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**THE
RENEWABLE
ENERGY AND
CARBON
MONTHLY**

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VM GROUP

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Renewable Energy and Carbon Monthly

- **Editor: Paul Hannon**
 - tel: +44 20 7569 5930
 - email: paul@vmgroup.co.uk
- **Gary Mead**
 - tel: +44 20 7569 5930
 - email: gary@vmgroup.co.uk
- **Justine White**
 - email: justine@vmgroup.co.uk
- **Marina Loterijman**
 - email: marina@vmgroup.co.uk

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Emissions data

GHG emissions totals – GHG total excluding LULUCF v. Kyoto Target (MtCO₂e)

Country	Base Year (Convention)	Target (MtCO ₂ e)	1990	1995	2000	2005	2006	2007
Australia	416.2	449.5	(33.3)	(8.1)	45.3	75.1	85.0	91.7
Austria	79.0	68.8	10.3	11.7	12.3	24.1	22.8	19.2
Belarus	129.1	118.8	10.3	(44.7)	(47.8)	(41.4)	(37.5)	(38.8)
Belgium	143.2	132.5	10.7	16.9	12.6	9.4	4.1	(1.2)
Bulgaria	133.7	123.0	(5.4)	(34.5)	(53.8)	(52.0)	(51.1)	(47.3)
Canada	591.8	556.3	35.5	84.7	160.8	174.7	161.9	190.8
Croatia	31.4	29.8	1.6	(6.9)	(3.9)	0.6	1.0	2.6
Czech Republic	194.7	179.1	15.6	(25.9)	(31.9)	(32.9)	(30.0)	(28.3)
Denmark	70.4	55.6	14.8	21.7	13.5	9.3	16.9	12.5
Estonia	41.9	38.6	3.4	(17.7)	(20.2)	(18.9)	(19.4)	(16.6)
European Union	4,232.9	3,894.3	338.6	233.6	213.4	247.1	221.7	157.7
Finland	70.9	70.9	0.0	0.4	(1.3)	(2.2)	9.1	7.5
France	565.5	565.5	0.0	(5.9)	(4.9)	(7.0)	(19.1)	(29.7)
Germany	1,215.2	960.0	255.2	124.9	48.1	8.9	20.0	(3.9)
Greece	105.6	132.0	(26.4)	(21.8)	(4.8)	(0.1)	(3.9)	(0.1)
Hungary	116.5	109.5	(10.3)	(29.6)	(31.4)	(29.1)	(30.6)	(33.5)
Iceland	3.4	3.7	(0.3)	(0.6)	(0.0)	(0.0)	0.5	0.7
Ireland	55.4	62.6	(7.2)	(3.4)	6.4	7.7	7.1	6.6
Italy	516.3	482.8	33.6	46.9	66.8	90.9	80.2	70.0
Japan	1,269.7	1,193.5	76.2	147.7	152.5	164.4	148.6	180.8
Latvia	26.7	24.5	2.1	(12.0)	(14.4)	(13.3)	(12.9)	(12.5)
Lithuania	49.1	45.1	3.9	(23.3)	(26.0)	(22.6)	(22.3)	(20.4)
Monaco	0.1	0.1	0.0	0.0	0.0	0.0	(0.0)	(0.0)
Netherlands	212.0	199.3	12.7	25.4	15.1	12.9	9.2	8.2
New Zealand	61.9	61.9	0.0	2.6	8.7	15.3	15.7	13.7
Norway	49.7	50.2	(0.5)	(0.5)	3.2	3.5	3.3	4.9
Poland	569.5	535.3	(75.9)	(88.9)	(146.3)	(148.7)	(136.0)	(136.5)
Portugal	59.3	75.3	(16.0)	(4.9)	6.4	14.0	9.4	6.6
Romania	276.1	254.0	(10.9)	(73.2)	(118.4)	(104.6)	(100.1)	(101.7)
Russia	3,319.3	3,319.3	0.0	(1143.2)	(1288.9)	(1201.5)	(1133.4)	(1126.5)
Slovakia	73.3	67.4	5.9	(14.8)	(19.0)	(18.0)	(18.5)	(20.4)
Slovenia	20.3	18.7	(0.1)	0.0	0.2	1.7	1.9	2.0
Spain	288.1	331.4	(43.2)	(12.2)	54.4	109.8	101.7	111.0
Sweden	71.9	74.8	(2.9)	(1.2)	(6.7)	(7.6)	(7.9)	(9.4)
Switzerland	52.7	48.5	4.2	2.6	3.2	5.2	4.7	2.8
Turkey	170.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
UK	774.2	677.4	96.8	38.1	(0.3)	(21.3)	(25.9)	(37.1)
Ukraine	926.0	926.0	0.0	(404.0)	(536.3)	(508.5)	(489.3)	(490.0)
United States	6,084.5	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Source: UNFCCC

Note: Figures from 1990 onwards are amount country is above or (below) its target emissions

EU ETS Installations

Activity	No. of Installations	Distributed Allowances					
		2007	2008	2009	2010	2011	2012
Combustion	8,138	1,496,305,726	1,243,292,416	1,244,032,003	1,219,026,163	1,212,701,472	1,207,350,368
Cement & Lime	592	201,062,947	208,668,066	209,384,175	209,279,744	209,279,744	209,279,951
Iron & Steel	254	155,472,818	184,806,388	184,902,753	183,489,505	183,563,124	183,563,154
Refining	165	163,294,558	152,538,720	152,831,107	151,794,121	151,972,878	152,135,248
Paper	907	37,536,120	38,271,588	38,404,077	38,382,709	38,383,133	38,384,643
Glass	463	22,737,656	23,905,478	24,168,762	24,128,817	24,129,827	24,131,156
Coke ovens	22	22,788,834	22,526,587	22,404,775	22,404,775	22,404,775	22,404,775
Roasting & Sintering	32	33,160,876	21,928,313	21,994,645	22,031,067	22,051,269	22,067,110
Bricks & Ceramics	1,301	18,262,074	18,466,808	18,734,698	18,693,789	18,693,774	18,693,943
Other	598	2,529,053	4,200,882	4,760,110	4,794,154	4,802,799	4,793,456

Source: Carbon Market Data

Feature



Europe goes it alone

By Paul Hannon

Despite the best efforts of conservative politicians and the fossil fuel industries worldwide, support for tackling climate change remains alive and well in Europe.

The drive towards climate change legislation and renewable energy within the European Union should act as a role model for the rest of the world. Here are 27 individual nation states – most of them former enemies with at least one other member of the EU, or in the case of the UK, a former belligerent with about half of the organisation – that have shown how forward-thinking policies can be hammered out despite centuries of discord. In this sense, the US has it easy. Somehow, the Europeans have managed to be at the cutting edge of windpower, innovation in renewable technology, carbon trading and, if the region had a greater landmass, it could have been a contender in biofuels, too.

