A proposal for generating our own sustainable, low-cost electricity

2 December 2025
Broughton Village Hall

Meeting objectives

- Remind you about Broughton Community Energy's Vision, Objectives and Strategy
- Update you on the progress that has been made in recent months
- **Share our proposal for generating sustainable, low-cost electricity for our village**
- **Get your feedback and answer any questions**
- Explain what comes next

Agenda

19:30 – 20:30	Presentation
20:30 – 20:50	Breakout discussion
20:50 - 21:20	Q&A
21:20 – 21:30	Next steps

The Broughton Community Energy Working Group

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Our Vision

Our village is fuelled and powered entirely by sustainable, secure, zero-carbon energy, ensuring affordability and fairness for all.

Our objectives

Environmental

- Reduce our CO_2 emissions

Economic

- Lower our energy costs
- Reduce energy poverty in our community

Community

- Elevate community cohesion
- Provide a blueprint that inspires other communities to act

A quick explainer – power and energy

Power

The rate at which energy is used or generated

Measured in Watts (W)

1,000 W = 1 kilowatt (kW)
1,000 kW = 1 Megawatt (MW)
1,000 MW = 1 Gigawatt (GW)

Example powers:

LED downlight	5W
Electric kettle	3 kW
Gander Down Solar Farm	50 MW

Peak Power (p) is the maximum power that can be generated under ideal conditions. E.g., a small solar farm at midday in June (e.g., 4 MWp).

Energy

Energy = Power (W) x Time (h)

Measured in Watt-hours (Wh)

1,000 Wh = 1 kilowatt-hour (kWh)
1,000 kWh = 1 Megawatt-hour (MWh)
1,000 MWh = 1 Gigawatt (GWh)

1 kWh of energy = 1 kW of power for 1 hour

In our house, we use an average of 20 kWh of electricity each day.

The domestic electricity tariff is c. 27p per kWh.

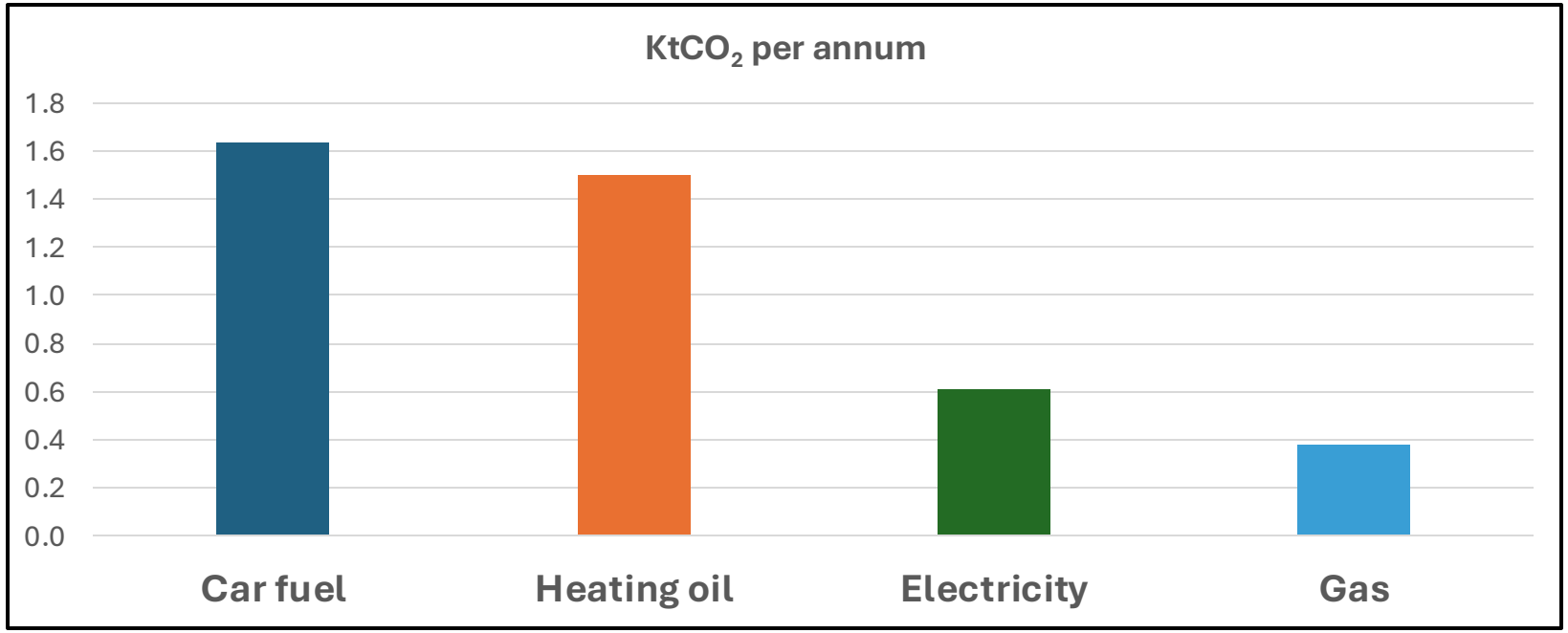
At our meeting in November last year, we shared the annual energy consumption and CO_2 emissions of our village

Car fuel - 7.2 GWh
(1.6 $KtCO_2$)

Electricity – 3.0 GWh
(0.6 $KtCO_2$)

Oil – 6.1 GWh
(1.5 $KtCO_2$)

Gas – 1.6 GWh
(0.4 $KtCO_2$)



We emit **4.1 $ktCO_2$** each year, which would fill **140 million party balloons.**
We would need to plant **200,000 trees** to absorb it.

