ENGAGING WITH INVESTORS

Prepared for the
Low Carbon Vehicle Partnership

FINAL REPORT

1st December 2008

Contents

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1.0 Introduction

Investment in product innovation and R&D in the UK is generally acknowledged as being crucial to the future competitiveness of the UK automotive industry, and to have a key role in contributing to the realization of Government policy objectives relating to carbon emissions reductions and sustainable development. SMEs are an increasingly important contributor to innovation in this sector in the UK.

Access to early stage finance is perceived as being a potentially significant barrier to technology commercialisation in this sector and so the LowCVP wishes to provide assistance in supporting these companies in securing investment finance. The Innovation Working Group of the LowCVP has been tasked with looking for opportunities to provide support. The LowCVP's Innovation Working Group has been influential in shaping Government activity in support of innovation in the sector, its achievements include; developed the concept and facilitated the creation of Cenex, advised and supported Government on the Low Carbon Transport Innovation Strategy and successfully lobbied for the creation of the Low Carbon Vehicle Innovation Platform. More recently efforts have focused on the identification and signposting of key investor events. However, at the beginning of 2008 a sub group of the Innovation Working Group was established to develop a better understanding of the issues facing companies in this sector in locating and accessing finance.

The purpose of this report is to provide a high level overview of the current landscape for provision of early stage finance in the low carbon sector in the UK. The report aims to define the associated process of securing funds such that LowCVP members can begin to navigate the territory, and are better equipped to succeed in securing the investment that they need to grow. Most importantly the report aims to identify potential market failures and barriers in the current system as it relates to the low carbon automotive sector, and to make recommendations regarding future potential interventions on the part of the LowCVP. This report will provide an important input into the development of a subsequent programme of work to be undertaken by the Innovation Working Group.

The scope of this report includes a review of sources of finance available across the innovation chain from applied R&D through to commercialization. It does not include a review of funding available within academia which is typically used to support early stage R&D, and which is considered outside the scope of this current study. In addition, focus is on sources of funding that provide direct finance for product commercialization, and does not consider other fiscal incentives that may exist in the market for these products.

Section 2 of this report characterises those companies involved in the development of low carbon technologies that are likely to be in need of early stage financial support.

Section 3 provides an overview of the innovation cycle and the market for early stage finance as it relates to developers of low carbon technology for the automotive sector. It presents a summary of current trends in supply, and then looks specifically at the most relevant sources of grant and equity finance for start ups and SMEs in the UK.

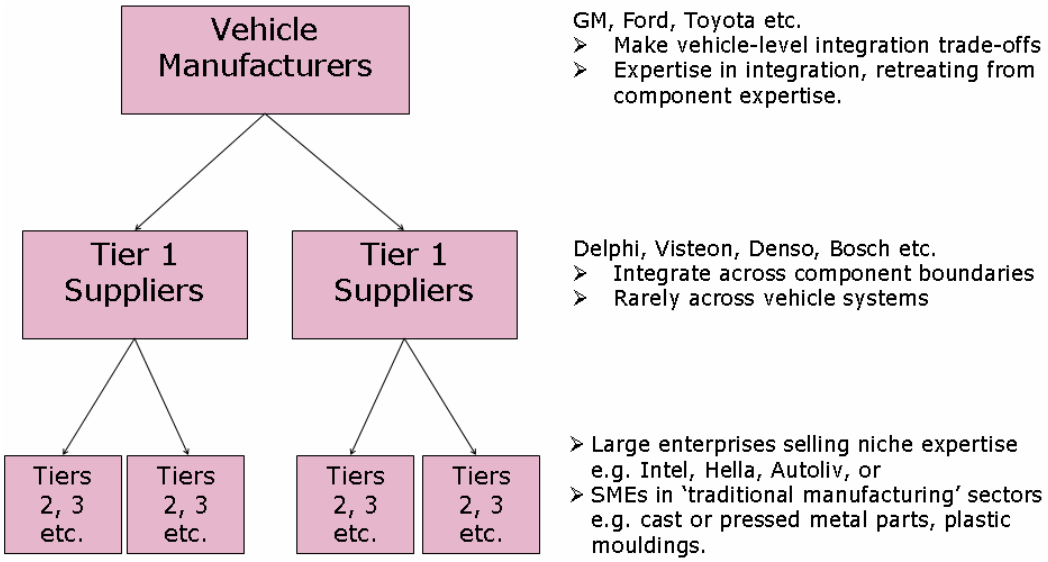
Section 4 presents an overview of the fund raising process and gives advice and guidance relating to the basics of preparing to raise finance, and the potential role of key intermediaries and professional advisors.

Finally, Section 5 presents the Conclusions and Recommendations based on the preceding analysis as it relates to potential opportunities for the LowCVP to intervene to the benefit of the sector.

This report has been produced on the basis of a desk based study using publicly available information and a small number of interviews with key stakeholders at the LowCVP. It does not aim to provide a directory of all potential sources of funding, but does cover the main sources appropriate to this sector.

2.0 Demand for Early Stage Finance in the Low Carbon Vehicle Sector

The automotive industry has traditionally drawn on a complex, tiered network of suppliers because of the nested levels of integration of the components which go to make up a vehicle. Low carbon innovators bring their products to market in this environment, but do not necessarily conform to the structure. A schematic representation of the automotive industry supply chain is presented below:



Where a low-carbon vehicle technology fits readily into existing vehicle integration thinking (e.g. more precise emission control technology), the innovator is able to work effectively with the appropriate tier of supplier to introduce their technology. Where an innovation requires fresh thinking at a higher level of integration (e.g. regenerative braking, fuel cells), a difficulty is introduced. The new technology requires integration across a boundary which previously did not require it. The innovator must thus create a new structure to bring the technology to market, which is clearly a substantial challenge.

Many SME innovators deviate from the industry tradition of innovation emerging from large research labs at major companies. Some SMEs may come from outside the existing supply chain, and/or challenge the existing market structure. This change has occurred in part as a result of vehicle manufacturers passing on the onus of innovation to the supply chain.

Below is a broad characterisation of the current UK landscape.

There are currently more than 40 companies that manufacture vehicles in the UK, ranging from global volume car makers, van, truck and bus builders to specialist niche players. The UK accounts for some 2.4 % of worldwide vehicle output and 8.7 % of European assembly, ranking it fourth in Europe and twelfth globally[1] in terms of scale. It has been recognised that a strong national supply chain is essential if the UK is to retain and increase foreign vehicle manufacturer's investment in the UK. There are estimated to be in the region of 2,600 component manufacturers in the UK, employing over 115,000 people, with particular expertise in power train design and production.

[1] http://www.berr.gov.uk/whatwedo/sectors/automotive/index.html

It has been estimated that 90 % of automotive component suppliers are small or medium sized businesses employing less than 200 workers, and these are considered to be increasingly vulnerable in the face of globalisation and increasing competition[2].

Current market drivers require UK suppliers to be innovative[3]. There is limited development and innovation in the UK amongst the key vehicle manufacturers and Tier 1 component suppliers as many are foreign owned and have their R&D facilities outside of the UK (the major exceptions being Ford, Jaguar, Land Rover and Nissan). However, there are still estimated to be several thousand SMEs (including component suppliers, design engineers, materials processors and contract research organisations) active within the lower tiers of the UK automotive supply chain, of which it is assumed that a portion are active in product development or innovation.

In comparison, fuel innovation typically occurs within the major oil companies, industrial gas and chemical companies, albeit with increasing activity amongst new entrants to the sector such as specialist biofuel companies, many of which are SMEs.

The industry is supported by a strong platform of related capability and intellectual property (IP) within the UK science base with potential for technology transfer and commercialization. These include both the public sector research establishments and academic institutes such as Warwick (University) Manufacturing Group, the University of Birmingham, Coventry University, and Loughborough University. Also important are a number of key independent research organizations such as RAPRA Technology, Qinetiq and MIRA.

Limited data are available to support an accurate segmentation or characterisation of those organizations involved in low carbon technology development for the automotive sector. Collation of these data is challenging, and it would appear that no organisation has yet attempted to do so. A key issue is being able to map the position of these companies in relation to the existing supply chain structure.

Various data sources give an indication as to the potential number of SMEs involved, although each has limitations and none gives a precise picture of the breath or depth of the potential pool.

For example, indicative data are available from a recent call for proposals issued by the Technology Strategy Board (TSB) in 2008. This call was held under the Low Carbon Vehicle Platform, and was targeted at encouraging collaborative project proposals across a range of applications including energy storage and hybrid vehicles. This call elicited responses from a large number of project consortia, involving a total of 22 SMEs and 32 large organisations[4]. The £23m call was oversubscribed to the value of £70m, indicating a strong level of activity in this sector, albeit dominated in this instance by the larger corporates. 16 projects were finally approved for funding.

A recent report published by BERR, 'Business Environment for Japanese Automotive Supply Companies in the UK", published in April 2008[5] identified as a weakness the lack of centralized and coordinated information relating to UK component suppliers. A 'Key Action' coming out of the report was the need to develop a comprehensive supplier database for the UK automotive industry, with specific emphasis on the Tier 2 plus component suppliers. A pilot is currently underway with the database expected to be completed by the end of 2008. Interestingly, innovation was not a key theme explored in this report.

[2] Innovation Networks and Regional Clusters in the Automotive Sector: The UK West Midlands, Stewart MacNeill and Xin Lui, Centre for Urban and Regional Studies, University of Birmingham, 2008
[3] Vision for the UK Automotive Industry in 2020, Focusing on Supply Chain and Skills and Technology, Ricardo UK Ltd/Skills 4Auto Ltd, March 2006
[4] Source: Technology Strategy Board
[5] http://www.berr.gov.uk/files/file45472.pdf

Consequently a number of assumptions have been made regarding the potential demand base for the provision of early stage finance to spin outs, start up companies and SMEs in this sector. It has been assumed that these companies have the following characteristics:

- Represent a range of technologies relating to both the power train and fuel efficiency that result in a reduction in carbon emissions. These include:
  - Improvements to Internal Combustion Engines and powertrains
  - Gaseous fuels and gas to liquid fuels and compatible vehicles
  - Battery/Electric/Hybrid vehicles
  - Energy recovery and storage systems
  - Fuel cell and hydrogen vehicles
  - Biofuels and compatible engines
  - Materials, composites and alternative materials for weight reduction
  - Control electronics and onboard software systems
  - Associated infrastructure, e.g. fuelling and recharging stations
  - Telematics and other systems to improve the efficiency of road use.

- Are dispersed throughout the country, but with anticipated higher concentrations and 'clusters' in traditional automotive strongholds such as the Midlands (East and West), the North West, South Wales, Swindon and the Motor Sport Valley (centred around Oxford)

- Are representative of a spread across the range of stages of technology development from applied R&D through to commercial roll out

- Are primarily interested in accessing finance from UK and European sources (other sources such as the US are not considered within the scope of this study).

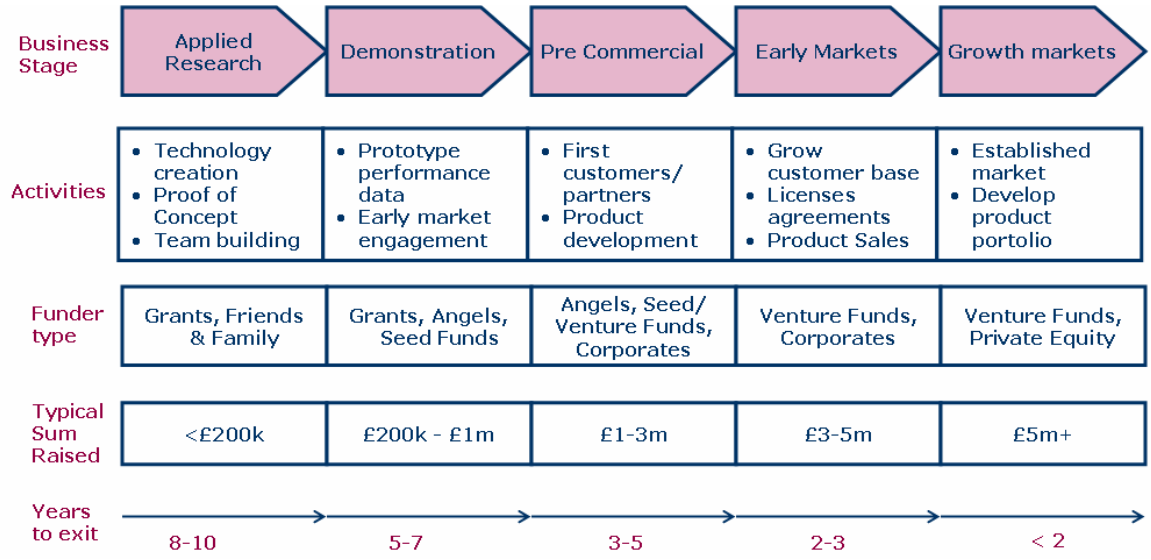
3.0 The Innovation Process and Sources of Finance

3.1 Overview of the Innovation System and Primary Sources of Finance

Innovation is sometimes characterised as a journey from research to commercialisation - or 'concept to cash'. However, every business will travel a slightly different path, and the notion of a system is relevant since the technology, company, market and regulation are all fellow-travellers that must evolve as they travel together. The Carbon Trust has developed the model of the 'Four Journeys of Innovation' to describe this system[6].

A linear model of the journey is a helpful simplification when considering potential sources of finance, as indicated in Figure 1. However it should be recognised that an innovation may jump a step or return to an earlier one if progress is not forthcoming. Companies may have multiple chains operating in parallel as several products evolve. Along this chain the business moves from being a net consumer of cash to a net generator with the realisation of revenues. Almost all new businesses will cost more to build than they can generate in immediate customer revenues. Consequently they require access to finance to underwrite the early stage of 'cash burn' and growth.

Figure 1
Overview of Early Stages of Business Development



Businesses seeking to raise finance need to understand where they fit within this 'funding ecosystem' and prepare accordingly since different sources of finance are generally more applicable at certain stages in the process.

In addition eligibility for different sources of finance will be dependent on the following:

- Heritage of the company, i.e. a University spin out versus an entrepreneur founded business
- Position of the company along the innovation chain
- Key applications and markets
- Ownership of the IP
- Relative maturity and stage of development of the technology, and
- Geographic location.

[6] http://www.govnet.co.uk/science/presentations/carbontrust2.pdf

There are three main sources of finance available to start ups and SMEs in the UK:

1. **'Soft' funding** – most typically associated with grant funding or subsidised financial assistance provided from the public sector, e.g. R&D Tax credits. This funding may be sourced direct from a Government department, or most likely via an executive agency such as a Regional Development Agency (RDA), Devolved Administration (DA) or delivery agency such as the Technology Strategy Board (TSB). Increasingly most grant funding requires an element of match funding on the part of the applicant.
2. **Equity finance** – whereby capital is provided to the company in return for a shareholding in the business, e.g. corporate investors, business angels, venture capital/private equity, and public sector schemes.
3. **Debt Finance** – most commonly the provision of a loan of some form that is subsequently repaid at a pre agreed interest rate. These may be available from a High Street Bank or specialist finance providers.

