Future Energy Landscapes Workshop

Colden Common & Twyford: Tuesday 14th April 2026

This report summarises what happened and what residents of Colden Common & Twyford said during the Future Energy Landscapes workshop in April 2026. It cannot be assumed to be representative of the full range of opinions in the local community but is an accurate record of this important conversation.

Please read through this report and provide your views via our short survey HAVE YOUR SAY About Colden Common & Twyford Future Energy Landscapes Workshop – Fill in form

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 funded by the South Downs National Park Authority (SDNPA). The objective was to ensure communities (in or near the SDNP) 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.

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

- Community energy should be recognised as an essential component of our energy transition, so local communities benefit from renewable energy generation.

Workshop summary

Workshop purpose: To explore the question '***How might Colden Common & Twyford power its community using locally generated renewable energy?'***

Workshop boundary: These workshops usually 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.

Colden Common & Twyford: are neighbouring rural parishes just south of Winchester in Hampshire, set within the rolling landscape of the Itchen Valley. Twyford is an historic village known for its conservation area, chalk streams, and proximity to the South Downs National Park. Colden Common is a larger, family-focused parish with strong community facilities, extensive green spaces, and easy access to Marwell Wildlife. Both parishes are characterised by a mix of traditional village centres, surrounding farmland, and well-used walking routes. Their location near the M3 and mainline rail links makes them well connected while still retaining a distinctly rural feel. They are known for active local communities, heritage buildings, and a strong appreciation of the surrounding countryside.

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 ow 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 we then started a detailed discussion about the following technologies:

a) Solar Farms
b) Wind Power group
c) Domestic solar group
d) Domestic heat pumps group

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 effect 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 the specific technology, and where they felt, and on what scale, the technology might be located, if at all, in the boundary of the parish

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 might change by using renewable energy technologies to generate local power.

Colden Common & Twyford in Numbers

- 6,000 Residents
- 2,515 Homes
- 13,800 MWh elec. per year
- 11,300 tonnes CO_2 / year

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

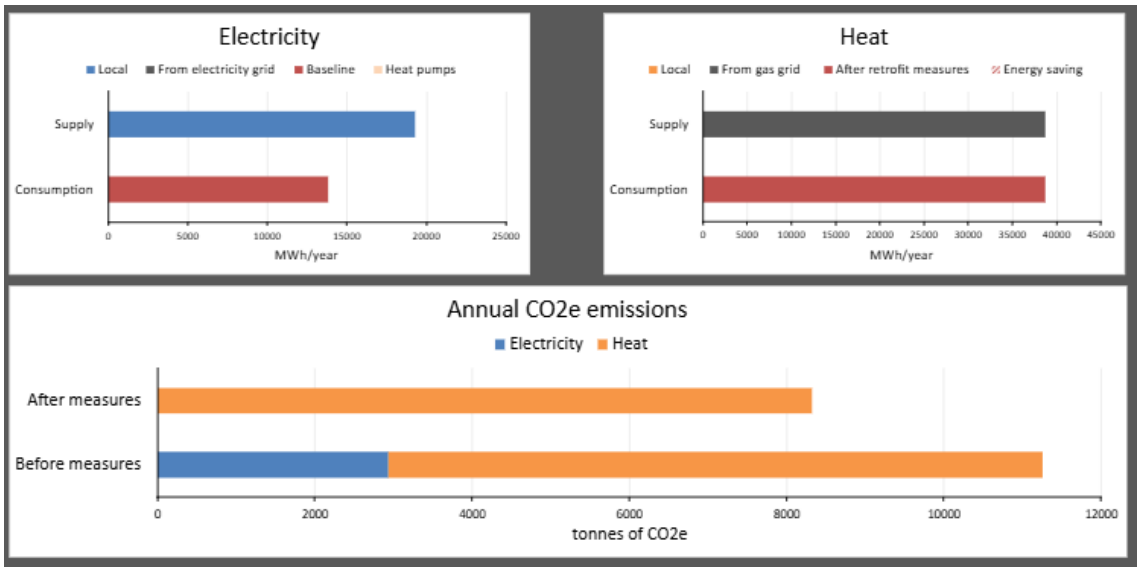
Solar Farms

The first group expressed a generally positive view of solar farm technology when it is well positioned and for example surrounded by hedging. It was given an acceptability score of four out of five.

