

The low-carbon economy

“Tackling climate change is the pro-growth strategy for the long term.”

Sir Nicholas Stern, author of ‘The Stern Review on the Economics of Climate Change’, the most influential financial study of climate change.

AT A GLANCE

- After being constant for thousands of years, CO2 levels have risen by 40% since the industrial revolution.¹
- If emissions continue to grow at current rates, CO2 could reach twice pre-industrial levels by 2050.²
- The rise in average temperatures will become more apparent from 2010.
- Globally, the ten hottest years on record have all occurred since 1997.²
- One of the most damaging risks of climate change would be the accumulated loss of bio-diversity.
- Global warming is a classic ‘tragedy of the commons’, where private enterprise is not incentivised to provide a solution.
- Nevertheless, the inevitable and necessary move to a low-carbon world has begun.
- HSBC forecast the low-carbon energy market will triple to \$2.2 trillion by 2020.³
- There are already many investible opportunities in the low-carbon space.

Climate change is becoming impossible to ignore, even for cynics. Governments are considering changes that could have significant impact on industries. Companies are reappraising their impact on the environment, their energy use and how to be more socially responsible. Climate change is set to become one of the defining issues of the next few decades; one that will create both winners and losers in the investment arena.

GLOBAL WARMING: AN ENVIRONMENTAL TIMEBOMB

The cost of a century of economic development could wipe out all of the benefits we have so far enjoyed. The consensus among the scientific community is that unless we take drastic action to reduce the level of harmful gases in the Earth’s atmosphere, millions of lives are at risk and life on the planet will change irreversibly.

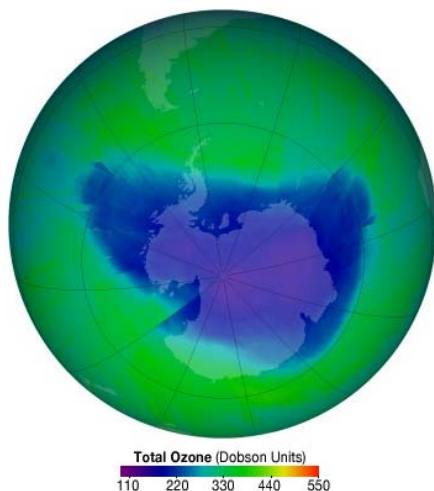
Despite media portrayals of a schism between climate change believers and cynics, the overwhelming majority of scientists are in agreement on the fundamentals of climate change. According to the US National Academy of Sciences, it is now a ‘settled fact’ that warming is taking place and that humans are largely responsible.

Every minute of the day, we consume vast amounts of energy. It is likely that everything that you have eaten, drunk, worn and touched today has used energy and finite resources in its design, manufacture and transportation. In fact, behind every unit of visible energy use, many more layers are hidden: it is estimated that the production of a polyester jacket, for example, is responsible for 48 times the jacket’s weight in carbon emissions.

If the world’s rampant energy consumption is not curbed and managed more effectively, the concentration of greenhouse gases (mainly carbon dioxide) in the atmosphere will cause the average temperature to rise. The extent of the rise is subject to debate, but the United Nations believes we are heading for an average rise of around four degrees Celsius this century. A non-binding agreement signed in Copenhagen last year committed countries to emissions caps that would keep the rise to two degrees. But countries are slow to act on this woolly agreement and, privately, many scientists are working on the basis that these targets are very likely to be missed.

THERE’S A HOLE IN THE OZONE LAYER....

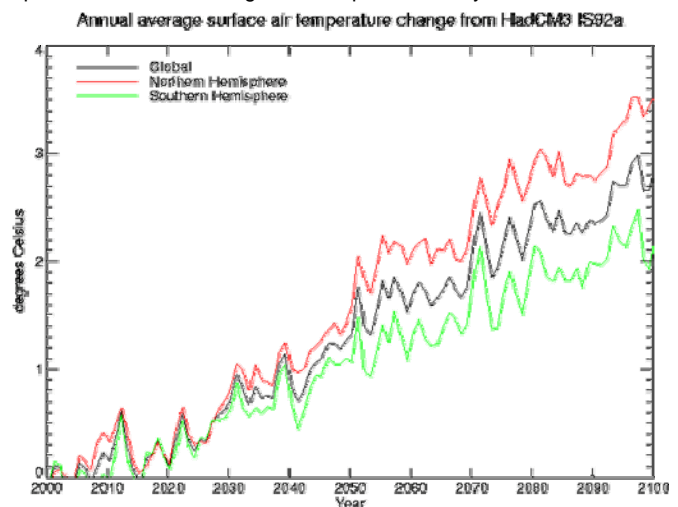
The ozone layer protects Earth from harmful UV rays, but it’s being destroyed by greenhouse gases. The landmass under it is Antarctica.