Each of these is discussed in more detail in Sections 3.4 – 3.6.

Overall grants are considered as being particularly important to early stage finance, specifically to support technology development and proof of market analysis. In general, businesses aim to maximise utilisation of grant funding in the early stages of operation. This is typically supplemented by investment of cash from the founders of the business and 'family and friends' in return for a founding equity stake in the business. Normally equity finance is difficult to secure until the product has been demonstrated and early revenues have been secured, ideally through a relationship with an end user.

The often quoted 'valley of death' is commonly experienced by young businesses in the stages after proof of concept and demonstration, but before revenue is secured and when they are still considered to be high risk by venture capital funds.

It is in this gap that Business Angels and Seed Funds tend to operate, often coming in as one of several investors (on occasions known as a 'syndicate') to provide the investment typically required to complete the pre commercial development phase.

'Series A' is commonly used to denote the first round of financing when a venture capital fund or industrial partner comes on board, and significant finance is raised - typically in the region of £1m+. Subsequent rounds of equity funding are termed Round B, C etc and are undertaken as and when appropriate to the growth plans of the individual business.

Equity investment by the majority of players (Business Angels, Seed Funds and Venture Funds) is made with a view to a time when the business will be a net generator of cash. Although for some private investors this may be anticipated as a flow of annual dividends, for most institutional investors it means a time when the business can be floated (typically on the AIM market in the UK) or sold to a corporate – otherwise known as an 'exit'. A central part of an investor's decision will be their assessment of the time to exit. This will be a combination of the time required for technology development, and that required for market penetration. Typically time lines to exit are indicated in Figure 1.

All investments carry risk – the risk that the money invested may never return. Reward compensates an investor for that risk. Early stage technology businesses are, in comparison to 'everyday' investments such as bonds and shares, high risk investments. As a rule, for every 10 venture capital investments made, 2 will result in total loss, 7 will limp along with borderline financial viability (known as 'the living dead'), and one will be a spectacular success. Venture capital investors depend on the 1 in 10 to pay for all the other losses and provide their profit. Experience tells them that unless a proposition has this 10x gain potential, it can't justify the high risk of failure. Investors usually undertake a robust process of due diligence to allow them to assess the degree of risk associated with a particular investment. This is discussed in more detail in Section 5.

3.2 Current Sources of Finance and Future Trends

Overall the landscape for provision of funding to the low carbon sector has evolved significantly over the last two to three years, with the most significant shift happening in the venture capital sector.

Public sector support of innovation and low carbon technology development in the UK has remained fairly steady over the last five years and is set to continue on a similar trajectory. In addition, funding from the EU under the current Framework Programme 7 will provide a further significant tranche of grant funding. In the UK the majority of public funding is focused on early stage support for start up businesses rather than market support mechanisms that are often favoured in countries such as Germany.

Recently, development of low carbon technologies in the UK has received a relatively high degree of support from Government compared to other sectors of the economy. This has been due to the relatively low early market pull, and a number of specific market failures and barriers such as high capital and infrastructure costs[7]. Appropriate sources of grant funding are considered in more detail in Section 3.4.

In contrast, funding from the private equity sector has increased significantly over the same period. Over the last few years, investment in low carbon technologies has become an accepted mainstream activity for venture capital firms. This has been driven by concerns over energy security, increasing oil prices and climate change which have become core policy issues for the Government, supported by regulation which creates a market demand.

In parallel, new companies in the sector have become increasingly sophisticated, with the evolution of serial entrepreneurs and experienced management teams that have been involved in multiple start-ups. This has made the sector far more attractive to the venture capital funds.

The extent to which investment in the sector will be impacted by the current economic crisis is unknown. Whilst the sector is robust, with a number of new funds having been raised in the last 12 months, there is likely be a slow down in the level of recent activity seen and also possibly downward pressure on valuations. One likely result will be an increase in demand for public sector finance amongst early stage companies, both grant and equity.

Investment in low carbon technologies is increasingly captured within the definition of what is commonly classified as ‘Cleantech’. The precise definition of Cleantech may vary depending on the particular source. The definition adopted for the purposes of this report is that provided by Library House, in conjunction with the Carbon Trust[8]:

“diverse products, technologies and processes which, through improvement in the clean energy supply chain from energy source through to the point of consumption, result in reduction in carbon dioxide emissions”.

As such it includes:

- Upstream: The exploration and development of alternative energy sources
- Generation: The generation of useful energy, both electrical and otherwise
- Infrastructure: Technologies related to energy delivery infrastructure
- Consumption: Technologies to improve energy efficiency at the point of consumption.

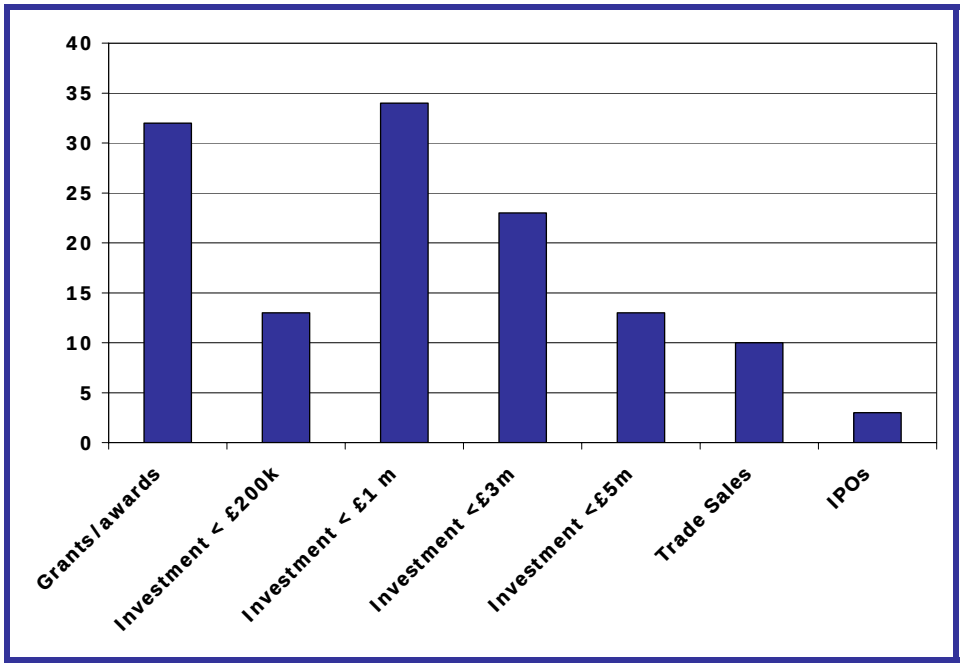
[7] A Review of the UK Innovation System for Low Carbon Road Transport Technologies, a report for the Department for Transport, March 2007
[8] http://www.libraryhouse.net/cleantech/

Under this classification, transport is typically included within Consumption, although clearly there is a case to be made for inclusion in other categories as appropriate.

Worldwide venture capital investment in the Cleantech sector in 2005 was $2.5 billion, increasing to $5.18 billion in 2007[9]. The bulk of this investment (53 %) was in low carbon technologies.

Figure 2 presents an overview of the actual sources of early stage finance secured by SMEs in the Cleantech sector in the UK since January 2007. These relate to finance secured by trading companies, not pre spin out or start up, and does not include early stage funding from Universities or founding teams. This distribution indicates a significant volume of transactions in the earlier stages of company development (where funds raised typically <£1m), and a fall off in the number of companies seeking larger sums of money at later stages. This is consistent with the high failure rate in new business discussed in Section 3.1.

Figure 2
Source of Early Stage Finance for UK Cleantech Sector, Jan 2007 to Sept 2008[10]



There are a limited, but increasing, number of specialist venture capital investors who deal exclusively in Cleantech, but mainstream funds are also involved. In Europe in 2006 there were 102 institutional Cleantech deals worth a total of £270m, but no one venture capital firm participated in more than 5. Those with the largest deal flow were the large mainstream companies such as 3i. This reflects the nature of venture funds, with most typically only closing out on a handful of investments each year. In the first half of 2008 already there were in the region of 75 deals completed across Europe, with an estimated value of around £200m[11].

It is estimated that in 2006 there were 224 venture backed Cleantech innovation companies in Europe, with just over 40 % based in the UK – the single largest contribution.

[9] Managing Climate Risk, A practical guide for business, Edited by Adam Jolly, Thirigood Publishing Ltd, 2008
[10] Data sourced from Library House
[11] The Library House Quarterly Briefing, Q2 2008

However, European investment in this sector still lags significantly behind the US where Cleantech venture capital in the second quarter of 2006 alone was four times that for the same period in Europe. Interestingly, consumer demand for hybrid and electric cars and clean fuels has been identified as a significant contributory factor in developing interest in Cleantech investment in the US[12].

In a report published in 2007, Library House stated that public sector support for Cleantech companies is crucial in creating a vibrant venture capital market[13]. Their report goes on to state that in the UK the public sector participated in 45 % of all deals.

In a recent report produced by NESTA[14] the authors found that while the UK currently boasts the largest private equity market in Europe there are increasing concerns that the availability of early stage capital is declining. As private venture capital firms move further upstream in search of larger profit margins, the UK's early stage funding landscape is potentially left exposed. But whilst private investments in start-ups have decreased, public sources of finance increased their share of the early stage investment market. Consequently they concluded that in the future, public finance will have a critical role to play - alongside private investors - to help bridge the gap left by the private investment funds.

Globally, there have been strong trends in terms of which technologies have attracted the most funding, with solar technologies attracting by far the largest interest[15]. In contrast investment in biofuels fell almost one third in 2007 as the rush to build US ethanol facilities came to an end. Investment interest in biofuels has now switched to biodiesel and development of second generation fuel technologies such as cellulosic ethanol.

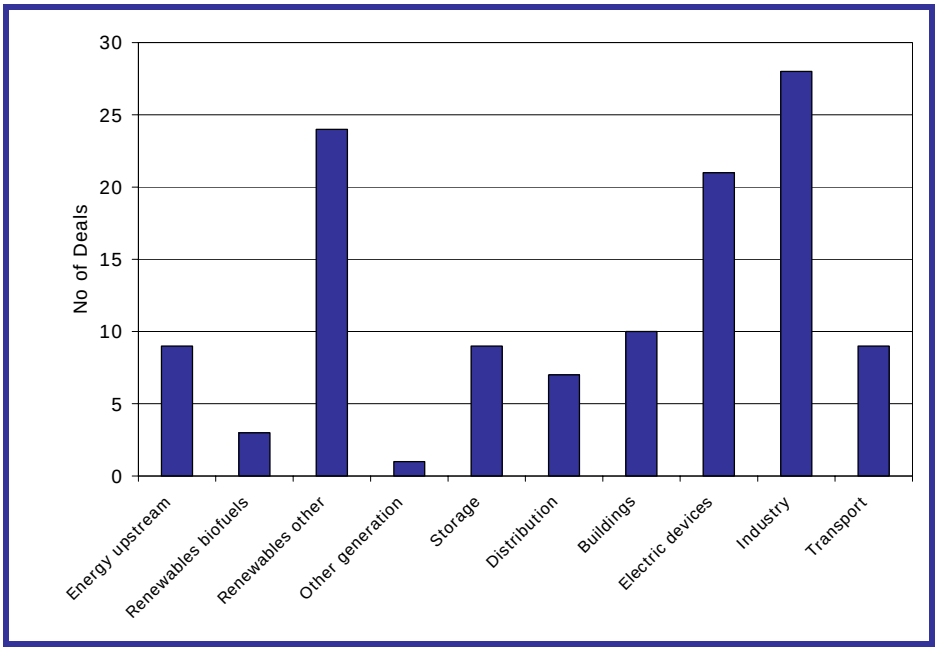
In contrast, analysis of the equity investments made in the UK Cleantech sector over the last two years indicates a broader spread of investment, as presented in Figure 3. Whilst there is still strong activity in renewable energy generation, other markets showing a good performance include Electric Devices and Industry; each of which have sub sectors of potential relevance to the automotive sector.

Figure 4 provides an overview of the specific UK equity investment made in sub sectors with potential direct application to the automotive sector. These data clearly indicate the relatively strong interest in biofuels and storage technologies compared to others. However, these data should be treated as indicative only as it is difficult to give an accurate picture of the precise level of investment in automotive related activities due to the complex classification systems used, and the broad range of technologies with potential applicability. Nonetheless, Figures 5 and 6 do give a flavour for the relative size of the sub sector in the UK compared to others within the Cleantech portfolio.

Further detail on providers of equity investment in the UK is given in Sections 3.5 and 3.6.

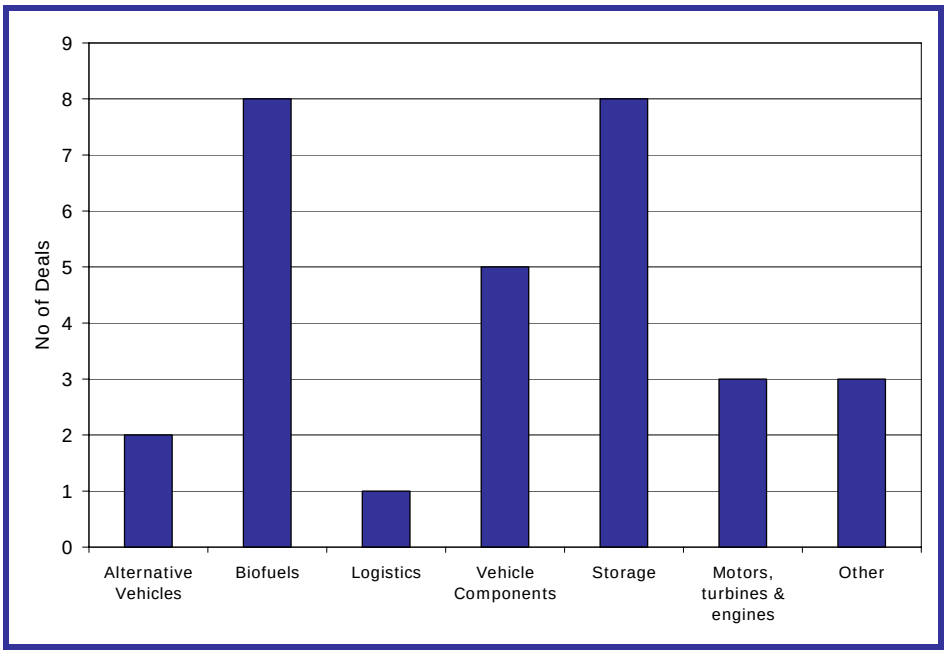
[12] The Cleantech Revolution, The Next Big Growth and Investment Opportunity, HarperCollins e-books, 2008
[13] Cleantech goes Mainstream, April 2007, Library House
[14] http://www.nesta.org.uk/shifting-sands-the-changing-nature-of-the-early-stage-venture-capital-market-in-the-uk/
[15] Global Trends in Sustainable Energy Investment, 2008, NEP, SEFI and New Energy Finance, 2008

Figure 3
UK Equity Transactions by Sector, Jan 2007 – Sept 2008[16]



Upstream Energy includes biofuels, hydrogen, geothermal, oil, gas and coal
Renewables Other includes Solar, wind, Hydro, Geothermal, and Hydrogen/ fuel cells
Storage includes Batteries/electric and Other
Distribution includes Advanced Materials, Distribution and Management technologies and Other
Electric Devices includes IT Hardware, Lighting, Household Appliances and Other
Industry includes Motors/turbines/engines, Process intensification, Sensors and controls, Water treatment, and Recycling.
Transport includes Alternative vehicles, Vehicle components, Logistics and Other

Figure 4
UK Equity Transactions in Subsectors of Relevance to Automotive, Jan 2007 – Sept 2008[17]



Note: Storage includes batteries/electrical storage and hydrogen/fuel cells
May include multiple transactions for an individual organization over the 2 years period.

