



Carbon Neutrality and Carbon Offsetting in the FTSE All-Share 2007



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Foreword

Carbon Neutrality and Carbon Offsetting in the FTSE All-Share

In 2006 we commissioned Trucost to conduct research into the role and relative efficacy of carbon neutrality compared to other carbon management strategies, and its relevance as applied in different business sectors. The resulting report, published in July 2006, found that 16 companies from 14 different sub-sectors were aiming for carbon neutrality or a low carbon strategy.

We intended the report to promote a discussion by investors of these key issues leading to better awareness, understanding and disclosure of carbon management strategies by FTSE listed businesses. And indeed, there has been both action and heated commentary on these topics in the last year.

For example in December 2006 the House of Commons Environmental Audit Committee launched an inquiry into the voluntary carbon offset market. In January 2007 DEFRA launched a consultation on a voluntary Code of Best Practice on carbon offsetting. Throughout the year the press and consumer organisations have been vocal in examining the credibility and reliability of carbon offsetting. The Advertising Standards Authority has also expressed concerns.

In light of these events we asked Trucost to look at the latest developments in the use of carbon offsetting and carbon neutrality by FTSE companies. We hope that as the financial materiality of climate change is becoming more and more evident this report will stimulate continued discussion of carbon management by the business and investment community.

Disclaimer

We are grateful to Trucost for drafting this report. However, the views expressed are those of Trucost, and they do not necessarily represent the views or policies of Standard Life Investments or the Environment Agency.

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1. Executive Summary

Our previous report on Carbon Management and Carbon Neutrality in the FTSE All-Share highlighted the need for credible carbon management programmes and, in particular, analysed how companies are using offsetting mechanisms to achieve carbon neutrality.

Since then the Stern Review has described the need for immediate action to mitigate the worst effects of climate change. The introduction of new environmental reporting requirements in the Companies Act coupled with increased stakeholder pressure means that most companies are now discussing the issue of climate change at board level. International efforts to regulate and reduce GHG emissions have led to a growing number of companies making public commitments to reduce the emissions they are responsible for and move towards 'carbon neutrality' by investing in schemes that reduce levels of greenhouse gases emitted into the atmosphere elsewhere.

In the past year an increasing number of companies have committed to become carbon neutral or offer offsetting mechanisms to their customers against a background of rapidly expanding carbon markets. This report analyses this trend and examines the methods by which FTSE All-Share companies offset their emissions.

More companies are seeking carbon neutrality, although these are still a minority.

The number of companies that claim to have achieved carbon neutrality or aim to offset their emissions has nearly doubled from 15 to 28 since last year, although this still represents just 5% of 557 FTSE All-Share companies. Offsetting is predominantly a strategy pursued by companies that are not particularly carbon intensive and only 1% of the emissions of the FTSE All-Share were offset last year.

The nature and scope of offsetting varies significantly.

Only 11 of the 28 companies aim to be, or currently claim to be, carbon neutral for their entire operations. The remainder have investigated carbon neutrality for part of their operations or offer offsets to their customers.

Offset mechanisms are increasingly subject to scrutiny.

With more and more companies investigating ways to offset their emissions and an exponential increase in the number of organisations offering offsets, the industry has been in the spotlight in the past year. In particular, the *Financial Times* has published a series of articles examining the market and highlighting "widespread failings in new markets for greenhouse gases, suggesting some organisations are paying for emissions reductions that do not take place."¹ The Advertising Standards Authority took action against the electric utility Scottish & Southern for unsubstantiated claims regarding its tree planting schemes.²

Offsetting standards are developing but there is no universally recognised standard as yet.

In response to continued uncertainties about the efficacy of such schemes, there have been a number of collaborations to develop or tighten offsetting standards. The UK Government is in the final stages of developing a 'kitemark' for credible offsets, investment banks have teamed together through European Carbon Investor Services to develop their own standard and the UN Framework Convention on Climate Change is no longer accepting less credible HFC-23 offsetting projects for the Clean Development Mechanism.

There remains a significant discrepancy between voluntary and Kyoto-compliant offsetting mechanisms.

The last report noted that "voluntary schemes vary wildly in their veracity and quality" while Clean Development Mechanism (CDM) and Joint Implementation (JI) offsets "are credible and verifiable ways of offsetting emissions, but the market is subject to restricted supply and relatively high set-up costs." Although standards are developing that seek to create a level playing field amongst voluntary offset providers and establish parity between the voluntary and regulated markets, there remains significant variation in the nature and veracity of the offsets provided by the voluntary market. This has led to the coining of the term "carbon cowboys". The cost of offsetting varies enormously (from £2 to £25 per tonne of carbon offset according to research conducted for this study) with the voluntary market, for the most part, offering a lower cost option to offset carbon emissions. This may be largely why all FTSE All-Share companies that have offset their emissions use voluntary offset providers and 77% of the offsets provided are via non-regulated voluntary mechanisms. Companies also choose voluntary offsets because there is a shortage of regulated credits.

¹ Industry caught in carbon 'smokescreen', *Financial Times*, 25th April 2007

² http://www.asa.org.uk/asa/adjudications/Public/TF_ADJ_41817.htm

2. Background

"The scientific evidence is now overwhelming: climate change is a serious global threat, and it demands an urgent global response."³ According to the Intergovernmental Panel on Climate Change (IPCC) about three-quarters of the anthropogenic CO₂ emissions that have built up in the atmosphere have been caused by burning fossil fuels (i.e. coal, oil and natural gas) with the remainder predominantly due to land-use change, and particularly deforestation. Estimates from the IPCC fourth assessment, in Bangkok (May 2007) indicate that global emissions may need to be cut by 60% relative to 2000 levels to stabilise global temperature increases to between 2.4°C and 2.8°C above pre-industrial equilibrium by 2020. "To hit this target means that CO₂ levels will have to have peaked by 2020 at the latest, which gives us just 13 years to reverse the present growth."

The consequences of this warming will have profound effects. The Stern Review says that "climate change will affect the basic elements of life for people around the world – access to water, food production, health and the environment. Hundreds of millions of people could suffer hunger, water shortages and coastal flooding as the world warms." Taking little or no action to mitigate this danger, Stern estimated, could cost between 5%-20% of global gross domestic product (GDP) each year and every year in the future. On the other hand, according to the latest assessment by the IPCC, acting now would slow annual global GDP growth by around 0.12% each year.

The quantity of greenhouse gases emitted is positively correlated to economic development, and as such, developing countries like China and India must be part of the climate change solution. In January 2007, Tony Blair told the World Economic Forum: "If Britain shuts down our emissions entirely, i.e. we closed down the country...the growth in China's emissions would make up the difference in just two years." Blair went on to say "without the biggest economies being part of the framework to reduce carbon dependence, we have no earthly chance of success."

