



Gazprom looks east

First weld on Power of Siberia pipeline to mark start of \$55 bn gas programme

The first weld on the Power of Siberia pipeline is due to be made later this month, says Gazprom's Alexey Miller.

Russian natural gas company Gazprom will this month begin construction work in earnest on Power of Siberia – a 4,000 kilometre pipeline that will form the backbone of its massive Eastern Gas Programme – with the making of the first weld.

At an estimated cost of US\$55 billion, the investment programme will create an integrated gas production and transmission system aimed at supplying gas to eastern Russia, developing a liquefied natural gas (LNG) project at Vladivostok, and – crucially – exporting gas to China. Announcing Gazprom's

intention to begin construction on Power of Siberia back in June, the company's Chairman Alexey Miller said: "We have a particular action plan. All the responsibilities have been distributed and strict deadlines have been set. Our objective is to weld the Power of Siberia first joint already this August."

LONG-HELD AMBITION

Gazprom has been talking for the best part of two decades about developing its natural gas resources in the eastern part of the country, for both domestic supply and to export gas to Asia. However, until relatively recently, it was doing very well out of exporting gas to Europe, where it was getting good – oil-indexed – prices and where demand growth seemed inexorable. The past six years have seen three major developments that have called

these demand and pricing assumptions into question:

- One was the economic crisis that Europe suffered following the global economic downturn that took hold in 2008. That had a major impact on demand for energy in general and natural gas in particular.
- Another has been the development of climate and energy policies that have boosted investment in subsidised renewable energy sources, again having a major impact on gas demand.
- The third development has been the shale gas production boom in the United States. LNG originally targeted at the US instead found its way to Europe, putting pressure on gas pricing mechanisms in Europe, where more gas is now sold on hub-based prices than oil-indexed ones. At the same time, cheap gas displaced coal from power generation in the US, leading to a glut of cheap US coal, which has been displacing gas from Europe's power generation fuel mix.

More recently, the dispute over Ukraine has led to concerns about Europe's overdependence on Russian gas. There is now much talk in Europe about diversifying supplies and, in some countries, [> see page 2](#)

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reducing dependence on gas over the long term. This has accelerated Russia's need to find new export markets for its gas – and Asia, especially China, has long been seen by Russia as the obvious target market.

HISTORIC DEAL WITH CHINA

All that said, for the Eastern Gas Programme to be economically viable, it was essential for Gazprom to conclude its long-awaited gas export deal with China.



A gas trade deal for 38 Bcm/year was signed in May by Gazprom's Alexey Miller (centre) and CNPC's Zhou Jiping (right). President Vladimir Putin is on the left.

Until May, when the deal was finally signed by Miller and the Chairman of China National Petroleum Corporation (CNPC), Zhou Jiping – in the presence of Russia's President, Vladimir Putin, and China's President, Xi Jinping – some observers outside the WEC were sceptical that a deal would ever be reached. Negotiations had dragged on for more than a decade, with pricing being the main sticking point.

However, China's reasons for wanting the deal were just as compelling as Russia's. Though the nation remains overwhelmingly reliant on coal for

its energy, it is easy for outsiders to underestimate how anxious China's leaders are to address the issue of pollution. *To see China's ranking on the WEC Sustainability Index go to: <http://bit.ly/UFfkmL>*

A key part of their strategy is to increase the use of natural gas, demand for which is growing much faster than China's current capability to grow its indigenous production. The deal signed in May is for 38 Bcm/year, starting in 2019, at an oil-linked price.

NO TIME TO LOSE

For exports to China to begin in 2019, Gazprom will need to get a move on with constructing the Power of Siberia pipeline and developing the new production centres that will be needed – as Miller is keenly aware. Just days after signing the export

deal with China, he signed an order to begin implementation of the projects needed to fulfill that deal. The map above shows how the Power of Siberia pipeline will transport gas from new production centres in Yakutia (the Chayandinskoye field) and Irkutsk (the Kovyktinskoye field) eastwards into China and onwards to Vladivostok. Gazprom already has a number of gas projects in far-eastern Russia, notably around Sakhalin, which will be tied into the overall system by Power of Siberia and the new Sakhalin-Khabarovsk-Vladivostok gas transmission system.

Signing the implementation order back in May, Miller said: "The whole potential of Gazprom is engaged today. Our aim is the east. Our aim is China. Let's set to work." ●

(Photographs and map courtesy of Gazprom.)

