savi

Community Energy Development

Feasibility Study Report

Prepared for Teversal, Stanton Hill & Skegby Neighbourhood Forum

Date: 30th September 2025
Reference: TSSF_FSR_CEFS1_300925
Author: Savi Energy Ltd

Teversal, Stanton Hill & Skegby Neighbourhood Forum

MIDLANDS NET ZERO HUB

Savi Energy Ltd, Claydon House, 1 Edison Road, Rabans Lane Industrial Area, Aylesbury, HP19 8TE
Company registration number: 11993050

Important Notice

This report has been prepared with due care and diligence and with the reasonable skill, knowledge and qualifications expected of a consultant in the fields of Energy Efficiency, Community Energy and Renewable Energy, subject to the provisions of the contract.

The report is based on information provided by the client or in the public domain, and industry standard data. Savi Energy Limited, its agents, contractors, and sub-contractors (We) therefore cannot be liable for errors or omissions in this information.

We use the most appropriate industry standard calculation methodologies including MCS, SAP, HETAS, CIBSE and others, but the stated results are dependent on usage patterns, consumption data and population levels indicated by the client. Changes to these factors can affect the actual energy, financial and CO_2 savings or system performance achieved. We use the best available forecast data for weather and energy costs but cannot be responsible for the impact of these forecasts being incorrect.

Capital costs are based on manufacturers' costs and are indicative only. We are completely independent of any technology, manufacturer, installer or supplier and recommendations in this report should not be taken as endorsement of, or recommendation for, any specific supplier, service, or product.

The client shall be entirely responsible for checking the requirement for any statutory consents necessary, including but not limited to: Planning, Building Regulations and Conservation Area consent. We are not experts in and cannot provide advice on: structural integrity and suitability; fungi, microbes and/or timber disease; or asbestos or silica issues.

We accept no liability for consequential, trading or business interruption loss, whether financial or otherwise, arising out of any decision or action the client may take based on the information in this report.

We are available for – and would strongly recommend – further discussion, and clarification, if necessary, of any finding or recommendation in this report before the client makes any decisions or takes any actions based on its contents.

Executive Summary

This feasibility study was commissioned by the Teversal, Stanton Hill & Skegby Neighbourhood Forum (TSSF), in partnership with Savi Energy, with grant support from the Midlands Net Zero Hub. The purpose was to explore opportunities for a new Community Energy Company (CEC) that would deliver locally owned, renewable energy projects for the direct benefit of the community.

The study considered a wide range of options, from renewable generation sites to efficiency upgrades. Several options were discounted during the process due to constraints such as grid connection, planning considerations or insufficient stakeholder engagement. Two clear opportunities emerged as viable and impactful:

1. **A rooftop solar PV and EV charging project at the Teversal Trails Visitor Centre**
2. **A community "Solar Club" model to provide rooftop solar (and battery storage) to residents on affordable terms**

Together, these projects provide a balance between **quick wins** (anchored at a high-profile community facility) and **longer-term scalability** (extending benefits to local homes).

Teversal Trails Visitor Centre

The Visitor Centre is a vital community facility that currently spends over £600 per month on electricity. It was selected as the anchor site because of its steady daytime energy demand, high visibility, and role as a hub for local residents and visitors.

The feasibility study designed a **12.6 kWp rooftop solar PV system** expected to generate around **10,746 kWh annually**, covering 78% of the Centre's needs. Surplus electricity can be exported to the grid. Alongside this, LED lighting upgrades will reduce annual consumption by almost **4,000 kWh**, while EV charging points will provide both an additional service for visitors and a tangible income stream for the CEC.

A **Power Purchase Agreement (PPA)** will be established between the CEC and the Centre, guaranteeing the Centre a supply of discounted renewable electricity. Two structures have been assessed:

- **Option 1 (PPA with LED included):** Centre purchases electricity at 18p/kWh
- **Option 2 (Solar-only PPA):** Centre purchases electricity at 15p/kWh

Both options create cost savings of around £2,000 per annum for the Centre while ensuring fair revenues for the CEC.

Solar Club

Alongside the Visitor Centre anchor project, the study explored the creation of a **community Solar Club**, designed to extend the benefits of renewable energy directly to local households. The Solar Club will allow residents to access solar energy via a PPA with the CEC, removing the need for upfront capital.

Two system types were modelled as examples:

- **Scenario 1:** 3.6 kWp rooftop solar PV (approx. 3,300 kWh/year, 85% self-consumption)
- **Scenario 2:** 5.0 kWp rooftop solar PV with battery storage (approx. 4,500 kWh/year, 90% self-consumption)

Both scenarios assume a PPA tariff of **18p/kWh for Scenario 1** and **20p/kWh for Scenario 2**, compared with a baseline grid tariff of 30p/kWh. This enables households to cut their bills while supporting the wider community energy initiative.

Business Case Summary

Teversal Trails Visitor Centre

Metric	Option 1: With LED (PPA 18p)	Option 2: Solar Only (PPA 15p)
Net Annual Revenue (CEC)	£4,065	£3,813
Payback Period	5.8 years	5.8 years
ROI (20 years)	242%	243%
IRR	16.3%	16.3%

Community Solar Club

Metric	Scenario 1: 3.6 kWp PV	Scenario 2: 5.0 kWp PV + Battery
Annual Revenue (CEC)	£475	£810
Payback Period	9.4 years	9.6 years
ROI (20 years)	112%	106%
IRR	10.1%	10.0%

While the financial return to the CEC is more modest than at the Visitor Centre, the community benefit is significant. Residents save money on energy bills, carbon emissions are reduced, and the model can be scaled up to deliver far-reaching local impact.

Conclusion and Recommendations

This feasibility study confirms that establishing a Community Energy Company (CEC) for Teversal, Stanton Hill & Skegby is both **viable and strategically important**. The study demonstrates that even at a small scale, community energy can deliver measurable benefits: lowering costs, reducing emissions, and creating new income streams that are reinvested locally.

The analysis highlights two clear pathways for the CEC:

- **Anchor project at the Visitor Centre** – providing immediate visibility, strong financial returns, and early community impact. The business case demonstrates robust performance, with short payback and IRR exceeding 16%, making this an ideal first step.
- **Solar Club pilot** – extending benefits directly to households through an accessible, community-owned model. While financially more modest, this initiative strengthens engagement, reduces household bills, and lays the foundation for wider-scale rollout.
- Together, these projects will enable the CEC to build credibility, establish operating processes, and demonstrate how community energy can work in practice for Teversal, Stanton Hill & Skegby.

Recommendations

1. **Proceed to Stage 2 funding** to secure investment for incorporation, detailed design, and procurement.
2. **Incorporate the CEC** as a not-for-profit Community Benefit Society (CBS) or similar structure, ensuring transparency and reinvestment of profits.
3. **Prioritise delivery of the Visitor Centre project** as the first anchor initiative, including rooftop solar, LED upgrades, and EV charging.
4. **Launch a Solar Club pilot of 10–20 homes**, with a view to scaling to 50+ homes once proof of concept is demonstrated.
5. **Develop a clear communications plan** to build community awareness, trust, and participation, led by TSSF with support from Savi Energy.
6. **Plan for long-term growth**, including larger-scale renewables, battery storage, and potential collaboration with Ashfield District Council on strategic energy projects.

Final Statement

This report provides a clear evidence base to show that a Community Energy Company for Teversal, Stanton Hill & Skegby is both achievable and beneficial. By starting small, demonstrating success, and reinvesting returns locally, the CEC can become a trusted vehicle for long-term community energy, delivering social, financial, and environmental benefit for years to come.

Table of Contents

1. Introduction

This feasibility study was commissioned by **Teversal, Stanton Hill and Skegby Neighbourhood Forum (TSSF)** in partnership with **Savi Energy** and funded through Stage 1 of the **Community Energy Fund (CEF)** by the **Midlands Net Zero Hub (MNZH).** The purpose of the study is to explore opportunities to establish a community-owned energy company that can deliver practical renewable energy projects, reduce carbon emissions, and reinvest benefits locally.

TSSF is a formally recognised body under the Localism Act, approved by Ashfield District Council (ADC) to prepare and implement the Neighbourhood Plan. Following the Plan's adoption, TSSF formed working groups to take forward community priorities, including sustainability and resilience. Community energy was identified as a key opportunity, and after discussions with ADC and MNZH, funding was secured to scope viable first projects.

The study area covers **Teversal, Stanton Hill and Skegby**, three neighbouring communities in Ashfield, Nottinghamshire, with a combined population of just over 11,000 residents (2021 census). These villages share a strong mining heritage and community identity, alongside valued **green spaces and community amenities**, including Silverhill Wood, the Teversal Trails, sports facilities, and the Teversal Trails Visitor Centre which acts as a local hub for residents and visitors.

Figure 1: Map showing Teversal, Stanton Hill & Skegby

1.1. Context & Rationale

The UK Government has committed to achieving **net zero carbon emissions by 2050**, with the electricity grid targeted for full decarbonisation by 2030. Meeting these targets requires a rapid expansion of renewable generation, alongside improvements in energy efficiency and local flexibility.

Communities across the UK are increasingly turning to community energy as a means of tackling climate change, supporting local resilience, and reducing energy costs. Rising energy prices and grid constraints highlight the importance of locally generated, affordable energy.

For Teversal, Stanton Hill and Skegby, the rationale for this project is threefold:

1. **Social** – reduce fuel poverty and provide fairer access to clean energy.
2. **Economic** – generate savings and revenues that can be reinvested locally.
3. **Environmental** – reduce greenhouse gas emissions in line with the Neighbourhood Plan target of achieving net zero by 2030.

The intention is that a **Community Energy Company (CEC)** will be established as a not-for-profit **Community Benefit Society (CBS)** or similar structure, ensuring that it operates transparently and solely for the benefit of the people of Teversal, Stanton Hill, and Skegby. The final legal entity structure will be confirmed in the next stage of development. The name of the organisation is yet to be decided, but for the purpose of this report, it shall be referred to as the **CEC**.

1.2. Aims & Objectives

The feasibility study has been carried out to:

- Identify and assess local sites and models for community energy projects.
- Evaluate the technical and financial viability of priority options.
- Recommend a structure for a community-led organisation to deliver projects.
- Provide evidence to support a Stage 2 funding application for project development.
- Contribute towards local net-zero ambitions and reduce reliance on volatile energy markets.

1.3. Key Stakeholders & Project Partners

The success of this feasibility study has been made possible through the collaboration of a wide range of local stakeholders, each contributing valuable insights, experience, and support. Their involvement has been essential in ensuring the project reflects the needs and priorities of TSSF while identifying realistic opportunities for community-led renewable energy.

The continued engagement of these partners will be vital as the project moves to the next stage - including the formation of the CEC and the delivery of practical, community-owned energy projects that benefit residents and support the area's wider sustainability goals.

- **Teversal, Stanton Hill and Skegby Neighbourhood Forum (TSSF):** Project lead local community body.
- **Midlands Net Zero Hub (MNZH):** Administrator of the Community Energy Fund (Stage 1) on behalf of the Department for Energy Security and Net Zero (DESNZ), and provider of support to community energy groups.
- **Ashfield District Council (ADC):** Supportive stakeholder and landowner of certain sites.
- **Teversal Trails Visitor Centre:** Host site for the priority project.
- **Savi Energy:** Appointed consultant, providing technical, financial, and delivery expertise in partnership with TSSF.

As the project develops, further stakeholders will need to be engaged, including local residents, landowners, community groups, distribution network operators (DNOs), and potential funding partners.

1.4. Early-Stage Delivery

As an early-stage CEC, the focus will be on **starting small but thinking big.** Initial projects are deliberately modest in scale, chosen to be deliverable and visible while demonstrating the concept. These will establish the foundations of the CEC, generate early revenues, and build confidence within the community. Longer-term, larger-scale projects will be considered once the CEC has proven its capability and governance.

1.5. Options Process & Overview

During the course of this feasibility study, a range of opportunities were explored to understand what could form the basis of a Community Energy Company (CEC) in Teversal, Stanton Hill, and Skegby. These included both community-scale projects and domestic-scale interventions.

The options considered were:

- **Rooftop solar PV** for community and commercial buildings.
- **Residential solar PV** through a **Solar Club model**, allowing households to benefit from cheaper, locally generated electricity.
- **Bulk-buy and installation scheme** to provide residents with access to lower-cost solar PV ownership.
- **Ground-mounted solar opportunities** identified through landowner engagement.
- **Battery energy storage**, providing resilience and grid services in the longer term.
- **EV charging infrastructure** at community sites and visitor destinations.
- **Energy efficiency upgrades**, such as LED lighting retrofits in community buildings.

