

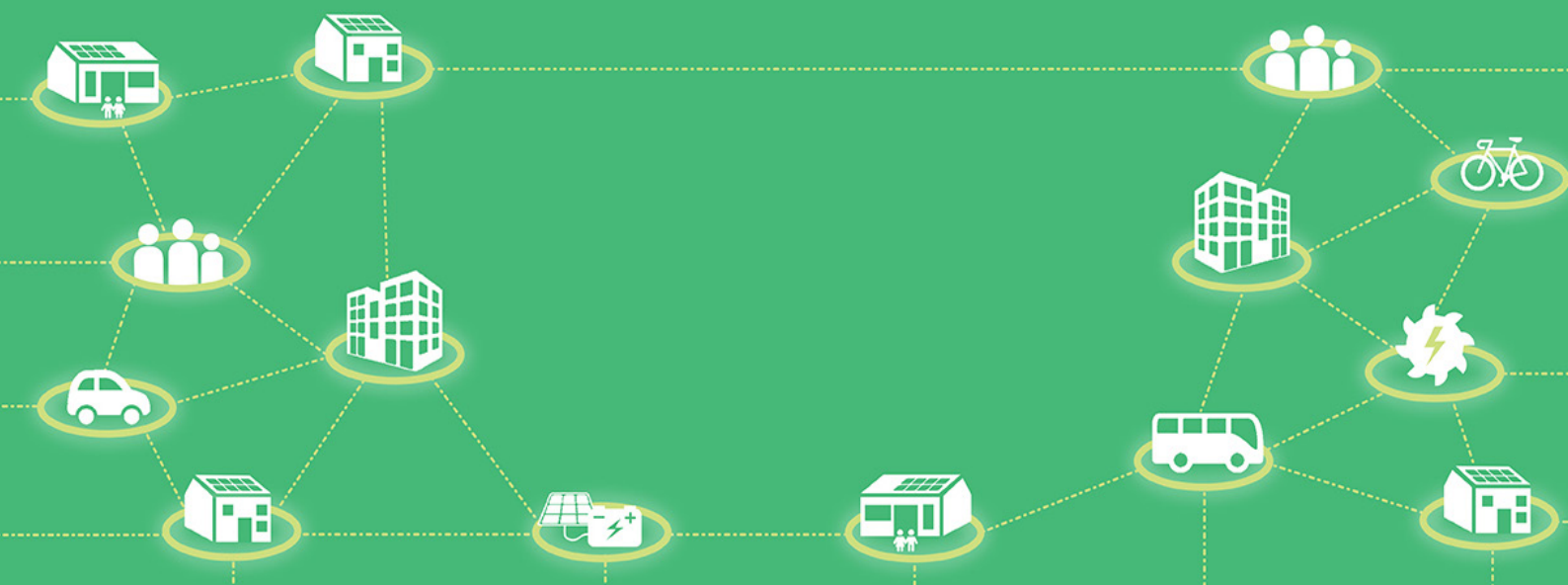


Low Carbon Hub Business Plan 2020–23

Creating energy we can all feel
good about

Plan period: 2020–23

www.lowcarbonhub.org



Low Carbon Hub's vision

Our vision is an energy system that's good for people and good for the planet

Good for the planet requires the energy system to be environmentally sustainable through the full lifecycle of the product and services that underpin it, a fossil fuel-free system that:

- Operates with zero carbon emissions
- uses resources at a rate they can be replenished
- minimises waste and pollution
- seeks to maintain or enhance our wider environment.

Good for people requires an energy system to be secure and equitable, a system that:

- reliably meets all our energy needs for power, heat, and transport
- is accessible to all energy users
- rewards and incentivises individual and collective action that leads to decarbonisation of the grid
- equitably distributes the costs and benefits that are created by the new system.

Our mission

The Low Carbon Hub is a social enterprise that's out to prove we can meet our energy needs in a way that's good for people and good for the planet.

Our role is to be a catalyst of change: driving innovation and creating an ecosystem that is able to develop and pilot practical, real-world solutions that will become models for other communities throughout the world.