ABOUT WORLD ENERGY FOCUS

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Alex Forbes has been reporting on energy developments and analysing trends for more than three decades.

His expertise covers all the mainstream energy sources, policy, regulation and climate change. In 2013, Alex received the annual award from the International Association for Energy Economics for Excellence in Written Journalism.





(www.siemens.com/press)

Striving for free trade in 'green goods'

Scrapping tariffs on environmental goods would bring economic and environmental benefits to rich and poor countries alike. Last month 14 members of the World Trade Organisation set out to do just that. They will build on an agreement by the Asia-Pacific Economic Co-operation (APEC) forum in 2012 that capped tariffs on 54 green goods. The proposed agreement would go much further – eliminating tariffs entirely on a broader list of products. In this exclusive interview, Tim Richards – a Managing Director with GE and Executive Chair of the WEC Task Force on Energy and Trade – gives his views on the importance of the talks and their chances of success.

If the negotiations to reach an Environmental Goods Agreement (EGA) are successful, what kind of impacts could we expect on trade in

green goods?

It clearly would have a positive effect. The tariffs on these products range from nuisance tariffs of less than 5% up

to tariffs as high as 37% on some of the products that are under consideration. We have to see what the actual product list will be, but the potential for bringing down project costs and therefore doing more projects is substantial.

What kinds of products are likely to be included?

About half of the products on the APEC list are energy products. These are divided up between things that are classically renewable energy – such as wind turbines, solar panels and the other equipment utilised in wind

farms or solar parks – and efficiency-enhancing goods, such as high-efficiency gas turbines operating in combined cycle.

The APEC list also includes products used for pollution control, building efficiency, water purification and even materials that are considered to be environmentally friendly.

What role is the World Energy Council playing in the negotiations?

What we intend to do through our task force is to provide recommendations about how to add additional products to the APEC list. We will be very active in the various groups that will be advising the negotiators.

The WEC is a unique body because of its global structure. It covers the entire energy sector globally, and that provides a unique perspective and level of expertise.

Do these negotiations cover goods and services or just goods?

The negotiation that was launched in Geneva in July is explicitly about goods. That's a big enough challenge as it is. It leaves out services, which are a very significant part of trade and the fastest growing portion.

But you have to start somewhere. There is an existing negotiation on services that will cover every type of service, and it will be important for the countries involved to cover energy and environmental services in that negotiation. [> see page 4](#)

Rules of trade and the WEC

The World Energy Council has been working to advance global integration, improve market access and overcome trade barriers for many years, and has been successfully informing and influencing the debate globally and regionally.

As countries become more interdependent and international trade in energy grows, the rules governing the energy sector generate increasing concern. This concern reflects the importance of rules that comprehensively address needs from the supply and demand points of view and integrate the international fabric of energy trade.

Globally the WEC works with organisations such as the World Trade Organisation and the United Nations Framework Convention on Climate Change. Regionally it works with organisations such as the Asia-Pacific Economic Cooperation (APEC) forum (<http://bit.ly/1pRuWqS>) and the Trans-Pacific Partnership.

In 2012 APEC members agreed to cap tariffs on 54 environmental goods at 5% by 2015 (the full list is available at <http://bit.ly/1t3qyR9>).

For more information go to <http://bit.ly/UxDSxU>

What kind of obstacles need to be addressed in reaching agreement?

First there has to be a decision on how to define the universe of products. That's probably the biggest single challenge. The 54 APEC products will be the starting point but there are already lots of other products people are interested in adding. There's a general sense that there should be a more robust list than the APEC list.

There are also non-tariff barriers that are hindering trade in green goods. Can you give some examples of non-tariff barriers and outline how you believe they should be tackled?

A quota, limiting the quantity of imports into a country, is a classic non-tariff barrier. Standards can be another. International standards are generally a good thing, but they can be set in ways that inhibit trade, and at that point become non-tariff barriers to trade. And then there are local content requirements that require certain percentages of a product to be made locally.

This negotiation is only going to deal with tariffs. But non-tariff measures are a challenge that has to be faced.

The WTO announcement about the launch of the negotiations notes that the 14 members involved – Australia, Canada, China, Costa Rica, the European Union, Hong Kong, Japan, New Zealand, Norway, Singapore, the Republic of Korea, Switzerland, Taiwan and the United States – cover 86% of trade in green goods. Which of those members are the key ones?