1.5.1. Options Considered & Excluded

A range of potential sites and models were reviewed during the process. While some options have been ruled out in this feasibility study, some may be revisited in the future once early-stage projects have been delivered:

- **Severn Trent Water Plant (Dawgates Lane):** potential for future renewable generation and resilience, not progressed at this stage.
- **R.E.A.L Education Group, Mansfield:** rooftop solar PPA, requires further engagement, not progressed at this stage.
- **Brierley Park Close industrial unit:** excluded due to site usage and shading issues.
- **Silverhill Wood Recreational Ground:** excluded due to recreational use.
- **Peartree Lane Land, Teversal:** excluded due to grid capacity and ground conditions.
- **Pleasley Road Land:** Site adjacent to the Teversal main substation, originally assessed for solar PV / battery storage. Excluded due to grid constraints and low-level engagement.
- **Skegby Methodist Church & Anchor Centre:** The Church has expressed interest for the CEC to provide rooftop solar PV, but due to ongoing internal matters the timing was not right for inclusion in this study. The site remains of interest and could be revisited in the future when circumstances allow.

1.5.2. Options Included in the Study

Following technical and financial assessment, most of the larger or more complex opportunities have been reserved for longer-term exploration. This study therefore focuses on the following **priority options** for early delivery:

1. **Rooftop Solar PV and LED Lighting Upgrades – Teversal Trails Visitor Centre**
2. **EV Charging – Teversal Trails Visitor Centre**
3. **CEC Community Solar Club**

1.6. Long-Term Vision

While this feasibility study focuses on modest, early-stage projects, the long-term vision for Teversal, Stanton Hill, and Skegby is **ambitious and forward-looking.**

Over time, the CEC could expand to deliver a wider portfolio of initiatives, including:

- **Larger-scale renewable generation**, such as ground-mounted solar or direct-wire projects with local businesses and institutions.
- **Battery energy storage**, providing both resilience for local facilities and services to the wider electricity grid.
- **Integrated low-carbon infrastructure**, including district heating, EV charging networks, and smart energy management.
- **Community reinvestment initiatives**, using surpluses from energy projects to support fuel poverty reduction, energy advisory services, and further local sustainability schemes.

The guiding principle will remain consistent: to **start small but think big.** Early success will generate the trust, revenue, and organisational capacity needed to pursue more complex and impactful projects.

Through this approach, the CEC can evolve into a **lasting community asset** that delivers meaningful **economic, social, and environmental benefit** for the people of Teversal, Stanton Hill, and Skegby - while contributing to the UK's wider net zero goals.

2. Site Identification & Assessment

A key part of this feasibility study involved identifying sites within Teversal, Stanton Hill and Skegby that could host early-stage renewable energy projects. The focus was to find realistic and manageable opportunities that reduce energy costs, contribute to local energy independence, and provide a strong foundation for establishing a community-owned energy group.

Through discussions with local residents, landowners, and stakeholders, several potential sites were explored. The assessment process considered technical feasibility, financial viability, and how suitable each location would be for delivery by a new, community-led organisation at this stage.

2.1. Site & Options Selection Process

Using local site assessments and mapping, a range of potential locations were identified for their suitability to host solar PV, battery storage or Electric Vehicle (EV) charging infrastructure. This process was guided by a series of progress meetings with TSSF, who provided support and feedback to help prioritise options for further investigation and development.

Options were based on the following factors:

- Structural integrity and rooftop condition
- Solar orientation, shading and generation potential
- Electrical supply type, capacity, and upgrade needs
- Ease of installation access and ground layout
- Metering configuration and load profiles
- Alignment with community use and visibility
- Planning or ownership constraints

Each opportunity was assessed through a combination of desktop analysis, site visits, stakeholder engagement, and the technical expertise to ensure only realistic, achievable options are progressed.

2.2. Option-Specific Details

2.2.1. The Teversal Trails Visitor Centre

The Visitor Centre was identified as a strong candidate for early delivery due to its **central community role, steady daytime energy demand, and high visibility.** The site already attracts residents, walkers, cyclists, and spectators from the football and bowls clubs, making it an ideal location to demonstrate the benefits of community energy.

During the site survey, the project team met with the Centre Manager, who explained that the facility is under significant **financial pressure.** The Centre currently spends **over £7,200 per year on electricity costs**, which places a heavy burden on its limited budget. Any measures to reduce this cost would have a major positive impact, freeing up resources to improve the facilities and continue serving the community.

The project concept includes:

- A rooftop **solar PV system** to generate clean electricity on-site.
- **LED lighting upgrades** to improve efficiency and reduce operating costs.
- Installation of **EV charging points** to support the shift to low-carbon transport.

Together, these measures would reduce the Centre's energy bills, provide new services for visitors, and act as a flagship demonstration project for the Community Energy Company.

Figure 2: The Teversal Trails Visitor Centre, Teversal

2.2.2. Community Solar Club

The Solar Club model is designed to bring the benefits of solar PV directly to households across Teversal, Stanton Hill, and Skegby. Under this scheme, the Community Energy Company installs, owns, and maintains rooftop solar PV systems on residential properties, while households buy the electricity generated at a **discounted tariff** compared with the market rate.

The model:

- Removes upfront costs for households, making solar accessible to all.
- Tackles fuel poverty by reducing energy bills.
- Generates income for the Community Energy Company through household tariffs and export revenues.
- Reinforces TSSF's values by ensuring solar is only installed on **suitable properties**, using MCS guidance and industry best practice.

In addition to the no-cost Solar Club model, the CEC will also operate a **bulk-buy and installation scheme**. This will provide households who wish to purchase their own solar systems with access to **high-quality installations at lower cost** than the wider market, by avoiding the high margins typically charged by commercial solar companies. This approach ensures that residents who prefer outright ownership can still benefit from the integrity and community focus of the CEC.

Rationale for Selection:

The Solar Club directly supports the community energy group's goal to make renewable energy more affordable, community-driven, and inclusive. It provides an achievable, locally rooted way for households to lower bills, generate their own clean power, and contribute to the area's energy independence.

Benefits:

- Reduces household electricity costs over time
- Offers flexible access to solar energy for a wide range of residents
- Builds visibility and trust for the CEC Community Energy initiative
- Creates a growing network of solar-powered homes for the CEC's community
- Encourages local participation in the transition to clean, low-carbon energy

Note: The Community Solar Club model and full business case will be developed during stage 2 if grant funding from MNZH is awarded.

3. Technical Feasibility - Teversal Trails Visitor Centre

This section provides a detailed technical assessment of the proposed renewable energy installations at the Teversal Trails Visitor Centre, identified as a practical, high-visibility early project for the CEC.

3.1. Technical Assessment Process

To assess the technical feasibility of installing rooftop solar PV, LED lighting upgrades, and EV charging infrastructure at the Teversal Trails Visitor Centre, a structured assessment was carried out. The process was designed to ensure that system design, performance, and installation align with the site's operational profile and the objectives of the CEC.

A site survey conducted on **26th June 2025** gathered key insights into the building's operations and feedback on the proposed plans from the Visitor Centre management team.
The following approach was taken:

1. **Site Identification:** The Centre was highlighted through initial discussions with TSSF as a location with strong community relevance and potential to demonstrate early-stage delivery.
2. **Technology Selection:** Solar PV was prioritised due to the Centre's suitable roof space, consistent daytime load, and strong alignment with community energy objectives. LED lighting was assessed as a complementary measure to reduce baseline consumption and lower costs. EV charging was considered a strategic addition, supporting low-carbon transport while generating additional income for the CEC and providing a community amenity.
3. **Site Survey:** A physical survey was undertaken to record the building layout, roof orientation and condition, existing lighting, parking arrangements, and electrical infrastructure.
4. **Data Collection:** Electricity billing data was obtained and analysed to establish annual demand and usage patterns.
5. **Desktop Analysis:** Solar simulation software and load-matching tools were used to size potential PV systems and evaluate consumption/export ratios.
6. **System Design:** Based on available roof space and load profile, indicative solar PV system sizing, LED lighting proposals, and EV charging configuration were developed.
7. **Viability Assessment:** The technical outputs were carried forward into financial modelling to test cost, revenue, and payback assumptions.

This structured approach provides confidence that the Visitor Centre project is technically feasible, financially robust, and capable of delivering measurable benefits to both the CEC and the Centre.

3.2. Site Power & Metering Assessment

Analysis of the Visitor Centre's billing data shows an annual electricity demand of approximately **22,113 kWh**, with an average monthly cost of around **£600**. Demand is primarily driven by lighting, catering equipment, and general plug loads, with **lighting currently consuming around 5,465 kWh/year (24.7% of total demand)**.

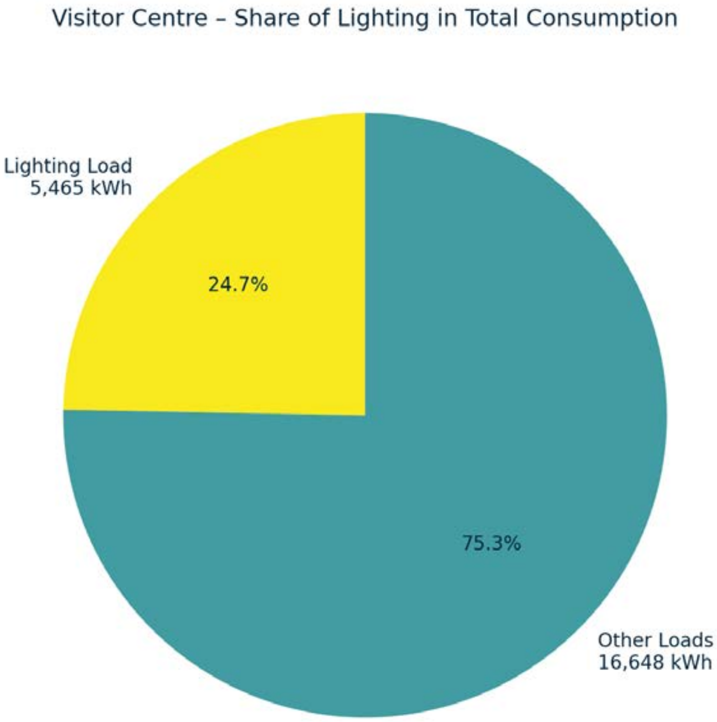


Figure 3: Graph of Visitor Centre electricity consumption (kWh per annum)

The Centre benefits from a **three-phase supply**, which is well-suited to supporting both solar PV generation and EV charging infrastructure. Minor upgrade work will be required to the electrical distribution board to integrate the new systems, but no major electrical constraints were identified during the survey.

The site is already equipped with appropriate metering infrastructure, and initial assessments suggest that connections for the solar PV system and EV chargers can be accommodated without significant modifications.

As part of the feasibility stage, initial discussions were held with **National Grid Electricity Distribution (NGED)** regarding the feasibility of connecting both the solar PV system and the proposed EV charging point. These conversations confirmed that no significant barriers to connection are anticipated, though a formal **G99 application** will be required for both systems. This will be undertaken at Stage 2 as part of detailed design and development.

3.3. Solar PV System Sizing & Configuration

The rooftop solar PV system has been sized using site survey data, available roof space, building orientation, and the Visitor Centre's demand profile of approximately **22,113 kWh per year**. Desktop simulation software was used to model system performance and evaluate on-site consumption versus export.

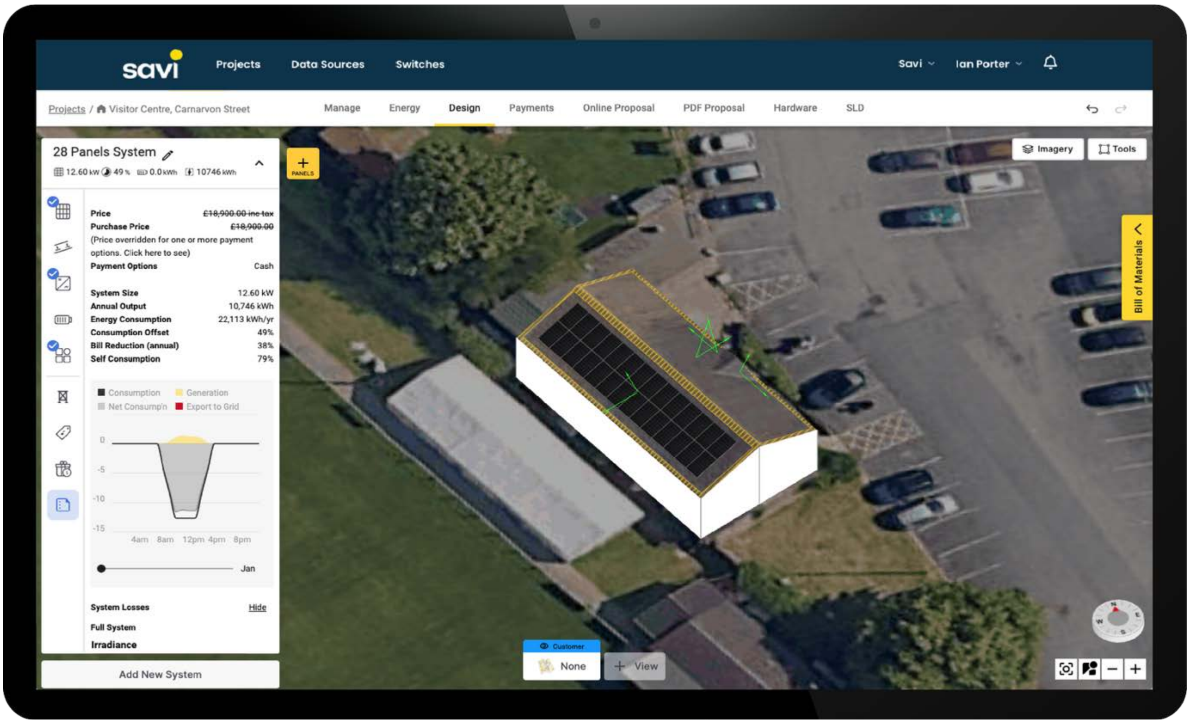


Figure 4: Screenshot of Savi's solar PV modelling software showing illustration of 12.6 kWp system

The modelling process included:

- Assessing roof orientation, tilt, and shading.
- Using annual billing data to establish baseline demand.
- Designing the system layout using available roof space.
- Simulating system generation across a typical year, accounting for seasonal variation.

