URBAN FORESIGHT

IMPLEMENTATION PLAN

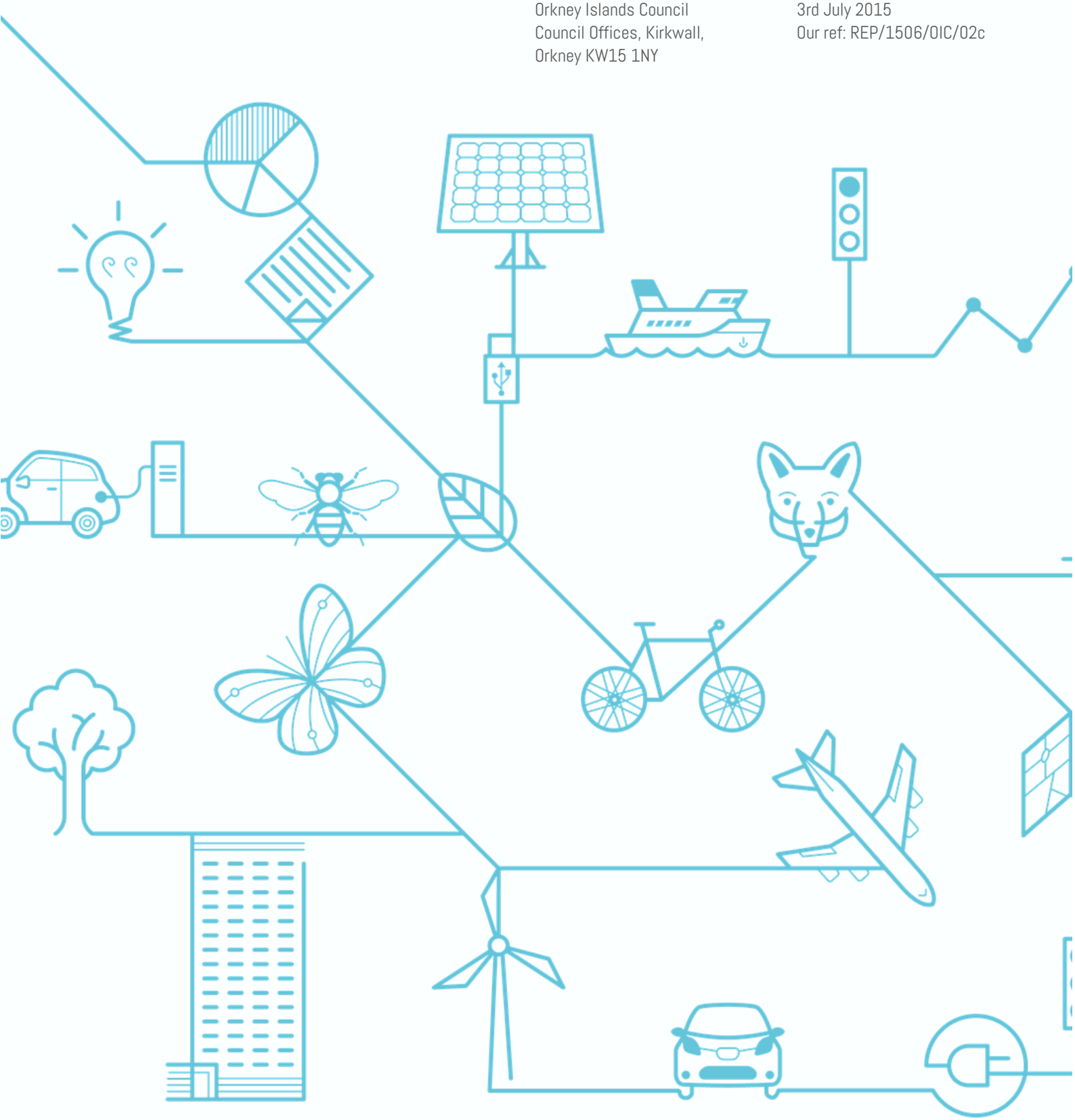
ORKNEY'S ELECTRIC FUTURE

PREPARED FOR

Orkney Islands Council
Council Offices, Kirkwall,
Orkney KW15 1NY

ISSUED:

3rd July 2015
Our ref: REP/1506/OIC/02c



URBAN FORESIGHT

The Core, Science Central
Bath Lane
Newcastle upon Tyne, NE4 5TF
United Kingdom

E: info@urbanforesight.org
T: +44 191 495 7350
W: http://urbanforesight.org

aquatera
environmental services and products

Old Academy Business Centre
Stromness, Orkney, KW16 3AW
United Kingdom

E: office@aquatera.co.uk
T: +44 1856 850 088
W: www.aquatera.co.uk

RGU ROBERT GORDON UNIVERSITY ABERDEEN

Robert Gordon University
Aberdeen AB10 7QE
United Kingdom

T: +44 1224 263 146
W: www.rgu.ac.uk

AUTHORS

Mia McMillan
David Beeton
Elizabeth Middleman
Adam Suleiman
Ian Johnstone
Peter Long
Fiona MacIsaac
Tom Remy
David Gray

Executive Summary

Orkney's Electric Future (OEF) is an ambitious project that integrates Orkney Islands Council's stated ambition to promote the uptake of electric vehicles (EVs) and more sustainable transport options with opportunities offered by Orkney's high renewable energy generation and wider benefits related to tourism.

This report outlines an implementation plan to establish a lighthouse project to achieve this ambition and to integrate smart electric mobility and energy management initiatives in the Islands.

This first section of the implementation plan presents a framework for the lighthouse project, with four building blocks identified to address challenges related to the following areas: increasing EV uptake in Orkney, attracting inward investment and new economic opportunities, increasing the energy storage capacity in Orkney, and matching increasing storage capacity with renewable energy.

These building blocks structure a series of work packages that respond to the stated objectives for the project. The total investment required to deliver all of these work packages is estimated to be circa £3.3 million.

The next section of the implementation plan provides an evaluation of various possible implementation models in order to determine the most suitable approach to deliver the OEF lighthouse project. This ranges from informal structures with limited resource requirements to a dedicated agency. From this analysis, it is found that the dedicated agency would be best positioned to capitalise on a range of available funding opportunities, establish Orkney as a living laboratory, and achieve the stated objectives of the project at a shorter time.

However, it is also noted in the analysis that while establishing this dedicated agency may be the ultimate objective, a phased implementation approach could also be adopted. A means to achieve this would be to establish an OEF Task Force, comprising representatives of all relevant stakeholders, and to source funding for a champion to coordinate and assume responsibility for this activity. This would provide a means to advance the lighthouse project while undertaking detailed planning and fundraising to ensure that the living laboratory established is of appropriate in both scale and ambition for Orkney. This approach could also test and prove the need, benefits and commercial potential of having dedicated staff to manage the OEF lighthouse project.

The final section of the report then outlines a business plan that establishes a means for the agency – with the working title of OLLIE: Orkney's Living Laboratory for Integrated Energy – to eventually become self-sustaining. Central to this business plan is the mission statement. This underscores that Orkney is uniquely positioned to offer globally significant insights into future energy systems and that the living laboratory could offer a means to exploit and sustain this leading position.

In order to start preparations to launch the OEF lighthouse project, the immediate key decisions that have to be made are:

- The work packages to prioritise
- The implementation approach to follow
- The project team to set up the selected implementation approach
- The key partners to recruit, and stakeholders to engage
- The sources of funding to pursue.

Progressing these initial actions with the active involvement of the local community, key partners and stakeholders, will be an important first step for the Islands to realise the potential benefits of the OEF lighthouse project.

Contents

Executive Summary **1**

1 Introduction **5**

1.1 Overview 5

1.2 Orkney's Electric Future Lighthouse Project 6

1.3 Methodology 7

1.4 Structure of the Report 7

2 Lighthouse Project Design **8**

2.1 Introduction 8

2.2 Infrastructure and Incentives 10

2.3 Tourism and Inward Investment 13

2.4 Energy Storage 14

2.5 Energy Management Marketplace 15

2.6 Project Management 15

2.7 Summary 17

3 Delivery of the Lighthouse **19**

3.1 Introduction 19

3.2 Prioritisation of Work Packages 19

3.3 Analysis of Delivery Structures 20

3.4 Option 1: Distributed Responsibility 21

3.5 Option 2: Task Force 24

3.6 Option 3: Task Force + Champion 27

3.7 Option 4: Dedicated Agency 29

3.8 Phased Implementation 31

3.9 Summary 32

4 Business Plan for a Living Laboratory **35**

4.1 Introduction 35

4.2 Living Laboratory Business Model 35

4.3 Project Management Framework 38

4.4 Performance Indicators 38

4.5 Flexibility 39
4.6 Future Prospects 39
5 Conclusion 41
Appendix A: Work Packages 43
OEF Work Packages 43
WP1: Local Incentives Package 44
WP2: Expansion of Recharging Infrastructure 46
WP3: Electrification of Fleets 48
WP4: Electric Car Club 50
WP5: Electrification of Taxis and Private Hire Fleets 52
WP6: Electrification of Buses 54
WP7: Green Branding & Promotion 56
WP8: Pilots & Trials of ITS 59
WP9: Pilots & Trials of Energy Storage 61
WP10: Pilots & Trials of Energy Management Services 63
Programme Management 65
Project Administration 67
Appendix B: Funding Sources 68
1. Overview 68
2. Infrastructure and Incentives 68
3. Tourism and Inward Investment 72
4. Energy Storage & Energy Management Marketplace 75
5. Large Scale Demonstration Project 81
Appendix C: Business Model 84
1. Overview 84
2. Customer Segments and Value Propositions 85
2. Channels 86
3. Customer Relationships 87
4. Revenue Streams and Cost Structure 87
5. Key Resources and Activities 89
6. Key Partnerships 90
Appendix E: Delivery Structure Costs 92
Appendix F: Performance Indicators 94

1 Introduction

1.1 Overview

This report outlines an implementation plan to develop an ambitious project known as Orkney's Electric Future (OEF). This proposed project integrates Orkney Islands Council's stated ambition to promote the uptake of electric vehicles and more sustainable transport options with opportunities offered by Orkney's high-renewable energy generation and wider benefits related to tourism.

The implementation plan builds on two separate reports which accompany this document:

- The feasibility study reviews the potential of the OEF lighthouse project. Different scenarios for EV uptake and the corresponding recharging infrastructure are also discussed;
- The review of opportunities report outlines the potential for Orkney to become a "Living Laboratory" for a range of new technologies, products, services and business models by presenting a range of prospective project options with case studies from across Scotland and overseas.

The figure below shows the structure of the three reports prepared for this project.

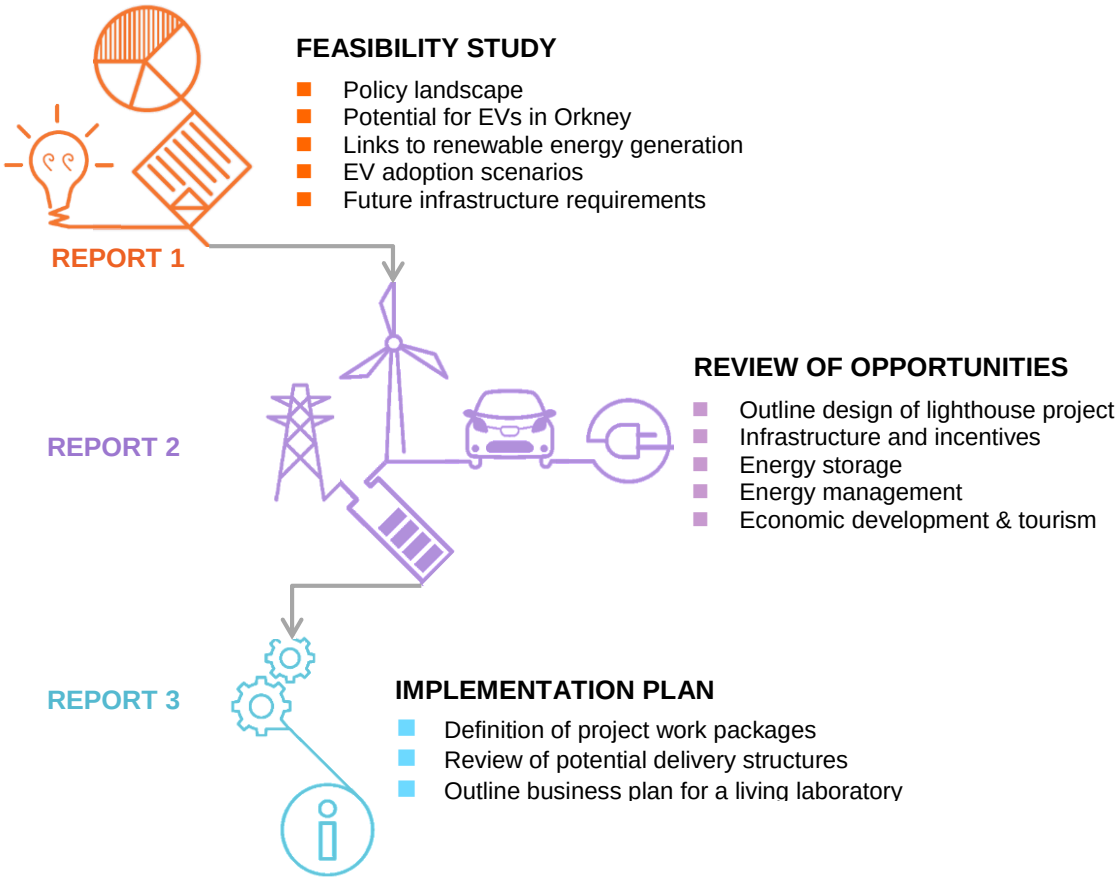


Figure 1.1 - Structure of the reports prepared for the OEF project

These reports have been prepared for Orkney Islands Council and are funded by the Edinburgh Centre for Carbon Innovation (ECCI) Smart Accelerator Sustainable Islands Project.

1.2 Orkney's Electric Future Lighthouse Project

Orkney Islands Council has stated that the key outcome and vision of Orkney's Electric Future (OEF) project is to achieve a sustainable future for transport in Orkney. It is envisaged that this could be achieved by establishing a 'lighthouse' project in Orkney to promote a good practice low carbon transport option for local residents and visitors to the islands.

More specific objectives stated by Orkney Islands Council and the key stakeholders consulted for this project are to:

1. Establish and promote a good practice low carbon transport option for the residents of, and visitors to, the Orkney Islands;

2. Study the feasibility of various options to support increased uptake of electric vehicles (EVs) on the Islands, including the concept of electric hire cars with driver information systems to be positioned at Orkney's main gateways and where energy is curtailed;

3. Determine how surplus energy produced locally can be used to power transport.

The review of opportunities report that accompanies this implementation plan suggests that the OEF lighthouse project can be broken down into four separate building blocks. Each of these complementary building blocks addresses a specific challenge related to Orkney Islands Council's ambition for the lighthouse project and requires different actions, as summarised in the table below.

Table 1.1 - OEF building blocks

BUILDING BLOCK	CHALLENGE	DESCRIPTION
Infrastructure and incentives	Increasing the number of electric vehicles in Orkney	The various measures that can be taken to encourage adoption of EVs in Orkney to achieve a critical mass of vehicles that meets the various objectives of the project
Tourism and investment	Attracting inward investment and new economic opportunities	Maximising the economic opportunities related to EV uptake, with a particular focus on tourism and inward investment
Energy storage	Increasing the energy storage capacity in Orkney	Maximising the energy storage potential across Orkney, in particular the new capacity offered by increasing the number of electric vehicles
Energy management marketplace	Matching increasing storage capacity with renewable energy generation	Technologies and business models to aggregate and integrate available storage capacity and respond to changes in local generation and demand

1.3 Methodology

This implementation plan builds on the analysis undertaken in the feasibility study and the project options presented in the review of opportunities and is informed by the following key activities:

- A comprehensive desk study;
- Interviews with key stakeholders (see Appendix A.1 of the feasibility study);
- A public forum held on 9th March 2015 in Kirkwall to present initial findings of both the desk study and the interviews and discuss potential challenges and opportunities;
- A smaller, facilitated expert roundtable workshop on 10th March 2015 in Kirkwall engaged key public, private and third sector stakeholders (see Appendix A.3 of the feasibility study) to help shape the design and scale of the lighthouse project.

1.4 Structure of the Report

The chapters of this implementation plan and the areas they cover are detailed in the table below.

Table 1.2 - Structure of the implementation plan

CHAPTER	DESCRIPTION
Chapter 1	Presents the outline of the implementation plan.
Chapter 2	Presents an overview of the different work packages proposed for the OEF lighthouse project, including links to various funding opportunities available.
Chapter 3	Introduces different options to deliver the OEF lighthouse project.
Chapter 4	Outlines a business plan to establish a Living Laboratory in Orkney.
Chapter 5	Summary and conclusions.

2 Lighthouse Project Design

2.1 Introduction

This chapter presents a framework for the Orkney's Electric Future lighthouse project, with four building blocks identified to address challenges related to the following areas: increasing EV uptake in Orkney, attracting inward investment and new economic opportunities, increasing the energy storage capacity in Orkney, and matching increasing storage capacity with renewable energy generation as illustrated in the figure below.

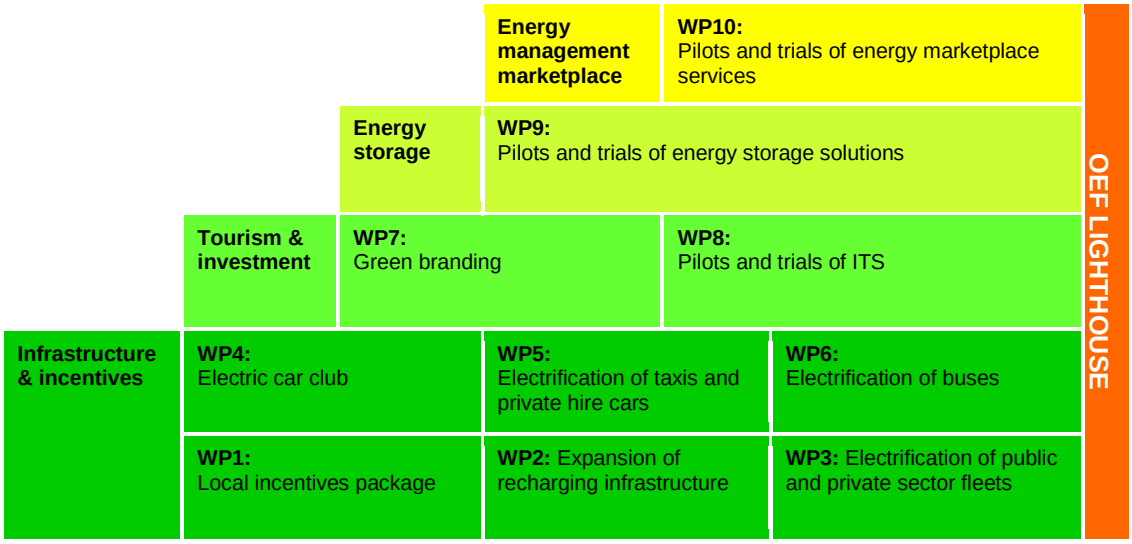


Figure 2.1 - Framework of work packages

This leads to the development of work packages under each building block that contribute to the overall goals of OEF. This chapter provides an overview of these work packages, with the detailed design outlined in Appendix A.

