Energy Intelligence

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EI NEW ENERGY

Vol. IV, No. 15

April 16, 2015

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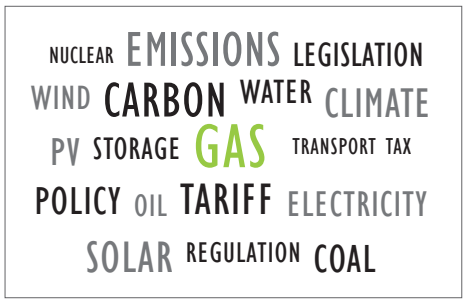

Regional Power Generation Costs

($/MWh)	US	Europe	Japan	Dvlpg. Asia	Mideast
Gas CCGT	48	76	133	110	88
Large Hydro	64	66	161	39	100
Geothermal	77	77	81	67	73
Wind Onshore	80	96	147	74	83
Coal	81	93	101	56	74
Gas OCGT	93	134	217	185	151
Nuclear	101	101	91	61	83
Large Solar PV	121	162	308	107	106
Biomass	140	140	139	103	126
Coal with CCS	154	162	179	115	137
Wind Offshore	182	181	187	146	145
Solar CSP	202	227	NA	165	177
Wave-Tidal	302	302	289	308	298

Levelized cost of energy, or cost of generating electricity over lifetime, including capital, operating, fuel and carbon costs. Dvlpg. Asia = developing Asia, mostly China and India. *Source: Energy Intelligence*

Shell's BG Bid Underscores Climate Strategy

While the primary motivation for Royal Dutch Shell's bid for BG last week may have been short-term concerns, such as shoring up reserve replacement levels and cash flow, it also underscores one of the main pillars of the Anglo-Dutch supermajor's long-term climate change strategy — to supply more natural gas as a cleaner-burning alternative to coal (NE Mar.26'15). Its acquisition of BG bolsters Shell's already leading position in global LNG supply and trade, demonstrating the attractiveness of natural gas assets in the largest oil and gas industry tie-up since the last spate of mega-mergers in the late 1990s (WEO Apr.10'15). Shell's strengthened emphasis on gas could also deflect warnings of "stranded" fossil fuel assets under government carbon controls, but some point out that natural gas also involves a questionable life-cycle carbon footprint and note that oil is a strong component of BG's portfolio.

Climate change is certainly a factor in the proposed transaction since gas is the cleanest fossil fuel and has better growth prospects than oil and coal in a more carbon-constrained environment, said Marco Scherer of Deutsche Bank's Deutsche Asset & Wealth Management. While investors are mostly focusing on the returns they are getting, the argument for more sustainable investing is certainly becoming stronger, he said. LNG assets are a good example, showing it is possible to combine pure economic considerations and "more socially responsible investing," Scherer said. In particular, the LNG business provides a relatively stable cash flow because it is sold on less volatile, long-term pricing terms than oil or spot gas, Scherer argued. In addition, gas projects show a much more stable production rate than oil projects, where production typically declines by a few percent every year, he insisted.

But while it may be a good strategy to become more gas-focused from a climate change point of view, another analyst suggested Shell "should be careful not to insist too much on that, otherwise investors could start questioning how safe oil assets will remain in the future." And Shell shows no signs of turning its back on oil — its production split is around 50-50 between oil and gas, a ratio that will not fundamentally change under the deal with BG. BG's Brazilian deepwater Santos Basin oil play was a key selling point for Shell in addition to the gas and LNG side of BG's business.

Shell may see natural gas as a strategic bet and a bulwark against arguments that it faces the risk of potentially stranded assets in a future carbon-constrained world, as gas emits 50% fewer carbon emissions than coal. The firm has maintained that gas will be an important bridge fuel, or even a destination fuel, for many decades to come — particularly as developing countries such as China look to reduce emis-

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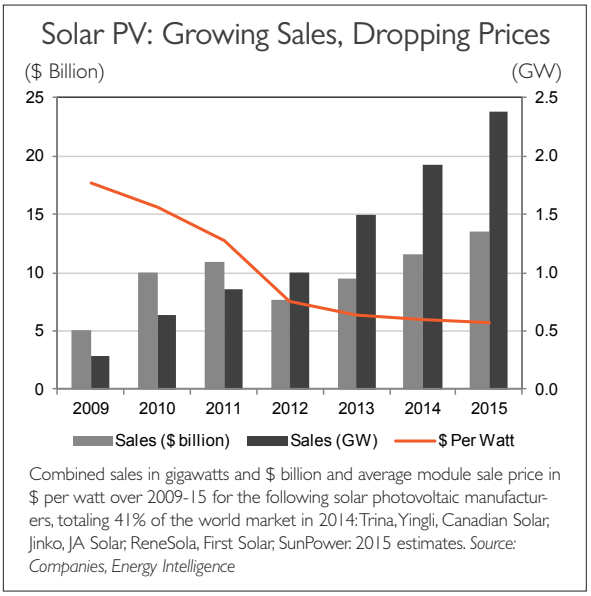
sions. Others are less convinced. Shell's consolidating of its position as a gas and LNG player would "not necessarily" address investor concerns on stranded assets, said Ben Caldecott, head of Oxford University's Stranded Assets Program (NE Feb.19'15). "It depends on the life-cycle emissions of the gas — which varies considerably depending on methane leakage and other factors. There are also other environmental considerations, such as water use and whether the gas fields in question are in high water stress locations or not," he told *EI New Energy*. Norwegian environmental group Bellona is also concerned about such life-cycle emissions for natural gas: "You only have to have a few percentages of leakage in transport [such as in gas gathering and pipelines] before it comes out exactly the same as coal fired power plants, which are 30 years old," asserted Hallstein Havag, Bellona's director of policy and research.