³ *The Stern Review on the Economics of Climate Change*, HM Treasury, 2006
http://www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/sternreview_index.cfm

3. Introduction

Standard Life Investments manages a UK equity portfolio for the Environment Agency Pension Fund, and both are interested in the potential financial implications of climate change on investments. They have asked Trucost to update the report published in 2006 entitled 'Carbon Management and Carbon Neutrality in the FTSE All-Share'.

The 2006 report mapped out a well-defined sequential process like the one below for carbon management, starting with the measurement of greenhouse gas (GHG) emissions to energy efficiencies and mechanisms to offset those emissions which are either too costly or difficult to reduce.

| 1. Measures | 2. Absolute Reduction | 3. Regulated Offsetting | 4. Voluntary Offsetting |
|---|--|--|---|
| Measure GHG emissions from all relevant sources, including supply chain. Reporting should follow Government Guidelines. | Energy efficiency improvements in lighting, air conditioning etc. Reducing direct emissions. Emissions trading: Purchase carbon reduction units from companies with lower abatement costs. | Clean Development Mechanisms (CDM) Joint Implementation (JI) | Voluntary carbon offset projects such as renewable energy and carbon sequestration. |

This report will concentrate on the subject of carbon neutrality. It will show that there has been an increase in the number of UK companies that have adopted carbon neutral strategies, although the number is smaller than might be expected given the significant media focus on the topic. The 2006 report found that there was a negative relationship between the carbon intensity of companies and their propensity to adopt carbon neutral strategies. Section One of this report will outline the underlying reasons for this continuing trend.

The 2006 report also drew a distinction between offsets obtained through the regulated and voluntary mechanisms. Subsequently, both markets have been the subject of sustained criticism, including editorial opinion in both the *Financial Times* and *The Economist* advocating that carbon taxes provide a better means of controlling emissions than carbon trading and offsetting. The term 'Carbon Cowboys' has gained some currency; A representative of the airline company easyJet has stated that the carbon offsetting market is riddled with "snake oil salesmen"⁴ while the Chief Executive of the CarbonNeutral Company recently commented⁵ that "there are credibility issues and there are cowboys around."

As a result of this criticism there have been significant developments, both nationally and globally, designed to maintain credibility in the concept of carbon offsetting. For example, The Department for Environment, Food and Rural Affairs (Defra) has consulted on proposals to introduce a voluntary standard which seeks to award accreditation to certain offsetting schemes. Section Two evaluates whether these criticisms and observations are well founded and discusses the various standard setting initiatives.

⁴ easyJet slams 'snake oil sellers' in offset market and goes it alone, The Guardian, 30th April 2007

⁵ Offsetting chief warns of carbon cowboys, The Guardian, 18th June 2007

Section 1

1.1 2007 Trends Towards Carbon Neutrality in the FTSE All-Share

Trucost analysed the progress of FTSE All-Share companies in becoming carbon neutral as of the 31st March 2007.

28 companies use or plan to use carbon offsets

Trucost research has found that since our last report in 2006 there has been an increase in the number of companies aiming to become carbon neutral or claiming carbon neutrality. In 2006 15 firms were aiming for carbon neutrality. Currently, 28 companies are moving towards carbon neutrality. Although they vary widely in the scope of and progress towards carbon neutrality, we refer to all 28 as carbon neutral companies in this report.

11 out of 28 companies are or plan to be carbon neutral

In 2006, two companies stated that they aimed to have 100% of their operations achieve carbon neutrality. Currently 11 companies aim to achieve carbon neutrality for all operations.

7 out of 28 outsource offsets to customers, shareholders or stakeholders

Two of the companies identified in the last report as moving towards carbon neutrality, O2 and Exel are no longer in the FTSE All-Share. Of the remaining 13, seven have maintained their levels of commitment and four (Brixton, Avis Europe, Provident Financial and Aviva) have increased their efforts. Increased commitments include offsetting energy use in addition to travel (Brixton) and offsetting operational emissions in addition to offering offsets to customers (Avis Europe). Two companies surveyed last year, SurfControl & Chrysalis have ceased efforts to achieve carbon neutrality.

Although the number of FTSE All-Share companies moving towards achieving carbon neutrality is still small, it has grown over the past year. Clearly, for some companies, carbon neutrality is viewed as an important part of their future business strategies.

The 28 carbon neutral companies represent 5% of 557 FTSE All-Share companies (excluding investment trusts). However, they represent over 25% of the total market capitalisation of the FTSE All-Share as of March 31st, 2007, and 17 (61%) are listed on the FTSE 100 index. Larger companies are much more likely to be pursuing carbon neutrality.

12 out of 28 companies purchased carbon offsets

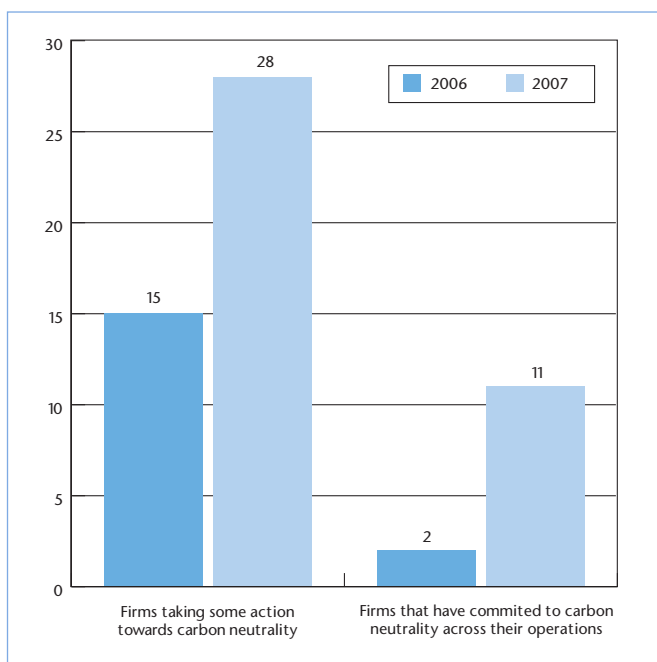
Of these 28 companies, 12 purchased carbon offsets during the previous financial year (2005/2006), collectively totalling 1,130,279 tonnes of CO₂. This represents less than 1% of the total direct carbon emissions of the FTSE All-Share in 2005/2006. The amount of emissions offset is still low.

Only 11 companies are planning to become, or currently are carbon neutral for all of their corporate operations. Another 13 companies are either investigating the possibility of becoming carbon neutral, or

are currently offsetting the emissions caused by a specific element of their operations (for example business air travel or energy use). The remaining three corporations offer ways to offset carbon emissions associated with specific services to their customers and one offers offsets to its customers in addition to offsetting its own emissions.

The carbon offset by these firms during the year ranged from 500,000 tonnes to less than 200 tonnes.

