communities, comprising:

i) Initial outreach in the communities - attending events and community council meetings to explore perceptions of the local landscape and recruit workshop participants;
ii) Interactive workshops that engaged between twenty and sixty participants in each community;
iii) Circulation of an interim report for each community to share the outcomes of the workshops and a survey to collect feedback from individuals within the designated area who were unable to attend the workshop.

The FEL engagement process lends itself to considering standalone renewable energy projects of reasonable scale which require planning permission such as onshore wind developments, solar farms and micro-hydro projects and which give rise to significant landscape or visual impacts. The process is therefore well suited to rural or semi-rural places where there is land and space available for these types of projects to go ahead.

2.1 Pre-workshop activities

2.1.1 Selecting communities

Communities were identified against the following criteria:

- Areas to be located in Ceredigion and Powys, within the areas 'pre-assessed' as being suitable for onshore wind within 'Future Wales: The National Plan 2040'.[5]

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[5] https://www.gov.wales/sites/default/files/publications/2021-02/future-wales-the-national-plan-2040.pdf

- Areas with the greatest technical potential for standalone renewable energy generation, including onshore wind development, hydro or solar farms for electricity production, based on the best evidence available.
- Areas outside those with planning constraints which might prevent planning permission being granted, for example green belt, National Park designations and other landscape designations and designated wildlife sites.
- Avoiding areas where there are live planning applications for significant renewable energy developments, where debate about the project would be likely to dominate and de-rail constructive debate.
- The extent to which the deployable resource has already been utilised, as suggested by the BEIS Renewable Energy Planning Database: quarterly extract[6] and the team's professional experience.
- Areas where there is a secondary school and/or young farmers groups in order to involve young people.
- Areas where there is a village hall or community hub.

In addition to the above, we also had conversations with relevant officers and elected members at both Powys County Council and Ceredigion County Council, drawing on their knowledge of the counties. Ultimately four communities were identified, which best met the criteria and gave a good geographic spread across Mid Wales, two each in Powys and Ceredigion. In addition, we held two further FEL workshops in schools with sixth form pupils, one in Powys and one in Ceredigion, to bring in the voice of young people (who typically don't attend public consultations). As the generation who will inherit the landscapes explored in the workshops, and the legacy of the decisions being made about additional renewable energy infrastructure, and in keeping with the Well-Being of Future Generations (Wales) Act[7], it was important to bring their voices into a forum they would not usually be invited or feel inclined to participate in.

Figure 2: Participants annotating a hand drawn map of their local area

[6] https://www.gov.uk/government/publications/renewable-energy-planning-database-monthly-extract
[7] https://www.futuregenerations.wales/about-us/future-generations-act/

The geographical area to be covered within each workshop (and discussed by participants) was chosen so that there would be sufficient land and space and potential renewable energy resources to allow a range of renewable energy projects to go ahead, whilst ensuring that workshop participants would live locally and identify the whole of the study area as their home.

Having selected the target communities, the team drafted a community engagement plan for each community. This identified local organisations and interest groups, communication channels to different sections and segments of the population and local forums, and a wide range of intermediary organisations which have access to different sections of the community, for example:

- Community Council and Councillors
- Local Authority Community Connectors
- Churches and faith groups
- Sports clubs
- Merched y Wawr and Rotary clubs
- Walking and wildlife groups
- Clubs and associations, such as historical and archaeological associations
- Neighbourhood Watch groups
- Landowners, farming networks, forums and associations
- Youth forums, Young Farmers' Clubs, networks and schools

Additionally local media, forums and communication channels were identified, including:
- Local newsletters, local media and events websites
- Libraries, garden centres, shops and pubs which might be locations for posters
- Facebook and other social media groups and forums
- Public events the team could attend

Thorough stakeholder mapping ensured that we had a good mix of individuals with a variety of perspectives and interests, including groups who might have prior concerns about the expansion of renewable energy. Reaching a broad range of ages was harder within the time and budget available, and we make recommendations in relation to this in section 5.

2.1.2 Creating maps

For each identified area we created hand drawn maps to take out into the communities. It was important that they were hand drawn as participants felt more able to annotate the maps than they would otherwise have done. The maps displayed key features in the landscape and covered an area suitable for the development of a range of renewable energy technologies.

Figure 3: Hand drawn map of one of the areas

2.1.3 Publicising the workshops

The team initially contacted each of the community councils, before then reaching out to others in the communities via email and social media. The team spoke to community and group leaders to explain the relevance of the events to their members and the community, identifying key 'messengers' within each community. These contacts assisted with workshop promotion through sharing social media posts and displaying physical posters in the communities. Within the team were two bilingual community workers, both of whom had long-standing links with the target communities. This was hugely helpful in reaching a range of different groups and individuals within the communities.

Team members also attended in-person meetings of groups such as those identified above to present on the project and invite participants to sign up to hear more about the project and attend the workshops. Speaking at these meetings enabled the team to start to build relationships and trust with community members and have conversations with local people about which parts of their area are special to them, and to reflect on where they might like to see renewables in their landscape. This also enabled the team to explain the relevance of the project to members of the public who had no prior interest in renewable energy.
To arrange the workshops with young people, the team contacted secondary schools located within the identified area. Although not all students lived in the community, many were familiar with the community either through recreation or visiting friends or family in the area. Those who were not familiar with the area considered the hypothetical proposals reflecting on the landscape their generation would inherit.

2.2 Workshops

Workshops were delivered in four communities, two in Powys and two in Ceredigion. As shown in table 1, there was good attendance at all workshops, with a minimum of 21 participants at the community events and a minimum of 14 at the school workshops. Two additional workshops were held with sixth formers within local schools, with support provided from teachers. The school workshops had to be condensed to fit into the time available, but the content was not otherwise adjusted. These workshops were effective: pupils engaged and gave considered views without any need for the materials to be simplified.

Community	Number of participants
1a (school group)	14
1b	21
2	24
3a (school group)	54
3b	55
4	22
Total	**190**

Table 1 attendance numbers at the six workshops

2.2.1 Workshop format and structure

The workshops were facilitated by CSE and CAT. The workshops aimed to:

- Create space for local people to have informed conversations about what renewable energy development would be suitable in their area.
- Help local people become better informed for future consultation on renewable energy policies, as part of the Local Plan. (This is a document, prepared by the council in consultation with the community, which sets out planning policies and proposals for new developments.)
- Test current attitudes to different types and scales of renewable energy technologies and gather feedback on preferred local solutions to low-carbon energy generation, including opportunities for local benefits.
- Develop a hypothetical scenario for feasible and acceptable renewable energy in the local landscape.
- Obtain greater understanding about the level and type of consultation communities in Mid Wales want in the potential development of renewable energy schemes.

Figure 4: Participants identifying areas of the local landscape that are significant to them.

