Grant Thornton

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OxFutures Fund – Initial Review

A report to Oxfordshire County Council and Oxford City Council

Last updated 25 October 2013

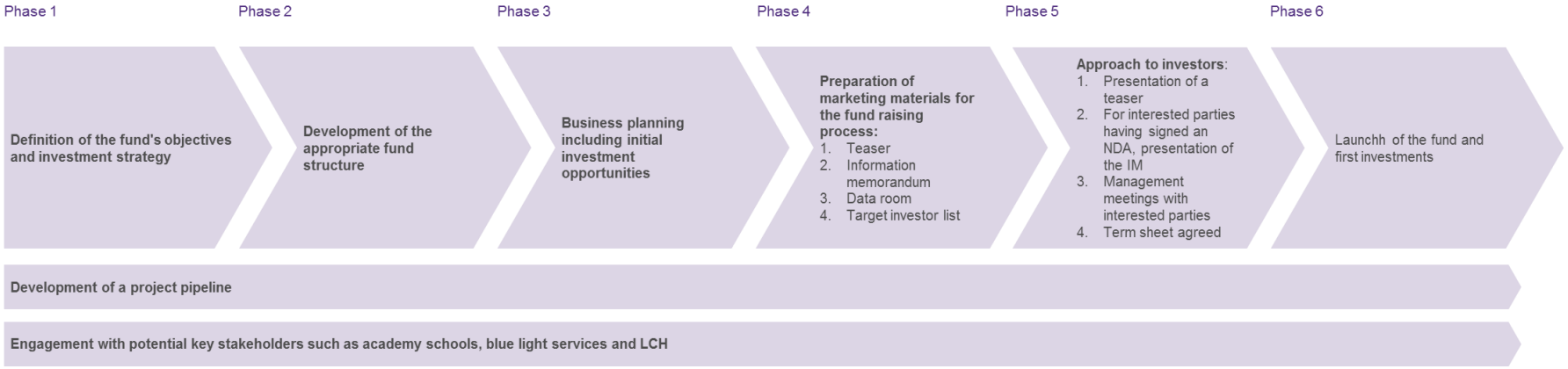
Contents

1 Executive summary

- Climate change is an area of focus for Oxford County and City Councils, who each have initiatives to tackle this issue including the creation of the OxFutures Fund, a fund financing local energy efficiency and renewable energy measures to contribute to a shift to a green economy, reduce greenhouse gas emissions and create local jobs
- Other local initiatives such as the Low Carbon Hub (LCH) also stimulate this shift and have developed a pipeline of community renewable projects of £19.4m
- The initial review of potential energy efficiency projects in Oxfordshire suggests that the OxFutures fund can have the biggest positive impact on project delivery:
  - On the Councils' estates such as park and rides where solar projects could be developed
  - With partners such as universities, academy schools and blue light services
  - Supporting community led projects including project being developed by LCH
  - With the Domestic RHI scheme and ECO supporting households to invest in energy efficiency and renewable energy
- The OxFutures fund could support delivery of these projects by bridging part of the funding gap and providing procurement support to maximise green investment in Oxfordshire and to meets climate change targets
- There is an opportunity for the OxFutures fund to support renewables projects by arranging and structuring a "direct Power Purchase Agreement (PPA)" perhaps with the Councils or other electricity users in Oxfordshire
- An initial assessment of the risks associated with the OxFutures fund indicates they are manageable with the right fund raising process, management team, fund management and investment processes, and project origination. In particular, there is a need to:
  - Define a clear, attractive investment proposition for the fund which would meet the Council's objectives and be attractive to private investors
  - Market the fund to the right investors in a compelling manner
  - Select a management team with the competences and experiences to deliver a strong project pipeline and investment portfolio
  - Optimise the fund management arrangements, eg in-house or outsourced
- As the only renewable energy fund focused on Oxfordshire and with support from the Councils, the OxFutures fund could maximise the uptake of green projects and deliver economic and financial benefits for local communities
- Potential differentiators of the OxFutures fund include involvement with the community including local businesses and households.
- Analysis of comparable funds highlights the importance of independence in the governance of the fund.
- Transparency and cost-efficiency in the investment process is likely to be a key requirement for private investors.

The next steps for the launch of the Fund are detailed in Figure 1.

Figure 1 Next steps in the process to launch the OxFutures fund



2 Introduction

2.1 Scope of the report

Oxfordshire County Council (County) and Oxford City Council (City) (together the Councils) have appointed Grant Thornton UK LLP (GT) and Arup to provide strategic financial advice for the OxFutures Fund (the Fund), that will include the development of a viable special purpose funding vehicle that will allow the Councils to encourage and support local energy efficiency and renewable projects.

This report reviews the policies and existing initiatives to deliver renewable energy and energy efficiency projects in Oxfordshire. The report will also assess the investment opportunities available to the OxFutures fund including opportunities in the County and City estates. A review of comparable funds active in the market will identify the key differentiators of the OxFutures fund for investors and discuss key implications for the OxFutures fund. We also identify the next steps required to further develop the OxFutures fund.

2.2 Disclaimer

This report is provided in accordance with the terms of our appointment under the OxFutures Contract.

We have satisfied ourselves, so far as possible, that information presented in our report is consistent with other information which was made available during the course of our work in accordance with the terms of our appointment. We have not verified the accuracy of the data or the information and explanations provided by the third parties and therefore accept no liability in relation to this.

This report has been prepared exclusively for the Councils. It should not be used, reproduced or circulated for any other purpose, in whole or in part, without our prior written consent, such consent will only be given after full consideration of the circumstances at the time. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than the Councils for our work, our report and other communications, or for any opinions we have formed. We do not accept any responsibility for any loss or damages arising out of the use of the report by the addressee(s) for any purpose other than in connection with this project. We draw your attention to the limitation of liability in our appointment.

