Community Energy *Made Simple*

STAFFORDSHIRE COMMUNITY ENERGY

delivered in partnership with

SUPPORT STAFFORDSHIRE

Welcome to Community Energy - Made Simple

Community energy is about local people coming together to take control of how energy is used, generated, and shared.

This guide has been created by Staffordshire Community Energy and Support Staffordshire to make community energy easy to understand, no technical background needed.

Inside, you'll find simple explanations of the most common ideas, projects, and terms you might come across, including things like solar panels, energy-saving home improvements, community schemes, and how these projects are funded.

Whether you're:

- Curious about lowering your energy bills
- Interested in making your home more energy efficient
- Wanting to get involved in local projects
- Or just trying to understand the language around energy

...this guide is here to help.

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Retrofit & Installations

Community Solar (PV + PPA)

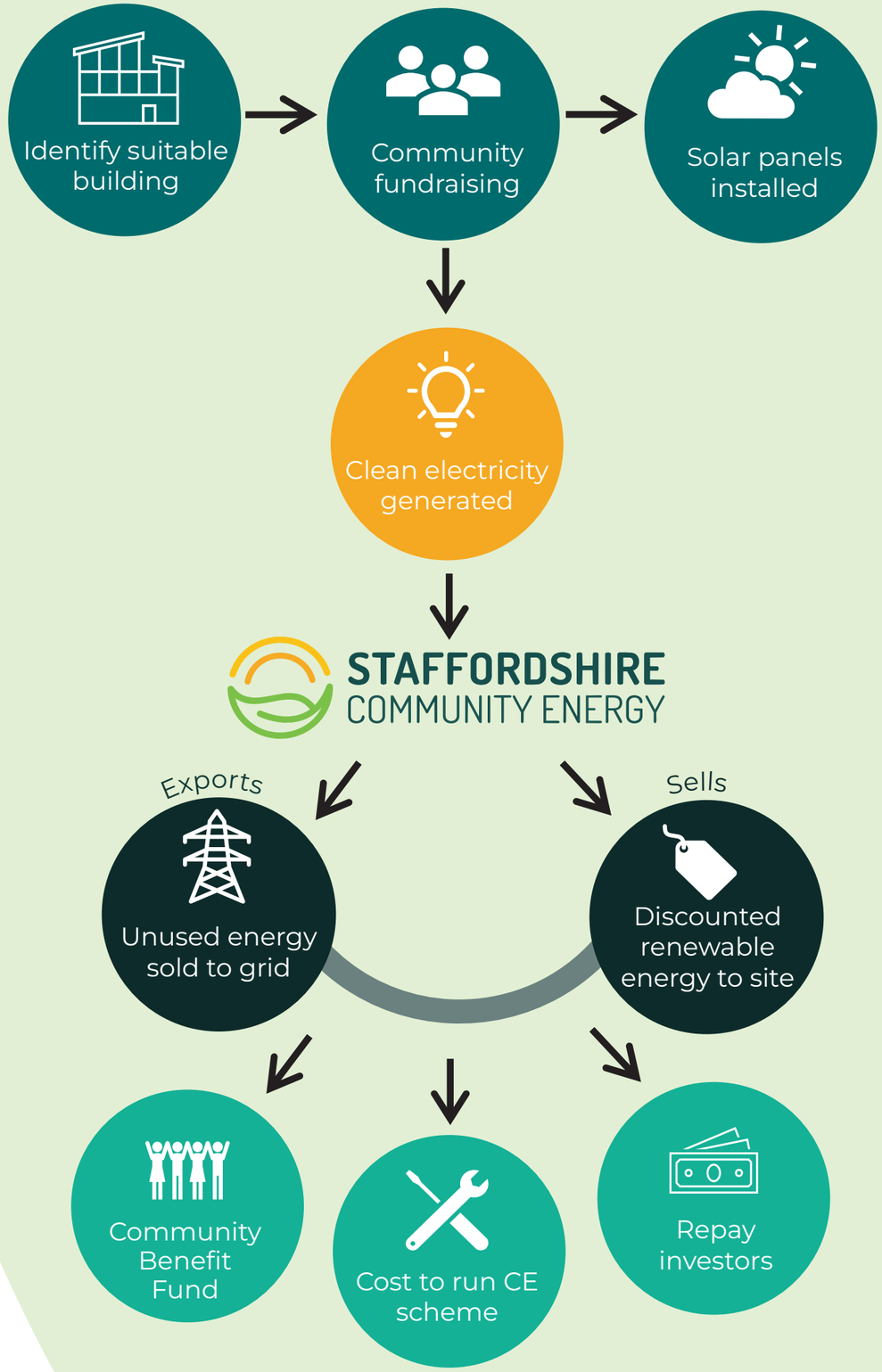
How it works: The community funds a solar installation on a large building. Electricity is sold to the site via a long-term agreement (Power Purchase Agreement).

