



**CREETOWN INITIATIVE**  
REFLECTING THE COMMUNITY  
MOVING FORWARD

# **Creetown Hydro Project Business Plan**

**Prepared for Forestry Commission Scotland  
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Version - V1

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## Table of Contents

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1.	Executive Summary .....	4
2.	Project and Business Objectives.....	5
3.	Introduction.....	6
3.1	About Creetown Initiative Ltd .....	6
3.2	Project Background.....	6
3.3	Geography of the Site .....	7
3.4	The Creetown and Carsluith Community.....	8
4.	Project Support .....	10
4.1	NFLS Ballot .....	10
4.2	Questionnaire .....	12
5.	Capacity to Manage the Land.....	14
5.1	Operational Management .....	14
5.2	Stake Holders and Working Partners.....	14
5.2.1	Forestry Commission Scotland (FCS) .....	14
5.2.2	Scottish Power Energy Networks.....	14
5.2.3	Scottish Environmental Protection Agency (SEPA).....	14
5.2.4	Planning Authority .....	15
5.2.5	Balloch Wood Community Project.....	15
5.2.6	Hydro Survey Limited.....	15
5.2.7	Castle-Cary Estate .....	15
5.2.8	Scottish Natural Heritage.....	15
6.	Community Benefit .....	16
6.1	Economic Benefits .....	16
6.2	Social Benefits.....	16
6.3	Environmental Benefits .....	17
7.	Risk Assessment .....	18
8.	Communication Strategy.....	20
9.	Financial Assessment.....	22
9.1	Expenditure and Income.....	22
9.2	Financial Projections .....	23
9.3	Procurement Strategy.....	24
10.	Project Delivery .....	24
11.	Project Plan .....	24

Appendices .....	26
1 Creetown Initiative Ltd Memorandum and Articles of Association .....	27
2 Resume of Board members of Creetown Initiative Ltd and the Project Team .....	28
3 Pre-feasibility Study .....	30
4 Detailed Feasibility Study.....	31
5 Ecology Surveys .....	32
6 Map of Proposed Scheme.....	33
7 Letters of Support.....	34
8 Sample Ballot Paper and Ballot Report.....	35
9 Questionnaire Results.....	36
10 Risk Assessment.....	38
11 Financial Information.....	39

## 1. Executive Summary

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Creetown Initiative Ltd is a community charity and social enterprise limited company which undertakes charitable works within the polling districts of Creetown and Carsluith. To ensure the continued success of the charity and to support future community projects, Creetown Initiative Ltd has been investigating the potential of installing a hydroelectric scheme on Balloch Burn, Creetown.

Balloch Burn flows through Forestry Commission Scotland woodland known as Ballochanamour before its confluence with Moneypool Burn to the west of the village of Creetown. The combined waters then flow into the tidal waters of the River Cree as it flows into Wigtown Bay.

Extensive survey work and studies have already been completed which have led to a preliminary scheme design with a rated power of 250kW. The design incorporates a weir across Balloch Burn approximately 1km east of Creetown and a buried pipeline which runs to a powerhouse location adjacent to Beardies Bridge in the village itself. The weir and initial 800m of the pipeline pass through a narrow wooded valley comprising of predominantly coniferous plantation belonging to the National Forest Estate. The final 200m of pipeline and powerhouse are located on private property.

Initial investigations suggest the scheme could generate circa 800MWh of green electricity per annum although this may be subject to change following receipt of flow monitoring results and SEPA CAR license conditions. Revenue from the sale of CCL Renewable Levy Exemption Certificates, electricity generated and through registering with the UK Government Feed-in Tariff scheme could secure a gross income of £169,152 in the first year of operation.

A capital budget estimate indicates that the hydroelectric scheme will likely cost £1,448,045 plus VAT to install. Creetown Initiative Ltd intends to raise a 35% deposit through grant funding and a financial loan to cover 65% of the capital costs. The financial loan will be repaid in the first 10 years of operation which will initially result in a modest annual net profit for the community. The first year of operation will generate a net profit of £8,040. Following repayment of the loan, the net revenue will increase significantly for the following ten years.

The net revenue will be used to support Creetown Initiative Ltd and community project work within the Parish of Kirkmabreck. This area extends some 9 miles by 5 miles covering an area of 25,000 acres. It has a rural landscape with the predominant land use being farming. Within the geographical boundary are the two small villages of Creetown and Carsluith.

The communities of Creetown and Carsluith have been engaged throughout the course of the development. Information about the project has been circulated in several ways including publications in a community newsletter, distribution of information leaflets and a public exhibition. To gauge community support for Creetown Initiative Ltd leasing land from the Forest Estate, a formal ballot was held in February 2013. Of all residents on the electoral register, 39.8% voted with a majority of 81% voting in favour of Creetown Initiative Ltd leasing land within Ballochanamour.

To ascertain current levels of support for Creetown Initiative Ltd leasing land within Ballochanamour, a questionnaire was circulated on the 8<sup>th</sup> December 2013 during a community event. A total of 58 people agreed to complete a questionnaire of which 91.4% supported Creetown Initiative Ltd leasing the land from the Forest Estate. Further evidence of support has also been received from local groups, Kirkmabreck Community Council and a local councillor.