A **12.6 kWp system** has been designed, expected to generate approximately **10,746 kWh per year**. The proposed system will comprise:

- **28 × 450 W solar PV modules**, mounted across two rows of 14 panels on the southwest facing roof.
- A **12 kW inverter** to provide reliable DC-to-AC conversion and remote monitoring.

3.3.1. System Simulation Performance Results

The simulation shows that the 12.6 kWp system would generate approximately **10,746 kWh per year**. Based on the Centre's load profile, around **78% of this generation would be consumed directly on site**, with the remainder exported to the grid.

Performance against the Centre's annual electricity demand is summarised below:

Item	Value (kWh/year)	% of Generation	% of Demand
Total Centre Demand	22,113	–	100%
PV System Generation	10,746	100%	48.6%
Electricity used directly in Centre	8,381	78%	37.9%
Excess power sold back to the grid	2,365	22%	10.7%
Remaining electricity bought from the grid	13,732	–	62.1%

Table 1: Design and configuration results.

Summary of results:

- The solar panels would supply around **38% of the Centre's total electricity needs each year**.
- Just under two-thirds (62%) would still come from the grid.
- Around **2,365 kWh/year** would be exported when generation exceeds demand, providing an additional income stream to the CEC.
- Overall, the system would significantly reduce electricity bills while making the Centre less reliant on grid power.

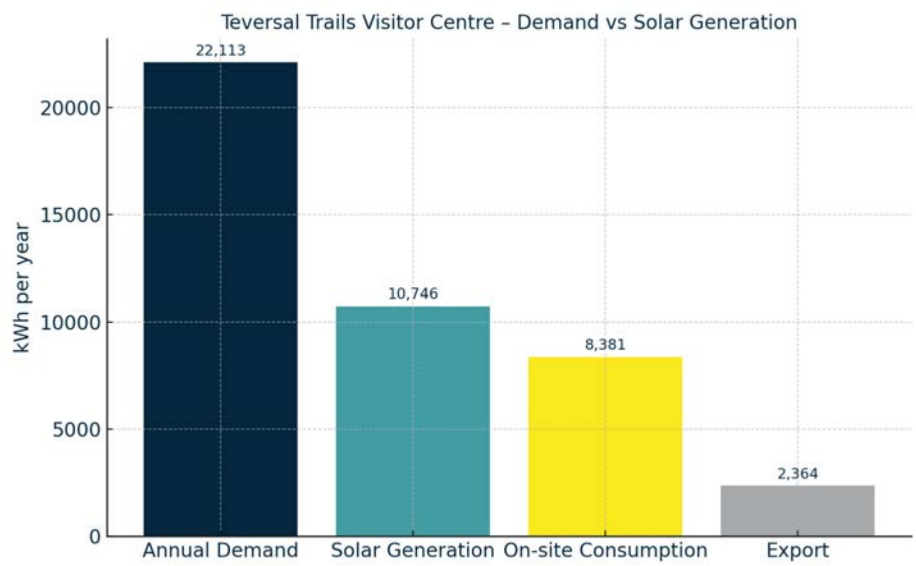


Figure 5: Graph of demand vs solar PV generation

3.3.2. *Installation Considerations*

The proposed solar PV array at the Teversal Trails Visitor Centre presents a practical and achievable early-stage project for the CEC. While the system has been designed to maximise existing roof space, several logistical and technical considerations will need to be addressed during development and delivery:

Roof Condition & Structural Assessment

The roof of the Visitors Centre appears to be in sound condition and suitable for solar PV installation. However, a **structural assessment** will need to be carried out during the next stage of development (Stage 2 / detailed design) to confirm load-bearing capacity and long-term suitability.

Access & Health and Safety

The roof is readily accessible, allowing for straightforward installation with standard health and safety precautions. Temporary scaffolding will be required to facilitate safe working at height during the installation phase.

Grid Connection

The system will require approval from the local Distribution Network Operator (DNO) under the G99 process for grid connection. Initial discussions have already taken place with the DNO, and no significant issues are anticipated. A formal G99 application will be submitted during Stage 2 detailed design, to enable the solar PV to be connected.

Planning

The installation of rooftop solar PV at the Visitors Centre is not expected to require planning permission, as it falls under permitted development rights. However, this will be confirmed during the detailed design phase.

These enabling considerations represent manageable tasks that can be addressed in the next stage of development, ensuring that the solar PV project remains deliverable.

3.3.3. Installation Quality & Oversight

Ensuring high-quality installation is critical to the success of the solar PV project at the Teversal Trails Visitor Centre. Robust oversight, clear responsibilities, and adherence to standards will safeguard performance, compliance, and long-term value for the community.

Roles and Responsibilities

- **CEC & Technical Consultant:**
    - Provide independent oversight of design, installation, and commissioning.
    - Ensure compliance with specifications and regulatory requirements.
    - Maintain quality assurance and safeguard long-term system performance.
- **Appointed Installer:**
    - Deliver installation works in line with technical standards.
    - Demonstrate accreditation and relevant track record.
    - Complete commissioning and provide handover documentation.

Installation Standards

Contractors will be procured competitively at Stage 2. All works will comply with:

- **MCS (Microgeneration Certification Scheme)** requirements.
- **IET Wiring Regulations (BS 7671)**.
- **CDM 2015** and **HSE guidelines** for safe working.
- Manufacturer requirements for panels, inverters, and mounting systems.

Products will be sourced from reputable manufacturers with robust warranties. Equipment will be ENA type-tested and approved for use within the UK network to ensure compliance with DNO requirements.

Commissioning and Handover

The completed system will undergo full commissioning, including:

- Electrical safety testing and performance verification.
- Installation of monitoring systems to track solar generation.
- Provision of O&M manuals to support long-term performance.

3.4. Internal Lighting Assessment

As part of the Visitor Centre's commitment to reducing operating costs and improving sustainability, a lighting survey was conducted during the feasibility study.

The survey involved:

- Inspecting and recording the number, type, and wattage of all existing fixtures.
- Assessing operating conditions and usage patterns within the building.
- Identifying opportunities to replace inefficient fittings with LED technology.

The existing setup included a mixture of **fluorescent T8 fittings** and **compact fluorescent lights (CFLs)**, some of which showed signs of deterioration (flickering and ageing). In total, **28 fittings** were recorded across the building.

Survey data was then analysed using Savi Energy's **internal lighting calculation software.** This desktop-level modelling simulated the impact of replacing all fluorescent and CFL fittings with modern LED equivalents. The aim was to determine the reduction in energy demand, cost savings, and broader benefits achievable through a full lighting upgrade.

Recorded Lighting Fixtures

Area	Fitting Type	Qty	Total Wattage (W)	Hours p/a	kWh p/a
Café	T8 Fluorescent	10	700	2,160	1,512
Kitchen	T8 Fluorescent	3	210	2,160	454
Restrooms	2D CFL	3	84	2,160	181
Extension	T8 Fluorescent (Twin)	12	1,536	2,160	3,318
Total	–	28	–	–	**5,465**

Table 2: Lighting survey baseload data

- **Total load**: ~5,465 kWh per annum
- **Total electricity cost**: ~£1,552 per annum (@ £0.284/kWh)

3.4.1. LED Lighting Upgrade – Assessment Results

The modelling confirmed that replacing all fluorescent and CFL fittings with LED alternatives would deliver substantial efficiency improvements.

Proposed Replacement Fittings

Area	Fitting Type	Qty	Total Wattage (W)	Hours p/a	kWh p/a
Café	LED Linear	10	270	2,160	583
Kitchen	LED NCF	3	81	2,160	175
Restrooms	LED Bulkhead	3	42	2,160	91
Extension	LED Linear	12	324	2,160	700
Total	–	28	–	–	**1,549**

Table 3: Lighting load solution data

- **Post-upgrade load**: ~1,549 kWh per annum
- **Post-upgrade electricity cost**: ~£440 per annum (@ £0.284/kWh)

Results Summary

The following table compares the baseline survey results with the proposed LED solution along with the financial benefits that will be realised for the visitor centre:

Item	Pre-Upgrade	Post-Upgrade	Reduction	% Reduction
Annual Lighting Load (kWh)	5,465	1,549	3,916	72%
Annual Lighting Cost (£)	£1,553	£440	£1,113	72%
Share of Total Demand	24.7%	7.0%	–	–

Table 4: Lighting replacement results

The LED upgrade can either be:

- **Incorporated into the PPA arrangement**, funded by the Community Energy Company (CEC) with costs recovered through the solar tariff, or
- **Self-funded by the Centre**, in which case the PPA rate for solar generation would be adjusted accordingly.

Additional Benefits

- **Maintenance-free operation** – no more lamp replacements.
- **Future-proofing** – fluorescent lamps are being phased out.
- **Improved lighting conditions** – brighter, flicker-free, and more comfortable for users.

3.5. Electric Vehicle (EV) Charging Assessment

The feasibility study assessed the potential for introducing **electric vehicle (EV) charging facilities** at the Teversal Trails Visitor Centre. The addition of EV charging aligns with both national and local priorities for supporting low-carbon transport, while also enhancing the Visitor Centre's role as a community hub.

3.5.1. Technical Specification & Performance Assumptions

Charger Configuration

The recommendation is to install **one dual-socket 11kW pole-mounted charger**, capable of charging two vehicles simultaneously. Although only **two bays will be designated for charging**, the configuration requires the reallocation of **three existing spaces** to safely accommodate the charger and access. An illustration of the proposed layout is as follows:

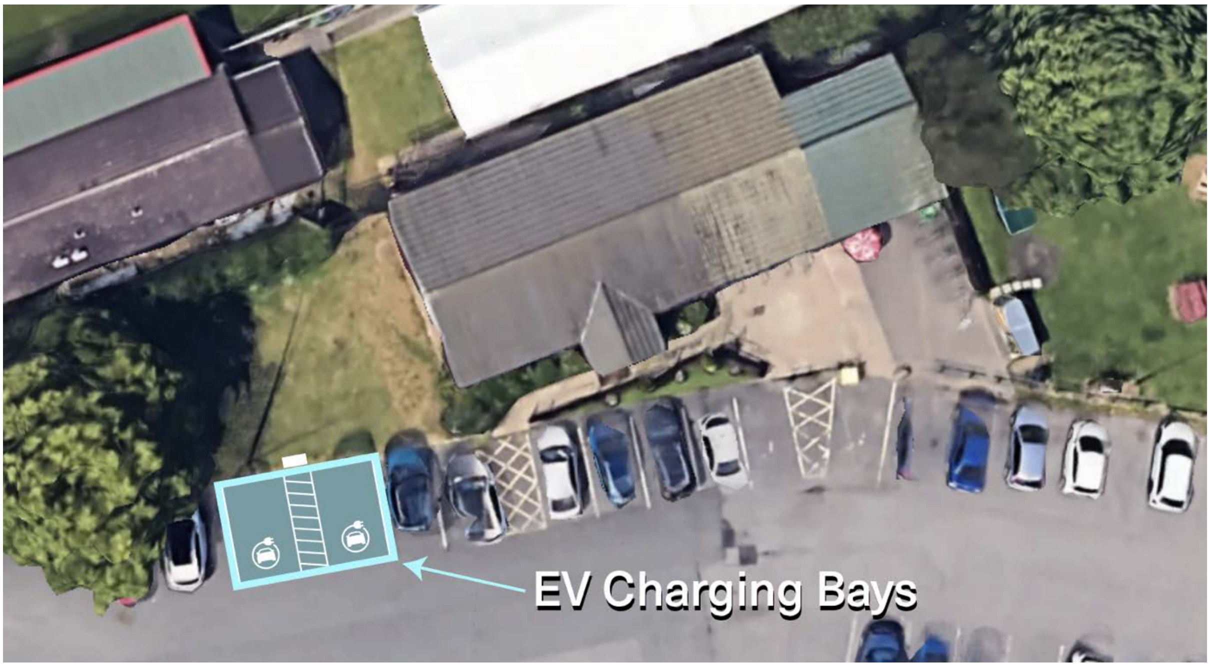


Figure 6: Illustration of proposed EV charging bays

Following the initial design, the illustration of the proposed charger layout was prepared to help visualise how the bays will be configured within the car park. This provides a clear picture of how existing parking will be adapted to host the new facilities. The high-level illustration supports engagement with stakeholders and allows practical considerations such as space allocation, visibility, and safety to be reviewed before moving into detailed design.

