Bloomberg BRIEF

Clean Energy & Carbon

NEWS, ANALYSIS AND COMMENTARY FROM BLOOMBERG NEW ENERGY FINANCE.
NOW COVERING GREEN BONDS.

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CLEAN ENERGY & CARBON WATCH

SOLAR. Global Business Resources USA LLC, a U.S.-based infrastructure-finance company, plans to develop two 50-megawatt photovoltaic plants in Nigeria. Page 5

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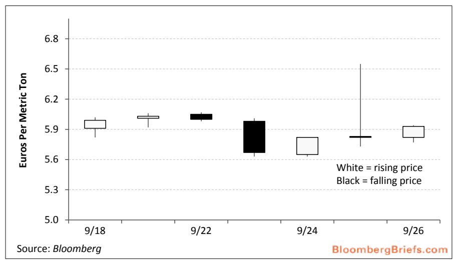
VIP COMMENT. This year may see a record $37 billion of green bonds issued. BNEF looks at whether they are actually driving new funding into sustainable solutions. Page 9

EU CARBON MAY END THE WEEK AS LOW AS 5.90 EUROS. Narrow generation spreads will limit utility hedging demand, according to Bloomberg New Energy Finance. Page 8

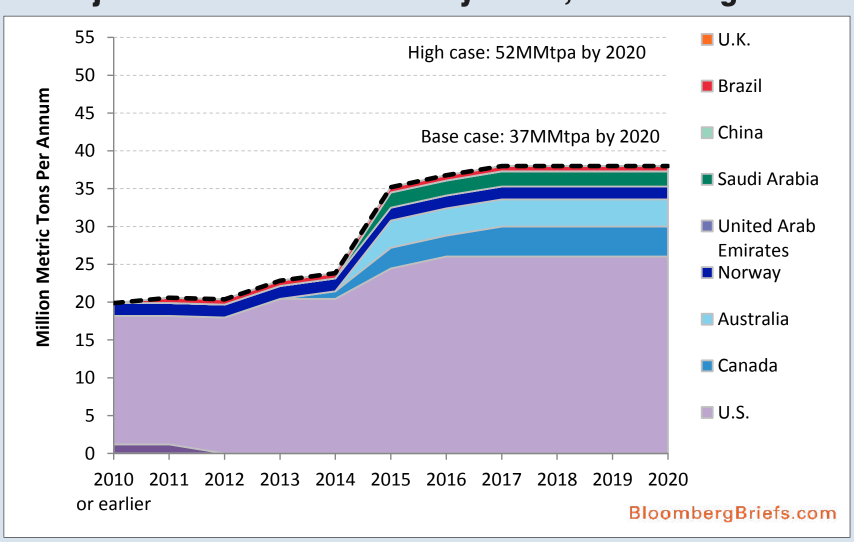
EU CARBON PRICE PER METRIC TON



MARKETS

	PRICE	WEEK CHANGE
Spot Polysilicon Avg. ($/kg)	20.73	-0.86%
Corn ($/Bushel)	2.95	-5.14%
Palm (MYR/ton)	2185	2.39%
Front Month Brent ($/bbl)	97	-1.41%
2015 ARA Coal ($/t)	75.2	-1.64%
Win 14/15 UK NBP (p/th)	58.7	-1.72%
2015 DE base (€/MWh)	34.8	-0.43%

U.S.'s Global Share of CCS Projects May Drop From 86% of All Injected CO2 to 61-68% by 2020, According to BNEF



Source: Bloomberg New Energy Finance

Australia is set to increase its global share of CCS projects to 13 percent of total stored CO2. By 2020, Canada may be injecting 8 percent of total CO2 stored globally. See Insight on Page 11

MSCI Minus Fossil 'Shows Higher Returns'

BY VANDANA GOMBAR,
BLOOMBERG NEW ENERGY FINANCE

What would the performance of the MSCI World Index look like if fossil fuels were excluded from the Index? That exercise was carried out by **Impax Asset Management**, a firm that focuses on opportunities in the resource efficiency and environmental markets. The fossil-fuel-free portfolio – arrived at by excluding the MSCI World Energy Sector which comprised 118 stocks on April 30, 2014 – yielded higher returns over a six year period from April 2008 to April 2014.

"What we are trying to say is that investors shouldn't automatically assume that reducing fossil fuel holdings raises the risk of underperformance," said CEO **Ian Simm**.

Divesting completely from fossil fuels is not practical. A white paper by Bloomberg New Energy Finance estimated that oil, gas and coal accounted for nearly $5 trillion of current stock market values.

Simm makes a case for a reduction in some holdings in favor of high growth opportunities in the efficiency and renewables space. Impax has $4.7 billion under management.

Q: What is the genesis of the chart showing the superior performance of MSCI World Index minus fossil fuels?

A: We wanted to investigate whether the absence of fossil fuel stocks had a material impact on the performance of the equity stock market index. The reason we chose six years is because that ties perfectly to the date when FTSE established the Environmental Opportunities Index series. We are not concluding that taking fossil fuels out always leads to outperformance. Over that six-year period it does, and, over some other time periods, it also does, but we can find longer time periods when it doesn't. What we are trying to say is that investors shouldn't automatically assume that reducing fossil fuel holdings raises the risk of underperformance.

MSCI MINUS FOSSIL 'SHOWS HIGHER RETURNS'...

Q: If the larger swathe of investors were to agree to reduce fossil fuel holdings, would the same results hold true?

A: If there is material selling pressure on fossil fuel stocks, their prices will go down at least in the short term. We don't think it is practical for large institutions to divest wholesale from fossil fuel stocks because they are such a material part of the overall index. In our view, investors should ascribe a higher risk premium to fossil fuel assets and therefore consider reducing their holdings, paving the way for a readjustment of portfolios in favor of lower-carbon energy.

Q: Where should exposure be reduced?

A: Investors should really be paying more attention to the profile of the fossil fuel assets in their underlying holdings, by asking management teams to give them an indication about the impact of rising carbon prices. It is a way of flushing out how exposed they are to high marginal cost of production. That information can be gathered by direct interrogation but I think in the longer term, it is incumbent on stock exchanges and regulators to require companies that own these fossil assets to disclose the sensitivity of their assets to this sort of risk. You would naturally be inclined to avoid holdings in, for example, Canadian tar sands or deep water oil assets off the coast of Brazil or in the Arctic Ocean where marginal costs of production are likely to be much higher.

Q: We have seen some investors blacklist coal. Does Impax have a blacklist?

