Future Energy Landscapes Workshop

Swanmore & Shedfield Parish: Saturday 25th January 2025

This note summarises what happened and what Swanmore & Shedfield residents said during the Future Energy Landscapes workshop in January 2025. It cannot be assumed to be representative of the full range of opinions in the local community. The workshop should therefore be seen as the start rather than the end of the conversation.

Please read through this report and provide your views via our short survey here.

Workshop Background

The Centre for Sustainable Energy (CSE) developed the Future Energy Landscape workshop to enable communities to have informed conversations about their understanding and feelings about renewable energy technologies. It is a community consultation process that ensures communities are being listened to and enables them to shape ambitious plans as we transition away from fossil fuels.

Energise South Downs were invited by local climate change action groups and funded by Winchester City Council to run this workshop in order to understand how local people felt and what they thought about renewable energy technologies in their local context.

The workshop draws on local data and research to explore what might be feasible and create space for an informed conversation for communities to see what is possible. See **Appendix 1** for details of the data, research and assumptions that have been used to build this workshop.

This is one of a series of workshops that we are running in and around the South Downs National Park. The objective is to demonstrate that it is possible to develop a local vision for sustainable energy that is acceptable to the local community, and to use this as a springboard for project and policy development.

Why the Future Energy Landscape workshop?

- Transforming the way that we generate and use energy is key to tackling the climate emergency.
- Generating more energy from renewable sources, so we produce less carbon is key to a transition away from fossil fuels.
- Communities need to be better informed about low carbon renewable energy technologies.
- Local people need to be consulted about the energy transition towards renewable technologies and supported to have informed discussions about the different solutions.
- Community energy should be recognised as a key part of this energy transition so local communities benefit from renewable energy generation.

Workshop summary

Attendance: 26 people attended the workshop including representatives from the Parish Councils, District and Hampshire County Council.

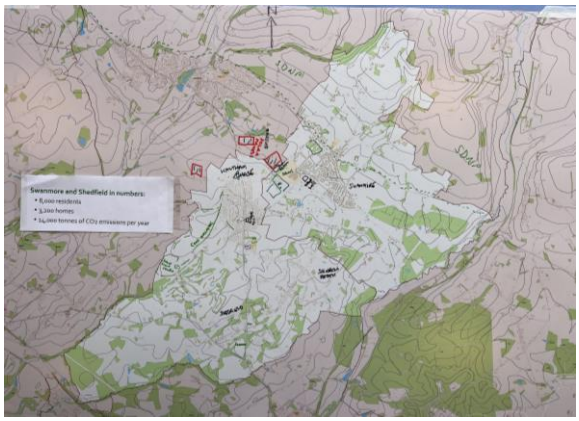
Workshop purpose: To explore the question 'How might Swanmore and Shedfield power its community using locally generated renewable energy?'

Workshop boundary: These workshops use the civic Parish boundary to pinpoint the discussion around an area that is familiar and frequented by the participants. It is an arbitrary boundary, but it is useful to focus the conversation on how acceptable people would find renewable technology in their local landscape.

Shedfield and Swanmore Parishes are made up of around 3,200 homes, 8,000 residents across 5,000 acres. The South Downs National Park covers the northern part of the area and the two parishes are bordered to the east by the River Meon.

Workshop process:

1. **Connect to the landscape,** considering areas that are important.
2. **Learn together** about different types of renewable energy
3. Have an **informed discussion** about how we feel about the technologies.
4. Discuss if and **where different technologies might be acceptable** in the local landscape.
5. Use graphs and data, to understand how much electricity and heat the different combinations of technologies would **generate,** the impact on current local energy needs and related carbon emissions.



What was said?

After marking up maps and spending time sharing local stories about the local landscape and people's connection to it, the group watched short videos about the different renewable technologies that were locally feasible. In groups each table then opened detailed discussion about one of the following four technologies:

a) Wind Power
b) Solar Farm (12 Acres)
c) Domestic solar
d) Domestic heat pumps

Each group discussed each technology asking:

- How do they feel about the technology overall?
- How much of the technology would they be happy to see in their landscape? (i.e. quantity of rooftops with solar or the no. of a particular sized wind turbine)
- Where might this technology be located?
- How does it impact the landscape? Who would this affect most?
- Is this a realistic suggestion and what might the barriers be to implementation?

