Cambridgeshire Renewables Infrastructure Framework (CRIF)

Final Report: Finance, Delivery and Engagement

Document type:	Report (CRIF Final Report 150212_v8_ISSUED)
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Other details:	Sponsored by Cambridgeshire County Council Housing Growth Funds and Climate Change Skills Fund (Sustainability East)

Title:	Cambridgeshire Renewables Infrastructure Framework (CRIF) - Final Report: Finance, Delivery and Engagement
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There are economic and policy drivers and in places the mandate to support and encourage local planning and delivery of renewables

There are strong economic drivers for renewable energy. Energy prices are set to rise substantially. Already, across the UK, one in four households is living in fuel poverty. Energy security is also a critical issue for the UK economy with increasing volatility of energy prices. The transition to a clean energy economy creates an opportunity for economic growth through investment in projects and employment opportunities.

There are renewable energy policy drivers at national and international levels. The Climate Change Act places legally binding obligations on the UK to reduce its CO_2 emissions by 80% by 2050 over 1990 levels. The UK has also signed up to delivering 15% of its primary energy from renewable energy sources by 2020 in line with its commitments to the European Directive.

This is expanding the market for renewable energy development across all technologies. A series of market mechanisms have been introduced to stimulate investment into clean energy to meet these targets. These include the Renewables Obligation, the Feed in Tariff and the Renewable Heat Incentive.

The government is also launching its flagship policies on energy efficiency. The government's main energy efficiency policy is Green Deal. This will introduce a 'pay-as-you-save' financing mechanism for investment into homes, businesses and public sector buildings. Green Deal Finance will be supplemented by grant funding through the Energy Company Obligation (ECO). This is expected to deliver investment of £1.3bn per annum in hard to treat households and to deliver affordable energy.

Meanwhile, the Carbon Reduction Commitment Energy Efficiency Scheme (CRC-EES) continues to focus attention on energy efficiency in large non-energy-intensive users such as supermarkets and large office portfolios.

Together these create an incentive to manage energy in buildings and identify ways in which energy efficiency and renewable energy can be introduced.

Changes to the planning system are leading to an increased focus on neighbourhood planning and local energy planning. This includes the new National Planning Policy Framework and the Localism Act.

The Clean Tech sector is a key area for development as a third cluster in Cambridgeshire

Cambridge has an excellent research base for renewable energy technologies. The area is now one of the most important technology centres in Europe, with a worldwide reputation as a source of technology innovation. With this excellent research base, its high tech nature, and the technology-based business community in the region, Cambridgeshire is an ideal location in the UK for growth in the renewable energy sector.

The launch of Cambridge Clean Tech demonstrates the potential interest in this as an emerging cluster of activity. It currently has approximately 55 members, all involved in environmental goods and services.

The objective of the proposed Greater Cambridge/Greater Peterborough Local Enterprise Partnership Cleantech Group is to make the LEP a globally-recognised centre of excellence for cleantech and eco-innovation, proactively supporting the growth, development and competitiveness of the LEP's cleantech sector.

The job creation opportunities have been estimated for renewable energy delivery across the technology opportunities in Cambridgeshire, based on the associated projected technical and investment potential. The maximum job creation potential associated with renewable energy development in Cambridgeshire is 11,500. This is a significant quantum of employment that demonstrates the potential importance of this sector for economic growth.

There are perceived barriers to investment in Cambridgeshire

Despite this opportunity, there is significant policy uncertainty surrounding renewable energy that could undermine investor confidence. At a local level, achieving planning consent can often be a contentious issue. Local support is patchy, leading to a number of schemes forcing consent through appeal (e.g. in Fenland) or very low rates of renewable energy development in other areas (e.g. South Cambridgeshire). Unlocking the potential for smaller sites will be an important component of delivering renewable energy in Cambridgeshire.

The role of CRIF is to set the framework for steering the good things that can be done to attract the right investment in the right place and support the growth in Cambridgeshire. The CRIF sets out bottom-up evidence base of spatial, economic and deployment opportunities and constraints.

There remains a significant opportunity to attract footloose investment in the county

The renewable energy investment opportunity is at least £2.3bn but could be as great as £6bn to 2031. Additional investment will be required to deliver energy efficiency, district heating and gas CHP infrastructure which are viewed as essential enabling technologies. Already, there is significant activity to realise this potential and momentum to build upon.

What is the scale of investment opportunity to deliver greater energy security for businesses and communities in Cambridgeshire?

Large scale investment in energy infrastructure is required across the key stakeholders

In order to make the transformation happen, all stakeholders - public sector, communities and businesses - need to do their bit. Doing nothing is not an option but there are different scenarios to consider. The CRIF provides the basis and leadership for localism in action with the public sector playing a central role to make this happen.

It is a complex matter, with strong dependencies between commercial developers and the public sector (local planning authorities in particular) and the communities that they represent.

For the opportunities to be realised it will be essential that incentives are aligned to promote co-operation.

In the public sector, 400GWh per annum of renewable energy could be generated by 2031. This represents a viable investment potential of £320m. PV and biomass are the dominant technologies.

In the community sector, 450GWh per annum of renewable energy could be generated by 2031. This represents a viable investment potential in the community sector of £792m, even accounting for the reduction in PV systems costs during 2011. PV remains the dominant technology, accounting for over half of the community infrastructure, with the rest fairly even spread across the other technologies.

In the commercial sector, 1400GWh per annum of renewable energy could be generated by 2031. This represents a viable investment potential in the commercial sector of £1.2bn. PV and wind require the greatest investment, followed by biomass.

The CRIF framework can help to attract funding and coordinate efforts. There are a series of project development risks that need to be managed. The role of the framework is to mitigate risk for the various stakeholders by providing information, co-ordinating effort and helping to attract funding to support project development activities.

The framework can help to attract funding and coordinate efforts

The CRIF makes the business case for securing internal resources to develop renewable energy projects. It signposts sources of investment including ways in which the private sector can invest in projects originated by the public sector.

The CRIF project process brings together a broad range of information to help Cambridgeshire make choices on how to deliver increased renewable energy.

The work was broken down into three key work streams:

- An assessment and detailed breakdown of renewable energy opportunities
- A financial analysis of the opportunities and pathways for delivery
- Dialogue with stakeholders or co-producers to shape the content of the framework

Together these make up the Framework in this report. Captured below are the more detailed elements of work that make up the CRIF that can inform future plans:

- An assessment and detailed breakdown of renewable energy opportunities, using address level data, provides data sets that can help inform the business case for stock rationalisation.
- Deployment constraints (e.g. cost of money, incentives, planning approvals) are factored into the overall estimations of renewable energy opportunity in Cambridgeshire, therefore producing a realistic, bottom-up evidence base.

- The CRIF analysis has produced detailed heat maps showing areas of opportunity including zones of high heat density and specific buildings that could act as anchor loads. This includes public sector buildings such as schools, hospitals and museums.
- Economic analysis has been carried out as part of this project in order to demonstrate the sensitivity to key parameters. These financial models form an important reference point for further work.
- The CRIF highlights some of the key issues that need to be considered when carrying forward a district heating project and demonstrates the long term economic value of renewable energy development in the county.
- The CRIF provides a detailed evidence base including Energy Opportunity Area maps that are consistent with the requirements of NPPF.
- The CRIF presents an evidence base for what can be achieved with a range of 'hurdle rates' of return on investment. This includes opportunities for renewable energy development 'offsite' from new developments. These are broken down by sector and technology and presented spatially through GIS maps, thereby helping property developers to discharge their national building regulations / zero carbon buildings obligations in the most cost-effective manner.

The proposed development of a Cambridgeshire Community Energy Fund(s) would go one step further by creating the financial mechanism for investing developer's funding into local projects.

The CRIF presents the areas of least constraint to renewable energy development. It provides this information in GIS format for interrogation by planning policy and development control officers and it highlights the business case for RE development in the county. This provides an economic context to planning decisions made at the local level.

The CRIF also demonstrates the quantum of renewable energy that could be developed in Cambridgeshire so that politicians can consider and set the level of ambition themselves, and make use of tools such as the planning system to support progress towards long term goals.

It has also opened up dialogue about between different stakeholders so that members can be informed from a variety of viewpoints - more detail can be found in chapter 5.

Securing finance for community energy projects can be particularly challenging. The CRIF addresses this by providing information on sources and types of grant funding that may be available for community groups wishing to develop RE projects. It also provides initial advice on governance structures, potential financial returns and signposting to further information.

How can more renewable energy be delivered in Cambridgeshire?

In order to create a favourable investment environment, it is important to tackle some key areas: political leadership, planning, development risk, creating demand and finance.

Three delivery pathways have been examined – public, commercial and community. Draft delivery frameworks are presented in the appendices for planning authorities to consider. For example, the public sector can set the political leadership context, particularly at Local Authority level. It is also important to establish the extent and manner of partnership working and co-ordination between the local authorities and other public sector organisations to promote knowledge, capacity and resource sharing. This could help to maximise the leverage of limited financial resources and respond to emerging planning policy (NPPF) that will require cross-boundary working. The local planning authorities need to continue to develop positive policies to encourage renewable energy development, building on the work to date.

The information produced by CRIF can be used as the basis for an Infrastructure Plan for a Cambridgeshire Community Energy Fund investment and the public sector to continue to give consideration to the role of renewable energy generation as part of the Making Assets Count (MAC) Project, alongside high levels of sustainable design and construction being set for development on public sector land.

There is an important role for the local authorities to help drive forward the development of district heating in the key opportunity areas identified through CRIF. These are particularly focused on Cambridge City, Huntingdon and St Neots.

For successful delivery in the short term, financing mechanisms need to be established to support renewable energy development at the domestic and community levels. There is a lot of work to be done to create demand for renewable energy projects within the local community and significant support activities including skills development, resource sharing and community outreach events and workshops are needed to build understanding and capacity. In order to disseminate good practice, it will be important to build relationships with local media channels.

In the medium term, support needs to be given to new community groups such as that already provided by the South Cambridgeshire Sustainable Energy Partnership. Once established, these groups need to engage with Neighbourhood Planning and over time communities need to establish meaningful partnerships with commercial renewable energy developers so that communities can both input to the project planning process and benefit financially from projects developed in their area.

Renewable energy suppliers need to create close working relationships with the public sector. The Local Enterprise Partnership Cleantech Group and Cambridge Cleantech already provide a valuable potential forum for this to happen.

Developers can work with the public sector to explore delivery options through Allowable Solutions payments or Community Infrastructure Levy or Community Energy Fund in Cambridgeshire.

Local authorities and Green Deal providers will need to work closely together to lobby government for Green Deal measures to be included as part of the allowable solutions framework.

In the medium term, development risk needs to be managed – this means that renewable energy suppliers need to develop model projects that demonstrate best practice community

engagement, and public-private partnerships need to be established to deliver district heating in the key areas of opportunity, particularly Cambridge and Huntingdon.

What does the CRIF Report provide?

Summary of the technology options available and their technical potential

In conclusion, the CRIF report has identified that a wide range of renewable energy technologies are available, thereby creating the opportunity for Cambridgeshire to be a leading county for clean energy projects, goods and services.

The deployment potential for the CRIF lead scenario is 344MW solar PV, 42MW solar water heating, 219MW ground and air source heat pumps, 130MW small wind parks, 375MW larger wind farms and 41MW biomass CHP but this is within the context of the right choices in the right places, and the local planning authorities are best placed to make these choices together.

11% of the potential resides in the public sector, 36% in households and communities and 53% in the commercial sector. Together this could generate around 26% of Cambridgeshire's energy demand in 2031.

A Framework for planning authorities to develop their own policies and plans using a shared evidence base to encourage the right type of new schemes to the right places

The analysis has demonstrated that there is potential across each district. The breakdown by district is:

- Cambridge City: 9%
- East Cambridgeshire: 20%
- Fenland: 16%
- Huntingdonshire: 29%
- South Cambridgeshire: 26%

The evidence has been established based on technical potential, economic considerations and deployment rates. This has demonstrated that these levels of RE could be viable, albeit challenging to deliver.

Summary of the scale and type of Renewable Energy investment opportunity to make the Community Energy Fund(s) work

The scale of investment is significant – over £2.3bn and up to £6bn in projects giving a return on investment over 7%. The employment opportunities associated with this level of deployment are also great: up to 11,500 jobs. This supports an argument for developing a major Cleantech cluster in Cambridgeshire. The CRIF also demonstrates the wide range of opportunities that exist in the county for developing offsite 'allowable solutions' that enable property developers to meet their carbon obligations in a cost-effective way. This, in turn, helps to improve the viability of new build development and supports continued growth in the country.

Developing delivery frameworks to aid planning authorities coordinate inputs from stakeholders

Draft delivery frameworks have been started to help local planning authorities consider short, medium and long term actions for each sector. These can be found in Appendix 1.

How did we engage stakeholders?

The whole project was viewed as an engagement exercise. The aim was to move from the process where a strategy is created and the public are subsequently consulted on the document to one where participants shape the outcomes. The CRIF engagement ambition was to create a co-productive experience that would enable as many people as possible to share the knowledge of the technical work and participate in the formation of the framework, at the same time as sharing that experience as widely as possible to the less engaged community.

But this ambition brings a complex set of delivery problems needing co-operation and participation from a wide range of often well-informed groups with very different perspectives on how to move forward, as well as those just learning about the issues. The engagement process needed to:

- Bring about co-production to shape the framework
- Try more than traditional consultation techniques, which tend to be quite passive
- Use technology to build social media groups and digital connections
- Create a digitally connected network of groups and people to provide a legacy
- Develop trust with stakeholders through a transparent and open process

The definition of co-production used for the CRIF was to 'treat all of the participants as 'actors' in the process rather than having some as passive recipients of outcomes.' The intention of a co-productive process is to focus on shared action and decision making with power being evenly distributed throughout the participant groups.

This meant that the project needed to be delivered in a way that was highly participative. It would, therefore, need to identify current projects that would already fit within the proposed CRIF framework and offer the opportunity for all participants to question and amend the approach for creating the research data as opposed to starting with a blank sheet of paper.

In addition, the project made sure it addressed the ideas of localism and the Big Society, with careful consideration of the power balance that existed in the relationship between politicians and other stakeholders. This was achieved by emphasising that the community and commercial sectors were in many ways freer to act and to make delivery happen but at the same time being clear that politicians would sign off the framework.

Key to the project was using the online environment combined with the open format of meetings, social reporting and live streaming, to make the content as open and accessible as possible to everyone even if you couldn't physically be there. Our results show that people tuned in online to observe meetings in real time. The project made extensive use of free platforms such as Wordpress, YouTube, Facebook and Twitter #crifcambs and also used the Citizenscape platform www.crif.citizenscape.net as a central place for project information.

Key recommendations

1. Establish political leadership

The CRIF workshops have highlighted the need to establish strong political leadership regarding renewable energy. Politicians need to set a clear vision for the county and districts' aspirations, their levels of commitment and the support that renewable energy developers can expect across all sectors – public, commercial and community.

2. Develop supportive planning policies

There is a need to develop planning policies as part of the development of Local Plans / LDFs. to support continued development of appropriately sized and located commercial renewable energy projects. There is also a need to address both areas with low exploitation of the resource and those where high levels of RE development have led to concerns about over-saturation. The pressures that are currently observed are likely to become more acute as time goes on as a result of the national drive to ramp up the installation of renewable energy.

3. Mitigate development risk

Public sector intervention is required to bring about investment in CHP and district heating infrastructure that will become enabling infrastructure for biomass heat and power. This is an area where some of the authorities have already carried out a lot of work but due to the long term, complex nature of the task, sustained effort is required over the short, medium and long term.

4. Create demand

The public sector has an important role to play in creating demand, in particular using public sector assets to help establish a market for renewable energy and then using the brand and convening power of the local authorities to stimulate community interest in developing their own projects. This includes refurbishment applications associated with Green Deal e.g. Huntingdonshire District Council's Greenhouse Project, a national exemplar of how to cost effectively retrofit existing private

housing. www.greenhouseproject.co.uk. In addition, a priority is to develop workforce skills and capacity locally building on the reputation of the Smartlife Centre, The Hive and the ambitions of the Greater Cambridge and Greater Peterborough Local Enterprise Partnership.

5. Develop finance mechanisms

It is important to develop of a range of financial products and mechanisms that can support renewable energy deployment across all the sectors. This might include pre-development funding for communities, a Community Energy Fund for Allowable Solutions and a public sector investment mechanism to support delivery of public sector projects using private investment. It could also include financial structures for capturing community benefit from commercial renewable energy development.

6. Develop the draft delivery frameworks

The draft delivery frameworks have been developed to guide the various stakeholders over the coming years. These need to be constantly reviewed, updated and developed to remain useful and relevant.

1. Introduction

This report has been prepared by Verco and the National Energy Foundation, and is provided in conjunction with the following supporting technical documents:

- Baseline assessment of opportunities and constraints, Dec 2011
- Social Media Audit, May 2011
- Supporting information, February 2012

2. Why do we need a Cambridgeshire Renewables Infrastructure Framework (CRIF)?

2.1 There are economic and policy drivers and in places the mandate to support and encourage local planning and delivery of renewables

2.1.1 There are strong economic drivers

- Energy prices are set to rise substantially. DECC's central energy price scenario predicts a 37% rise in domestic electricity prices and a 12% rise in domestic gas prices. This will have an impact on households and businesses
- Already, across the UK, one in four households is living in fuel poverty. This means that they spend more than 10% of their income on heating, lighting and powering their homes. By 2016 this is expected to rise to 50% of all households
- Energy security is also a critical issue for the UK economy with increasing volatility of energy prices. The development of local, indigenous energy projects helps to reduce dependence on overseas resources such as oil and gas
- The transition to a clean energy economy creates an opportunity for economic growth through investment in projects and employment opportunities

2.1.2 There are renewable energy policy drivers at national and international levels

- The Climate Change Act places legally binding obligations on the UK to reduce its CO_2 emissions by 80% by 2050 over 1990 levels. The fourth carbon budget, covering the period 2023-2027, was set in law at the end of June 2011[1]. The government's strategy for meeting these targets is set out within the Carbon Plan and the 2050 pathways analysis. There is a range of ways in which this target may be met but all include a heavy decarbonisation of the electricity grid. The Committee on Climate Change has modelled a number of ways in which this decarbonisation could occur. All require a large amount of onshore renewables even with deployment of nuclear power and carbon capture and storage.
- The UK has also signed up to delivering 15% of its primary energy from renewable energy sources by 2020 in line with its commitments to the European Directive. The government's strategy for meeting this target is set out within the Renewable Energy Roadmap. This includes support for a range of technologies including onshore and offshore wind, marine energy, ground- and air- source heat pumps, biomass (heat and electricity) and renewable transport[2]. This translates into an onshore renewable energy target of 28% by 2050.

[1] http://www.decc.gov.uk/en/content/cms/emissions/carbon_budgets/carbon_budgets.aspx
[2] "the eight technologies that have either the greatest potential to help the UK meet the 2020 target in a cost-effect and sustainable way, or offer great potential for the decades that follow" http://www.decc.gov.uk/en/content/cms/meeting_energy/renewable_ener/re_roadmap/re_roadmap.aspx

2.1.3 This is expanding the market for renewable energy development across all technologies

- A series of market mechanisms have been introduced to stimulate investment into clean energy to meet these targets.
- Small scale renewable electricity is supported through the Feed in Tariff. This has a budget of £328m in 2013/14, increased from £269m on the 8th Dec 2011[3]. The consultation on the comprehensive review closed on 23/12/01. Government set out its intention to make a series of changes to the FIT including changes to the degression mechanism, and potentially tying eligibility to a minimum level of energy efficiency[4].
- The FIT and RO schemes are intended to help realise the UK's share of the 2009 EU Renewable Energy Directive to source 15% of our energy from renewable sources by 2020. DECC have calculated that small scale installations, which are to supported under the FIT mechanism, could meet 2% of the UK's electricity demand by 2020[5].
- In contrast, the Renewable Heat Incentive is designed to deliver 12% renewable heat[6] by 2020 from a current level of around 1%. The target rate of return on renewable heat projects is 12%. The level is set at a much higher level than the feed in tariff in recognition of the scale of the challenge and the significant barriers to development of renewable heat projects.

2.1.4 The government is also launching its flagship policies on energy efficiency

- The government's main energy efficiency policy is Green Deal. This will introduce a 'pay-as-you-save' financing mechanism for investment into homes, businesses and public sector buildings. Registered Green Deal Providers will install measures at no up-front cost to the consumer and place a repayment charge on the property (attached to the electricity meter). Measures must pay for themselves over their lifetimes from the savings on the energy bill so that the household bill is no greater than before the works are carried out. Around 1.2million households are expected to take up Green Deal by 2022.
- Green Deal Finance will be supplemented by grant funding through the Energy Company Obligation (ECO). This is expected to deliver investment of £1.3bn per annum in hard to treat households (75%) and to deliver affordable energy (25%).
- Green Deal is also available to support investment in non-domestic buildings although the policy is less developed in this area at present. A series of position papers have

[3] http://www.decc.gov.uk/assets/decc/11/funding-support/fuel-poverty/3290-control-fwork-decc-levyfunded-spending.pdf
[4] http://www.decc.gov.uk/en/content/cms/consultations/fits_comp_rev1/fits_comp_rev1.aspx
[5] http://www.decc.gov.uk/assets/decc/what%20we%20do/uk%20energy%20supply/energy%20mix/renewable%20energy/ored/25-nat-ren-energy-action-plan.pdf
[6] This is the renewable generation of heat, rather than electricity e.g. from solar water heating panels or biomass boilers

been produced by the DECC working groups, setting out the salient considerations for these public and commercial buildings.

- Meanwhile, the Carbon Reduction Commitment Energy Efficiency Scheme (CRC-EES) continues to focus attention on energy efficiency in large non-energy-intensive users such as supermarkets and large office portfolios.