A: It is unhelpful to talk about blacklists. We need to distinguish between thermal coal for power generation and coal as used in steel manufacturing – for the latter there are no viable alternatives. I think it is more constructive to encourage the market to seek out more information so that investors can make decisions along a spectrum rather than categorize coal companies into good ones and bad ones.

Q: Which renewable energy sectors offer the best investment opportunities?

A: We invest in renewables through two channels. Our private equity funds focus on onshore wind and solar PV because we see these as being proven technologies supported by well capitalized equipment suppliers and with robust economics. We have invested in these two areas throughout Europe and are keen to invest in North America in the future. In our listed equity portfolio, we have also had holdings, from time to time, in companies involved in hydro power, geothermal energy and biofuels.

Q: Do you see the mix of sectors and regions you invest in being rejigged?

A: There has been far too much adverse regulatory change in recent years. We are concerned that the renewables sector could lose its appeal if energy regulators don't stabilize the frameworks. If frameworks are stabilized, and there are further moves towards putting a price on carbon emissions, and with the falling equipment costs of renewables, the economics should continue to improve.

Q: Are non-subsidized renewables a safer bet?

A: All energy suppliers are keen to milk the system for subsidies if they can get them. We avoid investing in countries with distorted renewable energy subsidies. It is however essential that policy support in non-subsidy form continues to build because, without it, the rules of the new electricity economy are not going to emerge, and that will hold back investment.

Q: Efficiency is one of your preferred sectors for investment. Are there enough investment opportunities in that space?

A: We see opportunities in industrial energy efficiency, buildings, transport and consumer markets. These markets are growing rapidly and we have identified over 300 stocks across these sub-sectors. Several studies indicate many hundreds of billions of untapped energy efficiency investment opportunities. Take lighting substitution. The LED lighting market, from almost nothing 10 years ago, is expected to reach 90 percent penetration by 2020. Some of the most interesting energy efficiency technologies are being provided by the large electrical engineering businesses such as Johnson Controls or ABB. Then there are many smaller specialist companies like Finland's Vacon or Ricardo in the U.K.

AT A GLANCE

What is your value proposition? Impax offers a suite of specialist investment vehicles predominantly to institutional investors, providing access to private and listed equity investments in resource efficiency and environmental markets. We explain to institutional investors that climate change and other environmental issues are important investment risks and suggest that they allocate part of their portfolios to resource efficiency. Over the long term, we can demonstrate positive returns and outperformance that can be achieved by investing in these sectors.

Bloomberg Brief Clean Energy & Carbon

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POLICY, SCIENCE

EU CO2 Shields for Industry Survive Scrutiny in Parliament

A European Union measure listing industries that should be protected from relocating to regions without greenhouse-gas curbs survived a rejection attempt in the European Parliament's environment committee.

Members of the panel voted 34 to 30 with three abstentions to defeat a motion by **Bas Eickhout** of the Greens group to block the measure, known as a carbon-leakage list. The proposed regulation, which had already been approved by representatives of EU nations and was then undergoing scrutiny in the bloc's Parliament, gives 175 industries a bigger share of free carbon permits than other emitters.

"The motion has been defeated," **Giovanni La Via**, the chairman of the environment committee, said Sept. 24 in Brussels after the vote.

The European People's Party, the biggest political group in the EU Parliament, said earlier Sept. 24 it was going to defend the proposed regulation. Eickhout and five other members sponsoring the objection said the list drafted by the European Commission ignores the EU executive's own price assessment.

– Ewa Krukowska and Jonathan Stearns

Kyushu to Halt Grid Access for New Renewable Producers

Kyushu Electric Power Co. will suspend responding to applications from renewable-energy producers applying to access its grid while it reviews how much more clean energy it's capable of handling. The decision doesn't affect agreements already in place.

Imbalances in supply to the grid threaten to cause blackouts, Kyushu Electric said. During the suspension, the utility will study in the next several months how much more renewable electricity capacity it can bear, **Akihiko Shinkai**, the utility's deputy general manager, told reporters in Tokyo Sept. 24.

Under Japan's incentives to develop sources of clean energy, utility operators are required to buy clean energy at terms and prices set by the Ministry of Economy, Trade and Industry. The so-called feed-in tariffs cover purchases of electricity generated from solar, wind, hydro, geothermal and biomass.The incentives, introduced in July 2012, have led to a boom in solar installations across Japan.

Japan had about 42,000 megawatts of installed renewable energy capacity as of the end of 2013, according to Bloomberg New Energy Finance.

After hydro, solar is the biggest source of Japan's clean energy, with almost 15,000 megawatts of capacity.

– Chisaki Watanabe and Emi Urabe

Solar Seen Dominating U.K.'s First Clean Energy Auction

Large-scale solar-power plants will probably dominate the U.K's first auction for so-called contracts-for-difference, according to law firm Dentons. "We suspect that there will be more solar or even only solar bidders in the first auction," **Lucille De Silva**, an energy partner, said Sept. 24 at a conference in its London office.

Photovoltaic projects should prevail initially because competing technologies will be eligible for the alternative renewable obligation system until 2017, a support program that will expire next April for large-scale solar plants. Other advantages for solar parks include that they can be commissioned within a year, quicker than wind, and are more likely to be commissioned on time, De Silva said.

The U.K.'s first competitive auction under a so-called contracts-for-difference program, used to subsidize large-scale renewable generation, is scheduled for next month. Established technologies such as onshore wind and solar power will be able to compete for 50 million pounds ($82 million) of support a year. That's enough to support about 800 megawatts of solar capacity, Bloomberg New Energy Finance estimates.

– Marc Roca

SHARE PRICES OF UTILITY EMITTERS IN EUROPE

COMPANY	9/26/14	9/19/14	WEEKLY CHANGE	% CHANGE
RWE AG	31.47	31.3	0.17	0.54%
EON SE	14.46	14.565	-0.105	-0.72%
Enel SpA	4.19	4.17	0.02	0.48%
EDF SA	25.72	25.45	0.27	1.06%
Public Power Corp SA	10.1	10.92	-0.82	-7.51%
GDF Suez	19.54	19.795	-0.255	-1.29%
CEZ AS	653.5	652.8	0.7	0.11%
Iberdrola SA	5.595	5.616	-0.021	-0.37%
ENI SpA	18.55	19	-0.45	-2.37%
Tauron Polska Energia SA	5.28	5.26	0.02	0.38%
EDP - Energias de Portugal SA	3.404	3.438	-0.034	-0.99%
Drax Group PLC	639.5	644	-4.5	-0.70%