Investors concerned with environmental risks also need to look beyond potential carbon emissions embedded in company resources and reserves, Caldecott added. "There are clearly other sustainability and pollution issues able to generate material financial risks that can strand assets. That's not to say embedded emissions aren't important, but other issues also need to be considered." Concerns like this, about the sustainability and environmental impact of Shell's Alaska plans, have made it a target for environmental campaigners (NE Nov.6'14). Having started with a Greenpeace campaign, the criticism faced by Shell over its Arctic drilling campaign "will build and build" suggests top UK environmentalist Jonathon Porritt. But because Shell is now gaining access to other, attractive deepwater prospects on BG's books, including in Central America and East Africa, the more challenging and controversial Arctic need not be such a high priority for Shell in the future.

Ronan Kavanagh London, and Philippe Roos, Strasbourg

Solar PV Business Climbs Back On Its Feet

After three years of losses, the solar photovoltaic (PV) manufacturing industry is profitable again. It no longer needs to worry much about growing its market, with demand expected to keep mounting — reaching 50-70 gigawatts in 2018, up from some 47 GW last year, according to the European Photovoltaic Industry Association. However, profits are less comfortable than before the 2011-12 overcapacity crisis as solar modules have become a "commoditized," low-margin business. Even with "reasonably stable" module prices and raw materials costs, along with full utilization of manufacturing capacities, "we do not envision particularly robust profitability" in the upstream segment, brokerage Raymond James' Pavel Molchanov wrote in a recent report. To counteract that trend, downstream integration has become the industry motto.

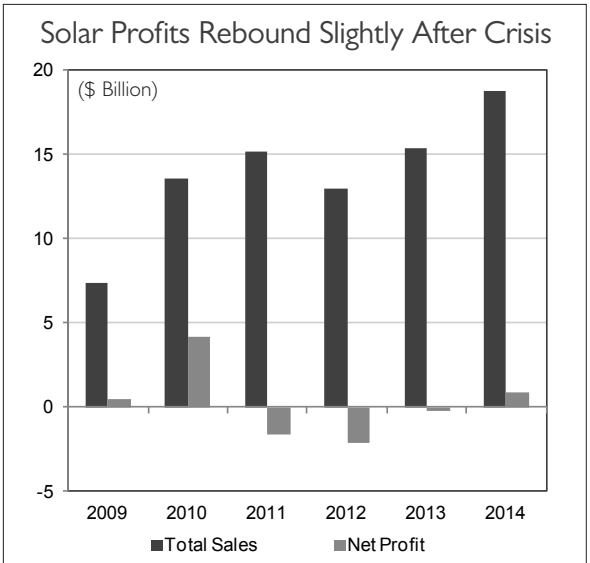


Combined sales in gigawatts and $ billion and average module sale price in $ per watt over 2009-15 for the following solar photovoltaic manufacturers, totaling 41% of the world market in 2014: Trina, Yingli, Canadian Solar, Jinko, JA Solar, ReneSola, First Solar, SunPower. 2015 estimates. *Source: Companies, Energy Intelligence*

New business models focused on project development have emerged, allowing PV companies to incorporate value-added services such as engineering, procurement and construction (EPC) in their offerings. US manufacturer First Solar already extracts over 90% of its revenue from its "systems" segment, which — instead of just solar panels — provides complete turnkey systems including project development, EPC services, plant management services and project finance expertise. Similarly, French oil major Total's subsidiary SunPower, besides large plants such as the ongoing Solar Star twin projects in California totaling 580 megawatts, is active in the US rooftop market with over 100,000 residential customers. SunPower has also made a number of recent supporting investments — for example in Sunverge, a residential battery storage company, and Tendril, an energy information and management software company.

Last year, global leaders Trina Solar in the UK and Yingli Green Energy of China each shipped around 300 MW, or 8%-9% of their total module output, to their own projects. Yingli currently has a pipeline of over 1.6 GW of projects at different approval stages in a dozen Chinese provinces, while Trina expects to commission some 700 MW-750 MW across the world in 2015, including 30%-40% of distributed generation projects for industrial and commercial customers in China. Once completed, Chinese companies typically sell overseas projects to investors at a better profit than the equivalent sale of solar panels. Trina, for example, sold 24 MW of projects late last year to the Foresight Group, an independent London-based investment manager, and just completed the sale of a brand new 50 MW plant to the Bluefield Solar Income Fund, another independent investment company, for $88 million or $1,760 per kilowatt.

