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Oil's Equity Performance Fades As Renewables Shine

Fallen oil prices have certainly exposed the drawbacks of high-cost oil projects, and on the flip side, the price downturn has strengthened the case for alternative energy investments in the last few months. Equity values for the clean energy class on Standard and Poor's originally fell in step with the global oil class this past fall but started to diverge from oil around November, marching upward while the oil class lost value. Part of the explanation is obvious -- with renewable electricity, in particular, only having a vague relationship with oil. But because the two classes are moving in opposite directions and the gap in value is now quite wide, the case for investing in clean energy has arguably grown (see graph).

When oil and clean energy values parted ways in November, both classes were down some 15% from September, whereas the S&P 500 index had fully recovered from an initial drop. Then, clean energy stabilized for a few weeks and started to rebound in late January. The clean energy class is now back up to valuation levels seen back in September, when oil prices were only beginning their rapid descent. Many analysts predict clean energy stocks will continue to rally while oil stocks currently trail 30% under pre-collapse levels.

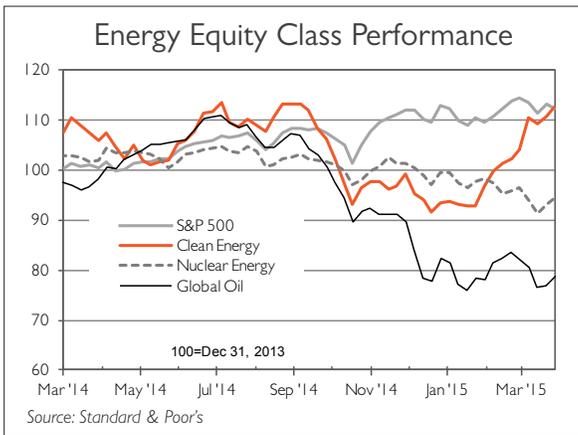
Some 20% of US "cleantech" stocks involve direct petroleum substitutes such as biofuels, natural gas fuels and electric vehicles, according to brokerage Raymond James' Pavel Molchanov. Those "naturally" correlate with oil prices, he said (NE Feb.12'15). Another 20% of the sector, for example, includes companies that supply hardware and software for the power grid, which have "absolutely nothing to do" with energy commodity prices. In the middle, 60% of cleantech companies, including solar and other kinds of renewable energy, have a "superficial" connection to oil prices (NE Dec.11'14). A majority of solar panels are used in rooftop installations and compete with electricity from the grid and sold at retail tariffs where the fuel component is small, Molchanov said (NE Feb.26'15). Solar stocks "should not have gone down in the first place," Deutsche Bank's Vishal Shah told *EI New Energy*.

For the most part, market history shows that oil prices and renewable energy stocks do not correlate, Molchanov emphasized. The second half of 2014 appears an exception, where investors were "dumping energy stocks across the board" because oil prices were falling so rapidly and renewable energy stocks got "caught up in that indiscriminate meltdown," he said. Macroeconomic concerns also played a role, HSBC's Joaquim de Lima insisted, citing monetary policies and the inflationary environment. Now the outlook for the global economy has

Renewable Energy Break-Even Prices

	Coal	Gas
Developing Asia		
Market Price	2.75	14.03
Wind Onshore	4.31	3.96
Solar PV	7.70	6.01
Solar CSP	15.95	21.71
Mideast		
Market Price	52.84	7.59
Wind Onshore	22.41	4.48
Solar PV	30.81	6.20
Solar CSP	90.74	22.92

Market prices Apr 15. Coal and Gas in \$/MMBtu, Oil in \$/bbl. Table indicates fuel price above which renewable energy is more profitable than new coal-, gas- or oil-fired power, without subsidies. Source: Energy Intelligence



become more positive, he said, adding that cleantech companies generally improved their financial performance and debt profile during 2014 (see table). Since early 2015, headlines from the solar industry have been mostly positive, whereas oil prices have continued to fall, Molchanov said. As a result, “we’ve seen the divergence in the performance of oil stocks, which are down, and solar stocks, which have been bouncing higher,” he concluded.

Given these trends, why isn’t Big Oil rushing into clean energy? A likely answer is that the industry is struggling to balance long-term planning with short-term capital discipline. The fourth quarter of 2014 — when Brent crude averaged \$75 per barrel, compared to \$50 today — saw them post sharply lower earnings and cash flow compared to the same period in 2013, when oil prices averaged above \$100. Even before the price drop that began in mid-2014, majors were tightening their belts by cutting capital expenditure. But under more intense capital discipline, their capacity to branch out beyond their core oil and gas businesses has been greatly diminished. However, a continued interest in low-carbon solu-

tions has been demonstrated by European majors, which were confronted with carbon pricing early on through the EU’s Emissions Trading System and Norway’s carbon tax. France’s Total has recently made several new investments in energy storage and biofuels, building on its reach in solar, while Statoil and

Royal Dutch Shell have been pouring money into ventures that could lighten the footprint of fossil fuels through carbon capture or green well completions (NE Feb.5’15).