- This is supported by energy labelling schemes such as the need to public buildings to produce a Display Energy Certificate and the requirement for all building owners to make available an Energy Performance Certificate whenever a building is sold or let.

- Together these create an incentive to manage energy in buildings and identify ways in which energy efficiency and renewable energy can be introduced.

2.1.5 Changes to the planning system are leading to an increased focus on neighbourhood planning and local energy planning

- There are a series of important changes taking place to the planning system. The most radical overhaul is the abolition of existing national guidance material (planning policy statements) and the introduction of the National Planning Policy Framework (NPPF).

- The draft NPPF policy requires production of a Local Plan in conformity with the NPPF and proposes a presumption in favour of sustainable development. It requires a positive, pro-active approach to renewable energy planning including identification of Energy Opportunity Areas and co-ordination across neighbouring authorities.

- In parallel with these changes to the planning system, The Localism Act is designed to decentralise power from central government, passing it back to local government, communities and individuals. The Act intends to give local government new freedoms and flexibility; give new rights and powers to communities and individuals; make the planning system more democratic and more effective; and to ensure that decision about housing are taken locally. Most of the major measures in this Act are due to come into effect in April 2012[7].

- The NPPF reflects this shift to localism by promoting neighbourhood planning. It aims to be more clear and concise making it more accessible to people and communities than previous national policy. The document also intends to provide "a framework within which local people and their accountable councils can produce their own distinctive local and neighbourhood plans, which reflect the needs and priorities of their communities".[8] The framework also aims to encourage the use of renewable resources in planning policies and decisions, helping to support the transition to a low carbon economy. Specifically local planning authorities should:

[7] Department for Communities and Local Government (November 2011) A plain English guide to the Localism Act. http://www.communities.gov.uk/documents/localgovernment/pdf/1896534.pdf

[8] Draft National Planning Policy Framework; July 2011 http://www.communities.gov.uk/documents/planningandbuilding/pdf/1951811.pdf

- *“have a positive strategy to promote energy from renewable and low-carbon sources, including deep geothermal energy*
- *design their policies to maximise renewable and low-carbon energy development while ensuring that adverse impacts are addressed satisfactorily*
- *consider identifying suitable areas for renewable and low-carbon energy sources, and supporting infrastructure, where this would help secure the development of such sources*
- *support community-led initiatives for renewable and low carbon energy, including developments outside such areas being taken forward through neighbourhood planning; and*
- *identify opportunities where development can draw its energy supply from decentralised, renewable or low carbon energy supply systems and for co-locating potential heat customers and suppliers.”*

2.2 The Clean Tech sector is a key area for development as a third cluster in Cambridgeshire

2.2.1 Cambridge has an excellent research base for renewable energy technologies

- The region around Cambridge is sometimes referred to as the Cambridge Cluster or Silicon Fen because it is home to a large cluster of high tech businesses, many of which have connections with the University. The area is now one of the most important technology centres in Europe, with a worldwide reputation as a source of technology innovation. In the Cambridge area, there are approximately 900 high tech businesses employing around 37,000 people, representing almost a quarter of all jobs. Further established businesses are located around Peterborough, and in Cambridgeshire as a whole, there are around 1,400 businesses employing approximately 48,000 people.[9]

- Cambridge's research community benefits both from the presence of the University of Cambridge itself, which is ranked consistently amongst the top five universities in the world, and also from the numerous research institutes located there, many of which are genuinely world class. There has also been considerable investment recently in the University's facilities and the research institutes – for example, the Addenbrooke's Biomedical Campus, which includes new buildings for Cancer Research UK and the Laboratory for Molecular Biology – with further development planned in the future. In addition to knowledge transfer from the University, local clean tech businesses may also benefit from the large pool of academic talent available locally as a result of the large number of graduates who choose to stay on in the city.

- With this excellent research base, its high tech nature, and the technology-based business community in the region, Cambridgeshire is an ideal location in the UK for growth in the renewable energy sector.

2.2.2 The launch of Cambridge Clean Tech demonstrates the potential interest in this as an emerging cluster of activity

- Cambridge Cleantech is a not for profit organisation whose vision is to establish Cambridge as a leading cleantech community in Europe. Its objectives are to enhance the area's global competitiveness by co-ordinating, supporting and promoting commercial opportunities for its members. It currently has approximately 55 members, all involved in environmental goods and services, and ranging from well-established organisations, to start-up companies, and from consultancies to manufacturers and suppliers.

- Specific initiatives organised by Cambridge Cleantech include Special Interest Groups where the latest sector-specific best practice is shared, events to inform members, share information and, specifically, to aid the development of the supply chain for cleantech companies. Business support services are also provided to give advice, support and

[9] 'Cambridge Cluster at 50: The Cambridge economy: retrospect and prospect', SQW, March 2011

guidance to help companies develop – key support services offered are on access for finance, including grant, equity and bank funding, 'experts in residence' who can provide guidance on anything from start-up mentoring to marketing, promotion of Cambridge Cleantech at international events including working with the UKTI, and government liaison which summarises legislative changes and lobbies government on behalf of members on related cleantech issues.

2.2.3 Proposed GC-GP LEP Cleantech Group

- The objective of the proposed Greater Cambridge/Greater Peterborough Local Enterprise Partnership Cleantech Group is to create a Cleantech Group that aims to make the LEP a globally-recognised centre of excellence for cleantech and eco-innovation, proactively supporting the growth, development and competitiveness of the LEP's cleantech sector.
- The group plans to build on UK CEED's and Cambridge Cleantech's existing expertise to catalyse growth amongst cleantech companies. Together, these organisations will form the LEP Cleantech Group, providing business support and access to new opportunities for innovation, investment and international growth. The group would also promote skills development, working in partnership with cleantech businesses, skills providers and further/higher education institutions to ensure that future growth can be sustained in the region.
- The vision for this organisation is to become a regional community with significant cleantech expertise and a global centre of excellence for cleantech research and innovation, that attracts inward investment, stimulates start-up activity, contributes to the regional economy, and increases the global competitiveness of LEP cleantech companies.
- The Group plans to cover the following issues:
    - Climate change and environmental protection (mitigation and adaptation, social benefits)
    - Resource security (sustainable sourcing of future resources)
    - Economic development (creation of jobs and economic wealth in the region)
    - Inward investment (need to attract high growth companies to the region)
    - Competitiveness (increased national and international competitiveness of companies)

The following sectors will be included within the Group's scope:

- Energy efficiency and generation
- ICT

- Materials and design
- Pollution prevention
- Waste and recycling
- Water

2.2.4 There are significant job creation opportunities

The job creation opportunities associated with the development of renewable energy technologies in the county are significant. These have been estimated for each pathway and each technology, based on the associated projected technical and investment potential. A range of types of job will potentially become available - the renewable energy sector comprises:

- Manufacture/installation/repair of generation equipment
- Supply of renewable energy
- Modifications to grid for transmission of renewable energy
- Supply of renewable fuels
- Distribution/storage of renewable fuels
- Supply of agricultural feedstock for biomass/biofuels
- R&D of new/improved renewable energy technologies
- R&D of cleaner/more efficient non-renewable energy technologies
- Process engineering to make non-renewable generation cleaner/more efficient

A figure of 10 jobs per MW, estimated by the DTI [10], has been used to estimate the total job creation potential in development, under construction and in operation (

[10] Renewable Supply Chain Gap Analysis, DTI, 2004

Table 1). This is an average figure across all technologies and throughout the UK.

Using this method, the maximum job creation potential associated with renewable energy development in Cambridgeshire is 11,500. Whilst the exact proportion of these jobs that can be captured in Cambridgeshire is yet to be determined, this is a significant quantum of employment that demonstrates the potential importance of this sector for economic growth.

Further details on the calculation methodology are contained in the Appendices.

Table 1 Maximum job creation potential

Technology	Public sector	Community	Commercial	Total (MW)	Total jobs
PV (MWp)	39	145	161	344	3,440
SWH (MW)	6	30	6	42	415
GSHPs and ASHPs (MW)	41	162	16	219	2,190
Wind <=5 turbines (MW)	27	75	28	130	1,296
Wind >=6 turbines (MW)	-	-	375	375	3,750
Biomass (MW)	20		20	41	405
Total	**132**	**412**	**606**	**1,150**	**11,496**

2.3 There are perceived barriers to investment in Cambridgeshire

2.3.1 There is national policy uncertainty

- Despite this opportunity, there is significant policy uncertainty surrounding renewable energy that could undermine investor confidence. The recent changes to the Feed-in-Tariff are a good example of this where rapid and significant cuts to the tariff at very short notice have led to abandoned projects, lost jobs and the closure of businesses. Whilst the need to reduce tariffs was generally supported across the industry, the High Court ruled that the way it was introduced was unlawful. The government has requested leave to appeal the decision, the outcome of which could have important implications for investor confidence in the sector.

- There has been uncertainty in a number of other areas too, such as the banding of Renewables Obligation Certificates (ROCs) to give different levels of support to different technologies. The government published its proposals in October 2011.

- Furthermore, the Renewable Heat Incentive (RHI) was only launched for large scale applications in November 2010 following state aid approval and is therefore likely to be subject to on-going review as the scheme progresses. The domestic version of RHI is due to be launched in Autumn 2012 as the same time as Green Deal.

- In the medium term, however, the Energy Market Reform is likely to lead to a comprehensive overhaul of the RO and FIT possibly replacing the RO with a 'Contract for Difference' or Feed in Tariff for all technologies. Therefore, the level of future support is uncertain.
- It is generally assumed in the industry that the effect of government changes will be that existing power purchase contracts that have been entered into will be honoured and that changes will only affect new entrants to the support schemes.
- However, this general policy uncertainty does affect the confidence with which banks and investors are prepared to support new players in the market and grow existing businesses active in the sector.

2.3.2 At a local level, achieving planning consent can often be a contentious issue

- The East of England as a whole has planning approval rates for renewable energy that are broadly in line with the UK average. 77% of projects receive planning consent compared with a UK average of 82%. However, local support is patchy leading to a number of schemes forcing consent through appeal or very low rates of renewable energy development in other areas.
- The latter may be a function of economics or planning risk since many of the sites are small. This leads to developers assessing the opportunity cost of securing consent on a small site when much the same effort could yield a significantly greater reward on a larger site.
- The 'planning gain' for securing consent is very significant[11] therefore smaller sites are likely to be a lower priority for developers unless planning consent seems likely. Unlocking the potential for smaller sites will be an important component of delivering renewable energy in Cambridgeshire.

2.3.3 The role of CRIF is to set the framework for steering the good things that can be done to attract the right investment in the right place and support the growth in Cambridgeshire

- The role of CRIF is therefore to set the framework for mitigating these and other risks and stimulating investment. Barriers to investment are explored further in section □. The CRIF sets out bottom-up evidence base of spatial, economic and deployment opportunities and constraints and therefore presents a good view of:
    - The quantum of renewable energy development that could take place in Cambridgeshire
    - The spread of opportunity by sector and technology

[11] Verco (2010) The potential for the GIB to support community renewables

- The main planning-related constraints such as environmental designations
- The spatial distribution of opportunity by district
- The quantum of renewables associated with the growth agenda
- The potential trajectory for renewable energy deployment through to 2031
- The impact of policy changes (e.g. Feed in Tariffs) on the financial viability of projects and the economic
- The main areas of development risk as viewed by developers, communities and the public sector
- Draft delivery frameworks for addressing barriers, mitigating risk and realising the development potential

- Importantly, there has also been soft consultation on the results through the workshops as described further in section 1.5

2.4 There remains a significant opportunity to attract footloose investment into the County

- The size of the prize is very significant. The modelling in CRIF work stream 1 assessing baseline opportunities and constraints[12] demonstrated that investment ranges from £3-6bn to deliver scenarios 2 ('medium') and 3 ('high') respectively. Scenario 2 broadly meets the county's pro-rata share of the UK onshore renewable energy targets but falls short of meeting its pro-rata share of the UK carbon reduction targets. Scenario 3 exceeds the county's pro-rata share of the UK onshore renewable energy targets and its pro-rata share of the UK carbon reduction targets.

- The required level of deployment therefore sits somewhere between scenarios 2 and 3. For reference in this report, deployment potential refers to Scenario 2 with an extra reduction in the capital cost of solar PV projects (by a third) to reflect the fall in costs that was experienced towards the end of 2011. This results in a renewable energy investment opportunity of at least £2.3bn to 2031. This is referred to as the CRIF 'lead scenario'.

- Additional investment will be required to deliver energy efficiency, district heating and gas CHP infrastructure which are viewed as essential enabling technologies which, whilst non-renewable, are important constituents of a wider clean energy economy.

- Already, there is significant activity to realise this potential and momentum to build upon. For example, work is underway to develop CHP and DH in Cambridge City and St Neots. In South Cambridgeshire, the Sustainable Energy Parishes project is developing support at a very local level. Further case studies are included in the Appendices.

[12] This is presented in a separate report

3. What is the scale of investment opportunity to deliver greater energy security for businesses and communities in Cambridgeshire?

3.1 Large scale investment in energy infrastructure is required across the key stakeholders

- Analysis carried out as part of this study shows that there are significant investment opportunities across all key stakeholders.

3.1.1 Public sector

- In the public sector, 400GWh per annum of renewable energy could be generated by 2031.
- That means over 7,500 homes and 180 non domestic buildings (e.g. schools and hospitals) with their own solar PV system; 1700 social housing units with a solar thermal system and 8,100 domestic heat pumps.
- It also means 27MW wind generation capacity – equivalent to 11 large wind turbines – and 21MW biomass combined heat and power in around 5-10 large energy centres, probably serving high heat density areas such as Cambridge City, Huntingdon or Northstowe.
- Altogether, this represents a viable investment potential in the public sector of £320m. PV and biomass are the dominant technologies, each accounting for a third of the public sector infrastructure, followed by wind and air source heat pumps. This is illustrated in the pie chart in Figure 2.

Table 2 Public sector renewables infrastructure required by 2031

Public sector renewable energy infrastructure required by 2031				
Technology	**Potential energy generation**	**Potential capacity**	**Equivalent capacity**	**Number of properties served**
PV	31GWh	39MWp	300,000m² panel area	180 non-residential, 7,500 houses
Solar water heating	5GWh	6MWp	8,400m² panel area	1,700 houses
Heat pumps	41GWh	41MW		8,100 houses
Wind	58GWh	27MW	11 turbines	
Biomass	263GWh	21MW	14 installations of 1.5MW	
Total	**398GWh**	**134MW**		

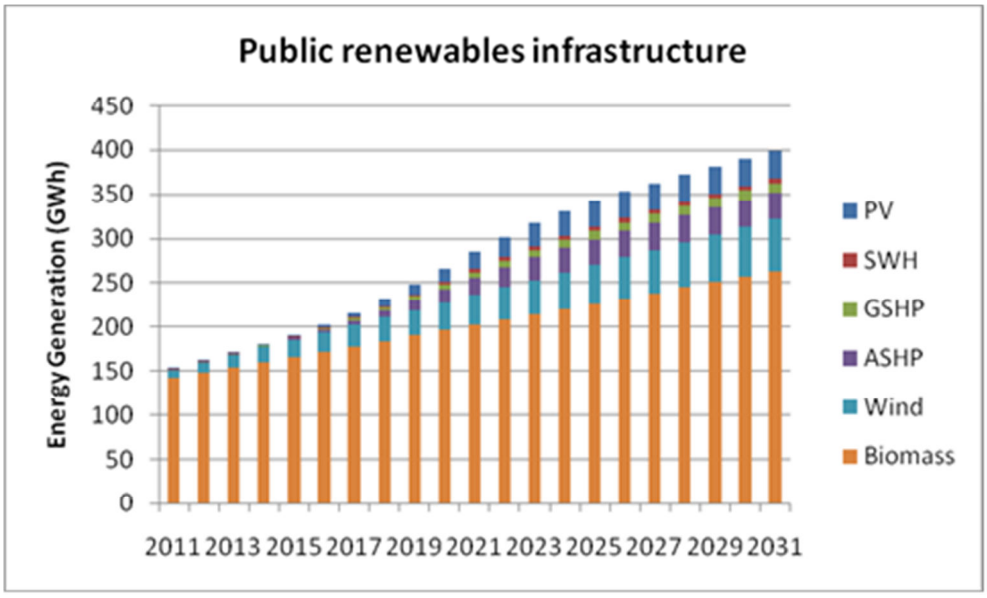


Figure 1 Public renewables infrastructure deployment to 2031

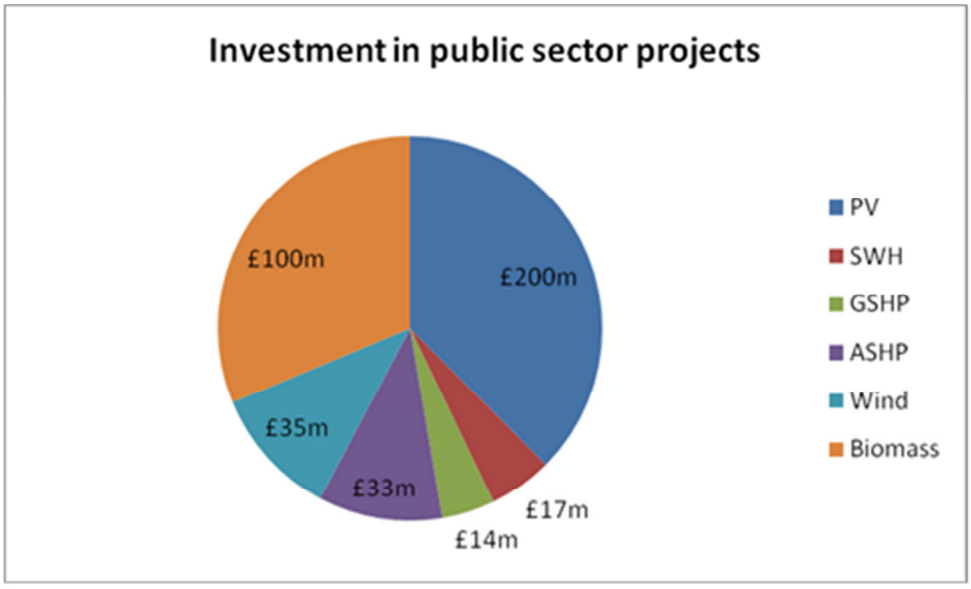


Figure 2 Investment potential in public sector projects

3.1.2 Community sector

- In the community sector, 440GWh per annum of renewable energy could be generated by 2031.
- That means over 30,000 homes and 460 non domestic buildings (e.g. village halls and community buildings) with their own solar PV system; 8500 homes with a solar thermal system and 43,000 domestic heat pumps.
- It also means 75MW wind generation capacity – equivalent to 30 villages, each with their own wind turbine.
- Altogether, this represents a viable investment potential in the community sector of £792m, even accounting for the reduction in PV systems costs during 2011. PV remains the dominant technology, accounting for over half of the community infrastructure with the rest fairly even spread across the other technologies. This is illustrated in the pie chart in Figure 4 .

Table 3 Community renewables infrastructure required by 2031

Community Renewable Energy Infrastructure Required by 2031					
Technology	**GWh**	**Installed Capacity**	**Number Non-Residential**	**Number Residential**	**% of homes**
Solar PV	116	145MWp; 1,150,000m²	460	30,400	14%
Solar Hot Water	25	29MW, 42,600m²		8,500	4%
ASHP	39			43,000	15%
GSHP	98				
Wind Turbines (<=5)	164	75MW	30		
Total	**442GWh**	**249MW**			

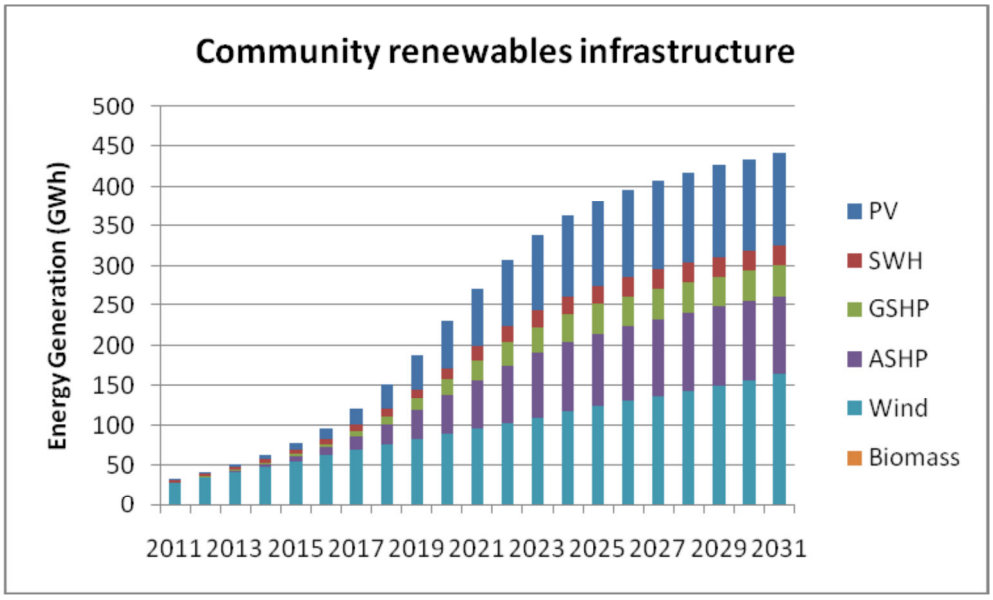


Figure 3 Community renewables infrastructure deployment to 2031

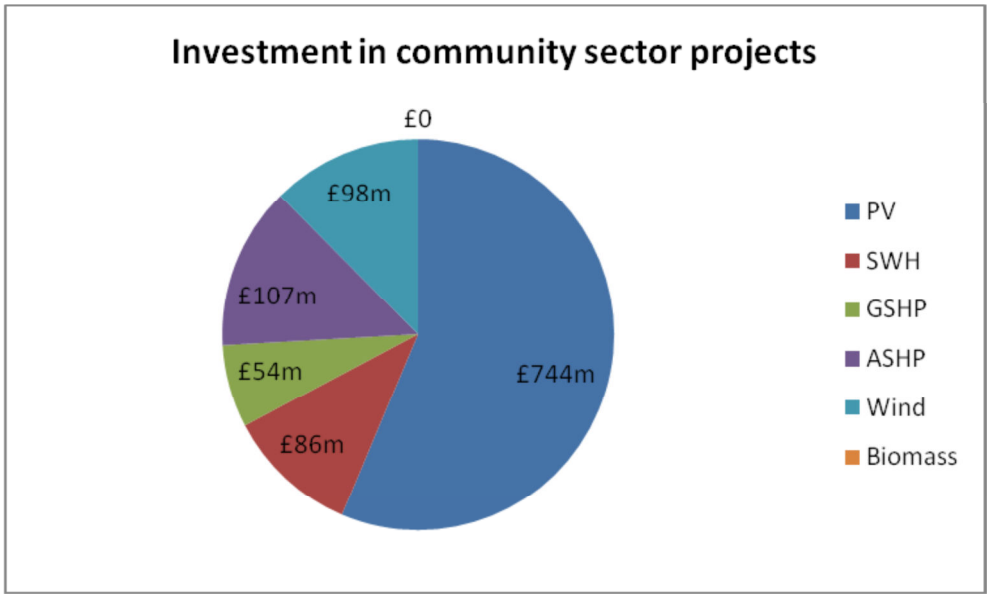


Figure 4 Investment opportunity in community sector projects

3.1.3 Commercial sector

- In the commercial sector, 1400GWh per annum of renewable energy could be generated by 2031.
- That means over 1.3million m^2 PV systems; 8000m^2 solar thermal systems and 16MW heat pumps in commercial premises such as science parks, offices and retail sites as well as new developments.
- It also means 11 wind turbines in small wind parks (less than 5 turbines per site) and 150 wind turbines on larger sites (6 turbines or greater).
- It also requires 20MW biomass CHP (equivalent to around 5-10 energy centres serving district heating systems).
- Altogether, this represents a viable investment potential in the commercial sector of £1.2bn. The breakdown of investment by technology is illustrated in Figure 6. PV and wind require the greatest investment, followed by biomass and air source heat pumps.

