



Chester Community Energy

# Business Plan

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**July 2016**



# Summary

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Chester Community Energy Ltd (CCEL) is a registered cooperative (a Community Benefit Society) which aims to develop, own and facilitate renewable energy installations for the benefit of the community of Chester and the surrounding area. We are registered as a Community Benefit Society (no. 7272) with the Financial Conduct Authority under the Co-operative and Community Benefit Societies Act 2014. We aim to:

- a) Reduce the community's carbon footprint;
- b) Secure more sustainable sources of renewable energy for the community's use; and
- c) Promote environmental awareness and energy efficiency.

We are a not-for-profit organisation and all of our Directors are volunteers.

This business plan provides details of our organisation and sets out the expected financial performance of our first project: to install 49.5 kW of solar photovoltaics (PV) on the roof of Northgate Arena leisure centre in Chester. As long as this project is installed and registered with Ofgem by 30<sup>th</sup> September 2016 we are confident that it will provide a sound financial base for our Society to enable us to meet our aims and develop further projects in the future.

This project is to be funded through a community share offer, which aims to attract people to become members of CCEL by investing in shares up to a total of **£61,000** (see accompanying share offer document).

The project will run for 20 years and over that period is expected to:

- Pay back members' initial investments
- Pay interest on shareholdings of up to 4% per year
- Generate a community benefit fund of approximately **£45,000** which will be used to support community energy or environmental projects, including investment in further renewable energy schemes.

As with any new venture, there are risks, which are set out in this document. However we are putting in place mechanisms to mitigate these risks wherever possible.

We aim to install further projects in the future for which we will develop separate business plans, but will not take on projects which compromise the financial viability of our Society or adversely affect our member's shareholdings.

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# 1. Chester Community Energy

Chester Community Energy Ltd (CCEL) is a registered co-operative (a Community Benefit Society) which aims to develop, own and facilitate renewable energy installations for the benefit of the community of Chester and the surrounding area. We are registered as a Community Benefit Society (no. 7272) with the Financial Conduct Authority under the Co-operative and Community Benefit Societies Act 2014. We aim to:

- d) Reduce the community's carbon footprint;
- e) Secure more sustainable sources of renewable energy for the community's use; and
- f) Promote environmental awareness and energy efficiency.

Ultimately, we want to increase the City's resilience to climate change, promote environmental awareness and resource efficiency.

We will raise the funds we need by inviting the public to invest in the Society, and aim to return each member's investment to them over the lifetime of the project with interest (up to 4% per year). We also aim to raise funds by applying for grants. CCEL is led by volunteers and any surplus funds we generate over and above our costs and interest to our members, will be used to support community and environmental projects.

CCEL aims to become a sustainable, self-funding community-owned business. Our first installation will give us the skills and resources to deliver many more projects in Chester and the surrounding area.

Objectives:

- CCEL aims to develop, own and/or facilitate 200kW in total of renewable energy systems by the end of 2020 (aspiring to an average of installing one 50kW project a year);
- CCEL aims to attract, and generate a return for, at least 50 members from its projects;
- CCEL will generate a community fund that will recycle surplus funds back into projects addressing, for example, energy efficiency, sustainable transport or local food initiatives;
- CCEL will strengthen local supply chains and support local businesses wherever possible;
- CCEL will establish itself as a key strategic partner in Chester and surrounding area for energy efficiency, low carbon initiatives and renewable energy.

## Development of the Society

CCEL was created as an off-shoot from Transition Chester in 2015. Transition Chester was formed in 2008 and has in the region of 200 members with an active working group of around five people. It aims to promote more sustainable ways of living, promoting resource efficiency and environmental awareness in all aspects of life: transport, energy, food, education etc.

In 2014, Transition Chester ran a 'climate change awareness raising' event, with presentations and interactive exercises, to promote positive action towards increasing the City's social and economic resilience to climate change. The 50 attendees were asked to suggest projects for Transition Chester to take forward, one of which was setting up a community energy company. In 2015, a similar event attracted around 25 people. This event prioritised the need to set up a community energy company. On this basis, six members of



Transition Chester set up Chester Community Energy Ltd in October 2015; the society was registered in January 2016.

In March 2016, CCEL received a grant from DECC's Urban Community Energy Fund for just under £16,000 to investigate the feasibility of installing solar PV panels on the roof of the Northgate Arena leisure centre. Since then, the Directors have developed all the legal, financial and technical requirements of the project. Working with the assistance of a professional project manager, they have concluded that the project is realistic and will benefit the community and the centre itself as well as members.

