



# FUTURE ENERGY LANDSCAPES

Engaging with communities to identify opportunities and accelerate deployment of renewable energy.

Wessex Community Energy Network: 16/02/24

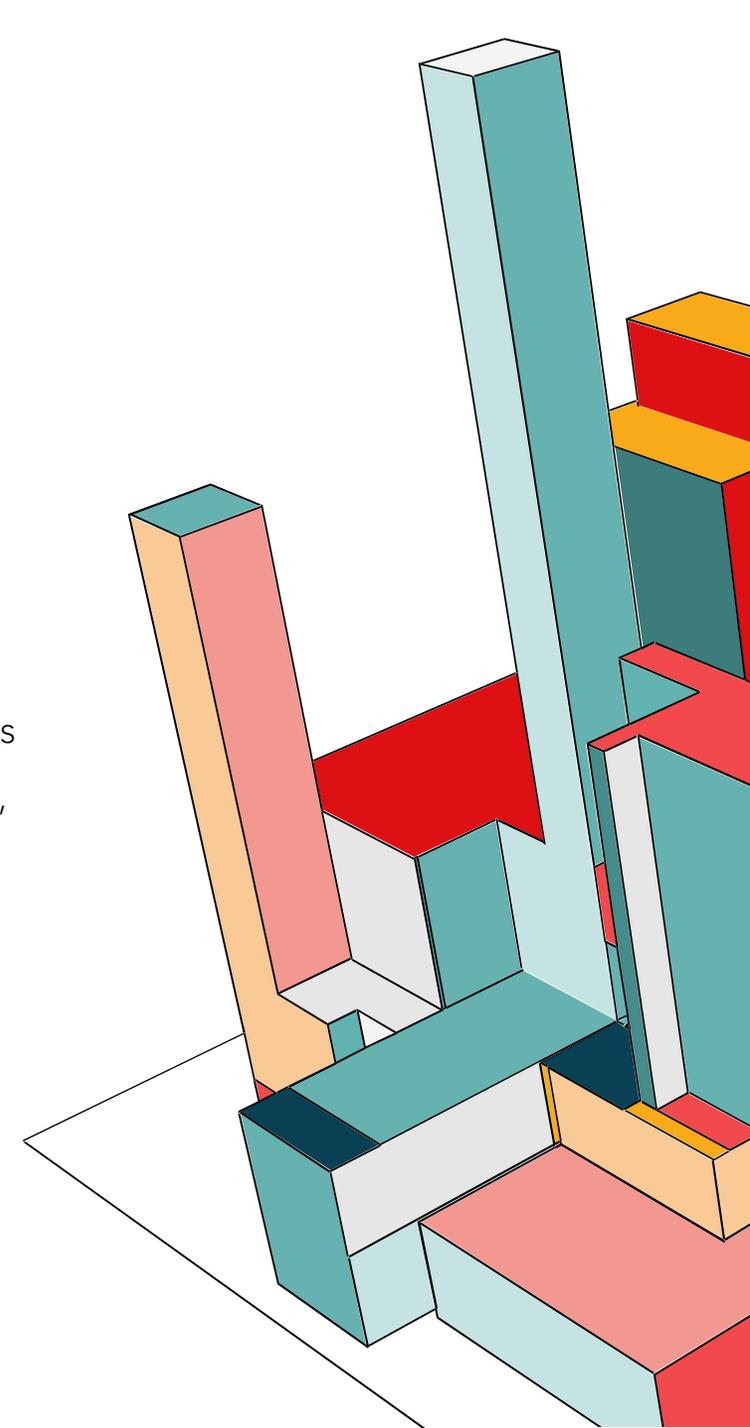
# THE CENTRE FOR SUSTAINABLE ENERGY

- CSE is a national charity based in Bristol, supporting people and organisations across the UK to tackle the climate emergency and end the suffering caused by cold homes.
- We do this by sharing our knowledge, practical experience and policy insights.
- For over 40 years, we've supported people to take effective action on energy in their homes, help communities and local councils to understand energy issues, set priorities, and put plans into action, and undertake research and analysis focus on making the energy system greener, smarter and fairer.



centre for  
sustainable  
energy

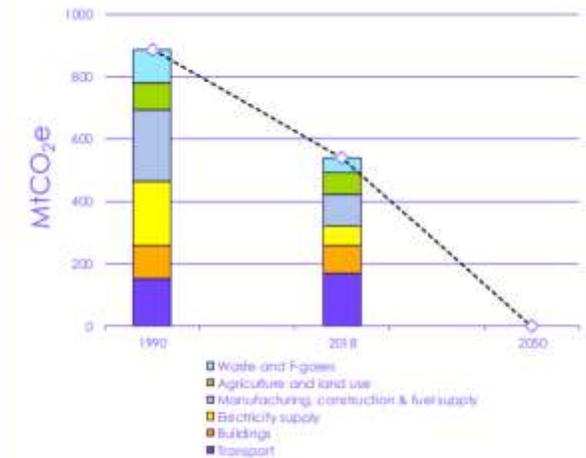
[cse.org.uk](https://cse.org.uk)



# INTRODUCTION

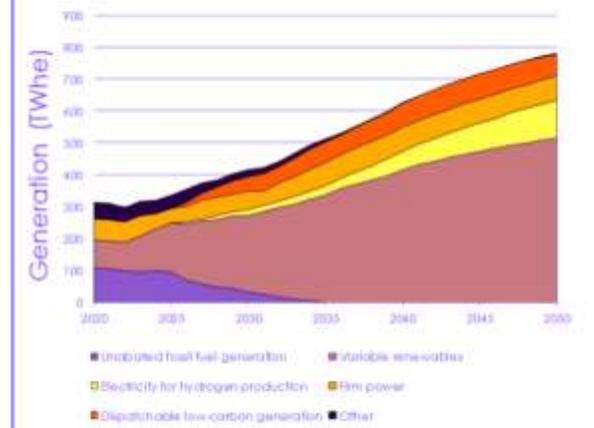
- The way we produce and use energy is one of the main causes of the climate emergency.
- We need to change from a reliance on fossil fuels which produce carbon dioxide to generating more energy from renewable sources.
- The benefits, cost and impact of making this happen must be shared across society fairly, otherwise people will not buy into the transformation that is needed.