Canadian Solar, another Chinese manufacturer, is aggressively managing its global pipeline of projects, including recent purchases it made in Japan and the UK, two very active PV markets at the moment, as well as an acquisition last month from Japan's Sharp of Recurrent Energy, a US solar developer.



Combined sales and net profit in $ billion over 2009-14 for the following solar photovoltaic manufacturers: Trina, Yingli, Canadian Solar, Jinko, JA Solar, ReneSola, First Solar, SunPower. The sector came out of crisis in 2013 with fast-growing sales but limited profits. *Source: Companies, Energy Intelligence*

Recurrent has 1 GW of late-stage projects located in California and Texas representing a revenue potential of some $2.3 billion over the next 2-3 years under the company's "build and sell" business model, Canadian Solar emphasized.

Instead of selling projects, it is increasingly popular for manufacturers to place them in a "yieldco" where they can float operational assets to investors looking for stable returns without the risks associated with volatile policies and getting projects up and running (NE Jul.3'14). Yieldcos contain projects with predictable cash flows, usually from power purchase agreements or feed-in tariff schemes (NE Apr.17'14). They typically offer investors good growth prospects and higher returns than bond markets, while lowering the cost of capital for parent companies because operational power plants with long term contracts are less risky than plants in development while being unexposed to the volatility of module markets — in a similar way contracted LNG assets are less risky for oil and gas companies than projects in development and spot oil and gas markets. Canadian Solar plans to launch a yieldco later this year, while First Solar and SunPower are in advanced negotiations to form a joint yieldco.

Average module selling prices were down 5% in 2014 at 60¢ per watt, down from 64¢/W in 2013, a much smaller decrease than the previous four years during which prices fell by a cumulated 65%, down from $1.76/W in 2009. However, module prices are expected to decrease much further as markets continue to grow and manufacturing efficiency improves — by up to 50% in the next 20 years according the International Energy Agency's recent PV technology roadmap to 2050.

Philippe Roos, Strasbourg

Mexico Turns Focus to Carbon Curbs, Renewables

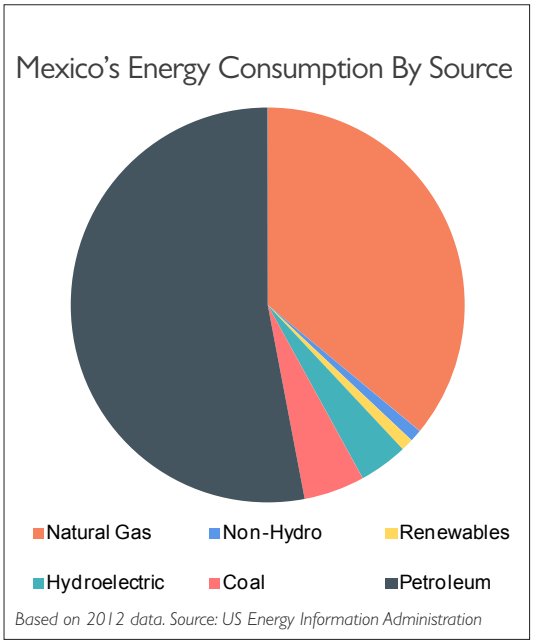
Over a year after Mexico passed historic constitutional reforms liberalizing its energy sector, efforts to encourage use of renewables and curb greenhouse gases (GHG) have stalled as the government has focused its attention squarely on its first oil and gas bid round. Yet with the auction launched in December and now well under way, there are signs that the government is beginning to move on its green energy plans as well. A major energy transition law is working its way through the legislature, and Mexico recently became the first developing country to introduce its pledge ahead of landmark global climate talks in Paris later this year.

In late March the government pledged to slash its GHGs no matter what, while vowing to up its game if other global emitters come to the table. The government will unconditionally aim to reduce the country's GHGs and short-lived climate pollutants by 25% below baseline or "business as usual" levels by 2030. This would involve cutting Mexico's GHG emissions by 22% from its baseline scenario while cutting black carbon — the highly light-absorbing component of particulate matter — by 51% over the period. The government also says it could reduce total emissions by up to 40% below baseline levels in the presence of a global climate deal. The move made Mexico the first fairly large developing country to present an Intended Nationally Determined Contribution (INDC) under the UN Framework Convention on Climate Change ahead of the Paris conference. However, because the targets are measured against Mexico's baseline projections, they will not actually reduce Mexico's emissions below today's levels. Instead, under the unconditional plan, combined direct emissions of GHGs and black carbon in 2030 would still total 829 million metric tons of carbon dioxide equivalent — about 6% higher than the 781 million metric tons of CO2e produced in 2013. Yet, without action under its INDC pledge, the government predicts emissions would surpass 1.1 billion metric tons of CO2e over that time frame.

