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Dr Robin Hooper 30/10/2010

***Carbon reduction* With electricity prices on the rise, many organisations are looking at alternative sources of energy. Dr Robin Hooper explains the various options**

The Carbon Reduction Commitment Energy Efficiency Scheme (CRC) came into force in April. Environmentalists are celebrating, those caught by it are commiserating and an estimated 7,500 organisations are not even aware that it affects them. The aim is that, by 2020, carbon use will have fallen by 20% from its 2008 levels. Ultimately, any productive change in consumption has to come from the consumers of energy. How this will be achieved and what price UK businesses and taxpayers will pay in the event of failure are key questions.

Businesses cannot survive without energy but, historically, they have been frustrated by the lack of viable alternatives, a proven track record and the cost of alternative energy systems. This article explores how organisations can: (i) make savings through alternative energy generation (ii) use the carbon trading system to maximise returns and (iii) take advantage of available tax benefits.

Savings to be made and options

Electricity prices continue to rise and we face the threat of a potential shortfall in electricity generation as carbon power stations close. The anger provoked by the CRC and the announcement that there will be no recycle repayment are forcing organisations to review energy sources and they are discovering alternatives.

These can range from making small adjustments to major investments:

- a farm operating a milking shed using more than 300kW of electricity per day has made a minor alteration to the system with a capital outlay of £3,500. This will pay for itself within a year, and significant savings will be made in subsequent years
- another farmer remodelled equipment, thus inventing his own anaerobic digester. This takes the muck from his farm and waste products from nearby food factories. The digester generates 88kW of electricity. This more than sustains the farmer's holding, allowing surpluses to be used in the national grid, earning the farmer a vital income that will contribute to the capital outlay. The farmer now enjoys free electricity and generates an income from selling the excess tax allowances mean that almost 100% of the costs can be written off in the first year. He can also charge "gate fees" for materials that come onto his site for disposal.

The government is keen for all parts of the country to enjoy some form of renewable energy, but councils are advancing at different rates and, in urban centres, the choices are limited it is unlikely that wind turbines would be allowed. What other options are available?

Anaerobic digestors are ideal for use in rural areas. Larger businesses in urban areas have considered them but the fumes may present an environmental problem and thus create a barrier to obtaining the necessary planning permission. Finding ways round and through the planning process is difficult and government guidance is based on planning policy statements of 2004 that are out of date in today's energy-conscious climate.

Photovoltaic (PV) panels to harness solar power are equally suited to urban and rural areas. Some, although not insurmountable, hurdles have discouraged uptake:

- the coalition has not yet adopted the proposed amending regulations to allow the use of PV panels as permitted development on commercial or agricultural roofs as it did with

domestic installations (provided that they were not in conservation areas or on listed buildings). The inevitable result is additional cost and delay

- a shortage of companies with the relevant expertise and materials
- the system cannot be effective without connectivity to the grid
- grid connections to the generator are expensive and the infrastructure needs to be modernised and
- unlike other energy initiatives, the capital outlay must be written off over five years, rather than a 100% write-off in the first year.

Some companies can steer interested parties through the process, the benefits of which are considerable. As well as generating the energy required for their own use and an income from selling excess power to the grid, participants can enjoy a tax-free income index-linked for 25 years.

Other systems are gaining in popularity, but they have some way to go before they can be used universally: ground heat pumps are proving popular.

Carbon trading and tax planning

We are well versed in what constitutes a qualifying company and the registration date, but where do we go from there?

Consider the example of an energy spend of £500,000 pa. The cost of carbon allowances will be around £40,000 pa. Companies budgeting for next year's carbon bill are thus making a £40,000 provision. They also need to take into account that in addition to paying for the **2011-12** allowances, they must purchase credits for **2012-13** in advance - a double hit for which organisations may not have budgeted. They must also beware of under-purchasing allowances. The seemingly innocuous £12 per credit charge in place may rise when subject to open market conditions.

Careful planning for the trading scheme is essential to maximise potential benefits. Businesses should:

- be aware of their liabilities under the CRC: provide for the double charge
- buy sufficient allowances to cover carbon use
- buy shrewdly: if a company has an excess of allowances, the trading scheme will allow it to sell at a profit to a business that has made insufficient provision and
- invest in alternative energy: the tax write-offs will minimise capital outlay. On 20 October, the chancellor removed the possibility of sharing the income received from the allowances by participating organisations so the tax paid will now go into the tax pot for use by the government. However, this may change again.

Arguably, taken alone, the tax incentives are insufficient to encourage organisations to reduce carbon emissions to the level required to meet the UK target. However, together with the benefits of using alternative energy sources, they are a powerful argument in support of such a reduction. Businesses can claim 100% enhanced capital allowances in the first year for investments in some environmentally friendly plant and machinery, including efficient toilets and high-efficiency lighting units or solar thermal systems.

The landlord's energy savings allowance is available to corporate landlords of residential property, allowing them to claim relief of up to a maximum of £1,500 per dwelling in respect of loft, cavity solid wall and floor insulation, draught proofing and insulation of hot water systems.

Other tax breaks are available through the climate change levy and climate change agreements. These include exemptions for transportation and recycling processes and a potential 80% discount from the CCL for qualifying agreements.

Developers are encouraged to construct zero-carbon homes with the removal of SDLT liability for all new zero-carbon homes up to a purchase price of £500,000 (above this,

the SDLT liability is reduced by £15,000), making the properties doubly attractive to potential purchasers.

Companies commercialising low-carbon technologies in the UK can also seek support from the Environmental Transformation Fund. This allocates funds to Carbon Trust technology programmes, such as offshore wind, PVs and fuel cells energy-efficiency demonstration and deployment and renewable energy and low-carbon technologies.

This is not an exhaustive analysis of the tax benefits derived from investing in alternative technologies specialist advice would be required. However, it illustrates that although the carbon trading scheme takes with one hand, it gives with the other.

A common interest

Putting in place a system that requires businesses to reduce carbon emissions is not enough - support and infrastructures must also be available. The coalition must take further action if the UK is to achieve its 2020 targets. A failure to do so will result in a fine by the European Commission, which UK taxpayers will have to pay. This is key because we all have an interest in reducing carbon emissions and the costs and benefits to businesses are therefore shared with the government. Working together, the government and business can maximise the opportunities. Will they take up the challenge and can they afford not to?

Liability for energy consumption				
Purchased electricity: converted to tonnes of CO ₂ (established through metered usage based on a conversion rate of 0.523 t/mwh)	Other sources of fuel: tonnes (includes for example diesel generated fuel, liquid petroleum gas)	Total	Allowances required at £12 per tonne of CO ₂	Total liability
300,000	100,000	400,000	12 x 400,000	£4.8m
200,000	100,000	300,000	12 x 300,000	£3.6m
100,000	50,000	150,000	12 x 150,000	£1.8m
50,000	30,000	80,000	12 x 80,000	£960,000
20,000	5,000	25,000	12 x 25,000	£300,000

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