

South Hill Association for Renewable Energy Ltd (SHARE)

Business Plan

V1 January 2017



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1. Executive Summary

South Hill Association for Renewable Energy (**SHARE**) started in 2014, when a consultation group of about 25 members of the parish emerged with an interest in forming a formal association to develop and install renewable energy sources within our Parish. Cornwall is ideally situated for renewable energy sources, as it has the highest solar irradiation levels in the UK.

SHARE's vision is "A secure and sustainable future for all in South Hill Parish, using community owned renewable energy to provide economic, social and environmental benefits."

The benefits of renewable energy are threefold:

- environmental (a reduction in CO₂ levels)
- economic (free resources, and financial benefits from the Feed in Tariff (FIT))
- social (lower fuel bills, and reducing fuel poverty)

There continues to be potential for significant growth in the renewable energy market in the UK. Although changes continue to be made to the FIT, **SHARE** was able to secure a viable FIT tariff for its first large-scale solar project, to the benefit of its Members. Critical financial analysis is undertaken to ensure that proposed projects can generate the income to sustain future community projects.

SHARE was incorporated as a Community Benefit Society in June 2015 and has formulated a range of policies and procedures to enable the smooth running of the company. The Board of Directors (appointed by the Members) ensures that the Mission, Vision and Aims of **SHARE** are met through compliance with the Rules and the aspirations described in the Business Plan. **SHARE** is regulated by the Financial Conduct Authority. The current financial forecast shows a profit of £42k over a period of 20 years based on current completed projects. Membership including voting rights is open to those over 16 years of age living, working or owning property in South Hill Parish.

SHARE keeps its Membership up-to-date through mailings, the Parish newsletter and website, update meetings and in general meetings.

SHARE is managed by the Management Committee who report to and are appointed by the Board of Directors.

Research continues whilst we look for new opportunities to ensure these are within the scope of this Business Plan.

SHARE will endeavour to work with local like-minded groups.

2. SHARE's Vision, Aims and Objectives

SHARE's vision is "A secure and sustainable future for all in South Hill Parish, using community owned renewable energy to provide economic, social and environmental benefits."

2.1 Aims

1. To reduce South Hill Parish's dependence on fossil fuel derived energy
2. To create an economically viable, ongoing, community owned, low carbon energy generation Company
3. To create our own sources of renewable energies and thereby to provide security and resilience of energy supply for the Parish and the Society's Members.
4. To protect our environment by reducing carbon emissions
5. To inform and educate the Parish and our Membership.
6. To promote energy efficiency and reduction in energy costs for all residents and businesses within South Hill Parish.
7. To involve our Members, the community and local businesses in the pursuit and execution of our activities.

2.2 Objectives

1. Generate 120,000 kWhr of carbon-free electricity by the end of our fifth year of incorporation (June 2020)
2. Publish and Execute a Business Plan that recovers and repays the investments made by the Community within 10 years of those investments being made, whilst simultaneously paying a net dividend from year 3
3. Reduce the Parish's dependence on off-grid diesel generation by a capacity of 30 kVA within two years of incorporation.
4. Achieve a net saving in Carbon Emissions of 55 Tonnes per year of CO₂e by the end of our fifth year of incorporation.
5. Populate and maintain a website with the status of **SHARE** and its opportunities by the end of our second year with regular updates to follow
6. Create and publish a guide to energy efficiency specifically targeted at our rural housing stock. To be available in hard copy for every household and / or on the website as a PDF, with a target completion of December 2017. Publish at least one case study quarterly thereafter by means of the Website
7. Hold at least one public promotion event within the Parish per calendar year
8. Enrol as Member or Associate Member 20% of the electorate of South Hill Parish by the end of the second year of Incorporation, and maintain at least 20% thereafter.

3. Background

3.1 SHARE

In 2014 representatives of South Hill Parish, interested in seeking information and support for the creation of renewable energy within the Parish, met with Community Energy Plus (CEP)* to seek advice about current active projects in Cornwall.

*Community Energy Plus is an “award-winning social enterprise that provides complete energy answers to help householders and communities in Cornwall to enjoy warmer, energy efficient homes as part of a more sustainable future”. CEP is funded by a number of organisations including Cornwall Council, NHS Cornwall & Isles of Scilly, the Department for Energy and Climate Change and the Big Lottery Fund.

From this a group of about 25 members of the Parish emerged with an interest in forming a formal association.

In November 2014 the group obtained grant funding (£10,000) from Energyshare Cornwall, which was used to set up and incorporate “**SOUTH HILL ASSOCIATION FOR RENEWABLE ENERGY Ltd**” (**SHARE**), a Community Benefit Society, on the 17th June 2015. The remainder of the grant was used for the formal appointment of CEP, to advise upon and carry out feasibility studies for renewable energy opportunities within the Parish.