Impact of different renewable energy technologies

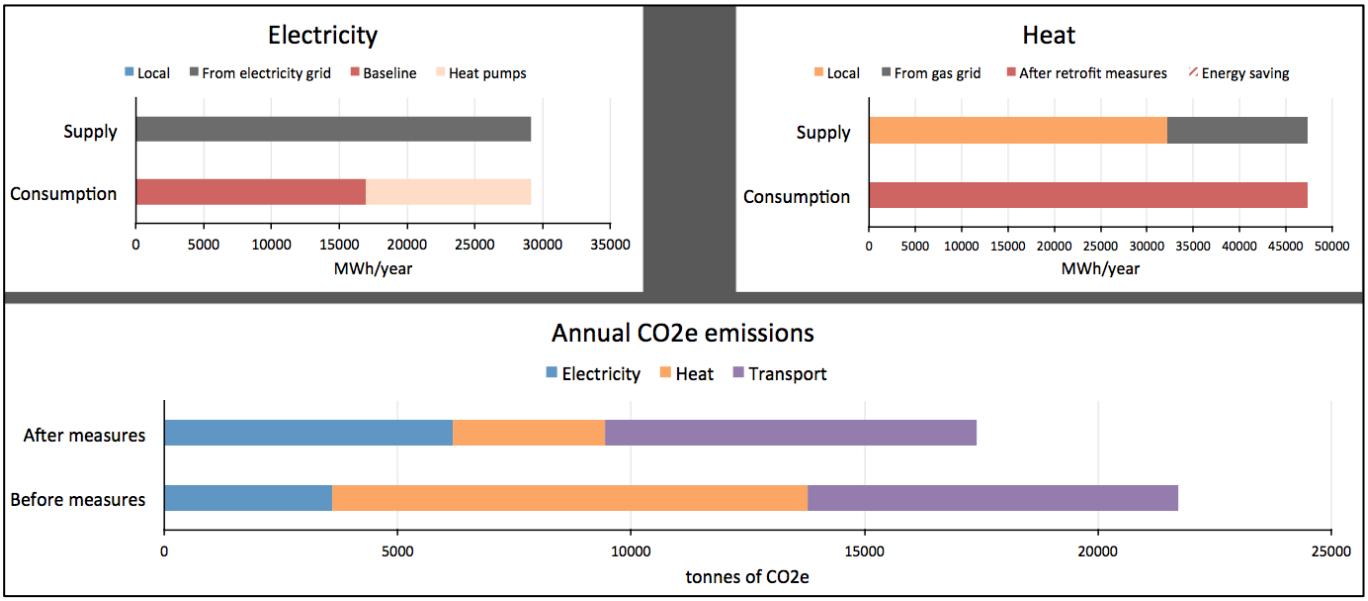
Each table fed back their reflections about their specific technology, and where they felt, and on what scale, the technology might be located, if at all, in the boundary of both parishes.

The group's suggestions on the amount of each technology were inputted into the CESAR tool [1], which showed how much energy, or heat would be generated. The data showed the impact each technology might have on Swanmore and Shedfield's energy needs and the difference each technology has on the area's carbon emissions. The ideas of the different groups were then offered for further comment to the wider group.

[1] The Community Energy Saving and Renewables (CESAR) tool was developed by the Centre for Sustainable Energy and is designed to help workshop participants think about how they would provide some or all their energy needs from renewable energy and to see the different amounts of heat or power generated by the different renewable technologies in their local context.

Domestic heat pumps

The table tasked with discussing air source and ground source heat pumps were generally positive about the technology and despite their concerns with the cost of ground source heat pumps, as well as the difficulty in finding qualified contractors to install heat pumps , they agreed that 10% of local homes might have a ground source heat pump and they could imagine 70% of homes having an air source heat pump.