Table 4 Commercial sector renewable energy infrastructure required by 2031

Commercial sector renewable energy infrastructure required by 2031				
Technology	**Potential energy generation**	**Potential capacity**	**Equivalent capacity**	**Number of properties served**
PV	130GWh	160MWp	1,300,000m² panel area	8,000 houses
Solar water heating	5GWh	6MWp	8,000m²	8,000 houses
Heat pumps	77GWh	16MW		200 houses
Wind ≤ 5 turbines	62GWh	28MW	11 turbines	
Wind ≥ 6 turbines	880GWh	375MW	150 turbines	
Biomass	263GWh	20MW	14 installations	
Total	**1417GWh**	**605MW**		

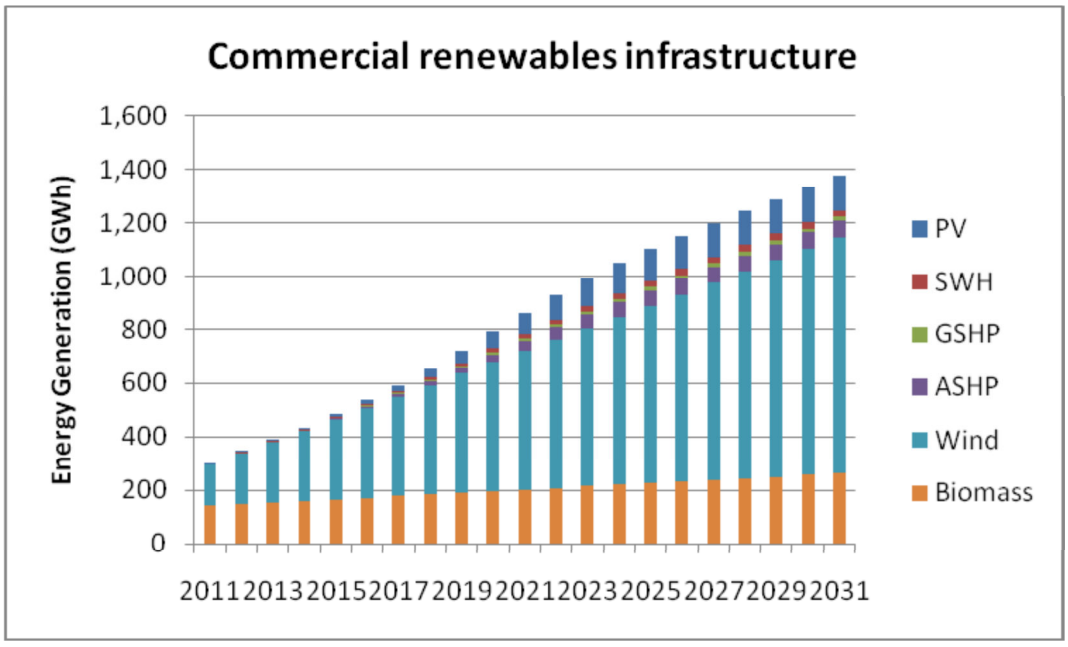


Figure 5 Commercial renewables infrastructure deployment to 2031

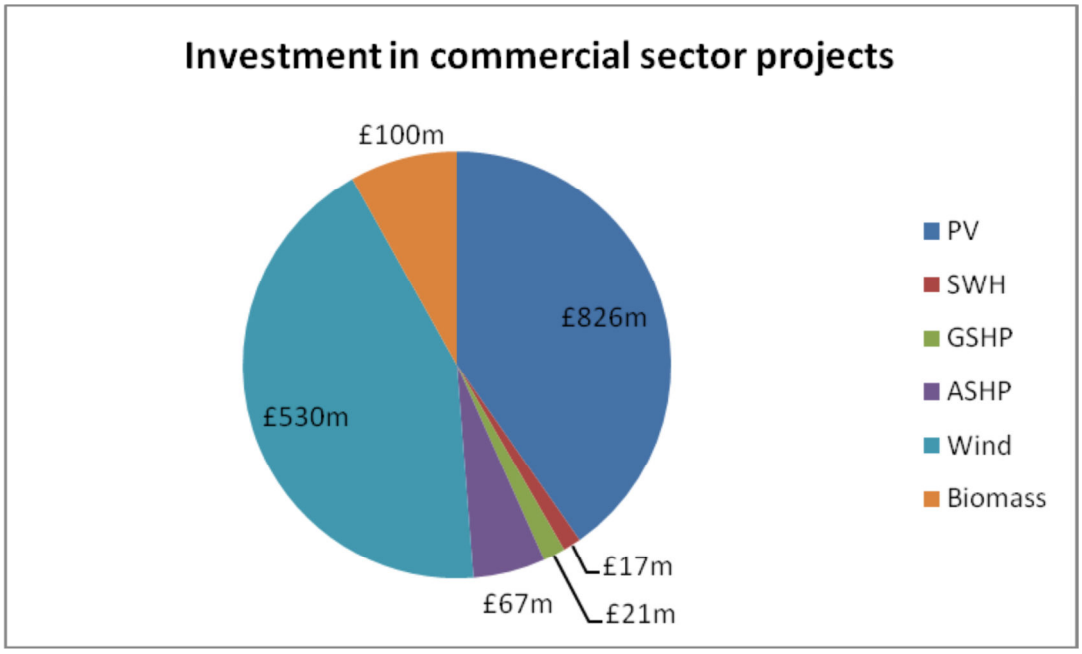


Figure 6 Investment potential in commercial sector projects

3.2 In order to make the transformation happen all stakeholders need to do their bit

- The diagram below illustrates some of the key interdependencies between public, community and private sectors. It is a complex matter, with strong dependencies between commercial developers and the public sector (local planning authorities in particular) and the communities that they represent. For the opportunities to be realised it will be essential that incentives are aligned to promote co-operation. A summary of key dependencies is described below.

3.2.1 Planning

- Local Authorities will be responsible for setting supportive planning policy. This will have an influence on property developers who will be required to deliver on-site renewables to meet carbon compliance for building regulations and zero carbon building policy.
- Planners will also have an influence on the refurbishment market, potentially delivered through Green Deal Providers, and can actively support community owned developments to minimise the related risks.
- Commercial RE developers will need to have a relationship with communities to actively engage them in collaborative project planning.

3.2.2 Creating demand

- The public sector can create demand for projects through procurement of renewable energy systems for their own land and buildings. Renewable energy developers can service this market whilst property developers may be delivering new public buildings to high environmental standards including zero carbon buildings.

- Local Authorities can use their trusted brand and relationship with the community to encourage uptake of Green Deal in the refurbishment market, possibly in partnership with private sector Green Deal Providers.
- Householders and the community more generally can benefit from clean energy investment by entering into long term Green Deal Plans with their chosen provider and in so doing create the demand for new businesses and services.

3.2.3 Finance

- The local authorities can have an important role to play in establishing a Community Energy Fund to channel investment from property developers into offsite allowable solutions projects, be they community or commercial renewables or energy efficiency projects such as Green Deal.
- The local community themselves could be a source of capital for projects within the county, benefiting directly from the return on their investment.

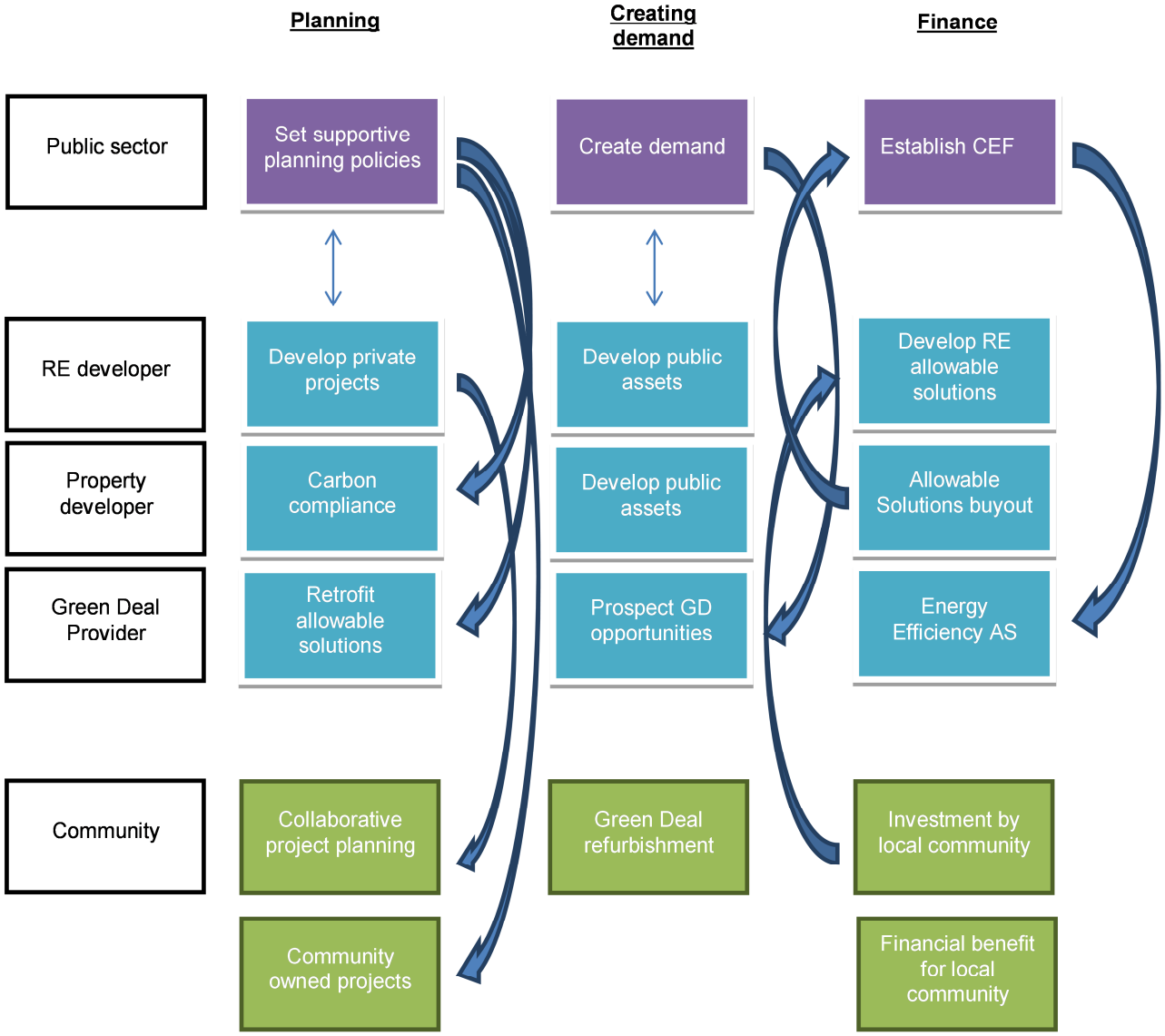


Figure 7 Key interdependencies between public, community and private sectors

3.3 The framework can help to attract funding and coordinate efforts

- There are a series of project development risks that need to be managed
- The role of the framework is therefore to mitigate risk for the various stakeholders by providing information, co-ordinating effort and helping to attract funding to support project development activities. The interventions are summarised below.

3.3.1 Public sector

- A major barrier to implementation of renewable energy projects using public sector land or buildings is likely to be a lack of in-house expertise and knowledge, as well as resources to manage projects and bring them to fruition. This may fundamentally due to a lack of alignment with local authorities' core business, making projects more difficult to support and allocate resources to. The perceived scale of the challenge may also hinder kick-starting of projects.
- **The CRIF addresses this by making the business case for securing internal resources to develop renewable energy projects.**
- Another major barrier is a lack of available finance or constraints on spending, even if the return on investment can be shown to meet the minimum hurdle rate required to proceed. Even with a robust business case, national policy uncertainty and the risk associated with it can influence public sector decision-making as much as the commercial sector. Local authorities may also choose not to invest in projects if there is a perception that there may be a better deal around the corner – for example, if technology costs drop further – or if there are more profitable ways with which to invest capital.
- **The CRIF addresses this by signposting sources of investment including ways in which the private sector can invest in projects originated by the public sector.**
- In addition, stock rationalisation, which many local authorities are currently undertaking to reduce operational costs, may limit the availability of buildings or land available for use. Asset management data may not be up to date, or may not be of adequate quality to enable comprehensive feasibility studies to be carried out.
- **The analysis carried out in work package 1 provides a detailed breakdown of renewable energy opportunity using address level data. Reference to these data sets can help to inform the business case for stock rationalisation.**
- Technical constraints also exist, including the suitability or condition of the asset to the nature of the technology – for example, solar water heating is unlikely to be suitable for buildings with a low domestic hot water demand, land being considered for wind energy is located too close to residential development, and PV or solar thermal will not be mounted on buildings with roofs which are in poor condition. Finally, the installation of technologies may constrain future development and restrict future flexibility in use.

- **These deployment constraints are factored into the overall estimations of renewable energy opportunity in Cambridgeshire, therefore producing a realistic, bottom-up evidence base.**

- The major barrier to district heating networks is the capital cost and, therefore, creating a viable business case is the key challenge. Infrastructure (district heating pipework) costs are the most significant proportion of total capital costs, and therefore networks must serve areas of high heat density to ensure that this cost is limited, or, ideally, be capable of connection into existing networks so that there is already a critical mass. On this basis, it is also critical that anchor loads are located as close to the main distribution routes as possible. With a viable business case, constraints on funding may limit the potential for the public sector investment.

- **The CRIF analysis has produced detailed heat maps showing areas of opportunity including zones of high heat density and specific buildings that could act as anchor loads. This includes public sector buildings such as schools, hospitals and museums.**

- Scheme viability is highly sensitive to the price of the fuel and thus the energy sales price that can be achieved and its competitiveness against the business as usual alternative. The revenue potential from electricity sales is dependent on the value of electricity which is used on site and/or exported. The greatest financial benefit is achieved where electricity is used on-site where it can offset standard retail prices, rather than being sold wholesale to the District Network Operator.

- **Economic analysis has been carried out as part of this project in order to demonstrate the sensitivity to key parameters. These financial models form an important reference point for further work.**

- The optimum time for existing buildings to connect into district heating networks is when existing plant is nearing the end of its life and requires replacement, or a building is undergoing major refurbishment – if this is not the case, connection may not be cost effective without financial subsidy, and careful phasing of buildings coming 'online' will be required.

- As described above, public sector support is crucial to the delivery of networks. Key barriers to this support may be a lack of experience and technical understanding of the technical options or contractual structures, and as a result, a lack of confidence in decision making. There may also be a lack of internal resources (budget and/or time) available to invest in projects.

- **The CRIF addresses this by highlighting some of the key issues that need to be considered when carrying forward a district heating project. The collaboration between the authorities has helped to generate a shared understanding between the authorities.**

- Again, stock rationalisation, which many local authorities are currently undertaking to reduce operational costs, may limit the choice of public sector buildings to be used as anchor loads.

- Fundamentally, district heating networks are long term projects, and there may be tensions between a long term lock-in of assets and investment and the need to demonstrate the best value to the community.
- **The CRIF has begun to address this by demonstrating the long term economic value of renewable energy development in the county.**
- The National Planning Policy Framework (NPPF) is still in draft form and therefore there is still some uncertainty surrounding the structure of future planning policy. In addition, zero carbon homes policy, the allowable solutions framework and the detail of how the Community Energy Fund will be set up and operated has not yet been translated into policy i.e. Building Regulations. Development teams and policy planners may not have the necessary expertise and resources to fully understand this complex raft of new and inter-linking policy
- **The CRIF addresses this by providing a detailed evidence base including Energy Opportunity Area maps that are consistent with the requirements of NPPF. The CRIF project has been developed as collaboration between the authorities which also conforms to the draft NPPF proposals.**
- In addition, although many policy incentives already exist to incentivise investment in renewable energy projects, there is uncertainty surrounding some of them – for example, the reduced level of Feed-In-Tariff support for PV - which impacts substantially on market confidence. Similarly, current economic conditions have resulted in reduced levels of growth in new development and impacted on land values, such that viability tests may limit commercial investment in renewable energy within developments, and limiting the revenue available to spend on local schemes.
- **The CRIF addresses this by presenting an evidence base for what can be achieved with a range of 'hurdle rates' of return on investment. The deployment rates take into consideration changes to the FIT tariff and the probability of projects being considered as commercially viable.**
- **The CRIF also presents the opportunities for renewable energy development 'offsite' from new developments. These are broken down by sector and technology and presented spatially through GIS maps, thereby helping property developers to discharge their national building regulations / zero carbon buildings obligations in the most cost-effective manner.**
- **The proposed development of the Community Energy Fund would go one step further by creating the financial mechanism for investing developer's funding into local projects. Signposting to local renewable energy providers (e.g. through Cambridge Cleantech) also facilities bilateral discussions to deliver these Allowable Solutions.**
- A summary of interventions, drivers, barriers and CRIF assistance is presented in Table 5.

Table 5 Public sector pathway driver and barriers

Public sector pathway			
Intervention	**Drivers**	**Barriers**	**CRIF assistance**
Using public sector assets for RE generation	• Carbon reduction • New revenue sources • Maximised value of assets • Demonstrating leadership • Trialling, demonstrating and showcasing new technologies • Energy bill reduction • Resilience against future energy price increases • Potential marketing material	• Lack of in-house expertise / knowledge • Lack of alignment with core business • Scale of challenge • Constraints on spending • Stock rationalisation • Quality of asset management data • Constraints on future development / restricts flexibility • Policy uncertainty re: tariffs • Is there a better deal tomorrow? • Technical constraints e.g. roof condition	• **Makes the business case for securing internal resources to develop renewable energy projects** • **Signposts sources of investment** • **Detailed breakdown of renewable energy opportunity using address level data** • **Technical constraints considered to produce realistic, bottom-up evidence base**
Developing district heating networks	• Carbon reduction • Potentially attractive business case • May assist with CRC targets, particularly in-building CHP • Reduce fuel bills for public sector buildings • Efficiency drive • Meet planning obligations / BREEAM / CSH • Lack of required level of heat density • Resilience against future energy price increases if	• Capital cost of networks and therefore creating a viable business case • Price of heat or electricity may not be competitive • Lack of required level of heat density • Tension between long term lock-in and need to demonstrate best value to community • Stock rationalisation • Lack of know-how re: options appraisal, contract structures	• **Detailed heat maps showing areas of opportunity including zones of high heat density and specific buildings** • **Demonstrates the long term economic value of renewable energy development in the county** • **Highlights some of the key issues that need to be considered when carrying forward a district heating project**

Public sector pathway			
Intervention	**Drivers**	**Barriers**	**CRIF assistance**
	renewably sourced fuel is used • Central plant can be switched for alternative technologies in the future • Save money and space on individual building plant •	• Lack of confidence in decision making • Lack of internal resources • Lack of networks to connect into – no critical mass • Anchor loads location may not be optimal • Existing plant doesn't need replacement yet and therefore it may not be cost effective to connect	
Changing public policy	• New NPPF requires a local plan • Allowable solutions • Localism bill? • Community Infrastructure Levy • Community Energy Fund • Point of leverage over private sector	• Planning policy uncertainty – NPPF, Allowable Solutions, Zero Carbon Homes, Building Regulations, Community Infrastructure Levy • Lack of resources and expertise – development control and policy planners • Crash in land values – viability tests • Limited / slow growth at present	• **Provides a detailed evidence base including Energy Opportunity Area maps that are consistent with the requirements of NPPF** • **CRIF developed as a collaboration between the authorities** • **Helping property developers to discharge their obligations in the most cost-effective manner** • **Signposting to local renewable energy providers**

3.3.2 Commercial sector: Renewable energy developers

- The risk-value profile for a large scale renewable energy development through the various project stages is illustrated in **Figure 8** below. The areas of greatest risk relate to consenting and planning where there are significant barriers to be overcome and low

rates of success. Once planning permission has been granted, the project value immediately increases and there is the potential to either sell the project (wholly or in part) or to borrow capital against the value of the land or land options. Once power purchase agreements, land leases and construction contracts have been completed, then the project reaches 'financial close'; and the bank lends money in staged payments to finance the construction phase. Once the project is operational, the residual risk is low, the value high and the debt begins to be repaid from revenues resulting from heat and electricity generation. This summarises the relative risk that must be managed.

