

ABERDEEN COMMUNITY ENERGY & the Donside Hydro

BUSINESS PLAN

March 2016

"to deliver on the founder's ethos of Donside Village as a sustainable community, one that truly works for both its inhabitants and natural riverside setting, while delivering a project that is aligned with local, national and EU policy on energy, climate and sustainable communities"



Artist's Impression of the Donside Community Hydro Electricity Scheme in the riverside setting at Donside Village, Aberdeen.



Version	Author	Date
V1.0	Sinclair Laing	28 March 2016

Aberdeen Community Energy, ACEnergy & ACE are trading names for Donside Community Hydro Limited, a Community Benefit Society registered with the Financial Conduct Authority, number: 7251

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1. SUMMARY

1.1. Introduction

The Donside Hydro Electric Scheme is a community driven renewable energy initiative that aims to create Aberdeen's first sustainable community. It will generate clean, renewable energy to help meet our nation's energy needs and it will help transform the area we call home.

The vision is to deliver on the founding ethos of Donside Village as a sustainable community, one that truly works for both its inhabitants and natural riverside setting, while delivering a project that is aligned with local, national and EU policy on energy, climate and sustainable communities.

The concept of a hydro scheme in Donside Village began in 2009 when the then owner and developer of the site, a Registered Social Landlord (RSL), obtained planning permission for an Archimedes Screw turbine. It was anticipated that the scheme would generate enough clean and renewable energy to power the new village at a low cost of energy for the residents. Since this date, ownership of the site passed to a new RSL, Sanctuary Housing, who were keen to focus their efforts on their core business - building homes in the Village. The new community at Donside, having formed into the Donside Community Association through the direct encouragement and support of the owners, anticipated the opportunity for a community energy venture and, with positive encouragement from the owners, initiated plans and accessed support and funding to take the project forward as a community energy project.

The completion of the project development stage has been funded by grants and loans from the Scottish Government's Community and Renewable Energy Scheme (CARES) and is now complete. CARES funding consisted of £10,000 Start-Up Grant a further £125,000 (to date) as a non-secured loan. This money has been spent on the environmental & feasibility studies, securing permissions, legal and finance support services, and payment of the grid connection, and deposits for the turbine and electrical control systems.

The site now has full planning permission and the necessary licences from the SEPA to proceed. The site has also been registered with OFGEM for "preliminary accreditation" which means that we have locked into a guaranteed Feed in Tariff as long as the scheme is built and commissioned before 29th September 2016.

The only documentation still incomplete is the lease which is in negotiation. Completion is anticipated soon and construction will not start until this is achieved.

The purpose of developing the scheme is to help mitigate climate change and deliver community benefit predominantly through community funds. These funds will be used to develop and deliver a range of projects and activities in this area of social deprivation, including development of the riverside for local residents, visitors and wildlife.

1.2. The Project

The project's purpose is to generate hydroelectricity at Donside Village and provide a sustainable income for community benefit.

The development of the hydro delivers four main benefits:

1. Generating clean, local renewable electricity that feeds into the national grid, displacing the use of grid electricity, most of which is currently primarily fossil fuel based;
2. Providing a sustainable source of income that will fund local community developments as follows:
 - a. 50% of the surplus will be fed into the Donside Community Association, allowing them to deliver their defining objective – continuing collaborative work with Sanctuary and other partners to create a truly sustainable urban community;
 - b. 50% will be directed into Sinergy, a new social enterprise that will provide capacity building and seed funding for further community development and enterprise projects locally;
3. Offering the opportunity to learn and invest in a community project;
4. Supporting Scottish and UK Government Policy in the move towards renewable energy and sustainable, empowered communities. We aim to make the most of the renewable energy resource available on the site, at a cost effective scale. It is estimated that the project will displace the equivalent of approximately 240* tonnes of carbon dioxide (CO₂) emissions from the atmosphere every year.

The scheme is being set up as a social enterprise, using the platform of a community benefit society to ensure that the profits generated from the scheme are ploughed back in to the local community.

It is intended that capital will be obtained as loans and as equity, with the equity being raised from a community share offer.

The FIT element of income will only be received for the first 20 years, but income from sale of electricity will be received throughout the 40 years of the lease. Once all loan and share capital has been paid back, the scheme will continue to run as a community scheme with all surplus profit being reinvested for community benefit locally.

Full details of the UK governments FIT scheme can be found on www.ofgem.gov.uk, the website of OFGEM who is the regulator of the electricity industry.

* (assuming a CO₂ conversion factor for electricity of 0.46 kg/kWh)

1.3. Distribution of Profit

After payment of loan capital, interest and operating costs, surplus profit will be shared between community shareholders and a community fund. Share interest will be set at the rate deemed necessary to attract sufficient investment. Remaining profit will be put into a community fund.

Community equity (shares) will be the preferred form of capital because this is likely to come at lower cost than loan capital, and because it can be obtained over a longer term, thus maximising the immediate community fund. Community equity also returns profit from the scheme back to community level investors thereby benefitting local economies also while giving something back to those who affiliate themselves directly with the social and environmental objectives of the venture – as opposed to anonymous shareholders investing for financial gain alone. Loan capital will however be necessary in the short term as bridging finance to give time for share capital to be raised.

The profit will be shared between shareholders and community fund, in a way designed to give a fair return to shareholders with surplus above this going into a community fund, consistent with providing an incentive for the owners (shareholders) to maximise the output and income from the scheme. This will be achieved as follows: The first £5000 p.a. of the profit will be put into the community fund. Of the remaining profit, 30% will go into the community fund and the remaining 70% will be returned to shareholders.

In our central projected scenario, this will provide a return of 6% (measured as IRR) to shareholders, and channel about £600,000 back into the community over the next 20 years.

If the generator performs better than our projections, both members and the community will benefit, and vice versa. Various scenarios are examined in section 6.

1.4. Community Investment Plan

The high level vision of ACE is rooted entirely in creating sustainable benefits that are relevant to the community. Therefore, engaging with stakeholders and understanding their needs and desires are at the heart of ACE and the DCA. Each of the projects that are funded by the DCA, in part through surplus profit donated by ACE, will be guided by what the community needs and wishes.

Detail of the arrangements for disbursement of the community fund, including the work of the DCA, their engagement strategy and specific projects, are provided in their draft Community Investment Plan. The draft Plan is evolving rapidly as a part of this live engagement process. The draft Plan, and future revisions of it, are provided via the DCA website: <https://DonsideVillage.Community>

2. BACKGROUND

2.1. The history of community energy

Community ownership of renewable energy has been growing rapidly in the UK and Europe over the past 15 years through both Co-operatives and Community Benefit Societies, which are both forms of Registered Society.

The first community energy society in the UK was Baywind Co-operative in Cumbria, established in 1997. Eleven years later, Torrs Hydro in Derbyshire became the UK's first hydropower Society. There are now renewable energy societies across the UK and across the various technologies.

Registered Societies are democratic structures with the legal ability to raise money directly from members of the public. With a one member one vote system and a board elected from the membership, they offer a fair and transparent way to operate a community owned renewable energy business. They also have the power to prioritise investment from the local area, ensuring that, as much as possible, financial benefits from renewable energy are felt by people in the locality.