2.3 Report structure

The remainder of this report is as follows:

- The Councils' policies and investment opportunities on their estate in relation to renewable energy and energy efficiency projects
- Other potential projects the Fund could invest in
- An analysis of key risks for the Fund
- Analysis of comparable funds in the UK
- Conclusions and next steps

3 Context

3.1 Introduction

This section reviews the current policies and initiatives of the Councils for renewable energy, energy efficiency and sustainability more broadly. The section also identifies the estates available to the Councils to implement these sustainable policies and strategies.

3.2 Policies on sustainability

Both Councils have been active in reducing the carbon footprint of their operations as well as promoting sustainability in Oxfordshire, often in partnership with private and community organisations. Overall, carbon emission targets for the City are a 40% reduction by 2020 and a 50% reduction by 2030 for the County. These policies are outlined below.

Sustainability Strategy of Oxfordshire County Council

One of the three strategic objectives for the County to deliver the Council's ambition of a thriving Oxfordshire is to enhance the environment. The County has set out this ambition in the Corporate Plan which describes the council's vision and priorities for the next four years (2013/14 to 2017/18). Key areas to enhance the environment for the County include:

- Efficient use of the county's resources and minimise the impact of economic growth on the environment. A county Green Infrastructure Strategy is due in 2014 to help protect valuable assets and meet the needs of communities across the county
- Maintaining the rights of way network as an important part of the rural economy
- Managing the flood risk within Oxfordshire
- Waste management to continue to reduce the amount of waste residents produce and increase reuse
- Promotion of energy saving and renewable energy through:
    - The Oxfordshire Environment Partnership
    - Oxford Total Retrofit in partnership with the City to identify funding opportunities for the local energy infrastructure

These objectives are in line with the long-term partnership vision and strategy for Oxfordshire detailed in the Sustainable Community Strategy paper.

Sustainability Strategy of Oxford City Council

The City has developed a sustainability strategy for 2011-20 that sets out overall sustainability targets for air quality, waste reduction, water quality, land quality, bio diversity and climate change: Specifically the climate change targets include:

- Improved energy efficiency in council housing by 50% by 2017
- 40% reduction in overall CO2 emissions in Oxford by 2020 compared to 2005
- 50% CO2 emission reductions from the housing stock by 2020 from renewable energy schemes

More specific targets focusing on energy efficiency and renewable energy for the City's estate include:

- **Renewable energy source on City Council buildings**: to have by 2017 one and by 2020 two City buildings powered by electricity generated on site using renewable energy technology
- **Renewable heat source**: to have by 2017 one and by 2020 two City buildings' heated using biomass boilers

3.3 Key sustainability initiatives

Both Councils have launched key initiatives to implement these sustainability objectives. These initiatives are outlined below.

Oxford Total Retrofit Project

In 2012, the County and City secured a grant from the Intelligent Energy Europe (IEE) fund of the European Commission (EC) for the Oxfordshire Total Retrofit project (OTR). The OTR will contribute to achieving the Low Carbon Oxford and Oxfordshire City Region long-term strategic visions of a 40% reduction in CO2 emissions by 2020 and a £400/€494 million investment in clean, green technologies across the County. The OTR has two components:

- **OxFutures Fund** – development of an investment vehicle focusing on renewable energy and energy efficiency projects in public buildings in Oxfordshire led by the County. The objective is to fund 2.9MW of renewable energy projects delivering 19,600MWh of primary energy savings on the public estate across the city and county
- The City will lead on the **community stream** in partnership with the Low Carbon Hub to support local communities to take up renewable energy and energy efficiency schemes in domestic premises

Low Carbon Oxford

A key initiative is Low Carbon Oxford, which is a city-wide programme launched in October 2010 for Oxford to become a low carbon city in collaboration with public, private and non-profit organisations. The objectives of this programme are:

- Emissions reduction of 3% on a yearly basis in the city with the overall objective to reach 80% emissions reduction by 2050
- Green job creation
- Growth of a sustainable economy
- Oxford becoming an exemplar low carbon city in the country

To date, 31 organisations have signed up the Low Carbon Oxford Charter which include:

- Public sector organisations or public sector-led initiatives such as the County and Oxford Strategic Partnership
- Companies from the construction, automotive and retail industry (Amey, B&Q, Mini Plant Oxford and M&S)
- Local transport companies (Oxford Bus Company, Stagecoach Oxford)
- Community Groups (Community Action Group, West Oxford Community Renewables, Student Hubs)
- Universities (University of Oxford, Oxford Brookes, Magdalen College School)

This initiative led to the development of 15 projects, of which one is the Low Carbon Hub launched to support community groups deliver carbon-emission reduction projects in Oxfordshire.

Low Carbon Hub (LCH)

Low Carbon Hub is a social enterprise that aims to lower carbon emissions across Oxfordshire by developing renewable energy and energy reduction projects for the benefit of local communities. The LCH team work with communities as they are best positioned to understand and overcome key challenges in delivering small, local projects. LCH has a team focused on

renewable energy projects and another dedicated to energy efficiency projects.

A selection of current projects which are all funded by the OxFutures grant provided by Intelligent Energy Europe and which LCH supports include:

- **140 kW solar photovoltaic (PV) scheme for the Oxford Bus Company**: solar PV is installed on the bus depot roof which will generate 122,085 kWh of electricity per annum. The Oxford Bus Company is the first business in Oxfordshire to adopt the community partnership model for renewable energy projects
- **49kW mini-hydro scheme at Osney Lock**: the hydro plant will generate 159,000 kWh of electricity per annum and started construction in summer 2013. LCH supported has allowed the project to raising more than double the target of £250,000
- **Warming Oxfordshire**: LCH has supported four local community groups to complete energy assessments for 200 homes in Oxfordshire and introduce the Green Deal to the local community

Oxford Solar Initiative

The Oxford Solar Initiative (OSI) is a not-for-profit partnership that supports households and organisations in Oxford to install solar energy systems and a range of energy efficiency measures in buildings. Their objective is to significantly reduce greenhouse gas emissions from the area and to make Oxford a greener city. OSI provide advice to homeowners, technical assistance, information on financing options and support with accessing any grants or subsidies available to the homeowner.

