

## CHANGING TIMES

Energy leaders  
reveal the issues  
that keep them  
awake at night



### INTERVIEW

Rachel Kyte of Sustainable  
Energy for All

### SHIFTING THE LNG GLUT

How the market  
for liquefied natural  
gas is changing

### YEMEN'S ENERGY REVIVAL

What happens after the war

### CO<sub>2</sub> PHASED OUT BY 2060

Targets can be  
met, says IRENA



## Embracing new frontiers

**Energy leaders are adapting to a rapid change of pace and are identifying new priorities**

Commodity prices and climate change policy remain the top issues keeping energy leaders awake at night, according to the latest iteration of the World Energy Council's 'World Energy Issues Monitor'. The survey of 1,200 energy leaders in business, industry, government and academia from 95 countries also reveals that regional integration and resilience issues are likewise high on the list of concerns.

The eighth edition of the World Energy Issues Monitor demonstrates that the impact of the energy transition is having a real and measurable impact on global energy leaders.

Giving an overview of the survey, Christoph Frei, Secretary General of the Council, says: "The essence [of the survey] is that energy leaders are being hit by disruption. The Issues Monitor not only measures that this has been

increasing over the past year but shows that the resulting new business models are mature to the extent that 'leap-frogging' in energy has become a reality."

To illustrate the point, Frei uses rural electrification, where tens of thousands of households are using solar and battery storage systems to bypass the need to access the traditional electricity generation and transmission infrastructure – in much the same way that some parts of the world moved directly to cell phones, leap-frogging the landline communications infrastructure.

He notes that such disruptive trends and technologies are changing the role of the utility. "The Issues Monitor shows that decentralisation, digitalisation, storage and market design are things that five years ago were at the

back-end of interest but have consistently moved up the agenda globally."

Having to cope with these new realities defines the title of this year's survey World Energy Issues Monitor 2017: Exposing the New Energy Realities.

### Looming threats

As in previous years, the Issues Monitor focuses on the approximately 40-odd issues that make up the global energy agenda. While these remain roughly the same from year to year, new issues have emerged over time. As Frei says: "Things like cyber threats were not there five years ago." Some items have also changed name as terminology changes. For example, smart grids now come under digitalisation.

Concern surrounding economic growth continues to dominate the Monitor. Frei points out that global growth has slowed and is an issue that is "absolutely at the top" of people's thinking. According to the Monitor, the effects of economic growth, or lack thereof, was one of the issues of highest change globally from 2016 to 2017. In short, slowing economic growth puts greater uncertainty around primary energy demand and the adjustments the sector must make.

### Triple lens view

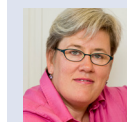
In making comparisons with last year, Frei looks at the Issues Monitor through three "lenses": the macro view, the innovation standpoint, and in terms of resilience.

At the macro level, commodity

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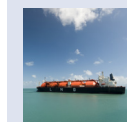
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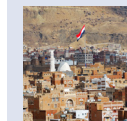


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prices remain at the top of the list of concerns for energy leaders and are of great significance to all regions. As a driver of the “grand energy transition” climate uncertainty is also seen as a macro issue and there is great concern over the ambiguity surrounding the outlook for CO2 prices. Also critical is regional integration.

Frei explains: “What I think people mean by this is the lack of regional integration and the trend towards less integration.” He added that it is a global concern – not just in Europe, but also in regions such as Latin America, North America, Africa and Asia.

## New business models are mature to the extent that ‘leap-frogging’ has become

In terms of innovation, Frei observes that while some technologies and energy sources are becoming increasingly important, others are falling off the radar. “Nuclear is suffering on the Issues map, as is coal and carbon capture and storage (CCS)... Meanwhile, renewables and energy efficiency are locked in at the top of the agenda,” he says. “Unconventional [fuels] have suffered since last year under the low commodity price [scenario] but it is probably among the volatile issues that go hand-in-hand with volatile oil/commodity prices.”