Mexico's pledge reflects a common thread among developing countries when it comes to GHG policy, based on the argument that their emissions will need to increase as their economies continue to grow. Under that view, economically developed historical emitters will be the ones that need to shoulder the burden for reducing their emissions below current levels. Climate negotiators will be closely watching the release of INDCs from other developing countries, including Brazil, India and China. So far, only seven governments have formally submitted INDCs: Switzerland, the EU, the US, Norway, Gabon and Russia, in addition to Mexico.

Mexican officials did not provide specifics about how they would meet their emission goals, instead presenting targeted reductions by sector. For example, combined emissions of GHGs and

black carbon would fall 31% from baseline levels both in power generation and in the residential and commercial sector. The plan also envisions a 28% decline from the baseline in waste, and a 27% drop for transport. The government also promises to work on a reforestation program aimed at ending net deforestation by 2030. In doing so, Mexico claims, it would remove 11 million metric tons of CO2e from the atmosphere — compared to the 36 million metric tons of CO2e of net emissions that would otherwise be expected.



Based on 2012 data. Source: US Energy Information Administration

Meanwhile, Mexican legislators appear to be nearing passage of a new energy transition law that would provide an impulse to adopt renewable power in the electricity sector. A version of the law approved in December by the Chamber of Deputies, Mexico's lower legislative house, would require at least 25% of power generation to come from green sources in 2018. That percentage would then rise to 30% in 2021 and eventually to 60% by 2050. The law would require the energy ministry and the National Commission for the Efficient Use of Energy to set a "road map" to meet those goals within 260 working days following the law's approval. The energy reform had called for Congress to approve the transition measure — often called the "green package" — by Dec. 20 of last year (NE Jun.5'14). Despite that deadline, the legislation remains under discussion in the Senate. However, pressure from environmental groups to pass the law is growing, and some key senators are pushing for the upper house to vote on the measure before the Senate's current ordinary session ends on Apr. 30.

Mexico's government is also advancing — albeit slowly — with the launch of clean-energy certificates, a concept introduced last year in a new electricity law that followed from the 2013 energy reform. As part of an effort to encourage renewable power, Mexican electricity regulator CRE will issue the certificates to power generators in accordance with the amount of electricity they generate from green sources. Large electricity users, in turn, must purchase a volume of certificates equivalent to a government-set percentage of their power consumption. On Mar. 31, the energy ministry published a regulation that would require such users to acquire clean-energy certificates equivalent to 5% of their electricity consumption beginning in 2018.

Jason Fargo, New York

Exelon Deal: A Case of Nuclear vs. Renewables

US utility giant Exelon is seeking to buy out Pepco Holdings, which provides power to states in the US mid-Atlantic, in a proposed merger that would create the largest utility in the US. But the deal is being gridlocked by critics who say it would hurt renewable energy development and kill power market competition. If approved, the merger would hook the region up to Exelon's mostly nuclear power generation, which Pepco would start distributing — making it challenging for nascent renewable energy to squeeze in and gain market share.

Chicago-based Exelon proposed the acquisition in April of last year, and it has been approved by the Federal Energy Regulatory Commission (Ferc) but the company is now seeking approvals from state governments. Exelon had acquired Baltimore Gas & Electric about three years ago without much controversy, so many expected this deal would be similarly smooth. In fact, the deal with Pepco Holdings, which services Washington DC, Maryland, Virginia, Delaware and New Jersey, has been approved by the latter three states, as well as settled with Montgomery and Prince George's Counties in Maryland.

The opposition extends all the way up to Maryland's Attorney General Brian Frosh, who filed a brief with the state's utility regulators stating that the merger would "harm Maryland customers, offers no tangible, incremental benefits of sufficiently meaningful value, and is not in the public interest." He also claims that the deal could stymie the growth of renewables and distributed energy in the area. He has recent history to back him up — Exelon doesn't have a pristine record in renewable energy. In Illinois, Exelon, complaining that competition from other energy sources was making its nuclear plants uneconomic, threatened to shut down three of its nuclear power plants when legislators attempted to update the state's Renewable Portfolio Standard, which would lend support to renewable energy projects. The strategy worked — the legislation stalled, as did other energy legislation. Exelon was able to do this through its considerable clout as a power provider to a big majority, 70%, of the Illinois population through its delivery company, ComEd. Critics are afraid that could happen in the mid-Atlantic: If the merger goes through, Exelon would have control over 80% of the mid-Atlantic power market.

Exelon has also been very vocal against the federal wind production tax credit — which, as it desired, has elapsed — to the extent that it was kicked out of the American Wind Energy Association in 2012. Opponents also point out Exelon's opposition to net metering and distributed generation, which has led the solar community in Maryland and Washington, DC, to be up in arms over the merger. Pepco, in contrast, has supported net metering in the past (NE Jan.15'15). "There's a concern that this merger would make Exelon the main player in the PJM grid," which stretches from Chicago to Virginia, and give Exelon unprecedented influence over the grid rules, which are set by the utilities, said Anya Schoolman, president of DC Solar United Neighborhoods.