[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.

They felt that the nominal allocation of eight six-acre solar farms was feasible within Colden Common and Twyford. Using the CESAR tool, it was shown that this would generate more electricity over a year than the parish currently consumes, effectively reducing carbon emissions from electricity use to zero. (See graph below.)

The group discussed that although annual generation would exceed local demand, in practice the parish would still require other forms of electricity generation, such as wind power, along with battery storage, to meet demand during periods without sunlight.



Impact of 8 x 6-acre Solar Farms on the local electricity supply

The group suggested siting of solar farms should be in dispersed within agricultural areas, aiming to reduce visual impact for walkers and residents. Cut into the downs of the M3 and Portsmouth Road in Fisher's Pond were mentioned as possible areas.

The wider group shared their responses to this table's suggestion and discussed the following discussion points:

- One participant in favour of solar farms commented that visual impact is subjective, and that people often forget that farmland already relies heavily on fossil-fuel-based inputs like fertiliser and diesel. Just because land looks green, they said, doesn't mean it is environmentally benign.
- It was noted that Colden Common and Twyford together cover 2,000–3,000 acres, so the proposed 48 acres of solar was a very small proportion of the landscape. The facilitator added a national comparison: to meet the UK's 2030 solar target, the total land required would be less than the land currently used by golf courses.
- Another participant said that if you were walking through the countryside and came across a well-screened solar farm behind hedging, it wouldn't dominate the experience. It was contrasted with looking down from a high point onto a large, continuous area of panels, which could feel more intrusive. They acknowledged the familiar "not in my backyard" instinct but felt that careful siting could make solar farms acceptable.

- It was discussed why communities are considering solar farms now. Historically, electricity was generated in coal-producing regions—Midlands, Kent, Wales—so people in Hampshire never saw the infrastructure. With the shift to renewables, generation now must happen closer to where people live, meaning every community will need to decide what they are willing to host.
- Participants asked about rooftop solar as an alternative. The facilitator agreed that rooftop solar is important but cannot meet total demand. Installing panels on large buildings is often expensive because of scaffolding and cabling, and there are not enough large roofs locally to match the output of ground mounted solar. Even if every suitable roof in Hampshire were covered with panels, it would meet only around 25% of the county's electricity needs. Examples were given of successful rooftop schemes, such as Portsmouth City Council's solar-covered car parks and a large office building with 4 MW of rooftop solar. These show what is possible but also highlight that ground-mounted solar remains essential for meeting overall demand.