Considering the third lens, which Frei calls “the resilience lens”, the main issues are: cyber threats, extreme weather risks and the energy-water nexus. These

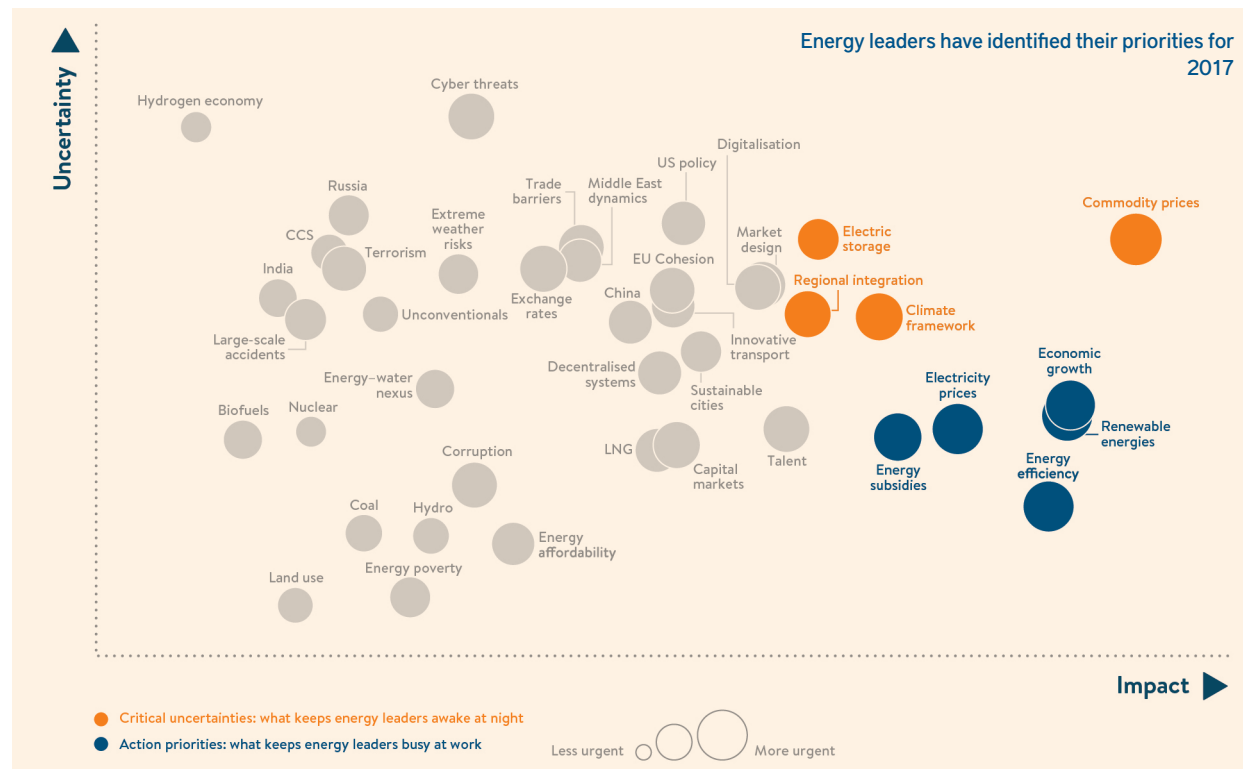
issues do not appear high on the list of concerns. However, when looking at the number of countries and regional responses, Frei observes that all of these issues are at the top of the agenda when looking at innovation efforts.

Addressing the energy-water nexus first, he says: “In China it’s a number one issue. There is a strong link between water and coal use, so China is pushing innovation and making policy adjustments with this in mind.”

Meanwhile extreme weather is an issue that has affected many parts of the world – El Niño in Latin America, hurricanes and typhoons in regions such as North America and Asia, and droughts in Africa. Frei points out that 96% of electricity generation directly depends on the availability of water. “The only technology that doesn’t depend on water is wind,” he says.

