

# THE 24<sup>TH</sup> WORLD ENERGY CONGRESS PREVIEW

Edition VI

**WORLD ENERGY COUNCIL** | **WORLD ENERGY CONGRESS 24<sup>th</sup>**  
ABU DHABI | 9 - 12 SEPTEMBER | 2019  
**ENERGY FOR PROSPERITY**

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## 200 renowned energy experts to lead discussions at World Energy Congress in Abu Dhabi

Two hundred of the most respected energy experts, pioneers and decision-makers from around the globe have lined up to lead the discussions at World Energy Congress in Abu Dhabi.

In just 100 days' time, the UAE capital will host the 24th edition of the renowned event, marking the first time it has taken place in the Middle East. The President of Senegal, H.E. Macky Sall, heads an impressive list of

influential heads of state, government ministers and business leaders who will lead discussions and debates on the latest hot topics in the sector.

Held under the patronage of His Highness Sheikh Khalifa bin Zayed Al Nahyan, President of the UAE, the Congress will see Abu Dhabi become the centre of the global energy debate for four days from 9th to 12th September.

Extensively covering the full spectrum of energy output, supply and diversification from oil and gas to renewables and nuclear, the World Energy Congress is the largest, longest-running and most influential energy gathering in the world.

The 2019 edition will be held under the theme of 'Energy for Prosperity', paying homage to the leadership of

Sheikh Zayed, the UAE's founding father, and the great strides that have been made to deliver his vision of using natural resources and energy to not only unlock prosperity but to act as a catalyst for social and economic growth.

H.E. Dr. Matar Al Neyadi, Undersecretary at the UAE Ministry of Energy and Industry and Chairman of the UAE Organising Committee for the 24th World Energy Congress said: "The World Energy Congress is a global event that will bring together some of the most eminent figures from the fields of energy generation, supply, innovation and distribution to discuss, debate and ultimately tackle the defining issues of today in order to secure a more prosperous tomorrow. "As the first Middle Eastern nation to welcome the Congress, the UAE is proud to host the most result-driven and productive edition here in Abu Dhabi and to highlight the ongoing achievements of the UAE in the delivery of pioneering energy solutions and systems."

Taking place at the Abu Dhabi National Exhibition Centre (ADNEC), high profile global speakers attending the Congress include, H.E. Alexander Novak, the Russian Federation's Minister of Energy, Dan Brouillette,

Deputy Secretary, US Department of Energy, H.E. Megan Woods, New Zealand's Minister of Energy and Resources and H.E. Joao Galamba, Secretary of State for Energy, Government of Portugal.

Congress participants from the GCC include H.E. Khalid Al-Falih, Saudi Arabia's Minister of Energy, Industry & Mineral Resources, H.E. Mohammed bin Hamad al-Rumhy, Oman's Minister of Oil and Gas and H.E. Abdullah Al-Akwa, Yemen's Minister of Electricity and Energy.

Also speaking at the Congress will be leading figures from the United Nations, the World Bank, as well as Friends of the Earth, World Wildlife Fund, General Electric, BASF, Hyundai and Petronas, along with key decision-makers from Tata Motors Group, Rosatom, Jinko Solar, Singapore Power, ENI, Total, Siemens, GE Power, Engie, EDF among others. Held every three years, the World Energy Congress pioneers new ways of thinking to crystalize action around energy in order to deliver an equitable and sustainable future. Referred to as the 'Davos of energy issues' it is the ideal global platform to showcase the vision of the UAE government to creating a sustainable and future-facing energy sector that embodies the legacy and

leadership of the late Sheikh Zayed. As the first OPEC member to host the World Energy Congress and an established member of the World Energy Council, the UAE will deliver the largest and most action-orientated World Energy Congress in the event's long prestigious history in line with the goals outlined in the UAE's 'Energy Strategy 2050'.

A comprehensive development plan, the 'Energy Strategy 2050' is committed to creating a sustainable energy mix that maximises natural resources while transitioning towards greater use of clean fossil fuels, nuclear and renewables. Alongside key host sponsors Abu Dhabi Department of Energy, Abu Dhabi National Oil Company (ADNOC), Dubai Electricity and Water Authority (DEWA), Mubadala and Emirates Nuclear Energy Corporation (ENEC), participants in the Congress will deliver a positive and meaningful message and a legacy that will influence the way the world provides, consumes and regulates energy for generations to come.