Source: NASA as at 18.11.10

...THAT IS LETTING IN UV RAYS

The world is set to get hotter. A change of four degrees in average temperatures could have significant impact on ecosystems and wildlife.



Source: The Met Office as at 07.12.10

Any rise above two degrees will cause droughts in some parts of the world and floods in others. Extreme weather will displace populations and cause shortages in food and water. Ultimately, it will disrupt the lives of virtually everyone on the planet. Ironically, many of the poorest countries in the world – those that have contributed least to the problem and benefitted least from the economic development that caused it – will suffer first and most severely.

MITIGATION OR ADAPTATION?

It is becoming clear that years of debate are yielding insufficient reductions in emissions to halt global warming. This being the case, over time, the focus of debate may well shift from measures designed to prevent global warming to how humankind begins to adapt to a warmer planet.

Coping with large scale migrations, the provision and distribution of food and water, secure housing and the simple ability for us to cope with a blazing sun will become priorities alongside measures to cut emissions. One thing seems clear – both adaptation and prevention will require significant investment and a combined approach is likely to be the most practical and beneficial.

THE SHORT- AND LONG-TERM ECONOMIC COST OF GLOBAL WARMING

For years, the economic debate around warming has focused on the cost of action. Since emissions are a result of industrial and economic progress, it was assumed reducing them would curb progress but an influential review of the economic impact of climate change, released in 2006 changed this perception. The report⁴ written by Sir Nicholas Stern, a former World Bank Chief Economist, shifted the debate overnight from the cost of action to the cost of inaction.

His review suggested that the cost of inaction would be between *“5 and 20 per cent of global GDP every year now and forever.”* He claims that if we do not act, there is a 50 per cent chance that the average temperature rise could be five degrees. That might not sound much, but it is equivalent to the change in temperature from the last ice age.

It can be argued that we should act on the basis that the very worst forecasts come to pass, as the consequences are so dire. In this sense, the cost of inaction can be summed up by *Pascal's Wager*, which states that the expected value of a very small chance of an infinite loss is infinite.

Stern calculated the cost of action to tackle the issue, or in other words the ‘insurance’ premium society pays to mitigate the risk, to be just one per cent of global GDP per annum. Crucially, his report presented climate change as a growth opportunity for the developed and developing world. He argued that everyone could participate in the positive benefits of cutting emissions and that there was still time to act to reverse the worst of the dire forecasts.

HOW CAN WE RESPOND?

In essence, there will be a combination of ‘push and pull’ strategies:

The push - Governments, through regulation and taxation, can encourage certain desirable ‘green’ behaviour via a carrot and stick approach. Regulation (the stick) and taxation and subsidies (the carrot) are used to good effect in the car industry, for example. Manufacturers are forced to reduce their vehicle emissions by regulation; consumers are encouraged to buy low emission cars via lower taxes. As a result, car-makers are driving down the average carbon output of new cars and consumers are enjoying better prices.

Carbon trading, which caps the amount of carbon an industry can produce and enables the trading of surpluses and deficits between participants, is one government initiative that is yielding a change in corporate behaviour. There are also various government-led programs designed to improve energy efficiency by encouraging people to replace boilers and insulate their properties.

The failure of the Obama administration to land a federal US cap-and-trade emissions programme and the absence of a legally-binding deal at the Copenhagen summit in 2009 (and little hope of one emerging from Cancun 2010) have scaled back some of the most optimistic predictions for the global carbon market. However, despite these headwinds, the carbon market keeps developing. It is just a question of how big it is going to get.

The pull - As awareness grows and it becomes easier to be greener, consumers are demanding more of their suppliers. Buying locally and with a social conscience is becoming more of a virtue, especially among more affluent consumers, and retailers are responding. A product’s greenness has become an integral part of its appeal. Consumers are increasingly choosing products with less packaging and becoming more engaged with recycling schemes.