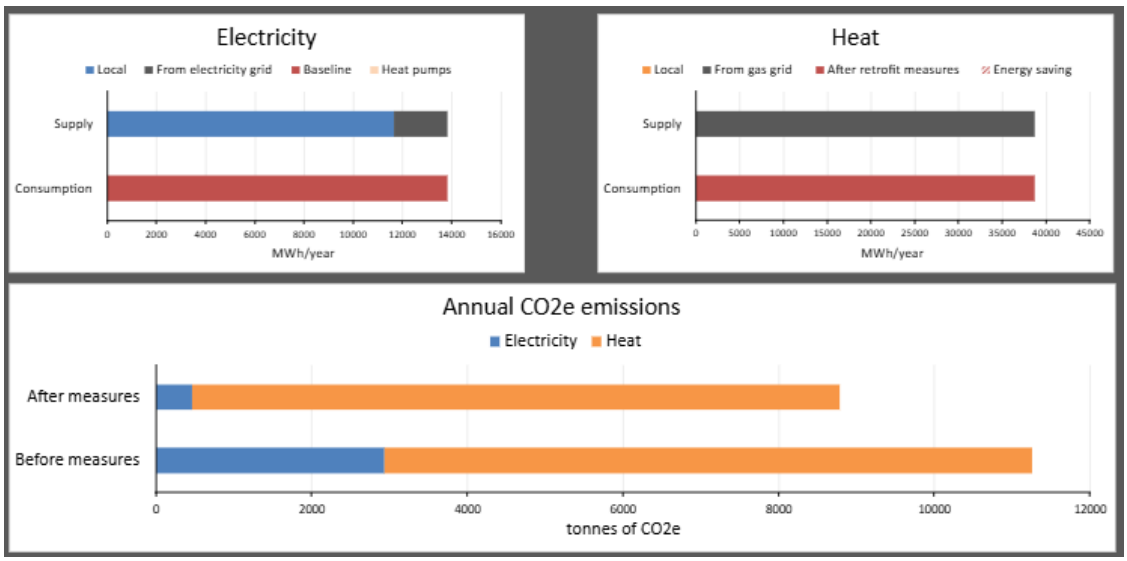
Wind Power

The second group explored three sizes of wind turbines as options for large-scale electricity generation: large turbines (2.5 MW, 140 m to blade tip), medium turbines (1.0 MW, 100 m), and small turbines (500 kW, 65 m). It was explained that there is a logarithmic relationship between turbine height, blade length, and output, meaning that a turbine twice as high can generate around four times as much energy. This naturally favours larger turbines in terms of generation. Wind turbines have a very different visual impact compared with solar farms—requiring far less land but being much more visible. Planning rules also require turbines to be at least 500 m from homes because of noise.

Participants expressed mixed views about the technology. Some were positive, while others raised concerns about noise, wildlife impacts, and visual intrusion. One participant noted that people's attitudes often depend on whether they feel the turbines benefit their own community rather than someone else.

The group concluded that if turbines were to be installed, the largest size would make the most sense because of their higher output. They suggested placing two large turbines on Twyford Down, close to the motorway to help mask noise and positioned away from most homes.

Using the CESAR tool, the group demonstrated (see graph below) that two large turbines on Twyford Down would generate nearly all the electricity currently used by Colden Common and Twyford. Although the visual impact would be much greater than that of solar farms, the land footprint would be far smaller and the carbon savings significant.



Impact of 2 x large (140 m) Wind Turbine on local electricity supply

The wider group responded to the proposal for two large turbines on Twyford Down and raised several points.

- Some participants felt there would be strong opposition, particularly from Twyford, because the turbines would be visible from many surrounding areas. Others suggested that support would be much higher if the turbines provided cheaper electricity directly to residents. Several people emphasised that clear local benefit is essential for wider community acceptance.
- The group discussed mechanisms such as Energy Local power purchase agreements and community investment models, which can allow residents to benefit directly from local generation. However, current regulations make these arrangements more complex than necessary, and national policy has historically restricted onshore wind development in England. This has only recently begun to shift.
- The facilitator explained that the organisation Power for People has been campaigning for legislation - The Local Electricity Bill, which would allow communities to sell locally generated renewable electricity directly to local consumers. Although the bill has broad cross-party support, both the previous and current governments have declined to enact it. Pressure from large commercial energy developers may play a role, as local supply could reduce their market advantage. They noted growing discussion around GB Energy and emerging local energy plans, and expressed optimism that policy will eventually change, though it is not yet in place.
- Maintenance was also discussed. One participant said many turbines they see in Cornwall appear "out of action." The facilitator clarified that turbines are often deliberately stopped when the grid does not need more power or to extend turbine life, so a stationary turbine is not necessarily broken. Another participant noted that offshore turbines are more difficult and expensive to maintain than onshore ones, which the facilitator confirmed.

