

# WHICH RHYTHM FOR LATIN AMERICA?

Future energy scenarios for the region

**ALPINE TRAILBLAZERS**  
Austria leading the way

**CONOCOPHILLIPS  
CEO INTERVIEW**  
Adapting to oil's  
new reality

**TECHNOLOGY  
TAKEOVER**  
Drones and blockchain  
are coming

# The blockchain technology challenging the energy world

As companies queue up to lend their financial support, the rise of this new innovation is unstoppable

Ten utility companies have come together to support the Energy Web Foundation (EWF) in an effort to extend the use of blockchain technology across the sector.

Centrica, Elia, Engie, Semptra, Shell, SP Group, Statoil, Stedin, Tokyo Electric Power, and TWL have been brought together by the US's Rocky Mountain Institute in a move that secures \$2.5m in funding for the Foundation.

EWF is a partnership between Rocky Mountain Institute and blockchain technology developer Grid Singularity that aims to identify and assess promising energy-use cases for the technology and launch an energy-focused platform to provide the necessary functionalities at scale.

Blockchain technology reduces transaction costs by keeping a single logical copy of transaction records – avoiding the need for reconciliation and settlement. Because of its unique attributes, blockchain technology has the potential to play a significant and potentially game-changing role in the energy sector.

The technology can be used to reduce the cost of utility bills or the need for working capital in wholesale gas market or electricity transactions. More significantly, however, blockchain technology can allow millions of energy devices (heating, ventilation and air conditioning systems, water heaters, electric vehicles, batteries, solar PV installations) to transact with each other at the distribution edge while providing support to utilities and grid operators to integrate more utility-scale variable renewable energy capacity at much lower cost.

## Cutting out the middleman

Blockchain is seen by many as heralding a significant shift in the industry. Speaking at a recent workshop hosted by the World Energy Council, Axel Von Perfall, Head of Innovation and Technology, PwC, Germany, commented on its potential to accelerate the growth of distributed generation.

He said: "There has been a lot of talk about cutting out the middle-man, which in the energy sector is the utility.

Blockchain technology can really change the energy business. At its core, it's a technology that allows direct communication and direct trading between different counter-parties. It will take care of the settlement of the transaction, billing and payment. It will be a radically simplified vision of the energy world."

Ewald Hesse, Vice President of EWF Austria, pointed out, however, that challenges remain.

"The big problem we have in the energy market is that there are over 300 communication protocols. A big task of the EWF will be to open-source all those protocols. We are looking at it like Google; translation is free and it should be the same here. We have to bring together all the stakeholders and ask them their requirements and expectations of the core technology and then fund these core technology developments."

Having secured first round funding from the 10 energy company affiliates, EWF plans to start Round 2 funding in August this year. ■

## News in brief

### WEST AFRICA CLEAN ENERGY CORRIDOR LAUNCHED

The West Africa Clean Energy Corridor (WACEC), a designated area where renewables are promoted, has been launched in Cape Town with the aim of accelerating the deployment of utility scale renewable energy into the region. Announcing the launch, renewable energy expert at the Economic Community of West African States Centre for Renewable Energy and Energy Efficiency (ECREE), Jansénio Delgado said the region has big potential in terms of renewable energy from hydro, solar, wind and biomass as a means of improving energy access. Preliminary conclusions show the development of 10 GW of electricity can still be injected into the grid by 2030.

### EU PLANTS FACE TOUGHER EMISSIONS LIMITS

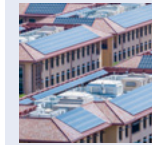
Large combustion plants in the EU will have to meet stricter emission limits by 2021 under a new EU law. Under new rules approved by European member states, power plants will have to cut the amount of toxic pollutants such as nitrogen oxides they emit. The stricter limits will apply to all 2900 plants operating in "the bloc" including coal-fired power stations as well as biomass, oil and gas power plants and offshore rigs.

### POWER INDUSTRY FOCUSES ON RENEWABLES

According to Global Power Industry Outlook 2017, a new analysis from Frost & Sullivan's Power Generation Growth Partnership Service programme, global renewable power investment could reach \$243.1bn in 2017.