3.2 SHARE’s Projects

Our first project was to provide solar PV panels to South Hill Parish Hall. This system is currently generating electricity to the hall, has enabled the provision of a high speed Wi-Fi connection for hall users and the generated electricity is also providing funds (split 50/50) for both the Parish Hall Management Committee and SHARE.

The second installation, which followed from the feasibility study, was for a much larger industrial roof-mounted solar PV system of 40 kW (limited to 30kW export) within the Parish on a new agricultural building.

Using our experience, connections in the local community, Society structure, Membership and the support of the Community Energy Plus (CEP) team, **SHARE** is able to encourage building owners to lease their assets for the installation of renewable energy systems.

SHARE has implemented its first projects as Solar PV installations, but that is by no means the extent of its ambitions. All ecologically sound and financially viable sources of generation or methods of consumption reduction are on the table, with projected plans for community wood sales and replanting of trees.

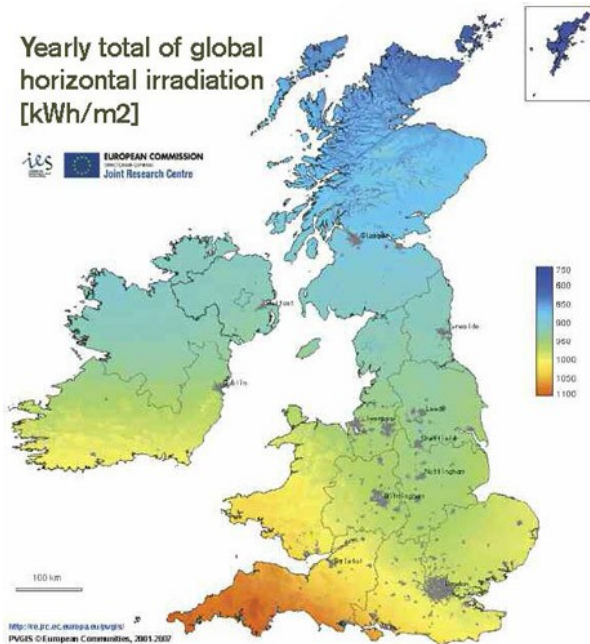
3.3 Government changes

Government degressions in the Feed in Tariff (FIT) have made the provision of freely generated electricity no longer financially viable. However, Building owners will benefit from a negotiated price for the electricity produced and consumed on site through a power purchase agreement (PPA), the price of which will be significantly lower than current market rates. The PPA will be linked in for the duration of the FIT payments, allowing additional security in controlling electricity costs.

Landlords of tenanted buildings may gain benefit through direct supply arrangements with tenants, building green credentials and increasing the buildings’ attraction to new tenants. Commercial buildings and larger community assets are ideally placed to take advantage of the new opportunities available. **SHARE** seeks to capitalise on this shift in the Solar PV market.

3.4 The Available Resources

Cornwall has an exceptional range of renewable energy resources and the highest solar irradiation levels in the UK, see figures below. This is a rural community with 3349 acres of Parish owned and privately owned farmland, which offers possibilities for woodland management, small scale ground mounted PV and air/ground source heat pumping.



Annual Variation of solar insolation

The energy (or insolation) received on a surface throughout the year varies relatively little from year to year.

Intuitively, more energy comes from the time intervals with high irradiation. The contribution of highly intense light can vary significantly from one year to another. The standard deviation of the overall annual energy, however, is around +/-4%, i.e. the annual energy delivered by the sun does not vary greatly year on year. The sun provides a stable "traffic" (see also graph to the left showing the yearly total of global horizontal irradiation (kWh/m²) and solar panel orientation table below).

ORIENTATION		WEST					SOUTH					EAST				
Tilt	90°	70°	50°	40°	30°	20°	10°	0°	-10°	-20°	-30°	-40°	-50°	-70°	-90°	
0°	87%	90%	92%	92%	93%	93%	93%	93%	93%	93%	92%	92%	91%	89%	86%	
10°	84%	90%	94%	95%	95%	96%	96%	97%	97%	96%	95%	94%	93%	89%	84%	
20°	82%	90%	94%	96%	97%	98%	99%	99%	98%	97%	96%	95%	93%	88%	81%	
30°	78%	87%	93%	96%	97%	98%	99%	100%	98%	97%	96%	95%	93%	85%	78%	
40°	75%	84%	92%	94%	95%	96%	96%	96%	96%	95%	94%	92%	90%	82%	72%	
50°	70%	79%	87%	90%	91%	93%	94%	94%	94%	93%	91%	88%	83%	76%	70%	
60°	65%	73%	80%	83%	86%	87%	87%	87%	88%	87%	85%	82%	78%	71%	63%	
80°	50%	60%	66%	68%	69%	70%	71%	72%	72%	71%	70%	67%	66%	57%	50%	

Solar Panel Orientation table

4. Benefits – Environmental, Economic and Social

4.1 Environmental

For every kWh of electricity produced from renewable energy technologies an equivalent kWh of fossil fuel generated electricity can be displaced from the grid. This can produce immediate, measurable environmental returns. Each kWh produced by such means will enable 0.480kg less CO₂ to be emitted from burning fossil fuels (Energy Saving Trust 2014). The decentralised method of energy production also holds further environmental gains by reducing the large amount of energy routinely lost through distribution of electricity through the national grid.