[16] Date sourced from Library House
[17] Data sourced from Library House

3.3 Common Factors for Success in Accessing Finance

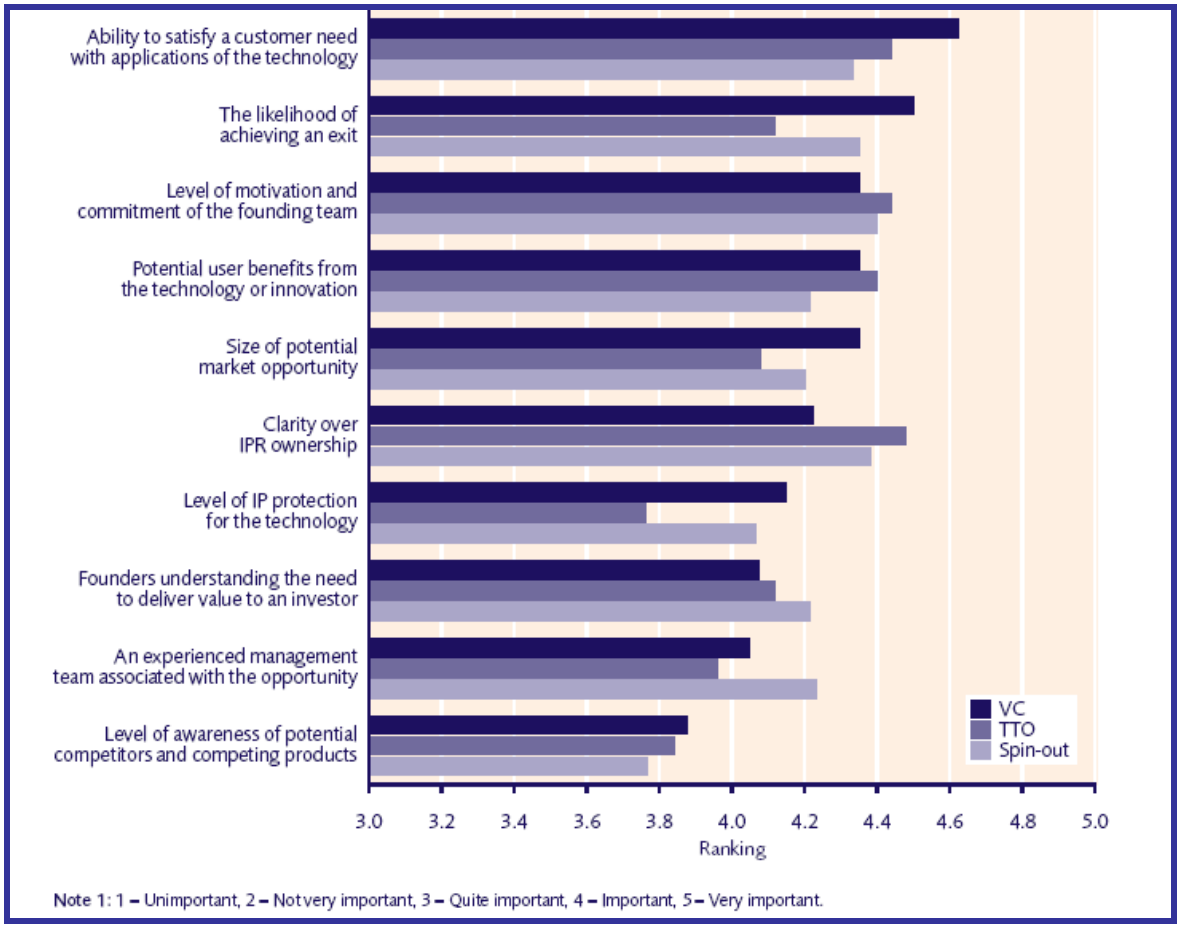
There are a number of commonly quoted factors regarded as being critical to successful fund raising amongst technology based start ups and SMEs, regardless of the sector within which they operate.

Typically, to be attractive to an equity investor a business needs to be able to demonstrate aspirations and potential for growth, with a significant turnover in growth within 5 years. Critical to this will be evidence of an experienced and ambitious management team capable of delivering that growth.

A report prepared by the British Venture Capital Association analysed those factors important to the successful raising of finance for technology based spin outs. Figure 5 lists the ten factors considered of most importance to the various players: the Technology Transfer Office (TTO), the spin out, and the venture capital funds. There is clearly consensus regarding the key factors, which are essentially based around four key themes:

- Demonstration of a clear, and defendable innovation
- The quality of the delivery team
- Evidence of market need, and
- A clear investment case, including exit strategy.

Figure 5
Ranking of Factors Required for Successful Spin Out Investment[18]



[18] Creating Success from University Spin Outs, BVCA, Nov 2005.

Aligned with these factors are a number of key barriers that young businesses face, including:

- Recruitment of an appropriately skilled management team – often the founding team do not have the appropriate business skills or experience to give an investor confidence that they can deliver against plans. Identifying, and attracting in appropriate resources can be a difficult and time consuming exercise
- Understanding the investor's perspective – and in particular the need to develop robust and credible financial forecasts to underpin a business valuation, and potential for exit
- Delivering proof of market and technology – being in a position to have sufficient operational data and experience to prove the technology will attain the required performance levels, and proof of evidence from the market place that there is demand. Typically the latter requires some form of relationship with a key market player, e.g. as a Project Partner, or ideally as part of a joint development programme.
- Developing IP that is clean and robust – in the case of a spin-out this is typically the role of the Technology Transfer Office (TTO - see Section 5) to ensure that there is no infringing IP, and that all prior art has been appropriately examined. In the case of an SME this may be harder to achieve and require the services of a patent lawyer, which can be expensive for a company that is cash constrained.

Assistance in addressing some of these barriers can be sought from a number of sources including intermediaries such as TTOs and incubators, and the venture funds themselves. This is discussed further in Section 5, together with further details relating to the specific requirements of investor readiness.

3.4 Sources of 'Soft' Funding

3.4.1 Grant Funding

The following section provides an overview of main sources of potential UK grant funding that may be appropriate to developers of low carbon technologies in the automotive sector. A more detailed list of programmes is provided in Appendix A. This is not provided as an exhaustive list, but does cover the main sources commonly accepted as being receptive to applications for funding from this sector.

All publicly funded programmes have strict eligibility criteria, and typically specific priorities or themes and/or are targeted at specific industry sectors or technologies. The appropriateness of these sources of funding to individual companies will vary depending on the:

- Technology
- Target markets
- Stage of development (e.g. applied R&D versus demonstration)
- Requirements in terms of technical and commercial development (what exactly are the key barriers the company is looking to address using the grant funding)
- Availability of partners (academic or industrial)
- Geographic location.

In addition, each programme has a specific application process and may operate a 'rolling' open call system, or may operate a timetable of restricted calls at pre defined times during the year. Individual companies need to consider these factors in identifying the most appropriate source of funding.

It is important that individual companies maintain regular contact with those key funding agencies considered to be of relevance in order to understand where/when opportunities may lie with future/up coming calls.

Grant funding is typically available for discrete projects or programmes of work that are delivered within a pre defined period of time, and against specific milestones. Broadly speaking, access to public grant funding for early stage R&D, Proof of Concept and Demonstration requires the applicant to demonstrate the following:

- Description of the technology and potential differentiator in the proposed application
- Understanding of its performance relative to competing technologies (functionally and in terms of cost)
- Priority routes to market and understanding of target organisations required to facilitate access
- Technology development route map
- Project team with the capabilities and availability to deliver against the proposed programme of work
- If appropriate, evidence of legal corporate structure and financial performance.

Overall, there is limited public sector grant support specifically for the development of low carbon technologies for the automotive sector.

Until recently, responsibility for supporting innovation in this sector lay with the Energy Saving Trust. Their grant funding programmes have in the main now been passed to the **Technology Strategy Board (TSB)** whose main mechanism for support in this sector is the Low Carbon Vehicle Innovation Platform (LCVIP). Under this programme the TSB is currently supporting 16 innovative and collaborative projects focused at addressing priority areas of development for the sector, e.g. hybrid power trains and energy storage. As part of the future £100 m Integrated Delivery Programme the TSB will be holding regular calls over the next five years, looking to encourage collaborative projects between Universities and industry to take new technologies forward from applied R&D through to demonstration. These calls will essentially be technology agnostic, although the TSB may choose to identify priority areas for support in individual calls.

Funding for this programme is coming from the TSB (£20m), the Engineering and Physical Sciences Research Council (£10m) and Department for Transport (£10m). Major contributions have also been received from two Regional Development Agencies - the Advantage West Midlands (£30m) and One North East (£30m).

Recent and future calls recently announced by the TSB include the following:

- The ultra low carbon vehicle demonstration competition has just been launched under the LCVIP and aims to see up to 100 new innovative cars on the road in several locations around the UK by the end of 2009. This competition has up to £10m of funding available and will provide a portion of the costs for business led demonstration projects of vehicles with tailpipe emissions of 50g CO_2/km or less and a significant electric only range. Applications will be requested in January 2009 with the successful projects announced in March.
- Research competition into improving technology to make green cars more affordable. This call provides up to £10m for business led collaborative research and development to support projects in all areas relevant to the development of enabling system and sub-system technologies to deliver more cost effective and higher performing all-electric and hybrid vehicles for mass market applications. Applications will be invited from 19th January 2009 with a deadline for expressions of interest of 26th February 2009 - project decisions will be expected in May 2009.

- Open technology competition for wider collaborative projects covering all vehicle technologies capable of delivering large scale carbon reductions in the coming decades. This competition will have between £5 and £10m available and applications will be invited from June 2009 with project decisions expected in November 2009.

SMEs may also apply to the Collaborative R&D Programme, also run by the TSB (formerly run by the DTI), which has a new call due in Autumn 2008. Key Technology Areas identified for this next round of applications are:

- High Value Manufacturing: Step changes and value systems
- Photonics: Photonics21 - Next generation optical internet access
- Materials: Sustainable materials and products
- Energy: Maximising recovery of UK's oil and gas resources
- Environmental Sustainability: Fuel cells and hydrogen technologies
- Creative Industries: Accessing and commercialising content in a digitally networked world.

Project applications require collaboration between industry and research partners and require match funded, i.e. an component of cash input from the applicant relative to the grant amount. Of these Key Technology Areas, High Value Manufacturing, Environmental Sustainability and Materials have perhaps the highest potential application for the automotive sector. Calls are open to technologies covered by the Innovation Platforms so long as they are able to address the specific requirements of Key Technology Areas identified in the call.

CENEX now manages the Infrastructure Grant Programme formerly managed by the Energy Saving Trust. This programme makes grants available to encourage organisations to install refuelling or recharging stations for alternative fuels. Funding is available for hydrogen, electric, E85 bioethanol, natural gas/biogas stations and other non traditional fuels. The Infrastructure Grant Programme is currently under review pending State Aid approval, although Cenex is registering expressions of interest in the programme ahead of a future announcement.

Energy and Transport themes for European Union Framework Programme 7 **(EU FP7)** are managed by DG RTD and DG TREN with the programme covering both R&D and demonstration phases. Projects tend to be collaborative and encourage European organisations to share their resources and expertise to make technological advances. FP7 initiatives are an effective way of engaging with leading players and industry networks. Current calls are not specifically focused at low carbon automotive applications, with the most appropriate call currently being one associated with Sustainable Biorefineries.

Details of current/future calls can be found at: http://cordis.europa.eu/fp7/dc/index.cfm

DG Transport specifically is currently divided into three themes: Aeronautics and Air Transport, Sustainable Surface Transport (DG TREN and DG Research); Galileo (European satellite navigation system). Sustainable Surface Transport had a number of calls over the life of FP6, but to date limited information is available regarding likely future calls which will be made available via their website.

The **Joint Technology Initiative for Fuel Cells and Hydrogen (FCH JTI)** is a public-private partnership between EU, Industry and academia. The JTI has a six year budget of EUR 900m, with the main areas of focus being transport, stationary, hydrogen, early markets and cross-cutting applications. Projects will attract a 'project fee' unless applicants are members of the NEW IG industry grouping. Calls will cover basic and applied research, and demonstration, with cross-European collaboration required, and project duration of between 1-4 years.

The first call for proposals with an indicative budget of EUR 28.1 million was published in early October 2008 covering areas including transportation and refuelling infrastructure.

In addition to the specific sources of grant support identified above, there are a number of other important sources of grant funding for low carbon technologies which do not have a specific emphasis on automotive applications. Further details are provided in Appendix A, but these include:

- The Carbon Trust – Operates a number of programmes that may be of relevance although low carbon automotive technologies are not a priority sector as this has traditionally been handled by the EST (and now the TSB). However, they do fund applied research in hydrogen production, fuel cells, biofuels production and engine development for use with biofuels. Applications are considered on a case by case basis depending on the 'carbon case' of individual technologies, and it is worth contacting the Carbon Trust ahead of an application to discuss eligibility. Specific programmes of relevance, and with current calls open, include:

  - Applied Research Grant programme
  - The Incubator Programme
  - Technology Accelerator Programme, including the Algae Biofuel Challenge.

  In all instances companies need to articulate a clear carbon benefit for the technology in its target markets to be considered.

- European Commission – Under the Competitiveness and Innovation Programme (CIP), the Eco Innovation initiative is a large programme focused on supporting new technology pilots and market replication projects for SMEs. The first call closed in September 2008, but further calls are expected in the coming year in a variety of target sectors. It is not yet clear whether this will include automotive applications, novel fuels or transport infrastructure.

- Scottish Government/Scottish Enterprise – Energy has been identified as a key strategic priority sector by the Scottish Government. As such, depending on the nature and scope of the proposed project, and the geographic location of the project partners, opportunity may exist to apply for a grant from the R&D Grant Programme, and also SMART programme. For potential spin outs from Scottish academia, the Proof of Concept Programme is a good source of financial support.