“The world does not need to choose between averting climate change and promoting growth and development. Changes in energy technologies and in the structure of economies have created opportunities to decouple growth from greenhouse gas emissions. Indeed, ignoring climate change will eventually damage economic growth.”

Sir Nicholas Stern

WHAT ACTIONS CAN BE TAKEN?

Stern’s key elements of change can be categorised as:

Emissions trading - regulators place a cap on an industry’s emissions and divide that across the industry into individual quotas. A company with surplus can sell to companies in deficit.

Technology cooperation – formal and informal cross-border cooperation to accelerate technology investment and development.

A reduction in deforestation – trees are the ultimate instruments of carbon capture and storage. Deforestation contributes as much to global warming as the entire transport sector. We need to reverse the decline in forested land.

Adaptation – the developed world must integrate emissions reduction into its development strategies, honour its pledges, and support the development of drought and flood resistant crops.

BUSTING THE MYTHS

1. **Creating a low-carbon economy is all about clean energy generation.** Yes, green energy production is important, but there is more to be gained from finding efficiencies in current practice than there is covering the planet in wind farms.
2. **The bulk of a product's carbon footprint is transportation costs.** The polyester jacket mentioned earlier, which has a production footprint 48 times greater than its weight, is produced in Asia and shipped to the West, but transportation accounts for just 5 per cent of that footprint. Polyester is an oil-based product and energy intensive in production.
3. **Buying local produce is always better than buying imported food.** Out of season tomatoes grown under heated glass in northern Europe are more damaging than those grown naturally further south and transported north. Buying in season is most important.
4. **Developing countries are behind in their progression towards carbon neutrality.** Brazil produces far more renewable energy than any other major economy and China is as aggressive as the rest of the world in its approach to car emissions reduction.

THE SIZE OF THE LOW CARBON ECONOMY

HSBC forecast the low-carbon energy market will triple to \$2.2 trillion (USD) by 2020. Even on their most bearish scenario forecast, we can expect the market to at least double.

Some of the benefits of a shift to a low-carbon global economy would be: western energy independence from fossil fuels (including Middle East hydrocarbon reserves); a rise in renewable energies which are typically more labour-intensive; less pollution; and new winners in the corporate world.

The shift to a low-carbon economy would certainly involve higher up-front capital costs, but lower operating costs in terms of fuel savings in building, industry and transport sectors. HSBC estimates that annual capital investment could grow from an annualised \$460 billion (USD) in 2010 to \$1.5 trillion (USD) in 2020. In total, they also estimate that around \$10 trillion (USD) in cumulative capital investments will be required from 2010 to 2020.

THE ZERO-CARBON SUPERMARKET

Tesco has invested £115m in energy-saving technology for its stores in the past two years. The firm's flagship low-carbon supermarket in Cheetham Hill, Manchester, has already exceeded its proposed CO2 reduction targets.

Onsite wind turbines power the sign at the front of the building and a combined cooling, heating and power plant provides 25% of the store's electrical needs, as well as 50% of its refrigeration.

The plant is run on vegetable oil, reducing carbon emissions by 78%. It harvests rainwater from the roof, which supplies the store with half of its toilet flushing requirements.

Built with wood from sustainable forests, the design makes maximum use of natural light, while store lights automatically dim or switch off depending on the availability of sunlight.

Source: Tesco PLC, Corporate Responsibility Report

THE CORPORATE 'GREEN' REVOLUTION

Companies all over the world are seeing the value of going green. **Tesco** is investing heavily in its environmentally-friendly credentials. As the UK's biggest retailer, the company's carbon footprint is significant, yet it aims to become a carbon-neutral business by 2050. It has several high-profile initiatives which will help to achieve this, such as building new stores with wooden (rather than steel) frames, using rainwater in carwashes and super-efficient heating and cooling systems. The green theme extends right through the supply chain. Tesco is pushing suppliers to use greener packaging that uses less energy-intensive materials, is cheaper to transport and easier to recycle or reuse - and it has adopted labelling to indicate a product's carbon footprint.

General Electric is another company that has increasingly investible green credentials in spite of a chequered history. Current Chief Executive, Jeffrey Immelt is re-modelling the company's strategy into creating eco-friendly products via the General Electric "Ecomagination" programme.