Financial surpluses generated by **SHARE** will support other **SHARE** activities and further contribute to reductions in the emissions of CO₂ and other greenhouse gases.

4.2 Economic

SHARE will maximise the sustainable financial and employment value from the construction, operation and maintenance of renewable energy developments through the use of local suppliers and contractors wherever possible. Reducing energy bills can create more disposable income to support the local economy.

4.3 Social

The development of renewable sources of energy is urgently required to address the dual challenges of climate change and energy security threatening the wellbeing of communities across the globe as well as here in Cornwall. The potential to target activity in fuel poor areas will enable residents without the financial means to take advantage of the potential reduction to their fuel bills.

Surpluses made by **SHARE** through such schemes will be reinvested into our Parish as determined by our Rules and our Members.

A secondary benefit is that of social cohesion. By planning, managing, sourcing and exploiting our resources communally, **SHARE** seeks to promote inclusion and involvement throughout its Membership. In this way, parishioners who may not otherwise have the technical skills or the financial capability to execute projects for themselves will have the opportunity to contribute to and benefit from shared expertise and resources.

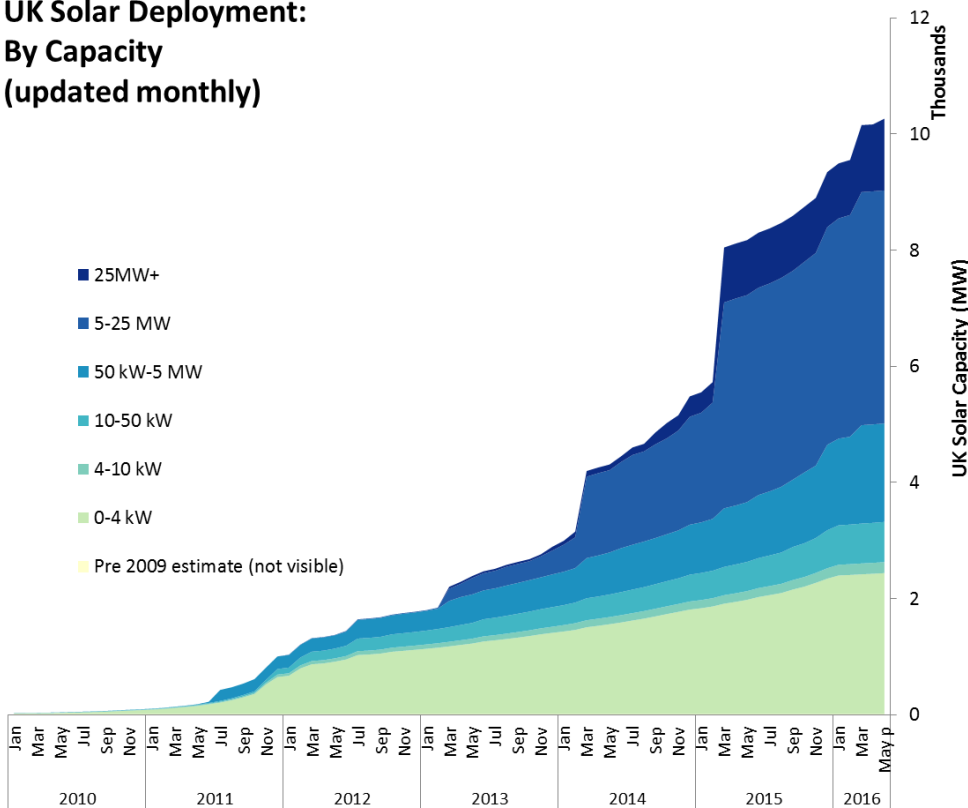
SHARE actively seeks to avoid energy disparity within the community.

5. Market analysis

5.1 The market for solar deployment

Growth in the market for solar PV on commercial buildings has been less than expected and there is potential for significant growth in the UK. Some of the barriers to the wider take up of solar PV by businesses are the ability to access capital, the transaction costs (management time), prioritisation of other issues, suitability of the building stock, split incentives and primarily landlord/tenant issues. Recent legislation raised the rooftop permitted development threshold from 50kW to 1MW, thus any roof mounted solar PV development under 1MW no longer requires planning permission, although **SHARE** is sensitive to any aesthetic issues. Although government Feed-in-Tariffs have been lowered, the deployment of UK solar installations continues to grow.