This scheme aligns with the Scottish Government's commitment to make Scotland a Hydro Nation to maximise the benefits to the Scottish economy through the economic development and good stewardship of Scotland's abundant water resources. It also supports the government's ambition to see increased community ownership of renewable energy capacity - 500MW of renewable energy to be locally or community owned by 2020, and to maximise the benefits to communities from commercially owned energy, as well as supporting the delivery of its target to generate the equivalent of 100% of Scotland's own electricity demand from renewable resources by 2020.

2.2. Donside

Donside Village has an enviable location on the banks of the River Don approximately 4km from the city centre of Aberdeen. It is on the site of the former Donside Papermill in the wider Tillydrone community. The papermill occupied the site until its closure in 2001 and demolition in 2006.

The site has been, and continues to be re-developed into a sustainable mixed community one of the UK's largest Registered Social Landlords; Sanctuary Housing.

Inside the original boundary of the former papermill, new modern energy efficient flats and houses have been built, with a mix of social housing, part buy and owner occupied properties. The properties overlook the river which will be designed and landscaped by the community as an amenity for people and wildlife from the local community and beyond.

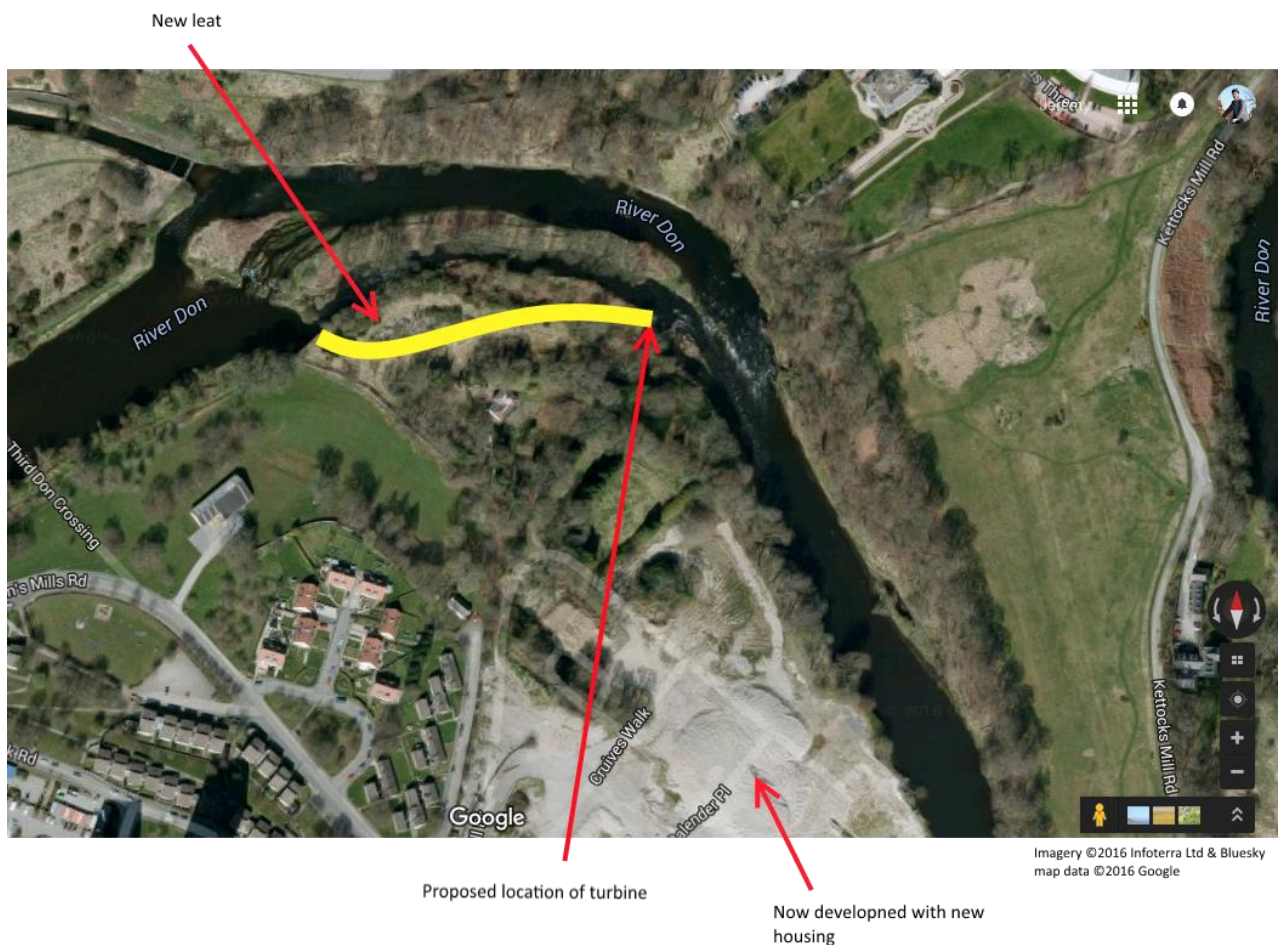
This community is known as Donside. It is represented by the Donside Community Association, made up of the residents and friends of Donside Village.

Donside is located within the wider community of Tillydrone, which grew up around the local mills and comprises older terraced housing, tenements and tower blocks, much of which would have provided accommodation for workers at the mills. These properties are a mix of owner occupied and local authority social housing. Properties here have much poorer energy efficiency and Tillydrone as a whole is one of the most socially deprived communities in Scotland, with parts falling within the top 10% and 15% most deprived communities in Scotland on the [Scottish Index of Multiple Deprivation](#) (SIMD).

2.3. The site

The proposed site for the micro hydro scheme is at a bend of the River Don, at the edge of the former papermill which is now being re-developed for a variety of other purposes, including residential housing, with the riverside being developed by the community for recreational use and wildlife value.

The area around the weir is being secured from the landowner and developer, Sanctuary Housing, to the community for the generation of renewable energy. This opportunity has been initiated and driven forward by Donside Community Association.



The weir was built to provide the power for the papermill but has not been used for many years. The structure of the weir is significantly degraded and breached, leaving a gradually sloping river bed that falls over a depth of about 2.5m over a distance of about 400m around a bend of the river. The hydro scheme will be fed by a new lade, cut across the bend making use of the full extent of the natural fall.

A feasibility study indicates that the site has the potential to generate about 400kW of power but under the current Feed in Tariff regime a scale of 100kW is the most economically feasible.

2.3.1. Ground conditions

During the time that the mill was in use for paper production, various by-products were disposed of locally and remain in the ground. A contamination survey has been undertaken and a mitigation plan has been prepared by Sirius, land remediation specialists, in consultation with the Local Authority's Contaminated Land team. It is agreed that any contamination will be monitored and managed during construction by an independent professional environmental scientist and arisings will be deployed elsewhere on the development site in an approved and appropriate manner.

2.4. Aberdeen Community Energy

Aberdeen Community Energy is a new community energy company established in 2015 by the residents of Donside Village (through the Donside Community Association) to build, own and operate the Donside Hydro scheme for the benefit of the community. Once the Donside Hydro scheme started to reach the construction stage, the community decided that it was more appropriate for the development to be completed by this new organisation.