The OxFutures fund could leverage OSI by providing financing solutions to projects using solar energy systems. OSI could represent a platform for the OxFutures fund to identify and access projects which require financing.

Oxford Hub

The Oxford Hub (the Hub) is an initiative that mobilises students to support community projects as volunteers. The Hub has links with several small community run projects, and local, national and international charities. One of the Hub's programmes is focused on the environment and sustainability.

Working with the Hub may create opportunities for the OxFutures fund to finance local projects or charities that provide sustainable or energy efficiency measures. The charities working with the Hub could potentially be financed by the OxFutures fund.

3.4 Oxford County and City Councils' estates

The Councils' estates provide a range of opportunities for energy efficiency and renewable energy projects which the OxFutures fund could help to deliver. The estates consist primarily in:

- **The County**: schools, offices, libraries and fire services (431 sites in total)
- **The City**: offices, leisure centres, community centres and social housing

More details on the potential projects on these estates are provided in Sections 4.2 and 4.3.

3.5 Other opportunities

There are other estates in Oxfordshire which could provide opportunities for renewable energy and energy efficiency projects, which are:

- **Academy schools**: there are over 30 academies in Oxfordshire which could require energy efficiency improvement or could benefit from renewable energy. The number of academy schools is expected to increase

- **Higher education**: the four universities in Oxfordshire represent an opportunity to develop energy efficiency improvements and renewable energy projects
- **Other blue light services**: police and ambulance stations are buildings which could benefit from energy efficiency improvements and renewable energy projects

Further analysis of these estates is provided in Section 4.

3.6 Conclusions

Energy efficiency, renewable energy and sustainability are key areas of strategic focus for the County and City to deliver a low carbon economy and increase the sustainability of the region.

Key initiatives have been developed and targets set to reduce carbon emissions in Oxfordshire thanks to Low Carbon Oxford, Low Carbon Hub and the Total Retrofit Oxford project, which includes the OxFutures fund.

The objective of the OxFutures fund is to promote energy efficiency and renewable energy in Oxfordshire by delivering high impact projects. The OxFutures fund could potentially collaborate with other local initiatives such as the Low Carbon Hub and the Oxford Solar Initiative by funding renewable energy and energy efficiency projects which would otherwise struggle to obtain sufficient finance. The OxFutures fund would also create jobs locally, stimulate the local economy and act as a precedent for other similar initiatives in the region.

The Councils have access to a set of potential energy efficiency improvement or renewable energy projects on their own estates. Other buildings linked to academy schools, universities and blue light services represent another source of potential projects for the OxFutures fund.

4 Project pipeline

4.1 Introduction

In this section we will focus on:

- The review completed by Carillion on the Councils' estates
- The other estates within the county that could be an opportunity for the Fund

4.2 Review of the County and City office estates

Carillion have been appointed under a framework agreement by the County to provide property and facilities management. Carillion have also been appointed to review the Council's estate to identify energy efficiency and renewable energy projects. An assessment of the City's corporate buildings also formed part of the review by Carillion.

Following this assessment, Carillion has identified 15 County buildings which could benefit from energy efficiency measures in 2013-2014 which would require a total investment of £1.9m. A feasibility study of the energy efficiency and renewable energy measures for Oxford Town Hall has been done by Carillion. However, the decision on investment in energy efficiency improvements will be influenced by plans for the future use of the building.

Given the relatively limited size of the projects identified by Carillion the cheapest and easiest method for the County to finance maybe through Prudential Borrowing. Prudential Borrowing is attractive as it is low cost, flexible and simple to administer. This means that the opportunity for the OxFutures fund to invest in the energy efficiency in the County buildings will be limited at best.

As the Council is currently rationalising its estate to reduce costs, decision to invest in energy efficiency improvements may be delayed. Particularly where a long payback period implies an increased risk of the investment not being recovered while the property is owned by the Council and not being reflected in any sales proceeds.

In addition, the review by Carillion of the City's estate did not identify any viable energy efficiency improvements.

4.3 Other County and City estates

While Carillion has assessed the opportunity to improve the energy efficiency of office buildings for the County and City, there may be other properties related to the County or City which could benefit from energy efficiency or renewable energy measures.

An initiative currently being explored by LCH is installing solar panels on park and ride car parks around the city of Oxford. There are five park and rides around the city with a total of 4,600 parking spaces available. Over the five park and rides, solar panels could be installed on a potential surface of c.70,000 m^2.

4.4 Other potential estates

As mentioned in Section 3, there are other estates that represent investment opportunities for the OxFutures fund, such as academy schools, higher education facilities and blue light services.

Academy Schools

Within Oxfordshire there are over 120 schools with 32 of them now academies. A breakdown of these academies is provided in Table 1 .

Table 1 Breakdown of academies across Oxfordshire

School Level	
Primary	9
Secondary	20
Nursery to Secondary	3
Total	**32**

Source: Department of Education

Most of these academies are built in the 1970s or 1980s and hence their energy efficiency tends to be lower than today's standards. These represent potential investment opportunities for the OxFutures fund that can also deliver wider community benefits.

Higher education

There are four universities and colleges in or close to Oxford:

- University of Oxford
- Oxford Brookes University
- Abingdon & Witney College
- Oxford & Cherwell Valley College

The universities with a stronger focus on sustainability issues are the University of Oxford and Oxford Brookes University where potential areas of collaboration with the OxFutures fund have been identified.

University of Oxford

The University of Oxford comprises 450 functional and commercial buildings in Oxfordshire. This includes laboratory and teaching facilities, offices, museums, libraries as well as housing for graduate students and staff. For the functional buildings, 55% of them have been built since 1960 and have potential for an energy efficiency upgrade if this has not already been done.

The University of Oxford has a Sustainable Building Policy implemented by the Environmental Sustainability Team. This policy aims to build environmentally sustainable buildings and embed sustainable building best practice into the management of the Oxford University estate.