Impact of air source and ground source heat pumps on heat production

The graph above shows that if 80% of local homes (2,560 across both parishes) had a heat pump it would almost supply two thirds of the heat demand (domestic and non-domestic) of the local community. This dramatically reduces the amount of carbon emitted from heating with a conventional gas or oil boiler. However heat pumps use electricity to run so the graph also shows the consumption of electricity increasing as well as the related carbon emissions from creating that electricity. This is to be expected but heat pumps are a very efficient way of generating heat because they produce three to four times as much heat energy as they use in electrical energy. It is also reasonable to assume that in the future the increase in demand for electricity would be met with renewable energy so the carbon emissions would be reduced further.

Further discussion raised the following points and responses:

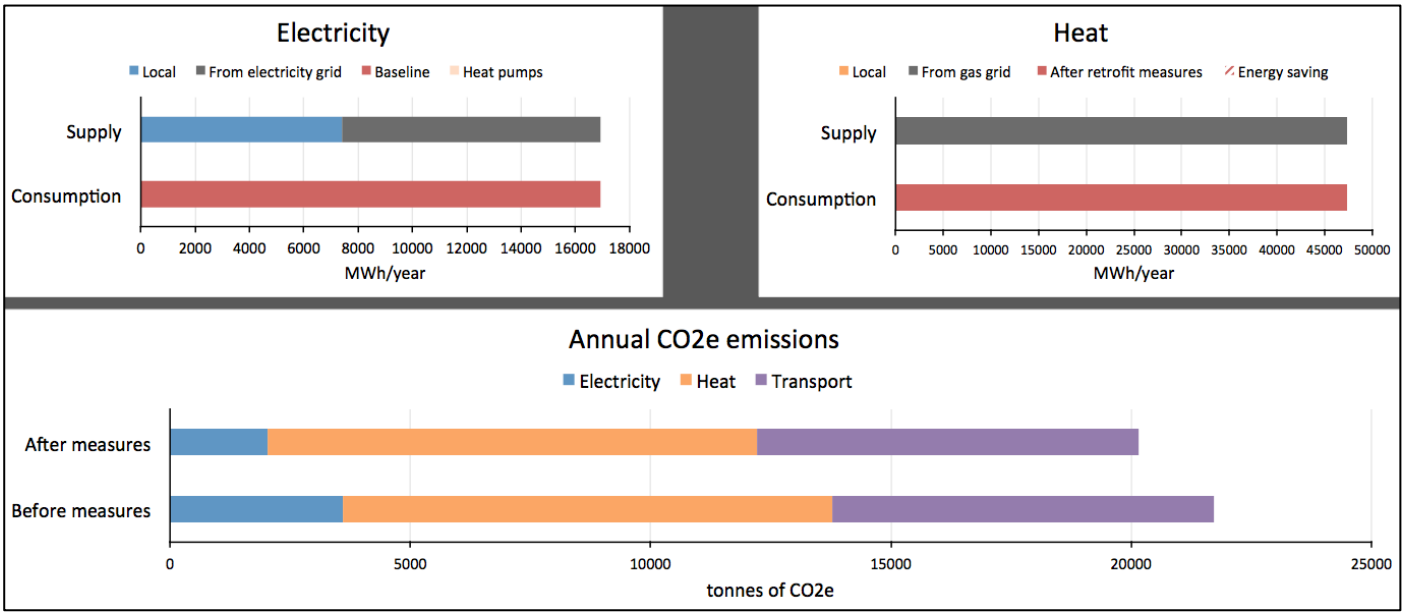
- Concerns about the availability of qualified engineers and contractors for heat pump installation.
- Suitability of older homes and the perception that heat pumps only work in well-insulated homes. However, examples show they can work effectively in

older buildings with minimal upgrades, such as loft insulation and double glazing, paired with larger radiators.