Note: Market price is shown in local currency

SHARE PRICES OF INDUSTRIAL EMITTERS IN EUROPE

COMPANY	9/26/14	9/19/14	WEEKLY CHANGE	% CHANGE
ArcelorMittal	10.995	11.595	-0.6	-5.17%
Total SA	50.73	50.04	0.69	1.38%
Tata Steel Ltd	474.25	511	-36.75	-7.19%
HeidelbergCement AG	52.53	54.83	-2.3	-4.19%
Royal Dutch Shell Plc	30.04	30.58	-0.54	-1.77%
Exxon Mobil Corp	95.43	97.12	-1.69	-1.74%
Lafarge SA	56.64	56.65	-0.01	-0.02%
Italmobiliare SpA	15.3	17.2	-1.9	-11.05%
BP Plc	451.7	473.3	-21.6	-4.56%
Holcim Ltd	69.15	70.5	-1.35	-1.91%
Statoil ASA	174.2	180.7	-6.5	-3.60%
Repsol YPF SA	18.815	19.165	-0.35	-1.83%

POLICY, SCIENCE...

States Not Seen Leaving for California Carbon Market

California and Quebec, which together created the largest carbon market in North America this year, face an uphill battle as they woo northeastern U.S. states to join their system. States including Vermont, which Quebec's premier said is particularly interested in uniting, are members of a Northeast group that has been operating an emissions-trading system since 2008. And they've shown no signs of abandoning that cause, said Kelly Speakes-Backman, chair of the Regional Greenhouse Gas Initiative known as RGGI.

"We've had no discussion of any states leaving RGGI, either to go to California or elsewhere," Speakes-Backman said by telephone from Baltimore. "I don't see it as being realistic, especially as far along as we are. We have a good working relationship."

– Lynn Doan

Canada Vehicle Emissions to Be in Line With U.S. Standards

Canada has announced regulatory initiatives to cut emissions of greenhouses gases and other pollutants from cars and trucks sold and driven in the country, bringing most vehicle pollution standards in line with tougher requirements in the United States by 2025.

In the coming weeks, the government will finalize greenhouse gas emissions regulations for automobiles and light-duty trucks for the 2017 model year and beyond, propose regulatory amendments to align vehicle and fuel emissions standards with U.S. Tier 3 standards, and develop more stringent emissions standards for post-2018 model year heavy-duty vehicles, Environment Minister **Leona Aglukkaq** said Sept. 22.

The Canadian standards, to be introduced in the 2017 model year and increase in stringency until full implementation in the 2025 model year, would reduce smog-forming air pollutant emissions from new vehicles by up to 80 percent from the current standards.

– Bloomberg BNA

Brazil Approves Bond Issuances for Five Wind Projects

Five Brazilian wind farms with a total of 147 megawatts of installed capacity received approval to sell tax-exempt bonds under a government incentive program for infrastructure projects.

The issuance of the infrastructure bonds was authorized by Brazil's Ministry of Mines and Energy, according to the country's official gazette Sept. 23. Terms weren't disclosed.

Four of the projects are in the northeastern state of Piaui. The Ventos de Santo Onofre II and III and the Ventos de Santa Joana VI and XIV wind farms each have 30 megawatts of capacity and are owned by the investment fund Salus, the state-run utility **Centrais Eletricas Brasileiras SA**'s Chesf unit and **Contour Global Ltd**.

The Carnaubas project, with 27.2 megawatts of capacity, is located in Rio Grande do Norte state and is owned by **Voltalia Sao Miguel do Gostoso**.

– Vanessa Dezem

Hong Kong Seeks to Reduce Emissions 50% by 2020

Hong Kong is seeking to reduce its greenhouse gas emissions at least 50 percent by 2020 from 2005 levels, the city's secretary for the environment said.

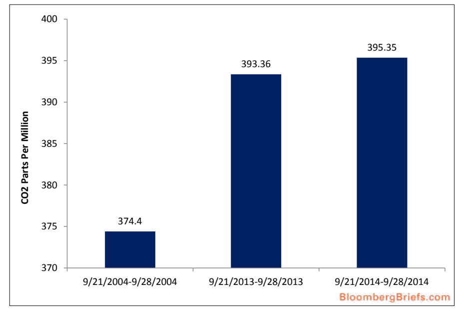
Businesses in the city, which consume about 40 percent of Hong Kong's power, have been offered incentives to construct energy-efficient buildings or to reduce power use in existing structures, **Wong Kam-sing** said Sept. 22 in an interview in New York. Hong Kong also is promoting rooftop solar systems and turning food waste into energy.

"We'd like to improve our livability, particularly air quality, at the same time we further reduce our carbon footprint," Wong said.

– Justin Doom and Ehren Goossens

CO2 in Atmosphere

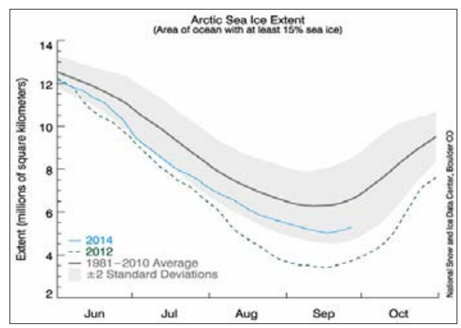
Carbon dioxide concentration levels are increasing at an accelerating rate decade to decade. Scientists say returning to an atmospheric CO2 concentration below 350 parts per million is needed to avoid climate change.



Source: NOAA/ESRL

Arctic Sea Ice

Arctic sea ice reached annual maximum extent on March 21. The 2014 Arctic maximum was fifth lowest in the 1978-2014 record. This graph compares the daily sea ice extent until Sept. 27, 2014 with the 1981 to 2010 average and the 2012 season.



Source: NSIDC

SCIENCE BUZZ

- Abundant supplies of natural gas will do little to reduce U.S. emissions, according to researchers at University of California Irvine, Stanford University and the nonprofit Near Zero. They found that inexpensive gas boosts electricity consumption and hinders expansion of cleaner energy sources.
- A study led by the University of Colorado Boulder found that different strategies used by states to reduce power plant emissions – like emission caps or policies for encouraging renewable energy – are effective.

DEALS

Global Business Resources Plans $106M Nigeria PV Parks

Global Business Resources USA LLC, a U.S.-based infrastructure-finance company, plans to develop two 50-megawatt photovoltaic plants in Nigeria.

The company has submitted a proposal to the country's power ministry to build the parks for $106 million at Kumbotso in Kano State and Karu near Abuja, Nigeria's ministry of information said on its website. The plants would provide electricity for 2.06 U.S. cents a kilowatt hour, it said.