Figure 2.2 To meet Net Zero, emissions must fall in all sectors and at a faster rate than the last thirty years



Source: BEIS (2023) Provisional UK greenhouse gas emissions national statistics 2019; CCC analysis.  
Notes: Net Zero emissions in 2050 will require any residual emissions to be offset by the UK land use sink and greenhouse gas removals.

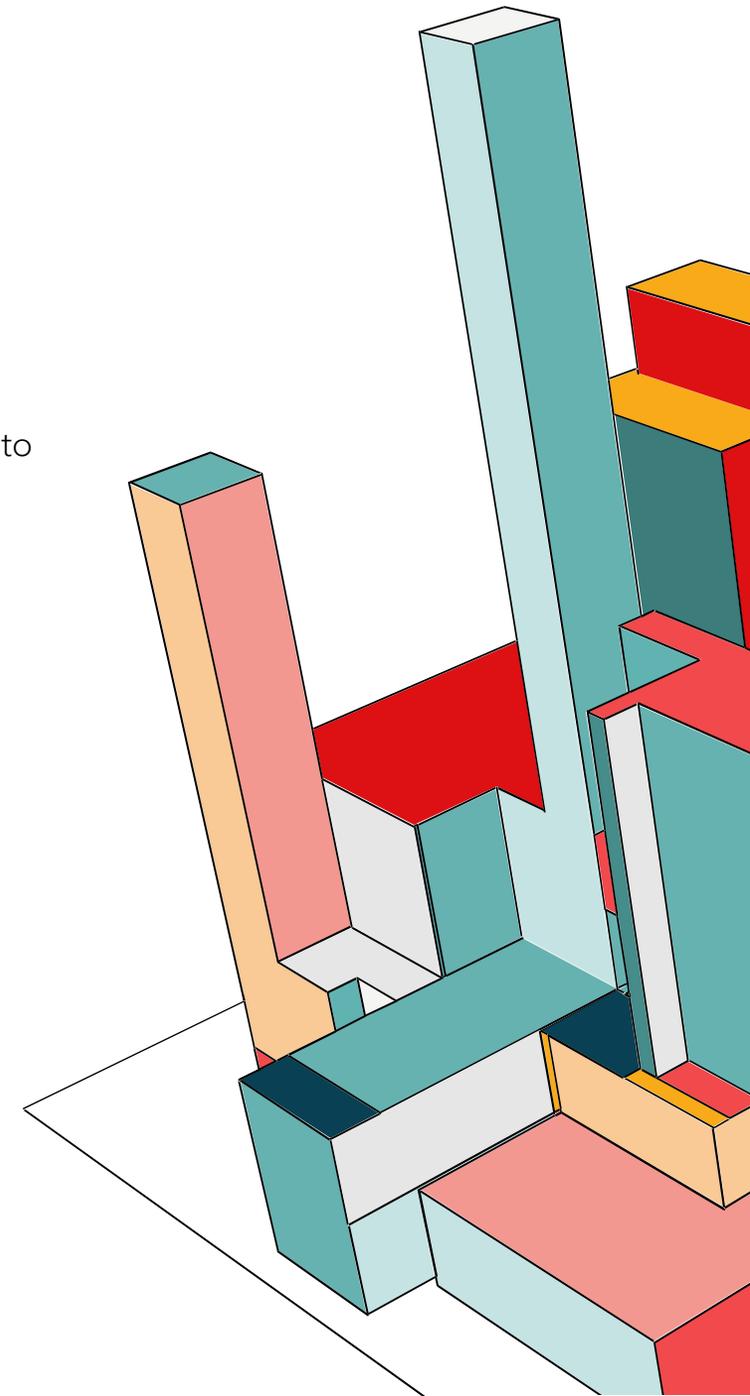
Figure 3.4.c Illustrative generation mix for the Balanced Net Zero Pathway (2020-50)



Source: CCC analysis.  
Notes: Chart reflects all electricity generation. Additional capacity is available through interconnectors. Unabated fossil fuel generation includes coal and gas. Variable renewables include wind and solar. Firm power includes nuclear. Dispatchable low-carbon generation includes gas, CCS, BECCS and hydrogen.

# COMMUNITY ENERGY HAS AN IMPORTANT ROLE TO PLAY

- Reaching net zero requires a wholesale adoption of renewable and low carbon technology - from large and centralised commercial renewables, through community-scale schemes, all the way down to household level heat pumps and rooftop solar panels.
- Community energy schemes have a role to play - these can be wholly owned and/or controlled by communities or through a partnership with commercial or public sector partners.
- People's acceptance, understanding and use of these technologies will ultimately determine the speed of change.
- This can be aided by communities taking democratic control over their energy future, by understanding, generating, using, owning and also saving energy in their communities.
- Whatever the scale, or delivery model, engagement is vital!



# PUBLIC SUPPORT FOR RENEWABLES

- Public support for renewable energy is high.
- However, support often disappears the moment a planning application is submitted.
- People have legitimate expectations that they can meaningfully influence how, and what renewable energy projects will happen within their communities and landscapes, and that they should benefit from hosting them.
- Objections will happen if these expectations are not met.
- More nuanced public engagement processes are vital if we are to roll out renewable energy at scale.