If the deal doesn't go through, it would be a strong blow to Exelon. The company, which is the largest nuclear operator in the US with 23 reactors, has struggled to balance the costs of its aging reactors with competing costs from renewables and natural gas. To sweeten the deal, Exelon bumped up offers of Maryland ratepayer refunds from $40 million to $94.4 million, and DC ratepayer refunds from $14 million to $33.8 million, and added a $50 million "green sustainability fund" to make loans to solar and energy storage developers in Maryland. It's not clear if any price will be right, however. Tim Judson of the anti-nuclear advocacy group Nuclear Information and Resource Service called those offers a "pittance compared with the risk and cost to ratepayers." The case is being reviewed by the Maryland Public Service Commission, and it remains to be seen whether they agree.

Rosa Lin, Washington

Thailand Eyes Renewables to Ease Natural Gas Dependence

Thailand's government is taking steps to trim its reliance on natural gas for power generation in favor of alternative energy sources, including renewables and clean coal. After a two-year delay due to political chaos and public debate, the Ministry of Energy has unveiled the country's new 20-year Power Development Plan (PDP), which seeks to cut the market share of natural gas to 40% of total power demand by 2036. Natural gas reliance is viewed as a problem because its own domestic reserves, including substantial amounts extracted since the 1980s from the Gulf of Thailand, are dwindling, placing Thailand's energy security at risk. Another consideration is retail prices, which can be brought down if Thailand lessens its imports and relies mostly on cheaper priced local reserves. Under the PDP plan, clean coal will replace lignite as a fuel source and meet 25% of power consumption, up from 21% at present. Renewable energy will rise from 5% to 20%, and the balance will come from imported power and long-awaited nuclear power. The government will work to achieve those targets by setting attractive buying rates through the issuance of licenses for new renewable energy projects.

It is clear that the private sector will spearhead new investment in renewable energy power plants, rather than government entities. With a clear government target now in place, a sizable list of private investors, mostly local companies using imported technologies, have announced plans to engage in power development projects. Indeed, private investors have in the past been so enthusiastic that the authorities are now talking to companies with projects in the pipeline about delaying start-up schedules, since demand is not likely to meet previously expected targets. The new PDP assumes an average GDP growth rate of 3.9%, down from an earlier 4.5% estimate — although it was actually subsidies, not economic forecasts, offered by the government that had made the investments attractive. The government has since changed to a fixed tariff system based on the type of feedstock. Wind power is rewarded at the highest rate, but biomass plants using crop waste are the main target of regulators because farmers would benefit.

For industrial-sized solar plants that could together add 3,000 MW of power, the government is now working on the bidding specification process, while approvals for domestic-scale installations are now automatic. Ministry of Energy Permanent Secretary Areepong Bhoocha-oom said that licenses for up to 12,000 MW of renewable energy will be issued over the plan's duration and he urged private investors to participate. Since the military took over state administration in May 2014, it has through the Ministry of Energy subsidized 86 renewable projects that will generate a combined 280 MW of power.

Thailand's long history with independent power production has ensured that electricity supply to both industrial and retail consumers has never been put at risk. The country has more than a 30% power reserve, according to the state Electricity Generating Authority (EGAT), with peak demand of 27,050 MW compared to current capacity of 34,700 MW. Still, this has not stopped energy needs from topping the government agenda. Currently, EGAT generates 45% of capacity but exercises full control over the national grid, with private sector plants accounting for a greater 48% of the total and imported power the remaining 7%. But it is natural gas that feeds almost all the private sector plants and about a

half of state power, accounting for 66% of total power needs, says the ministry's Policy and Planning Office in its latest reports. This share has, however, fallen from a peak of 72% in 2010.

Gary van Zuylen, Bangkok

Germany Runs Into More Trouble Due to Coal, Gas Reliance

Record losses at German utility E.On have highlighted the near-impossible job of profitably running coal, lignite and especially natural gas-fired power stations in Northwest Europe. Both E.On and its peer, RWE, have recently recorded major losses and are blaming fossil fuel power generation because fuel and operating costs outstrip wholesale sale prices already dampened by renewables. To address this problem, utilities are taking steps to exit conventional power generation, although Germany's environmental targets could erode interest in such assets. No help is expected from the government in the form of capacity payments, a mechanism used in the UK that pays generators to keep baseload capacity operational in case renewables fail to produce enough electricity. German Chancellor Angela Merkel and Economic Affairs and Energy Minister Sigmar Gabriel oppose such measures because Germany is suffering from chronic overcapacity — until recently there was no ceiling on renewables, so growth was unchecked.