3.5.2. Location Selection Process

The charging bays were chosen for their **convenience, visibility, and safety.** Positioned near the café but away from the main entrance, the location ensures chargers are easy to access without creating congestion. Health and safety was a key factor, with the layout minimising potential **trip hazards** from charging cables while keeping them close enough for user convenience.

Initially, the opposite side of the car park was also considered. While this option was visually appealing, it would have required a **significant cable run and hard dig** across the car park. This additional infrastructure cost would have weakened the overall business case, and the location was therefore discounted.

The selected bays represent the **best balance** between user convenience, health and safety, and cost-effectiveness. The positioning minimises trip hazards, ensures the chargers are visible and accessible, and reduces the cable run to keep installation costs manageable for the CEC.

3.5.3. Installation Considerations

To ensure the chargers are safe, reliable, and appropriate for public use, a number of **design and installation measures** have been factored into the proposal. These address practical issues such as car park management, user safety, equipment protection, and long-term resilience of the installation.

- **Parking management:** Two spaces will be clearly marked as **"EV charging only"** with white paint markings.
- **Signage:** Dedicated signage will reinforce the designation of the bays and discourage non-EV use. Signage will also serve as a **marketing opportunity**, for example: *"These EV chargers are powered by your local Community Energy Company (name to be decided)"*, with a QR code link to the CEC's website.
- **Equipment protection:** A **metal protective bollard** will be installed in front of the charger to protect the unit from accidental damage.
- **Charger specification:** A **commercial-grade, weatherproof, and vandal-resistant unit** will be installed, designed for continuous public use.
- **Untethered design:** The charger will be **untethered**, requiring users to bring their own charging cable. This avoids risks of cable theft, vandalism, and ongoing replacement costs.
- **Futureproofing:** The configuration will allow for additional charging points in the future if demand increases.

3.5.4. *Payment System*

The chargers will include a **smart payment platform**, enabling users to pay via contactless card or mobile app. All operation and management will be overseen by the Community Energy Company (CEC), ensuring minimal administration for the Visitor Centre.

Energy Supply and Billing

The chargers will be connected to the Visitor Centre's existing electricity supply. To ensure the Centre is not financially disadvantaged:

- The Visitor Centre will continue to pay its supplier at the current tariff rate (**£0.284/kWh**) for all energy consumed.
- The CEC will **reimburse the Centre at £0.30/kWh** for every unit used for EV charging.
- This provides the Centre with a **margin of £0.016/kWh**, equating to around **£438/year** at the assumed 27,375 kWh throughput.
- On occasions when the EV chargers are supplied by **excess solar PV generation**, the Centre will still receive £0.30/kWh, even though the electricity would otherwise have been exported at a much lower value.

User Tariff

EV users will be charged **£0.45/kWh**, a competitive rate compared to many public charging networks while still delivering a fair return to the CEC.

Usage Assumptions

To provide clarity on the assumptions used in estimating annual charging throughput, the key usage parameters have been summarised in the table below. These reflect a realistic scenario for a dual-socket 11kW charger at a community facility of this size and profile:

Assumption	Value
Charging sessions per day	5 sessions
Average energy per session	15 kWh
Annual operating days	365 days
Total annual throughput	**27,375 kWh/year**

Table 5: Assumed EV charging statistics

Summary

The proposed EV charging installation at the Visitor Centre is both practical and viable. The chosen location balances cost, convenience, and safety, while the technical design ensures the chargers will be durable, secure, and user-friendly. With a clear billing arrangement and modest financial benefit to the Centre, the project also provides wider community value and strengthens the Centre's role as a sustainable hub.

4. Power Purchase Agreement (PPA) Structure for the Visitor Centre

What is a PPA?

A **Power Purchase Agreement (PPA)** is a contractual arrangement where the Community Energy Company (CEC) funds, installs, and operates renewable energy systems on a host building, in this case the Teversal Trails Visitor Centre. Instead of paying for the upfront capital cost of the equipment, the Centre agrees to purchase the electricity generated on-site at an agreed tariff, usually lower than their current supplier's rate.

How it works at the Visitor Centre

- **CEC responsibility:** The CEC funds and owns the solar PV, LED upgrades (if included), and EV charging infrastructure.
- **Visitor Centre responsibility:** The Centre purchases the electricity generated by the solar PV at the agreed PPA tariff.
- **Grid imports:** If the Centre needs more electricity than the solar generates, the shortfall is covered by their existing supplier at their normal tariff.
- **Exported power:** Any unused solar generation is exported to the grid, with revenues going to the CEC to support wider community projects.
- **PPA Tariff Options**

Two PPA tariff structures have been modelled for the Visitor Centre:

Option	Solar Tariff	LED Funding	Notes
1. Solar + LED in PPA	£0.18/kWh	Included	LED upgrades funded by CEC, repaid via slightly higher solar tariff.
2. Solar only PPA	£0.15/kWh	Self-funded by Centre	LED upgrades paid for directly by Centre, solar tariff reduced.

Table 6: PPA options available to the visitor centre

Benefits to the Visitor Centre

- **Cost savings:** Current electricity tariff is £0.284/kWh. Under the PPA, the Centre would pay either £0.18/kWh or £0.15/kWh for solar-generated electricity.
- **Annual savings:** Depending on the PPA structure chosen.
- **Price certainty:** The PPA locks in a stable tariff, insulating the Centre from volatile energy market prices.
- **Maintenance-free:** All solar, LED (if included), and EV infrastructure is owned and maintained by the CEC.
- **Community benefit:** Any surplus revenues from the project are reinvested by the CEC into further community initiatives.

4.1. Worked Examples of Annual Benefit to the Visitor Centre

Two PPA options have been modelled for the Visitor Centre. Both deliver meaningful savings compared to the current electricity tariff of **£0.284/kWh**.

Option A — Solar + LED in PPA (CEC funds LED, PPA = £0.18/kWh)

- **Solar saving: ~£872/year**
- **LED saving: ~£1,113/year**
- **Total annual benefit: ~£1,985/year**
- **No upfront cost** for the Visitor Centre (CEC funds LED upgrade).

Option B — Solar only PPA (Centre funds LED, PPA = £0.15/kWh)

- **Solar saving: ~£1,124/year**
- **LED saving: ~£1,113/year**
- **Total annual benefit: ~£2,237/year**
- **Upfront LED cost: ~£1,500**
- **Payback period: ~1.35 years** (16 months).

4.2. Summary

Scenario	PPA Rate	Who funds LED	Solar saving	LED saving	LED cost	Total benefit / yr
Option A – Solar + LED in PPA	£0.18/kWh	CEC	£872	£1,113	£0	**£1,985**
Option B – Solar only PPA	£0.15/kWh	Visitor Centre	£1,124	£1,113	£1,500	**£2,237** (before capex)

Table 7: PPA options benefit comparison

Interpretation:

- **Option A** gives the Centre nearly **£2,000/year benefit with no upfront spend**, though at a slightly higher PPA rate.
- **Option B** maximises the annual benefit (over £2,200/year) but requires the Centre to invest £1,500 in the LED upgrade.

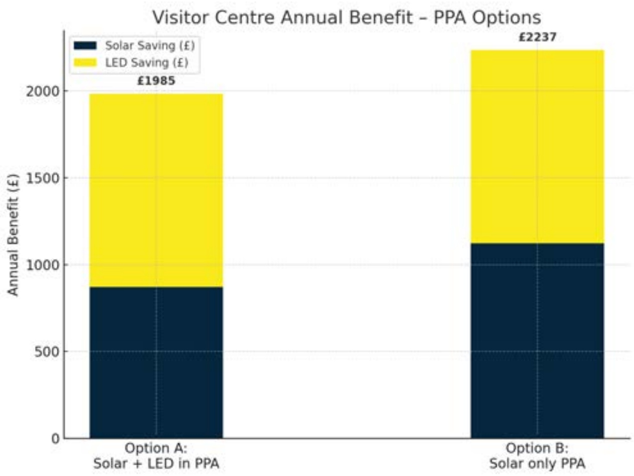


Figure 7: PPA comparison graph

5. Community Solar Club Feasibility

The Community Solar Club represents one of the most significant opportunities for the CEC to deliver **direct benefits to local residents.** While the Visitor Centre project demonstrates the viability of community energy in a public setting, the Solar Club extends this impact into people's homes, tackling rising energy costs and enabling households to participate in the shift towards renewable energy.

Figure 8: Example of rooftop residential solar PV

Across the UK, household energy costs remain high and unpredictable, leaving many families vulnerable to fuel poverty. At the same time, the demand for renewable energy is growing, but the **upfront costs of installing solar PV** continue to be a barrier for many. The Solar Club addresses this challenge by removing cost as an obstacle and ensuring that renewable energy is available to everyone - not just those who can afford to buy systems outright.

Through a combination of **no-upfront-cost solar Power Purchase Agreements (PPAs)** and a **community bulk-buy scheme**, the Solar Club is designed to be flexible, inclusive, and scalable. The scheme will begin with a **trial of 10–20 households**, providing an opportunity to prove the concept locally before expanding more widely across Teversal, Stanton Hill, Skegby and potentially across the wider Ashfield district.

As a flagship community benefit initiative, the Solar Club also has a role beyond individual savings: it will build confidence, raise awareness, and showcase what can be achieved when communities work together to take control of their energy future.

5.1. Concept & Rationale

The **Solar Club** is designed to remove barriers to renewable energy and put local households at the heart of the community's energy transition. Its purpose is clear: make solar energy **accessible, affordable, and community-led.** For many residents, the **upfront cost of solar installation** is the biggest obstacle. The Solar Club removes this barrier by offering two simple routes to participation:

- **Power Purchase Agreement (PPA):** The CEC funds and installs the system at no upfront cost to the household. Residents then purchase the electricity generated from their own rooftop solar at a discounted rate compared to the grid. This ensures immediate savings on bills while enabling the CEC to recover costs over time.

- **Bulk-Buy Option:** For those wishing to own their system outright, the CEC will coordinate a bulk procurement programme. By negotiating as a community, residents can access **significantly lower costs than the retail market**, while also benefiting from trusted local contractors. This approach ensures households are **not exposed to profit-driven installers with high margins**, giving confidence that they are receiving fair value and independent guidance from a community-led initiative.

The wider solar PV market can often feel **confusing and inconsistent**, with some installers prioritising profit rather than what is best for the consumer. This has left many residents hesitant to install solar, unsure of who to trust. The CEC provides a **community-first alternative**, offering **independent, transparent advice** and guiding households through the entire process from survey to installation. This ensures systems are only installed where they genuinely deliver value, helping residents make **better, more informed decisions**.

This dual approach ensures **inclusivity**: households with different financial circumstances can still participate and benefit from renewable energy.

The **Solar Club** is underpinned by three guiding principles:

1. **Fairness** – every household should have the opportunity to benefit.
2. **Integrity** – only technically suitable homes will be offered systems.
3. **Community benefit** – surplus revenues will be reinvested locally.

Beyond lowering bills, the Solar Club will **cut carbon emissions**, **tackle fuel poverty**, **increase resilience to volatile energy markets**, and **strengthen community identity** through collective action. This way, the Solar Club is not just about installing solar panels - it is a **community movement,** showing how local people can work together to cut costs, reduce emissions, and keep value circulating locally.

5.2. Delivery Approach & Process

The Solar Club will be delivered in phases, beginning with a trial of 10–20 homes to prove the concept and gather feedback before wider rollout. This phased approach allows technical, financial, and community engagement aspects to be tested and refined before expansion to a larger number of households.

Resident Journey

1. **Expression of Interest**: Residents register via an online form, community event, or direct outreach.
2. **Property Assessment**: Each home is assessed for suitability using **MCS guidelines** and industry-standard methods (roof orientation, shading, condition, structural soundness, etc.).
3. **Offer Stage**: Residents are presented with two choices:
    - A **no-upfront-cost PPA**, with savings from day one.
    - A **bulk-buy discounted purchase option**, offering lower-than-retail prices through community procurement.
4. **System Design & Installation**: Each property receives a bespoke design. Accredited contractors deliver the installation under CEC oversight.
5. **Monitoring & Support**: System performance is monitored, with households receiving regular updates on generation, savings and transparent billing.

Figure 9: Resident journey process

Why This Approach Works

- **Phased rollout** reduces risk by testing on a smaller scale before expansion.
- **Transparency** builds trust: each resident receives a property-specific design and savings forecast before signing up.
- **Flexibility** ensures inclusivity: different financial circumstances are accommodated through PPA or bulk-buy options.
- **Scalability** means the scheme can expand over time, multiplying community benefits.

This phased, structured process ensures residents are fully informed, installations are technically sound, and community trust is built.

5.3. Property Suitability & Assessment

Not every property is suitable for solar PV, so a **clear and fair assessment process** will be used to identify where installations will deliver genuine value. This will help ensure that residents feel confident about their participation and that the Solar Club maintains credibility as a trusted community initiative.

Each household will receive a **tailored system design**, beginning with an on-site survey to assess roof space, orientation, shading, and structural condition. These findings will then be modelled using desktop simulation software to estimate likely performance. This two-step approach ensures that every resident receives an accurate picture of how a system will perform on their specific home.