Following discussion with other community energy organisations, it was clear that the most appropriate platform for running the hydro generator from is a Community Benefit Society, which is a form of Registered Society and is regulated by the Financial Conduct Authority.

A new Society was set up, named Donside Community Hydro Limited (DCHL), trading as Aberdeen Community Energy (ACE), which has a FCA registration number 7251 and has a registered office at 44 Papermill Avenue, Aberdeen, AB24 2PB. As a Registered Society, DCHL is permitted to raise capital by selling withdrawable shares under the Co-operative and Community Benefit Society Act 2014.

More about Aberdeen Community Energy and the Donside Hydro, including its Directors, Rules and this Business Plan can be found on their website at: <http://ACEnergy.org.uk>

2.5. Donside Community Association (DCA)

The Donside Community Association (DCA) was set up in February 2013 through the direct encouragement and support of the developer of Donside Village, Tenants First / Sanctuary, who sought to not just build houses but deliver a strong, empowered and independently minded community at the site. The DCA acts in the best interests of the local community, with representatives from the community taking on roles and responsibilities to develop the community through the setting of goals, accessing of funds and organisation of projects, events and activities designed to bring and bind the community together. It aims to act as a voice for Donside at a local level through involvement and engagement with local networks, community councils and other partner agencies including the Scottish Police Service, Absafe / Neighbourhood Watch as well as acting as a conduit between the occupants and site's Social Landlord, Tenants First/Sanctuary.

The DCA has taken the initiative and lead to develop the hydro project through the feasibility and permitting stages, through to the point of construction. The DCA is currently an Unincorporated Association and is in the process of registering as a Scottish Charitable Incorporated Organisation (SCIO). This will provide a stronger governance structure as well as being more tax efficient.

More about the DCA's, including its Constitution, Community Investment Plan – the strategy for how it plans to invest its share of the income from the scheme - as well as details of past projects can be found on their website at: <http://DonsideVillage.Community>.

2.6. Sinergy

Sinergy is a new social enterprise established in 2016 through the Donside Hydro project. The purpose of Sinergy is to act as a catalyst for community innovation and enterprise locally. Sinergy will work with Donside Community Association and other aspiring communities to identify, develop and deliver community development and enterprise projects in their communities.

Sinergy is also in the process of registering as a SCIO for the same reasons as are the DCA – to provide a strong and regulated governance structure and tax efficient organisation.

More about Sinergy, including its Directors, Constitution and approach can be found on their website at: <http://Sinergy.org.uk>

2.7. Other key organisations

2.7.1. Sanctuary Housing and Tenants First (landowners & developers)

Donside Village was conceived and constructed on the former papermill site by Tenants First, now a member of the Sanctuary Housing group. With around 100,000 homes in the UK, Sanctuary is one of the UK's leading social landlords. With more

than 40 years' experience in housing, providing good quality, affordable homes is at the heart of what they do. As a not-for-profit organisation, Sanctuary reinvest any surplus they make back into the local community, look after our homes, improve services and make the communities we serve a place people are proud to call home.

Tenants First / Sanctuary positively encouraged the DCA to progress the Donside Hydro scheme as a community energy venture, on the understanding that the benefits from the scheme are re-invested in the community.

2.7.2. [Local Energy Scotland](#)

ACE is being supported by Local Energy Scotland (LES) - a consortium which administers and manages the Scottish Government's Community and Renewable Energy Scheme (CARES).

LES helps communities via a wide range of support, including: access CARES, Support to access the Renewable Energy Investment Fund (post-consent loans). CARES has been established by the Government to accelerate progress towards government community and renewable energy targets. They want to support the development of locally-owned renewable energy projects, particularly those which provide wider community benefits.

ACE is supported by LES's Development Officer, James Buchan, who has supported over 60 community energy projects. James specialises in hydro, having supported over 20 hydro projects including the successful Callander, Garmony and Merk community Hydro projects. As such, James and the wider support through LES are well placed to provide dedicated support focused on the success of the Donside Community Hydro Scheme.

2.7.3. [Sharenergy](#)

Sharenergy is a social enterprise that exists to help local communities to successfully set up and run local community renewable energy schemes. Sharenergy has been involved with setting up numerous hydro, solar PV, biomass and wind turbine cooperatives and community benefit societies across all parts of the UK that rely on community share for providing capital. Sharenergy, through Jon Halle and Jeremy Thorp, are assisting Aberdeen Community Energy to develop the Business Plan and raise the capital finances to construct the scheme.

Jon is a founder director at Sharenergy with a wide knowledge of renewable energy. His key roles within Sharenergy are in financial modelling, co-operative and share offer creation, landowner agreements, marketing and outreach.

Jeremy has a special interest in hydropower and also had extensive experience working as an energy advisor. Prior to this, Jeremy spent several years working in the mainstream electricity industry in National Grid and its predecessor CEGB.

2.7.4. Mann Power Consulting Limited

Mann Power Consulting is the UK's leading supplier of Archimedean Screw hydropower turbines. Mann Power introduced the first Archimedes screw as a turbine generator to the UK in 2004 and since then have commissioned more than 40 hydropower systems across the UK and designed and implemented more Archimedean Screw systems than any other company.

Dave Mann, Managing Director & Chartered Engineer, and his team are designing and supplying the mechanical & engineering elements of for the Donside Hydro. Dave is a well-known leading figure in the industry, serving on the Council of the British Hydropower Association

2.7.5. Highland Eco-Design Limited

Highland Eco-Design Ltd is a geographically distributed company of micro-hydro installers based throughout Scotland. Since incorporation in 2009 Highland Eco-Design Ltd has successfully secured consents for almost 2 MW of micro-hydro capacity. They have commissioned just over 1.1MW of capacity across 28 installations by the end of 2015. They are members of the British Hydropower Association and Scottish Renewables. They have worked with a number of community groups including Apple Juice (Applecross Community Ltd) and Braemar Community Hydro.

Highland Eco-Design, and specifically Mick Bestwick, Director & Hydropower Engineer, have been working on the Donside Hydro scheme since its conception. They have been commissioned to continue using their significant expertise and connections across the sector to support the project through to operation and beyond. Mick specialises in securing permissions and project management in the North East.

2.7.6. HBJ Gateley PLC

HBJ Gateley is a progressive and dynamic firm with entrepreneurial spirit and a significant client base in both Scotland and England. They were the UK's first commercial law firm to become a publicly-quoted company.

Paul Minto, Partner, is supporting ACE in relation to property negotiations. Paul specialises in energy and climate change law, planning and environmental matters relating to electricity and renewable energy projects. Paul is a leading figure in community energy projects.

2.7.7. Burness Paull LLP

Burness Paull has some of the largest, most experienced teams in the country, working across a wide range of industries.

Stephen Phillips, Partner, is working to support ACE establish clear and appropriate legal structures and distribution of community funds. Stephen specialises in corporate structures, for the delivery of social enterprises, and other initiatives and operations right across the not-for-profit sector. His practice ranges from flagship projects of Scotland-wide importance to support for individual community-led organisations. He is also widely recognised as one of Scotland's leading charity law specialists. Stephen is ranked in Band 1 by Chambers UK in both charities and local government.