Figure 1. 2007 Trends Towards Carbon Neutrality in the FTSE All-Share



Source: Trucost

Figure 2. Scope of actions towards Carbon Neutrality



Source: Trucost

Figure 3. Carbon Neutrality Reporting in the FTSE All-Share

| Company Name | ICB Sector (Sub-Sector) Name | Industry Carbon Intensity | Action toward carbon neutrality | Status of action | Scope of action |
|--|---|---------------------------|---|------------------|---|
| Aviva PLC | Life insurance (Life insurance) | Low | Carbon Neutral for Operations | Current | Operations |
| Barclays PLC | Banks (Banks) | Low | Carbon Neutral for UK Operations | Current | Operations |
| Bradford & Bingley PLC | Banks (Banks) | Low | Carbon Neutral for Operations | Current | Operations |
| Brit Insurance Holdings PLC | Non-life Insurance (Property & casualty insurance) | Low | Carbon Neutral for Partial Operations | Current | Energy use in buildings and business travel |
| British Sky Broadcasting Group PLC | Media (Broadcasting & entertainment) | Low | Carbon Neutral for Operations | Current | Operations |
| BT Group PLC | Fixed line telecommunications (Fixed line telecommunications) | Low | Investigating the option of becoming carbon neutral | Investigating | Investigating |
| HSBC Holdings PLC | Banks (Banks) | Low | Carbon Neutral for Operations | Current | Operations |
| ING | Life insurance (Life insurance) | Low | Planning on becoming Carbon Neutral | Planning | Operations |
| Man Group PLC | General financial (Asset managers) | Low | Carbon Neutral for Operations | Current | Operations |
| Provident Financial PLC | General financial (Consumer finance) | Low | Planning on becoming Carbon Neutral | Planning | International air transport from the UK, investigating offsetting travel from other locations |
| Royal & Sun Alliance Insurance Group PLC | Non-life Insurance (Full line insurance) | Low | Carbon Neutral for Operations | Current | Operations |
| Brixton PLC | Real estate (Real estate holdings & development) | Low | Carbon Neutral for Partial Operations | Current | Business travel and investigating offsetting for energy use |
| Carphone Warehouse Group PLC | General retailers (Speciality retailers) | Low | Planning on becoming Carbon Neutral | Planning | Distribution fleet |
| Imperial Tobacco Group PLC | Tobacco (Tobacco) | Low | Investigating the option of becoming carbon neutral | Investigating | Investigating |
| Kingfisher PLC | General retailers (Home improvement retail) | Low | Planning on becoming Carbon Neutral | Planning | Operations |
| Marks & Spencer Group PLC | General retailers (Broadline retailers) | Low | Planning on becoming Carbon Neutral | Planning | Operations - by 2012 |

Figure 3. Carbon Neutrality Reporting in the FTSE All-Share (continued)

| Company Name | ICB Sector (Sub-Sector) Name | Industry Carbon Intensity | Action toward carbon neutrality | Status of action | Scope of action |
|-----------------------|--|---------------------------|---|------------------|--|
| Reckitt Benckiser PLC | Household goods (Non-durable household products) | Low | Carbon Neutral for Partial Operations | Current | Specific product lines |
| Avis Europe PLC | Travel & Leisure (Travel & tourism) | Medium | Carbon Neutral for Operations | Current | Operations and customer services |
| Jarvis PLC | Support services (Business support services) | Medium | Investigating the option of becoming carbon neutral | Investigating | Project offsetting locally |
| Mitie Group PLC | Support services (Business support services) | Medium | Carbon Neutral for Partial Operations | Current | Half of cost to offset employee travel |
| Unilever PLC | Food producers (Food products) | Medium | Planning on becoming Carbon Neutral | Planning | Specific product lines |
| Wolseley PLC | Support services (Industrial suppliers) | Medium | Carbon Neutral for Partial Operations | Current | Tree planting offsets for those who opt to receive annual report & accounts electronically |
| BP PLC | Oil & gas producers (Integrated oil & gas) | High | Carbon Neutral for Partial Operations | Current | Customer services |
| British Airways PLC | Travel & Leisure (Airlines) | High | Carbon Neutral for Partial Operations | Current | Customer services |
| Centrica PLC | Gas, water & multi-utilities (Gas distribution) | High | Carbon Neutral for Partial Operations | Current | Customer services |
| First Group PLC | Travel & Leisure (Travel & tourism) | High | Carbon Neutral for Partial Operations | Current | Donation towards tree planting scheme |
| Morgan Sindall PLC | Construction & materials (Heavy construction) | High | Carbon Neutral for Partial Operations | Current | Operations of one division |
| Rio Tinto PLC | Mining (General mining) | High | Carbon Neutral for Partial Operations | Current | Partial operations of one division |

1.2 Characteristics of Companies that are Offsetting

In the 2006 report Trucost divided the FTSE All-Share Industry Classification Benchmark (ICB) sector classifications into three groups according to carbon intensity: high, medium and low. The categorisations were made by calculating the average carbon emissions to sales ratios for the companies in each sector. Definitions of the three categories are included in the appendix to this report.

The same carbon intensity groupings were used in this report and, as before, companies from low carbon intensity sectors were far more likely to be pursuing carbon neutrality. The 28 companies identified come from 17 different ICB sectors and 24 different ICB sub-sectors. There is a discernable carbon neutrality trend among companies in the Banking, General Retailers, Support Services, and Insurance sectors.

Three of these four sectors have very low emissions relative to sales, that is, they are not carbon intensive. The remaining sector, Support Services, is in the medium carbon intensity group. However, this sector classification includes companies with a diverse range of activities, such as Waste & Disposal companies, which are highly carbon intensive, and Business Support companies, which have very low carbon intensities. Two of the three carbon neutral firms from Support Services belong to the Business Support Services sub-sector.

The majority of carbon neutral companies belong to ICB sectors with either low or medium carbon intensities (79%). In addition, 91% (10) of the corporations that have committed to become, or are carbon neutral in all their operations, are from low carbon intensity sectors.

Of the six companies that belong to high carbon intensity sectors, only one (Morgan Sindall PLC) offsets its own carbon emissions and it should be emphasised that this was for a single division only. British Airways offer customers the opportunity to offset the emissions associated with their flights. BP offers its retail customers the opportunity to fund carbon offsetting through its TargetNeutral scheme, making a contribution itself in proportion to the fuel-use which is offset, in addition to funding the administration of the initiative. Centrica also offers customers the ability to offset their own emissions.

The BP and Centrica approaches differ in a subtle but important way from the offsetting scheme provided by British Airways for its customers. In the BP and Centrica schemes the customers own, direct emissions from the use of fuels supplied by these firms are offset. In contrast British Airways is encouraging customers to offset emissions which have been caused by British Airways directly and for which the customers are only indirectly responsible. This culture of direct cost pass-through is analogous to, and possibly stems from, the convention among airlines to impose fuel surcharges when oil prices are high.