Over the next 12 months, Creetown Initiative Ltd plans to establish a trading arm to manage the hydroelectric scheme and to progress the project by lodging a planning application, CAR license application, grid connection application and National Forest Land Scheme Application.

## 2. Project and Business Objectives

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The object of the project is to install a run-of-river hydroelectric scheme on Balloch Burn, Creetown. The hydro scheme will produce a sustainable supply of electricity which can then be transferred into the national grid. Revenue will be generated through the sale of the electricity and from registering with the UK Governments Feed-In Tariff Scheme (FIT) and by selling CCL Renewable Levy Exemption Certificates (LEC) issued by OFGEM. This project will contribute to the Scottish Governments sustainable energy targets of producing the equivalent of 100% of Scotland's electricity use by 2020.

In the first instance, the revenue generated from the scheme will be used to service any debts and to operate and manage the system effectively. The remaining money will then be transferred to Creetown Initiative Ltd to assist in financing the core business of the charity and to fund local project work which meets the charities aims and objectives. In addition, a proportion of the money will also be issued as grants to other groups, organisations and individuals to help fund activities and project work within the geographical boundary of the Parish of Kirkmabreck. A copy of the Creetown Initiative Ltd Memorandum and Articles of Association are enclosed as appendix 1.

The Creetown Hydro Project will provide the community with a long-term income which will be used to help improve the quality of life of residents and visitors to the community. The income generated from the hydroelectric scheme will enable the community to ensure the future and continued success of Creetown Initiative Ltd and to become less reliant on grant aid to fund community project work.

### 3. Introduction

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#### 3.1 About Creetown Initiative Ltd

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In 2001, a number of local residents formed a working group in an effort to provide affordable housing and to help regenerate the Parish of Kirkmabreck. The group developed over the following two years and in 2004, Creetown Initiative Ltd was set up as a company limited by guarantee and as a charity. A copy of the Memorandum and Articles of Association is attached as appendix 1.

During 2006, Creetown Initiative Ltd developed to the point where a full time project worker was appointed to focus on the groups' regeneration plans. Since 2006, Creetown Initiative Ltd has expanded and now employs three full time and five part time positions within the organisation.

In 2009, to secure core funding and to ensure the continued success of the group, Creetown Initiative Ltd became a social enterprise. A core team of trained personnel now work with groups, organisations and business all over Scotland to help with fund raising, consultation and business planning.

Creetown Initiative Ltd is run by eight volunteer board members, of which six are Directors. The board members are all residents in the Parish of Kirkmabreck and provide a broad mix of experience. A brief resume of the Board members and project team is provided as appendix 2. The board members meet on a monthly basis to discuss the groups business, ongoing and future projects as well as other aspects of the charity.

#### 3.2 Project Background

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In 2010, Creetown Initiative Ltd commissioned Inter Hydro Technology to carry out a Pre-Feasibility Study to determine whether there was a suitable site on Balloch Burn to support a hydroelectric scheme. Two potential schemes were identified; a 35kW scheme north of Balloch Bridge and a 100kW scheme south of Balloch Bridge.

The two options were considered and the lower scheme was chosen as the preferred option as it offered more potential in terms of renewable energy production. It also took advantage of the natural gorge and waterfall immediately to the east of the village of Creetown. A copy of the Pre-Feasibility Study is provided in appendix 3.

In 2011, Inter Hydro Technology was commissioned to undertake further work on behalf of Creetown Initiative Ltd. A Detailed Feasibility study was produced which described the potential of a run-of-river development on the lower section of Balloch Burn.

The report describes an intake which will take the form of a low weir which will span the entire width of the burn. Incorporated into this weir will be a conveyance channel which will carry water into a buried manhole at the side of the burn. From here, the water will then be channelled to a powerhouse via a buried pipeline. In the powerhouse, the pressure of the water will be used to operate a turbine which will be linked to an electrical generator. Once the water exits the turbine, it will be diverted back into Balloch Burn via another buried pipeline.

The Detailed Feasibility Study concluded that using flow predictions and Ordnance Survey contour information, there is potential for Balloch Burn to support a scheme with a peak power of 250kW. Dependant on the type of turbine installed, an annual output in excess of 850MWh could be achieved. Further information about the potential revenue is provided in section 9. A copy of the Detailed Feasibility Study is included in appendix 4.

As the output value is based on calculated flow and potential head, the output stated in the report is merely a theoretical output. To help determine the true potential of the scheme, Creetown Initiative Ltd commissioned consultants to undertake a topographical survey of the site and for Wallingford Hydro Solutions to install flow monitoring equipment in the burn. The flow monitoring survey took six months to complete with the test period ending in December 2013. The analysis of the flow rate and associated report is expected to be completed in February 2014.

In addition, to support planning and CAR licence applications, the Galloway Fisheries Trust was commissioned to undertake a fish habitat survey and electrofishing survey of Balloch Burn. Machars Ecology was also commissioned to carry out a habitat survey of the proposed pipeline route and powerhouse. A copy of these reports is provided in appendix 5.

During 2012, Hydro Survey Limited was commissioned to produce artist impressions of the development and drawings of the scheme. These will be used to support a planning application but they were also presented to the community at an open day held on the 14<sup>th</sup> January 2013. Further information on community consultation work is provided in section 8.