Register now at [www.wec24.org](http://www.wec24.org)

# AMEA Power: Delivering energy projects to meet the huge demand in Africa

When it comes to providing energy on the African continent, AMEA Power (an Industry Partner of the 24th World Energy Congress) knows exactly what is required to succeed. With a focus on diversifying its portfolio with solar, wind, battery storage, gas and HFO, UAE-based AMEA Power, has established itself as a leader of the emerging market. This has seen them become a fast-growing developer with a mandate to own and operate a number of thermal and renewable projects not only in Africa, but also in the Middle East and Asia.

In Africa, significant improvements to infrastructure, and the growth of many of the continent's economies during the last decade, means that there is an increasing demand for energy from many countries in the region.

It is an opportunity that AMEA Power has embraced with its Independent Power Producer (IPP) model, which is expected to grow significantly, having been a primary vehicle for investment in Africa's energy sector.

To continue delivering sustainable projects, AMEA Power has recruited a team of senior and mid-level professionals with extensive experience in the power sector in Africa, Middle East and Asia. Through their recruitment drive, they have also provided a platform for local talent in Africa.

A highly experienced team, as well as the significant relationships that board members and employees have, re-affirms AMEA Power's position of being a key company in the industry today.

As the market continues to evolve within Africa, along with the essential

energy needs of the vast population and many challenging rural areas, AMEA Power has signed a number of agreements to develop power projects in different countries across the continent.

One of its latest commitments is for the development of a 30-megawatt (MW) solar power station in Togo. It will be the first of four solar plants to be built under Togo's electrification plan.

which will offer a significant boost to renewable energy development in the country.

Having built a strong pipeline of projects that has the potential to add 7,000 MW of capacity to its impressive portfolio, the future certainly looks bright for AMEA Power to go from strength to strength on the continent.



**H.E. Hussain Al Nowais**  
Chairman, AMEA Power

Prior to that agreement, a Memorandum of Understanding (MoU) was signed that will see AMEA Power build a 2 x 60 MW PV project in the Republic of Chad, north-central Africa.

AMEA Power has also recently reached financial close on two projects in Jordan. In the Ma'an region of the country, the \$74 million Al Husainiyah Power Plant, which is a 50MW solar project, reached financial close. AMEA Power also reached financial close on the 51.75MW Abour wind project,



# ENOC's 25-year journey and beyond: A rich past, an inspiring future

ENOC explored the potential of Dubai's energy assets, using primitive maps to navigate dusty roads, when the Group was established in 1993 with a payroll of just 200 employees. Today, the Group has a swathe of first-rate infrastructure projects, generated US \$13.8 billion in economic value for Dubai in 2016 and recorded a total of 256 million barrels in 2018 alone.

Unsurprisingly, the Group's initial payroll of 200 people has soared to 11,000 employees today. The Group's tremendous growth rate reflects its deep commitment to supporting Dubai's transformation over the last 25 years: the emirate's visionary leaders have achieved a rate of progress that is largely unmatched worldwide.

ENOC has grown into a key partner in Dubai's growth story, fulfilling

the emirate's energy needs with uninterrupted supplies. In 2015, the government announced that it would eliminate subsidies on diesel and gasoline, significantly spurring ENOC's financial growth. At a time when lower oil prices since 2014 have forced most of the world's energy companies to rein in their expenditure, ENOC has had the strategic capacity to broaden its scope.

Aligned with the ambitions of Dubai and UAE through Dubai Plan 2021 and UAE Vision 2021, the Group recognised the importance of gaining full access to the value chain and moved forward with the full acquisition of Dragon Oil in 2015, which became the Group's exploration and production arm. This acquisition was a game-changer for ENOC, transforming the Group into a fully-integrated oil and gas player. This contributes to the creation of a

knowledge-based economy as per the UAE's Vision 2021, as well as building on the positive socio-economic influence of national oil companies (NOCs) in the UAE.

ENOC's support of Dubai's goals is also achieved through corporate social responsibility (CSR) initiatives, and by raising awareness of environmental sustainability. The importance of ENOC's role as a reliable partner will only intensify as Dubai enters its next chapter of growth.