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While California is breaking records for renewables use, the arrival of blockchain and drones in the energy sector gets ever closer

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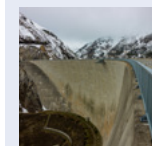
The World Energy Council's future scenarios for energy systems in Latin America imagined to 2060, exploring how nations can work together

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Austria may be a small nation but its renewables policy is ahead of the game – three quarters of its electricity is generated from renewables

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A guide to forthcoming World Energy Council member events, including October's Executive Assembly in Lisbon, Portugal.



67.2%

Energy generated by renewables last month in California

Soaking up rays: solar panels on buildings in the bay area of San Francisco

# California generates 80% of its power from renewables

The Golden State smashes energy record with its renewable use

California made the most of its sunny climate to break previous records on renewable energy use, generating 67.2% of its energy from renewable sources last month.

The US state saw its renewable energy use rise to 80.7% of total energy generation on 13 May when combined with hydropower facilities.

The Golden State also set a record for wind power generation on 16 May,

producing 4.99 gigawatts.

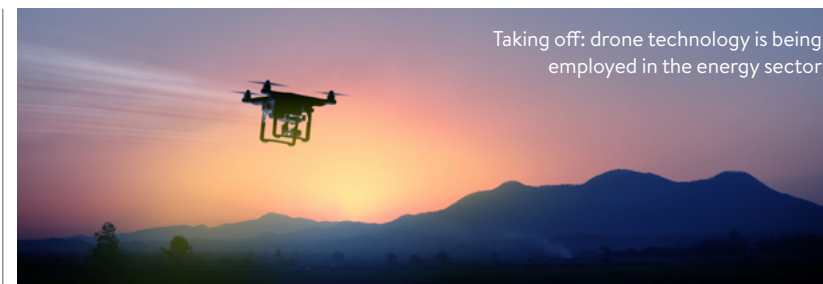
The achievement has been attributed to the ample sunshine, full water reservoirs and more solar facilities which have been built recently in California.

“It’s going to be a dynamic year for records,” a spokesman for California Independent System Operator, the largest grid in the state, told local media outlet SF Gate. “The solar records in particular are falling like dominoes.”

San Francisco is on target to run all its public transport on clean energy by 2054 – but the state also has to contend with extreme weather risks including droughts and forest fires.

California, which has an economy roughly the size of France’s, has set a target of comprising 50% of its power mix with renewables by 2030. Wind and solar already account for around 15% of the state’s electricity generation.

It is not just on the more liberal west coast of the US that renewables are taking hold. Despite some climate change skepticism coming from the White House, \$100bn has been invested by renewables firms in low-income rural counties across the nation, so they are well-established in many states whatever comes next. In 2016, the solar industry employed 200,000 people in the US, a figure which is rapidly growing. ■



Taking off: drone technology is being employed in the energy sector

# Drones ahead for oil and gas

A tech start-up which makes drones for oil and gas pipelines has received an investment boost

Drones which can monitor energy infrastructure from above and collect big data are a step closer to becoming a reality on oil and gas pipelines after a critical investment decision.

SkyX, a drones manufacturer, will receive \$5m from China-based Kuang-Chi Group, its founder and CEO Didi Horn said.

A former fighter pilot with the Israeli Air Force, he created the company in 2015 to use increasingly powerful drones and big data analytics for both private and public companies operating in the energy sector.

“Our model is about acquiring, analysing and delivering critical data,” he said.

SkyX drones have a fixed wing design and helicopter features enabling them to take off and land on small charging stations set up in the fields alongside oil and gas pipelines.

70-90%

Saving estimated by switching from ground-based monitoring systems to drones

They can fly long distances autonomously between each station, beyond the site of human operators where it is legal to do so.

Horn estimates these systems save energy businesses 70-90% of the budget they would typically spend on monitoring and data using ground-based systems and manpower, and pilots in planes.

The company will now start rolling out its drones and services to more customers throughout North America. ■

# Latin America and the Caribbean Energy Scenarios: Rock, Tango or Samba?

There has been much talk of energy integration in Latin America and the Caribbean for decades but progress has been patchy. A new report from the World Energy Council presents potential scenarios up to 2060

Despite the clear benefits of regional energy integration, the development of projects in Latin America and the Caribbean (LAC) have not advanced as quickly as many would have hoped, mainly thanks to political and regulatory problems.