- Regional Development Agencies – Many RDAs are active in providing grant support to regional innovation initiatives, such as the Automotive Cluster in the West Midlands (with a key support scheme being the *Accelerate*), and demonstration of hydrogen and fuel cell technologies such as the Welsh Assembly Group's Hydrogen Valley Cluster. They are also responsible for the management of Selective Financial Assistance for Investment (SFIE) to support capital development for companies in specific assisted areas. In addition, they are responsible for the administration of the Grants for Research and Development (GRD) programme which is targeted at supporting applied R&D across all industry sectors, and several RDAs are now involved in the development and roll out of Innovation Vouchers schemes for SMEs.

Other smaller sources of funding may be appropriate, dependent of the nature and scale of the technology programme under consideration, e.g. future calls by the Hydrogen Fuel Cells and Carbon Abatement Programme (HFCCAT).

3.4.2 R&D Tax Credits

A key potential funding mechanism for young SMEs involved in technology development is the R&D Tax credit scheme. This scheme is managed through HM Revenue and Customs (HMRC) and is designed to encourage companies to invest in R&D through either reducing the tax bill for a company, or potentially providing them with a lump sum.

Some SME companies not in profit can surrender their R&D tax losses for cash (in the form of a payable credit) of up to 24p per £1 of actual expenditure within specified categories. Companies undertaking R&D you may also be able to claim 100% capital allowances for capital R&D expenditure.

It is currently estimated that over 4,500 small and medium-sized (SME) companies are claiming more than £250m each year in R&D tax relief from HMRC. Further details and eligibly criteria can be found at: http://www.hmrc.gov.uk/randd/intro.htm.

3.5 Sources of Equity Finance

There are a number of potential sources of equity finance for low carbon technology start ups in the UK, but the application process is rigorous, and competition is fierce. Most sources of equity finance only close a small number of deals each year, and are highly selective. However, many organisations tend to be less restrictive in terms of technology 'sweet spot' than grant funding bodies, so long as the investment case is compelling.

The main sources of equity finance of relevance to this report are:

- Angel Investors – Business Angels (also known as 'High Net Worth Individuals' or 'Sophisticated Investors') are private individuals who make financial investments in start up ventures and young businesses. Often they have been successful entrepreneurs themselves. Since they are by definition financially secure, many are just as interested in taking an active role and involvement in the business as they are in generating a good return on their investment. Access to Angels is typically made via an Angel Network, personal contacts, or a Corporate Financier (See Section 4.)

- Seed Funds – These are sources of equity finance that are targeted at relatively early stage businesses that are pre revenue and/or not yet ready or appropriate for private equity finance. As these investments are often perceived as high risk investments, seed funds are often financed or underwritten by the public sector, including Universities, and may be directed at economic development in strategically important regions or sectors

- Private Equity - Private Equity is a medium to long term finance provided in return for an equity stake in potentially high growing unquoted companies, and in the UK and Europe is typically used interchangeably with the term 'venture capital' to include coverage of whole industry through from seed to expansion stages of investment through to management buy-outs and buy-ins[19].

  Venture Capital Funds, or Venture Capital Trusts, raise funds from other sources which they then invest in high-growth businesses. They are often 'closed funds', meaning that they raise a fixed sum at a given point in time, and then accept no further investments during the term of the fund. At the end of the term of the fund (often 10 years) the proceeds must be returned to the original investors. For this reason, VCs will only invest in businesses where they have a clear exit route achievable within the timeframe of their fund.

[19] Definition from www.bvca.co.uk

- Corporate or Strategic Investors - Corporate investors are those who invest not solely for the profit of the investment itself, but because the investment improves their position in some wider competitive context. For example, it may secure them insight or rights over an emerging technology, or deny a desirable acquisition target to a competitor.

Large companies often make strategic investments in start-ups relevant to their field. In this instance these are most likely to include automotive manufacturers/integrators, oil companies, industrial gas companies and Tier 1 suppliers.

3.5.1 Angel Investors

Angels may invest alone or as part of a syndicate or angel network or along side other sources of finance such as a Seed Fund and may invest from a few thousand to a few hundred thousand pounds. They can also choose to invest in whatever interests them in a way that employed investment fund managers rarely have the freedom to. Angels are often well placed to back a proposition that does not fit standard institutional templates, and may often have a particular sector or market that they favour.

When Angel Investment may be appropriate:
Angels can, as individuals, often act more quickly than institutional investors can, and may often bring other Angels into a deal. They may also be able to bring a level of personal engagement to a business that institutional investors cannot provide. If relevant, their experience may be a valuable aid to the company.

When Angel Investment may be less suitable:
Angels may invest for reasons which go beyond the strictly financial (though not always declared as such); companies seeking Angel investment should understand as far as possible the expectations of the Angel. Angels vary as individuals in the level of direction and involvement they wish to contribute to the business, and in the relevance of their experience to the proposition in question. The level and nature of involvement required and sought must be in harmony for the arrangement to work, and it is important for both parties to have confidence that they will work well together as a team. In addition, accepting investment from multiple Angels inevitably results in the potential need to communicate with, and manage multiple shareholders.

The British Business Angels Association (BBAA)[20] provides a full listing of angel networks in the UK and provides useful advice on the processes involved in raising finance from this route. Some of the networks operate on a national level, but most focus on a local or regional level. Typically interaction with the networks follows a formal process of screening, followed by a presentation of the business to the network. Networks may charge a fee to businesses for managing this process, either on an 'up front' payment, as a percentage of funds raised or a combination of both.

3.5.2 Seed Funds

Seed Funds provide early stage capital for start up businesses that are looking to 'kick start' commercialisation but are not yet in a position to be attractive to Venture Capital Funds. They typically invest alongside other early stage investors that could include Angels and 'Friends and Family'. Deal sizes are typically anything between £50k - £250k depending on the specific fund and their eligibility criteria, although some may be considerably higher.

[20] http://www.bbaa.org.uk

When Seed Fund Investment may be appropriate:
Seed Funds are particularly helpful at the stage when technology demonstration has been completed, and a significant injection of cash is required into the business to execute pre commercial activities. They typically help companies to overcome the so called 'valley of death', and may also provide confidence in securing subsequent later investment from Venture capitalists. Typically Seed Funds also provide business advice and support, and may take a position on the Board to help guide the business.

When Seed Fund Investment may not be appropriate:
Most Seed Funds invest on the basis of taking an equity stake in the business (although some such as the Scottish Seed Fund may also consider making loans) in return for a pre determined level of control in the business. Depending on the nature of the business, and the capabilities of the existing Management Team, this has the potential to cause tensions if not clearly understood at the outset.

Examples of Seed Funds of Potential Relevance
Examples of Seed Funds of potential relevance include the following (Further details provided in Appendix B):

- University Challenge Funds such as Cambridge Enterprise Seed Funds, ISIS University Innovation Fund, Lachesis Fund, Mercia Technology Seed Fund, etc.
- Regional Venture Capital Funds (RVCFs), e.g. North West Fund, East Midlands Regional Venture Capital Fund, Advantage Growth Fund.
- Imperial Low Carbon Seed Fund
- Scottish Seed Fund
- E-Synergy
- NESTA
- Finance Wales.

3.5.3 Venture Capital Funds

Venture capital funds (VCs) operate at the high-risk, high-reward end of the institutional investment spectrum. They typically invest £500k - £5m and seek at least a 10x return on their investment. Many VCs will have a specialised focus – by industrial sector, growth stage or geographic region for example. The typically tend to invest in organisations when there is evidence of revenue, or clear potential for revenue, e.g. supported by a strategic relationship with a key industrial player. There are various sources of advice available relating to engaging with this sector, including the British Venture Capital Association (BVCA) which has produced a number of useful guides, including 'A Guide to Private Equity'[21].

The assessment of risk by the VC translates into what is called 'discount rate'. Essentially, this is the 'equivalent interest rate' that the investment will have paid at exit, and the question is whether the interest paid is worth the risk carried. Investors are balancing the size of the expected return against the risk of loss. Certain factors (experienced management, proven market demand, solid IP) will reduce risk. These factors also correlate with the overall maturity of an investment proposition. Thus, investors will apply progressively higher discount rates to earlier stage investment propositions. Typically this may be as high as 60% for an early stage business ahead of demonstration phase, reducing down to 15 % for a growth stage company.

When Venture Capital Investment may be appropriate:
VCs will carry out rigorous due diligence before investing in a business. They will also impose a strict corporate governance regime. This can serve as an endorsement and reassure acquirers that the company is as it appears.

[21] http://www.bvca.co.uk/

This can enhance the value of the business at exit. VCs will often contribute significant strategic and board-level guidance to an investee company, and may provide useful contacts.

When Venture Capital Investment may be less suitable:
VCs are almost always purely financial investors. They may take a more coldly objective view of a business than others and may decline any follow on investment if progress has fallen short of expectations, or they have better investment options. The transaction cost of deals is also high; VC investment is a detailed, costly and sometimes exhausting process in which reading the small print is both necessary and difficult.

Examples of Venture Capital Funds of Potential Relevance:
There are a large number of Venture Capital and Private Equity Funds, an increasing number of which have a specific interest in the low carbon sector, albeit not specifically application to the automotive sector. These include both public and private sector funds, and most only make a handful of investments each year. It is not possible to provide an exhaustive list of those active in the UK, but some of those with the highest profile in the sector over the last two years include the following (further details provided in Appendix C):

- Carbon Trust Clean Energy Fund
- Catapult Ventures
- Conduit Partners
- Environmental Technologies Fund
- Foresight Group
- Foursome Investments
- Hazel Capital
- IMPAX
- Imprimatur Capital
- Low Carbon Accelerator
- Scottish Venture Fund
- Sigma Fund
- Turquoise Capital
- WHEB Ventures.

In addition, there are a few European funds worthy of a mention:

- Dynamics Venture Capital Fund (formerly RWE)
- Shell Technology Ventures/Kendra Capital
- Virgin Green Fund
- Volvo Technology Transfer.

3.5.4 Corporate or Strategic Investors

Corporate venturing tends to represent only a small fraction of overall equity financing when compared to venture capital. Direct corporate venturing involves the corporate taking a direct minority stake in an unquoted company.

Corporate investors invest in businesses which they believe may become a growth opportunity, or a competitive threat. They are interested in businesses which have, or look likely to build some compelling barrier to entry (IP, technical know-how, market knowledge). They may be less focussed on the narrow financial performance of the business but can restrict the investee company's strategic choices – regarding exit, for example.

When a Corporate Investor is appropriate:
A Corporate investor can be a potential key first customer, technology development or market access partner and, finally, business acquirer. Strategic investors may also take a longer-term view of their investment than a financial investor might.

When a Strategic Investor may be less suitable:
Corporate investors can be a Faustian bargain, restricting the business's strategic choices and curtailing its exit routes to the detriment of final exit valuation. Moreover, if the priorities of the strategic investor change, it may allow a business to fail where other investors would persist. Ultimately, a strategic investor's aim is either to secure access to a desired asset as inexpensively as possible, or to prevent a competitive threat emerging. The strategic investor, of necessity, cannot be as candid about their ultimate aims as a financial investor.

3.5.5 Exit

As discussed in Section 3.1, equity investment on the part of most players is undertaken with a view to the point at which they can exit from the investment with a healthy return, and ideally the sooner the better. There is no simple rule of thumb as to when an investment is appropriate for exit; it will depend on the progress of the company, the markets within which they operate, and the aspirations and strategies of the individual investors. However, typically an investor will look for an exit within a 3 – 5 year time frame from initial investment, by which stage the company will have reached the Early Markets or Growth Market phases of development illustrated in Figure 1. In some cases, exits may take place sooner, and some later. The entrepreneur and the investors should discuss possible exit routes as early as possible to ensure that expectations are aligned, and that the investors requirements for return on investment are clear.

There are a number of potential exit options:

- Flotation, or initial public offering (IPO) of the company, often considered as the 'holy grail' of exits. The result of an IPO is the replacement of a few dominant investors by a multitude of individual investors
- Sale of shares to another investor
- Management Buy Out (MBO) if the entrepreneur or management team can secure the finance to buy out the original investors
- Trade sale to a corporate or strategic investor. This could take the form of an entire takeover by a major player, a merger with another SME, or sale of the technology through license agreements.

3.6 Sources of Debt Finance

Depending on the financial status and performance of the company, it may be possible to secure debt finance. Typically this will take the form of some sort of overdraft or loan from a clearing or merchant bank, secured against the assets of the business and requiring the repayment of regular lump sums, plus interest, over a pre determined period of time. Most traditional sources of loan will require the business to be generating revenue, or to able to show evidence of future revenue, e.g. by factoring future sales. Many organisations provide useful advice on securing loans and overdrafts, including Business Link[22].

This option may be attractive in some circumstances as it avoids the needs to take on new shareholders, and potential dilution of the management team's equity stake. However, the disadvantage is that if the company defaults on its repayments the lender can put the business into receivership, which may lead to the liquidation of any assets.

[22] http://www.businesslink.gov.uk/bdotg/action/detail?r.l1=1073858790&r.l3=1073868460&type=RESOURCES&itemId=1073790032&r.l2=1074453326&r.s=sc

There are two specific sources of loan that are worthy of mention. These include the following:

- Small Firms Loan Guarantee Scheme – allows businesses that might not otherwise qualify for loans from a commercial bank to secure a loan from certain banks that is secured by the Government. The Small Business Service (SBS) guarantees 75 % of the loan, and borrowers pay a 2% premium on the outstanding balance. Loans are potential available up to a value of £250k. Further details can be found via Business Link[23].
- Loans from RDAs – some regional development agencies are able to provide business loans to qualifying organisations. These include, for example, the Scottish Seed Fund.

[23] http://www.businesslink.gov.uk/bdotg/action/detail?type=RESOURCES&itemId=1074447105

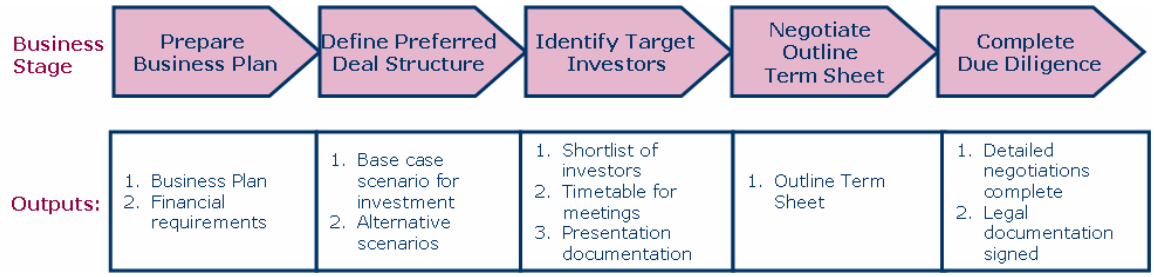
4.0 The Fundraising Process

This section of the report provides an overview of the typical process involved in securing equity finance and the basis for valuation. It also provides an overview of the pre requisites for seeking finance, and an assessment of the various types of organisations involved in the process including intermediaries, the financiers themselves and professional advisors. Specific examples of relevance to developers of low carbon technology are given where appropriate. Finally this section provides an overview of some of the common pitfalls experienced by SMEs during fundraising.