Utility-scale solar plants are planned in more than 20 countries in sub-Saharan Africa as governments seek to meet rising power demand quickly. Companies such as **Sky-Power Ltd.** and **Vergnet Group** have announced projects in Nigeria, where no solar parks operate yet.

Global Business Resources, based in Bridgeport, Connecticut, also offered to map the country's clean energy resources to help advance rural electrification programs, according to the ministry.

– Marc Roca

Masdar Buys Half of Statoil's Stake in U.K. Wind Farm

Masdar Abu Dhabi Future Energy Co. agreed to buy half of **Statoil ASA**'s stake in the 402-megawatt Dudgeon wind project off the coast of eastern England as it steps up its investments in wind power.

The purchase will leave Masdar with a 35 percent stake in the project valued at 525 million pounds ($860 million), the Abu Dhabi government's renewable-energy company said Sept. 24 in an e-mailed statement. Statoil, which will operate the plant, retains a 35 percent stake, and fellow Norwegian company **Statkraft AS** owns the remainder.

Dudgeon is the second offshore wind investment for Masdar in the U.K., where it also owns a 20 percent stake in the 630-megawatt London Array.

For Statoil, Norway's state-controlled oil company, the sale adds to divestments of about $20 billion since 2010 as it reins in spending and focuses on its most profitable projects.

"The United Arab Emirates is committed to accelerating the use of wind energy as an effective means of balancing the global energy mix as we move toward a sustainable, low-carbon future," Masdar Chairman **Sultan Al Jaber** said in the statement.

– Alex Morales

Toshiba Lighting Bets on Solar-Powered India Border Plans

Toshiba Lighting & Technology Corp., a unit of **Toshiba Corp.**, will seek to win defense contracts in India where Prime Minister **Narendra Modi** plans to light up national borders with solar energy.

Toshiba Lighting, along with its local unit, **GreenStar Research and Development India Pvt.**, has been shortlisted in a border-lighting project, Toshiba Lighting Chief Executive Officer **Yoichi Ibi** said in an interview in New Delhi, without giving details of the contract. The Japanese company also expects municipalities and industries to drive its business in India, Ibi said.

Modi has called for building a solar-powered corridor along India's western border with Pakistan as the country prepares to raise its solar target to 15 gigawatts by 2019, more than five times the current capacity. He also has pledged to spend $25 billion on roads, airports, ports and smart cities to unclog Asia's third-largest economy.

– Debjit Chakraborty and Rajesh Kumar Singh

Velocys Rises to Record After Winning Patent Case

Velocys Plc, a company that turns natural gas into liquid fuel, rose to a record in London Sept. 22 after it won a patent case against competitor **CompactGTL Ltd**.

The patent case, filed by Velocys in March 2013, concerns smaller scale Fischer-Tropsch technology used in gas-to-liquids plants, the company said Sept. 22 in a statement. CompactGTL will appeal the High Court judgment, it said separately.

Velocys, part-funded by Russian billionaire **Roman Abramovich**, also said **IR1 Group** unit **Red Rock Biofuels** was awarded a $70 million building grant for a biomass-to-liquids plant in Oregon using the U.K. company's technology.

Velocys and CompactGTL are working on gas-to-liquids plants with a maximum capacity of 15,000 barrels a day, about a 10th the size of the world's largest plant, **Royal Dutch Shell Plc**'s Pearl venture in Qatar.

– Nidaa Bakhsh

BNEF says: Velocys and CompactGTL are using modifications of an existing fossil fuel technology to build small-scale, gas-to-liquids plants. They plan to capture natural gas that is currently flared at stranded gas and oil sites to produce cost competitive fuel. Velocys is also providing technology for two biomass-to-biojet plants – a more complex and potentially more expensive process than using natural gas as a feedstock. The 61 million liter per annum GreenSky biofuels project in London, U.K., backed by British Airways, will turn municipal solid waste into biojet fuel starting in 2016. The 63 million liter per annum Red Rock Biofuel plant, which has just received a $70 million grant from the U.S. Department of Defense, will turn forestry residue to biojet fuel.

DEALS...

Phoenix Solar to Build 32 MW Plant for Duke Energy

Phoenix Solar AG agreed to build a 32-megawatt photovoltaic power plant for **Duke Energy Corp.**, which is seeking to add 300 megawatts of generating capacity.

Construction on the Fayetteville, North Carolina project will begin in early 2015 on 300 acres of farmland, Sulzemoos, Germany-based Phoenix said Sept. 25 in a statement. It will supply power to Duke customers in the state.

Duke, the largest U.S. utility owner by market value, said it would spend $500 million to build three solar farms in North Carolina and to buy power from five more in the state. The Fayetteville project is part of a 300-megawatt request for proposals Duke issued in February.

– Christopher Martin

NexSteppe Getting $22M to Develop Biofuel Feedstock

NexSteppe Inc., a closely held biofuels company, received $22 million in funding to develop crops that can be used as feedstock.

Total Energy Ventures and **ELFH Holding GmbH** joined existing investors including **Braemar Energy Ventures** and **DuPont Ventures** in the Series C funding round, South San Francisco, California-based NexSteppe said Sept. 23 in a statement.

NexSteppe's crops can be used in biomass boilers and anaerobic digesters to produce energy, or refined into components for chemicals and plastics, according to the statement.

Braemar led a $14 million funding round for NexSteppe in 2011.

– Justin Doom

EDF Energy Agrees to Buy Power From U.K.'s Tidal Energy

Tidal Energy Ltd., a U.K.-based maker of turbines that generate power from the tides, Sept. 25 said **EDF Energy Plc** agreed to buy electricity from a machine it plans to install off the coast of Wales.

EDF will buy power and renewable certificates from the device at a set price for its first year of operation, TEL said in an e-mailed statement. That means TEL will receive revenue from the electricity produced as well as from the government's Renewable Obligation program that awards premium payments to clean-energy generators.

The project involves the installation of a 400-kilowatt machine off Ramsey Sound in Pembrokeshire to gather data that will feed into the production of future systems. TEL plans to start installing a 10-megawatt project in 2017.

The project "is about proving that tidal power can make a real and lasting contribution towards the U.K.'s renewable-energy targets and energy security," **Martin Murphy**, managing director of TEL, said in the statement.

– Louise Downing

Abengoa Offers Its First Green Bond to Raise 500M Euros

Abengoa SA, a Spanish energy and environment company, plans to issue its first green bond to raise 500 million euros ($642 million) to finance projects.

The high-yield green bond, maturing in 2019, will be offered in dollars and euros to institutional investors, Abengoa said Sept. 22.

