CLASP. Climate Change Local Area Support Programme

Included in this pack are some brief notes to explain some of the slides included in the 'Green Finance Seminar'. These were a series of seminars provided to local authority staff during May and June 2011 and aimed to provide a basic grounding in the financing of green initiatives.

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3	**Agenda** The seminar is about finding out more about green finance and how it can be used to deliver projects in local authorities. This introduction sets the context and outlines the opportunity that energy infrastructure and renewable schemes offers local authorities. It covers: • Climate change and energy prices • Government policy supporting energy reduction and renewables • The local authority context • The opportunity
9	**Climate change** The two main global factors driving this agenda are climate change and energy prices. The global average temperature continues to rise. Climate change is seen as a business risk which needs to be addressed across the public and private sectors as well as by governments. This provides a driver for reducing carbon emissions. For local authorities, along with other UK organisations this driver is given particular weight and expression by the Climate Change Act (2008). It created a legally binding target to reduce emissions of greenhouse gases (GHGs) to at least 80% below 1990 levels by 2050. Setting and meeting five-yearly carbon budgets for the UK during that period has become an ongoing process. The UK's first three carbon budgets, which cover the periods 2008-12, 2013-17 and 2018-22, require carbon emission reductions of just over 22%, 28% and 34% respectively, compared to 1990 levels. The fourth carbon budget, running from 2023 to 2027, has to be set in law by the end of June 2011. The proposal is for a 50% reduction by the end of the period ie 2027.

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10	**Energy prices** Energy prices are the key underpinning factor of the business cases for energy reduction and renewable projects. Increases in energy prices are expected to continue, driven by massively increased demand and limitations in supply. For example: • Forecasts are that by 2030, world primary energy demand will 40% higher than in 2007; and • Fossil fuels are expected to remain the dominant source for 77% of the demand increase. For oil this is the equivalent of adding four Saudi Arabian countries to production. Linked to rising energy prices is the issue of energy supply and security. Globally there is a huge focus on securing future energy supplies illustrated for example by the scramble for oil in the Arctic and parts of Africa, and at the extreme by the so called “Concession wars”: often entailing conflict. It is frequently asserted for example that the conflict in Sudan is linked to competition over oil concessions. Globally, the consumer is likely to carry the burden in higher overall fuel and food prices.
11	**Responses to the trend in energy** The international response to these global challenges has been to focus effort on the shift to low carbon, climate resilient development paths. This includes scaling up the deployment of low carbon technologies and building confidence in long-term private investment in low carbon. Investment in renewable infrastructure is increasing rapidly. In 2009 investments in renewables effectively doubled across the world.

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12 & 13	**Government policy response** In the UK the government response is that both climate change and energy policy drivers mean there is an urgent case for action, for example in September 2010 Charles Hendry, Energy Minister made a speech about the future of UK energy. There are a wide range of policies in place planned to support the Government's response. The recent Carbon Plan is a good summary; first published in March 2011, it is a Government wide plan for action on climate change. Policies are aimed at different sectors of the economy, for example major energy generators (Renewables Obligation) and energy suppliers (Electricity Market Reform). Some of the policies that particularly underpin the business case for low carbon and renewable energy investment by organisations like local authorities are the Feed-In Tariff, the Carbon Reduction Commitment and the Green Deal. Renewables Obligation (RO) is the Government's main financial subsidy for incentivising large scale renewable electricity in the form of Renewables Obligation Certificates (ROCs). As of 1 April 2009, different technologies receive different number of ROCs for each unit of electricity to reflect differences between technologies including the cost of generation and potential for large-scale deployment. Carbon Emission Reduction Target (CERT) is an obligation on energy suppliers to achieve targets for promoting reductions in carbon emissions in the household sector. CERT will be superseded by the Supplier Obligation in 2011. Feed-in-Tariffs (FITs) have been introduced to incentivise small scale, low carbon electricity generation by providing 'clean energy cash back' for householders, organisations, businesses and communities who have not traditionally engaged in the electricity market – to allow them to become generators of electricity, as opposed to simply consumers. The scheme will support new anaerobic digestion, hydro, solar photovoltaic (PV) and wind projects up to a 5MW limit. The FIT payments are fixed from the start of generation however the initial payment is reducing each year so the earlier the scheme is started, the more revenue that can be generated from the same project.