The cyber issue is high on the agenda for East Asia, Europe and Australia – all areas where there is a sophisticated infrastructure that is integrated and digitalised to some extent. “People are waking up to the reality that there is something looming there and in the studies we have published on resilience we have seen there is no shortage of case studies already. These show the full spectrum – from theft of data and damage to equipment, to blackouts in the Ukraine,” says Frei.

Resilience, along with climate change and the new business models, says Frei, are the three fundamental forces driving the grand transition. He summarises: “The Issues Monitor shows beautifully how the new growth reality is at the top of people’s mind along with



the climate framework uncertainty. The new business models are really going up, while the resilience picture is one that shows great regional disparity.”

## The search for talent

This year’s Issues Monitor has also thrown up a few new findings. While renewables and energy efficiency remain two of the key things that are keeping energy leaders occupied, there is now a real recognition that talent is important.

Frei says: “We can now really see that it’s important but it’s not only quan-

titative, it’s also a qualitative thing. We cannot directly measure it but it’s something we hear when we talk to people. As all the connecting issues become more important, that translates into a talent challenge.”

If the 2017 Issues Monitor shows anything, it is that energy leaders are

**1,200**  
energy leaders surveyed  
from 95 countries

preparing to tackle the energy transition.

As Frei concludes: “The key takeaway from the report is that the transition is absolutely felt and expressed by the 1,200 energy leaders we surveyed. It is felt and expressed through the confirmation that we are in a new growth normal and that the key driving forces of the energy transition – climate, in terms of decarbonisation; the new business models, through decentralisation, digitalisation and market designs; and resilience, which has great regional variety – are shown amazingly through the Issues Monitor.” ■

# Learning from the success stories

Sustainable energy for all is possible through sharing good examples, SEforALL's Rachel Kyte tells World Ener-

No one's saying moving the world further towards more sustainable energy practices is going to be straightforward. Yet we can make it a lot easier simply by talking to each other, learning from the world's best examples and adapting them for use elsewhere, says Rachel Kyte, Special Representative of the UN Secretary-General and Chief Executive Office of Sustainable Energy for All (SEforALL). This was ahead of the UNSEforALL Forum that took place 3-5 April in New York.

"You need to marshal the evidence, benchmark progress and then tell the stories," she says. "The stories of success don't travel as fast as the stories of failure – and people don't necessarily know, from jurisdiction to jurisdiction, country to country, city to city, company to company, how others achieved what they did."

Making sure the success stories do get told is a major part of the work of SEforALL, whose SEforALL All Forum held in New York in early April provided an opportunity to share and learn from those stories.

The organisation was the brainchild of former UN Secretary-General Ban Ki-moon. Back in 2010, perplexed

by the absence of sustainable energy targets from the UN's Millennium Development Goals, given their importance to the development agenda, he initiated a revised list, adopted in 2015, which are now known as the Sustainable Development Goals (SDGs).

"This was a man who had grown up in very humble circumstances in Korea and hadn't had access to reliable, affordable energy, let alone clean power, when he was growing up, so this was personal for him," says Kyte.

Ki-moon's advisory panel on sustainable energy came up with three key points for a sustainable energy goal; 1) that it should focus on closing the energy gap between rich and poor countries regarding power and clean cooking; 2) that there needed to be a step change in the rate at which energy efficiency was improving globally and 3) that there needed to be much more renewable energy in the mix.

These objectives are now enshrined in the seventh SDG on energy:

- By 2030, ensure universal access to affordable, reliable and modern energy services
- By 2030, increase substantially the share of renewable energy in the global



One billion people still have little or no access to electricity  
Photo credit: Aarthi Sivaraman, 2016/World Bank Group

energy mix

- By 2030, double the global rate of improvement in energy efficiency
- By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology
- By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries - in particular, the least developed countries, small island developing states, and land-locked developing countries, in accordance with their respective programmes of support.

The targets also informed the work of the SEforALL initiative, which was spun out of the UN system in 2016, to become a separate international organisation building on the increased global cooperation on energy which contributed to the 2015 Paris climate change agreement. SEforALL focuses on universal access to modern energy services, improving energy efficiency and boosting the use of renewable energy.