## Our Ambitions

We are not-for-profit and all of our Directors are volunteers. Any surplus funds we generate, over and above interest paid to our members, by owning and operating renewable energy installations will be re-invested back into community and environmental projects. Our first installation will give us the skills and resources to deliver many more similar projects with lower overheads and without being dependent on grant funding.

Within the first four years we aim to install at least four renewable energy schemes.

## Community Purpose

Just over 330,000 people live in Cheshire West and Chester, which is forecast to increase by 5% over the next ten years. We aim to provide benefits to our community in two ways:

- Funding the local generation of renewable energy to reduce carbon emissions, while at the same time offering lower cost energy to our host sites, with a focus on community buildings; and
- Using any surplus to help increase environmental awareness, energy efficiency, conservation and reduction.



## 2. Opportunities in Community Energy

More than 5,000 community energy groups have sprung up around the UK since 2008, providing over 60MW of renewable generating capacity in 2013, using technologies such as solar PV, wind, hydro power, solar hot water and biomass boilers<sup>1</sup>. The Department of Energy and Climate Change (DECC) anticipates that, by 2020, community energy could provide 0.3–1.4 per cent of the UK's electricity consumption. A recent Community Energy England survey showed that just 38 of its member organisations had raised £28.6 million in community share issues<sup>2</sup>. These groups have also helped their local areas by increasing awareness of energy issues, investing in energy efficiency and providing advice to local people.

So there are now many community energy companies just like CCEL, up and down the country from Cornwall to the Scottish Highlands. Some of these have raised many millions of pounds for solar or wind farms, others raise a few thousand pounds to install a solar PV scheme on their village hall or school.

Within the Cheshire West and Chester area, solar PV has been installed on 4,800 homes<sup>3</sup> but on only 88 other buildings. We believe there is potential for community not-for-profit ownership of solar PV and other energy technologies to supply many more buildings in our district, to generate local energy and support the local economy.

Income for community energy schemes comes from three sources:

- The Feed-In-Tariff<sup>4</sup> (FITs) which provides a guaranteed income for 20 years for every kWh of renewable electricity generated, increasing annually with inflation (Retail Price Index (RPI));
- A guaranteed minimum rate for any surplus electricity exported to the grid; and
- Sale of electricity to the host site.

Our first scheme is no exception: it is pre-registered with Ofgem and hence we will receive a guaranteed minimum generation rate of 11.71 p/kWh provided the scheme is installed and registered by 30<sup>th</sup> September 2016. We expect that all of the electricity generated will be used by the leisure centre and have agreed a price mechanism for this which provides savings for the centre and is fair for CCEL.

Policy support for renewable energy has decreased in the last year, and FITs will no longer be available at the same level, if at all. However, PV prices have been falling and we are investigating how to make further schemes financially viable through a combination of the remaining FITs, electricity sale price, cross-funding from our initial scheme and grant support. Technology developments such as storage and demand management, and alternative business models, are being rapidly investigated by other players in the sector and we expect to be able to take advantage of these developments for future schemes.

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<sup>1</sup> DECC 2014

<sup>2</sup> Community Energy England:

<http://communityenergyengland.org/wp-content/uploads/2015/10/CEE-Survey-2015.pdf>

<sup>3</sup> DECC Sub-Regional Feed-in-Tariffs, March 2016 <https://www.gov.uk/government/statistical-data-sets/sub-regional-feed-in-tariffs-confirmed-on-the-cfr-statistics>

<sup>4</sup> <https://www.ofgem.gov.uk/environmental-programmes/feed-tariff-fit-scheme>



## 3. Organisation and Governance

### Community Benefit Societies

A Community Benefit Society is run primarily for the benefit of the community at large, rather than just for members of the society. This means that it must have an overarching community purpose that reaches beyond its membership, and a special reason for being a Community Benefit Society rather than a company, such as wanting to have democratic decision-making built into its structure. They are expected to have members who hold shares, and should be run on a democratic one-member-one-vote basis.

Although a Community Benefit Society has the power to pay interest on members' share capital, it cannot distribute surpluses to members in the form of dividends. It must only use its assets for the benefit of the community. If a Community Benefit Society is sold, converted, or amalgamated with another legal entity, its assets must continue to be used for the benefit of the community and must not be distributed to members.