Recent Changes in Solar and Other “Green” Stocks

Name	Sector	Price	Name	Sector	Price
Canadian Solar	Solar	+57%	Tesla Motors	Elec.Vehicles	-9%
Trina Solar	Solar	+54	SolarCity	Solar	-9
Amtech Systems	Solar	+46	Itron	Smart Grid	-11
Ideal Power	Energy Storage	+44	Enphase Energy	Solar	-13
Abengoa	Solar/Bioenergy	+43	Plug Power	Fuel Cells	-13
JinkoSolar	Solar	+36	FuelCell Energy	Fuel Cells	-18
Vivint Solar	Solar	+34	Broadwind Energy	Wind	-19
First Solar	Solar	+33	Opower	Smart Grid	-30
SunPower	Solar	+28	EnerNOC	Smart Grid	-32
JA Solar	Solar	+26%	Echelon	Smart Grid	-34%

Stock prices changes within Raymond James’ green “universe” from mid-December 2014 to mid-March 2015 (top 10 and bottom 10 performers among 43 stocks).
Source: Raymond James, Energy Intelligence

Low-carbon investment makes strategic sense in the long term, but it won’t make a difference any time soon — mostly because investing a few million or even a couple billion dollars in cleantech is very small compared to the size of Big Oil. The financial community may or may not welcome such investment made now, but their main desire is for oil firms to sort out their core businesses, be more disciplined, and avoid high-risk projects, analysts say.

Philippe Roos, Strasbourg

US Vows to Speed Up Pace of Carbon Reductions

President Barack Obama’s administration has formally submitted a 2025 US greenhouse gas reduction target ahead of the upcoming UN climate talks in Paris this November, in another signal that the upcoming negotiating round will deliver heftier results than previous talks. Yet it remains to be seen whether the US can adopt the policies needed to achieve the cuts in Washington’s volatile political environment, amid congressional opposition and with Obama’s term expiring in less than two years. Also, the US would need to double its pace of greenhouse gas curbs from the levels seen in recent years to fulfill the Obama administration’s pledge. The US joins the EU, China and several other governments in introducing its plans ahead of Paris, although many other large emitters have yet to make their promises known.

The US submission to the UN Framework Convention on Climate Change (UNFCCC), called the Intended Nationally Determined Contribution (INDC), formalizes the targets announced by Obama in China last year — to reduce US emissions by 26%-28% below 2005 levels by 2025, with best efforts to reduce by 28%. This is essentially an extension of the US target for a 17% reduction by 2020, as agreed at the 2009 climate talks in Copenhagen (NE Nov.13’14). If the upper end of the range is attained, it would put the US on track to achieve economy-wide reductions of 80% or more by 2050. At the same meeting in China last year, Chinese President Xi Jinping said his country will peak its carbon dioxide emissions around the year 2030 while increasing its share of non-fossil fuels to 20% of its energy mix in that time frame. The EU has already formally committed to cut their emissions 40% by 2030, and last week Mexico announced that it would peak its overall net greenhouse gases by 2026 (p7).

For the US to achieve its goal, it must roughly double its pace of carbon pollution reductions from 1.2% per year on average during the 2005-20 period to 2.3%-2.8% per year on average from 2020-25. The White House points out that much of the strategy to achieve the cuts has already been set in motion through the Environmental Protection Agency’s (EPA) proposed Clean Power Plan, which aims to cut emissions from

existing power plants by 30% below 2005 levels by 2030, with greater cuts coming from fuel efficiency and greenhouse gas standards for medium- and heavy-duty vehicles to be issued in 2016. The Obama administration also intends to lean heavily on energy efficiency, with the Department of Energy (DOE) aiming to reduce carbon pollution by 3 billion metric tons cumulatively by 2030 from 2010 levels with efficiency measures. The INDC includes measures to slash global emissions of other pollutants, such as industrial hydrofluorocarbon gas, which is far more potent and long-lived than carbon dioxide but less common.

Some question whether the White House can actually enforce those policies. The EPA's Clean Power Plan has been under fire from Republicans and coal state Democrats that object to "command and control" style environmental regulations or the inevitable hit to coal power. Some are proposing cuts to the EPA's next fiscal year budget while increasing scrutiny on the agency through oversight powers (NE Nov.20'14). White House officials are optimistic, however, that their initiatives will be carried out. The framework of the INDC was written to be "durable" and "difficult to undo because they are regulatory actions based on existing laws," White House senior adviser Brian Deese told a press call on Tuesday. He adds that the agreement will also provide market certainty for investors, strengthening the low-carbon transition.