Who funds it: Local people (shares/community investment), sometimes with grants/loans.

How money is made: Building pays for cheaper solar power → income repays investors + interest → surplus funds community projects.

Who benefits:

- Community investors: steady returns
- Building: lower bills, no upfront cost
- Wider community: reinvested profits + future security of community asset due to lower operating costs e.g. leisure centre or theatre



Community Retrofit Scheme

How it works: Group scheme installs insulation, heat pumps etc., using trusted suppliers. Bulk discounts easier to negotiate & residents guided through process.

Who funds it: Household contributions + grants/subsidies.

How money is made: Not profit-led; savings come from reduced energy bills (some schemes may include service fees).

Who benefits:

- Households: lower bills, warmer homes
- Local economy: jobs and skills
- Community: better health + lower carbon

Community Heat Pump Scheme

How it works: Group scheme installs heat pumps in homes (or shared systems for multiple buildings), often alongside insulation upgrades. Trusted installers are used and households are supported through the process. Bulk buying helps reduce costs.

Who funds it: Household contributions + grants/subsidies + sometimes community loan finance.

Who benefits:

- Households: lower bills, low-carbon heating, more comfortable homes
- Local economy: jobs for installers + supply chain
- Community: reduced emissions + improved air quality

Community Battery (Grid-Connected / Virtual)

How it works: Battery stores cheap/renewable electricity and releases it when prices are higher.

Who funds it: Investors, grants, energy companies, community shares.

How money is made: Buy low / sell high in energy markets → value shared via tariffs or bill credits.

Who benefits:

- Residents: lower bills without changing infrastructure
- Grid: improved stability
- Community: shared financial returns

Communal Battery (Private Wire / Direct)

How it works: Battery + local renewables directly supply a shared building or group of buildings via a private network.

Who funds it: Developers, community investment, grants.

How money is made: Lower energy costs + potential internal energy pricing → savings/shared revenue.

Who benefits:

- Connected users: cheaper, local energy
- Best for: flats, campuses, new developments

Community Wind Turbines

How it works: Community owns a small wind turbine; electricity is sold to the grid or local sites.

Who funds it: Community investment, grants, loans.

How money is made: Sale of electricity → repays investors + surplus reinvested locally.

Who benefits:

- Community investors: steady returns
- Local users: lower bills, no upfront cost
- Wider community: reinvested profits & reduced emissions

Community Building Retrofit

How it works: Energy efficiency upgrades (e.g. insulation, lighting, heating) are installed in a shared community building.

Who funds it: Grants, fundraising, community investment, sometimes loans.

How money is made: Not typically profit-led; savings from lower energy bills reduce running costs.

Who benefits:

- Building operators: lower energy costs
- Users: warmer, more comfortable space
- Community: keeps facilities viable + reduces emissions

Community Solar Car Park

How it works: Solar panels installed as canopies over car parks generate electricity for on-site use, storage, or export. Can include EV charging.