E.On already announced late last year it was exiting the traditional generation business, while RWE Chief Executive Peter Terium said the economic conditions facing coal- and gas-fired power stations are "extremely grave" and "got worse rather than better" over the year (WGI Dec.3'14). Terium predicts RWE will make an operating loss in the "not too distant future" if wholesale electricity prices remain around current levels of €32 ($34) per megawatt hour. Analysts suggest they will. Terium said that up to 45% of RWE's conventional power station fleet in Northwest Europe is losing money. "I'm not talking about book values: these power stations are costing us real money," he said. Terium says to keep loss-making power stations operational, Germany must offer generators some form of additional revenue stream.

One of Germany's four largest power producers, Vattenfall Europe, part of Sweden's Vattenfall, is following Germany's drift toward renewables. In an effort to slash group carbon dioxide emissions from its generation fleet, Vattenfall announced last autumn its wish to sell lignite-fired power stations and mines in Germany. It said the sale, potentially worth €3 billion ($3.3 billion), was the only way of reaching its goal of slashing emissions to 65 million tons per year by 2020 from 82.3 million tons in 2014. But Vattenfall has yet to find a buyer, with its sales plans complicated by German moves to crack down on dirty power plants to ensure national emissions targets are met. The assets up for sale are all in eastern Germany. Possible buyers of the Vattenfall assets, which include EPH and CEZ of the Czech Republic and German utility Steag, are watching developments closely. EPH says that although it is interested in Vattenfall's lignite division, "we need clear statements from the politicians regarding [the] future of lignite in Germany." With some industry players fearing Gabriel's plans could doom the sale, Vattenfall tells *EI New Energy* it would be wrong to impose a national penalty on lignite and coal-fired generation, arguing that the EU's Emission Trading System "is the instrument of choice for effective climate protection. Double regulation through national law only leads to emissions increases in the rest of Europe in connection with a loss of German value creation, jobs and tax revenue." German utility giant RWE, a big user of lignite for power generation, predicts that "the proposals will introduce a total exit from lignite in the short run. Not only power plants, but also the associated open-cast mines and operations, would need to be closed down. Restructuring costs for the companies affected would run into the billions."

Interest in the lignite assets could be dampened if the German government makes good on pledges to squeeze out a further 22 million tons/yr of carbon emissions savings from the power sector. A white paper released in late March proposed making the country's oldest and most inefficient coal and lignite power stations pay a "climate protection fee." The intention is to force the dirty units to close, reducing emissions and tackling Germany's massive problems with overcapacity, stemming largely from the renewables boom. The anti-lignite drive is being led by environmentalists, who say Germany will miss nationally set targets for cuts in greenhouse gases unless roughly two-thirds of proven lignite reserves are kept in the ground.

Gas-fired generation remains way down the merit order in most of Northwest Europe, except in the UK where gas is dominant, with coal and lignite much cheaper than either pipeline gas or LNG. Gas and coal prices have dropped considerably in the last year, making little difference for the dominance of coal over gas. For gas to regain competitiveness, gas prices would need to fall further, with coal and carbon prices spiking sharply. Analysts are not expecting that to happen, especially with weak Asian coal demand putting downward pressure on global prices.

Jay Eden, London

IN BRIEF

India Gets Bold on Climate Stance

At a gathering in Berlin this week, Indian Prime Minister Narendra Modi slammed historically emitting, developed countries and asserted that New Delhi will set the agenda at climate talks in Paris later this year. Modi criticized the Western world, which he characterized as having destroyed nature, for dictating that India cut its carbon emissions even though the South Asian nation's emissions are among the lowest in the world — a reference to India's per-capita carbon footprint, which is far lower than in China or developed countries. India has maintained that since its economy needs to expand to pull millions out of poverty, its carbon footprint will need to increase. Modi touted India's ambitious 175 GW renewable energy capacity target by 2022 to demonstrate India's commitment to fight global warming (NE Feb.19'15). Earlier on Apr. 6, at a conference in New Delhi, Modi lamented that India's culture of respecting and loving nature has not been sufficiently communicated in the global arena and that the country is sometimes perceived as a barrier in climate efforts.

US Biofuel Targets Get Deadline

The US Environmental Protection Agency (EPA) has agreed to a deadline for setting long-overdue biofuel blending obligations under the Renewable Fuel Standard (RFS) through a settlement with two oil industry trade groups, the American Petroleum Institute and American Fuel & Petrochemical Manufacturers. Oil refiners are the compliant parties under the RFS, and both the oil industry and corn ethanol lobbies have lamented about the EPA's delay, arguing that it has created uncertainty for their industries. The EPA agreed to issue the proposed RFS requirements for this year by Jun. 1, 2015 and will finalize the 2014 and 2015 RFS requirements by Nov. 30, 2015. It also agreed to release the proposed 2016 RFS requirements by Jun. 1, with the 2016 obligations finalized by Nov. 30. By law, the EPA is required to finalize annual RFS requirements for blending ethanol into gasoline and diesel by Nov. 30 of the preceding year, but EPA issued the 2013 requirements eight months late and has not issued the 2014 or 2015 requirements yet — in large part due to controversy over the required blending volumes (NE Nov.27'14).