The 'social gap'

Figure 2.1: Whether support use of specific renewable energy developments (based on all people), Autumn 2021, Spring and Autumn 2022

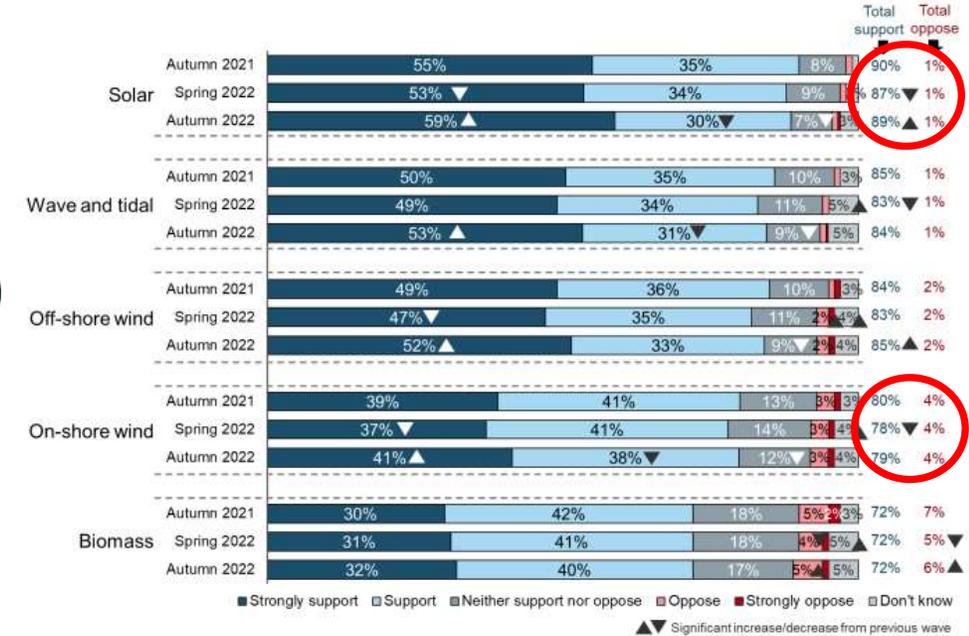
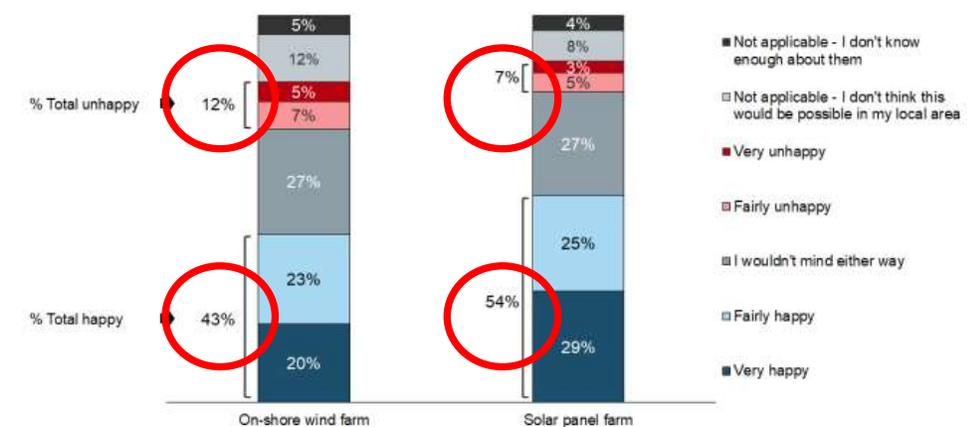
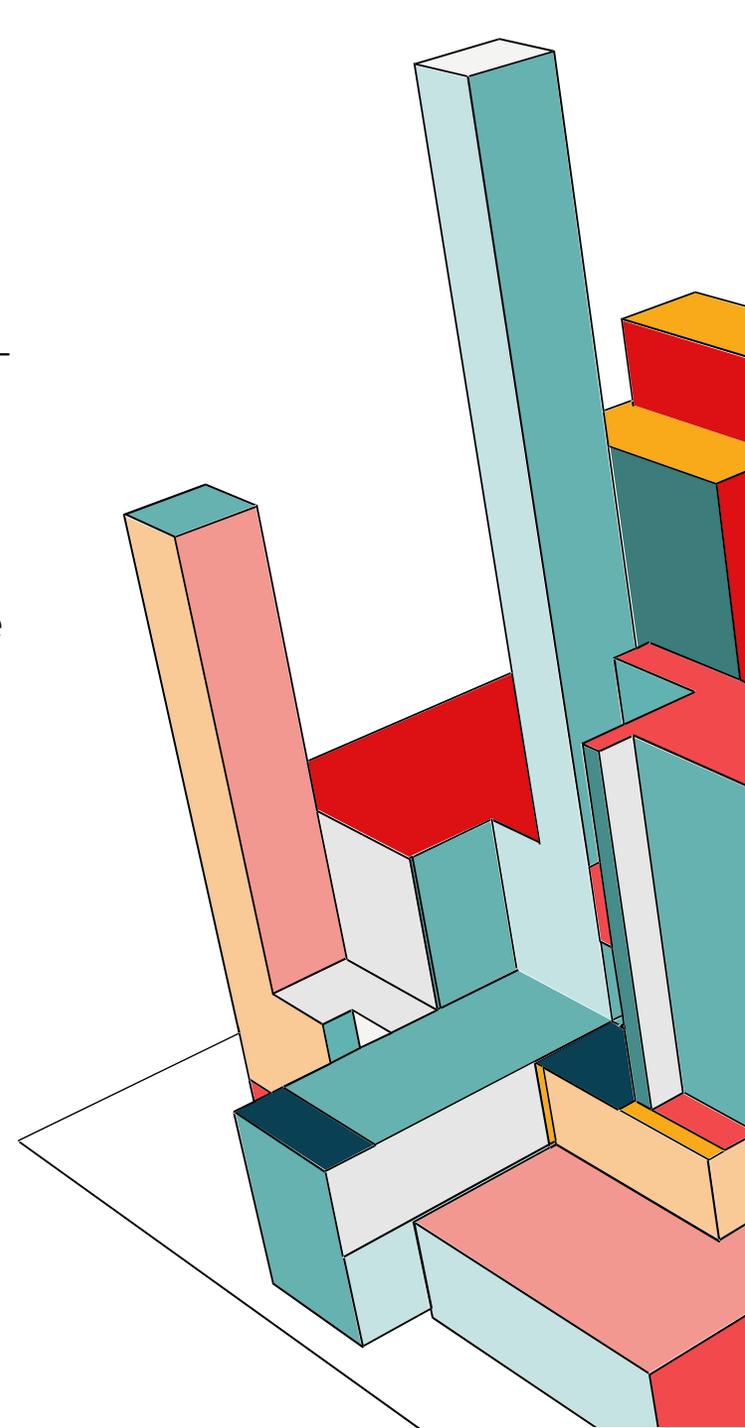