Who funds it: Site owners, community investors, or energy partners, often with grants or green finance.

How money is made: Energy bill savings, selling excess power, and EV charging fees.

Who benefits:

- Site owners: lower costs + new income
- Drivers: shaded parking + EV charging
- Community: income from investment + lower carbon emissions

Community Heat Network

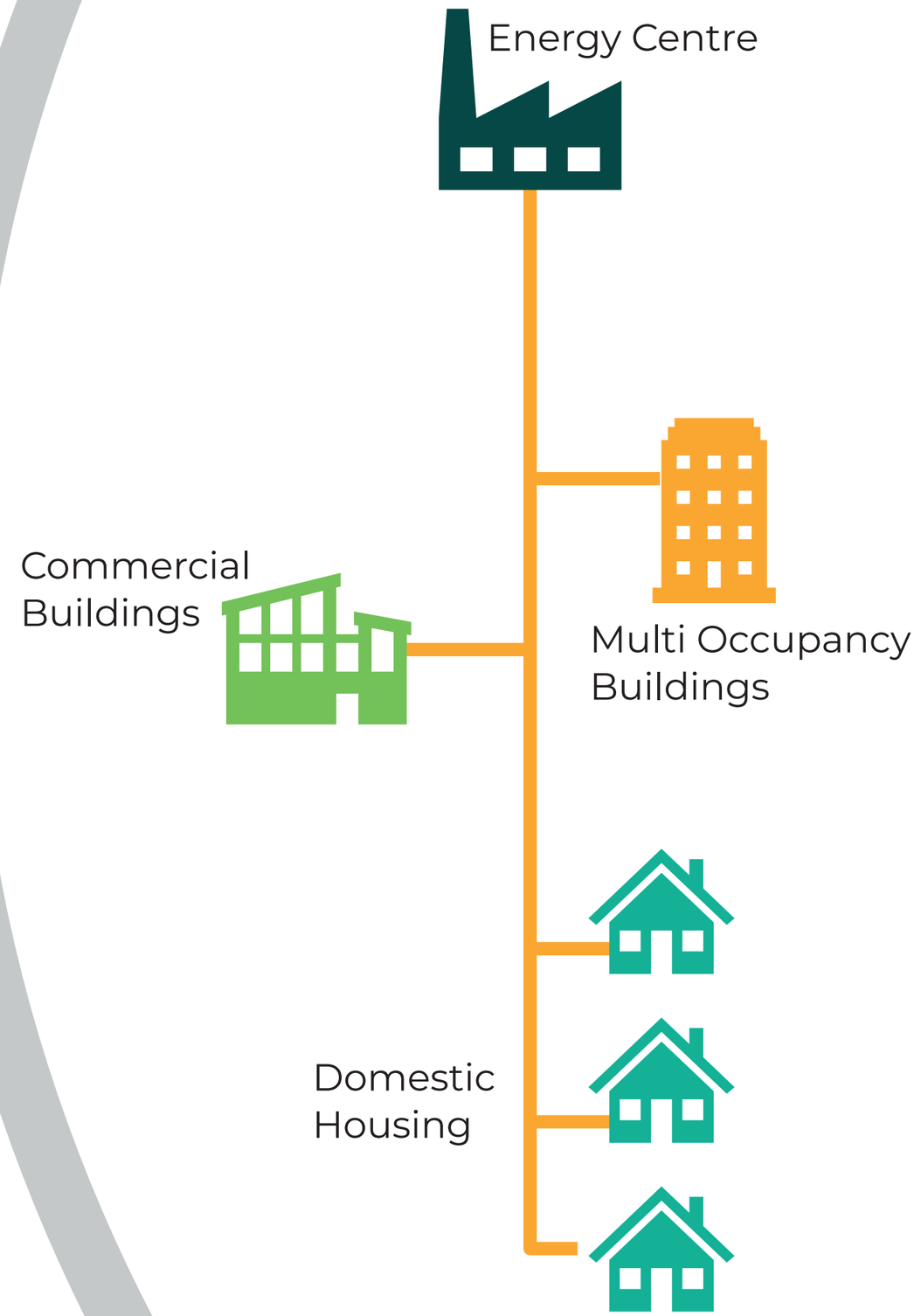
How it works: One low-carbon heat source supplies multiple buildings via insulated pipes.