4.1 Overview of the Process

Figure 8 provides an overview of general process involved in raising equity finance. In its simplest form it requires the preparation of a robust business plan, identification and short listing of appropriate sources of finance, and once a venture fund or other source of finance has expressed interest, getting into the detail of negotiating a mutually acceptable Term Sheet. This will require discussion around the potential valuation of the business, the relative shareholdings required by the investor(s), and the terms for the investment e.g. having a representation on the Board or having preferential rights to follow on investment. In the process of these discussions the potential investor will inevitably undertake considerable due diligence on the company, and request significant amounts of data and supporting evidence. This can be a daunting experience for companies undertaking this exercise for the first time, and typically requires both parties to be prepared to compromise on some aspects of the deal. Support and advice may be available from a number of intermediary and professional organisations.

Figure 8
Overview of Fundraising Process



4.2 Business Valuation

Business valuation is a fundamental pillar of the fund raising process. The value of a business is essentially the value of its future profits, converted into a 'present value'. The anticipated future profits are 'discounted' at a percentage rate which reflects the willingness of the buyer to wait for the payments, and an assessment of the dependability of those payments being made. Given that these are subjective assessments, valuation of businesses is both an art and a science. Businesses need to have a firm view on their value and present this within their Business Plan. However, they also need to be flexible on this and be prepared to negotiate with the venture funds if they are to close a deal.

The more mature the business, the more reliable its historical financial statements will be as a guide to its future performance, and the more objective the valuation. Conversely, the earlier-stage the business, the greater the element of judgement involved. This judgement is primarily about the quality of its management and the business's market prospects.

In addition, business valuation fluctuates with market sentiment and as discussed earlier current market conditions may be placing a downward pressure on new business valuations.

As a guide, below is a general characterisation of businesses within certain value ranges. However, each investment case must be judged on its merits.

Valuation: £250-500k
- Good quality Intellectual Property (IP), in both patent and know-how form.
- A credible technologist, with top-notch academic and industrial track record.
- Market clearly identified, if not yet validated.
- Management on board or ready to engage.

Summary: A promising technology with a plausible plan but no market proof.

Valuation: £500k - £1m
- IP portfolio extends to a 'family' of related patents.
- Technical team no longer dependent on a single person.
- At least one customer committing economic resource to the endeavour.
- No major gaps in the executive management team.
- Well-connected non-executive board team.

Summary: Now a promising business with a credible plan and some proof of market.

Valuation: £1-3m
- Company has the capacity for ongoing IP development and renewal.
- Repeated revenues from at least 3 (preferably blue-chip) customers.
- Validated business model showing defendable profitability and scalability.
- Management team credible to lead business through to flotation/sale.

Summary: A proven business concept in the hands of a proven team.

Valuation: £3-5m
- Sales revenues consistently funding a significant part of operating expenditures.
- Clear and credible plan to expand business into further products/ markets
- Exit strategy clearly defined

Summary: An established growth business moving aggressively into new markets.

Valuation: £5m+
- Business can reasonably be valued using financial methods (such as multiples of EBITDA)
- Revenues around the £1m p.a. level.
- Specific plan for exit in short to medium term.

4.3 Investor Readiness

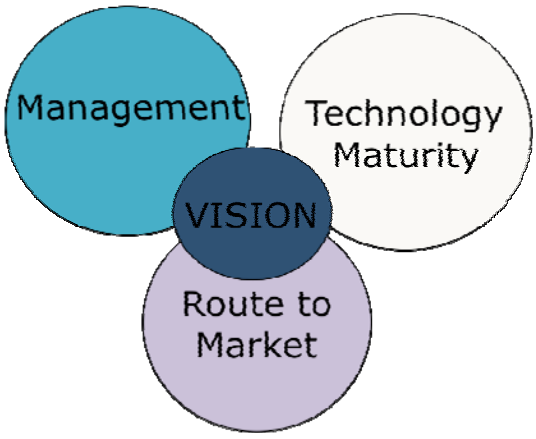
Different grant funding institutions each have their own eligibility criteria, and these are discussed in more detail in Section 3.

As discussed above, application for equity funding will involve a rigorous interrogation of the applicant as part of their due diligence and will likely require the company to provide evidence of a legal corporate entity, governance structure and previous financial history. This may include the following, as appropriate to the individual company:

- Complete sets of annual accounts for previous trading as appropriate to time of operation
- Management accounts – up to date Balance Sheet, Cash Flow Statement and Income Statement
- Copies of any loan agreements, debentures or other obligations
- Complete set of board minutes, copies of any board resolutions

- All Companies House forms to be complete and correct
- Company Memorandum and Articles of Association. Must be correct and agree with all Companies House documents.
- Shareholder documentation (above that held at Companies House)
- Certificate of public liability insurance, as required
- All documents relating to staff, including:
  - Directors' service agreements
  - Contracts of Employment
  - Share option agreements
  - Any pension or other compensation agreements
- Intellectual Property documents:
  - Copies of any patents, trademarks or other IP held
  - Significant correspondence relating to IP
  - Any IP licence agreements in force
  - All NDAs (ideally with a schedule giving relevant dates)
- Copies of all commercial agreements in place, such as:
  - Consultancy agreements
  - Supplier agreements
  - Channel partner agreements
  - Project (e.g. Government grant collaboration) agreements and associated minutes

In addition, the company will need to be able to demonstrate a clear articulation of its business strategy. At each point an investment proposal will be assessed on the basis of key dimensions indicated below:



To secure investment, a proposition needs all the key strategic elements in place, and the degree of robustness required in the planning becomes greater as the company seeks higher levels of investment. As a business matures it needs to be able to demonstrate a shift from inventive flair through to solid execution and delivery against plan.

Typically these plans are articulated through the development of a robust Business Plan, and/or Information Memorandum. There are a number of excellent guides available to provide guidance in the preparation of a Business Plan, including:

- Guides from mentoring organisations; Business Link offers a Business Plan guide developed with the National Federation of Enterprise Agencies.
- Books, such as:
  - 'How to Write a Great Business Plan', by William A Sahlman, Harvard Business School. Published by Harvard Business Review Classics
  - 'How to Prepare a Business Plan' – Sunday Times Business Enterprise Guide. By Edward Blackwell.

- Independent websites offer standard templates and links to relevant articles:
  - www.businessplanhelp.co.uk
  - www.bplans.co.uk

The key elements to cover within the scope of the Business Plan will include:

Commercial Vision
- Defined in customer terms. Clear, compelling reason for customers to buy.
- Defined in economic terms. Sound reasoning supporting sustainable profit margin and high exit value for the business.

Both of the above are essential at all levels of fund raising, though with higher uncertainty accepted at the earlier stages.

Management Capability
- Strategic leadership – is the leadership team appropriately experienced and skilled for the next stage of growth?
- Financial Control. Less critical in early phase, essential in subsequent stages
- Sales capability. Technical enthusiasm may be effective early on, but in later stages formal sales management techniques will be necessary
- Operational skills. As per other areas, increasing levels of experience at a senior level are normally necessary to secure investment at the later stages.

Technology or Product Maturity
- Proof of Concept may be sufficient at Seed Funding stage
- Working demonstration of the technology key to post-seed funding
- Production-ready technology required for later stage funding.

Route to Market
- Indicative understanding acceptable at Seed Funding stage
- Validated Route-to-Market plan required for first round of Venture Capital
- Established channel partnerships and customer revenues a pre-requisite for later stage venture capital.

Financial Forecasts
- The amount presently sought and a breakdown of the uses the funds will be put to. Monthly Cash Flow Forecasts for first year, quarterly beyond that. Include costing for key projects and/or production of goods for sale.
- Timing and size of likely further investment rounds before exit. Indicate total financing need and timeline before profitability is achieved.
- Demonstrate coherence of finance figures with market size estimates and rest of business strategy.

4.4 Intermediaries

Section 3 provides an overview of the various sources of finance available. These may be approached directly by companies seeking finance, but commonly companies are introduced, or signposted to particular sources of finance by various intermediaries. These can be useful in terms of identifying the most appropriate sources of finance for individual projects/companies, and also potentially fast tracking the process of applying for finance by virtue of their individual connections and relationships, and knowledge of regional activities.

There are four main types of intermediary that are discussed in more detail below:

- Technology Transfer Offices
- Business Incubators/Science Parks
- Business Support Networks
- Corporate Finance Brokers
- Angel Networks (these are discussed in detail in Section 3.6)

Depending on the relationship between the company seeking the finance and the individual organisation, and the level of support required in accessing finance, the services provided by these organisations may be provided free, at a subsidised rate, or on commercial terms. Commercial terms may include a combination of fees, an element of contingency payment on successful securing of funds, or the allocation of an equity stake in lieu of payment.

4.4.1 Technology Transfer Offices (TTO)

Most universities and Public Sector Research Establishments (PSREs) have in-house technology transfer operations that are responsible for undertaking all activities associated with the identification, documentation, evaluation, protection, marketing and licensing of technology and IP management. A key role is to form a bridge between academia and industry. Often they will have responsibility for negotiating industrial research contracts as well as supporting potential company spin-outs.

Typically TTOs are organised in one of the following ways:

- Team within a University Department
- Wholly owned limited company
- Department within the University
- Public Limited Company.

What they offer:
If the business has its origins in the 'parent' organisation it will have access to (and possibly be obliged to work through) the relevant TTO. TTOs can offer advice and guidance and will have broad experience and contact networks. They can often mentor their companies through fund-raising and assist with administrative matters such as template legal agreements. However, the depth of expertise and resources available varies widely across institutions.

What they cost:
TTOs often make no formal charge to their mentee companies. However, they are accountable to the parent organisation (university etc) and their task is to maximise value for the parent, rather than to serve the company. They will therefore often take the lead role in negotiating the shareholding for the parent organisation in any fundraising activitity and this may not always be aligned with the aspirations of the founding team.

4.4.2 Business Incubators and Science Parks

Incubators aim to provide support services tailored to the needs of start-up companies. Often they are focused around one or more specific industrial sectors. These services will often include:

- Small, low-cost serviced office units
- Business coaching and mentoring
- Proximity to relevant institutions (e.g. Universities, PSREs)
- Assistance in fund raising and grant bid preparation.

Examples of relevance to this sector include:
- Carbon Trust virtual incubators (Imperial Innovations, Isis Innovations, Angle)
- SETsquared
- LIFE-IC and Advanced Manufacturing Park
- Energy Technology Centre, East Kilbride
- Fife Energy Park
- Performance Engineering Technium
- Sustainable Technologies Technium
- St Johns Innovation Centre, Cambridge
- Environmental Technology Centre
- Loughborough Innovation Centre.

What they offer:
Incubators range from the strictly physical – little more than serviced offices – to the wholly virtual, whose emphasis is on coaching and fund-raising. Incubators can offer start-ups easy access to a wide range of infrastructure at low cost and often have close associations with regional and industry specific sources of funding. They can provide invaluable advice and support in the fund raising and negotiation process.

What they cost:
Most offer a menu of services. Office services will be in line with local market norms, mentoring may be free or at nominal cost, and fund-raising help may involve some level of success fee.

4.4.3 Business Support Networks

Business support networks are first and foremost networks and their services can vary from a relatively informal process of meetings and seminars, through to providing a forum where inventors, entrepreneurs, investors, advisors and industry can meet and do business. To facilitate this they may offer directly, or signpost to providers of business coaching, investment readiness training and investment presentation ('pitchfest') events. They tend to be non sector specific, and often regionally focused.

Examples include:
- Connect Midlands
- SETsquared
- Solent Synergy
- Business Link
- Regional Organisation Account Managers, e.g. in Scotland Enterprise, and the Carbon Trust.
- Knowledge Transfer Networks.

What they offer:
Business support networks potentially offer access to experienced, often high quality business coaching. Because they filter proposals and coach candidates, they often have good credibility with investors. They are often able to refine a business proposition, and can coach the management team regarding the investment space. They will often play a matchmaking role between member companies and investors and can provide invaluable advice and support in the fund raising and negotiation process.

What they cost:
Procedures vary but are often based on a relatively small signing fee together with fee based on a percentage of funds raised. Individual pitching events may be charged for.

4.4.4 Corporate Finance Brokers

Corporate Finance Brokers help businesses prepare for investment (preparing Investment Memorandums and other documentation, for example), and making introductions to investors. Many are small city boutiques which offer a relatively bespoke service and focus on larger deals (often £5m and above). There are also organisations geared to making introductions to business angel networks.

Examples of relevance to this sector include:
- Beer & Partners
- Turquoise International
- Close Brothers
- Capital SCF
- Strata Technology Partners.

What they offer:
Corporate finance brokers offer skilled and experienced help in preparing the documentation for fund raising and providing introductions to investors. Their credibility and contacts may open certain doors, and they can substantially reduce the management distraction of fund-raising.

What they cost:
Typically they will seek some level of signing fee or retainer, together with a success fee – possibly in the region of 5% of funds raised.

4.5 The Role of Professional Advisors

4.5.1 Patent Lawyers

Patents are valuable because they provide a business with a competitive advantage and are often used as a key input into business valuation. They are most effective when supported by substantial know how, but in themselves can confer a legal monopoly. How a patent is drafted can make the difference between a hugely valuable business and a failure.

What the role Patent Lawyers is:
Patent lawyers draft patents. They advise businesses on the best way to present their inventive claims in order to have the widest scope and the highest chance of successful grant. They also advise on other forms of Intellectual Property, such as registered designs or copyright. They will normally handle the administrative oversight of an IP portfolio, corresponding with the various national and international patent (or Intellectual Property) offices and alerting the patent holder of any actions they need to take.

What the role of Patent Lawyers is not:
Firstly, patent lawyers are not patent examiners. It is not their role to assess whether an invention has merit either in inventiveness or in commercial value. Their willingness to accept an assignment is not an endorsement of an invention's quality. Similarly, although they provide advice on technical legal matters the responsibility for the decision is the executive's. It is also worth noting the distinction between patent lawyers (who write patents), and their close cousins, patent solicitors, who can advise on patent litigation.

4.5.2 Accountants

Accountants are there to provide an accurate picture of the business as a financial entity. This may be management accounting (accounting which supports internal decision making), or financial accounting (that which supports external evaluation of the business). A business needs access to both to raise finance, but in the early stages finances may be simple enough for the two to be combined.

What the role of accountants is:
Accountants help a business to meet its administrative obligations (tax, for example) and keep track of its financial position. Specifically for early-stage technology businesses, they should be able to advise on and manage relevant specialist areas such as R&D tax credits. Accountants can provide the credible historical financial data which investors will request during the due diligence process.

What the role of accountants is not:
Accountants can advise on the financial implications of strategic assumptions. They are not trained to assess the likely validity of those assumptions. As with other specialist expertise, their view is one element of a strategic picture.

4.5.3 Commercial Lawyers

Commercial Lawyers will draw up the agreements used during a fund-raising round. This may include the Investment Agreement, Shareholders Agreement, Employment and Options Agreements, and financial agreements such as loan or debenture agreements.

What the role of Commercial Lawyers is:
The role of commercial lawyers is to anticipate future problems and minimise the effects of them by providing a contractual framework for dealing with them should they arise. Their role is to advise and inform the negotiating parties in a deal.

