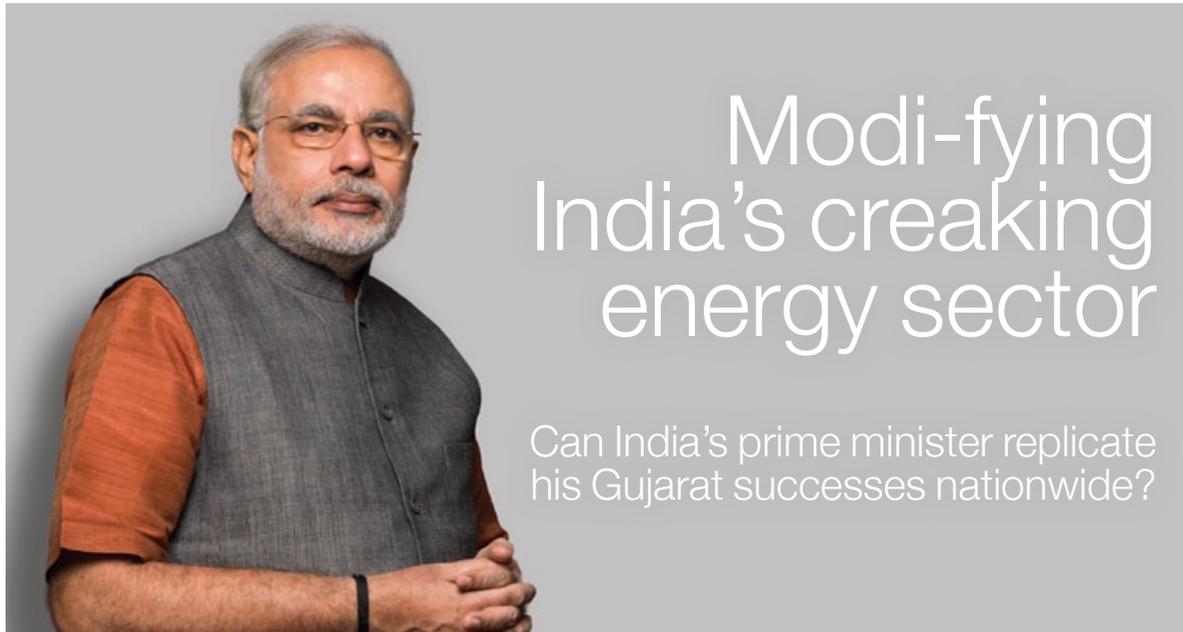


## INSIDE THIS ISSUE



**No nation on earth faces a bigger challenge in providing affordable, secure and clean energy to all its people – the conflicting imperatives that make up what the World Energy Council calls the “energy trilemma” – than India. At the recent India Energy Congress in New Delhi, hopes were running high that prime minister Narendra Modi, whose Bharatiya Janata Party (BJP) secured an overwhelming victory in last May’s election, will be able to fix an energy sector that struggles to meet people’s needs because of unfinished reforms and financial constraints. It is a monumental task – but the rewards of success would be immense.**

India currently has 300 million people who lack access to electricity and 800 million who still use traditional biomass for cooking. Endemic electricity shortages are a major constraint on economic growth. And the nation’s main fossil fuel resource is carbon-intensive coal, with obvious consequences for

the nation’s energy-related greenhouse gas (GHG) emissions. Moreover, India is on track to become the world’s most populous nation, overtaking China in the second half of the next decade.

Modi’s election campaign last year was largely based on a promise of

reinvigorating India’s economy by replicating nationwide his achievements during three terms as chief minister in the state of Gujarat. The resounding election success of the BJP ended a long run of coalition governments that have struggled to meet India’s energy needs. In Gujarat, electricity and water supplies are now reliable and industry is flourishing – and much of the credit, in the eyes of India’s people, goes to Modi.

### A MYRIAD ENERGY ISSUES

The prime minister is keenly aware that, to keep his promises, his government will have to grapple with myriad energy issues that have defeated previous administrations. Top > see page 2

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of the list is to ensure that sufficient and reliable electricity is available to power an economy that some believe could grow at double-digit rates if energy constraints were to be alleviated.

A large part of the problem is that while there have been numerous energy policy reforms over the past two decades – aimed at giving the entire population access to energy and transforming the energy sector from a mostly government-owned system to one based on market principles – some were misguided and others left incomplete. A report on Indian energy published in 2012 by the International Energy Agency (IEA) comments that: “India now finds itself trapped half-way along the transition towards an open and well-performing energy sector.”