France Eyes 100% Renewables

France could feasibly move to 100% renewable energy in its power mix, and doing so would cost roughly the same as the country's current target of 50% nuclear, 40% renewables and 10% fossil fuels, French energy conservation agency Ademe found in a new leaked report. The document was supposed to be presented at a conference next week, but Ademe is holding it several more months because it needs additional work. Leaked copies — one of which was obtained by Energy Intelligence's *Nuclear Intelligence Weekly* — show a nearly finalized report, lacking only an executive summary and annexes. The report concludes that 100% renewable power generation — with 63% wind, 17% solar and 13% hydropower — would cost €119 per megawatt hour ($128). This is 31% more expensive than today's €91/MWh ($98/MWh), but almost identical to the government's planned 50% nuclear scenario, at €117/MWh ($126/MWh), given that considerable new nuclear capacity would need to be constructed to meet that goal.

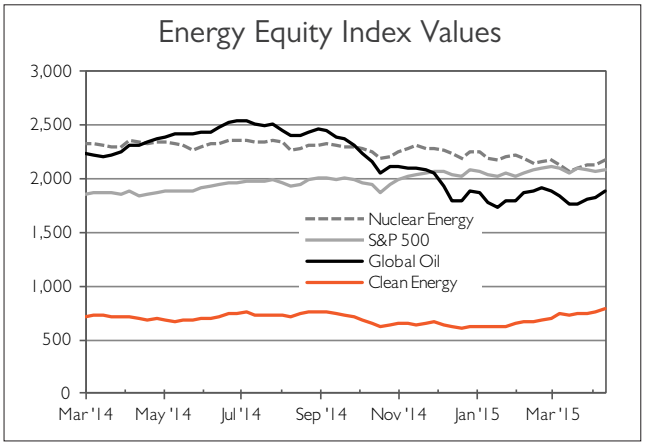
EU Biofuel Reforms Edge Forward

The EU moved a step closer this week to an agreement in long-running efforts to reform biofuel policy — capping the use of first generation biofuels made from food crop sources at 7% of final energy consumption in transport by 2020, under a current 10% renewable transport energy target. Parliament's environment committee backed a compromise proposed by member states in the EU Council, setting the 7% cap. This compromise did not however include a proposed 0.5% target for advanced biofuels that had previously been discussed. Ethanol industry body ePure complains this "undermines" a core objective of the reform, which was to encourage better biofuels in terms of life-cycle emissions. This threatens to leave the advanced biofuels industry stuck at the starting gate in Europe (NE Mar.5'15). Nonetheless, while ePure described the compromise as a disappointing result, it also said a prospective deal may go some way to restoring much needed policy certainty for the biofuels industry.

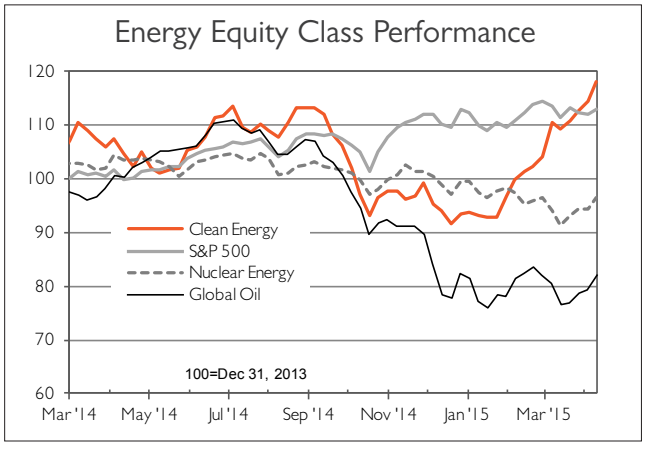
UK Elections May Impact Wind

If the UK's Conservative Party — now part of a ruling coalition with the Liberal Democrat Party — wins a general election next month, it has pledged to withdraw support for all new onshore wind farms and give local councils the right to decide whether projects are built. In an election manifesto issued last week, Prime Minister David Cameron, who is part of the Conservative Party, said he would "halt the spread of onshore wind farms" because they often "fail to win public support" and are "unable by themselves to provide the firm capacity that an energy system requires." Cameron offered strong support for new nuclear power stations and gas-fired generation, potentially fueled by indigenous shale gas. In 2014, onshore wind accounted for 29% of the UK's renewable electricity generation, second to biomass, with an average load factor recorded at 26.5% in 2014, compared with 37% for offshore wind.