- It can be seen that the area of greatest risk lies at full feasibility and planning application stage. For the CRIF to support renewable energy, therefore, it must tackle this this area.
- **CRIF addresses this by presenting the areas of least constraint to renewable energy development. It provides this information in GIS format for interrogation by planning policy and development control officers.**
- **The CRIF also highlights the business case for RE development in the county. This provides an economic context to planning decisions made at the local level.**
- **The CRIF also demonstrates the quantum of RE that could be developed in Cambridgeshire so that politicians can consider the level of ambition that should be set and planning committees can consider progress towards long term goals.**
- **The CRIF has also opened up dialogue between different stakeholders about what a renewable energy future would look like in Cambridgeshire so that members can be informed from a variety of viewpoints.**

3.3.3 Commercial sector: property developers

- One of the key limiting factors will be the pace of the property development and construction market given the current economic uncertainty and the stagnation of the housing market. Even when the market begins to pick up it seems likely that building will initially be limited through the desire of property developers to avoid 'flooding' the market with properties which would supress the sale price. There could also be concerns about the affordability of local housing which could potentially lead to lower environmental standards being adopted in lieu of greater levels of affordable housing.
- Continued uncertainty of government policy around Zero Carbon and the rules for establishing eligible community energy funds will prevent significant development in this space until they are resolved. Once the policy is launched (by 2016 at the latest) then local property developers will be seeking the most cost effective means to meet their regulatory obligations. The investment into local allowable solutions will therefore only take place if developers can be convinced as to their efficiency and competitiveness.
- **The CRIF mitigates these risks by providing information on the range of offsite 'allowable solutions' including detailed analysis on the potential locations, technologies and building owners.**
- **The proposed Community Energy Fund provides further support for directing investment to cost-effective local projects.**

- There are opportunities to extended district heating networks network, repower existing wind farms and develop heat take-off from waste-to-energy schemes. This makes greater use of existing assets to potentially minimise carbon abatement costs and improve yields. This approach reduces development risk and cost e.g. planning, and can be less disruptive if some major infrastructure works are not required e.g. district heating.

- However, there are a number of barriers to extending existing schemes. Plant or infrastructure may be obsolete or nearing the end of its useful or warrantied life. Developers may have limited knowledge of opportunities relating to existing schemes and in some cases the engineering may be more complex than starting from scratch with new sites and clearly delineated projects. Potential land or asset ownership complexities can also pose a barrier to this kind of approach.

- **The CRIF supports these opportunities by mapping many of the technical possibilities and major constraints.**

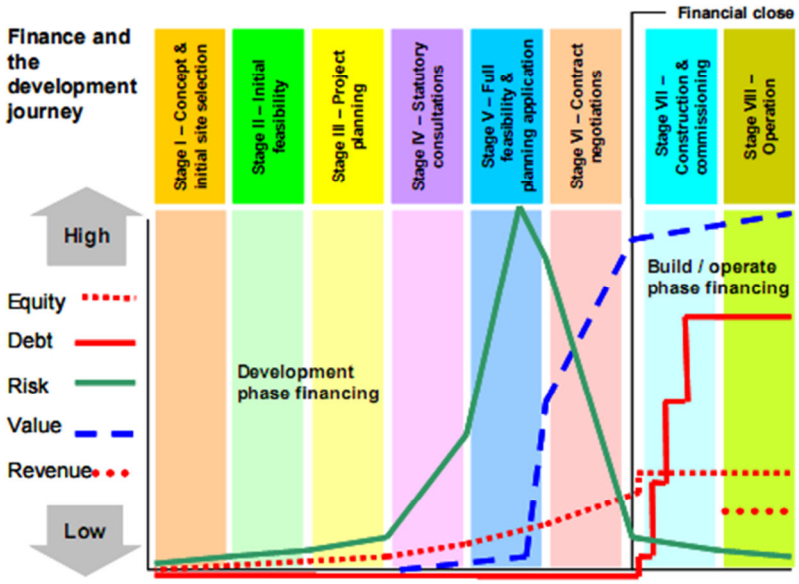


Figure 8 Risk-value profile for a large scale RE project

- There are a number of barriers to contend with for the private sector to establish partnerships with the public sector. The need for competitive tendering processes can hinder the time invested by the private sector in developing long term relationships. In particular, the bidding process itself can be long, draw out, bureaucratic and expensive leading to the need to package projects into an appropriate scale to reduce these transaction costs.

- With regard to engagement between the commercial sector and communities, negative perceptions by the community can lead to a lack of trust. There can be a lack of true social contribution/engagement and despite aspirations there may be a lack of local job generation in practice.

- **The CRIF addresses this by highlighting the financial sensitivities for project developers and by establishing the overall quantum of public sector renewable energy opportunity. It is hoped that public sector projects can therefore be packaged into procurement lots that are of sufficient scale and viability so as to be attractive to commercial bidders.**
- A summary of interventions, drivers, barriers and CRIF assistance is presented in Table 6.

Table 6 Commercial renewables drivers and barriers

Commercial pathway			
Intervention	**Drivers**	**Barriers**	**CRIF assistance**
Create suitable commercial investment conditions	• Investment risk controlled, especially early stage project development risk • Revenue potential maximised	• Cambs not seen as particularly investor friendly • No community buy-in • Inadequate supply chain • Investment risk too high • Lack of commercially viable projects • Planning stage is risky, complex and resource consuming • Lack of economies of scale for smaller scale projects • Difficulties in obtaining project finance	• **presents areas of least constraint to RE** • **Provides economic context to planning decisions** • **Demonstrates the quantum of RE that could be developed** • **Opened up dialogue about between different stakeholders**
Using Cambridgeshire's Growth Agenda to facilitate RE schemes	• Investment required to support zero carbon targets • Opportunities for flexible offsite allowable solutions • Long term development projects provide a hedge against uncertain national	• Dependence on property development and construction market • Uncertainty of government policy • Competition against national allowable solutions	• **Provides information on offsite 'allowable solutions'** • **CEF provides further support for directing investment to cost-effective local projects.**

Commercial pathway			
Intervention	**Drivers**	**Barriers**	**CRIF assistance**
	policy • Community Energy Fund		
Enhancing or extending existing low carbon energy schemes	• Makes use of existing assets to potentially minimise carbon abatement costs and improve yields • Reduces development risk and cost e.g. planning • Less disruptive if infrastructure works not required e.g. district heating	• Plant or infrastructure may be obsolete • Limited knowledge of opportunities relating to existing schemes • Engineering may be more complex than starting from scratch • Potential land or asset ownership complexities	• **Maps many of the technical possibilities and major constraints.**
Establishing partnerships with public sector and communities	• Projects de-risked by public sector • Generate community support • Secure project opportunities • Secure planning consent • Develops local supply chain	• Tendering process • Negative community perceptions • Lack of social contribution/engagement • Currently lack of local job generation	• **Highlights the financial sensitivities for project developers** • **Establishing the overall quantum of public sector opportunity so projects can be packaged into procurement lots that are of sufficient scale and viability.**

3.3.4 Community

- Securing finance for community energy projects can be particularly challenging. Grant funding tends to be short-term and an exit-strategy is required. Funders often have specific priorities for types of activity they want to fund and grant funding is often oversubscribed, particularly with the reduction in number of grant programmes we have seen in the current economic climate. There are a greater number of voluntary and community organisations looking for funding hence increased competition. Applying for

funding takes time; every funder requires tailored application and often requires providing evidence of impact of money (research and reporting). It can take 2 – 6 months to get a decision depending on funder and level of grant. This is therefore time consuming with no guarantee of success. Some funders prefer to offer contracts or loans rather than grants.

- **CRIF addresses this by providing information on sources and types of grant funding that may be available for community groups wishing to develop RE projects.**

- Securing debt and share finance has its own challenges. These projects are often considered risky for the investor as the investor only earns dividends if enough profit is made (after operational costs etc.). Funding is limited to companies and co-operatives. Raising money from a share issue is heavily regulated through the Financial Services authority (FSA) and therefore professional advice is needed. Investors in share issues often look for higher interest rates than banks e.g. 8 – 10% (though some of the community share issues listed below offer lower rates of 4 - 5% to investors). Renewable energy projects find it difficult to make these returns; so focus for investors is on community benefits i.e. reduction in emissions, income for community etc. there is also a need to consider administrative tasks e.g. payment of dividends.

- **CRIF supports this by providing initial advice on governance structures, potential financial returns and signposting to further information.**

- A summary of interventions, drivers, barriers and CRIF assistance is presented in Table 7.

Table 7 Drivers and barriers for community renewables

Community pathway			
Interventions	**Drivers**	**Barriers**	**CRIF assistance**
Grant/Loan - Local grant or contingently repayable loan scheme for community renewable energy projects in Cambridgeshire (feasibility and implementation) **Fund** - Establish Community Energy Fund **Finance Partnerships** – Build relationship with local banks/finance providers to encourage provision of loan finance for community-led renewable energy projects **Information Resources** - Community energy information pack (offline & online) covering finance, governance/legal advice and signposting to relevant organisations and information **Partnership with Suppliers –** Establish potential for bulk buy/discount schemes with several local suppliers of renewable energy **Advice Network** – Community advice network with available support from 'expert' individuals and organisations for interactive advice and information on set up and delivery of projects **Case Studies Information** - Building demonstration case studies of existing and developing projects as	• Availability of local/regional grants specifically for renewable energy projects (lowers competition by focussing on specific area so likelihood of communities obtaining funds is higher) • Availability of grants/funds or contingently repayable finance for feasibility stages of projects, where loan is only repayable when project reaches planning stage and is "bankable" • Support and advice available on how to go about obtaining loan/bank finance i.e. how to present proposals and how to persuade banks, what are banks looking for (e.g. security), and	• Lack of sufficient finance resource or limited grant funding available or high competition for grant funding • Limited or no capital available to invest and/or difficulty obtaining investment from local residents or partners • High level of liability/risk of finance used for feasibility stage of projects if project doesn't generate expected levels of income or does not reach planning stages • Challenges in obtaining finance i.e. due to lack of sufficient	• **Information on sources of finance and further information** • **Financial models for a variety of RE project types**

Community pathway			
‘exemplars’ **Training** – Skills and training opportunities for communities on developing and delivering renewable energy projects	which banks/lenders are most open to renewable energy project lending. • Support and advice in setting up Power Purchase Agreements with energy suppliers • Support and advice available about legal structures and governance arrangements most suited to the different types of finance option. • Support and advice available on raising funds through share-holds and how to develop a share issue • Information on the variety of sources of finance available, including the Local United community affiliation scheme • Available sources of independent and free	knowledge or understanding on finance options • Difficulty to successfully obtain loan finance from banks • Lack of time or resources to source and apply for funding or maintaining cash-flows • Particularly grant applications and setting up and managing share issues	

Community pathway			
	finance advice and information (e.g. NCVO, PlanLoCaL), possible subsidised information packs/books specific to community renewable information e.g. NVCO publications.		
Advice Network – Community advice network with available support from 'expert' individuals and organisations for interactive advice and information on set up and delivery of projects **Leadership & Engagement** - Set up of new community groups to take forward projects in areas with no existing community leadership **Partnership with Parish Councils** – Engagement with all Parish Councils to encourage development of 'energy' subcommittees **Case Studies Information** - Building demonstration case studies of existing and developing projects as 'exemplars' **Information Resources** - Community energy information pack (offline & online) covering finance, governance/legal advice and signposting to relevant organisations and information **Training** – Skills and training opportunities for	• Availability of information to enable community groups to make well informed decisions about most appropriate legal structure for their group and proposed project types. • Available sources of independent and free advice and support in setting up legal entities	• Lack of sufficient knowledge or understanding on suitable governance arrangements • Lack of time or resources to investigate and set up legal entity	• **Information on different governance structures** • **Case study information on successful projects** • **Database of local projects and communities looking to develop projects**

Community pathway			
communities on developing and delivering renewable energy projects			
Planning Policies – Establish Cambridgeshire-wide renewable energy planning policies to be integrated within Local Development Frameworks **Engagement & Support** - Engagement with and support to existing environmental/sustainability related community groups to establish and develop range of potential 'demonstration' renewable energy projects **Community Outreach** - Annual community outreach events and workshops to raise awareness of community-led renewable energy among communities **Media Engagement** - Engagement with local media to raise awareness of demonstration projects being developed **Engagement with Building Owners** – Engagement with owners of local community buildings on potential for renewable energy	• Consistent local renewable energy policy frameworks across Cambridgeshire • Support from Local Authorities for development of community renewable energy projects • Support from local residents through early consultation and community engagement to raise awareness of benefits	• Difficulty obtaining planning permission • Lack of support from local residents and community	• **GIS mapping of areas of least constraint** • **Engagement with planners and elected members to create shared understanding of opportunities**

3.3.5 Financial viability is sensitive to these risks

- As identified in the previous section, some of the key constraints to financial viability of renewable energy projects are capital costs of technologies and the cost of capital to fund these projects.

- The financial viability of PV and wind projects is particularly sensitive to capital cost. The following graph, Figure 9, shows the two key sensitivities for a successful large scale PV programme. It plots the Net Present Value (NPV) of a £20m, 5MWp PV programme (equivalent to around 3000 roofs). It shows that the NPV is critically dependent upon the capital cost and the cost of capital (or discount rate), particularly now that the level of support from Feed In Tariffs is likely to be drastically reduced, under the proposed figures released under the recent government consultation.

- For a PV system cost of around £2,500 and bank finance at commercial rates then the project is not viable (the NPV is negative). However, with some economies of scale (around £2,000 per kW) and applying a discount rate of 5% then the net present value is £3m. This illustrates the size of the opportunity for the public and community sectors, assuming that the proposed multi-site tariffs are not applied to non-commercial schemes13. It also shows that the opportunity for the commercial sector is significantly less than it would have been under the original FIT rates, and, if the multi-site tariffs are enforced, this will be reduced even further such that commercial large-scale PV schemes are unlikely to be viable.

[13] The government consultation also proposes that after 31 March 2012 a new, even lower rate will be introduced for “aggregated” schemes – i.e. schemes where the FiT revenue from multiple installations is paid to a single entity

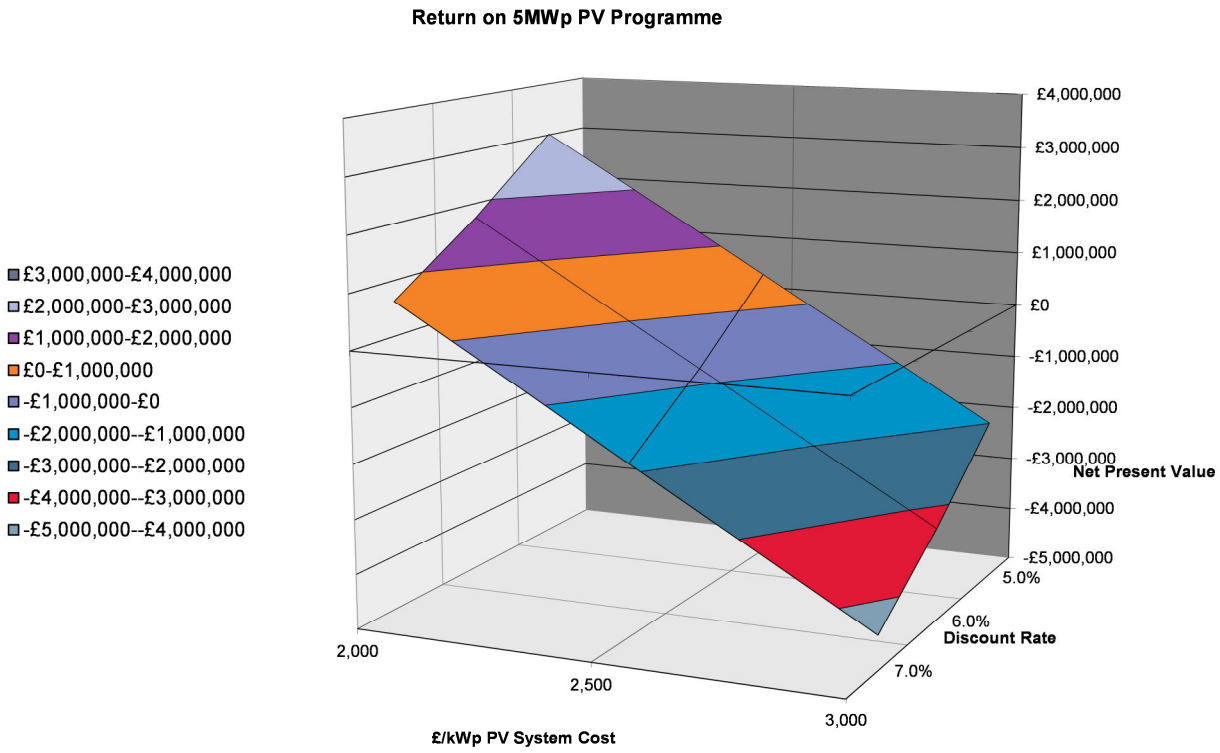


Figure 9 Illustrative return on a 5MWp PV programme

- Figure 10 shows a similar graph for a £7m 5MW wind programme, which is also supported by the Feed In Tariff but at a significantly lower rate because wind turbines are less expensive than PV systems. It indicates that the financial viability for wind projects is less sensitive to capital cost than PV projects, but that this and cost of capital are still critical factors. For a system cost of around £1,500 and bank finance at commercial rates then the project is not viable, but at around £1,000 per kW and applying a discount rate of 8% then the net present value is £3m.

- Compared to PV projects, wind energy projects have much more significant pre-development costs – for example, feasibility studies including detailed site assessments. For hydro projects, this is an even more significant cost. Pre-development costs are also disproportionately high for community renewables projects when compared with larger commercial projects since there are many relatively fixed costs (site selection, planning, etc.) to weigh against small installed capacities plus community renewable projects are developed as one-off schemes without access to extensive professional expertise. Evidence from the sector[14] highlights the need for financial assistance at the pre-development stage, potentially repayable upon successful completion of the project. Published data[15] on typical predevelopment costs for wind schemes of a variety of sizes suggest that 3% of overall project costs are typically incurred pre-construction.

[14] National Energy Foundation

[15] *DECC (June 2011), Review of the generation costs and deployment potential of renewable electricity technologies in the UK*

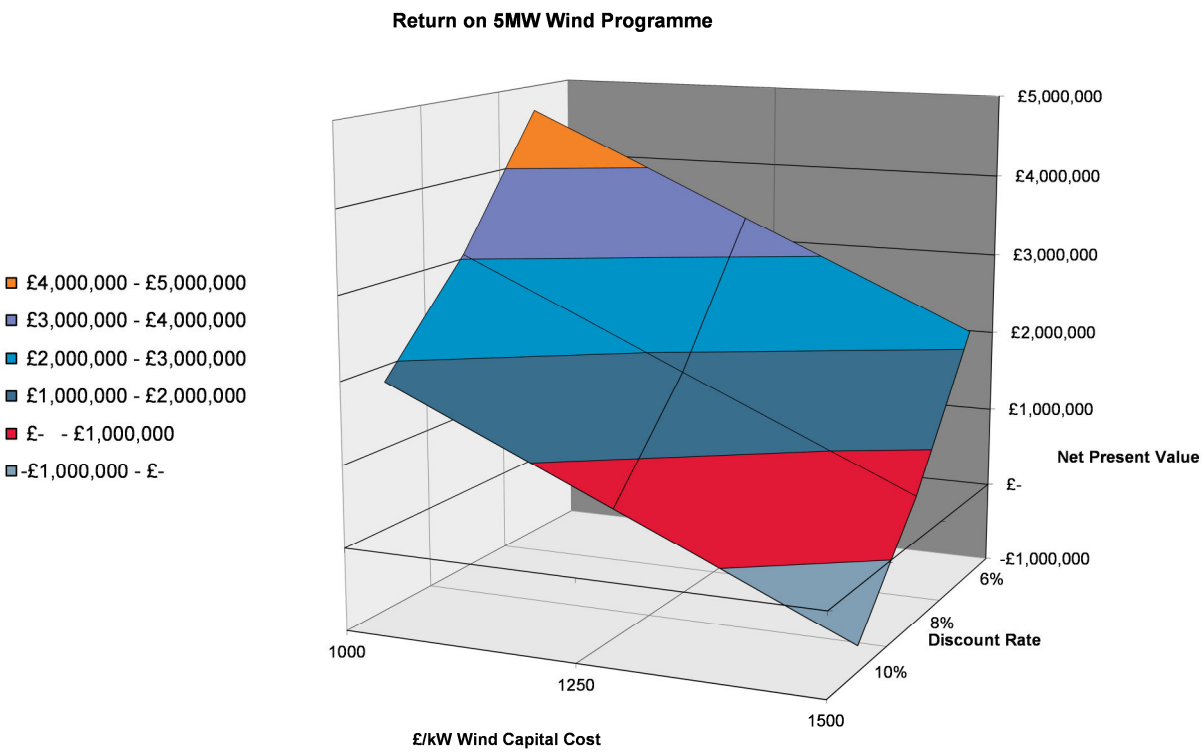


Figure 10 Illustrative return on a 5MW wind programme

4. How can more renewable energy be delivered in Cambridgeshire?

4.1 The key issues to create the local context to attract investment

- In order to create a favourable investment environment it is important to tackle some key areas:

- **Political leadership –** the CRIF workshops have highlighted the need to establish strong political leadership regarding renewable energy. Politicians need to set a clear vision for the county and districts' aspirations, their levels of commitment and the support that renewable energy developers can expect across all sectors – public, commercial and community.