What the role of Commercial Lawyer is not:
Lawyers are not there to take a negotiating position. They are not signatories to the documents; it is the executive and the company will be bound by the agreements. It is their responsibility to understand the documents and decide on the importance of concerns identified by lawyers, in the wider business context.

4.5.4 Technical Consultants

Major investors will often engage a respected technical expert to assess the IP and technical potential of a business as part of the due diligence process. They may ask the business to cover these costs, or deduct them from the funds invested in the business. Securing the support of known authorities in a field, either as members of the company's senior team or by commissioning independent reports from them, can reduce the level of technical due diligence subsequently required.

What the role of Technical Consultants is:
Technical consultants can help a business stay current on wider developments in its field and choose the most effective technical development route. They can also provide credibility to outside parties, their involvement acting as an endorsement of the company's technical prowess.

What the role of Technical Consultants is not:
Technical consultants are not well placed to assess whether the market will respond sufficiently favourably to any particular technology.

Similarly, their comparatively narrow but deep expertise can put them at a disadvantage in addressing wider strategic questions, as they may be insufficiently skilled at assessing influences outside their field.

4.5.5 Business/Management Consultants and Interim Managers

New technology businesses are often founded by technologists, but then need the wider set of commercial skills to secure investment. It can be difficult to attract high quality staff in the early days of a business. One answer is to use consultants or interim managers to provide the necessary skills on as as-required basis. It may not be easy to identify clearly whether a potential advisor has the appropriate skill set for the task. Often venture funds, angel networks and business incubators can recommend appropriate people or organisations.

What the role of business consultants is:
They are there to provide the skills that a more mature business would access through its employees. The difference is the contractual framework; the company minimises its overhead by using them only as required.

What the role of business consultants is not:
One of the frequent pitfalls of using specialist advisors (as described in the sections above), is trusting their authority outside of its proper limits. This is less the case with interim managers and consultants who are paid to synthesise the specialist views into a coherent business plan. Nonetheless, it should be made clear whether a party is being engaged to provide professional services or to take executive decisions.

4.6 Common Pitfalls

No two new businesses are alike, and by their nature they will be in some senses unique. But experience indicates that many fundamental aspects are similar and these give rise to common patterns and the opportunity to learn from these. Many of the failures of early stage businesses stem from these factors. The resultant destruction of potential value, and the loss of investment associated with technologies which do not reach market, could arguably be avoided by access to appropriate experience. The following is a list of common failings to be avoided:

Counterproductive efforts to retain control as the company grows
Many technologists who found companies are understandably concerned about others 'stealing their baby'. This is partly natural, and partly stems from recognition that they are vulnerable to exploitation when outside their field of expertise. Nonetheless, it is comparatively rare for a business to grow to large scale under founder control, if that founder is not by background and disposition a business leader. Points to reflect on as the business grows include:

- The optimum role(s) for the founders
- What size the business is expected to grow to
- At what point the business may outgrow the skills of the founders and benefit from new skills in its senior team
- Whether a succession plan should be discussed ahead of time with investors to avoid later difficulties. Succession problems, if not recognised and dealt with, can sour relationships, stunt growth and *in extremis* sink a company.

Confusing 51% equity with control of a business
A company is controlled by a board, and a major shareholding often brings influence at board level. However, control is not in practice monolithic; the situation is more subtle. There is no totemic percentage at which control switches from one party to another.

All stakeholders must decide in detail which factors they are willing and unwilling to cede control on before the Term Sheet and agreements are signed. Some points to note include:

- Approval levels for many strategic actions, such as hiring and firing of senior staff, or buying and divesting major assets, may be addressed specifically in the company's Articles of Association, Shareholders' Agreement of other documents
- Specific actions may require the approval of named stakeholders, independent of their actual shareholding
- Levels of majority in decision making may vary for different classes of decision – for example, a simple majority sufficing for some decisions but a 75% majority for more serious matters
- Loan agreements and debentures can likewise restrict shareholder control, regardless of percentage held.

The pursuit of legal perfection

In the day-to-day operation of business, legal agreements remain in filing cabinets and management concerns itself with customers, staff, cash flow and products. During fund raising legal agreements come into sharp focus. Good legal agreements reflect the intent of the parties, are essentially fair, ensure due process, and do not contain perverse incentives. They are the foundation of longer term success. Nonetheless, like technology, legal agreements can be refined for as long as there is will and funding to do so. At some point a compromise between time, cost and function is necessary. Some points to note include:

- Legal advice can often cost upwards of £200-300 per hour. Consequently, it is not unusual to incur legal bills of £10,000+ on relatively straightforward deals
- Legal agreements will often be novated (i.e. renewed) at the next funding round. This round is not necessarily the last word. The longer the money from this funding round can be made to last, the greater the chances of surviving to the next round. Remember that money spent on drafting highly specific agreements now could be saved for meeting payroll in hard times
- Lawyers may draft agreements of greater or lesser 'aggressiveness'. That is, agreements which give one party greater rights and powers. It should be remembered that the other negotiating party also employ lawyers. A situation can result where each side's lawyers pare back overly aggressive contracts, prolonging time to closure and running up substantial fees. The negotiating parties must ensure that it is they who control the terms of debate and not the lawyers. This is not always in the lawyers' interest.

Over-valuing a new technology

A great technology underpins many valuable businesses. Nonetheless, success is made up of many elements and only in the most extraordinary cases will investors credit a bare technology more than a fraction of the value it may reach when developed into an established business. Some points to note include:

- Investors see exciting new technologies every day, and though they know that among them are winners, it is not possible to identify which ones these are at the point of investment
- Investors know most of their investments will fail. This is why they assign apparently low values to early stage prospects
- Clearly existing stakeholders should seek the best deal possible, but an expectation too far from sector norms can suggest naivety and prevent a deal being closed. See Section 5.2 for a guide to typical valuations at key growth stages.

The distraction of fund raising

Raising investment is vital to the survival of a business. It is not, by itself, an activity which generates value in a business. The primary function of management is to build value in the business. Raising funding places huge demands on the time and attention of senor management, which displaces the attention normally devoted to the affairs of the business. Some common pitfalls associated with this include:

- Raising funds can appear more glamorous than the routine management of operations, drawing still more senior attention than it requires
- Staff not engaged in fund raising can become absorbed in 'watching the drama' instead of doing their (potentially duller) everyday work
- A mitigation plan that covers the tasks being neglected by the CEO during fund raising may be required. Someone has to man the bridge
- Fund-raising often absorbs the lion's share of senior management attention for 3-6 months per round. If rounds are frequent, this can be a material share of their total time.

5.0 Conclusions and Recommendations

The market for the provision of finance for developers of low carbon technologies in the UK is generally strong. There are a broad range of potential sources of grant finance, and the market for the supply of equity capital has been growing rapidly over the last few years.

Overall the process for raising finance is generic, with well established rules of engagement and with few nuances specific to developers of low carbon technologies for the automotive sector. However, there is a growing pool of Corporate Financiers, Intermediates and Venture Funds that specialise in the low carbon or Cleantech sectors.

Availability of grant funding for the development of low carbon technologies in the UK is generally good, although the number of schemes that specifically focus on the automotive sector are comparatively few. Anecdotal evidence suggests that sector specific calls may well be heavily oversubscribed, but firm data on the size of the pool of companies seeking finance is lacking.

The Cleantech sector, focused on low carbon technologies, has been viewed as increasingly attractive by venture funds over the last two years. The UK market is amongst one of the most active in Europe, with solid backing from the public sector. However, it remains to be seen how the recent 'credit crunch' impacts on this sector specifically. Whilst the sector appears to be robust, and deals continue to be made, there is no doubt that there is likely be a slow down in the level of activity. The absolute degree of resilience exhibited by the sector remains to be seen, and will undoubtedly result in increased demand for public sector finance from early stage companies; both grants and equity.

It is difficult to give an accurate picture of the precise investment in automotive related activities due to the various classification systems used, and the broad range of technology with potential applicability. However, analysis of recent deal flow within the UK Cleantech sector appears to indicate a relatively low volume of transactions in technologies with specific application to the automotive sector, with the exception of biofuels and arguably fuel cells.

Historically other low carbon technologies have been considered more attractive investments, for example solar which has received massive long term market support, with a well established technology develop paths and routes to market. In contrast, many of the technologies being developed for the automotive sector are considered as delivering incremental improvements, and are not typically classified as 'game changing' or 'disruptive'. In addition, developers of these technologies have to sell into a mature, well established market, where barriers to entry are high and routes to market are controlled via a well established hierarchy of suppliers. All of these factors potentially make an investment opportunity less attractive when compared to competing technologies.

This report has identified a number of potential gaps and imperfections in the market for supply of early stage finance in the low carbon automotive sector. These are identified below, together with recommendations for potential next steps on the part of the LowCVP:

1. **Scope the Market*:* Commission a survey of firms seeking investment**. There is currently a lack of detail regarding market demand for early stage finance. It has not been possible to identify any comprehensive data set to form the basis of a characterisation of the potential pool of companies seeking finance in this sector. Specifically it would be useful to be able to define:

- The number of companies and the stage of their development, e.g. established SME versus new spin out/start up
- Heritage, e.g. University versus corporate
- Technology being developed and potential application
- Geographic location
- Current access to support via intermediaries or sources of finance.

It is understood that BERR is currently in the process of developing a Supplier Database for the UK automotive sector. It is recommended that the LowCVP engage with this programme to explore whether it could be used to generate the market intelligence required for the low carbon sector, or whether an alternative approach should be considered.

2. **Define the Barriers to Access: Identify which are affecting the market the most.** The generic barriers to accessing finance are well defined and understood, but it is not clear which, if any, are specifically relevant to this sector, or indeed if there are other factors that are of specific importance. For example, is access to finance a key barrier, or are enabling factors such as securing links into industry for commercialisation more important?

   It is recommended that the LowCVP engage with the SME sector to better define the specific barriers that they face. Ideally this would include a series of interviews with start ups from the past 3-5 years to identify specific issues that they encountered, to validate the most appropriate/readily accessible sources of finance, and define practical lessons learnt by them in the process. It may be useful to generate some Case Studies in the process that could be used as examples for others in the sector.

3. **Coordinate on the demand side. Investigate whether the LowCVP can add value guiding demand side players.** Whilst the general supply of finance is fairly robust, it is fragmented and involves a large number of individual and disparate organisations, both in the public and private sector. There is currently limited coordination between these organisations, although some key conduits are emerging, e.g. the TSB and CENEX. However, potential exists for one organisation to take responsibility for providing an overview of all potential sources of finance, to provide up to date information on all relevant calls for grant funding, and also to provide some basic advice and signposting to those seeking to raise equity finance. This role should be an additional and complementary one, and should not seek to duplicate activities and efforts undertaken elsewhere. It is recommended that the LowCVP consult with the sector to test whether this is an appropriate role for the organisation to take on.

4. **Coordinate on the supply side. Investigate whether the LowCVP can add value in educating supply-side players about the sector.** The relatively low level of equity investment in transport/automotive related technology companies within the Cleantech sector should be challenged. Opportunity may exist to develop strategic relationships with a few key organisations in the finance market to help educate the 'supply side' and raise the profile and attractiveness of the sector. This should focus on why investors should be interested in this sector, and the scale of the potential opportunity. It would also begin to generate firm conduits for members/organisations seeking finance. Again this is a potential role for the LowCVP that should be tested with the market, and should in the first instance involve a consultation exercise with suppliers of equity finance active in the sector to better understand their relative reluctance to invest.

5. **Inform policy. The LowCVP is placed to offer high-integrity advice influencing policy in this area.** Over the next few years it is anticipated that challenging economic conditions may reduce the availability of early stage equity finance. This will put increasing pressure on sources of public finance.

There may then be a role for the LowCVP to play in lobbying on behalf of the sector to ensure that adequate finance is made available specifically for low carbon technologies for the automotive sector.

Overall it is considered that there may be a role for the LowCVP in providing sector specific and practical advice to companies looking to navigate the landscape for provision of finance. The overall framework is well established, with defined processes and practices to be adopted regardless of technology or sector. However, opportunity exists to streamline the process and to add value by overlaying an understanding of the sector specifics based on a clear understanding of both the supply and demand side of the equation.

APPENDIX A
Potential Sources of Grant Funding for the Low Carbon Vehicle Sector

Source of Support	Programme	Grant amount	Timing	Comments	Useful web addresses
BERR/Defra	HFCCAT demo programme (part of the ETF)	Funding up to 25% of project costs (possibly more for SMEs - state aid rules apply). Most grants	Regular competitions	Demonstration and operation of hydrogen, fuel call and carbon abatement technologies. First competition closed Nov 2006. Second competition anticipated for early 2008, but yet to be announced. Collaborative approach required.	http://www.hfccat-demo.org/
Big Lottery Fund	Big Lottery Fund	Variable	Ongoing application	The Big Lottery Fund was launched on 1st June 2004 from the merged New Opportunities Fund (NOF) and the Community Fund. NOF distributed funds for health, education and environmental initiatives under government direction. The Community Fund supported voluntary and community sector through open programmes.	http://www.biglotteryfund.org.uk
Carbon Trust	Applied Research Grants	Up to £500K, with 40 % in kind contribution	Next calls are Autumn 2008: 13th October - 4th December and Winter 2009: 16th February - 16th April	R&D technology development projects that can demonstrate low carbon technology. Match funding required – typically collaborative. To be eligible projects need to demonstrate: - Genuine innovation and the potential to contribute to substantial reductions in UK greenhouse gas emissions - That the work is a well planned and builds on previous work in the area - That the results of the work will allow a clear step forward on the path towards commercialisation - That it represents good value for money - Provides demonstrative benefit to the UK. Automotive not a recognised areas for support (this is handled by EST/TSB), but applications are assessed on a case by case basis. See website for matrix of priority technologies.	http://www.carbontrust.co.uk/technology/appliedresearch/
Carbon Trust	Incubator	Up to £60k		Four incubator partners work with Carbon Trust: Angle Technology Plc; Imperial Innovations Ltd; Isis Innovation Ltd; TTp Plc. Incubator provides strategic and business development consultancy, advice on corporate finance, management team recruitment and mentoring, market research and engagement and guidance on intellectual property protection. Companies typically remains in incubator for 12-18 months.	http://www.carbontrust.co.uk/technology/incubator/
Cenex	Infrastructure Grant Programme	Up to 40% eligible costs	Currently under review. New announcement expected shortly.	Grants are available to encourage organisations to install refuelling or recharging stations for alternative fuels. Funding is available for hydrogen, electric, E85 bioethanol, natural gas/biogas stations and other non traditional fuels.	http://www.cenex.co.uk/lcp_index.asp
DIUS	Measurement for Innovators (MFI) Programme	Upto £75k dependent on match fudning provided by the industrial partner.	Calls submitted on rolling basis via NPL or NEL	The Measurement for Innovators programme is designed to promote innovation by linking industry with the world class expertise and facilities contained within the UK's National Measurement Institutes (NMI) - NPL, LGC, NEL and NWML . The application for the activity must come from within the NMI. There are three activities - each designed to tackle a different type of problem: - Joint Industry Projects (JIPs) - These allow the NMIs and industry to work together in a multi-partner project, lasting less than a year, to solve measurement problems (in product or method development). Funding - in cash or kind - from industrial partners can be matched by DIUS. So far, 53 Joint Industry Projects have been funded with a total project value of £4.1 million with government support of £2.1 million. - Consultancies- These are designed to allow world-class NMS experts to work with SMEs to provide advice for a measurement problem at no cost to the recipient. Each must last four days or less, and specific advice on a product or service will be provided. To date, over 130 SMEs have received advice and 50 of these have led directly to the development of new products. - Secondments - Secondments are designed to develop tacit learning and networking by transferring people in and out of the NMIs for a limited time. The secondments can be to or from industry, academia or other suitable UK organisations.	http://www.npl.co.uk/server.php?show=nav.412