During 2013, a community ballot was held and the hydro consultants worked on plans to move the powerhouse location from private land (as per the Detailed Feasibility Study) to land which is expected to be in ownership of Creetown Initiative Ltd. This new area of ground is directly opposite the original site on north side of Balloch Burn and is adjacent to a derelict building formally known as the Barholm Arms public house. The buried pipeline will cross Balloch Burn via a pipe-bridge near to the existing Beardies Bridge. This new arrangement will ensure the sustainability and security of the proposed hydro-electric scheme for future generations to enjoy.

Currently, Creetown Initiative Ltd is waiting for a response regarding a Feasibility Study application submitted to Scottish Power Networks (SPN). The study will allow SPN to provide an indicative connection assessment.

### 3.3 Geography of the Site

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The proposed site of the hydroelectric scheme is on Balloch Burn in Creetown. The weir will be located approximately 1km east of Creetown at NGR NX 485 589. This ground lies within Forestry Commission Woodland known as Ballochanamour. From this location, a buried pipeline will run to a power house located on private property adjacent to Beardies Bridge at NGR NX 475585.

The first 800m of the pipeline will pass through a narrow wooded valley comprising of predominantly coniferous plantation. The remaining 200m of pipeline will cross over privately owned pastureland to the power house location near to Beardies Bridge. A map of the proposed pipeline route is enclosed as appendix 6. A site location plan is provided on page 2 of the Detailed Feasibility Study included in appendix 4.

The structural geology of the area is composed of sedimentary Greywacke and shale of the Ordovician / Silurian period. These have been modified by glacial deposition and erosion.<sup>1</sup>

Balloch Burn is a tributary of Moneypool Burn. It flows through the village of Creetown before its confluence with Moneypool Burn immediately to the west of the village. The combined waters then flow into the River Cree which is tidal at this point as it flows into Wigtown Bay. The catchment area for Balloch Burn extends for some 10.3km<sup>2</sup>. The Standard Average Annual Rainfall is 1,517mm.

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<sup>1</sup> Forestry Commission Scotland (2011), *Creetown Forest Design Plan 2011-2012*, p8

### 3.4 The Creetown and Carsluith Community

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The villages of Creetown and Carsluith are the largest settlement areas within the Parish of Kirkmabreck on the south west coast of Scotland. The parish boundary extends approximately 9 miles by 5 miles and covers an area of 25,000 acres. The geographical boundary of the area is broadly similar to that of the Creetown and Carsluith polling districts. The area is designated as "remote rural" by the Scottish Governments six fold Urban Rural Classification scheme.

It is predominantly a rural landscape bounded to the south west by the River Cree and Wigtown Bay. To the north and east of the area are hills and moorland. The landscape is largely dominated by farming with pasture land near to the coast and rough grazing further inland. There are also areas of commercial forestation and deciduous woodlands. Under local planning policy, the area is designated as a Regional Scenic Area.

The two villages are located to the south of the parish in close proximity to the A75 road which runs through Galloway from the large town of Dumfries to Stranraer. The nearest town is Newton Stewart which is 7 miles North West of the village of Creetown and 10 miles from Carsluith. Newton Stewart is a small rural town with a population of just over 3500. <sup>2</sup> Newton Stewart provides services including independent shops, supermarkets, restaurants, hospital, dental surgeries, library, secondary school and banks.

The Parish of Kirkmabreck falls within Dumfries and Galloway Council's electoral ward 04 (Dee) and comprises of the polling districts of Creetown and Carsluith. Creetown is classified as polling district 04A1 and Carsluith as 04B1. On the 8<sup>th</sup> January 2013, the count on the Register of Electors for Creetown was 631 and Carsluith was 123.

According to the National Records for Scotland, the estimated demographic for the Dumfries and Galloway area in 2012 shows that persons aged 60 years and over make up 30.2% of the population. The figure for Scotland is just 23.5% therefore this area has a greater proportion of older persons. In addition, only 30.9% of the population is aged 16-44 years in comparison with Scotland at 38%. The population aged from 0-16 years in the Dumfries and Galloway area is 0.9% less than the 17.2% figure for Scotland. <sup>3</sup>

Even though both communities are relatively small they support a number of businesses. Creetown has several facilities including a general store, butchers shop, hotel, primary school, petrol station, doctor's surgery and two museums. There are also two caravan sites one of which has a restaurant and public house. In Carsluith there are two smoke houses with each having a shop, a restaurant and a water driven sawmill which sells hardwood products.