Dubai will be home to 5.2 million residents by 2030, and is expected to welcome 25 million visitors during Expo 2020. ENOC's pathway to 2020 is lined with opportunities that will be perused as the Group continues to deliver on our mandate to secure Dubai's energy needs. This is at the

heart of the Group's investment as we continue to develop an experienced workforce across upstream and downstream operations, and invest in critical projects involving exploration and production, increased refinery capacity, and expansion of ENOC's retail network and its service offerings.

## Hearts and minds

ENOC is blessed with the heart and intellect of exceptional individuals. People define the Group's success in many forms: Dubai's inspiring leadership and the Group's dedicated management, loyal employees, innovative partners, and valuable customers. Everyone within ENOC's fold is proud to support Dubai's unique narrative: a passion that is reflected in the Group's efforts to continually improve. ENOC's current transformation into an integrated energy player means everyone – regardless of hierarchy and background – unites as one team to achieve key objectives. A positive working environment, a desire to learn, and a passion for innovation are all key to creating the progressive culture that enables ENOC to flourish in a highly competitive industry.

ENOC's unwavering support of Dubai's goals means the Group's evolution will only accelerate to meet its ambitious targets. The last 25 years mark a laudable beginning in this valuable partnership – but there is much more road to explore.

## A fruitful future

ENOC's vision encompasses a flexible and forward-looking approach. It establishes the Group's core purpose and what it wants to be known for: not just a supplier of products and services, but an energy partner that adds value to its partners and the communities it operates in. ENOC's commitment to industry-leading performance reflects its growth ambitions, inspiration in delivery, competitiveness, and the provision of best-in-class products and services. Up to 2021, the Group will focus on expanding capacity to support domestic energy demand in line with Dubai Plan 2021 and in preparation for Expo 2020. This includes a 50 percent capacity increase at ENOC's Jebel Ali refinery to reach 210,000 barrels per day, as well as the construction of Project Falcon's 16.2km jet fuel pipeline

extension to Al Maktoum International Airport. While the UAE is gearing up for the Expo 2020, ENOC Group is committed to align its strategy to meet the energy needs of the country. The growing demand for service stations is directly linked to the country's rapid population growth, which presents an opportunity for ENOC to contribute



to expanding the UAE's infrastructural capabilities.

A key component of the Group's strategic direction is to expand its retail network within the UAE to deliver an increasing range of offerings, including non-fuel and other supplementary services. This includes ongoing renovation of major service stations in Dubai and an increase in world-class service stations from the current 129 to 191 by 2020 across the UAE.

**H.E. Saif Humaid Al Falasi**  
Group Chief Executive Officer, ENOC



# Decarbonization: Big ambitions, hard realities



Today there is immense focus on “Energy Transition” and “Decarbonization of energy”. Major oil and gas companies and power utilities are devising strategies to make their portfolios compliant with the Paris Climate Goals. The underlying premise for these actions is the belief that the transition to lower and zero carbon energy sources should be accelerated to mitigate the impact of global warming and the associated changes in global climate. How realistic are these goals? If history is any guide, energy transitions take decades. Prior transitions have

been led by new fuels with better functionality and lower costs, e.g., from wood to coal and from coal to gas. The current transition is likely to be more expensive and more challenging.

Much of the focus today is on decarbonizing electric power production, but only about one quarter of global greenhouse gas (GHG) emissions are from electricity. Coal, the most carbon-intensive fuel, accounts for about 40 percent of power generation globally. Even if coal consumption were to plateau within

the next few years, it will remain the fuel of choice in Asia for decades to come.

There are comparable obstacles to changing the energy mix in other sectors. Shifting the world’s car, truck, plane, and shipping fleets from oil-based to low carbon fuels will require decades, not years. And in industries like refining, petrochemicals, and cement and steel production, which together generate about 20 percent of global GHG emissions, carbon abatement is even more challenging. Because of

these facts, every long-term outlook, including all IHS Markit scenarios, fall well short of achieving the goal set out in the 2015 Paris Accord of limiting the increase in average global temperature to 2 degrees Celsius. The industrial sector is the largest global user of energy. Decarbonizing this sector would require a significant increase in the use of fossil-free electricity for direct thermal heat and pressure to substitute for metallurgical coke, methane, ethane and naphtha as feedstocks. At present, only 15% of industrial energy use is derived from electricity. Substituting fossil fuels with renewable power is feasible for some industrial processes (not all) and will

be very expensive. Electrochemical production of chemical compounds like ammonia is promising, but in early stages of development. In short, decarbonizing industrial energy use is hugely challenging and will be very expensive.