Rio Tinto has entered into an agreement with The Carbon Pool to preserve forest in Australia which will prevent the emission of about one million tonnes of CO₂ in total. This compares to Rio Tinto's total direct emissions of 15.3 million tonnes per annum.

It is clear that carbon intensive companies, even those identified here as accepting the useful role offsetting can play, currently find it too economically disadvantageous to offset all the emissions for which they are directly responsible. Companies in sectors with high carbon intensities will find it difficult to achieve carbon neutrality due to the size and cost of the emissions that must be abated or offset. These companies are often more likely to use energy reduction and efficiency measures than carbon offsetting. By investing in operational efficiencies, they are more likely to realise internal cost savings in the long term and avoid the ongoing expense of offsets on balance sheets.

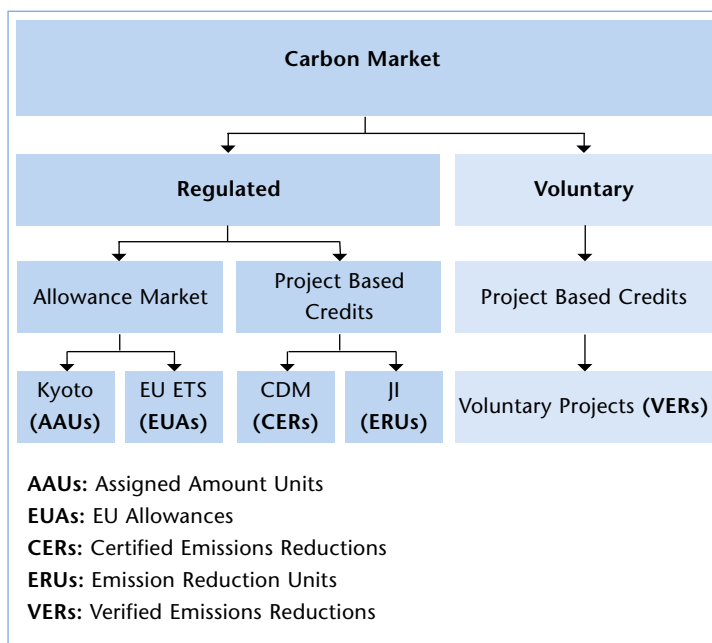
1.3 Which Offsetting Mechanisms are FTSE All-Share Companies Using?

Companies face a number of different options when choosing to offset emissions. The 2006 report recommended a clear process to evaluate these options.

Carbon offset mechanisms are often divided into two broad groups: the regulated and voluntary markets. The key difference is that regulated offsets are accepted within the Kyoto Protocol and, in some cases, within the EU ETS which operates under its auspices, whereas voluntary offsets exist outside these arrangements.

Figure 4. Overview of Carbon Market

The basic structure of the carbon market is shown below:



Source: Trucost

The total value of the global aggregated carbon market was over US\$10 billion in 2005.⁶ The World Bank estimates that it grew to US\$21.5 billion during the first three quarters of 2006.⁷ The majority of the market operates for the purpose of compliance with the Kyoto Protocol rather than as a consequence of voluntary corporate or consumer appetite for offsetting emissions.

⁶ World Bank (2006), State and Trends of the Carbon Market 2006. Washington DC

⁷ World Bank - Third Quarter Update - October (2006), State and Trends of the Carbon Market 2006. Washington DC

The majority of the growth in the carbon market has occurred within the regulated allowance market, and in particular within the EU ETS, which traded credits to a value of US\$18.9 billion for the first three quarters of 2006, over twice that of 2005 (US\$8.2 billion). The market price of EUAs in the first phase (2005-7) of the EU ETS has been extremely volatile ranging from a high of €31.58 to €6.55 during 2006. The price fell to a low of €0.07 in 2007 as it became clear that allocations of emissions permits during the first phase were highly likely to exceed actual emissions. Although Phase I carbon prices have been highly volatile due to these issues of over-supply, the price of Phase II EUAs (2008) has been much more stable, averaging around €20-23. The price of 2008 EUAs has also closely mirrored the marginal abatement cost of carbon indicating that the market expects allocations contained in the various draft National Allocation Plans will create the necessary scarcity in the second phase. The European Commission has now agreed these plans.

During 2006, the CDM transacted more than 27 times more carbon than JI projects. CDM projects in 2006 enjoyed a steady increase in volumes and exhibited relative price stability. Developing countries supplied nearly 450 MtCO₂e of primary CDM credits in 2006 for a total market value of US\$5 billion (€3.8 billion). Average prices for Certified Emission Reductions (CERs) were up marginally in 2006 at US\$10.90 or €8.40 (with the vast majority of transactions in the range of US\$8-14 or €6-11). Carbon credits generated in China continued to dominate the CDM market; 61% of the global supply of CERs came from this region.

In 2006, Joint Implementation (JI) projects from economies in transition saw increasing interest from buyers, with 16.3 MtCO₂e transacted (up 45% over 2005 levels) – with Russia, Ukraine and Bulgaria providing more than 60% of transacted volumes so far – at an average price of US\$8.70 (€6.70). Preliminary data show that volumes in the first quarter of 2007 alone exceeded the total in 2006.

According to research by Ecosystem Marketplace and New Carbon Finance⁸, the voluntary market was worth US\$91 million in 2006. Approximately 23.7 MtCO₂e were transacted with a volume-weighted average price of US\$4.1 per tonne. This is less costly than the average CER and significantly less costly than the 2008 price of approximately €23 for Phase II EUAs.

Five of the 12 companies that were identified in 2006 as having offset carbon emissions, used regulated schemes, at least in part. The carbon offset through these regulated schemes accounted for 307,375 tonnes of carbon, or 27% of the total carbon offsets by FTSE All-Share companies during 2006.

Interestingly, all five companies that used regulated offsets were from low carbon intensity sectors, and generally were the companies offsetting the most significant amounts of emissions. In other words the larger users of carbon offsets are showing a preference for regulated schemes despite the fact that the carbon credits are generally more expensive.

In comparison, all 12 of the companies currently offsetting carbon emissions used voluntary schemes to offset some of their carbon emissions, totalling 831,904 tonnes.

Figure 5. Companies using regulated offsets

| Company Name | Tonnes Offset (Regulated) | Total Tonnes Offset |
|------------------------------------|---------------------------|---------------------|
| Brit Insurance Holdings PLC | 3,575 | 3,575 |
| Man Group PLC | 15,000 | 22,000 |
| British Sky Broadcasting Group PLC | 30,000 | 41,414 |
| HSBC Holdings PLC | 125,000 | 170,000 |
| Barclays PLC | 133,800 | 223,000 |

Source: Trucost interviews and company websites

1.4 Increased use of offsetting by Government

Many governments are now offsetting the emissions of some of their activities by purchasing carbon credits, particularly for air travel. The UK government has pledged to offset carbon emissions arising from official and Ministerial air travel since April 2006 through a Government Carbon Offsetting Fund (GCOF). Approximately 40 UK government departments, agencies and bodies are participating in the GCOF.⁹ This commitment was made by the UK government as part of a wider 2005 UK Sustainable Development Strategy.