Aside from tourism, the local economy in Creetown is made up of several areas of employment which include farming, forestry, health, social work, hospitality and retail. Using 2001 Census information for Creetown, 51% of the population of working age were in employment. <sup>4</sup>

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<sup>2</sup> Scotland's Census Results Online (2001), *Comparative Population Profile: Newton Stewart Locality Scotland*, accessed 06/01/2014,

<http://www.scrol.gov.uk/scrol/browser/profile.jsp?profile=Population&mainLevel=Locality&mainText=Newton+Stewart&mainTextExplicitMatch=null&compLevel=CountryProfile&compText=&compTextExplicitMatch=null>

<sup>3</sup> National Records for Scotland August (2013), *Dumfries and Galloway Council Area – Demographic Factsheet*, accessed 10-09-2013, <http://www.gro-scotland.gov.uk/files2/stats/council-area-data-sheets/dumfries-and-galloway-factsheet.pdf>

<sup>4</sup> General Register Office for Scotland (2003), *2001 Census Profiles; Settlements in Dumfries and Galloway*, accessed 10/09/2013, <http://www.dumgal.gov.uk/CHttpHandler.ashx?id=403&p=0>



According to the 2011 census, compared to the Scottish average, the area has:

- A higher proportion of its population self employed
- A lower proportion of its working population employed in professional occupations, and a higher proportion in skilled trades and elementary occupations
- A higher proportion employed in agriculture, forestry and fishing and a lower proportion in finance and public administration.<sup>5</sup>

The area has a Scottish Index Multiple Deprivation ranking which is close to the Scottish Average, but the geographical access to services component of that calculation indicates that it has one of the poorest scores in terms of geographical access to services (it is in the poorest 15% of areas in the country).

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<sup>5</sup> Scotland Census (2011), *Area Profiles : Dumfries and Galloway: Labour*, Accessed 14/01/2014  
<http://www.scotlandscensus.gov.uk/ods-web/area.html#!>

## 4. Project Support

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The main supporters for this scheme are the community of Creetown and Carsluith. To demonstrate resident's support of Creetown Initiative Ltd leasing an area within Balloch Wood a formal ballot was held in February 2013. Further information is available in section 4.1. As the ballot was carried out 11 months prior to the submission of an NFLS application, further work was undertaken to ascertain whether the community still supported Creetown Initiative Ltd leasing a section of Ballochamour to install a hydroelectric scheme. Further information on this work is provided in section 4.2.

Community Energy Scotland supported the scheme through providing funding for the pre-feasibility study and by providing technical support when necessary.

The BIG Lottery fund supported the scheme by providing funding to undertake a variety of work including the production of a detailed feasibility study, topographical survey, baseline ecological assessment, burn habitat survey, fish monitoring and production of general arrangement drawings for displaying at a project information day/event.

Dumfries and Galloway Council provided financial support via the Stewartry Area Committee for the flow monitoring to be undertaken and to help develop the project.

The Forestry Commission Scotland supported the project by providing funding to engage with the community and to hold a formal ballot.

Within the area, there is a lot of support for the project and several letters of support have been received. These letters include local councillor Patsy Gilroy, Creetown Primary School and Creetown Heritage Museum. All letters of support are included in appendix 7.

### 4.1 NFLS Ballot

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A Returning Officer from Democracy Counts was appointed the roll of organising the ballot which included issuing all persons (as listed on the full electoral register for Creetown and Carsluith polling districts) with a voting pack. To obtain the full electoral register, Creetown Initiative Ltd purchased the edited version and then manually compared this with the full register at the Electoral Office in Dumfries on the 8<sup>th</sup> January 2013.

The postal voting pack was issued on the 22<sup>nd</sup> January 2012 and voters were given the option of voting via a pre-paid postal vote, an internet vote or a free-phone vote. All votes were to be received by the 7<sup>th</sup> February 2013 so that the Returning Officer could produce a report for Creetown Initiative Ltd on the voting process and the result.

The purpose of the ballot was to determine whether there was community support for Creetown Initiative Ltd to lease land in Ballochamour from the National Forest Estate. The ballot is also required as part of the National Forest Land Scheme (NFLS) process. A copy of the ballot paper sent out to all of the electorates is included in appendix 8.

The opening and counting of votes was all undertaken by Democracy Counts at its HQ in Warrington. A total of 754 voting packs were issued and 7 were returned by Royal Mail and marked as "Addressee Gone Away". The results of the ballot are as follows:

<b>Electorate</b>	<b>754</b>
<b>Total Votes Cast:</b>	<b>300 (39.8% of the electorate)</b>
By Post	180
By Telephone	51
By Internet	69
<b>Number of Votes in Favour</b>	<b>243 (81.0% of the votes cast)</b>
<b>Number of Votes not in Favour</b>	<b>57 (19.0% of the votes cast)</b>
<b>Number of rejected Ballot Papers</b>	<b>0</b>

The Returning Officer confirmed by email on the 11<sup>th</sup> February 2013 that a total of 39 votes were not submitted in time. Of these votes, 37 were in favour and 2 not in favour. If these votes are added to the accepted ballot votes, the amended referendum results are as follows:

<b>Electorate</b>	<b>754</b>
<b>Total Votes Cast:</b>	<b>339 (45.0% of the electorate)</b>
<b>Number of Votes in Favour</b>	<b>280 (82.6% of the votes cast)</b>
<b>Number of Votes not in Favour</b>	<b>59 (17.4% of the votes cast)</b>

The NFLS requirements state that 50% of the total electorate must vote and for the majority of those who voted to be in favour of the proposal. In the Creetown and Carsluith polling districts this equates to a return rate of 377 votes of which 189 would have to be in favour.

Even though the actual ballot return rate was slightly less than the 50% target (by just 77 votes), an overwhelming 243 votes were received in favour of the proposal. It must be noted that even if the 77 votes had been received and were against the proposal, the minimum quota of 189 votes in favour of the scheme would still have been surpassed. If the 39 votes which were received after the cut-off point for the formal ballot are considered, the shortfall in the response rate would only be 38 votes.