In its election manifesto, the new government said: “BJP realises the need to focus on generation and distribution of power as a national security issue, so that the growth is not negatively impacted due to supply issues in the energy sector.” It added that it would take steps to maximise the potential of a wide range of energy sources, conventional and non-conventional, and that it considered energy efficiency and conservation “crucial to energy security”. A key manifesto commitment was to publish “a responsible and comprehensive national energy policy” – but the details of that have yet to be seen.

“Their agenda is huge,” says Joan MacNaughton, Executive Chair of the

World Energy Council's World Energy Trilemma work and one of the speakers at the India Energy Congress. “They have to tackle so many different things across the energy sector.” These, she adds, include: streamlining the licensing and planning system, “which is extremely complicated and time-consuming”; reducing bureaucracy generally; tackling widespread corruption; reducing or eliminating energy subsidies; working out how best to allocate coal resources, currently the subject of an auctioning process; re-thinking electricity market design; and increasing the proportion of renewable energy in the fuel mix.

“They have hugely ambitious targets now for renewables, which includes 100 GW of solar power by 2022,” says MacNaughton. “That is driven less by concern about climate change and more by concern about reducing the number of people without access to electricity by implementing off-grid, mini-grid or micro-grid solar at scale. But it's also going to have considerable environmental benefits.”

## PRIORITISING ECONOMIC DEVELOPMENT

Modi's attitude appears to be that, while mitigation of climate change is important, for now the government will be prioritising economic development and giving access to electricity to those people who lack it. This is understandable given that per-capita GHG emissions in India are well below those of, say, the United States and China. Moreover, India still has

hundreds of millions of people who live in extreme poverty. This helps to explain why, during a state visit to India by US President Barack Obama in January, the climate deal announced by the two leaders was much vaguer than the one signed by US and China during Obama's visit there last November.

“India needs a lot of help and support to grow its energy in a cleaner way,” says MacNaughton, “and some of that may actually not be more expensive than growing their use of energy in a dirty way, especially given how solar prices have come down and the extent of India's solar resource.” The second point she makes is that the donor communities – such as the western countries and the World Bank – “are making a very big mistake by just turning their back on coal-fired power generation”.

“What that means,” says MacNaughton, “is that countries that are desperate to build out their power supply, like India, will go for the cheapest coal-fired power generation that they can get away with. And that generally is subcritical.” She argues that the donors should be offering money for going to supercritical or ultra-supercritical coal technologies, which are much more efficient. India would then get more power from each power station constructed and would not be locking in dirty legacy stock. She also argues that donors should make this conditional on power stations being carbon capture and storage (CCS) ready, which would add very little to their cost – “less than 1%”.

One of the biggest challenges in reforming the power sector will be to address the parlous state of electricity utility finances. They have been battered by prices that do not cover costs and the high rate of power losses, around 25%, through inefficient transmission and distribution systems and outright theft. That will require reform of electricity pricing, which in turn will mean fundamental reforms of regulation.

## ENCOURAGING SIGNS

While the task facing Modi's government should not be underestimated, there are encouraging signs of progress.

The first full-year budget announced at the end of February prioritised infrastructure investment over fiscal consolidation – and contained a proposal for five 4,000 MW “mega-power” projects. The ambitious targets set for renewable generation are expected to be ramped up even further. And progress is being made towards new investment in nuclear power.

Certainly, MacNaughton came away from the New Delhi conference encouraged by what she had heard: “I formed the view that there is a lot more pace about the implementation of these changes than in previous governments. Of course, the jury is still out until it's done but I think big business is cautiously optimistic that things really are moving. That augurs well for the future of India.” ●

## ABOUT WORLD ENERGY FOCUS

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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.



## E.ON's 'bold new beginning'

Demerger strategy aims to 'recapture entrepreneurial initiative' in future and classical energy worlds



**The radical strategy announced by energy utility E.ON in response to the rapid transition in its markets has been described as “one of the biggest corporate re-structurings in Germany in recent years”. In this exclusive interview for *World Energy Focus*, CEO Johannes Teyssen explains why the company is dividing into two entities: one focusing on “the energy world of the future” and the other on the “classical energy world”. These two worlds will continue to co-exist, he says, but “have drifted so far apart that they require different entrepreneurial approaches”.**

*E.ON's radical new strategy – your “bold new beginning” – will involve splitting the company into two entities. Why did such a drastic step become necessary?*

The energy world is diverging. On one hand, the energy world of the “future” – characterised by renewables, intelligent networks and tailor-made customer-oriented energy solutions – is taking shape rapidly. On the other

hand, the classical energy world – of the backbone systems characterised by high-volume production and trading structures for electricity, gas and other commodities – remains irreplaceable for the public good.