The task is immense, given that more than 1 billion people still have little or no access to electricity and almost 3 billion do not have access to clean cooking, according to the World Bank. Tackling the underlying problems requires a radical overhaul of the way the world produces, distributes and consumes energy. It was decided that the SEforALL initiative should be



The SEforALL initiative brings people together to work for sustainable energy for all



centred on public-private partnerships to maximise chances of success.

“There needed to be a platform where those partnerships could be founded and then work together to keep pushing each other to do more,” Kyte says. “Our job is to shake things up so that people are asking the right questions and understand the job that lies in front of them – what they have to do on Monday morning.”

### Building confidence

That involves building the confidence of political leaders to take the steps needed to implement sustainable energy policy, and calling to account partnerships that aren't making progress.

For example, SEforALL has worked together with various African governments to create prospectuses for companies seeking to invest in sustainable energy investment opportunities, as well as developing action agendas to help countries to outline and enforce sustainable energy policy.

“We aim to provide a neutral space, where we can say what needs to be dif-

ferent. Our goal is to help our partners go further faster,” says Kyte.

In-depth data analysis to assess progress and show what more needs to be done is vital to maintain momentum.

To that end, SEforALL works with the World Bank and other partners to produce two key reference publications, the Regulatory Indicators for Sustainable Energy (RISE) and the Global Tracking Framework (GTF).

“We bring data sets together and then ask different questions of them than usually get asked,” says Kyte.

RISE is a benchmarkable index covering 111 countries and using a range of indicators, showing the health of the regulatory system for energy access,

renewable energy and energy efficiency – effectively, a global energy policy scorecard.

“You can go into the website, manipulate and interrogate the data and look at why one country is performing better than another in terms of the kind of regulation they have in place, says Kyte.

The latest RISE survey, covering 2016, was released in February 2017. Among its key findings, RISE showed how the energy access gap in sub-Saharan Africa, where policy frameworks remain weak, is a matter for concern.

### You don't have to completely reinvent the future, you just need to be a bit more like Denmark

How African nations can combine renewables, including geothermal and hydropower, with fossil fuels – notably gas – to fill this gap rapidly, without compromising sustainable energy targets, is a hot topic for the region.

But the story is not just about a lack of progress among the world's poorest countries. Kyte notes that a country such as recently war-ravaged Afghanistan has made huge strides in improving electrification and adoption of off-grid solutions. Meanwhile, even within the developed OECD countries, there are huge disparities in progress towards sustainable energy goals. Kyte says looking at how those that have made most progress, such as Denmark, have achieved it could help those who

are lagging behind.

“You don't have to completely reinvent the future, you just need to be a bit more like Denmark,” she says.

On energy efficiency, countries around the world were seen to be doing relatively well on creating an enabling environment for energy efficiency. But they seemed to be systematically neglecting others, including sectorally-targeted policies for large consumers, the public sector and utilities, as well as the development of financing mechanisms.

While most surveyed countries had renewable energy targets, regulations for the sector and incentives for green power generation, many fell short on network connection for renewables, as well as carbon pricing and monitoring, RISE data suggested.

Meanwhile, the latest Global Tracking Framework was released at April's SEforALL All Forum, two years on from the first GTF. The framework is complementary to RISE in that it assesses progress made in countries towards meeting their SDG energy targets.

“The 2017 GTF dataset is really fascinating. It's going to be really challenging to the international community,” says Kyte, speaking in advance of the GTF launch.

“The kind of progress that will need to be made over the next 15 to 20 years requires strong and healthy institutions, good regulations, smart public policy, a steady hand on the wheel – and the conditions that allow domestic and foreign investment to come in and play its role.” ■

# 111

The number of countries covered by the RISE benchmarkable index

# Glimmers beyond the glut

Global exports are heading for a hefty surplus. It will take a brave developer to sanction a sizeable new plant without lining up buyers first

The gas liquefaction construction boom is here. Millions of tonnes of capacity are coming on stream over the next two or three years from the US to Malaysia, the Russian Arctic to Australia. Supply is poised to outstrip demand, so some developers are delaying final investment decisions (FIDs) on fresh capacity until a rebalancing of the LNG market is in sight – unlikely before the early-to-mid-2020s.