Included in the programme are dozens of green product offerings, including cleaner burning coal technologies, energy efficient engines and wind turbines. In 2009, the company's revenues from various clean energy products amounted to roughly \$18 billion dollars and GE is now committing that ecomagination revenue will grow at twice the rate of total company revenue in the next five years, making eco-friendly products an even larger proportion of total company sales. This is not environmentally-friendly window dressing but a serious revenue generating business. (Source: GE Ecomagination 2009 Annual Report).

In isolation, these measures would be unlikely to lead to an investment decision. However, many of the initiatives will undoubtedly save the company money and keep it ahead of potential future green regulations. This focus on the future is an indication of a forward-looking business, which is doing the right things to ensure the integrity of its brand with its environmentally-conscious customer base.

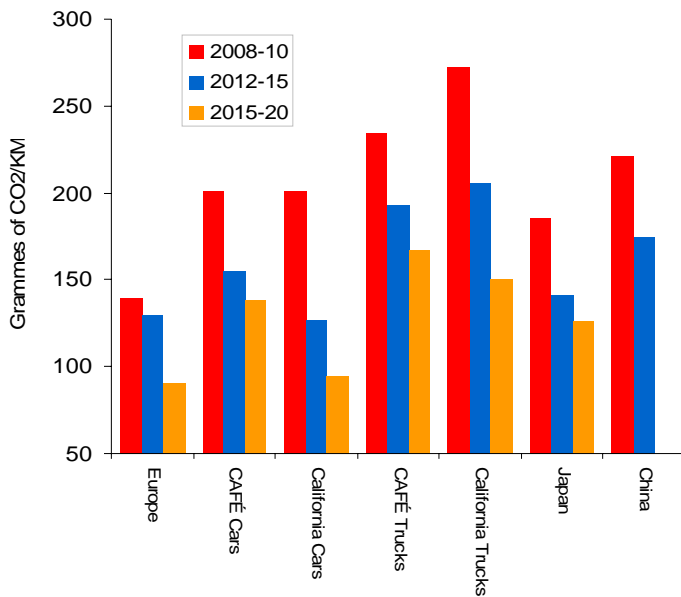
THE CATALYST FOR GOOD RETURNS

Vehicle makers and vehicle emissions technologies represent some of the most investible themes in the green space. Road vehicles are responsible for a large proportion of all greenhouse gases and authorities in all markets are aggressively targeting the auto industry to push emissions down. Consider China's demand for vehicles then consider the implication for catalytic converters, where the key active component is made from platinum.

It is the combination of stricter global emissions regulations with low automobile penetration rates and strong demand in emerging markets that is making the fundamental outlook for platinum pricing so attractive; the metal price has already risen significantly in recent years (see chart).

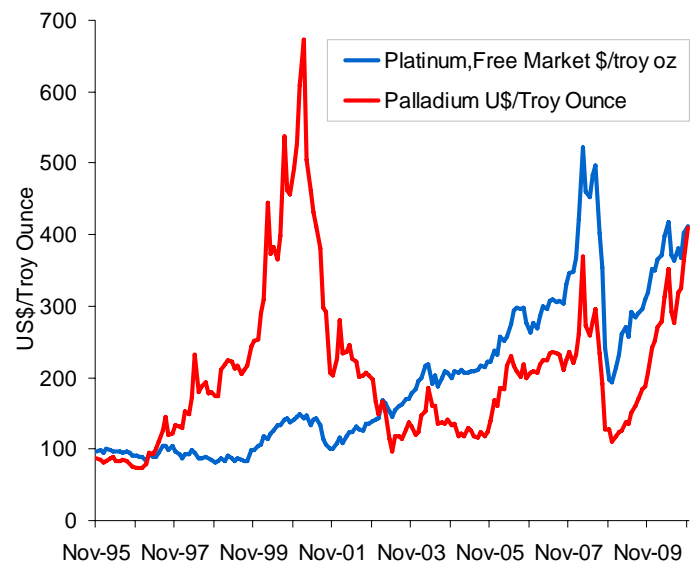
References to specific names are for illustrative purposes only and are subject to change without notice. They should not be construed as a recommendation or advice to transact in the securities.