The GCOF offsets carbon emissions through a portfolio of CDM projects, which are expected to deliver 305,000 tonnes of CERs that will be surrendered to remove them permanently from the carbon market. The GCOF's portfolio includes select CDM projects focused on small-scale, renewable energy and/or energy efficiency, and which have an additional benefit to sustainable development.¹⁰

Speaking of the GCOF in November 2007, Environment Minister Phil Woolas said: "Offsetting emissions from transport isn't the answer to climate change – and that's as true for the Government as it is for everyone else. However, it's right that we are... offsetting every tonne of CO₂ emitted through projects that avoid emissions in developing countries... The Kyoto mechanisms for funding clean energy projects in developing countries are the basis of an open, transparent global carbon market."

While most UK Government departments which offset their carbon emissions participate in the GCOF, a few run their own carbon offsetting schemes. The Foreign & Commonwealth Office (FCO) started offsetting carbon emissions from official air travel by the FCO's UK-based staff and Ministers in 2005/2006 through an offsetting scheme managed by the Renewable Energy and Energy Efficiency Partnership (REEEP). REEEP contracted CO₂e LLC to purchase high quality CERs on their behalf. CO₂e selected CERs from a power generating wind-farm development in South Africa from Genesis Eco-Energy. To date, the FCO has offset over 38,000 tonnes of carbon dioxide and invested £200,000 in developing the carbon credits.¹¹

⁸ State of the Voluntary Carbon Markets 2007, Ecosystem Marketplace and New Carbon Finance.

⁹ <http://www.defra.gov.uk/news/2006/061228a.htm>

¹⁰ <http://www.defra.gov.uk/environment/climatechange/uk/carbonoffset/government.htm>

¹¹ <http://www.defra.gov.uk/environment/climatechange/uk/carbonoffset/government.htm>

Section 2

2.1 The importance of carbon offsetting

The 2006 report drew a distinction between the cost and quality of offsets obtained through the regulated and voluntary mechanisms. Subsequently, both markets have been the subject of significant criticism. Section Two seeks to evaluate whether these criticisms of the offset markets are well founded.

The importance of maintaining credibility and confidence in the various offset mechanisms cannot be overstated. Although the absolute number of offsets purchased may still be very small in the context of global carbon emissions, offsetting is a key mechanism to reduce the growth in emissions in developing nations from a 'business-as-usual' (BAU) case. It is also the principal way that European companies outside the eight industries currently included in the EU Emissions Trading Scheme (EU ETS) can participate in the burgeoning carbon markets.

2.2 Criticism of the CDM market

The CDM is beginning to deliver the funds necessary to support low-carbon development. According to the report "State and Trends of the Global Carbon Market 2007" launched by the World Bank, developing countries benefited in 2006 with a financial flow of US\$5 billion through the carbon market. Now, says Stern, a transformation of these flows is required to support action on the scale required. However, the CDM is facing severe criticism that is threatening its credibility. Areas of concern include public confusion between voluntary offsets and regulated offsets, long project approval times, high certification costs, and lack of supply.

Press coverage has highlighted the considerable public confusion between regulated and voluntary offsets. Yvo de Boer, Executive Secretary of the UN Framework Convention on Climate Change (UNFCCC) told Carbon Expo delegates on May 2nd 2007 that one of the Protocol's greatest successes is under threat. "Some confusion is to be expected – after all, the mechanism is breaking new ground and catalyzing further action on climate change – but some analysis of the CDM has dangerously missed the mark, especially in not distinguishing between the certified reductions produced under the CDM, and the emission offsets being sold by the growing number of unregulated or self-regulated enterprises."

CDM projects must be real, measurable and additional. All projects in the CDM go through a rigorous process of approval and independent third party monitoring by an international Executive Board. This ensures that emissions reductions comply with requirements. However, the process is both lengthy and expensive, ranging from \$50,000 to \$250,000 and has been known to take up to three years.

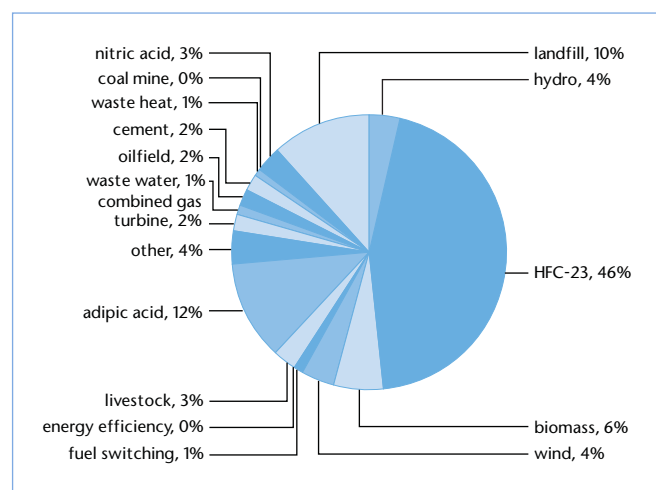
The supply of CERs is not currently meeting demand. As of May 10th, 2007, the CDM Executive Board had certified just 656 projects which will result in an estimated reduction of 900 million tonnes of CO₂ by the end of 2012. Some 1,600 projects are in the pipeline, with expectations that they will deliver 1.9 billion CERs by 2012.

To put this in context, Royal Dutch Shell is responsible for around 105 million tonnes of CO₂e annually. If Royal Dutch Shell were to offset all emissions each year to 2012, it alone would use up more than half the available supply of CERs.

Unlike emissions trading, which applies only to carbon dioxide emissions, the CDM is applicable to all GHGs. Unfortunately, this has allowed some questionable projects to be certified, as highlighted in *Nature* magazine in its February issue, in respect of HFC-23 gases. With a Global Warming Potential of 11,700, HFC-23 is extremely damaging to the atmosphere and it is proper that these emissions should be controlled. However, while countries in the developed world implemented the relatively inexpensive technology required to capture and destroy HFC-23, some developing countries have deployed this technology at a cost that is a fraction of the value of the CERs that have been generated as a result. Some commentators have expressed doubts that this level of incentive is really required in order to encourage the deployment of the new, cleaner technology and whether the projects should qualify as 'additional' under the CDM criteria. "HFC-23 emitters can earn almost twice as much from the CDM credits as they can from selling refrigerant gases – by any measure a major distortion of the market," notes Michael Wara of Stanford University in the journal *Nature*. The "obvious solution", he said, was to limit the CDM to carbon dioxide, rather than the six greenhouse gases covered by the UN's Kyoto Protocol. "No perverse incentives".

