Future Energy Landscapes Workshop

Ringwood Parish: Monday 31st March

This write up summarises what happened and what residents of Ringwood Parish said during the Future Energy Landscapes workshop in March 2025. It cannot be assumed to be representative of the full range of opinions in the local community.

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. Using data[1] and research into what technologies might be applicable to the area the workshop supports a hypothetical conversation about what scale and types of projects might be acceptable to local people and what impact would those technologies have on their local energy needs.

The workshop was supported by Greening Ringwood and funded by Community Energy Pathways and New Forest District Council. The objective was to ensure communities are part of creating a local vision for sustainable energy enabling them to play a part in shaping ambitious plans as we transition away from fossil fuels.

Why the Future Energy Landscapes 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.

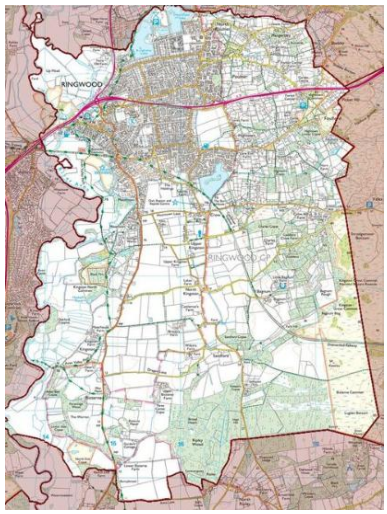
[1] See **Appendix 1** for details of the data, research and assumptions that have been used to build this workshop.

Workshop summary

Workshop purpose: To explore the question '***How might Ringwood 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.

Ringwood Parish is an old market town on the banks of the River Avon with the New Forest National Park boundary (created in 2006) running through it with the park to the east. The area is home to 14,000 people.



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 three groups we then started a detailed discussion about the following four technologies:

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

One table discussed wind power, another solar farms and the third discussed both domestic heat pumps and domestic solar. Each group worked through the following questions:

- 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 [2]. The CESAR tool, with simple graphs, shows how much energy is used by the local community, how much carbon that generation produces and how this could be changed by using renewable energy technologies to generate local power.

Ringwood in numbers:

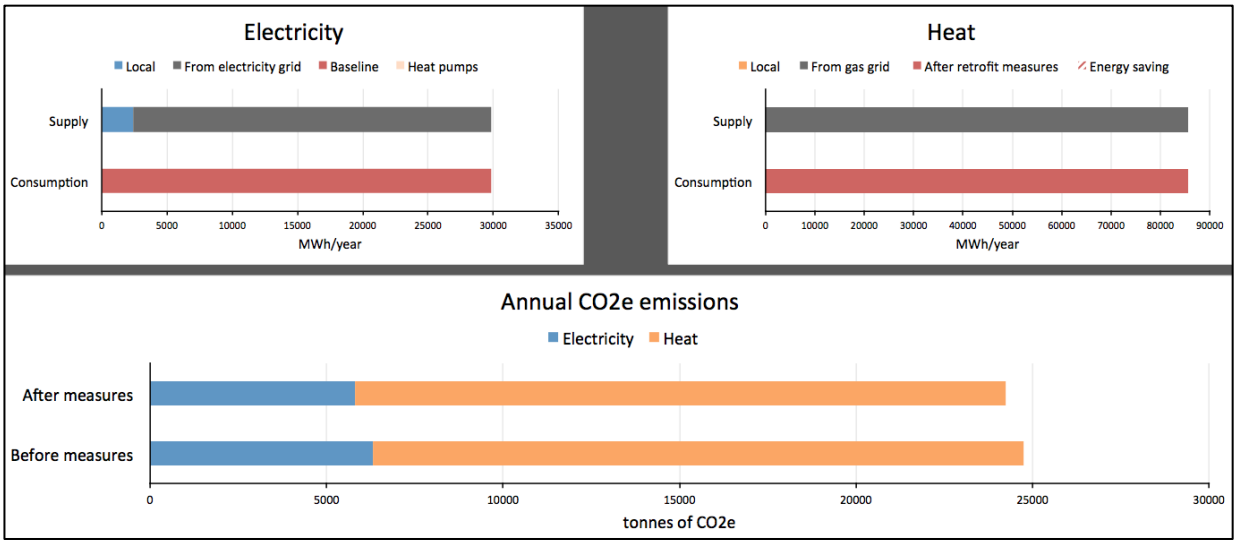
- 14,600 residents
- 6,300 homes
- 25,000 tonnes CO_2 pa
- 30,000 MWh electricity pa

The ideas of the different groups and what the CESAR tool illustrated were then offered for further comment and discussion to the wider group.