CLEAN ENERGY EQUITY MARKETS



Source: Standard & Poor's



Source: Standard & Poor's

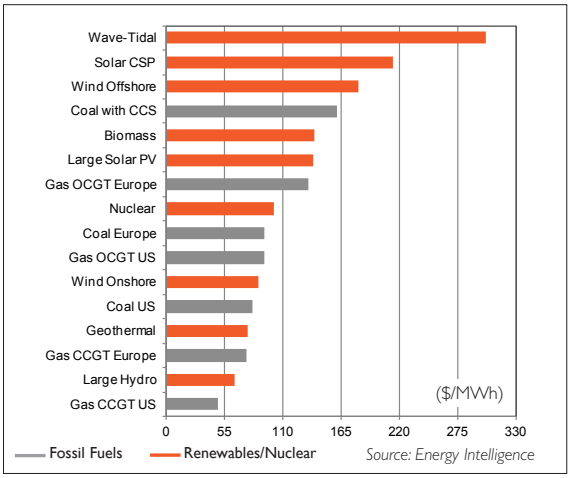
EI NEW ENERGY DATA

Energy Futures: Reference Prices

Carbon (€/ton)	Apr 14	Apr 7	Chg.
ECX EUA	6.80	7.11	-0.31
ECX CER	0.52	0.45	+0.07
Crude oil ($/bbl)			
Nymex light, sweet	53.29	53.98	-0.69
ICE Brent	58.43	59.10	-0.67
Natural gas ($/MMBtu)			
Nymex Henry Hub	2.53	2.68	-0.15
ICE UK NBP	6.74	6.81	-0.07
Coal ($/ton)			
Nymex Capp*	49.70	51.20	-1.50
ICE Rotterdam	59.50	57.65	+1.85

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*

Newbuild Power Generation Costs



Global Electricity Prices

Europe ($/MWh)	Apr 14	Apr 7	Chg.
Germany (EEX)	34.69	45.39	-10.70
France (Powernext)	49.24	58.99	-9.75
Scandinavia (Nordpool)	27.52	27.86	-0.34
UK (APX)	62.43	66.62	-4.19
Italy (GME)	51.68	50.45	+1.23
Spain (Omel)	52.14	44.84	+7.30
North America			
New England	29.13	56.13	-27.00
Texas (Ercot)	32.49	19.03	+13.47
US Mid-Atlantic (PJM West)	31.96	33.68	-1.71
US Southwest (Palo Verde)	22.00	22.75	-0.75
Canada (Ontario)	20.95	10.15	+10.80
Other			
Australia (NSW)	48.39	35.00	+13.38
Brazil (SE-CW)	126.86	124.21	+2.64
India (IEX)	33.67	53.63	-19.97
Japan (JPEX)	98.82	107.39	-8.57
Russia (ATS)	21.40	20.57	+0.83
Singapore (USEP)	67.94	71.89	-3.95

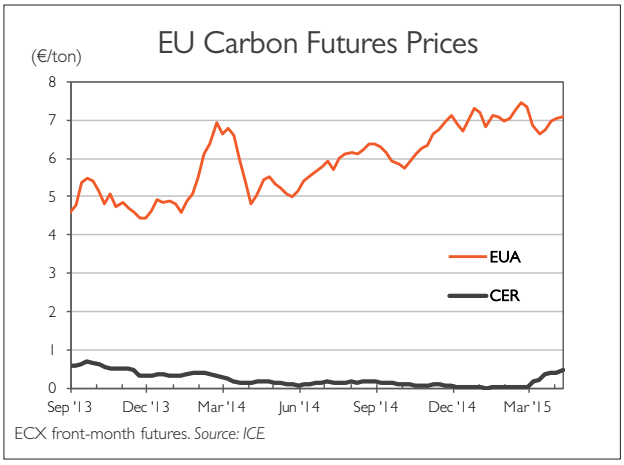
Wholesale prices. *Source: Exchanges*

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)	Apr 14	Apr 7	Chg.
EUA Dec '15	6.84	7.15	-0.31
CER Dec '15	0.52	0.45	+0.07
US ($/ton)			
CCA (Calif.) Dec '15	12.70	12.66	+0.04
RGGI (Northeast) Dec '15*	5.54	5.44	+0.10
New Zealand (NZ$/ton)			
NZU (spot)	6.45	6.50	-0.05

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



ECX front-month futures. *Source: ICE*

Key Biofuel Prices

US ($/gallon)	Apr 14	Apr 7	Chg.
Futures			
CBOT Ethanol	1.5630	1.6090	-0.0460
RBOB Gasoline	1.8360	1.8609	-0.0249
Spot market			
Ethanol Midcont.	1.55	1.55	0.00
Ethanol NY Harbor	1.63	1.64	-0.01
Ethanol US Gulf	1.64	1.64	0.00
Europe ($/ton)			
Futures			
ICE Gasoil	545.75	540.50	+5.25
Spot market			
Gasoline	614.00	612.00	+2.00
Diesel	551.75	543.00	+8.75
Biodiesel			
Fame 0	808.25	815.50	-7.25
RME	813.25	818.00	-4.75
SME	808.25	818.00	-9.75
PME	808.25	800.50	+7.75

Source: Thomson Reuters, ICAP, Exchanges

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