APPENDIX A
Potential Sources of Grant Funding for the Low Carbon Vehicle Sector (Cont)

Source of Support	Programme	Grant amount	Timing	Comments	Useful web addresses
Technology Strategy Board		Variable. Contribution by SMEs approx one third of the project costs. Contribution by larger companies approx half of the project costs. Currently, average annual project costs are around	Ongoing application	Secondment of individual from academia into an SME to assist in addressing a specific barrier to development via their know-how and expertise. Applications are approved by the Technology Strategy Board on behalf of the organisations funding Knowledge Transfer Partnerships. Government contributes towards the knowledge base partners' cost of participation, whilst the company makes up the balance of the project cost.	http://www.ktponline.org.uk/
Technology Strategy Board	Collaborative R&D	Funding amount varies considerably. Some match funding required.	Regular competitions. Next deadline March 2009 - launch Autumn 2008	Funding of collaborative R&D projects. Key Technology Areas are: - High Value Manufacturing: Step changes and value systems - Photonics: Photonics21 - Next generation optical internet access - Materials: Sustainable materials and products - Energy: Maximising recovery of UK's oil and gas resources - Environmental Sustainability: Fuel cells and hydrogen technologies - Creative Industries: Accessing and commercialising content in a digitally networked world. Requires collaboration between industry and research community. Calls are potentially open to technologies covered by the Innovation Platforms so long as they are consistent with other calls presented there, and are able to specifically address the requirements of the specific technology areas identified in individual calls.	http://www.innovateuk.org
Technology Strategy Board	SBRI (Small Business Research Initiative)	100 % funding on the basis of contract for research placed on the SME by the public sector organisation	Pilot competitions closed in Sept 2008 via the MoD. Full roll out across other Govn depts expected 2009 starting with DoH	Competitive R&D contracts to support future procurement needs of Government. Suppliers for each project selected by an open competition process and retain the IPR generated from the project, with certain rights of use retained by the contracting Department.They are looking for proposals for 6 month feasibility/proof of concept, with funding in the region of £100k. There is then potential for follow on funding if the performance is proven at this stage. Each Govn department will define priority needs within each call as it arises.	http://www.innovateuk.org
Technology Strategy Board	Low Carbon Vehicles Innovation Platform		Latest comp closed 10/09/08	Launched Sept 2007 the platform is focussed on bringing forward relatively near market low carbon vehicle technologies, whether for private or public service vehicles, that could be viable candidates for commercialisation or fleet procurement initiatives over the next 5-7 years. There are no specific constraints on the vehicle categories and technologies that can be proposed in this competition. The latest call closed recently with the award of £23m of funding across 16 projects. Latest competition was for existing and completed projects to take part in the Integrated Delivery Programme (IDP) in conjunction with EPSERC. This is a £70m 5 year programme that will incorporate additional calls, although it is not yet clear what the focus of future calls will be.	http://www.innovateuk.org

APPENDIX A (Cont)
Potential Sources of Grant Funding for the Low Carbon Vehicle Sector – Regional Support

Source of Support	Programme	Amount	Timing	Comments	Useful Website Address
RDAs	Grants for Research and Development (GRD)	Varies - see comments	Rolling call	Grant for Research and Development aim to support research or development work on technologically innovative products or processes. This is achieved by encouraging businesses to carry out R&D activity that they might not otherwise undertake and by helping to lever in other private finance.There are four types of grant available to companies: Micro Project: Small scale projects lasting up to 12 months in Micro enterprises (those having less than 10 employees and either less than €2m sales or less than €2m of asset value). Grants are 45 per cent of actual project costs and the maximum grant is £20,000. Research Project: To produce new scientific or technical knowledge, projects lasting 6-18 months in Micro or Small businesses (those having less than 50 employees and either less than €10m sales or less than €10m of asset value). Grants are 60 per cent of project costs. The minimum grant is £20,000 and the maximum £100,000. Development Project: To develop a pre-production product or process prototype. Grants are 35 per cent of project costs, minimum grant is £20,000 and the maximum £250,000. Exceptional Development Project: As for Development Projects but which may be of strategic importance to the UK. Minimum grant is £250,000 and the maximum £500,000.	See individual site for each RDA, e.g. http://www.advantagewm.co.uk/working-with-us/grants-for-research-and-development.aspx
Business Clusters	Vary by region, e.g. Automotive Cluster in AWM and ONE and NW Automotive Alliance	Highly variable, if applicable.	Various	The objective of business clusters is to grow regional industries to exploit attractive markets where the region has existing or potential strengths. Clusters encourage businesses to work together to achieve this.Businesses collaborate with each other in cluster market exploitation, technology transfer, skills development, supply chain improvement, product development, overseas trade, and strategy planning. In many cases this has led to tangible increases in innovation and sales. Clusters typically produce three year plans targeting specific markets which will deliver critical mass and greater investment.	See individual RDA websites for local details, e.g. http://www.advantagewm.co.uk/working-with-us/business-clusters/default.aspx
Advantage West Mildands/EPSRC/ Aston University	SME Innovation Voucher Scheme	Upto 3k per SME	On line application	40 grants available in 2008 for SMEs to spend with 13 academic institutes in the region for research support in the following key sectors: - Energy - Advanced materials - Medical tech - Automotive/transport - Digital media - Process industries - Power aerospace and defence - Construction, water and environment - Transport systems	j.w.scully@aston.ac.uk
Selective Finance Assistance for Investment in England	Assisted Areas grant support	See individual RDAs for details	On going programme	Selective Finance for Investment (SFIE) is a form of financial assistance available to businesses located in Assisted Areas in the UK for investment in capital expenditure and is run by the relevant RDA. SFIE is normally given in the form of a grant payable in installments on the achievement of capital expenditure and job creation or preservation targets appropriate to the project. The amount of assistance which can be provided ranges from £10,000 to £1,999,999. Applications above this have to be made directly to the Government.Projects needs to demonstrate ability to generate economic benefit in terms of job creation etc. Can only be applied for when no other sources of funding available	See individual RDA websites for local details, e.g. http://www.advantagewm.co.uk/working-with-us/selective-finance-for-investment-in-england.aspx

APPENDIX A (Cont)
Potential Sources of Grant Funding for the Low Carbon Vehicle Sector – Support in Scotland

Source of Support	Programme	Grant amount	Timing	Comments	Useful web addresses
Scottish Enterprise	General R&D Grant	Up to 35% of the eligible project costs for grants to SMEs up to £40,000; Up to 25% of the eligible project costs for grants to SMEs above £40,000	Ongoing call	Supports businesses developing new products, processes and services to improve company competitiveness and to benefit the Scottish economy. Assistance is available to businesses of all sizes located within the Scottish Enterprise Network area or those planning to establish a base there. Projects typically between 6 and 36 months duration. Ideally projects should fit within priority sectors for Scottish Enterprise, including Energy. The R&D grant can provide assistance to support: ▪ Industrial Research - the planned research or critical investigation aimed at the acquisition of new knowledge and skills for developing new products, processes or services or for bringing about a significant improvement in existing products, processes or services ▪ Experimental Development - the acquiring, combining, shaping and using existing scientific, technological, business and other relevant knowledge and skills for the purpose of producing plans and arrangements or designs for new, altered or significantly improved products, processes or services.	http://www.scottish-enterprise.com/sedotcom_home/grow-your-business/find-money-to-grow/innovation-grants.htm
Scottish Enterprise	Proof of Concept Programme and PoC+	6-12 months funding up to £150k. 100% of eligible costs (no overheads) funded.	On-going programme: two calls per annum	Targeted at academic teams within Universities and HEIs. The Proof of Concept Programme supports the pre-commercialisation of leading-edge technologies emerging from Scotland's universities, research institutes and NHS Boards. It helps researchers to export their ideas and inventions from the lab to the global marketplace. Projects are typically defined as occurring after advances made during curiosity-driven or strategic research. This is usually after a background patent has been filed, but before the following: ▪ A full lab-scale demonstration of the technology ▪ Any pre-production development/prototyping ▪ Commercial funds for development have been made available (because of the existing level of technical and market risk). Applications should be early-stage ideas which have typically reached patent level, and could lead to the creation of new businesses, or licensing innovative technologies and match strategic industry priorities.	http://www.scottish-enterprise.com/sedotcom_home/grow-your-business/find-money-to-grow/innovation-grants.htm
Scottish Executive	SMART: Scotland	Up to 75 % of the project cost to a max of £70k Up to 35% of the project cost to a max of £600k	Ongoing application	SMART : SCOTLAND is a grant funding scheme available for innovations that represent a significant technological advance within your industry sector. Funding is available for small to medium sized enterprises (SMEs). The selection process will take account of a number of factors including the technological, intellectual property, financial and commercial aspects of an application as well as the management expertise available to the business. Account is also be taken of the wider impact and the project's implications for society including factors such as environmental impact, sustainability and health and safety.The SMART:SCOTLAND Programme can provide grant assistance to support: - Technical and Commercial Feasibility Studies. Should involve early stage R&D, the outcome of which will enable informed decisions on the technical and commercial feasibility of a new product or process. Support available on a discretionary basis at 75% of the eligible project costs. Projects must last between 6 and 18 months and the maximum grant is £70,000. - Research and Development Projects that aim to develop a pre-production prototype. Support is available on a discretionary basis at 35% of the eligible project costs.	http://www.scottish-enterprise.com/sedotcom_home/grow-your-business/find-money-to-grow/innovation-grants.htm

APPENDIX A (Cont)
Potential Sources of Grant Funding for the Low Carbon Vehicle Sector – Support in Europe

Source of Support	Programme	Grant amount	Timing	Comments	Useful web addresses
European Commission	Seventh Framework Programme for Research and Technological Development FP7: Energy	Business may be eligible to receive up to 50 per cent of research and development costs. Small to medium sized enterprises (SMEs) could qualify for up to 75 per cent of research and development costs The Scottish Proposal Assistance Fund (SPAF) provides grant assistance to help develop project proposals for submission to	Nov 25th deadline	Energy and Transport themes of FP7 are managed by DG RTD and DG TREN. FP7 covers both R&D and demonstration phases. Projects tend to be collaborative and encourage European organisations to share their resources and expertise to make technological advances. FP7 initiatives are an effective way of engaging with leading players and industry networks.The key pillar of the programme of interest is that relating to collaborative research. First call: Photovoltaics and Area Energy Concentrated Solar Power Geothermal Cross cutting Issues Renewable Fuel Production CO2 capture and storage Technologies for Zero emission Power generation Smart energy Networks	www.fp7uk.co.uk Presentations from Info day available at http://ec.europa.eu/research/conferences/2008/energy_infoday/infoday_energy_en.htm
European Commission	FP7: Energy		Dec 2nd 2008 deadline	Sustainable Biorefineries Enhancing exchange of information, synergies and cross-fertilisation between projects in the field of Biorefineries	
European Commission	FP7: Energy		April 29th 2009 deadline	Renewable Electricity Generation Renewables for heating and cooling Clean coal technologies Smart energy networks Energy efficiency and savings Knowledge for energy policy making	
European Commission	FP7: Transport		No call currently open.	DG Transport divided into three themes: Aeronautics and Air Transport, Sustainable Surface Transport (DG TREN and DG Research); Galileo (European satellite navigation system). Sustainable Surface Transport had a number of call open in 2007 for 2008. Website will provide information on future calls.	http://www.fp7uk.dti.gov.uk/Site/ThematicAreas/Transport/default.cfm
European Commission	Competitiveness and Innovation Programme : Eco-innovation	Collaborative projects with match funding required. Up to 700k Euros per project, with up to 60 % of eligible costs available depending on the size of the project.	Latest call closed 11/09/2008. Next call due early 2009.	This programme is focused on pilot and market replication projects and specifically targetd at SMEs. It is aimed at bridging the gap between R&D and commercialisation. A number of priority areas were identified for the first round of calls that closed in Sept 08. However, they are willing to accept proposals from other areas but suggest that contact be made ahead of submission to make sure that it may be received favourably. Other calls will follow in 2009. Initial priority areas were: - Materials recycling - Buildings - Food and drink - Greening business and smart purchasing	http://ec.europa.eu/environment/etap/ecoinnovation/
European Commission	Joint Technology Initiative for Fuel Cells and Hydrogen (FCH JTI)	Up to 50%	First call waiting approval (sept 2008). Second call expected late 2008.	Public-private partnership between EU , Industry and academia. Currently run by interim structure (legals still being sorted - Sept 2008). EUR 900m 2008 and 2013. Main areas are transport, stationary, hydrogen, early markets and cross-cutting. Projects will have a 'project fee' unless applicants are members of the NEW IG industry grouping. Calls will cover basic and applied research, and demonstration. Cross-europe collaboration required. Projects 1-4 years. Can submit EoIs now from their website.	http://ec.europa.eu/research/energy/nn/nn_rt/nn_rt_hlg/article_1261_en.htm

APPENDIX B
Potential Selected Sources of Seed Funding for the Low Carbon Vehicle Sector