[2] 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.

Solar Farms

The first group started their discussion looking at the level of acceptability of ground mounted solar farms in 12 acre (2.5MW) plots. They were supportive of the solar technology but due to the nature of the local landscape they struggled to find an area where a solar farm would either fit or be acceptable. The area has extensive farming on good agricultural land, active wildlife corridors protected as SSSIs or otherwise the national park or built up areas. They agreed that landowners might be interested in solar but felt that there was nowhere that solar could be well screened to avoid the obvious visual impact. They did consider that they might be able to split the hypothetical 12 acre plot into four smaller, 3 acre areas which might be housed in industrial estates or brownfield sites.



Impact of one, 12 acre solar farms split over different sites

The graph illustrates that 12 acres of discreetly located ground mounted solar would generate a tenth of the electricity currently needed by the local community and therefore reduce the carbon emissions from fossil fuel burning electricity generation.

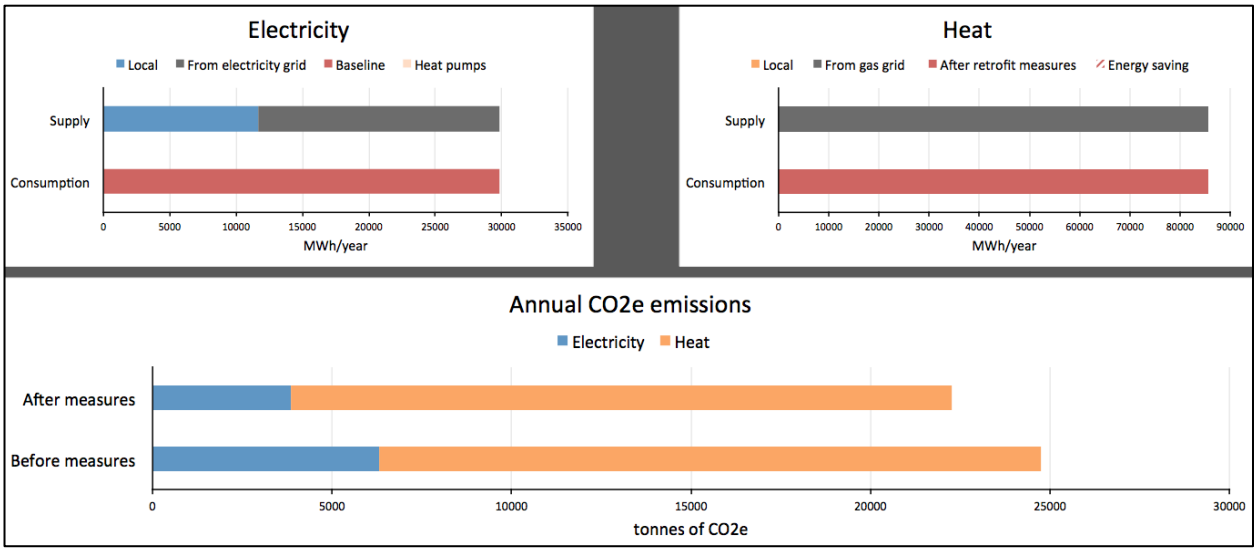
The wider group shared their reflections and discussed the following points:

- Concerns with using agricultural 'growing' land: Planning permission will usually only be granted for a solar farm on mainly moderate to poor grade agricultural land (3b – 5 with the Agricultural Land Classification)
- Roof top solar on car parks and industrial buildings is viable and important to do however ground mounted solar schemes are much cheaper and we will never achieve the scale of generation we need just by roof top solar.
- Opportunity for people to understand the wider benefits of solar farms as they might improve the biodiversity around solar farms, introducing grazing animals with the panels (Agrovoltaics: dual use of the land with solar), etc.
- Commercial developers of schemes have to submit details of the biodiversity gain as part of their planning submission.