**UK Solar Deployment:
By Capacity
(updated monthly)**



Graph from Solar photovoltaics deployment, Department of Energy, <https://www.gov.uk/government/statistics/solar-photovoltaics-deployment> , June 2016

Significant changes to the Feed in Tariff scheme were announced by DECC on the 17th December 2015. These changes have had an impact on **SHARE's** future ability to progress Solar PV scheme opportunities due to changes in the banding of solar PV installations and their related generation tariff payment rates. **SHARE** must now focus on sites where the electricity generated will be used on site, rather than exported to the grid. The full FIT generation tariff table for 2016 is included in [Appendix 1](#).

5.2 The market for wind energy

As with solar installations, the depression of the FIT has meant for **SHARE** that only sites where electricity can be used rather than exported are currently financially viable. Whilst in the past there have been many successful large scale (100kW and greater) projects in the County, there are now additional technical

constraints that challenge the viability of future large installations, not least the saturation of the local electricity transmission infrastructure. **SHARE**'s catchment area does not currently have a large excess capacity in either substations (transformers) or transmission lines, reinforcing the view that generation for immediate local consumption (on site) is a technical and financial necessity. There are also other considerations that need to be taken into account, including the sensitivity of the area from an environmental impact consideration and especially in regard to the Parish's heritage assets. Current planning regulations do not normally require planning permission for domestic, non-commercial microgeneration schemes as defined in the appropriate legislation. However, as with large systems, these are viable only where the energy is to be consumed on site.

SHARE continues to monitor the possibilities and to inform our Members when new opportunities arise.

5.3 The market for other renewable energy sources

There are many other renewable energy sources that may become viable in the future or when an opportunity arises such as bio-mass or bio digestion. Hydro-power is theoretically possible but could only be on a very small scale which is not economically viable now. **SHARE** will wish to help sustainable developments of renewable energy where possible. In the future, we may look at sustainably produced biofuels, battery storage and other opportunities. **SHARE** continues to seek opportunities, sites, technologies, and welcomes input.

5.4 Other forms of sustainable energy use

SHARE recognises that sustainable energy use is not just about generating electricity, but also to reduce the use of energy and to educate the residents (e.g. benefits of changing suppliers; use of slow-cookers). Examples are using energy saving light bulbs, recycling waste, heat exchangers/pumps, car sharing schemes, electric powered vehicles etc. Our Parish has many households with wood-burning stoves or open fires, and **SHARE** is currently looking into sustainable local wood resources for householders.

6. Governance

SHARE was registered as a Community Benefit Society on 17 June 2015, and all our actions are governed by our Society Rules which can be downloaded from our web site: <http://south-hill.co.uk/share/share-member-area/>

The Board of Directors is elected from its Membership at a general meeting, and is the responsible governing body, trustee of the Society's purpose and owns the strategy and the Business Plan. The Board of Directors oversees management of the Society and is responsible to the Members.

In addition, there is a formally appointed and active Management Committee responsible for the day-to-day management of the Society. They wield executive authority and act in the name of the Society within parameters set by the Board. Officers in the Management Committee are appointed by the Board of Directors. Subgroups are overseen by the Management Committee and will be formed to carry out specific projects also within parameters set by the Board.

To ensure smooth running of the society, **SHARE** has created and implemented a hierarchy of corporate governance policies to enable the delegation of authority within a framework of oversight and corporate responsibility.

At the top of the hierarchy are the Society's Rules, which forms the core of the operational governance of **SHARE**.

At the second layer sits governance for the management of the Society

- the Mission, Vision, & Aims and the Objectives, defining the reason for **SHARE's** existence
- The Society Business Plan (this document)
- The Director's and Officer's responsibilities
- The Management Committee Terms of Reference
- Organisational chart – "organogram"
- Statutory Registers and reporting

At the third layer sits the governance for the execution of **SHARE's** projects and activities defining the methods, controls and expectations for its day to day transactions. These include

- Code of Conduct
- Financial Management Policy
- Environment, Health and Safety Policy
- Quality Assurance and Quality Control Policy
- Additional project specific Business plans, cashflow analyses and Gantt charts.

7. Project Delivery and Management

The Board of Directors oversees the delivery and execution of **SHARE**’s Mission, Vision & Aims and Objectives in accordance with its Business Plan and its Rules, as described in Section 6. Key to this is the identification of appropriate opportunities within the context of those Objectives. Each potential project will be reviewed against the wish to deliver sustainability, carbon reduction and financial stability.