- **Planning** – to support continued development of appropriately sized and located commercial renewable energy projects. There is a need to address both areas with low exploitation of the resource and those where high levels of RE development have led to concerns about over-saturation. The pressures that are currently observed are likely to become more acute as time goes on as a result of the national drive to ramp up the installation of renewable energy.

- **Development risk** – to bring about investment in CHP and district heating infrastructure that will become enabling infrastructure for biomass heat and power. This is an area where some of the authorities have already carried out a lot of work but due to the long term, complex nature of the task, sustained effort is required over the short, medium and long term.

- **Creating demand** – in particular, using public sector assets to help establish a market for renewable energy and then using the brand and convening power of the local authorities to stimulate community interest in developing their own projects, including refurbishment applications associated with Green Deal.

- **Finance** – the development of a range of financial products and mechanism that can support renewable energy deployment across all the sectors. This might include pre-development funding for communities, a Community Energy Fund for Allowable Solutions and a public sector investment mechanism to support delivery of public sector projects using private investment. It could also include financial structures for capturing community benefit from commercial renewable energy development.

4.2 Three delivery pathways have been examined

- In this section, a range of actions are presented for each of the three delivery pathways – public, commercial and community. Draft delivery frameworks are presented in the Appendices. As described in section 3.2, there are important interdependencies between the different pathways. Progress is being made in a number of areas but concerted action will be required to step up the deployment of renewable energy in the county. The key activities are described below.

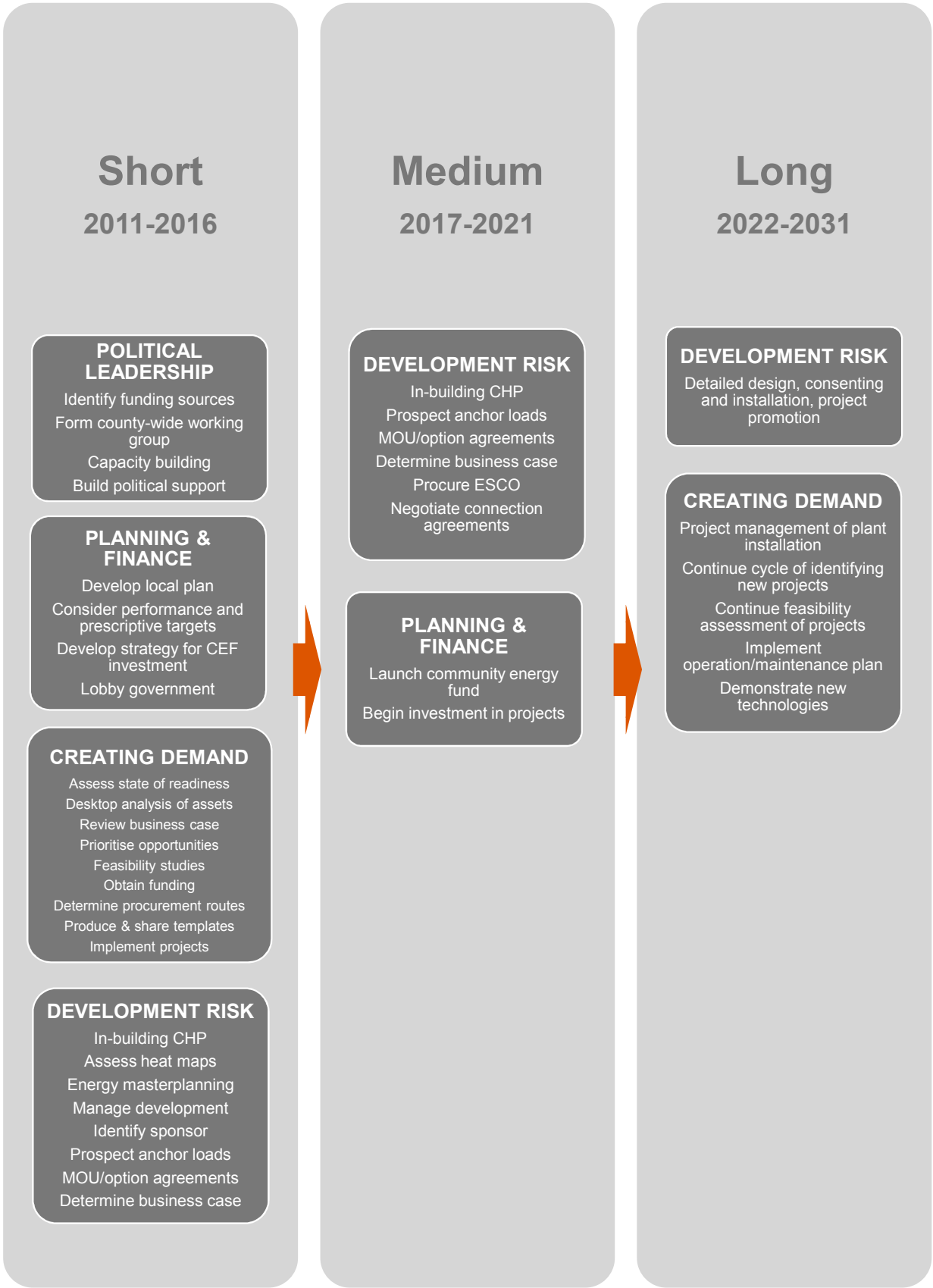
4.3 Public sector pathway

- The public sector roadmap is illustrated in Figure 10.
- Beginning with short term actions between 2011 and 2016, the public sector should begin by establishing political leadership, particularly at Local Authority level. This should clearly establish the authorities' level of ambition, political drivers and policies to embed the leadership within mainstream council activity.
- It will also be important to establish the extent and manner of partnership working and co-ordination between the local authorities to promote knowledge, capacity and resource sharing. This could help to maximise the leverage of limited financial resources and responds to emerging planning policy (NPPF) that will require cross-boundary working. In important consideration will be how the authorities engage with the county-led EU project which has secured ~£1m to support development of work in this area. Joint working arrangements should also establish the mechanism for working with the proposed LEP Cleantech Group and other important local stakeholders such as the University and NHS trusts.
- Regarding planning, the authorities should continue to develop positive policies to encourage renewable energy development, building on the work to date. Specifically, they should use the CRIF as part of the evidence base and review policies as part of the current round of Local Plan / LDF reviews.
- The information produced by CRIF should also be used as the basis for an Infrastructure Plan for Community Energy Fund investment. Further work will be required to investigate the governance arrangements ahead of any agreement with local authorities to participate. Work is also required to refine the process for identifying projects and LPAs will need to develop policies within their local plans to establish the collection mechanisms for such a fund and ensure payments are directed towards local energy projects that will benefit local communities.
- The public sector should continue to give consideration to the role of renewable energy generation as part of the Making Assets Count Project, alongside high levels of sustainable design and construction being set for development on public sector land. This should include increasing the standard of new public building being delivered as part of the growth agenda, building on lessons learned from past projects. Corporate policies need to be assessed in light of changes to Building Regulations and the target of Zero Carbon Public Buildings by 2018.
- Beyond the public sector's immediate focus on its own buildings, there is an important role for the local authorities to help drive forward the development of district heating in the key opportunity areas identified through CRIF. These are particularly focused on Cambridge City and Huntingdon. The authorities need to refine feasibility work and de-risk projects, working with the Low Carbon Development Initiative and Low Carbon Hub. Lessons learned need to be disseminated across the public sector.
- In the medium term, the public sector should continue to progress district heating schemes where projects show good commercial and technical viability. Local planning

authorities should apply adopted planning policies to new development proposals across Cambridgeshire, supported by the launch of the Community Energy Fund

- Over the longer term, all public sector bodies should continue to implement climate changes strategies / carbon management plans and implement corporate policies established to set standards for sustainable buildings.

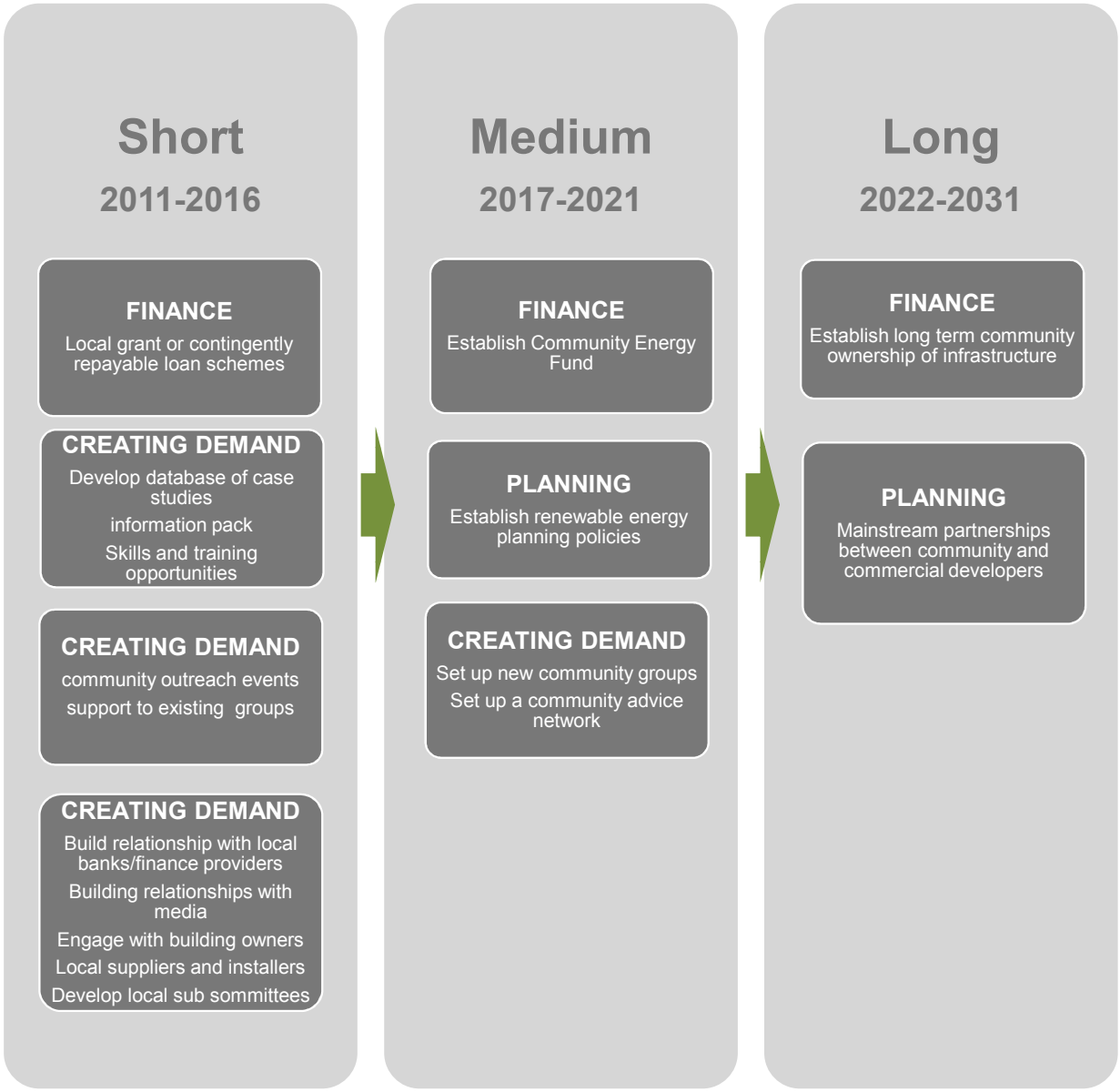
Figure 11 Public sector roadmap



4.4 Community pathway

- The public sector roadmap is illustrated in **Figure** 11.
- In the short term, financing mechanisms need to be established to support renewable energy development at the domestic and community levels. Green Deal presents a key opportunity so it is important that LAs, the community and the voluntary sector support and make the most of this new financing mechanism and the wider supply chain infrastructure that will build around this policy.
- This will need to be supported by active financing arrangement for community developed projects, such as that established by NEF. This could include a “contingently repayable loan”, supported by establishing partnerships with local banks and finance providers.
- There is a lot of work to be done to create demand for renewable energy projects within the local community. This will include support activities including skills development, resource sharing and community outreach events and workshops. Initially this should focus on engagement with and support to existing environmental / sustainability related community groups to establish and develop a range of renewable energy ‘demonstration’ projects.
- In order to disseminate good practice, it will be important to build relationships with local media channels and use these as methods to raise awareness, support and trust in the local community.
- Community energy groups need to engage with building owners to agree possible lease arrangements for renting roofs / land for renewable energy projects and establish partnerships with local suppliers and installers to draw up arrangements to obtain discounts for the bulk purchase of equipment or fuel. Parish Councils should consider how they may be able to provide assistance to community groups by making use of the former’s formal structures, governance and access to funding.
- In the medium term, support needs to be given to new community groups such as that already provided by the South Cambridgeshire Sustainable Energy Partnership. This could take the form of advice networks, signposting resources and helping to organise and convene meetings.
- Once established, these groups need to engage with Neighbourhood Planning to deliver the Cambridgeshire-wide renewable energy planning policies as well as accessing funding and investment that might be available through the proposed Community Energy Fund.
- In the medium-to-long term, it is expected that communities need to establish meaningful partnerships with commercial renewable energy developers so that communities can both input to the project planning process and benefit financially from projects developed in their area.

Figure 12 Community sector roadmap

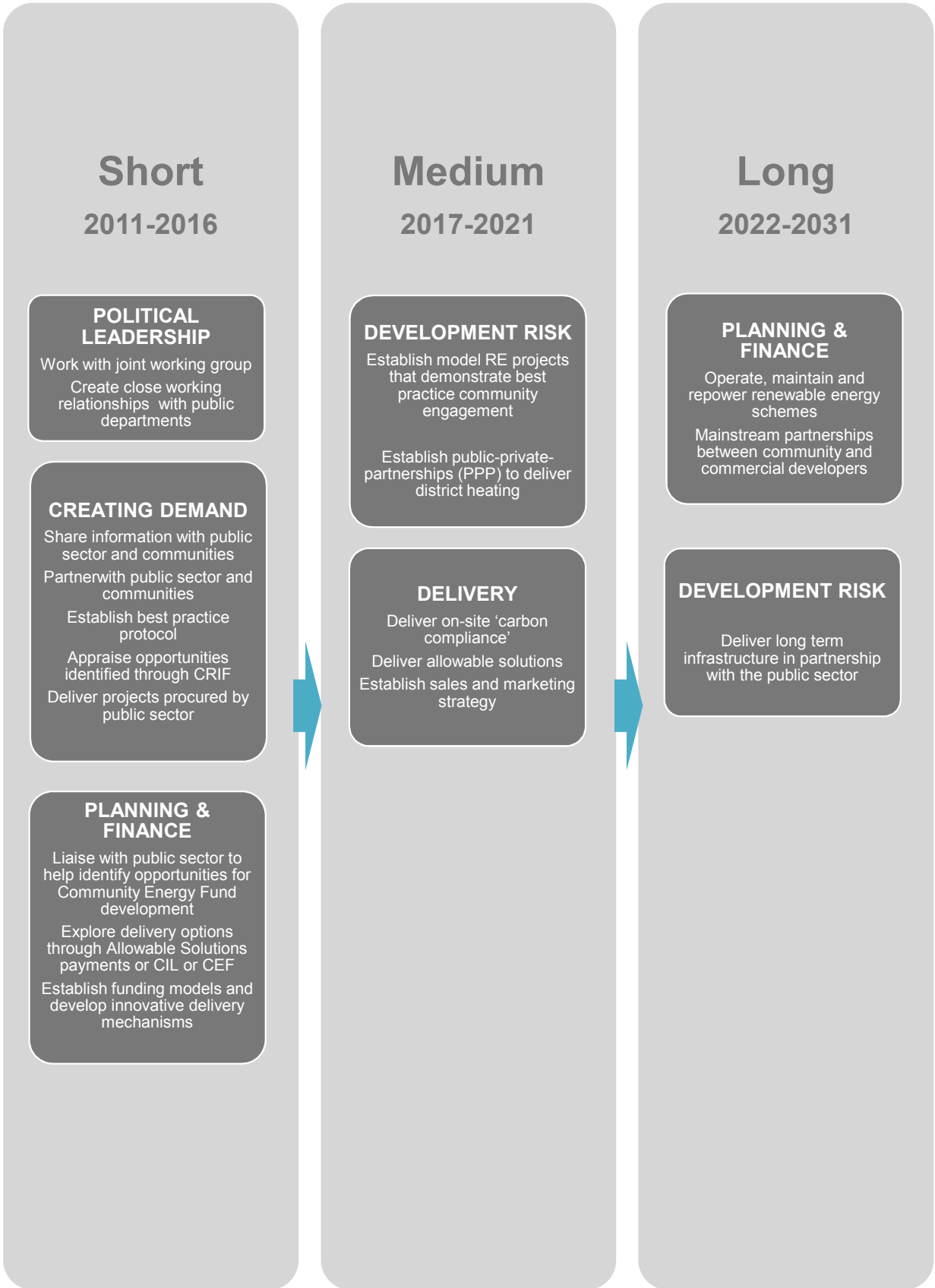


4.5 Commercial pathway

- The public sector roadmap is illustrated in Figure 13.
- In the short term, renewable energy suppliers need to work with the proposed regional joint working group to collaborate on objectives for the working group and ensure that commercial objectives for delivery of renewable energy projects are addressed in forming public policy.
- Suppliers will also need to create close working relationships with both the public sector, to ensure understanding of the commercial requirements for renewable energy projects and build support within public sector organisations, and with the community, to help share information and establish best practice protocols.
- The Local Enterprise Partnership Cleantech Group and Cambridge Cleantech already provide a valuable potential forum for this to happen, but their objectives need to be extended to enable further knowledge sharing and working partnerships e.g. holding community workshops.
- Suppliers also need greater involvement in the CRIF and with the public sector, to appraise potential opportunities identified, and ultimately to deliver projects in the region. Suppliers should also be working with the public sector to identify opportunities for local investment by the Community Energy Fund, as they are ideally placed to do this.
- Developers should also work with the public sector to explore delivery options through Allowable Solutions payments or CIL or CEF in Cambridgeshire, which could include different approaches to the delivery of projects according to scale. Developers should also work to establish new funding models for the delivery of on-site renewable energy projects using, for example, Green Deal to part-fund technologies over the long term.
- Local authorities and Green Deal providers should work together to lobby government for Green Deal measures to be included as part of the allowable solutions framework. Local authorities should support the delivery of Green Deal opportunities by providing it directly to local residents and businesses, co-ordinating finance and delivery, working in partnership with Green Deal providers and communities to help deliver projects, and by promoting the Green Deal locally.
- In the medium term, development risk needs to be managed – this means that renewable energy suppliers need to develop model projects that demonstrate best practice community engagement, and public-private partnerships need to be established to deliver district heating in the key areas of opportunity, particularly Cambridge and Huntingdon. The commercial sector should review the potential for extending existing schemes as well as continuing to explore the potential for new schemes. In the longer term, large scale projects such as district heating schemes can take many years to develop and this should be done in partnership with the public sector.
- Post 2016, developers will be delivering the on-site renewables required to meet Carbon compliance targets. They should also be leading the delivery of off-site allowable solutions projects and securing investment from the CEF. A sales and PR strategy

should be established to build partnerships with communities and ensure community support for increased generation capacity and to build long term demand for renewables in the property-buying market.

Figure 13 Commercial sector roadmap



5. Engaging with stakeholders

5.1 Summary

- Digitally led engagement can offer an affordable option for local authorities and provide a richer dialogue on key issues and challenges when compared to more traditional consultation. The CRIF project has had a positive experience with this approach and recognises that this cannot easily be compared to a more traditional process. The starting point for dialogue is much earlier and the process itself is more flexible.
- There are some very clear benefits from this process including:-
    - Providing the facts and figures for people to digest and challenge developed all our understanding and created trust in the process from an early stage
    - Providing the same information to all stakeholders helps to achieve a better collective understanding of the issues
    - There is now a shared understanding with the key stakeholders of the technical potential for renewable energy in Cambridgeshire (but the choices of how to deliver this are clearly with the local planning authorities, their communities and businesses)
    - A clear sense of the scale of the challenge and the size of the economic benefit
    - A starting point for agreeing the actions to make this happen
- In addition, there are some areas for process improvements including:-
    - Up-skilling local authority officers to use digital tools effectively and in an interesting way to create better conversations online that others will want to share
    - Being clear on the ambition of co-production and how this can shape outcomes and plot a roadmap for people to follow in this process
    - Being clear with decision makers the level and depth of openness and transparency possible before committing to a transparent process
    - Signing up all participants in the digital engagement and the co- production right from the start, pre-tender stage. This will provide a better experience for all, including consultants, stakeholders and decision makers.

The digital engagement strategy formed the key platform for dialogue with stakeholders. In practical terms, this meant that the project blog was the main instrument for updates – as opposed to press releases or print brochures –and that resources were spent on elements, such as the social reporting and webcasting, as opposed to the production of print materials. In order to ensure that the project reached groups who were not online, the team combined this digitally led approach with a more ‘traditional process’ of events, supported by a limited print run of paper materials and questionnaires, as well as looking for ‘connectors’ in the digital audience

who could raise awareness with people who were much less likely to be reached with digital communication.