As part of its series of World Energy Scenarios, the World Energy Council has published a report, Latin America & The Caribbean Energy Scenarios, which examines the future of LAC energy to 2030, and beyond to 2060, and explores the opportunity for nations working together to increase prosperity and deliver a sustainable future.

The report details possible outlooks for regional integration by assessing the possibilities according to three different scenarios – Samba, Tango and Rock, where Samba represents a world of high productivity and innovation with strong market forces and robust economic growth. Whereas Tango is

a more central, government shaped world to achieve sustainable growth; and Rock being the least favourable, where economic growth is low and countries are more inward-looking.

Gerald Davis, Executive Chair, Scenarios, at the World Energy Council, says: “The reason we have scenarios is because we can’t be sure about everything. Some of the drivers are very powerful and long-lived... but one of the big uncertainties is how fast these economies will grow. Also, we’re not quite sure how high up the agenda climate change will remain. When countries are inward looking and their economies are shaky – Venezuela is a good example – the number one priority is food, water, health, domestic jobs.”

## Clear benefits

The LAC Scenarios report is clear, however, that regional integration, and electricity connections in particular,



Political instability has stoked tensions throughout Latin America

bring numerous benefits – an observation that has been backed up by many studies over the last few decades. Primarily, regional integration enables the sharing of resources between countries.

For example, the northern part of the region has complementary hydrological cycles to the south. Recognising and using these differing rainfall patterns is crucial, especially in a region that is largely dominated by hydropower.

The same applies to any other energy resource – whether it is power from wind, geothermal or solar, or electricity derived from the vast quantities of gas in Argentina. Enormous economic benefits could be gained

if countries could wheel electricity across borders instead of investing in expensive domestic power plants.

In addition, having a region that is integrated in terms of energy would make the whole system more resilient to risks such as extreme weather events, which are becoming stronger and more frequent and result in huge costs at national level. Network interconnection would also accelerate the integration of intermittent renewables such as wind and solar in the region.

## Brazil

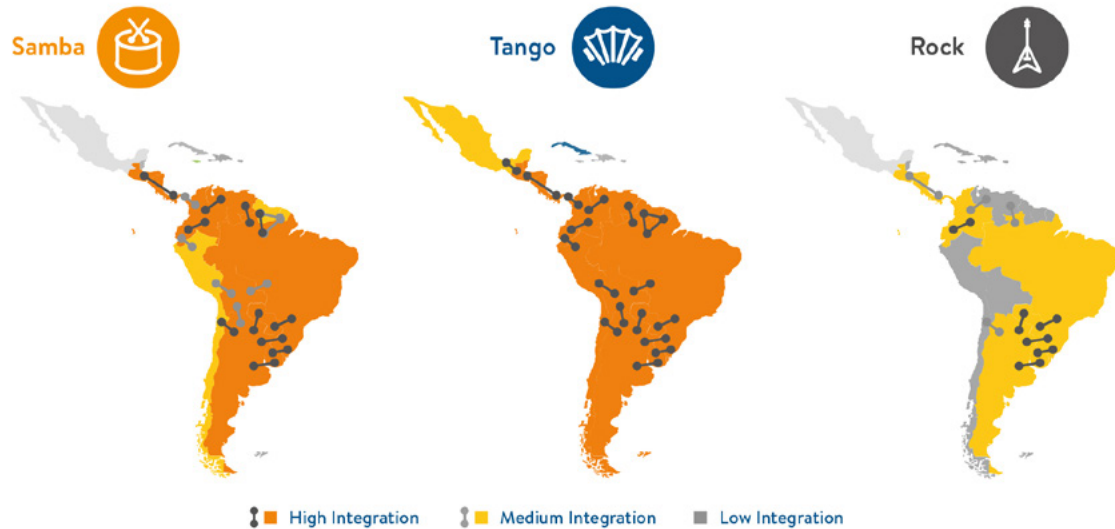
As the biggest country with perhaps the most to gain from greater integration, Brazil has been given special attention.