Figure 3.2: Whether would be happy for an on-shore wind farm and solar panel farm to be constructed in their local area (based on all people), Spring 2022



# FUTURE ENERGY LANDSCAPES

- CSE, in collaboration with CPRE, has developed an [open-source](#) bottom-up approach to community engagement called Future Energy Landscapes (FEL).
- The essence of our approach is that we set the community the challenge to meet more of their energy demand from local renewable sources and involve them in *how* and *where* that happens around them, the types and scales of renewable energy which might be acceptable to them, the landscape impacts they would accept, and how they might benefit.
- We provide unbiased resources, so people learn about the issues, with sufficient time and autonomy to consider the pros and cons of different options.
- FEL should be considered the start of a longer conversation!



# FUTURE ENERGY LANDSCAPES PROCESS

<https://www.cse.org.uk/my-community/community-projects/future-energy-landscapes-community-consultation-method/>



# THE FEL MAP



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Our vision is a world where sustainability is second nature, carbon emissions have been cut to safe levels and fuel poverty has been replaced by energy justice

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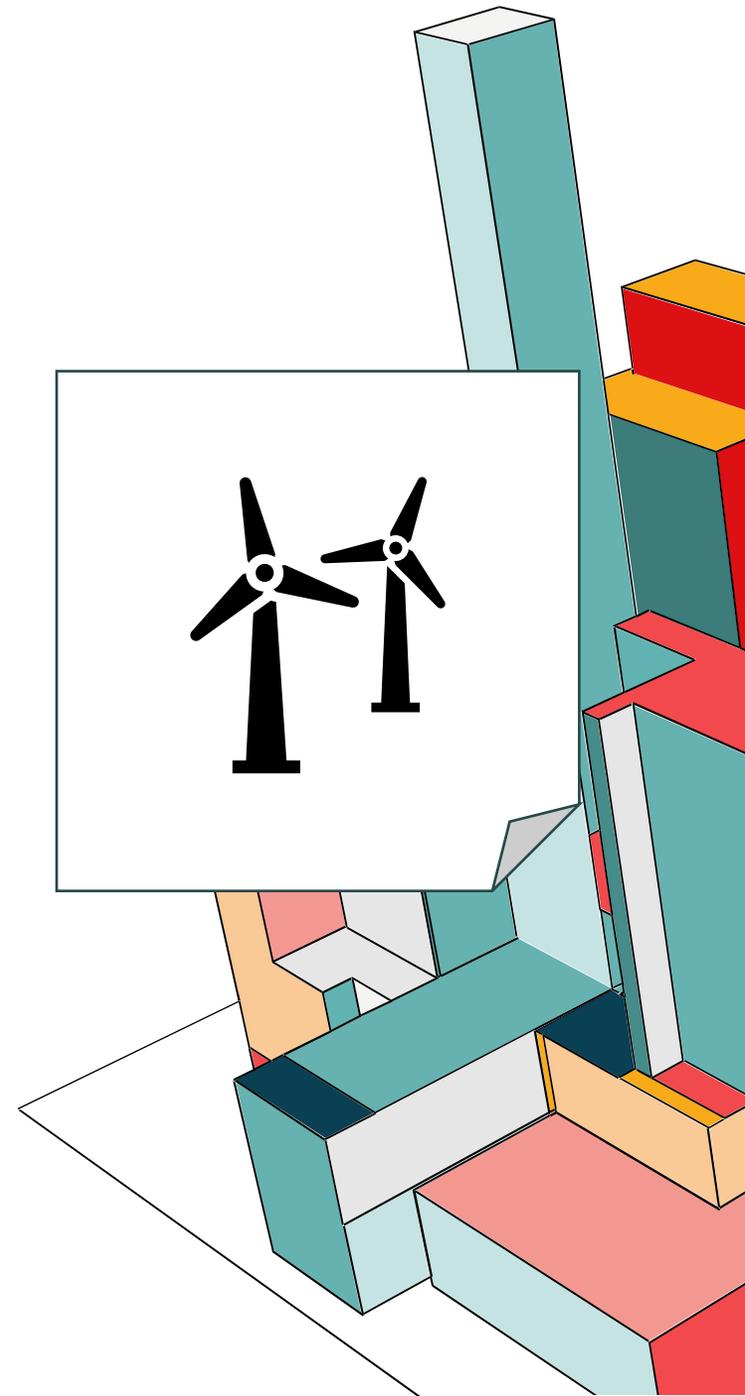
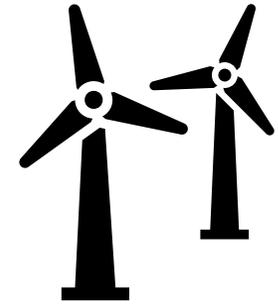