A key part of the project was to ensure that, through the use of online tools, in combination with the open format of meetings – as well as social reporting (live online reporting of the event) and live video streaming – we could allow as many people as possible to take part, particularly those who could not physically attend meetings. Our results show that people tuned in online to observe meetings both in real time and after the meetings had finished – to view content and to take part in conversations about that content The project made extensive use of free platforms such as WordPress, YouTube, Facebook and Twitter (using the hashtag #crifcambs) and the Citizenscape platform www.crif.citizenscape.net as a central place for project information. The majority of the work was carried out online –to take advantage of the pre-existing behaviours of people, groups and businesses that were already using the web to discuss and advertise an interest in renewable energy infrastructure in Cambridgeshire. With people and businesses already active online,discussing issues relevant to the CRIF, it made sense to tap into these conversations to help to create a co-productive approach through discussions and sharing progress on the project. This moved the engagement process away from the more passive communication approach often used in consultations, to a more active dialogue.

The engagement process included:

- Four 'Open Spaces' format meetings at the start, middle and end of the project to bring together all stakeholder groups to critique and effect both the project process and the shape of the final result
- Five stakeholder meetings – focused on establishing a common understanding of where we are now, ideas and views on where we need to get to and the actions to take us there
- Nine community events to canvass views on energy security, producing energy locally and costs
- Feedback questionnaire both online and offline
- Extensive use of social media to capture feedback and progress from the above stakeholder meetings and events

This framework provided the activity programme and the open process for participants to shape the discussions.

In addition, there are some key learning points

  - The team ,comprising Local Authority officers and Consultants recognised that to create better conversations on-line that others want to join and share, upskilling on digital tools and content creation is really important . This means that Local Authority officers need to understand the boundaries for content creation within their organisation and their role to provide the confidence to engage in digital conversations.

    - Being clear on the ambition of co-production and helping people understand how they can shape outcomes - plotting a roadmap for people to follow in this process would be beneficial from the outset
    - Developing a shared understanding with decision makers on the level and depth of openness and transparency possible before committing to a transparent process
    - Signing up all participants in the digital engagement and the co- production right from the start, pre-tender stage. This will provide a better experience for all, including consultants, stakeholders, decision-makers.

- For more information please refer to the Appendices.

6. Conclusions: what does the CRIF report provide?

6.1 Summary of the technology options available and their technical potential

- In conclusion, the CRIF report has identified that a wide range of renewable energy technologies are available, thereby creating the opportunity for Cambridgeshire to be a leading county for clean energy projects, goods and services.
- The deployment potential for the CRIF lead scenario is 344MW solar PV, 42MW solar water heating, 219MW ground and air source heat pumps, 130MW small wind parks, 375MW larger wind farms and 41MW biomass CHP.
- 11% of the potential resides in the public sector, 36% in households and communities and 53% in the commercial sector.
- Together this could generate around 26% of Cambridgeshire's energy demand in 2031.

6.2 Framework for planning authorities to develop their own policies and plans using a shared evidence base to encourage the right type of new schemes to the right places

- The analysis has demonstrated that there is potential across each district. The breakdown by district is:
    - Cambridge City: 9%
    - East Cambridgeshire: 20%
    - Fenland: 16%
    - Huntingdonshire: 29%
    - South Cambridgeshire: 26%
- An evidence base has been established based on technical potential, economic considerations and deployment rates. This has demonstrated that these levels of RE could be viable, albeit challenging to deliver.

6.3 Summary of the scale and type of RE investment opportunity to make the Community Energy Fund(s) work

- The scale of investment is significant – over £2.3bn in projects giving a return on investment over 7%.
- The employment opportunities associated with this level of deployment are also great; up to 11,500. This supports an argument for developing a major CleanTech cluster in Cambridgeshire.

- The CRIF also demonstrates the wide range of opportunities that exist in the county for developing offsite ‘allowable solutions’ that enable property developers to meet their carbon obligations in a cost-effective way. This, in turn, helps to improve the viability of new build development and supports continued growth in the country.

6.4 Draft delivery frameworks to aid planning authorities coordinate inputs from stakeholders

Draft delivery frameworks have been produced for each pathway. They set out short, medium and long term action areas, summarise the issues to be tackled, the progress to date and the next steps.

7. Key recommendations

7.1 Establish political leadership

The CRIF workshops have highlighted the need to establish strong political leadership regarding renewable energy. Politicians need to set a clear vision for the county and districts' aspirations, their levels of commitment and the support that renewable energy developers can expect across all sectors – public, commercial and community.

7.2 Develop supportive planning policies

There is a need to develop planning policies as part of the development of Local Plans / LDFs. to support continued development of appropriately sized and located commercial renewable energy projects. There is a need to address both areas with low exploitation of the resource and those where high levels of RE development have led to concerns about over-saturation. The pressures that are currently observed are likely to become more acute as time goes on as a result of the national drive to ramp up the installation of renewable energy.

7.3 Mitigate development risk

Public sector intervention is required to bring about investment in CHP and district heating infrastructure that will become enabling infrastructure for biomass heat and power. This is an area where some of the authorities have already carried out a lot of work but due to the long term, complex nature of the task, sustained effort is required over the short, medium and long term.

7.4 Create demand

The public sector has an important role to play in creating demand, in particular using public sector assets to help establish a market for renewable energy and then using the brand and convening power of the local authorities to stimulate community interest in developing their own projects, including refurbishment applications associated with Green Deal.

7.5 Develop finance mechanisms

It is important to develop of a range of financial products and mechanism that can support renewable energy deployment across all the sectors. This might include pre-development funding for communities, a Community Energy Fund for Allowable Solutions and a public sector investment mechanism to support delivery of public sector projects using private investment. It could also include financial structures for capturing community benefit from commercial renewable energy development.

7.6 Develop the draft delivery frameworks

The draft delivery frameworks have been developed to guide the various stakeholders over the coming years. These need to be constantly reviewed, updated and developed to remain useful and relevant.

Appendix 1 – Draft delivery frameworks

Public sector pathway

The challenge is to achieve £320 million investment to generate at least 400GWh of electricity and heat.

Broad estimate of progress so far: 195GWh

Short term

POLITICAL SUPPORT: Set up overall support structure			
Action	**Description**	**What's already happening in Cambridgeshire?**	**What more is needed?**
Identify funding sources for setting up support structure and secure funding.	It is imperative that funding is secured in order to establish resources within the local authorities to support this programme. It is understood that European technical assistance funding has been awarded which may be able to leverage further revenue and capital spending across the CRIF programme over the next [3] years.	Cambridgeshire County Council have made an application to the EU's Intelligent Energy Europe Fund (IEE) to develop technical assistance to support retrofit and renewable/low carbon energy projects Experience has been gained from applying for funding from sources such as the Technology Strategy Board (Cambridge City Council – Byrons Square Retrofit for the Future Project, Huntingdonshire District Council's Green House, SCDC Rampton Drift?)	The public sector should continue to identify potential sources of funding for renewable/low carbon energy projects, with work shared across the public sector
Public sector bodies to consider setting up a county-wide joint working group to enable knowledge, capacity and resource	A county-wide approach enables knowledge, capacity and resource sharing between local authorities. Ultimately, it ensures that the best	Possible existing activities include the Climate Change Partnership and Low Carbon Hub. Other existing groups that contain a wide	A dedicated working group could provide greater focus on renewable energy locally.

sharing between bodies.	opportunities are prioritised locally.	range of public sector members?	
LAs to work with the Local Enterprise Partnership Cleantech Group to build capacity and knowledge transfer with other local authorities and across departments, and with a working group to lead development within each LA	This will strengthen the skills, competencies and abilities of the public sector to deliver their own renewable energy projects, and to provide support and enable policy changes in order to facilitate delivery of projects in the commercial and community sectors.	The LEP is already seeking to establish a 'Liaison team', which would consist of senior officers from each local authority, along with key business representational groups. This is intended to assist with their understanding of the LEP and their ability to contribute to the delivery of its objectives. The Green House project (http://www.greenhouseproject.co.uk/), a regional exemplar in good practice for retrofit and renewables, is a good example of the support the public sector can give to communities.	The 'Liaison team' would need to have a specific focus on renewable energy.
Continue to build political and community support for renewable energy projects amongst key decision makers to obtain their commitment	This is crucial if changes to public policy are to be implemented, and policy certainty can be provided to support delivery of commercial projects.	The role of Executive Councillors as Climate Change/Sustainability Champions for example City Council's Executive Councillor for Strategy and Climate Change, South Cambs have their Climate Change Working Group and Climate Change Portfolio Holder	Close liaison between officers and Councillors required given the changing nature of public policy related to climate change

PLANNING: Develop and implement local planning policy			
Action	**Description**	**What's already happening in Cambridgeshire?**	**What more is needed?**
Develop positive policies to encourage renewable energy development and climate change adaptation and mitigation Develop corporate policies related to climate change/carbon management	Development of new planning policy documents (e.g. Local Plans) should consider the development of positive policies related to renewable energy development, as well as wider climate change policies related to both mitigation and adaptation (for example levels of CO_2 reduction exceeding Building Regulations Requirements, policies requiring connection to district heating where available) The draft NPPF explicitly requires local authorities to consider identifying suitable areas for renewable and low carbon energy. Therefore, public policy will need to be put in place to encourage priority renewable energy schemes to come forward. Greater understanding is needed of the extent to which regulation adds risk – real or perceived – to the development of renewable energy	Current Local Plans/LDF documents – Merton Rule Policies North West Cambridge AAP – Policy setting high levels of the Code for Sustainable Homes and a requirement for decentralised renewable and low carbon energy Minerals and Waste LDF – policies to encourage the generation of energy from waste Cambridge City Council are currently developing a Carbon Management Plan and have also adopted a Climate Change Strategy, which sets a target of an 89% reduction in the city's carbon emissions by 2050. They are also setting targets for new	Develop evidence base and review policies as part of the current round of Local Plan/LDF reviews: Review of the Cambridge Local Plan – adoption due 2014 Implement, review and monitoring of these strategies

	projects, and how this might be dealt with. Many local authorities already have prescriptive targets in place. These should be formulated to suit specific renewable energy development objectives, and built into core development plans. For example, the requirement for new developments to connect into district heating networks, or provide the facility to connect in at a future date provides one of the key building blocks necessary to deliver viable district heating schemes.	developments which go beyond Building Regulation minimums. It should be noted that there is already existing national policy in place from the Environment Agency to ensure that the installation of renewables minimises any adverse impact on the environment.	
Develop Infrastructure Plan for Community Energy Fund investment	Cambridgeshire should take the lead in demonstrating how they can set up an Allowable Solutions Policy within its Local Plan and develop the Community Energy Fund to ensure maximum renewable energy potential is realised. A regional approach to identifying priority projects in which to support through CEF investment will ensure that the best projects receive sufficient levels of funding to ensure they are delivered. A coherent, unified approach to renewable energy	Reports have been published which consider the scale of a county wide Community Energy Fund, possible collection mechanisms and governance arrangements. Initial talks have been held with CLG to consider the possibility of a pilot Community Energy Fund	Further work will be required to investigate the governance arrangements for a Community Energy Fund ahead of any agreements with local authorities to participate. Work is also required to refine the process for identifying projects. LPA's will need to develop policies within their local plans to establish the collection mechanisms for such a fund and ensure payments are directed towards local energy projects that will benefit local

	across the county will be achieved.		communities.
Work closely with Government to provide greater policy and market certainty for the clean tech sector investment Coordinate responses across the Local Cambridgeshire Authorities to respond to energy policy consultations	Market certainty is crucial to the commercial delivery of projects – a case in point is the reduced level of government support for the Feed In Tariff which has resulted in a large number of proposed PV schemes being aborted and the likely contraction of the PV industry in the UK.		The joint working group described above could be used as a forum for coordinating responses.

CREATING DEMAND: Use public sector assets for RE generation			
Action	**Description**	**What's already happening in Cambridgeshire?**	**What more is needed?**
Consideration should be given to the role of renewable energy generation as part of the Making Assets Count Project, alongside high levels of sustainable design and construction being set for development on public sector land	Local authorities need to understand their renewable energy 'baseline'. This includes both the actions they have already undertaken and helps to identify the next key steps to deliver new projects. Self-assessment could take the form of a 'maturity matrix' where each council maps their levels of preparedness and their preferences around delivery and procurement of renewable energy projects using their assets. A high level desktop survey of the assets associated with the priority projects identified should be carried out to determine the likely capacity that could be delivered. Opportunities should be prioritised according to their risk/reward profile, the timeframe that they can be delivered in, and the capital investment required. Those projects with the most attractive business	Making Assets Count project which aims to reduce operating costs, consolidate estates, realise synergies, make buildings greener, and improve and integrate services. Clay Farm City owned land – progression of design competition to deliver high quality housing development with a minimum of Level 5 of Code for Sustainable Homes. Richard Newcombe Court – redevelopment of sheltered housing scheme to Level 5 of the Code for Sustainable Homes (CHS Group) Other projects include the	Continue to increase the standards of new public buildings being delivered as part of the Growth Agenda, building on lessons learned from past projects

	case may therefore not be identified as priority projects. Knowledge sharing across the working group will be important in achieving this. This will be followed by technical and financial feasibility studies of specific, priority projects to develop a sound business case for viable projects. It is realistic to expect that projects can be implemented within the short term if the right opportunities and delivery models are selected.	Green House, retrofit of 13 market homes in Rampton Drift, Smartlife retrofit in Chatteris) The Hive Project and Smartlife Low Carbon focus on the development of skills to support the emerging growth in Clean Tech. Huntingdonshire has an ongoing energy efficiency programme on its own buildings, as well as in its housing stock, which is the critical first step before considering renewable energy. PV installations, with support from the Feed In Tariff, are also being considered. The Centre for Alternative Technology is also carrying out an evaluation of their public assets and the potential for incorporating renewables.	
Public sector organisations should give consideration to developing Corporate Renewable Energy	This will help to drive forward renewable energy projects, ensuring	Cambridge City Council – Climate Change Strategy and	Implement, review and monitoring of these strategies.

Strategies/Carbon Management Plans linked to local/national targets for carbon emissions reductions	a clear set of objectives.	Carbon Management Plan	Develop clear project management strategies for renewable energy projects.
Consideration should be given to the development of specifications for all new public buildings which seek high levels of sustainable design and construction and the use of low carbon/renewable energy generation that go beyond Building Regulations.	Remaining a step ahead of minimum government requirements will help to create the conditions in which Cambridgeshire is a leading county to invest. However, the government's ambition is that all new domestic buildings will be zero carbon from 2016 and new non-domestic buildings will be zero carbon from 2019, so policy is already being tightened substantially in the short term. Whether or not Cambridgeshire goes beyond this – e.g. demanding even higher levels of fabric energy efficiency – is dependent on its level of ambition and the technical and financial viability of doing so.	Implement the recommendations contained within the 2011 Cyril Sweett Report "Investing in Zero Carbon Public Buildings" commissioned by Cambridgeshire Horizons Cambridge City Council has a policy requiring a minimum of BREEAM excellent for all new public buildings. Cost Benefit Analysis of developing new public buildings to zero carbon ahead of zero carbon policy, published 2010, Cambridgeshire Horizons and Cyril Sweet	Continue to assess corporate policies in light of changes to Building Regulations and the target of Zero Carbon Public Buildings by 2018

DEVELOPMENT RISK: Develop district heating network			
Action	**Description**	**What's already happening in Cambridgeshire?**	**What more is needed?**
The CRIF Baseline Report and other studies (e.g. Decarbonising Cambridge) should be used as a starting point for those local authorities with potential for district heating to further investigate the viability of schemes. Reference should be made to the TCPA/CHPA "Community Energy: Planning Development and Delivery" and "Community Energy: Urban Planning for a Low Carbon future" guidance for the stages of project development	In-building CHP systems are a first step towards a city-wide district heating scheme. This should be followed by heat mapping to determine priority areas for district heating, and then energy master-planning and viability assessment. This is followed by identifying an 'owner/sponsor' of DH network, prospecting potential anchor loads, developing MOU/options agreements with building owners, and finally developing the business case for a scheme. Planning officers have a critical role to play in development management. Liaison with district heating network developers will help inform the proposed scheme, while planning policy can provide further support to securing district heating provisions in new developments through planning conditions or obligations. The latter could include the requirement for	District heating projects are currently being developed in the following locations: Huntingdonshire District Council: St Neots Cambridge City Council: Cambridge City Centre University of Cambridge – Gas fired district heating as part of the North West Cambridge development Northstowe is planned to have a community-wide district heating system served by a biomass Combined Cooling, Heat and Power system. Ernst & Young have been commissioned to carry out financial modelling of DH networks in Cambridge and St Neots, and AECOM are carrying out a technical feasibility of a DH	Continue to refine feasibility work and de-risk projects working with the Low Carbon Development Initiative and Low Carbon Hub. Lessons learnt to be disseminated across the public sector.

DEVELOPMENT RISK: Develop district heating network			
Action	**Description**	**What's already happening in Cambridgeshire?**	**What more is needed?**
	new developments to create on-site networks for connection into city-wide schemes at a later date, simply requiring developments to be future-proofed to do this, as described above, or securing a commitment to connect to a future network.	network at St Neots. For further case studies, see District Heating Good Practice: Learning from the Low Carbon Infrastructure Fund, Homes and Communities Agency.	

Medium Term

DEVELOPMENT RISK: Develop district heating network	
Action	**Description**
Continue to progress district heating schemes where projects show good commercial and technical viability	Following on from initial feasibility studies, work should progress to develop governance structures and attract commercial partners to projects, gaining on experience gained from other projects (via the LCDI and Low Carbon Hub)

PLANNING: Develop and implement local planning policy	
Action	**Description**
Apply adopted planning policies to new development proposals across Cambridgeshire	Proposals for major developments across the County will need to demonstrate compliance with adopted planning policies related to renewable energy and wider climate change mitigation and adaptation policies

FINANCE: Launch Community Energy Fund	
Action	**Description**
Launch Community Energy Fund	The launch of the community energy fund linked to Zero Carbon Homes policy post 2016 will offer the possibility of a local fund for community energy projects

Long term

CREATING DEMAND: Use public sector assets for RE generation	
Action	**Description**
Implementation of Climate Change Strategies/Carbon Management Plans	Public bodies should continue the implementation and review of Climate Change Strategies and Carbon Management Plans, including the identification of new projects.
Implementation of Corporate Policies for sustainable buildings standards	Public bodies should continue to strive to deliver exemplar building projects, including assessment of the role that such projects can play in helping to develop the local green economy and skills set

Community pathway

The challenge is to achieve £792 million investment to generate at least 440GWh of electricity and heat

Broad estimate of progress so far: 0.1GWh

Short term

FINANCE: Provide financial structuring			
Action	**Description**	**What's already happening in Cambridgeshire?**	**What more is needed?**
Provide local grant or repayable loan schemes for community renewable energy projects in Cambridgeshire (for both feasibility and implementation)	The biggest single barrier to unlocking the potential of community scale projects in England at present is the lack of funds for the high-risk initial feasibility phase of community projects. Community groups, even those who have formed constituted bodies, do not always find it easy to raise the up-front capital. Options for setting up a Cambridgeshire Capital Loan Fund should, we recommend, be actively considered. This could link to national scale funds such as the Community Generation Fund: www.nef.org.uk/communities/com	A potential opportunity is being developed in Upper Cambourne using S106 capital to partially meet the on-site renewable energy planning policy. The capital is to be used to install extensive PV arrays on community buildings and through a locally established community energy fund, to re-invest the feed-in tariff returns in other sustainable energy projects across the wider development. This could include funding feasibility phases of community projects.	Ensuring that LAs and the community and voluntary sector support and make the most of take-up of the Green Deal (expected from October 2012) – this is a major opportunity to improve building-by-building infrastructure. At a community level, parish councils may be encouraged to offer funding via the Public Works Loan Board for schemes with a sufficiently robust and attractive business plan. It may not happen often, but the opportunity to ring-fence funds arising from the local retention of

FINANCE: Provide financial structuring			
Action	**Description**	**What's already happening in Cambridgeshire?**	**What more is needed?**
	munity-generation-fund.html We strongly recommend that Cambridgeshire LAs consider how they could play a role in overcoming this barrier, either through a Grant programme (such as the ERDF-funded programme being set up for communities in the South East of England), or some form of "contingently repayable loan" programme such as that proposed in the Community Generation Fund where if as expected the project moves through to planning then the community repays the feasibility loan plus a premium, but if it fails then the community is not left with a financial debt: the risk is therefore with the fund itself, although projects can be pre-selected on the basis of the likelihood of their proceeding. www.nef.org.uk/communities/com		business rates from commercial renewable energy installations could prove useful (it is understood that legislation is being finalised to bring this about).

FINANCE: Provide financial structuring			
Action	**Description**	**What's already happening in Cambridgeshire?**	**What more is needed?**
	munity-generation-fund.html		
Local communities to build relationships with local banks/finance providers, with the leadership of local authorities and support from banks and finance providers themselves	Particularly to encourage provision of loan finance for community-led renewable energy projects	There doesn't appear to be any current activity to build relationships with banks to help support community groups in developing renewable energy projects.	Community groups, through the support of Local Authorities and Parish Councils, should begin to build relationships with bank/finance providers both locally and nationally. This will increase knowledge of this type of finance mechanism for renewable energy projects and understanding of the key finance providers have experience in this field and are more willing to support these types of proposals by community groups.