Who funds it: Grants, public funding, loans, sometimes community investment.

How money is made: Users pay for heat → covers running costs and repays finance → surplus stays local.

Who benefits:

- Residents/businesses: reliable, lower-carbon heat, stable prices
- Community: local income + reduced emissions



Community Hydro Projects

How it works: Small-scale river or stream hydro system generates renewable electricity.

Who funds it: Grants, community investment, and sometimes partnerships with local councils.

How money is made: Sale of electricity → covers costs + funds community projects.

Who benefits:

- Community investors: steady returns
- Local users: lower bills, no upfront cost
- Wider community: reinvested profits & reduced emissions

EV Charge Point Installations

How it works: Charging points are installed at community sites, workplaces, or public locations for shared use.

Who funds it: Grants, private investment, local authority, site owners, or community funding.

How money is made: Users pay per charge → covers electricity, maintenance, and repays investment → surplus may be reinvested.

Who benefits:

- EV drivers: convenient local charging
- Site hosts: potential income + increased footfall
- Community: supports shift to low-carbon transport

Community Projects & Schemes

Community Energy Advice Schemes

How it works: A local or regional hub offers free or low-cost advice on energy bills, switching tariffs, and home efficiency/retrofit improvements. Basic schemes may be volunteer-led using a thermal imaging camera - or more professional schemes providing detailed home energy audits, expert advice and support.

Who funds it: Grants, local authorities, charities, community energy projects, potential income from commission, ‘able to pay’ householders.

Who benefits:

- Residents: lower bills, better energy knowledge, access to support, dependable suppliers
- Community: reduced fuel poverty, lower energy costs, improved wellbeing and health

Flexible Demand / Smart Energy

How it works: Smart tech shifts energy use to cheaper, greener times automatically. Community scheme promotes uptake.

Who funds it: Households, incentives, sometimes grants or supplier offers.

How money is made: Lower bills + payments from flexibility markets (for reducing peak demand).

Who benefits:

- Users: reduced costs with minimal effort
- Grid: better balance
- Community: supports renewable energy use

Warm Homes / Fuel Poverty Fund

How it works: A dedicated fund provides financial support to households struggling with energy costs (e.g. bill support, emergency payments, or small efficiency upgrades).

Who funds it: Great British Energy (potentially), surplus income from other community energy projects, plus grants or donations.

Who benefits:

- Vulnerable households: immediate bill relief and warmer homes
- Community: reduced fuel poverty + improved health and wellbeing
- Wider system: ensures benefits of local energy projects are shared fairly

Local Energy Club

How it works: Members buy electricity directly from a local generator eg solar or wind farm, using a smart tariff.

Who funds it: Setup via community organisation + partnership with supplier; minimal upfront cost.

How money is made:

- Generator earns more than selling to the grid
- Members pay less than standard tariffs

Who benefits:

- Generator: higher income
- Members: cheaper, local renewable power
- Community: supports local energy projects

Community Transport

How it works: Shared EVs, bikes, or buses available to members.

Who funds it: Grants, community funds, leases, membership fees.

How money is made: Usage fees cover costs; sometimes small surplus reinvested.

Who benefits:

- Residents: affordable transport & no private driveway required
- Community: less car ownership, better access
- Environment: lower emissions

Funding & Legal Terms

Power Purchase Agreement (PPA)

“Who buys the electricity, and at what price?”
A PPA is a contract where someone agrees to buy the electricity your project generates.