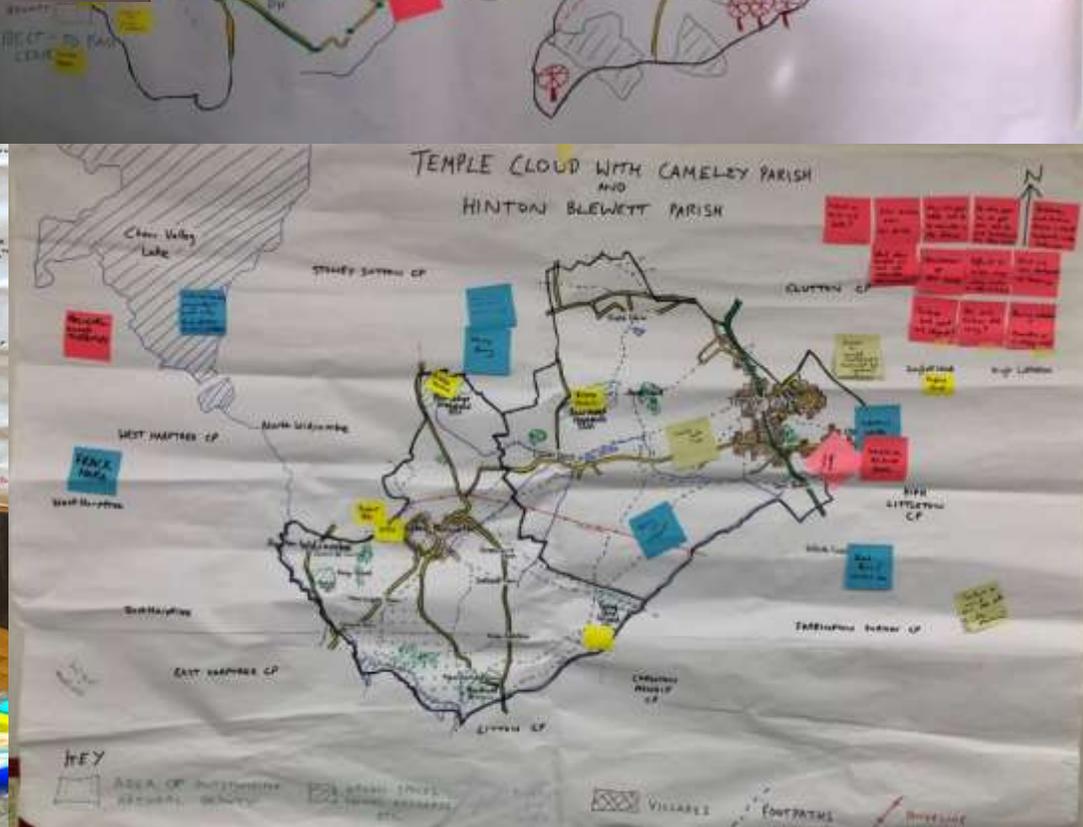
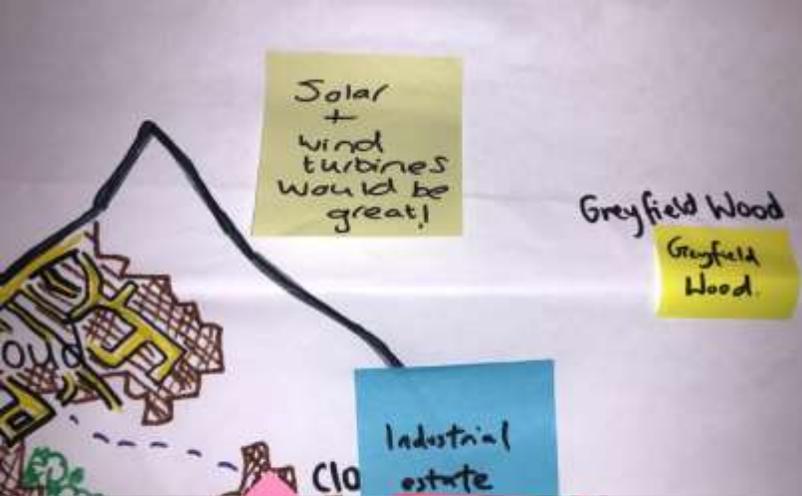
# INTERACTING WITH THE MAP

Descriptive words and emotions (e.g., peaceful, beautiful, noisy)

Specific areas that are special (and why)

Specific areas that you dislike (and why)