The estimated costs associated with each of these activities are also summarised. However, these are only intended to provide indications of the scale of investments required for each of the activities proposed and should not be viewed as definitive costings.

Potential sources of funding are also identified throughout this chapter, with further detail provided in Appendix B.

Table 2.1 - OEF building blocks, corresponding work packages (WPs) in the lighthouse project and target outcomes

BUILDING BLOCK	WP	PROJECT	TARGET OUTCOMES
Infrastructure and incentives *Increasing the number of electric vehicles in Orkney*	WP1	Local incentives (including promotion)	■ Locally administered assets and powers are used to promote EV adoption
	WP2	Expansion o of recharging infrastructure	■ Installation of rapid chargers at gateways and hubs ■ Installation of rapid chargers at visitor attractions ■ Installation of rapid chargers in the Isles
	WP3	Electrification of fleets	■ Increased electrification of public and private sector fleets
	WP4	Electric car club	■ Establishment of an electric car club
	WP5	Electrification of taxis and private hire cars	■ EV uptake by taxi and private hire car companies
	WP6	Electrification of buses	■ Increased electrification of bus fleets
Tourism and investment *Attracting inward investment and new economic opportunities*	Wp7	Green branding	■ Reinforcing the Orkney brand: The Energy Islands ■ Orkney is positioned as a Living Laboratory for smart mobility and energy innovation projects attracting inward investment
	WP8	Pilots and trials of ITS	■ Pilots of Intelligent Transport Systems for EV sightseeing tours
Energy storage *Increasing the energy storage capacity in Orkney*	WP9	Pilots and trials of energy storage solutions	■ Pilots and trials of energy storage solutions ■ Widespread use of EVs and its batteries as energy storage ■ Increased energy storage capacity in Orkney
Energy management marketplace *Matching increasing storage capacity with renewable energy generation*	WP10	Pilots and trials of energy marketplace services	■ Pilots and trials of energy management marketplace services such as demand-response management systems and aggregator models ■ Effective smart charging and grid balancing ■ Alleviation of renewables curtailment

2.2 Infrastructure and Incentives

WP1: Local incentives package

A comprehensive incentives package including, but not limited to: parking, licensing, and planning measures. This will lay the foundations of the Orkney's Electric Future lighthouse project, creating an environment where using electric vehicles is encouraged and rewarded.
The project will draw on Transport Scotland's forthcoming National Framework of Local Incentives for Plug-in Vehicles (developed by Urban Foresight), with measures optimised to meet Orkney's local needs. This will be achieved through consultations with key stakeholders such as taxi companies, car hire companies, tourist sites, local businesses, and residents.

Estimated cost:

£38,000

Potential funding:

Visit Scotland Growth Fund

Objectives:

- Learn from best practices across the Scotland, UK and Europe;
- Engage with stakeholders to develop a bespoke EV incentives package for Orkney;
- Create an environment that encourages EV use;
- Promote and disseminate incentives package to Orkney residents.

WP2: Expansion of recharging infrastructure

The lack of recharging infrastructure is often cited as a key barrier to the increased uptake of EVs. Orkney's current recharging infrastructure will be expanded to support the changing needs of EV drivers. This includes a suitably comprehensive network with charging opportunities at key gateways and hubs, visitor attractions, and the outer and inner isles. This will enable both residents and tourists to travel in an EV around Orkney with range confidence.
The feasibility study that accompanies this report outlines options for appropriate sizing of this infrastructure. It is likely that the level of infrastructure provision will be determined by the amount of funding that can be accessed. However, a further objective of this project will be to develop lasting commercial models that decrease the need for public funding while ensuring that necessary charging is provided across the islands and not just in the most profitable locations.

Estimated cost:

£1,033,400
(23 charge points)

Potential funding:

Energy Saving Trust/ Transport Scotland

Objectives:

- Provide rapid charge points at key hubs, gateways, and visitor attractions for top-up charging;
- Promote available funding opportunities for home and workplace charging;
- Develop sustainable business model for long-term operation of charging infrastructure.

WP3: Electrification of fleets

A range of initiatives to encourage fleet take-up of electric vehicles. This recognises both the potential and specific needs presented by fleet operators. It will demonstrate the opportunities for EVs to reduce emissions and operating costs. It will also give employees the experience of using EVs at work, potentially building confidence amongst private users.
It is proposed that this project builds on leadership and commitments from Orkney Islands Council to increase the electrification of its vehicle fleet. Since 2014, the Council has run 6 electric vehicles out of its 76-strong fleet. Targeting to replace diesel vans with electric vans, for example, would enable over 60% of the Council's fleet to be converted to electric, effectively cutting the fleet's carbon emission by half. The Council has the option to purchase or lease the electric vans depending on their financial position.
A possible outcome of this work would be a Council-led procurement consortium to pool the resources of public and private organisations across Orkney to purchase/ lease a large number of vehicles at a substantial discount.

Estimated cost:

£197,000

Potential funding:

Fleet renewal budgets

Objectives:

- Exhibit Council leadership by increasing adoption of EVs in public sector fleets;
- Explore leasing opportunities for the Council's fleet;
- Explore the potential for a Council-led procurement consortium to negotiate best deals for public and private sector organisations in Orkney.

WP4: Electric car club

This project will support the successful implementation, expansion and local promotion of Orkney's first electric car club. It is suggested that this is aligned with Carplus' Developing Car Clubs in Scotland (DCCS) programme, which is funded by Transport Scotland.
Another option to be pursued will be the viability of incorporating OIC's EV fleet into the car club outside of working hours and on weekends. This will build on a similar initiative by Aberdeen City Council.

Estimated cost:

£54,500

Potential funding:

Climate Challenge Fund

Developing Car Clubs in Scotland

Interreg-NSR

Objectives:

- Set up of Orkney's first car club;
- Explore the possibility of incorporating OIC's EV fleet into the car club outside working hours in order to maximise mileage

WP5: Electrification of taxis and private hire fleets

The high mileage driven by taxis and private hire vehicles means that electrification offers opportunities for substantial emissions and cost savings. Electric taxis also offer an opportunity to expose members of the public to the performance and cost benefits of EVs.
A potential way to progress this project would be a submission to the Office of Low Emission Vehicles (OLEV) Taxi Scheme, a £20m scheme that will provide funding to successful bidders for three elements: feasibility studies, taxi top-up grants, and recharging infrastructure. While the deadline for feasibility phase bids has passed, the Council can still submit a bid for the delivery phase which include provision of funding above the level of the plug-in car grant to support the purchase of purpose-built vehicles, and infrastructure to support drivers and fleets in the local area.

Estimated cost:

£308,500

Potential funding:

OLEV Taxi Scheme

Objective:

- Introduce electric vehicles to Orkney's taxi fleets.

WP6: Electrification of buses

This project will evaluate the performance and efficiency of the new electric bus serving the Kirkwall-Airport route. Findings of the evaluation will help inform recommendations for increased electrification of bus fleets in Orkney. This includes strategic planning with the bus services provider in Orkney (currently Stagecoach) to phase in new buses. Electric bus manufacturers can also be engaged as partners to allow them to test new battery technologies for their buses. Infrastructure providers in turn, can be invited to test their new charging technology for public transport.

Estimated cost:

£315,900

Potential funding:

Green Bus Fund

Objectives:

- Analyse usage data gathered from electric bus;
- Recommend next steps for further electrification of bus fleets.

2.3 Tourism and Inward Investment

WP7: Green branding and promotion

The project will actively promote Orkney to tourists, potential investors and partners as the UK's premier location for innovations in smart energy technologies and intelligent electric mobility.
Emerging findings and outcomes of the lighthouse project will be promoted to an international audience. Similarly, the expertise and commitments of local business and organisations will also be packaged and promoted. This will provide a shop window for organisations related to the tourism sector and those with expertise related to the design, development and deployment of energy and mobility solutions.
This will primarily be coordinated through the frameworks developed for delivery of the OEF lighthouse (discussed in chapter 3). In addition, the Transport Scotland funded E-cosse forums and Developing Car Clubs in Scotland programme, will also offer opportunities for promotion in Scotland; with bodies such as Scotland Development International and UKTI offering opportunities for international promotion.

Estimated cost:

£111,500

Potential funding:

Visit Scotland Growth Fund

Objectives:

- Position Orkney as a global centre for smart mobility and innovative energy technologies;
- Promote Orkney's wider offer in the smart mobility and smart energy space on a local, national and global basis;
- Attract projects and investment to Orkney;
- Publicise partner organisation activities and expertise;
- Highlight new opportunities for the import and export of projects, knowledge and expertise;
- Disseminate key findings, outcomes and other relevant information on an international basis.

WP8: Pilots and trials of Intelligent Transport Systems

This project will aim to establish pilots of intelligent transport systems for electric mobility and tourism in Orkney.
One such project is a developing a new management system that will assemble disparate data streams from the Islands and combine them into readily accessible sources of intelligence. The central objective for this project will be to develop information systems to enhance the experience of using electric vehicles in a rural setting, offering drivers real-time information for routing, parking, charge point availability, and even tourist information. The data management module can be developed to broadcast static information on tourist sites or local businesses to EVs as soon as they come within range. This solution can also allow further expansion by introducing additional smart mobility functionality, providing greater benefits for Orkney.

Estimated cost:

£297,000

Potential funding:

Horizon 2020: Mobility for Growth

Objectives:

- Enhance the experience of electric vehicle use in Orkney;
- Create an overview of available data sources applicable to the project;
- Build a scalable, replicable mobility data platform based on existing technologies.

2.4 Energy Storage

WP9: Pilots and trials of energy storage solutions

This project will aim to establish pilots of energy storage solutions in Orkney.
An example project would be to set up a second-life battery storage facility in Orkney. Batteries that have reached the end of their useful life in electric vehicles could be used to provide energy ancillary services such as grid balancing and peak load shaving. Business models of these storage solutions can also be tested in real-world settings and can create demand for EV batteries, thereby contribute to increasing the resale value of EVs.

Estimated cost:

£300,000

Potential funding:

Infrastructure and Innovation Fund

The Energy Catalyst

Renewable Energy Investment Fund

Eurostars

Objectives:

- Pilot energy storage technologies;
- Increase energy storage capacity in Orkney;
- Explore possibility of tying up energy storage and recharging infrastructure.

2.5 Energy Management Marketplace

WP10: Pilots and trials of energy marketplace services

This project will pilot energy marketplace services in Orkney.
An example project would be to develop an energy management algorithm with an accompanying web dashboard and mobile app to optimise the use of energy when tariffs are least expensive, balance local grids against frequency response and peak load signals and manage the charging of electric vehicles. This will build and maximise electric vehicle optimisation software and provide a toolkit for fleet managers to automate the charging process and allow participation in demand response events and encourage the uptake of electric vehicles by making it easier for fleets to manage their assets and reduce the total cost of ownership through intelligent charging.

Estimated cost:

£468,000

Potential funding:

The Energy Catalyst

Renewable Energy Investment Fund

Eurostars

SMART: Scotland

Horizon 2020: Energy Efficiency

Objectives:

- Manage the charging process for electric vehicles;
- Balance local grid constraints;
- Reduce total cost of ownership and encourage the uptake of electric vehicles.

2.6 Project Management

Programme Management: While it is envisaged that Orkney Islands Council will act as the lead partner and accountable body for the delivery of the OEF lighthouse, technical assistance in project and programme management will be provided by the project team tasked by OIC. The project team could be composed of Urban Foresight, Aquatera, and RGU.

Project Administration: The overall programme and project management duties of the OEF lighthouse will be performed by the frameworks developed for the project, and the management of the programme will be supported by contributions from each partner equivalent to 10% of the overall value of their overall investment in the project, or as agreed by the project team.

Estimated cost:

£152,000

Potential funding:

Low Carbon Infrastructure Transition Programme

Interreg-NWE

Objectives:

- Provide the financial management of the programme;
- Ensure the setup and operation of the appropriate delivery structures (see chapter 3);
- Monitor and manage partner activity across and within all work packages;
- Ensure the timely and regular provision and receipt of project updates from all partners and across all work packages.
- Deliver the OEF lighthouse project according to the specification provided;
- Provide funding to support the programme and project management duties to be performed by the frameworks developed for the duration of the programme.

2.7 Summary

To undertake all of the activities proposed for in the OEF lighthouse project is estimated to require an investment of circa **£3.3 million**.

This is only a very initial estimate and it is expected that there are considerable opportunities to both scale-up and reduce the scope and required investments across all of the work packages.

The table below provides a summary of indicative costs per work package for the implementation of the OEF lighthouse and the identified funding opportunities.

Table 2.2– OEF lighthouse work package cost breakdown and funding opportunities

WORK PACKAGE		INDICATIVE COSTS	FUNDING OPPORTUNITIES
WP1	Local incentives package	£38,000	Visit Scotland Growth Fund
WP2	Expansion of recharging infrastructure	£1,034,000 (23 charge points)	Energy Saving Trust/ Transport Scotland
WP3	Electrification of public and private sector fleets	£197,000 (5 yr lease of 14 vans)	Fleet renewal budgets
WP4	Electric car club	£54,500	Climate Challenge Fund Developing Car Clubs in Scotland Interreg-NSR
WP5	Electrification of taxis and private hire cars	£308,500	OLEV Taxi Scheme
WP6	Electrification of buses	£315,900	Green Bus Fund
WP7	Green branding	£111,500	Visit Scotland Growth Fund
WP8	Pilots & trials of ITS	£297,000	Horizon 2020: Mobility for Growth
WP9	Pilots & trials of energy storage solutions	£300,000	Infrastructure and Innovation Fund The Energy Catalyst Renewable Energy Investment Fund Eurostars
WP10	Pilots & trials of energy marketplace services	£468,000	The Energy Catalyst Renewable Energy Investment Fund Eurostars SMART: Scotland Horizon 2020: Energy Efficiency
	Programme management	£152,000	Low Carbon Infrastructure Transition Programme Interreg-NWE
ESTIMATED TOTAL		**£3,276,400**	

A detailed description of the investment involved for each work package can be found in Appendix A.

It is anticipated that the projects will run over a three-year period subject to availability of funding. The timescales are also dependent on the method of approach to deliver the OEF lighthouse. These methods of approach are discussed and evaluated in the next chapter.

3 Delivery of the Lighthouse

3.1 Introduction

This chapter provides an overview of the different approaches to implement the work packages outlined in the previous chapter and achieve the goals of the OEF lighthouse project. It reviews the different activities, timescales and advantages and disadvantages of each approach. It also outlines estimates of the necessary investment to establish and run each delivery structure.

3.2 Prioritisation of Work Packages

Chapter 2 outlined a comprehensive array of projects to address the different stated objectives of the OEF lighthouse. To practically implement these activities within the constraints of available funding and staff resource, it is expected that a degree of prioritisation will be required. This will inform which activities to focus on and which funding opportunities to pursue.

To support this prioritisation, Table 3.1 shows an initial assessment on the ease of implementation and expected impact on EV uptake and sustainable transport measures associated with these different activities. Key points from this are:

- Projects under Quadrant 1 (Q1) can be mostly OIC-led and therefore give the Council a greater level of control over the outcomes. A possible exception is WP2 where other organisations can take responsibility for securing funding for charge points at say, tourist sites. The other Q1 projects involve relatively lower funding requirements compared to those on other quadrants.

- Q2 projects are expected to be relatively straightforward to implement but will not necessarily lead to a significant uptake in EVs in the short to medium-term. Nevertheless, as explained in the previous chapter they do offer some compelling wider benefits which could see these activities prioritised for reasons other than supporting EV uptake.

- Projects under Q3 also have a high impact on EV uptake but may be more challenging in terms of implementation because these involve the buy-in of and close coordination with third-party organisations.

- Q4 projects could be more challenging to implement because a number of them have higher funding requirements and the level of technical expertise needed to carry out these projects may be outside the sphere of the Council's capability and would therefore need to be led by other organisations.

Table 3.1 – Impact/ease of implementation of projects

IMPACT ON EV UPTAKE	EASE OF IMPLEMENTATION*	
	EASY	CHALLENGING
HIGH	**Quadrant 1** ■ Local EV incentives package (WP1) ■ EV awareness and promotion campaign (WP1) ■ Expansion of recharging infrastructure (WP2) ■ Electrification of public and private sector fleets (WP3)	**Quadrant 3** ■ Electrification of taxi and private car hire companies (WP5) ■ Electrification of buses (WP6)
LOW	**Quadrant 2** ■ Electric car club (WP4) ■ Green branding (WP7)	**Quadrant 4** ■ Positioning Orkney as a Living Lab (WP7) ■ ITS for EV sightseeing (WP8) ■ Energy storage solutions (WP9) ■ Energy marketplace services (WP10)

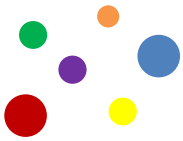
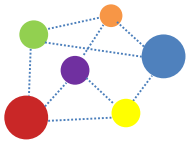
** Assuming funding is available*

The timescales and implementation of these projects will vary depending on the delivery structures employed for the lighthouse. These options are discussed further in detail in the following sections.

3.3 Analysis of Delivery Structures

Successful implementation of the work packages in the lighthouse will require diverse expertise and extensive resources. Moreover, to realise wider benefits and to establish a positive legacy from these investments it is important that there is some overarching strategy and coordination. Table 3.2 below identifies four opportunities to achieve this, which are discussed in the following sections.

Table 3.2 – Potential delivery structures for Orkney's Electric Future lighthouse project

OPTION	MODEL	DESCRIPTION
Option 1: **Distributed responsibility**		Responsibility for managing and sourcing funding for projects is distributed among stakeholders.
Option 2: **Task Force**		A voluntary task force is formed to facilitate improved coordination among projects.
Option 3: **Task Force + Champion**		The task force is supported by a funded 'Champion' which provides a dedicated resource to advance the OEF development and delivery of the lighthouse.
Option 4: **Dedicated agency**		A dedicated team of experts responsible for developing and implementing a business plan for Orkney's Electric Future.

3.4 Option 1: Distributed Responsibility

The OEF lighthouse could be delivered without any formal structure or additional dedicated resource. This would result in the following:

- Responsibility for initiation, management, and sourcing of funding for projects is distributed between key stakeholders.
- The Council may decide which projects to prioritise but opportunities are likely to be somewhat emergent and subject to the timelines and interests of different organisations.
- Some means of cooperation between relevant stakeholders is likely to be necessary to pool resources or expertise to deliver different projects.
- Funding will have to be secured by the respective project leads and as such may not benefit from an Orkney-wide funding strategy that could be delivered by the other options.
- This approach could be expected to lead to the EV uptake scenario 1 detailed in the feasibility study accompanying this report.[1]

[1] Three EV uptake scenarios were developed for Orkney in the Feasibility Study that accompanies this Implementation Plan. Scenario 1 forecasts a low uptake, Scenario 2 forecasts moderate EV uptake, and Scenario 3 projects high EV uptake. See Chapter 5.3 of the Feasibility Study for further information.