Our Values

Our approach

Agile; pragmatic; practical; innovative; creative; transparent; non-proprietary; convenors; prepared to try and fail; holistic solutions: viable, feasible and desirable.

Our principles

Our ethos: community focused; inclusive; collaborative.

Our impact: maximises leverage; tangible; visible; lasting; replicable and scalable.

What makes us different

Community rooted; people focused; motivated by equity above profit; on-the-ground practical experience; depth and breadth of our networks; neutrality.

The next 10 years: our role in Oxfordshire 2020–2030

Oxfordshire's energy needs will be met by an energy system that's good for people and good for the planet. The Oxfordshire Energy Strategy sets out the targets for 2030. We have taken the targets relevant to the Low Carbon Hub and set out below our role in helping to reach those targets. Working with our community shareholders, we expect our role to be *necessary* to this effort but not *sufficient*.

Didcot Power Station has been replaced by renewable energy.

This means that:

- Oxfordshire's renewable generation capacity has increased from 370MWe to over 4,000MWe, mainly solar PV
- the number of large-scale sites has increased from 37 to over 400 (@10MW per site installed)
- we have maximized our 'energy wealth' in Oxfordshire with 6kwp of renewable energy installed per person.

The Low Carbon Hub role is:

- to enable best practice development of renewables, mainly solar, where environmental and social returns are required by the planning system and proven in practice
- to own or part-own ourselves and enable other communities in Oxfordshire to own as much of the new renewable capacity as possible in order to generate an income stream to support work on the rest of our shared vision.

No one has been left behind in that transformation.

- tenants and the people in fuel poverty own or have access to their share of the energy wealth of Oxfordshire

- business models and customer offers in Oxfordshire are inclusive and accessible to all
- narratives and pictures about the energy system show and tell the diversity of the community in Oxfordshire
- assets are deployed in a way that benefits all in society, i.e. infrastructure costs are socialised if benefits from new assets are shared.

The Low Carbon Hub role is:

- to support community-led programmes and activities in all areas of Oxfordshire
- to develop itself, or incubate, new business models and customer offers where there is a gap in the market that prevents inclusivity and accessibility
- to work with communities on narratives and pictures that show what a diverse and inclusive energy system should be like
- to work with local authorities and researchers in tracking progress on the sharing of energy wealth and inclusion in new business models.

We have an energy system that meets the energy needs of people in an equitable way

- there is fair distribution of the costs, benefits, and opportunities that arise from a new local energy system
- a range of service offerings exist, which between them meet everyone's energy needs
- communities are actively involved in decision-making that affects their community
- the public are supportive of the creation of an equitable energy system
- governance and legal structures support, rather than hinder, the creation of an equitable energy system.

The Low Carbon Hub role is:

- to develop and champion the ethical principles to guide the creation of an equitable local energy system and fair local energy service offerings

- to support community-led programmes and activities across Oxfordshire
- to develop itself, or incubate, new business models and customer offers where there is a gap in the market that prevents inclusivity and accessibility
- to work with communities to create narratives and pictures that reflect the diversity of Oxfordshire's communities and the different ways they can interact with the energy system to create local benefits and opportunities
- to work with local authorities and researchers in tracking progress on the sharing of energy wealth and inclusion in new business models
- to share our real-world experience with policy makers to support the creation of an enabling governance framework.

Energy and the network are managed locally.

Why is this important?

The new zero carbon energy system in Oxfordshire will rely on the development of many distributed energy resources, mainly at the edge of the grid rather than having few at the centre, as we do now. This system will:

- be balanced at the local level so that renewable energy production is, as far as possible, available to use throughout the day and across the seasons
- achieve this balancing by energy efficiency of buildings as well as new renewable energy and storage
- accommodate much more electric heat and electric transport
- distribute the benefits of the new system fairly and also fairly mitigate some inevitable local disbenefits, and
- require careful local management and policy-making if all these objectives are to be met.

This means that:

- the new Oxfordshire Energy Strategy will need frequent updating to ensure it meets the challenge of the Climate Emergency

- declared by all six local authorities
- it will need to be underpinned by Local Area Energy Plans developed at both the level of the primary substation, of which there are 62 in Oxfordshire, and the secondary substation
- this process will need careful management by a well-funded, influential governance structure that can co-ordinate delivery across all key actors in Oxfordshire, including parishes and communities.