# CHOOSING FROM A MENU OF OPTIONS



# CHOOSING FROM A MENU OF OPTIONS



Technical potential



Translated into a 'menu' of options

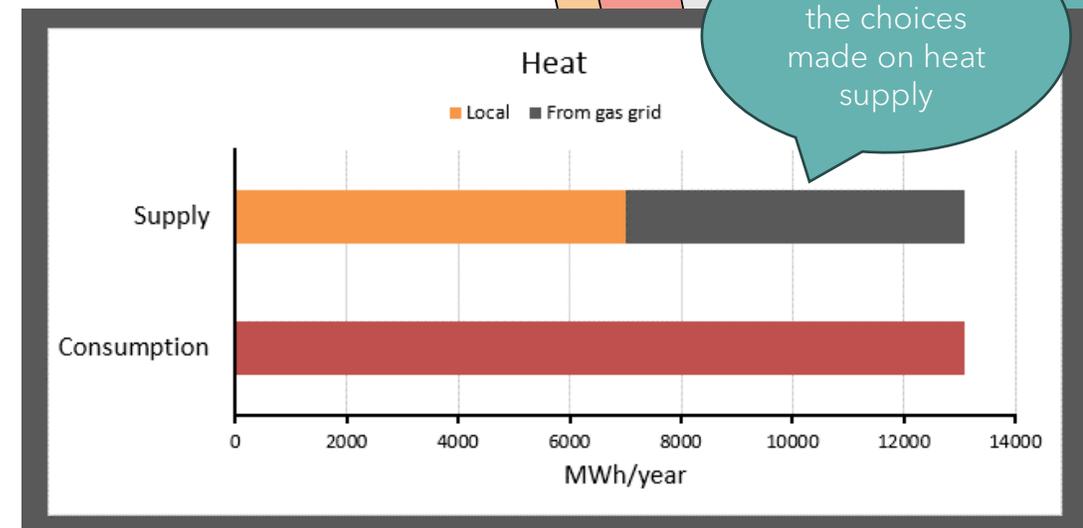
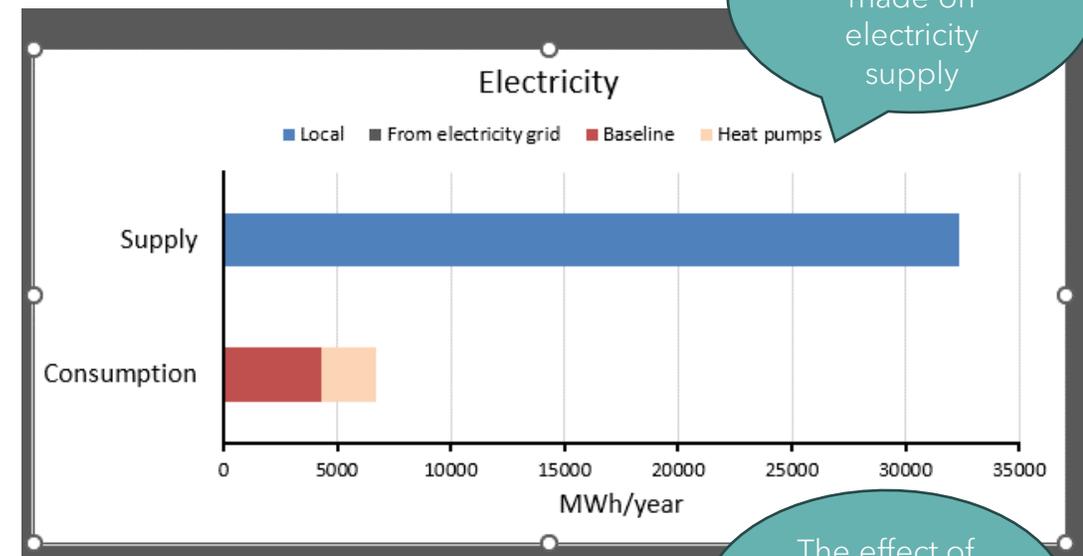
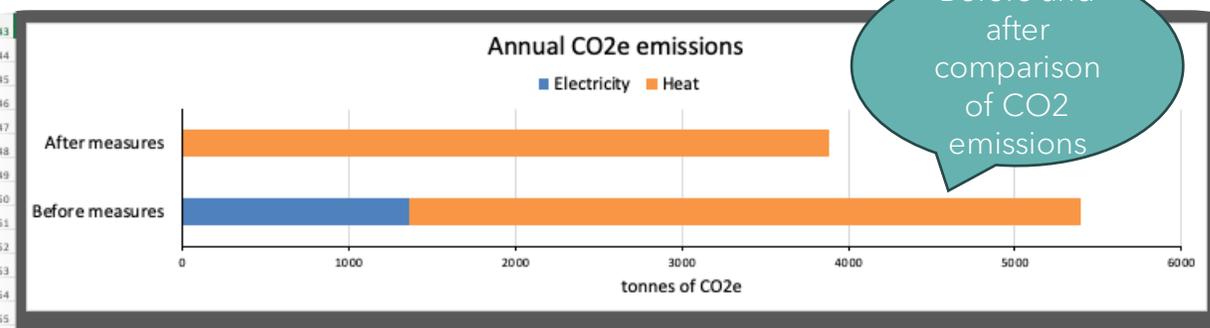


Democratic and transparent voting

# THE CESAR TOOL

- Community Energy Saving And Renewables (CESAR) tool, developed by CSE.
- The tool is tailored to the community and enables participants to quantify how their menu choices would provide some or all of their energy needs using renewable energy generation and their impact on carbon emissions.

| Technologies   | Numb | Menu choices |      | MWh supplied/saved |      | Equivalent homes powered/heated | Cost |
|--|------|--------------|------|--------------------|------|---------------------------------|------|
|  |      | Electricity  | Heat | Electricity        | Heat |                                 |      |
| Onshore wind - small (500 kW / hub height: 40m / rotor diameter: 35m)  | 0    | 0            | N/A  | 0                  | N/A  | 0                               | £0   |
| Onshore wind - medium (1 MW / hub height: 70m / rotor diameter: 55m)   | 0    | 6990         | N/A  | 1574               | N/A  | £3,750,000                      |      |
| Onshore wind - large (2.5 MW / hub height: 100m / rotor diameter: 80m) | 0    | 0            | N/A  | 0                  | N/A  | £0                              |      |
| Hydro (200 kW)   | 2    | 1332         | N/A  | 300                | N/A  | £1,600,000                      |      |
| Hydro - micro (25 kW)  | 2    | 166          | N/A  | 37                 | N/A  | £340,000                        |      |
| Solar PV - domestic (4 kW) (1 card represents 5% of homes)             | 10   | 326          | 50%  | 283                | N/A  | £1,696,012                      |      |
| Solar farm (2.5 MW / 12 acres)   | 1    | 1            | N/A  | 542                | N/A  | £1,250,000                      |      |
| Anaerobic digestion (500 kW / 250 acres)                               | 0    | 0            | N/A  | 0                  | N/A  | £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            | 0    | 0                  | 0    | £0                              |      |
| Solar thermal - domestic (1 card represents 5% of homes)               | 0    | 0            | 0%   | 0                  | 0    | £0                              |      |
| Air source heat pump - domestic (1 card represents 5% of homes)        | 1    | 33           | 5%   | 346                | 33   | £293,541                        |      |
| Ground source heat pump - domestic (1 card represents 5% of homes)     | 1    | 33           | 5%   | 346                | 33   | £489,234                        |      |