More than 140m tonnes a year of global LNG capacity is due to be added between the start of 2016 and end of 2019, with 51m t/y scheduled to start up this year alone, consultancy Energy Aspects said. Much of this originates from Australia – which is set to surpass market leader Qatar's 77m t/y of LNG capacity this year – and the US, whose capacity is forecast to reach 65m t/y by the end of the decade.

Demand for LNG grew partly because of the Fukushima disaster of March 2011, which prompted a shut-down of all Japanese nuclear capacity while safety checks were carried out. This provoked a scramble among Japanese power companies to secure LNG import contracts. Meanwhile, there was

a healthy gas demand growth in South Korea, the world's second-largest LNG importer after Japan, and huge potential in markets in India and China.

But Japanese demand is now expected to fall as nuclear plants come back online, and demand in South Korea is flat. Increased demand from China, India and elsewhere can be expected to help fill the gap. But that needs long-term installation of import and pipeline infrastructure so the countries can switch from coal to gas.

The result is that many LNG developers are already retracting their horns and delaying the sanctioning of new capacity until they can be sure of finding buyers. The trend is clearly visible in the fall off in FIDs recently. Only two projects, adding around 6m t/y of new capacity, in Indonesia and the US, reached FID in 2016, the lowest figure since 2008, according to Wood Mackenzie.

## Supply onslaught

At present, supply and demand in the global LNG market remains broadly in balance. This April-May, as demand eases, the LNG market is expected



**It will really take off in 2024-25. That's when big new trains will be required in the market**

to move to oversupply. There are expectations of a cold 2016-17 winter in China and northern Asia, a recent spike in Japanese LNG demand and strong growth in emerging markets such as Pakistan and Egypt, but this isn't going to last.

"The market is going to move into an oversupplied position through the back of 2017 and into 2018, but it won't really be until mid-2018 until we will see substantial oversupply coming into the market," says Giles Farrer, an LNG market analyst at consultancy Wood Mackenzie.

Export capacity already exceeds demand – a situation that isn't likely to change this decade. Oversupply will contribute to downward pressure on

LNG prices around the globe next year and beyond.

Some LNG plants may not run at capacity for the next few years. In the US, despite the first cargoes reaching Asian markets, from Sabine Pass through the Panama Canal this year, offtake is likely to be determined by prices in Europe and they may not always be attractive enough to warrant shipping all the LNG that buyers are entitled to take.

In Australia, companies are weighing up whether the economics stack up for the drilling of new coalbed methane (CBM) wells to provide feedstock for Queensland's LNG facilities, some of which have been running under capacity. Meanwhile, there is pressure to

use more of the country's gas reserves for domestic consumption.

"We think the window starts to reopen in 2023, but it will really take off in 2024-25. That's when big new trains will be required in the market," says Farrer. The timing of these estimates suggests the amount of export capacity being sanctioned will remain limited until around 2019-20, though there will be some hotspots, such as the US and East and West Africa.

## Fresh pastures

On the demand side, major LNG offtakers and portfolio players, such as Shell, Total, Engie and Gas Natural Fenosa, will be busy seeking to increase uptake in emerging markets. Thirty-eight countries were importing LNG in 2016 compared with just 10 in 2008.

The main centres for LNG demand growth, apart from China and India, will be Pakistan, Egypt, Caribbean countries and southeast European states, and some Latin American nations. ■

**140m tonnes**  
The quantity of LNG capacity coming online between 2016 and end-2019





# Avoiding the most severe impacts of climate change

Global energy-related carbon dioxide (CO<sub>2</sub>) emissions can be completely phased out by 2060, according to the International Renewable Energy Agency (IRENA)

A joint report prepared by IRENA and the International Energy Agency (IEA) entitled Perspectives for the Energy Transition: Investment Needs for a Low-Carbon Energy Transition, claims that increased deployment of renewable energy and improved

energy efficiency in G20 countries, and globally, can achieve the emissions reductions needed to keep the rise in global temperatures to within 2°C of pre-industrial levels. This would avoid the most severe impacts of climate change.