2.7.8. DEP Landscape Initiatives

DEP Landscape Initiatives is a small practice providing landscape design, urban design and environmental planning services for clients across public and private sectors. The company has directed the design and implementation of over 300 projects across Scotland and the north of England. They provide a highly professional service in the fields of urban regeneration, master-planning, environmental impact assessments and landscape design for residential, leisure, retail, education and industrial development.

Steve Bridges of DEPLI conceived the original high spec landscape designs for Donside Village and continues to provide landscape assessments and design for the Donside Hydro scheme and associated recreation and wildlife space improvements.

2.7.9. [Weber Shandwick](#)

A full service global engagement and communications agency, Weber Shandwick builds and protects brand and company reputations and helps transform businesses and bottom lines. The team in Aberdeen has extensive experience across the energy sector, from oil and gas to renewables, and is passionate about the profiling of alternative energy projects.

ACE has partnered with Weber Shandwick, and specifically Lindsay Jepp and Mhairi Greer, to support the launch and subsequent development of ACE and the Donside Hydro Scheme.

Lindsay is a strategic communications professional with experience designing and implementing corporate social responsibility strategy across five countries built around achieving long-term sustainable benefits and the specific needs of society. Mhairi is a senior account executive with over five years' experience of working in media relations and public affairs agencies in Scotland. She is well practised in helping to deliver integrated PR and social media campaigns for clients in a range of sectors, including energy. Much of this involves promoting and raising awareness of clients' work within local communities and engaging with key stakeholders.

3. BUSINESS OVERVIEW

The sole activity of ACE is the ownership and management of a hydroelectric scheme on the river Don at Donside for distribution of surplus profit for community benefit.

3.1. The site

The hydro scheme will be located on a bend in the river Don, on a site that until recently was a papermill that was decommissioned in 2001. There was originally a weir that was part of an original mill on the site. The structure of the weir has largely broken up leaving a shallow cascade that falls by about 2.5m over a distance of about 400m.

3.2. Feasibility work

A feasibility report was commissioned from Mann Power Consulting and this was completed in mid-2015.

The feasibility report concluded that the site is suitable for installation of a 100kW Archimedes Screw turbine and generator, providing an estimated yield of 520,451 kWh per year. This yield takes account of river flow data obtained from SEPA and from 6 months on site monitoring, as well as constraints imposed by the abstraction licence.

The construction costs and running costs predicted in the feasibility report, along with more recent quotes, are the figures used in the financial projections in section 5 of this document.

3.3. The apparatus

The proposed installation will comprise a single Archimedes screw turbine fed by a new lade about 200 metres in length that would be cut across the bend in the river. The apparatus will comprise the lade, an Archimedes screw 4.3m in diameter, together with a gearbox, generator, inverter and control system that would generate electricity for export to the grid. The gearbox, generator and control system will be contained in a dedicated power house.

In addition there will be a sluice gate to control entry of water to the turbine, and a coarse screen to prevent large objects and wild animals from entering the screw.

3.4. Permitting

3.4.1. Planning permission

Conditional planning permission was granted in 2009 by Aberdeen City Council for the construction of an Archimedes screw turbine and generator and associated works at the site. The permission remains in place as ground works have already been carried out on site.

The planning permission was obtained for a much larger scheme than is now proposed. The permission was obtained before the Feed in Tariff came into existence and is for three Archimedes Screw turbines to be operating in parallel. With the advent of the Feed in Tariff, and different tariffs that apply to different sizes of turbine, the economics of a large turbine are no longer viable and the most economically viable option is for a capacity of 100kW. The DCA have obtained confirmation that reducing the size of the scheme will not affect the planning permission. A non-material variation to the planning permission has been submitted to Aberdeen City Council and no issues are foreseen with this.

The planning decision can be viewed online at

<http://planning.aberdeencity.gov.uk/PlanningDetail.asp?ref=082123>.

The permission is conditional, with pre-development conditions already having been addressed and the remaining conditions assessed, discussed with the relevant authority & with specialist service providers. These have been programmed in and costed in the financial projections.

The permission was applied for in the name of Devanha Housing Partnership, which was the company developing the site at the time. Development of the site has since passed to Sanctuary Housing, but the planning permission is transferrable to any future owner of the site.

3.4.2. Scottish Environment Protection Agency (SEPA) licence

A CAR (Controlled Activity Regulations) licence for abstraction and return of abstracted water was obtained from the SEPA in January 2011. There is no expiry date to a CAR Licence.

The licence incorporates conditions which have been assessed, discussed with the relevant authority and with specialist service providers and costed in the financial projections.

3.4.3. Grid connection

A time limited grid connection offer has been obtained from Scottish and Southern Energy Power Distribution for a sum of £66,804. To avoid the risk of losing this grid offer, this sum has been paid in full out of the CARES loan funds received.

The grid connection would comprise the construction of a new substation, and underground cable to link this with the nearest existing substation. The connection to the grid will be made at 11 kV.

All of the generated power will be exported to the grid. Direct connection to suitable local loads is also being investigated as this would provide higher return for the energy generated.

3.4.4. Site access

The site is owned by Sanctuary Housing, through its subsidiary Tenants First. Sanctuary Housing have provided positive support in writing for the local community to take the scheme forward as a community energy venture, on the understanding that the benefit should be re-invested in community good locally.

The lease is currently under negotiation. Any further spending on the scheme, and in particular spending of any share capital raised, is conditional on this lease being signed. If for any reason the lease cannot be signed in time, no share capital will be spent and monies returned to applicants.

ACE is obtaining legal advice in relation to the lease from HBJ Gateley, which is being funded from CARES loan funds.

It is expected that the lease will be for 40 years after which time the Society expect to have an option for extension to the lease from the landowner.

3.5. Feed in Tariff

Renewable energy installations such as this are eligible for subsidy funding through the UK governments Feed in Tariff scheme administered by OFGEM, the UK electricity regulator. (see <https://www.ofgem.gov.uk/environmental-programmes/feed-tariff-fit-scheme>). Renewable generators receive a tariff, called the FIT tariff, for each kWh of energy generated from their scheme. The tariffs vary between different technologies and sizes, and have been gradually reducing in size over time, which is referred to as "degression".

Up until October 2015, OFGEM operated a system called Preliminary Accreditation, which enabled renewable energy schemes to lock into a given FIT tariff once all the required permitting had been obtained. This provided some degree of certainty on the income that would be generated even if the tariff reduced ("degressed") before the scheme could be commissioned.

Preliminary Accreditation for hydro locked the tariff for two years from the point that the accreditation was granted. This project obtained preliminary accreditation on 30th September 2014 which means that this accreditation runs out on 29th September 2016. This means that as long as the scheme is commissioned on or before 29th September 2016, we would receive a tariff of 20.28p/kWh for each kWh generated. This tariff would be guaranteed for 20 years and would be indexed by RPI each year.

If the scheme commissions after 29th September 2016, the scheme would receive 8.50p/kWh for each kWh generated.