The Obama administration doesn't expect a cake walk to Paris, however. "There are of course many issues yet to be resolved in this negotiation," said Todd Stern of the State Department on the call. Japan, Canada and Australia are among the countries that have not yet filed emissions targets to the UNFCCC. Countries that took part in the Warsaw climate talks in 2013 agreed to submit their targets well ahead of the Paris conference, preferably by the first quarter of 2015 — which ended this week — for countries that can manage it. "We want to encourage as ambitious a set of targets as we can possibly get" from a broad range of participating countries, Stern said.

Rosa Lin, Washington

Coal Now Staring 'Stranded Asset' Warnings in the Face

"Stranded" assets are already a painful reality for the US coal industry — a problem that other fossil fuel industries should reflect on to prepare for a carbon-constrained future, the nonprofit Carbon Tracker Initiative said in a new report (NE Apr.3'14). Other international fossil fuel markets such as oil and gas "should acknowledge the extent of stranded assets incurred in the US coal sector," Carbon Tracker insists, and use this case study "to build their understanding of, and resilience to, the potential value destruction" that would result from a low-carbon energy transition.

In sharp contrast with average US stock prices, up 60% over the past four years, coal shares are down 85% from 2011, reflecting a new disconnect between coal demand and economic growth. US GDP is less and less energy-intensive and energy consumption is less and less carbon-intensive — due to factors such as cheaper gas, pollution regulations, better energy efficiency and more affordable renewable energy (NE Apr.24'14). This is also a global trend and early hopes for foreign demand to make up for weak coal sales in the US have been disappointing, Carbon Tracker insists. As a result, lenders are growing increasingly nervous about US coal companies, which need to be more generous to attract funds — Peabody Energy, the country's top producer, for example, had to offer a huge 10% interest rate on its latest bond issue in March. Similarly, there is "a lot of pressure" from civil society for asset owners to divest from coal or at least engage with producers and urge them to quit developing high-cost projects, according to HSBC's Joaquim de Lima.

"The coal renaissance in Europe was only a dream," the International Energy Agency (IEA) stated in its latest *Medium-Term Coal Market Report*. The recent increase in European coal use after 2009 was a "temporary spike" largely due to low coal and carbon prices, expensive natural gas and the partial shutdown of German nuclear plants, the agency said, adding that coal demand began to decline again after 2012 amid slow economic growth, energy efficiency gains, continuing renewable energy investment and coal plant retirements. Quarterly US coal exports to Europe, which grew to over 17 million short tons by mid-2012 up from just 2 million tons during most of the previous decade, are now back to 3 million-4 million tons.

While the IEA does not expect coal consumption to peak in China this decade, the country has "entered a new time" of moderate coal growth and occasional declines — for example, during very wet years that would boost hydropower production (NE

The Coal Industry's Fading Value

Company	Country	Change in Value 2011-15
Coal India	India	16%
Rio Tinto	Australia/UK	-36
BHP Billiton	Australia/UK	-40
China Shenhua	China	-42
Glencore Xstrata	UK	-44
Consol Energy	US	-47
Tambang Batubara	Indonesia	-53
Inner Mongolia Yitai Coal	China	-59
Exxaro Resources	South Africa	-60
Adaro Energy	Indonesia	-64
China Coal Energy	China	-67
Indo Tambangraya Magah	Indonesia	-67
Anglo American	UK	-68
Cloud Peak Energy	US	-74
Yanzhou Coal Mining	China	-74
Peabody Energy	US	-92
Arch Coal	US	-97
Alpha Natural Resources	US	-98%
Market-Wide Trends in All Sectors		
S&P 500 (US)		62%
S&P Emerging Markets Core		-11
S&P Global 1200		33

Selected coal producers' change in stock price over 2011-15 compared with US, global and emerging markets indexes, in %. Source: Energy Intelligence

Feb.5'15). That structural shift in China's coal market caused massive global oversupply, which is likely to persist and prevent prices from recovering for quite some time, experts say. Low-cost producers such as Australia stand in a "relatively strong position" whereas higher-cost suppliers, particularly those in the eastern US, are at "much greater risk of closures," consultancy Wood Mackenzie warns.