The size of the University of Oxford estate and the focus on sustainability could represent a partnership opportunity for the OxFutures fund. However the University has some access to other sources of finance.

Oxford Brookes University

Oxford Brookes University has developed a Low Carbon Transition Plan to 2020 which include emission reduction targets against 2005 levels of 20% for 2013/14 and up to 50% for 2020/2021. This plan includes the assessment of three strategic options which include a focus on energy efficiency for building, the large scale roll out of solar PV and the deployment of large scale wind. The university has invested £250k in feasibility studies to develop the business case for energy efficiency improvement with a large scale roll out of solar PV.

The focus of the university on energy improvement and solar PV could represent an opportunity for the OxFutures fund to support the delivery of these projects. However the University has some access to other sources of finance.

Other blue light services

Other blue light services such as police stations and ambulance stations could be a further opportunity for energy efficiency improvements and Solar PV. These buildings are broken down as detailed in Table 2.

Table 2 Breakdown of other blue light services buildings

Type	
Police Stations	21
Ambulance Stations	4
Total	**25**

Source: Thames Valley Police and Factiva

Thames Valley Police are working in partnership with the Carbon Trust to identify their carbon footprints and develop a Carbon Management Plan which states that they intend to reduce their carbon emissions by 30% in the next five years. The Carbon Management Plan sets out a pipeline of projects to meet the target of emission reductions for the three years following the issuance of the strategy. Projects with an investment decision due in 2011-2012 are detailed in Table 3 as an example of projects identified.

Table 3 Thames Valley Police project pipeline for 2011-2012

Project - energy efficiency measure	Total funding requirement (£)	Annual saving (tCo2e)	Investment requirement per tonne of carbon saved (£/tCO2e)
Voltage optimisation	150,000	350	429
Lighting control	205,400	437	470
Engine speed limiters	17,200	75	229
Improved insulation	5,300	26	204
Boiler replacement	125,000	145	862
Total	**502,900**	**1,033**	**487**

Source: Thames Valley Police Carbon Management Programme, Thames Valley Police and The Carbon Trust

A project pipeline has also been provided and detailed in Table 4 for 2012-13 and 2013-14 which could represent opportunities for the OxFutures fund to explore.

Table 4 Thames Valley Police project pipeline for 2012 to 2014

Investment phase	Project - energy efficiency measure	Total funding requirement (£)	Annual saving (tCo2e)	Investment requirement per tonne of carbon saved (£/tCO2e)
2012-2013	Voltage optimisation	90,000	221	407
	Lighting control	103,800	441	235
	Boiler replacement	229,500	590	389
Total		**423,300**	**1,252**	**338**
2013-2014	Voltage optimisation	75,000	176	426
	Lighting control	103,600	220	471
Total		**178,600**	**396**	**451**
Grand Total		**601,900**	**1,648**	**365**

Source: Thames Valley Police Carbon Management Programme, Thames Valley Police and The Carbon Trust

The measures proposed in this project pipeline would be in line with a strategy of the OxFutures fund focusing on energy efficiency and renewable energy. Projects with a higher funding requirement may be more likely to require external source of funding which the OxFutures fund could explore. However the Thames Valley police has some access to other sources of finance.

Ambulance stations in Oxfordshire may also be an opportunity for energy efficiency improvement and could be further assessed by the OxFutures fund in partnership with South Central Ambulance Services to identify potential projects. Ambulance stations have some access to funding through NHS schemes.

4.5 Community projects

Community projects in Oxfordshire present an opportunity for the OxFutures fund to bridge a financing gap, add value by providing support to communities keen to develop energy efficiency and renewable energy projects and maximise the positive impact on the local community from an environmental and economic perspective.

LCH has been actively involved in supporting the local communities in the development of renewable energy projects and currently has a pipeline of projects with a total investment requirement of £19.4m. These projects are primarily micro-hydro or solar power plants located on public estates (such as Osney Lock linked to the Environmental Agency) or on corporate estates (such as the potential PV solar project in partnership with BMW).

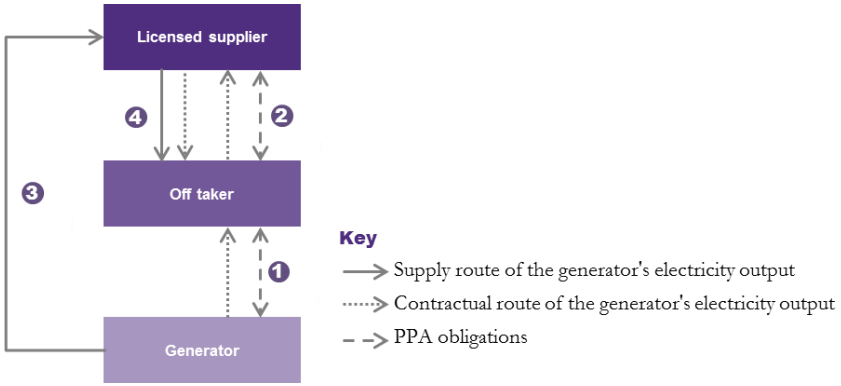
For projects which require external finance, financing the development and construction stage is the most critical and most challenging. Therefore, the OxFutures fund could particularly add value and maximise the environmental and economic benefits by providing funding for community projects during these two stages. For instance, the scale of the funding required for the development of the mini-hydro Osney Lock (49 kW) is c£93.5k. Without external funding for development and construction many good projects will never progress beyond the concept phase.

There is clearly a gap in the market for a revolving development and construction fund which is repaid once a project is operational. Operational projects are able to raise finance which can be used to repay the OxFutures fund development and construction finance. The repayment made to the OxFutures fund could be recycled to fund the development and construction of new projects. With careful management, the relatively short development and construction period of community projects would allow this funding to be recycled repeatedly and so deliver a number of projects.