The drive to increase the UK's energy security and achieve net zero can only be achieved through electrification, using electricity that's generated sustainably

Oil and gas heating systems

Electric heat pumps will replace oil and gas-fired boilers

Air and ground source heat pumps

Petrol and diesel cars

Electric vehicles will replace petrol and diesel cars

Electric vehicles

Broughton currently uses 3 GWh of electricity each year; however, despite electricity being much more efficient than fossil fuels, **we estimate this will increase to 8 GWh** once the transition is complete.

The building blocks of BCE's strategy

The focus of this meeting is our **proposal to generate clean, sustainable electricity** and to provide a **low-cost electricity tariff for our village**

The journey so far...

May 2024
Parish Council supports the formation of BCE at their AGM

Jul 2024
BCE Steering Group established

Oct 2024
Prospus Group selected to support us

Nov 2024
Future Energy Landscapes Workshop

Jul 2025
SSEN's Feasibility Study confirms sufficient capacity to accept our generation at the Houghton substation

2 Dec 2025 (today)
Electricity generation proposal shared at village meeting

Q2 2024 | Q3 2024 | Q4 2024 | Q1 2025 | Q2 2025 | Q3 2025 | Q4 2025

Sep 2024
BCE's Vision & Objectives agreed

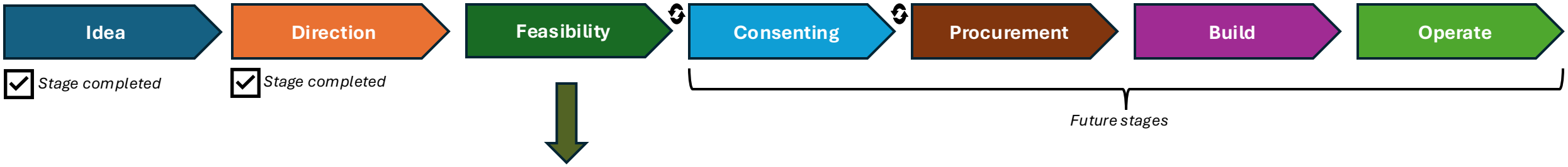
Confirmation of £40k grant from the Community Energy Fund (CEF)

May 2025
Broughton Community Energy incorporated as a Community Benefit Society

12 months wait to receive funding

Oct 2025
Grant Funding Agreement signed, and Feasibility Stage formally starts

We are currently in the Feasibility Stage of the electricity generation project



Feasibility Stage Outputs

- The proposed **Conceptual Design** for the generation site
- A good understanding of **how our community feels** about the proposed scheme
- A thorough understanding of the **planning consent risks**
- Confirmation that the scheme is **financially viable**
- Reserved **grid connection capacity**
- **Pre-Planning Application** submitted to TVBC
- **Application** submitted for the **Stage 2 GBECF grant**

Our focus this evening is on sharing the Conceptual Design and getting your feedback.

This is what you told us at the Future Energy Landscapes Workshop in November 2024

The workshop was attended by approx. 50 people and explored the question:
'How might Broughton power its community using locally generated renewable energy?'

Solar

- Two to four 12-acre solar farms should be feasible in a parish of 3,800 acres.
- Some concerns about biodiversity and its impacts on farmers.

Wind

- Generally positive about the technology.
- Concerns about the impact on birds.
- Questioned if Hampshire is windy enough.

Location

- Prefer the site to be in the NE of the parish.

Our technical requirements for generating electricity

Generation requirements
• Provide year-round generation • Meet or exceed our village's electricity demand • Limit output to < 5 MW, to avoid lengthy delays from NESO impact assessments* • Maximise local consumption of electricity

* National Energy System Operator (NESO) impact assessments can delay projects by several years.