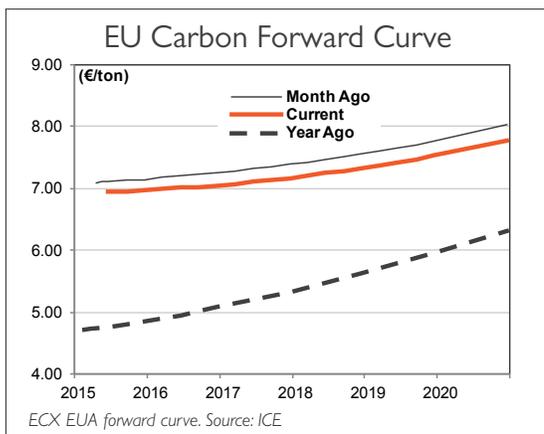
Numerous financial institutions around the world are wondering about the implications of divestment, HSBC's de Lima said. He co-authored a report on the financial consequences of coal divestment, focusing on Asian emerging markets including China, India and Southeast Asia where coal-fired power plants are still being built. The analysis suggests a coal-free portfolio would have performed better than a neutral one, but could also be riskier were it to selectively overweight certain sectors such as low-carbon stocks, which tend to be more volatile than average (NE Sep.4'14). Passive investors seeking to replicate the performance of an index are already less exposed to coal than they have been for a long while, HSBC insists, as the recent decline in coal company share prices has decreased their weight in indexes. Assessing how oil and gas divestment would impact portfolios would be a logical follow-up and "a much bigger issue," but asset owners want to know the implications if they decided — or were forced — to reduce the carbon intensity of their portfolios, de Lima insisted.

Philippe Roos, Strasbourg

Glimmers of Hope Emerge for Europe's Carbon Market

The EU has often faltered in attempts to rescue its Emissions Trading System (ETS) from low prices, but it may now have turned a corner and set the ailing market on a better course. While the latest round of complicated ETS reform negotiations showed there are still divisions over some key aspects of a proposed market stability reserve (MSR) — to balance the market, taking allowances out when oversupplied and returning them if too tight — substantial progress has nonetheless been made (NE Jan.29'15). While acceptance of the MSR itself is a significant achievement given the protracted debate over a "backloading" measure that has already taken excess emission allowances out of the market, agreement between the EU's member states and parliament that those backloaded allowances should go straight into the MSR rather than back into the market in 2019-20 as currently planned is "a huge improvement," Stig Schjolset, head of carbon analysis at Thomson Reuters Point Carbon, told *EI New Energy* (NE May15'14). This could give a stronger signal to investors in favor of low-carbon technologies such as carbon capture, which rely on a robust carbon price (NE Feb.26'15).

When the MSR starts is a more contentious issue, and one that could yet prove a stumbling block, with the EU's member states and parliament at odds. An EU Council meeting last week approved a 2021 start date, with a group of countries led by Poland blocking attempts by Germany, the UK and others to set it at 2018 — before the current, third phase of trading ends in December 2020. Parliament also favors a 2018 MSR start and is in no mood to back down — its position already the result of a compromise. Some suggest the key to a solution could be some form of financial assistance for the energy transition of Poland and its cohorts, which are trying to protect their economic interests. While many want the MSR to start as early as possible to avoid delaying emissions reductions, the impact of the start date on the ETS may be relatively minor. Point Carbon analysis suggests that each year the MSR start date is moved forward might mean a €1 difference in long term average prices, but if 900 million backloaded allowances are pushed back into the market in 2019-20, its models suggest the prices could dip to zero, according to Schjolset.



The question of what to do with allowances that remain unallocated at the end of the current trading period remains a concern. The Council's position is that this issue should be dealt with as part of an upcoming wider review of the ETS directive, but that could take years of negotiation to finalize, creating "huge uncertainty" in the meantime, said Sarah Deblock, European policy director at the International Emissions Trading Association (IETA). "You can't plan ahead if you don't know if you are going to see, say 600 million credits come back to market or not," she told *EI New Energy*. IETA says that a decision on what to do with the unallocated credits could be left until later in the legislative process — using them in the future to protect again carbon leakage or stimulate innovation, for instance — but what's needed now is an indication that they will not come back to the market through auctioning. "At the very least provide this clarity and this certainty that we are not going to see additional flooding of the market at the end of phase 3," said Deblock.

While progress with the MSR is encouraging, it's just the start if the EU wants to put the ETS back at the center of its climate policy. Further means to strengthen the ETS could come with the upcoming review, which is due to begin once the MSR is dealt with. But beyond such tinkering, what's really needed is a long-term signal. The EU hopes to give this with its 2030 climate package, which targets a 40% cut in carbon emissions from 1990 levels (NE Oct.30'14). There is a "clear sense that the ambition in the package is good," said Eliot Whittington, deputy director at The Prince of Wales's Corporate Leaders Group, but there is "a lack of clarity" about how it will be achieved, he noted. What is clear, however, is that with the decision to abandon nationally binding targets for renewables in its 2030 policy framework, EU leaders are putting the onus on the ETS to drive the required emission reductions to 2030. "After 2020 it becomes really important the ETS does the job by itself," or member states could bring in other "supplementary measures" such as the UK's carbon price floor, said Femke de Jong, policy officer at NGO Carbon Market Watch. Carbon trading advocates dislike the idea of such overlapping of policies, which they say is less efficient and cost-effective than focusing on a market-based approach.