José da Costa Carvalho Neto, Chair of the Programme Committee of the World Energy Council and former CEO of Eletrobras, Brazil noted: “Brazil represents 50% of the region’s power demand and has boundaries with 10 of its 12 neighbours in South America. It is therefore very important in terms of interconnection.”

Brazil is currently a net importer of electricity, mostly from Paraguay. Under Samba its economy would grow relatively fast and it would need to import electricity from other countries.

According to Neto, studies show that if South America’s transmission network was completely integrated, Brazil would increase its firm elec-

## THE POTENTIAL OF LAC REGIONAL INTEGRATION DEVELOPMENT ACROSS SCENARIOS



Source: World Energy Council

tricity generation by more than 100 terawatt hours. “That is more or less the consumption of Argentina, without building any power plants,” he notes.

### Cautiously optimistic

Regional integration is already a focus of attention in the LAC energy sector, as evidenced through projects like Arco Norte (connecting Guyana, Suriname, Brazil and French Guiana), SINEA (covering the Andean Community: Colombia, Ecuador, Peru and Bolivia, as well as Chile as a partner), and SIEPAC II (connecting Panama, Costa Rica, Honduras, Nicaragua, El Salvador and Guatemala).

Regional cooperation, however, requires great trust between coun-

tries, working regional governance structures, covering a variety of policy areas, such as energy security, decarbonisation and infrastructure resilience. Accordingly, regional integration is strongest in Tango and weakest in Rock.

While the report does not predict how the future of network integration will pan out, regional experts are cautiously optimistic.

José Antonio Vargas Lleras is chair of the communications and strategy committee of the World Energy Council. He is also chairman of the Colombian Committee of the Council and President of CODENSA (ENEL subsidiary in Colombia). “We have

many interconnections in the region, particularly between Brazil, Uruguay, Argentina and Paraguay, he says. “These four countries are very well interconnected but when you look at the north – from Colombia to Ecuador, from Ecuador to Peru and to Bolivia – you will find transmission lines that are not well utilised. Less than 5% of the capacity is currently used. So many countries are asking themselves: why should I build new infrastructure if the one I already have is not being used?”

This thinking means the region is currently in the ‘Rock’ scenario, where countries are for the most part building their own generation and not making the most of interconnections.

Nevertheless, Lleras is still hopeful. “This Rock scenario we are in is very bad for the region. It results in very high-priced energy, it does not contribute to tackling climate change nor provide the same energy security as if we were integrated. It is the worst scenario from the energy trilemma point of view but I definitely still see hope.”

Claudia Cronenbold Harnes, Vice Chair of the World Energy Council for the Latin American & Caribbean Region and Chair of the Board of the Bolivian Chamber of Hydrocarbons & Energy, is also confident.

She said: “Integration in LAC is a clear case with clear economic gains. If we are looking at a horizon of 2060, then I would think the Tango scenario is the most likely one.”

“The issue relies on public policy and political will. Governments must work on this and will be forced to do so to ensure the sustainability of energy systems. Bolivia is a country which has a clear public policy oriented towards integration. The government is working to make Bolivia an energy hub in South America and is advancing in different projects to integrate and export energy to neighbouring countries.”

### Political will

While geography is a challenge, it is widely agreed that political will is indeed the main obstacle.

Davis says: “There are many good reasons why progress is much less than many would have hoped for and there are a number of good reasons for that. Firstly, thinking of South America, the Andean chain and the Amazon are formidable barriers. There are gas

## “One of the big uncertainties is how fast these economies will grow.”

reserves in Peru but a pipeline to Brazil would have to go over the Andes. But secondly, some countries don’t get on with their neighbours.”

Lleras cited a dispute between Chile and Argentina as an example of why countries are unnerved by the concept of resource and electricity sharing.

He explains: “Chile is a good example of a country that built its electricity system [by] putting a lot of confidence in its neighbour, Argentina. Some years ago Chile built some gas fired stations but when there was a lack of gas in Argentina and it decided not to export gas, Chile could not use its gas power stations.

“We have studied the Nordpool system for years and understand exactly what the benefits are but when the moment comes to make a decision, there’s a lack of political will. There are a lot of questions from the generation or transmission companies and in the end, someone is uncomfortable with the interconnection.”