The market for green bonds, which fund environmental and climate-protection projects, is increasingly being tapped by companies and public entities. The market may triple in size this year to more than $40 billion, London-based researcher Bloomberg New Energy Finance has forecast. Abengoa's issue will also be Europe's first high-yield green bond, according to the company.

– Marc Roca

SHARE PRICES OF CLEAN ENERGY COMPANIES BY REGION

Americas

COMPANY	9/26/14	9/19/14	WEEKLY CHANGE	% CHANGE
Archer-Daniels Midland Co.	50.87	51.69	-0.82	-1.59%
Bunge Ltd.	84.51	84.99	-0.48	-0.56%
First Solar Inc.	67.97	70.87	-2.9	-4.09%
General Electric Co.	25.63	26.29	-0.66	-2.51%
SunPower Corp.	36.11	36.68	-0.57	-1.55%
Tesla Motors Inc.	246.6	259.32	-12.72	-4.91%

Asia and Oceania

COMPANY	9/26/14	9/19/14	WEEKLY CHANGE	% CHANGE
GS Yuasa	645	640	5	0.78%
Suntech Power Holdings Co.	0.245	0.5875	-0.3425	-58.30%
Suzlon Energy Ltd.	14.25	20.35	-6.1	-29.98%
Trina Solar	13.56	14.38	-0.82	-5.70%
Xinjiang Goldwind Sci&Tec-H	13.38	12.86	0.52	4.04%
Sinovel Wind Group	3.9	3.84	0.06	1.56%

Europe, Middle East and Africa

COMPANY	9/26/14	9/19/14	WEEKLY CHANGE	% CHANGE
Abengoa SA	4.397	4.547	-0.15	-3.30%
GKN Plc	328	346.5	-18.5	-5.34%
Schneider Electric SA	60.68	62.82	-2.14	-3.41%
SolarWorld AG	12.95	14.2	-1.25	-8.80%
Vestas Wind Systems A/S	236.6	232.1	4.5	1.94%
REC Solar ASA	84.15	83.65	0.5	0.60%

Note: Market price is shown in local currency

GREEN BONDS Q&A

Investors Are Digging Into ESG Criteria in Fixed Income Space

Fiona Reynolds, managing director at **Principles for Responsible Investment**, spoke with Bloomberg TV's Guy Johnson about the green bond market as investors seek more responsible investment opportunities. She appeared on "The Pulse."

Guy Johnson: In terms of the scale we're talking about here, how niche is this still and what do you think the opportunity could be?

Fiona Reynolds: In terms of green bonds, it's very niche. The fixed income sector is $80 trillion and we're talking about one one-hundredth of a percent that's in green bonds, so it's very, very small. That's not to say it's not growing. In the last year it's tripled, and so there is interest, but there is a long way to go before it has any great impact in the market. And that's why it's important when people are thinking about responsible investment, particularly in the fixed income space, that they don't just think about green bonds because they need to think about the other 99.9 percent of the fixed income market and how do you ensure that you have responsible investment taking place in that part of the market.

GJ: And your advice on that front would be?

FR: Well, for us, it is about we want our signatories to think about responsible investment across all of their asset classes. Traditionally, people have started with responsible investment really in their equities portfolios, because it's been easier. They can vote their shares in their equities. They can't do that with their bonds. There is more research around ESG in the equity space, but because fixed income is such a large part – it's the biggest asset class – it's such a large part of particularly pension fund portfolios, that they really are now starting to think about how do I do this in the fixed income space? I'm doing it well in equities, how do I do it well in the fixed income space.

GJ: It's binary in the bonds space, isn't it, or can you actually exercise power?

FR: Some of our signatories are engaging. So you can exercise some power. And I think, well yes people are looking for yield, you have to think about broader world outside. It can't just be about pure financial things. You need to think about the environmental risk, you need to think about social risk. And you need to think about governance risk. Because I think a lot of people in the bonds space, pre the Euro crisis, pre the financial crisis, I think they thought bonds would provide them with a safe [investment].

GJ: In equities you can have an influence. As you say, you can have a voice, you can go to the meetings. In bonds, it is just a selection. I will invest in this company's bonds because they're doing A but I won't invest in this company's bonds because they're doing B. Can it get any more refined than that?

FR: We think that and we can see signatories, who are bond holders, engaging with companies and issuers. So we think that it can be done. And our guide sets out case studies about what the investors are doing. We want to see a lot more happening in this space and investors want to see a lot more happening in this space.

GJ: How big a story do you think this will get? Or do you think we'll continue to see a focus more on the equity side?

FR: Certainly for our signatories, this is of huge interest now. And there is a lot of time and effort being put into the fixed income space and how you really do responsible investment. So I think it's just going to continue to grow.

CARBON MARKET COMMENTARY

Weekly Commentary from Bloomberg New Energy Finance

Muted Hedging Demand to Limit EU Carbon Upside

BY JERRY VAN HOUTEN, BLOOMBERG NEW ENERGY FINANCE

European emission allowances for December 2014 fell to an intraday low of €5.63 last week as the European Parliament scheduled an environment committee vote on the market stability reserve in February. Narrow generation spreads will limit utility hedging demand and EUA prices will finish the week in the €5.90-6.10 range, according to Bloomberg New Energy Finance forecasts. Permits lost 1.8 percent last week to finish Friday at €5.92 a metric ton.

MARKET STABILITY RESERVE TIMELINE

The timeline for the market stability reserve now has more shape, after draft dates for the Parliamentary process were announced last week. EUAs are likely to find trigger points for price swings around these dates when details regarding the start and other factors become clearer. The first date is a workshop on the market stability reserve in the Parliament's environment committee. **Jos Delbeke**, director general for climate action, said last week he was hopeful the market stability reserve would become law by June-July.

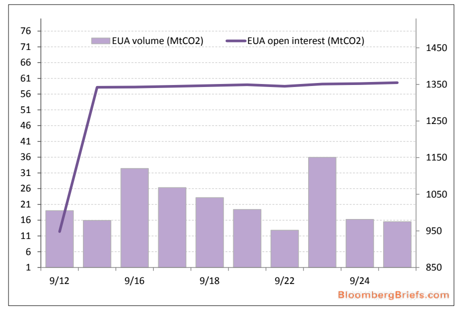
LEAKAGE LIST OBJECTION

The environment committee approved on Sept. 24 the continuation of free allocation to most industrial sectors, by voting against a motion objecting to the revised carbon leakage list. The vote signals the formal approval on behalf of the committee, clarifying the volume of free allocation industrials will receive through 2019. While the renewed certainty could increase oversupplied industrials' willingness to sell, the urge to supply allowances at current prices is likely limited for the longer-sighted industrials which may anticipate higher future prices. The only remaining objection to the leakage list could come from national governments, though this is unlikely as their experts have already given the green light in the Climate Change Committee, according to a Bloomberg News report. Industries included in the list receive more free allowances because of risks to international competitiveness compared with non-EU ETS producers.