On approval of a Project, the Management Committee will appoint or co-opt a Project Manager for that specific activity. The Project Manager will be accountable for producing a project specific Plan, including (but not limited to)

- the requirements for resource or funding,
- the key deliverables, project specific milestones (especially where there are external influences such as planning deadlines, funding caps or seasonal constraints) and
- the Project Success Criteria, (the quantifiable measurables of whether the Project has met its objectives).

Once the Project Plan has been ratified by the Management Committee, the Board of Directors will release the funds necessary to execute the Project. The Management Committee and the Directors will require regular reports from the Project Manager in respect to progress, spend and commitments / liabilities, but will allow the Project Manager to execute the day to day activities as defined at their discretion. It is the intent that sufficient scrutiny is defined and exercised to ensure Project adherence without burdening the Project Manager with the need to ratify every decision with the Management Committee. The Financial Management policy does cap the expenditure that may be committed at each level of authority.

8. Financial Management

Like any community benefit company, **SHARE** is regulated by the Financial Conduct Authority (FCA) and is registered with Companies House.

SHARE is registered for VAT and submits quarterly VAT returns and is required to provide an annual tax return to HMRC, as well as providing audited accounts to Companies House.

The Finance Director will provide a monthly financial report and cost forecast to the Board of Directors to ensure financial security is sustained.

Where appropriate, grants and funding opportunities will be pursued that are in line with our Objectives.

SHARE will prepare a **SHARE** Offer for shares with fair and equitable terms for repayment to its Membership.

Our Financial forecast for the next 20 years is:

Year	1		2		3		4		5	
	Credit	Debit	Credit	Debit	Credit	Debit	Credit	Debit	Credit	Debit
Cumulative Profit (Loss)	£5657		£7062		£8568		£10181		£11778	

Year	6		7		8		9		10	
	Credit	Debit	Credit	Debit	Credit	Debit	Credit	Debit	Credit	Debit
Cumulative Profit (Loss)	£13664		£15692		£17868		£20195		£22528	

Year	11		12		13		14		15	
	Credit	Debit	Credit	Debit	Credit	Debit	Credit	Debit	Credit	Debit
Cumulative Profit (Loss)	£24110		£25795		£26386		£28288		£30154	

Year	16		17		18		19		20	
	Credit	Debit	Credit	Debit	Credit	Debit	Credit	Debit	Credit	Debit
Cumulative Profit (Loss)	£32290		£34550		£36938		£39461		£42237	

9. SWOT, PESTLE & Risk Analysis

9.1 SWOT Analysis

Strengths	Weaknesses
<ul style="list-style-type: none"> • Experience of group members • Experience through support of other likeminded groups • Access to known community customer base(s) • Knowledge of planning process • Technology is generally understood and accepted • Recent Solar PV installations in South Hill • First-hand experience of legal, commercial and technological implications of medium scale projects • Working relationships with contractors and specialists • Willingness of Membership to invest (short-term) • Quality control 	<ul style="list-style-type: none"> • Limited experience of raising mainstream debt finance. • Legal Expertise • No direct experience of providing share offerings • Exhaustion of viable Pre-registered proposed site(s) • Limited capacity of local power transmission infrastructure
Opportunities	Threats
<ul style="list-style-type: none"> • Space for Solar PV • Low commercial uptake • Solar irradiation levels in Cornwall • Opportunity to promote SHARE • Households/commercial/community buildings • Government policy indicated to focus on commercial buildings for solar • Community projects attract grants, funding and experts’ advice 	<ul style="list-style-type: none"> • Government policy instability • Achievement of Grid Parity will end current subsidy framework – uncertainty about what is next? • FIT degression: Potential for further changes to the FIT post Brexit • Effects of current FIT review • Planning permission required (when permitted development does not apply)

9.2 PESTLE Analysis

Analysis	
Political	<ul style="list-style-type: none"> • Change in Government Policy – FIT/planning/renewables • Change in local policy –FIT/ planning/renewables • World Climate Conference (Paris 2015) increasing the global commitment to carbon reduction. • Hinkley Power station has received the go ahead
Economic	<ul style="list-style-type: none"> • FIT degression • Finance cost/availability • FIT reviews, unexpected depressions and capacity triggers.
Social	<ul style="list-style-type: none"> • Margin for social benefit • Community objectors
Technological	<ul style="list-style-type: none"> • Performance • Quality • Inverter and workmanship warranties • Technology lifespan

	Analysis
Legal	<ul style="list-style-type: none"> • Lease conditions • Company Structure and Rules • Finance charges
Environmental	<ul style="list-style-type: none"> • WEEE regulation