- Older air source heat pumps sometimes had noise complaints, but newer models are much quieter. A permitted development regulation requiring a 1-meter distance from the property boundary is going to be removed this year after a recent government consultation found few issues around noise.
- Agreed there should be a government intervention insisting that all new homes have a heat pump – the new Future Homes Standard due this year should include this.

Domestic solar panels

The group who discussed the domestic use of solar panels were in support of this technology and some talked about the positive experience they were having with newly installed panels. They felt there should be more government incentives to ensure that there was more trust in the technology and the group also had questions about the life span of the panels. SEP There were more concerns about the financing rather than the visual impact and with few listed properties in the area they decided it was reasonable to imagine 60% of homes embracing the technology.



Impact of 60% of homes having solar panels

The graph shows that if 60% of homes in Swanmore and Shedfield each had 10-12 solar panels on their roof it would produce 40-45% of the electricity needs of the parish as well as halving the amount of carbon emitted from the electricity consumed

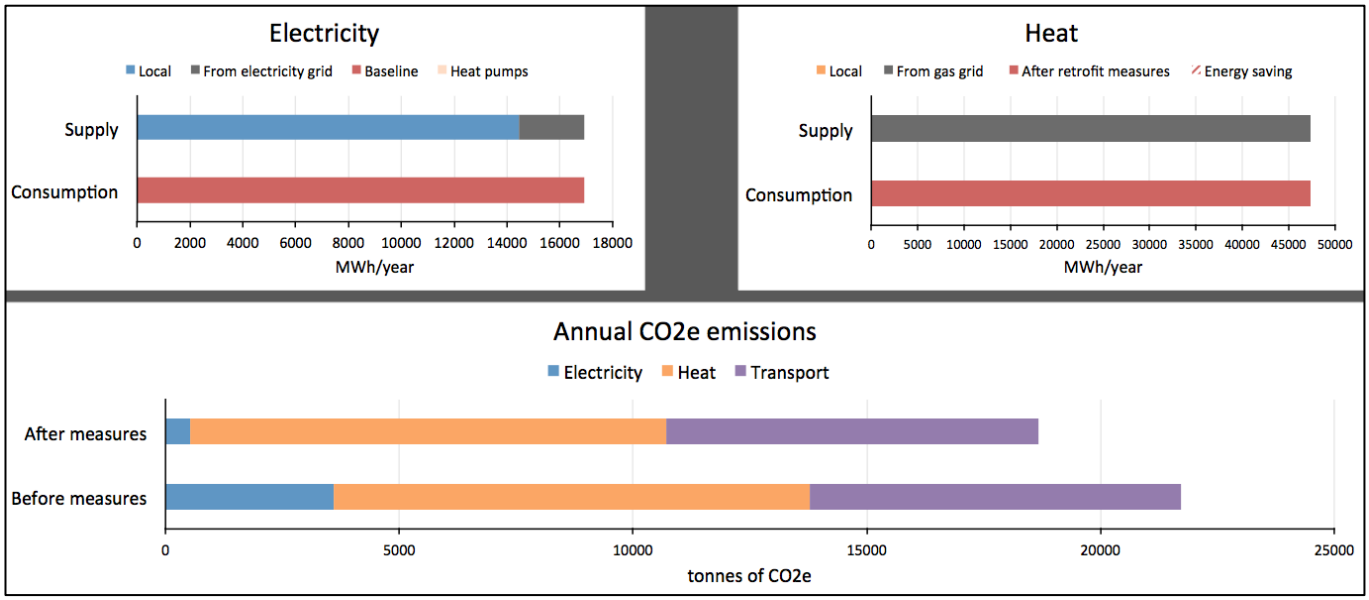
from the grid. This shows a significant contribution from a relatively low visual impact, domestic technology.

The table and wider group discussed the following points:

- Wider education about solar panels and their benefits is needed that doesn't come from installers but from trusted sources.
- Large-scale solar farms have much more impact on generating low carbon electricity compared to individual domestic installations.
- New housing developments are not currently required to install solar panels, though national regulations may change in the coming year and Local Authorities can impose higher building standards in their Local Plan. There is frustration from WinACC(Winchester Action on Climate Crisis) over the lack of requirements for low-carbon heating systems.
- Batteries with domestic solar offer benefits, but the financial case depends on the level of household electricity usage.
- There is a need for broader community outreach to engage less enthusiastic residents to make them aware of the benefits and opportunities.