SWISS LINK TALKS

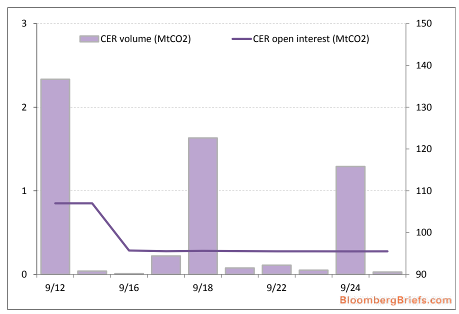
Switzerland and the EU held another round of talks last week on linking their emission-trading systems. These were the first such talks after the EU announced in February a freeze on bilateral relations with the Alpine nation following a Swiss referendum curbing the immigration of EU citizens. No target date for the start of the link was given, and aviation was cited as the main remaining issue in the negotiations. A successful conclusion of the talks could be a symbolic win for the EU, after its far more ambitious plan to link with Australia failed. The market impact of such a link on the European program would be negligible. In 2013 free allocation in the Swiss system amounted to only 5.36 million metric tons compared with verified emissions of 5.43 million metric tons. Swiss companies with less free allocation than emissions would be the main beneficiaries of the link, given Swiss allowances each fetched 40.25 Swiss francs (€33.3) in the last auction in May – a multiple of the current EUA price.

EU Carbon Trading Volumes



Source: EMIS <GO>

UN Carbon Trading Volumes



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MARKET ACTIVITY LAST WEEK

DAY	EUA	CER	SPREAD	COMMENT
Monday	€6.00	€0.13	€5.87	EU permits slipped from week high as natgas prices declined
Tuesday	€5.67	€0.13	€5.54	EU permits declined most since July as economy sputters
Wednesday	€5.82	€0.12	€5.70	EU permits rebound amid higher volume of options to buy
Thursday	€5.82	€0.12	€5.70	EU permits erased climb as coal-generation profit dropped
Friday	€5.93	€0.12	€5.81	EU permits had fourth weekly slide on economy concern

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Green Bonds – Where's the Beef?

BY ANGUS MCCRONE,
BLOOMBERG NEW ENERGY FINANCE

In the race for the Democratic Party nomination in the 1984 U.S. Presidential election, Senator Gary Hart was the up-and-coming man: good-looking, bouffant-haired, cowboy boot wearing, and full of "new ideas." His candidature was eventually punctured when his rival, Walter Mondale, borrowed a line from a Wendy's hamburger commercial, asking Hart during a TV debate "Where's the beef?"

Some 30 years later, green bonds look and sound new and attractive, they appeal to idealistic investors and those with sustainability mandates, and they have momentum on their side: Bloomberg New Energy Finance is predicting that this year will see a record $37 billion of green bonds issued, up from $14 billion in 2013.

Still, green bonds have their critics too: are they actually driving new funding into sustainable solutions or are they just the favored greenwashing wheeze of the day? Or, to put it another way, where's the beef?

I will start with the case for the defense. But first, a definition: green bond is an umbrella term that encompasses several different types of security, including the following: bonds issued by development or commercial banks to finance a ring-fenced pool of loans that will be made to climate-related projects; bonds issued on the back of securitizing a pool of existing loans to solar customers or other clean energy users; bonds issued by utilities or other industrial companies to fund just the climate-related portion of their capital spend; and project bonds, secured directly on the revenues of new or existing clean energy projects. My colleagues have been working hard to present details of all these types of green bonds under the SRCH @GREEN function on the Bloomberg Terminal.

Large issues in recent months have included $1.7 billion of 1.375 percent bonds due 2020 from utility **GDF Suez**, $1 billion of 2.5 percent bonds due 2024 from real estate company **Unibail-Rodamco SE**, and – earlier this month – $1.3 billion of 1.375 percent bonds due 2024 from development bank **Agence Francaise de Developpement**, or AFD. Most recently, on Sept. 22, **Abengoa SA** of Spain said it planned to issue $642 million of five-year green bonds to fund projects in "renewable energy, water, power transmission, energy efficiency, bioenergy and waste-to-energy."

The market has grown rapidly over the past 24 months for a number of reasons. One of them is investors' urgent need for yield at a time of record-low interest rates. Among the institutions hungry for yield are an increasing number with an environment, social and governance, or ESG, mandate. Green bonds provide them with a convenient mechanism to ensure that their funds are not used to finance the drilling of oil in the Arctic, the supply of weapons to a conflict zone, or a plethora of other ESG-incompatible activities.

THE CASE FOR ENTHUSIASM

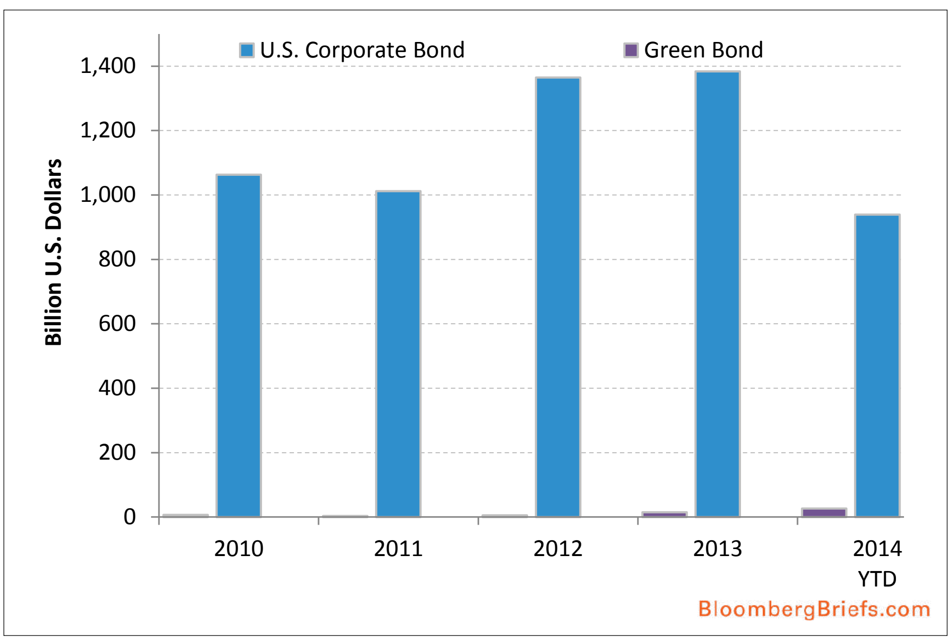
Here are four arguments in favor of green bonds. They might be abbreviated to "inform, supply, demand and build." The first argument is that their emergence is helping to inform investors, inside and outside the core group of ESG–focused financiers, on the climate challenge and the difference between climate-friendly and climate-unfriendly activities. If institutions decide that, given a choice between two bonds with identical coupons, risk and term – one a green bond tied to climate-friendly activities and the other a "brown" bond linked to activities that are at best neutral to climate – they would buy the former, then they are simultaneously greening their portfolios and gaining knowledge on sustainability.