Our proposed technologies and their peak (p) generation capacities

Solar PV: 4.1 MWp

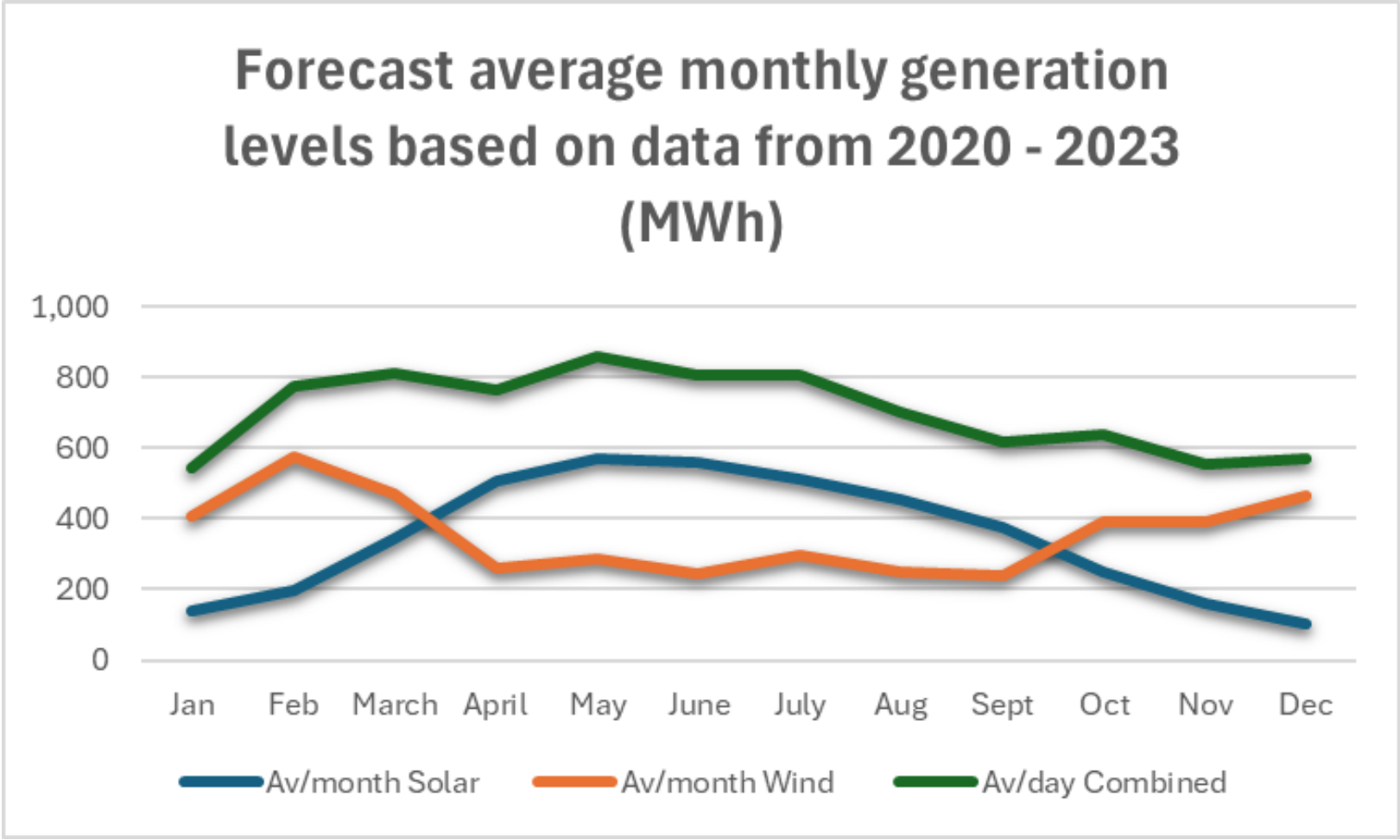
Single wind turbine: 2.3 MWp

Battery storage: 1-2 MWh

This combination will generate approximately **8 GWh of electricity per year**, compared to **Broughton's current consumption of 3 GWh. It will match our estimated future demand** of 8 GWh following the electrification of heat and transport.

Battery storage enables us to better balance supply and demand, using more of the electricity locally rather than exporting it to the grid.

The combination of solar and wind provides a more consistent output over the year compared to either of the technologies individually

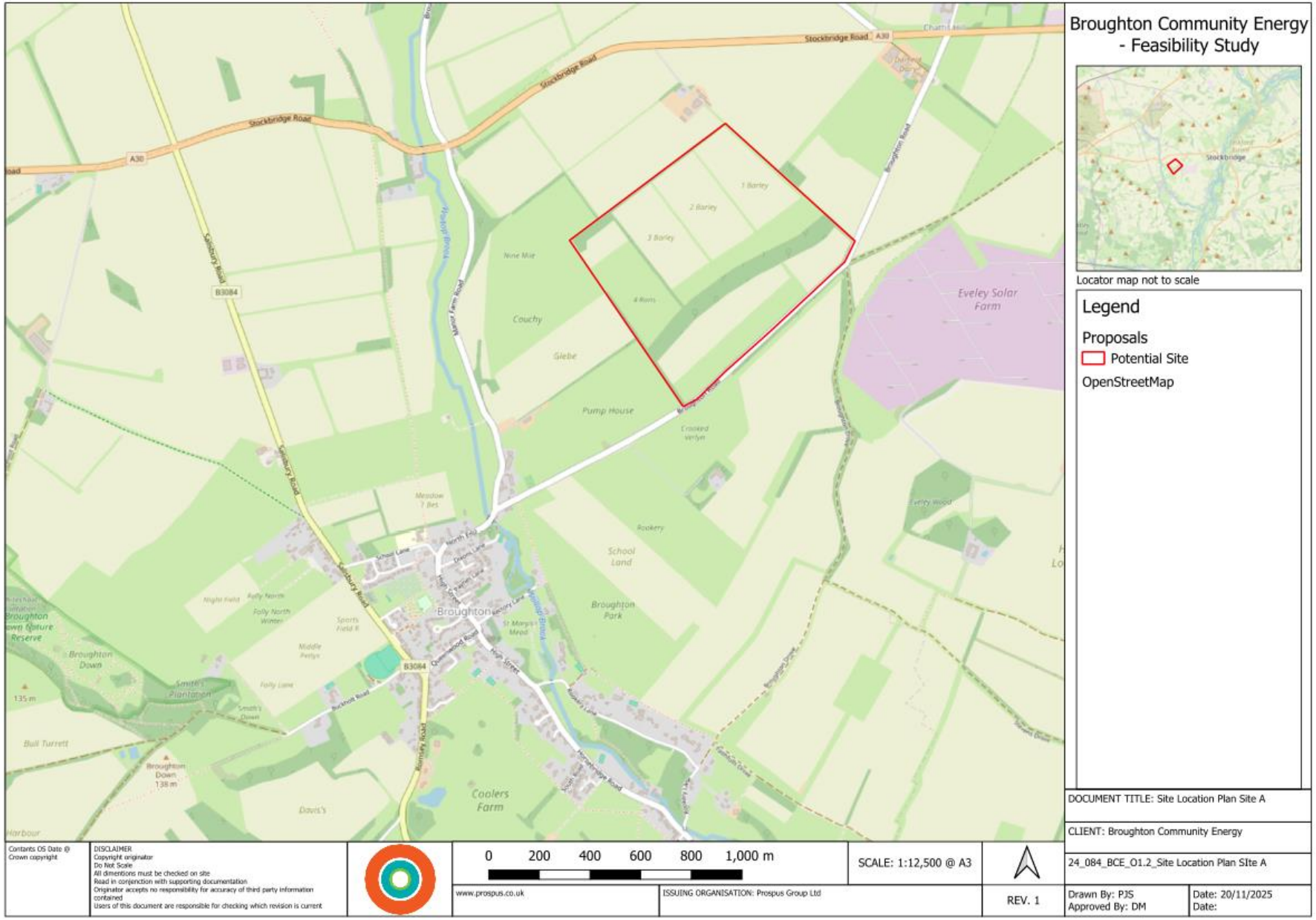


Modelled using estimated solar and wind data at our proposed site for the period 2020-2023.
The model assumes solar PV (4.1 MWp) and wind (2.3 MWp).