VEHICLE EMISSIONS REGULATIONS ARE GETTING STRICTER



Source: Daimler. Japan and China with weight-class system

WHICH MEANS DEMAND IS PUSHING UP THE PLATINUM PRICE



Source: Datastream, as at 30.11.10

"I like BMW because I think it is well-positioned to increase sales volumes in China – a country which lacks domestic prestige brands. Its investment in lower emissions vehicles is important to the extent that meeting regulators' CO2 targets keeps it on the right side of the law and is an indication of management's long-term R&D investment plans."

Alexander Scurlock, portfolio manager, European equities

Carmakers

In Europe, strict emissions targets are in place and missing them incurs hefty fines. **BMW** has led the way in terms of R&D spending in recent years in an effort to gain an advantage over its premium competition, spearheaded by its Efficient Dynamics campaign. This investment benefits sales across the world as US, European and Chinese regulators are equally demanding.

Honda Motor Company is another recognised leader in the field of next generation cars. The Japanese automaker was one of the pioneers of fuel-efficient cars and hybrids. According to corporate average fuel efficiency standards (CAFE) data, the company has one of the most fuel-efficient fleets of any automaker, giving it an advantage over other automakers as stricter emissions regulations come into effect. Honda is also innovating with alternative fuels, seeking to make hydrogen-based and natural gas-based vehicles.

Despite the advances made by companies like Honda, and Chinese automaker **BYD** – an Asian pioneer in the production of electric cars – the conventional combustion engine will dominate in the medium term. A trend to smaller vehicles will accelerate the decline in average emissions rather than a mass switch to hybrid vehicles (they are seen as having limited whole-life green advantages) or electric vehicles (which are limited in terms of performance and range). These vehicles have economic commercial markets but will remain niche until a game-changing product or technology hits the market.

Emissions technologies

As cars penetrate further into emerging markets and regulators apply stricter emissions targets, the demand for CO2-reducing catalytic converters is growing on two fronts.

Johnson Matthey's principal activities are the manufacture of auto-catalysts, heavy duty diesel catalysts and pollution control systems. It is also involved in making pharmaceutical ingredients and the marketing, refining, and fabrication of precious metals.

With operations in over 30 countries and around 9,000 employees, its products are sold across the world to a wide range of advanced technology industries.

Umicore is a Belgian materials technology group. Its activities are centred on catalysis, energy materials, performance materials and recycling. It is the world's leading recycler of precious metals and one of Europe's biggest catalytic converter manufacturers.

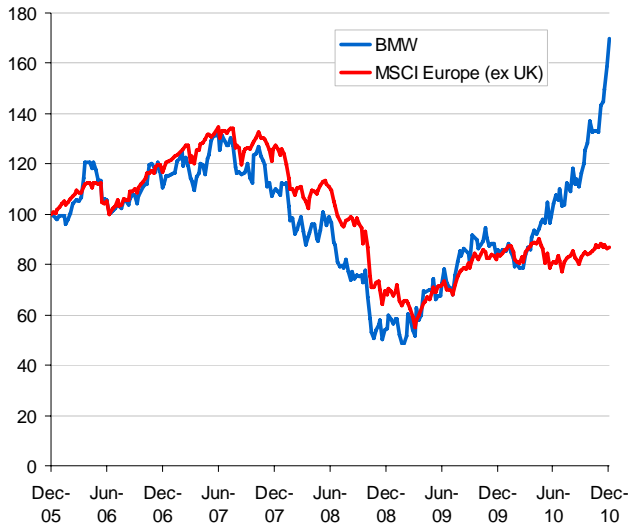
The company generates approximately 50% of its revenues and spends approximately 80% of its R&D budget in the area of clean technology, such as emission control catalysts, materials for rechargeable batteries and photovoltaic cells, fuel cells, and precious metals recycling.

"Johnson Matthey is a UK manufacturer of auto catalysts. As a complex product with a limited customer base, there are high barriers to entry in the manufacture of auto catalysts. Johnson Matthey has a strong management team and, with an attractive valuation, is a potential M&A target."