The effect of the choices made on electricity supply

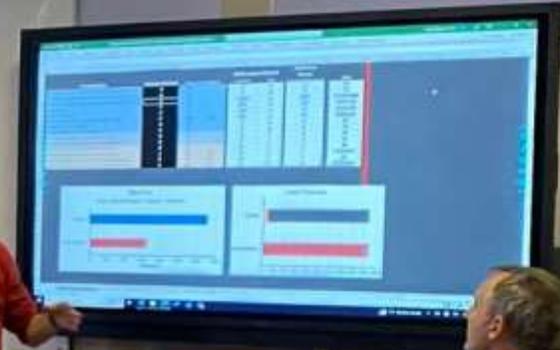
The effect of the choices made on heat supply

Before and after comparison of CO2 emissions



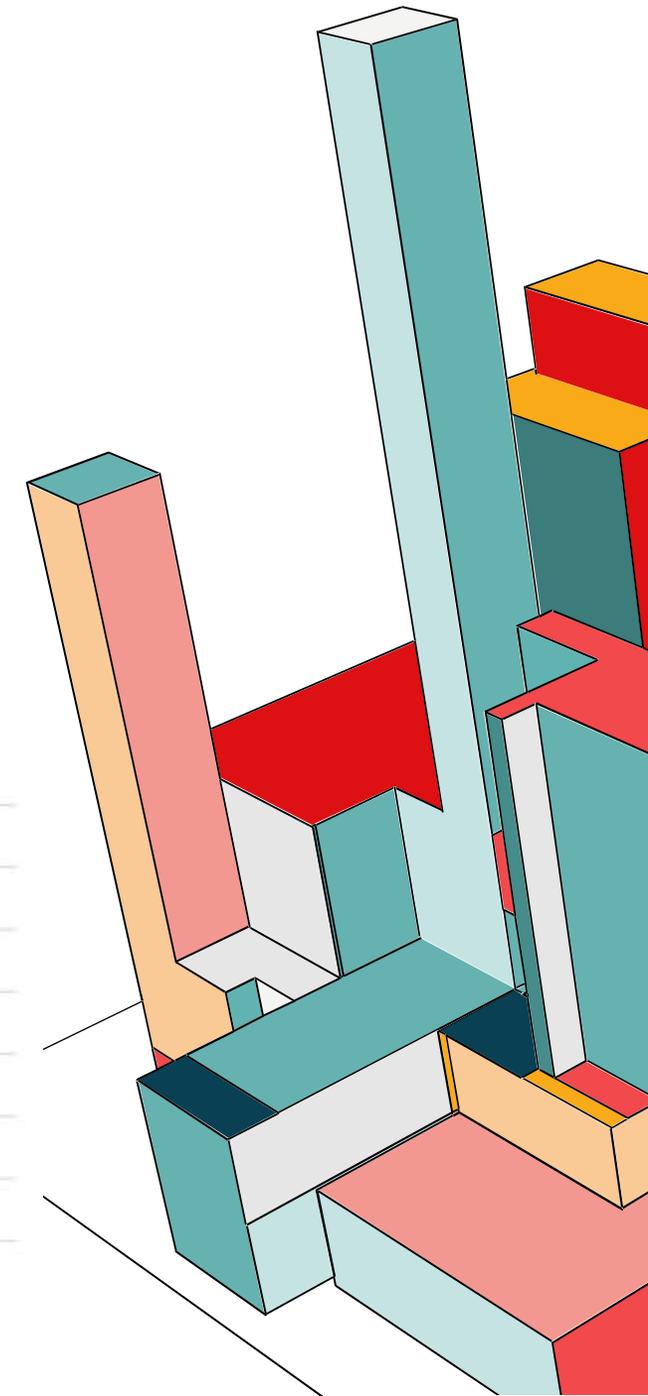
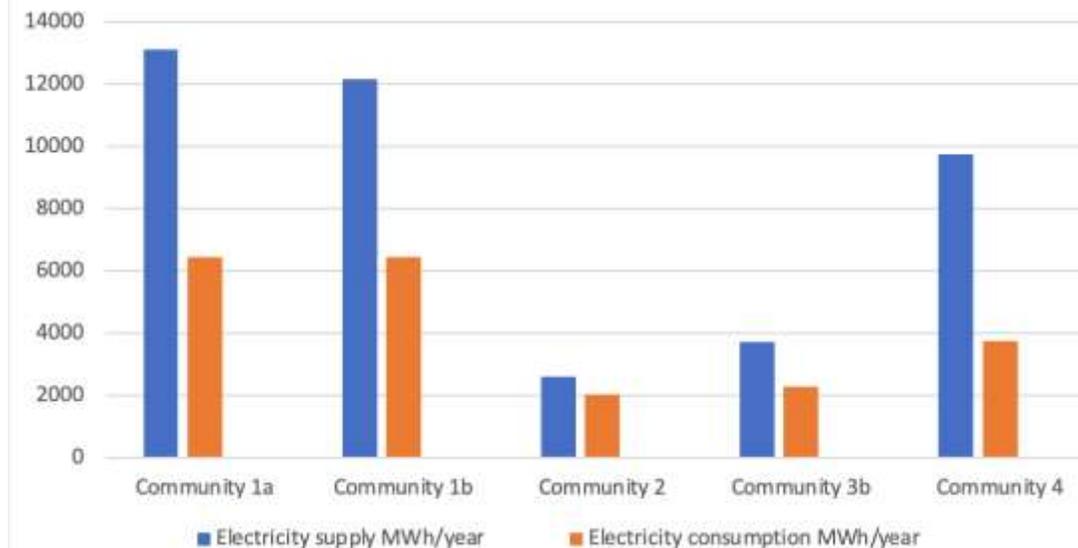
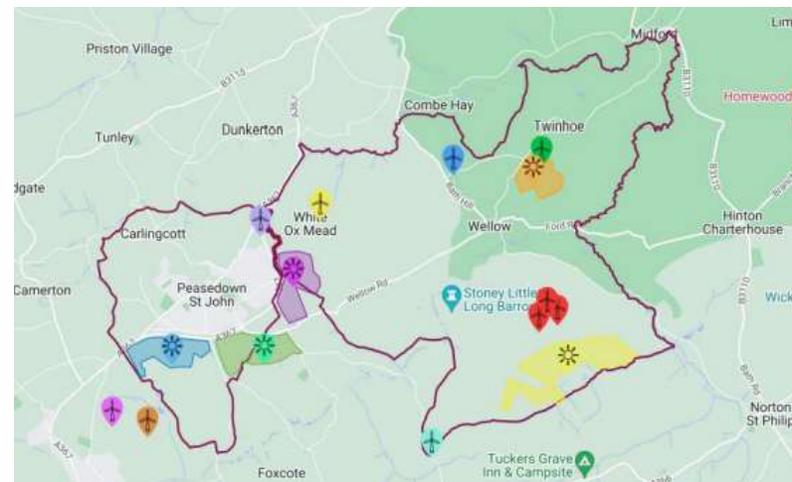
"What happens if we add in one more wind turbine?"