The workshop activities included:
- Adding notes to a hand drawn map of the area for people to start thinking about areas that were special to them and places/features they liked/disliked.
- Watching a series of short videos about renewable energy, giving participants objective information on the characteristics and impacts of different forms of renewable energy, followed by questions.
- Choosing from a 'menu' of renewable energy (e.g. solar panels, wind turbines) that could feasibly be developed in the area. The menu was based on what might be technically possible and suitable from assessment by the team prior to the workshop. This analysis used council assessments and considered restrictions such as Sites of Special Scientific Interest (SSSIs).
- Identifying areas on the map where different technologies could go (we did not include potential transmission routes).
- As technologies and sizes of scheme were chosen, the team entered them into a spreadsheet (the Cesar Tool, developed by CSE), as shown in figure 5 below. This showed workshop participants the proportion of their community's energy demand that might be met from locally hosted renewable energy and how much carbon they would save.
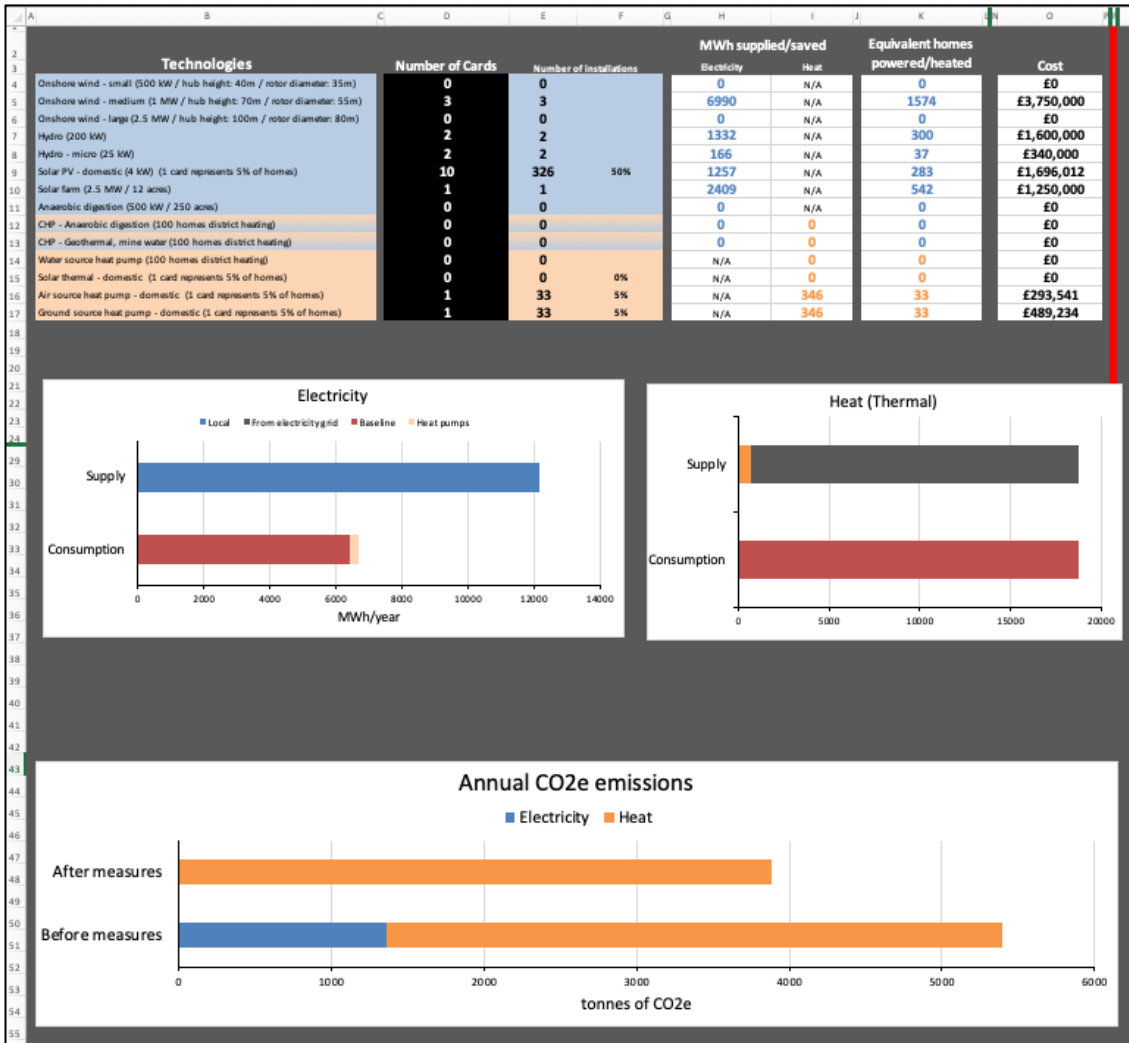
Technologies	Number of Cards	Number of installations		MWh supplied/saved		Equivalent homes powered/heated	Cost
				Electricity	Heat		
Onshore wind - small (500 kW / hub height: 40m / rotor diameter: 35m)	0	0		0	N/A	0	£0
Onshore wind - medium (1 MW / hub height: 70m / rotor diameter: 55m)	3	3		6990	N/A	1574	£3,750,000
Onshore wind - large (2.5 MW / hub height: 100m / rotor diameter: 80m)	0	0		0	N/A	0	£0
Hydro (200 kW)	2	2		1332	N/A	300	£1,600,000
Hydro - micro (25 kW)	2	2		166	N/A	37	£340,000
Solar PV - domestic (4 kW) (1 card represents 5% of homes)	10	326	50%	1257	N/A	283	£1,696,012
Solar farm (2.5 MW / 12 acres)	1	1		2409	N/A	542	£1,250,000
Anaerobic digestion (500 kW / 250 acres)	0	0		0	N/A	0	£0
CHP - Anaerobic digestion (100 homes district heating)	0	0		0	0	0	£0
CHP - Geothermal, mine water (100 homes district heating)	0	0		0	0	0	£0
Water source heat pump (100 homes district heating)	0	0		N/A	0	0	£0
Solar thermal - domestic (1 card represents 5% of homes)	0	0	0%	N/A	0	0	£0
Air source heat pump - domestic (1 card represents 5% of homes)	1	33	5%	N/A	346	33	£293,541
Ground source heat pump - domestic (1 card represents 5% of homes)	1	33	5%	N/A	346	33	£489,234

Electricity (MWh/year)
Legend: Local, From electricity grid, Baseline, Heat pumps
Supply, Consumption

Heat (Thermal)
Supply, Consumption

Annual CO2e emissions (tonnes of CO2e)
Legend: Electricity, Heat
After measures, Before measures

Figure 5: Screenshot of the Cesar Tool

2.3 Interim reports and survey

The team produced interim reports from each workshop and shared these with workshop participants and community contacts, who then shared them with friends, family and colleagues in the local area. Recipients were invited to read the interim report and respond to a series of survey questions about the workshop findings.

The reports summarised what was discussed in the workshop, and the surveys collected feedback as to whether the views expressed at the workshop were shared by the wider community. Survey questions included asking respondents about their views on the type, size and range of renewable technology proposed by the community workshops. The survey was open for four weeks for each area. The outputs from the workshop and follow-up survey are initial, high-level suggestions and hypothetical proposals.

3. Findings

This section presents the findings from the workshops and follow-up surveys.

As this project is aimed at piloting the FEL approach to community engagement and public perception of renewables in the local landscape, rather than developing actionable plans for the areas, specific communities have been anonymised in the report. The locations and dates of the workshops have been omitted to retain the anonymity of the communities. Communities taking part in the workshops have been allocated codes (community 1a – community 4) which are used throughout the report. In the communities where two workshops were delivered (a community workshop and a school workshop), these are referred to as community 1a and 1b or community 3a and 3b.

During the workshops, participants discussed their opinions about different renewables and shared their experiences of the historic and cultural context of the area. Participants shared reflections on their connection to the landscape and area, and the types of renewable energy technologies they feel would be acceptable in the landscape and why.

3.1 Overall energy generation and emissions reduction

3.1.1 Renewable electricity generation

In all the workshops, there was evidently a strong connection to the landscape and a desire to protect it and this undoubtedly impacted on some participants' perspectives on renewables in the landscape. However, the majority[8] of respondents were strongly supportive of renewable energy deployment being increased, accepting that the landscape is inevitably going to have to change to enable this, albeit with reservations and conditions regarding community benefits. Participants had strong feelings about the type and scale of renewable energy projects which might be acceptable around them, and about the locations which might be developed. Nevertheless, as shown in figure 5 below, if the renewable options supported were to be deployed as envisaged, all the communities would exceed, and in two of the four communities substantially exceed, their current annual electricity demand from renewable energy sources developed within their locality. This was backed up by the survey, with a large majority of respondents satisfied or very satisfied with the energy scenarios developed in the workshops.