### Hopes for the future

There is a critical need for large-scale infrastructure development and regional integration to unlock the greater economic potential and mitigate risks for Latin America and the Caribbean region.

Lleras concludes: “In the next 20 years we will not have all the infrastructure we need or the level of integration we would like but we will have made important developments.” ■

# Adapting to the new normal

ConocoPhillips' CEO Ryan Lance reveals how the company has responded to volatile prices with innovation and a leaner portfolio

These are uncertain times for the oil industry. It has been battered by price volatility, while the world is awash with crude oil, and many commentators think lower prices are here to stay.

With alternatives like liquefied natural gas starting to flood the market, and renewables increasingly entering the mix, the new scenario has presented a challenge for oil companies.

But ConocoPhillips' CEO Ryan Lance isn't waiting around for the oil market to come to the rescue with higher prices.

Instead, he is remaking the company he runs into one that can prosper in the new environment. Disposing of non-core assets, paying off debts, focusing on higher margin regions, and using technology to improve drilling efficiency have all been key.

"It's a well-supplied world when you look at what's happening in the Middle

East, Russia, around the world and what's happening with the unconventional. So that's what we worry about—how to run your company at a lower price deck over time," Lance said.

Even if oil prices do rise, that could only result in more supply coming onto the market, especially now that tight oil, sometimes referred to as shale oil, is taking up an increasing share.

The result for ConocoPhillips? "You had better figure out how to run a company at \$40 and \$50 per barrel of oil," Lance said.

One of the moves ConocoPhillips has made is to pay off debt and funnel cash back to its shareholders. That has been accelerated by a couple of major asset sales — the company sold off much of its Canadian business for \$13.3bn to Cenovus, then sold its San Juan Basin natural gas business in the US for \$3bn to Hilcorp.

About \$7bn of the Cenovus deal went straight into paying down debt.

## Sustainable savings

ConocoPhillips has also reduced the number of countries it operates in by half, from 28 just a few years ago. The US deep water business has been



ConocoPhillips CEO  
Ryan Lance

"It's a well-supplied world."

ditched, and it sold its stake in Kazakhstan's Kashagan oil project, which had become the world's most expensive thanks to runaway cost inflation.

Now it has a leaner portfolio, but one that is more resilient in times of volatile prices.

And it says its breakeven price, the amount it needs to sell oil by in order to cover the costs of recovering it, are now down to less than \$50 per barrel today from \$75 a few years ago.

The company has also reduced the

level of capital spending it needs to keep output flat to just \$4.5bn a year, compared with the \$17.1bn it spent in 2015.

## Tight oil revival

In a sign of where the market is moving, ConocoPhillips is picking up activity in the US, especially in the Eagle Ford shale. Well completion costs are down 40% since 2014 and the company says it has 3,500 locations it can drill at a cost supply of less than \$40 per barrel.

And investments have continued

across Asia, developing an offshore gas project in China's Bohai Bay and a deepwater exploration programme off Malaysia.

After the battering the industry has taken over the past couple of years, Lance wants to make sure his company is prepared as possible for the next storm.

"We're going to be in a much better and a much different position for the next cycle, which is coming, I don't know when and I don't know how deep it will be, but it will come." ■

50%

The reduction in ConocoPhillips' operating countries

# Scaling new heights

The Alpine nation of Austria may be small, but its strategic position and forward-thinking approach to clean energy make it a European trailblazer

It is fair to say that Austria is not a big player in international energy markets but its use of renewable energy has skyrocketed over the past decade.

Around three quarters of the electricity in Austria is generated from renewables sources, making it one of the European Union's (EU) top performers. Austria has been in the top 11 of the World Energy Council's Energy Trilemma Index for Energy Sustainability since 2014, being one of the few countries with a top AAA score in 2016.

Lower Austria, a state which borders Slovakia, generates all its electricity from renewable energy. Around two thirds come from hydropower, a quarter from wind energy and the rest from solar and biomass.

The need to reduce its dependence on energy imports is one of the driving forces behind the country's push towards increasing the share of renewable energy in its power mix.

Landlocked and bordering eight countries, Austria occupies an important strategic position, particularly as a conduit for natural gas pipelines for Russian and Norwegian gas.