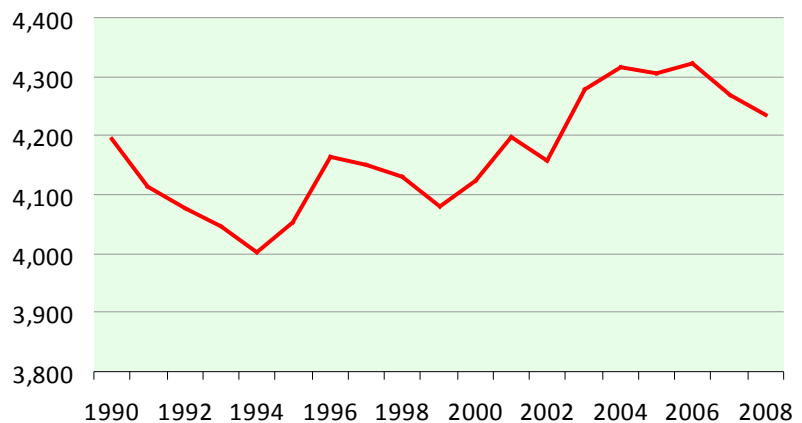
Huge political capital has been expended in promoting climate change legislation but so far, apart from in Europe, very little has been achieved. The voluntary submissions for greenhouse gas abatement requested by the United Nations by the end of January reveal how little progress has been made. Like most of the other participants, the European Union restated its existing position and promised to do more if broader agreement could be reached. For the EU, the pledge entails cutting overall 1990 emissions by 20% by 2020. The US has promised to cut its 2005 emission levels by 17% by the same date. But, as the Americans are wont to say, you cannot compare apples and oranges. The US pledge, based on greenhouse gas levels of just five years ago, translates into a less-than-impressive target of cutting 1990 levels by just 3.5%.

As if the US pledge was not stingy enough, the Canadians – long thought of as radical supporters of climate change legislation – actually backtracked when they decided to align their emissions reduction policy with US levels. By submitting a similar 17% proposed reduction in 2005 levels, Ottawa blissfully ignored its earlier pledge to cut Canada's 2006 emission levels by 20%. The outcome of this will be an actual increase of Canadian emissions of 3% when the rest of the UN is working for tangible reductions.

Within the EU, some individual states are making even more dramatic efforts to achieve reductions in emissions. In early February, the UK's under secretary of state at the ministry for Energy and Climate Change, Joan Ruddock, reported Britain's final figures for emissions cuts in 2008, which showed a 2% year-on-year fall. Ruddock said: "We are now clearly exceeding our Kyoto target of 12.5% below 1990 levels. UK emissions are now 19.4% below 1990 levels without emissions trading or 22% including emissions trading. The UK is demonstrating the kind of year-on-year reductions that set an example in the world community."

Although the reduction pledges submitted to the UN by the end of January came from 55 countries and account for 80% of total global emissions, the undertakings are non-binding and will be subjected to the vicissitudes of local and regional politics. With most participants willing to gloss over the missed opportunity that the Copenhagen summit afforded, all eyes are now on the Cop-16 meeting, scheduled for December in Mexico.

EU27 CO₂ emissions, Mt



Source: VM Group, IEA

Mindful that the US role in the Copenhagen summit was tarnished by the intransigence of the Chinese delegation, US climate envoy Todd Stern has already started to manage expectations about the next summit. On 9 February, he noted that if no legally binding climate agreement was reached in Mexico, the summit should nevertheless not be deemed a failure. Holding out the prospect that some of the serious work might actually take place elsewhere and before the December 2010 conclave, Stern suggested that meetings such as the Major Economies Forum on Energy and Climate, an initiative set up by Barack Obama last March, might be the next chance to bang heads together.

Given that the 17 members of the forum are Australia, Brazil, Canada, China, the European Union, France, Germany, India, Indonesia, Italy, Japan, Korea, Mexico, Russia, South Africa, the UK and the US, any gathering of this forum holds out the prospect of serious negotiation. In other words, all the key Copenhagen players that will be necessary to achieve a climate deal are already lined up to tackle climate change ahead of another media blitz in Mexico. Significantly, considering that the EU as a whole and four individual European countries are represented on the forum, these meetings will allow Europe to make its presence felt, rather than be sidelined as it was in Copenhagen. The history of climate change legislation is still being written; the failed Copenhagen summit may eventually be seen as merely a footnote, albeit an important one, that galvanised world leaders to finally reach a pact on reducing emissions.

Analysis



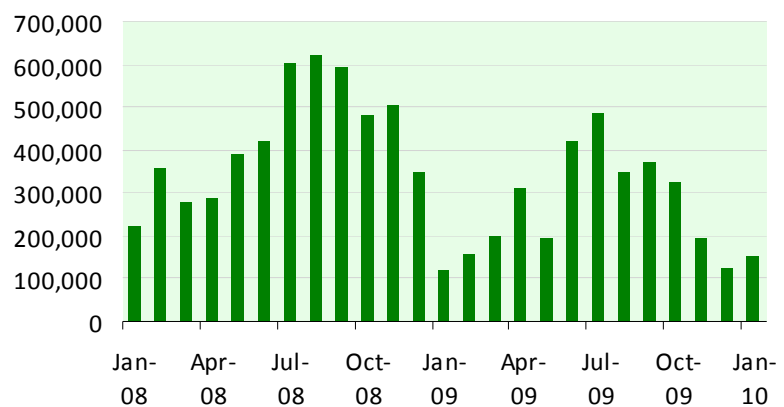
Shell places its renewable hopes in one basket

By Paul Hannon

Having shunned wind, solar and hydrogen as potential new markets for renewable energy, Shell has finally decided it wants to become a world leader in ethanol.

It has taken European oil major Royal Dutch/Shell less than a year to produce a new renewable energy strategy which – it hopes – will propel it into the major league in biofuels for the rest of this century. The decision to concentrate on ethanol to the exclusion of other renewable energy sources was clearly signalled in March 2009, during Shell's annual strategy briefing, at which its then-chief executive Jeroen van der Veer announced that the Anglo-Dutch company was jettisoning all new investment in wind, solar, and hydrogen power. Which implied that that the only remaining strategy had to be based on biofuels.

Ethanol exports, Brazil, 000 litres



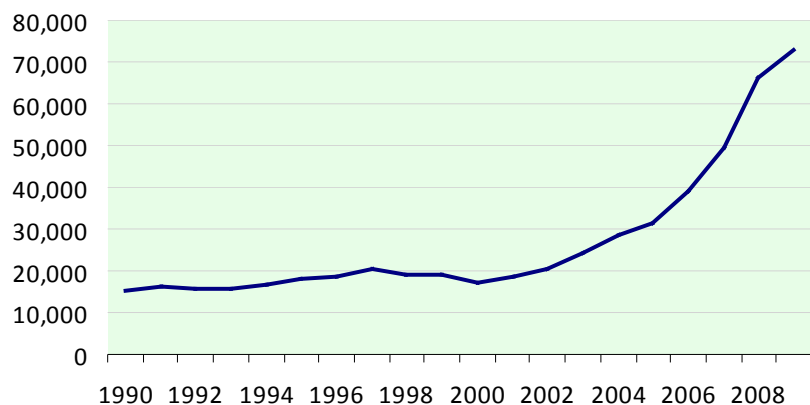
Source: VM Group, Reuters

Even though there were howls of protest from the renewable energy industry at Shell's decision last year – the company was effectively writing off a \$2bn investment in areas it deemed to be dead-ends – the move came at a time when it was flush with cash, following the spike in oil prices in 2008. Since then, the going has become tougher, not only for Shell but for most of the world's other oil majors.

Nevertheless, the announcement in early February of its \$12bn joint venture with Brazilian sugarcane ethanol group Cosan will transform the Brazilian ethanol market and also lay the foundations for ethanol to become a global fuel source.

The initial aim of the joint venture is to dominate the domestic Brazilian market, then use this as a springboard for exporting biofuels worldwide. To this end, Cosan is injecting 75% of its primary assets (including an annual 2bn litre ethanol capacity) and its 1,730 retail fuel outlets and distribution depots. The new joint venture will also take on \$2.5bn in Cosan debt linked to the assets it will contribute to the new company. For its part, Shell will pay Cosan \$1.6bn over two years for its half share in the venture, as well as contribute 2,740 fuel stations and depots. The oil major will also contribute its 50% shareholding in Canada-based biotechnology company Iogen and its 14.7% stake in California-based biocatalyst company Codexis. Shell and Cosan expect the new joint venture to achieve revenue of reals 21bn (\$11.32bn).