However, it should be noted that we did not discuss transmission of electricity across the local landscape, with the actual renewable energy technologies located elsewhere; further work would need to be done to assess how best to approach this.

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[8] In all of the workshops we took the majority to be 60% of the participants or over, however, when developing the energy scenarios we adjusted the scenario until we got the maximum number of participants on board
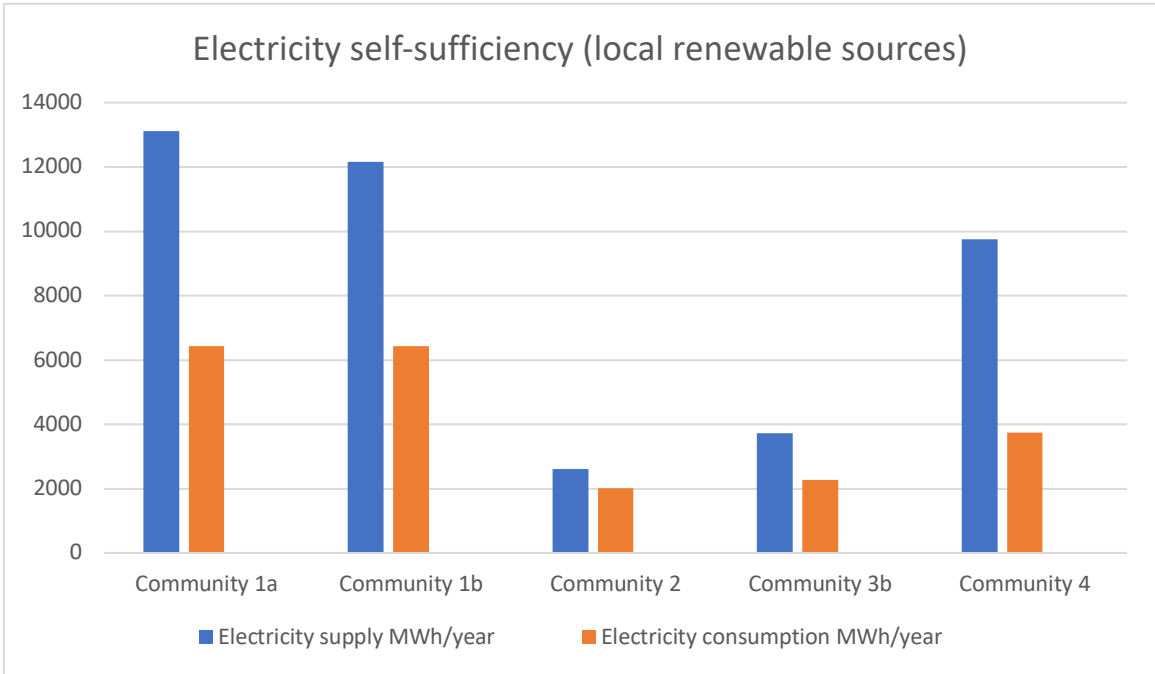
Figure 6: Electricity self-sufficiency (local renewable sources) developed in the workshops

Fluctuating levels of electricity demand and renewable energy generation would mean that the community would still use electricity provided from the distribution grid. Nevertheless, were the supported renewable electricity technologies to be deployed, the overall effect would be to entirely remove or compensate for the carbon emissions arising from current levels of electricity use in these four communities and support the decarbonisation of other communities through the green electricity they export. This is shown in figure 7 below.
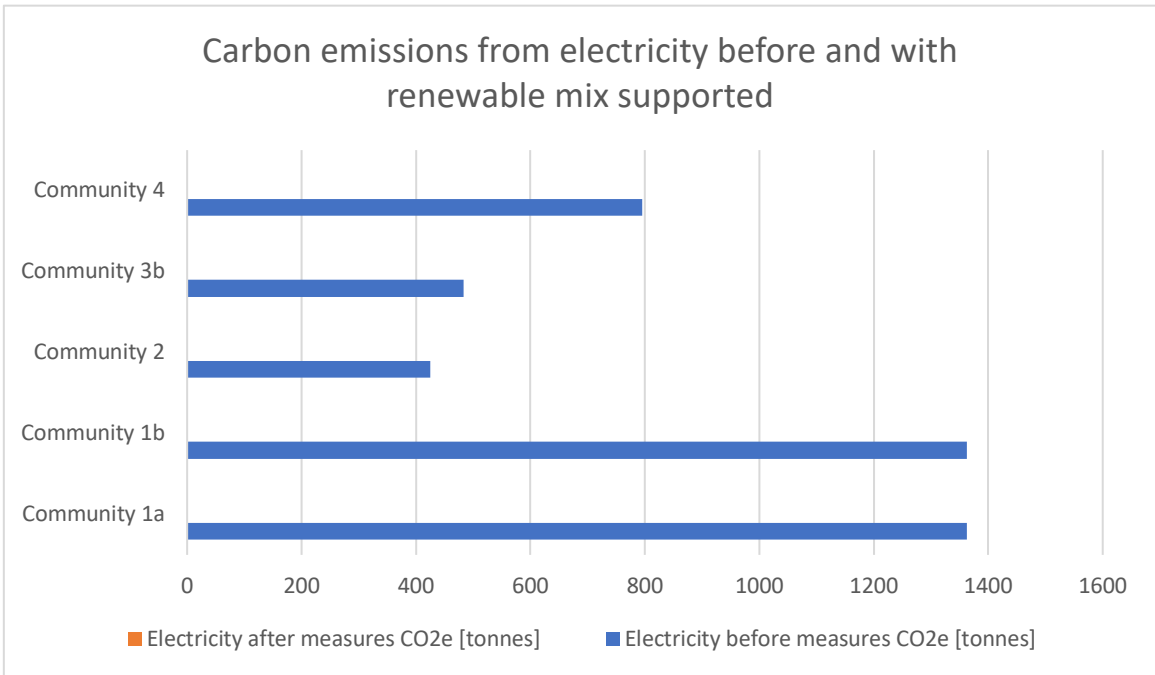
Figure 7: Carbon emissions from electricity before and with renewable mix supported

3.1.2 Renewable heat generation

The sessions also considered the potential to meet heat demand from local renewable sources, including options such as district heating and heat pumps. However, as shown in figure 7, in all cases the communities would generate only a very low proportion of their heat demand from local renewable sources if their agreed scenarios were to be developed.

There was support for renewable heat options, however the range of options was more limited and there was recognition that landscape impact is not the predominant barrier to the rollout of most renewable heat technologies. The barriers are instead predominantly financial, technical, and structural - whether the cost can be brought down to enable people to afford heat pumps, whether district heating would be feasible / viable in relatively low-density rural communities, and whether local or national government is able to create heat networks in existing communities.