One potential solution to decarbonize the industrial sector is the application of Carbon Capture and Sequestration (CCS) for removing CO<sub>2</sub> in atmosphere. IHS Markit database of CCS projects indicates that at present, CCS facilities are sequestering only about 0.1% of the world’s CO<sub>2</sub> emissions. Increasing this to just 5% of global emissions annually will be a massive task and will require creating

a new industry comparable in size to today’s oil and gas industry which has been developed over 150 years. In summary, achieving Paris goals will require strategies to decarbonize all sectors of the global energy economy.

Although significant progress is being made to decarbonize the power sector, much work is needed to accelerate the decarbonization of other sectors.

**IHS Markit will run a side event alongside the 24th World Energy Congress. To learn more, please email [info@wec24.org](mailto:info@wec24.org)**

**Atul Arya**  
Chief Energy Strategist, IHS Markit



# The Energy Transition in MENA is clearly taking off

## The initial 'Desertec 1.0' vision has migrated to Desertec 3.0

The Desertec vision that the deserts of MENA will deliver enough electricity to cover the demand of their own population and to power up to 15% of European demand started as a dream ten years ago. To date we call that the 'Desertec 1.0 Idea'.

Desertec evolved through the industry initiative Dii to 'Desertec 2.0' focusing primarily on regional solar and wind projects and grid extensions. Recently the Dii industry movement expanded to a more global approach, including not only 'green electrons', but also 'green molecules', e.g. hydrogen, or synthetic methanol of ammonia produced from solar and wind energy. Desertec is, thus, being transformed into a holistic and pragmatic 'Desertec 3.0'.

Today we know that the desert regions will swiftly become the power houses for emission-free energy if public and private stakeholders are determined and find to each other.

From 'Desertec 1.0' to 'Desertec 3.0' Dii has issued its ground-breaking publication 'Desert Power 2050'.

More recently, the Dii Toolkit Initiative was launched. This includes practical guidance for project developers.

Dii in cooperation with SGCC/CEPRI, GEIDCO and The Gulf Cooperation Council Interconnection Authority (GCCIA) conducted an indicative study on the integration of large scale PV into the regional interconnected grid including the extension of a key connection to a remote power market. The question was how to integrate 1 GW solar PV plant (phase 1). The analysis included: environmental, social, economic, and energy security benefits. A cable study connecting the UAE with India gave better insight into the potential of synergies with foreign markets.

Interconnections in other parts of MENA are also gaining momentum. Morocco has been a first mover for about 20 years, connecting to Spain. In Tunisia the ELMED Interconnector is being revived. The interconnector will link Tunisia to Italy via Sicily through 600 MW HVDC. Another proposal is the interconnector between Egypt and Greece via Cyprus and Crete of 1,707

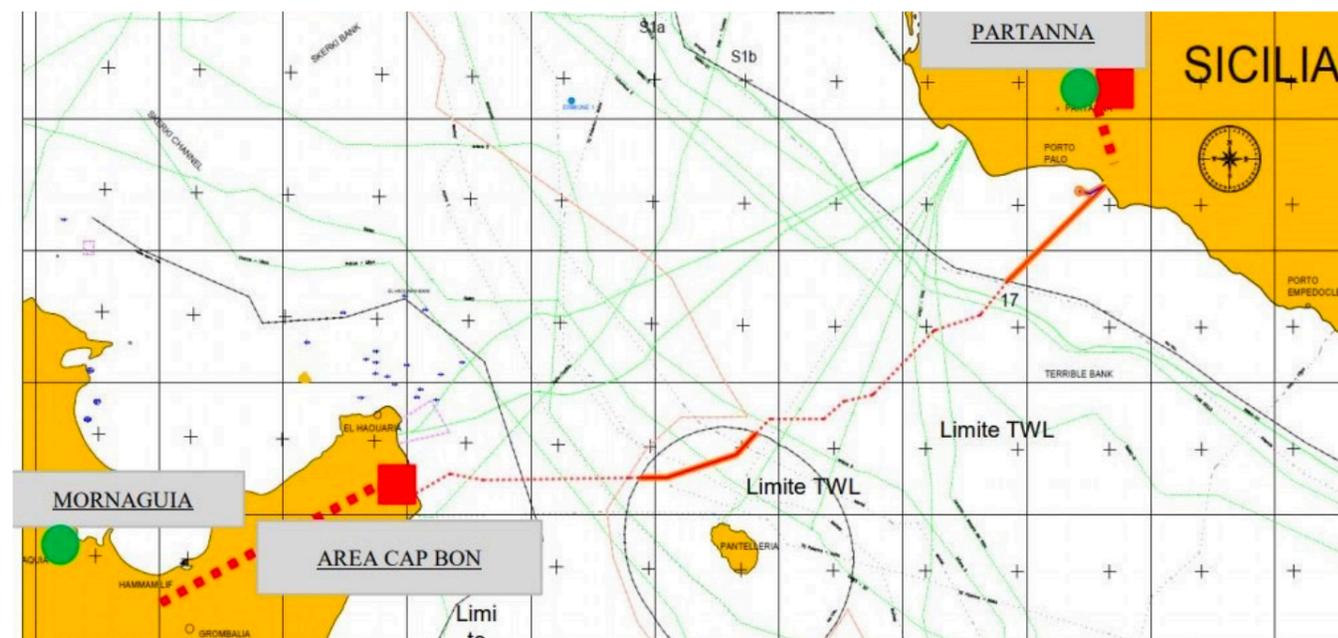
km up to 2 GW.