**Emissions will need to fall continuously to 9.5 Gt by 2050 to limit warming to no more than 2°C above pre-industrial temperatures**

**\$29 trillion = extra investment needed by 2050 for decarbonising energy**

IRENA notes that while overall the investment needed for decarbonising the energy sector is substantial – an additional \$29 trillion by 2050 – it amounts to a small share (0.4%) of global GDP. Such investments would have macro-economic benefits, according to IRENA.

IRENA claimed that such investment could boost global GDP by 0.8% in 2050 and generate new jobs in the renewable energy sector that would more than offset job losses in the fossil fuel industry. Additional jobs would be created by increased energy efficiency.

## Power sector ramp up

Renewable energy now accounts for a quarter of global power generation and 16% of primary energy supply. To achieve decarbonisation, the report says that by 2050, renewables should comprise 80% of power generation and 65% of total primary energy supply.

This contrasts with the Scenarios recently published by the World Energy Council which said that solar and wind could account for between 20% and 39% of power generation by 2060.

Globally, 32 Gt of energy-related CO<sub>2</sub> were emitted in 2015. The report states that emissions will need to fall continuously to 9.5 Gt by 2050 to limit warming to no more than 2°C above pre-industrial temperatures. ■

## NEWS IN BRIEF

### AUSTRALIA WARNS OF GAS AND POWER SHORTAGES

The Australian Energy Market Operator (AEMO) warns there could be widespread power shortages in New South Wales (NSW) and South Australia from next year, followed by Victoria in 2021 and Queensland from 2030. According to an AEMO market assessment, declining gas production may result in insufficient gas to meet projected demand for supply of electricity from summer 2018-19.

### INDIAN RENEWABLES SOAR TO 16% OF ENERGY MIX

Renewables now account for 16.1% of India's installed power capacity, according to Mercom Capital Group. Citing data from the Ministry of New and Renewable Energy (MNRE), the firm said that as of 31 January, 2017, the country has 50,745 MW of renewable electricity capacity (excluding hydropower). Mercom Capital said that thermal generation is declining as no new projects are being commissioned. It notes, however, that coal still remains the leading power source by far with a 59.8% share of the capacity mix.

### SOLAR COSTS TUMBLE

Abu Dhabi has achieved a record low cost for electricity generated by solar power. The Abu Dhabi Water and Electricity Company (Adwec), the procurement arm of the Abu Dhabi Water and Electricity Authority (Adwea), has signed a deal with Japan's Marubeni and the Chinese firm Jinko Solar to build a 1.17 GW solar power plant in Sweihan that will generate electricity at 2.42 US cents/kWh.

# Yemen's energy challenge ahead

Once the war ends the country will rebuild its energy infrastructure

Two years of conflict in Yemen has forced oil and gas production to be put on hold for the time being. When the guns fall silent, the damaged pipelines and equipment will be repaired and output will resume. As this recovery progresses, attention will also focus on restoring power to all corners of the country.

Oil was a late starter in Yemen, with the first successful drilling in the early 1980s. International oil companies, which had been active for decades elsewhere in the Middle East, jostled for a place in this new oil frontier, seeking ingenious ways to overcome the challenges of the spectacular but rugged terrain. Over the years, production increased impressively, reaching 424,000 barrels a day in the early years of this century. Reserves in 2012 were estimated at 3 billion barrels.

By the time the current conflict escalated in 2015, the Yemeni authorities were encouraging international companies to bring techniques honed elsewhere to halt a steady decline in oil production. But the violence reached such an extreme that year, forcing most firms to move their staff to safety, and production since then has slowed to a trickle.