Key assessment factors

- **Roof orientation and pitch** – south-facing roofs perform best, but east- and west-facing can also be viable.
- **Shading** – from chimneys, trees, or nearby buildings can significantly reduce system performance.
- **Roof space and condition** – sufficient area and structural integrity are required before installation.
- **Grid connection** – rules vary depending on system size:
    - Systems up to **3.6 kW inverter size** fall under the **G98 notification process**, where the installer simply notifies the Distribution Network Operator (DNO) after installation.
    - Systems above **3.6 kW inverter size** require a **G99 application**, where permission must be obtained from the DNO before the installation can proceed. This ensures that the local grid can safely accommodate the additional generation.

Where properties are deemed unsuitable, households will be given a clear explanation of the reasons and will not be encouraged to proceed. In such cases, the CEC will also explore opportunities to provide **battery storage-only solutions**, enabling residents to benefit from **time-of-use tariffs** or take part in future community energy initiatives.

Added value of the assessment process: The CEC will ensure assessments are **clear and consistent**, with results explained in plain language so households can make confident choices. Surveys will also record **future opportunities** such as battery storage or EV charging readiness, helping prepare homes for longer-term energy independence.

Even where solar isn't possible, residents will still benefit indirectly through the scheme's reinvestment of surplus revenues and by taking part in shared learning at community events and obtain advice around domestic energy efficiency measures.

5.4. System Options & Example Household Savings

To illustrate how residents could benefit from the Solar Club, two example system sizes have been modelled. These are based on typical property demand, average generation, and current electricity prices. Actual savings and PPA rates will vary between households, but the examples give a good indication of the potential impact.

At this early stage, it is not possible to define exact system sizes or PPA rates for every property. Instead, example scenarios have been modelled to demonstrate the potential savings to households under the Solar Club model. These examples assume two common system types – a solar-only installation and a solar-plus-battery installation – to illustrate how the approach could work in practice.

Example 1 – 3.6 kWp Solar PV Only

- **Annual generation:** ~3,300 kWh
- **Used in the home:** ~2,805 kWh (85%)
- **Electricity price comparison:** £0.30 (grid) vs £0.18 (PPA)
- **Annual saving: ~£337** per household

Example 2 – 5.0 kWp Solar PV + Battery

- **Annual generation:** ~4,500 kWh
- **Used in the home:** ~4,050 kWh (90%)
- **Electricity price comparison:** £0.30 (grid) vs £0.20 (PPA)
- **Annual saving: ~£405** per household

Scaling up – trial homes

For the planned **10–20 home trial**, this could deliver:

- **£3,377 - £6,740** in annual bill savings for residents under Example 1
- **£4,050 - £8,100** in annual bill savings for residents under Example 2

Long-term potential

If scaled to 100 homes over time, the Solar Club could deliver annual household bill savings in the region of £33,700–£40,500 and generate around 330,000–450,000 kWh of clean electricity each year. This would displace the equivalent of ~95–130 tonnes of CO_2 emissions annually (based on current UK grid carbon intensity), representing a meaningful contribution to local and national net-zero goals.

6. Financial Modelling & Business Case

6.1. Introduction to the Business Case

This section brings together the financial modelling and business case assessment for the two initiatives taken forward from the feasibility study. These are presented in two distinct parts to reflect their different characteristics:

- **6.2 Teversal Trails Visitor Centre (Part A)** – the anchor project, where a rooftop solar PV system, LED lighting upgrades, and EV charging infrastructure have been assessed. This project has a high degree of certainty, with strong engagement from the Centre and a clear demand profile already established.
- **6.3 Solar Club (Part B)** – a community-wide initiative designed to provide residents with access to affordable rooftop solar PV (with or without battery storage). Unlike the Visitor Centre, the Solar Club is dependent on community uptake and engagement, and as such has been modelled using scenarios rather than fixed outcomes.

The purpose of this business case is to:

- Set out the financial viability of each option.
- Highlight the potential revenue streams for the CEC.
- Demonstrate how these initiatives can collectively provide both immediate impact and longer-term scalability.

By presenting the two options separately, the analysis recognises their different roles: the Visitor Centre as a **deliverable early-stage project** and the Solar Club as a **transformational community model** to be grown over time.

Finally, in **Section 6.4 Combined View**, the results of both initiatives will be brought together. This will be scenario-based, showing how different levels of Solar Club uptake (e.g. 10, 20 or 100 properties) could combine with the Visitor Centre project to build a stronger, community-wide business case.

The outputs of this section will provide the foundation for **Stage 2 funding applications and delivery planning**, ensuring that both near-term and longer-term opportunities are clearly understood by stakeholders and decision-makers.

6.2. Part A – Teversal Trails Visitor Centre Business Case

The Teversal Trails Visitor Centre represents the most immediate and financially viable opportunity for the newly forming Community Energy Company (CEC) to establish itself.

As an anchor project, it combines:

- A rooftop solar PV system sized to match the Centre's daytime demand profile.
- An LED lighting upgrade that significantly reduces ongoing energy costs.
- The introduction of EV charging infrastructure to create an additional revenue stream.

Together, these measures create a business case that balances **community benefit** with **financial sustainability for the CEC**. The Centre currently spends over £7,200 annually on electricity, and by purchasing solar-generated power through a PPA at a discounted, fixed rate, it will achieve meaningful savings while providing the CEC with steady income. The addition of EV charging strengthens the model further by diversifying revenue streams and increasing visibility of the initiative.

This project has been prioritised because it delivers three critical outcomes:

1. **Early certainty** – clear engagement from the Centre's management and defined energy usage makes the financial modelling robust.
2. **Tangible community benefit** – reduced costs and improved sustainability for a well-used public facility.
3. **Foundation for growth** – revenue from the project provides the CEC with a sustainable base to expand into larger initiatives such as the Solar Club.

The following sub-sections set out the business case in detail, covering the modelling approach, key assumptions, capital and operating costs, projected revenues, and financial outcomes.

6.2.1. *Business Case Modelling Approach – Part A*

The business case for the Teversal Trails Visitor Centre has been developed around the principle of establishing a Power Purchase Agreement (PPA) between the Community Energy Company (CEC) and the Centre. Under this arrangement, the Centre purchases electricity generated by the rooftop solar PV system at a discounted, fixed rate compared to its current tariff, while the CEC generates a steady income stream to support operations and wider community benefit.

To provide a clear analysis, two scenarios have been modelled:

- **Option 1:** Rooftop solar PV with LED lighting upgrade included in the PPA.
- **Option 2:** Rooftop solar PV only (LED upgrade excluded from the PPA).

Both options also include a dual-socket EV charger to be installed on-site.

The modelling approach included the following steps:

- **Baseline demand analysis:** Using billing data to establish annual energy consumption and cost.
- **System performance modelling:** Applying desktop simulation results for solar PV generation, self-consumption, and export.
- **Tariff and PPA design:** Fixing discounted rates for electricity sales to the Visitor Centre, alongside export tariff assumptions.
- **EV charging assumptions:** Estimating usage based on 5 sessions/day, each averaging 15 kWh.
- **CAPEX and OPEX calculations:** Including solar PV, LED lighting, EV chargers, and operational costs.
- **Financial modelling:** Combining the above to produce projected revenues, costs, and net results for each option.
- **Sensitivity testing:** Assessing the impact of variations in solar yield, EV utilisation, and tariff changes.

This structured approach ensures that the Visitor Centre business case reflects both the technical findings of the feasibility study and realistic financial outcomes for the CEC.

6.2.2. *Financial Modelling Assumptions – Part A*

The Visitor Centre business case has been modelled using a set of defined technical and financial assumptions derived from site data, billing information, and industry benchmarks. These assumptions provide the **foundation for the cost, revenue, and viability analysis**, ensuring that the financial outputs are grounded in realistic, evidence-based inputs.

By setting a clear baseline – including current tariff rates, projected solar generation, self-consumption ratios, and EV charging demand – the assumptions establish a **base case scenario** against which the project's financial performance can be tested. This allows the CEC and its stakeholders to understand both the expected outcomes and the range of sensitivities that may affect viability.

The following tables summarise the metrics used for the financial modelling and creation of the base case:

1: Tariff Modelling Assumptions

The business case is underpinned by both the current electricity tariff paid by the Centre and the proposed PPA rates. Export assumptions have also been included for surplus electricity sold to the grid.

Parameter	Assumption	Notes
Current electricity tariff	£0.284/kWh	Based on recent billing data
PPA rate – Option 1 (solar + LED)	£0.18/kWh	Discounted rate including LED upgrade
PPA rate – Option 2 (solar only)	£0.15/kWh	Discounted rate excluding LED upgrade
Export tariff	£0.07/kWh	Assumed for surplus generation

Table 8: Tariff Assumptions

2: Solar PV Modelling Assumptions

The solar PV system has been modelled based on the roof survey, desktop simulations, and demand profile of the Centre.

Parameter	Assumption	Notes
System size	12.6 kWp	28 × 450 W modules
Annual generation	10,746 kWh	From desktop simulation
Self-consumption	78% (8,381 kWh)	On-site usage
Exported electricity	22% (2,365 kWh)	Sold to grid

Table 9: Solar PV Assumptions

3: LED Lighting Modelling Assumptions

The modelling incorporates the results of the lighting survey, highlighting the expected reductions in energy demand following an LED upgrade.

Parameter	Assumption	Notes
Current lighting load	5,465 kWh/year	From lighting survey
Post-LED load	1,549 kWh/year	Based on replacement design
Energy savings	3,916 kWh/year	Reduction in consumption

Table 10: LED Lighting Assumptions

4: EV Charging Modelling Assumptions

EV charging usage has been estimated based on comparable community facilities, with conservative assumptions around session frequency and energy demand.

Parameter	Assumption	Notes
Charger configuration	1 dual-socket, 11 kW	Pole-mounted
Average usage	5 sessions/day	Based on comparable community sites
Energy per session	15 kWh	Average charging event
Annual throughput	27,375 kWh/year	5 × 15 × 365
Tariff to users	£0.45/kWh	Paid by driver
Payment to Visitor Centre	£0.30/kWh	Paid by CEC for every kWh consumed via EV chargers

Table 11: EV Charging Assumptions

Together, these assumptions establish the foundation for the Visitor Centre business case. They reflect a balance between real-world data (such as billing information and site surveys) and conservative estimates drawn from industry benchmarks. Importantly, the assumptions are designed to be transparent and easy to interpret, allowing stakeholders to see how each element – solar PV, LED lighting, and EV charging – contributes to the overall model.

By fixing these parameters at the outset, the CEC can test the financial performance of different options under consistent conditions. This creates a **robust base case** from which to evaluate costs, revenues, and sensitivities in the following sections.

6.2.3. Capital Expenditure & Operating Costs – Part A

The delivery of the Visitor Centre project will require upfront capital investment, alongside ongoing operational costs to ensure long-term performance. These costs have been modelled separately for each technology element (solar PV, LED lighting, and EV charging) and are consistent with industry benchmarks and supplier quotations gathered during the feasibility process.

Capital Expenditure

Technology	Assumed Cost	Notes
Solar PV (12.6 kWp system)	£9,750	Includes supply and installation
LED lighting upgrade	£1,500	Full replacement of 28 fittings
EV charging (1 dual-socket, 11 kW unit)	£12,500	Includes installation and protection measures
Total CAPEX	**£23,750**	

Table 12: Capital Expenditure

Operating Costs

Cost Category	Technology	Assumption	Notes
O&M	Solar PV	£150/year	Routine inspection, cleaning, and monitoring
O&M	LED Lighting	Negligible	Maintenance-free; no lamp replacements required
Insurance	PV & LED	£250/year	Estimated annual premium
Miscellaneous	PV & LED	£100/year	Allowance for minor costs
Payment software licence	EV Charging	£300/year	Based on blended vendor quotes
Point-of-sale (POS) fee	EV Charging	£616/year	5% of £12,319 annual revenue
Maintenance & call-outs	EV Charging	£300/year	Allowance for service cover
Network connection	EV Charging	£0	Using Visitor Centre WiFi
Electricity purchase	EV Charging	£8,212.50/year	Based on 27,375 kWh × £0.30/kWh
Total Annual OPEX	**All technologies**	**£9,929.50**	

Table 13: Operating Costs

6.2.4. *Revenue Streams – Part A*

The Visitor Centre projects' business case incorporates three distinct annual gross revenue streams for the CEC. These have been modelled using the demand profile, desktop simulation outputs, and conservative tariff assumptions:

1: Solar PV – Power Purchase Agreement Revenue

Option	On-site Consumption	Tariff to Visitor Centre	Revenue to CEC
Option 1: Solar + LED	8,381 kWh	£0.18/kWh	£1,509
Option 2: Solar only	8,381 kWh	£0.15/kWh	£1,257

Table 14: Revenue from PPA

2: Solar PV – Export Revenue

Exported Generation	Tariff	Revenue to CEC
2,365 kWh	£0.07/kWh	£166

Table 15: Revenue from Export

3: EV Charging Revenue

Metric	Value	Notes
Annual throughput	27,375 kWh	Based on 5 sessions/day × 15 kWh
Tariff to EV users	£0.45/kWh	Paid by drivers
Gross revenue	**£12,319**	Before costs

Table 16: Revenue from EV Charging

Summary of Annual Gross Revenues

Stream	Option 1: Solar + LED	Option 2: Solar only
PPA revenue	£1,509	£1,257
Export revenue	£166	£166
EV charging (gross)	£12,319	£12,319
Total Gross Revenue	**£13,994**	**£13,742**

Table 17: Total Gross Revenues

The analysis shows that **EV charging is the main source of income**, while the solar PPA provides a smaller but steady and predictable contribution. Export revenue is modest, reflecting the high level of on-site consumption, but still adds value by monetising surplus generation.