The Low Carbon Hub role is:

- to develop and operate a Distributed Energy Resources Coordination System (People's Power Station 2.0) where local, small-scale renewable energy assets can be aggregated and traded into a new local energy market
- to develop commercial structures that enable this local market in energy to grow and that enable the value associated with avoided network infrastructure investment to be captured
- to develop business models and supply chains able to retrofit houses and commercial buildings at the required scale of activity
- to support communities to monitor their local primary substation and develop plans and projects to ensure that local generation and use is balanced as far as possible behind each secondary substation within their 'patch'
- to take a leading role in the Oxfordshire Energy Strategy governance structure.

The Oxfordshire planning system is delivering 100,000 zero carbon homes and 80,000 zero carbon jobs.

This means that:

- each local planning authority will need to develop robust local plans and policies that can require and condition zero carbon development in a way that is defensible at public enquiry
- there should be a long-term energy plan for each of the 62 primary substation areas that is included in local plans as supplementary planning guidance.

The Low Carbon Hub role is:

- to support Local Authorities and communities to develop plans and policies robust enough to ensure that the planning system delivers zero carbon development
- to support communities to develop long-term energy plans for their local primary substation area, and
- to support communities to monitor delivery of long-term energy plans.

Image: Sandford Hydro



Our business model

We use investment to grow our portfolio of community-owned renewable energy generation. This both provides the ‘anchor load’ for a local energy system, and generates the income to drive a powerful feedback loop which makes every pound invested go further.

This means that all the financial surpluses from our electricity generation are reinvested in further projects. Helping local businesses to cut their energy use, funding green innovation, and backing further community energy projects.

We have developed an animation describing exactly how it all works which can be viewed on our website and YouTube channel.

Investment also unlocks matched grant funding from Innovate UK. This will enable our renewable installations to sit at the heart of a £40 million real-world trial, taking us a step closer to the decentralised energy system we envision for the future, providing electricity, heat, and a clean transport system, all powered by renewables.

We make every pound of investment work hard to bring our vision of the future energy system to life: homes, schools, businesses, and communities all over the region, generating their own clean energy and becoming more energy efficient.

We’re already at the heart of a growing partnership of people and organisations across Oxfordshire, working together, for a low carbon future. And this success means we can do even more. It’s a virtuous circle – and it could be a game changer.

Because we’re only getting started. We want to make Oxfordshire an example for the world – to show how the right investment, used in the right way, can rapidly create the new energy system we need in communities everywhere.

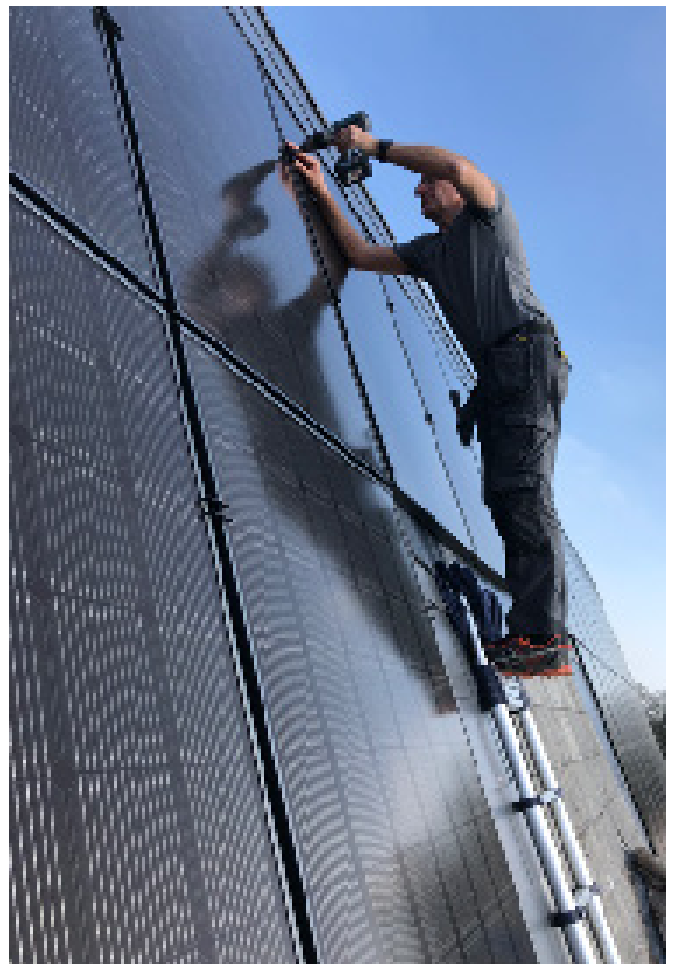
With your investment we can make an energy system that works for all of us, and for the planet, a reality.