A small number of participants expressed concern about the effectiveness of heat pumps, however upon exploration of this it seemed the issues were predominantly associated with the installation (particularly where the heat pump was located) and lack of insulation in the property making the heat pump less efficient than it might otherwise have been.
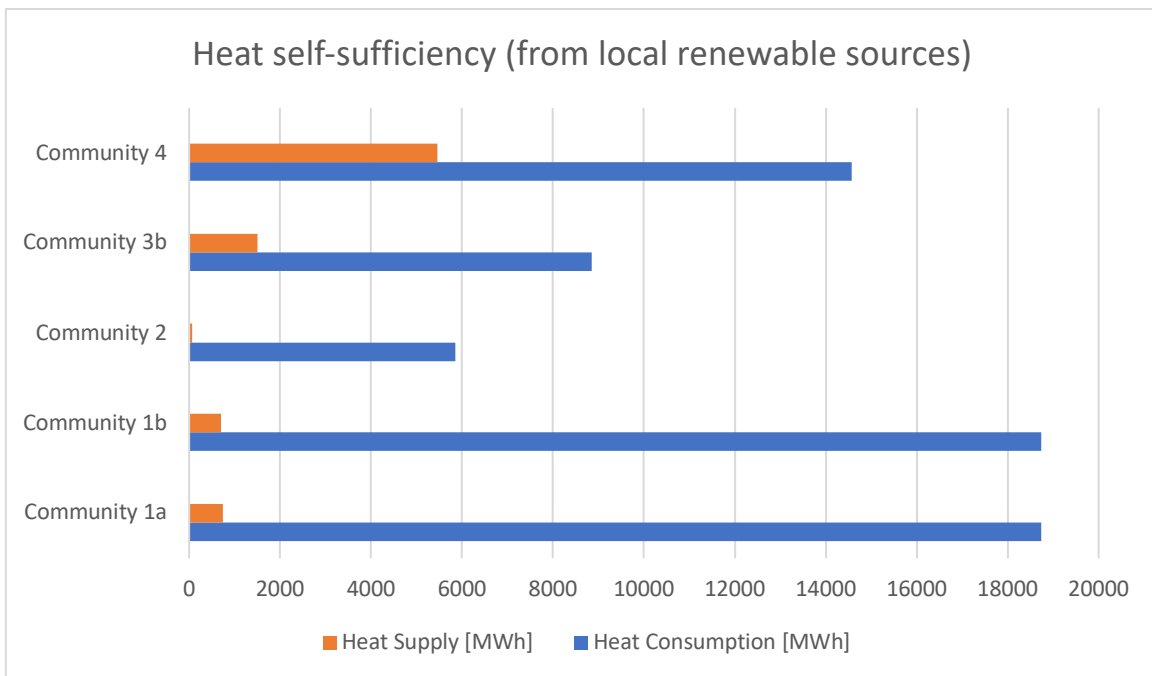

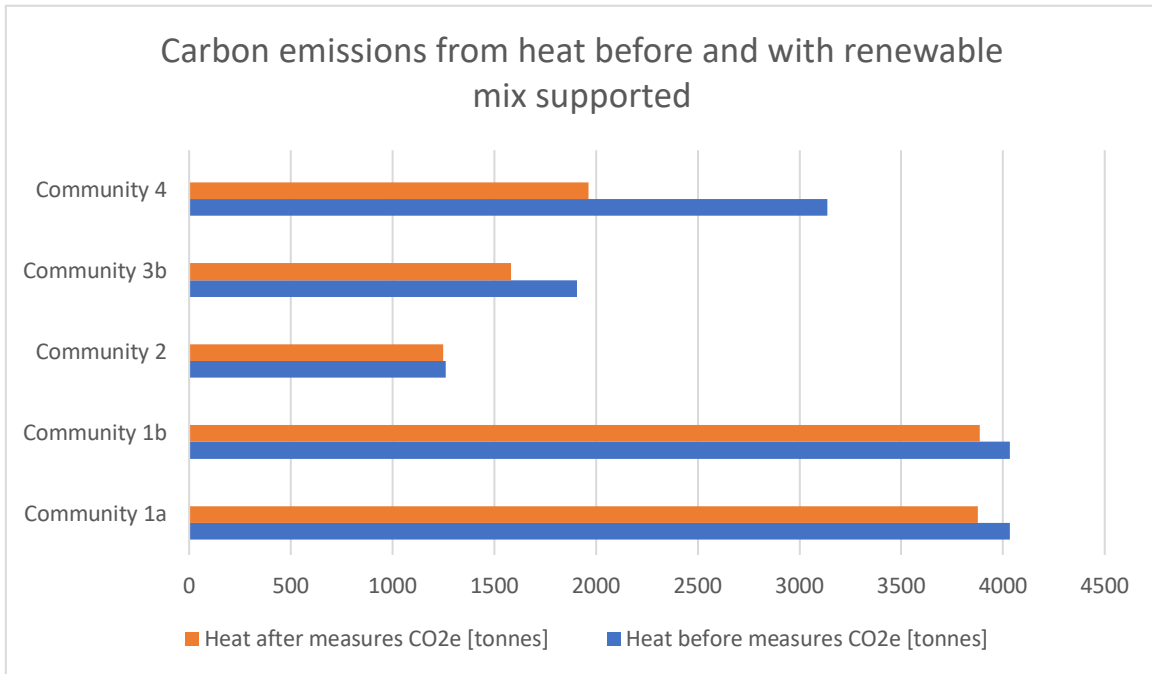Figure 8: Heat self-sufficiency (from local renewables sources)

Figure 9: Carbon emissions from heat before and with renewable mix supported

3.1.3 The electricity grid

In every workshop a number of participants raised concerns about current grid capacity. This impacted on the process as participants pointed out that there currently is not enough grid capacity to support the development at a significant scale of the renewable technologies being discussed in the workshops, and that this was a barrier to development coming forward which needed to be resolved through other means. Some questioned the value of discussing renewable technologies that are currently unachievable with the existing grid. Concerns were also expressed about the impact of pylons on the landscape, and several participants asked about the viability of running underground cables instead. Pylons was a particular concern in relation to exporting electricity from Wales into England, with many participants strongly opposed to producing excess electricity, only for it to be exported using large numbers of pylons, with little or no benefits to them (see section 3.4 for more information on community benefits).

3.2 Views on specific renewable energy technologies

Participants in each workshop developed a hypothetical scenario for the defined area, made up of a selection of renewable technologies that were deemed acceptable by the majority (60% or more) of people in the workshop.

Participants agreed a mix of renewable energy infrastructure to be included in their hypothetical scenarios. These are broken down below into large-scale renewable infrastructure and domestic-scale renewables.

3.3 Large-scale renewable infrastructure

Figure 9 shows the number of each type of large-scale renewable energy installation that each community agreed to in the scenarios developed at the workshops.
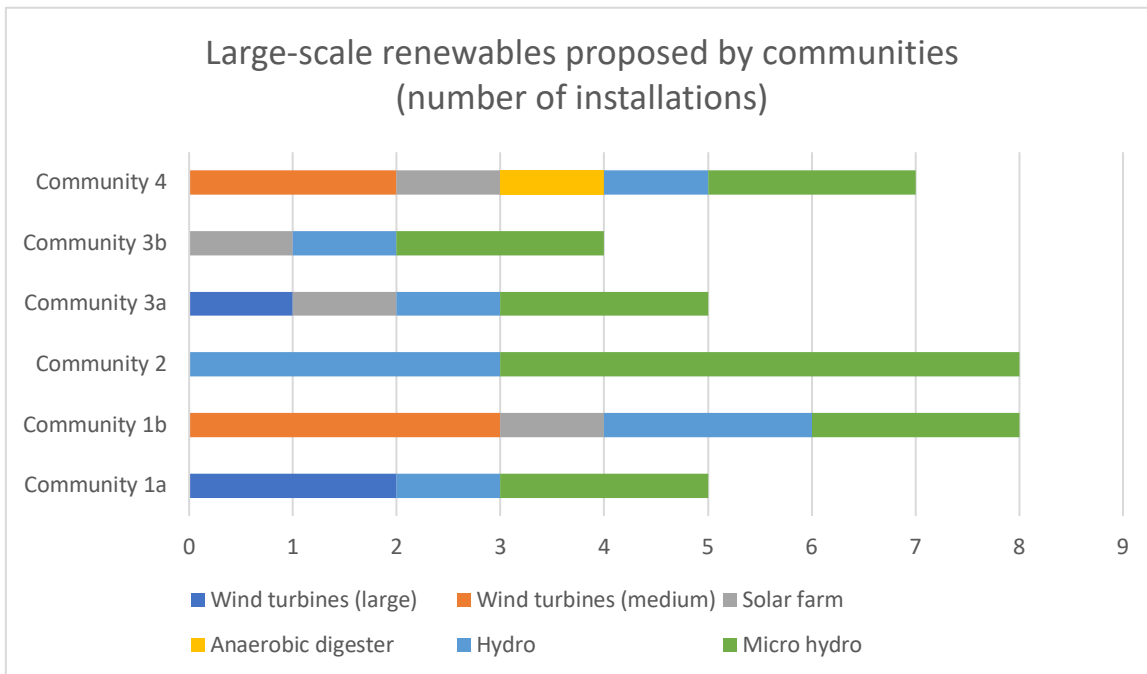
Figure 10: Large scale renewables proposed by communities