- The conversation then moved to overall cost. The facilitator explained that, over their lifetime, wind turbines generate electricity more cheaply than gas-fired or nuclear power stations, even when maintenance is included. All forms of power generation require maintenance, and wind remains one of the lowest cost options.
- A real-world example was given: the Lawrence Weston community turbine in Bristol, a 3MW turbine costing around £6 million. It was funded through a mix of grants, community investment, and local authority support, showing how communities can finance such projects despite high upfront costs.
- Noise was also mentioned. A participant who had walked close to turbines said the sound was noticeable but not as loud as expected, and far less intrusive than aircraft noise, which the community already experiences regularly.
- It was noted that wind turbines do kill birds, but the estimated 100,000–200,000 annual bird deaths in the UK are far fewer than the tens of millions killed each year by domestic cats.

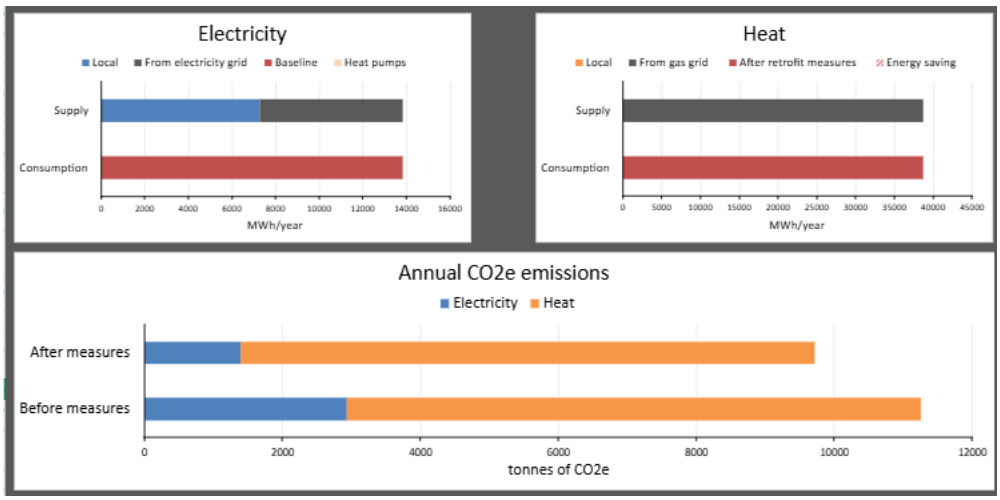
Domestic Solar

The discussion moved from large-scale solar and wind to domestic rooftop solar.

The group was given a notional maximum of 75% of homes in Colden Common and Twyford that could potentially host 10-12 solar panels on east, west, or south-facing roofs. This figure excluded north-facing roofs, which generate significantly less energy. The facilitator explained that east and west facing roofs lose only around 12–15% of generation compared with south-facing ones, and that installers will often place panels on both sides of a roof if they are already working at height. North facing roofs can still generate around 50% of a south-facing roof's output but are generally not worth installing on unless combined with other orientations.

The table working on this topic reported that they were very positive about domestic solar and felt it should be rolled out as widely as possible. They supported the full 75% uptake assumption. Listed buildings were discussed, noting that installation is difficult because panels must be hidden and must not risk damaging the building. While a few listed properties manage to install solar, it is challenging and uncommon.

Using the CESAR tool, it was demonstrated that if three-quarters of all homes in the two parishes had rooftop solar, the impact on local electricity demand would be very significant (about half of the annual demand), reducing the need for large-scale solar farms and cutting a substantial amount of carbon emissions. Some participants were surprised by how much energy domestic solar could contribute.



Impact of 75% of local homes having 10-12 solar panels

The wider group shared their responses to this table's suggestion and discussed the following discussion points:

- Rooftop solar should be prioritised. They suggested focusing on the main built-up areas rather than isolated properties. It was noted that technology continues to improve, which may create more opportunities over time. New-build homes, static homes & free-standing garden solar panels were mentioned as obvious places where solar should be standard.
- It was discussed that system size affects payback. Installations with fewer than eight panels tend to have long payback periods because fixed costs—such as scaffolding, labour, and cabling—are the same regardless of system size. This means very small systems are less cost-effective.
- The issue of rented homes was raised. Tenants benefit from lower bills, but landlords pay the installation cost, creating a "split incentive." The facilitator agreed this is a common challenge across all energy-efficiency measures.
- Commercial roofs were also discussed. Some large agricultural buildings exist locally, but many farms are not high energy users, so matching generation to on-site demand can be difficult unless they have processing operations. Hazely Farm was mentioned as a positive example, generating 36% of its energy from solar and achieving a strong sustainability rating.
- The facilitator also noted that grants are available for low-income households. At present, homes with a combined post-tax income below £36,000 can access funding that may cover the full cost of installation. This scheme is due to change in spring 2027, though it may be extended.