Second, supporters claim that this very choice above is beginning to steer organizations to prioritize climate-friendly investment because it can be more easily financed. All of the green bond issuers to date have reported strong demand.

Some of the biggest green bond issues have been by utilities such as GDF Suez and **Iberdrola SA**, and in March 2014 **Toyota Motor Corp.** issued a $1.8 billion bond in the form of an auto-loan asset-backed security with cash flows tied to repayments of outstanding loans for the company's green cars such as the Prius. These companies have noticed that green equals investor appetite.

The French development agency told Bloomberg New Energy Finance that it hopes that rising green bond issuance, of

Green Bond Market Still Small Compared to Other Fixed Income Areas



Source: Bloomberg New Energy Finance

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which its recent $1.3 billion issue represents a part, would help to “redirect the flows” of capital in the financial system towards environmentally-friendly activities.

Argument three in favor of green bonds is that they open up a new supply of finance. If they did not exist, sustainability-oriented investors could put money in specialist clean energy stocks, but equity represents only a part of the capital needs of the low-carbon transition. In the fixed income part of their portfolios, they would have to fish in the very small pool of bonds issued by “pure-play” renewable energy or sustainability technology companies, or simply try to avoid non-specialist bonds from the worst issuers. The availability of green bonds gives them active choice among a much expanded choice of investments.

Perhaps more importantly, green bonds may open up a significant new source of finance by providing a simple label enabling more climate-friendly investing by the non-specialist fixed-income investor. He or she inhabits a market worth an estimated $80 trillion. Normally, his or her money goes into government bonds, or municipal bonds, or corporate bonds, or perhaps credit derivatives. If a fraction of that starts to move into green investment, it could make a big difference to the world’s efforts to combat climate change. It could also parallel what is happening on stock markets, where yieldcos on both sides of the Atlantic are enabling equity investors to back relatively low-risk pools of operating renewable energy assets.

Argument four is the view that green bonds lay the tarmac for a road that will ultimately see institutions pumping money directly into clean energy projects. This is the “build” argument. **Christopher Flensborg**, the **Skandinaviska Enskilda Banken AB** banker dubbed the “father of the green bond”, made this point in an interview in our Clean Energy & Carbon Brief in July. He said: “To make a difference on these issues, you need to have the financial infrastructure in place to facilitate the transition. If we raise awareness and build the infrastructure, encouraging investors to move along the curve, they will end up financing projects, and that is where you will get the additionality.”

So far, direct institutional purchasing of project bonds is only a very small piece of the overall green bond market. In 2013, they made up $3 billion of the $14 billion total issued, thanks partly to a $1 billion bond from **Warren Buffett**’s **Berkshire Hathaway Energy Co.** to finance the Solar Star PV project. In the first five months of 2014, project bonds (as defined by Bloomberg New Energy Finance) made up none of the $16.6 billion total. However Flensborg’s hope is that in the future, project bonds will become more and more common. They might finance the construction of some projects but, more typically, would enable projects to be refinanced so that developers’ and banks’ capital could be recycled into new undertakings.

THE CASE FOR CAUTION

That is the case that green bonds are real beef, not just sizzle. However, there are also reasons to take a breath rather than being swept along in the charge of green bonds. Here are three. Let’s call them “impact, additionality and quality control.”

Starting with impact, at the moment, $37 billion-a-year of green bonds may sound like an impressive number but it is puny in comparison to the overall bond market. If little of that proves to be new money, rather than money that would have been deployed anyway, then current levels of green bond issuance will make very little impact on the build-out of clean energy infrastructure or the reduction in carbon emissions. To have real impact, green bonds would have to grow to a market worth hundreds of billions of dollars per year.

One thing that could stand in the way of that further growth is that there is as yet no yield advantage for companies and banks to issue green bonds. If Utility X decides to raise new bond finance, it can either issue six-year conventional bonds at, say, 1.4 percent, or it can issue a green bond at – you have guessed it – 1.4 percent.

A yield advantage may continue to prove elusive. Green bonds, like conventional bonds, are secured on the balance sheet of the issuing organization, so they carry exactly the same risk. If investor demand pushed up the price of Utility X’s green bonds, with the result that the yield fell to 1.3 percent, then other investors might see an arbitrage and buy the conventional bonds until the yields were more or less the same again.

Sean Kidney, chief executive of the Climate Bonds Initiative and a firm supporter of green bonds, does not expect a consistent yield differential to emerge in the near future that would encourage organizations to issue green rather than brown bonds. Still, he says he is starting to see signs of a different advantage, duration. Some issuers have been able to find ready purchasers for green bonds with a longer duration (say, 20 years rather than 10 years), where they might have struggled to find such enthusiastic purchasers of an equivalent conventional bond.

If he is right, investor appetite could spur on the growth of green bonds to a point in a few years’ time when they start to make a real difference to the cost of finance for climate-related projects. At the moment, the jury is out.

That takes us onto the second issue, additionality. The **European Investment Bank**, for example, says it invested 6.4 billion euros in renewable energy in 2013, plus 2.2 billion euros in energy efficiency. It issued a lot of conventional bonds, but it also issued 1.4 billion euros of its green variety, dubbed Climate Awareness Bonds. If it had issued no green bonds at all, and had just relied on conventional bonds, would its investment in renewable energy and efficiency have been any lower? Perhaps, perhaps not.

The same question could be asked about the green bond issues of utilities such as **Electricite de France SA** and **Iberdrola SA**. Most European utilities have been cutting back their capital spending on renewable power in recent years, or are planning to do so. It is far from clear whether their green bond issues are resulting in more investment in clean energy than otherwise would have occurred.