Our requirements for locating the generation site

Site requirements
General • NE of the parish • Avoid environmentally sensitive areas • Minimise the visual impact • Avoid heritage and archaeological impacts • Good access • A viable cabling route to Houghton **Solar** • Land with low agricultural productivity (class 3b or lower) • Good solar irradiance • Minimise ‘glint & glare’ impacts **Wind** • High elevation for increased wind speeds • Outside protected radar zones • Minimise ‘shadow flicker’ impacts

Our proposed site location



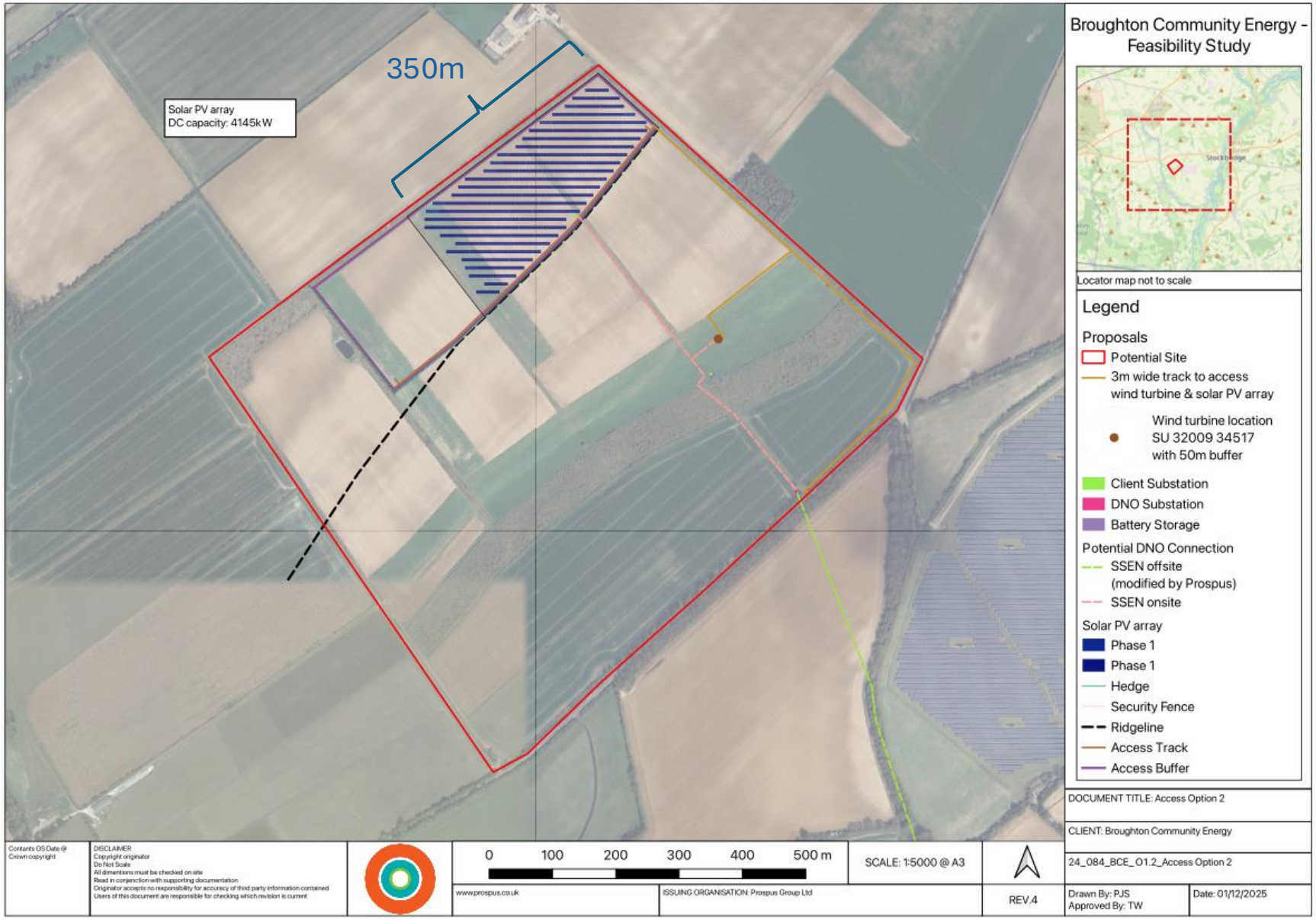
The site layout

Solar PV

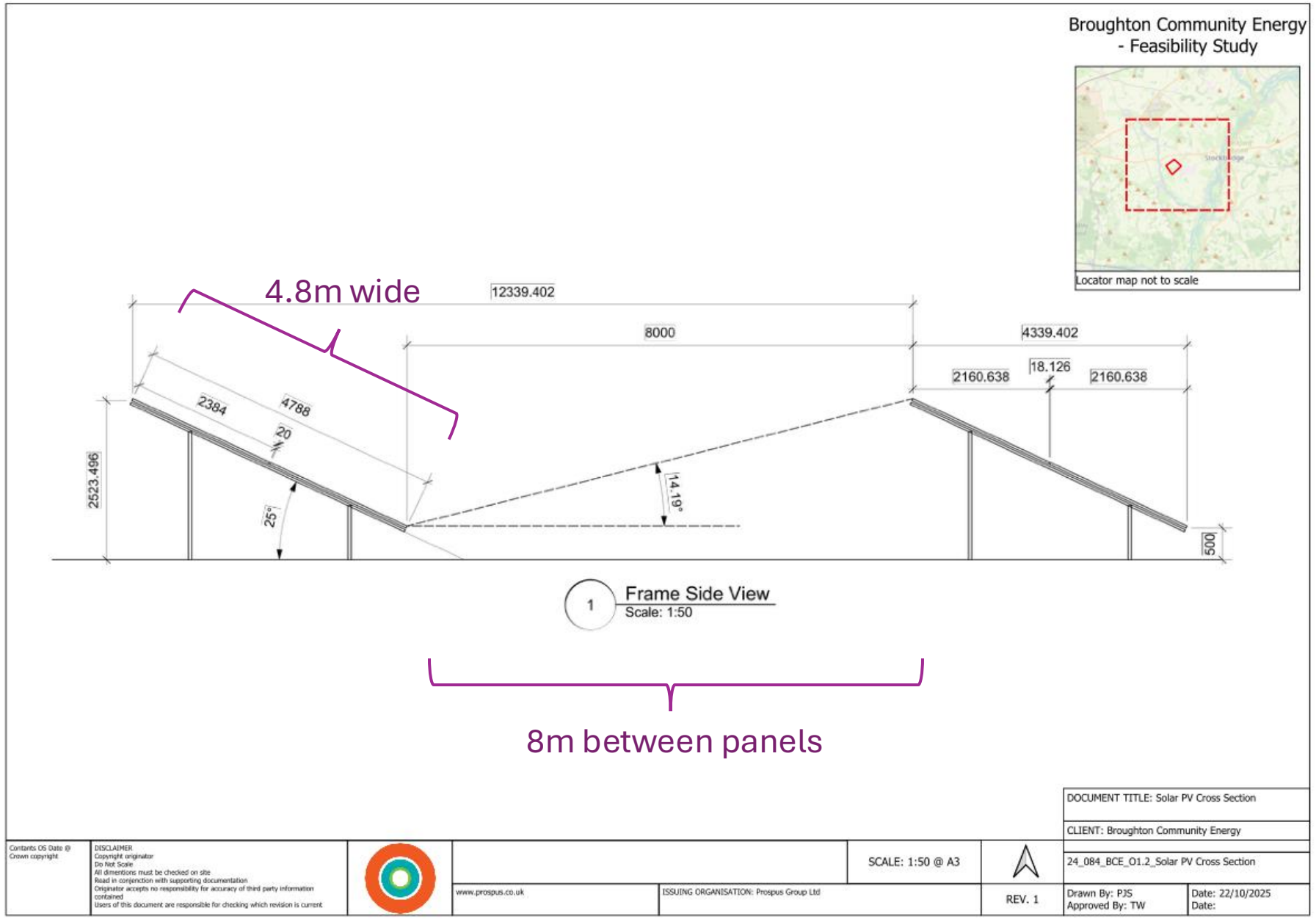
Capacity:	4.1MWp
Panels:	6,188
Area:	17 acres
Annual generation:	4.1 GWh

Single wind turbine

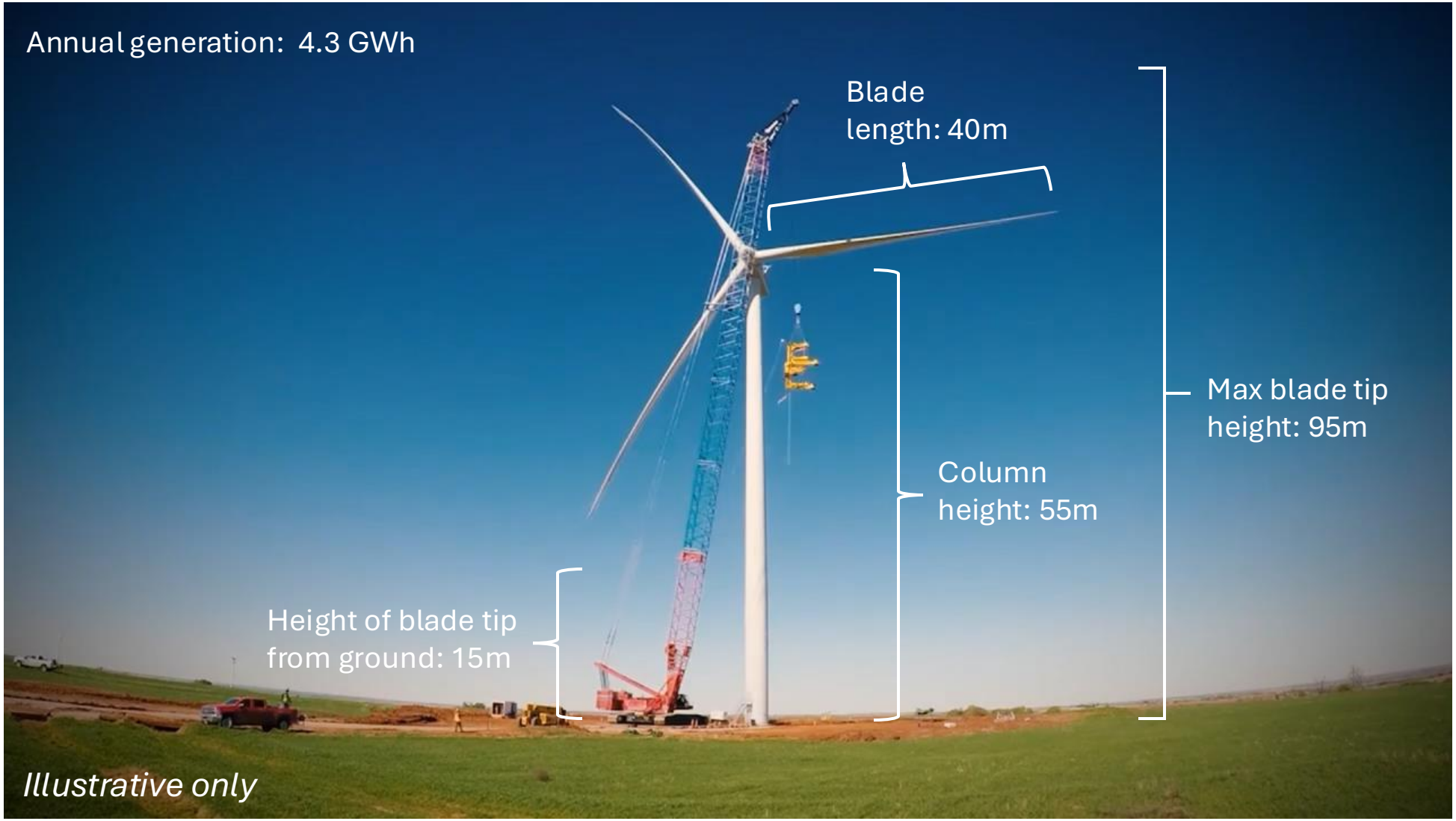
Capacity:	2.3 MWp
Annual generation:	4.3 GWh