- Example: A school agrees to buy solar power from panels on its roof.
- Locks in a price (often cheaper than market rates)
- Usually long-term (10–25 years)

Think: *“We’ll generate the power, and you promise to buy it.”.*

Feed in Tariff (Legacy Scheme)

“Getting paid to generate electricity (even if you use it yourself)”

- The Feed-in Tariff (FiT) was a UK government scheme (now closed to new projects) that paid you for generating renewable electricity.
- You were paid for every unit you generated
- Plus a smaller payment for exporting unused electricity
- Payments were guaranteed long-term (often 20 years)
- Available for solar, wind, hydro, etc.

Key point:

- Closed to new applicants since 2019
- Many existing community projects still rely on it for stable income

Export Payments

“Getting paid for what you send to the grid”

- Modern **export tariffs** (like the Smart Export Guarantee) pay you **for electricity you don’t use and export to the grid.**
- You must have a **smart meter**
- Rates are set by energy suppliers (not fixed by government)
- Prices can vary and change over time
- No payment for electricity you use on-site

Think: *“We get paid for the spare electricity we sell.”*

Roof Lease

“You rent the roof like a tenant”

- You lease the roof space for a long period (often 20–25 years)
- Gives strong legal rights and control

Think: *“The roof is yours (legally) for the project lifetime.”*

Roof License

“Permission to use the roof”

- Less formal than a lease
- Easier to set up, but weaker legal protection

Think: *“You’re allowed to use the roof, but don’t fully control it.”*

Land Lease

“Same as roof lease, but for land”

- Used for ground-mounted solar, wind or large battery installations
- Long-term agreement with landowner

Think: “We rent the field for our project.”

Agreement in Principle

“We agree in theory, not yet legally binding”

- Shows intent to work together
- Not a final contract
- Unlocks next steps → helps secure funding, permissions, or further partners
- Avoids wasted time → key terms are discussed before legal costs rack up

Think: *“We’re agreed on the idea, so we can move forward, but we’re not fully tied in yet.”*

Heads of Terms

“The draft deal before the real deal”

- Key terms agreed before full legal contract
- Helps avoid surprises later

Think: *“We’ve agreed the big stuff - lawyers will fill in the detail.”*

Community Shares

“Local people invest in the project”

- Residents buy shares in the project
- They may receive modest returns

Think: *“The community owns a piece of the project.”*

Grant Funding

“Free money (with conditions)”

- From government or charities
- Usually for feasibility or early stages

Think: *“Money you don’t pay back, but must use properly.”*

Blended Finance

“Mix of funding types”

- Combines grants, loans, and community shares

Think: *“Don’t rely on one pot, mix and match.”*

Bridging Loan

“Short-term funding to get your project moving”

- A bridging loan is temporary finance used to cover costs until longer-term funding (like grants, community shares, or a full loan) is in place.
- Used in early or transition stages of a project
- Helps pay for things like development, installation, or deposits
- Usually short-term and higher interest than standard loans
- Repaid once permanent funding arrives

__Think:__ “We need money now to get started and we’ll pay it back once the main funding comes in.”

DNO Connection Agreement

“Permission to plug your project into the electricity grid”

- A DNO (Distribution Network Operator) Connection Agreement allows your energy project (like solar or wind) to connect to the local electricity network.
- The DNO is the company that runs the local grid (e.g. cables, substations)
- You must have this agreement before proceeding with the project (unless <3.68kW per site)
- It sets rules about how much power you can export
- It may include costs to upgrade the network

Think: *“We want to plug into the grid - this agreement says if we can, how much, and how.”*

Community Energy Glossary

A

Aggregation
The process of combining multiple smaller energy assets, such as batteries, solar systems or flexible electricity demand, so they can act together as one larger resource.

B

Baseline Energy Use
The amount of energy a building, site or organisation would normally use before any energy-saving measures or renewable energy systems are introduced.