CREATING DEMAND: Provide skills and resources			
Action	**Description**	**What's already happening in Cambridgeshire?**	**What more is needed?**
Collate a portfolio of relevant and applicable case studies	Building demonstration case studies of existing and developing projects as 'exemplars' for other community groups to gain inspiration and learning from.	Local examples of community scale renewable energy infrastructure are still rare. There are, however, many examples at the single building and domestic scale. Cambridge Carbon Footprint's Annual Open Eco-House (with LA support) provides an excellent and very popular opportunity for people to visit homes with microgeneration measures for a guided tour. As people become more confident with renewables and they become more 'normal' then we are more likely to see community scale projects come forward.	Case studies of different types and scales of successful community renewable energy projects covering different technologies, governance mechanisms, finance methods etc should be made publicly available to community groups seeking inspiration. This type of information will need to be publicised and disseminated through a range of existing websites and sources to ensure it is widely used and provides the benefits to new and developing community projects.
Produce renewable energy information packs to give guidance to communities on how to implement projects, and to point to other sources of information	An offline and online resource pack covering finance, governance/legal advice and signposting to relevant organisations and information.	This information is currently available from a number of national sources, but there is no locally based consolidated information pack for community groups.	The Centre for Sustainable Energy's PlanLoCaL pack is a great place to start but more is needed to guide communities specifically in Cambridgeshire. Rather than replicating information already out there,

CREATING DEMAND: Provide skills and resources			
Action	**Description**	**What's already happening in Cambridgeshire?**	**What more is needed?**
			the aim would be to signpost communities to key resources while providing specific information that is also relevant to Cambridgeshire e.g. about local grants and supporting organisations.
Communities with skills and knowledge on delivering RE schemes share this with local communiities	Provide ongoing opportunities for communities to grow and learn through training and skill development on developing and delivering renewable energy projects. This may usefully begin at a smaller domestic scale or more broadly in introducing community scale sustainable energy issues. Once this is done, use of the CSE's PlanLoCaL online and printed resource is available to really develop knowledge and commitment. Training on opportunities that might be available via 'Neighbourhood	South.Cambs' Sustainable Parish Energy Partnership has run visits to exemplar sites to provide inspiration and knowledge (e.g. the Hockerton Housing Project and the BedZED).	Existing communities can inspire and provide advice and mentoring to new community groups as they develop and set up projects. This may require further events where communities can share experiences and insight, and to allow networking and collaboration across communities.

CREATING DEMAND: Provide skills and resources			
Action	**Description**	**What's already happening in Cambridgeshire?**	**What more is needed?**
	Planning' could be an important avenue for progress.		

CREATING DEMAND: Engage with communities			
Action	**Description**	**What's already happening in Cambridgeshire?**	**What more is needed?**
Community outreach events and workshops to raise awareness of community-led renewable energy among communities	Building on current work to raise the awareness of local residents on the benefits of renewable energy to both local community and individually e.g. through local community events. One of the potential outcomes of the process of engagement with the wider community will be to encourage greater involvement in local community groups and projects, increasing resources to help bring ideas through to reality.	The South Cambs Sustainable Parish Energy Partnership is now regularly assisting local village-based community groups in running Village Energy Days alongside a regular programme of workshops for SPEP member groups.	Similar events and energy days in the rest of Cambridgeshire, using a similar model to the South Cambs SPEP.

CREATING DEMAND: Engage with communities			
Action	**Description**	**What's already happening in Cambridgeshire?**	**What more is needed?**
Engagement with and support to existing environmental/sustainability related community groups	Engagement with and support to existing environmental/sustainability related community groups to establish and develop range of potential 'demonstration' renewable energy projects.	Even though not yet open, the Gamlingay Eco-Hub in South Cambs has attracted a lot of interest as a demonstrator of renewable energy technologies (PV, SHW and GSHP). Other new community buildings in the district are also now readily embracing these types of technologies and are generally happy to demonstrate them.	Building a database/network of existing community groups to establish contact (if it doesn't already exist) to develop opportunities to disseminate experience through case studies and events etc

CREATING DEMAND: Build partnerships			
Action	**Description**	**What's already happening in Cambridgeshire?**	**What more is needed?**
Support and involvement: build relationships with local media channels and using these as methods to raise awareness, support and trust in the local community	The local media can prove to be a useful partner in raising the profile of projects and encouraging participation. Local newspapers, radio stations and community and parish newsletters can all be used to communicate to local residents about a proposed renewable energy project,	The South Cambs Sustainable Parish Energy Partnership provides template booklets. These are laid out over eight pages and contain useful generic information and illustrations alongside significant space and opportunity for local volunteers to	Contact with local media channels such as local newspapers and local radio stations to advertise community energy events and to provide news stories about local renewable energy projects. Evaluate potential of different

CREATING DEMAND: Build partnerships			
Action	**Description**	**What's already happening in Cambridgeshire?**	**What more is needed?**
	ideally at the early stages of project development to encourage wider engagement and support from the community. Other media sources such as television or through websites, emails, blogs, and social networking sites such as twitter and facebook can be used alongside media engagement to encourage ongoing community support and input throughout the development of a project. Depending on the level of engagement needed and stage of project development it can be beneficial to build a relationship with the producers of the local radio stations and arrange to give regular updates on a project. This kind of engagement with the media can be quite time and resource intensive and may require specific skills, and it may also be necessary or useful to partner with organisations who can offer free or low cost support to community	customise the content with local images, case studies and contacts that bring the booklet alive locally – easily distributed with Parish magazines or similar. South Cambs SPEP has also run a workshop and offered training on the use of social media, but take-up has been limited.	media channels as a means for communities to obtain support from local residents and to raise awareness etc

CREATING DEMAND: Build partnerships			
Action	**Description**	**What's already happening in Cambridgeshire?**	**What more is needed?**
	groups in obtaining media support or developing skills in this area.		
Engage with building owners to agree possible lease arrangements for renting roof/land for renewable energy projects	One method for community groups seeking to develop local renewable energy projects in their local area is to install systems on sites owned either privately or by the local authority. This method will require partnership with the owners of local buildings and land in order to develop agreements for the use of land, roof space or buildings. For installation of renewable energy on buildings such as church's and schools it is necessary to build relationships with the building occupants (e.g. vicars, head teachers) who will need to be willing to lease roof, land or building space in return for financial and/or environmental benefits. The benefits of this approach to community renewable energy can	There are a few examples community renewable energy projects being undertaken with the consent of building owners, e.g. community village halls, schools etc.	Local Authorities in Cambridgeshire and Parish Councils could support communities looking for ideas for potential renewable energy projects by contacting local building owners to establish interest in their land or roof being used for installation of renewable energy schemes. A database of potential sites could be developed for communities to use when investigating ideas for potential projects.

CREATING DEMAND: Build partnerships			
Action	**Description**	**What's already happening in Cambridgeshire?**	**What more is needed?**
	include: • community groups can help schools or community building owners to find funding through working with local suppliers or utility companies; • community, homeowners or building occupiers can benefit from electricity produced on site; • community group can obtain income through FiT and sale of electricity to the grid; and varying level of ownership over renewable energy schemes is possible with building owner fully owning, part owning or providing ownership to community group. Revisions to the feed-in tariff have limited the potential of this approach. Options around the Renewable Heat Incentive for community building could		

CREATING DEMAND: Build partnerships			
Action	**Description**	**What's already happening in Cambridgeshire?**	**What more is needed?**
	also usefully be explored.		
Support and involvement: Establish partnerships with local suppliers and installers to draw up arrangements for community groups to obtain discounts for the bulk purchase of equipment or fuel	Engaging and partnering with local suppliers and installers of renewable energy can provide opportunities for community groups to agree discounts for the purchase and/or install of equipment or fuel, for example through a bulk purchase scheme whereby a reduction in the cost per system is received once a certain volume of installations is reached or through a number of referrals. Through these partnerships with installers, community groups can provide discounts to individual households through the purchase and/or distribution of renewable energy systems or fuel, through for example: • discount through a bulk purchase scheme	The South Cambs Sustainable Parish Energy Partnership has had some useful success in supporting bulk-purchase PV schemes set-up and driven by local volunteer groups.	Local renewable energy suppliers contacted to establish their offers with regards to bulk purchase of equipment and/or fuel. This information could be advertised to community groups for consideration of potential projects and when choosing suppliers.

CREATING DEMAND: Build partnerships			
Action	**Description**	**What's already happening in Cambridgeshire?**	**What more is needed?**
	• discount through certain number of referrals guarantee certain level of demand		
Develop subcommittees to take forward energy projects within the local community	Parish councils can prove an important partner to community groups in the development of renewable energy projects if they are receptive and supportive towards the project. In particular, community groups can take advantage of the formal structures and governance of parish council to obtain funding etc and parish councils are able to establish a subcommittee to take forward energy projects. Experience suggests that parish council support is often more limited than expected, the development onus resting with volunteer groups.	Not known.	Local Authorities to encourage development of subcommittees within their Parish Councils to take forward renewable energy projects, and provide guidance about best practice in supporting community groups

Medium Term

CREATING DEMAND: Engage with communities			
Action	**Description**	**What's already happening in Cambridgeshire?**	**What more is needed?**
Encourage the development of new community groups in areas with no existing community leadership, and identify new projects for community groups to take forward	Engagement with local residents to establish and develop new community groups to take community renewable projects into the mainstream.	The South Cambs Sustainable Parish Energy Partnership has achieved a good success rate with attracting interested groups by providing a full menu of support with very few strings attached.	Wider reach of engagement activity through Parish Councils and other local representatives.
Set up a community advice network for existing and new projects to share their experiences	Advice network to provide communities with support from 'expert' individuals and organisations for interactive advice and information on set up and delivery of projects.	The South Cambs Sustainable Parish Energy Partnership has had some success with this approach at its regular workshops but the best lasting resource in this crucial area is via CSE's PlanLoCaL publication and website. Making groups aware of this resource has proved particularly beneficial in passing on advice and information on the set-up and delivery of projects.	Use of existing community networks e.g. Low Carbon Communities Network or Transition Network etc for communties to gain knowledge from success stories and experience.

FINANCE: Provide financial structuring			
Action	**Description**	**What's already happening in Cambridgeshire?**	**What more is needed?**
Provide access and guidance to the Community Energy Fund (when established)	The concept of the Community Energy Fund (CEF) is to put in place a fund that will provide a means to deliver carbon reduction projects that allow developers to meet the requirements of the Zero Carbon Policy, taking the responsibility to identify and directly invest in projects to mitigate emissions off the shoulders of developers. We recommend that Cambridgeshire should take the lead in demonstrating how they can set up an Allowable Solutions Policy within its Local Plan and develop the Community Energy Fund to ensure maximisation of community benefits through a CEF. Reword – this is about how communities can access the fund for money to support their schemes.	Cambridgeshire is investigating the potential for a Community Energy Fund.	Continue development of CEF.

PLANNING: Develop and implement local planning policy			
Action	**Description**	**What's already happening in Cambridgeshire?**	**What more is needed?**
Communities engage with Neighbourhood Planning to deliver the Cambridgeshire-wide renewable energy planning policies within Local Development Frameworks	Neighbourhood Planning, through the Localism Bill, will enable communities to provide their own input into the development of local renewable energy schemes. Neighbourhood plans and/or development orders can provide specific support to schemes which have community backing. A higher level of consistency of planning policy across the local authorities in Cambridgeshire could help lower the barriers communities face in obtaining planning permission and the provision of clearer information for communities on the key policies, likely changes and sources of key documents can reduce the time and resources needed by groups.		

Commercial sector

The challenge is to achieve £1.2 billion investment to generate at least 1400GWh of electricity and heat

Broad estimate of progress so far: 380GWh

Short term

Renewable energy supplier opportunities			
Action	**Description**	**What's already happening in Cambridgeshire?**	**What more is needed?**
Suppliers to work with joint working group to help develop a clear set of objectives	Collaboration on this will ensure that commercial objectives for the delivery of renewable energy projects are addressed when public policy is formed.	The Low Carbon Development Initiative is already underway in Cambridge city and Hunts, its purpose being to overcome the early stage development risks which may affect projects.	
Suppliers to create close working relationship with representatives from different public sector departments	This is particularly important for the development of longer term projects such as district heating projects. Public sector understanding of the requirements for commercial viability of projects will be critical to their success.	Local Enterprise Partnership Cleantech Group and Cambridge Cleantech already provide a valuable potential forum for this to happen – their objectives need to be extended to enable this to happen.	
Suppliers to share information with public sector and communities	In order to build a common understanding of the commercial realities of developing renewable energy projects, it will be important	See above.	

Renewable energy supplier opportunities			
Action	**Description**	**What's already happening in Cambridgeshire?**	**What more is needed?**
	for private sector organisations to share information on the issues being faced and to build trust.		
Suppliers to partner with public sector and communities to create constructive dialogue between sectors e.g. forums, workshops, clear community benefits	In order to address community resistance to renewable energy schemes, long term partnering arrangements may be required to establish an appropriate balance of risk and reward for all stakeholders. It may also useful to engage with 'trusted intermediaries' (i.e plumbers, builders, roofers, electricians etc) to improve their understanding of renewable technologies given they perform an influential role when advising householders.	See above.	
Suppliers to establish best practice protocols for development of renewable energy in Cambridgeshire	The commercial sector should proactively develop best practice protocols to the development of renewable energy projects such that tangible community involvement, buy-in and benefits can be realised.	See above – plus there are many well-established national renewable energy organisations e.g. REA who could provide useful input into this.	

Renewable energy supplier opportunities			
Action	**Description**	**What's already happening in Cambridgeshire?**	**What more is needed?**
Suppliers to appraise opportunities identified through CRIF, leading to the development of projects in the region	The CRIF programme has analysed the opportunities for renewable energy development across the county. This should form a good basis for the detailed appraisal and development of projects. The policy incentives are creating the opportunity for commercial delivery of renewable heat and power projects across a range of scales and applications.		
Suppliers to deliver projects procured by the public sector	The commercial sector will be pivotal for delivery of projects procured by the public sector since these skills and business models are unlikely to exist 'in-house'. Opportunities will include the design, supply, installation, commissioning, operation and maintenance of renewable energy schemes. The commercial sector may also be called upon to finance projects through a concession or energy services agreement.		

Renewable energy supplier opportunities			
Action	**Description**	**What's already happening in Cambridgeshire?**	**What more is needed?**
Suppliers to liaise with public sector to help identify opportunities for Community Energy Fund development	Private enterprises will be well placed to identify opportunities for local investment by the Community Energy Fund. They can originate eligible projects, take them through the qualification process and ensure that carbon reductions are delivered in line with zero carbon requirements.		

Developer opportunities			
Action	**Description**	**What's already happening in Cambridgeshire?**	**What more is needed?**
Developers to work with local authorities to explore delivery options through Allowable Solutions payments or CIL or CEF	The private sector should work with the public authorities to establish the most appropriate delivery mechanisms for allowable solutions in Cambridgeshire. This could include different approaches to the delivery of small scale projects and larger scale communal energy (e.g. district heating).		

Developer opportunities			
Action	**Description**	**What's already happening in Cambridgeshire?**	**What more is needed?**
Developers to establish funding models and develop innovative delivery mechanisms	Commercial property developers should work to establish new funding models for the delivery of on-site clean energy. This might include, for example, the use of the Feed in Tariff or Green Deal to part-fund technologies over the long term. Consideration should be given to 'preparing' buildings to enable the cost effective retro-fitting of renewables, where these technologies are not provided at the outset. For example, strengthening roofs, maximising south facing orientation, installing dual coiled hot water cylinders, necessary pipework etc.		

Green Deal retrofit opportunities			
Action	**Description**	**What's already happening in Cambridgeshire?**	**What more is needed?**
Local authorities and Green Deal providers lobby government for Green Deal measures to be included as an Allowable Solution	Green Deal providers offer retrofit measures as part of the allowable solutions framework.		The Joint Working Group, proposed earlier in this report, would be an ideal platform for coordinating responses at a regional level.
Local authorities support the delivery of Green Deal opportunities	Potential benefits to local authorities are likely to include new sources of revenue to deliver energy efficiency retrofits, help to reduce fuel bills for local residents and businesses, opportunities for local economic and physical regeneration, and support for the maintenance and generation of local jobs and skills. Local authorities can: • Provide the Green Deal directly to their local residents and businesses, co-ordinating finance and delivery • Work in partnership with commercial Green Deal providers and community	Huntingdonshire, South Cambs and Cambridge City are working together to developing a local approach, and working with key local organisations, and the Energy Saving Trust.	

Green Deal retrofit opportunities			
Action	**Description**	**What's already happening in Cambridgeshire?**	**What more is needed?**
	partners to deliver and facilitate delivery • Promote the Green Deal by acting as advocates locally		

Medium term

Renewable energy suppliers	
Action	**Description**
Establish model RE projects that demonstrate best practice community engagement	Application of best practice protocols (e.g. for wind energy planning and development) should lead to model projects being developed that demonstrate the preferred way to do business in Cambridgeshire.
Establish public-private-partnerships (PPP) to deliver district heating	In the medium term, commercial organisations (e.g. ESCOs) should partner with the public authorities to deliver district heating in the key areas of opportunity, especially in Cambridge and Huntingdon.
Review existing scheme potential and issues e.g. land/asset ownership, technical issues	The private sector is well placed to resolve many of the detailed technical issues regarding the extension of existing low carbon schemes.
Take forward specific renewable energy opportunities identified as viable	The policy incentives should continue to drive the commercial delivery of renewable heat and power projects across a range of scales and applications.
Operate, maintain and repower renewable energy schemes	Private sector ESCOs should continue to support the successful operation and maintenance of renewable energy assets. They should also identify opportunities to

Renewable energy suppliers	
Action	**Description**
	repower schemes once the original plant nears the end of its useful life. In many cases this can lead to an improved performance as plant is replaced with new technologies that are more efficient or have greater generating capacity.
Deliver long term infrastructure in partnership with the public sector	Many large scale projects such as district heating can take 20 years to develop.

Developers	
Action	**Description**
Deliver on-site 'carbon compliance'	Post 2016, commercial organisations should be delivering the on-site renewables required to meet carbon compliance targets.
Deliver allowable solutions	They should also be leading the delivery of allowable solutions projects and securing investment from the CEF.
Establish sales and marketing strategy	Commercial developers should be working to build public acceptance of renewables in the property-buying market such in order to help develop sustainable long term demand.

Developers	
Action	**Description**
Mainstream partnerships between community and commercial developers	In the long term, partnership models between commercial developers and the local community should become the norm to ensure that local benefits are realised and public support continues to assist with the development of increased generation capacity.

Appendix 2 – Case studies

Case study: public sector

- **Sustainable Parish Energy Partnership, South Cambs**
  - Network of local voluntary groups; project secured by SCDC
  - Objective to reduce energy bills, tackle climate change, build a sustainable future
  - Organises events and initiatives e.g. energy shows, home energy thermal image surveys, working with local businesses, community energy generating projects
  - Part-time Parish Energy Project Officer organises programme and provides support
  - No direct costs, application forms, contracts or binding targets to parish councils
  - **How can we build on this to create more community energy projects?**

SUSTAINABLE PARISH ENERGY PARTNERSHIP

Case study: public sector

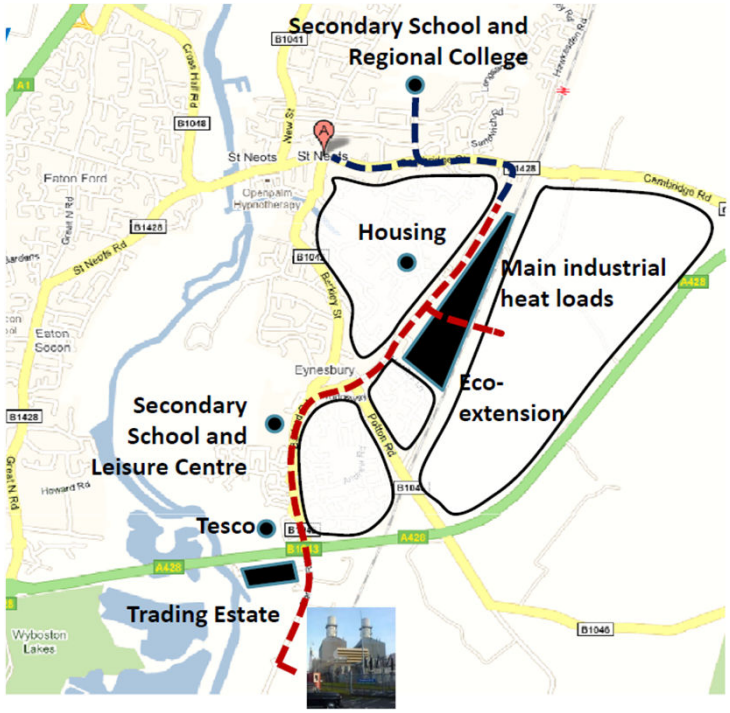
- **Decarbonising Cambridge and Carbon Management, Cambridge City**
  - Decarbonising Cambridge Study – forms part of evidence base for RE planning policies
  - Assessed district heating, biomass, energy from waste, wind, pyrolysis, gasification and anaerobic digestion
  - Carbon Trust's Public Sector Carbon Management Plan Programme participation - to cut the Council's carbon emissions and make ongoing cost savings
  - Projects form the basis of the CM plan e.g. upgrading boilers, replacing inefficient light fittings, energy awareness campaigns – also renewable energy projects e.g. Renewable Heat Incentive projects

Case study: public sector

- **Wind Energy Policy, Fenlands District Council**
  - Wind energy policy developed 5-7 years ago
  - Policy was successful - willingness of council members to approve wind development given need to reduce carbon emissions
  - By 2008-2009, impact on landscape led to interim guidance being produced to inform decisions on wind turbine locations
  - Now takes into account key criteria e.g. character of landscape, proximity of settlements, visual impact, etc