It's important that all 14 remain in the negotiations because they truly are the largest traders in these products. They're also the ones that are the most committed. So they're the ones that you need leading the process. The 14 members have stressed that they are open to other countries joining. It could be very helpful to have additional countries join.

The WTO members involved in these green goods negotiations have said that the talks will "provide impetus for the conclusion of the Doha Round" – the latest round of trade negotiations among the WTO membership – which has been under way since 2001. How so?

There's been virtually no progress on the Doha Round for years. Conclusion of this agreement would show that the WTO can play a role in achieving trade liberalisation. It is also helpful that environmental goods represent a critical sector, which is not just of economic interest but also provides environmental benefits. Showing that these 14 countries are willing to go forward to reach agreement using the multilateral system helps re-prime the pump for broader WTO negotiations.

What kind of timescales are we looking at to reach an effective agreement?

An agreement of this sort is probably going to take over a year, which would be okay. There are some major meetings at the end of 2015 – both the WTO ministerial meeting and also the global climate change meeting [COP21

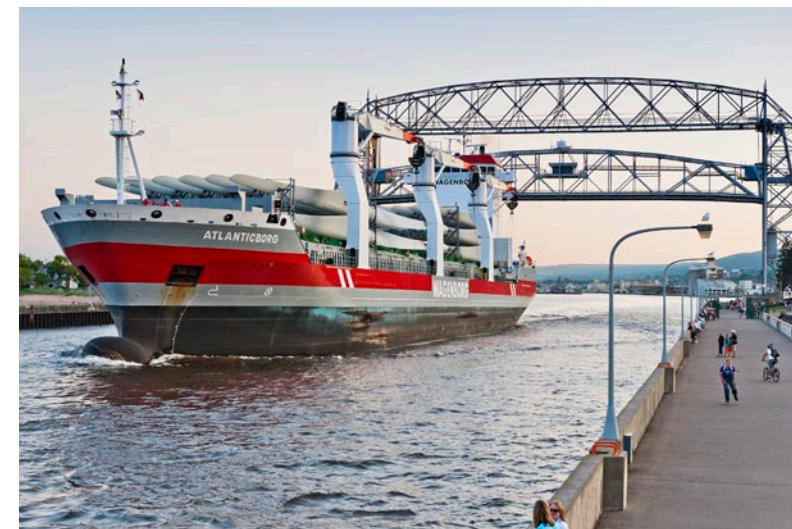
in Paris]. These events are good targets for concluding an agreement.

In our launch issue we carried an interview with Kandeh Yumkella, who leads the Sustainable Energy for All (SE4ALL) initiative for the United Nations. How would agreement to eliminate tariffs on green goods impact on that initiative? And is there a bigger effect for poor countries than for rich countries?

Yumkella was on the panel that I moderated at the World Energy Congress in Daegu. During the course of that panel he got excited about the tariff elimination idea because this was something that could be done to help reduce the cost of building renewable energy projects in the developing world. The tariffs that are charged by developing countries tend to be higher than in developed countries. So the effect of eliminating those tariffs would be more significant for developing countries.

There is an important point here, though. Right now the 14 countries that have agreed to enter into these negotiations don't include many of the target countries for SE4ALL. So it would be great to get some more of those countries into the talks so that they could reduce costs for SE4ALL projects.

You've said that there hasn't been much progress with the Doha Round in a number of years. What are the reasons for that? And wouldn't those factors also apply to these talks?



Wind turbine components in transit to the Port of Duluth-Superior in the United States. (Robert Welton/Supplied by Chamber of Marine Commerce)

The Doha round is attempting to deal with a truly comprehensive set of trade issues, and that runs into political issues in both developed and developing countries.

As one example, many developing countries have an overriding interest in gaining access to developed nations' agricultural markets, but that raises many sensitivities.

The Environmental Goods Agreement (EGA) isn't as politically sensitive because it has a very targeted objective, and it carries positive political weight beyond normal trade circles because of the environmental benefits. So the two things are substantially different and the prospects for the EGA are much greater. The EGA has the

opportunity to move precisely because it's a smaller and more targeted agreement. ●

Interview by Alex Forbes



Tim Richards is Managing Director for Government Affairs for GE in the Middle East, North Africa and Turkey region, and Executive Chair of the Task Force on Energy and Trade for the World Energy Council.