Battery Storage
Technology used to store electricity for use at a later time. In community energy projects, batteries can help store excess solar generation during the day for use in the evening or at peak times.

Biodiversity Net Gain (BNG)
A planning requirement in England that seeks to ensure developments leave biodiversity in a better state than before.

Bridging Loan
Short-term finance used to fund a project before longer-term funding, such as a community share offer or grant, is secured.

C

Capital Expenditure (CapEx)
Money spent on buying, installing or upgrading physical assets such as solar panels, batteries or heat pumps.

Carbon Emissions
Greenhouse gases released into the atmosphere, often measured in tonnes of carbon dioxide equivalent (CO2e).

Carbon Footprint
The total greenhouse gas emissions associated with a person, organisation, building, product or activity.

Carbon Literacy
An understanding of climate change, carbon emissions and the actions needed to reduce environmental impact.

Climate Resilience
The ability of a place, organisation or community to adapt to the impacts of climate change, such as flooding, heatwaves or energy price shocks.

Community Benefit Fund
A pot of money generated by a community energy project and reinvested into local initiatives, often focused on fuel poverty, environmental improvements or community development.

Community Benefit Society (CBS)
A legal structure often used by community energy organisations. A CBS is run for the benefit of the wider community rather than private shareholders.

Community Bond Offer
A way for people or organisations to lend money to a community energy project, usually in return for a fixed rate of interest over an agreed period.

Community Energy
Energy projects that are owned, controlled or influenced by local communities and designed to deliver local environmental, social and financial benefits.

Community Share Offer
A way for local people and organisations to invest money into a community-owned project, usually in return for modest interest and community benefits.

Connection Offer
An agreement from the Distribution Network Operator (DNO) setting out the terms and costs of connecting a renewable energy project to the electricity network.

Curtailment
When a renewable energy system has to reduce or stop generation because the electricity network cannot accept any more power.

D

Decarbonisation
The process of reducing carbon emissions, often by switching from fossil fuels to cleaner technologies and energy sources.

Demand Management
Actions taken to reduce, shift or better manage when energy is used.

District Heating
A system that supplies heat from a central source to multiple buildings through underground pipes.

Distribution Network Operator (DNO)
The company responsible for maintaining the local electricity network in a particular region.

E

Energy Audit
A review of how much energy a building or organisation uses and where savings could be made.

Energy Efficiency
Using less energy to achieve the same result, for example through better insulation, LED lighting or more efficient heating systems.

Energy Performance Certificate (EPC)
A certificate showing the energy efficiency rating of a building, from A to G.

Energy System Operator (ESO)
The organisation responsible for balancing electricity supply and demand across the national grid.

Export Tariff
The rate paid for electricity exported from a renewable energy system back to the grid.

F

Feed-in Tariff (FiT)
A government scheme, now closed to new applicants, which paid renewable energy generators for the electricity they generated and exported.

Flexibility Services
Arrangements where homes, businesses or energy assets are paid to reduce or shift electricity use at certain times to help balance the grid.

Fuel Poverty
When a household struggles to afford the energy needed to heat and power their home adequately.

G

Generation Capacity
The maximum amount of electricity a renewable energy system can produce, usually measured in kilowatts (kW) or megawatts (MW).

Gigawatt (GW)
A unit of power equal to one billion watts.

Grant Funding
Money provided for a project that does not need to be repaid.

Green Tariff
An electricity supply contract where some or all of the electricity is sourced from renewable energy.

Grid System Services
Services provided to support the stability and operation of the electricity network, such as balancing supply and demand, frequency response or voltage control.

H

Half-Hourly Data
Electricity consumption data recorded every 30 minutes, often used to understand usage patterns.

Heat Pump
A low-carbon heating system that transfers heat from the air, ground or water into a building.

I

Import Tariff
The price paid for electricity imported from the grid.