9.3 Risk Matrix

Risk	Likelihood	Severity	Impact	Mitigation
Change in Government Policy – FIT/planning/renewables Change in local policy – planning/ renewables General election	Medium	High	Medium	Based on European carbon reduction targets. Risk of Government deviation from Paris accord (post Brexit) to be mitigated by planning against economic conditions during project implementation, rather than futures. Constant monitoring of planning policy by SHARE , with projects constrained to durations of declared policy. Substantial industry response. Strategic framework support for roof top PV sector could lead to positive change.
FIT depression FIT review Finance cost/availability Loss of capital	High	high	High	Degressions have already meant large reductions of future RE financial support. Therefore SHARE cashflow forecasts will be made solely on agreed incomes and median values for RPI, CPI. Multiple finance available. Mainstream financiers looking to create new products to access market. Project plans required to include equipment maintenance and replacement during operating lifetime.
Margin for social benefit Community objectors	Low	Low	low	Accepted margin to be signed off by the Board. Planned scheme reviews. Focus on permitted development and roof tops. SHARE is populated by the community, so projects selected for community acceptance as well as fiscal metrics.

Risk	Likelihood	Severity	Impact	Mitigation
Performance Quality Inverter warranties Technology lifespan	Low	low	low	All generation projects will have products that are warrantied. Output warrantied. Products will be chosen based on independent testing of output. Income for 20 years, lifetime 25+. Linear reduction in output (warrantied) modelled in business plan.
Lease conditions Company Structure Finance charges	Medium	Medium	Medium	Working with solicitor experienced in creating roof top solar leases. Buy back clause in lease covers potential lost income. Income restricted to cover scheme administration. Community energy strategy. Charge against FIT income not SHARE .

9.4 Understanding the Risk environment

SHARE has a positive track record in community engagement, knowledge of the technology and working with contractors. We are confident that the identified risks can be appropriately managed.

Two areas of potential risks require close monitoring: the legal arrangements and Government policy. In these instances **SHARE** will use such expertise as may be available with the necessary experience.

10. Membership

Membership (including the right to vote at meetings) is open to those living, working or owning property in South Hill Parish.

Associate Membership is open to those without a direct connection to the Parish but they do not have the right to vote at general meetings.

No person shall be admitted into Membership of the Society unless they have attained the age of 16.

All those wishing to become a Member must support the Objects of the Society and complete an application for Membership which includes an application for one share in the Society. The application form must be approved by the Directors and the Directors must approve each application for Membership. Further details on membership are outlined in the **SHARE** Rules and in the membership application form; both are available for download on line <http://south-hill.co.uk/share/share-member-area/> .

77 Members have signed up to **SHARE (at date of publication)**, which constitutes approximately 20% of the adult population of the Parish.

11. Communication & Networking

11.1 Broadcast communication

SHARE will keep its Membership up to date through regular mailings, Parish newsletter, update meetings and general meetings. SHARE has a page on the Parish web site www.south-hill.co.uk/share and has its own Twitter account @SHAREsouthhill. Feedback and ideas from our members are always encouraged.

11.2 Targeted communication

SHARE essentially operates with support from volunteers and, when necessary, contractors.

Targeted communication will take place when required for certain projects. This will be communicated through Members' meetings, the website and newsletter, surveys and engagement events. The Management Committee will oversee any subgroups that are formed and update the Board of Directors with their progress on a regular basis.

11.3 Networking

SHARE actively engages with other like-minded groups in the local and wider community, including REGEN-SW, TECs (Teign Energy Communities), WREN (Wadebridge Renewable Energy Network), Transition Tavistock and CEP. We share common knowledge and attend mutual community engagement and training events.

An example is the South Hill Slow Cooker Workshop, in collaboration with CEP, which showed people how to effectively reduce energy costs by using a slow cooker for preparing food. On May 9th 2016, 31 people attended the Slow Cooker Workshop at South Hill parish hall in Golberdon hosted by SHARE with presentations from CEP Community Energy Plus. Topics covered were energy saving tips, including using a slow cooker, using an energy meter to measure usage, changing payment methods to save money, switching energy companies to save money and the CEP bulk buying Group good information on <https://communityenergyswitch.org.uk> and much more was discussed. The presentations are on line at <http://south-hill.co.uk/share/>. The free workshop closed with lunch, made in a slow cooker, where more questions were asked and everyone that wanted to take home a free Slow cooker and an Energy Meter. It was a really successful session with a wide mix of ages.

SHARE educates its members in the advantages of switching payment methods and energy suppliers, and the advantages of bulk-buying.

SHARE's wood project, working with local landowners (networking) will help its member to resource wood fuel locally and at the same time reducing costs.

12. Research

12.1 General research

For each opportunity, project or community initiative that **SHARE** wishes to initiate, research will be performed to ensure that due diligence is undertaken. All options are reviewed in a comparison matrix when considering a project to ensure optimal performance.

SHARE has policies to ensure that risk analysis is carried out, quality assurance and control will be applied, and our Code of Conduct ensures ethical operation throughout.

An example of the research involved in a solar installation is given in [Appendix 2](#).