Solar Power

There was broad agreement that solar was important and had to happen but key concerns about ethics in the solar panel supply chain were raised along with questions about how storage would need to be considered as part of any system. The table agreed on six, 12 acre solar farms in the area which would include an existing 5MW scheme at Raglington. There are also a number of schemes outside of the parish boundaries and one in planning.



Impact of 6 x 12 acre solar farms on local demand

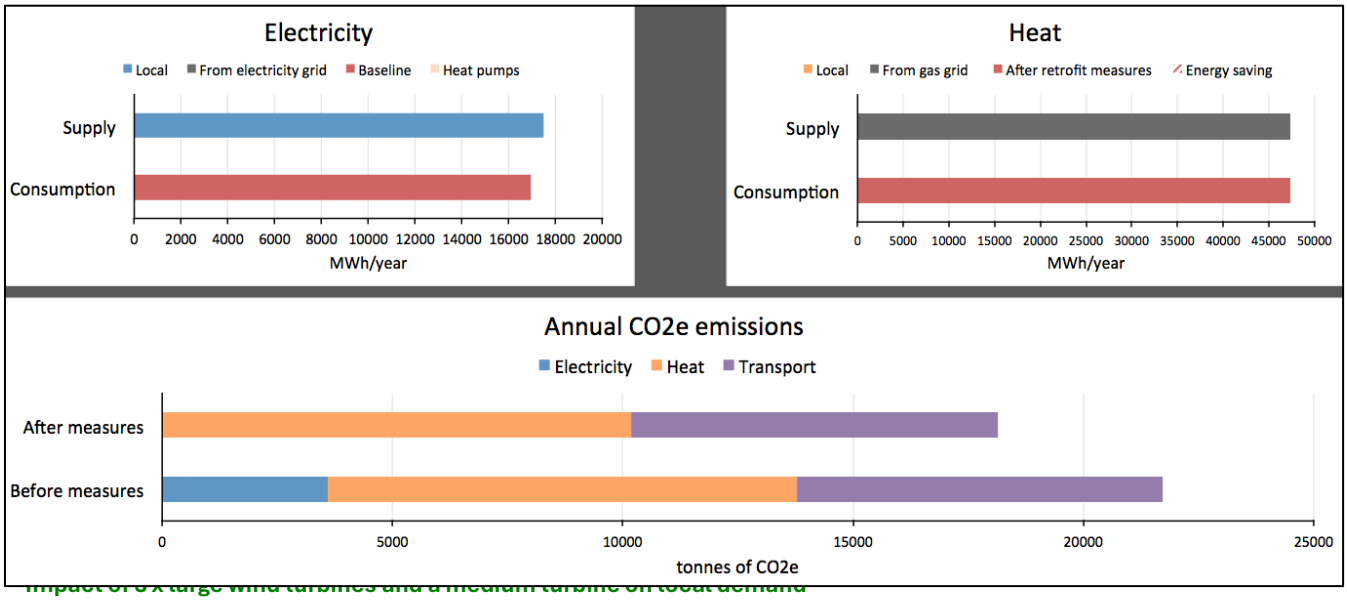
The suggested scale of solar would meet 90% of the electricity needs of the area and with that substantially reduce the related carbon emissions from conventional grid electricity production. The group also raised an important point about communication and the difficulty in selling the concept of community energy when electricity from a local farm would have to go back to the grid and then out again to serve their community.

Further points discussed:

- Solar only works when the sun shines so work going on in the sector on how to make renewable solutions 24 hours and flexible including hydrogen, load shifting and demand flexibility.
- Hard to find a location for the 6 sites but acknowledged the need to avoid the National Park but also felt there were opportunities for roof top solar.
- Suggestions included installing solar panels on public buildings, village halls, schools and car parks.
- While rooftop solar is important, ground-mounted solar is more cost-effective and scalable.
- Biodiversity-friendly solar farm designs could help address environmental concerns and improve public acceptance.
- Agrovoltaics (dual-use of land for agriculture and solar energy) could be a potential solution.