Our team

This business model also provides the income to pay for the team that runs the Hub. This income comes from the following sources:

- development fees from successfully commissioned new Low Carbon Hub IPS renewable energy projects
- operations, maintenance, and administration fees from the whole portfolio of Low Carbon Hub IPS projects
- grant funding and service contracts that leverage these income streams and our community benefit surpluses to catalyse innovative approaches to the development of a zero carbon energy system in Oxfordshire.

Image: The installation of solar panels on Kirtlington Village Hall (Low Carbon Hub provided a grant for the feasibility study)



Objectives

Powering up

To maximise Low Carbon Hub ownership of new large-scale renewable energy installations in Oxfordshire with at least 200MW developed or in our pipeline for development by 2023

Through Project LEO we will raise a total of £14.6m equity, debt, and grant funding to deliver a pipeline of new projects including:

- a utility-scale solar ground-mount that will form a pilot project for a new way of combining community shareholder equity with large-scale funders, particularly pension funds
- at least one new, smaller-scale solar ground-mount funded through a business-as-usual combination of equity, debt, and Project LEO grant funding
- a range of new renewable energy and energy storage installations associated with Project LEO Smart and Fair Neighbourhood (SFN) projects
- an optimisation project at Sandford Hydro that will allow the plant to use the River Thames as a battery and to develop a range of flexibility and reactive power services to offer into a new local energy market
- new pilot battery storage projects to help us understand the business models for future investment at scale.

In order to develop these projects, we will also need to:

- work with the Project LEO consortium to trial and test new flexibility services¹
- understand how a community benefit society can raise funds for minority ownership of shares in Special Purpose Vehicle's majority-owned by others
- develop a best practice, Requirements

Document, for ground-mount solar so that we can evidence positive environmental and social impacts throughout the development and operational phases of our projects.

We expect to move on from the initial phase of development, supported by Project LEO, to develop a pipeline of a further 150MW of renewable energy projects for delivery in our next business plan period.

To optimise our portfolio of projects by selling services into a new local energy market

As part of Project LEO we:

- will develop a new operating and communications system, the People's Power Station 2.0 (PPS 2.0)
- will start to define new business models and projects to take advantage of new income streams as the PPS 2.0 gets up and running
- may raise new equity to support the development of PPS 2.0 beyond its pilot phase.

To pilot a new Community Energy Services Company (CESCO) business model for small-scale renewables and energy efficiency measures, potentially at:

- the Abbey Sutton Courtenay
- new social and shared ownership housing at Rose Hill in Oxford City
- new community-owned housing at Hook Norton.

Powering down

To continue our programme of energy audits for schools and community buildings

We will continue to offer:

¹ The offer of modifying generation and/or consumption patterns in reaction to an external signal (such as a change in price) to provide a service within the energy system

- our LessCO₂ programme for schools run with the Ashden sustainable energy charity
- our associated programme of energy audits for schools
- our programme of energy audits for community buildings, funded by generous donations from Westmill Solar Co-operative.

To develop new products to help households and SMEs reduce their energy demand

We will incubate new business services in the Low Carbon Hub that we expect to be spun off into independent new businesses during the plan period. These are:

- Cosy Homes Oxfordshire, a new product for householders being developed with the support of the Department for Business, Energy and Innovation Strategy (BEIS) grant funding
- Energy Solutions Oxfordshire, a new product for small and medium-sized enterprises (SMEs) being developed with the support of BEIS grant funding.