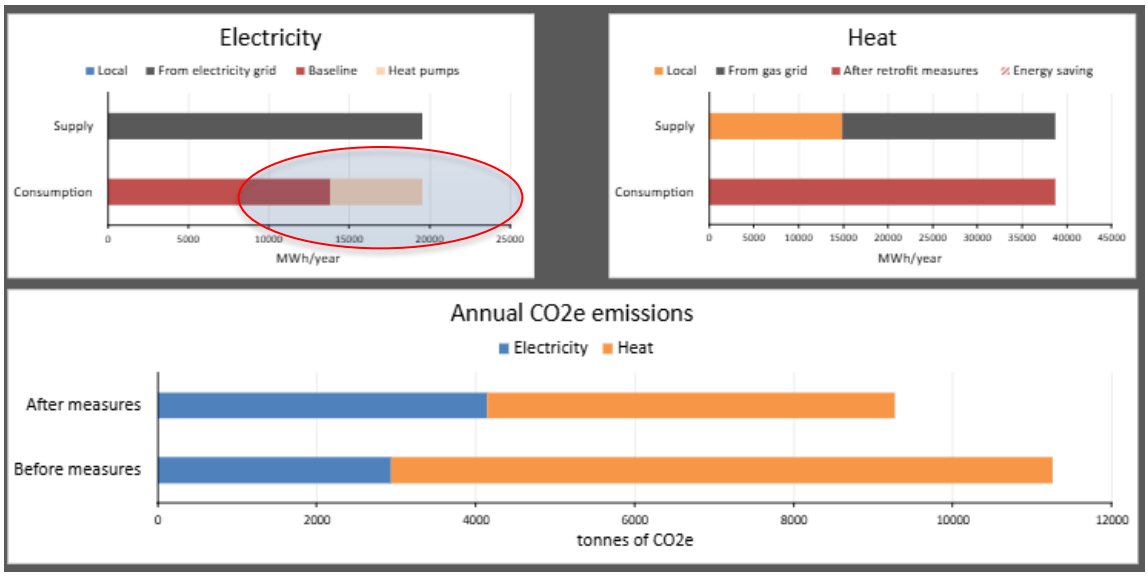
Heat pumps

The final table looked at heat pumps, introduced as an essential technology because homes use more energy for heating than for anything else. They use electricity to extract heat from air, transferring it to home and are highly efficient, using only around a quarter of the energy of a gas boiler. Heat pumps sit at the centre of the government's long-term strategy for decarbonising home heating.

The table described their overall view of heat pumps as cautiously positive due to reliability, and that running costs are lower than gas, especially on the right electricity tariff, scoring five out of five in terms of acceptability. The group also noted the potential for community-organised schemes, like the "Solar Together" model, where households could join a coordinated programme to install heat pumps at scale.

The group considered the biggest issues with heat pumps included capital cost of installation, disruption involved in fitting a system, concerns about affordability for lower-income households, general appearance and the immaturity of the installation industry. Many installers come from gas-boiler backgrounds and are still learning the different requirements of heat pumps.

The group did not estimate what proportion of homes in Colden Common and Twyford could realistically adopt heat pumps. For purpose of demonstration the CESAR tool predicted that if around half of homes adopted heat pumps, this would provide over a third of the heat demand in the parish and remove about one fifth of the local carbon emissions. They noted that heat pumps increase electricity demand (see pale pink area of the electric graph), even though they reduce total heat energy demand.