James Griffin, portfolio manager, UK equities

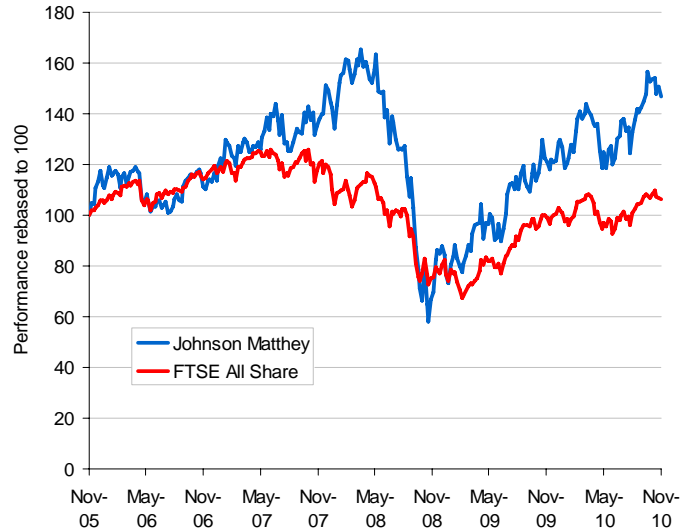
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PREMIUM CAR MANUFACTURERS - BMW



Source:Datstream as at 06.12.10

EMISSIONS TECHNOLOGIES – JOHNSON MATTHEY



Source:Datstream as at 06.12.10

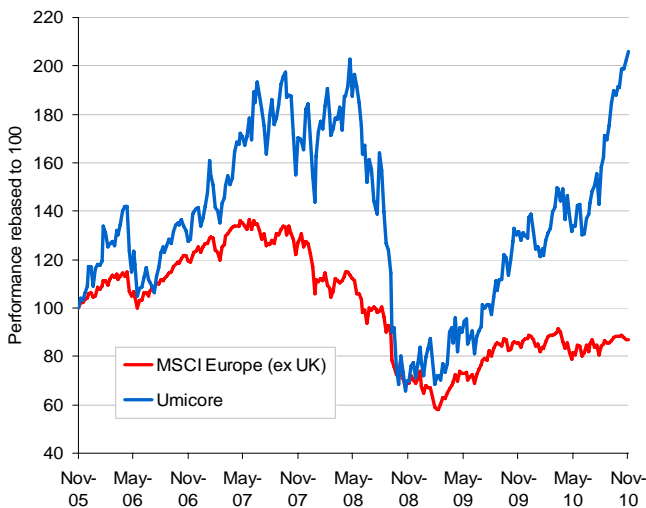
Platinum Miners

The key unique active ingredient in catalytic convertors is platinum and platinum miners offer an attractive way to access the wider vehicle emissions theme. The platinum miners have strong pricing power given constrained supply and growing demand.

“My route into the platinum investment theme (and the wider emissions technology theme) is through the companies that mine it. Since 97% of the world’s platinum is to be found in the EMEA region, the companies that I research are perfectly located.”

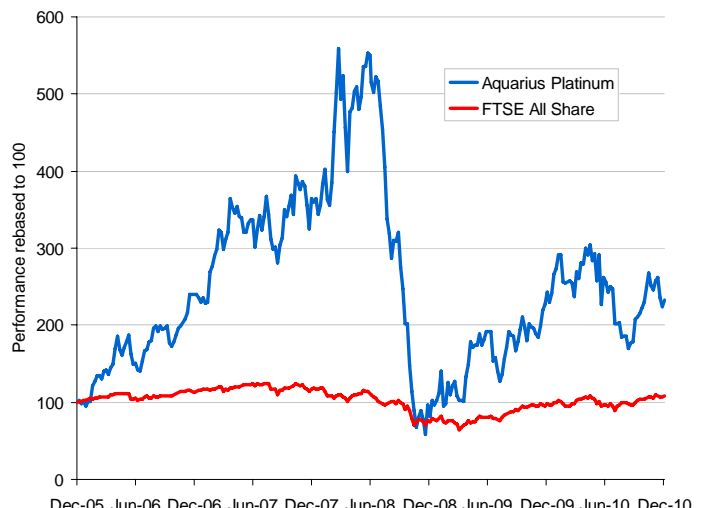
Nick Price, Portfolio Manager, emerging market equities

EMISSIONS TECHNOLOGIES - UMICORE



Source:Datstream as at 06.12.10

PLATINUM MINERS - AQUARIUS



Source:Datstream as at 06.12.10

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CORPORATE SOCIAL RESPONSIBILITY – OUR APPROACH AS AN INVESTOR

In recent years, equity analysts have begun to include commentary on a company’s environmental practices and corporate governance in research reports to clients, a sign of just how important these factors are becoming to the value of a company’s stock.