In a recent edition of *New Scientist* journal,¹² senior officials at the UNFCCC commented that there will be no "perverse incentives" to build new refrigerant plants simply to get credits linked to HFC-23s. Halldor Thorgeirsson, the director of sustainable development mechanisms at the UNFCCC claims: "The idea of easy money is out of proportion." And he says the loophole is now closed and that new HFC-23 facilities will no longer be eligible for CDM credits. "There are potential solutions on the table," he says. One of these solutions is for public or private groups to pay to destroy HFC-23 and get incentives to cover the cost. Alternatively, carbon credits could be issued to governments such as China to destroy HFC-23.

Figure 6. Breakdown of Existing CDM Projects by Type¹³



¹² <http://environment.newscientist.com/article/dn11155-kyoto-protocol-loophole-has-cost-6-billion.html>

¹³ Source: UNFCCC. Data correct as of 31st March 2007

The question of “additionality” is causing most concern. Given the strength of the gases, it is unsurprising that substantial quantities of carbon credits have been claimed. HFC-23 projects to date account for 46% of the total CDM market. Assuming average prices, these CERs have a value of €1.22 billion. An estimate of the cost of supplying these plants with the appropriate technology to rid them of HFC-23 emissions is much lower at around €100 million.

Interestingly, China has announced that it intends to re-invest the proceeds from the sale of carbon credits from HFCs and other gases to support renewable energy development through the China Clean Development Mechanism Fund, demonstrating that the Chinese Government also regards the income from these projects as something akin to a windfall.

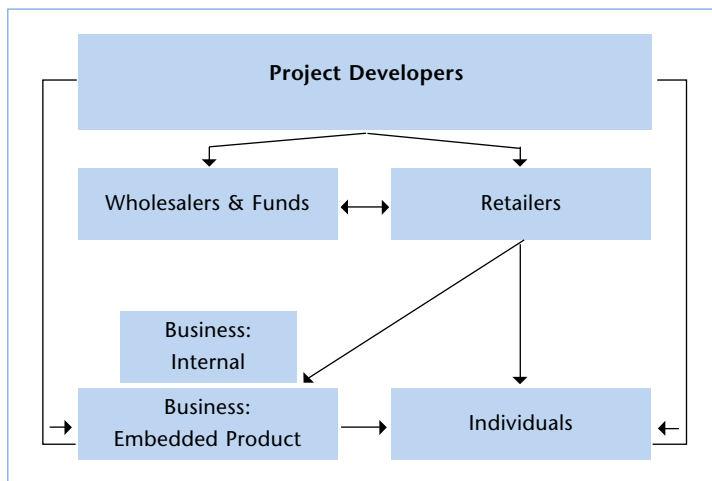
2.3 Structure of the Voluntary Offset Market

The voluntary carbon market covers a vast range of project-based offset schemes. These offsetting projects may be similar to the regulated CDM/JI projects, but have not undergone formal certification; they exist outside of the Kyoto compliant regulated schemes and do not generate Certified Emissions Reductions (CERs). These offsets cannot be used in the EU ETS.

Voluntary carbon offsets are sold by specialist companies, non-profit organisations and charities. There are no requirements for them to be verified by, or registered with, a central body.

The voluntary offsetting market is made up of project developers, project verifiers and certifiers, wholesalers and retailers, and investors and brokers. Project developers may also verify and sell their carbon offset assets directly, bypassing the offset verifiers and retailers.

Figure 7. The voluntary carbon market



Source: R. Bayon, 'Voluntary Carbon Markets: An International Business Guide to What They Are and How They Work' 2007

The voluntary carbon market is developing and rapidly changing. According to the existing offset providers sales are set to double and a number of new carbon offset providers are being set up. The voluntary offset market attracts individuals and corporate clients and undoubtedly has an important role in the global carbon market.

2.4 Critique of the Voluntary Offset Market

The voluntary offsetting market has also attracted considerable criticism. For example, the Advertising Standards Authority ruled that Scottish & Southern’s claim that, “we plant trees to balance out the CO₂ that your gas heating and household waste produces,” was misleading and could not be substantiated (October 2006). However in an earlier ruling (July 2005) it concluded that The Phone Co-op claim, “for every £10 you spend on calls we will offset 100kg of CO₂ through our partnership with Climate Care,” was substantiated. It is difficult to say whether the Advertising Standards Authority has hardened its line on ‘green’ claims or whether it was more impressed with the evidence provided at the earlier adjudication.

Promoters of forestry sequestration projects, which were the primary source of offsets at the outset of the voluntary market, often fail to apply the standard valuation practice of discounting future events in order to reflect uncertainty that they will actually occur. Discounting is also used to reflect the time value of money; even a certain event that is due to occur in 50 years time is worth less today than the same event that occurs tomorrow. Many forestry sequestration projects offer buyers the full, undiscounted value of the total, anticipated carbon offset in the year of purchase, when in reality, the future carbon sequestered will depend on the plantation surviving disease, drought, fire, cultivation and logging for between 50 and 100 years. There are also significant scientific doubts regarding the efficacy of forestry sequestration projects. According to Fred Pearce, writing in the *New Scientist*, average per capita CO₂ emissions in the UK amount to 11.1 metric tons a year. This is equivalent to the amount of CO₂ about 505 mature trees could capture in a year. However reforestation schemes plant saplings rather than mature trees which do not absorb carbon at the same rate. In addition they are often planted in temperate and boreal regions rather than the tropics where the carbon sequestration rates are far higher. The IPCC estimates carbon uptake in boreal regions to be between 0.4-1.2 tonnes per hectare per year. In temperate regions it is 1.5-4.5 and in tropical regions it is 4-8 tonnes per hectare per year. These factors combined have led to a shift towards projects that reduce emissions by means of cleaner technology.

Some intermediaries have sold credits for projects that simply do not exist or for anticipated projects which are delayed or that fail to materialise. There are also credits that have been sold, and rather than being retired, have been resold again. Some projects simply do not deliver the anticipated level of carbon reductions. Without strict regulation and audit trails, it is difficult to ensure that credits or suppliers are legitimate. For a buyer in the voluntary market, verifying such legitimacy is both costly and time consuming. These uncertainties have led at least one company to take direct responsibility for monitoring offset projects it is investing in rather than solely relying on intermediaries to provide verification. According to Francis Sullivan of HSBC, these intermediaries, “do not all add very much value, they do not all do this at the minimal cost, and they are not all truly credible”.¹⁴ Sullivan went on to say that the due diligence required on the intermediaries was as labour intensive as that required on the projects themselves.

¹⁴ <http://www.ft.com/cms/s/ff960476-f391-11db-9845-000b5df10621.html>

This is particularly the case when intermediaries supply offsets from projects that are geographically distant from the company wishing to offset. Indeed, some companies prefer to link offsets to specific, named projects for verification purposes.