It also deregulated its domestic electricity market as early as 2001. "In some respects, Austria has been a trailblazer in Europe," Barbara Schmidt, secretary general of The Austrian En-

ergy Agency, a Vienna-based industry lobby group, told World Energy Focus.

"We have learned that speed is of the essence in the implementation of new measures and policies," she added.

Schmidt said the advantage of being a small country is having the freedom to take bold decisions. Austria has been instrumental in initiating cooperation between the Alpine countries in energy matters

**"We have learned that speed is of the essence."**

"More or less the same is happening right now in connection with the introduction of the smart meters and the implementation of the Energy Efficiency Policy," she added.

Austria produces more electricity from renewables than any other European Union member, according to data from Eurostat—the EU's statistical agency.

Sweden is second on the list, already close to achieving its 2020 target of renewables comprising 34% of its power mix by 2020. "The historical development of our power supply is one unique aspect," she said. "When Austria was cut off from the coal



Green energy: The Andelsbuch hydroelectric power station in Vorarlberg

fields after the disintegration of the Habsburg Monarchy, the decision was made to rely increasingly on hydro-power.” Despite Austria not having the option of offshore windfarms, due to its landlocked position, it nevertheless has between 6,600-10,000 gigawatt-hours of technically exploitable onshore wind energy potential.

Hydropower makes up 37.3% of renewables with solid biomass the second-largest, at 29.2%. Nuclear power doesn’t form any part of Austria’s energy mix.

**“Studies show us that the consumption of electricity in Austria will rise from currently about 65 terrawatt hours annually to over 88 terrawatt hours.”**

**Electric push**

The country plans to increase its production of electricity through higher renewable power generation in the coming years. Austria’s renewable energy expansion goals have been given a boost by the European Commission from the Green Electricity Act—which offered grants for new projects.

“Scientifically sound studies show us that the consumption of electricity in Austria will rise from currently about 65 terrawatt hours annually to over 88 terrawatt hours,” Schmidt said. “For one, this is economic growth; for another, climate protection will also be a factor, because electricity is to replace other forms of energy, for example,

**100%**

**Electricity generated from renewables in the Lower Austria state**

transport or heating and the generation of hot water.”

Greater energy efficiency has helped to drive down the country’s consumption. The country’s Federal Energy Efficiency Act, mandates that between 2015 and 2020, utility companies must increase energy efficiency by 0.6% of their average annual sales every year.

“This target is much more ambitious than that of many other countries that have not adopted such numerical goals,” Schmidt added.

The government has a 51% share of VERBUND, the country’s largest electricity company, as well as a 31.5% stake in OMV, Austria’s largest energy company. OMV has operations across exploration and production, refining, wholesale and retail sales sites both in Austria and abroad as part of its portfolio. OMV is also the owner of the Baumgarten transit gas hub, which has the capacity to provide 45% of the demand in the countries they provide to, along with the Zeebrugge hub in Belgium.

**Challenges ahead**

In 2018, the German-Austrian electricity price zone will be divided, something Schmidt describes as “specifically due to a unilateral decision by Germany”. This follows a 2015 European Parliament mandate in response to the formation



Water power: the Andelsbuch power station in Vorarlberg

of so-called loop flows in the grids of neighbouring EU member states, such as Poland and the Czech Republic.

“This is a step backward and violates the spirit of the European internal energy market, which is supposed to grow, not shrink” Schmidt said. “The market regulations pose another risk. Currently, we’re dealing with intense malfunctions within the energy-only market. But there is hope that the new

policy respecting the promotion of renewables will provide some relief here.”

She added: “We need a functioning market, because electricity as a product has a value that must also be reflected in its price. Otherwise, we will not be able to fund the envisioned investments of about 50 billion euros in electricity generation, networks, and smart systems by 2030.”