Ronan Kavanagh, London

Renewables Stand to Win in China's Power Market Reforms

China is planning to "deepen" power industry reforms that were initiated some 13 years ago but have since stalled, in a move aimed at introducing competition that should, in turn, help renewable energy sources overcome grid access obstacles. The reforms will involve liberalizing power generation and retail sales to stir competition while confining state control to the "middle" transmission segment, to replace the current system under which state grid companies have virtual control of the entire supply chain for electricity. The ambitious goal — seen by many as achievable only through a gradual, long-term transition — involves surmounting huge resistance from China's two state grid companies to strip them of their current monopolistic powers as the only buyers of electricity from power plants and the sole sellers to end users. Limiting the grid companies to their core function of providing pure transmission services for a fixed fee should eventually benefit the renewable energy sector because the two grid giants, State Grid and China Southern Power Grid, now profit from price differences in their power procurement and resale activities and so are seen as being half-hearted in their efforts to accommodate more expensive renewable energy which cuts into their profits (NE Mar.14'13). Their current practice of simply allocating equitable generation hours to coal plants, regardless of differences in plant efficiencies and emission levels, has also been criticized as counterproductive to China's carbon-cutting drive.

A document calling for the "further deepening" of power sector reforms, dated Mar. 15 and purportedly issued by the cabinet-level State Council, has spread rapidly in the Chinese media, although it could not be officially traced to any government agency. But tacit acknowledgement came through the official Xinhua news agency, which carried a report citing an official from the country's top economic planner, the National Development and Reform Commission (NDRC), on the rationale behind its renewed push for power sector reforms. China's existing power market structure contains "imperfections" that hinder utilization of renewable and new energy, which face "discrimination and obstacles" in gaining grid access, the NDRC official told Xinhua.

The latest reform efforts target an "orderly" liberalization of non-transmission segments by opening the door to non-state players. In an apparent reference to the vested interests of the two state grid companies, the official said the government wants to promote power transactions between "relatively impartial" entities. Beijing also wants to encourage direct power sales between generators and large end users — bypassing the grid companies — at prices determined either by mutual agreement or through bidding, instead of state-set levels. Despite the lack of concrete details, the stock market has reacted — share prices of listed energy companies and utilities seen as having the muscles to enter the retail power business, especially those with generation assets, staged sharp increases immediately after the reform notice was circulated (NE Mar.12'15).

However, while loaded with goals, the circular is lacking in concrete implementation plans and timetables, as is usual in most Chinese government documents forewarning of policy directions or sounding out industry opinions. The circular also did not address repercussions, such as the potential inability of grid companies to invest in infrastructure upgrades if their profitability is curbed. The building of capital-intensive projects — like ultra-high voltage transmission systems to minimize losses when delivering renewable electricity over long distances — is seen as crucial for lifting solar, wind and hydro plant utilization rates in remote provinces. "Does this mean a large proportion

of grid spending needs to come from government funding?” asked academic expert Huang Xiaoyong, involved in international energy security research at the Chinese Academy of Social Sciences, in an article he recently penned for the Chinese language *Economic Daily*.

A totally market-based system may also initially disadvantage renewable energy technologies that have not yet attained price competitiveness. Although Beijing earlier this month issued “guidelines” for prioritizing renewable energy to target 100% utilization of existing renewable electricity capacity, “a lot of work” still needs to be done to ensure clean energy is promoted without compromising the development of a broader power market where clean and traditional energy sources compete alongside each other, Huang notes (NE Mar.26’15).

Kimfeng Wong, Singapore

US Biofuel Mandate Still Under Fire, But Bioflight Project Advances

US aviation biofuels are facing an uphill battle as government policy becomes more shaky and the oil price plunge undermines the economics of alternative fuels. A recent split in the biofuel community over the Renewable Fuel Standard (RFS) is also adding another layer of uncertainty for aviation biofuel, or “biojet,” along with the rest of the biofuels sector. In the midst of all this, one company is closing in on commercial reality: Los Angeles-based AltAir Fuels says it will begin supplying renewable jet fuel to United Airlines this summer as part of a deal to provide 15 million gallons of biojet over three years (NE Mar.26’15).

Biojet has had trouble taking off due to its prohibitively expensive price tag, coupled with the large amount of fuel airlines require — which is helpful in the long run but difficult to supply in the early stages of biorefining. Alaska Airlines CEO Brad Tilden noted last year that a test of a 20% biofuel blend cost him \$17/gallon, compared with a typical \$3/gallon for traditional jet fuel — something infeasible for his airline and others (NE Mar.26’15). Biofuel producers argue that policies must be reformed to spur the activity and scale to bring costs down to levels competitive with petroleum-based supplies. They have split recently over how to achieve that, however — once united with the corn ethanol industry in supporting the RFS, the Advanced Biofuels Association (ABA) is now calling for reform of the RFS so that it is tailored to advanced biofuels (NE Mar.19’15). Corn growers and corn ethanol producers, meanwhile, fear that opening up the RFS for reform may jeopardize their longstanding benefits from the policy.