Our analysis shows the two worlds have drifted so far apart – due to different applied technologies, investment cycles and costs of

capital – that they require different entrepreneurial approaches. We want to regain the entrepreneurial initiative in both areas. By doing so, we believe we'll create value for shareholders.

The primary objective in the conventional energy world is supply security; the key success factors are big, efficient assets at favourable locations with a low cost base. The new energy world is characterised by speed, agility, innovation and digitalisation; this means being alert to anything that could be of benefit to the customer, and being able to bring it to the market faster than anyone else.

*You have spoken of the new strategy as a response to “dramatically*

*altered energy markets”. What do the changes mean for energy utilities?*

There are three important observations to make about the changing energy world. First, Germany's *Energiewende* [energy transition] is not a purely political phenomenon. The Renewable Energy Law has been a powerful tool for expanding renewables, but change is being driven by new forces: by advances in technology and by the needs and desires of customers. E-mobility is a big driver of this trend. Increasing digitalisation is another important catalyst of change. Big Data is becoming a value driver in the energy industry just as it is in other industries. This will revolutionise the energy supply system.

Besides, customers have taken their place in the driving seat of the *Energiewende*. With solar panels on the roof, a micro CHP plant in the cellar, an electric car in the drive and an intelligent consumption control system, everyone can create their own *Energiewende*, either as a single household or by getting together with neighbours. Policymakers need to adjust to this reality.

Second, renewables won't simply replace conventional energy sources. Keeping conventional power stations connected to the grid, while at the same time further expanding renewables, requires a new market design – unless we want to walk with open eyes into a situation where the secure energy supply of a leading industrialised country is put at risk. Germany and Central Europe need

intelligently designed capacity markets to ensure supply security, and this requires a fair market and fair prices.

Third, we cannot assume that the fossil fuel era is past. Forecasters were certain that oil, natural gas, and coal would become scarcer and pricier, but oil is getting cheaper by the day and the price of coal has fallen dramatically. For any time span relevant to our decision-making today, fossil fuels won't be scarce.

With oil so cheap worldwide, some people say that Europe can no longer afford to transform its energy system because then we'll no longer be competitive. That's short-sighted. No one can reliably predict what oil prices will be in the future. More generally, the path to the energy future is complex and multifaceted. Conventional and new energy structures will co-exist for a long time to come.

*We have seen radical new energy and climate policies in the European Union – with its 20:20:20 by 2020 targets for emissions reductions, the share of renewables, and energy efficiency improvement – and particularly within Germany, with its Energiewende. How much of a role has policy played in your adoption of a new strategy?*

Political and regulatory change will continue to influence all parts of the energy industry. Whilst negative interventions are visible in the balance sheets of all major established energy players, regulatory incentives and legislation are driving the creation

of new market segments, such as renewables, distributed generation, energy efficiency and capacity markets.

We are creating two companies able to respond faster to changes in the political and regulatory framework – and to changes in the general market environment. Our strategy is not just an answer to the specific and sometimes questionable facts of European or German energy politics but rather builds on more fundamental and thus global trends.

*What did policymakers in the EU and Germany get right and what did they get wrong? Also, what do you make of the EU's new policy framework for the 2020s?*

The basic idea of the 2020-goal was convincing: a limited, measurable set of goals to be met at a fixed date. However, European and national policies failed to deliver a stable framework because existing and new goals were defined, leading to a plethora of measures, most of them interfering with each other. Ultimately this leads to a situation almost out of control, resulting in the need for additional regulatory and political steps, with one reform necessitating the next reform.

Hence, a clear vote for the 2030 framework to keep it simple. The most impressive energy policy instrument developed in the EU has been the Emissions Trading System (ETS) – an instrument to increase competition, clearly harmonised and in line with the

EU internal market. For the new 2030 framework I would strongly recommend – in line with a recent WEC survey – to have a strong ETS as the only leading goal. This would help to concentrate measures and avoid interference.

*Some commentators have suggested that the creation of a new company to own conventional generation and nuclear power assets is comparable to the creation during the financial crisis of so-called “bad banks”. How viable will the new company be, given market changes and the phasing out of nuclear power in Germany?*

Let me emphasise again: the new company will deliver valuable products and services to the energy systems of Europe and beyond. In addition to qualified conventional generation assets, the new company will also own the largest network of gas storage facilities in Europe. It will have access to the largest LNG terminal in Europe and will own all of E.ON's hydropower plants, which are among our most valuable assets. I would not transfer those assets to the allegedly “bad company” if I wanted to shirk responsibility for the costs associated with the nuclear phase-out.