12.2 Project research

For projects of any significance, the Management Committee is required to submit for Board approval an analysis of the options available, their relative benefits or demerits, so that selection decisions are made on a proper basis wherever possible. Typically, **SHARE** uses appropriate matrices e.g. Pugh which identifies the options available, the assessment criteria, the importance of weighting each criterion and an aggregated score used to substantiate decisions. This technique has been used in both Contractor selection and Project sizing decisions, and has been shown to be effective as a risk reduction tool and a financial planning aid. A redacted example is given in Appendix 3.

12.3 Modelling.

SHARE recognises that there are often many variables associated with a business proposition in terms of scale, return, investment, cost, physical and equipment constraints. **SHARE** uses mathematical models to investigate the opportunity and the interactions between conflicting influences (such as the power rating of a solar panel – more expensive panels yield more power, so the differential equation to optimise solar panel size needs to be explored analytically). These models are validated by feeding data for which the outcome is already practically known; for example modelling an existing installation.

The models themselves remain the Intellectual Property of **SHARE**.

13. Future development

SHARE is intending to expand its influence and to be able to respond to opportunities.

We hope at least 25% of the local community signed up to **SHARE** in 5 years' time. In order to achieve this, we intend to hold yearly events encouraging new Members to join and to inform current Members of possible energy saving features that can be used in their households and daily lives.

In five years' time, we envisage that we will have several current projects running, with others in the pipeline or in the developmental stage. These projects can be, but are not limited to, solar PV installations, wind installations, heat storage, battery storage and other energy saving opportunities.

We intend to encourage a range of investors who will also help to contribute to a more sustainable future for us all by bringing financial incentives to new renewable energy products.

Glossary of Terms

CEP	Community Energy Plus
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide equivalent
DCLG	Department for Communities and local government
DECC	Department of Energy and Climate Change
EOI	Expressions of Interest
EMR	Electricity Market Reform
FCA	Financial Conduct Authority
FIT	Feed in Tariff
GWp	Gigawatt Peak
IRR	Internal Rate of Return
kWp	Kilowatt Peak
LED	Light-emitting diode
MPAN	Meter Point Administration Number
MWp	Megawatt Peak
Ofgem	The Office of Gas and Electricity Markets
PPA	Power Purchase Agreement
PV	Photo-Voltaic
RHI	Renewable Heat Incentive
SHARE	South Hill Association for Renewable Energy Ltd
SPV	Special Purpose Vehicle/Entity
SITR	Social Investment Tax Relief
TWh	Terawatt hour
WEEE	Waste Electrical and Electronic Equipment
WPD	Western Power Distribution

Appendix 1 – Feed in tariff rates Post January 2016

2016 prices p/kWh	Q1 2016	Q2 2016	Q3 2016	Q4 2016	Q1 2017	Q2 2017	Q3 2017	Q4 2017	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019
Solar PV													
<10kW	4.39	4.32	4.25	4.18	4.11	4.04	3.97	3.90	3.83	3.76	3.69	3.62	3.55
10 - 50kW	4.59	4.53	4.46	4.39	4.32	4.25	4.19	4.12	4.05	3.98	3.91	3.85	3.78
50 - 250kW	2.70	2.64	2.58	2.51	2.45	2.39	2.33	2.27	2.20	2.14	2.08	2.02	1.96
250- 1000kW	2.27	2.21	2.15	2.09	2.03	1.97	1.91	1.85	1.78	1.72	1.66	1.60	1.54
1000- 5000kW	0.87	0.82	0.76	0.70	0.64	0.58	0.52	0.46	0.41	0.35	0.29	0.23	0.17
Stand alone	0.87	0.82	0.76	0.70	0.64	0.58	0.52	0.46	0.41	0.35	0.29	0.23	0.17
Hydro													
<100kW	8.54	8.53	8.51	8.50	8.48	8.46	8.45	8.43	8.42	8.40	8.39	8.37	8.35
100 - 500 kW	6.14	6.14	6.13	6.12	6.11	6.11	6.10	6.09	6.09	6.08	6.07	6.06	6.06
500 - 2000 kW	6.14	6.14	6.13	6.12	6.11	6.11	6.10	6.09	6.09	6.08	6.07	6.06	6.06
2000 - 5000 kW	4.43	4.43	4.43	4.43	4.43	4.43	4.43	4.43	4.43	4.43	4.43	4.43	4.43
Wind													
0 - 50kW	8.53	8.46	8.39	8.33	8.26	8.19	8.13	8.06	7.99	7.93	7.86	7.79	7.73
50 - 100 kW	8.53	8.46	8.39	8.33	8.26	8.19	8.13	8.06	7.99	7.93	7.86	7.79	7.73
100 - 1500 kW	5.46	5.43	5.40	5.37	5.34	5.32	5.29	5.26	5.23	5.20	5.17	5.14	5.12
1500 - 5000 kW	0.86	0.85	0.84	0.83	0.82	0.81	0.79	0.78	0.77	0.76	0.75	0.74	0.73

Summary of decisions – Feed in Tariff 2016-2019

A full summary of the results and the decisions coming out of the FIT review 2015 that will affect the FIT going forward from 2016 can be found at:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/487300/FITs_Review_Govt_response_Final.pdf

Rates, degressions and decisions on entry requirements will have critical effects on new renewable energy project development.