They have reason to worry. Some politicians in Washington are taking a hard-line approach to corn ethanol, seeking to scrap the RFS altogether. Senators Pat Toomey (R-Pennsylvania) and Dianne Feinstein (D-California) introduced the Corn Ethanol Mandate Elimination Act of 2015 last week, which abolishes the corn ethanol portion of the RFS on the basis that it drives up prices of gasoline and food. Predictably, Bob Dinneen of the Renewable Fuels Association called the bill “misguided” — noting World Bank research indicating that the price of oil has been the main factor impacting food prices over the last 20 years, not ethanol.

Despite uncertain policy support, the AltAir project is nearing mechanical completion and expects to be in production by April or May, revealed a United representative at a recent industry conference in Washington. The supplies will come from AltAir’s renewable diesel facility that is being expanded from 30 million to 40 million gallons per year on the site of an idled petroleum refinery near Los Angeles. AltAir has a flexible feedstock approach and uses inedible natural oils and agricultural waste. United is finalizing plans for a mid-2015 bio-flight launch out of Los Angeles International Airport, said Mihir Thakkar, the airline’s director of environmental strategy and sustainability.

In the first test case for integrating new fuels into existing supply chains, United is now sorting out the logistics for blending conventional jet fuel, Jet A, in a mixture consisting of 30%-70% biofuels and then delivering the volumes to the Los Angeles airport. The carrier is exploring three options for transporting the fuel using different combinations of truck and pipeline delivery. Thakkar emphasized that United’s priority remains cost-effectiveness. “Can we spend a little more just because the fuel is great? That’s a conversation that won’t go too far,” Thakkar said. It’s a refrain that biofuel producers have often heard from potential customers, including the US military. At the same conference, US Navy Secretary Ray Mabus said he was prepared to take his fleet to as much as 50% renewable fuels — but only if the price is right. That has become even more difficult with oil currently below \$50 per barrel (NE Mar.5’15). In order to improve the economic viability of biofuel projects, Thakkar suggested examining the potential for co-processing renewable feedstocks alongside conventional crude in existing refineries, or working with states to implement low-carbon fuels legislation that allows alternative jet fuel to generate compliance credits.

Rosa Lin, Washington

IN BRIEF

Mexico Sets Emissions Target

Mexico's government has announced an unconditional commitment to a 25% reduction in its greenhouse gas emissions and short-lived climate pollutants relative to its baseline scenario by 2030. The move means that Mexico has met its obligations under the UN Framework Convention on Climate Change to draft an Intended Nationally Determined Contribution (INDC) as part of a global effort to limit the world's average temperature increase to 2°C (NE Feb. 12 '15). The Mexican government also says that it could increase those reductions to up to 40% in the event that countries sign an international deal setting a global carbon price, in addition to offering technical and financial assistance. Mexico's government says its INDC plan is "consistent" with a national goal to reduce emissions by 50% from 2000 levels by 2050.

US Senate Passes Efficiency Bill

An energy efficiency bill from US Sens. Jeanne Shaheen (D-New Hampshire) and Rob Portman (R-Ohio) has finally been approved by the Senate after several failed attempts, and now faces a vote from the House of Representatives (NE May 15 '14). The Shaheen-Portman Energy Savings and Industrial Competitiveness Act, which secured voice vote passage, is smaller than previous versions of the bill. It includes three provisions: the establishment of a voluntary, market-driven approach to aligning the interests of commercial building owners and their tenants to reduce energy consumption; an exemption for large-capacity, electric grid-enabled electric resistance water heaters used for demand response from pending Department of Energy regulation; and a requirement that federally leased buildings that have not achieved the "Energy Star" label for efficiency start to benchmark and disclose their energy usage data, where practical.

Australia Debates Renewable Goal

An impasse in Australia over Renewable Energy Target legislation continues to drag on, despite signs of common ground ironed out between the Liberal-National Coalition government and Labor-led opposition. A previous proposal endorsed by all parties would require 20% of national electricity output to be from renewables by 2020, with an absolute amount set at 41 TWh from large-scale renewable projects. The government is now pushing for a reduction, arguing that actual electricity demand has been lower than forecast, so the 20% ratio would translate into just 26 TWh (NE Sep. 18 '14). In the ensuing debate, the government ceded ground, raising the figure to 32 TWh against Labor's calls for above 35 TWh. Industrial body Clean Energy Council has proposed a compromise at 33.5 TWh. The policy uncertainty has resulted in renewable investments slumping by almost 90% in 2014, says the council.