In addition, we would receive the export tariff, currently 4.91p/kWh for all electricity exported to the grid, or could opt to sell it to an electricity supplier if a better price could be obtained. Present day wholesale electricity prices are lower than the OFGEM tariff of 4.91p, so we anticipate starting by signing up for this tariff, but the Society has the option of switching to a PPA in the future if electricity prices recover.

3.6. Fish migration

The SEPA licence application had to address the issue of fish migration. At this site, the previous weir has degraded leaving a cascade of water falling down a shallow gradient in the river bed, providing easy upstream migration for fish. In the light of this, SEPA have accepted that no further provision for fish migration needs to be incorporated into the design.

3.7. Operation of the Hydro Installation

The proposed turbine will be an Archimedes screw, 4.3m in diameter. The Archimedes Screw is a very old technology, developed in ancient Greece for pumping water and more recently being used in reverse mode to generate electricity. The Archimedes screw is a reliable and simple design.

The screw would be installed at the tail of a new lade that will be built to bypass the existing weir.

Over the past 10 years, many Archimedes Screw schemes have been commissioned in the UK. The majority of these are private schemes, but there are community owned Archimedes Screw turbines installed at New Mills in Derbyshire, at Settle in Yorkshire and elsewhere – with other schemes under development. Many schemes welcome visitors.

The main points specific to the proposed installation are as follows:

- 1) The turbine will divert a maximum of 10 cubic metres per second of water.
- 2) Our licence from SEPA imposes a condition of 6.76 cubic metres per second “hands off flow” which means that the turbine is not permitted to run unless the amount of water remaining in the river exceeds this amount. This is normal for hydro schemes and may mean that for some time in the summer the turbine will not run - this has been accounted for in the financial projections.
- 3) The yield of electricity depends on the annual water flow. Flow data was collected from the local Parkhill gauging station as well as from 6 months of direct monitoring on site. A flow duration curve has been used to estimate the total energy that would be extracted from the turbine.
- 4) Archimedes screw turbines have been proven to be safe for downstream passage of fish as long as certain precautions are taken (in particular, rubber “bumpers” on the leading edge of the blades). SEPA are satisfied that this is acceptable. The turbine is slow moving (20 – 30 rpm) and fish travel through the turbine unharmed. (see www.fishtek.co.uk/hydropowerresearch.html).
- 5) An ecological survey has been carried out which established that otters were present. The abstraction licences requires us to take measures to protect otters from any harm from the screw. The screw is designed to have an otter screen to prevent otter passage into the system. Before and during construction, expert

advice will be on hand to ensure that we do not breach any protection requirements for otters or other protected wildlife.

- 6) A Flood Risk Assessment has been carried out and this has demonstrated that the development will create additional storage to the functional floodplain, thereby the scheme will have a positive effect on the flood potential upstream and downstream of the scheme.
- 7) A Noise Assessment was carried out as a condition of the planning permission. This concluded that noise mitigation measures may be necessary to reduce the risk of noise impact on neighbouring properties. These measures have been included in the design of the scheme.
- 8) The energy capture estimated by Mann Power Consulting for the screw would be about 520,451 kWh per year. This represents a capacity factor of about 60%. This allows for the fact that during low water in summer, there may be periods of time when there will be insufficient water to power the turbine without causing the weir to be dry and during these times the screw will not operate.

3.8. Microgeneration Certification Scheme

Due to government delays in creating an appropriate Standard for hydropower, this certification, which is needed for other technologies in order to claim the FIT, has been waived in the case of hydropower installations. This situation will be monitored, and if certification becomes a requirement, The Society will ensure that all certification requirements will be met to ensure that the scheme is FIT compliant.

3.9. Electricity sales

The electricity will be exported to the grid and there will not be any use of electricity on-site apart from a very small amount ancillary to the turbine (lights, security etc).

The Society will have a choice of whether to take the OFGEM generation tariff for the exported electricity or whether to sell into the wholesale market through an electricity supplier through a Power Purchase Agreement (PPA).

The best value option will be chosen and at the present time this is expected to be to accept the OFGEM export tariff. The FIT regulations permit us to switch to a PPA in the future if this proves to be beneficial.

3.10. Public access

The site is adjacent to Donside Village, the new housing development that has been built on the site of the old papermill. It is also adjacent to the local community centre and there is a new long-distance riverside pathway passing directly by the scheme, part of which diverts over the lade to an 'island' providing recreational interest for local and visitors as well as adding wildlife value.

In these circumstances, the scheme offers a high quality local facility of regional interest. This will be capitalised on by developing public and school age education programmes on renewable energy technologies and other STEM subjects.

The site will be constructed such that the public will be able to view the turbine but at the same time the scheme will incorporate appropriate barriers and guards so that there will be no safety risk to the public.

The turbine is slow moving (20 – 30 rpm) and will have screening over the screw, and at the intake and outflow that will prevent unauthorised access to any moving parts.

3.11. Project Timeline

The project timeline is governed by the deadline imposed by Ofgem preliminary accreditation which requires that the scheme is commissioned before 29th September.

This in turn means that the construction needs to begin during May to be sure that this deadline is reached.

Construction cannot start until the Society can demonstrate that it has the financial resources to complete the construction. Given that a share offer could not complete before this date, the option chosen is to arrange for loans to cover the construction of the project and to replace this with shares as soon as reasonably practical. The timeline below takes this into account.

Pre March 2016	All permits, grid connection and preliminary accreditation confirmed
March 7th	Invitation to tender for civil works published
March 28th	Tender response deadline / tenders analysed, contractor appointed
April 30th	Land agreements secured
April 30th	Bridging loan finance arranged to cover construction costs
May 1st	Construction commences
May – August 2016	Construction of civil engineering work takes place
September 2016	Installation and commissioning of mechanical and electrical engineering works
April 19th (TBC)	Share offer launched to enable repayment of bridging loan

A construction schedule has been prepared and agreed with civil engineering contractor - attached as Appendix B. The project timeline indicates that if construction starts in w/c 1st May, then commissioning would be scheduled for w/c Aug 26th allowing significant contingency margin before the FIT deadline of 29th September.

4. FINANCE OPTIONS

The capital required for the scheme will be raised from a combination of financial options.

4.1. CARES funding

The Scottish Government recognises the value of community and provides a variety of support mechanisms for assisting the establishment of schemes. One element of this is finance, both small grants (£10,000) and significant loans (up to £150,000), through its Community And Renewable Energy Scheme (CARES).

CARES assists with early stage development of community renewable energy projects during the risk stages when commercial loans would generally not be available. The loans are intended to be repayable once the scheme is commissioned and other forms of finance can be used to replace them. Both a CARES grant and loan has funded most of the development stages of the project.

4.2. Community shares

As a Registered Society, ACE is permitted to raise capital through sale of withdrawable shares under the Co-operative and Community benefit Act 2014. The intention is to raise the whole capital through this means and refinance short term loans that will be used to enable the construction phase of the scheme.

People who buy shares will be members of the Society. They will, depending on performance, receive interest and repayment of capital over a 20 year period. Withdrawable shares cannot be traded or transferred to other persons and cannot increase in value. The value that shareholders receive is the receipt of interest according the profitability of the Society.

4.3. Bridging loan

Community shares, as described in 4.2 above, require time for a share offer to be marketed and shareholders invest. For this project, with a specific deadline, this doesn't allow time for construction to begin and therefore bridging finance (loan(s)) will be sought and repaid one the share capital is raised.