A possible cause for the shortfall in the ballot return rate could be accounted for through the community already being engaged at the time by a large renewable energy development company. The company were assessing a site to the north of Creetown to determine its potential for a large scale wind farm development. The proposed scheme has since been withdrawn but at the time the development had many potential impacts on the community including a prominent visual impact and possible impact on an archaeological and cultural heritage statutory designation site. This proposed development could have distracted the community from voting on a local community project as their attentions were focused on the considerable impacts of the commercial development.

A full report of the ballot is enclosed as appendix 8. The report describes the process undertaken to ensure that ballot was undertaken fairly and accurately. Efforts Creetown Initiative Ltd made to engage with the community prior to the ballot are described fully in section 8.

## 4.2 Questionnaire

The NFLS guidance states that the community ballot must be held within the six month period prior to the NFLS application being made. In this instance, an application was not submitted in time but evidence of further community support has been gained.

On the 8<sup>th</sup> December 2013, members of the public were canvassed during the Creetown Produce Market to ask whether they would complete a short questionnaire. The questionnaire asked "Do you support Creetown Initiative Ltd leasing land within Balloch Wood to install a community hydro electric scheme?". The questionnaire guided the responder to tick one of several boxes labelled Yes, No or No Opinion.

The results of the questionnaire are as follows:

**Total number of questionnaires completed** 58

### Questionnaire results:

Yes	53 (91.4% of responses received)
No	2 (3.4% of responses received)
No Opinion	2 (3.4% of responses received)

**Total number of questionnaires made void** 1

The questionnaire also gave the option for the responder to confirm their place of residence. Tick boxes were used to determine whether they were from Creetown, Carsluith, Newton Stewart or another place. The results were as follows:

### Place of Residence:

Creetown	37 (63.8% of responses received)
Carsluith	7 (12.1% of responses received)
Newton Stewart	7 (12.1% of responses received)
Other	6 (10.3% of responses received)

The questionnaire clearly shows very strong community support for the scheme. Of the responses received from residents of Creetown and Carsluith, 42 (72.4%) confirmed they supported the proposition and 2 (3.4%) did not. Of the two residents who did not support the initiative, one commented the reason for this was a risk of flooding downstream.

Other comments received from the community include:

*"Reliable electric generation providing an income to the local community"*

*"Good for community. Good for environment"*

*"It is a good way of raising money to fund local projects"*

*"Great idea for raising money for community"*

*"Anything which will enhance life in Creetown has to be beneficial. I hope people will recognise this and support the scheme"*

A summary of the questionnaire results and a copy of the questionnaire are included in appendix 9.

## 5. Capacity to Manage the Land

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The board members of Creetown Initiative Ltd recognise the importance of managing the Forestry Commission land effectively and meeting the requirements of all lease agreements. It is envisaged that a suitable lease can be arranged with the FCS but investigations are underway to determine whether it would be more beneficial to Creetown Initiative Ltd to purchase the land instead.

### 5.1 Operational Management

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The proposed hydro electric scheme will be owned and operated by a trading subsidiary of Creetown Initiative Ltd which has yet to be formed. The trading subsidiary will be a limited company which will Gift Aid remaining revenue to Creetown Initiative Ltd for charitable ends. By owning and administering the business through a trading arm, Creetown Initiative Ltd will remain compliant with the requirements of the Office of the Scottish Charity Regulator (OSCR) and its own Memorandum and Articles of Association.

Details of the daily management of the hydro electric scheme will be decided once the new trading subsidiary has been formed. Overall operational management of the scheme will be undertaken by employees, volunteers, Board Members and Directors of Creetown Initiative Ltd. A brief resume of the Board Members and project team of Creetown Initiative Ltd is provided as appendix 4.

### 5.2 Stake Holders and Working Partners

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#### 5.2.1 Forestry Commission Scotland (FCS)

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Creetown Initiative Ltd has a good working relationship with the FCS and communications regarding the proposed scheme have been maintained during the development of the project. Once the route for the penstock has been finalised, Creetown Initiative Ltd has agreed to work with FCS staff to identify which trees need to be removed and whether any features within the woodland need to be avoided.

FCS representatives are also assisting Creetown Initiative Ltd regarding the NFLS process. The next stage of the NFLS process is to submit an NFLS application to lease land within Ballochamamour.

#### 5.2.2 Scottish Power Energy Networks

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An application has been submitted to Scottish Power Energy Networks to establish the viability of connecting to the national grid and to provide an estimated cost for a connection. Once this figure has been given, it can be applied to the financial assessment of the scheme.

#### 5.2.3 Scottish Environmental Protection Agency (SEPA)

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An Abstraction and Impoundment licence application will be submitted to SEPA at the same time as a planning application is submitted to the Local Authority<sup>6</sup>. This is envisaged to take place in early 2014. It is likely that SEPA will consult with The Galloway Fisheries Trust, Scottish Natural Heritage, Scottish Water and the Local Council when considering the application.

The local Planning Authority will consult with SEPA when determining the planning application.