3.4.1 Key activities

Each project proponent would have the following key activities and deliverables:

Table 3.3 – Distributed responsibility delivery model: key activities

KEY ACTIVITIES	RESPONSIBLE
External fund sourcing and application	Respective project leads
Project management	Respective project leads
Coordination meetings	Respective project leads

3.4.2 Resources and timescales

With the distributed responsibility approach, the following work packages can be completed and some started within three years:

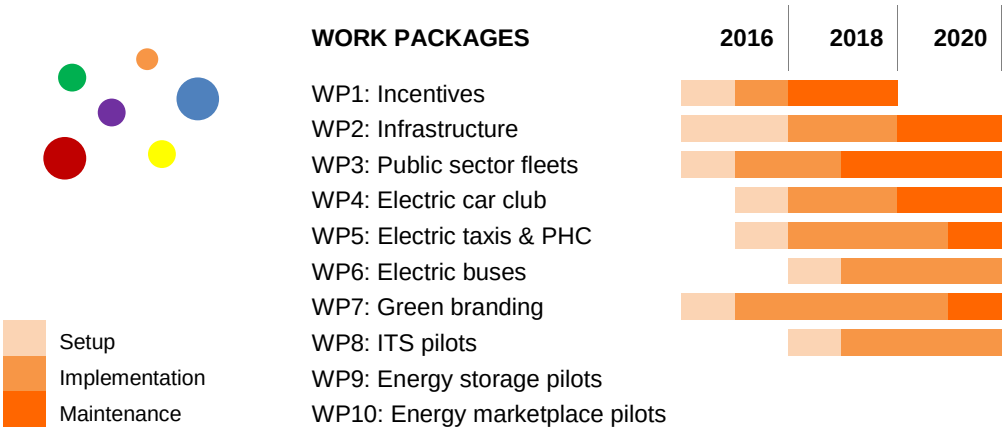


Figure 3.1 - Distributed responsibility delivery model: timescales

It must be noted that WP9 and 10 can still be delivered subject to funding availability and the resources to manage the projects. However, realistically, it will be quite challenging to drive all the work packages simultaneously.

3.4.3 Evaluation of approach

One of the most important advantages of the distributed responsibility approach is that it has no additional funding required on top of the project costs. The most essential and easiest to implement projects are given priority. However, this approach also means that the timescale to achieve OEF's goals will be longer. Opportunities to combine projects that will enable the proponents to apply for larger grants may be missed. Furthermore, there is a likelihood of duplication of effort, overlap and that similar projects originating from different stakeholders in Orkney competing for the same funding. In this approach, it will be difficult to promote a single lighthouse project or to position Orkney as a living laboratory for energy and mobility solutions.

Table 3.4 - Evaluation of distributed responsibility approach to deliver OEF

ADVANTAGES	DISADVANTAGES
No additional funding required	Timescale to achieve OEF goals will take longer
Tried and tested strategy: innovation projects have been successfully implemented in Orkney with this approach	No additional resource or expertise to attract/ develop projects and opportunities
	Projects may compete with each other for funding opportunities
	Likelihood of duplication of effort and overlap in the activities of different projects
	Dependent on the ability of the Council and linked partners to identify opportunities
	Very difficult to position Orkney as a Living Laboratory until it is actively hosting projects
	No additional support could be offered to partners wishing to develop and implement projects in Orkney
	Risk that opportunities may go to other areas that have dedicated resource/ expertise to attract investments
	Likely to be opportunity-led (i.e. no strategic targeting of projects to be hosted in Orkney)

3.5 Option 2: Task Force

The OEF lighthouse could benefit from a formal structure to coordinate all projects in Orkney. The least formal way to achieve this would be a voluntary task force or steering committee composed of representatives from all relevant stakeholders. This would result in the following:

- The formation of a network of organisations in order to share information and project plans and progress.
- Potential for alignment of resources and consensus on priorities to enable the lighthouse to achieve the goals of Orkney's Electric Future.
- Potential for resource pooling and collaborative working in developing and delivering projects.
- The Task Force approach could enable OEF stakeholders to capitalise on the potential consolidate efforts, apply to larger funding sources and devise a funding application strategy.
- This approach would most likely support moderate EV uptake (scenario 2).

3.5.1 Key activities

The following are key activities under the Task Force approach:

Table 3.5 – Task force delivery model: key activities

KEY ACTIVITIES	RESPONSIBLE
Recruitment of key stakeholders for Task Force	Project Team*
Establishment of Task Force, including roles and responsibilities	Project Team
Assignment of task force coordinator	Task Force
Strategic planning considering projects spanning different sectors	Task Force
External fund sourcing and application	Respective project leads
Project management	Respective project leads
Coordination meetings	Task Force

**The Project Team could be a consortium commissioned to set up the Task Force.*

3.5.2 Resources and timescales

In the task force approach, the timescales are as follows:

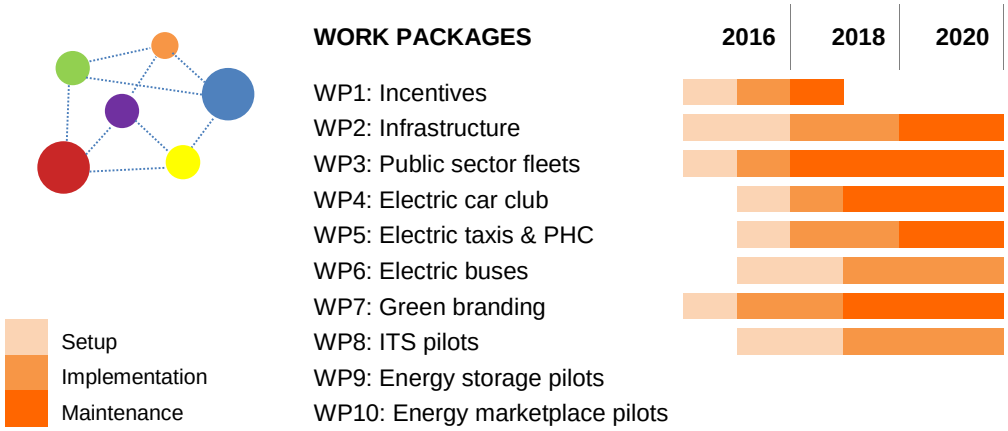


Figure 3.2 - Task force delivery model: timescales

With improved coordination among project leads and key stakeholders, more work packages can be started earlier (WP4-6, 8), while some can be implemented earlier (WP3, 7).

3.5.3 Evaluation of approach

Forming a task force or committee whose primary role is to facilitate improved coordination among all stakeholders and organisations with projects in Orkney is an approach worth considering when funding is not readily available to hire a dedicated resource or set up a dedicated agency. The appointed task force coordinator may have to interface with all project leaders either individually or as a group to consolidate smart mobility and energy innovation related activities in Orkney. The table below summarises the pros and cons of this approach.

Table 3.6 - Evaluation of establishing a Task Force to deliver OEF

ADVANTAGES	DISADVANTAGES
No additional funding required	Voluntary structure so no direct responsibility or accountability for advancing lighthouse objectives
Immediate set-up	Increased workload of person engaged to be the task force coordinator
Better coordination among stakeholders which can result to avoidance of duplication of efforts	No additional resource or expertise to attract/ develop projects and opportunities
Coordination can lead to sharing of resources, good ideas, project findings, learnings and best practices.	May be subject to competing priorities and responsibilities from across Task Force members
Organisations able to offer wider expertise, support and networks than offered by than individual employees	Different projects originating in Orkney may compete for same funding source
Potential to agree a high-level strategy and achieve some alignment of activities and responsibilities	Organisations might not be cooperative
	Dependent on the ability of Task Force and linked partners to identify opportunities
	Difficult to position Orkney as a Living Laboratory until it is actively hosting projects
	No additional support could be offered to partners wishing to develop and implement projects in Orkney
	Risk that opportunities may go to other areas that have dedicated resource/ expertise to attract such investment
	Likely to be opportunity-led (i.e. no strategic targeting of projects to be hosted in Orkney)
	Not necessarily a dedicated contact/ technical expert for potential inward investors or partners to the project
	No dedicated resource to promote the activities of the lighthouse and recruit new partners and investors

3.6 Option 3: Task Force + Champion

A means to enhance the task force approach would be to have a dedicated resource to oversee all projects related to OEF. Instead of a voluntary task force coordinator, who it is likely would need to fit these responsibilities around other professional commitments, the Champion is a funded role providing necessary capacity and assuming responsibility to advance the objectives of OEF.

This comprises the following main elements:

- Champion is responsible for pooling the resources and expertise of different organisations and provides support in terms of programme management and sourcing funding.
- The position may be co-funded by members of the Task Force.
- High EV uptake (scenario 3) could potentially be achieved with this approach.

3.6.1 Key activities

The following are key activities under the Task Force + Champion approach:

Table 3.7 – Task force + champion delivery model: key activities

KEY ACTIVITIES	RESPONSIBLE
Appointment Task Force Champion	Project Team*
Recruitment of key stakeholders for Task Force	Task Force Champion
Establishment of Task Force, including roles and responsibilities	Task Force Champion
Strategic planning considering projects spanning different sectors	Task Force
Sourcing funding and bid writing	Task Force Champion
Project management	Respective project leads
Coordination meetings	Task Force Champion
Project support & monitoring for internal and external projects	Task Force Champion

**The Project Team could be a consortium commissioned to set up the Task Force.*

3.6.2 Resources and timescales

With a dedicated resource who can provide project support and perform additional functions, more work packages can be started and implemented in three years.

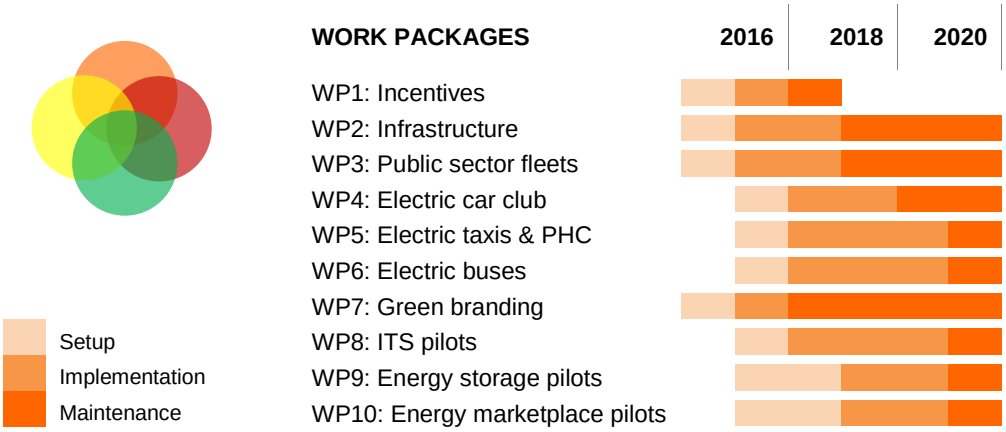


Figure 3.3 - Task force + champion delivery model: timescales

3.6.3 Evaluation of approach

The following are the advantages and disadvantages of having a dedicated resource person to deliver the OEF project.

Table 3.8 - Evaluation of establishing a Task Force + Champion to deliver OEF

ADVANTAGES	DISADVANTAGES
Faster to set-up than a dedicated agency	Additional funding required to hire dedicated person and cover running costs of project
No increase in workload for existing Orkney Council staff	Dedicated resource has to coordinate with all relevant stakeholders and facilitate and monitor the projects in Orkney. Workload could be overwhelming and potentially could cause a bottleneck or backlogs.
Dedicated resource and expertise to attract and oversee projects in Orkney	An individual champion is unlikely to possess breadth of expertise to advance all activities across the OEF lighthouse and therefore will still be dependent on voluntary support from partners
Specific role to identify opportunities for synergy among planned or existing projects	
Support offered to organisations who deliver projects in Orkney	
Possibility to test/prove the need, benefits and commercial potential before setting up a dedicated agency	

3.7 Option 4: Dedicated Agency

A special purpose organisation could be established to deliver the OEF lighthouse. There are a number of ways to establish this organisation and ways that it could operate, but for the purposes of this study, the following key elements are considered:

- A centre of excellence based in Orkney that could operate as an arms-length agency of Orkney Islands Council (either wholly-owned by the council or as a joint venture with relevant partners).
- The agency could potentially form part of an overall Orkney energy partnership, which has previously been explored through consultation on Orkney's energy strategy.
- A dedicated agency delivery structure would be similar to the Task Force + Champion approach but with a whole team of full-time expert personnel responsible for the planning, development, and implementation of a Living Laboratory.
- It is also likely that with a full team behind it, the agency can consolidate efforts and thus have a better chance at securing funding.
- The agency would be expected to help achieve high EV uptake (Scenario 3) and potentially at a faster rate than outlined in the feasibility study.

3.7.1 Key activities and deliverables

Table 3.9 identifies key activities and deliverables for a dedicated agency.

Table 3.9 – Dedicated agency deliver model: key activities

KEY ACTIVITIES	RESPONSIBLE
Establish OEF Board, recruitment of key stakeholders	Project Team*
Establish dedicated agency, including charter and by-laws	OEF Board
Develop and refine business plan for OEF	Agency
Strategic planning considering projects spanning different sectors	OEF Board + Agency
External fund sourcing and application	Agency
Project management	Respective project leads
Coordination meetings	Agency
Project support & monitoring for internal and external projects	Agency
Manage and maintain Orkney charge points	Agency
Promotion of Orkney as a Living Lab	Agency

**The Project Team could be a consortium commissioned to set up the OEF Board and Agency.*

An additional responsibility that could be undertaken by the agency is the management and maintenance of Orkney's charge points. This includes determining the optimum pricing levels at peak and off-peak times as well as managing potential advertising revenue from the charge point locations.

3.7.2 Resources and timescales

The agency would directly employ staff to undertake the necessary tasks associated with delivering the lighthouse project and establishing Orkney as a Living Laboratory. This includes key roles such as Programme Manager and Bid Manager.

The agency staff would be responsible for shaping an island-wide technology and innovation strategy. They would also help ensure that the projects developed under the lighthouse are targeted and fully integrated into a long-term strategic plan.

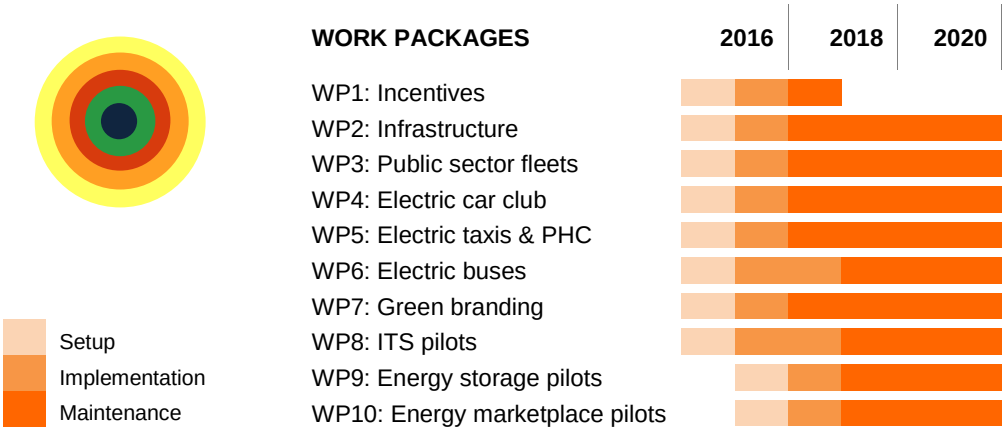


Figure 3.4 - Dedicated agency delivery model: timescales

3.7.3 Evaluation of approach

A dedicated agency is likely to provide the most effective means to accelerate the implementation of a number of different work packages, as well as ensuring wider opportunities are realise and a lasting legacy is created beyond the life of the lighthouse.

A dedicated team will identify opportunities for synergy in current and planned projects in Orkney, the agency can also pursue funding opportunities and match these with the planned activities, and provide support and guidance to organisations interested in conducting feasibility studies, pilots and trials in Orkney.

The agency could also potentially provide a delegated resources for a number of responsibilities currently handled by OIC, such as management of charge points.

However, establishing and running a dedicated agency will entail additional funding. Accordingly, this delivery structure necessitates the development and implementation a business plan to ensure that it is self-sustaining in the long run (considered in chapter 4). The table below summarises the advantages and disadvantages of a dedicated agency.

Table 3.10 - Evaluation of establishing a dedicated agency to deliver OEF

ADVANTAGES	DISADVANTAGES
External responsible agency can assume responsibility for tasks and responsibilities that would otherwise fall to Orkney Islands Council	Additional funding required to set-up and cover running costs of agency
Some current responsibilities of Council can be assigned to the dedicated agency (e.g. management of charge points)	Need to incorporate/ set up a company
Dedicated resource and expertise to attract and develop projects in Orkney	Need to recruit, employ and retain expert staff
Full support offered to organisations who deliver projects in Orkney	Potential cost and resources required to close down agency at end of project
Jobs created in the Island	
Self-sustaining	

3.8 Phased Implementation

It is recognised that setting up a dedicated agency would take time and would require additional upfront investment. This means that securing funding for this delivery structure would be a critical task at the outset. Considering these potential barriers to implementation, an alternative option is proposed—a phased approach. The delivery structure options presented could be viewed as phases of implementation, starting with Option 2: Task Force and eventually working towards Option 4: Dedicated Agency as more funding and partnerships are secured.

Figure 3.5 below illustrates this implementation approach.

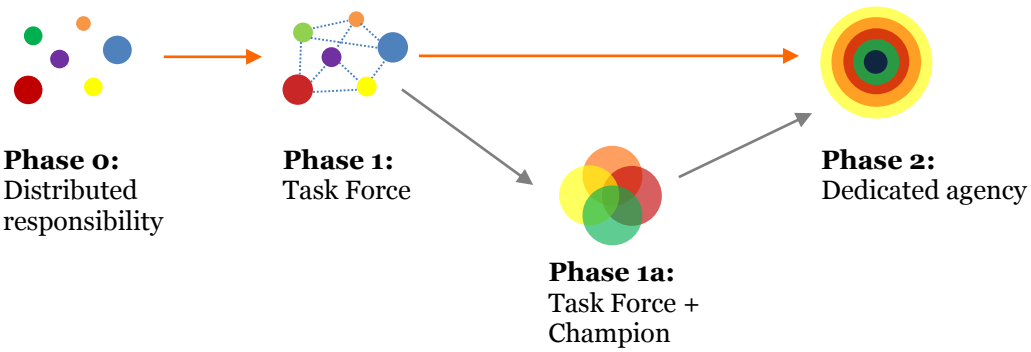


Figure 3.5 - Phased implementation approach

As seen in the figure above, there are two paths that could be followed. The first would be to start the establishment of a Task Force, which would perform the key activities required in preparation for setting up the lighthouse, including recruitment of partners and strategic planning (see section 3.5.1). The Task Force

members, supported by the Task Force coordinator[2], can then start applying for funding to establish a dedicated agency that would deliver the OEF lighthouse and establish a Living Laboratory.

An alternative approach path entails going through Phase 1a: Task Force + Champion. This would see the Task Force appoint a dedicated resource to attract, coordinate, and oversee the lighthouse projects. This role will help identify opportunities for synergy among planned and existing projects. Going through Phase 1a could test and prove the need, benefits and commercial potential of dedicated staff to manage the lighthouse and establish a Living Laboratory. It would also provide a dedicated resource to carefully plan this activity and to source funding for a dedicated agency. This would help ensure that the agency's scale and ambition was appropriate and would also reduce any potential risks from immediately setting up these structures.