4.6 Power Purchase Agreements

Many of the community renewable and other renewable projects in Oxfordshire may find it challenging to secure a contract to sell the electricity generated at a fixed price. Supporting these projects by arranging and structuring a "direct Power Purchase Agreement (PPA)" perhaps with organisations in Oxfordshire could be another opportunity for the OxFutures fund to add value and provide benefits to the local community. As illustrated in Figure 2, a Direct PPA consists in the off taker having an agreement to buy the electricity produced by the generator (step 1). Given the need for a licence to supply electricity, a supply agreement needs to be signed between the licensed supplier (any utility) and the off taker (step 2). The generator would then supply the electricity to the licensed supplier who would in turn supply it to the off taker (steps 3 and 4).

Figure 2 Direct PPA



Potential off takers could include the County, City as well as large corporates in the county (i.e. retailers and industrial companies such as BMW).

4.7 Renewable heat projects

Renewable heat opportunities could be supported by the OxFutures fund especially under the Domestic Renewable Heat Incentive (D-RHI). D-RHI will be launched in Spring 2014 and encourages households to invest in renewable heat for their properties. Payments linked to these investments in green heat generation will be paid under this D-RHI scheme based on the heat production of the household.

D-RHI is therefore likely to support investment in renewable energy in Oxfordshire and could represent an investment opportunity for the OxFutures fund to deliver carbon reductions. The investment opportunity could be more relevant at a community scale as individual projects may incur high transaction costs compared to the total investment. Low Carbon Hub could play a key part in this opportunity as it is focused on local communities.

A further attraction of renewable heat is that in many cases it will use locally produced fuel. Biomass boilers burning agricultural residue and waste wood from local woodland. This will generate income and jobs in Oxfordshire.

4.8 Domestic energy efficiency

Another domestic opportunity consists in households implementing energy efficiency improvements in their homes financed partly by ECO. ECO is an obligation for the leading energy suppliers to deliver household CO2 emissions by subsidising energy efficiency measures. The ultimately cost of the subsidies is paid by electricity consumers. ECO replaces the Carbon Emission Reduction Target (CERT) and the Community Energy Saving Programme (CESP). Through ECO, c£1.3bn of additional funding per year will be available focussed on hard-to-treat homes and fuel poor households. The OxFutures fund could assist communities in investing in energy efficiency, the fund could both help to attract ECO funding and provide finance alongside ECO subsidies.

This type of opportunities could be targeted in collaboration with LCH, which has launched some pilot projects in areas with multiple deprivation in Oxford (the OX3 and OX4 postcodes). 27 properties have agreed to be part of the pilot phase and will provide an example for other households of the benefits of improving energy efficiency. These projects are expected to complete before April 2014 and £1m of ECO from SSE would help finance these energy efficiency improvement.

LCH has plans to expand this pilot project and will be called "Warming Oxford" and support the development of further domestic retrofitting programmes throughout the county.

While LCH has already launched these pilot projects and plans further expansion of this initiative, the OxFutures fund could contribute some assistance on the procurement of these projects, liaising with the Big 6

Utilities for ECO funding and exploring other routes to fund parts of the installation costs of these energy efficiency measures.

4.9 Conclusions

The review of the project pipeline shows that projects identified by Carillion on the County and City estates are likely to benefit from very attractive finance (Prudential Borrowing) which the OxFutures fund is unlikely to be able to compete with. The project pipeline for the City has been assessed and investment decision for the city Town Hall, one of the more attractive investment opportunities, is likely to be delayed.

Other assets belonging to the Councils such as the five park and ride areas around Oxford could represent an attractive investment with potentially high economic and environmental impact.

Universities, academy schools and blue light services could represent potential investment opportunities for the OxFutures fund as many of them have sustainability strategies in plan and low carbon implementation plans. However, they would benefit from support, particularly during the project development and construction stages on contracting issues and feasibility studies.

Targeting community projects where LCH for instance has already been actively involved with additional initiatives such as funding at the development and construction stage, direct PPAs or more general procurement support is a real opportunity to accelerate and increase local environmental and economic benefits.

Domestic renewable energy and energy efficiency projects through D-RHI and ECO could leverage private investment from banks such as Nationwide and electricity suppliers. The OxFutures fund in collaboration with Low Carbon Hub could play a part at the community level to deliver a shift in Oxfordshire to green energy. The OxFutures fund could also add value by providing procurement support in addition to partly funding renewable energy and energy efficiency projects.

5 Risk analysis

5.1 Introduction

This section will provide an analysis of key risks that the OxFutures fund and its sponsors, the County and City, could potentially be exposed to, which can be broken down in the following categories:

- General risks
- Project-specific risks
- Partnership and fund management risks

5.2 General risks

General risks for the OxFutures fund and its sponsors the County and City can relate to the overall regulatory context (national and European regulation for public spending, regulations for renewable energy and energy efficiency projects) as well to the legal aspects of setting up a fund such as the OxFutures fund and operating it.

The OxFutures fund would be exposed to risks linked to the European Commission, upon which the grant depends as well as national regulation on renewable energy and energy efficiency.

As the recipient of a grant from the IEE, the OxFutures fund would be subject to specific rules and conditions of the use of the grant. These would therefore be a risk that the OxFutures fund does not fully comply with the grant conditions.

As the OxFutures fund would invest only in renewable energy and energy efficiency projects, the fund will be exposed to changes in regulations for the technologies targeted. The profitability of projects funded by the OxFutures fund, and hence their ability to repay the investment, could be affected for instance if the levels or eligibility for subsidies are changed. The pipeline of projects could also be affected by a change in regulation as some projects may no longer meet the OxFutures fund' investment criteria.

As a standalone entity, the OxFutures fund would face legal risks with regards to potential employees of the fund, co-investors, partners and each key contact at the project-level. As the County and City are sponsors of the fund, they would also be faced with potential legal risks linked to the fund management activities. If the OxFutures fund provides regulated financial services it will be subject to oversight by the new Prudential Regulatory Authority.

5.3 Project- risks

Project-risks for the OxFutures fund include risks linked to the technologies used, potential fraud at the project level, electricity volume and price risk as well as the profitability of the projects.