Cross-section of the solar panels



The approximate dimensions of the wind turbine

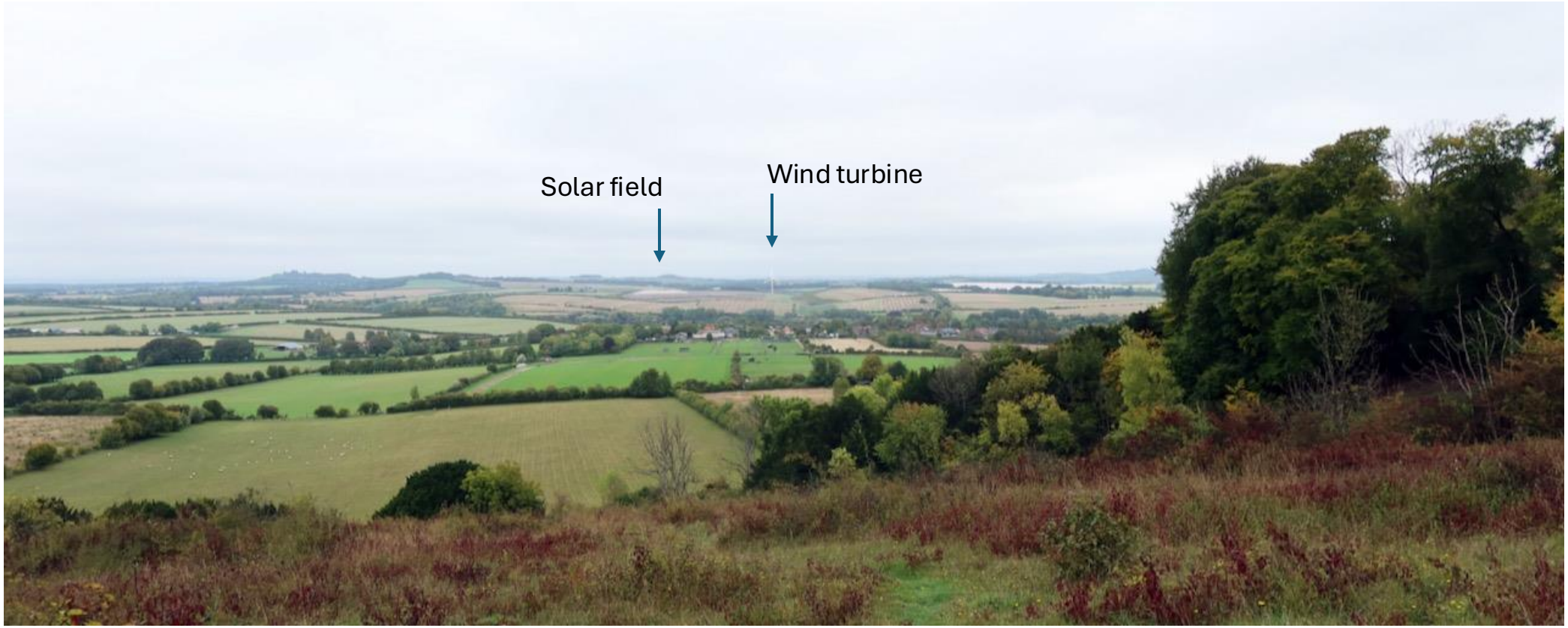


We will likely need to purchase a refurbished turbine and reduce the column height to satisfy local Met Office radar constraints.

An impression of the visual impact

The wind turbine will be visible from many locations. Could it become a statement of our community values and cohesion?