Gwlad yr Ia  
Iceland



# POST WORKSHOP ENGAGEMENT

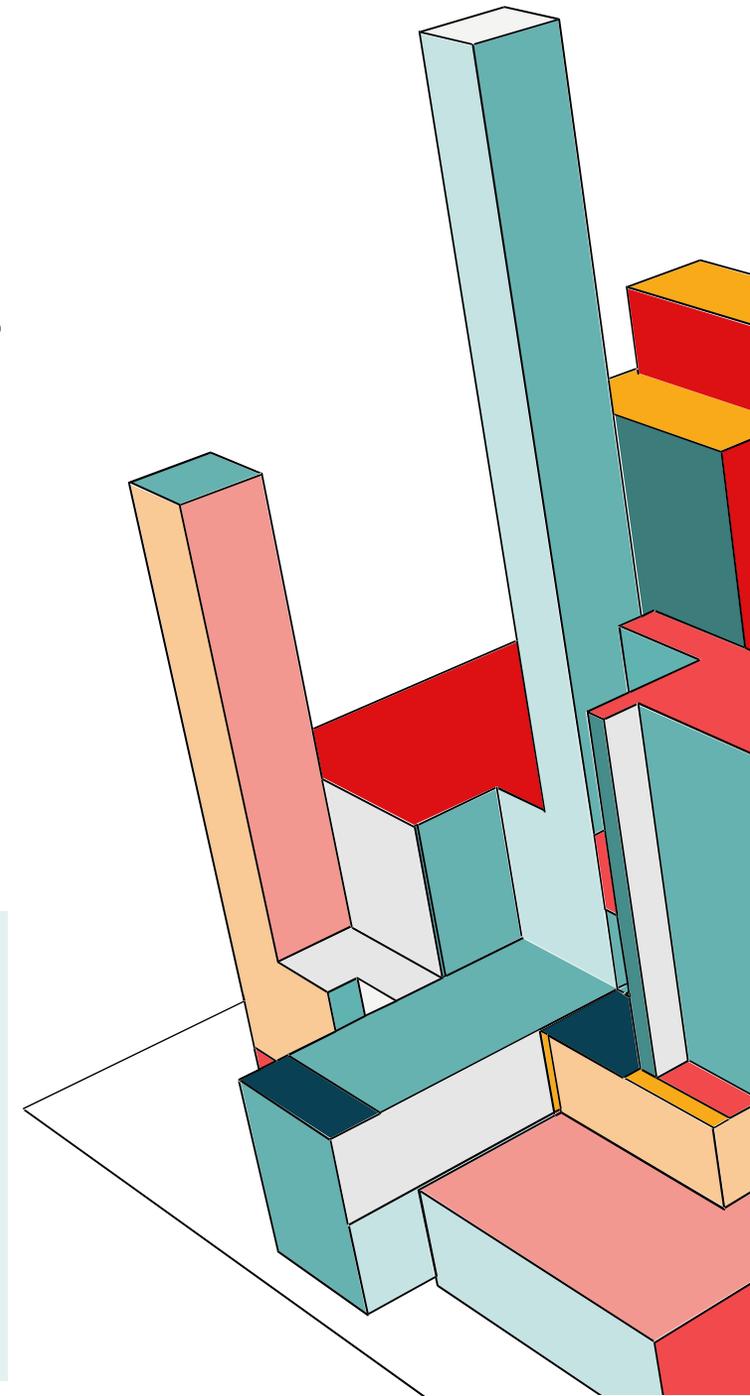
- Consultation should continue after the workshop to see if the views expressed at the workshop are shared with the wider community.
- In most cases, communities have chosen to support more renewables in their area, often exceeding demand for electricity, even in sensitive landscapes.
- Remember, this is just the start of the conversation!



# RUN A WORKSHOP

- The full open-source tool kit can be found on the CSE website so that you can run a session yourself: <https://www.cse.org.uk/my-community/community-projects/future-energy-landscapes-community-consultation-method/>
- Interested in CSE running a workshop for you? Contact [communities@cse.org.uk](mailto:communities@cse.org.uk)

- We have recently worked with:



# THANK YOU

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**RTPI**

Chartered Town Planner