China to Evaluate Environmental Costs

China's environment ministry has announced it will resume publishing "GDP-environment" impact studies to put a value on the environmental costs associated with economic growth, the official Xinhua news agency reported this week. The move will turn up the heat on local government officials and energy companies, including oil and gas firms, which were previously unwilling to reveal the extent of environmental damages from economic goals. The ministry first published the results from such studies — which aim to reflect the net GDP figure after deducting the costs of associated environmental impacts — in 2006, but stopped doing so in 2007 due to pressure from local government officials, according to other local media reports. Such costs reportedly amounted to 1.5 trillion yuan (\$242 billion), or around 3.5% of GDP in 2010.

Pollution recently leaped high up Beijing's political agenda, with President Xi Jinping vowing to address the issue (NE Mar. 12 '15).

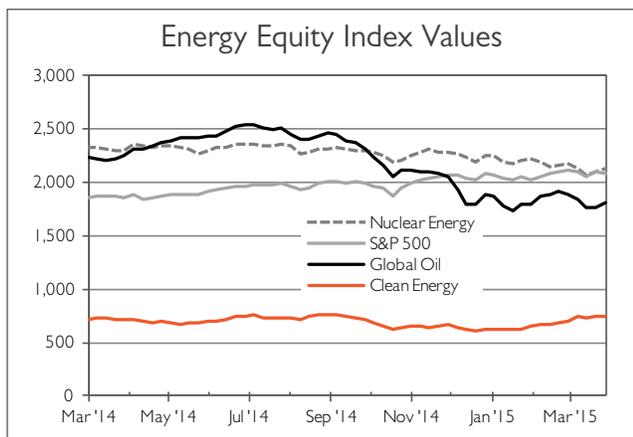
Norway, UK Link Advances

A €2 billion (\$2.2 billion) underwater electric link between the UK and Norway with 1.4 GW of capacity got the go-ahead last week, with transmission system operators in both countries inking a joint ownership agreement. The UK's National Grid and Norway's Statnett will now start construction on the world's longest subsea power link at 730 kilometers, dubbed NSN, with a completion date scheduled for 2021. The link will predominantly flow hydro-generated electricity from Norway to the UK to help balance the grid when other forms of intermittent renewables such as wind and solar photovoltaics aren't available, or in times of peak demand when it makes economic sense for the UK to seek relatively cheap hydropower from Norway. The EU has set a target of all member states reaching interconnector capacity equivalent to 10% of baseload supply by 2020.

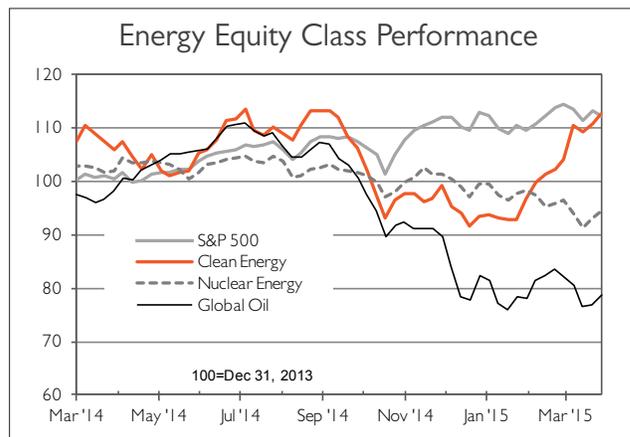
UK Offers Green Energy Aid

The UK is committing £200 million (\$300 million), spread over a three-year period, to fund renewable energy and energy efficiency projects in developing countries, under a newly established pilot between the UK's Green Investment Bank (GIB) — which focuses on UK projects — and the government's existing "International Climate Fund." ICF already had been allocated £3.87 billion (\$5.8 billion) to finance such projects. Since 2012, GIB has invested in 42 projects and committed £1.8 billion, which should yield £6.6 billion of new UK infrastructure investments. UK Energy Secretary Ed Davey, who made the announcement, is keen to assert his Liberal Democrat party's green legacy.

CLEAN ENERGY EQUITY MARKETS



Source: Standard & Poor's



Source: Standard & Poor's

EI NEW ENERGY DATA

Energy Futures: Reference Prices

Carbon (€/ton)	Mar 31	Mar 24	Chg.
ECX EUA	6.92	7.03	-0.11
ECX CER	0.41	0.38	+0.03
Crude oil (\$/bbl)			
Nymex light, sweet	47.60	47.51	+0.09
ICE Brent	55.11	56.29	-1.18
Natural gas (\$/MMBtu)			
Nymex Henry Hub	2.64	2.79	-0.15
ICE UK NBP	6.80	6.98	-0.18
Coal (\$/ton)			
Nymex Capp*	51.08	52.85	-1.77
ICE Rotterdam	58.85	60.90	-2.05

All prices are front month. EUA = EU Allowances; CER = Certified Emission Reductions under UN CDM. ICE UK gas converted from p/therm. *Short tons. Source: Exchanges