3.9 Summary

This section summarises the key activities and expected investment required for each of the options presented above and provides recommendation as to which option would deliver the target outcomes within three years.

3.9.1 Key activities

The following table provides a comparison of scope of key activities across each of the delivery structures suggested. It can be seen from the table that the dedicated agency is likely to be the only option that can deliver all of the key activities intended for the lighthouse project.

Table 3.11 - Comparison of scope of key activities for each option

KEY ACTIVITIES	DISTRIBUTED RESPONSIBILITY	TASK FORCE	TASK FORCE + CHAMPION	DEDICATED AGENCY
External fund sourcing and application	✓	✓	✓	✓
Project management	✓	✓	✓	✓
Coordination meetings	✓	✓	✓	✓
Strategic planning		✓	✓	✓
Project support to internal & external projects			✓	✓
Develop and refine OEF business plan				✓
Manage & maintain Orkney charge points				✓
Promotion of Orkney as a Living Lab			✓	✓
Oversight committee/ Board		✓	✓	✓

[2] Task Force coordinator – may be a staff member of one of Task Force member organisations, a part-time role. Task Force Champion –hired by the Task Force to perform coordination activities and provide general support to the OEF lighthouse, may be seconded to one of the Task Force member organisations until the dedicated agency is established.

3.9.2 Timescales

The table below matches each approach with the desired outcomes of OEF as described in chapter 2. It can be seen that the dedicated agency approach (Option 4) has a number of advantages. Perhaps the most significant advantage of this approach is having a team to plan, develop, and oversee a high quality implementation of the lighthouse and to establish a Living Laboratory. This allows for a more cohesive and coordinated strategy to secure funding, within the three-year delivery target.

Table 3.12 - Timescales of different approaches

	TARGET OUTCOMES	DISTRIBUTED RESPONSIBILITY	TASK FORCE	TASK FORCE + CHAMPION	DEDICATED AGENCY
1	Establishment of package of local incentives, including education and promotion of EVs				
2	Installation of rapid chargers at gateways and hubs				
3	Installation of rapid chargers at visitor attractions				
4	Installation of rapid chargers at inner and outer Isles				
5	Increased electrification of public and private sector fleets				
6	Establishment of an electric car club				
7	Increased electrification of bus fleet				
8	EV uptake by taxi and private hire car companies				
9	Electrification of ferries				
10	Pilots and trials of ITS for EV sightseeing tours				
11	The Orkney brand = The Energy Islands				
12	Orkney is positioned as a Living Laboratory for smart mobility and energy innovation projects attracting inward investment				
13	Pilots and trials of energy storage solutions				
14	Widespread use of EVs and its batteries as energy storage				
15	Increased energy storage capacity in Orkney				
16	Pilots and trials of energy management marketplace elements				
17	Effective smart charging and grid balancing				
18	Alleviation of renewables curtailment				

Key:

- Infrastructure and incentives
- Tourism and inward investment
- Energy storage
- Energy management marketplace
- Short term (1-2 years)
- Medium term (3-5 years)
- Long term (5+ years)

3.9.3 Investment

The table below outlines the expected investment required for each of the options described above, with a breakdown of the associated costs provided in Appendix E.

Table 3.13 – Costs associated with different delivery structures for the OEF lighthouse

APPROACH	SET-UP		ANNUAL OPERATING COST	
	Capital	Revenue	Capital	Revenue
Distributed responsibility	0	0	0	0
Task force	0	0	0	£15,000
Task force + Champion	0	0	0	£39,000
Dedicated agency	£25,000	£53,500	£5,000	£291,000

3.9.4 Assessment of delivery options

Based on the analysis of the merits and risks of each approach, a **Dedicated Agency** would seem to present the most effective delivery structure for a large-scale lighthouse project and to develop a living laboratory in Orkney. This structured approach also ensures that OEF goals are consistently addressed throughout all projects and that the dedicated agency identifies opportunities for consolidation and synergy of resources. Although it would entail additional capital to set up and maintain the dedicated agency, the desired outcomes will be achieved at a much quicker rate compared with the other approaches.

Given the estimated level of investment required to set-up and run the agency, it is expected that there will be a need for an initial investment to develop a detailed plan and business case. This will ensure that the agency's scale and ambition is appropriate for Orkney. There are a number of ways to achieve this, but following a phased approach as outlined in section 3.8 would provide a means to progress the various projects in the lighthouse while also developing structures for a dedicated agency. This is likely to require a funded role to assume responsibility for this task. Therefore, it is suggested that an initial objective for the lighthouse should be to establish a **Task Force** and source funding to appoint a **Champion**.

It is possible that the opportunity to establish a dedicated agency, and the associated jobs an investment that this could bring, could provide a justification for funding the champion role. Therefore to support any such bids for funding, an initial business plan is outlined in the next chapter to establish how a dedicated agency could become self-sustaining, covering the identified operating expenses and attracting investment by establishing Orkney as a living laboratory.

4 Business Plan for a Living Laboratory

4.1 Introduction

As described in section 3.9.4, the most effective way to meet Orkney Islands Council's ambitions for the lighthouse project and to successfully deliver the diverse projects would be to establish a dedicated agency. This special purpose organisation would be tasked to deliver the OEF lighthouse project and ensure a long-term legacy of these projects by establishing Orkney as a living laboratory for the development and demonstration of integrated energy and mobility technologies.

It is recognised that this may be achieved through a phased implementation, whereby initial funding secured for projects is used to develop a detailed plan for an agency of a scale and level of ambition that is appropriate to Orkney.

However, accessing this initial funding is likely to be greatly supported by having a clear understanding of how this could eventually result in the creation of a living laboratory and how this would create, deliver, and capture value for Orkney.

This chapter considers this further by proposing an initial business plan for this initiative using the working title of: Orkney's Living Laboratory for Integrated Energy ("OLLIE").

4.2 Living Laboratory Business Model

A business model "describes the rationale of how an organisation creates, delivers and captures value."[3] The business model characterises the whole organisation – its culture, organisational structure, offering to customers (the customer value proposition), relationship with suppliers, systems and processes. From this, there are two main elements to be defined:

- **Mission:** a clear, compelling and attractive mission statement (or vision) that provides clear value propositions for funders, audiences and partners.
- **Resources:** how an organisation attracts and deploys its resources to fulfil its mission.

[3] Osterwalder and Pigneur (2010), *Business Model Generation*, p.14

4.2.1 Mission

The following mission statement is suggested for OLLIE:

Orkney can today offer the world unique insights into the electricity grid of the future. A living laboratory will sustain and capitalise on this unique position by establishing the islands as a leading international location for research, development and demonstration of technologies and business models that integrate innovations in energy management, mobility and wider infrastructure.

This will deliver the following benefits:

- Attract investments and tourists;
- Create jobs and new entrepreneurial opportunities;
- Enhance the islands' infrastructure and public services;
- Fully exploit the islands renewable energy generation potential; and
- Improve the quality of life of Orkney's residents.

The living laboratory will achieve this by:

- **Placing Orcadians at the heart of this transformation**, creating user-led solutions that meet real needs and support positive behaviour changes.
- **Providing enhanced access to infrastructure, services and users** to support the development and testing of innovative mobility and energy management technologies and business models.
- **Creating new opportunities for investment and commercialisation** by identifying needs, facilitating collaboration, accessing funding and creating routes to market.
- **Contributing to Orkney's wider ambitions** related to health, wellbeing, the environment and the economy.

4.2.2 Resources

It is proposed that OLLIE operates as an agency of Orkney Islands Council, either wholly-owned by the Council or as a joint venture with other partners. It would also work alongside and actively engage local experts and organisations in Orkney, including, but not limited to: Community Energy Scotland, EMEC, Heriot-Watt University, local development trusts, OREF and SSE.

OLLIE would directly employ staff to undertake the necessary tasks associated with delivering the lighthouse project and establishing Orkney as a living laboratory. Depending on the amount of funding secured, agency staff could include the following roles: Director, Programme Manager, Project Support, Bid Manager, Communications & Community, and Business Development.

OLLIE's staff could also provide an expert resource to shape an Orkney-wide technology and innovation strategy that spans all of the Council's functions and services. This would also help ensure that the projects developed under the living laboratory setup are targeted and fully integrated into Orkney's long-term strategic plan.

Table 4.1 shows a business model canvas for OLLIE, which expresses how resources could be attracted and deployed to fulfil its mission. At the core of the model are the value propositions that the organisation offers to its customers. The left side of the canvas shows the key elements that determine efficiency, while those to the right concern value creation. These relationships and activities find their financial expression in the organisation's cost structure and revenue streams.

Table 4.1 - Business model canvas for Orkney's Living Laboratory for Integrated Energy

<table>
<tr><th>POTENTIAL KEY PARTNERS</th><th>KEY ACTIVITIES</th><th>VALUE PROPOSITIONS</th><th>CUSTOMER RELATIONSHIPS</th><th>CUSTOMER SEGMENTS</th></tr>
<tr>
<td>■ Orkney Islands Council
■ Aquatera
■ Community Energy Scotland
■ Heriot Watt University
■ Local development trusts
■ OREF
■ RGU
■ SSE
■ Urban Foresight

■ ECCI
■ HIE
■ HITRANS
■ Scottish Enterprise
■ Transport Scotland</td>
<td>■ Research
■ Planning
■ Concept design and evaluation
■ Business model development
■ Evaluation of user experiences
■ Commercialisation
■ Bid management
■ Funding sourcing and application
■ Charge point management

KEY RESOURCES
■ Data and monitoring systems
■ Transport services and infrastructure
■ Public fleets
■ Public procurement
■ Finance
■ Expertise
■ Marketing materials</td>
<td>■ Access to Island infrastructure and residents
■ Access to similar organisations
■ Access to experts
■ Brand/ reputation
■ Cost and risk reduction
■ Real-world testing
■ Routes to market
■ Investment in the islands infrastructure</td>
<td>■ Expert assistance
■ Co-creation
■ Networked communities

CHANNELS
■ Existing Orkney Council channels
■ Scottish Enterprise networks
■ Partner networks
■ Digital
■ Hosted events
■ Competitions/ challenges</td>
<td>Island management

Investors & companies
■ IT & traffic infrastructure providers
■ Mobility service providers
■ Automotive industry
■ Energy service providers
■ Design & engineering
■ Location-based services

General public
■ Residents
■ Tourists</td>
</tr>
<tr><th colspan="3">COST STRUCTURE</th><th colspan="2">REVENUE STREAMS</th></tr>
<tr>
<td colspan="3">■ Focused on value creation and premium value proposition
■ Fixed costs (salaries, rents, utilities)</td>
<td colspan="2">■ Consultancy fees (research, bid management, project management)
■ Membership fees
■ Charge point fees
■ Events revenues
■ Sharing of cost savings</td>
</tr>
</table>

The various elements of this business model canvas are discussed in further detail in Appendix C.

4.3 Project Management Framework

The framework for managing the Living Laboratory is shown below in Figure 4.1.

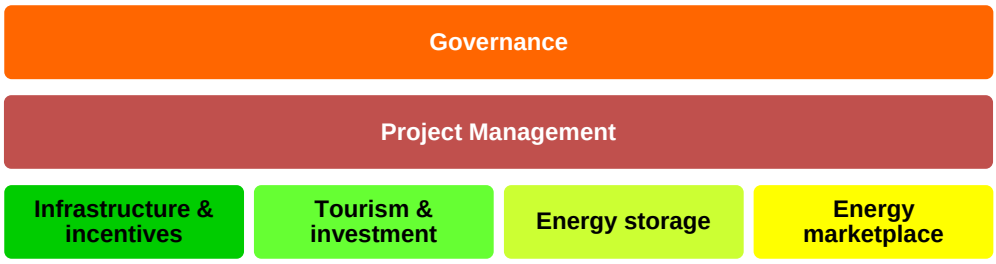


Figure 4.1 - Project management framework for OLLIE

Governance for the Living Laboratory will be provided by the multi-stakeholder task force described in section 3.5. OLLIE (i.e. the dedicated agency described in section 3.7) will provide programme and project management for the various initiative undertaken by and in partnership with the living laboratory.

OLLIE will also promote and disseminate the outcomes of Living Lab projects, as well as supporting connections to related projects, stakeholders and funding opportunities.

The Project Management team will also benefit from support from core functions within Orkney Islands Council, including, but not limited to:

- Finance and legal services;
- Procurement specialists;
- Transportation staff;
- Community planning support staff;
- Corporate planning;
- Community outreach services; and
- Economic development.

For each of the proposed work packages, expert partners will eventually lead on the delivery of the work, with support and oversight from the Project Management team. This will support the living laboratory objective of co-creation, providing a means to develop collaborative solutions. This could also potentially provide a source of match funding to the project.

4.4 Performance Indicators

Given the breadth of activities undertaken and the range of direct and indirect impacts that could be expected from this work, it is difficult to definitively classify appropriate performance indicators for this project.

In broad terms, it is expected that these activities would generate positive impacts related to the:

- Economic performance of the Islands;
- Quality of life for the residents;
- Environmental impact and resilience of Orkney;
- Optimising stranded energy assets.

The extent to which this will be achieved, and the time taken to effect positive changes that have observable consequences are uncertain. However, some potential indicators in these three areas are outlined in Appendix F. It is also recommended that an initial activity in the initiation of the OEF lighthouse project would be to agree appropriate project indicators with key partners and stakeholders, in particular the representatives of the Board.

4.5 Flexibility

The work packages detailed in chapter 2 have been specifically designed to meet the objective of establishing a critical mass of complementary and integrated demonstrations to realise Orkney Islands Council's stated objectives for the OEF lighthouse project.

The project could be increased or decreased in scope and scale, but this would result in the following compromises:

- **Increase in scale:** the individual projects across each of the work packages outlined in chapter 2 are at a scale where they can be effectively run in parallel under the project management framework identified in section 4.3. Adding more projects/ work packages would likely require additional management resource and additional input from OIC, key stakeholders, and Board members.

- **Reduction in scale:** running all of the work packages outlined in this present proposal provides a comprehensive demonstration of related activities to position Orkney as the Smart Energy and Electric Mobility Islands. Running these projects in parallel increases opportunities for co-creation and collaboration between organisations that are not currently working together but are engaged in similar activities. It also creates new opportunities for innovation, recognising that breakthrough developments often occur at the intersection/ overlap of different products and services.

4.6 Future Prospects

Once OLLIE is fully operational and successfully running several projects within Orkney, opportunities to expand the geographical coverage of the agency could be explored. This could be a wider remit to support activities across the Northern Isles, or perhaps the wider highlands and islands region.

Ultimately OLLIE could become the UK's or even Europe's leading innovation agency for isolated and integrated energy systems. This would give the agency a role in addressing strategically important challenges which are likely to become increasingly common with increasing penetration of renewables, electric vehicles and smart grid technologies.

However, it is important to recognise that achieving the ambitions for OLLIE established in section 4.2.1 would itself be significant and these wider opportunities should merely serve to underline the scale of the potential opportunities that could result from such an initiative.

5 Conclusion

This report outlines an implementation plan to develop and establish an ambitious project known as Orkney's Electric Future (OEF). The stated objectives of this project as articulated by Orkney Islands Council and key stakeholders consulted in this study are to:

- Establish and promote a good practice low carbon transport option for the residents of, and visitors to, the Orkney Islands;
- Study the feasibility of various options to support increased uptake of electric vehicles (EVs) on the Islands, including the concept of electric hire cars with driver information systems to be positioned at Orkney's main gateways and where energy is curtailed;
- Determine how surplus energy produced locally can be used to power transport.

A detailed design for a lighthouse project is presented based on four building blocks to structure a series of work packages that respond to the objectives for the project. The total investment required to deliver all of these activities is estimated to be circa £3.3 million.

Various possible implementation models are proposed to deliver this lighthouse project, with the dedicated agency potentially offering the best long-term option. This would provide a dedicated expert team to capitalise on a range of available funding opportunities and ensure a positive legacy by establishing Orkney as a living laboratory for the development and demonstration of integrated energy and mobility solutions. It is expected that with this dedicated resource, the desired outcomes will be achieved at a much quicker rate than with the other approaches considered. The dedicated agency approach could also open the possibility of establishing partnerships within the framework of Orkney's overall energy strategy led by OREF and OIC. This could potentially strengthen links between renewable energy and smart electric mobility, thereby enhancing Orkney's profile as an innovation hub for technological developments in these fields to potential investors.

While establishing this dedicated agency may be the ultimate objective, it is also noted that a phased implementation approach could be adopted. A means to achieve this would be to establish an Orkney's Electric Future Task Force, comprising representatives of all relevant stakeholders, and to source funding for a champion to coordinate and assume responsibility for this activity. This would provide a means to advance the lighthouse project while undertaking detailed planning and fundraising to ensure that the living laboratory established is appropriate in both scale and ambition for Orkney. This approach could also test and prove the need, benefits and commercial potential of having dedicated staff to manage the OEF lighthouse project.

The favourable funding environment and range of possible types and levels of support that are currently available make this project a realistic opportunity. It is recognised that this initial funding may be greatly supported by the prospect of establishing a dedicated agency. Accordingly, an outline business plan establishes a means by which this agency – with the working title of **OLLIE: Orkney's Living Laboratory for Integrated Energy** – could eventually be self-sustaining. However, it is important to note that this is based on identified potential (i.e. target customer segments, revenue streams, resources and key partnerships) and not detailed financial modelling.

Central to this business plan is the mission statement. This underscores that Orkney is today uniquely positioned to offer globally significant insights into future energy systems and that the living laboratory could offer a means to exploit and sustain this leading position. It also details the range of potential benefits offered by establishing this living laboratory, including: attracting investments and tourists; creating jobs and new entrepreneurial opportunities; enhancing the islands' infrastructure and public services; fully exploiting the islands renewable energy generation potential; and importantly, improving the quality of life of Orkney's residents.

In order to start preparations to launch the OEF lighthouse project, the immediate key decisions that have to be made are:

- The work packages to prioritise
- The implementation approach to follow
- The project team to set up the selected implementation approach
- The key partners to recruit, and stakeholders to engage
- The sources of funding to pursue.

Progressing these initial actions with the active involvement of the local community, key partners and stakeholders, will be an important first step for the Islands to realise the potential benefits of OEF lighthouse project.

Appendix A: Work Packages

OEF Work Packages

The following proposed work packages are part of OLLIE's **ideation phase** where high-potential ideas and concepts are scouted and presented as options to take into the next phase of co-creation with partners. Idea scouting is followed by team mobilisation where firm commitments to develop the different work packages are gathered from partners. As a project team is assembled, work package details such as financial resources, necessary sponsors, work breakdown schedules will be further refined. The project team then leads the confirmed partners and their respective work packages into the co-creation phase.

It is anticipated that the projects will run over a three-year period subject to availability of funding. The timescales are also dependent on the method of approach to deliver the OEF lighthouse project.

WP1: Local Incentives Package

Overview

A comprehensive incentives package including, but not limited to: parking, licensing, and planning measures. This will lay the foundations of the Orkney's Electric Future lighthouse project, creating an environment where using electric vehicles is encouraged and rewarded.

The project will draw on Transport Scotland's forthcoming National Framework of Local Incentives for Plug-in Vehicles (developed by Urban Foresight), with measures optimised to meet Orkney's local needs. This will be achieved through consultations with key stakeholders such as taxi companies, car hire companies, tourist sites, local businesses, and residents.