Green bond fans might retort that at least the issuance by utilities and others ensures that a floor is put under their clean energy investment levels. There is also Flensborg’s view that green bonds could at some point pave the way for direct institutional commitment to project bonds.

Argument number three for caution is quality control. At present, under the Green Bond Principles agreed in April by

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investors such as **BlackRock Inc.**, issuers such as the World Bank, and underwriters such as **Bank of America Merrill Lynch** and SEB, it is up to the issuing institution to decide whether a bond qualifies as a green bond. There is no master list of technologies or approaches.

As a result, some green bonds are greener than others. If the market continues to grow rapidly, we are likely to see green bonds issued not just by banks with substantial lending programs to clean energy or by utilities that invest heavily in the area, but perhaps by industrial companies to back investment in water treatment or infrastructure companies looking to finance flood defense building, and even by fossil-fuel companies to back desulphurization or carbon capture projects. What happens when someone issues a green bond to fund an ultra-super-critical coal plant, on the argument that it is cleaner than the existing coal plant?

If the promoters of the market are not careful, the concept of the green bond could become diluted to the point where investors have difficulty distinguishing what is genuinely making an impact on safeguarding the climate and what is not. That could one day carry big dangers for investors. Any fund or individual that had invested in a broad array of green bonds in, say, 2014 in the belief that they were providing exposure to new energy, not old, might find in a few years' time that some of those bonds were actually secured on the balance sheets of fossil-intensive companies.

If the volume issued multiplies from $37 billion to $150 billion or $250 billion, it will be big enough for green bond indices to be launched and investors to buy exchange-traded funds. It would then be particularly important that quality control is strong on the underlying securities in those indices.

Carefully crafted, and widely accepted, standards for green bonds are essential to the development of a healthy market. Agence Francaise de Developpement said this month that its decision to issue a $1.3 billion green bond was made partly because it wanted to contribute to the standards process. Its own filter for projects to qualify for loans using the proceeds of its green bond issue is that they have to result in a reduction in emissions of at least 10 kilotons per year of CO_2 compared to the status quo.

It looks like it is going to take a good few years to establish an agreed system to rate the "shade" of a green bond. The challenge will be to make sure that such a rating does not add to the cost of issuance, to the point that organizations are dissuaded from issuing green bonds and stick to the brown variant.

So, in summary, are they burger or sizzle? There is already definitely some beef to green bonds – such as their role in informing investors about climate issues and making it easier for them to influence corporate priorities.

However, so far, the beef is dwarfed by the bun. As the green bond market grows, its supporters will have to be vigilant to ensure that its impact on the bigger goal – decarbonization – becomes more obvious. Given progress towards a simple, cheap rating system, sustained interest by issuers and asset owners, a supportive policy environment, green bonds could perhaps turn out to be the real filet mignon.

Bloomberg New Energy Finance is holding a Green Bond Lunch to discuss latest developments in the market in London on Wednesday, Oct. 1. Anyone interested should contact Greg Kay at gkay2@bloomberg.net.

Note: This article will also be available to Bloomberg New Energy Finance clients at www.bnef.com.

INSIGHT

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Excerpts from Bloomberg New Energy Finance Research

All Eyes on CO2 Capture With Many Plants to Start Operating

- The next two years will be critical for carbon capture and storage, with several large-scale projects in North America slated to begin operations. All are government backed and will demonstrate CCS at power or industrial plants. Companies interested in a piece of the CCS value chain, and governments hoping to sort out support for the still-nascent sector, will be watching these projects.
- Most of the operational projects are driven by market conditions – demand for CO2 for enhanced oil recovery – and not government support of pollution-mitigation projects. Globally, about 90 percent of captured CO2 (in 2014) is sold for EOR.
- Most of the projects Bloomberg New Energy Finance expects will come online in the next several years are government-supported demonstrations. According to BNEF, by 2020, only 72 percent of captured CO2 will be used for EOR.
- Financing of specific projects made up 96 percent of total investment in the sector since 2007. The remaining 4 percent included venture capital and public market investment.
- Nearly all project investment since 2010 has been in the U.S. and Canada. Little new investment is expected in the latter, as projects with government support have either already reached final investment decision or have been canceled. In the next few years, new investment could come from both the U.S. and the U.K. as developers with government grants decide whether to build, and finance, projects.

By 2017, There Could Be an Additional 3 Billion Liters of Renewable Diesel Capacity On Line Globally

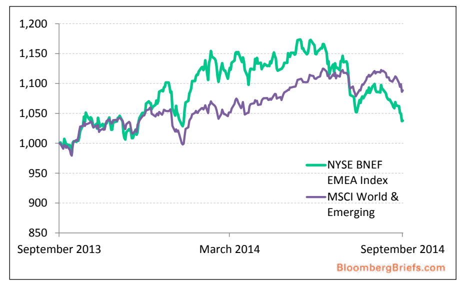
Source: Bloomberg New Energy Finance

Neste Oil – a recent entrant into the biochemical industry – plans to add some 0.84 billion liters of that capacity between now and 2017.

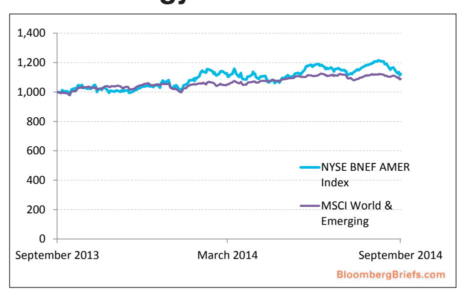
NYSE EURONEXT AND BLOOMBERG NEW ENERGY FINANCE REGIONAL CLEAN ENERGY STOCK INDEXES

The three indexes, covering respectively Europe, Middle East and Africa, the Americas, and Asia and Oceania, currently follow a basket of between 125 and 325 companies with a moderate, or greater, exposure to renewable energy and energy-smart technologies. The following indexes track shares over the past year. They are indexed to 1,000.

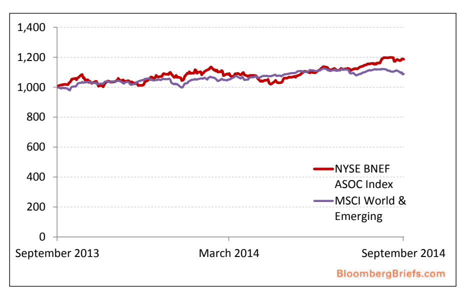
NYSE-BNEF Europe, Middle East and Africa Clean Energy Index



NYSE-BNEF Americas Clean Energy Index



NYSE-BNEF Asia Oceania Clean Energy Index



Source: Bloomberg New Energy Finance

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