### Why migration to Desertec 3.0?

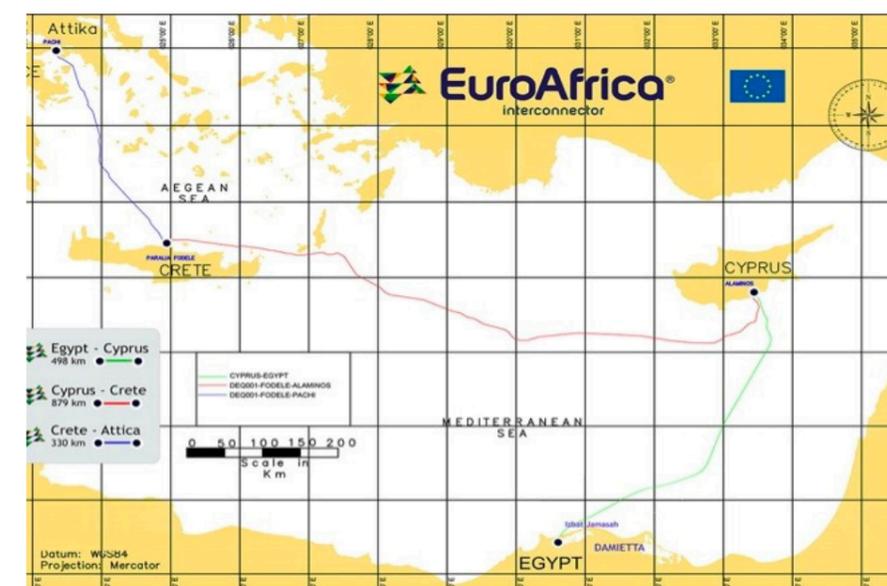
The focus on power production is no longer sufficient, as the transition from dispatchable fossil generation to volatile solar and wind generation requires a total value chain approach from flexible demand, storage and transportation to small, medium and large volatile generation. Recently the route via so called 'green molecules' ('power-to-X') has come onto the radar of the international energy community. Such molecules can often be produced, transported, stored and consumed more easily and economically than electrical power. These two roads do not exclude each other, but may be complementary and in some places in competition to each other.