Ethanol production, world, million litres



Source: VM Group, Earth Policy Institute, F.O. Licht

Even though Shell might have its eye on the long-term development of ethanol as a world fuel that will complement gasoline, it has more immediate problems, especially in its refinery division. During the same week that Shell announced the Cosan joint venture, it released news of a 75% drop in 4Q 2009 profits, to just \$1.2bn. For the full year, profits were down to \$9.8bn, from \$31.4bn in 2008. The traditional corporate strategy in times like these is to cut costs and Shell's new chief executive Peter Voser talked of his company becoming too fat during the good times. Voser has decided to accelerate job cuts and refinery closures in the UK, Germany and Canada. Operations in New Zealand, Costa Rica, Panama and Sweden are also under review. Despite the poor performance of the gas sector over the past 18 months, Shell remains committed to significant capital investment in gas projects in both Australia and Qatar, but has finally decided to tread more cautiously in expanding any commitment to the exorbitant costs of developing oil sands in Canada.

From an investment perspective, Shell's \$1.2bn cash injection into the Brazilian venture looks like a safe bet. Spread over two years, the outlay will give it a strategic position in world ethanol, at a time when governments are mandating it

as a blending component in countries that are unable to supply it themselves. This opens up the export potential of ethanol and, while African producers may have their own ambitions to serve European markets with ethanol, Brazilian exports will naturally gravitate towards North American markets. Although total exports of ethanol from Brazil are now in excess of 3.3bn litres/year, this is substantially lower than the 5.1bn litres exported in 2008.

The Brazilian ethanol industry has the capacity to virtually double its exports at short notice and has now geared itself up for a major assault on the US market, where it currently faces a stiff import tariff. Shell's lobbying muscle is likely to be employed in getting this tariff reduced or eliminated completely. The US ethanol market is mandated by government legislation to increase three-fold to 36bn gallons (136bn litres) by 2022. Considering the highly fragmented state of the US ethanol industry – where there currently exists a temporary overcapacity in production – the country will not be able to devote sufficient land resources to ethanol output over the next decade to satisfy this level of demand. With the prospects of a voracious US market on their doorstep, Shell and Cosan will be well placed to reap the benefits of their new venture.

Americas

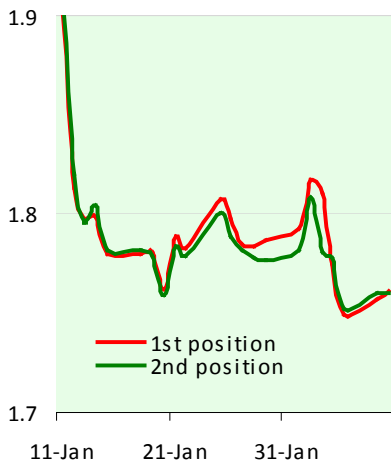
News

- **Feb 11:** The US Bureau of Land Management held its first auction of geothermal leases in Colorado, originally planned for last November.
- **Feb 8:** The US National Oceanic and Atmospheric Administration unveiled a new service providing information on climate change.
- **Feb 4:** The World Bank launched a \$400m forest investment programme and a \$300m renewable energy scheme.
- **Feb 4:** US geothermal group Vulcan Power received a \$108m capital injection from an affiliate of Denham Capital.
- **Jan 27:** Spanish renewable energy group GA-Solar announced plans to build a \$1bn 300 MW solar power plant in New Mexico by 2014.
- **Jan 26:** US windpower capacity rose by 39%, or 9,900 MW, in 2009, according to the American Wind Energy Association.
- **Jan 25:** Duke Energy agreed to buy a 14 MW solar power project under construction in San Antonio, Texas from Juwi Solar.
- **Jan 20:** The US National Renewable Energy Laboratory said it will invest \$12m in four companies conducting early stage solar energy research.
- **Jan 19:** Petrobras opened the world's first ethanol-fuelled power plant, an 87 MW plant in Juiz de Fora in southeast Brazil.
- **Jan 19:** US pipeline group Kinder Morgan bought three ethanol handling terminals in New Jersey, Maryland and Texas for \$195m in cash and stock.
- **Jan 19:** Scott Brown, an opponent of federal carbon emissions trading legislation, was elected as senator for Massachusetts.
- **Jan 19:** New Mexico utility PNM contracted First Solar to build a 22 MW power plant by 2011.
- **Jan 12:** Windpower advocate T. Boone Pickens said he halved his order for wind turbines to 300 units because of the fall in natural gas prices.

Short term outlook

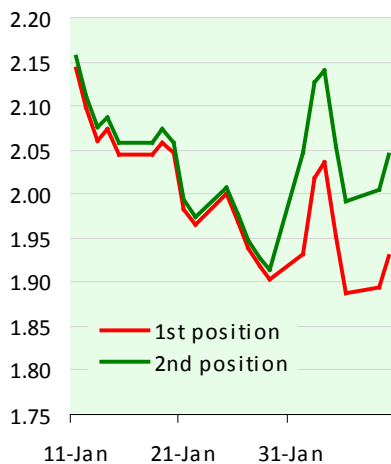
The Obama government has been rightly lauded for attempting to achieve simultaneous initiatives on economic recovery, fiscal reform, healthcare and climate change. A year ago, the senator from Illinois stood out for his ability to see the interconnectedness of important government policies – namely, economic recovery could be achieved by huge government spending and tighter control over the financial sector, while massive investment in renewables could stoke up the economy and limit the influence of foreign energy suppliers. But the reality – and the slow pace of economic fortunes – is now beginning to call this into doubt. No peacetime president wants to be identified with just a single issue, even though Lincoln and Roosevelt still managed to achieve important social reform at the time of national and international crises. Obama is now facing a revitalised Republican Party that thinks it can whittle away his Congressional control in November. By then, the president will be facing the prospect of his own re-election campaign – a campaign that will be made all the more difficult unless he scores a resounding legislative victory between now and then. He has already done all he can on promoting the cause of renewable energy, but the thorny issue of climate change will be a constant reminder of a missed opportunity. There is only one real option – grab whatever climate change legislation he can from Congress and introduce a carbon tax as quickly as possible.

Ethanol, CBOT, \$/gallon



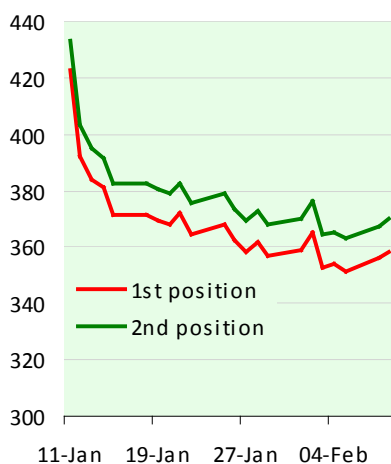
Source: CBOT, VM Group

RBOB gasoline, Nymex, \$/gallon



Source: Nymex, VM Group

Corn, CBOT, cents/bushel



Source: CBOT, VM Group

Analysis

Brazil sets up national ethanol reserve

Fluctuations in the supply and demand for ethanol in Brazil have prompted the state development bank BNDES to make reais 2.5bn (\$1.35bn) in finance available for the creation of a national ethanol reserve. Although not intended to be on the same scale as the US Strategic Petroleum Reserve, the new reserve is expected to smooth out future price spikes and help alleviate fuel shortages, according to Agriculture Minister Reinhold Stephanes. Heavy rains recently affected the country's 2009-2010 sugarcane harvest and the price of ethanol has risen 6% in recent months. Higher prices and dwindling feedstock have forced the Brazilian government to authorise from 1 February a 90-day reduction in the amount of ethanol used as a gasoline blend, from 25% to 20%.