Carbon capture advances as Shell begins trials at Mongstad



Tord Lien (centre), Norway's energy minister, during a recent visit to Mongstad: "I am very content that new vendors can test out their technologies at TCM."

A carbon capture technology that will be employed at industrial scale in a coal-fired power station in Canada and a gas-fired power station in the UK is to be tested at Norway's Mongstad carbon capture and storage (CCS) technology centre.

Shell subsidiary Shell Cansolv has agreed with Technology Centre Mongstad (TCM) to test its advanced carbon dioxide capture process at TCM's existing amine plant.

Shell announced in February that it had agreed to take the UK's Peterhead CCS project to the next phase of design. The project could become the first-ever industrial-scale application of CCS at a gas-fired power plant. The project was short-listed for funding in 2013 as part of the UK's CCS

commercialisation competition. The project will be based on post-combustion capture and will use amines to absorb the carbon dioxide. The technology has been demonstrated as feasible and Shell claims it is the best available for post-combustion carbon dioxide capture.

TCM's Managing Director, Frank Ellingsen [on the right in the photograph], said: "Shell Cansolv is supplying its technology to full-scale projects around the world.

"A prime example is the integrated carbon dioxide capture project at the Boundary Dam [coal-fired] power station in Canada. The regenerable Cansolv capture system offers a method to remove up to 90% of the carbon dioxide from exhaust gases." ●

Egypt reduces energy subsidies to tackle chronic fuel shortages

Egypt last month began reducing energy subsidies as part of a strategy to reduce the budget deficit, to free up funds for much-needed upstream oil and gas investment, and to discourage wasteful consumption. The move will go some way to alleviating chronic shortages of energy in the country, especially of natural gas.

The fuel price increases decreed by the nation's new president, Abdel Fattah al-Sisi, are regarded by many observers as long overdue for a nation that has been spending around a fifth of the state budget on energy subsidies.

POLITICALLY RISKY

The subsidy cuts are aimed at saving US\$6 billion over the 2014/15 fiscal year, which began on 1st July. According to the Ministry of Finance, this should reduce the budget deficit to around US\$34 billion, or some 10% of GDP. The cuts are controversial because of the impact they will have on the many poor people in Egypt, as they will drive up not just the cost of energy but also the cost of goods – and it will take time for the full effects to become apparent. Moreover, Egypt has yet to introduce any targeted measures to alleviate the impact of higher inflation on the poorest sections of society.

The president was clearly relieved that protests did not go beyond small isolated demonstrations and disgruntlement on the part of users of public transport, such as taxis, who suddenly found themselves having to pay much higher fares. In a speech

commemorating the July 23rd 1952 revolution, he expressed his "gratitude, appreciation and respect" for how the people of Egypt had reacted.

The president clearly felt he had little choice but to act. In recent years Egypt has moved from being an exporter of natural gas to having to contemplate expensive imports of LNG.

The government currently owes around \$6 billion in overdue payments to foreign oil and gas companies operating in the country, but cannot afford to see these investors withdraw because that would exacerbate energy shortages.

* The World Bank announced last month that it has approved a loan of \$500 million for a project aimed at expanding natural gas access to 1.5 million households, some of which are in the poorest parts of Egypt. The aim is to support the government's programme to replace household use of LPG, most of which is imported, with grid-connected gas. ●

Breakthrough for small-scale GTL

Small-scale gas-to-liquids (GTL) technology company Velocys has reached final investment decision (FID) on a ground-breaking project in the state of Oklahoma in the US.

It becomes the first company to reach FID on a commercial small-scale GTL project – a milestone that the industry has been awaiting for years. The East Oak project – which will convert natural gas and biogas into synthetic liquid products such as fuels – will be developed in a joint venture with Waste Management, NRG Energy and Ventech Engineers International. ●

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US LNG export projects closing in on construction phase

The coming twelve months could see as many as five large liquefied natural gas (LNG) export projects in the United States take final investment decision (FID) and begin construction. Were this to happen, the US would have close to 70 million tonnes/year (Mt/year) of production capacity by around the turn of the decade, putting it in the same LNG exporting league as Qatar and Australia. Qatar currently has capacity of 77 Mt/year and Australia is well on its way to overtaking Qatar by 2020 as seven new projects come on stream.

Today only one gas liquefaction project is under construction in the US, Cheniere Energy's 18 Mt/year Sabine Pass venture, which is due on stream in 2016. However, five other projects are now approaching the point where they will be ready to take FID and begin construction.