### MENA to become a global power house

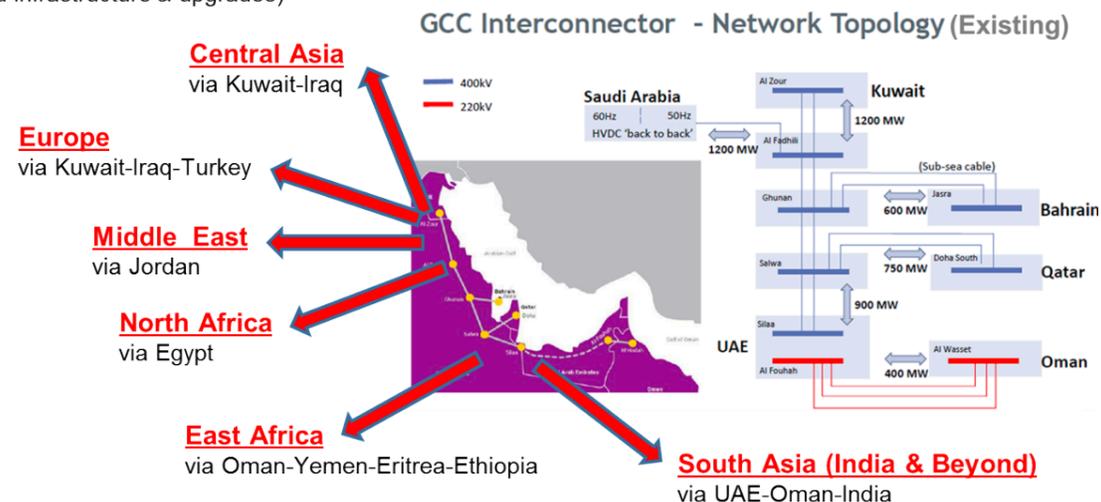
The initial wave of 'Desertec', which started about 10 years ago in Europe has been almost transformed by the stakeholders in MENA region to 'Desertec3.0'. With a massive



deployment of more than 10 GW of operational renewable energy projects (mainly wind & solar), this development happened much faster than the greatest optimist would have expected only a few years ago. While a further 10 GW is in the near term pipeline and expected to be operational in the next two years, new market segments like net metering and projects with private offtakers are fast emerging. Full benefits for the region can now be captured, both as a master in the local and global energy markets and by growing local industrial activities and jobs. Desertec 3.0 may ultimately transform fossil markets.



### Potential Future Interconnections (new grid infrastructure & upgrades)



With thanks to Desertec Industry Initiative (DII) an institutional supporter of the 24th World Energy Congress

Fadi Maalouf  
CTO, DII Desert Energy

Paul van Son  
CEO, DII Desert Energy



# Mission possible: The Global Energy Prize as a driver for sustainable energy for all



Energy is central to nearly every major challenge and opportunity the world is facing today. The quest for affordable, reliable and modern energy is universal. Ensuring such energy for all is the key task in the era of global transition to the new technological cycle, and is inseparably connected with improving the quality of life for everyone on the planet. Therefore, what are those factors enabling our sustainable future? What, if not science, is to make this future a reality?

Running alongside the 24th World Energy Congress as a side-event, this high-level session will:

1. Outline energy solutions working towards achieving sustainable reality
2. Consider the best Global Energy Prize laureates' innovations for increased energy efficiency and use of renewable energy and clean technologies for traditional energy processing
3. Present examples of global energy cooperation that create inclusive communities and resilience to environmental issues like climate change

## List of session speakers:

**Sergey Alekseenko**, 2018 Global Energy Prize laureate; Head of Heat and Mass Transfer Laboratory, Institute of Thermophysics, RAS Siberian Branch.

**Rodney John Allam**, 2012 Global Energy Prize laureate; Partner of 8 Rivers Capital, LLC; Member of the Intergovernmental Panel on Climate Change (IPCC), awarded the Nobel Peace Prize in 2007.

**Adnan Amin**, Global Energy Prize International Award Committee member; Director General Emeritus of the International Renewable Energy Agency (IRENA).

**Marta Szigeti Bonifert**, Global Energy Prize International Award Committee member; Hungarian Business Leaders Forum (HBLF), Board Member, Environment and Sustainability WS Leader.

**Rae Kwon Chung**, Global Energy Prize International Award Committee Chairman; UN Secretary-General's High-level Expert and Leaders Panel (HELP) on water and disasters, Adviser to the Chair; Member of the Intergovernmental Panel on Climate Change (IPCC), awarded the Nobel Peace Prize in 2007.

**Steven Griffiths**, Global Energy Prize International Award Committee member; Senior Vice President for Research and Development, Khalifa University of Science and Technology (KUST).

**Xiansheng Sun**, Global Energy Prize International Award Committee member, Secretary General of the International Energy Forum.

## Background:

The Global Energy Prize is an international award for outstanding scientific research and technological development in energy. Since 2003, the Global Energy Prize has been awarded to 39 Laureates from 13 countries: Australia, Austria, Canada, Denmark, France, Iceland, Japan, Russia, Sweden, Switzerland, Ukraine, the UK and the US. According to the IREG Observatory on Academic Ranking and Excellence, the Global Energy Prize is one of TOP-99 international academic awards with the highest prestige and significance. In the prestige rating of the International Congress of Distinguished Awards (ICDA) the Global Energy Prize is in the category of "Mega Prizes" for its laudable goals, exemplary practices and the overall prize fund.