We are setting up the new company with a strong balance sheet and an investment-grade rating. So-called “bad banks” in the financial industry have neither the quality of access nor a supporting balance sheet of such nature. It is irresponsible and unnecessary to label our new offspring with such terms.

*The new company will inherit liabilities for decommissioning nuclear reactors, the costs of which are uncertain. How is that likely to affect its future?*

The German legislature obligates operators of nuclear assets to set aside and maintain appropriate funds to ensure the safety of these assets. There is probably no other position on the balance sheet that receives more intense scrutiny than provisions for nuclear asset-retirement obligations. Provisions for nuclear asset-retirement obligations will be fully covered by liquid funds, securities and valuable physical assets.

*You have spoken of E.ON taking “new approaches to further developing each of its three core businesses”. Can you elaborate on that?*

The future E.ON's three core businesses are renewables, energy networks, and customer solutions. They fit together and reinforce each other, creating a business portfolio with stable earnings and strong growth potential. By 2020 we intend to become the leading provider of customer-oriented energy solutions, which will enable us to meet customers' demands for a more active role in the energy world.

We intend to take innovative approaches to developing the core businesses. We're already increasing our investment budget for these businesses in 2015. We'll further expand our wind business in Europe and in other selected target markets and strengthen our solar business.

We'll upgrade our energy distribution networks in Europe and Turkey, making them smarter, so that customers can take advantage of new products and services in areas like energy efficiency and distributed generation.

*Natural gas businesses have been having a hard time in Europe. What future do you see for yours?*

As the fossil fuel with the lowest CO<sub>2</sub> emissions, gas can contribute to a cleaner energy world in the context of the *Energiewende*. We still expect a stable future for our natural gas business.

Gas-based applications are extremely well suited to the heating market, even if in new housing developments renewable heat generation sources play an increasing role. The combination of natural gas condensing technologies and renewable technologies offers customers a cost-effective, low-carbon energy supply.

In power generation, the energy efficiency of modern CCGT power plants is very high – up to 60% – and can be further increased with heat extraction applications. In addition, gas-fired power plants can be switched on and off within minutes and are therefore very flexible. So they are a perfect match to the volatile supply from renewable electricity.

This requires market framework conditions to be set in the right way. We need incentives that enable efficient use of gas. In addition, a stable and reliable legal framework for Europe-



wide gas supply security and the efficient use of the existing pipeline and storage infrastructure are essential.

*A major determinant of our energy future will be the international climate change talks in Paris in December? What, for you, would be the best possible outcome?*

My expectations are slightly more optimistic than for previous meetings. The strong move of China and the US before the Conference of the Parties (COP 20) in Lima was an especially good signal for an ambitious global agreement in Paris. The development in China of pilot ETSS, with the goal of establishing a nationwide ETS by 2020, is also a very strong sign.

The best possible outcome would be ambitious binding targets leading to a global ETS. A level playing field for all industries affected by greenhouse gas abatement would trigger the investments needed for an energy transition. ●

## Fossil fuels will still supply 81% of our energy in 2035, says BP

**For anyone who worries about climate change, the messages in long-term energy projections released last month by BP make for grim reading. Despite projected rapid growth in renewable energy sources, BP expects that coal, oil and gas will each be supplying just over a quarter of the world's primary energy by 2035, with hydropower, non-hydro renewables and nuclear power together making up the remainder. BP describes its projections as "the most likely course for the world's energy system".**

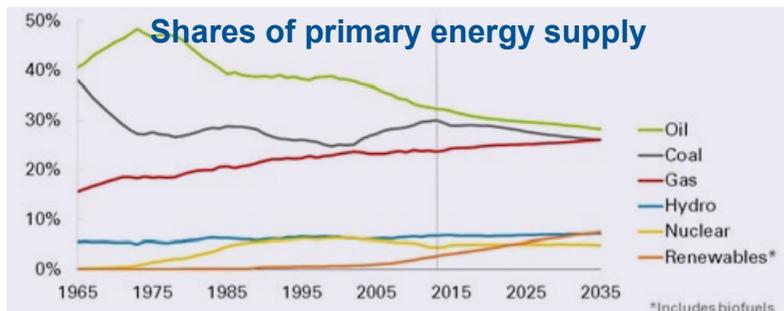
Launching the BP Energy Outlook 2035 in London, CEO Bob Dudley and new Chief Economist Spencer Dale stressed that despite the dramatic weakening in energy prices over recent months, the expectation is for energy demand to continue growing over the long term – by 37% between 2013 and 2035, an average of 1.4%/year.