Further information on Community Benefit Societies is available on the Community Shares Unit website: <http://communityshares.org.uk/resources/handbook/community-benefit-societies>

### Chester Community Energy Ltd

Chester Community Energy Ltd is a Community Benefit Society. It is registered with the Financial Conduct Authority in England and Wales under the Co-operative and Community Benefit Societies Act 2014 (number 7272). Its registered office is Dove Cottage, Church Road, Dogleston, Chester, CH4 9NG.

The registered Objects of the Society are “to carry on any activity for the benefit of the community by development and/or facilitation of renewable energy sources for the community of Chester and surrounding area, to help to reduce the community's carbon footprint and secure a more sustainable future source of electricity and to promote environmental awareness and energy efficiency, conservation and reduction.”

A full copy of our Rules is available on our website:  
<http://www.chestercommunityenergy.org.uk>

### Membership

Membership is open to individuals aged 16 and over, corporate bodies or nominees of unincorporated associations. You do not have to live in the Chester area to be a member; just have a wish to support our community and own at least 250 shares. All members of CCEL have one vote regardless of how many shares they hold.

No member may hold more than 20% of the total shares issued by CCEL, unless the member is another Industrial and Provident Society.



Under the Industrial and Provident Societies Act 1965 the liability of members is limited to their share holding.

All members must agree to participate in general meetings and take an active interest in the operation and development of the Society and its business. Members have a duty to respect the confidential nature of the business decisions of the Society.

## Directors

Chester Community Energy Ltd. has three founding Directors: Graham Booth, Francesca Moore and Stephen Savory. Jennifer Barnett is the Society's Secretary. They are all residents of Chester or surrounding villages, either working professionals or retired and are all active members of the community.

The current Directors and Secretary bring the following skills to the Society:

### **Graham Booth (Director)**

Graham is a retired Civil Engineer who is now active in a number of local environmental and voluntary groups. He worked for forty years as a site engineer and an estimator. He is a qualified counsellor and past chairman of his housing association. He is Chairman of Transition Chester which is a community group with 200 members aiming to reduce the carbon footprint of Chester and to make it a more sustainable and more energy efficient city. He brings project management, technical and financial expertise to the group.

### **Stephen Savory (Director)**

Stephen is a retired Architect with experience of energy-efficient housing projects and a University carbon reduction programme. He sits on the Board of New Charter Housing Association's building company. He is a member of the Royal Institute of British Architects and a former member of the Association for Project Management. He brings project management, technical and financial expertise to the group.

### **Francesca Moore (Director)**

Francesca is an Environmental Economist providing technical expertise to the Environment Agency, water companies, renewable energy developers and Government departments. Her work is about promoting benefits for society including: reducing flood risk, improving water quality and resilience to climate change. She has helped set up 'climate change awareness' events for Transition Chester and is passionate about finding innovative and efficient ways to increase the City's resilience to climate change. She brings project management, stakeholder engagement, funding and marketing expertise to the group.

### **Jennifer Barnett (Secretary)**

Jennifer Barnett is a solicitor who has always had a personal interest in combatting climate change. Professionally she has advised clients on energy agreements, including long-term CHP projects and solar installations. She brings project management and legal expertise to the group.



## Working with Our Community

We will set aside annually an amount equal to at least one third of the amount we allocate to members as share interest into our community benefit fund. This will then support community projects which provide an environmental or social benefit to people within the Cheshire West and Chester area. Members may also choose to gift a proportion of their allocated share interest into the community benefit fund.

We will also set aside capital reserves at intervals over the lifetime of the project to:

- Invest in further renewable energy schemes, prioritising those on buildings which have a community function, while ensuring that each scheme is economically viable. This will enable us to build a portfolio of projects which can collectively provide a much greater level of community benefit funding than the single Northgate project.
- Add to our community benefit fund for distribution to local projects.

The split between investment in new renewable projects and community benefit projects will be determined annually by members at the Annual General Meeting, or by calling an Extraordinary General Meeting if required.