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<sup>6</sup> To abstract and impound water requires a Controlled Activities Regulation (CAR) authorisation. This authorisation is a requirement under The Water Environment (Controlled Activities) (Scotland) Regulations 2011.

#### 5.2.4 Planning Authority

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To install a hydroelectric scheme requires full planning permission from the Local Authority. The application will include all aspects of the design and will be supported with an Environmental Statement. All ecological survey work required as part of an Environmental Statement has been completed. Creetown Initiative Ltd aims to submit a planning application in the first quarter of 2014.

#### 5.2.5 Balloch Wood Community Project

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The Balloch Wood Community Project (BWCP) is a sub group of Creetown Initiative Ltd. The BWCP is managed by a committee of volunteers who maintain the woodland in partnership with the FCS. The committee members of the BWCP have been kept informed of the proposed hydroelectric development and are fully supportive of the proposed scheme. Creetown Initiative Ltd will maintain communication with the BWCP committee members especially during the construction phase of the development to ensure that public access is diverted away from the construction area.

#### 5.2.6 Hydro Survey Limited

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Hydro Survey Limited has worked on the project as consultants during 2013. They have submitted a feasibility study application to Scottish Power Networks and produced budget capital costs for the project.

#### 5.2.7 Castle-Cary Estate

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An agreement will need to be reached with Castle-Cary Estate to access land which will enable the lower section of pipeline to be installed and a grid connection made. Initial contact with the landowner suggests that a power purchase agreement between Creetown Initiative Ltd and the landowner would be an agreeable option as opposed to a standard lease agreement.

#### 5.2.8 Scottish Natural Heritage

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Scottish Natural Heritage officers have been consulted regarding the development. Guidance has been sort regarding the environmental survey work which would be expected to be completed and submitted in conjunction with the planning application.

## 6. Community Benefit

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### 6.1 Economic Benefits

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The acquisition of the land and the development of the hydroelectric scheme will generate a sustainable income for Creetown Initiative, which will support local community projects and charitable work, as outlined in the organisation's Memorandum and Articles of Association. Further information about the economic benefits is provided in section 9.

The funds will be used to develop many community projects, support community groups and provide a means to secure additional match funding for larger projects with greater economic benefits, such as community facility regeneration. We will consult local people to establish the community's opinions on which projects they believe should be supported and from this, create a Kirkmabreck<sup>7</sup> Parish Community Growth Plan to ensure the needs of the community are continually met as the project develops.

Having worked with the community for over 10 years and taking Creetown Initiative's main purpose and objectives into consideration, it can be predicted that the activities that will be supported will be focused on the following:

- Community regeneration projects and development of citizenship
- Renewables, environmental conservation and sustainability
- Elderly and disabled people
- Young people, further education and training
- Housing

Creetown Initiative Ltd may also invite suitably qualified and experienced local companies to tender for works thereby offering further employment opportunities within the local community. Additionally, the project may also help to secure local jobs for people managing and maintaining the scheme. Other community regeneration projects may also be funded through the revenue generated from this hydroelectric scheme.

### 6.2 Social Benefits

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The main purpose of Creetown Initiative is to work to improve the lives and opportunities of those living within the Creetown and Carsluith area. Income generated from the hydroelectric scheme will be used to overcome current barriers to transport, support community building regeneration projects, provide community events, improve local facilities, create employment training initiatives and develop projects aimed at particular community groups, such as young people, elderly people and disabled people. This will allow for community-led projects to provide solutions and directly benefit local people.

There will be educational benefits for the local school and other surrounding institutions, who wish to see and learn about the hydroelectric scheme and the positive impacts it will have on the community and local environment. Similarly, there are approximately 20 local community groups participating in arts, crafts, sports, history, youth, music, walking, nature and socialising, all of whom could benefit from the income generated by the hydroelectric scheme and be in a position to enhance their scope for new activities and equipment and consequently draw in more participants, resulting in increased social benefits offered to local people.

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<sup>7</sup> Kirkmabreck Parish boundary encapsulates the Creetown and Carsluith polling districts.



### 6.3 Environmental Benefits

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The hydroelectric scheme is expected to produce 850kWh of green electricity for every year it is in operation<sup>8</sup>. For the purposes of calculating environmental benefits, a conservative figure of 800 kWh has been applied.<sup>9</sup>

The installation of the hydroelectric scheme will significantly reduce the carbon footprint of the community as it will displace electricity currently supplied via the national grid (a mixture of renewable and non-renewable energy). The new scheme will provide enough electricity to offset electricity consumption of nearly 200 domestic properties.<sup>10</sup> This figure is equivalent to 44% of households within the Creetown and Carsluith area.<sup>11</sup>

The carbon emission reduction can be calculated using appropriate emission factors for electricity generation. These are expressed as Carbon Dioxide Equivalent (CO<sub>2</sub>e). Using an emission factor of 0.49677kg CO<sub>2</sub>e per kWh for electricity consumed from the grid (excluding imported electricity)<sup>12</sup>, the proposed hydroelectric scheme will provide an annual CO<sub>2</sub>e saving of 397 tonnes. Over a 40 year period which is the expected minimum lifespan for the project, the operation of the scheme is expected to provide a CO<sub>2</sub>e emission saving of 15,897 tonnes.