Chu bets \$37m on bright ideas

US Energy Secretary Steven Chu knows more than most people about the importance of scientific research. With this in mind, the Nobel Laureate and former director of the Lawrence Berkeley National Laboratory in California revealed in late January that he was earmarking \$37m in government funding for research into high-efficiency solid-state lighting projects. Lighting currently consumes about 24% of all electricity generated in the US and it is hoped that a new generation of solid-state lighting technology could bring this figure down to 16% by 2030. The bulk of the new funding (\$23.5m) will go to eight companies that are focusing on cost reductions and improving manufacturing processes. Research grants of \$4m each were given to Applied Materials Inc, GE Global Research, Universal Display Corporation and Veeco Instruments. The Chu funding follows on announcements made earlier in the month of \$85m in grants for 69 scientists to pursue "early career" research (when many scientists do their most formative work) and \$80m for advanced biofuel research and fuel infrastructure.

Solar capital of the US

Everyone wants to be a leader of something and it is the burning ambition of New Mexico's Governor Bill Richardson to turn his state into a leader in renewable energy. Richardson set his administration's course towards this goal in early January when he outlined a series of initiatives that he hopes will transform the state's economy into a showcase for others to follow. "A comprehensive green economy is critical to the future of New Mexico and will lead our state into a new era of economic vitality and stability," Richardson said. At the top of his wish list are goals to be a leader in the export of renewable energy and to become the centre of the solar industry in North America. This will entail huge investment in research, manufacturing and energy efficiency. As part of this drive for renewable energy, Richardson sees New Mexico playing a central role in the development of a "green grid", principally in the shape of the Tres Amigas power project that will act as a junction between the Eastern, Western and Texas power grid interconnections. More immediately, Richardson said he also hopes to double the state's Renewable Energy Production Tax Credit in the next legislative session to 1m megawatt hours for solar generators.

US looks at long-term wind potential

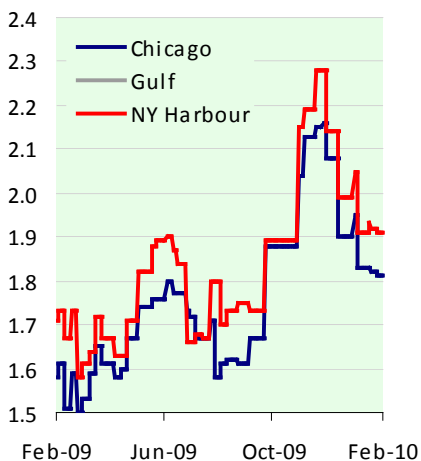
Up to 30% of the electricity supply of the eastern United States could be met through an aggressive expansion of land and offshore windpower projects, according to a new study by the US Department of Energy's National

Wilderhill New Energy Global Innovation Index



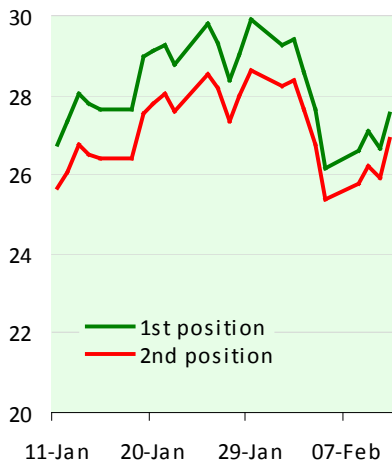
Source: Wilderhill, VM Group

US ethanol prices, past 12 months, \$/gallon



Source: Reuters, VM Group

Sugar price, ICE futures US, cents/pound



Source: ICE Futures, VM Group

Renewable Energy Laboratory. "Supplying 20% of the electric energy requirements of the US portion of the Eastern Interconnection would call for approximately 225,000 MW of wind generation capacity, which is about a tenfold increase above today's levels. To reach 30% energy from wind, the installed capacity would have to rise to 330,000 MW," according to the report. The cost estimates for ramping up this windpower vary from a relatively modest \$93bn to a more sobering \$150bn if major transmission infrastructure is built in the Midwest and substantial offshore capacity is added.

Samsung sets up shop in Ontario ...

Samsung C&T Corp announced in late January that it will head a consortium investing C\$7bn (US\$6.5bn) in Ontario in a range of renewable energy projects. At the heart of the plans is the construction of four windfarms capable of generating 2,000 MW of power and a solar project with up to 500 MW of generation capacity. More significantly for the Canadian province is Samsung's intention to make all the components locally, which will entail the construction of four factories to manufacture wind towers, wind blades, solar inverters and solar modules. Once these factories have supplied the Ontario projects, they will sell their output to other Canadian provinces and to the US market. Ontario Premier Dalton McGuinty said: "We are doing more than just creating jobs. We are laying the foundation here for economic growth. And if we can build the capacity here to deliver renewable technology to the US market, that's a good thing." As part of the deal, the Ontario government has agreed to buy electricity from the consortium, which will help it meet its renewable obligations under the Green Energy Act, and it will also offer incentives worth C\$435m which are tied to the manufacturing plants opening on time.

... while Canadians reshuffle hydro assets

Montreal-based Hydro-Québec, already the largest power generator in Canada and the world's largest hydropower company, has acquired the generation assets of New Brunswick Power (NB Power) for C\$3.2bn. The deal involves the purchase of NB Power's seven hydroelectric plants, two diesel units, and transmission rights in New England for C\$1.7bn. Hydro-Québec has also bought for C\$1.4bn a nuclear power plant in Point Lepreau, currently undergoing refurbishment. As part of the deal, Hydro-Québec will sell about 14 terawatt hours of electricity on a wholesale basis to NB Power annually.

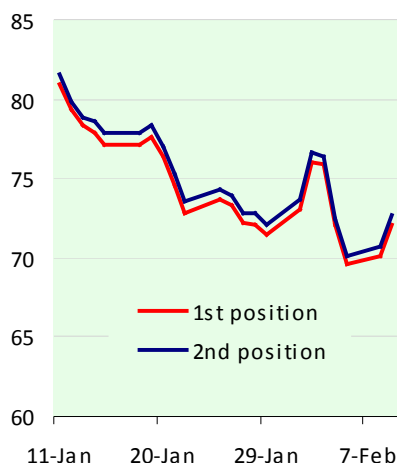
Positive side of climate change

Some effects of climate change are not all bad. That's the implication of a new report by the Smithsonian Environmental Research Centre in Maryland, which has recorded a noticeable rise in the growth of 55 hardwood forest research plots over the past two decades. Longer growing seasons, higher temperatures and increased levels of carbon dioxide in the atmosphere have resulted in one of the highest growth rates in more than two centuries, according to ecologist Geoffrey Parker. Parker calculates that the forest plots have spurred by the equivalent of two tons of trees per acre each year, largely as a result of a 12% rise in CO₂, a mean temperature increase of 3/10ths of a degree and a growing season that has been extended by 7.8 days. All this has happened in the past 22 years to both young and very mature trees in the eastern US.