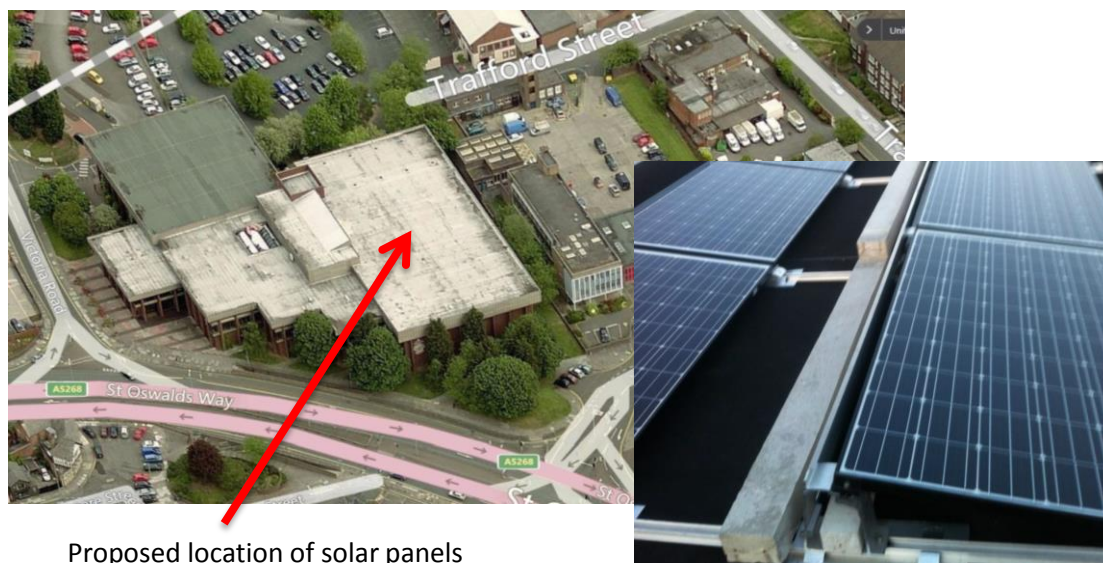
Our community fund will support projects that go some way to achieve our aims: to promote energy efficiency, low carbon initiatives and renewable energy. This could include projects helping households to improve their energy efficiency, sustainable transport or local food initiatives. For example, Cheshire West and Chester Council (CWAC) has been working with Transition Chester and community groups to help address fuel poverty, prioritising areas such as Garden Quarter which is believed to have the highest proportion of households, within the local authority area, living in fuel poverty.



## 4. Projects

### Northgate Arena Solar Photovoltaic (PV) Scheme

Our first project is to install 49.5kW of solar PV on the roof of Northgate Arena in Chester; the City's principal leisure centre. This project has been developed in close collaboration with CWAC, the building owners, and Brio Leisure, the leisure centre operators. Alongside our project, CWAC will be installing its own 50kW scheme. The schemes will be installed on the swimming pool roof, which is being refurbished in summer 2016. The scheme has been classed as permitted development and so does not require planning consent.



Proposed location of solar panels

The scheme has been pre-registered with Ofgem so will receive the FIT at the level set in October 2015, provided that the system is installed and fully registered with Ofgem by 30<sup>th</sup> September 2016. Our project team is working closely with CWAC and Brio Leisure to ensure we can meet this deadline.

The FIT income is guaranteed for a period of 20 years. It is expected that the panels will continue to generate electricity for at least a further 5 years, and CCEL could continue to receive an income from electricity sales over that period.

CCEL has agreed in principle with CWAC (and we are currently preparing the various legal agreements with CWAC to cover this) for a lease to use the roof of the leisure centre and payment terms for the electricity generated by the scheme (in a Power Purchase Agreement (PPA)). The final legal agreements will be signed before completion of the project. The lease will be for a period of 21 years, and the PPA for 20 years, with the option to extend both beyond this if agreed by both parties. There will be a break clause in both in 15 years, at the point at which Brio Leisure's own lease to operate the leisure centre expires. At the end of the 20 years there will be the option to renew the lease, or give the panels to CWAC, or CCEL may be required to remove them from the roof. This will be determined by the circumstances at the time. We have included contingency funding for removal of the system after 20 years.

The system has been pre-registered on our behalf by Lymm Community Energy (LCE), as CCEL was not formally constituted by the deadline for pre-registration (30<sup>th</sup> September 2015). CCEL has close links with LCE and has been advised and supported by them through our initial start up and project development. We have an agreement in place with LCE that they will register the system with Ofgem once commissioned and transfer ownership to CCEL after that date. LCE is continuing to develop its own portfolio of projects in Lymm and has no interest in ownership of any scheme in Chester. The legal costs associated with transferring the ownership to CCEL have been included in our budget.

Full details of the financing of this scheme are given in section 5.