Together, these streams create a **balanced revenue model**, combining stable income from solar with higher-yielding EV charging activity.

6.2.5. *Results & Financial Analysis – Part A*

The financial analysis highlights the projected outcomes for both Visitor Centre options over a 20-year horizon. These results are based on the capital and operating costs outlined previously, together with revenue assumptions from the PPA, export payments, and EV charging.

The table below summarises the key financial metrics:

Financial Summary

Metric	Option 1: Solar + LED	Option 2: Solar Only
CAPEX	£23,750	£22,250
Gross Annual Revenue	£13,994	£13,742
Operating Costs	£9,930	£9,930
Net Annual Revenue	£4,065	£3,813
Simple Payback	5.8 years	5.8 years
ROI (20 years)	242%	243%
IRR (annual)	16.3%	16.3%
Net Benefit (20 years)	**£81,290**	**£76,250**

Table 18: Financial Summary – Options 1 & 2

Analysis:

Both options show strong financial viability, with IRRs around **16.3%** and payback periods of 5.8 years. Over 20 years, the cumulative net benefit is projected to be between **£76k and £81k**, depending on whether the LED lighting upgrade is included within the PPA.

The ROI figures presented here are based on a **net-gain calculation**, meaning they reflect the surplus achieved relative to the original investment (rather than total inflows). This produces a more realistic view of long-term performance, with returns of around **242–243%** over 20 years.

While Option 1 requires slightly higher upfront CAPEX, it delivers a higher overall net benefit to the CEC, making it the stronger long-term proposition. However, the margins between the two options are relatively narrow, giving the CEC flexibility in deciding whether to bundle the LED upgrade into the PPA structure.

6.2.6. *Sensitivity Analysis – Part A*

To test the robustness of the Visitor Centre business case, key assumptions were stress-tested against realistic downside and upside scenarios. The analysis confirms that the project remains viable under all tested conditions, with only modest variations in financial outcomes.

Variable Tested	Scenario	Impact on Business Case
EV Charger Utilisation	10% lower than forecast	Net revenue falls by ~£620 p.a., payback extends to ~6.0 yrs
	10% higher than forecast	Net revenue rises by ~£620 p.a., payback reduces to ~5.6 yrs
Solar Yield	5% lower than forecast	Net revenue falls by ~£75 p.a., negligible effect on payback
	5% higher than forecast	Net revenue rises by ~£75 p.a., negligible effect on payback
OPEX (platform, insurance, maintenance)	10% increase	Net revenue falls by £100–£200 p.a., minimal effect
Export Tariff	Rise from 7p → 9p per kWh	Net revenue increases by ~£47 p.a., minimal effect
	Fall from 7p → 5p per kWh	Net revenue decreases by ~£47 p.a., minimal effect

Table 19: Sensitivity Analysis Results

The sensitivity testing shows the project is most exposed to changes in EV charger utilisation, which accounts for a significant share of revenues. Even in a downside case of 10% lower utilisation, the project continues to deliver a payback within six years and strong returns over 20 years.

Changes in solar yield, OPEX, and export price have only marginal impacts. In particular, solar yield modelling is based on well-established simulation tools and site data, meaning actual generation is expected to remain close to forecast. The analysis therefore gives high confidence that the base case assumptions are realistic, and the project is resilient.

6.2.7. Summary of Business Case – Teversal Trails Visitor Centre

The Teversal Trails Visitor Centre represents a strong and highly deliverable first project for the Community Energy Company (CEC). The technical feasibility assessment confirmed that rooftop solar PV, LED lighting upgrades, and EV charging can be implemented quickly with minimal enabling works. Together, these measures create a compelling business case that delivers financial, environmental, and social value.

From a financial perspective, both PPA structures (Option 1 including LED lighting; Option 2 excluding LED lighting) produce near-identical outcomes. With capital costs of £22k–£24k and net annual revenues of £3,800–£4,100, the project achieves simple payback in just under six years. Over a 20-year period, net benefits of **£76k–£81k** are projected, delivering a **Return on Investment of around 242–243%** and an **Internal Rate of Return of ~16%**.

The analysis shows that EV charger utilisation is the largest driver of outcomes. Even under downside scenarios, the project remains viable and continues to pay back within acceptable timeframes. Other variables such as solar yield, operating costs, or export tariff shifts have only marginal effects, reflecting the robust and well-modelled assumptions used.

For the Visitor Centre, the benefits are equally strong. The PPA provides electricity at a reduced, fixed cost compared to their current tariff, enabling significant savings. Additional income from hosting EV chargers will help to support the Centre's long-term financial sustainability, while the LED upgrade reduces energy use, operating costs, and maintenance burdens. Importantly, the project enhances the Centre's role as a community hub, providing low-carbon facilities and promoting awareness of the CEC.

Overall, the Visitor Centre project is financially sound, technically feasible, and socially valuable. It stands as a practical, low-risk first initiative for the CEC, laying the foundation for wider community energy initiatives while delivering immediate and visible benefits to both the Centre and local residents.

6.3. Part B – Residential Solar Club Business Case

The Solar Club is a flagship initiative proposed by the Community Energy Company (CEC) to deliver clean, affordable energy directly to households across Teversal, Stanton Hill, and Skegby. While the Visitor Centre project provides a clear and low-risk first step for the CEC, the Solar Club represents a wider community opportunity, capable of delivering meaningful benefits at household level and driving long-term community transformation.

Unlike fixed-site projects, the Solar Club business case is inherently dependent on **resident engagement and property suitability**. This introduces a greater degree of variability but also creates the opportunity for far-reaching impact. To reflect this, the business case is developed using a **scenario-based approach**, testing how the model performs under different levels of uptake, from an initial pilot to wider community adoption.

The objectives of the business case analysis are threefold:

- **To establish household-level benefits**: By comparing PPA rates with typical grid tariffs, the analysis highlights potential savings for participating residents and demonstrates the value of community-led provision over commercial alternatives.
- **To test the economics of different system types**: The business case explores both smaller rooftop systems (solar only) and larger installations with battery storage, showing how different technology options influence savings, self-consumption, and community outcomes.
- **To understand the community-wide impact**: By scaling from a 10–20 home trial to scenarios of 50 or 100 homes, the analysis reveals how the Solar Club could evolve from a pilot scheme into a transformative programme of local energy generation and reinvestment.

The modelling uses consistent assumptions, including a fixed PPA rate of £0.18-£0.20/kWh, system self-consumption of 85-90%, and an export tariff of £0.07/kWh. These assumptions are applied across all scenarios to create a robust framework for testing viability.

Beyond financial outcomes, the Solar Club business case is designed to reinforce the **social mission of the CEC**. By providing a transparent, community-owned alternative to commercial solar installers, the CEC aims to give residents confidence in the process, protect them from high-margin sales models, and ensure that surplus revenues are reinvested for local benefit. This positions the Solar Club not only as a tool for saving money and cutting carbon, but also as a means of strengthening trust and resilience within the community.

6.3.1. *Business Case Modelling Approach & Assumptions – Part B*

The Solar Club business case has been developed using a **scenario-based modelling approach**. Unlike the Visitor Centre, which provides a fixed and predictable demand profile, the Solar Club depends on the uptake of individual households, each with unique roof characteristics, energy needs, and willingness to participate. This means the financial model is less about predicting a single outcome and more about testing a range of scenarios to understand risk, viability, and long-term potential.

The modelling begins by defining **two representative household systems**: a 3.6 kWp rooftop solar-only system and a 5.0 kWp solar-plus-battery system. These were chosen because they reflect the most likely technology options residents would consider, and together they demonstrate how savings and performance vary between a smaller entry-level system and a more advanced package with storage.

Each scenario applies consistent performance and tariff assumptions, allowing direct comparison. Savings for residents are calculated against the prevailing household grid tariff of £0.30/kWh, while electricity exported back to the grid is valued at £0.07/kWh. Self-consumption is assumed at 85-90%, representing a typical balance between on-site use and export, with battery storage helping to maximise household benefit.

To show how the Solar Club could grow, the analysis begins with a **pilot phase of 10–20 homes** before extending to scale-up scenarios of 50 and 100 homes. This ensures the model not only demonstrates household-level savings but also reveals the collective impact if the initiative expands across the community.

Category	Scenario 1 – 3.6 kWp Solar PV	Scenario 2 – 5.0 kWp Solar PV + Battery
Capital Cost	£4,500	£7,800
Annual Generation	~3,300 kWh	~4,500 kWh
Self-Consumption	85%	90%
Export to Grid	15%	10%
PPA Rate (to resident)	£0.18/kWh	£0.20/kWh
Grid Tariff (baseline)	£0.30/kWh	£0.30/kWh
Export Tariff	£0.07/kWh	£0.07/kWh
Pilot Trial	10–20 homes (combined scenarios)	10–20 homes (combined scenarios)
Scale-up Scenarios	Potential expansion up to 50+ homes	Potential expansion up to 50+ homes

Table 20: Solar Club Business Case Assumptions

6.3.2. Scenario Modelling – Part B

To reflect the early-stage nature of the Solar Club, the business case has been modelled around **pilot-scale scenarios** rather than a fixed outcome. This ensures that the assumptions remain realistic and transparent, while demonstrating the potential for the CEC to generate income from different levels of household participation.

The modelling framework is structured around **two scenarios**, based on a 60/40 technology mix of smaller 3.6 kWp solar-only systems and larger 5.0 kWp solar-plus-battery systems. This reflects the expectation that most households will opt for the more accessible solar-only system, while a proportion will choose the additional benefits of storage.

Scenario	Number of Homes	Technology Mix	CEC Revenue Sources
Scenario A	10 homes	60% 3.6 kWp solar-only (6 homes) 40% 5.0 kWp solar + battery (4 homes)	• PPA income from household consumption • Export income from surplus generation
Scenario B	20 homes	60% 3.6 kWp solar-only (12 homes) 40% 5.0 kWp solar + battery (8 homes)	• PPA income from household consumption • Export income from surplus generation

Table 21: Solar Club Scenarios

In each case, a technology mix of **60% 3.6 kWp solar-only systems** and **40% 5.0 kWp solar-plus-battery systems** has been applied. This blend reflects the likely uptake pattern within the community, with the smaller system being more accessible to the majority of households, while some residents may choose the additional benefits of battery storage.

The model assumes that all households enter into a **Power Purchase Agreement (PPA)** with the CEC, paying a fixed tariff of **£0.18-£0.20/kWh** for electricity consumed. Surplus electricity not used by households is exported to the grid at **£0.07/kWh**. The CEC therefore benefits from two revenue streams:

- PPA income from residents.
- Export income from electricity not consumed on site.

Operating costs are assumed to be minimal, limited to monitoring and administration. System installation costs are capitalised and funded through the CEC's investment strategy.
By modelling both 10-home and 20-home scenarios, the analysis provides a realistic picture of the potential **revenue and viability** of the Solar Club in its early stages, while also offering a pathway to scale if engagement grows.

6.3.3. Financial Analysis – Part B

Using the modelling assumptions set out in Section 6.3.2 and the pilot scenarios defined in Section 6.3.3, the following results have been calculated. These outputs provide an indicative business case for the CEC under early-stage deployment.

Solar Club Business Case Results (Pilot Scenarios)

Category	Scenario A – 10 Homes	Scenario B – 20 Homes
Capital Expenditure	£58,200	£116,400
Annual Generation	37,800 kWh	75,600 kWh
Annual Revenue	£6,636	£13,272
Simple Payback	8.8 years	8.8 years
ROI (20 years)	128%	128%
IRR	10.0%	10.0%

Table 22: Solar Club Financial Analysis

The results show that both pilot scenarios offer a **commercially viable level of return** for the CEC, with an Internal Rate of Return (IRR) of around 10% and a simple payback period of under nine years. This level of performance is considered positive within the context of community energy, where typical benchmarks often range from 5% to 8% IRR. The model has been designed conservatively, excluding export revenues and assuming minimal operating costs, ensuring the projections remain realistic.

Sensitivity Analysis:

Unlike the Visitor Centre project, where sensitivity analysis focused on solar generation, export rates, and EV charger utilisation, the Solar Club's primary sensitivity lies in **community uptake**. The financial performance is strongly linked to the number of households participating, rather than variations in technical assumptions, which have been modelled conservatively.

The pilot modelling tested two uptake scenarios (10 and 20 homes), with scalability illustrated up to 50 homes. The financial ratios (payback, ROI, IRR) remain broadly stable as the number of homes increases, but the absolute scale of household savings, carbon reduction, and community benefit grows significantly.