FRONT-RUNNERS

The front-runner is Cameron LNG, where FID is now imminent. Sempra Energy announced in mid-June that the project had "received authorisation from the Federal Energy Regulatory Commission (FERC) to site, construct and operate a natural gas liquefaction and export facility at the site of the company's LNG receipt terminal in Hackberry, Louisiana". The FERC permit is the last major regulatory approval required to start construction on the project, which is expected to cost \$9-10 billion.

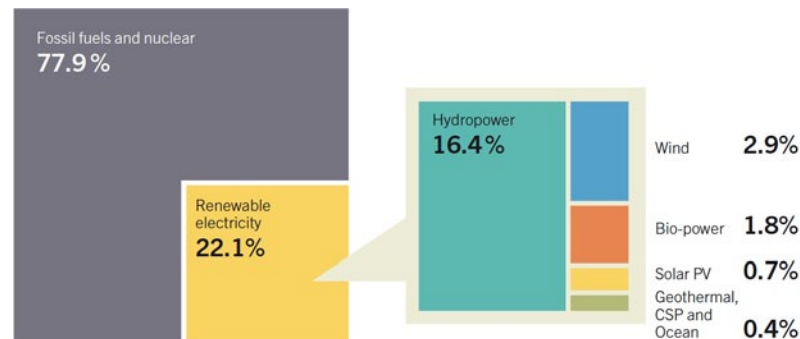
The project will have three production "trains", giving it total capacity of 12 Mt/year. Cameron LNG already has the necessary conditional approvals from the Department of Energy (DoE) to export its LNG.

Hot on the heels of Cameron LNG is Freeport LNG, which received its FERC approval as this issue of World Energy Focus was going to press. Freeport LNG's CEO Michael Smith is insisting that construction will begin before the end of this year. The three-train project would add another 13.2 Mt/year of capacity, taking the total under construction in the US to just over 43 Mt/year.

Cheniere Energy is hoping to begin construction either later this year or early next on two other projects: a two-train 9 Mt/year expansion of Sabine Pass and the three-train Corpus Christi project, the first phase of which will consist of two 5 Mt/year trains.

Neither project yet has DoE export approval for non-Free Trade Agreement countries, but these approvals are likely to be granted soon after the FERC gives its final go-ahead.

The other venture with a good chance of getting FERC approval over the coming year is Dominion's Cove Point Liquefaction project, which would have a single 5.25 Mt/year train. ●



Of the 1,560 GW of renewables capacity installed by 2013, hydropower accounts for 1,000 GW. Wind and solar power remain small contributors despite rapid growth. (Source: page 25 of REN21's Renewables 2014 Global Status Report)

China records 'spectacular growth' in solar photovoltaic power

China last year became the fastest-growing market for solar photovoltaic (PV) power systems, according to two reports documenting the global progress of renewable energy sources.

The news is made all the more significant by the fact that the solar PV market had a record year in 2013, adding more than 39 GW of capacity and taking the global installed total to around 139 GW, according to REN21 (the Renewable Energy Policy network for the 21st Century).

China's unprecedented PV growth meant that "for the first time, more solar PV than wind power capacity was added world-wide". REN21's report says: "China saw spectacular growth, accounting for nearly one-third of global capacity added, followed by Japan and the US." The news was reinforced by a report from the European Photovoltaic Industry Association (EPIA), which said that

China added 11.8 GW of capacity in 2013, while Japan added 6.9 GW and the US 4.8 GW. The EPIA reports that: "For the first time since 2003, Europe, with a very high and stable level of nearly 11 GW connected to the grid in 2013, lost its leadership to Asia."

In WEC's World Energy Scenarios published last year, by 2050 the use of solar for electricity generation is set to increase by up to 225 times over 2010 levels. It could provide between 2,980 TWh and 7,740 TWh in 2050. This equates to between US\$2,950 billion and US\$9,660 billion of investment in solar, the largest potential investment in renewable energy resources. ●

<http://bit.ly/1uevUGO>

NEWS IN BRIEF

BRICS FORM DEVELOPMENT BANK

The BRICS grouping of developing countries - Brazil, Russia, India, China and South Africa - last month agreed to set up a development bank at their summit in Brazil. The New Development Bank (NDB) will "mobilise resources for infrastructure and sustainable development projects in BRICS and other emerging and developing economies". The bank will have an initial authorised capital of US\$100 billion and the initial subscribed capital of \$50 billion will be equally shared among the founding members. Its headquarters will be in the Chinese city of Shanghai, while its first president will come from India.