**Natalia Naumova**,  
Vice President for External Communications of the Global Energy Association.



# Hydrogen is back in the race

The promise of abundant and clean energy in the form of hydrogen is nothing new. As we hear announcements from all over the world – Alstom's hydrogen-powered train in Germany, Japan and Korea's hydrogen strategies or the UAE's solar-driven hydrogen electrolysis facility – we wonder: is there anything different this time around? To answer this question, the Council undertook a series of exploratory interviews with key leaders from across the globe. The 34 interviews, conducted with companies such as Engie, Airbus, Toyota and Alstom, suggest that a series of co-existing factors are playing in favour of hydrogen's role in the Grand Transition. On the one hand, climate change targets and air pollution concerns are leading governments and companies to seek cost-effective decarbonising solutions.

In this context, the deployment and cost drop of renewable technologies is a game-changer as it enables the decarbonisation of the production of hydrogen using electrolysis. On the other hand, beyond those appearing to be at the forefront of this new hydrogen wave - Japan, Korea, Germany, UK, California - China's discrete efforts may very well catapult the production and consumption of hydrogen for energy sector applications into the mainstream. Failure to decarbonise our economies is not an option and a complete reliance on the electrification of heating, industry, transport and wider power demand is increasingly being contested as unrealistic.

As a versatile energy carrier, hydrogen has the long-term potential to be the ideal complement to renewable-generated power and provide a solution to decarbonise hard-to-abate sectors and store energy. Many challenges to this vision exist, which we discuss in the new Innovation Insights Brief, together with possible solutions. From technology development (e.g. hydrogen-fuelled planes) and demonstration projects (e.g. hydrogen-fuelled power plants) to

commercial scale-up (e.g. passenger vehicles), the Brief provides the reader with an overview of the current state of play for hydrogen. Overall, the interviews we conducted all reaffirmed what the Issues Monitor is indicating; hydrogen is being tried and trialled again, but this time round with mature technologies and reasonable cost attainability scenarios. The key success factors to realising the potential of hydrogen are:

1. Recognising hydrogen as a system solution
2. Unlocking sustainable production pathways
3. Building an international hydrogen market
4. Achieving cost effectiveness
5. Developing infrastructure

Whether hydrogen's full potential is deployed, or whether it remains limited to niche applications depends on the adoption of long-term energy strategies and cross-sector cooperation.

The Council will convene a series of Innovation Forums focused on advancing the discussions around enabling regulation, investments and cooperation.

The report was released on 19th June. For more information please visit the World Energy Council's official website [www.worldenergy.org](http://www.worldenergy.org)

**Marzia Zafar**  
Director, Issues Monitor & Innovation at World Energy Council

**Pauline Blanc**  
Manager, Energy Transition Insights at World Energy Council



# Dialogue with Kirill Komarov

First Deputy Director General for Corporate Development and International Business, ROSATOM

## 1. What are the major challenges that the energy sector is facing today?

The energy industry is facing a major challenge: to provide universal access to electricity and to decarbonise that electricity. The first task is of paramount importance, as roughly one billion people around the world still live without basic human needs covered.

Nevertheless, however important, the first task should be solved in a sustainable manner. The climate catastrophe we are living through does not leave us an option of simply burning more coal. According to the latest IEA assessment, power-related CO2 emissions worldwide rose by 2.5% in 2018, after several years of decline.

Nuclear is irreplaceable in achieving decarbonization, since existing nuclear power plants (NPPs) currently prevent about 2 billion tons of CO2 emissions annually. The fact remains: coal, diesel and gas emit 820 kg, 792 kg and 490 kg of CO2 per MWh, respectively. Nuclear, however, only emits 12 kg of CO2 per MWh of indirect emissions during the whole fuel cycle, similar to wind energy.

Sadly, the overall share of low-carbon technologies in the global energy mix showed a minuscule growth of under 1 percent. Nevertheless, the fact that nuclear demonstrated an increase in power generation proves that its popularity is growing but there is always room for improvement.

## 2. What is the role of nuclear in the transition to a low-carbon system? Is it evolving?

Given the challenges the energy sector is facing, the role of nuclear is straightforward: provide affordable and clean electricity. However, as we witness more and more new renewables capacity, the role of nuclear is evolving.