This highlights that the Solar Club is less sensitive to small technical changes, and more reliant on community engagement and participation. As such, the key determinant of success will be how effectively the CEC builds trust, communicates benefits, and secures uptake during the pilot phase.

6.3.4. *Solar Club Financial Model Summary & Community Benefit*

The Solar Club financial model demonstrates that rooftop solar PV, offered under a community-led Power Purchase Agreement (PPA), can be delivered on a pilot basis with a commercially viable return for the CEC.

Both 10-home and 20-home scenarios modelled achieve IRR of around 10%, with simple payback in under nine years. These results are positive, but the primary driver for the Solar Club is not profitability, it is community benefit.

The real value of the Solar Club lies in:

- **Lower household bills**: Participating residents pay 18–20p/kWh for electricity, compared to the grid rate of around 30p/kWh, reducing exposure to energy market volatility.
- **Environmental benefit**: Every home equipped with solar PV reduces local carbon emissions, contributing to TSSF's net-zero objectives.
- **Fairness and transparency**: The CEC ensures that systems are only installed where they are technically suitable and provide value, avoiding the pitfalls of commercial providers who may operate with high margins or sell inappropriate systems.
- **Local reinvestment**: Any surplus generated is retained within the CEC for reinvestment into further community projects, creating a cycle of local value.

If scaled beyond the pilot phase, for example to 50 homes or more, the Solar Club has the potential to multiply these benefits across the community. While the financial ratios remain consistent, the absolute impact in terms of household savings, carbon reduction, and reinvested community surplus increases significantly.

The Solar Club therefore represents a model that combines financial sustainability with social impact, balancing modest returns for the CEC with tangible and widespread benefit for residents.

6.4. Combined Business Case

The Visitor Centre project and the Solar Club pilot together represent the foundation of the new Community Energy Company (CEC). While each has been modelled separately, it is important to consider how these opportunities combine to demonstrate the early-stage viability of the CEC.

The **Visitor Centre project** provides certainty. Energy demand is well understood, the Centre has shown clear appetite to proceed, and financial modelling indicates a positive return. This makes it an ideal first project to anchor the CEC, establish cashflow, and build confidence in delivery.

The **Solar Club pilot** is less certain, as it depends on resident engagement and property suitability, but it offers scalability and far-reaching community benefit. Even at small pilot scale, it shows an Internal Rate of Return (IRR) of ~10% and household bill savings of around 30–40% compared to current tariffs.

Together, these projects form a balanced portfolio: the Visitor Centre delivers early certainty and visible community benefit, while the Solar Club provides a platform for growth, deeper engagement, and long-term value.

Combined Business Case Results (Visitor Centre + Solar Club)

Category	Visitor Centre – Option 1 (PPA incl. LED)	Visitor Centre – Option 2 (PPA solar-only)	Solar Club – Scenario A (10 Homes)	Solar Club – Scenario B (20 Homes)
Capital Expenditure	£23,750	£22,250	£58,200	£116,400
Annual Generation	10,746 kWh	10,746 kWh	37,800 kWh	75,600 kWh
Annual Revenue (Net)	£4,065	£3,813	£6,636	£13,272
Simple Payback	5.8 years	5.8 years	8.8 years	8.8 years
ROI (20 years)	242%	243%	128%	128%
IRR	16.3%	16.3%	10.0%	10.0%

Table 23: Combined Business Case Results

These results show that, while the Visitor Centre offers a quicker payback and higher IRR, the Solar Club provides scale and wider community reach. The combination demonstrates that the CEC can balance certainty with ambition: delivering an immediate project that builds financial resilience, while also piloting an innovative model with significant long-term community value.

7. Funding Strategy

Delivering the projects identified through this feasibility study will require a clear and phased funding approach. The CEC is expected to be incorporated as a not-for-profit Community Benefit Society (CBS) or similar legal entity, ensuring transparency and reinvestment of any surplus into local priorities.

Stage 2 Community Energy Fund (CEF)

To progress the opportunities presented in this report, and to ensure future success, it is essential for TSSF to secure funding to further develop the projects. Therefore, the immediate next step is to apply for Stage 2 funding from the Midlands Net Zero Hub. This funding will enable the CEC to progress the Visitor Centre and Solar Club pilot projects to investment and installation readiness. Specifically, it will cover:

- Incorporation of the CEC as a CBS (or equivalent), with appropriate governance and legal structure.
- Detailed design, including structural assessments for rooftop PV.
- Grid applications (G99 and EV charger connections) and planning checks.
- Legal, financial, and community engagement work to support investment readiness.

Note: The total investment requirement for delivery of the capital projects will be determined as part of the Stage 2 process, alongside detailed design, grid approvals, and procurement planning.

Community Share Offer

Once investment-ready, the CEC can launch a community share offer to raise capital for delivery. This approach enables local residents to invest directly in the projects, providing them with both a financial return and a stake in the area's transition to net zero. Community investment also reinforces trust and increases engagement, which will be particularly important for the Solar Club model.

Partnership Funding

Additional funding support may be sought through collaboration with Ashfield District Council (ADC) and local businesses and other organisations, particularly for access to land, rooftops, or buildings in their ownership, and potential match-funding opportunities.

Grant and Loan Finance

Grant support for low-carbon initiatives remains a potential enabler, particularly for pilot initiatives that demonstrate innovation or social impact. Loan finance may also be considered where payback periods are clear, though this will need to be carefully balanced against the CEC's not-for-profit mandate.

Phased Approach

- **Short term:** Secure Stage 2 funding to establish the CEC as a CBS and prepare the Visitor Centre and Solar Club pilots for delivery.
- **Medium term:** Launch a community share offer and explore partnership funding to raise capital for installation.
- **Long term:** Build a financial model that allows surplus revenues from early projects to be reinvested into further community energy initiatives across Teversal, Stanton Hill and Skegby.

7.1. Profit Distribution and Reinvestment

As a not-for-profit Community Benefit Society (CBS), the CEC will operate on the principle that any financial surplus generated will be reinvested into local priorities rather than distributed to private shareholders. This ensures that the benefits of the projects extend beyond direct participants, supporting the wider Teversal, Stanton Hill and Skegby community.

Profit Distribution Principles

The CEC will adopt three guiding principles for profit use:

1. **Fair Return to Investors** – modest, capped interest in line with CBS rules, rewarding community members who provide upfront capital.
2. **Operational Resilience** – allocation of surplus for maintenance, insurance, and contingency to safeguard project longevity.
3. **Community Reinvestment** – surplus funds directed into a community benefit pot, supporting wider social, environmental, and energy priorities.

Examples of Reinvestment

- Expansion of the Solar Club to additional households.
- Energy efficiency upgrades for residents facing high bills.
- Educational and awareness campaigns on energy and climate action.
- Investment into further renewable technologies (e.g., battery storage, heat networks).

By ringfencing profits for reinvestment, the CEC will ensure that revenues generated by local renewable projects circulate within Teversal, Stanton Hill and Skegby, delivering sustained and measurable community benefit.

8. Development Roadmap and Project Delivery

The delivery of the projects identified through this feasibility study will be phased to ensure that risks are managed, community confidence is built, and the CEC has a sustainable foundation for future expansion. The roadmap provides a clear view of how the projects can move from feasibility into delivery and longer-term growth.

8.1. Delivery Phases

- **Phase 1 – Incorporation & Stage 2 Development Funding**: Secure Stage 2 funding and establish the CEC as a not-for-profit CBS (or similar). This stage will cover legal incorporation, governance structures, and the technical development needed to take projects to investment readiness.
- **Phase 2 – Anchor Project: Teversal Trails Visitor Centre**: Installation of rooftop solar PV, LED lighting upgrades, and EV chargers. This anchor project will prove the operational and financial viability of the PPA model while delivering immediate community benefit.
- **Phase 3 – Solar Club Pilot Rollout**: Initial installations for 10–20 homes to demonstrate viability and community benefit, supported by monitoring and evaluation. The Visitor Centre will act as an *anchor project*, proving that the CEC is already operating a live Power Purchase Agreement (PPA). This provides confidence to residents that the model is established and directly transferable to domestic settings. The anchor project helps build trust, awareness, and momentum for the Solar Club offer.
- **Phase 4 – Wider Solar Club Expansion & Additional Projects**: Expansion of the Solar Club to more homes, based on the success of the pilot. At this stage, the CEC may also revisit longer-term opportunities such as battery storage, larger-scale generation, or direct-wire projects with local partners such as Severn Trent Water.

8.2. Indicative Timescales

Period	Key Activities
Q1–Q2 2026	Secure Stage 2 funding; incorporate the CEC as a CBS (or similar); complete detailed design and approvals for the Visitor Centre project
Q3–Q4 2026	Deliver Visitor Centre solar PV, LED lighting, and EV charging installation; launch PPA with the Centre
Q1 2027	Launch Solar Club pilot with 10–20 homes; monitoring and evaluation of household savings and system performance
Late 2027+	Expand Solar Club to additional homes; explore further strategic projects (e.g., Severn Trent Water resilience project, larger community generation sites)

Table 24: Indicative Timescales

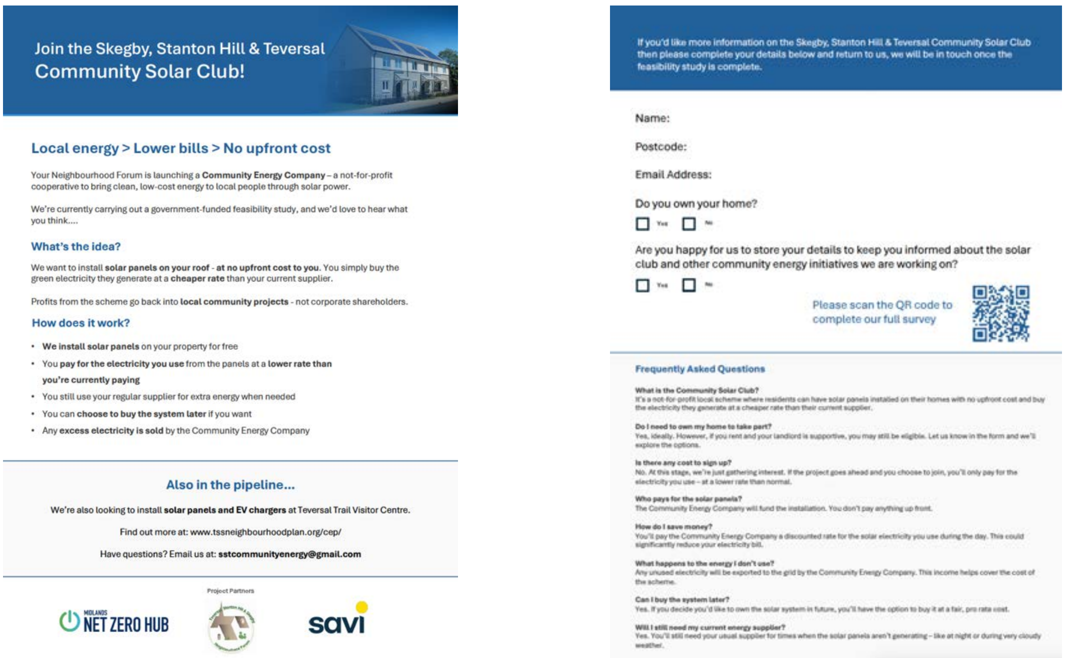
9. Community Engagement & Promotion

Community engagement sits at the heart of this project. The creation of a Community Energy Company (CEC) will only succeed if it is rooted in the support, trust, and involvement of local people. For this reason, TSSF and its partners have placed a strong emphasis on transparent communication, inclusive engagement, and ongoing promotion of the initiative.

9.1. Community Engagement Activities

TSSF has significant experience in engaging with the local community and has already begun applying this to the energy project. To date, a series of initial activities have taken place to introduce the concept of community energy and to test local appetite.

These activities have included early discussions within the Forum, targeted engagement with local stakeholders, and informal conversations at community events. In addition, early promotion of the **Solar Club** has already taken place. TSSF and Savi representatives attended a summer fair in Stanton Hill to begin conversations with residents, supported by printed flyers and an online survey to gather feedback. While promotion has not yet been extensive, materials are prepared and ready for wider use, with a planned mail campaign to reach all households across Teversal, Stanton Hill and Skegby.



Join the Skegby, Stanton Hill & Teversal
Community Solar Club!

Local energy > Lower bills > No upfront cost

Your Neighbourhood Forum is launching a **Community Energy Company** – a not-for-profit cooperative to bring clean, low-cost energy to local people through solar power.

We're currently carrying out a government-funded feasibility study, and we'd love to hear what you think....

What's the idea?

We want to install **solar panels on your roof - at no upfront cost to you**. You simply buy the green electricity they generate at a **cheaper rate** than your current supplier.

Profits from the scheme go back into **local community projects** - not corporate shareholders.

How does it work?

- **We install solar panels** on your property for free
- You **pay for the electricity you use** from the panels at a **lower rate than you're currently paying**
- You still use your regular supplier for extra energy when needed
- You can **choose to buy the system later** if you want
- Any **excess electricity is sold** by the Community Energy Company

Also in the pipeline...