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14	**The opportunity** The basic business case for renewable energy generation has been significantly bolstered by the government policy initiatives mentioned above including FITs and the Renewable Heat Incentive (RHI) and removing the restriction on local authorities selling electricity to the grid. This means authorities now have financial and economic incentives to develop schemes that will make and save money. At the same time authorities have the opportunity to deliver benefits in terms of jobs, business growth and community engagement as well as saving energy and reducing carbon. The Green Deal is already opening up potential for further large scale investment opportunities. Local authorities are in a unique position to lead, facilitate and exploit this opportunity. Taking renewable generation and energy efficiency projects together represents a very exciting opportunity with a potential capital value of many billions of pounds. The private sector already generates sufficient returns to make these projects viable. If structured correctly then the public sector can deliver these projects on their own, or with the support of the private sector, providing local authority benefits under both approaches. The NW is a region in particular where there is a good opportunity for investment in renewables. A study by the Northwest Climate Change Partnership, funded by the Northwest Regional Development Agency (NWDA), reveals how the five sub-regions of Cheshire, Cumbria, Greater Manchester, Merseyside and Lancashire have the potential to deliver a significant percentage of the nation's renewable energy targets, in line with the Renewable Energy Strategy target to generate 30% of electricity from renewable sources by 2020. Leading councils are already taking the opportunity. There are significant schemes in place and others planned by Bristol and Birmingham City Councils.

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24	**Finance Options** There are a number of financing options that are available for renewable energy projects. Finance can come in the form of public funding or private sector funding, each with potential downfalls. Not every source of private and public finance will be available for all projects. Access to grant funding can involve time consuming bidding processes with internal resources already strained. Authorities also have the ability to prudentially borrow. While this is not a popular option with some Local Authorities in the current environment, it brings with it some financial benefits over private sector financing but equally carries risks. The public sector will need to repay prudential borrowing regardless of project success. Private sector financing includes corporate debt and project finance. Availability depends on the type of project that is being considered, the economic viability of the project and the project structure. Corporate debt assumes that a private sector party provides debt for a project from its own internal resources or by borrowing against its own balance sheet rather than against the individual project. Project finance debt or asset finance debt assumes that debt is borrowed to undertake a specific project and therefore the lender looks at the specifics of the project. Under a project finance structure the lenders look at the cash flows being generated. Under an asset finance structure the lenders look at the value of the underlying asset. There are, therefore, a number of key drivers to be considered when assessing the available forms of financing. These are project structure, the type of project and the technology. Together these will drive the economics of the project and determine the risk profile. Not all technologies are proven and even those ideas that are good on paper will not be capable of raising external bank finance The risk appetite of the Authority should steer the Authority to a specific project structure and therefore form of finance. A special purpose vehicle will be required where third party finance is injected to allow cash flows from the project to be separated from normal operating cash flows.

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25	**Project Structure** The project structure ultimately drives the appropriate and available forms of finance for a project. For example, the ability to leverage third party finance into a project requires the private sector to have an equity stake in the project. The structure will also identify the investment required by the different parties, for example is the Local Authority investing land in a joint venture or is cash investment required? The structure of the project will expose the Local Authority to different levels of risk, for example, entering into an Engineering Procurement and Construction contract to construct a combined heat and power plant, including all the necessary sub contacts, removes the construction risk from the authority. Not all the risk is likely to be transferred and there is a generally residual risk that remains with the authority. In the construction example the authority may have agreed but failed to provide necessary site access in an agreed timeframe resulting in cost increases and delay with the authority needing to make additional payments or pay damages.
26	**Generic Project Lifecycle** All projects developed follow a generic lifecycle. The time required for each stage will vary depending on the project and each stage has a different risk profile. In most cases, revenues are only generated once the project becomes operational. The development phase involves all elements of preparing the project such as procuring the necessary contracts and arranging the necessary finance. This is the riskiest part of the lifecycle as some projects will fail to demonstrate economic viability or achieve the necessary planning consents and all money spent to date is lost. The development phase is separated into pre and post planning as planning represents one of the most significant risks for a renewable energy project. This may not be applicable to all projects depending on the technology. Construction is the period of capital intensive work and therefore risks materialising which increase cost and delay the project can have a severe impact on the project costs. Once the project is operational the majority of risks have been overcome however there are still significant risks that can materialise. For example, failure to operate the plant results in lost revenues with capital still requiring to be repaid.

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27	**Project Risks** The materialisation of project risks will result in cost increases and project delay. This will impact the project economics and viability of the project. Some risks are outside the control of the developer. Most risks can be managed and some can be fully mitigated. Management of risk can be achieved through adopting suitable robust processes and techniques for identification and assessment during the development phase. A number of risks are managed by using experienced teams to undertake the necessary work during all phases of the lifecycle. Local authorities may be lacking some of the necessary skills to develop or progress certain tasks and this experience may need to be sought externally. Transferring risk to the private sector is likely to result in reduced returns to the authority as the private sector will expect a suitable risk reward balance for taking the risk. Lenders will scrutinise the project risk and will want to understand the risk that might materialise if the parties fail to perform. Finance departments will equally want to understand the liabilities that might sit with the Local Authority.