3.3.1 Hydro

Medium and micro hydro received considerable support and were considered acceptable by all communities. This was often accompanied by caveats within the workshops that suitable rivers with sufficient flow would be required to make hydro a viable option, particularly year-round.

Some communities noted significant historic hydro developments in the local landscape, particularly micro-hydro, which would have powered individual farms and properties. This could indicate very local-level historic hydro as a source of energy driving greater cultural acceptance of this form of renewable energy.

Participants also considered hydro less invasive or destructive to the landscape. This could be a further factor in making this form of renewable energy attractive to communities.

3.3.2 Anaerobic digestion

Anaerobic digestion was only included in one community scenario. It was noted that a number of farm-scale anaerobic digestion facilities exist. Participants were strongly opposed to the anaerobic digester in their scenario being used to process imported compostable waste and were also opposed to crops being specifically grown to generate energy through this process. This infrastructure was only supported with the caveat that it was used to generate energy from locally produced waste, therefore creating a closed-loop community solution to energy and waste.

3.3.3 Solar farms

Solar farms received mixed support from participants. General acceptance was secured with caveats that land used would not be grazing or crop land (unless suitable for both, which would be acceptable), with preference for brownfield land or opting for roof-based panels

of an equivalent size to the solar farm. Young people were less in favour of solar farms than wind turbines, for example, due to the amount of land solar farms require. The opposition to the loss of agricultural land seemed to have little relationship with the actual value of that agricultural land in terms of food generation.

Responses to the survey reinforced the findings of the workshop around conflict with land use for food production versus energy production.

Aesthetics were a factor for opposing solar farms in the workshops, particularly the 'industrial look' of solar panels. Two comments in the survey responses echoed this, while others preferred the look of solar farms to wind turbines.

3.3.4 Wind turbines

All communities had in-depth discussions about wind turbines. Strong opinions were held both in favour and against wind turbines in the communities, with those opposed attempting to dominate the conversation in some of the workshops. Although only three hypothetical scenarios included wind turbines once a consensus was reached, turbines were proposed by a significant number of participants in all of the workshops.

There were discussions about smaller numbers of large wind turbines in preference to smaller turbines. The young people were more supportive of wind turbines, seeing them as preferential to solar farms due to requiring less land, and suggesting that "the bigger the better". The wider communities were more conservative however, with some support for medium turbines, but greater support for small-scale individual turbines to provide power at farm level, for example.

Concerns around wind turbines included lack of grid capacity, potential noise disturbance, potential impact on wildlife, additional infrastructure required to support turbines, and impact on views from properties and in the landscape more widely. Whilst young people were supportive of wind turbines, this did come with the caveat that they did not want the landscape to be 'covered in' turbines, and also felt there should be careful planning in terms of location to avoid areas that were 'special' to the community, e.g. popular walking spots.

Some of the positive perceptions of wind turbines included their ability to provide large quantities of clean energy, their relative economic value compared to other technologies (being able to get more energy for the cost), improvements in design leading to noise reduction in modern systems, and wind turbines being a positive addition to the landscape in terms of representing a sustainable future.

Whilst offshore wind was not discussed within the workshops, because of the project being focussed on local landscapes, several of the survey respondents stated that they would like to see more offshore wind farms.

3.4 Domestic-level renewables

Figure 10 shows the percentage of properties that communities suggested could be fitted with different types of domestic renewable energy equipment in the scenarios that were developed at the workshops; these scenarios were supported by the survey respondents.

Communities were generally more supportive of smaller-scale renewable energy equipment that could be installed on individual properties with the additional benefit of providing home-owners with energy security.
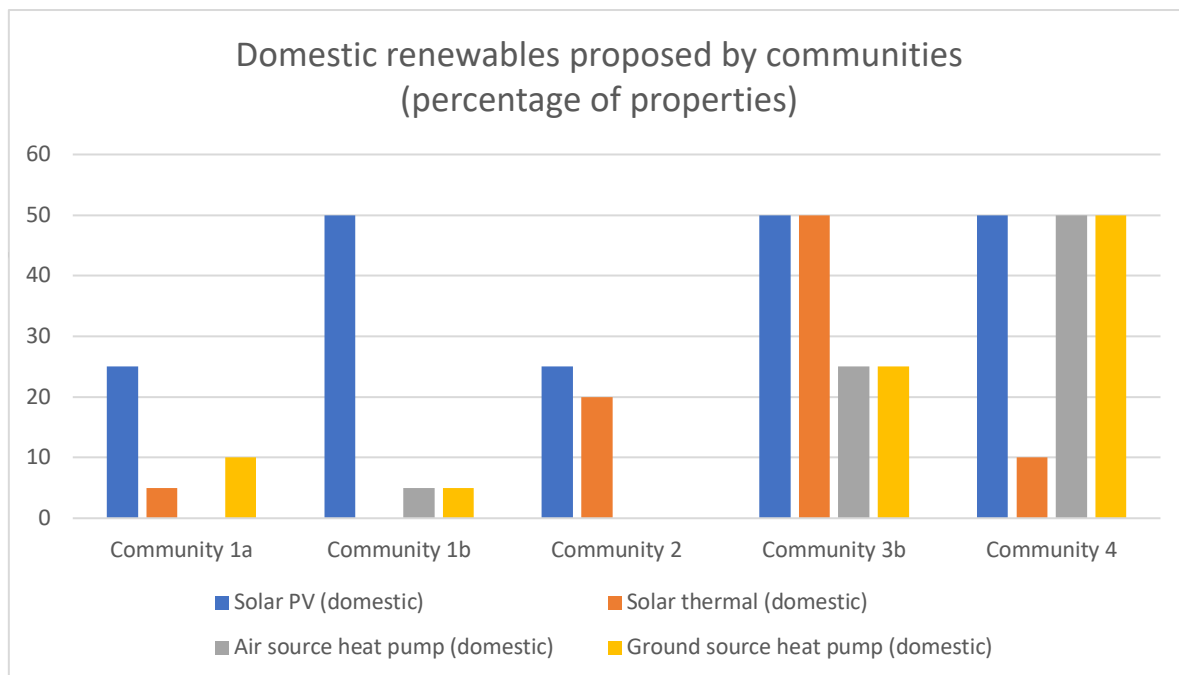

Figure 11: Domestic renewables proposed by communities

Although there is no data showing in Figure 10 for Community 3a, this is due to not having time within the workshop to finalise agreement. The participants did however support installing domestic solar PV and solar thermal panels and air source heat pumps but did not support installation of ground source heat pumps, viewing the space required as impractical.

3.4.1 Solar PV and solar thermal
Domestic solar PV was supported by all communities. Whilst solar thermal still had support from most communities, the amount of solar thermal in scenarios was lower in all but one scenario. Some communities were less convinced about the effectiveness of solar thermal, which could highlight an opportunity to increase understanding about this technology.