To continue delivery of the OxFutures II programme supported by the European Regional Development Fund

We will continue to deliver business support and grant funding to SMEs for a second phase of our OxFutures II programme. This will support:

- 45 businesses to have energy audits with grant funding available to cover 25% of the costs of installing new energy efficiency measures
- 10 businesses to have 12 hours of business support to develop new ideas for low carbon businesses, products, and services
- two new businesses and four new products and services to be developed with 50% grant funding at feasibility stage and 25% grant funding at implementation stage.

Energy equity

To champion energy equity as both the aim, and a key driver, of the transition to a local energy system

We will work with eight local energy communities to run Smart and Fair Neighbourhood trials as part of Project LEO. These will test how local, low carbon energy trials that use market mechanisms and smart technology can bring value to the electricity network and the people connected to it.

These projects will be led by the community and we will work with the following community groups to develop and implement them:

- Rose Hill and Iffley Low Carbon in the City of Oxford – a model for a Zero Carbon estate
- Hook Norton Community Land Trust – a new community-led housing development with associated microgrid
- Osney Island Residents' Association – new EV infrastructure powered by Osney Lock Hydro
- Westmill Wind Farm, Westmill Solar Co-operatives, and Westmill SmartGrid – trials of new flexibility services and potential new storage facility
- Deddington Environment Network and Sustainable Dun's Tew – the transition to zero carbon heat for remote rural communities
- Eynsham Green TEA – pilot a new approach to community-led governance of the transition to zero carbon alongside major new development
- Sandford and Kennington – piloting a new approach to delivering flexibility services where a hydro project can be aggregated with solar PV and energy efficiency in local SMEs.

The trials will also give us the opportunity to test and deliver

- principles for ethical local energy trial delivery
- principles for equitable local service offering design

- an ethical local energy toolkit, with templates, processes, and techniques to translate the principles into best practice
- a report identifying the learning from the SFN trials and implications they highlight regarding the way the wider energy system impacts on the delivery of equitable local energy services.

Local governance

Low Carbon Hub to play a central role in the local governance of Oxfordshire's energy system

During the plan period we will:

- take up an offer from the Local Enterprise Partnership to sit on the Clean Growth Board
- contribute start-up funding to and sit on the Board of Living Oxford

- develop a plan for how we work with communities and parishes across Oxfordshire to develop and implement energy plans for each primary substation area
- develop a plan for how we work with local planning authorities and communities to ensure that robust local plans and policies are in place that can require and condition zero carbon development in a way that is defensible at public enquiry.

Image: Bure Park School



Social impact

We are continuing both with our existing set of social impact metrics and our annual process for reporting on them. As we develop more products and activity around ‘powering down’ we will review and add to our metrics. Our targets for the current plan period are as follows:

Planet	Starting point	Year 1	Year 2	Year 3
Number of installations	47	48	49	50
Installed capacity	3.97MWp	4	24	32
Annual generation	4,5410MWh	4,600	21.6	29.4
Prosperity				
Total equity invested	£5,872,107	£8,600,000	£9,900,000	£12,400,000
Loan financing	£2,500,000	£2,000,000	£6,300,000	£8,800,000
Total	£8,372,107	£11,000,000	£18,500,000.00	£23,500,000
Interest to investors (lifetime)	£3,928,612	£3,928,612	£6,989,562	£9,367,663
Discounts to hosts (lifetime)	£1,739,617	£1,739,617	£1,739,617	£1,739,617
Community benefit (lifetime)	£2,585,824	£2,585,824	£13,873,239	£15,749,590
People				
Investor members	1,100	1,350	1,600	2,000
Shareholdings	1,723	1,750	1,800	2,000
Community shareholders	35	35	38	40
Host organisations	46	47	48	150
Helpdesk cases	210*	270	330	400
Energy audit recipients	155*	200	250	300
School progamme participants	40*	60	80	100
Facebook followers	462*	600	650	700
Twitter followers	3,159*	3,500	4,000	4,500
Newsletter recipients	1,217*	1,250	1,300	1,350

Resources and structures

Income

During the plan period, the Low Carbon Hub will benefit from four major grant programmes:

- Prospering from the Energy Revolution (Project LEO)
- Supply Chain Development for Domestic Retrofitting (Cosy Homes)
- Supply Chain Development for SME Retrofitting (Energy Solutions Oxfordshire), and
- European Regional Development Fund (OxFutures II).