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28	**Types of structures** Over the years a number of project structures have been adopted to deliver infrastructure projects. The structures contain varying degrees of risk for the public sector and lessons can be learnt from these delivery models. The percentage of revenue generated for the public sector by a project will depend on the level of risk adopted. Low risk structures generally result in the lowest revenues being generated by the public sector. As the level of risk increases the certainty of generating the predicted revenues tends to decrease. Similarly, if the public sector takes more risk during the development phase of the project then it is likely to incur greater development costs for which it should receive a greater proportion of revenues. A low risk structure would be to rent land to developers. The developers would incur the development costs of the project and the public sector would receive a rental payment. Payments will be small in comparison to the equity returns generated but will not expose the Local Authority to the risk of the project failing. The public sector is able to generate similar returns as the private sector if it retains in whole or in part an equity stake in the project and undertakes the development, finance, construction and operation of a project. This approach increases the risk to the authority but increases the financial returns that can be generated. The structure adopted can be used to include appropriately experienced parties and mitigate those risks that the authority doesn't have the experience to manage. The structure can also be used to include local communities within the project to provide direct local benefit and gain support for the project. A key obstacle for local authorities is the ability to fund the development process. Projects could be financed by re-investing profits generated into future project development. Different project delivery models can be adopted, each with varying timing of returns to achieve the desired outcome. An example would be selling land to generate capital to fund development activity and then investing equity in the developed project to create a long term stable cash flow which can be used to fund development of a number of projects over the longer term. Local authorities can capitalise on their current assets and manage their risk by adopting a structure that suits their own risk appetite.

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29	**Project development** Critical to the success of a project is the senior member buy-in during the development process. This provides political support and commitment to invest resources. The finance team will need to agree to investment in both development activity and project investment and to understand the liabilities that are being placed on the Council. All authorities are different so there is no formula for who you need to consult on the development of a project. Political support is however critical to the success of a project. The objectives of the Local Authority drive the most appropriate project structure and these therefore need to be clearly understood. The business case needs to be developed in order to access finance, provide the support required to gain internal approval or even to apply for grant support for projects. There are a number of areas that need consideration regardless of the financing option. The creation of an appropriate business case will therefore provide the supporting documentation required and should investigate the technical feasibility, project risks, delivery approach, funding routes and value for money of the options. The business case should provide answers to those questions that will be asked by people reviewing the project. There are various forms of business case guidance available for the development of infrastructure projects by Local Authorities setting out best practice. However there is no renewable energy specific guidance that can currently be referred to. The assessment of the project options throughout the development process will drive the most appropriate project structure and type of finance however each project is different and the devil is in the detail.

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34	**Bankers** Banks and senior lenders don't historically like to take risk when financing projects and will therefore scrutinise the project to ensure all risks are appropriately mitigated and managed. The various forms of private finance require different project structures to be in place and therefore the structure impacts the type of finance that can be used. Security will be required for any third party debt that is raised. The level of security required depends on the specific project risks and the ability of the project to generate revenues. The ability of the lender to gain access to cash flows and control assets are forms of security that lenders may require. For example, under a project finance structure the lender is relying on the generation of project revenues and there is no or limited recourse to equity providers. Whereas under an asset finance structure the lender will focus on the revenues that can be generated but may be unwilling to lend to the project unless there is additional security over other assets should the project fail. Lenders do not like new technology that has not been proven to be commercially viable. For example, lenders like to see similar projects successfully operating elsewhere using the same technology. There have been examples of generation plants that have been tested on a small scale but have failed to operate as predicted when constructed on a commercial scale. Where the technology is unproven and not well understood then the lender may require more security, such as security over other assets owned or additional guarantees, before providing finance. When considering new and emerging renewable energy technologies the appropriate finance solution should take into consideration the certainty over the generation of the revenues and the risks associated with an unproven technology.
35	**Contracts required** Contracts will be required for all aspects of the construction and operation of the project. Lenders will review the contracts being put in place to get comfortable that the risks and long term liabilities associated with the project are suitably managed and mitigated. The lenders will also focus on a number of other elements to gain comfort over the deliverability of the project. For example, lenders will review the experience of the different parties involved in delivering similar projects and therefore assess their ability to deliver the project being considered. Lenders will review the financial standing of contractors and the likelihood that the company could fail as a result of its ongoing operations. This tests the ability of the parties to stand behind the obligations under the contract. The lenders will also review any interface agreements and assess interface risks between contractors delivering different aspects of the project. The lenders will review the whole project to ensure risks are significantly mitigated. Ultimately, the lender does not want the project to fail and the level of scrutiny can serve as a prudent review of the project risks.