- Concerns over removing crops to have solar however the amount of land nationally that is estimated to be required for ground mounted solar is approximately 1% of agricultural land which is less than land occupied by golf courses.

Wind Power

The next group discussed wind power and though they appreciated that it was a great technology with the potential to generate a large amount of energy they really struggled to see how it was either practical or sensible in their local area. For the group this was less about the visual impact and more because wind turbines work best on high ground with consistent wind flow and Ringwood has neither of these characteristics. They did imagine a possible scenario where industrial estates benefitted from a number of small turbines (40m hub height) but recognised that this might be impractical.



Impact of 10 small wind turbines on the local electricity demand

For the purposes of the exercise we looked at the impact of these 10, small wind turbines which would generate almost half of the electricity currently used by the Ringwood community whilst reducing the carbon emissions by approximately 2,500 tonnes of carbon. We looked at what one large turbine (100m hub height) might generate for Ringwood - it would provide approx. 20% of the electricity demand.

The groups were surprised how much power wind turbines could generate and went on to discuss the following points:

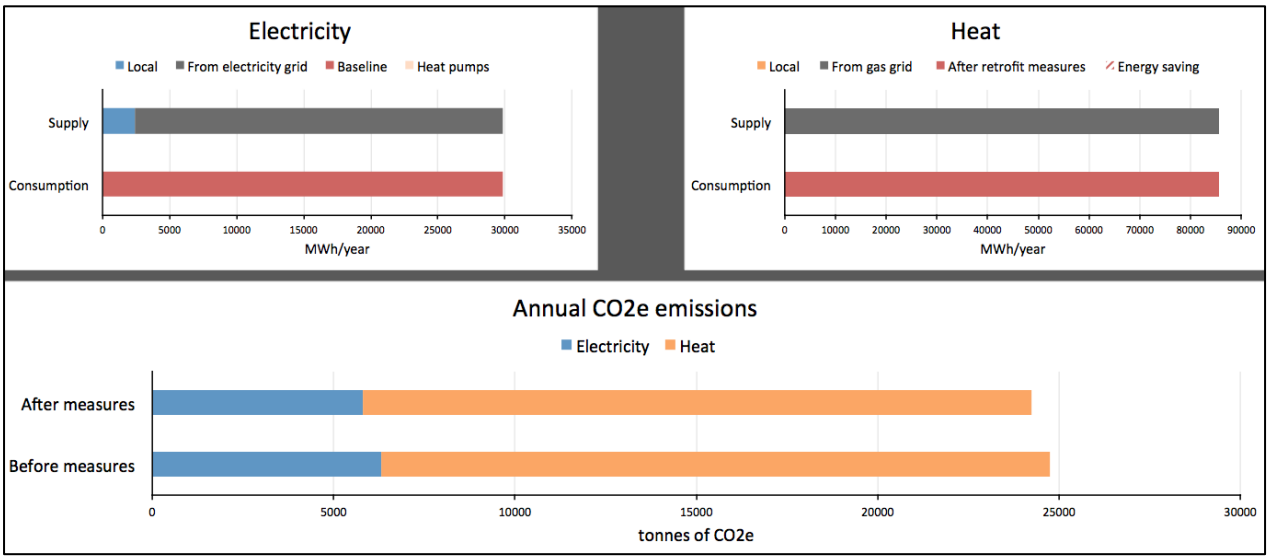
- Approximate carbon payback for a wind turbine with their embodied carbon from their manufacture and transport is 6 - 9 months[3]

- [3] https://www.newscientist.com/lastword/mg24332461-400-what-is-the-carbon-payback-period-for-a-wind-turbine/

- Turbines end of life was discussed and after 20-25 years they are decommissioned but the blades can be used to make concrete whilst other elements can be reused but this will depend on their manufacture.
- There were concerns over the danger to birds. As a comparison we talked about the old power station in Fawley killing 200,000 fish a year as a result of the filters across the water pipes drawing water from the sea into the power station and cats being responsible for the death of 40 million birds each year compared to the 50,000 to 100,000 birds killed by wind turbines. There are difficult trade offs for all technologies that need to be considered.
- Avon valley is an important area for migrating birds so this would have to be considered when looking into wind power.
- High points in the landscape that would be appropriate for capturing wind power are mostly in the national park and protected for good reason.