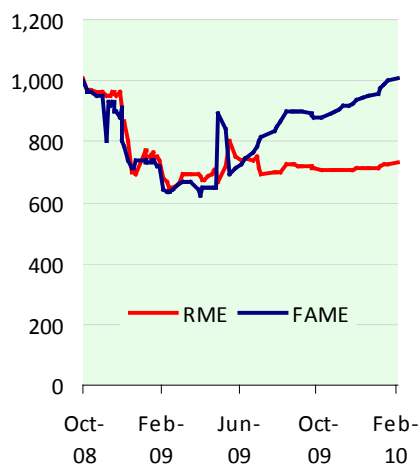
Minnesota wind trial grinds to a halt

Spare a thought for the Minnesota Municipal Power Agency, which has discovered that the 11 second-hand wind turbines it bought from California have frozen rigid in harsh winter temperatures. The disappointing performance of the turbines – due to hydraulic fluid designed for operation on the balmy west coast – has been exacerbated by the power cooperative's decision to site the turbines in central locations in 11 cities in the state, instead of clustering them on one windfarm on the outskirts of a town. The agency felt that a high-profile demonstration of windpower by 11 individual municipalities would

help the cause of renewable energy in Minnesota but instead there are now 11 turbines barely able to move even in the windiest weather. Plans are in place to install heaters on the turbines to keep the hydraulic fluid at the right temperature, but the retrofitting means that substantial amounts of power generated by the turbines will be drawn off by the heaters.

Brent Crude, ICE Futures, \$/barrel

Source: ICE, VM Group

European biodiesel prices, €/tonne

Source: Reuters, VM Group

Europe

News

- **Feb 8:** French nuclear power group Areva bought California-based concentrated solar power start-up company Ausra.
- **Feb 2:** Siemens said it would invest more than rupees 5bn (\$107m) in windpower manufacturing capacity in India over three years.
- **Feb 1:** RWE Innogy ordered 48 6 MW turbines from REpower System for its Nordsee Ost windfarm.
- **Jan 29:** Financially-troubled UK wave energy start-up Orecon went into liquidation.
- **Jan 27:** Two-thirds of the UK public would install household micro-generation units if there were enough financial incentives, according to a survey by the Renewable Energy Association.
- **Jan 22:** Irish utility ESB said it had made applications for three offshore wavepower projects in the west and southwest of Ireland.
- **Jan 21:** Spanish energy group Iberdrola Renovables completed construction of five windfarms in France with total capacity of 46 MW.
- **Jan 19:** European aerospace group EADS Astrium said it was looking for partners to build a prototype space-based solar power-generating satellite.
- **Jan 18:** European offshore wind capacity grew by 54% to 577 MW in 2009, according to the European Wind Energy Association.
- **Jan 15:** The European Bank for Reconstruction and Development approved a €60m (\$82m) loan for the 60 MW Suvorovo windfarm in Bulgaria.
- **Jan 15:** UK-based renewable energy group RES bought a 300 MW portfolio of windpower assets in South Africa.
- **Jan 13:** Portuguese utility EDP started work on its €350m 736 MW Venda Nova III pumped storage power plant in northern Portugal.

Short term outlook

All eyes continue to focus on the European renewable industry and its associated carbon trading, but sometimes for the wrong reason. The EU has unequivocally set out its position on emissions reduction for the rest of the world to see (and perhaps envy), and it has provided the necessary financial incentives to kick-start homegrown renewable industries. It is even prepared to stump up billions of euros to build transmission infrastructure to carry North Sea windpower into the economic heartland of the region. What it has not been able to achieve is a successful carbon trading market that is impervious to corruption or fraud, thereby calling into question one of the fundamental building blocks of a carbon reduction strategy. Perhaps the time has arrived to monitor the carbon markets more vigorously and to impose a new set of penalties specifically designed to keep the market free from criminal activity. This will become absolutely essential if the concept of carbon trading is to find support in other markets like the US.

Analysis

Supergrid gets London exposure

Confirmation that the game-changing European supergrid for renewable energy is being taken seriously will emerge next month in London, when an international conference looks at the legislative and technical hurdles that need to be overcome to get the project off the drawing board and into the North Sea. Sponsored by Mainstream Renewable Power, the two-day conference will look at how new transmission infrastructure is crucial to achieving the European Union goal of a 20% reduction in carbon emissions by 2020. Called "Supergrid: The Future of Renewable Energy Integration", the conference will

be held on 9-10 March and will include speakers addressing issues of governance, regulation, economics, finance, infrastructure, logistics, transmission and technology.

France and Germany cut solar subsidies

France and Germany both decided last month their subsidies for solar power were too generous and instigated broad reductions in government support for business and private solar plant. France was first off the mark with its announcement on 13 January to cut feed-in tariffs (FIT) by 24% to €0.42 (\$0.57) per kilowatt hour, compared with the €0.55 rate introduced in 2006. A week later, Germany followed suit with a proposal from Economy Minister Rainer Brueederle to cut FIT rates by 15%. The proposed cuts, which have yet to be agreed, would apply to roof installations from April and for field units from July. If accepted by the German government, the new rates will also result in a 25% cut for farmland installations. The reductions in subsidies confirm that the solar industries in both countries have gained critical mass and no longer need direct government support.

UK splashes out with £22m funding

The UK government-backed Carbon Trust agency announced in early February its long-awaited list of recipients of £22m (\$34m) from the Marine Renewables Proving Fund. The fund is intended to finance companies that were on the threshold of demonstrating viable wave and tidal technologies but had yet to secure commercial backing for their schemes. The successful applicants for the funding are: Atlantis Resources, Aquamarine Power, Hammerfest Strøm UK, Marine Current Turbines, Pelamis Wave Power and Voith Hydro. Energy and Climate Change Minister Lord Hunt said: "The scope for wave and tidal energy around the UK's shores is massive and we're working closely with developers in the UK to bring on the necessary technologies."

Scots approve controversial windfarm

With an eye as much on an upcoming general election as on the horizon, the Scottish government has finally approved the first large-scale windfarm in the region's Western Isles. The scheme, located on the island of Lewis, was criticised for impinging the view of the Standing Stones of Callanish, a 5,000 year-old circle of upright stones believed to be an ancient burial site. The original scheme, proposed by developer Nick Oppenheim, entailed 133 turbines but this was slimmed down to just 39 turbines last year. Further negotiations with Scottish Energy Minister Jim Mather brought the number of turbines down to 33. Additional guarantees on protecting the natural environment and cultural heritage were also secured. The £120m scheme has a total generation capacity of 118 MW. Mather said: "Since the first proposals for a windfarm on Lewis were put forward, I've maintained the Western Isles must play its part in harnessing and benefiting from our vast green-energy potential. We are now making that a reality." The Lewis windfarm decision has shown how regulators can balance a diverse range of ecological and cultural issues, similar to the type US Interior Secretary Ken Salazar is facing with the proposed Cape Wind power project off the coast of Massachusetts.

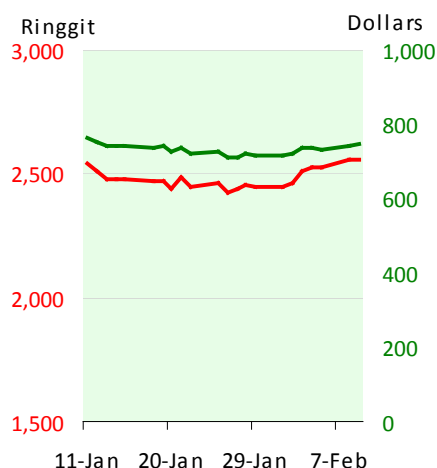
EU discusses future of electric cars

EU industry ministers assembled in San Sebastian in northern Spain in early February to develop a European strategy on the role of electric cars. Current plans to introduce electric cars vary enormously across the EU with some countries like Portugal and Germany already embarking on a national recharging network while Ireland hopes to have 10% of its vehicles powered by electricity by 2020. The EU meeting revealed many laudable aspirations but failed to clarify the role of public funding that European carmakers need to know before they make long-term investment decisions on developing all-electric models in their fleets.