Given the fiscal pressures that low oil prices have forced on firms in all divisions of the global energy industry, some foreign companies have decided to exit Yemen to cut costs. But others are resolutely determined to wait for the day when it's back to business as usual. Austria's OMV, for example, says it "stays committed to Yemen", adding that "a quick restart of operations remains possible, once the security situation permits".

## Jewel in Yemen's crown

The same is true for Yemen's liquefied natural gas industry, the jewel in the country's energy crown. This \$4.5bn facility at Balhaf, on the shores of the Indian Ocean, began production in 2009, fed by a 200-mile-long pipeline from gasfields in the Marib region. The project is run by Yemen LNG, a consortium headed by France's Total, which holds a 39.62% stake. The other shares are held by the state-owned Yemen Gas Company, Hunt Oil, SK Innovation, Korea Gas Corporation (Kogas), Hyundai Gas Corporation and Yemen's General Authority for Social Security and Pensions.

Since April 2015, Yemen LNG has been unable to ship the 6.7m tonnes per



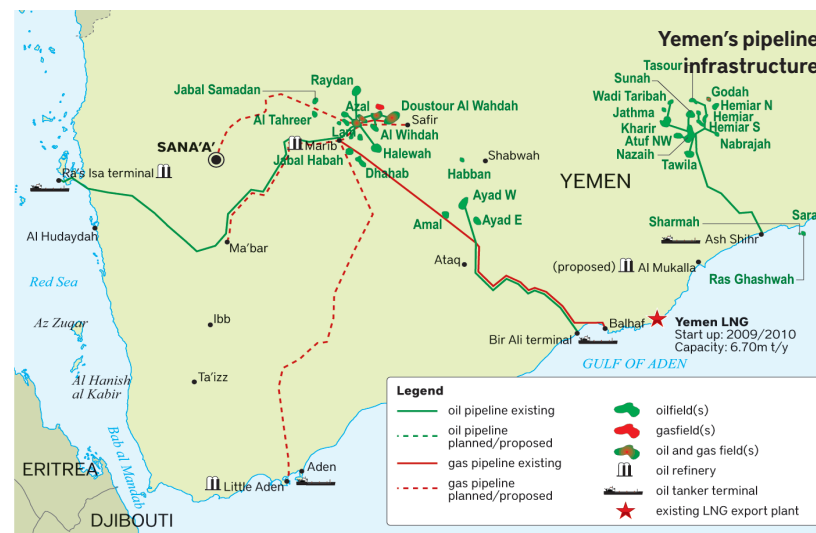
year of LNG it produces to supply its three long-term customers: GDF-Suez, Kogas and Total Gas & Power. With heavy fighting elsewhere, the consortium operating the Balhaf plant decided that it would be prudent to halt production. But they did not do so under duress. According to Yemen LNG, the facility has been secured “in a preservation mode”, undamaged and technically ready to restart when the

moment is right.

Also waiting for a chance to resume normal operations is the Aden oil refinery. This was shut down for a time in 2015 when rebels attacked the city. Since then the facility has been back in government hands. But with the previous supply of Marib crude oil cut, the refinery has been operating as a distribution centre for imported oil products only.

Yemen's main oil and gas-producing regions – Marib, Hadhramaut and Shabwa – are far away from the main centres of conflict. When peace is restored, international firms will be back on the ground, ready to introduce innovative techniques of the kind that Oman has been developing successfully to sustain its oil output.

Closely allied to Yemen's oil and gas recovery will be a huge programme to repair electricity generating stations,



**OMV: a quick restart of operations remains possible, once the security situation permits**

which have been damaged in the conflict, and to repair power lines. Yemen has historically been the least electrified countries in the MENA region, with only about 40% of the population having access to electricity. Yemen had worked to increase access to electricity and to integrate its electric grid with neighbouring Saudi Arabia's. In 2007, the two countries established a grid interconnection, expansion program that was to allow for transfers of between 500 megawatts and 1,000 megawatts between each other. Yemen also entered into negotiations with Ethiopia to interconnect with them to buy electrical energy from the hydropower produced in the south of the country, via an electrical HVDC connection between Yemen and Djibouti. The Yemeni government also had plans to increase renewable energy in electricity generation to 20% by 2025. All of this will be for the future when the conflict stops. Yemen will be looking to its Arab partners and the international community as a whole for help and investment in this enormous and vitally important project.