A key message is that natural gas is expected to take the place of coal as the fastest-growing fossil fuel, with demand growing by 1.9%/year. Coal continues to grow, however, at 0.8%/year, marginally slower than oil, also at

0.8%/year. Strong growth in demand for liquefied natural gas (LNG) means it is projected to take a larger share of gas trade than pipeline gas by 2035.

One of the surprises of last year – and a clear contributor to the oil price plunge of recent months – was that US oil production rose by a record 1.5 million barrels/day, largely because of strong growth in tight oil production.

However, BP sees US tight oil production growth slowing over time, with Middle East production once more gaining ground – leading Dale



**"By 2035 all the fossil fuel shares are clustered around 26-28% with no single dominant fuel," says BP, "a first since the Industrial Revolution."**

to describe reports predicting the impending demise of OPEC as "greatly exaggerated". "OPEC in our *Outlook* remains a central force in the oil market for the next 20 years," he said. "OPEC's market share around the end of the *Outlook* is expected to be around 40%, pretty similar to its average over the last 20 years."

Commenting on the sustainability of energy supply, Bob Dudley said: "The base case in the *Outlook* – based on our interpretation of current policies and intentions – is for carbon emissions to rise by 25% by 2035. Such a path would be materially higher than one which would be generally regarded as consistent with limiting the rise in global mean temperatures to 2 degrees. The options considered in this year's *Outlook* highlight that no single change or improvement is likely to be sufficient on its own. And picking winners in advance is fraught with difficulties. This underpins the importance of policymakers taking steps that lead to a meaningful global price for carbon."

A significant change over the coming two decades will be a shift in oil and gas trade patterns. Historically, oil has flowed primarily from east to west, but this is seen changing because of higher US production and growing demand from China and India. ●

BP's Outlook can be accessed at: [http://bit.ly/bp\\_2035](http://bit.ly/bp_2035)  
For the World Energy Council's Jazz and Symphony scenarios to 2050, go to: [http://bit.ly/WEC\\_2050](http://bit.ly/WEC_2050)

## Chile's Imelsa plans 170 MW hybrid clean power plant

**Chilean company Imelsa is working on a US\$228 million hybrid electricity generation complex that will combine several different generation technologies to supply 170 MW of clean power to the country's central grid. The first phase of the project involves constructing a 40 MW solar photovoltaic plant, with start-up scheduled for December.**

Located at La Ligua in the Valparaíso region, the Doña Carmen complex will have three plants that will combine pyrolysis and biomass, producing synthetic diesel that will be used to fuel generators with a capacity of 22 MW.

The plants will use non-recyclable

plastic, tires and guano from a neighbouring industrial poultry farm. The project will also have a wind farm and a natural gas LNG/diesel plant.

Up to 90% of the capital will come from local distributor Saesa and Swiss solar firm Etrion. ●

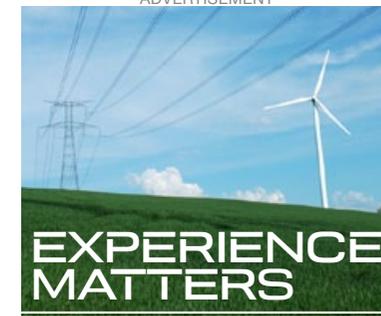
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## Obama vetoes Keystone XL bill

**US President Barack Obama has vetoed a bill approving the building of controversial Keystone XL oil pipeline from Canada to the US Gulf Coast. It is only the third time he has used this power.**

The president said: "This act of Congress conflicts with established executive branch procedures and cuts short thorough consideration of issues that could bear on our national interest."

Following last year's elections, the Republicans control both houses of Congress. ●



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## Climate treaty negotiating text agreed at Geneva talks

**Seven days of talks involving 194 countries at the Geneva Climate Change Talks culminated last month in agreement of the negotiating text for the Paris COP 21 climate change conference in December – a major milestone for an international climate treaty due to come into effect in 2020 that, if agreed, would have a huge impact on the future of the energy industry. The text covers mitigation, adaptation, finance, technology and capacity-building.**

The Geneva talks were a follow-up to the Lima Climate Change Conference in Peru last year (COP 20), which produced elements for the negotiating text known as the Lima Call for Climate Action (see p5 of our January issue).

“I am extremely encouraged by the constructive spirit and the speed at which negotiators have worked during the past week,” said Christiana Figueres, Executive Secretary of the UN Framework on Climate Change (UNFCCC). “We now have a formal negotiating text, which contains the views and concerns of all countries. The Lima Draft has now been transformed into the negotiating text and enjoys the full ownership of all countries. The text was constructed in full transparency. This means that although it has become longer, countries are now fully aware of each other’s positions.”