Palm oil biodiesel, \$/tonne



Source: Reuters/VM Group

Palm oil futures, 1st position, price/tonne, BMDB

Source: VM Group

Asia, Africa and Pacific

News

- **Feb 8:** Leading Chinese power group China Huaneng was reported to be planning a Hong Kong stock market launch for its windpower subsidiary.
- **Feb 5:** The Philippines Department of Energy said it would issue 10 new geothermal leases before the end of March.
- **Feb 3:** China more than doubled its windpower capacity to 25,000 MW in 2009, according to the Global Wind Energy Council.
- **Jan 29:** Kenya Power & Lighting signed a 20-year power purchase agreement for 300 MW of power from Lake Turkana Wind Power.
- **Jan 28:** Chinese solar cell group Daqo New Energy postponed its initial public offering on the New York Stock Exchange after its proposed listing price was sharply reduced.
- **Jan 26:** The Indonesian government unveiled details of a \$1bn fund that will offer top-up finance for green investment projects.
- **Jan 27:** Chinese solar group Suntech announced plans to open its first US solar panel plant in Goodyear, Arizona.
- **Jan 25:** China said it had met its target of cutting major greenhouse gas emissions by 10% below 2005 levels 12 months ahead of schedule.
- **Jan 21:** South African electric carmaker Optimal Energy said it planned to start production of its all-electric five-seat Joule passenger vehicle by 2012.
- **Jan 20:** Vietnamese property group Hoang Anh Gia Lai agreed plans to build a \$120m hydropower plant in Laos.
- **Jan 20:** Ethiopian Energy Minister Alemayehu Tegen said expansion of geothermal power in the country required investment of at least \$200m.
- **Jan 17:** Iranian deputy minister for electricity Abbas Aliabadi confirmed plans to develop 2,000 MW of renewable energy capacity by 2015.
- **Jan 16:** New Zealand Foreign Minister Murray McCully inaugurated a three-turbine windfarm at Scott Base, Antarctica.
- **Jan 13:** Zambia, Tanzania and Kenya said they will commence building a 400 MW interconnector next year.

Short term outlook

China's drive for economic growth has made its presence felt in every market around the world and, as the commodities markets brace themselves for another round of Chinese expansion, the renewables industry should be grateful that Beijing has adopted the thin veil of solar and windpower to cover up the more unseemly side of its economic policies. Without the public relations benefits of renewable energy, China would be singled out as a pariah among developing countries for its increasingly visible signs of colonisation in Africa. The fact that the Chinese have embraced renewables in such a dramatic fashion is good news for everyone – if only because it has forced governments and company boardrooms to consider what they need to do to get back onto the renewables bandwagon. Europe is relatively immune to the rapid expansion of the Chinese renewable movement because it has been investing in wind and solar power for decades, during which time many sneered at the inefficiencies of intermittent power. The Chinese have taught the rest of the world a good simple lesson in how to make renewable energy work – the US might yet take a leaf out of their handbook and show how it should really be done.

Analysis

Selling the Masdar franchise

Masdar, the Abu Dhabi company behind the development of the first carbon neutral city, moved a step closer in mid-January to franchising the concept by signing a cooperation agreement with 1Malaysia Development to look at clean technology projects worth \$100m. 1Malaysia Development, a government-owned development company, has aspirations to build a Masdar-like counterpart in Malaysia and sees the technology pact with Masdar as a move in this direction. But despite government support for such headline grabbing projects in both countries, the reality on the ground in Abu Dhabi leaves a lot to be desired. A recent rescheduling of the Masdar City timetable means that although the first phase of the scheme will be completed by 2013, the rest of the project will be delayed by at least four years with final completion currently estimated for 2020. Some technical problems have also recently forced a re-think over the large-scale use of solar panels in the project. Critics of the scheme are now questioning the construction techniques used in the development, pointing out that little attention has been paid to building the project in a carbon-neutral way.

Meanwhile, Masdar used the World Future Energy Summit in Abu Dhabi in late January to announce the creation of a clean energy fund with Deutsche Bank. The \$265m fund, similar in scale to the \$250m fund it set up in 2006 with Credit Suisse, will focus on “expansion and later-stage companies” rather than the small- to medium-sized energy ventures which the joint Swiss fund has concentrated on.

Saudis pour scorn on energy alternatives

Khalid Al Falih, CEO of Saudi Aramco, used the World Economic Forum in Davos at the end of January to pour scorn on those countries seeking to shift their oil-based economies to alternative energy sources. Doubtless with the US in mind, he chided such aspirations as “unachievable and misleading to the public.” Perhaps still irritated at breaking his knee on the ski slopes and forced to attend the conference on crutches, Al Falih also turned his sights on Peak Oil, claiming that the theory was now dead. Being the head of the world’s largest state-owned oil company, Al Falih naturally has a vested interest in keeping the oil spigots open and although the US has publicly stated its aim of substituting Saudi oil with alternative supplies, Al Falih told the Davos meeting that China had already replaced the US as its largest customer.

Green Rock completes geothermal jigsaw puzzle

Australian geothermal group Green Rock Energy found the final pieces of its Perth Basin drilling jigsaw puzzle when it won three new geothermal exploration permits in January. Two permits cover the North Perth Metropolitan area and one applies to the Dongara region of the North Perth Basin. “The new permits are the final building blocks in our very prospective portfolio in the Perth Basin,” said Managing Director Adrian Larking. “We can target the best opportunities to commercialise over the next two to four years.” Green Rock Energy has already been offered a A\$7m (\$6.1m) grant under the Federal Government’s Geothermal Drilling Program to help fund development of the Perth Urban Geothermal Energy Project at the University of Western Australia, which will see two wells drilled and flow tested during the next 18 months.

Carbon markets

News

- **Jan 28:** The European Union agreed a target of cutting 1990 greenhouse gas emissions by between 20%-30% by 2020.
- **Jan 28:** The US formally lodged with the United Nations an emissions reduction target of 17% below 2005 levels by 2020.
- **Jan 27:** The Australian government said it would not change its earlier pledge to cut 2000 level carbon emissions by just 5% by 2020.
- **Jan 21:** Germany revised upwards its greenhouse gas data emissions for 2008 by 1.3% to 958mt.
- **Jan 21:** The Greens Party in Australia proposed a two-year interim carbon tax of A\$20 (\$17.50) per tonne of carbon dioxide effective from July.
- **Jan 21:** The South African government said it would have a climate change White Paper prepared by the end of the year.
- **Jan 15:** Investor George Soros called for a nationwide legal cap on carbon emissions in the US.

Short term outlook

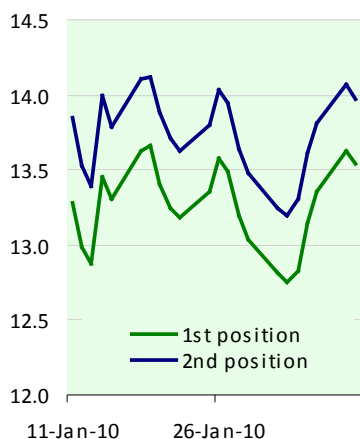
The post-Copenhagen blues were certainly not dispelled by the sunshine and glamour of the World Future Energy Summit in Abu Dhabi. If anything, the mood was slightly funereal and provided a glimpse of how difficult life will be in the years ahead. Meanwhile, back at the desks of the more aggressive carbon traders, there was much to distract players but still no cause for celebration. The reality boils down to some simple facts: the carbon market will be much tougher in 2010 than anyone expected, especially since the US appears to be vacillating over the efficiency of cap-and-trade. A second fact is that carbon markets are becoming increasingly discredited, not only in the eyes of the general public – where they are often referred to as institutional scams – but also in assessment of government regulators. Fraud can happen in every economic activity, but the European Trading System is just one more major scandal away from being totally discredited. A final unpalatable fact is the reality that the economic recession has done more in 12 months to reduce carbon emissions than any cap-and-trade system has achieved over its lifetime. As for the price of carbon, recent market weakness means that the current €13-€14/t range will be difficult to escape next month, but once economic activity picks up again, prices can be expected to rise above €15/t.