Appendix 2: example of SHARE research

Brief overview of the key steps to a successful renewable energy installation project managed by **SHARE**.

- Marketing - prepare pipeline of possible sites
 - Scheme introduction to building owner through direct contact.
 - Registration of interest
 - Building description and location.
 - Energy use info
 - Electricity supply (single or three phase?)
 - MPAN number
 - Initial customer engagement
 - Desktop assessment
 - Orientation
 - Rooftop size – financial potential
 - Shading issues
 - Initial contact with WPD
 - Site visit – include building suitability assessment for PV
 - Pre-application discussions with Planning authorities.
 - Heads of terms
 - Draft lease
 - PPA offer
 - Work up detail for system specification and costs
 - Planning applications submitted if necessary.
 - EPC
 - Submission of grid connection / WPD network applications where required.
 - FIT Pre- accreditation
 - Finance raising
 - Lease finalised
 - Installation programme agreed and signed off
 - Installation
 - System commissioned FIT registration submitted
 - Income after 1st quarter of operation
- Ongoing**
- Quarterly meter submissions to FIT provider.
 - FIT assigned to **SHARE**
 - Quarterly/6 monthly/annual meter read if PPA in place to measure property use

Appendix 3: example of a Pugh matrix for a solar scheme

Tenders	Contractor 1	Contractor 2	Contractor 3
Checklist / Action			
Date of Site meeting	data	data	data
Contact name	data	data	data
Telephone No.	data	data	data
Company's MCS Number	data	data	data
Date of Quote	data	data	data
Nominal System size	data	data	data
Actual System Size	data	data	data
Price £ (incl VAT)	data	data	data
Price £ (excl VAT)	data	data	data
System Orientation/roof Inclination	data	data	data
Total Generation Meter	data	data	data
Irradiation Ratio (kWh/kWp or Kk)	data	data	data
1/2 Hour Monitoring Meter (see Other Costs)	data	data	data
Remote Monitoring capability (GSM and/or Wi-Fi)	data	data	data
Contractor Estimated Annual Yield (kWh/year)	data	data	data
Estimated Annual Yield (kWh/year)	data	data	data
CO ₂ Saving/year (based on ex-VAT price)	data	data	data
Payback Period - installation	data	data	data
Subject to further survey/site visit	data	data	data
No. of Panels/rating	data	data	data
Panel manufacturer/type	data	data	data
Inverter/type	data	data	data
Inverter recommended replacement period	data	data	data
Export Limiter	data	data	data
Roof Fixings type/details	data	data	data
Guarantee - Workmanship	data	data	data
Guarantee – Solar Panels	data	data	data
Guarantee - Performance at no. years	data	data	data
Guarantee - Inverter (extended warranty?)	data	data	data
Guarantee - Roof fixings	data	data	data
Guarantee(s) - Backed by Insurance	data	data	data
Quote valid period	data	data	data
Fixed Price period	data	data	data
FIT Tariffs (Pre-registered)	data	data	data
Wi-Fi	data	data	data
Contractor- Lead in time	data	data	data
Contractor- Installation time	data	data	data
Contractor- Commissioning/commence generation	data	data	data
Removal of waste / rubbish	data	data	data
Contractor- MCS Cert Paperwork	data	data	data

Checklist / Action	Contractor 1	Contractor 2	Contractor 3
Contractor- Maintenance recommendations	data	data	data
Main Installation - own labour/contracted	data	data	data
Future Proofing - Battery storage	data	data	data
Current Public and Employer Liability Ins/Cover £	data	data	data
Damage / Loss Insurance during works - by	data	data	data
Compliance with CDM Regulations	data	data	data
Welfare facilities	data	data	data
Assignability of contract	data	data	data
Equal Opportunities Policy	data	data	data
Responsiveness of /help offered of Tenderer	data	data	data
Three References Provided	data	data	data
Terms of payment (dep/interim/final)	data	data	data
Other Costs			
WPD Connection charges	data	data	data
1/2 Hour meter purchase (one-off cost)	data	data	data
1/2 Hour meter lease/maintenance (annual cost)	data	data	data
1/2 Hour meter data provision	data	data	data
Supplier / FIT Provider	data	data	data
Secure enclosure for Equipment	data	data	data
Other costs	data	data	data
Electricity Importer - FIT Payments	data	data	data
	data	data	data