MEXICAN REFORMS APPROACH FINAL HURDLE ...

Radical reforms proposed for Mexico's oil and gas industries are approaching their final hurdle - and drawing protests from those who oppose opening up energy exploration and development to foreign investors for the first time in decades. The lower house approved the legislation at the end of July, leaving senate approval as the final step. President Enrique Peña Nieto sees the reforms as an essential boost to Mexico's struggling economy.

... WHILE ARGENTINA'S REFORMS PROVOKE A STRIKE

A draft of a new hydrocarbons law just released by the government of President Cristina Fernández de Kirchner has drawn criticism from provincial governors and prompted oil industry workers to strike. The ten governors now plan to submit an alternative draft.

WEC EVENTS

Executive Assembly

Cartagena, Colombia
20–24 October 2014

The Executive Assembly is the WEC's annual meeting. It will be hosted in Cartagena by COCME, the WEC Colombian member committee. A week of events will welcome the WEC community and representatives from the Colombian, Latin American and the global energy sectors for open and private discussion sessions, to seek options for sustainable energy.

Energy ministers and leaders from business, finance and academia will share best practice and identify solutions to the energy trilemma during the World Energy Leaders' Summit, the Future Energy Leaders' Summit, and the Energy Trilemma Summit.

The event will also host the WEC's major governance meetings, culminating in the full Executive Assembly Plenary, where members will agree on WEC's strategic direction.

Africa Energy Indaba

Johannesburg, South Africa
17–18 February 2015

The Africa Energy Indaba (AEI) is the foremost African event for energy professionals. It gathers experts to share insights and solutions to Africa's energy crisis.

<http://www.africaenergyindaba.com>

Bolivia Gas & Energía 2014

Santa Cruz, Bolivia
20–21 August 2014

Where is the gas industry moving towards? What is the future of petroleum? And what are the new technologies driving the energy sector? These are some of the issues to be discussed at Bolivia Gas & Energía.

The congress, the largest event of



its type in Bolivia, has been held every year since 2008 by the Bolivian Chamber of Hydrocarbons and Energy (CBHE), the WEC Bolivian national committee. Evo Morales, President of

Bolivia (pictured), spoke at last year's event.

The theme of the event will be "Energy globalisation: the future of petroleum, gas and other energies". It will look at: trends in oil and gas, nuclear, energy efficiency, geothermal, drilling techniques, Mexican reforms, and Bolivian programmes and investments.

<http://boliviagasenergia.com/2014/>
Contact: Raul Kieffer
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German Energy Day 2014

Berlin, Germany
30 September 2014

WEC Germany's 2014 Energy Day will be organised around the theme of "Energy strategies of tomorrow". EU Energy Commissioner Günther Oettinger, German State Secretary Rainer Baake, plus others will share their views of a European energy market. WEC Secretary General Christoph Frei will give a keynote speech on global energy challenges.

The Energy Day is WEC Germany's major annual conference. Read about last year's event on:

<http://bit.ly/1eGpFTV>

<http://www.weltenergiertag.de/veranstaltungen/energiertag/>
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10th International Energy Conference

Tehran, Iran
26–27 August 2014

WEC Iran's bi-annual conference will look at the role of the Middle East in world energy demand and supply security, energy finance and access in developing countries with emphasis on the role of the OPEC Fund for International Development (OFID), and perspectives on alternative energy, smart grids, and energy management.

The event is co-hosted by Iran's Ministry of Energy and Ministry of Petroleum.

H.E. Hamid Chitchian, Minister of Energy, and H.E. Bijan Namdar Zanganeh, Minister of Oil, are confirmed to attend the event. It will include paper presentations, workshops, conference speeches, round-table discussions and an exhibition.

<http://iranec.com/>
Contact: info@iranec.com

Beirut Energy Forum

Beirut, Lebanon
17–19 September 2014

The BEF is Lebanon's largest event dedicated to energy efficiency, renewable energy, and green building. The 2014 Forum will discuss green jobs, financing mechanisms and their impact, solar energy quality control schemes, plus other topics. The event will be held under the patronage of Lebanese Minister of Energy and Water, H.E. Arthur Nazarian, with speakers from the League of Arab States, the Central Bank of Lebanon, ESCWA, UNIDO, the World Bank and the International Finance Corporation, among others. Free of charge for WEC Lebanon members.