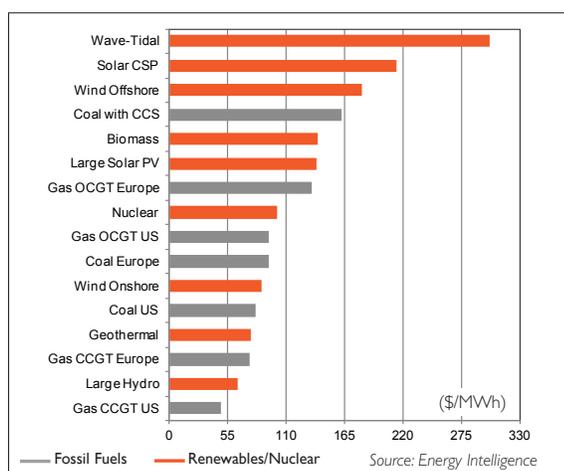
DATA: The complete set of *EI New Energy* data is available to web subscribers, including full levelized cost of energy (LCOE) calculations, fuel switching thresholds, electricity production by sector; ethanol and biodiesel fundamentals, carbon prices, methodologies and reader's guides. Historical data is available as a premium Data Source product.

Global Carbon Prices

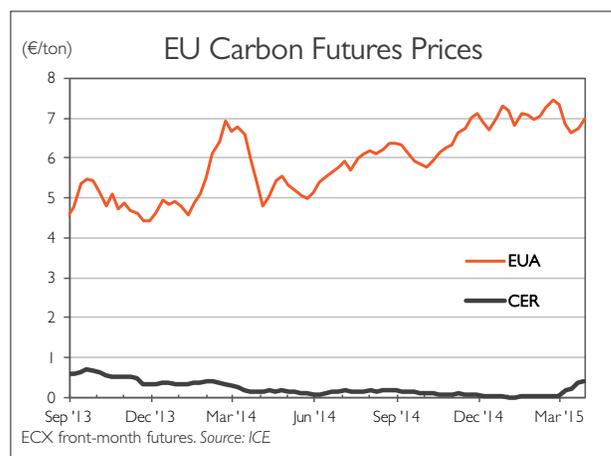
Europe (€/ton)	Mar 31	Mar 24	Chg.
EUA Dec '15	6.97	7.08	-0.11
CER Dec '15	0.43	0.40	+0.03
US (\$/ton)			
CCA (Calif) Dec '15	12.66	12.67	-0.01
RGGI (Northeast) Dec '15*	5.44	5.45	-0.01
New Zealand (NZ\$/ton)			
NZU (spot)	6.50	6.45	+0.05

Benchmark months. *Short tons; all others metric tons. Source: ICE, OMF

Newbuild Power Generation Costs



Source: Energy Intelligence



Source: ICE

Global Electricity Prices

Europe (\$/MWh)	Mar 31	Mar 24	Chg.
Germany (EEX)	19.15	43.19	-24.04
France (Powernext)	46.19	63.58	-17.39
Scandinavia (Nordpool)	27.10	30.11	-3.01
UK (APX)	58.97	63.18	-4.21
Italy (GME)	45.93	62.23	-16.30
Spain (Omel)	32.05	46.48	-14.43
North America			
New England	43.00	41.75	+1.25
Texas (ERCOT)	38.63	21.26	+17.37
US Mid-Atlantic (PJM West)	32.49	32.16	+0.32
US Southwest (Palo Verde)	25.00	23.38	+1.63
Canada (Ontario)	15.59	27.64	-12.04
Other			
Australia (NSW)	47.52	48.23	-0.71
Brazil (SE-CW)	121.60	123.74	-2.14
India (IEX)	48.25	53.22	-4.97
Japan (JPEX)	93.85	101.95	-8.10
Russia (ATS)	19.01	19.77	-0.76
Singapore (USEP)	59.96	57.14	+2.81

Wholesale prices. Source: Exchanges

Key Biofuel Prices

US (\$/gallon)	Mar 31	Mar 24	Chg.
Futures			
CBOT Ethanol	1.48	1.51	-0.02
RBOB Gasoline	1.77	1.79	-0.02
Spot market			
Ethanol Midcont.	1.46	1.44	+0.02
Ethanol NY Harbor	1.55	1.52	+0.03
Ethanol US Gulf	1.53	1.53	0.00
Europe (\$/ton)			
Futures			
ICE Gasoil	526.50	523.25	+3.25
Spot market			
Gasoline	593.00	615.00	-22.00
Diesel	527.50	526.75	+0.75
Biodiesel			
Fame 0	801.50	808.25	-6.75
RME	811.50	818.25	-6.75
SME	801.50	808.25	-6.75
PME	796.50	803.25	-6.75

Source: Thomson Reuters, ICAP, Exchanges

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