The negotiating text is available on the UNFCCC’s website and will be edited and translated into the UN’s official languages. After this, it will be communicated to the world’s capitals by the UNFCCC secretariat before

the end of March. Agreement of the negotiating text fulfils the accepted timetable for reaching a possible treaty because it alerts capitals to the fact that a legal instrument could be adopted in Paris. “It does not, however, set this possibility in stone,” said Figueres. “It merely opens the door for this possibility. As for the legal nature of the agreement, this will only be clarified later in the year.”

The next step is for negotiators to narrow down options and reach consensus on the content. Formal work and negotiations on the text will continue at the Climate Change Conference in Bonn in June and at two sessions in September and October. Additionally, ministerial-level meetings throughout the year will include climate change on their agendas.

“What is needed now,” said Figueres, “is vertical integration so that the views of heads of state, through ministers and to negotiators reflect a seamless and consistent view of ambition, common ground and ultimately success in December.” ●



Chairman Alexei Miller last month confirmed that Gazprom is poised to begin construction of the pipeline that will transport 30 bcm/year of Russian gas to China via the proposed western route as soon as the necessary agreements are signed. His announcement followed meetings with Zhang Gaoli, First Vice Premier of China’s State Council, and Wang Dongjin, Vice President of CNPC. ●

## Oil price volatility causing jitters despite February rally

**After hitting a low of almost \$45/barrel in the middle of January, the price of Brent crude rallied in February to more than \$62/b. However, the energy industry remains concerned at the high level of volatility, with some members of OPEC starting to call for an extraordinary meeting, on the basis that it remains possible that the oil price could resume the precipitous fall that took place between June 2014 and January 2015.**

The International Energy Agency, in its Medium-Term Oil Market report published last month, says: “Lower upstream investment will slow supply growth, leading to a rebound in the call on OPEC as early as 2016.

When that happens, US light tight oil may demonstrate a much greater ability to scale up production than conventional output and may find itself in a position to compete directly with OPEC as a source of swing supply.” ●

## NEWS IN BRIEF

### TURKEY SETS 2023 TARGETS FOR RENEWABLE POWER

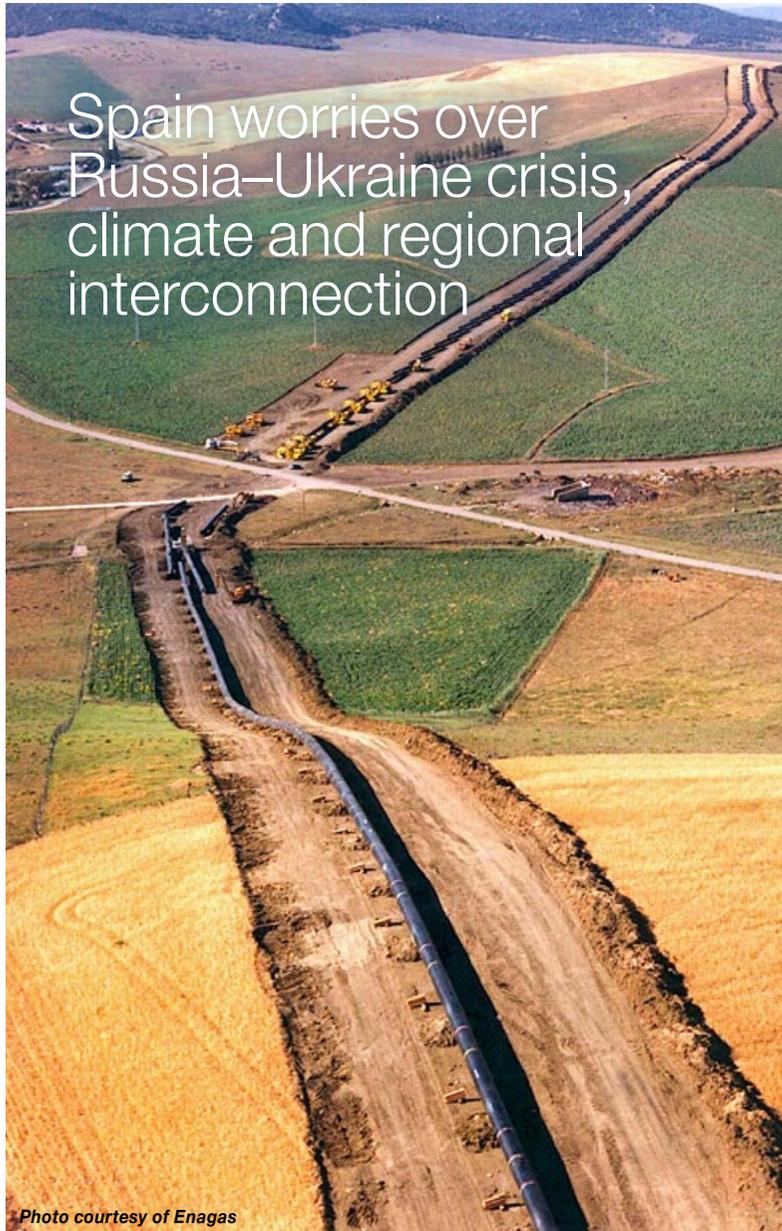
Turkey last month published its first Renewable Energy Action Plan, setting a target of 30% of its energy to come from renewables by 2023. Of this, 34GW would be hydropower, 20 GW wind power, 5 GW solar PV power and 1 GW each of biomass and geothermal power. The plan was developed by the Ministry of Energy and Natural Resources with EBRD support.