We're also looking to install **solar panels and EV chargers** at Teversal Trail Visitor Centre.

Find out more at: www.tssneighbourhoodplan.org/cep/

Have questions? Email us at: **sstcommunityenergy@gmail.com**

Project Partners

MIDLANDS NET ZERO HUB savi

If you'd like more information on the Skegby, Stanton Hill & Teversal Community Solar Club then please complete your details below and return to us, we will be in touch once the feasibility study is complete.

Name:

Postcode:

Email Address:

Do you own your home?

☐ Yes ☐ No

Are you happy for us to store your details to keep you informed about the solar club and other community energy initiatives we are working on?

☐ Yes ☐ No

Please scan the QR code to complete our full survey

Frequently Asked Questions

What is the Community Solar Club?
It's a not-for-profit local scheme where residents can have solar panels installed on their homes with no upfront cost and buy the electricity they generate at a cheaper rate than their current supplier.

Do I need to own my home to take part?
Yes, ideally. However, if you rent and your landlord is supportive, you may still be eligible. Let us know in the form and we'll explore the options.

Is there any cost to sign up?
No. At this stage, we're just gathering interest. If the project goes ahead and you choose to join, you'll only pay for the electricity you use – at a lower rate than normal.

Who pays for the solar panels?
The Community Energy Company will fund the installation. You don't pay anything up front.

How do I save money?
You'll pay the Community Energy Company a discounted rate for the solar electricity you use during the day. This could significantly reduce your electricity bill.

What happens to the energy I don't use?
Any unused electricity will be exported to the grid by the Community Energy Company. This income helps cover the cost of the scheme.

Can I buy the system later?
Yes. If you decide you'd like to own the solar system in future, you'll have the option to buy it at a fair, pro rata cost.

Will I still need my current energy supplier?
Yes. You'll still need your usual supplier for times when the solar panels aren't generating – like at night or during very cloudy weather.

Figure 10: Community Solar Club Flyer

TSSF has also kept residents updated through its [dedicated project page on the Forum's website] and through [news updates on the Solar Club]. This ensures information is accessible to all and provides a reference point for residents wanting to learn more or follow progress.

9.2. Community Engagement Approach

TSSF is an active forum with extensive experience in engaging the communities of Teversal, Stanton Hill, and Skegby. Having successfully delivered the Neighbourhood Plan and multiple community initiatives, Forum members bring proven expertise in mobilising local participation. As the Forum members are likely to form the founding team of the CEC, this experience provides a strong foundation for community engagement and will ensure a smooth transition from feasibility to delivery.

The engagement strategy has been designed to ensure that residents, businesses, and stakeholders are fully informed about the aims of the CEC and given clear opportunities to participate. Engagement is not a one-off exercise but will run in parallel with delivery phases. It is intended to build confidence, gather feedback, and create a sense of ownership among local people.

9.3. Tools & Methods

The following tools will be used to raise awareness and involve the community:

- **Online surveys** to gather resident views on renewable energy and willingness to participate in the Solar Club.
- **Printed materials** delivered to households across Teversal, Stanton Hill, and Skegby to ensure inclusivity beyond digital channels.
- **Community open days and workshops**, providing a forum for questions, feedback, and direct engagement with project leaders.
- **Presence at local events and forums**, ensuring that community energy becomes a visible and familiar theme in the area.

9.4. Building Confidence

The Teversal Trails Visitor Centre will act as a *visible demonstration* of how the CEC model works in practice. By installing solar PV, LED lighting, and EV charging, the Centre provides a practical example of a Power Purchase Agreement (PPA) delivering cost savings and community benefit. This anchor project gives residents confidence that the model is already established and operating successfully before they are asked to commit to the Solar Club.

9.5. CEC Promotion & Awareness

Alongside engagement, a clear promotion strategy will be developed to establish the CEC as a trusted and recognisable organisation. This will include:

- Creation of a **CEC brand identity**, designed to be friendly, professional, and community-focused.
- Development of a **website and social media presence**, supported by local press coverage.
- **On-site marketing linked to physical assets**, for example signage at the Visitor Centre EV chargers reading: *"Powered by your Community Energy Company"*, with a link to the CEC's website for more information.

9.6. Ongoing Engagement & Feedback Loops

Community engagement will continue after the initial projects are delivered. The CEC will:

- Maintain **mechanisms for feedback**, including surveys, forums, and direct communication channels.
- Provide **regular updates on performance**, including community benefit reporting and annual impact statements.
- Commit to **transparency**, ensuring that the community sees how revenues are reinvested, and benefits are shared.

9.7. Future Community Engagement

Beyond the initial projects, the CEC aims to become more than just an energy provider by creating new ways for residents to get involved. This could include Community Energy Champions to act as local advocates, work experience opportunities for young people to gain hands-on experience, and impartial community energy advice to help households cut bills and make informed decisions about renewables.

The CEC will also look to engage with local schools and youth groups, raising awareness of sustainability and inspiring the next generation. To maintain trust, it will publish annual community reports in clear, accessible language, showing how revenues are reinvested and what environmental benefits have been achieved.

By embedding these initiatives, the CEC will position itself as a valued community resource, not only delivering energy projects but also providing wider social, economic, and environmental benefit.

10. Conclusion and Recommendation

This feasibility study has demonstrated that a Community Energy Company (CEC) for Teversal, Stanton Hill, and Skegby is both viable and strongly aligned with the community's long-term goals of reducing carbon emissions, lowering energy costs, and reinvesting benefits locally.

Two priority initiatives have been identified:

- **Teversal Trails Visitor Centre** – a technically and financially viable anchor project combining rooftop solar PV, LED lighting upgrades, and EV charging infrastructure. This project provides immediate community benefit while proving the PPA model in practice.
- **Solar Club** – a pilot scheme offering residents access to solar PV and battery installations through a simple, transparent PPA. Though more dependent on community uptake, the Solar Club has the potential to deliver long-term savings for households and meaningful reductions in carbon emissions if scaled.

Together, these projects establish a strong platform for the creation of a not-for-profit CBS (or similar structure) that operates transparently for the benefit of local people.

Recommendations

1. **Proceed to Stage 2 Development Funding**: to secure resources for incorporation of the CEC, detailed design, and approvals for the Visitor Centre project.
2. **Deliver the Anchor Project**: implement the Visitor Centre installation as a visible, low-risk first step that will prove the model and build trust.
3. **Launch a Solar Club Pilot**: engage 10–20 households in a trial to demonstrate viability, refine processes, and build confidence for wider rollout.
4. **Develop the CEC Brand & Engagement Plan**: establish a clear identity, communication strategy, and promotional campaign to raise awareness and encourage participation.
5. **Plan for Long-Term Growth**: use the Visitor Centre and Solar Club as a foundation for expansion into larger-scale projects (e.g., Severn Trent Water resilience schemes, battery storage) once the CEC is established and trusted.

Closing Statement

By starting small and building steadily, TSSF can deliver immediate, visible benefit while laying the foundations for an ambitious long-term vision. The recommended next step is to secure Stage 2 funding, incorporate the CEC, and deliver the Visitor Centre anchor project as a catalyst for wider community-led energy initiatives.

11. Risk Analysis

Risk	Description	Mitigation Strategy
Grid Connection Refusal or Delay	The DNO may restrict or delay connection approval under G99 regulations.	Early engagement has been undertaken with the DNO. Full G99 application to be submitted at Stage 2. System design has considered likely grid constraints.
Planning Permission Requirement	Although rooftop solar generally falls under permitted development, there remains uncertainty.	The CEC will engage with the local planning authority for formal confirmation. Any planning requirements will be addressed during Stage 2.
Capex Inflation or Cost Overruns	Equipment or installation costs may increase between feasibility and delivery.	A 15% contingency has been applied in the modelling. Fixed-price procurement will be sought during tender.
Revenue Risk (PPA or SEG)	PPA uptake or SEG rates may not meet projections.	Interest to enter into a formal PPA has been confirmed. SEG rates have been conservatively modelled and will be confirmed with the chosen supplier.
Underperformance of Solar PV Systems	Systems may generate less than modelled due to weather or technical issues.	Conservative generation assumptions were used. Ongoing monitoring and regular maintenance are budgeted for.
EV Charger Degradation	Pole-mounted EV chargers may wear faster than expected due to frequent use and outdoor conditions.	Maintenance is included in the OPEX. Units will be covered by warranty, monitored remotely, and replacement costs are factored into lifecycle planning.
Operational Failures or Insurance Claims	Theft, damage, or system failure could impact operation.	Comprehensive insurance will be maintained. All equipment will be installed to MCS standards by qualified contractors.
Community or Stakeholder Disengagement	Loss of interest or support from key partners may impact future growth.	Strong relationships have been built during feasibility. Community benefit and transparency will remain central to the CEC's approach.

12. Appendix A – Glossary

ASC	Assured Supply Capacity
ASHP	Air Source Heat Pump

BEIS	Department for Business, Energy & Industrial Strategy
BeSS	Battery Energy Storage System
BRE	Building Research Establishment
BSRIA	Building Services Research and Information Association
CEC	Community Energy Company
CoP	Coefficient of Performance
CT	Current Transformer
DB	Distribution Board
DNO	Distribution Network Operator
DSR	Demand Side Response
EDP	Estate Decarbonisation Plan
EMS	Energy Management System
EV	Electric Vehicle
EVCP	Electric Vehicle Charging Point
FIT	Feed In Tariff
GHG	Greenhouse Gas
GSHP	Ground Source Heat Pump
HV	High Voltage
IPG	Independent Power Generation
kVA	Kilo Volt-Amperes
kW	Kilowatt
kWh	Kilowatt-hour kWh is the amount of energy required to run a 1,000-watt appliance for one hour
kWp	Kilowatt peak kWp is the most or 'peak' power which would be created by solar panels under ideal conditions
LED	Light Emitting Diode
LV	Low Voltage
MPAN	Meter Point Administration Number used by utility companies and DNO's as a reference to identify a meter for billing and data collection purposes
PPA	Power Purchase Agreement
PQQ	Pre-Qualification Questionnaire
SEG	Smart Export Guarantee
Sleeving	Sleeving is the process by which an organisation with an independent power generation on site supplies load to another site across the public network or grid via a utility company.
Solar PV	Solar Photovoltaic
tCO_2e:	Tonnes of carbon dioxide equivalent this is used to measure all GHG's with a single unit

13. Appendix B – Terminology

Carbon audit: A term open to interpretation but usually means that the Organisation's carbon footprint is measured, and the energy efficiency of the Organisation's estate is also assessed, by inspection.

Carbon emissions: All CO_2 emitted into the atmosphere from any given activity.

Carbon footprint: The CO_2e generated by the Organisation. Measuring Scopes 1 and 2 is relatively easy; measuring Scope 3 is much more difficult.

Carbon offset: An activity that compensates for the release of GHGs i.e., a reduction in GHG emissions or an increase in carbon storage (e.g., through land restoration or the planting of trees) that is used to compensate for emissions that occur elsewhere.

Decarbonisation: The reduction of overall carbon and in particular a sustainable reduction in GHG emissions e.g., methane (CH_4) and carbon dioxide (CO_2) across all sectors thus reducing the impact on climate.

Energy Efficiency: The measures that can be implemented in a building to reduce the amount of energy that is consumed and therefore lower energy costs.

G99/G98: The process to apply for grid connectivity permission through the local electricity distribution network operator. G99 requires the generator to apply for permission to connect if a system is over 3.68 kW. If a generating asset is below 3.68 kW, no permission is required, but the generator must inform the DNO once the system is connected.

Greenhouse gas (GHG) emissions: All gases (notably carbon dioxide (CO_2); methane (CH_4); nitrous oxide (N_2O) but also includes hydrofluorocarbons (HFCs); perfluorocarbons (PFCs); and sulphur hexafluoride (SF_6)) emitted into the atmosphere from any given activity. These are defined by the Kyoto Protocol.

GHG Unit of Measure: Carbon dioxide equivalent (CO_2e).

Greenhouse Gas Emissions (GHG) Categories: These are categories derived from The Greenhouse Gas Protocol (2001).

Scope 1: Direct emissions from resources owned & controlled by the organisation (e.g., Buildings, minibus fuel; heating fuel).

Scope 2: Indirect emissions from the generation of energy used by the organisation but by resources not owned by it (e.g., purchased grid power).

Scope 3: Any emissions arising from the operation of the organisation not included in scopes 1 and 2 (e.g., emissions from the organisation's catering supply chain or derived from activities associated with power as generated and supplied by third parties).

Net-zero carbon/Carbon neutral: Any CO_2 that is emitted into the atmosphere from a company's activities is balanced by an equivalent amount being removed (e.g., offsetting carbon emissions by planting trees).

Net-zero Buildings: Total CO_2e across Scopes 1, 2 and 3 equates to zero. This is achieved by reducing emissions as far as possible and then using carbon offsetting to compensate for the balance.

Sustainability: As defined in 1987 by the United Nations Brundtland Commission "meeting the needs of the present without compromising the ability of future generations to meet their own needs."

Zero-carbon: No CO_2 is emitted into the atmosphere from a company's/organisation's activities.