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36	**Key risks** There are a number of key risks facing renewable energy projects and these need to be well understood and mitigated where possible. Critical to the success of a project is the ability to generate revenues or savings in electricity and the certainty with which these can be produced. Lenders will take a prudent view of the revenue generation potential and of electricity price forecasts. Fuel arrangements for some technologies are critical to the ability to raise finance. For biomass projects there is competition for limited resource and the supply of fuel needs to be secured, potentially through long term supply contracts. Failure to meet the timetable will incur additional interest on debt and therefore additional cost. Delays normally come hand in hand with increased construction costs. Therefore the timetable needs to be deliverable and contracts need to include sufficient incentives for contractors to deliver on time. There are several emerging renewable technologies for which small-scale plants have been built but this does not mean that the plant will operate in the same way when constructed on a commercial scale. Any project requires the delivery team to have suitable construction and operation experience to ensure that projects are constructed within budget and operated as designed to ensure optimum output. Renewable energy projects can be complex and therefore previous experience is essential. Due diligence will be undertaken by lenders before providing finance. This will review all these aspects of the project. Without third party finance being used it is still critical that local authorities assess and mitigate these risks.

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37	**Revenue risk** Various revenue support mechanisms have been put in place to support renewable energy projects, improve project economics and make projects commercially viable: • Renewable Obligation: this is the longest standing support mechanism for renewable energy projects and applies to projects generating more than 50kw of electricity. • Feed-In Tariffs: this regime was introduced in 2010 and supports small-scale renewable energy projects up to 5MW. • Renewable Heat Incentive: this has been introduced in 2011 to provide long-term financial support to renewable heat installations to encourage the uptake of renewable heat. • The Green Deal: this is the Coalition Government's initiative to support the implementation of energy efficiency measures to households and businesses. The cost of these measures will be repaid through the savings in electricity bills and the necessary powers to do so will be included in legislation as part of the Energy Bill and will come into force in Autumn 2012. Revenue certainty is key to supporting the economics of a project and is impacted by a number of different factors such as operational performance, availability and electricity prices. The support mechanisms have been put in place to improve the project economics by providing additional revenue streams. Some are variable in price, such as the Renewable Obligation certificates and some are fixed, such as the Feed-In Tariff. The price of electricity is variable and robust electricity forecasts need to be used when assessing renewable energy projects. With changes in the way the electricity market operates as part of the Energy Market Reform and changes being proposed to the different regimes, such as the Renewable Obligation and Feed-In Tariff, Local Authorities need to understand the risks and impacts of any potential changes. Renewable energy projects can operate for up to 20 years or more. The revenue risks exist over the operating life and therefore need to be fully understood by local authorities developing projects.

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38	**It's all about the structure….** One of the main obstacles to developing renewable energy and low carbon projects is raising the finance necessary, whether it is through internal channels or through third party finance routes. The project structure is critical to the financing of any project. Key lender considerations revolve around the project risks, the experience of the parties and guarantees that are in place. Through the project structure local authorities can assign risks to the parties that are most capable of managing and mitigating the risk. Experienced contractors can be introduced through contractual arrangements and an experienced delivery team from within the Local Authority is critical to minimise the risk of cost and timetable overruns. Third party finance lenders will require security. This may be over assets or revenues and may require suitable guarantees from contractors or the Local Authority. The level of security will depend on the project structure. The structure adopted should meet the council's objectives and drivers. An authority's ability to undertake specific roles will depend on their skills to manage and deliver renewable energy projects. Senior members of the Local Authority will need to be convinced that managing risks retained by the Local Authority is within the capabilities of the team. Where skills don't exist within the authority then external advice can be sought. The appropriate structure should be considered during the early development stage of the project. The projects will require internal sign off from senior members within the authority. Obtaining their views at an early stage and involving them in the process will help increase understanding and increase the chances of internal sign off. Projects should be developed with the form of financing in mind. Projects will require specific documentation to be prepared and structures to be adopted. Local Authorities should adopt rigorous review processes throughout to satisfy themselves that all risks are identified and are being suitably managed and mitigated through the contractual structure. The building blocks for a project need to be developed throughout the project. This includes economic analysis, an understanding of the construction and operation of projects and the associated risks, development of delivery approach and translation of the elements into contractual arrangements. Private sector developers have developed and constructed renewable energy projects over the last 10 years or more. These projects have generated healthy returns for those developers and if projects are suitably structured then finance is available for local authorities to take advantage of the same opportunities!