It is intended that a bridging loan, comprising a term of approximately one year, is put in place for the full capital cost of the project to allow construction to begin. The arrangement fee and interest payments are incorporated in the financial projections. Share capital will be raised in addition to this which will enable the loan to be fully repaid within one year.

In the event that share capital cannot be raised, the bridging loan would be replaced by a longer term loan. The income from the scheme is sufficient to cover this cost but it is a less desirable option because it would cause a reduction in the value of the community fund that would be created, especially in the early years.

5. FINANCIAL PROJECTIONS

The anticipated total cost for a 100kW Archimedes screw, including all additional services, obtained from estimates and quotes received based on the design drawings submitted as part of planning permission is £1.15 million. The Society will be liable for all ongoing operating costs associated with the installation and will negotiate the sale of electricity and benefit from the Feed in Tariffs and any other current or future incentives.

Competitive quotations will be used as the basis for the supply of civil works for the scheme. The supply of the M&E components has already been negotiated with Mann Power Consulting following from the preparation of the feasibility study. The lead time on the screw and electrical control systems means that deposits had to be placed for these components already. This has been paid from the CARES loan.

The breakdown of the capital needed to complete the construction and installation (including payment of some costs carried over from the development phase) is as follows:

Costs necessary to construct and commission the hydro turbine

Pre-construction Phase costs	
Project development & feasibility	£10,000
Environmental studies & permissions	£10,000
Full design & tendering	£50,000
Legal services	£40,000
Financing	£74,000
Total pre-construction costs	£184,000
Construction Phase costs	
Civil engineering	£400,000
Grid connection	£67,000
Mechanical & electrical	£310,000
Project management & professional services	£100,000
Contingency	£90,000
Total construction costs	£967,000
Total (including 10% contingency)	£1,151,000

5.1. 20 year income and expenditure projections

The table below illustrates the anticipated profit/loss and cashflow projections over the next 20 years

Year	0	1	2	3	4	5	20	years 6 - 10	years 11 - 20	years 1-20
Generation (kWh)		520,451	520,451	520,451	520,451	520,451	520,451	2,602,255	5,204,510	10,409,020
PROFIT/LOSS ACCOUNT										
FIT income		108,186	110,891	113,663	116,505	119,417	172,952	643,389	1,551,527	2,763,578
Electricity sales income		25,606	26,246	26,903	27,575	28,264	40,935	152,281	367,225	654,101
								0	0	0
Income		133,792	137,137	140,566	144,080	147,682	213,887	795,670	1,918,753	3,417,679
EXPENDITURE										
Depreciation over 20 years		57,044	57,044	57,044	57,044	57,044	57,044	285,221	570,442	1,140,884
Operating and admin costs		17,063	17,490	17,927	18,375	18,834	27,278	101,475	244,707	435,872
CARES loan interest		12,500	0	0	0	0	0	0	0	12,500
5 year bond interest		71,500	0	0	0	0	0	0	0	71,500
Expenditure		158,107	74,534	74,971	75,419	75,879	84,322	386,696	815,149	1,660,756
								0	0	0
Surplus		-24,315	62,603	65,594	68,660	71,803	129,565	408,974	1,103,604	1,756,923
Bank interest		0	3,294	243	243	243	243	1,213	2,426	7,661
Surplus (including interest)		-24,315	65,898	65,837	68,903	72,046	129,808	410,187	1,106,030	1,764,585
CASHFLOW										
Bank opening balance	0	1,255,000	20,000	20,000	20,000	20,000	20,000			
capital expenditure	-1,150,884									
CARES grant	10,000									
CARES loan capital	125,000	-125,000	0	0	0	0	0	0	0	-125,000
5 year bond capital	1,100,000	-1,100,000	0	0	0	0	0	0	0	-1,100,000
Income		133,792	137,137	140,566	144,080	147,682	213,887	795,670	1,918,753	3,417,679
Expenditure (minus depreciation)		-101,063	-17,490	-17,927	-18,375	-18,834	-27,278	-101,475	-244,707	-519,872
Bank interest		0	3,294	243	243	243	243	1,213	2,426	7,661
community fund		0	-23,446	-23,520	-24,534	-25,574	-44,677	-144,391	-383,258	-624,724
Interest to members		0	-42,451	-42,317	-44,369	-46,472	-85,130	-265,796	-722,772	-1,164,176
Share capital (receipt and repayment)	1,170,884	-42,729	-57,044	-57,044	-57,044	-57,044	-77,044	-285,221	-590,442	-1,146,569
Bank closing balance	1,255,000	20,000	20,000	20,000	20,000	20,000	0			
Member return	6.0%									

These projections indicate the following:

- 1) Payment of interest on bridging loans would mean there was no profit in year 1 and hence no member interest or community fund.
- 2) The community fund would start in year 2 at a value of £23,000 and this would rise through the life of the project, up to a projected £44,000 in year 20 (assuming 2.5% RPI during this period)
- 3) Member interest payments would start in year 2 and would return a projected IRR of 6% over 20 years.

5.2. Assumptions

The Projections are based on the following principal assumptions:

- 1) That annual production levels of the 100kW Hydro Installation will be in line with the estimates made, averaging 520,000 kWh per annum. In the event that the predicted energy production falls below the projected levels the revenues of The Society will be reduced. In the case of a technical fault, this is intended to be covered by warranties and/or insurance, including for losses incurred as a result.
- 2) Current expectations relating to the global energy market, the UK electricity industry, UK government policy, and the desirability for and promotion of electricity from renewable sources, will remain reasonably consistent and reasonably favourable to the Hydro Installation over the next 20 years, resulting in continuing demand for electricity and related environmental attributes produced by the Hydro Installation.
- 3) Prices at a reasonably similar level to those currently obtainable will be achieved through the life of the Hydro Installation (after allowance for annual inflation).
- 4) Operation and maintenance costs will be incurred from the start of operations. Maintenance costs will continue to rise as the equipment gets older. It is assumed that operations and maintenance costs will rise no faster than the income.
- 5) It is known that there will need to be occasional debris clearance from the coarse screen. It is assumed that this will be carried out by local volunteers.
- 6) It is assumed that there will be a peppercorn rent (£1) for the site on the basis that:
 - a. that objectives of the landowner and ACE are aligned – delivering community benefit locally;
 - b. that ongoing capital and revenue costs to the landowner are reduced as surplus profits from the scheme are re-invested in the local community, thereby relieving the landowner of the requirement for ongoing investment in bringing the wider riverside area up to the standards expected in the planning permissions for the village;
 - c. the site, being a wildlife site in a floodplain, has no other development value;
 - d. assignation of the land to ACE will remove the ongoing liability to the landowner to manage a contaminated riverside site – ACE will make good damage to the contamination capping at the site caused by the recent extreme flooding events; and
 - e. assignation of the land will remove the costly requirement for Sanctuary to implement the landscape plan for the site – a condition of the planning permission for Donside Village.

Any of the assumptions not being realised is likely to result in adjustments to the Projections within the overall Project plan. Projections and assumptions such as those above are inherently less reliable over longer time spans.