It is likely that new bids for funding will be developed during year 2 of the plan period if programmes are available that fit our business planning objectives.

We also expect to benefit from community benefit donations made from operating surpluses in the Low Carbon Hub IPS, as well as from donations generously made by Westmill Solar Co-operative.

We expect to raise up to £8m of equity during the plan period through up to four new opportunities to invest in the Community Energy Fund.



Financial forecasts

Our income and expenditure forecasts are set out in the tables below for the three existing companies: the Low Carbon Hub CIC, the Low Carbon Hub IPS, and Sandford Hydro Ltd. We expect to develop or invest in at least one new special purpose vehicle during the plan period.

These forecasts have been developed in the expectation that our objectives for developing new projects and raising new capital will be fully met. We have also, however, modelled a contingency plan to ensure that the Low Carbon Hub as a whole can continue and flourish even if no new development is achieved through the plan period if, for example, the effects of Covid-19 are to delay or make unviable new renewable energy installations.

Share Offer	Available capital £	Capital deployed £	Projects
Solar 2014			
Shareholder equity	1,844,000	1,644,000	16 projects; 1.184MW
Solar 2016			
Shareholder equity	2,128,484	2,128,484	14 projects; 1.868MW
Sandford Hydro 2016			
Shareholder equity	1,474,177	3,840,000	1 project; 440kW
Charity Bank senior debt	2,000,000		
Grant funding	227,107		
ONCORE			
Class A and B shares	223,850	242,937	3 projects; 108.94kW
Community Energy Fund			
CEFo01	678,786	678,786	7 projects; 321kW 1 project; 18MW 1 project; 8MW
CEFo02	103,549	103,549	
CEFo03	728,650	728,650	
CEFo04	1,547,744	1,547,744	
CEFo05	1,500,000	1,500,000	
CEFo06 – 8 (forecast)	5,500,000	5,500,000	
CEF Totals	10,058,729	10,058,729	50 projects; c30 MW
Overall Total	17,914,150	17,914,150.00	

b. Operational Expenditure (OPEX)

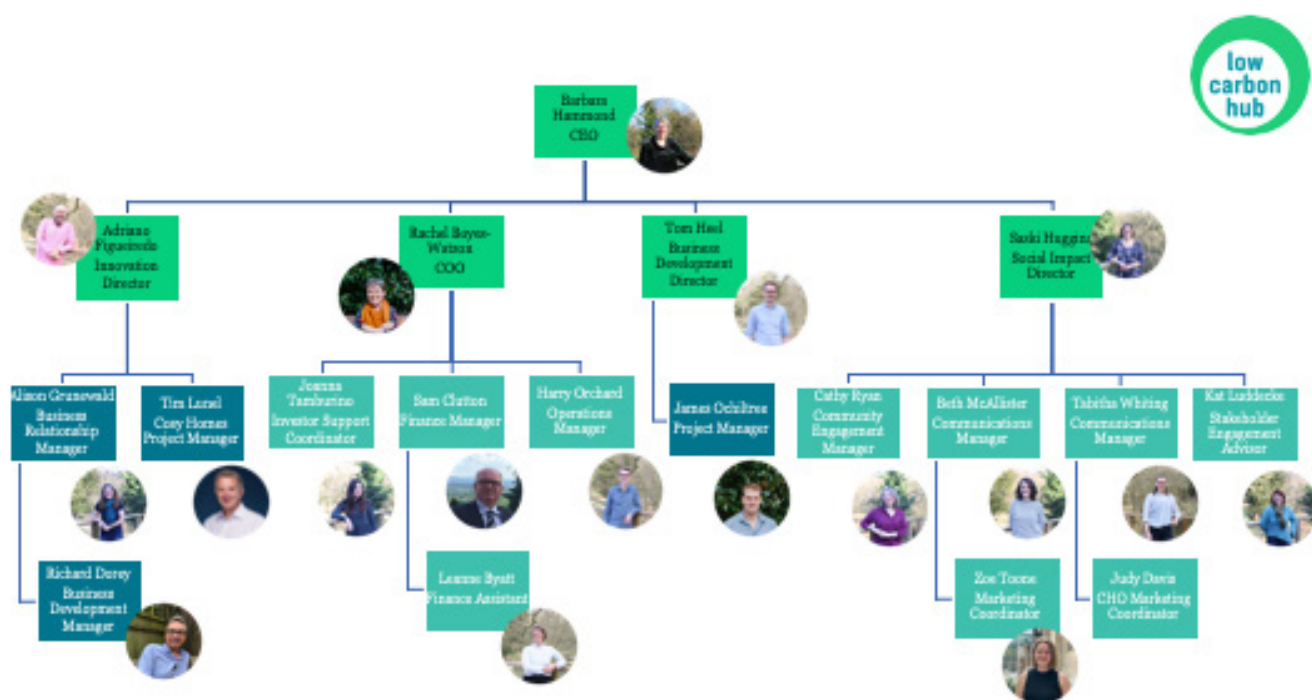
Nb This table assumes £15m of further solar assets are developed by 2023 and that hydro revenues are exactly in line with the expected annual average in our financial model:

IPS OPEX	2020-21 £	2021-22 £	2022-23 £
Total rooftop solar revenues	595,642	610,836	537,306
Total ground-mount solar revenues		395,000	878,468
Total hydro revenues	383,000	389,000	327,000
Total revenue income	1,109,868	1,394,836	1,742,774
Total rooftop solar costs	457,429	460,378	470,710
Total ground-mount solar costs		369,000	820,443
Total hydro costs	262,000	242,600	236,500
Total operational and financing costs	650,130	1,072,000	1,348,793
Solar net income	138,213	150,458	66,596
Solar ground-mount net income		26,000	59,025
Hydro net income	121,000	146,400	90,500
Total profit for community benefit	259,213	322,858	215,121

CIC OPEX	£	£	£
Total fees: O+M and development	230,000	280,000	334,000
Net grant income	1,210,000	770,000	482,000
Total donations (inc Eynsham FITs)	51,500	60,000	60,000
Other services and sales	282,000	73,000	3,500
	1,773,500	1,183,000	879,500
Total staff costs	709,000	594,000	606,000
Community benefit donations	30,000	30,000	30,000
Total expenses	1,676,000	1,183,000	844,000
Net operating income	101,000	0	35,500

Staffing

The organogram we expect to work to throughout the plan period is as shown below. If there is any supplementary capacity required, we will put fixed term consultancy contracts in place from grant or service contract income.



Low Carbon Hub Organogram

Last updated: 14/10/2020

Risks

We have two major risks arising during the plan period. These are:

Covid-19

We have modelled the impacts from Covid-19 on the Low Carbon Hub IPS and Sandford Hydro Ltd. We expect them to be limited in scope and not an existential threat to the ongoing viability of the companies or to shareholder returns.

viability and timing of new renewable energy installations. This is for two reasons:

- firstly, programming new construction will be reliant on global supply chains and the availability of installers in the UK; equipment and personnel could be in short supply as the world pulls slowly out of lockdown
- secondly, there may be downward pressure on energy prices and Power Purchase Agreement prices because energy demand is suppressed and there is oversupply, especially from solar in the summer period; it is also likely that it will be more difficult to secure long-term contracts.

Inability to develop new renewable energy installations

We are committed to developing projects worth £14.6m under our Project LEO grant. The following is our summary of risks that may prevent us from reaching that target:

- Covid-19 risks as outlined above
- inability to raise equity to target because of a depressed economy consequent upon Covid-19
- changing Government policy making projects unviable, including:
 - Removal of Embedded Generation benefits in April 2021 with no certainty about how they will be replaced before new local energy markets are properly up and running
 - Ending of the FIT export tariff with no floor price set for the replacement Smart Export Guarantee
- lack of a UK market for long-term Power Purchase Agreements.

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