Impact of 50% of local homes having a heat pump

The wider group shared their responses to this table's suggestion and discussed the following discussion points:

- One participant asked about pipework and radiators. The facilitator explained that most homes with 15 mm pipework would not need to replace it. A heat-loss calculation would determine whether radiators needed to be larger, as heat pumps run at lower temperatures. In many cases, existing radiators can be reused.They also discussed hot-water storage. Some homes may need a new cylinder, but there are alternatives such as heat batteries, which are smaller. The

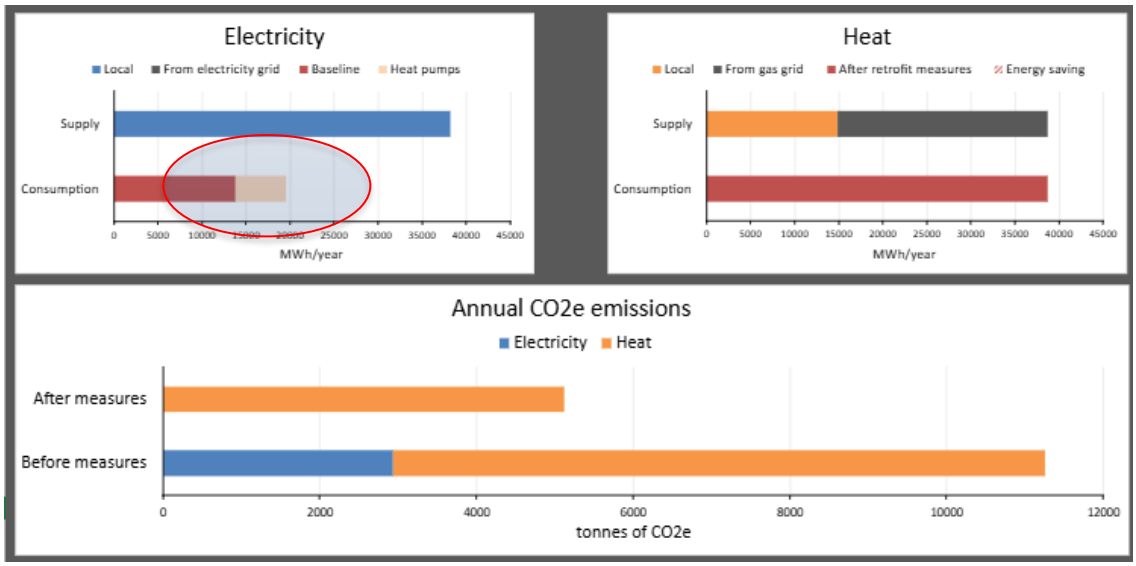
facilitator also mentioned shared ground-source systems, where multiple homes connect to a communal loop, though these require significant groundwork.

- A participant with a heat pump shared their experience. They had chosen to replace all radiators and pipework to maximise efficiency and said it was "the best thing we did." Their system provided steady, reliable heat and very hot water. They also noted that they no longer needed an annual gas-boiler service, reducing ongoing costs.
- The group then discussed installation costs. One example was given of a neighbour in Winchester with a 1930s semi-detached house who had a heat pump installed by a major supplier. After grants, the total cost was £3,900, including upgraded radiators, which the facilitator described as surprisingly low.
- The facilitator emphasised that being on the right electricity tariff is key to achieving the lowest running costs. One participant reported heating bills of around £25 per month.

Technologies in combination

None of the individual technologies hold the complete answer so the CESAR tool was used to see what might be generated if we were to combine the technologies.

For this we can input into the CESAR tool the number of technologies suggested by each group that were acceptable in the local area to see what the impact would be on supply and demand.



Colden Common & Twyford Energy Landscape

The above chart represents the combination of the maximum technologies discussed at the workshop (though we ran out of time, so this was not demonstrated at the workshop).