Seed Funding	Programme	Amount	Timing	Comments	Useful Website Address
Carbon Trust	Imperial Low Carbon Seed Fund	Varies - see comments	Ongoing	Joint venture between the Carbon Trust, Shell Foundation and Imperial Innovations in January 2007. For any UK-based clean energy business seeking its first major financing round. Transactions are typically up to £1m in size. The fund focuses on sectors that capture value through the transition to a low carbon economy, including renewables, solar generation, fuel cells, bio fuels and synthetic fuels.	http://www.carbontrust.co.uk/investments/venturecapital/funds.htm
E-Synergy	Equity investment programme – also run a business angel network, and Investor Readiness programme for the Carbon Trust	No limit	On going programme of applications	Early Growth Fund with a strong interest in environmental/engineering technologies. E-Synergy currently manages three funds: - The £30m Sustainable Technology Fund is focused on providing investment and expertise to UK technology businesses. A minimum of 50% of the Fund must be invested in companies developing Sustainable Technology (with a particular emphasis on energy efficient materials or processes. The fund typically invests £500k to £2m, alone or in syndicated rounds, allocating some additional capital for follow-on financing. - Early Growth Fund invests in seed stage technology companies based anywhere in England. It is a £5m fund which invests up to £100,000 per round in the first two rounds and then up to £300,000 subsequently to maintain its equity stake. This fund is fully committed. - The East Midlands Early Growth Fund is a £5million venture capital fund that has been set up to invest in start-up and early-stage businesses based in the East Midlands. The fund provides an investment of between £20,000 and £200,000 in return for an equity stake.	http://www.e-synergy.com/index.asp?home.asp
Finance Wales	Equity Finance	Varies - see comments	On going programme	Range of funding available for companies based in Wales from early stage seed funding through to latter stage venture capital . No obvious sectoral focus - open to applicants from all sectors. Specifically looks to support: - Small and medium sized enterprises (SMEs): businesses that employ less than 250 people with an annual turnover no more than €50 million. - Social enterprises, environmental and creative projects that may fall outside the definition of an SME.	www.financewales.co.uk
ITI Energy	Project and equity finance	Not grant. Significant investment funds available between £0.5 and £5 m.	On-going programme – target of 4-6 new projects per year	Objective is to identify and commercialise valuable technology-based intellectual assets across global market sectors. May take IP rights or equity in return for providing finance. ITI Scotland Ltd is the company set up in 2003 by Scottish Enterprise, with the support of the Scottish Executive, to deliver the ITI model. ITI take responsibility for programme management and commercialisation. Work undertaken by the ITIs includes market foresighting, defining market-led opportunities for developing new technologies, and initiating the exploitation process through catalyzing high-growth start-ups, and licenses to Scottish-based and overseas companies. Priority technologies currently under review.	http://www.itienergy.com/
NESTA Capital	Equity investment programme	Typical investments of £250k upwards	On going programme of applications	NESTA Ventures invests directly in early-stage companies in the following sectors: - Engineering - Environmental Technology - Healthcare - Information and Communications Technology They have strict investment criteria, and only work with companies that have high potential for growth, are at seed or start-up stage, and have the potential to attract syndicated support. Aim to maximise their investment by assigning mentors, part-time managers or specialist support.A key part of their offering is the business support network and services they provide alongside capital investment.	www.nesta.org.uk

APPENDIX B
Potential Selected Sources of Seed Funding for the Low Carbon Vehicle Sector (Cont)

Seed Funding	Programme	Amount	Timing	Comments	Useful Website Address
Regional Venture Capital Funds	Equity Investment Programme	Up to £500k of capital, but varies with individual funds .	On going programme of applications	The RVCFs were established to focus on investing in the equity gap. Each of the nine regions of England has its own RVCF. All RVCFs have similar rules: they must invest in SMEs in their region, they must be the first institutional investor, their initial investments are limited to £250,000 and they can follow on after 6 months or more with a further £250,000. Each fund can also invest in a company at subsequent rounds to prevent dilution. The funds are run on behalf of the regions by professional fund managers, e.g. MidVen runs the Advantage Growth Fund for AWM.	http://www.thecapitalfund.co.uk/links/regionalvcfunds/
Scottish Seed Fund		Provides funding of between £20,000 and £100,000: ▪ On an equity basis - making Scottish Enterprise an investor in the company by acquiring shares; ▪ As a loan - normally undertaken in exceptional circumstances. For example, when the external private equity investor decides to invest via a loan; or ▪ A combination of equity		Launched in April 2006 to provide risk capital to early stage businesses in Scotland. Investment criteria include an assessment of the following: ▪ Nature, age and stage of the business; ▪ Management skills; ▪ Potential for innovation and growth; ▪ Availability of other funding; and ▪ How the funding will be used. In line with the overall business strategy, priority is given to businesses demonstrating high-growth potential. The Fund is also limited to supporting smaller businesses (up to 250 employees, with a turnover of less than £24 million or net balance sheet assets of less than £16 million). Each application is subject to due diligence, and the company is required to match fund any investment with other private sector sources of finance (debt or equity).	http://www.scottish-enterprise.com/invest-scottish-seed-fund.htm

APPENDIX C
Potential Selected Sources of Equity Funding for the Low Carbon Vehicle Sector

Equity funding	Programme	Amount	Timing	Comments	Useful Website Addresses
Carbon Trust	Clean Energy Fund	£250k-3m	Ongoing	Average transaction-size between £500k and £10 million with the average transaction-size being between £500k and £10 million. The fund must invest alongside other commercial investors on a pari passu basis. The fund focuses on sectors that capture value through the transition to a low carbon economy, including renewables, solar generation, fuel cells, bio fuels and synthetic fuels.	http://www.carbontrust.co.uk/investments/venturecapital/funds.htm
Catapult Ventures	Early stage capital and equity finance	Varies - see comments	Ongoing	Catapult specialises in providing Equity Capital for businesses requiring between £200k and £2m. Through 3 funds, invest in all stages of the business lifecycle including start ups, early stage, development capital or MBO/MBIs. We invest in most sectors and are flexible on this, but have a particular interest in Healthcare, Medical Devices, Environmental or green propositions and Support Services. Provide business support services to investee companies.	http://www.catapult-vm.co.uk/
Conduit Partners	Early stage capital. he company also runs The Conduit Club, a private investment forum for companies seeking investment.	Typically less than <£1m in first round	Ongoing	Conduit Partners was established to help bridge the funding gap faced by entrepreneurial, early stage businesses. They support companies through the early commercialisation process via 'a comprehensive and rigorous routes-to-market focus' which they believe will 'mitigate investment risk and help accelerate a company to revenue.' Strong focus on fuel cells and associated low carbon technologies.	http://www.conduitpartners.co.uk/
Environmental Technologies Fund	Equity finance	Typically £1m plus	Ongoing	A cleantech venture fund, focused primarily on European companies (UK based). The company typically supports a business though more than one investment round, committing Euros 5m-12m overall. Market focus is on: - Energy efficiency and power conservation - Renewable energy generation - Material sciences and their industrial applications - Environmental services, waste reduction and recycling - Water – treatment and conservation - Transportation - Agriculture and silviculture	http://www.etf.eu.com/index.cfm
Foresight Group	Early stage capital and equity finance	Varies - see comments	Ongoing	The Foresight Group focuses on environmental infrastructure and services and on technology-led businesses, with a requirement for up to £20 million of equity capital. The company invests in early and development stage companies through to IPO, as well as MBO/MBI transactions. Experience in cleantech includes clean technologies such as fuel additives and supercapacitors to combined heat and power projects in the chemicals industry. Also runs the UK Sustainable Fund (an Enterprise Investment Scheme, EIS) for earlier stage financing.	http://www.foresightgroup.eu/
Foursome Investments	Early stage capital and equity finance	Varies - see comments	Ongoing	Foursome Investments is a London-based investment management business specialising in early and growth stage venture capital and private equity investments. Foursome currently manages approximately £70 million across two funds: - Cleantech1 invests in early and growth stage businesses in the clean technology sector, with a particular focus on water technology and resource efficiency. The fund typically makes initial investments of up to £4m and is used to support customer acquisition, geographic expansion, product development, or working capital. - The FourVision Fund LP is a generalist fund targeting investments of up to £320k in early stage ground-breaking service or product propositions.	http://www.foursome.co.uk/

APPENDIX C
Potential Selected Sources of Equity Funding for the Low Carbon Vehicle Sector (Cont)

Equity funding	Programme	Amount	Timing	Comments	Useful Website Addresses
Hazel Capital	Equity finance	Unclear	Ongoing	Hazel Capital is a small asset management company with a focus on renewable energy, energy efficiency (in energy transmission, building construction, electronic and engineered products), water, transportation (electric vehicles), waste management, recycling and pollution control. The company manages two public equity funds ▪ Santa Ana Fund – Long Short fund - Launched September 2007 ▪ Hazel Alpha – Long Only fund - Launched May 2008	http://www.hazelcapital.com/index.htm
IMPAX	Early stage finance and equity finance	Varies - see comments	Ongoing	Founded in 1994, IMPAX is a long-established specialist manager of listed and private equity funds that focus on the markets for cleaner/efficient delivery of energy, water and waste services. As of May 2008, IMPAX Asset Management has asset of more than £1.5 billion for institutional and private investors. Funds include ▪ Listed Equity Funds ▪ Absolute Return Funds ▪ Infrastructure Funds ▪ Venture Capital (target investment size £3m to £5m). In February 2008, Impax had over £60m of pre-IPO venture capital investment capacity through its two flagship quoted funds, Impax Environmental Markets plc and Impax Environmental Markets (Ireland) Fund, and the recently launched Impax Absolute Return Fund.	http://www.impax.co.uk/impax/
Imprimatur Capital		Early stage finance	Ongoing	Imprimatur focuses on the commercialisation of IP-centred businesses from universities and research institutes. The company takes an equity stake in exchange for expertise, services, management provision, as well as seed capital. Imprimatur Capital has strategic agreements with approximately 40 university and research institutes across 15 different territories. Current sector focus includes New Energy and the Environment.	http://www.imprimaturcapital.com/
Low Carbon Accelerator		Early stage finance	Ongoing	Low Carbon Accelerator is a closed-ended investment company (which listed on AIM in October 2006) with a focus on businesses in the UK, Europe and North America providing products and services in clean energy, cleaner fuels, energy efficiency and building sectors. The company is managed by Low Carbon Investors Ltd. Low Carbon Investors (LCI) identify opportunities where LCA can exceed the target IRR of 30% within a three to five year timeframe. Returns are expected to be derived primarily from capital gains. LCA take significant minority holding in investee businesses, generally between 15% and 35%. Funding is primarily for early stage and growth companies. Limited seed funding is also provided.	http://www.lowcarbonaccelerator.com/ir/lca/ir.jsp?page=home

APPENDIX C
Potential Selected Sources of Equity Funding for the Low Carbon Vehicle Sector (Cont)

Equity funding	Programme	Amount	Timing	Comments	Useful Website Addresses
Scottish Co Investment Fund (SCF)	Equity investment	£45 million equity fund which can invest between £50,000 and £500,000 in company finance deals of up to £2	On going programme of applications	Focus on SMEs – includes generic technology sector focus. SE funded by co investment with established commercial investment companies.	http://www.scottish-enterprise.com/invest-scottish-co-investment-fund
Scottish Venture Fund	Equity investment	Invests between £500,000 and £2 million, alongside private investors in deals of between £2 and 10 million	On going programme of applications	The Scottish Venture Fund is managed by Scottish Enterprise.The SVF supports high growth companies across most industry sectors. Eligibility criteria include: - At least 50% of the aggregate investment derives from sources other than the public sector - The percentage of voting rights in the investee company available to Scottish Enterprise, as a result of the investment, is less than or equal to 29.9% - The investment will benefit and make a positive contribution to the Scottish economy.	http://www.scottish-enterprise.com/funding-grants-venturefund
Sigma Capital Group plc	Early stage finance and equity finance	Varies - see comments	Ongoing	Sigma Capital Group plc manages three key funds: - Sigma Sustainable Energies Fund invests in Scottish companies from funds provided by Scottish & Southern Energy plc; the European Regional Development Fund, Scottish Enterprise Fife and Sigma. The fund invests between £50,000 and £500,000 per investment and is able to provide a mixture of debt and equity packages. Target companies are based in the East of Scotland involved in novel renewable and sustainable technologies - Sigma Innovation Fund invests in Scottish companies from funds provided by Bank of Scotland, the European Regional Development Fund, Scottish Enterprise Fife and Sigma. The fund invests between £20,000 and £300,000 per investment, in high growth, innovative SMEs which are headquartered in the East of Scotland and is able to provide a mixture of debt and equity packages. - Sigma Technology Venture Fund invests in technology companies throughout the UK, from funds provided by Bank of Scotland, Scottish Widows Investment Partnership and Sigma. The fund invests	http://www.diplc.com/fundmanagement.php?id=4
Turquoise Capital	Equity finance	Varies - see comments	Ongoing	Part of the Turquoise Associates Group, Turquoise Capital invest in energy and environmental technologies.They specialise in equity fundraising for venture and pre-IPO companies (US$10m to US$50m), and raising of project debt and equity (US$50m to US$500m). They have access to diverse and international investor base including venture capital funds, hedge funds, strategic & trade investors, family funds and high net worth individuals.	http://www.turquoiseassociates.com/
WHEB Ventures	Equity finance	Varies - see comments	Ongoing	WHEB invests in high-growth potential cleantech companies with a focus on resource efficiency and conservation, across the following sectors: - Alternative and renewable energy generation and efficiency - Clean industrial processes and products including materials - Recycling and waste management - Sustainable agriculture - Water treatment & conservation The company invests in early-stage through to pre-IPO enterprises. WHEBs second fund closed in July 2008 with £57million. The first fund of £24million is invested across eight companies. Further closings are expected during 2009.	http://www.whebventures.co.uk/

APPENDIX C
Potential Selected Sources of Equity Funding for the Low Carbon Vehicle Sector – European

Equity funding	Programme	Amount	Timing	Comments	Useful Website Addresses
Dynamics Venture Capital Fund	Equity Finance	Varies - see comments	Ongoing	The Dynamics Venture Capital Fund invests globally in the energy and water sectors. The fund currently contains £16 million, and has invested in seven companies to date. The fund was established in 2001 as corporate venture capital fund of the RWE AG and was acquired in 2005 by RWE Dynamics. The fund continues to cooperate closely with the operating companies of the RWE Group in order to evaluate and give support to innovative technology companies.	http://www.dynamicsventure.com/english/index.htm
Kenda Capital	Equity Finance	Varies - see comments	Ongoing	Kenda Capital is the independently owned manager of the Shell Technology Ventures Fund 1 B.V. The Fund is a large scale investment fund focused at reducing the cost of energy by accelerating the development and deployment of new technologies (post proof-of-concept stage). The main focus is on the upstream oil and gas sector, but the fund selectively invests in downstream O&G, renewable energy and by-product recycling technologies. In addition to O&G related processes, areas of interest include biofuels and renewable energy technologies. Kenda is supplied with technical expertise via its relationship with the Shell Group.	http://www.kendacapital.com/index.html
Virgin Green Fund	Equity Finance	Varies - see comments	Ongoing	Virgin Green Fund has been established to invest in companies in the renewable energy and resource efficiency sectors in the US and Europe. The main focus is on biofuels, biomass, fuel cells, geothermal, emission reduction, energy efficiency, energy storage, transport, hydro, solar, wind, monitoring systems, and waste and water management. The company tends to take the lead investor role, and is primarily concerned with expansion/growth capital opportunities.	http://www.virgingreenfund.com/
Volvo Technology Transfer AB (VTT)	Equity Finance	Varies - see comments	Ongoing	This corporate venture capital company has three main tasks: - To invest in new technologies/new services of technical and commercial interest to Volvo. - To support the development of businesses based on Volvo technology with a business potential outside the Volvo Group. - To support the development of entrepreneurship and innovation within the Volvo Group. The fund has felxibility to invest across a rinage of scales in external technology that may be of interest to the Group.	http://www.volvo.com/group/global/en-gb/volvo+group/our+companies/volvotechnologytransfer/volvo_technology_transfer.htm