The CO<sub>2</sub>e savings will contribute to Scotland's actions to tackle climate change. Via the implementation of the Climate Change (Scotland) Act 2009, the Scottish Government has set a target to reduce emissions by at least 80% by 2050.

In addition, the Government's Economic Strategy and National Performance Framework set out Scotland's targets on climate change. These include:

- Renewable sources to generate the equivalent of 100 per cent of Scotland's gross annual electricity consumption by 2020
- Renewable sources to provide the equivalent of 11 per cent of Scotland's heat demand by 2020<sup>13</sup>

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<sup>8</sup> This theoretical figure has been taken from a Detailed Feasibility Study undertaken by specialists in 2011

<sup>9</sup> Note the flow monitoring and SEPA CAR license will impact on the potential of the proposed scheme

<sup>10</sup> Based on an average domestic electricity consumption of 4059 kWh. DECC (2013), *Sub-national consumption statistics* 2011, accessed 17/12/13

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/175426/Electricity\\_factsheet\\_2013.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/175426/Electricity_factsheet_2013.pdf)

<sup>11</sup> Based on the 2001 Census figure of there being 444 households in the geographical area

<sup>12</sup> Guidelines to Defra (2012), *DECC's GHG Conversion Factors for Company Reporting: Methodology Paper for Emission Factors July 2012* accessed 17/12/2013

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/69568/pb13792-emission-factor-methodology-paper-120706.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69568/pb13792-emission-factor-methodology-paper-120706.pdf)

<sup>13</sup> The Scottish Government (2011), *The Scottish Government Renewables Policy*, Accessed 11/01/2014

<http://www.scotland.gov.uk/Topics/Business-Industry/Energy/Energy-sources/19185/17612>

## 7. Risk Assessment

A review of the risks associated with the proposed development has been undertaken. The impacts of the potential risks have been assessed and mitigation/management actions put in place to minimise those risks. The risk assessment is provided in appendix 10.

The following table identifies the major risks associated with the development stage of the project.

Impact	Impact mitigation / management
CAR license is refused	Officers at SEPA have been consulted and are aware of the proposed development. SEPA guidance has been followed and as requested, flow monitoring and fish habitat survey work has been undertaken. Hydro Survey Limited has been commissioned to complete the CAR licence application form.
Planning application is refused by the Local Authority	Hydro Survey Limited has designed a scheme which minimises the impact on the water course, woodland and nearby village residents. The power house will be constructed to a high specification to prevent noise emissions and in a style which is commensurate with the surrounding built environment.  SNH have been consulted and as requested, a baseline ecological assessment has been undertaken.  Hydro Survey Limited has been commissioned to submit the Planning Application and to ensure that all planning requests are responded to.
SP Energy Networks refuse permission to connect into the national grid	Hydro Survey Limited has been commissioned to complete and submit a grid connection application. In the interim, a feasibility application has been sent to SPEN to determine whether a connection can be made and if so where. A budget cost will also be given.
A viable Power Purchase Agreement is not agreed between Creetown Initiative, the private land owner and the power company	Advice is currently being sort from Hydro Survey Limited to determine how to approach this issue correctly. It is likely that a third party will be employed to oversee the negotiations.  A wayleave agreement will still need to be drafted by solicitors despite there being a PPA in place.
The NFLS application to lease a section of Balloch Wood is unsuccessful	Creetown Initiative has the backing of the local FCS office to develop the proposed hydro electric scheme.  Creetown Initiative is considering options to demonstrate community support for leasing part of Balloch Wood The minimum response rate was not achieved at the formal ballot held in February 2013.
Funding is not secured to enable the development stage of the project to be completed	Creetown Initiative is currently applying for funding to complete the final stages of the development.  Funding is in place to complete the development stage up to the point of applying for planning permission

Impact	Impact mitigation / management
Funding is not secured during the development stage to ensure that the hydro-electric scheme is installed	Creetown Initiative has already made enquiries with a potential funder. Further work is required during 2014 to develop a funding strategy.
The value of Feed In Tariff and Renewable Obligation Certificates reduce and either decrease the profitability of the proposed scheme or render it unviable	Efforts are being maximised to ensure that the scheme is installed as quickly as possible.
The installation costs of the hydro electric scheme increase to a point where the viability of the project is compromised	Hydro Survey Limited engineers have reviewed the existing budget installation costs as they were previously several years out of date.

In summary, Creetown Initiative has engaged with the Local Planning Authority, SEPA, SNH, Galloway Fisheries Trust, FCS and the community of Kirkmabreck in an effort to mitigate the risks identified.

The risks associated with the installation stage of the proposed scheme will be ascertained and assessed in conjunction with Hydro Survey Limited nearer to the time of installation.

## 8. Communication Strategy

During the initial stages of the development, communications with the local community relating to the proposed hydro scheme was limited to updates in the quarterly newsletter, The Ferry News.<sup>14</sup> Communications were limited as there was insufficient information to present to the community as the project was in its infancy.

As the project progressed and survey and design work was completed, a communication plan was adopted and efforts were made to publicise the project.

The following table lists the communication strategy undertaken.