3.4.2 Heat pumps
Heat pumps were included in most scenarios developed through the workshops, with three communities opting for the same percentage of properties being fitted with air source and ground source heat pumps.

Where scenarios did not include air source heat pumps, there was often scepticism about the effectiveness of air source heat pumps. There was discussion in the workshops about older properties not being suitable for air source heat pumps, the need for insulation of properties for heat pumps to be effective and people's bills having gone up after fitting heat pumps. Noise was also seen as a barrier to heat pumps adoption. Again, this could highlight an opportunity to increase understanding about the effectiveness of this technology when properly installed.

3.5 Community benefits

In each of the workshops, the topic of community benefits and community ownership was discussed, with the vast majority participants very clear that if the local landscape was to be used for renewables there should be benefits to the local communities. This was felt particularly strongly if the resultant electricity was to be exported to other areas of the country. Furthermore, there was a significant shift in approach to the scenario development and perception of the development of renewable technologies when potential community benefits were discussed. The communities all feared a sense of being 'done to' with little or no benefits to them.

Community benefits and ownership models that were discussed in the workshops included:
- Community ownership maximising community benefit by retaining surplus income for the community (the example of YnNi Teg Community Benefit Society[9] was given);
- Community schemes supplying the local customer, using models such as Energy Local, e.g. the Bethesda hydro scheme;
- Free support from the Welsh Government Energy Service;
- Large schemes funded by developers can also offer community benefits including:
  - Grants
  - Regular income
  - Energy vouchers
  - Ownership of some of the scheme (free or options to buy in)

There was also significant interest in community ownership schemes but concern about how these would be funded.

Whilst most of the participants accepted that renewable energy generation needed to be considered at a UK scale, with Mid Wales being a prime location, they felt very strongly that companies and communities from elsewhere (England being predominantly cited) should not benefit at a cost to local communities. It was felt very strongly by the vast majority of participants that if the local landscape was to be used and if electricity was to be exported elsewhere, there must be significant benefits to the local community. Most participants also felt that all proposed developments should be planned with extensive community engagement and the community benefits co-designed with the developers, local authority and the community themselves.

All the communities saw generating their own energy as a positive thing, and the notion of being energy self-sufficient is clearly a strong persuader for renewables in the local landscape.

It should also be noted that a participatory process itself, such as the FEL method, goes a long way to addressing the communities' concerns and needs, and communities are much less likely to object or ask for significant community benefits in a community engagement

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[9] https://www.ynniteg.cymru/

process run well than if they feel it is being treated in a tokenistic manner and/or 'done to them'. However, running a participatory process makes it even more important that what happens on the ground is materially influenced by what local people went out of their way to say.

'Planning Policy Wales'[10] and 'Future Wales: The National Plan 2040' both give support to proposed community energy projects and set out the Welsh Government's expectation for all new renewable energy projects in Wales to include at least an element of local ownership, to retain wealth and provide real benefit to communities. However, planning decisions must be based on an assessment of the impacts of the proposed development, irrespective of who the applicant is.

Here national policy does depart from public opinion. In the communities we engaged, who develops, owns and benefits from a renewable energy project is a planning issue, and significant impacts how a project is seen locally and whether it is likely to be supported through the planning process. Whilst some communities are satisfied with deriving a benefit from a project via a community benefit fund, others may want more. The workshops demonstrated that communities want effective engagement as a minimum and beyond that there was a range of opinions in relation to the scale and nature of community benefits and/or community ownership. In previous FEL sessions in England some communities have supported onshore wind being developed on the pre-condition that it is community owned.

In the absence of policy which enables local planning authorities to differentiate between commercial and community owned schemes, it is important that Local Planning Authorities and the Energy Service does proactively support community energy projects in accordance with Government guidance. The Welsh Government should also explore the potential to make funding available to support the development of community energy projects.

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[10] https://www.gov.wales/sites/default/files/publications/2021-02/planning-policy-wales-edition-11_0.pdf

4. Conclusions

Within all of the workshops it was evident that there is significant distrust of the planning system and commercial energy developers, with a sense of projects having been imposed on them in the past and a fear of this happening in the future. There are evidently tensions between the current top-down nature of planning and the desire, and arguably need for, more bottom-up participatory planning processes. Participatory processes such as the FEL methodology could go a long way to addressing these tensions in the development of both policy and developments, which would ultimately result in a smoother planning process for developments and more buy in from local communities.

There were also a lot of misperceptions about how renewable energy technologies, and in particular wind turbines, operate, their impacts and how these are assessed. Nevertheless, there was strong support for renewable energy which could be harnessed to increase generation, with all communities expressing support for sufficient renewable energy to meet and exceed their community's annual demand for electricity from locally hosted renewables - see table 2 below.

Community	%age of local electricity demand generated from new renewable energy supported in workshops and online surveys
1a	182 %
1b	197 %
2	130 %
3b	135 %
4	183 %

Table 2 - Renewable electricity generation across the four communities

Across the sessions, the communities engaged accepted that their community might generate more electricity than it consumes, and therefore supported the decarbonisation of the wider energy system. This suggests that were this approach to be scaled up, most rural communities could produce enough electricity to meet local needs from locally hosted renewables.

However, in all cases this was subject to the community benefitting from hosting this infrastructure. Who develops, owns and benefits from a renewable energy project is likely to have a very significant impact on how it is seen locally and whether it is supported through the planning process. Some communities will be satisfied with a private renewable energy project coming forward supported by a community benefit fund, whereas other communities may wish to co-own renewable energy projects going forward. In order to leverage this public support, planning policy and planning decisions should be able to take these factors into account.

People in the communities we engaged with had strong views about the type and scale of renewable energy projects which might be acceptable, where these projects should be located, and how their community should benefit, and these views were not always predictable. We witnessed several participants shift their position in favour of renewables in

the local landscape as a result of the open and honest discussion. Community support for renewable energy projects should therefore not be assumed at the outset; and to maximise potential generation, efforts should be made to shape proposals alongside the local community and through that process address community concerns and aspirations.

Wind turbines were undoubtedly the most debated renewable technology, with a minority of vocal participants strongly opposed to them. Lack of time within the workshops was a prohibitive factor in the conversations, as was the large group size, and this should be considered in all consultation about potential developments (see recommendations). Solar farms were also quite controversial, with the key concern being loss of agricultural land. There was, however, a lack of knowledge and understanding about the potential benefits of agrivoltaics, so this is something that should be explored with communities during any plans for solar farms. Conversely, medium and micro-hydro were deemed the most acceptable technology, but this could be in part because of historical use of the technology within the local landscape resulting in a cultural familiarity. It was also felt that it had less visual impact on the landscape.

Domestic renewables were generally supported, with the main concerns being around cost to the householder and reports of inadequate fitting under current government schemes (including lack of retrofit measures in homes), thereby reducing their effectiveness. In discussions about decarbonising heat and the rollout of heat pumps it was evident that some of the adverse experiences participants had heard about deterred support, although on discussion it was recognised that this was likely to have been due to poor sizing or problems with installations.

The workshops were framed around the extent to which these communities could generate as much or more electricity than they currently use and localised the problem of decarbonising the energy system to their community. Whilst participants had differing views as to the extent to which this could be achieved, this framing strongly resonated in all the sessions, both in terms of individuals (and their resilience to energy prices) and the community. The narrative of increasing local electricity production and resilience seemed to be a stronger driving force than narratives to combat climate change or contribute to national energy security, although we recognise this could be because of the way in which the workshop was framed, and participants did undoubtedly recognise that climate change is the key driver for renewable energy. Generally, the participants saw the notion of self-sufficiency in electricity and increased resilience as very favourable, however, there were evident misgivings about transmitting excess electricity elsewhere (notably England and Cardiff), unless they were suitably compensated for this.