Objectives

This work package will be guided by the following objectives:

- Learn from best practices across the Scotland, UK and Europe;
- Engage with stakeholders to develop a bespoke EV incentives package for Orkney;
- Create an environment that encourages EV use;
- Promote and disseminate incentives package to Orkney residents.

Description of Work

The following key activities will be undertaken to meet the above stated objectives:

TASK	DESCRIPTION	POTENTIAL PARTNERS
Desk study	A review of good practice guides of incentives across Scotland, UK and Europe such as the LowCVP document and the Scottish Local Incentives Framework	Urban Foresight
Stakeholder consultation	Workshops and interviews will be conducted to gauge receptiveness to the introduction of incentives and establish the priorities of various stakeholders. Challenges and enablers of implementation will be determined through the consultation.	OIC, Aquatera, EV drivers community, taxi companies, private hire companies, local business representatives
Local incentives package development	Development of comprehensive incentives package to encourage EV use in Orkney	OIC, Aquatera

Pilot run	A test phase to determine effectiveness of incentives	OIC
Implementation	Implementation of the incentives	OIC
Promotion and dissemination	An awareness campaign to ensure that residents, visitors, and businesses know and understand the incentives put in place	OLLIE, OIC, Aquatera

Deliverables

The following deliverables will result from this work:

DELIVERABLE	DESCRIPTION	MONTH OF DELIVERY
Workshop	A workshop to gather feedback from stakeholders on suite of incentives	1
Local incentives package	A comprehensive incentives package covering areas including, but not limited to, parking, licensing, and planning measures, to encourage EV use in Orkney	3
Promotion materials	Design, production of promotion materials and parking signage	6

Investment

The table below summarises the main cost items associated with this work package.

TASK	DESCRIPTION	CAPITAL (£)	REVENUE (£)
Promotion materials	Staff time to design materials, production	10,000	4,000
Parking signage	Staff time to undertake task	20,000	4,000
TOTALS		30,000	8,000

Total funding and investment to be confirmed by proposed partners involved in delivering this work package.

WP2: Expansion of Recharging Infrastructure

Overview

The lack of recharging infrastructure is often cited as a key barrier to the increased uptake of EVs. Orkney's current recharging infrastructure will be expanded to support the changing needs of EV drivers. This includes a suitably comprehensive network with charging opportunities at key gateways and hubs, visitor attractions, and the outer and inner isles. This will enable both residents and tourists to travel in an EV around Orkney with range confidence.

The feasibility study that accompanies this report outlines options for appropriate sizing of this infrastructure. It is likely that the level of infrastructure provision will be determined by the amount of funding that can be accessed. However, a further objective of this project will be to develop lasting commercial models that decrease the need for public funding while ensuring that necessary charging is provided across the islands and not just in the most profitable locations.

Objectives

This work package will be guided by the following objectives:

- Provide rapid charge points at key hubs, gateways, and visitor attractions for top-up charging;
- Promote available funding opportunities for home and workplace charging;
- Develop sustainable business model for long-term operation of charging infrastructure.

Description of Work

The following key activities will be undertaken to meet the above stated objectives:

TASK	DESCRIPTION	POTENTIAL PARTNERS
Promote home and workplace charge point funding opportunities	An awareness campaign to encourage homeowners and employers to install charge points at their premises through Energy Saving Trust and Switched On @Work	OIC, Energy Saving Trust, Aquatera
Sourcing corporate partnerships	Seeking private sector companies who are interested in developing and operating Orkney's recharging infrastructure	Charge point manufacturers and operators, EV manufacturers, Aquatera
Procurement and deployment of	Purchase and installation of charge points at identified key locations	OIC

recharging infrastructure		
Develop pricing scheme	Design a pricing strategy for charge points across the Islands	OIC, OLLIE, Urban Foresight

Deliverables

The following deliverables will result from this work:

DELIVERABLE	DESCRIPTION	MONTH OF DELIVERY
Information sessions	An event targeting residents and employers to inform them of the different funding opportunities available for purchase and installation of charge points at their homes and workplaces	3
Installation of charge points at key gateways	Purchase and installation of charge points	8
Installation of charge points at visitor attractions	Purchase and installation of charge points	12
Standard charge point pricing scheme	A tiered pricing scheme that takes into consideration electricity costs	12
Installation of charge points at Isles	Purchase and installation of charge points	24

Investment

The table below summarises the main cost items associated with this work package.

TASK	DESCRIPTION	CAPITAL (£)	REVENUE (£)
Procurement and installation of charge points	Product cost for 23 charge points (19 rapid, 4 fast chargers)	477,000	514,700
Maintenance costs	Operating costs for first two years	0	42,300
TOTALS		477,000	557,000

Total funding and investment to be confirmed by proposed partners involved in delivering this work package.

WP3: Electrification of Fleets

Overview

A range of initiatives to encourage fleet take-up of electric vehicles. This recognises both the potential and specific needs presented by fleet operators. It will demonstrate the opportunities for EVs to reduce emissions and operating costs. It will also give employees the experience of using EVs at work, potentially building confidence amongst private users.

It is proposed that this project builds on leadership and commitments from Orkney Islands Council to increase the electrification of its vehicle fleet. Since 2014, the Council has run 6 electric vehicles out of its 76-strong fleet. Targeting to replace diesel vans with electric vans, for example, would enable over 60% of the Council's fleet to be converted to electric, effectively cutting the fleet's carbon emission by half. The Council has the option to purchase or lease the electric vans depending on their financial position.

A possible outcome of this work would be a Council-led procurement consortium to pool the resources of public and private organisations across Orkney to purchase/ lease a large number of vehicles at a substantial discount.

Objectives

This work package will be guided by the following objectives:

- Exhibit Council leadership by increasing adoption of EVs in public sector fleets;
- Explore leasing opportunities for the Council's fleet;
- Explore the potential for a Council-led procurement consortium to negotiate best deals for public and private sector organisations in Orkney.

Description of Work

The following key activities will be undertaken to meet the above stated objectives:

TASK	DESCRIPTION	POTENTIAL PARTNERS
Request for leasing proposals	An invitation extended to leasing companies to submit competitive quotes for leasing electric vehicles	OIC, leasing companies
Evaluation of proposals	A review of the submitted quotations and negotiations	OIC, leasing companies
Awarding of leasing contract	Selection and announcement of contract	OIC
Delivery of EVs	Delivery of leased EVs, includes branding	Leasing company

Deliverables

The following deliverables will result from this work:

DELIVERABLE	DESCRIPTION	MONTH OF DELIVERY
Invitation to Quote document	A document outlining the desired vehicle and contract specifications	1
Selection of leasing company	Awarding of leasing contract to preferred company	3
Delivery of EVs	Lease cost including branding	8

Investment

The table below summarises the main cost items associated with this work package.

TASK	DESCRIPTION	CAPITAL (£)	REVENUE (£)
Lease costs	5 year lease cost for initial 14 vehicles, including service, maintenance and repairs	0	197,000
TOTALS		0	197,000

Total funding and investment to be confirmed by proposed partners involved in delivering this work package.

WP4: Electric Car Club

Overview

This project will support the successful implementation, expansion and local promotion of Orkney's first electric car club. It is suggested that this is aligned with Carplus' Developing Car Clubs in Scotland (DCCS) programme, which is funded by Transport Scotland.

Another option to be pursued will be the viability of incorporating OIC's EV fleet into the car club outside of working hours and on weekends. This will build on a similar initiative by Aberdeen City Council. While this is a cost-effective way of supplying the EVs for a startup car club, the competitive implications of the project (i.e. competition with taxis and private hire cars) must also be taken into consideration.

Objectives

This work package will be guided by the following objectives:

- Set up of Orkney's first car club;
- Explore the possibility of incorporating OIC's EV fleet into the car club outside working hours in order to maximise mileage.

Description of Work

The following key activities will be undertaken to meet the above stated objectives:

TASK	DESCRIPTION	POTENTIAL PARTNERS
Consultation with car club operators	Consultation with car club operators on best practices, including training	DCCS, car club operators, Aquatera
Survey and selection of car club parking bay locations	Evaluation of possible locations for car club parking bays	OIC, DCCS, Co-Wheels
Pre-launch promotions	Awareness campaign to inform Orkney residents of new car club. This includes installation of car club signage	OLLIE or organisation engaged to manage car club
Deployment of 2 electric vehicles	Introduction of 2 new EVs deployed into car club fleet available to public	Auto manufacturer or leasing company
Day-to-day management of car club	Daily operation of car club	Car club operator

Deliverables

The following deliverables will result from this work:

DELIVERABLE	DESCRIPTION	MONTH OF DELIVERY
Setup and management of car club	Establishment of Orkney's first electric car club, includes day-to-day management	1-6, 7-36
Car club performance review	Annual review of car club performance which will form basis of further expansion	12, 24, 36

Investment

The table below summarises the main cost items associated with this work package.

TASK	DESCRIPTION	CAPITAL (£)	REVENUE (£)
Electric Vehicle Asset Purchase	Purchase of 2 electric cars (Renault Zoe)	30,000	0
Car club set up	Includes sign on fee and vehicle setup	0	3,200
Car club operations	Includes insurance, service fee, local admin and promotion costs for first 3 years	0	15,600 (5,200 p.a.)
Pre-launch promotions	Promotion of car club to local residents, including installation of car club parking bay signage	5,000	1,000
TOTALS		35,000	19,800

Total funding and investment to be confirmed by proposed partners involved in delivering this work package.

WP5: Electrification of Taxis and Private Hire Fleets

Overview

The high mileage driven by taxis and private hire vehicles means that electrification offers opportunities for substantial emissions and cost savings. Electric taxis also offer an opportunity to expose members of the public to the performance and cost benefits of EVs.

A potential way to progress this project would be a submission to the Office of Low Emission Vehicles (OLEV) Taxi Scheme, a £20m scheme that will provide funding to successful bidders for three elements: feasibility studies, taxi top-up grants, and recharging infrastructure. While the deadline for feasibility phase bids has passed, the Council can still submit a bid for the delivery phase which include provision of funding above the level of the plug-in car grant to support the purchase of purpose-built vehicles, and infrastructure to support drivers and fleets in the local area.

Objectives

This work package will be guided by the following objective:

- Introduce electric vehicles to Orkney's taxi fleets.

Description of Work

The following key activities will be undertaken to meet the above stated objectives:

TASK	DESCRIPTION	POTENTIAL PARTNERS
Purchase and deployment of electric taxis	Purchase of 10 electric taxi vehicles and deployment as part of existing fleet. Including vehicle asset purchase, integration into fleet and vehicle maintenance and operation.	Taxi companies, private hire companies
Installation of monitoring technology	Installation of monitoring technology system across the electric taxi fleet	OLLIE, taxi companies, private hire companies
Operation of electric taxi fleet	Operation of electric taxis as part of wider fleet operations	Taxi companies, private hire companies
Data analysis	Gathering collected data from the telematics to produce reports on vehicle usage e.g. speed, distance travelled, number of journeys, time of day and percentage of vehicle use, collection of energy used, data and mode type charges along with downtime	Research bodies, universities

Deliverables

The following deliverables will result from this work:

DELIVERABLE	DESCRIPTION	MONTH OF DELIVERY
Electric taxi fleet	10 electric taxi vehicles operational within Orkney	3
Operational demonstration	An integrated demonstration of the above vehicles and wider fleet as part of a smart mobility ecosystem within a Living Lab environment	6-36
Analysis reports	Reports including detailed analysis of vehicle usage	6, 12, 18, 24, 36

Investment

The table below summarises the main cost items associated with this work package.

TASK	DESCRIPTION	CAPITAL (£)	REVENUE (£)
Electric vehicle asset purchase	Purchase of 10 customised electric vehicles	215,000	0
In-vehicle telematics	Purchase of 10 telematics units	9,500	0
Staff costs	Staff time to undertake task	0	84,000 (28,000 p.a.)
TOTALS		224,500	84,000

Total funding and investment to be confirmed by proposed partners involved in delivering this work package.

WP6: Electrification of Buses

Overview

This project will evaluate the performance and efficiency of the new electric bus serving the Kirkwall-Airport route. Findings of the evaluation will help inform recommendations for increased electrification of bus fleets in Orkney. This includes strategic planning with the bus services provider in Orkney (currently Stagecoach) to phase in new buses. Electric bus manufacturers can also be engaged as partners to allow them to test new battery technologies for their buses. Infrastructure providers in turn, can be invited to test their new charging technology for public transport.

Objectives

This work package will be guided by the following objectives:

- Analyse usage data gathered from electric bus;
- Recommend next steps for further electrification of bus fleets.

Description of Work

The following key activities will be undertaken to meet the above stated objectives:

TASK	DESCRIPTION	POTENTIAL PARTNERS
Installation of monitoring technology	Installation of monitoring technology system on electric bus	OIC
Data analysis	Gathering collected data from the telematics to produce reports on vehicle usage e.g. speed, distance travelled, number of journeys, time of day and percentage of vehicle use, collection of energy used, data and mode type charges along with downtime. Feedback from passengers and drivers will also be collected.	Research bodies, universities
Purchase of additional electric bus	Purchase of additional electric bus	Bus manufacturer
Submission of report	A recommendation to the Council on next steps of bus fleet electrification project	Research bodies, universities

Deliverables

The following deliverables will result from this work:

DELIVERABLE	DESCRIPTION	MONTH OF DELIVERY
Purchase and installation of telematics	Procurement and installation of bus telematics	3
Operational demonstration	An integrated demonstration of the electric bus as part of a smart mobility ecosystem within a Living Lab environment	3-36
Additional electric bus	Purchase of additional bus to cover existing route or explore a new route	12
Analysis reports	Reports including detailed analysis of vehicle usage	6, 12, 18, 24, 36

Investment

The table below summarises the main cost items associated with this work package.

TASK	DESCRIPTION	CAPITAL (£)	REVENUE (£)
In-vehicle telematics	Purchase of 2 telematics units	1,900	0
Electric bus	Purchase cost	230,000	
Staff costs	Staff time to undertake task	0	84,000 (28,000 p.a.)
TOTALS		231,900	84,000

Total funding and investment to be confirmed by proposed partners involved in delivering this work package.

WP7: Green Branding & Promotion

Overview

The project will actively promote Orkney to tourists, potential investors and partners as the UK's premier location for innovations in smart energy technologies and intelligent electric mobility.

Emerging findings and outcomes of the lighthouse project will be promoted to an international audience. Similarly, the expertise and commitments of local business and organisations will also be packaged and promoted. This will provide a shop window for organisations related to the tourism sector and those with expertise related to the design, development and deployment of energy and mobility solutions.

This will primarily be coordinated through the frameworks developed for delivery of the OEF lighthouse (discussed in chapter 4). In addition, the Transport Scotland funded E-cosse forums and Developing Car Clubs in Scotland programme, will also offer opportunities for promotion in Scotland; with bodies such as Scotland Development International and UKTI offering opportunities for international promotion.

Objectives

This work package will be guided by the following objectives:

- Position Orkney as a global centre for smart mobility and innovative energy technologies;
- Promote Orkney's wider offer in the smart mobility and smart energy space on a local, national and global basis;
- Attract projects and investment to Orkney;
- Publicise partner organisation activities and expertise;
- Highlight new opportunities for the import and export of projects, knowledge and expertise;
- Disseminate key findings, outcomes and other relevant information on an international basis.

Description of Work

The following key activities will be undertaken to meet the above stated objectives:

TASK	DESCRIPTION	POTENTIAL PARTNERS
Production of lighthouse website	Production of a website to act as an online information hub, to and from which all on- and offline activity can be directed, including areas for each work package in addition to the main OEF lighthouse project home page.	Urban Foresight, OIC, Visit Scotland
Creation and distribution of promotional collateral	Design, production, print and distribution of printed marketing materials to publicise both the individual work packages and the overall OEF lighthouse project.	Urban Foresight, OIC, Visit Scotland, Aquatera
Social media and other promotion	Strategic communication via structured campaigns, with ad-hoc responsive communication where appropriate, using dedicated staff and accounts across multiple channels. Offline communications to include workshops to engage stakeholders, and communications through the Developing Car Clubs in Scotland (DCCS) programme both around the individual work packages and around the overall OEF lighthouse.	Urban Foresight, Aquatera
Production of end report	Analysis and condensing of all relevant data and reports throughout the project lifespan into a comprehensive project report on individual work packages as well as the overall OEF lighthouse.	Urban Foresight, OIC
End-of-programme conference and dissemination event	Invitation-only forum events to provide progress updates and disseminate relevant information to stakeholders, carried out via existing channels such as E-cosse.	Urban Foresight, OIC, Aquatera

Deliverables

The following deliverables will result from this work:

DELIVERABLE	DESCRIPTION	MONTH OF DELIVERY
Lighthouse website	A dedicated web presence to promote Orkney's mobility offer, including detail on all projects and partners	6
Promotional brochure	A document to provide further detail on all aspects of Orkney's mobility offer, for on- and offline distribution	6
Orkney smart mobility community	A global community of professionals and other interested parties, engaged via multiple on- and offline channels including social media, web, and traditional media, and via the E-cosse and Developing Car Clubs in Scotland (DCCS) programmes	3-36

End report	A concise and highly informative end-of-project report to provide an overview of the programme, highlighting successes and providing recommendations and best practice guidance for smart mobility project implementation	34
End-of-programme conference and dissemination event	A review meeting and debrief, provided via a conference and dissemination event for all programme partners and other invited networks and stakeholders	36

Investment

The table below summarises the main cost items associated with this work package.

TASK	DESCRIPTION	CAPITAL (£)	REVENUE (£)
Production of website	Staff time to undertake task, design	0	22,000
Creation and distribution of promotional collateral	Design, production, printing, distribution	20,000	4,000
Social media and other promotion	Staff time to undertake task	0	2,000
Production of end report	Staff time to undertake task	0	38,500
End-of-programme conference and dissemination event	Staff time to undertake task; catering and venue for conference and event	0	25,000
TOTALS		20,000	91,500

Total funding and investment to be confirmed by proposed partners involved in delivering this work package.

WP8: Pilots & Trials of ITS

Overview

This project will aim to establish pilots of intelligent transport systems for electric mobility and tourism in Orkney.

One such project is a developing a new management system that will assemble disparate data streams from the Islands and combine them into readily accessible sources of intelligence. The central objective for this project will be to develop information systems to enhance the experience of using electric vehicles in a rural setting, offering drivers real-time information for routing, parking, charge point availability, and even tourist information. The data management module can be developed to broadcast static information on tourist sites or local businesses to EVs as soon as they come within range. This solution can also allow further expansion by introducing additional smart mobility functionality, providing greater benefits for Orkney.

Objectives

This work package will be guided by the following objectives:

- Enhance the experience of electric vehicle use in Orkney;
- Create an overview of available data sources applicable to the project;
- Build a scalable, replicable mobility data platform based on existing technologies.