The role of nuclear in the so-called green square of wind, solar PV, hydro

and nuclear low-carbon sources is to be a baseload energy source. It is a necessity for any country concerned with electricity security, as nuclear plants are able to adjust their operations following supply and demand shifts, unlike wind and solar generation.

Nuclear is fundamental for keeping power grids stable today and, as the share of renewables in the energy mix will inevitably grow, the need for such a service provided by nuclear will also increase. Thus, its role is both evolving and taking centre-stage in the transition to a low-carbon system.



## 3. What does the plausible future for the nuclear energy industry look like for the next few decades, at a global level?

I am confident that nuclear energy has a bright future. Last year was the best year for the industry since 1990, with over 10 GW of new capacity plus five restarted units in Japan. Hence, one can see that we are on track with the World Nuclear Association Harmony goal of adding 10 GW of nuclear a year before 2020. My positive outlook is supported by the latest forecasts by McKinsey & Company and BP. I am

confident that the goal of supplying 25 percent of the world's electricity using nuclear by 2050 is achievable.

Nuclear is here to stay because the clean energy transition would be borderline impossible without it. According to the latest IEA study, in the absence of nuclear, cumulative CO2 emissions would rise by 4 billion tones by 2040, and around USD 1.6 trillion in additional investment in the electricity sector would be required in the same period.

Yes, of course, it is an undeniable fact that the geography of construction of large-scale NPPs is changing. There is a shift in the geography of new builds to the MENA region and Asia. However, countries like Hungary, Finland and Turkey are currently building large-scale NPPs as well. Overall, this transformation coincides with the changes in the Rosatom's foreign portfolio, as we always try to be ahead of the curve.

## 4. What could slow down nuclear energy industry development? What can be done to accelerate and promote nuclear power around the world?

The obstacles on the way to a low-carbon future powered by nuclear could be divided into three groups: economic, political and social. Any large infrastructure projects - if accomplished via a "learning by doing" approach - are prone to delay and cost overrun. Rosatom is the only vendor in the world engaged in serial implementation of generation III+ nuclear power units. Thanks to the benefits of standardisation and economies of scale, we are able to deliver our projects on time and at a lower cost.

Then there is the issue of a lack of proper policy solutions. Let me give you an example. Rosatom is a recognised international industrial leader. The technology is there and it is amazing: safer and more efficient than ever. However, nuclear

power projects are always about three sides: vendor, customer and national nuclear authorities. We need to find a compromise between an absolute priority of safety and overregulation in order to accelerate the development of the industry. I cannot stress enough that safety is our main concern but we need to strive for a universal international approach to it. Rosatom has to work in an environment where our standardised power solutions are being evaluated differently in different countries. That is what is slowing down the industry.

Of course countries ought to recognise nuclear power on a national level, as a low-carbon energy source with environmental and energy security benefits, and support it financially accordingly. Finally, there is the important aspect of public acceptance of nuclear power. The growing number of newcomer countries is testament to the huge interest in the topic of nuclear energy, and the industry absolutely must meet this demand in an open and transparent manner.

Russian nuclear technologies today are as reliable as they have ever been and we ought to tell people about it, to debunk myths and dispel fears because clean and affordable nuclear power is the key to our future.

## 5. What are your expectations from the 24th World Energy Congress 2019? (the main theme is 'Energy for Prosperity')

I believe that the choice of the main theme is spot on, given the scale of challenge humanity is facing. Obviously, the role and place of the nuclear industry in overcoming those challenges deserves more attention, so I hope that the Congress will become a turning point in helping people realise that nuclear power plays a key role in bringing prosperity to people around the world.

Indeed, besides being an environmentally-friendly and reliable source of energy, nuclear power makes a significant contribution to solving the issue of climate change. Nuclear technologies also advance the development of science, education, medicine and agriculture. Therefore,

the widespread use of atomic technology is an important factor in achieving sustainable development goals.

The longer we hesitate with new nuclear build, the more difficult it becomes to save the Earth.



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## BE PART OF THE MOST INFLUENTIAL GLOBAL ENERGY CONGRESS

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Under the theme “Energy for Prosperity”

the World Energy Congress will lead delegates through the most live and critical issues facing the energy industry. The interactive four-day programme will feature sessions and side events with global energy speakers from across the energy ecosystem.

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