Other companies are claiming credits under voluntary schemes for implementing efficiency and rationalisation measures. Under the regulated schemes such practices would simply not qualify for credits because they do not meet the “additionality” criteria.

In the interviews that Trucost conducted in order to compile Figures 11 and 12, a trend in favour of the regulated markets was discernable and one of the newer entrants to the offsetting markets, Global Cool, has pledged to offset emissions by purchasing EUAs in the EU ETS and retiring them permanently. Trucost would like to acknowledge the considerable time and effort that many market participants gave to this analysis.

2.5 Voluntary Market Survey

In comparison to the regulated market, the voluntary market is very small. The World Bank estimates that in 2005 this market made up less than 1% of global dealings trading fewer than 10 million tonnes of carbon. However, demand for voluntary offsets by UK business is increasing; it is forecast to grow 40-fold by 2010.¹⁵

Figure 8. Largest carbon offset providers (in alphabetical order)

| Name | Location | Type of Projects | % of business | | % of sales | | | | Prices (local currency) | Prices (£) [^] | Tonnes CO ₂ offsets to date |
|------------------------|----------|--|---------------|------|------------|---------|----------|---------|-------------------------|-------------------------|--|
| | | | Reg. | Vol. | Consumer | | Business | | | | |
| | | | | | Reg. | Vol. | Reg. | Vol. | | | |
| AgCert/ Driving Green | Ire | Livestock, biomass | 100 | | NA | | NA | | €10 – 15 | 6.7 - 10 | 460,000 |
| Carbon Neutral Company | UK | Energy efficiency, renewables, methane capture | 5 | 95 | <1** | 19** | 10** | 70** | £7.50 | 7.5 | 2,000,000 |
| Climate Care | UK | Renewable energy, Energy efficiency | | 100 | | 20 | | 80 | £7.50 | 7.5 | >300,000 |
| Climate Trust | US | Energy efficiency, renewable energy, sequestration | 90 | 10 | | 3** | 90** | 7** | \$4 - 5 | 2 – 2.6 | 2,700,000 |
| MyClimate | Swz | Renewable Energy, Energy Efficiency | 50 | 50 | 10** | 15** | 60** | 15** | €10 – 30 | 6.7 – 20.2 | >100,000 |
| NativeEnergy | US | Renewable energy | | 100 | | 40 - 25 | | 60 - 75 | \$12 | 6.1 | >500,000 |
| Carbon Fund | US | Renewable, energy efficiency, reforestation | | 100 | | 50 | | 50 | \$5.50 | 2.8 | 250,000 |

[^] - exchange rate as of 31st December 2006

** - estimated figures

Source: Trucost

¹⁵ ICF International. <http://www.ft.com/cms/s/0/ff960476-f391-11db-9845-000b5df10621.html>

Figure 9. Offset providing organisations with less than 100,000 tonnes offset to date

| Name | Location | Type of Projects | % of business | | % of sales | | | | Prices (local currency) | Prices (£)^ | Tonnes CO ₂ offsets to date |
|--------------------------------|----------|---|---------------|------|------------|------|----------|------|-------------------------|-------------|--|
| | | | Reg. | Vol. | Consumer | | Business | | | | |
| | | | | | Reg. | Vol. | Reg. | Vol. | | | |
| Atmosfair gGmbH | D | Energy efficiency, renewable energy | 100 | | 60 | | 40 | | €20 | 13.5 | ~ 12,000 |
| Carbon Clear | UK | Energy efficiency, biogas, reforestation | | 100 | | 20 | | 80 | £7.5 | 7.5 | NA |
| Carbon Planet | Aus | Reforestation | | 100 | | 40 | | 60 | \$23 Aus | 9.3 | <20,000 |
| Cleanairpass | Can | Renewable energy, methane capture, reforestation | | 100 | | 50 | | 50 | NA | NA | NA |
| CO ₂ balance | UK | Energy efficiency, renewable energy | | 100 | | 20 | | 80 | £6 - 10 | 6 - 10 | ~40,000 |
| DriveNeutral | US | Mix of projects | | 100 | | 50 | | 50 | \$7.5 | 3.8 | 22,000 |
| Excellent Development/TreeDuty | UK | Reforestation | | 100 | | 100 | | | £6 | 6 | NA |
| Pure | UK | Renewable energy, energy efficiency | 100 | | NA | | NA | | NA | NA | ~50,000 |
| Target Neutral (BP) | UK | Renewable energy, energy efficiency, waste management | | 100 | | 100 | | | €6 | 4 | 27,500 |
| Woodland Trust | UK | Woodland | | 100 | | | | 100 | £15 - 25 | 15 - 25 | ~50,000 |
| World Land Trust | UK | Reforestation | | 100 | | 60 | | 40 | £ 9.66 | 9.66 | 13,500 |

^ - exchange rate as of 31st December 2006

Source: Trucost

** - estimated figures

2.6 Introduction of Offset Standards

In response to criticism, efforts have been made to establish standards and registries of carbon offsets. An international voluntary carbon standard, launched in November 2007, was developed by the International Emissions Trading Association, The Climate Group and the World Business Council for Sustainable Development. A 'Gold Standard' backed by several environmental non-governmental organizations (NGOs) has also been established.

The Gold Standard is a certification scheme that recognises the best projects in the regulated CDM and JI markets and the voluntary offset markets. It is endorsed by 38 NGOs.¹⁶ At the time of writing, some six voluntary offset projects had received Gold Standard approval: biogas/biomass fuel projects, wind/solar power projects and a housing energy upgrade. The Gold Standard website lists 20 projects. Under the standard, CERs are only issued once the emissions reductions have been achieved and verified.

Separately, a group of investment banks and others have collaborated to develop their own standard. European Carbon Investors and Services (ECIS) – which counts ABN Amro, Barclays Capital, Climate Change Capital, Fortis and Morgan Stanley among its members – has produced a Voluntary Offset Standard (VOS) in an effort to bring a level of assurance to the voluntary market equal to that of the compliance market by following the procedures established by the Kyoto Protocol for Clean Development Mechanism (CDM) and Joint Implementation projects. The VOS will initially use methodologies approved for CDM projects and project verifiers accredited by the CDM to certify projects. However, unlike the CDM, VOS certified projects will not need approval from the host country or the CDM Executive Board.

Defra is currently developing an offset Code of Practice, incorporating a 'kitemark' for good quality offset projects.¹⁷ According to Defra the aims of the Code are to:

- educate consumers about offsetting and its role in addressing climate change;
- increase consumer confidence in the integrity and value for money of the offset products available to them;
- provide signals to the UK offset sector on the quality and verification standards to which they should aspire, so that market participants can focus their attention on developing the UK's position as a global market leader in the field; and
- encourage the provision of credit types which are consistent with the Government's policies on meeting its Kyoto obligations and strategy for supporting the development of a robust and liquid global market infrastructure for carbon trading.