The solar panels will be mostly hidden at ground level by the field's ridgeline, and planting will further reduce visibility. However, the panels will be visible from Broughton Down. At 4.1 MWp, the site will be relatively small compared to the existing 50 MWp solar farm to the east.



An impression of how the solar panels will appear from Broughton Down

Zoomed-in to illustrate the proposed layout of the site

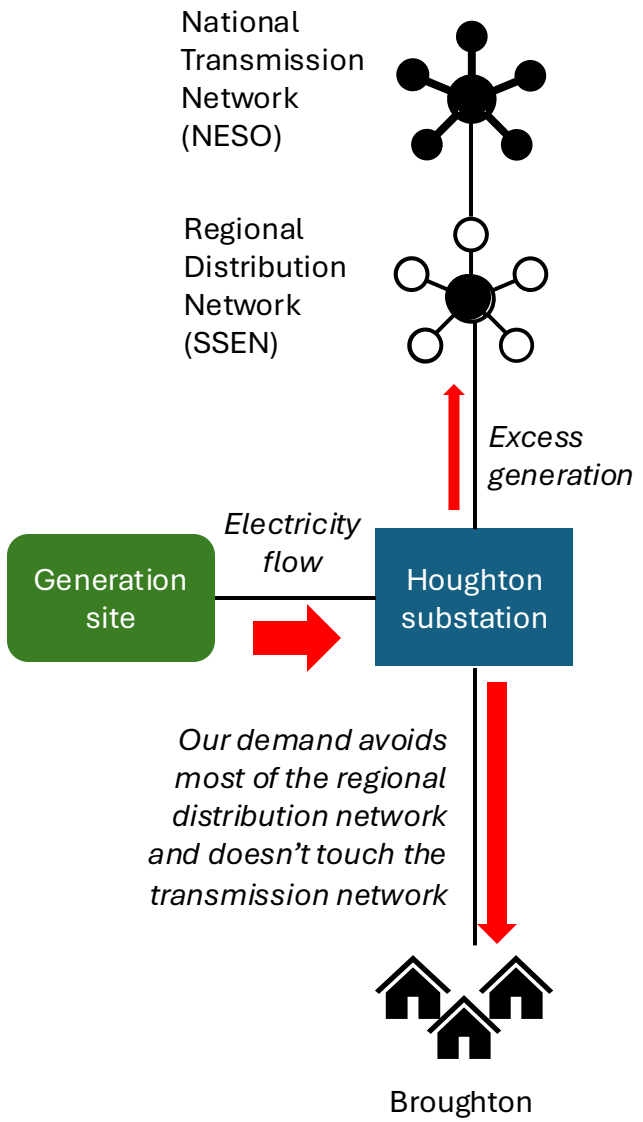
Increasing the biodiversity of the site

Planning legislation will require the project to deliver a Biodiversity Net Gain of at least 10%.

Measures will typically include:

- Sowing species-rich meadows, grass and flowers around and between the panels
- Planting new hedgerows and trees
- Introducing water features
- Installing bird and bat boxes
- Introducing beetle banks for insects
- A land management framework with no fertilisers and pesticides

We aim to provide a low-cost community electricity tariff



Electricity is supplied in the same way as today, with the addition of a smart meter

We can reduce electricity costs

When our generation is matched to Broughton's demand, we can avoid some charges because the electricity is not being carried on the regional distribution and national transmission networks.

- Transmission Network Use of System (TNUoS) charges
- Balancing Services Use of System (BSUoS) charges

Under normal circumstances, electricity suppliers include these costs in their customers' bills.

Historically, this cost reduction has enabled **community tariffs of around 15p/kWh**.

The rules are changing to formalise this opportunity

Permission to offset local generation with demand is currently being formalised in the rules that underpin the UK's wholesale electricity market. Competition is expected to increase among suppliers to participate in these schemes and pass most of these savings on to their customers.

The steps involved

1. BCE partners with a licensed supplier (e.g., Octopus, British Gas, etc.)
2. The supplier creates an exclusive community tariff for Broughton
3. Households switch to the supplier
4. A smart meter is installed to enable matching in 30-minute intervals
5. Electricity costs are reduced during intervals when demand can be matched by generation

The proposal is financially viable

Proposed scenario
(Prospus Group has modelled several scenarios)

Generation and storage capacity

Solar PV	4.1 MWp
Wind turbine	2.3 MWp
Storage battery	1.0 MWh

Capital investment

Solar PV	£2.3m
Wind turbine	£1.6m
Battery storage	£0.6m
Grid connection	£2.4m
Total	**£6.9m**

Annual Operating Costs

Solar PV	£70k
Wind turbine	£140k
Total	**£210k**

Revenue

8 GWh/year of electricity generated. Low-cost community tariff for matched generation (15p/kWh). Power Purchase Agreement (PPA) for excess generation (8p/kWh).