5.3. Notes on the Financial Projections

- 1) The total cost of £1.15m is based on quotes for permitting, mechanical and engineering elements and tenders received for the construction costs. Further quotes will be obtained before contracts are issued to ensure that the best value is obtained. The final civil engineering contractors have not yet been selected.
- 2) The projections in this document are based on data gathered or calculated by Mann Power Consulting during the process of preparing plans for the planning application and the abstraction data agreed with the SEPA as a condition of the abstraction/impoundment licence.
- 3) Inflation on all income and expenditure, including grid electricity is set at 2.5% per annum over the 20 year period.
- 4) Income is based on the Feed in Tariff, and on the electricity being exported at the most beneficial rate. Note that the Feed in Tariff is guaranteed for the full 20 years.
- 5) Depreciation of equipment is straight-line over the 20 year period and creates a fund to pay back loan and share capital.
- 6) We have assumed that the scheme will not be liable for any business rates.
- 7) Insurance costs are set at £3300/year – this is an estimate based on similar schemes elsewhere.
- 8) Administration costs of The Society are set at £5800/year. These are costs that have been offered by Sharenergy who administer several similar renewable energy Societies. The Society will produce annual accounts and as a small business will apply for the exemption from audit.
- 9) Interest on cash in bank is modelled at 0.5%.
- 10) All profits are allocated to depreciation charge or distributed as interest or disbursed as a community fund so the projections do not predict a liability for Corporation Tax.
- 11) Interest will be paid on shares throughout the duration of the project as described in section 1.3
- 12) Normal monthly cash expenditure is expected to be small and will be covered by the generation and FIT income. The Projections anticipate that ACE will be cash positive each year from the commencement of operations.
- 13) Projections are based on a 20 year timescale. After 20 years income will reduce significantly as the FIT payments will cease. The lease agreement will expire after 40 years but there will be an option to extend. The financial projections are based on ownership of the turbine being transferred to Sanctuary Housing when the lease eventually terminates.

6. SENSITIVITY ANALYSIS

Projections above are based on a number of assumptions that may turn out different from the base scenario. This section identifies the financial risk associated with various events.

The base scenario provides 5.5% return to shareholders and community fund starting at £23,000 in year 2 rising to £44,000 in year 20. Scenarios will be compared to this base.

6.1. FIT tariff

The base scenario assumes a FIT tariff of 20.28p/kWh. If the commissioning deadline is not met, the tariff would reduce to about 8.5p/kWh resulting in much reduced income.

In this case, the community fund would be zero, and the project would be able to return capital by year 20 but interest would be minimal (0.06%).

It is possible that the electricity could be sold by direct wire to an end user which would boost the income. If this was done, the returns could be significantly better, which would be especially significant in the event of the lower FIT tariff being received.

Scenario	Community fund	Shareholder IRR
Meet commissioning date (get the higher FIT of 20.28p/kWh) AND sell electricity direct for 8p/kWh	Starting at £28,000 in year 2	7.3%
Miss commissioning date (29 th September) BUT sell electricity direct for 8p/kWh	£5000 p.a.	2.69%
Fail to meet commissioning date of 29 th September, and NO direct sales	zero	1.0%

6.2. Electricity export rate

The main scenario assumes electricity is sold at 4.8p/kWh, indexed at 2.5% p.a. The outturn could be higher (e.g. higher oil price) or lower (continued price war on oil price). Two scenarios are explored, with sale price at 4p/kWh and 5.5p/kWh.

Scenario	Community fund	Shareholder IRR
Electricity price at 5.5p/kWh	Starting at £24,000 in year 2	6.3%
Electricity price at 4.0p/kWh	Starting at £22,000 in year 2	5.7%

6.3. RPI

The financial projection assumes RPI averages 2.5% over the 20 year period and all costs and income (including wholesale price of electricity) follow RPI

Scenario	Community fund	Shareholder IRR
RPI higher at 3.0% average	Starting at £24,000 in year 2	6.4%
RPI is lower at 2.0% average	Starting at £23,000 in year 2	5.6%

6.4. Scenario analysis conclusion

The conclusion from the scenario analysis is that the financial projections are robust against most scenarios apart from the reduction in the tariff as a result of delayed commissioning.

In the result of delayed commissioning, the community fund would reduce to zero. Investors would have their capital returned but interest payments would be negligible.

Returns could be improved if a private supply contract could be arranged for sale of the electricity to an end user. There are a variety of potential customers within range of a direct wire and this option is being investigated.

7. RISK FACTORS

All investment and commercial activities carry risk, and investors should take appropriate advice and make their own risk assessment whilst bearing in mind the social and environmental aspects of this investment opportunity. Attention is drawn to the following:

7.1. Renewable energy industry risks

- New technology inventions and developments may render existing technologies and equipment obsolete though such applications require long lead times and are unlikely to render existing renewable energy projects redundant. Financial security for the first 20 years of the scheme are secured through Feed in Tariff subsidies, after which all the equity in the scheme will have been repaid.
- Long-term changes to weather patterns could result in lower levels of production. However, there is no evidence that The Society is aware of that this will affect hydropower production at this site.
- Abnormal short-term weather conditions could affect expected levels of generation, although overall patterns outside anticipated parameters are unlikely.
- Operational costs may rise faster than anticipated during the life of the Project.

7.2. Risks specific to Aberdeen Community Energy Share Offer

- **Preliminary Accreditation was secured on 30th September 2014, this allows us to secure the pre 1st October 2014 Feed in Tariff as long as the plant is commissioned before a date 24 months from the date of preliminary accreditation. If the plant is commissioned after this, the income (and hence member returns) would be much lower. As long as the capital is raised before the end of April 2016, the Board and all supporting agencies and professionals are confident that the plant can be built and commissioned before 29th September 2016. A build schedule is provided with this document as Appendix B.**
- The project may fail to raise the required capital through its main share offer. We believe that the overall benefits of the project and the target member return will suffice to raise the necessary sum, based on the experience of other societies in the UK.

However, if after ample time has elapsed and sufficient applications have not been received, additional loan capital will be secured to enable the scheme to be funded. The directors are confident that the returns from the scheme could afford the interest on a commercial loan, however this would reduce the amount available to the community fund in early years and this is the reason why share capital will be obtained as a priority.

- The scheme may not generate as much electricity as predicted. The directors feel that the predicted load factor (59%) is not unrealistic given that the site could

accommodate a much larger turbine. There may be dry years when this is not attained, but across several years any variations should average out.