Case study: public sector

- **St Neots District Heating, Hunts**
  - Feasibility studied carried out and detailed feasibility now underway
  - Funding from ERDF and Cambridgeshire Horizons
  - Aims to provide local benefit – heat to local businesses; potential extension to housing, colleges, housing and central St Neots, possibly Little Barford Power Station
  - Public sector led – so lower return is possible with lower cost of borrowing
  - Local enthusiasm for scheme
  - Hunts already have some experience of DH feasibility – Northstowe
  - **How can the public sector share this knowledge and experience?**



Case study: commercial sector

- **Ely Straw Burning Power Station, East Cambs**
  - At 38MW, largest straw burning power station in the world; straw is used as fuel to heat water, creating steam to drive turbines
  - Total cost £55 million - the company did not expect to show a return on this investment for 15 years
  - Non Fossil Fuel Obligation contract through to 2013 - electricity purchased at 6p/kWh
  - This security was reassuring for banks when compared with the value of ROCs, which were not guaranteed - but makes new investment under the RO less likely
  - Waste heat may be used as energy source for adjacent eco village and Elean Data Campus – **what can the public sector do to help deliver this?**

Case study: commercial/community partnership

- **Coldham Estate, Fenlands**
  - Standalone turbines
  - Private ownership
  - Savings: 38.5 GWh/year - 9,000 UK homes
    36,000 tonnes CO_2
  - Community benefits: Revenue under Section 106 agreement for local projects and regeneration; Fund for education
  - Community input: The Co-operative Group worked closely with local community during planning and site construction
  - **How we can encourage more commercial/community collaboration?**

Case study: community

- **Gamlingay Eco Hub and Wind Turbine (planned)**
  - **Community building** owned by Parish Council with community input; funding from Public Works Loan Board or Community Builders fund
  - Income from FiT & energy export; reduced energy bills; new community centre
  - **Standalone wind turbine** proposed, owned by community group; entirely private investment from residents and businesses
  - 10% net income to community fund for first 15 years of FiT estimated at £200,000
  - **How can the public and commercial sectors support more projects like this?**

Case study: community

- **Waterbeach Biogas (Potential)**
  - Community building
  - Savings: potential generation of electricity and heat for the Emmaus community; home to 30 people who were formerly homeless.
    Potential savings of £14,000/year
  - Community benefits: reduction in energy bills; high savings as not on gas grid (currently bottled gas)

Case study: community

- **Upwell Park Solar PV Installations**
  - Individual households
  - Private ownership
  - Funding: Property developer
  - Savings: 68 tonnes CO_2 per year; electricity generated covers lighting and cooking for each of the 67 bungalows
  - Community benefits: free electricity & FiT income passed to tenants of retirement homes
  - **How can we overcome the proposed changes to the FIT to deliver more schemes like this?**

Appendix 3 – Job creation assumptions

The DECC report is located at:
http://webarchive.nationalarchives.gov.uk/+/http://www.bis.gov.uk/files/file15401.pdf

The labour values are converted into labour inputs by applying labour costs:

• For development: £0.45M/£20k = 22.5 job years

• For construction: £2.91M/£10k = 291 job years

• For operations: £2.65/£10k = 265 job years

Actual employment sustained by the activity is found by applying the duration of the activities:

• For development: 22.5 job years/1 year = 22.5 jobs during development

• For construction: 291 job years/ 2 years = 146 jobs during construction

• For operations: 265 job years/20 years = 13 jobs during operation

Jobs per MW are calculated by applying the template job size of 10 MW:

• For development: 2.25 jobs/MW during development

• For construction: 14.6 job/MW during construction

• For operations: 1.3 jobs during operation

Appendix 4 – Stakeholder engagement

- The ambition of the CRIF Project (Cambridgeshire Renewable Infrastructure Framework) is to attract investment in energy infrastructure to increase energy security for residents and businesses, manage energy price spikes more effectively for businesses and residents and provide affordable warmth for homes. This ambition brings a complex set of delivery problems needing co-operation and participation from a wide range of often well-informed groups with very different perspectives on how to move forward, as well as those just learning about the issues.
- The engagement process needed to:
    - Bring about co-production to shape the framework
    - Try more than traditional consultation techniques which tend to be quite passive
    - Use technology to build social media groups and digital connections
    - Create a digitally connected network of groups and people to provide a legacy
    - Develop trust with stakeholders through a transparent and open process
- The definition of co-production used for the CRIF was to 'treat all of the participants as 'actors' in the process rather than having some as passive recipients of outcomes.' The intention of a co-productive process is to focus on shared action and decision making with power being evenly distributed throughout the participant groups.
- This meant that the project needed to be delivered in a way that was highly participative. It would, therefore, need to identify current projects that would already fit within the proposed CRIF framework and offer the opportunity for all participants to question and amend the approach for creating the research data as opposed to starting with a blank sheet of paper.
- In addition, the project made sure it addressed the ideas of localism and the Big Society, with careful consideration of the power balance that existed in the relationship between politicians and other stakeholders. This was achieved by emphasising that the community and commercial sectors were in may ways freer to act and to make delivery happen. For this reason, elected representatives were identified as participants rather than presenters at the events but we were also clear that politicians would sign off the framework.

Our approach

- The whole project was treated as being within the scope of the engagement exercise as opposed to having the project team working in isolation from the engagement activities. The aim was to move from the process where a strategy is created and the public are subsequently consulted on the document to one where participants shape the strategy and outcomes throughout the process. The CRIF engagement's ambition was to create a co-productive experience that would enable as many people as possible to share the knowledge of the technical work and participate in the formation of the framework, at the

same time as sharing that experience as widely as possible to the less engaged community.

Figure 14 Our approach

- In recognition of the budgetary limits, and our stated interest in examining modern communication methods, we agreed that the engagement strategy would be digital by default and the online space would form the key platform for dialogue with stakeholders. In practical terms, this meant that the project blog was the main instrument for updates – as opposed to press releases or print brochures –and that resources were spent on elements, such as the social reporting and webcasting, as opposed to the production of print materials. In order to ensure that the project reached groups who were not online, the team combined this digitally led approach with a more 'traditional process' of events, supported by a limited print run of paper materials and questionnaires, as well as looking for 'connectors' in the digital audience who could raise awareness with people who were much less likely to be reached with digital communication.

- A key part of the project was to ensure that, through the use of online tools, in combination with the open format of meetings – as well as social reporting (live online reporting of the event) and live video streaming – we could allow as many people as possible to take part, particularly those who could not physically attend meetings.

- Our results show that people tuned in online to observe meetings both in real time and after the meetings had finished – to view content and to take part in conversations about that content

- The project made extensive use of free platforms such as WordPress, YouTube, Facebook and Twitter (using the hashtag #crifcambs) and the Citizenscape platform www.crif.citizenscape.net as a central place for project information.

- The majority of the work was carried out online – to keep the costs down but also to take advantage of the pre-existing behaviours of people, groups and businesses that were already using the web to discuss and advertise an interest in renewable energy infrastructure in Cambridgeshire. With people and businesses already active online,discussing issues relevant to the CRIF, it made sense to tap into these conversations to help to create a co-productive approach through discussions and sharing progress on the project. This moved the engagement process away from the more passive communication approach often used in consultations, to a more active dialogue

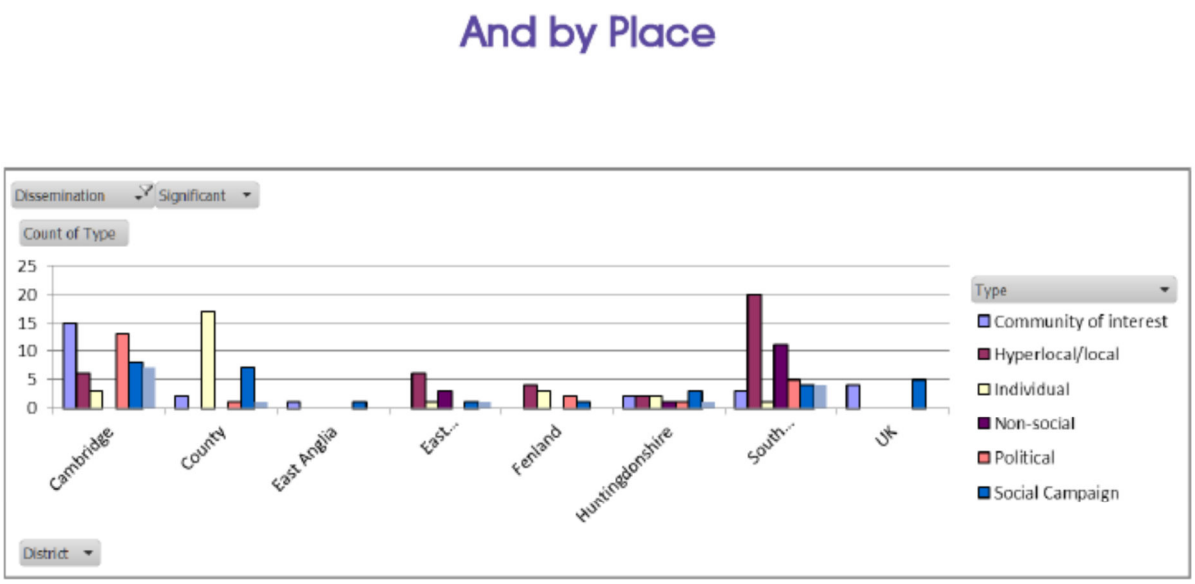


Figure 15

Levels of pre-existing activity

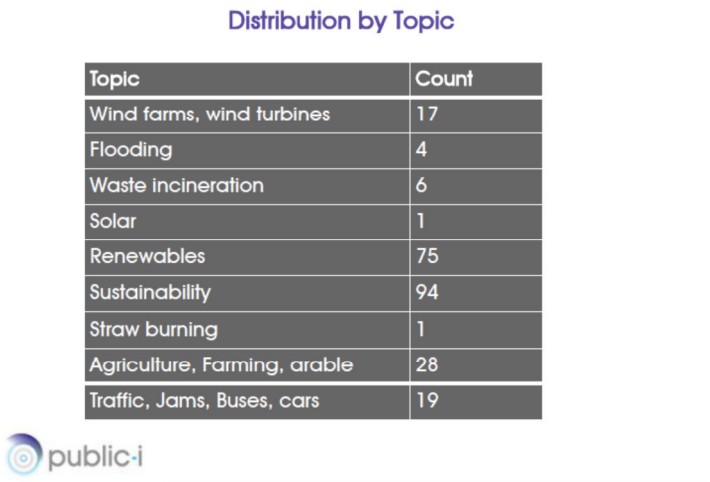
Type of Site	Count
Individual	36
Individual / Political	14
Political	25
Non-social	68
Community of Interest	62
Social Campaign	49
Hyperlocal / Local Websites	71
TOTAL	325

public-i

Figure 16 Levels of pre-existing activity

What we did

- The project identified three key stakeholder groups important for the delivery of new renewable energy schemes in Cambridgeshire. These included Community, Public Sector and Businesses. The starting point was to establish who was talking online about sustainability and renewable energy and the geographical distribution of these conversations across Cambridgeshire. The expectation was not to capture a complete picture of social media activity in Cambridgeshire – there were obvious limitations to the search in terms of its size, time and scope – but a fair reflection of activity regarding the subject topic. This 'social media audit' looked at online activity on sustainability and other related topics and follow up interviews to find offline networks. It informed the development of the engagement process and provided links to people, groups and organisations that were required to then initiate conversations about the CRIF Project.



Distribution by Topic

Topic	Count
Wind farms, wind turbines	17
Flooding	4
Waste incineration	6
Solar	1
Renewables	75
Sustainability	94
Straw burning	1
Agriculture, Farming, arable	28
Traffic, Jams, Buses, cars	19

Figure 17

- The engagement process included:

a) Four 'Open Spaces' format meetings at the start, middle and end of the project to bring together all stakeholder groups to critique and effect both the project process and the shape of the final result

b) Five stakeholder meetings – focused on establishing a common understanding of where we are now, ideas and views on where we need to get to and the actions to take us there

c) Nine community events to canvass views on energy security, producing energy locally and costs

d) Feedback questionnaire both online and offline

e) Extensive use of social media to capture feedback and progress from the above stakeholder meetings and events

- This framework provided the activity programme and the open process for participants to shape the discussions.

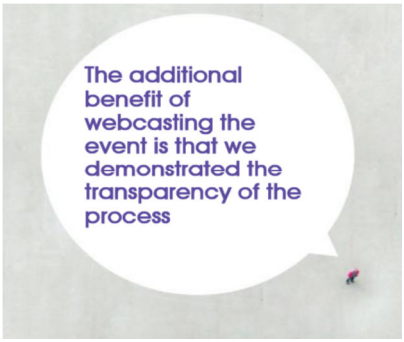


Figure 18

How we did it

- The table below describes what we did and the engagement timetable for the project:

Table 8

Engagement timetable		
Task	**Description**	**Month**
Preliminary research	A social media audit was carried out with more detailed questionnaire responses being gathered from prominent content creators	
First event project partners and sponsors	Project partners and sponsors including all the Cambridgeshire Local Authorities, Sustainability East and interested community members identified by the initial research, plus known activists invited to an initial event. The meeting provided context setting and a description of what or how a digital engagement approach could work for the project. The process included:- Time to question, challenge and understand the technical approach and methodology and how it links to the technical work the project would carry out (see below) Community update - already existing projects that could potentially benefit from the CRIF explained what they were doing and where they had found success Initial discussion with the business community about their	7th April 2011

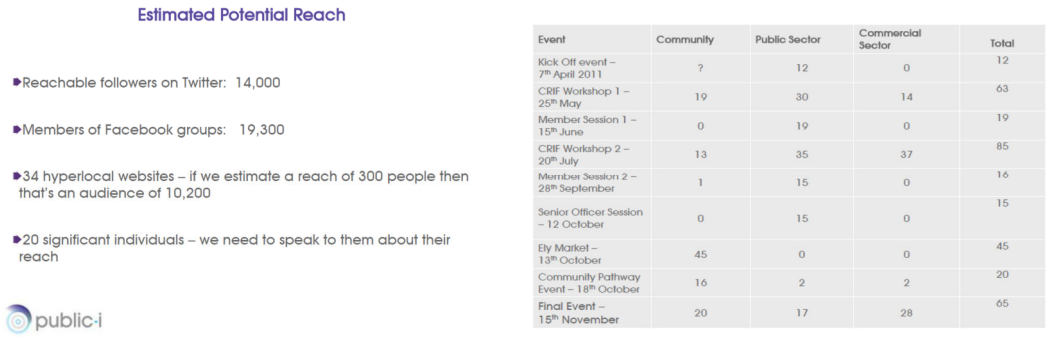
Engagement timetable		
Task	**Description**	**Month**
	potential involvement in the project Time was also spent mapping other networks and groups that could/should be involved in the process. The event was webcast (in archive only, due to technical issues) and social reporting tools were used to provide open access to the content as well as a digital record of the meeting. After the event content was curated and summarised on the project website along with blog posts and content from participants.	
Technical work	Verco, the technical consultants, were commissioned to come up with a methodology for carrying out an assessment of the current level of energy use in Cambridgeshire, what would be needed in 2031 and the technical delivery potential for renewable energy within the county. This methodology was then tested at the second event with stakeholders.	April / May 2011
Second event	A public event was held inviting a broad range of stakeholders from the community, public and business sectors. This event introduced stakeholders to the CRIF project-why it was needed and a description of the aims and objectives. Participants shaped the agenda by identifying what issues they had particular interest in and work groups were set up to discuss the issues. One group worked closely with Verco to test out the methodology for the baseline assessment. As with the first meeting, the event was webcast and social reporting tools were used to provide open access to the content as well as a digital record of the meeting. Post event, content was summarised and placed on the project website www.crif.citizenscape.net along with blog posts and content from participants.	25th May 2011
Technical work	Verco started the work to assess the baseline position of energy use in Cambridgeshire and the technical potential for delivering renewable energy. It also started to think about the financial analysis and delivery mechanisms	May / June 2011

Engagement timetable		
Task	**Description**	**Month**
	required to inform the CRIF.	
Members' event	Elected representatives are a key stakeholder in the project. To involve and share the work, all councillors across Cambridgeshire were invited to share in the shaping of the project. The technical methodology was shared and early findings of the energy assessment were shared in advance of the detailed technical work opened up to all stakeholders. A key issue raised was the sensitivity to future development of wind farms and, in particular, aconcern that the baseline assessment would offer private wind developers with evidence they could use to submit inappropriate wind-development applications. To accommodate stakeholder concern, a fourth scenario was included in the baseline assessment (that demonstrated looked at how the county could increase renewable energy infrastructure without further wind-power development. This meeting was webcast and reported online.	15th June 2011
Third public event	All stakeholders from the first event, plus those identified by participants, were invited to a second open event. This shared the key findings from the technical work on the energy requirements for Cambridgeshire, a presentation on the Community Energy Fund and a discussion on the challenges to deliver the scale of change required. Three workshops then followed for each stakeholder group, community, business and public sector to discuss their role in the transformational change that was needed.	21st July 2011
Second councillor event	The complete findings of the baseline assessment and technical potential for renewable energy generation in Cambridgeshire were shared with councillors of the local authorities. All parish councillors were also invited to attend.	28th September 2011
Public sector event	Officers with responsibility for sustainability and economic growth across the variety of public-sector organisations (including health, police etc.) were invited so that they had the opportunity to fully understand the baseline assessment and work through the implications of the data. Discussions at the event included how the public sector could use its soft assets – such as planning powers – and hard assets – such as buildings – to lead the delivery of more renewable	12th October 2011

Engagement timetable		
Task	**Description**	**Month**
	energy.	
Two commercial sector events	Two events: Clean tech sector and developers, to supplement and extend the previous research. This was carried out in a focus group format.	10th October 2011 and 2nd November 2011
Programme of nine community events	Rather than hosting their own events, the project team attended meetings and events, ranging from farmers' markets to parish meetings in order to gain a broader view on the project	July - November 2011
Final (fourth) event	The final event involved recapping on the findings from the baseline assessment, identifying the scale of inward investment needed to achieve greater energy security and benefits for the local economy and the role the key stakeholders played delivering the change. Participants at the meeting agreed that the developing framework was on the right track and that they would provide final comments before the CRIF was put before decision makers.	15th November 2011
Decision meetings	Cambridgeshire Horizons Board made the decision in 2010 to support the development of the CRIF and received progress updates on the project until its closure in September 2011. The governance of the project shifted to a steering group made up of leaders and/or portfolio holders of the local authorities as well as developers, registered social landlords and Environment Agency representatives. The meeting in December 2011 shared the baseline assessment, the financial analysis, the economic development opportunities and the emerging action plans. Final sign-off of the technical work took place on 27th January 2012 and the Framework handed over to the local authorities to take forward.	December 2011 January 2012

What we achieved?

- The project differed from other engagement projects in four areas:
- 1) The initial effort to find the people who were already interested in the topic (whether their interest was positive or negative) who were then invited to join in the discussions - rather than applying a more general call for participation
- 2) The openness of the social reporting and webcasting elements meant that the process was more transparent, accessible and open to being shaped by participants than is usually achieved without this kind of embedded technology use
- 3) The style of meetings meant that the events were more participative and accepting of change directed by the participants and control of the agenda more open to influence by stakeholders.
- 4) The other difference was the ultimate objective of the engagement work: not just to 'engage' with the public, but to create a network of people who would want to use the CRIF project output and provide a legacy of action that went beyond simply the creation of a framework document.



Event	Community	Public Sector	Commercial Sector	Total
Kick Off event – 7th April 2011	?	12	0	12
CRIF Workshop 1 – 25th May	19	30	14	63
Member Session 1 – 15th June	0	19	0	19
CRIF Workshop 2 – 20th July	13	35	37	85
Member Session 2 – 28th September	1	15	0	16
Senior Officer Session – 12 October	0	15	0	15
Ely Market – 13th October	45	0	0	45
Community Pathway Event – 18th October	16	2	2	20
Final Event – 15th November	20	17	28	65

Figure 19

Event	Live	Archive
CRIF Workshop 1 – 25th May	30	350
Member Session 1 – 15th June	13	78
CRIF Workshop 2 – 20th July	53	162
Final Event – 15th November	24	82

Figure 20

Table 9

Levels of online interest in CRIF		
Channel	**#Content**	**#viewers**
Youtube	37 videos	647
Blog	81 posts	16 comments, 2080 views, 8 followers
Twitter	481 tweets	166 followers
Facebook	-	42 likes

Summary

Digitally led engagement can offer an affordable option for local authorities and provide a richer dialogue on key issues and challenges when compared to more traditional consultation. The CRIF project has had a positive experience with this approach and recognises that this cannot easily be compared to a more traditional process. The starting point for dialogue is much earlier and the process itself is more flexible.

There are some very clear benefits from this process including:-

- Providing the facts and figures for people to digest and challenge developed all our understanding and created trust in the process from an early stage
- Providing the same information to all stakeholders helps to achieve a better collective understanding of the issues
- There is now a shared understanding with the key stakeholders of the technical potential for renewable energy in Cambridgeshire (but the choices of how to deliver this are clearly with the local planning authorities, their communities and businesses)
- A clear sense of the scale of the challenge and the size of the economic benefit
- A starting point for agreeing the actions to make this happen

In addition, there are some areas for process improvements including:-

- Up-skilling local authority officers to use digital tools effectively and in an interesting way to create better conversations online that others will want to share
- Being clear on the ambition of co-production and how this can shape outcomes and plot a roadmap for people to follow in this process

- Being clear with decision makers the level and depth of openness and transparency possible before committing to a transparent process

- Signing up all participants in the digital engagement and the co- production right from the start, pre-tender stage. This will provide a better experience for all, including consultants, stakeholders and decision makers.