Any choice of technologies which are not proven and therefore considered riskier increases the **technology risk** for the fund. Technology related risk can also include higher upfront costs, lower output and higher operating costs (i.e. biomass projects require to secure access to fuel, which may present a volume and price risk) depending on the technology used.

Technical feasibility studies at the investment screening process stage are a useful tool to identify the level of maturity of the technology and therefore estimating the level of risk of the project from the technology perspective.

Fraud is a potential risk for the fund to consider at the project level and could include the use of the funding provided by the fund for other purposes, the overestimate of the potential financial returns of the project or the potential in carbon emission savings to meet the investment criteria of the OxFutures fund. There is also a danger that fraud will result in excessive costs or revenue leakage.

A number of the OxFutures fund projects could face **energy price and volume risk**. Exposure to price risk can affect the profitability of the project and potentially also of the overall fund. Projects can also effectively underperform or over perform compared to the business plan of the project in terms of output (electricity generation, carbon emission saving). This change in volume could affect the profitability of the project and the portfolio of assets the OxFutures fund invested in. The volume of energy sold can also be lower than expected if there is no PPA or other guaranteed route to market for the energy produced.

5.4 Partnership and fund management risks

Partnership and fund management risks are at the fund level and can affect the reputation of the fund, the ability to raise sufficient funds, the profitability of the fund and the ability to provide investors with the forecast returns. Management problems could also impact on the ability of the Fund to provide finance as agreed to its projects.

The reputation of an investment fund such as the OxFutures fund can be affected as a result of:

- Fund objectives not being met (i.e. CO2 emission reduction target, cumulative investments made by the fund)
- Lower profitability levels than forecast to investors
- Fund projects which are unpopular in the local community for one reason or another

The ability to raise sufficient funds to launch the OxFutures fund can be at risk due to challenging economic conditions not favouring investment in green technologies, an investment proposal not attractive to the investors targeted in terms if returns, risks, timing, investment size and investment management. In the case of the OxFutures fund, this could impact on achieving the private funding matching conditions in its IEE grant. Not raising enough private funds could lead to a reimbursement of grant from IEE.

In addition, the OxFutures fund needs to access a pipeline of projects which would enable the fund to meet its return and carbon emission saving targets. There is a risk that not enough projects are eligible according to the investment criteria developed by the OxFutures fund (too early stage, over-optimistic business plan, investment size, low returns, etc.). There is also a risk that not enough projects reach financial close as a result of challenging procurement and financing processes (i.e. liaising with counter-parties for part funding of the project).

Poor project economics or underperformances of the projects in comparison to their business plans may affect the overall profitability of the fund where the portfolio of investments in the fund is not sufficiently diversified or the underperformance is systematic. Diversifying the portfolio will contribute to reducing the impact of poor performance of a project on the overall profitability of the fund. Diversification consists in building a portfolio of investments with a spread of technologies, project locations, investment size, investment timeline and payback period, etc.

Drivers of poor project economics can include:

- High transaction and overhead costs
- Low output (green electricity generation, carbon emission saving) per £ invested
- Where sales prices are not protected by a PPA, low energy prices will reduce the cost-attractiveness of renewable energy and energy efficiency projects in comparison to traditional energy generation
- Change in regulation affecting the level and quantum of subsidies
- Optimistic business plans
- Delays in project implementation

Fund management costs may be high compared to the business plan, particularly if:

- Systems and procedures are not in place with the right management team to allow for an efficient screening of investment opportunities,
- Investment process and decision making are not streamlined
- Monitoring and reporting invests in the fund's portfolio is not efficient
- The volume of transactions is lower than expected.

5.5 Implications of the risk analysis

This review of key risks for the OxFutures fund and its sponsors leads to key implications for the launch and structuring of the fund as outlined below:

- **Fund raising process**, where it is key that:
  - The OxFutures fund investment proposal meets the fund's objectives, offers attractive returns to investors and is in line with current market conditions and expectations
  - The right approach to market is executed which includes identifying the appropriate set of potential investors to match the OxFutures fund investment proposition, effective marketing documents are prepared for the fund and competitive tension between potential investors is created and maintained
- **Management team**, which should have a combination of:
  - Operational fund management experience
  - Experience in assessing the feasibility of renewable energy and energy efficiency projects
  - Track record in investing in similar funds to the OxFutures fund or the projects the OxFutures fund targets to ensure investors are comfortable with the structure of the fund and management processes
- **Fund management activities**, which can be:
  - In-house and would require the appropriate staff to deliver an effective investment screening and management processes, assess the potential projects, execute investments and monitor the fund's projects
  - Outsourced to a dedicated fund management team which would require a remuneration scheme which aligns the interests of the fund manager with the fund and provides sufficient incentives for the fund managers to meet the OxFutures fund's objectives. For instance, for other outsourced active investment funds charge a 1-2% management fee and a typical 'carry' equivalent to up to 20% of the profits to align the interests of shareholders and fund managers
- **Investment process** needs to be set up to provide:
  - An effective process from the assessment of the investment opportunities from a technical and financial perspective to the investment decision. A questionnaire with key information about the project could be a first step for the fund's team to assess the feasibility of the project
  - The right investment decisions which will deliver value to the fund. An experienced team of fund managers or in-house team of investment analysts and an investment committee would avoid investing in unprofitable or less robust projects

  - An appropriate monitoring of the fund's portfolio through processes supervised by in-house investment analysis or the dedicated fund manager
- **Project origination** process needs to be in place to ensure a strong pipeline of good projects. This should be available at the fund raising stage to show the possible projects and returns for investors. Project origination processes could include procurement support to ensure that attractive, early-stage projects with sufficient economic and environmental potential are delivered

6 Comparable funds

We review in this section UK funds comparable to the OxFutures fund to identify:

- Key characteristics of these funds
- Key implications for the development of the OxFutures fund

We have selected investment funds currently investing in energy efficiency and renewable energy in the UK, whether investing locally or on the national scale.