Newly confirmed membership of the World Energy Council will grant Yemen access to the pool of up-to-the minute expertise that can be found within the membership of this global organisation. ■



### 2017 Executive Assembly Lisbon, Portugal 16-19 October 2017

The Executive Assembly is the World Energy Council's annual general gathering of the global energy leaders' network. It convenes over 1000 energy leaders, from industry, governments, academia and others for ongoing dialogue on the challenges and opportunities facing the energy sector. Hosted by Portugal, the week-long event will allow for high level, exclusive CEO and Ministerial discussions, peer-to-peer interaction and sharing of best practice.



## MEMBER COMMITTEE EVENTS

### 11th German-African Energy Forum 25 - 26 April 2017 Hamburg, Germany

Energy for industry is the special focus of the German-African Energy Forum's 11th edition, for which World Energy Council Germany has partnered with the German-African Business Association. Mining, automotive, manufacturing as well as energy resources and (local) value creation are further topics decision-makers from African and German business and politics will address, as well as electricity, off-grid and on-grid solutions plus innovation: What is new in and for Africa? The forum offers the opportunity to get in touch and discuss current topics, projects and opportunities for markets for renewable and conventional energy on the African continent.

African delegations will have the opportunity to present their countries exclusively in country sessions. On Thursday, April 27th the German-African Business Association offers a tour of the Hannover Messe, the largest industrial trade fair in the world. The registration for the tour is part of the registration process for the Energy Forum, and the fee includes bus-shuttle service Hamburg-Hanover and lunch. Participation cost is 690 EUR for members of World Energy Council Germany and 1,380 EUR for Non-Members. Please contact Nicole Kaim-Albers (kaim@weltenergieerat.de) to benefit from the members' discount.  
**Contact: Moritz Hunger and Peggy Schulz**  
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**Website: www.energyafrica.de**

### Multiple Pathways to Clean Energy Regina, Canada 8-10 May 2017

This year's Regional Forum aims to profile the policies and initiatives underway in Western Canada, to learn and better understand the experiences and the issues in play, and to find promising solutions as a step to making further progress towards achieving each jurisdiction's goals and policy preferences. Speakers at the event organised by World Energy Council Canada will examine three pathways where exciting developments are underway: greening the generation mix, implementing leading-edge climate policies, and exploring the possibility of enhancing grid interconnections to interprovincial electricity trade. Political leaders will share their insights and perspectives from provincial and federal

governments and four well-known Session Chairs will guide their panels to discuss energy transformation, climate policy, and the regional electricity grid. In addition, on May 10 participants are invited to a project site visit to SaskPower's Boundary Dam, the world's first fully integrated CO2 capture, use and storage project. The participation fee is 100 CAD for the site visit, the conference members pay a reduced fee of 200 CAD, non-members 250 CAD. Please register by 5 May.

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**E-mail: max.arsenault@energy.ca**  
**Website: <http://www.energy.ca/western-canada-regional-forum-2017>**

### Energy and Geostrategy 2017 Madrid, Spain 11 May 2017

World Energy Council Spain will present the 2017 issue of the "Energy and Geostrategy" report series, published together with the Spanish Institute for Strategic Studies for the fourth time. Speakers will cover topics such as the geopolitics of renewables, the relationship between Iran and Saudi Arabia, the geostrategic implications of the new US administration energy policy as well as energy geopolitics in the Mediterranean and Latin America. These subjects will be examined in a panel discussion formed by authors and the publication coordinator. The event is co-organised with the Spanish Ministry of Defense and is aimed at participants from the public and private sector as well as academia. Registration is possible until 10 May. The 2016 edition is available for download here.

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### ABOUT THE WORLD ENERGY COUNCIL

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: **[www.worldenergy.org/wec-network](http://www.worldenergy.org/wec-network)**

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