Defra's proposed kite-mark currently excludes the voluntary offsetting market altogether. However responses to the consultation indicate overwhelming support for the inclusion of voluntary emissions reductions from the non-regulated markets.

¹⁶ <http://www.cdmgoldstandard.org/rationale.php>

¹⁷ <http://www.defra.gov.uk/environment/climatechange/uk/carbonoffset/codeofpractice.htm>

3. Conclusion

3.1 Conclusion

This update report has shown that there has been an increase in the number of UK-listed companies that are aiming for carbon neutrality and using the carbon offset markets as part of their carbon management strategy. The 28 companies in the FTSE All-Share offsetting or planning to offset emissions represent seven per cent of the index by number and 25% of its market capitalisation. However the amount of carbon actually offset by FTSE All-Share companies in 2006 represents only 1% of the direct (Scope 1, as per the GHG Protocol) carbon emissions of the companies in this index.

According to Yvo de Boer, Executive Secretary of the United Nations Framework Convention on Climate Change (UNFCCC), "If rich countries commit to reduce emissions by 60% by 2050 compared to 1990 levels, and if they buy half of the reductions in developing countries that would generate a \$100 billion in financial flows for clean development options". However, if the issues outlined in this report are not addressed, then confidence in this crucial and fundamental mechanism to address climate change may suffer.

This report shows that carbon offsetting is part of a carbon management strategy employed predominately by low impact companies such as banks rather than companies with large carbon footprints such as oil and gas companies.

The majority of carbon offset (73%) by FTSE All-Share companies occurs via the voluntary market, while only 5 of the 12 companies currently offsetting emissions do so via regulated schemes. There may be several factors contributing to this trend. The credits delivered via the voluntary market are significantly cheaper than those from regulated markets – a VER is, on average, less than half the price of a CER. However, credits from the CDM market, and in particular from certain credible projects, are in short supply.

It may be that the prominent criticism of voluntary offset schemes has slowed the growth of their use. The *Financial Times* published a series of articles on the topic, which included the following statement: "The FT uncovered numerous examples of companies selling at a high price offsets that were effectively worthless, as well as factories and carbon trading companies making large profits from selling cheaply acquired 'carbon credits', and has passed on its findings to the Office of Fair Trading."¹⁸ The House of Commons Environmental Audit Committee warned of significant and widespread problems in the burgeoning market for offsets stating, "we are concerned that the prospects for growth in carbon offsetting, and the accompanying benefits in terms of lower global emissions, are being held back by suspicions that a lack of regulation and transparency in the market is allowing some schemes to be promoted which do not achieve acceptable outcomes."¹⁹

In the face of this criticism companies seeking to offset their emissions face significant difficulty in identifying schemes that are credible and robust. In order to alleviate some of these concerns the UK Government plans to launch a standard, which will issue a kitemark to credible offsetting schemes. Significant confusion remains, however, with many still questioning the credibility of the voluntary markets. The regulated markets, although growing in terms of projects obtaining certification, suffer from supply constraints and are a high cost option by comparison.

Demand for credible carbon credits is likely to be driven by initiatives such as an International Carbon Action Partnership (ICAP) formed in October 2007 to promote the creation of a global carbon cap and trade market. The UK is among the group's founding members.

Foreign Secretary, David Miliband said; "Co-operation between Europe and other economies involved in this initiative will be a critical motor in driving a successful global response to climate change. That response will require new coalitions of top-down and bottom-up action. This initiative, which powerfully reflects both of these realities, takes us a significant step closer to building a low-carbon global economy."

¹⁸ Consumer standard for carbon offsetting urged. *Financial Times*, 23rd July 2007

¹⁹ http://www.parliament.uk/parliamentary_committees/environmental_audit_committee/eac_230707a.cfm

4. Appendix

As in Trucost's previous report, both the direct and indirect emissions of a company have been assessed. Direct emissions are those that resulting from a company's own operations whilst indirect emissions occur at sources owned or controlled by another company, such as purchased electricity.

In analysing FTSE All-Share companies, we used the carbon data disclosed by the company. Where no disclosure has been made, Trucost used estimates based on our model. This enabled us to produce a comparable Carbon Intensity metric showing tonnes of CO₂e emitted per million US\$ turnover, for each FTSE All-Share company.

Analysis of FTSE All-Share companies above shows the average level of emissions by ICB sector. The most carbon intensive sectors per unit of output are sectors such as electricity, mining, and other heavy industries. The sectors with the lowest carbon intensity are service industries such as banking, insurance, and media.

The carbon intensity of the FTSE All-Share broken down by ICB sector in 2007 is shown below. In this analysis, the carbon intensity of different sectors has been classified as follows:

| Sector | Carbon Intensity |
|------------------|---|
| Low Intensity | emit less than 50 tonnes CO ₂ e per US\$ million turnover |
| Medium Intensity | emit between 50-499 tonnes CO ₂ e per US\$ million turnover |
| High Intensity | emit greater than 500 tonnes CO ₂ e per US\$ million turnover on average |

| High Intensity | Medium Intensity | Low Intensity |
|------------------------------|-----------------------------------|---------------------------------|
| Construction & Materials | Aerospace & Defence | Automobiles & Parts |
| Electricity | Beverages | Banks |
| Gas, Water & Multi-utilities | Chemicals | Fixed Line Telecommunications |
| Industrial Transportation | Electronic & Electrical Equipment | Food & Drug Retailers |
| Mining | Food Producers | General Financial |
| Oil & Gas Producers | General Industrials | General Retailers |
| Oil Equipment & Services | Industrial Engineering | Healthcare Equipment & Services |
| Travel & Leisure | Leisure Goods | Household Goods |
| | Pharmaceuticals & Biotechnology | Life Insurance |
| | Support Services | Media |
| | | Mobile Telecommunications |
| | | Non-life Insurance |
| | | Personal Goods |
| | | Real Estate |
| | | Software & Computer Services |
| | | Technology Hardware & Equipment |
| | | Tobacco |

In addition to the analysis of the carbon intensity of the FTSE All-Share companies, Trucost undertook an extensive review of the company publications and websites to identify those companies that:-

- are currently investigating carbon neutrality
- have set plans to move towards neutrality
- that are currently taking action towards achieving carbon neutrality
- the scope of this activity.

The keywords used in this search were:-

- Carbon Neutral
- CO₂ Neutral
- Climate Neutral
- Greenhouse Neutral
- Low Carbon
- Carbon Offset
- CO₂ Offset.

The publications Trucost reviewed for each company included Annual Reports and Accounts, environmental/sustainability reports, public disclosures and corporate websites. Where there was no public disclosure, Trucost estimated the CO₂e emissions of the corporations.



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