## Future Projects

We aim to install a further three renewable schemes within the next three years. It is likely that these will be similarly sized solar PV schemes, but we will also consider other technologies and system sizes if the opportunities arise. We will always consider the economic viability and social benefit of any scheme proposed, to ensure that any investment will not pose significant risks to the Society or affect our ability to repay our members' investments, provide share interest and community benefit funding. We will raise funding for future schemes through further share offers.

We have held initial discussions with CWAC to identify possible sites for further joint projects, and will welcome proposals for further sites from members and community organisations.

## Share Offer

Community energy schemes require upfront investment to pay for the installation of the scheme, and thereafter have relatively low operating costs, for maintenance and ongoing operation of the organisation such as insurance and accountancy fees. As such, we are seeking to raise the required funds by inviting local people to buy shares in our society.

The 2016 Share Offer aims to raise £61,000 to install the Northgate Arena solar PV system. We have been fortunate to have been awarded a grant of just under £16,000 from DECC's Urban Community Energy Fund to cover the costs of setting up the Society, investigation of the project feasibility and pre-installation costs.

CCEL has investigated other sources of funding such as commercial loans, but at present considers that community shares offer the best option to provide both a viable project and a means to promote ownership and increased engagement in locally generated renewable energy.

Full details are provided in the accompanying Share Offer Document.



## 5. Financial Projections

This business plan relates to the Northgate Arena project only. Future projects will only be taken on if they do not adversely affect the viability of the organisation, the expected provision of community benefit, and the ability to repay members' investment and share interest.

A full breakdown of the annual income, operating costs, provisions for share interest, community benefit and future investments for the 20 –year life of the scheme is given in the Appendix.

### Assumptions

The key assumptions behind the financial projections are given below. Please note that these are assumptions for the financial model and the actual levels of share interest, community funds and investments in future projects will be determined annually by members. Some of these will depend on the system performance, actual operating costs and external factors such as inflation.

1. The business case is based on a period of 20 years. It is expected that the scheme may continue to generate revenue for a further 5 years, which will then be available for future renewable energy projects or community funds.
2. The scheme will be commissioned and registered with Ofgem by 30<sup>th</sup> September 2016.
3. The cost of the system will be £50,600. In addition we expect to incur costs for scaffolding, crane hire, safety equipment and grid connection of £8,900 and legal fees in relation to the lease and land registry of £1,500. These latter are conservative estimates and actual costs will be confirmed before completion of the project
4. Panel output will initially be 43,336 kWh/year, degrading annually by 0.7%. This output is higher than normal for a system of this size as we are investing in individual panel monitoring technology, which improves the efficiency of the system.
5. Feed In Tariff on registration will be 11.71 p/kWh and will rise annually with inflation (set by the Retail Price Index (RPI)).
6. RPI is assumed to be 2% each year. In the event that RPI rises above this, the scheme will generate a higher income which may be used to increase any or all of community benefit funds, contributions to future schemes or member share interest. Conversely, if RPI remains below this level, the scheme will generate lower income.
7. CWAC will purchase all of the output from the system at a rate that provides cost savings for the leisure centre.
8. Administration, accountancy, insurance and maintenance costs will be £1,800 in year 1, rising annually with RPI.

9. The inverters warranty will be extended in 2027 at a cost of £1,000 and capital will be set aside for this.
10. Members' capital investment will be repaid at regular intervals, initially 7% from Year 5 rising to 10% in Year 11 and will be completely paid back by the time of the first potential lease break point (Year 15).
11. Working capital of approximately £2,000 will be retained in reserves to cover unforeseen maintenance or repairs.
12. CCEL may borrow up to £10,000 on a short term loan to cover cash flow for 6 months or until we can reclaim VAT on the equipment purchase, whichever is sooner.
13. CCEL may be required to remove the system after 20 years. A contingency fund of 20% of the initial cost (adjusted for inflation) has been allowed for this in Year 20. If at that point CCEL agrees to give the system to CWAC, this money will be available for community benefit or investment in further schemes.
14. Members will be paid share interest of 4% annually over the lifetime of their investment.
15. An amount equal to at least one third of the amount paid out as share interest will be set aside for community projects each year.
16. In the first 5 years of the scheme, a further £7,500 will be set aside for investment in new renewable energy or community projects.
17. From years 15-20, once member capital is paid off, approximately £6,000 per year will be available for community benefit or investment in new projects.

## Commentary on Financial Projections

The figures show a strong performance for the scheme which will allow the payment of share interest and the repayment of members' share capital as well as community benefit payments and investments in other schemes.