Description of Work

The following key activities will be undertaken to meet the above stated objectives:

TASK	DESCRIPTION	POTENTIAL PARTNERS
Data discovery	Review of new and existing data sources which will be delivered in other WPs. The outcome of this is an inventory of the data available for the system, and identification of any gaps which need to be addressed with additional sources.	ITS provider, OIC, other stakeholders (tbc, review with project partners), Aquatera
Requirements specification	Preparation of requirements catalogue and specification for the system	ITS provider, OIC
Beacon solution	Provision of sensors, communication solution and data output for integration to data management system	ITS provider
System design	Building on the requirements specification, a system design will be prepared	ITS provider
System implementation	Development of the system, including all testing	ITS provider

System operation	Ongoing system operation during the pilot	ITS provider

Deliverables

The following deliverables will result from this work:

DELIVERABLE	DESCRIPTION	MONTH OF DELIVERY
Data discovery report	Report and data inventory	3
Requirements specification	Specification detailing all system requirements	4
Beacon solution	Product cost	6
System design	System design documentation	6
System implementation	Development of all components associated with the Data Management system	12
System operation	Ongoing system operation	12-36

Investment

The table below summarises the main cost items associated with this work package.

TASK	DESCRIPTION	CAPITAL (£)	REVENUE (£)
Data discovery report	Staff time to undertake task	0	8,000
Requirements specification	Staff time to undertake task	0	15,000
System design	Staff time to undertake task	0	20,000
Beacon solution	Product cost	44,000	
System development, integration, testing and implementation	Staff time to undertake task	0	90,000
Existing system – components, software, licensing	Integration and development of existing system	0	40,000
System operation – hosting, support, maintenance	Technical infrastructure to accommodate system	0	80,000 (40,000 p.a.)
TOTALS		44,000	253,000

Total funding and investment to be confirmed by proposed partners involved in delivering this work package.

WP9: Pilots & Trials of Energy Storage

Overview

This project will aim to establish pilots of energy storage solutions in Orkney.

An example project would be to set up a second-life battery storage facility in Orkney. Batteries that have reached the end of their useful life in electric vehicles could be used to provide energy ancillary services such as grid balancing and peak load shaving. Business models of these storage solutions can also be tested in real-world settings and can create demand for EV batteries, thereby contribute to increasing the resale value of EVs.

Objectives

This work package will be guided by the following objectives:

- Pilot energy storage technologies;
- Increase energy storage capacity in Orkney;
- Explore possibility of tying up energy storage and recharging infrastructure.

Description of Work

The following key activities will be undertaken to meet the above stated objectives:

TASK	DESCRIPTION	POTENTIAL PARTNERS
Idea scouting	Scout energy storage solutions available in the market and still in development (Future Transport Systems, Green Station)	Universities, energy storage companies, OREF, Aquatera
Stakeholder consultation	Workshops, interviews and an online survey will be used to establish the priorities and objectives of various different stakeholders	Universities, community development trusts, OREF, Aquatera
Invite companies to test technologies and business models	Sourcing of possible partners for energy storage	Energy storage companies
Community engagement	Engaging with development trusts in the Islands for possible test site in local communities	Development trusts

Deliverables

The following deliverables will result from this work:

DELIVERABLE	DESCRIPTION	MONTH OF DELIVERY
Selection of energy storage solution	Based on proposals, an energy storage solution will be chosen to be tested in a pre-determined location in Orkney	9
Operation and hosting	Operation of solution	9-36
Project workshops	Three workshops are planned. One at the outset for stakeholder input, a second when the solution has been selected and a third to review the project at completion which will inform the final report.	1, 9, 15
Technical report	A report will be produced that will be made publically available disseminating the project findings	18

Investment

The table below summarises the main cost items associated with this work package.

TASK	DESCRIPTION	CAPITAL (£)	REVENUE (£)
Request for proposals	Staff time to undertake task, including preparation of documents	0	5,000
Stakeholder consultation	Staff time; catering and venue for workshop; workshop materials	0	15,000
Energy storage solution	Product cost (estimate), including installation and maintenance	280,000	
TOTALS		280,000	20,000

Total funding and investment to be confirmed by proposed partners involved in delivering this work package.

WP10: Pilots & Trials of Energy Management Services

Overview

This project will pilot energy marketplace services in Orkney.

An example project would be to develop an energy management algorithm with an accompanying web dashboard and mobile app to optimise the use of energy when tariffs are least expensive, balance local grids against frequency response and peak load signals and manage the charging of electric vehicles. This will build and maximise electric vehicle optimisation software and provide a toolkit for fleet managers to automate the charging process and allow participation in demand response events and encourage the uptake of electric vehicles by making it easier for fleets to manage their assets and reduce the total cost of ownership through intelligent charging.

Objectives

This work package will be guided by the following objectives:

- Manage the charging process for electric vehicles;
- Balance local grid constraints;
- Reduce total cost of ownership and encourage the uptake of electric vehicles.

Description of Work

The following key activities will be undertaken to meet the above stated objectives:

TASK	DESCRIPTION	POTENTIAL PARTNERS
Detailed design	A detailed specification for the energy management algorithm, web dashboard and mobile app will be created.	Software developers, energy companies, EV manufacturers
Stakeholder consultation	Workshops, interviews and an online survey will be used to establish the priorities and objectives of various different stakeholders.	Software developer
Algorithm and software development	Algorithm and software development to include integration with infrastructure and various external API's relevant to the project	Software developer
Fleet engagement	Engaging with fleets in the private and public sector who already have electric vehicles to test the overall solution	Software developer

Deliverables

The following deliverables will result from this work:

DELIVERABLE	DESCRIPTION	MONTH OF DELIVERY
Energy management algorithm, web dashboard and app	The overall solution will be a real-time application accessible online and mobile that delivers an easy to use toolkit for fleet managers.	9
Operation and hosting	Operation of application	1-36
Project workshops	Three workshops are planned. One at the outset for stakeholder input, a second when the toolkit is complete and a third to review the project at completion which will inform the final report.	1, 9, 15
Technical report	A report will be produced that will be made publically available disseminating the project findings.	18

Investment

The table below summarises the main cost items associated with this work package.

TASK	DESCRIPTION	CAPITAL (£)	REVENUE (£)
Detailed design	Staff time to undertake task	0	23,000
Stakeholder consultation	Staff time; catering and venue for workshop; workshop materials	0	15,000
Algorithm and software development	Developer, consultants and mathematician's time to develop solution and integrate with third parties	0	280,000
Software and licencing	Software and licences associated with project	42,000	0
Infrastructure	Costs associated with infrastructure and secure hosted environment	0	150,000 (50,000 p.a.)
TOTALS		42,000	468,000

Total funding and investment to be confirmed by proposed partners involved in delivering this work package.

Programme Management

Overview

While it is envisaged that Orkney Islands Council will act as the lead partner and accountable body for the delivery of OEF lighthouse project, technical assistance in project and programme management will be provided by the project team.

Objectives

This work package will be guided by the following objectives:

- Provide the financial management of the programme;
- Ensure the setup and operation of the appropriate delivery structures (see chapter 3;
- Monitor and manage partner activity across and within all work packages;
- Ensure the timely and regular provision and receipt of project updates from all partners and across all work packages.

Description of Work

The following key activities will be undertaken to meet the above stated objectives:

TASK	DESCRIPTION	POTENTIAL PARTNERS
Financial management	The effective management of project finances according to the budgets supplied within this document, with the aim of to ensuring successful delivery of all work packages and the overall project.	OIC, Urban Foresight, OLLIE, Aquatera
Collaborative project office - accommodation	Sourcing and provision of suitable accommodation for the operation of the Collaborative Project Office.	OIC, Urban Foresight, OLLIE, Aquatera
Travel budget - all partners in programme	Administration and provision of appropriate budget to meet the travel requirements of all project partners for the duration of the programme.	OIC, Urban Foresight, OLLIE, Aquatera
Partner communications and meetings	Provision of regular administrative communications to all project partners around the activities involved in individual work packages, and regular review meetings to effectively monitor project progress.	OIC, Urban Foresight, OLLIE, Aquatera
Provision of miscellaneous materials	Contingency budget to provide flexibility for the purchase and supply of miscellaneous materials	OIC, Urban Foresight, OLLIE, Aquatera

Deliverables

The following deliverables will result from this work:

DELIVERABLE	DESCRIPTION	MONTH OF DELIVERY
Project review meetings	Bi-annual reviews of project and work package progress from all project partners	6, 12, 18, 24, 30, 36
Collaborative agency office setup	Setup and administration of the collaborative project office for Programme Management purposes	3
Project progress reports	Bi-Annual project and work package updates, full annual project progress reports	6, 12, 18, 24, 30, 36

Investment

The table below summarises the main cost items associated with this work package.

TASK	DESCRIPTION	CAPITAL (£)	REVENUE (£)
Financial management	Staff time to undertake task	0	65,000
Collaborative project office - accommodation	Accommodation costs for Collaborative Project Office	15,000	0
Travel budget - all partners in programme	Travel costs	20,000	0
Partner communications and meetings	Staff time to undertake task; catering and venue for conference and event	0	37,000
Provision of miscellaneous materials	Miscellaneous items	15,000	0
TOTALS		50,000	102,000

Total funding and investment to be confirmed by proposed partners involved in delivering this work package.

Project Administration

Overview

The overall programme and project management duties of the OEF lighthouse project will be performed by the frameworks developed for the project, and the management of the programme will be supported by contributions from each partner equivalent to 10% of the value of their overall investment in the project, or as agreed by the Board.

Objectives

This work package will be guided by the following objectives:

- Deliver the OEF lighthouse project according to the specification provided;
- Provide funding to support the programme and project management duties to be performed by the frameworks developed for the duration of the programme.

Description of Work

The following key activities will be undertaken to meet the above stated objectives:

TASK	DESCRIPTION	POTENTIAL PARTNERS
Project administration contributions	Contributions to the value of 10% of overall value of overall investment in the project	OEF lighthouse project partners

Deliverables

The following deliverables will result from this work:

DELIVERABLE	DESCRIPTION	MONTH OF DELIVERY
Project administration funding	Funding to support the programme and project management functions performed by the frameworks developed for the OEF lighthouse project	1, 13, 25

Investment

Total funding and investment to be confirmed by proposed partners involved in delivering this work package.

Appendix B: Funding Sources

1. Overview

It is noted that capital funding is needed to kick-start the suite of projects the OIC and partner organisations may select to pursue. This appendix presents and summarises potential local, national, and regional funding sources that could be pursued for OEF.

2. Infrastructure and Incentives

The following funding sources are available for projects related to the first building block of Orkney's Electric Future: Infrastructure and incentives.

2.1. ChargePlace Scotland

The Scottish Government provides full support to homeowners and private organisations that use plug-in vehicles. This is done through ChargePlace Scotland (CPS). Full funding is available for the installation of a home charge point for EV owners or those with leases and those that use an EV through work or a car club. A fully funded 32 amp charge point and associated installation costs are included. Seventy-five percent funding is provided by OLEV up to £900 with additional top-up funding to cover costs above this provided by the Energy Saving Trust.

Private organisations can also claim up to 100% of the cost up to £10,000 of fitting a charge point. Eligibility for organisations is subject to their provision of a free parking space and access to the public. In addition they should provide free electricity for EV charging for a 12-month period after installation.

CPS	DETAILS
Funding body	Scottish Government, OLEV, and Energy Saving Trust
For projects	Recharging infrastructure
Available funding	Up to £900 for home charging points[4] Up to £10k for workplace charging points[5]
Coverage	Capital cost and installation of charging station
Eligibility	Homeowners and commercial workplaces
Relevant information	Grant scheme will run until 31 March 2016. Further information available here: http://www.energysavingtrust.org.uk/scotland/domestic/improving-my-travel/chargepoint-grants http://www.energysavingtrust.org.uk/scotland/businesses/transport/electric-vehicles/charging-point-grants

[4] Energy Saving Trust, Home charging point grants
[5] Energy Saving Trust, Workplace charging point grants

2.2. Climate Challenge Fund

The Climate Challenge Fund (CCF) is a Scottish Government programme, managed and developed by Keep Scotland Beautiful.[6] It provides funding for community-led projects that reduce local carbon emissions, improve their local areas, and help them adapt to the impacts of climate change. CCF supports projects across a range of themes including energy efficiency improvements to community owned buildings and initiatives to reduce carbon emissions caused by transport. This funding source is particularly relevant to the establishment of **car clubs**.

CCF	DETAILS
Funding body	Scottish Government, managed by Keep Scotland Beautiful
For projects	Car clubs
Available funding	Up to £150k
Coverage	Staff costs to help deliver project and infrastructure. Can also provide funding for office space and resources such as promotional materials
Eligibility	Open to community-led projects that reduce carbon emissions, helping to tackle climate change and lead to additional community benefits
Relevant information	Funding cycle has ended for 2015/2016. New cycle expected to start October 2015 for 2016/2017. A sample car club proposal is available here: http://www.keepscotlandbeautiful.org/media/459291/angus-council-car-club-ideas-bank-project-proposal.pdf

2.3. Interreg North Sea Region

The North Sea Region (NSR) programme supports transnational partnerships which bring together 49 regions from different countries around the North Sea to address challenges in the areas of:

- Priority area 1: Supporting growth in North Sea Region economies,
- Priority area 2: Eco-innovation
- Priority area 3: Protecting against climate change, and
- Priority area 4: Green transport and mobility.[7]

The programme is about learning by doing: testing new ideas and strategies in a variety of contexts to see what really works and then sharing these insights with other regions and organisations.

With green transport and mobility as a priority, the programme has set specific objectives (SO) to address challenges in this area, namely:

- SO4.1: Develop demonstrations of *innovative* and/or *improved* transport and logistics solutions with potential to move large volumes of freight away from long distance road transportation;

[6] www.KeepScotlandBeautiful.org, Climate Challenge Fund
[7] www.northsearegion.eu, North Sea region programme 2014-2020: Citizen summary, 2014.

- SO4.2: Stimulate the take-up and application of green transport solutions for regional freight and personal transport.

In this respect, Orkney's Electric Future fits well with specific objective 4.2 where transnational cooperation in the following activities are encouraged:

- Demonstrate the potential of immediately available solutions such as car-sharing, multi-use vehicles, and non-conventional fuels for urban public transport and freight distribution systems
- Continue to promote and prepare for the wider roll out of alternative fuels for privately owned vehicles
- Support other long term solutions like changes to planning rules and practices to reduce travel need and promote healthier forms of mobility

This objective is ambitious and tackles very complex challenges. The programme encourages applications from partnerships willing to take a lead and implement Living Lab approaches to experiment with comprehensive changes to local transport systems in order to increase working knowledge of the steps needed and the benefits available.

INTERREG-NSR	DETAILS
Funding body	EU, European Regional Development Fund (ERDF)
For projects	Car clubs, electrification of public transport, living lab
Available funding	Priority 4: €56m (c. £41m) 50% of project costs There is no formal minimum or maximum budget for projects but projects will be assessed on value for money and larger projects will be expected to deliver significant benefits to the programme area.
Coverage	Demonstration projects, living labs
Eligibility	Government organisations, civil society stakeholders, education and knowledge institutions, intermediate bodies such as chambers of commerce and development agencies, enterprises
Relevant information	Transnational – the project must involve at least 2 partners from 2 different countries from the NSR. Deadline for expression of interest: 30 June 2015 Applicants have a maximum of 9 months from approval of expression of interest until submission of full application. A lump sum payment of €20k (c. £14k) is offered to cover preparation costs provided that the final submitted application lives up to quality requirements. For further information: http://www.northsearegion.eu/media/1080/guidance-note-for-call-1-final.pdf

2.4. OLEV Taxi Scheme

The Office of Low Emission Vehicles (OLEV) recently launched the £20m ultra-low emission vehicle (ULEV) taxi scheme. The Scheme will provide funding to successful bidders for three elements:

Feasibility Phase

1. **Feasibility studies** for local areas to identify how funds can be used strategically and in value for money way to best suit taxi and private hire drivers, users and the local population.

Delivery Phase

2. **Taxi top-up grants** to provide funding above the level of the plug-in car grant towards eligible, purpose-built ultra-low emission taxis to support the purchase of vehicles.
3. **Infrastructure** for ultra-low emission taxis and private hire vehicles, to support drivers and fleets in the local area.

The OLEV Taxi Scheme will aim to:[8]

- Increase the uptake of ultra-low emission taxis i.e. vehicles which can be hailed in the street or hired at taxi ranks
- Encourage the use of ULEV cars for private hire i.e. vehicles which you have to prebook
- Improve air quality
- Encourage investment in the UK automotive industry
- Influence the uptake of ultra-low emission passenger cars through exposing more of the population to the benefits of ultra-low emission vehicles

The Scheme is open to UK-wide and combined authorities, integrated transport authorities, and local transport authorities. District councils with taxi licensing responsibilities should work through their combined authority, integrated transport authority or county council. The ultimate beneficiaries of the Scheme are not just local authorities, but taxi drivers and companies themselves – who will directly benefit from reduced prices when buying ultra-low emission taxis, and from a dedicated infrastructure network.

[8] Office for Low Emission Vehicles, £20m Ultra Low Emission Vehicle Taxi Scheme, 2015

OLEV TAXI SCHEME	DETAILS
Funding body	Office of Low Emission Vehicles
For projects	Taxis and private hire cars
Available funding	£5m
Coverage	Feasibility studies, top-up taxi grants, and infrastructure i.e. charge points for taxis
Eligibility	Open to UK-wide and combined authorities, integrated transport authorities, and local transport authorities
Relevant information	■ 12 June 2015– Deadline for receipt of Feasibility Phase bids ■ July 2015 – Announcement of local authorities who have secured funded studies. ■ 31 December 2015 - Conclusion of feasibility studies ■ 31 January 2016 – Deadline for Delivery Phase bids ■ February - March 2016 – Announcement of local authorities who have secured funding in the Delivery Phase

3. Tourism and Inward Investment

The following funding sources are available for projects related to the second building block of Orkney's Electric Future: tourism and inward investment.

3.1. Visit Scotland Growth Fund

The VisitScotland Growth Fund is a marketing fund available for new collaborative marketing projects.[9] Applications are invited from groups of tourism businesses in Scotland who will assist the tourism industry in reaching the ambitious 50% tourism revenue growth target by 2015.

Support is given to projects that involve working with new partners, targeting new markets or using new media.

Projects eligible for support under the fund should contribute to the following objectives:

- Increase the number of visitors to Scotland and the overall visitor spend.
- Encourage visitors to travel more widely throughout Scotland.
- Encourage visitors to travel throughout the whole year.
- Develop and support the Scotland brand in the key consumer markets.

[9] Scotland.gov.uk, VisitScotland growth fund, 2015.

VISITSCOTLAND	DETAILS
Funding body	VisitScotland
For projects	Tourism
Available funding	50% of approved total marketing costs over a one-year period Up to £40k
Coverage	Marketing costs ■ Content development for a website and social media activity ■ Promotion of websites by e-marketing, online advertising, social media campaigns and search engine optimisation ■ Purchase of VisitScotland products and services including Quality Assurance membership (first time purchases only, up to a maximum of 25% of total project cost) ■ Printed consumer marketing material which has a clear distribution plan ■ Media advertising ■ Trade events and exhibition attendance ■ Direct mail campaigns ■ Monitoring and Evaluation of the project ■ Project Management / Consultancy costs to deliver marketing activities (up to a maximum of 15% of total project cost)
Eligibility	Applicant groups should consist of at least three tourism businesses i.e. a tourism business is defined as a business that directly benefits from, and whose activities or services directly encourage, leisure and business visitors to and within Scotland.
Relevant information	Open for applications Next deadline of expression of interest: 19 August 2015 For further information: http://www.visitscotland.org/business_support/marketing_opportunities/growth_fund/how_to_apply.aspx

3.2. Horizon 2020: Mobility for Growth 2014-2015

Horizon 2020 (H2020) is the European Union's Framework Programme for research and innovation and has funding available based on 3 different themes:

- Excellent science – improving Europe's science base
- Industrial leadership – helping Europe attract research and innovation investment
- Societal challenges

Mobility for Growth 2014-2015 is a call for projects that address societal challenges related to transport, specifically: facilitating market take up of innovative transport infrastructure solutions.