Domestic Solar

The final table had the task of discussing the domestic renewable technologies. With solar panels on the roof they were in favour of the technology and they are not too visually intrusive. They had concerns though about people's understanding of how solar works and how it integrates with batteries etc. In terms of persuading householders to install them, the group felt that there is a lack of trusted information and there is confusion about how and if they are going to see the return on their investment. The group therefore felt fairly pessimistic about a large proportion of local homes installing panels currently so they imagined a scenario with 10% of local homes having solar.



Impact of 10% of homes having an 10-12 solar panels

The graph shows that with 10% of the 6,300 local homes with solar they could meet a tenth of the current electricity demand, which is similar to the impact of one 12 acre solar farm discussed by the first group. The graph could then illustrate that if 50% of

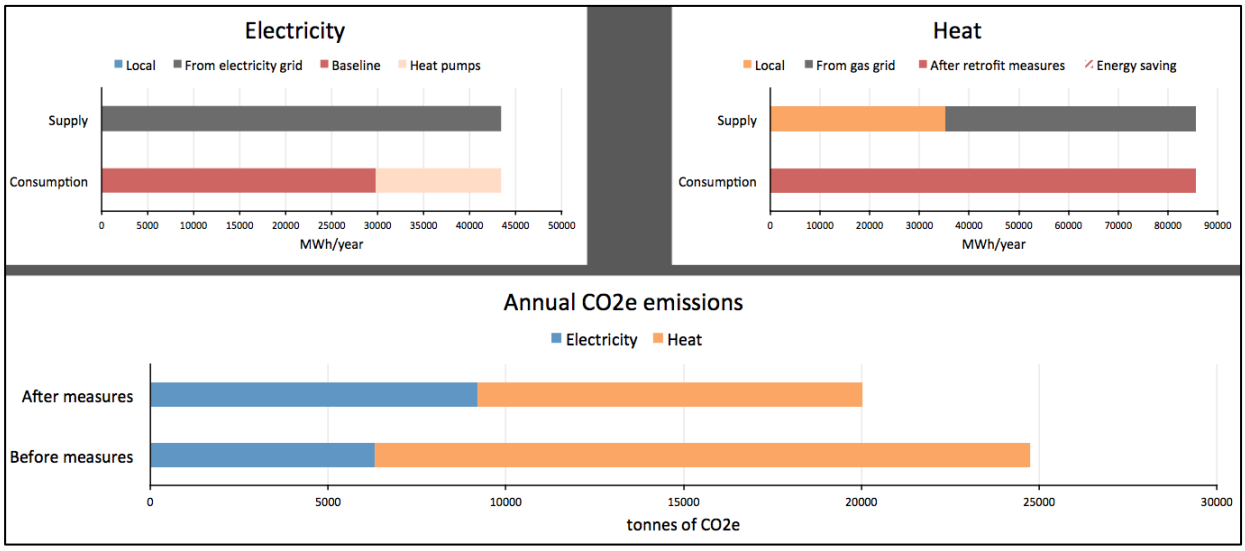
homes had solar, communities could meet a large proportion of the electricity needed for their homes. Solar is a low visual impact technology, which at scale could have an important impact.

The table and wider group then discussed the following points:

- The challenge with the large scale solar farm is finding a place for it and the acceptability in terms of the visual impact. With domestic solar it is about persuading all those different household to install it and without meaningful incentives and government policy societal change would be slow and maybe impossible.
- Consumers need to be more informed and confident that they would get the payback along with standards in place that protected the consumer.
- The way forward is for trustworthy information being shared peer to peer from people in the same community.
- Local power networks, local power grids could escalate societal change as it would mean groups of people getting together, creating their own micro-grids which at the moment is prohibited.
- All new builds should have solar panels. Future Homes Standard that should be coming into force this year is expected to mandate that all new homes will have a heat pump and it is yet to be confirmed if they will also require solar.
- The Local Plan and policies of the District Council can also have an influence on raising standards for energy efficiency of new homes.
- If better homes were being built with higher energy efficiency and low carbon technologies then young people buying them could get more favourable mortgages.