As a major shareholder, Fidelity actively engages with companies on these issues on behalf of our clients. We use the information gathered in these meetings to inform the investment process and encourage company management to improve policies and procedures.

In recent months:

- We have discussed with homebuilders the costs and opportunities of complying with EU energy efficient home-building regulations;
- Discussions are ongoing with energy companies on the drive to decarbonise energy generation and the impact of carbon trading and other carbon reduction measures;
- EU vehicle emissions regulations are the toughest in the world. Fidelity's engineering analyst visited Tognum AG, a German engine maker, to assess the development of its power-trains;

Throughout this year, Fidelity has met with senior managers at BP to assess the progress and impact of the fallout from the spill in the Gulf of Mexico. These and other meetings have been an opportunity to discuss BP's wider safety record and procedures as well as its more general impact on the environment and its transition to a low-carbon economy.

CONCLUSION

Global warming could well become the biggest issue of our time. It is complex and contentious, but it cannot be ignored. Despite the regulatory headwinds, climate change and the move to a low-carbon economy is likely to become a massive issue and a juggernaut of an investment theme in coming years. It is self-evident that mounting pressures on energy and natural resources require a step-change in our economic behaviour, offering growth, employment and trade benefits for those countries and companies that take a lead in the climate business.

Countless stock opportunities will emerge. However, corporate touch-points in the 'green' space are becoming varied and complex; it is difficult to discern clever environmentally 'on-message' marketing from best business practices and genuinely unique leadership. You could argue the companies who lead the way in emissions reductions are better managed and have an eye on the long-term. You could even argue that they have a greater conscience than the average company. Corporate conscience in isolation does not make profits, however. But consumers are demanding more from the products they buy and the companies they want to deal with. Ultimately, it is how a company deploys its green investment, how it markets this and balances this with the shorter term needs of the business that will be critical. This is why careful research and stock-picking is essential to sort the wheat from the chaff in the field of sustainable, low-carbon investing.

Notes:

1. Jeremy Grantham, founder of Grantham Mayo van Otterloo (GMO) Asset Management, Q2 2010 Newsletter, 30 June 2010.
2. Met Office, 'Warming: Climate Change – The Facts', 2009.
3. HSBC Global Research, 'Sizing the Climate Economy', September 2010.
4. Stern Review on The Economics of Climate Change, released October 2006

TAKE ACTION: DO YOUR BIT TO SAVE THE PLANET

These simple steps to reduce your personal carbon footprint illustrate how a change in approach to daily life could, in aggregate, make a significant contribution.

- 1. Change a light** - Replacing one regular light bulb with a compact fluorescent light bulb will save 150 pounds of carbon dioxide a year.
- 2. Drive less** - Walk, bike, car-pool or take public transport more often. You'll save one pound of carbon dioxide for every mile you don't drive!
- 3. Recycle more** - You can save 2,400 pounds of carbon dioxide per year by recycling just half of your household waste.
- 4. Check your tyres** - Keeping your tyres inflated properly can improve fuel efficiency by more than 3%. Every gallon of gasoline saved keeps 20 pounds of carbon dioxide out of the atmosphere.
- 5. Use less hot water** - Use less hot water by installing a low-flow showerhead (350 pounds of CO2 saved per year) and wash clothes in

cold or warm water (500 pounds saved per year).

- 6. Avoid products with a lot of packaging** - You can save 1,200 pounds of carbon dioxide if you cut down your garbage by 10%.
- 7. Adjust your thermostat** - Simply moving your thermostat down just 2 degrees in winter and up 2 degrees in summer could save you about 2,000 pounds of carbon dioxide a year.
- 8. Plant trees** - 1 tree will absorb 1 ton of carbon dioxide in its lifetime.
- 9. Turn off electronic devices** - Simply turning off your television, DVD player, stereo and computer when you are not using them will save you thousands of pounds of carbon dioxide a year.
- 10. Try 'Meatless Mondays'** - Skipping meat one day per week would help save over 35,000 gallons of water. Cutting meat out of your diet entirely would help save 5,000 pounds of carbon emissions per year.

Source: Climatecrisis.net



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