In this particular funding source, it is recognised that there is a need to test and implement transport solutions at system level. Although many technological solutions relative to transport infrastructure are already available, the challenge consists in overcoming highly fragmented demand. Decision-makers from the public sector are often unaware of the availability and efficiency of highly innovative solutions and are not familiar with the use of public procurement for innovation.

Therefore, Mobility for Growth calls for actions that lead to the improvement and capacity building in the field of public purchasing of innovative solutions in transport

infrastructure leading to implementation of best available solutions and other business cases representative of typical European situations.

Proposals should be driven by clearly identified procurement needs of infrastructure owners (the procurers), including life-cycle and cost-benefit assessments and environmental impacts under the life-cycle perspective, and should effectively control budget across various European regions. The work should contribute to the revision /development of relevant standards and regulatory framework, and to study strategies oriented to favour the innovation in transport sector. Good practices should be made available for replication.

One expected outcome that possibly fits with the Orkney Electric Future project is: to serve as pilot projects to demonstrate the effectiveness and reliability of advanced (long-life) technological solutions in reducing the total cost and risk of ownership of transport, the environmental impact and the effectiveness of new supply chain models and contractual arrangements.

The objective of public procurement of innovative solutions (PPI) co-fund actions is to enable groups of procurers to share the risks of acting as early adopters of innovative solutions, whilst opening market opportunities for industry. A PPI Co-fund action provides Union co-funding for a group of procurers ('buyers group') to undertake together one joint PPI procurement, so that there is one joint PPI call for tender launched by the 'lead procurer' and one joint evaluation of offers.

Procurement of innovative transport solutions such as intelligent transport systems (for EV sightseeing, for example) can be co-funded through this action.

H2020-MG-2015	DETAILS
Funding body	European Union, Horizon 2020
For projects	Public sector procurement of innovative solutions (PPI) Intelligent transport systems Flash charging for buses
Available funding	€18.5m (c. £13.8m) 20% of eligible costs, which include the price of the innovative solutions procured via the joint PPI and the costs of the eligible coordination and networking activities.
Coverage	Joint procurement of innovative transport solutions
Eligibility	Any type of organisation as long as they are a legal entity and are partnered with at least 2 other organisations from 2 different EU member states.
Relevant information	Application deadline: 15 October 2015 For further details: http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2647-mg-8.3-2015.html#tab1

4. Energy Storage & Energy Management Marketplace

The following funding sources are available for projects related to the final two building blocks of Orkney's Electric Future: energy storage and energy management marketplace.

4.1. Infrastructure and Innovation Fund

The overall aim of the Infrastructure and Innovation Fund (IIF) is to stimulate innovative approaches to unlock potential for local renewable energy generation.[10] The following areas are priorities for the fund:

- overcoming barriers relating to grid capacity issues;
- energy storage and active network management;
- linking local energy demand with local renewable energy generation;
- delivering renewable heat and electricity to local consumers;
- addressing barriers that communities face in areas of constrained electricity networks.

Grant funding is made available to develop projects that link local energy generation with local energy use. Projects that develop innovative distribution and storage solutions are also eligible.

A number of projects based in Orkney have previously received funding from IIF. These include:

- Local Energy Project, Eday Renewable Energy Ltd
- Grid-smart demand side management, Hoy Energy Ltd
- Energy Audit Project, Orkney Renewable Energy Forum
- Grid-Smart EV Charging Project, Rousay, Egilsay and Wyre Development Trust
- Grid-Smart Low Carbon Marine Transport Project, Shapinsay Development Trust

IIF	DETAILS
Funding body	Community and Renewable Energy Scheme (CARES), managed by Local Energy Scotland
For projects	Demand-response aggregators, vehicle-to-grid, smart electric vehicle charging system linked to local generation, creation of an energy service company (ESCO)
Available funding	Up to £100k
Coverage	Research, feasibility and pilots
Eligibility	Community groups, local authorities, registered charities, consortiums
Relevant information	Application deadline must be submitted by 7th September 2015. Guidance notes are provided here. http://www.localenergyscotland.org/media/65475/cares-iif-guidance-notes_v3.pdf

[10] Local Energy Scotland, Infrastructure and Innovation Fund

4.2. The Energy Catalyst

Innovate UK runs collaborative R&D funding competitions to solve specific technical or societal challenges with potential funding of up to 60% of project costs. One of the catalysts focuses on energy.

The Energy Catalyst Fund aims to accelerate innovation in the energy sector.[11] It is open to innovative businesses and research from any sector who can address the three major challenges facing the energy sector – i.e. the energy 'trilemma' of reducing emissions, improving security of supply and reducing cost. The Catalyst will support projects that contribute to all elements of the energy trilemma.

Eligibility requirements include the applicant must be a UK business or research organisation, working in the energy sector, and must work with a research partner or other business on the project in question.

There are different levels of funding available depending on project status of completion. These are:

- early-stage feasibility studies
- mid-stage industrial research such as prototyping, field trials or market testing
- late-stage testing in a real-life environment

For Orkney's Electric Future, late-stage testing and demonstration of energy storage solutions and demand-side technologies may be more applicable. Indicative examples of technologies within the scope of the Catalyst are:

- Energy networks and system integration: electricity and heat networks. Technologies for energy transmission, distribution and storage and the integration of systems to deploy low carbon energy. Includes smart grids, power electronics, storage technologies and waste heat,
- Demand-side technologies: technology development to reduce and/or manage energy demand at scale. Includes energy efficiency measures for the end user including industrial energy efficiency.

[11] www.gov.uk, Innovate UK funding: Catalysts, 2015.

ENERGY CATALYST	DETAILS
Funding body	Innovate UK
For projects	Energy storage and demand-side management
Available funding	Late-stage awards: Up to £10m 60% of project costs
Coverage	Demonstration projects and pilots Projects should demonstrate and evaluate the capability and performance of innovative technologies through pre-commercial technology validation including, for example, prototype and pilot testing and field trials at the component and system levels in realistic operating environments.
Eligibility	Must be a UK business or research organisation, work in energy, and work with a research partner or other business on the project in question.
Relevant information	Deadline of expressions of interest: 9 September 2015 Excludes Transport For further information: http://bit.ly/1zMePeK

4.3. Renewable Energy Investment Fund

The Renewable Energy Investment Fund (REIF) provides financial assistance for projects that will:[12]

- Deliver energy from a renewable source, reduce the cost of renewable energy or provide key solutions for renewable energy generation.
- Provide benefit to the economy of Scotland.
- Have a demonstrable funding gap for REIF to consider.
- Be at a sufficient stage of development to require REIF funding before March 2016.

Working closely with Community and Renewable Energy Scheme ('CARES') and Local Energy Scotland, REIF is a discretionary fund, with projects assessed on a case-by-case basis. One of the areas that REIF can support is community-owned renewables. Projects seeking to alleviate curtailment through demand-response technologies and energy storage options provide a good fit for this funding source.

Companies and community groups working in the area of renewable energy at the test or commercialization stage, and trying to assemble a funding package, are encouraged to make contact with the REIF team at an early stage in the process.

[12] Scottish Enterprise, Renewable Energy Investment Fund, 2015.

REIF	DETAILS
Funding body	Scottish Enterprise
For projects	Demand-response aggregators, vehicle-to-grid
Available funding	Loans, guarantees and equity investments, all on fully commercial terms
Coverage	Projects in the test and commercialization phase
Eligibility	All projects must have demonstrable funding gap and the potential to provide economic benefits to Scotland.
Relevant information	For community owned projects, relevant planning permissions must have been secured and have an appropriate offer of grid connection. Applications are accepted on a rolling basis. Fund will run until March 2016.

4.4. SMART: Scotland

SMART: Scotland provides grants to Small and Medium Enterprises (SMEs) based in Scotland to help them undertake technical feasibility studies and research and development projects that have a commercial endpoint.[13]

Companies must be small or medium sized businesses, a university spin-out or an individual based in or planning to set up in Scotland.

In addition, projects must exhibit:

- An advance in technological innovation for the UK industry or sector concerned.
- The technical risks and challenges associated with defining and developing the technology

Because components of the Orkney's Electric Future also involve the private sector, this funding source is helpful to encourage companies, particularly start-ups, to invest in technologies and business models.

[13] Scottish Enterprise, SMART Scotland

SMART: SCOTLAND	DETAILS
Funding body	Scottish Enterprise
For projects	Demand-response aggregators
Available funding	Feasibility studies: Up to £100k R&D projects: Up to £600k
Coverage	Feasibility studies and research and development projects
Eligibility	Open to SMEs, a university spin-out or individuals based in Scotland
Relevant information	Application is open. Applicants should be able to demonstrate: ■ That the applicant owns, or has rights to exploit, the intellectual property required to undertake, and arising from, the project. ■ How commercial prospects for the end product or process will be achieved, with realistic and effective routes to market. ■ That the applicant has the necessary management and technical expertise and resources (either in-house or brought-in) to make the project a success. ■ That both the project and the business are financially viable. ■ That financial assistance from SMART: SCOTLAND is essential.

4.5. Eurostars

Eurostars supports research-performing small and medium enterprises with funding for research or to develop an innovative product, process or service to gain competitive advantage. Funding is provided for transnational innovation projects; the products of which are then rapidly commercialised.[14] Eligibility is based on being a small or medium-sized UK business, working in a high-tech industry and with a desire to work with other businesses in Europe.

EUROSTARS	DETAILS
Funding body	Innovate UK
For projects	Energy storage solutions, demand-side management
Available funding	Up to €300k (c. £221k) to cover 50% of project costs Remaining budget have to be self-funded
Coverage	Research and development
Eligibility	Open to research-performing SMEs, working in high-tech industry energy, and with a desire to work with other businesses in Europe
Relevant information	Transnational - the project must involve partners from at least 2 EU countries Competition runs every 6 months Next application deadline: 17 September 2015 For further information: https://www.eurostars-eureka.eu/static/forms/Guidelines_Application.pdf https://www.eurostars-eureka.eu/static/forms/Brochure_Eurostars_SME_V6.pdf

[14] Eurostars, What is Eurostars?

4.6. Horizon 2020: Energy Efficiency

Energy Efficiency Market Uptake is another Horizon 2020 call that address societal challenges related to energy, specifically: the development and market roll-out of innovative energy services and financial schemes for sustainable energy.

In this particular project call, it is recognised that the public sector has an exemplary role to play (in particular as regards the management of public assets) in addressing the market deficiencies by setting a stable regulatory environment and by engaging in dialogue with the key stakeholders to improve the legal and financial framework and to put in place innovative financing schemes. However, the deployed public funds have to be matched and multiplied by private sector capital, to address the financing gap.

The scope of this challenge include the following:

- Proposals focusing on the roll-out of business models for innovative energy efficiency services (e.g. energy performance contracting), enabling to fully monetise the resulting energy savings.
- Proposals replicating successful innovative financing solutions already implemented across the EU as well as successful innovative energy services. Particular attention should be given to innovative solutions enabling aggregation, securitisation, project bundling, risk sharing, structuring of clearing houses, or developing new investment mechanisms (e.g. crowd-funding for sustainable energy).
- Proposals implementing large-scale capacity building for public authorities and SMEs to set-up or use innovative financing schemes for sustainable energy.

This funding source can help Orkney's Electric Future project in establishing the second building block: energy management marketplace.

H2020-EE-2015	DETAILS
Funding body	European Union, Horizon 2020
For projects	Energy Management Marketplace projects Replicating aggregator models present in the EU
Available funding	€54.3m (c. £40.5m) 100% of eligible costs
Coverage	Actions consisting primarily of accompanying measures such as standardisation, dissemination, awareness-raising and communication, networking, coordination or support services, policy dialogues and mutual learning exercises and studies, including design studies for new infrastructure and may also include complementary activities of strategic planning, networking and coordination between programmes in different countries
Eligibility	Any type of organisation as long as they are a legal entity and are partnered with at least 2 other organisations from 2 different EU member states.
Relevant information	Application deadline: 4 June 2015 For further details: http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2380-ee-21-2015.html#tab1

5. Large Scale Demonstration Project

Finally, if all projects are consolidated into a Living Lab, forming a large scale demonstration project, the following funding sources are available.

5.1. Low Carbon Infrastructure Transition Programme

The Low Carbon Infrastructure Transition Programme (LCITP) is a partnership between the Scottish Government, Scottish Enterprise, Highlands & Islands Enterprise, Scottish Futures Trust and sector specialists.[15] The programme is designed to support the development of substantive private, public, and community low-carbon projects across Scotland.

The overarching goal of LCITP is to contribute to the Scottish Government's long-term target of reducing GHG emissions by 42% by 2020.

The LCITP will consider support for projects in the following relevant areas for Orkney:

- low carbon and/or renewable electricity and heat generation
- local energy economies
- energy storage and distributed energy systems
- demand side management and active network management
- innovative/ local finance solutions and investor readiness for low carbon projects

It is an advantage if projects are able to demonstrate community involvement and/or potential for community investment, and demonstrate the added benefits that can be delivered through LCITP support.

LCITP	DETAILS
Funding body	Scottish Government, Scottish Enterprise, Highlands and Islands Enterprise, European Regional Development Fund
For projects	Large-scale demonstration project with focus on low carbon and renewable electricity, demand-side management, energy storage, and local finance solutions for low carbon projects
Available funding	No information available yet as LCITP is a new programme
Coverage	Funding is available for projects at different stages of completion: Catalyst – initial strategy development and feasibility work Development – Final business case, investment options Demonstrator – Showcase commercial viability of a technology
Eligibility	Any type of organisation
Relevant information	Rolling deadline Expressions of interest can be made through the site's initial contact form: https://consult.scotland.gov.uk/low-carbon-infrastructure-transition-programme/5f6d1d09/consultation/intro/view

[15] www.gov.scot, Low carbon infrastructure transition programme, 2015.

5.2. Interreg North-West Europe

The INTERREG North-West Europe (NWE) Programme is a transnational European Territorial Cooperation Programme funded by the European Union.[16] The areas involved in the NWE Programme are Ireland, the United Kingdom, Belgium, Luxembourg, Switzerland, and parts of France, Germany and the Netherlands.

The Programme has defined a set of three priorities with specific objectives (SO):

- Innovation
  - SO1: To enhance innovation performance of enterprises throughout NWE regions.
- Low carbon
  - SO2: To facilitate the implementation of low-carbon, energy, and climate protection strategies to reduce the greenhouse gas (GHG) emissions in NWE.
  - SO3: To facilitate the uptake of low carbon technologies, products, processes and services in sectors with high energy saving potential, to reduce GHG emissions in NWE.
  - SO4: To facilitate the implementation of transnational low-carbon solutions in transport systems to reduce GHG emissions in NWE.
- Resource and materials efficiency
  - SO5: To optimise (re)use of materials and natural resources in NWE.

For the Orkney's Electric Future project, this funding source is a good fit for developing a large-scale demonstration project. It fulfils the Low Carbon priority, its specific objectives, and types of actions supported, particularly:

- Implementing transnational living labs to test and demonstrate the use of zero/low-carbon solutions in real life conditions;
- Testing and demonstrating low-carbon transport solutions in real life conditions, such as low-carbon or zero-carbon rolling stock, vehicles using alternative fuels, increasing levels of e-mobility, in NWE transport systems or networks;
- Engaging with different kinds of transport operators and their supply chains across the NWE area to affect large-scale behavioural change with respect to the use of low-carbon transportation and the implementation of different low carbon solutions.

[16] www.nweurope.eu, Interreg North-West Europe cooperation programme, 2015.

INTERREG-NWE	DETAILS
Funding body	EU, European Regional Development Fund (ERDF)
For projects	Large-scale demonstration project
Available funding	SO2: €48m (c. £35m) SO3: €51m (c. £37m) SO4: €48m (c. £35m) Average project budget in the 2007-2013 programme was €6.8m (c. £5m) Up to 60% ERDF of total budget, remaining budget needs to be match-funded by participating organisations
Coverage	Demonstration projects (costs related to staff, administration, travel and accommodation, external expertise and services, equipment, infrastructure and construction works)
Eligibility	Government organisations, civil society stakeholders, education and knowledge institutions, intermediate bodies such as chambers of commerce and development agencies, enterprises
Relevant information	Transnational – the project must involve at least 3 partners from 3 different countries from the NWE. Call 2 application deadline: 20 November 2015 Applicants have a maximum of 10 months from approval of concept note until submission of full work plan. For further information: http://www.nweurope.eu/5b/documents/NWE-Programme-Manual-v1.1.pdf

Appendix C: Business Model

1. Overview

The table below breaks down the different business model components per identified customer segment, which are explained in more detail in the following sections.

Table C.1 - Business model components per customer segment

BUSINESS MODEL COMPONENT	CUSTOMER A	CUSTOMER B	CUSTOMER C
Customer segments	Orkney Islands Council	Investors, companies, organisations in and outside of Orkney that want to test their smart mobility & energy management technologies and business models	General public (residents and tourists)
Value propositions	■ Investment in Orkney infrastructure ■ Orkney reputation ■ Job creation	■ Real-world test bed for new technologies ■ Access to Orkney infrastructure & residents ■ Access to local expertise ■ Routes to market ■ Risk reduction	■ Improved & expanded Council services ■ Better air quality in Orkney ■ Better infrastructure ■ Additional Orkney tourist attraction
Channels	■ Competitions & challenges	■ Partner networks ■ Events ■ Scottish Enterprise, Visit Scotland networks	■ Digital & social media ■ Visit Scotland networks
Customer relationships	Dedicated personal assistance	Co-creation	Communities
Revenue streams	■ Charge point fee and advertising revenues	■ Event fees ■ Membership fees ■ Pilots & trials consultancy fees ■ Sharing of savings from projects (aggregator, ESCO)	■ Sharing in car club revenues
Key resources (shared)	■ Data & monitoring systems ■ Transport services & infrastructure ■ Local expertise ■ Public fleets	■ Public procurement ■ Marketing materials ■ Active Network Management System	
Key activities	■ Management of charge points ■ Advertising in charge points ■ Licensing of public spots for operators ■ Promotion of Living Lab	■ Research ■ Planning ■ Concept design & evaluation ■ Business model development ■ Commercialisation ■ Evaluation of user experiences ■ Bid management ■ Fund sourcing & application	■ Marketing to new tourist group (technology enthusiasts) ■ Awareness campaign to residents (EV use, available grants, etc.)