- 8 x 6-acre solar farms
- 2 x large wind turbines

- 75% of homes with 10-12 solar panels
- 50% of homes with heat pumps

As the figures were entered, the model showed that electricity demand would rise because of the heat pumps, but overall generation would still exceed consumption. In fact, the community would generate around 50% more electricity than it used. Carbon emissions would fall to less than half of current levels, although some emissions would remain from homes still using fossil fuel- heating.

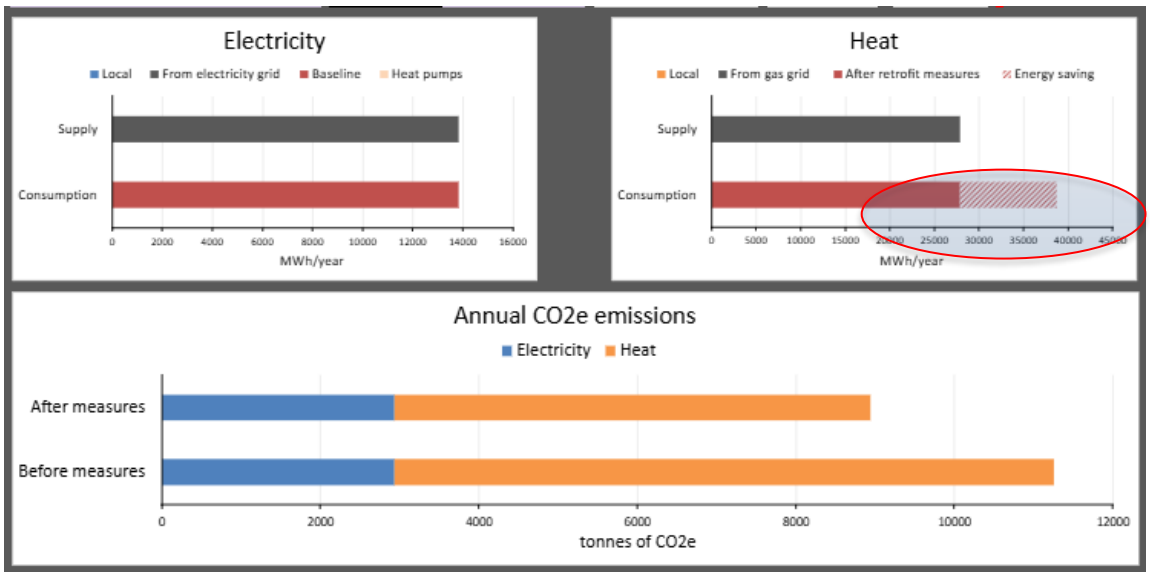
Retrofitting

Making homes more efficient—especially by cutting heat loss—means far less energy is needed to keep them warm, which in turn reduces electricity demand when switching to electric heating. Retrofitting varies in difficulty: some homes are simple to improve, while others require more complex work.

We outlined three broad home types

- Older pre-1930 houses, built with solid walls and natural ventilation, are draughty and harder to upgrade, though improvements are still possible. Around 20% of parish homes fall into this group.
- Homes built between 1930 and 1990—have cavity walls but were constructed before modern insulation standards. Many have some insulation, but often not enough, and there is still significant potential to improve their efficiency. About 40% of local homes are in this category.
- Modern homes built after 1990, which follow strict insulation rules and often need very little heating at all. The remaining approximately 40% of homes fall into this category (including 10% static homes, which have specific challenges around energy efficiency).

The CESAR tool allows us to demonstrate the impact of retrofitting in Colden Common & Twyford. The below heat graph, with the dashed red bar (highlighted with a circle), demonstrates that-retrofitting could cut heat demand by about a third. This would reduce carbon emissions and lower the amount of energy needed for heating.



Impact on the heat demand following a local retrofit programme

Conclusion and recommendations:

It was a great to have the local people of Colden Common & Twyford come together 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 acceptable where they live.

This was a hypothetical conversation where we put to one side constraints such as planning, cost and grid capacity. These are very real practicalities, particularly in the South Downs National Park and would have to be considered to initiate a future community energy project.