Wind Power

This group rated wind a 4.7 out of 5 for acceptability but there was one person who was not particularly enthusiastic. It was recognised that the enthusiasm was probably not reflective of the wider community however they boldly proposed 3 large wind turbines (100m hub height) in Upper Swanmore towards the boundary with the South Downs National Park along with a medium turbine (70 m hub height) in the Shirrell Heath area.



Impact of 3 x large wind turbines and a medium turbine on local demand

The graph above shows the clear impact of a relatively small number of wind turbines on the electricity demand of these two parishes. It would supply a little more than is currently needed and the four turbines would also completely wipe out the carbon emitted from the conventional electricity supply but it was appreciated that the local population, business and land owners would possibly feel less in favour of this proposal.

Further points discussed:

- Concerns were raised about the area's relatively low wind speeds and obvious sites discussed are sited in the South Downs National Park however policy is changing.
- The number of turbines discussed would generate more electricity than is currently produced which is positive as the demand for electricity is predicted to increase by two and half times because of all the electrification of heat and transport.
- Some participants favoured smaller vertical turbines, as they are less visually intrusive.
- Research suggests large wind turbines have an embodied carbon payback period of about seven months, followed by decades of low-carbon operation.

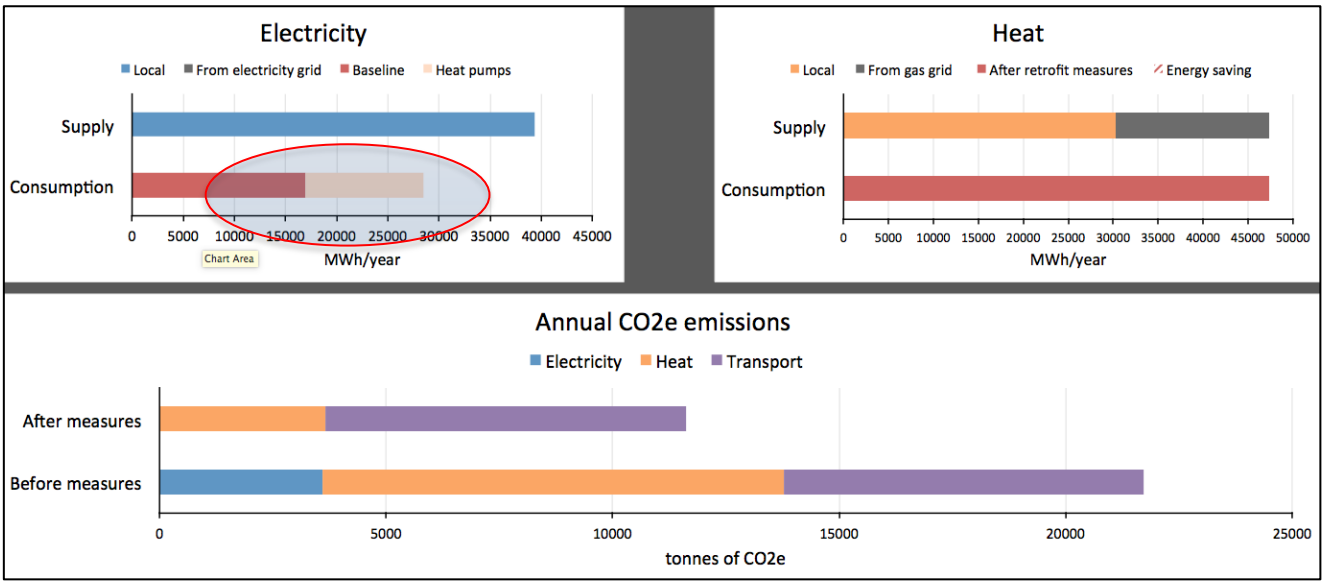
Technologies in combination

As was discussed by the different groups, none of the technologies hold the complete answer so the CESAR tool was used to see what might be generated if we were to combine some of the technologies as they were discussed. For this we input all the technologies along with how much each group had suggested was acceptable to see what the impact was.