Whilst the workshops used the best evidence available of the likely deployable resource within the four target areas, the evidence available was high level and somewhat out of date. Therefore, the outputs reflect a snapshot of local public opinion on the acceptability of renewable energy projects, rather than a list of technically deliverable renewable energy developments.

The FEL Methodology is a very good starting point for engaging communities in planning for renewables, although the reader should note our recommendations in respect of effective

community engagement as the method needs to be adapted according to the local context. Specifically, it was felt that a two-and-a-half-hour workshop was not enough time to effectively engage a community (especially in Wales where simultaneous translation is needed) and the format of the workshop needs to be re-considered (e.g. using breakout groups for discussions, particularly where the subject matter is sensitive). However, engaging communities in what is and isn't deemed appropriate in their local landscape, seeing the immediate impact of their renewable energy scenarios (electricity generation and carbon emissions) through the Cesar tool, and exploring potential community benefits together was very effective and deemed a positive contribution to the development of renewables in Wales.

Potential Use of FEL, or similar participatory processes, for Community Energy Projects
Planning Policy Wales sets targets for renewable energy generation: for the country to generate 70% of its electricity consumption from renewable energy by 2030; for one Gigawatt of renewable energy capacity in Wales to be locally owned by 2030; and for new energy projects to have at least an element of local ownership.

There is considerable potential for FEL type methodologies to be used and adapted to initiate or refine Local Area Energy Plans and community energy projects, and thereby deliver on this commitment. FEL processes could be initiated by a variety of actors including local planning authorities, energy hubs, or community groups themselves.

The workshops delivered in Mid Wales were shortened to save time, but the process can also consider the public appetite for home retrofit to save energy and carbon, the cost of such measures and impact on carbon emissions. In the context of a possible community energy project which is likely to generate a surplus, and rapidly rising energy costs, such an approach could be a jumping off point to consider what community benefits might be valued by the local community and how anticipated profits might be used by the community.

Potential Use of FEL for Commercial Energy Projects
There is also potential to use an FEL type method in the context of commercial renewable energy projects. However, it wouldn't be appropriate to force a developer to offer this approach if there isn't genuine flexibility about what might be developed, in terms of the type of projects, their location and scale and ownership models. Whilst it would be legitimate for a commercial developer (or community energy group) to present to the host community their proposal, the constraints they have uncovered, and the reasoning behind it, there should be scope for workshop participants to consider the trade-offs and consider other options than the developer's favoured option. The FEL process works because the community decide on the outputs themselves. Any sense that it is manipulated to achieve a particular outcome is likely to be counter-productive in terms of building support.
For this reason, we suggest that local authorities, energy hubs or another neutral third party should facilitate engagement approaches using project level data from renewable energy developers, as shown in the flow chart at figure 12.

Use of FEL within Pre-assessed Areas

'Future Wales: The National Plan 2040' identifies ten areas where large scale wind farms would be 'acceptable in principle.' The Welsh Government carried out an assessment to determine the acceptability of onshore wind within these areas, however within the six workshops we ran (all within the pre-assessed areas) there was a low level of awareness of the existence of this policy designation or of its implications.

There is considerable potential to run FEL or other participatory workshops within the pre-assessed areas to build support for the deployment of onshore wind and refine proposals to meet local concerns and aspirations.

Use of FEL in Urban Communities

The FEL engagement process lends itself to considering standalone renewable energy projects of reasonable scale which require planning permission such as onshore wind developments, solar farms and micro-hydro projects and which give rise to significant landscape or visual impacts. The process therefore lends itself to rural or semi-rural places where there is land and space available for these types of projects to go ahead. It will rarely be worthwhile to run this type of process in a fully urban location. The options for significant standalone renewable energy generation may be very limited in urban settings and/or the parcels of land that remain are likely to have 'hope value' for residential development which means they are undeliverable as renewable energy sites. Furthermore, the types of renewable energy project most likely to be feasible in urban locations (district heating and roof mounted solar panels) tend not to give rise to significant landscape impacts, or in the case of rooftop solar developments, even need planning permission.

5. Recommendations

Below we have provided recommendations exploring how the FEL methodology, or similar participatory processes, could best be utilised to increase renewable energy development, and recommendations for community engagement.

Recommendations for the National Infrastructure Commission for Wales

- **Consider using FEL, or similar participatory approaches, to build consent for renewable energy deployment within pre-assessed areas for wind. Encourage Local Planning Authorities (LPAs) to use FEL to inform planning policies and Local Area Energy Plans**
  The FEL methodology (undertaken so that the community has genuine choice) can be used in the early stages of policy formulation, to build public support for the increased deployment of renewable energy and to tailor local plan policy to meet local concerns and aspirations. The FEL methodology (or similar) could also be incorporated within Local Area Energy Plans (LAEP's), gauging the appetite of local communities to host renewable energy and the acceptability of policy outputs from Local Area Energy Plans. FEL is an open-source engagement process, available for

local planning authorities, community groups or any other body to adapt and use freely.[11]

- **Explore the potential for the Welsh Government to fund local authorities, existing communities, local community energy and climate groups to run Future Energy Landscape processes or similar bottom up or participatory engagement processes around the deployment of renewable energy.** Training and support should be provided and Local Authorities would be well placed to act in a convening role (see below).

- **Encourage Local Planning Authorities and the Energy Service to proactively support community energy projects in accordance with Government guidance.** Explore the potential for the Welsh Government to make funding available to support the development of community energy projects.

- **Encourage LPAs to use FEL, or similar participatory processes, to inform Local Area Energy Plans and local planning policies**
  The FEL methodology can be used in the early stages of policy formulation, to build public support for the increased deployment of renewable energy and to tailor policy to meet local concerns and aspirations. The FEL methodology could also be incorporated within Local Area Energy Plans (LAEP's), gauging the appetite of local communities to host renewable energy and the acceptability of policy outputs from Local Area Energy Plans. Our experience suggests that the use of participatory engagement approaches like FEL can build trust and public understanding of renewable energy technologies.

- **Encourage Local Authorities to act in a convening role**
  Beyond their statutory role, Local Authorities can also play a significant role in convening debate and supporting community action on climate and energy and supporting communities to take proactive approaches to renewable energy. For example:

  - Inviting willing communities to host FEL processes, and linking together communities and renewable energy developers (commercial or community energy organisations) to co-create mutually acceptable proposals;
  - Facilitating and supporting civic climate action and skills- and knowledge-sharing amongst these groups;
  - Supporting the formation of community energy groups;
  - Sharing data (for instance constraint mapping and mapping from renewable energy capacity studies) and offering support to help community-owned or community-led projects to come forward.

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[11] All resources needed to plan and run the process and detailed guidance and facilitation notes are available here: www.cse.org.uk/projects/view/1383.

- **Encourage renewable energy developers to use FEL or similar participatory approaches to refine their projects where options are open and to co-create joint ownership projects with local communities.**
  There is considerable potential for jointly owned projects to come forward (jointly owned by the community and private renewable energy developers), using the FEL process to explore what might be acceptable locally.

- **Make the process real, and ensure that the menu of choices offered are likely to be feasible / viable**
  To maximise the value of FEL workshops as a basis for finding viable, developable projects, efforts should be made to source project level feasibility and viability data to inform the menu of choices, including (where possible) from the community and commercial renewable energy sectors. This could be instigated on a district wide basis by local authorities or could be funded by the Welsh Government. If data is sought in relation to specific parishes, the buy-in of that community or parish council to the FEL process should be established first before approaches are made to the commercial / community energy sectors.