6.1 Energy Saving Investments

The Energy Saving Investments (ESI) fund was established to invest in non-domestic energy efficiency sector projects. ESI, managed by the private fund manager Equitix, has £50m to invest as equity, provided by the Green Investment Bank (GIB), alongside private sector investment. This Fund's main investment criteria are:

- **Initial capex cost**: £0.5m - £30m
- **geographic focus**: UK
- **project stage**: development or pre-construction
- **technologies**: biomass, combined heat and power (CHP), district heating/cooling systems, building retrofit projects, energy performance contracts and other energy efficiency measures e.g. smart metering equipment or more efficient street lighting

The fund's investment process has three main steps:

1 Submission of an ESI questionnaire by the applicant
2 Initial review by the fund management team. The feedback will indicate whether there is an opportunity for the fund to invest in the project and stipulate the further due diligence that is required before presenting the project to the ESI Investment Committee
3 Business case presented to the ESI Investment Committee which will make the final decision whether or not to invest in the project and will consider both compliance with the investment criteria and the broader commercial aspects of the project.

To date, ESI has committed c. £10m and attracted a further c. £10m of private investment provided by the Equitix Energy Efficiency Fund (EEEF) for three biomass companies each of which are developing a pipeline of projects:

- The first investment of £10m was made in Roundwood Energy Limited, an energy services company responsible for financing, installing, maintaining and fuelling renewable heating systems. The funds will be used for the development of a portfolio of 60+ biomass boiler installations
- The second investment of £1.2m was to fund the installation of a biomass boiler at the whisky distillery Tomatin, close to Inverness. This is the first of many projects, led by Balcas, to develop, install and maintain boilers, which will primarily target Scottish Distilleries with a total funding capacity of £5m
- The third investment was made to fund GG Eco Energy Ltd, developing a pipeline of biomass-to-heat projects. The total project

size is £5.4m and the first operational project in the pipeline is the biomass facility in Culford School

6.2 London Energy Efficiency Fund (LEEF)

The London Energy Efficiency Fund (LEEF) is a £100m fund for energy efficiency retrofit for public sector buildings in London. The funding is from the Mayor of London's Green Fund, which is in part funded by the European Regional Development Fund (through the JESSICA initiative). LEEF provides repayable investment finance, primarily in the form of senior and mezzanine loans.

LEEF is run by a private sector fund manager, Amber Infrastructure. Arup is technical advisor to the Fund and the a funding partner, RBS, vet loan applications made to the fund.

The fund's main investment criteria are:

- **Initial capex cost**: £3m -£20m
- **Geographic focus**: Greater London area
- **Project maturity**: any stage
- **Technologies**: smart metering, energy efficiency, combined heat and power, district heating and decentralised energy, biomass, solar energy, water saving upgrades, medium scale wind
- **Term loan**: the maximum loan term is 10 years
- **Ownership structure of the company**: funds can be provided to public, private sector or joint venture entities
- **Group of projects**: the fund encourages project sponsors to consider how best to achieve economies of scale, for example by grouping buildings or eligible parts of broader refurbishment projects together
- **Energy savings**: the fund aims to deliver Energy Savings (kWh) from the measures funded of at least 20% compared to conditions prior to investment

The investment process for LEEF is similar to that for ESI which include a questionnaire, a project assessment by the fund manager and additional due diligence before the business case is presented to the investment committee.

To date, LEEF has invested £20m and has £80m remaining to invest by the end of 2015.

6.3 The North West Fund for Energy & Environmental

The North West Fund for Energy & Environmental is set up to invest in small to medium sized businesses that are within the energy and environmental sector and is managed by the fund manager 350 Investment Partners, formally CT Investment Partners.

This fund is one of six funds under the umbrella of the North West Fund, a £155m evergreen investment fund established to provide debt and equity funding to small and medium sized enterprises in the North West of England. The fund has received funding from the European Regional Development Fund and the European Investment Bank (EIB) under the European Commission's Joint European Resources for Micro to Medium Enterprises Initiative (JEREMIE) programme.

The investment criteria for the North West Fund for Energy & Environmental include:

- **Financing from the fund**: £0.2m-£1.2m (equity or quasi-equity)
- **Total financing amount for the applicant**: £0.4m-£5m
- **Business maturity**: start up, small or medium sized
- **Geographical location**: business located in or re-locating to Cumbria, Lancashire, Greater Manchester, Merseyside or Cheshire

To date the fund has invested in the following businesses:

- **Senselogic** which develops a range of energy measurement and control products that support the reduction of carbon emissions in the built environment
- **Placefirst** focuses on helping public sector clients to deliver difficult development or regeneration renewable and energy efficiency projects
- **EcoLogicLiving** involved in the design, supply and installation of renewable energy solutions including biomass, heat pumps, solar PV or solar thermal
- **Imperative Energy** designs, builds, finances and operates biomass-to-energy systems for industrial and commercial clients
- **Acal Energy Limited** develops low cost Proton Exchange Membrane Fuel Cell systems

6.4 Conclusions

The review of comparable funds to the OxFutures fund shows that:

- Fund management is often outsourced to dedicated fund managers which allows more independence for the fund from the public entity which launched the fund
- Clear investment processes are in place involving a questionnaire or application to fill out which provides enough information to assess the investment opportunity and allow a more transparent and stream-lined investment selection process
- These funds support private investment alongside the investment of the funds
- The geographic focus can be local (London) or regional (North West)

The implications for the OxFutures fund from this comparative analysis are:

- The OxFutures fund would be the first fund focused on renewable energy and energy efficiency in the Oxfordshire region. It would clearly differentiate the fund from other operational funds in the country. A focus on Oxfordshire and engagement with the local community is likely to be a key differentiator for the OxFutures fund
- The OxFutures fund will benefit from a strong and trusted brand considering the involvement of the County and City in the launch of the Fund. The Councils are both actively involved in developing the local green economy
- There is a potential for the OxFutures fund to be a project enabler and allow projects with a high environmental impact to be financed and developed as well as attracting private sector investment
- The structure of the OxFutures fund would need to show some independence as private investors value positively independently managed and structured funds
- The optimal investment process for the OxFutures fund will need to be transparent and cost efficient assessed. Options include the assessment of outsourced fund management activities and the potential appropriate remuneration of the fund manager

7 Conclusions and next steps

7.1 Conclusion

Energy efficiency, renewable energy and sustainability are key areas of focus for the Councils. Key initiatives have been developed and targets set to reduce carbon emissions such as Low Carbon Oxford, the Low Carbon Hub and the Total Retrofit project which includes the launch of the OxFutures fund.