### SOUTH AFRICA PLANNING 3 GW GAS-POWER TENDER BY YEAR-END

South Africa’s Independent Power Producer Office is planning a tender for 3,000 MW of new gas-fired generation to ameliorate severe power shortages. A request for information (RFI) is expected this month. The issue was discussed last month by ministers and CEOs at the World Energy Council’s Africa regional meeting, the Africa Energy Indaba, where it was highlighted that “market mechanisms need to be in place for those primary energy systems to be successful”.

### THE NETHERLANDS JOINS THE WORLD ENERGY COUNCIL

The Netherlands this month joins the World Energy Council as its newest member country, taking the number of European member countries to 33. The Dutch member committee, the Council’s 94th, aims to promote safe, affordable, and reliable energy in the country. As part of its work, it will provide a platform to discuss and work on the future of energy while representing the Dutch perspective within national, regional and global energy debates.



Spain worries over Russia–Ukraine crisis, climate and regional interconnection

Photo courtesy of Enagas

**Spain's World Energy Council member committee has made a national Issues Monitor one of its strategic annual projects. It enables members to compare the country's energy performance with that of other regions – and provides energy leaders with an insight into policy priorities and critical uncertainties. High on the list in 2015 are the Russia–Ukraine stand-off, climate policy and the need for greater regional gas and electricity interconnection, writes Dr. Arturo Gonzalo Aizpiri, Chairman of WEC Spain.**

Spain and Portugal are a good example of an integrated energy market. However, in the European context, the Iberian peninsula can be considered an energy island because of its geographical distance from Europe's central axis, its low energy self-sufficiency, and its limited interconnections with the rest of Europe.

Despite the growing trend of decarbonisation, fossil fuels play an essential role in the Spanish energy mix, despite indigenous production being almost non-existent. So boosting renewables, developing energy efficiency plans, and fostering the search for self-produced resources are vital parts of the country's strategy to reduce its dependence on energy imports.

In this context, in 2013 WEC Spain decided for the first time to undertake the World Energy Issues Monitor at a national scale, with the aim of providing the country's energy leaders with

***With its substantial LNG and pipeline gas import infrastructure, Spain could become an alternative gas supply route to the rest of Europe. But more gas interconnection capacity with the rest of Europe would be needed.***

insights into policy priorities and critical uncertainties. The project turned out to be a great success in 2014, with the results presented at several high-level events and shared with the Energy Minister as a tool for analysing energy sector issues.

The availability of this tool each year would make it possible to carry out analysis of the evolution over time of the impact, uncertainty and urgency of energy matters relevant to Spain, in addition to a regional comparison. WEC Spain has therefore agreed to develop a 2015 edition of the national monitor and to make it a key project in its annual activities. The latest results are due to be launched in Madrid by the end of April.

Top critical uncertainties this year include Russia, climate policy and regional interconnection.

#### **RUSSIA–UKRAINE STAND-OFF**

The Russia issue has moved from a medium-impact/medium-uncertainty area on the previous energy issues map to become the top critical uncertainty for Spain (see page 8). This reflects the influence of geopolitical conflicts on the energy sector, despite Spain not being dependent on Russian gas imports.

The effects of this circumstance on prices, security of supply and energy flows are clear examples of the importance of such situations. Securing and diversifying Europe's energy supply has emerged as a challenge for politicians and business leaders after the stand-off over Ukraine. Of particular relevance is that Spain could become an alternative gas supply route to the rest of Europe due to the large investments in liquefied natural gas (LNG) and pipeline infrastructure that have been made. These have bolstered Spain's ability to import gas as LNG and through a new 8 bcm/year pipeline from Algeria.