- **Frame communications about renewable energy to rural communities around narratives of local self-sufficiency, independence and resilience.** This may be more effective than framing communications primarily around a climate change narrative or around the perspective of increasing energy security at a national level. **Such a narrative is likely to be more resonant in rural communities.**

- **Allow time: Effective engagement takes time and should be authentic.**
  Any potential developments need to be brought to the attention of the community early on in the project development and the community's concerns need to be heard. It should be made clear to developers that a successful planning application is dependent on effective engagement with the local community and clear community benefits. Communities should be engaged from the outset and throughout the process. Communities do not want to be consulted only once plans have been finalised. Engagement should not be seen as a tokenistic box ticking exercise, but a fundamental part of the process. Use co-creation to properly engage communities in the development plans. Developers need to factor effective engagement into their programme and budget accordingly.

- **Ensure that heat pump installations (particularly those funded by government grant schemes) are carried out correctly and supported by any associated retrofitting measures to ensure that energy bills don't rise following installation.**
  This will ensure that heat pumps run to maximum efficiency. Update messaging to reflect that safeguards are in place to protect homeowners.

- **Consider developing the FEL process further**, in light of these findings, with the Local Authority acting as convenor (see above) and acceptable levels of engagement throughout the process, as shown in figure 12.
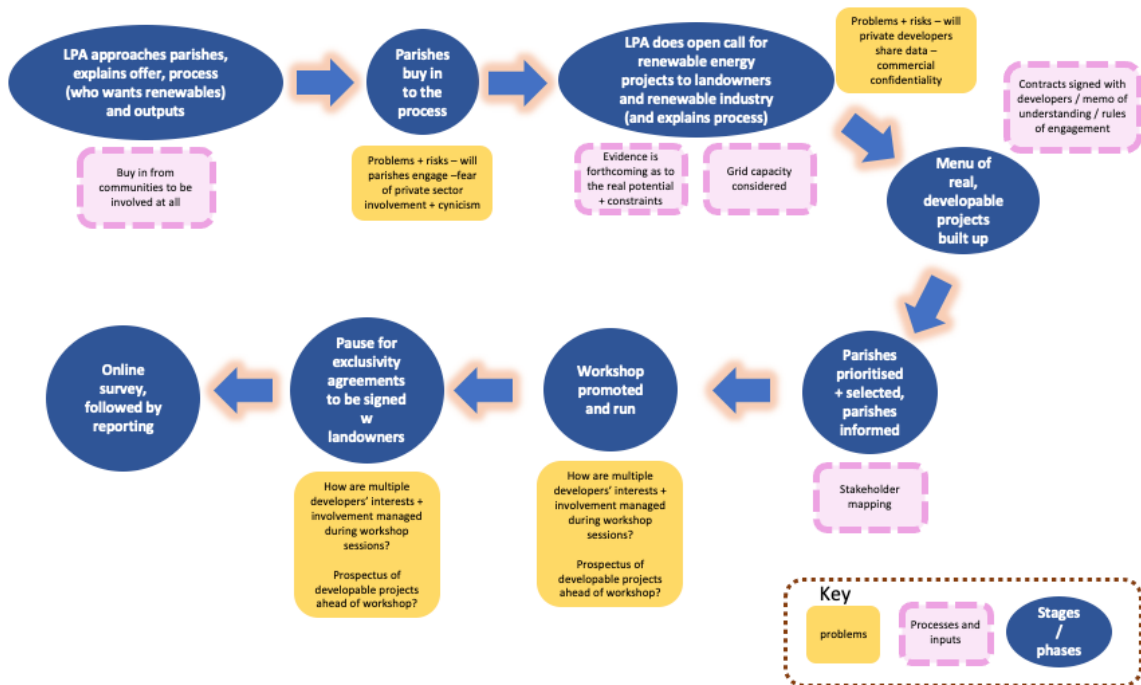
Figure 12: A potential FEL process, developed by CSE, which brings together Local Authority planning, developers and community

Recommendations for a good practice guide on community engagement using participatory approaches

- **Keep it local:** This engagement approach works because it localises the problem of how to decarbonise the energy system to the scale of a community. It asks the people likely to be affected by renewable energy development what might be acceptable and what landscape impacts they might be prepared to accept. As a result, it would not be effective to attempt to run this sort of workshop covering a very extensive area. It should also be noted that we did not discuss transmission of electricity across the local landscape, with the actual renewable energy technologies located elsewhere; further work would need to be done to assess how best to approach this.

- **Use known and trusted local organisations to facilitate and promote workshops:** Engaging the community, "building a crowd" for a workshop and engaging hard to reach groups is much easier if the organisation facilitating the event is already known and trusted.

- **Reach a diverse audience**: One size engagement does not fit all. Carry out a thorough stakeholder mapping exercise to ensure you have identified all the key stakeholder groups, which together will represent a broad sector of the community. From experience, the hardest group to reach is generally the 30–50 year-olds. Adapt your engagement methods, timings and venues to the groups you are reaching out to. Not everyone will come to the local village hall in the evening. Identify your key stakeholder groups and how best to reach them. Be prepared to go to them in their own environment.

- **Engage future generations:** Young people are our future generations and as such the future stewards of the landscape. In keeping with the Well-Being of Future Generations (Wales) Act it is imperative that their voices are included in all engagement. Furthermore, if handled sensitively, the wider public and older generations who typically form the majority of the public engaged, recognise this and generally respond positively to their opinions. Extra efforts need to be taken to ensure that their voices are heard, by putting on workshops hosted in schools. Sixth form pupils are able to engage with the workshop structure and give considered views without any need for the materials to be simplified.

- **Be inclusive:** Make extra effort to ensure different language and community subgroups are engaged. Within mixed Welsh communities with a mixture of Welsh and English language speakers, long-time residents and relative newcomers to the area, farming and non-farming groups, the community may not be fully integrated. Ensure that attendees can communicate in the language of their choice. Be aware of any sub-groups present on the night and seek to ensure they have the opportunity to contribute and feel comfortable sharing their views.

- **Group size is important**: Do not try to address a village hall full of people – split people into small groups to discuss issues in depth. This avoids the loudest voices dominating and enables quality discussions about the issues.

- **Good facilitation is essential:** Your facilitators should be highly experienced and independent. They should be armed with facts, not opinions, to enable participants to learn about the issues and come to informed views and should not seek to direct any particular outcome. Facilitators should be honest and authentic and clear about what is negotiable and what is non-negotiable. Allow enough facilitators for small group discussions (see above).

- **Be prepared to bust some myths:** There are still a lot of myths about renewables that often form the basis of objectors' arguments. Be prepared to address these myths with facts about how the technology in question works, its likely impacts, and how these impacts are assessed and mitigated through planning processes. Be honest about the adverse impacts that can arise from renewable energy projects and encourage workshop participants to learn from one another.

- **Change the language:** NIMBY labels are generally unhelpful, inaccurate and leave the reasons for opposition unexplained**.** Much of the time, people have good reasons as to why they might be concerned about particular forms of renewable energy or particular locations. If these concerns are aired and addressed in policy making and/or in the formulation of renewable energy projects, ambitious policies and proposals can be drawn up, hugely increasing supply. The views of a given individual are not always unchangeable; people's views on the acceptability of energy infrastructure can change, particularly when allowed to learn how these issues are addressed through planning processes, and when exposed to the views of their peers. Workshops should therefore be open and welcome all viewpoints.

- **Community benefits:** Community benefits should be integral to any development; but be transparent about what is and isn't possible in relation to them. Ensure that communities fully understand their options and what is involved in pursuing things like community ownership. Work with the community to co-create community benefits suitable to that particular community. Ensure that successful planning permission is dependent on the inclusion of significant community benefits, which should be co-designed with the community.