As a reminder this was:

- 3 large wind turbines and one medium turbine;
- 6 x 12 acre solar farms;
- 60% of homes with 10-12 solar panels
- 80% of homes with heat pumps (10% ground source and 70% air source).

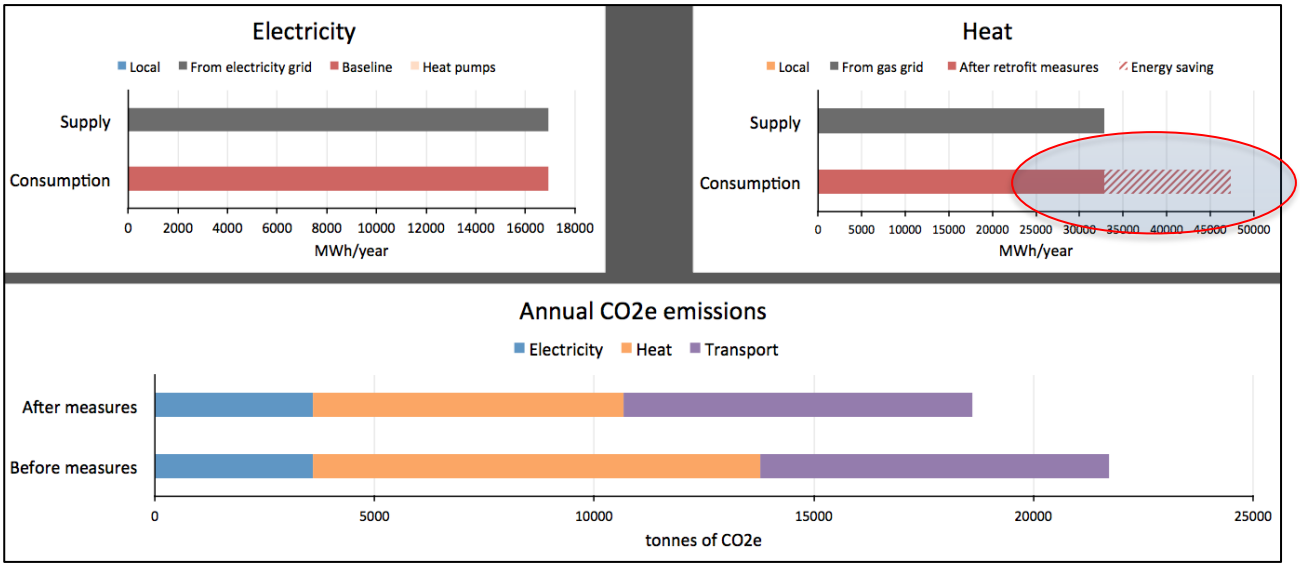
By reimagining the local energy system in this way, local carbon emissions from heat and electricity would be halved, double the amount of electricity needed locally would be produced despite the increase of demand because of all the heat pumps and two thirds of the heat needed would be generated from low carbon sources – see graph below.



Impact of the four renewable technologies combined

Retrofitting

As with any community discussion about energy it starts with seeing what house owners can do to reduce their energy demand. The CESAR tool allowed us to look at how making homes more thermally efficient could reduce the heat demand, and therefore the energy required by Swanmore and Shedfield, based on some broad assumptions made about the local housing. We suggested that 20% of local homes were built pre-1930, 50% were built between 1930-1990 and the remaining 30% of homes were built after 1990.



Impact on the heat demand following a local retrofit programme

This graph demonstrates that energy efficiency measures like draught proofing, insulation and double or triple glazed windows to improve the energy efficiency of the

lowest performing houses could reduce the local heating demand by almost 30%. This reasonable retrofitting would reduce the amount of energy needed to heat these homes and therefore we see an important reduction in the carbon emissions from heating.