The OxFutures fund aims to be a fund investing in renewable energy and energy efficiency in Oxfordshire and benefits from initial funding from the European Commission. The key objective for the OxFutures fund is to develop a green local economy, attract private investments and deliver profitable, carbon saving investments in Oxfordshire. The OxFutures fund could collaborate with leading local organisations such as the Low Carbon Hub to facilitate the shift to a greener economy.

Through the estates of the County and City, the OxFutures fund has access to a pipeline of potential projects. However, the Councils are able to access other low cost, convenient finance to fund the energy efficiency improvements recommended by Carillion (total investment requirement of £1.9m on the County estate). Current cost reduction programmes may lead to some delay in investing in these energy efficiency improvements. Short term opportunities in the parts of the City estate reviewed by Carillion are limited at this stage.

Other parts of the Councils' estates could provide attractive investment opportunities with potentially high economic and environmental impact such as solar PV in the five park and rides around Oxford.

Universities, academy schools and blue light services represent attractive investment opportunities which could be explored as:

- Sustainability and energy efficiency is an area of focus and part of these organisations' strategy
- Carbon emission reduction targets and low carbon implementation plans are in place for some of them (i.e. Thames Valley police)
- Typically these organisations have estates including large buildings which could potentially benefit from energy efficiency upgrades

Some of these organisations may have access to alternative finance but the OxFutures fund could be structured to provide added value advice and support, as well as development and construction finance which is vital but is in short supply.

At the community level, Domestic RHI and ECO could be an opportunity to support investment in renewable energy and energy efficiency for households, and the OxFutures fund, in collaboration with the Low Carbon Hub, could play a part in enabling this investment. The OxFutures fund could also add value by providing procurement support and so maximise the number of projects ready for investment by the fund. This is an opportunity to add value by filling a funding gap and contribute to delivering more energy efficiency and renewable energy projects.

The initial assessment of risks suggests key implications for the design of the fund raising process, management team, fund management activities, investment process and project origination which include:

- Defining a clear, attractive investment proposition for the fund which would meet the fund's targets and be attractive to private investors
- Marketing the fund to the right investors in the best way
- Select a management team with the right competences and experiences to deliver a strong project pipeline and investment portfolio
- Optimise the fund management arrangements, eg in-house or outsourced

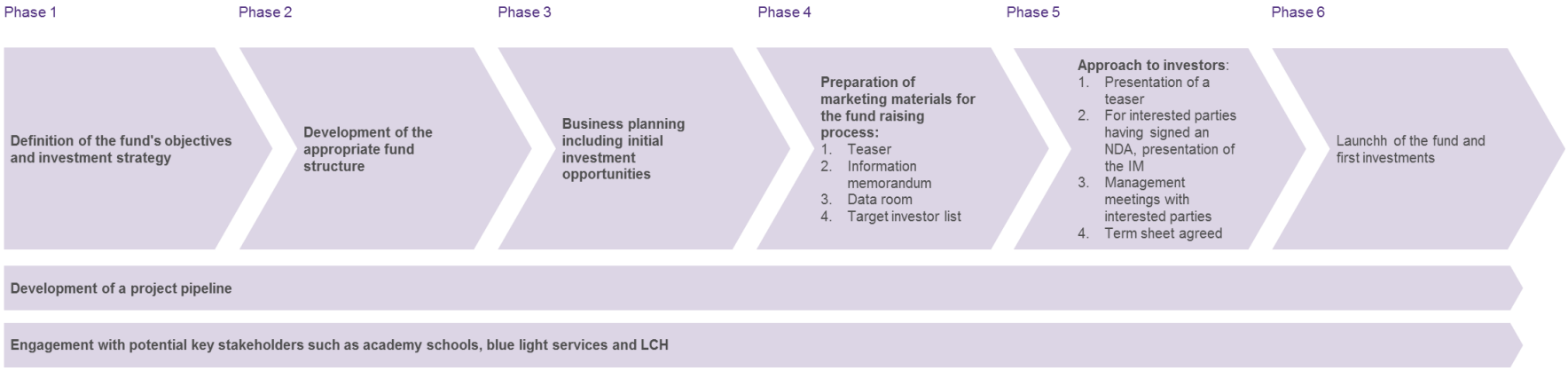
A review of comparable funds shows that the OxFutures fund could be differentiated from other funds investing in energy efficiency and renewable energy. Potential differentiators include involvement with the community and a focus on the Oxfordshire region, involving businesses as well as households. By providing finance, the fund would be an enabler of investment opportunities and allow the successful development of projects with a high environmental impact. There is a potential to develop a strong brand for the OxFutures fund considering the engagement with the local communities and the involvement of the County and City who are trusted and actively promoting sustainability and the green economy.

The analysis of comparable funds highlights the importance of independence in the governance of the fund. This has implications for supervisory arrangements and particularly the structure of the investment committee and fund manager team. Other funds sponsored by the public sector have, for instance, outsourced the fund management operations to a specialised private entity. Transparency and cost-efficiency in the investment process is likely to be a key requirement for private investors. Private, expert fund management companies can provide a track record and work with a remuneration scheme aligning their interests with the fund's sponsors.

7.2 Next steps

As there is a significant opportunity for the OxFutures fund to enable the shift to a green local economy as shown in this report, Grant Thornton suggests the following next steps summarised in Figure 3.

Figure 3 Next steps and process to launch the OxFutures fund



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