Another test ahead will be the digiti-

sation of the energy sector, alongside a much more aggressive approach to reducing carbon emissions. Austria aims to slash its carbon emission by at least 16% by 2020, from 1990 levels. Nevertheless, the country is pushing ahead with its agenda. A host of wind and hydropower projects are on the table and waiting for final investment decisions. Austria seems well-positioned to meet the challenges ahead. ■



**2017 Executive Assembly**  
16 – 19 October 2017  
Lisbon, Portugal

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.



region and beyond. The two-day conference will reunite 20 international speakers and over 500 participants, including top level business executives from energy and service companies, political authorities as well as national and international media. The Gas and Energy Expo, carried out in parallel to the Congress, specialises in welcoming the latest innovation in energy products and services with up to 100 stands and more than 2500 visitors. Promoting the role of Academia and research in energy, the Congress will organise, for the sixth consecutive year, a call for technical papers open to both professionals and researchers.

The event has grown by 20% since it first began.

For more information, visit the website: <http://www.boliviagasenergia.com>

**World Energy Leaders' Summit (WELS) & Trilemma Ministerial Roundtable**

12 – 13 September 2017

Mexico City D.F, Mexico

World Energy Leaders' Summits (WELS) are high-level exclusive events organised by the World Energy Council for the global energy leaders' community to facilitate on-going dialogue on critical issues affecting the energy sector. Mexico's Secretaría de Energía (SENER) will co-host the Mexico City WELS, as a side event to DEMEX – Dialogues for the Future of Energy 2017. World Energy Leaders' Summits build on the Council's ability to convene this community and provide an important opportunity to address issues and challenges regionally. Key topics in Mexico include: Renewable Energy and Innovative Business Models – Driving and Enabling Changes; New Policy Powerhouses – Decentralised Approaches to Balancing the Energy Trilemma; Energy Systems Resilience – Preparing for Risks. Participation to the WELS is by invitation only to Ministers, the Council's Patron and Global Partner CEOs, officials and selected guests.

Website: <https://www.worldenergy.org/events/2716726e-2cb6-e611-80c3-00155d0511bf/>

**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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**ABOUT WORLD ENERGY FOCUS**

The World Energy Focus magazine is published monthly by *Petroleum Economist*. For more information, please visit [www.petroleum-economist.com](http://www.petroleum-economist.com) or [www.worldenergyfocus.org](http://www.worldenergyfocus.org)

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**MEMBER COMMITTEE EVENTS**

**Blockchain — the greatest revolution since the invention of the Internet?**

8 June 2017

Vienna, Austria

Blockchain technology has the potential to streamline and accelerate business processes, increase cybersecurity and reduce or eliminate the roles of trusted intermediaries (or centralised authorities): is it the greatest revolution since the invention of the Internet? Organised by the World Energy Council Austria, the event will welcome experts Cornelius Anger, Partner und Power & Utilities Customer Leader and Andreas Freitag, Manager & Blockchain Enthusiast, Advisory Services Ernst & Young to shed some more light on Blockchain technology and its implications for the energy sector.

For more information, visit the website:

<http://www.wec-austria.at/en/?subnav=veranst>

**Energy Trilemma and Energy Policies: Romania's challenges to balance the Trilemma**

15 June 2017

Bucharest, Romania

Analysing Romania's performance in the [2016 Energy Trilemma Index](#) and exploring the conclusions of the latest [Energy Trilemma report](#), the event will focus on identifying key energy policy issues and opportunities for Romania to balance the three dimensions of energy security, social equity and environmental impact mitigation. Following recommendations from the Trilemma, Ing. Andrei Petrişor Maioreanu, Secretary of State, Ministry of Energy of Romania and Dr. Gheorghe Indre, from CNR-CME will host the debate to further explore Romania's potential in terms of energy resources, development of transmission networks, financing mechanisms for large scale energy

projects but also looking at Romania's energy efficiency potential, social and environmental aspects of energy development, human resources policies and capacity building.

For more information on the Energy Trilemma, please visit the website: <https://trilemma.worldenergy.org/>

**Gas & Energy Congress**

23 – 24 August 2017

Santa Cruz, Bolivia

The Bolivian Chamber of Hydrocarbons and Energy (CBHE) will be organising the tenth edition of its Gas and Energy Congress. Bringing key actors from the energy industry, especially from the oil & gas sector, together with local, regional and international energy leaders and policymakers. Since 2008, the Bolivian Gas and Energy Congress positions the country at the heart of the energy debate in the Latin American