Heat pumps

The final technology that was discussed was domestic heat pumps. The group was again generally positive about the technology but they felt there were similar issues with consumer confidence. They noted that in Germany the heat loss calculation is done by an independent contractor, not by the installer. In the UK there can be commercial incentives for the installer to recommend something that may not be exactly what you need. The group therefore felt that with changes in policy and increased consumer trust by 2040, there might be a 50% uptake of heat pumps.



Impact of 50% of local homes having an air source heat pump

The above graph illustrates that if half of the local homes were to have an air source heat pump that would meet almost a third heat demand of the local community and remove a significant amount of the carbon emitted from burning fossil fuels to heat homes. The electricity demand would increase as heat pumps need electricity to compress the heat but they are 3-4 time more efficient than a fossil fuel boiler. Heat pumps are very efficient in decarbonising our heating system however there is some trade offs that need to be balanced.

The table and wider group also picked up on the following points:

- The heat pump grant is not available to developers so it should either be a requirement that they have to put them in or there has to be an incentive for developers. (see the above note about the Future Homes Standard)
- Research shows that homes only need a moderate level of insulation for a heat pump to work as long as the system and the radiators are designed correctly.
- Solar panels and a heat pump can work together to supply the heat pump with renewable electricity (when the sun is shining!).
- Shared district heating schemes have potential and are widespread in Denmark but a question was raised about maintenance being then very complicated.

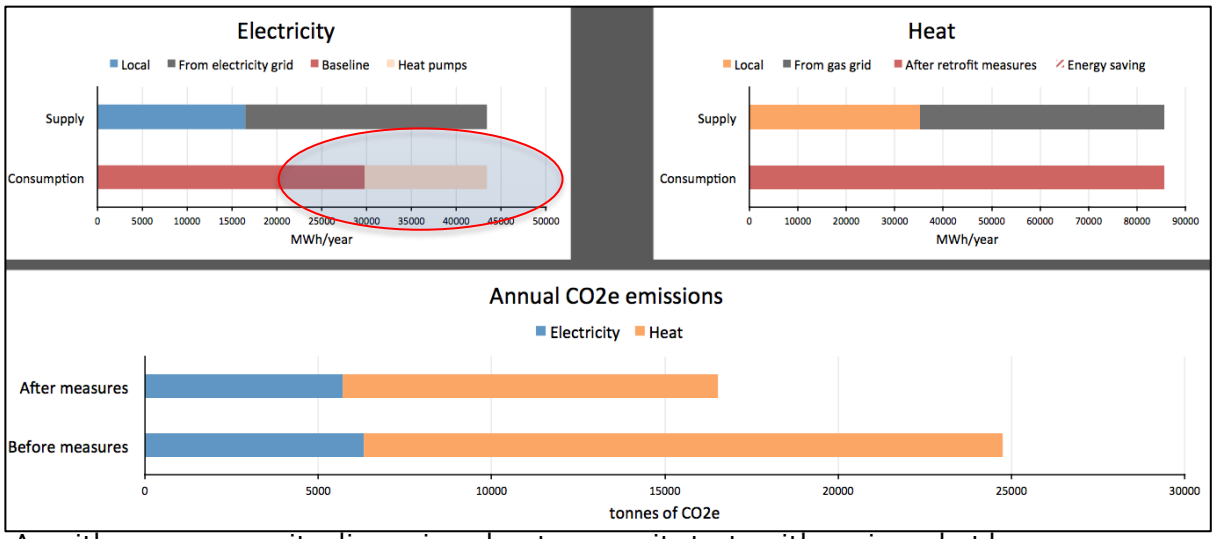
Technologies in combination

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 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:

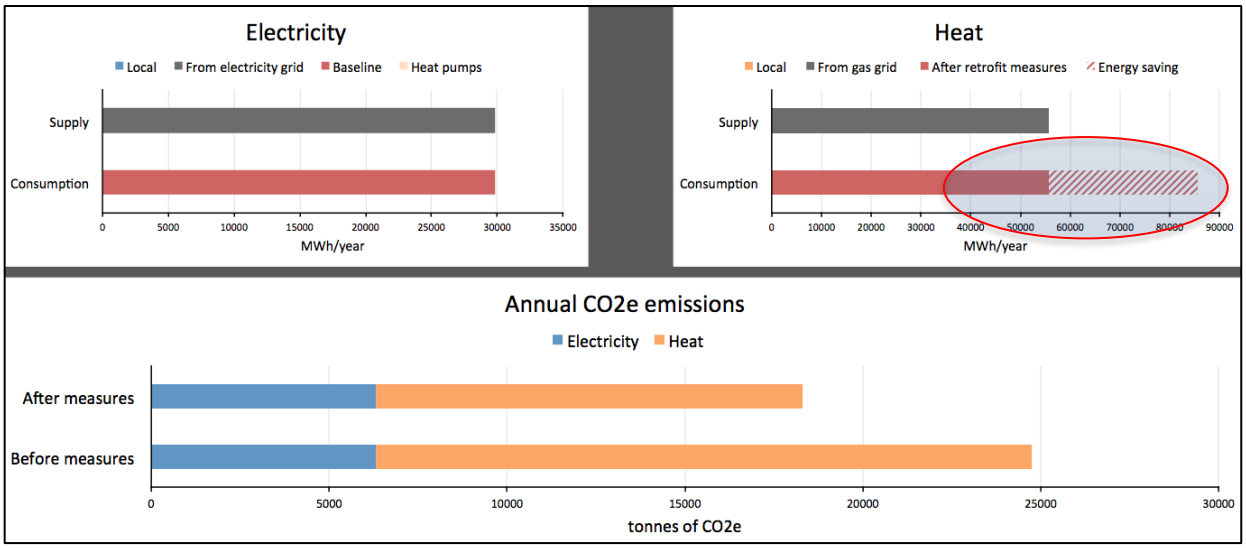
- 10 small wind turbines
- 1 x 12 acre solar farm
- 10% of homes with 10-12 solar panels
- 50% of homes with a ground source heat pump



As with any community discussion about energy it starts with seeing what house owners can do to reduce their energy demand.

The CESAR tool allows us to look at how making homes more thermally efficient could reduce the heat demand, and therefore the energy required by Ringwood, based on some broad assumptions made about the local housing.

We suggested that 20% of local homes were built pre-1930, 60% were built between 1930-1990 and the remaining 20% of homes were built after 1990.



Impact on the heat demand following a local retrofit programme

The above 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 of Ringwood by over 30%, as indicated by the highlighted area on the graph. 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 before even looking into domestic level or larger renewable infrastructure generation.

Conclusion and recommendations:

It was a lovely gathering of people from Ringwood and an important opportunity for local people to share their thoughts 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.

The exploration was problematic due to the unique nature of the setting with the protected banks of the River Avon in a valley to the west, the flatter farmed area in the middle, the built up area to the north around the town and the protected landscape in the national park to the west.

Despite the recognised limitations of the landscape there were a few suggestions that the local community might take forward:

- Build local trust in solar / heat pump technology by collating a list of trusted installers and sharing local case studies of homes that have had the technologies installed.
- Develop opportunities to continue to share peer to peer experience of domestic renewables.
- Mobilise local people to put pressure on the local authority to demand and enforce higher standards from developers building new homes in the area.
- Continue identifying large roof tops for potential solar installations with local high electricity users.
- Ensure local community is kept informed of changes to funding around domestic solar and heat pumps.
- Share this report and associated survey more widely, to as many people in the local community as possible, so they can share their thoughts.

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 and how they work. The discussion sometimes opens local possibilities about possible generation projects but also highlight what is critical and needs to be done at a national level through policy to help 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

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.