Key partnerships (shared)	■ Aquatera ■ Community Energy Scotland ■ ECCI ■ Heriot Watt University ■ HIE ■ HITRANS ■ Local development trusts	■ OREF ■ RGU ■ Scottish Enterprise ■ SSE ■ Transport Scotland ■ Urban Foresight	
Cost structure	■ Charge point maintenance & repairs	■ Lighthouse project operating costs ■ Hard & soft infrastructure	■ Promotion expenses

2. Customer Segments and Value Propositions

This pertains to the groups of people or organisations the OLLIE aims to reach and serve. Each customer segment has its own needs, and these are addressed by the value propositions offered by OLLIE. The identified target customer segments are the following:

- **Orkney Islands Council**
  OLLIE will serve the needs of the Council by coordinating all proposed and planned projects under Orkney's Electric Future. This includes projects proposed under the four building blocks: infrastructure and incentives, tourism and inward investment, energy storage, and energy management marketplace. OLLIE will also facilitate inward investment in the Islands and job creation through the lighthouse project. Another added value that OLLIE can offer to the Council is the management of recharging infrastructure in the Islands, which includes sourcing of funding for expansion, optimisation of charging fees, coordination with charging networks, and eventually licensing high potential Council-owned spots to enterprises that want to install and operate charge points.

- **External investors and Orkney organisations**
  OLLIE will lead the day-to-day management of the OEF lighthouse project. This entails strategic planning and coordination of projects in Orkney in order to maximise opportunities for sharing of resources and funding. OLLIE will also be responsible for positioning and promoting Orkney as an ideal test bed for innovations and technologies in the smart electric mobility and energy management space, thereby helping enhance Orkney's profile and green reputation to potential investors. As OLLIE's clients, companies that wish to experiment with their business model or new technology will benefit from project support and guidance from OLLIE and if needed, it can also match the companies with local experts. Organisations within Orkney who are also conducting their own projects can also avail of the OLLIE's expertise in bid management and fund sourcing. This will ensure that risks associated with competing funding bids is minimised.

- **General public (residents and tourists)**
  OLLIE will facilitate projects that will complement and enhance the Council's existing public services (e.g. car club). Through the inward investment attracted by OLLIE through the different projects, Orkney residents will realise the benefits of these activities which can potentially range from expanded infrastructure, more competitive electricity rates, improved utilities services, to more job opportunities. Visitors to Orkney, on the other hand, can enjoy an added attraction in Orkney on top of the historic tourist sites that Orkney is known for. Tourists can experience driving around the Island on an ultra-low emission vehicle, guided by an intelligent transport system, and appreciate the mix of history and cutting-edge green technology in Orkney.

2. Channels

In order to deliver the value propositions to the different identified customer segments, OLLIE will communicate using the following channels:

- **Partner networks (e.g. Scottish Enterprise, Visit Scotland)**
  OLLIE will capitalise on the wide network of organisations within Orkney to reach potential investors and clients of the living laboratory. Networks of organisations such as Scottish Enterprise and Visit Scotland are also valuable sources of potential partners.

- **Events**
  Local events to promote OLLIE and its services, while also showcasing the current and planned projects in Orkney, will be held. The goal is to generate excitement among local residents and businesses and also promote opportunities for private sector participation in the Living Lab. OLLIE will also represent Orkney at national and international conferences and exhibitions to promote Orkney as Scotland's premier hub for innovations in smart energy and electric mobility to potential investors and partners.

- **Competitions and challenges**
  Another channel worth considering to reach OLLIE's target clients is to hold innovation competitions and business model challenges. Subject to external funding, this channel would help Orkney source and screen the best local and international organisations with the most innovative ideas that can be applied to address Orkney's challenges. Run by OLLIE, an Innovation Challenge can further enhance Orkney's reputation as a trailblazer and an ideal incubator of pioneering technologies and business models.

- **Digital and social media**
  OLLIE will be highly visible online through a dedicated web portal for all the projects across different sectors in Orkney. It will highlight Orkney's value propositions while showcasing the demonstrator projects as case studies to a worldwide audience. Active promotion of the Living Lab through social media will also be one of the main activities of OLLIE.

3. Customer Relationships

OLLIE will establish specific relationships with its target customers. For example, it will have a **Programme Manager** to directly liaise with the Council management, while the **Director** will report to the Living Lab Board. In dealing with Living Lab investor and company clients, the **Business Development Manager** can serve as a key account specialist, ably supported by the **Bid Manager** and **Project support staff** to deliver client- and project- specific services such as research, planning, business model and commercialisation strategy development, and bid management. As such, co-creation of value will be a vital part of OLLIE's relationship with its corporate customers, ensuring that Orkney benefits from the partnerships formed.

The **Communications and Community Manager** is responsible for promoting the Living Lab to potential corporate clients, the target networks, and within local community groups. For example, Orkney has a very active EV owners' community. The community manager can enlist this group to be more involved in the various projects lined up under the Living Lab as a rich source of evaluation feedback and consumer insight. These groups can also establish an open discussion forum where users are free to share and exchange knowledge and crowdsource solutions to challenges unique to Orkney, while promoting the benefits of driving an EV to non EV drivers. Fostering an intimate relationship with user communities will enable OLLIE to be in touch with and better understand the needs of Orcadians.

4. Revenue Streams and Cost Structure

There are various opportunities to generate earnings from each Customer Segment. These revenue streams will enable OLLIE to be self-funded after the initial external funding grant, as well as invest in hard and soft infrastructure.

The figure below illustrate the Living Lab's potential funding streams and expected expenditures.

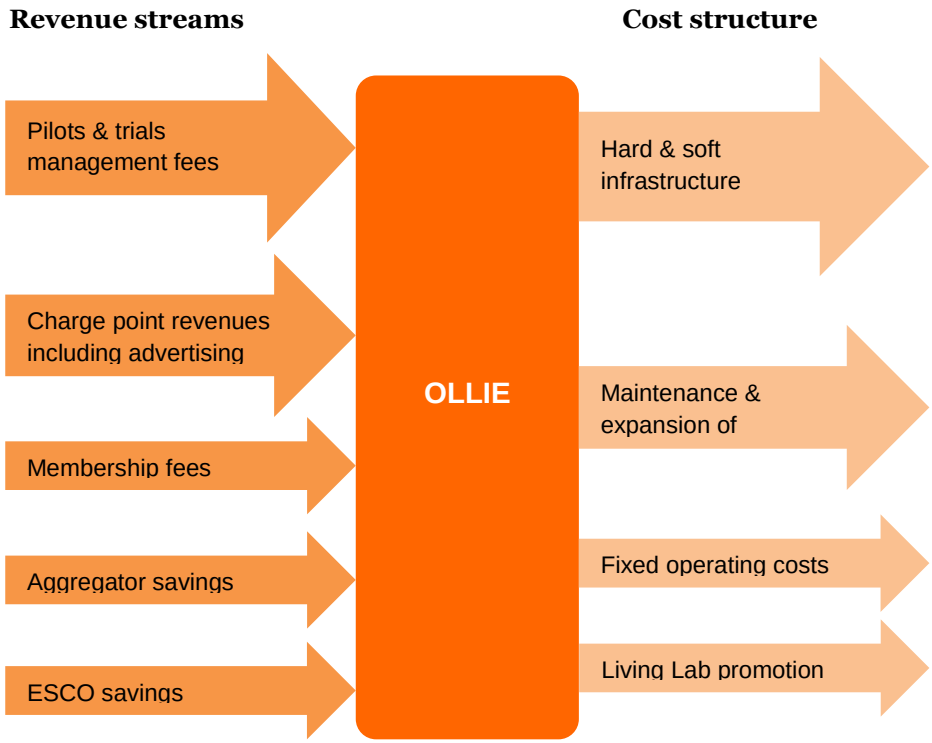


Figure C.1 – OLLIE revenue streams and costs

Each revenue stream is described below:

Table C.2 - Living lab revenue stream descriptions

REVENUE STREAMS	DESCRIPTION
Pilots & trials consultancy fees	Fees collected from clients to deliver projects and services
Sharing of savings from projects	Share of savings from aggregator projects and ESCO models
Event fees	A small entrance fee can be charged to attendees to cover venue costs, and sponsor fees to companies who wish to advertise during the event.
Sharing in car club revenues	If OLLIE is chosen to manage the car club, it can receive a share of the car club revenues, which include membership fees and car rental fees.
Charge point-related revenues	This includes the following fees collected from: ■ EV drivers – fee for using the charge points ■ Businesses – advertising revenue at the charge point ■ Entrepreneurs and businesses – licensing fees to use Council-owned high-potential locations for charging stations

These revenues would help cover the fixed costs of running OLLIE, which includes salaries, rent, utilities, as well as budget for investment for maintenance and expansion of recharging infrastructure in Orkney. Marketing costs for the promotion of the Living Lab will also be factored in as this will enable OLLIE to reach its target corporate clients. As inward investment is received from the projects brought in by the Living Lab, OLLIE can sustain operations through consultancy management fees.

5. Key Resources and Activities

Most important assets required to make OLLIE work are the outlined in the table below:

Table C.3 – OLLIE key resources

RESOURCE TYPE	RESOURCES
Physical	Public fleets Transport services & recharging infrastructure Active Network Management System Relatively short distances to travel
Intellectual	Data & monitoring systems Local expertise Public procurement via partnership with OIC Branding
Human	Dedicated team to deliver services to project clients

Access to these resources will enable OLLIE to create, offer, and deliver the value proposition, reach markets, maintain relationships with customer segments, and earn revenues.

The key activities OLLIE must undertake to make its business model work are highlighted per customer segment in Table C.1.

These activities fall under the three main phases of implementing living labs: the **ideation phase**, **co-creation phase**, and **venturing phase**. As described in chapter 2 of the review of opportunities report that accompanies this document, these activities employ a collaborative 'open-innovation' approach and as such combine insights from public and private sector partners, along with end-users to create, validate, and test new services, business ideas, markets and technologies a real-world environment. The table below reiterates the actions involved in each phase.

Table C.4 - Three phases of living labs[17]

IDEATION PHASE	Scout high-potential ideas, concepts, and teams from research in university and business. The phase is completed with the commitment of a development project that brings together an executing team, the financial resources, and necessary sponsors at the match-making moment.
CO-CREATION PHASE	Where the living lab combines product/service development, user validation, and market positioning to prepare adoption of the solution, and entrepreneurship for the creation of a new venture. The living lab contributes coordination of the concurrently executed processes. The phase is completed with a financing deal in which innovation investors take over parts (or the whole) to further grow the venture and its product or service.
VENTURING PHASE	Follows standard investment processes after a project graduates from the living lab and is taken over by business angels or institutional venture capitalists. It is only in this phase that the created value becomes tangible and therefore living labs need to consider it, even though they might no longer be involved.

6. Key Partnerships

The network of suppliers and partners is a key enabler of OLLIE's business model. One of Orkney's key strengths is that it is home to an active community of organisations involved in renewables, sustainability, and leading-edge tidal and wave technology. With Orkney's rich intellectual capital, it is vital that the OLLIE forms partnerships with these organisations in order to harness the expertise and offer this as a ready resource to external partners interested to conduct pilots and trials in Orkney.

The table below shows potential key partnerships in delivering the various projects under the OEF lighthouse.

[17] Katzy, B. (2012) Designing Viable Business Models for Living Labs, Technology Innovation Management Review, accessed online at: http://timreview.ca/article/604

Table C.5 – Potential partners for each work package in the OEF lighthouse project

WORK PACKAGE		POTENTIAL PARTNERS
WP1	Local incentives package	OIC, Urban Foresight, Transport Scotland, Aquatera
Wp2	Expansion of recharging infrastructure	OIC, charge point manufacturers, EV manufacturers, Urban Foresight, Aquatera
WP3	Electrification of public and private sector fleets	Leasing companies, Energy Saving Trust, Transport Scotland, OIC, Urban Foresight
WP4	Electric car club	Car club operators, leasing companies, OIC, development trusts, Developing Car Clubs in Scotland (DCCS), Urban Foresight, Aquatera
WP5	Electrification of taxis and private hire cars	Taxi companies in Orkney, national car hire companies, OIC, Urban Foresight
WP6	Electrification of buses	Bus operators, electric bus manufacturers, OIC, recharging infrastructure manufacturers, Urban Foresight, RGU
WP7	Green branding	OIC, Visit Scotland, tourism organisations in Orkney, Aquatera, Urban Foresight
WP8	Pilots & trials of ITS	Intelligent transport services providers, tourism organisations in Orkney, location-based services, Urban Foresight Aquatera
WP9	Pilots & trials of energy storage solutions	Aquatera, Development trusts, OREF, design & engineering firms
WP10	Pilots & trials of energy marketplace services	Aquatera, Development trusts, OREF, energy service providers, software developers, Community Energy Scotland, Urban Foresight
	Programme Management	Aquatera, OIC, Urban Foresight
	Project Administration	All Partners

Appendix E: Delivery Structure Costs

Option 1: Distributed Responsibility

No associated costs.

Option 2: Task Force

Annual costs

ITEM	CAPITAL	REVENUE
Printed materials		£10,000
Travel		£5,000
TOTAL		**£15,000**

Option 3: Task Force + Champion

Annual costs

ITEM	CAPITAL	REVENUE
Printed materials		£10,000
Travel		£5,000
Employment cost: Champion		£24,000
TOTAL		**£39,000**

Option 4: Dedicated Agency

Set-up costs

ITEM	CAPITAL	REVENUE
Recruitment	-	£43,500
ICT equipment	£10,000	-
Office furniture	£15,000	
Printed materials	-	£10,000
TOTAL	**£25,000**	**£53,500**

Annual costs

ITEM	CAPITAL	REVENUE
Travel	-	£10,000
Office resources	£5,000	£5,000
Office accommodation		£15,000
Full employment costs: ■ Director ■ Programme manager ■ Project support ■ Bid manager ■ Communications ■ Business development		 £66,000 £54,000 £24,000 £42,000 £21,000 £54,000
TOTAL	**£5,000**	**£291,000**

Appendix F: Performance Indicators

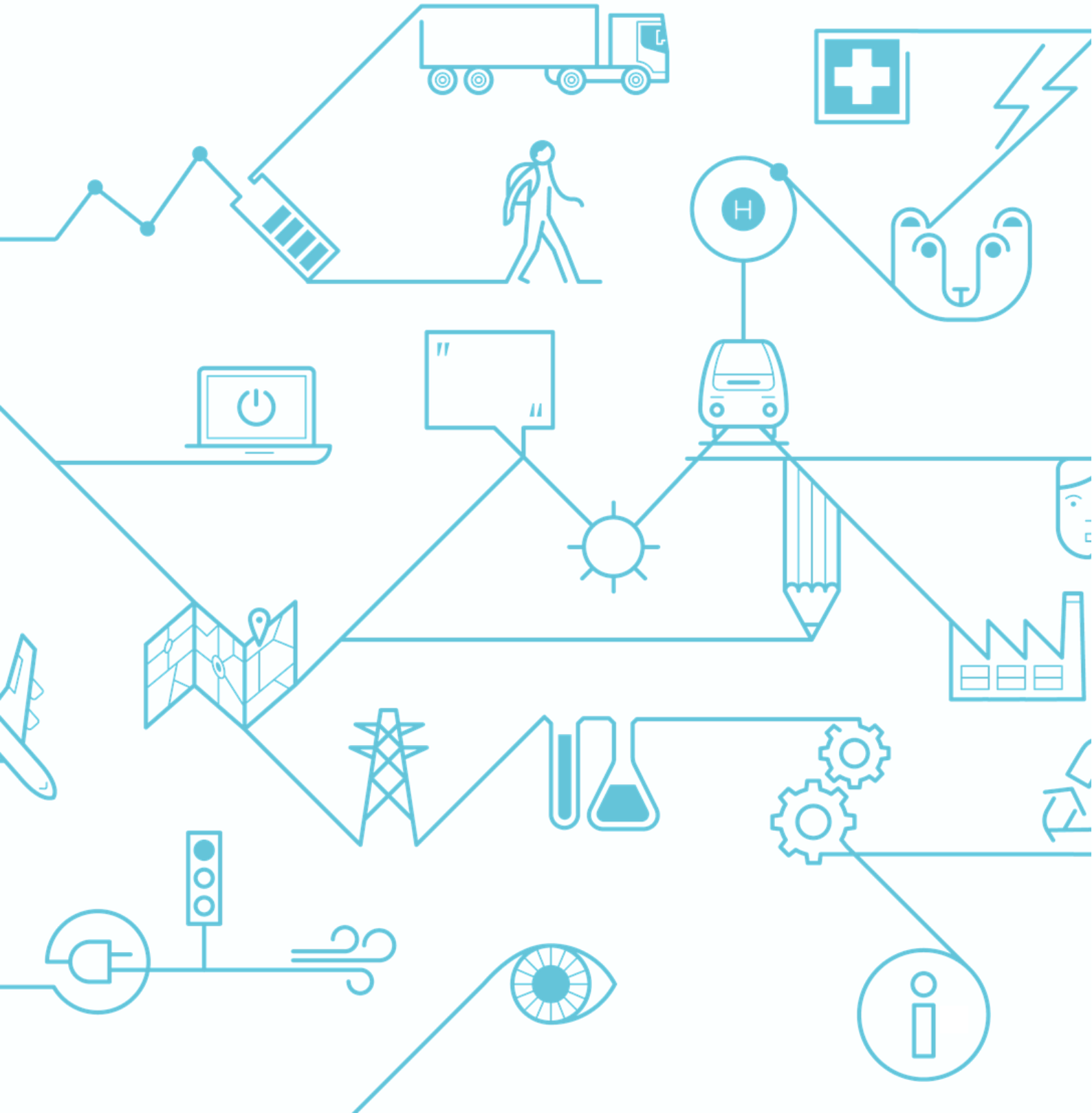
A wide array of indicators is potentially relevant, reflecting the integrated nature of the project and its ambitions to address multiple issues. At a minimum, there will be a need for indicators of economic, social and environmental performance.

ECONOMIC	Value of income derived from commercial exploitation of data
	Increase in income generated from public service provision
	Number of SMEs/companies engaged in innovation activity
	Number of SMEs/companies introducing new products and services
	Number of new SME/community enterprises formed to provide services
	Value of new mobile investment attracted to/retained in Orkney
	Value of sales generated from new products/service introductions
	Cost savings to business through improved efficiency
	Jobs generated or safeguarded for residents through project activity
	Reductions in business transport costs
QUALITY OF LIFE	Number of residents engaged in the project
	Numbers reporting easier access to existing partner services
	Numbers accessing new services provided through the project
	Numbers accessing services to enhance employability
	Increased use of cultural/sporting/education and other facilities
	% residents reporting easier access to service provision
	% residents reporting that it is easier to access services
	% residents reporting that they can influence service provision in Orkney
	% residents of working age in employment
	% residents reporting that the quality of life in Orkney has improved
	Changes to key indicators of resident health
	Reduction in traffic accidents
ENVIRON-MENTAL	Modal shifts in favour of public transport and EVs
	% of residents reporting increased use of public transport or EVs
	Journey time improvements
	Reduction in carbon emissions
	Improvements in traffic flows at key points in the centres
	Reductions in levels of key pollutants

URBAN FORESIGHT

The Core, Science Central, Bath Lane,
Newcastle upon Tyne, NE4 5TF, United Kingdom

E: info@urbanforesight.org
T: +44 191 495 7350
W: http://urbanforesight.org

Registered in England & Wales No. 07705420
VAT No. 179 2207 93

© Urban Foresight Limited, 2015. All rights reserved.