Analysis

UK warned carbon market failing to deliver investment

British politicians have been warned that the European Union's Emissions Trading System (ETS) is failing to deliver vital investment, after a collapse in carbon prices over the past year. The Environmental Audit Committee called on the UK Government to consider introducing a minimum price for carbon, perhaps in the form of a carbon tax. Tim Yeo, chairman of the committee said in early February: "Emissions trading should be helping us to combat climate change, but at the moment the price of carbon simply isn't high enough to make it work. The recession has left many big firms with more carbon allowances than they need and carbon prices have collapsed." The committee was told that carbon prices will need to reach at least €100/t (\$138/t) in order to encourage clean energy technologies and energy efficiency. Despite the warnings given to the committee, the Confederation of British Industry said it was not convinced that a minimum price for carbon in the ETS would necessarily encourage greater investment in low carbon energy.

Carbon price, European Energy Exchange, €/tonne



Source: EEX, VM Group

Carbon price, ETS years 2 and 3, €/tonne



Source: Nordpool, VM Group

Carbon theft embarrasses Europe

The European Commission promised in early February that it will impose tighter security regulations on carbon registers, following the theft of 250,000 carbon credits in Germany by internet hackers. The theft, which occurred on 28 January, entailed sending bogus email messages to obtain access codes for individual accounts on national registers that constitute the Emissions Trading System. The thieves used the codes to access electronic certificates representing greenhouse gas emissions from nine German companies, and sold the certificates through accounts in the UK and Denmark. Although remarkably simple to carry out, the theft was valued at about €3m. The latest flaw in the carbon trading system security follows on last year's value-added-tax scam which resulted in the loss of at least €5bn in government tax revenue when fraudsters traded huge amounts of carbon, then collected VAT on the trades, and then disappeared without passing the tax onto various national governments. Supporters of the ETS market in Europe point out that cyber attacks and tax fraud scams are not confined to the carbon market, and that new markets always need time to settle down.

US moves to block coal projects in developing countries

Increasingly frustrated by the slow pace of progress reaching agreement on climate change, the US government has sent a signal to the World Bank that it will no longer support the construction of coal-fired plants in developing countries. Whitney Debevoise, US representative at the bank, said in a letter to the development bank in January that the Obama Administration believes multilateral development banks can play a critical role in the future international framework for climate finance and can assist developing countries in mitigating greenhouse gas emissions and strengthening their economies' resilience to climate risks. Debevoise then urged that the bank should remove barriers to and "build demand for no or low-carbon resources". Although the Debevoise letter came via the US Treasury Department and is not considered by the bank to be binding, it nevertheless is the first time the US government has indicated it wants to change carbon policy among developing countries. However, such a step is like a red rag to a bull, guaranteeing that countries like China and India, which have based much of their future economic expansion on coal, will resist what they view as economic imperialism.

Tax or no tax

Researchers at Columbia University in New York have discovered that more people are willing to accept the principle and features of a carbon tax, so long as it is not called a "carbon tax". The university's psychology department found that the phrase "carbon offset" was more acceptable to Republicans and Independents who were opposed to legislation creating a carbon tax. Democrats supported the tax irrespective of what it was called. This potential support for a carbon tax echoes a survey released last December from the US climate change lobby group Climate Task Force which showed that 58% of those polled would support a carbon tax while only 27% would favour a cap-and-trade scheme. The remaining 15% did not know if they wanted to support either option.

Air traffic control key to carbon cuts

Improved air traffic control management may be the quickest way to cut carbon emissions from the aviation sector, according to a report from researchers at Oxford University. Dr Chris Carey, from Oxford's Smith School of Enterprise and the Environment, said more direct flight paths and reduced waiting time in the air represented "low hanging fruit" compared with the huge investment required for new technology and biofuel development. The inaccuracy of current control systems means planes must be given a wide berth to avoid collisions, Carey argues. "If that improved, landing and take-offs could be quicker, stacking would be reduced and planes could fly closer

together by taking advantage of prevailing winds.” Improvements in air traffic management could cut aviation emissions by up to 8% in the short-term, while the Smith School study says a range of measures including better air traffic control could cut aviation emissions by up to 95% in the long term. “You could improve efficiency by smoothing aircraft surfaces, much like racing cyclists shave their legs,” Carey says. “Reducing drag will play a large part, but the lifetime of aircraft means it will be decades before planes with relocated engines, for example, are operating.”

French redraft tax plans

France moved swiftly to redraft its failed carbon tax by extending its scope to cover large industrial polluters until 2013. The inclusion of large industrial installations in a revised carbon tax proposal was made in late January and intended as a means to avoid a second rejection by the country’s Constitutional Court. French Environment Minister Jean-Louis Borloo continues to hone the new legislation which is planned to be introduced on 1 July.

And finally ...

You know things have reached a critical point when rock band U2 raises funds for a geothermal plant in Turkey. The group hopes to garner \$450,000 to help finance the recently-completed Dora-1 8 MW plant as well as giving their fans the option to buy carbon offset credits for \$1.89. Proceeds from the credits will be invested in emission reduction projects in developing countries.

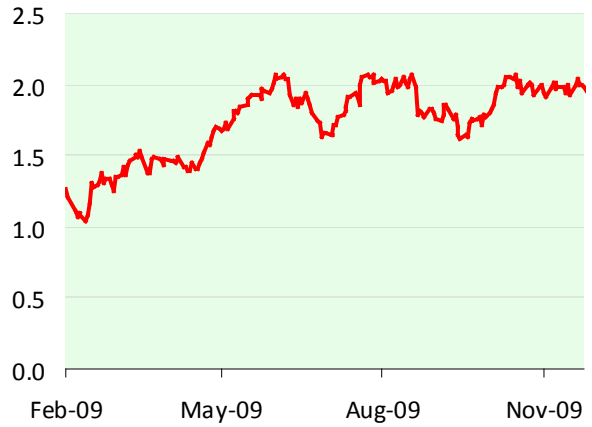
12-month prices

Crude oil, Nymex (\$/barrel)



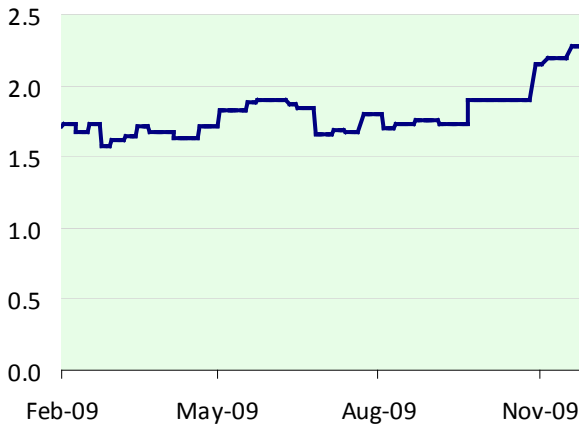
Source: Nymex, VM Group

RBOB gasoline, ICE Futures US (\$/gallon)