We expect to be able to set aside over **£45,000** over the 20-year life of the project for community benefit projects and investment in further renewable energy systems.

Members share interest payments are expected to total approximately **£23,600** over that period.

Actual levels of community benefit payments, investments in future projects and return of capital to members will be determined annually by members and will depend on the system performance, actual operating costs and external factors such as inflation.

Repayment of members' capital has been allocated across the first 15 years of operation, so as to reduce the risk related to the break clause in the lease at the end of the lease between CWAC and Brio Leisure. CCEL is not obliged to repay shares on request but will make every effort to do so within the amount allocated annually for that purpose, or possibly through further share offers.

## 6. Risks

### Northgate Project

The key risks for the Northgate project are set out below.

Risk	Impact/cost of risk	Considerations/Mitigation
Delay in installation such that the system is not registered with Ofgem by 30 <sup>th</sup> September 2016.	We will receive a significantly lower FIT rate than expected: 4.39p/kWh. The project would rely on extending the lease with CWAC to at least 20 years in order to repay share capital to members. With careful management of share capital and reserves, share interest could be paid at around 1% pa.	CCEL is working closely with all parties involved to ensure the project can be installed and registered by the deadline. All contractors are aware of the importance of this and the programme of work to repair the roof in order to install the PV system is being managed to allow the PV installer to work on the roof at the same time.
Delays in raising funds mean that we are unable to place a contract for the installation in time to meet the September deadline for the pre-registered FIT rate.	As above	CCEL are making every possible effort to raise the capital needed in time. We are investigating short term back-up loans to allow us to go ahead with the project before the share offer closes.
Installation costs increase	Reduces our ability to pay share interest and/or community benefit and/or invest in other projects at the level predicted.	We have obtained a fixed price tender for the installation work (to reduce exposure to exchange rate changes). Three cost areas are outstanding and our share of these will be negotiated with CWAC: grid connection, access equipment and safety equipment for maintenance. We have allowed £8,900 for this based on initial estimates and a contingency allowance.
The CCEL and CWAC schemes are not considered to be separate systems by Ofgem. As a community scheme, the CCEL system can be considered as at a separate site from the CWAC scheme,	We will receive a significantly lower FITs rate than expected: 4.39p/kWh. The project would rely on extending the lease with CWAC to at least 20 years in order to repay share capital to members. With careful management of share capital and reserves, share interest could be paid at around 1% pa.	We are working to the guidelines provided by Ofgem to ensure the schemes are considered separate, and have confirmation in the pre-registration acceptance document that the CCEL scheme is defined as a community scheme and thus eligible for the exemption in the definition of site that allows for this.

such that each can claim the <50kW FIT rate.		
CWAC breaks the lease at 15 years.	The business case has been built on the basis of a 15 year break point, so this would not affect the ability to repay members, pay share interest or provide community benefit as forecast for the first 15 years. However, CCEL would gain no further benefit from the panels despite the capacity to generate for a further 10 years, losing potential future income which could be used for further projects or community benefit.	CCEL would investigate the potential to move the panels after 15 years to a new site. There will be a cost to this, but future income from electricity sales for a further 10 years could outweigh that cost.
CWAC require the panels to be removed from the roof at the end of the lease.	CCEL would be required to cover the cost of removal of the system.	CCEL has included a contingency fund to cover this possible cost.
Retail electricity prices fall or do not increase with inflation, triggering a review of the electricity sale price.	Sales make up only 38% of projected income. Lower income from electricity sales could result in lower investment in further projects or community benefit funding. For example, a 25% drop in sale price in year 5 would reduce the investment in new projects by 20%.	Unlikely as the electricity sale price is initially set significantly below the retail electricity price, and at the end of 15 years is still predicted to be below the current retail price. Directors will report to members annually on any changes affecting the society's income and recommend ways to manage this to retain the viability of the organisation, which may include a request to reduce share interest payments.
Lymm Community Energy fails to transfer ownership of the system to CCEL.	FIT income from the scheme goes to LCE rather than CCEL.	CCEL has an agreement LCE, and has worked closely with them during the development of this project. LCE is a CBS with similar aims and ethics to CCEL. In the highly unlikely event of this happening we would: <ul style="list-style-type: none"> <li>a) raise the issue with LCE members to resolve the transfer, and failing that:</li> <li>b) require LCE to purchase the system from CCEL.</li> </ul>