The idea is to provoke local awareness and spark ideas about how we can all play our part in the energy transition. Here are a few suggestions from the workshop that the local community might take forward:

- Share this report and produce a Colden Common & Twyford community energy survey to share more widely so that as many people in the local community can share their thoughts.
- Explore the government's https://www.gov.uk/government/publications/warm-homes-plan and seek personalised advice, as many retrofit measures—like loft

insulation, draught-proofing, and cavity wall insulation—are inexpensive and offer quick payback, while also improving comfort.

- Support and champion the Local Electricity Bill by following Power for People.

There is no simple solution, but this workshop format demonstrates how people learning together in their local context can shape local action. Sometimes these community conversations open local possibilities about generation projects, but they 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 Renewables) 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

https://www.winchester.gov.uk/climate-change-and-energy/climate-emergency-what-we-are-doing-now/investing-in-100-renewable-energy

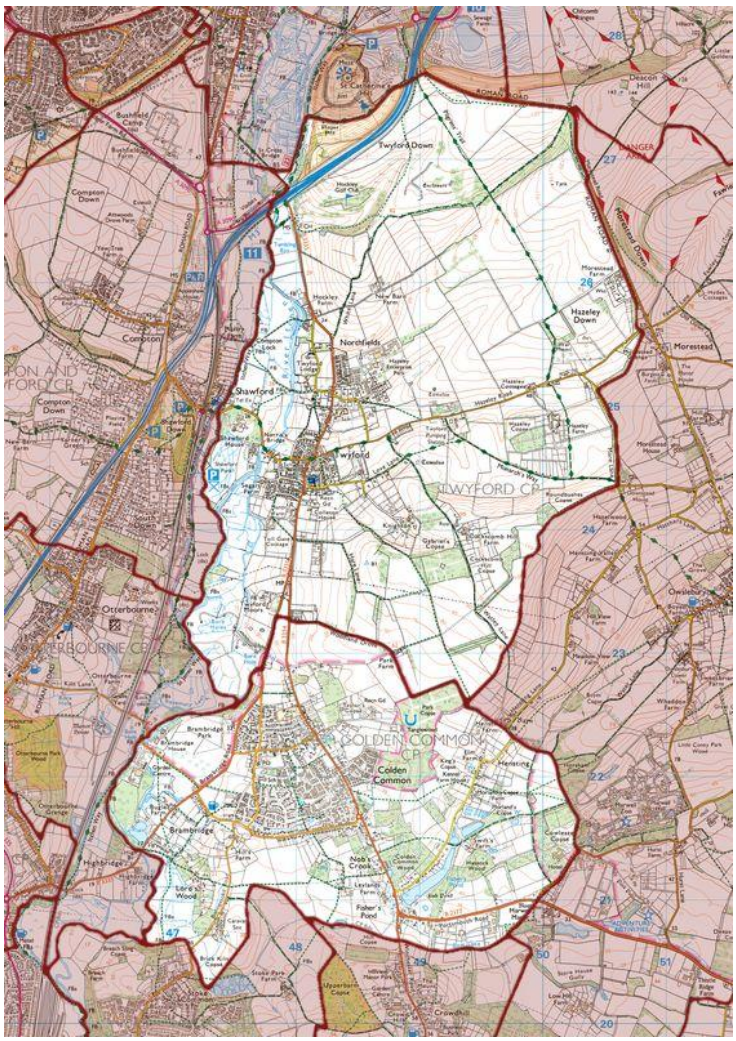
https://www.winacc.org.uk/winchester-district-the-desnz-data-on-greenhouse-gas-emissions-from-2005-to-2023-published-4-july-2025/

https://eprints.soton.ac.uk/490388/1/UoS-HCC-2023-WP1-Updated-Renewable-Electricity-Potential-Hampshire_v2.0_clean.pdf

Energy South2East – towards a low carbon economy LOCAL ENERGY STRATEGY

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

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


Twyford Down
Hazeley Down
Morestead
Compton
Shawford
Twyford
Otterbourne
Colden Common
Brambridge
Deacon Hill
Owslebury