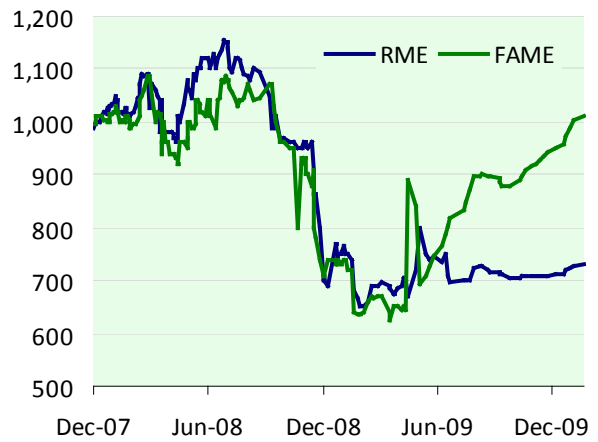
Source: ICE Futures US, VM Group

Ethanol, CBOT (\$/gallon)



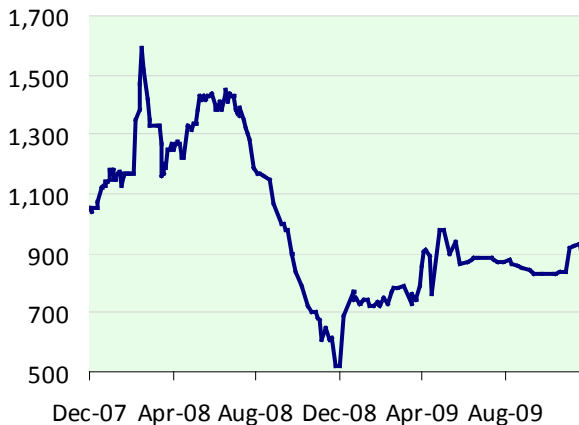
Source: CBOT, VM Group

Biodiesel, Europe, FAME and RME (€/tonne)



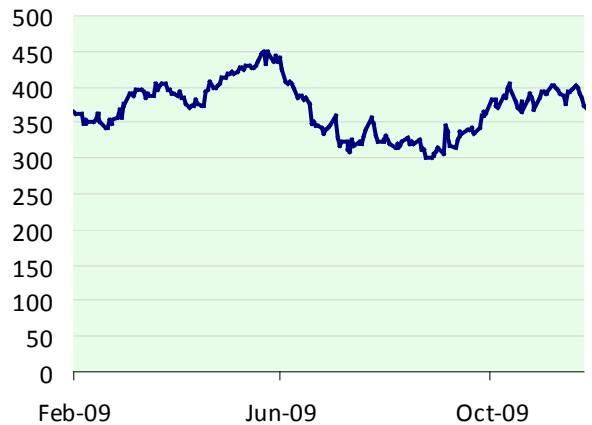
Source: Reuters HBI, VM Group

Biodiesel price, Malaysia, PME (\$/tonne)



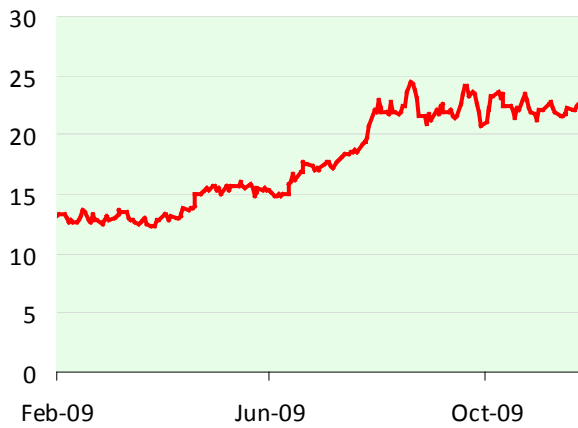
Source: Reuters HBI, VM Group

Corn, CBOT (c/bushel)



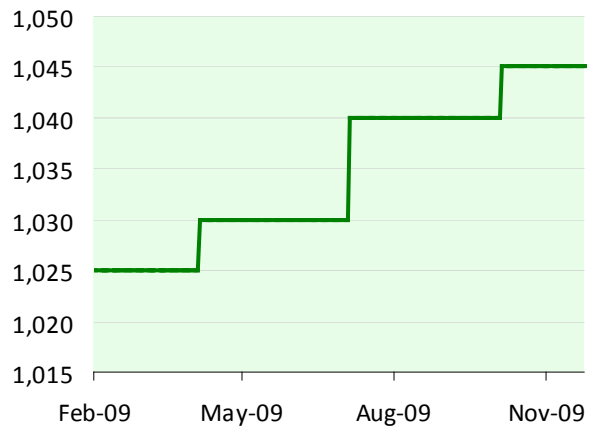
Source: CBOT, VM Group

Sugar, ICE Futures US (c/lb)



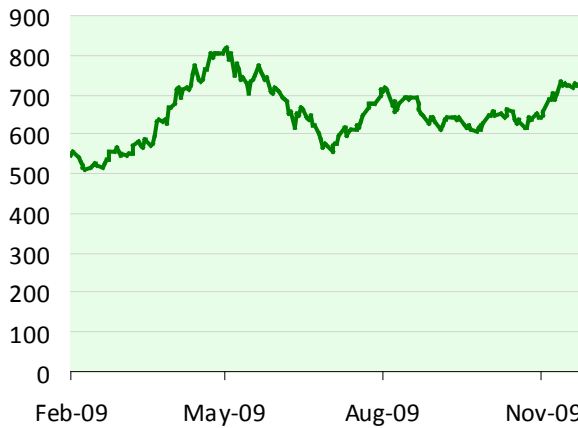
Source: Nymex, VM Group

Rapeseed futures, Euronext (€/tonne)



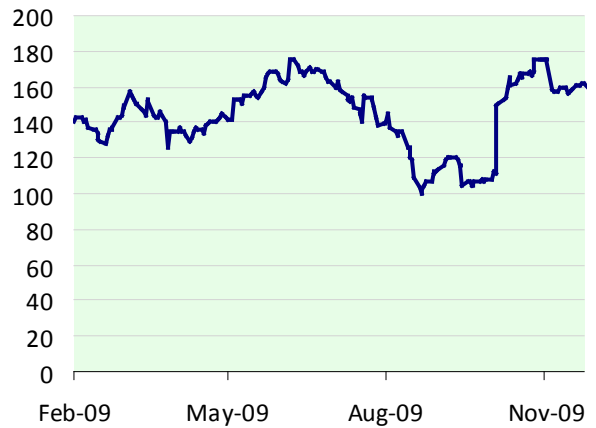
Source: Euronext, VM Group

Palm oil futures (Ringgit per tonne, BMDB)



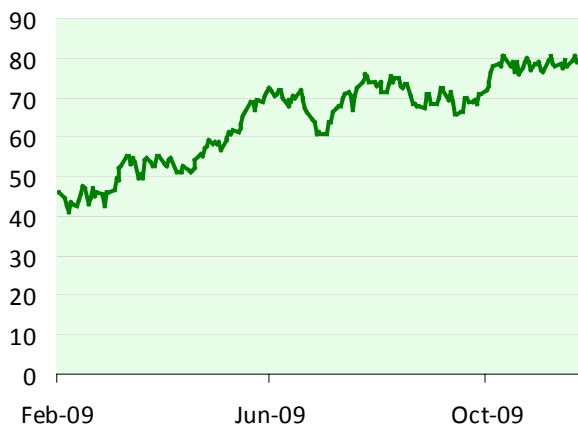
Source: BMDB, VM Group

Western barley futures, WCE (C\$/tonne)



Source: WCE, VM Group

Brent crude, ICE Futures, (\$/barrel)



Source: ICE, VM Group

NEX Index



Source: Wilderhill, VM Group

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VM Group
100 Ashmill Street
London NW1 6RA
Tel: +44 20 7569 5930
Fax: +44 20 7569 5931

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