<http://www.beirutenergyforum.com>
Contact: Pierre Khoury
pierre.khoury@lcecp.org.lb



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www.worldenergy.org/events/future

US power producers wake up to carbon curbs

As the United States' Environmental Protection Agency (EPA) begins public hearings on President Barack Obama's proposals to cut carbon emissions from existing power stations, we look at how the energy industry is responding. According to Barry Worthington – Executive Director of the US Energy Association (USEA), which constitutes the US WEC member committee – the full impacts of the complex proposals remain far from clear and the EPA is already facing legal challenges."

Under President Obama's proposed Clean Power Plan – a key part of his over-arching Climate Action Plan – carbon emissions from existing electricity generation plant in the US would have to fall by 30% below 2005 levels by 2030, as World Energy Focus reported last month (see page 5 of Issue 1). However, behind this apparently simple headline figure lies considerable complexity. Even though several weeks have passed since the proposals were published at the start of June, the US energy industry is still grappling with the full implications.

WINNERS AND LOSERS

"There still remains a lot of confusion over how the regulations are going to be implemented," says Worthington. "As you delve into the detail, what has become clearer is that there are going to be winners and losers among states and industries. The biggest known impact is that we certainly are going to be moving further way from using coal in the electricity generation sector.

"The way the EPA has structured the regulation is quite complicated and it's

already going to be subject to multiple challenges in court."

That said, Worthington does not rate very highly the chances of success of these various court actions: "The EPA has won almost every court challenge in the past half a dozen years for any of its regulations. So while it will be caught up in legal disputes, there's not a good track record to say that the industry will prevail." A complicating factor is that different states will have different percentage reduction targets for carbon dioxide emissions. "It remains to be seen how the different states will develop their plans," says Worthington, "so a lot of the impacts won't be clear until the states develop their plans and the EPA decides whether or not to accept them."

The EPA is accepting comments on its proposals until 16th October and intends to release the final regulation in June of next year. State plans will be due to be submitted in June 2016, though states will have the option to ask for more time if needed.



Barry Worthington

The USEA does not itself engage in lobbying or regulatory review but many of its members have responded to the EPA's consultation process: "Most of the major energy organisations that do lobby and do intervene in regulatory affairs are members of ours," says Worthington. "They're all going to have very strong views – ranging from the coal associations, for example, who are adamantly opposed, to some of the natural gas associations, who are not saying a lot but probably not objecting too much, to the electric power associations, which generally are going to object to the details of the regulations."

One of the most confusing and controversial aspects of the Clean Power Plan proposals is the issue of what is the base year for calculating required emissions reductions. While

the headline year for the overall 30% reduction is 2005, at the state targets level the base year appears to be 2012. This matters a lot because US carbon dioxide emissions fell significantly between 2005 and 2012.

LACK OF CLARITY

"This is one of the greatest issues of uncertainty and lack of clarity," says Worthington, "because an individual facility is going to have to comply with the plan that's developed by the state where it's located."

Electricity generators are not just facing curbs on emissions from existing stations. The EPA has also been working on regulations for capping emission levels from new power stations and Worthington believes that emissions from other industries will before long become an EPA target.

CARBON CAPTURE & STORAGE

In practical terms, says Worthington, the regulations covering new power plants will mean that new coal-fired power stations would need to be fitted with carbon capture and storage (CCS) to bring their emissions down to the level of emissions from new gas-fired power stations.

Not that developers of natural gas plants are facing an easy future either. "What we anticipate," says Worthington, "is that the EPA is going to ratchet down emissions standards so that at some point in time they would require CCS on natural gas plants as well." ●

ABOUT THE WEC

The World Energy Council (WEC) has been at the forefront of the energy debate for nearly a century, guiding thinking and driving action around the world to achieve sustainable and affordable energy for all. It is the UN-accredited energy body and principal impartial network, representing more than 3,000 organisations – public and private – in almost 100 countries.

Independent and inclusive, the WEC's work covers all nations and the complete energy spectrum – from fossil fuels to renewable energy sources.

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Join the debate and help influence the energy agenda to promote affordable, stable and environmentally sensitive energy for all. As the world's most influential energy network, the WEC offers you and your organisation the opportunity to participate in the global energy leaders' dialogue.

Find out how you can:

- join a Member Committee;
- become a Project Partner, Patron or Global Partner;
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