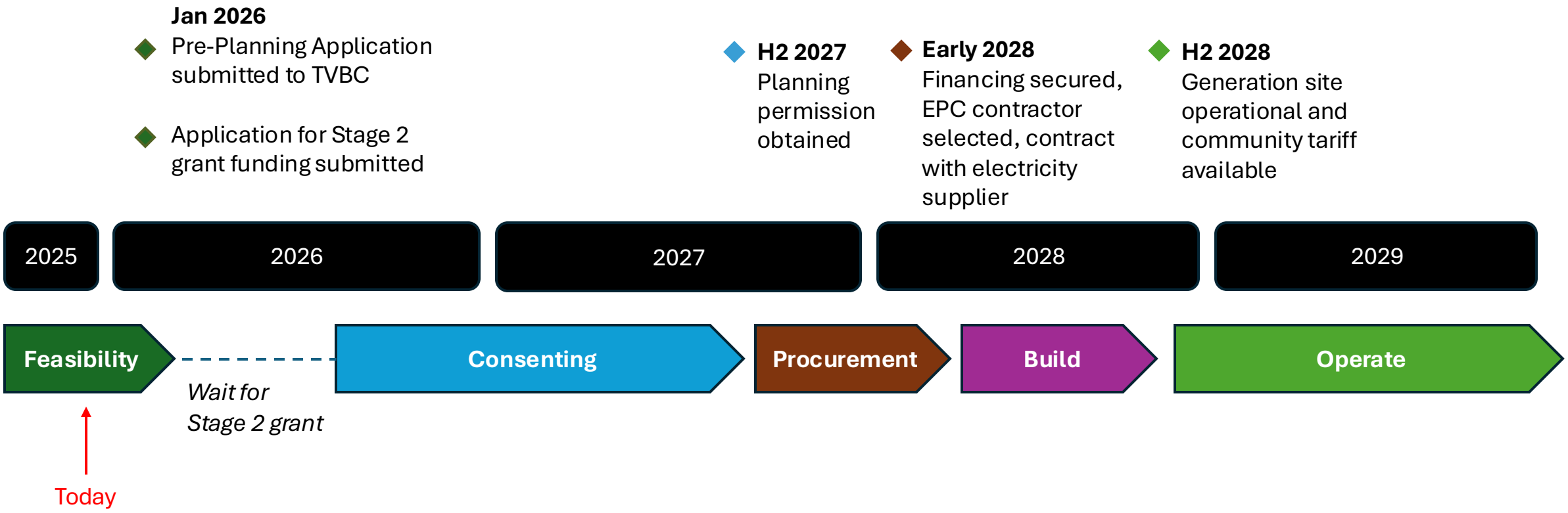
Key findings

- The scheme is viable, but only under certain scenarios.
- Wind generation makes a significant contribution to the economics.
- A community electricity tariff increases revenue and benefits Broughton's residents.
- The scheme is sensitive to the terms of the contract that can be negotiated with an electricity supplier.

We will continue modelling the financial viability as we progress and our assumptions crystallise.

The anticipated timeline

Many uncertainties remain, so it's difficult to predict the timeline accurately, but it's likely to be the 2nd half of 2028 before the generation site can be operational.



Our community will control how Broughton Community Energy operates

BCE Limited is incorporated as a Community Benefit Society (CBS) regulated by the Financial Conduct Authority (FCA)

Key characteristics of a CBS	What this means in practice
• Community focus	• Membership will be open to everybody in our village
• Open membership	• A Board of Directors will be elected by the members at the first AGM
• One member, one vote	• The directors will operate the company on behalf of the members
• Profits must be reinvested in the community	• Members will vote on key decisions, including setting the Community Electricity Tariff
• The ability to raise capital (including issuing shares)	

Key risks

- The Radar Impact Assessment indicates that planning permission for the wind turbine is likely to be refused (potential impacts: Middle Wallop, Chilbolton Observatory, Boscombe Down, West Dean Hill)
- Our community doesn't support the proposal. Significant support is essential to obtain planning permission, especially for the wind turbine.
- GB Energy withdraws their budget for Stage 2 grant funding, which we need to cover the costs of the Consenting Stage.
- Another project secures the generation capacity at the Houghton substation before we have the funding to do it.
- The economics of local electricity generation and supply change, preventing us from offering a community tariff and reducing the revenue available to finance the project.

Note that the planning assessment work is at an early stage, and new risks may emerge as the project progresses.

Breakout session

You have 20 minutes to discuss the proposal at your table
Please nominate a ‘willing volunteer’ to represent you

- Do you understand the proposal?
- What are your views about the mix of technologies proposed?
    - Solar PV
    - Single wind turbine
    - Battery storage
- What are your thoughts about the proposed site location?
- Do you have any questions?
- Is there any further information you’d like from BCE at this stage?

Look out for our Community Survey

Broughton Community Energy

Electricity Generation Survey

The purpose of this survey is to understand your opinions about Broughton Community Energy's (BCE) proposal to generate our own sustainable electricity and offer a low-cost community electricity tariff.

Thank you for taking part in this survey. Your opinions are important to us and will help shape BCE's future direction.

We hope you were able to attend the meeting at Broughton Village Hall on 2 December. If you were unable to attend, the presentation is available on BCE's website. https://broughtoncommunityenergy.org

Privacy Notice
The information you provide will be used solely for this survey and related community planning. Responses will be stored securely and only accessed by the survey team. We will not share personal data with third parties. Any published results will be anonymised. If you provide contact details, they will only be used for the purposes that you have requested.

When you submit this form, it will not automatically collect your details like name and email address unless you provide it yourself.

Your answers to the following questions will help us understand your connection to Broughton and a few other things about you.

1. *What is your connection to Broughton?*

- ◯ I live here
- ◯ I work here
- ◯ I visit for social or leisure purposes

We will be issuing a short questionnaire to our whole village to better understand the level of community support for the proposal.

Please encourage your family and friends to complete it.

Next steps

To be completed by the end of January 2026

- Issue the community questionnaire, summarise the responses, and share the results
- Submit our Pre-Planning Application to TVBC
- Apply for the Stage 2 £100k grant from the Great British Energy Community Fund (GBECF)

Thank you!

Join more than 90 of your neighbours on our WhatsApp group and never miss an update

Get involved

This is your project, and we want it to reflect the priorities of the whole village.

If you'd like to contribute ideas or learn more, please get in touch.

info@broughtoncommunityenergy.org

Join our WhatsApp group:

www.broughtoncommunityenergy.org