Output	Impact
A presentation was made to the Balloch Wood Community Project on the 25 <sup>th</sup> August 2011.	The members of the BWCP committee were given an informative talk on what a run-of-river hydro electric scheme is and how it works. Further information was given on the proposed hydro scheme on Balloch Burn including the mitigation measures to minimise any impacts from the development.
An article was published in the Winter edition of the Ferry News which was delivered to households in the first week of December 2012.	The community of Creetown and Carsluith were informed of the proposed open day and ballot process.
An information leaflet was published and distributed on the 11-12 <sup>th</sup> January 2013 to every household as listed on the full electoral register.	Every electorate would have had access to the information leaflet which gave detail on Creetown Initiative Ltd and the hydro scheme proposal including a map of the location of the proposed scheme and information on the potential benefits and environmental impacts. The leaflet also provided an overview of the development programme for the proposed scheme.
A public exhibition was held in the Waverley Hall, Creetown on the 14 <sup>th</sup> January 2013.	At the open day, presentations were made available on the BWCP, the NFLS scheme, Creetown Initiative's work and the hydro project. The event was very busy and those who attended studied all of the material made available to them and also asked lots of questions.
A formal ballot was held between the 22 <sup>nd</sup> January and the 7 <sup>th</sup> February 2013.	An independent company, Democracy Counts, held a formal ballot on behalf of Creetown Initiative Ltd to determine the level of support for Creetown Initiative Ltd to lease land from the FCS. The ballot was held to meet the requirements of the NFLS. A full report was produced by the Returning Officer which stated that 300 votes were received, 243 were in favour and 57 not in favour. Further information is provided in section 4.1.

<sup>14</sup> The Ferry News is produced, published and distributed throughout the Parish of Kirkmabreck by Creetown Initiative Ltd.

Output	Impact
The results of the ballot were published in the Spring edition of the Ferry News and displayed in the Creetown Initiative Ltd office window.	The community were able to see the ballot results and the evidence of support for the project.

Creetown Initiative Ltd intends to continue to promote the scheme by publishing articles in the Ferry News, creating displays in the Creetown Initiative Ltd office window and through developing a website. The website will offer information not only on the hydro electric scheme but all other community work Creetown Initiative Ltd is engaged in.

### 9.3 Procurement Strategy

The procurement strategy for the proposed hydroelectric scheme is still being investigated but to ensure profitability from the outset, Creetown Initiative Ltd will need to raise a 35% deposit. It is envisaged this will be achieved by securing grant aid from sources which are not classed as public funds. This will ensure that payments of the Feed-in Tariff will not be affected.

The remaining 65% of the capital costs will be funded by a finance loan and/or community shares. For the purposes of this business plan, it has been assumed that a financial loan will be secured for the whole amount. An 8% interest rate and a repayment period of 10 years have been applied to all financial calculations as these terms were supplied by Social Investment Scotland upon enquiry regarding financial lending.

It is envisaged that the detailed design and management of the hydroelectric scheme will be undertaken by Chris Brett of Hydro Survey Limited. A tender for supply, installation and commissioning will be issued.

## 10. Project Delivery

Creetown Initiative Limited board and employees have a wealth of experience which can all be drawn upon to help deliver the project. This experience and fields of expertise includes project management, mechanical engineering, fundraising and renewable energy. A brief resume of the project team is provided in appendix 2.

To help deliver the project, Creetown Initiative Ltd will continue to use Hydro Survey Limited for hydropower consultancy. Chris Brett owner of Hydro Survey Limited has been working in hydropower since 1994 and has an extensive knowledge of hydropower systems. Chris is also Director of the British Hydropower Association.

Although yet unassigned, there will also be legal representation working on behalf of Creetown Initiative Ltd and the trading arm.

## 11. Project Plan

Creetown Initiative Ltd has already completed much feasibility work to ensure that the risks to deliver the project are much reduced. To date Creetown Initiative Ltd has successfully completed the following aspects of the project development.

Completed Works	Date Completed	Comments
Pre-feasibility Study	July 2010	Enclosed in appendix 3
Detailed Feasibility Study	April 2011	Enclosed in appendix 4
Topographical Survey	September 2011	
Baseline Ecological Assessment	January 2013	Enclosed in appendix 5
Electrofishing Survey	December 2011	Enclosed in appendix 5
Balloch Burn Habitat Survey	June 2012	Enclosed in appendix 5
Flow Monitoring	Ongoing	The final report is expected to be completed February 2014
Budget Grid Connection Feasibility Study	Ongoing	
Basic Drawings	June 2012	
Design and Access Statement	June 2012	

To progress the project to the installation stage, there a number of activities which must be completed.

Work to be Completed	Timescale	Comments
Establish trading arm	June 2014	
Investigate securing funding	June 2014	
Prepare and lodge Planning Application	September 2014	
Prepare and lodge CAR licence application	September 2014	
Application for grid connection	September 2014	
Application for FIT Accreditation	TBC	
Negotiate PPA with power company and Castle Cary Estate	August 2014	
Sign options agreement with FCS	December 2014	
Completed detailed design drawings	TBC	This can only be completed once planning permission has been obtained
Finalise capital for project	March 2015	
Prepare and Issue Construction Tenders	April 2015	
Turbine tender, selection and contract production	April 2015	
Construction contract management	May 2015	
Commence construction	May 2015	
Commissioning	September 2015	