Installed Capacity
The total size of an energy system, usually measured in kilowatts peak (kWp) for solar.

K

Kilowatt (kW)
A unit of power equal to 1,000 watts.

Kilowatt Hour (kWh)
A unit of energy showing how much electricity is used over time. For example, using a 1kW appliance for one hour uses 1kWh.

Kilowatt Peak (kWp)
The maximum output of a solar photovoltaic system under ideal conditions.

L

Lease Agreement
A contract allowing a community energy organisation to use a roof, land or building for a renewable energy project.

Load Profile
A pattern showing how electricity is used across a day, week or year.

M

Megawatt (MW)
A unit of power equal to one million watts.

Megawatt Hour (MWh)
A unit of energy equal to 1,000 kilowatt hours.

Microgrid
A local energy network that can operate independently or alongside the main grid.

N

National Grid
The high-voltage electricity transmission network across the UK.

Net Zero
Achieving a balance between the greenhouse gases emitted and those removed from the atmosphere.

O

Offtake Agreement
A contract setting out who will buy the electricity generated by a project and at what price.

Operational Expenditure (OpEx)
The ongoing costs of running a project, such as maintenance, insurance and administration.

P

Payback Period
The amount of time it takes for a project to recover its initial costs through savings or income.

Photovoltaic (PV)
Technology that converts sunlight directly into electricity, commonly used in solar panels.

Power Purchase Agreement (PPA)
A contract where electricity generated by a renewable energy project is sold directly to a building or organisation at an agreed rate.

Private Wire
A direct electricity connection between a renewable energy generator and a nearby building or site, allowing electricity to be used without travelling through the public grid.

Private Wire PPA
A Power Purchase Agreement where electricity is supplied directly via a private wire connection rather than through the public grid.

Public Works Loan Board (PWLB)
A government body that lends money to local authorities, sometimes used to finance energy or infrastructure projects.

R

Renewable Energy
Energy generated from natural sources that are continually replenished, such as sunlight, wind or water.

Retrofit
The process of improving an existing building by adding measures such as insulation, heat pumps, solar panels or more efficient lighting to reduce energy use and carbon emissions.

Retrofit Assessment
A survey and evaluation process used to identify the most suitable energy efficiency and low-carbon improvements for a building.

Return on Investment (ROI)
A measure of how much financial return a project generates compared to the amount invested.

S

Scope 1, 2 and 3 Emissions
Categories used to measure emissions. Scope 1 covers direct emissions, Scope 2 covers purchased electricity and Scope 3 covers wider supply chain and indirect emissions.

Site Survey
An assessment of a building or location to determine whether it is suitable for an energy project.

Sleeved PPA
A Power Purchase Agreement where electricity generated at one site is sold to an organisation at another site using a licensed electricity supplier as an intermediary.

Smart Export Guarantee (SEG)
A government-backed scheme requiring electricity suppliers to pay small renewable generators for exported electricity.

Solar PV
Solar photovoltaic technology that generates electricity from sunlight.

Stakeholder Engagement
The process of involving people and organisations affected by or interested in a project.

Substation
A facility that helps transfer electricity between different parts of the grid.

T

Tonnes of CO2e
A measurement used to compare the impact of different greenhouse gases in terms of their carbon dioxide equivalent.

Transmission Network
The high-voltage network used to transport electricity across long distances.

U

Use of System Charges
Charges applied for using the electricity network infrastructure.

V

Virtual Power Plant (VPP)
A network of smaller energy assets, such as solar panels, batteries and flexible demand, that are coordinated digitally to operate like a single power station.

Voltage Optimisation
Technology that reduces the voltage supplied to a building to improve efficiency and reduce electricity use.

W

Watt (W)
The basic unit of power.

Wind Turbine
A device that converts wind energy into electricity.

Z

Zero Carbon Building
A building designed to produce no net carbon emissions from its operation.

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