### Risks to CCEL associated with PV Systems

Risk	Impact/cost of risk	Considerations/Mitigation
<p>There may be loss or damage to the panels, or mechanical or electrical equipment failure that interrupts generation of electricity.</p>	<p>Lost generation results in loss of income, particularly if faults are not detected promptly, reducing our ability to payback share capital and/or pay community benefit.</p>	<p>CCEL will insure the PV system, but this insurance does not cover all eventualities and is subject to an excess. Good quality panels and inverters have been specified, to reduce the risk of their failure. Panels have a 10-year product warranty and a 25-year linear performance warranty. We intend to purchase 20-year warranties for the inverters (which are warrantied for 12 years). We are investing in power optimizers and remote monitoring which allows us to monitor the output of individual panels and identify and rectify any faults quickly.</p>
<p>The area where PV systems are located may have much lower levels of sunshine than expected, resulting in reduced output of the panels and reduced income.</p>	<p>Generation and hence income will be lower than expected.</p>	<p>The amount of sunshine will of course vary and it is possible that we may have particularly cloudy months or seasons, reducing output from the panels to below that expected in particular years. However, it is likely that over the 20 years particularly cloudy periods will be off-set by particularly sunny ones. The data that we have for existing PV systems in the local area suggest that they outperform the predicted performance. We are also investing in solar-edge power optimizers, which reduce system losses due to shading or other faults.</p>
<p>Repairs to the roof or other electrical work at site require the system to be shut down for a period</p>	<p>Reduced output from the panels for the period of disruption and reduced income.</p>	<p>This will be addressed in the lease with penalties for loss of income due to any prolonged or repeated shutdowns.</p>
<p>Installer goes out of business</p>	<p>Installer's warranties may be lost and we would need to engage another company to carry out any repairs and maintenance.</p>	<p>Installer warranties are held by a reputable outside organization. There may be potential increased costs for new maintenance contracts.</p>



## General risks of investment in Chester Community Energy Ltd

Risk	Impact/cost of risk	Considerations/Mitigation
Administrative, insurance and maintenance costs rise faster than anticipated as a result, for example, of changes to legislation.	Increased operating costs will reduce returns to members.	Directors will closely monitor ongoing costs and the membership may be able to play a role in minimizing ongoing administrative costs e.g. by receiving communications electronically.
CCEL does not have sufficient funds available to repay shares on request.	Shares cannot be repaid when members request.	CCEL is not obliged to repay shares on request but will make every effort to do so. To provide funds for those who wish to withdraw shares (over and above that put aside to be repaid each year), CCEL may re-open this share offer to allow existing members to increase their shareholding, or to allow new people to become members by buying shares. CCEL could also borrow money from its members or from a bank to repay shares.
Directors mismanage the organisation.	Financial mismanagement allows expenditure to exceed income and CCEL gets into financial difficulties.	Members review accounts and hold directors to account at the AGM and can elect different directors.
Unable to attract new directors to manage the organization.	As voluntary roles, there is the possibility that as the current directors resign, no others come forward to take over. In this case the organization would need to be wound up and assets transferred to another organization with a similar asset lock.	Members will be encouraged to become actively involved in the organization and the directors will plan their retirement and seek replacements in sufficient time. We aim to continue to develop new projects and thus keep the organization active.
Inflation is lower than expected over the next twenty years.	We have assumed that inflation (RPI) is 2%. As CCEL's income is inflation-linked a sustained period of lower inflation would reduce our income and may affect the rate of share interest we will be able to pay.	We aim to pay share interest at a level sufficient to attract and retain members. If inflation and external interest rates remain low, then it may be that a lower rate of share interest would meet this criteria, and we would recommend reducing this at the AGM.

### Risks from Future Projects

We will not invest in future schemes which increase the financial risk to our Members or affect our ability to provide our community benefit, without the prior agreement of our Members.