Conclusion and recommendations:

It was great to have such a good number of people to support this important conversation in Swanmore and Shedfield and thanks again for the support from Winchester City Council.

The workshop enabled people to raise their concerns about different renewable energy technologies and also learn from each other about how the different technologies work and what could be possible where they live.

From the conversation that was had these are a few of the things that the local community might take forward:

- Work with St John the Baptist C of E School to raise awareness with the children or fundraise for renewables
- Look at public buildings and funding opportunities for solar panels on large roofs (even if the conversation has been started before!)
- Identify local trusted installers and contractors to sign post people to.
- Share this report and associated survey to as many people in the community as possible so they can share their thoughts.
- Ensure local people are aware of Local Plans, consultations and changes in policy so that pressure continues to be put on local government to mandate low carbon renewables in new builds.

The workshop participants spent two hours imagining how renewables might meet their local community's energy needs. They shared what they wanted to protect in their landscape whilst exploring what might be possible if various combinations of renewable technologies were deployed. This was a hypothetical conversation based on data and research and put to one side constraints such as planning, expense and grid capacity. The discussion format aimed to help people learn together about what the different technologies are, how they work and so open local possibilities about possible projects helping us all transition away from fossil fuels.

Appendix 1 - Tools, assumptions and research

Tools

Future Energy Landscapes: toolkit here

CESAR (Community Energy Saving Renwables) workbook: Showing renewable energy generation in relation to how much energy the community uses and the impact of renewables on carbon emission reduction.

Impact Tool: An estimator of a community's carbon footprint that works for parishes, wards, district councils and unitary authorities here.

Assumptions

Onshore wind and solar farms
Assessments of suitability of landscape for different technologies represent an upper bound estimate and do not take full account of the impacts associated with potentially limiting characteristics (proximity of roads, railways land type etc.) (LUC, 2018). Spacing of wind turbines is based on an allowance of five times the rotor diameter (LUC, 2018).

Rooftop PV
Suitable rooftop is defined as one on which a minimum of a 1 kW solar PV system can be installed (8 m2 rooftop area required), with an orientation east through south to west and at an angle between 15° to 70° (Palmer et al., 2018).
Analysis suggests that in the City of Southampton district 67% of rooftops had one area that satisfied the criteria (Ridett and Anderson (2023), p19), while in the wider Winchester City area 78.8% had a rooftop surface that was deemed as suitable for a rooftop PV installation of at least 1 kW (Ridett and Anderson (2023), p20).
These figures are likely to represent an upper bound estimate of solar PV potential. For the purpose of the CESAR tool, an estimated potential of 75% suitability would provide a realistic upper bound estimate.

ASHP/GSHP
Based on assumption that dwellings need to be reasonably airtight and well insulated. Significant proportion of post 1990 houses plus an allowance for others that might have had deep retrofit we assumed 50% of homes could have an ASHP. We then considered that older homes in the centre of the towns / villages would have bigger gardens so assumed 25% would have room for GSHP.

Research

Gagg P (2023) Winchester District: the DESNZ data on greenhouse gas emissions from 2005 to 2021

Winchester City Council: Renewables Consultation (2023)
LUC (2018), Renewable and Low Carbon Study for the East Hampshire District, p48

Palmer D., Koumpli E., Cole I., Gottschalg R. and Betts T. (2018). A GIS-based method for identification of wide area rooftop suitability for minimum size PV systems using LiDAR data and photogrammetry. Energies, 11(12): 3506

Ridett, E., and Anderson, B. (2023) An assessment of the wider Hampshire distribution network capacity and potential constraint points for renewable generation (v1.0) Southampton: University of Southampton.

Ridett, E., and Anderson, B. (2023) An updated assessment of the technical and economic potential for renewable electricity generation in the pan-Hampshire area (v2.0). Establishing a Robust Evidence for a Pan-Hampshire 2025-2050 Energy Strategy project report. Southampton: University of Southampton.

UK Government (2023) Figures for English Housing Survey headline report 2022 to 2023.