7.3. Risks specific to long term operation

- Warranties and insurance will be in place in the event of mechanical breakdown of the equipment and will cover loss of income for associated periods of business interruption. Accidental and malicious damage will also be covered under insurance and public liability insurance. However equipment failure due to exceptional circumstances would increase maintenance costs and this would impact on co-operative income.
- The government has exempted hydro installers and equipment from Microgeneration Certification Scheme (MCS) registration. Should this exemption lapse and our chosen installers or equipment not qualify under the scheme then the project might be ineligible for FIT. As the installers and equipment are on the transitional MCS list this is however considered a low risk.
- We believe that The Society qualifies for exemption from business rates relief in common with all other community renewable energy projects in Scotland. Should this prove not to be the case at some time in the future, the project might be liable for full business rates, which would reduce net income.
- The project will receive income from two streams, the Feed in Tariff (FIT) and on sales of electricity. The Feed in Tariff is fixed at the point of commissioning and indexed to RPI and therefore represents a predictable source of income. The income from sale of electricity will fluctuate with the wholesale price of electricity and will depend on the price that can be negotiated with a purchaser. Wholesale prices of electricity have fluctuated considerably over the last 18 months and cannot be predicted with certainty over the next 20 years. This risk is common to any investment for generation of electricity but demand for electricity is predicted to rise significantly over the next 20 years as more transport and heating migrates from oil to electricity so there is a low risk that the price will fall significantly over the long term.

8. STRENGTHS, WEAKNESSES, OPPORTUNITIES, THREATS

	Issue	Response
Strengths	Strong support from landowner	
	Early registration for FIT so high tariff will be received.	
	Easy access to site during construction	
	Brownfield site so few ecologically sensitive issues	
	The scheme is smaller than the water at the site could potentially supply, so uncertainty on flow data should be not critical.	
Weaknesses	Finance not yet in place	Seeking bridging loan at present
	Severe drop in income if schedule not kept	Obtain independent scrutiny of contractors schedule before start of construction. Ensure contractor with experience / reputation sufficient to complete project to time. If the tariff is reduced, some improvement could be made if the electricity could be sold for a higher price than the wholesale price e.g. by direct sale to an end user. There are a variety of organisations within the distance that could be reached by a direct wire that could use significant quantities of electricity, and investigations are being made regarding sale of electricity direct. This could be effected at any time i.e. it would not be critical to put this in place by 29 th Sept.
	Lack of experience on the board of operating similar schemes	The financial projections include provision for purchase of professional services in regard to operation, maintenance and administration of the scheme.

	Issue	Response
Opportunities	Locked in Feed in Tariff would generate significant community fund for local community	The community surrounding the scheme is an area with a low SIMD index and the community fund would be a significant boost to the residents of the community.
	If a private wire could be established, a local organisation could be supplied with electricity significantly below the retail price, which would benefit this organisation and also boost the community fund.	There are a number of local organisations that could be connected and investigations are being made to find a suitable recipient.
	The project will be a significant civil construction project at a time when the local economy is under pressure due to the recession in the oil industry.	Where possible local contractors will be used for installation and supply.
	The site currently holds an amount of ground contamination that will be made more secure as part of the construction work. If this project does not go ahead this may need to be addressed separately at some point in the future at additional cost.	
	The construction work will incorporate improvement in the recreation facilities and wildlife value at the site	
Threats	Collapse in electricity price	Considered unlikely given anticipated capacity shortages in the future flagged up by National Grid
	Damage from flood water	Extreme flooding appears to be increasing as a result of climate change. The scheme design takes into account this increased risk factor, having a flood proof powerhouse.
	Dependence on integrity of existing weir	The existing weir is already damaged and this scheme just requires a fall over a significant reach of the river. Further deterioration of the weir would not reduce the output significantly.

9. MANAGEMENT AND ADMINISTRATION

9.1. Aberdeen Community Energy (ACE)

The scheme will be built, owned and operated by Donside Community Hydro Limited (trading as Aberdeen Community Energy), a Registered Society incorporated with the UK Financial Conduct Authority, number 7251, on 30th November 2016. It is domiciled in Scotland, with its registered office at 44 Papermill Avenue, Aberdeen, AB24 2PB.

A Registered Society is a legal form providing the structure of a Community Benefit Society. It is owned by and operated for the benefit of its members and/or the community. Members elect Directors and each member has one vote in a members' meeting, regardless of the number of shares held. Members are protected by limited liability and are only obliged to contribute the initial cost of their shares.

A Registered Society is governed by Rules which are approved by and registered with the Financial Conduct Authority. A copy of the Rules for ACE can be downloaded from the ACE website: <http://ACEnergy.org.uk>.

The Society will have a board of voluntary directors that will be elected each year by the membership at an AGM. The founding directors are as follow:

9.1.1. Sinclair Laing, Founding Director

Sinclair is a passionate environmentalist and strong believer in the power of civil society to deliver communal good. Having graduated with a BSc. (Hons) Environmental Science from Aberdeen University, he stayed in Aberdeen to establish his career in sustainability and community development. Sinclair has ten years' experience managing and delivering policy, strategy and projects at local to EU level on a range of themes, including community empowerment and sustainable energy. He now leads a team of 18 strategically focused public sector environment & sustainability professionals, striving to protect and enhance the built and natural environment in, around and beyond Aberdeen.

Sinclair dedicates most of his spare time to encouraging and supporting communities, including Donside, to co-create strong community structures aiming to develop and deliver community ambitions - as evidenced by his founding roles in Donside Community Association and ACE, as well as other projects.

Sinclair brings all of his collective experience and boundless enthusiasm to his role as Director of ACE.

9.1.2. David Morrison, Director

David is a Principal Engineer and Project Manager with ten years engineering project delivery experience. He has a BSc. (Hons) Mechanical Engineering from Heriot Watt University, Edinburgh and returned to Aberdeen after studying to take

up a career in the international oil and gas industry. He has worked locally and aboard leading multi-national and cross-disciplined teams.

David grew up in Newburgh, Aberdeenshire and was involved in a number of local community projects as a teenager where he raised funds for then built community gardens and a boardwalk as part of a youth group. David joined the Donside Hydro project to give something back to the local community.

As a Director of ACE, David brings engineering project construction objectivity. He is driven and skilled in project risk mitigation. His background has equipped him with the ability to quickly develop professional relationships and identify what motivates individuals allowing him to maximise performance from his teams.

9.1.3. Jane Fullerton, Director

Jane Fullerton has lived in Donside Village for over 3 years and is also a founding member and currently Chair of the DCA. She has a background working with disadvantaged, vulnerable and marginalised people.

Jane studied at Grays School of Art, obtaining a degree in Art teaching. Following this, Jane completed an Art Therapy degree at Goldsmiths University, London. During her time in London, Jane worked for Inner London Probation Service as an Art Therapist and ceramic teacher. On returning to Aberdeen, Jane worked with a homeless charity, supporting homeless people trying to get back on their feet and into accommodation. Jane has a keen interest in social justice and feels passionately about helping individuals to be aspirational and achieve their goals.

Jane also feels strongly about environmental issues. The prospect of the Hydro project, the wonderful setting of the Village and the sustainability aspirations of Donside were all aspects that promoted Jane's wish to live in Donside Village and take an active role within the community. Her communication skills and her passion with regard to inclusion, encouraging community engagement and taking better care of our planet are attributes that she brings to the role of director.

Additional Directors may be recruited onto the voluntary Board where they can offer unique skills and competencies that will be of benefit to ACE and the local community.

In addition, the Society will employ the services of a professional administration service to support the board and keep accounts. The cost of this professional administration is included in the financial projections.

Aberdeen Community Energy, ACEnergy & ACE are trading names for Donside Community Hydro Limited, a Community Benefit Society registered with the Financial Conduct Authority, number: 7251

APPENDIX A – BUILD SCHEDULE