#### **REGIONAL INTERCONNECTION**

Regional interconnection is one of the top critical uncertainties because it is crucial to ensuring continuity of supply under crisis conditions. Interconnection is not only a matter of great interest for Spain, but also necessary if Europe is to have a secure internal market.

The European Union recommends that the minimum electricity interconnection capacity between countries should be at least 10% of the installed power generation capacity in each of them. The Spanish electricity system does not meet this minimum level. Its export capacity to northern Europe is just 6% of the installed power generation capacity – even after the inauguration on 20 February of a new interconnection with France.

The high degree of uncertainty and impact of climate policy for the country



## WEC EVENTS

### World Energy Leaders' Summit Manila, Philippines 17–18 June 2015

A high-level, invitation-only event held within the Asia Clean Energy Forum. The summit provides a platform for the global energy leaders' community to facilitate dialogue on energy issues. It will be co-hosted by the President of the ADB and will include a private meeting of ministers.

### Executive Assembly Addis Ababa, Ethiopia 26–30 October 2015

The WEC's annual meeting, welcoming the WEC community and representatives from the African and global energy sectors. It will also host the WEC's governance meetings.

### 2016 World Energy Congress Istanbul, Turkey 10–13 October 2016

The World Energy Congress is the triennial flagship event of the World Energy Council. It has gained recognition since the first event in 1924 as the premier global forum for leaders and thinkers to debate solutions to energy issues. The event also provides an opportunity for executives to display their technologies and explore business opportunities. With the upcoming Congress in Istanbul – to be held under the theme “Embracing new

### 4th European Energy Forum Paris, France 12–13 March 2015

This event – with the theme “On the way to COP 21” – will assess national and regional climate initiatives in the EU, aiming to identify practical solutions. It will include a special workshop on the energy trilemma which seeks to understand the opportunities and challenges for policymakers, business, finance, and civil society in determining post-2015 sustainable development goals for energy. Organised by WEC France. Attending will be Paul Watkinson, France's Chief Negotiator for COP. [http://bit.ly/wec\\_france\\_COP21](http://bit.ly/wec_france_COP21)  
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frontiers” – the event will have taken place in 21 cities around the world.

*Catch up on the 2013 Congress at:*  
<http://bit.ly/1n1IWWV>

## WEC MEMBER COMMITTEE EVENTS

### Big data meets energy – unlocking new opportunities Berlin, Germany 12 March 2015

Big data exists in all areas of our lives – and the energy sector is no exception. But what exactly do we know about big data and what applications are there in the energy world? What new business models does big data present for the energy sector? What can we learn from other industries? And do we have the right conditions for investment. Organised with IBM Germany.

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[kaim@weltenergiertat.de](mailto:kaim@weltenergiertat.de)

### Energy and Geostrategy Madrid, Spain 13 May 2015

WEC Spain will present its latest publication Energy and Geostrategy 2015 at this event, co-organised with the Spanish Ministry of Defence. Speakers will discuss current energy issues from a global geopolitical perspective. Topics will include Russia and Europe's energy security, the effects of conflicts in the Middle East on the energy industry, the prospects for nuclear energy, energy poverty, and the energy industry of the Arctic.

*Download last year's edition at:*  
<http://bit.ly/1zaZOzi>  
*Contact: Javier Jiménez Pérez*  
[jjimenezp@repsol.com](mailto:jjimenezp@repsol.com)

### 3rd Seminar on the Ecuadorian Electric Sector Riobamba, Ecuador 15–17 April 2015

This event will gather representatives from Ecuador's energy sector to discuss the country's energy development. For the first time, to celebrate Ecuador joining as a member of the WEC, the seminar will have sessions looking at the sector from the lens of the Council's studies.

<http://ecuacier.org/seminario/>  
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### 2015 Energy Summit Toronto, Canada 26–28 May 2015

There is an important, but typically untold, story about the role that energy plays in the economic, social, environmental and regional fabric of Canada. The Energy Council's conference will address this knowledge gap. Sessions will include: external influences; energy economics; infrastructure; and social impacts.

[www.energy.ca](http://www.energy.ca)  
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SEE MORE WEC EVENTS ON  
[www.worldenergy.org/events/future](http://www.worldenergy.org/events/future)

## ABOUT THE WEC

The World Energy Council 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 Council's work covers all nations and the complete energy spectrum – from fossil fuels to renewable energy sources.

## JOIN OUR NETWORK

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 World Energy Council 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;
- take part in annual industry surveys, study groups and knowledge networks;

by visiting our website and contacting our team on: <http://www.worldenergy.org/wec-network>

## CONTACT US



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