## Appendix – Income & Expenditure Forecasts

TOTAL	1	2	3	4	5	6	7	8	9	10	15	20	21	
Year	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2030	2035	2036	
<b>Income</b>														
Generation FITs	119,043	971	5270	5338	5407	5476	5547	5618	5690	5763	5838	6223	6633	5456
Electricity Payments	73,703	611	3263	3305	3347	3390	3434	3478	3523	3568	3614	3852	4106	3378
<b>Total Annual Income</b>	<b>192,746</b>	<b>1582</b>	<b>8533</b>	<b>8643</b>	<b>8754</b>	<b>8866</b>	<b>8980</b>	<b>9096</b>	<b>9213</b>	<b>9331</b>	<b>9451</b>	<b>10075</b>	<b>10740</b>	<b>8834</b>
<b>Expenditure</b>														
Admin	17,008	0	700	714	728	743	758	773	788	804	820	906	1,000	1,020
Maintenance	12,149	0	500	510	520	531	541	552	563	574	586	647	714	728
Insurance	14,578	0	600	612	624	637	649	662	676	689	703	776	857	874
Inverter Warranty	1,000	0	0	0	0	0	0	0	0	0	0	0	0	0
Legal costs	1,500	1,500	0	0	0	0	0	0	0	0	0	0	0	0
Panel Removal	15,038	0	0	0	0	0	0	0	0	0	0	0	0	15,038
<b>Total Expenditure</b>	<b>61,273</b>	<b>1,500</b>	<b>1,800</b>	<b>1,836</b>	<b>1,873</b>	<b>1,910</b>	<b>1,948</b>	<b>1,987</b>	<b>2,027</b>	<b>2,068</b>	<b>2,109</b>	<b>2,328</b>	<b>2,571</b>	<b>17,660</b>
<b>Operating Surplus</b>	<b>82</b>	<b>6,733</b>	<b>6,807</b>	<b>6,881</b>	<b>6,956</b>	<b>7,032</b>	<b>7,109</b>	<b>7,186</b>	<b>7,264</b>	<b>7,342</b>	<b>7,746</b>	<b>8,169</b>	<b>-8,826</b>	
<b>Interest &amp; Community Payments</b>														
Share Interest Payments	23,619	0	2,440	2,440	2,440	2,440	2,269	2,098	1,928	1,732	1,537	390	0	0
Loan Interest	250	0	250	0	0	0	0	0	0	0	0	0	0	0
Annual Community	7,873	0	813	813	813	813	756	699	643	577	512	130	0	0
<b>Total</b>	<b>31,742</b>	<b>0</b>	<b>3,503</b>	<b>3,253</b>	<b>3,253</b>	<b>3,253</b>	<b>3,026</b>	<b>2,798</b>	<b>2,570</b>	<b>2,310</b>	<b>2,050</b>	<b>521</b>	<b>0</b>	<b>0</b>
<b>Net Surplus</b>	<b>99,730</b>	<b>82</b>	<b>3,230</b>	<b>3,553</b>	<b>3,628</b>	<b>3,703</b>	<b>4,006</b>	<b>4,311</b>	<b>4,616</b>	<b>4,954</b>	<b>5,293</b>	<b>7,226</b>	<b>8,169</b>	<b>-8,826</b>

### Notes:

Years 1 and 21 are partial years based on a start date of 30<sup>th</sup> September 2016

Years 11-14 and 16-19 have been omitted for ease of reading

## Cash & Capital Forecasts

	TOTAL	1	2	3	4	5	6	7	8	9	10	15	20	21
Year	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2030	2035	2036	
<b>Capital</b>														
Share Capital at Year Start		61,000	61,000	61,000	61,000	61,000	56,730	52,460	48,190	43,310	38,430	9,760	0	0
Share Capital Repayment	<b>61,000</b>	0	0	0	0	4,270	4,270	4,270	4,880	4,880	5,490	9,760	0	0
Share Capital at Year End		61,000	61,000	61,000	61,000	56,730	52,460	48,190	43,310	38,430	32,940	0	0	0
<b>Cash</b>														
Cash at Year Start		0	82	3,311	2,864	2,992	2,425	2,161	2,202	1,938	2,012	2,599	7,888	10,056
Operating Surplus Added		82	3,230	3,553	3,628	3,703	4,006	4,311	4,616	4,954	5,293	7,226	8,169	-8,826
Less Capital Repayments		0	0	0	0	4,270	4,270	4,270	4,880	4,880	5,490	9,760	0	0
New Projects	<b>37,500</b>	0	0	4,000	3,500	0	0	0	0	0	0	0	6,000	0
Cash Year End		82	3,311	2,864	2,992	2,425	2,161	2,202	1,938	2,012	1,814	65	10,056	1,230
<b>Total New Projects/Community Benefit</b>	<b>45,373</b>													

### Notes:

Years 1 and 21 are partial years based on a start date of 30<sup>th</sup> September 2016

Years 11-14 and 16-19 have been omitted for ease of reading