



# Daegu Congress Highlights

## Day 1: Vision and scenarios for the future

### Saudi Aramco and GE Power and Water Executives speak at the Daegu 2013 Congress

In the first keynote speeches of the 22nd World Energy Congress, President & CEO of Saudi Aramco Khalid Al-Falih and President & CEO of GE Power and Water Steve Bolze summed up the energy challenges of the coming decades. The duo put forward an array of solutions – from greater investment in education and technology to support for free trade and intellectual property.



**Steve Bolze**  
CEO, GE Power  
and Water

Al-Falih, whose state-run company ranks first among oil companies worldwide in terms of crude oil production and exports, told the audience that the energy market has become more dynamic and confident than ever since the last World Energy Congress in Montreal in 2010. But, he

added, challenges remain. By 2050 the global economy will be three to four times its current size, and greater consumption and urbanisation will drive the demand for energy. Still “unsustainable levels are not preordained,” he said.

To solve coming energy challenges, Al-Falih called for the supply side of the energy market to move towards what the WEC calls the “Jazz Scenario,” a more decentralised system to ensure energy access, affordability, and quality of supply. He advocated more progressive and pragmatic policies, including greater investment of technology, enhancing the competitiveness of renewable energies, the need for cleaner fossil fuel plants, safer nuclear plants, and an attitude of collaboration in the global market.

He added that Saudi Aramco and the Korea Advanced Institute of Science and Technology (KAIST) have established a partnership to research technological innovation, an endeavour that includes looking into how CO<sub>2</sub> can be converted into useful products.

Bolze, the second keynote speaker, delivered a message similarly emphasizing decentralisation. He pointed to a number of recent developments: the rise of “brilliant machines” that can process massive amounts of data and increase productivity; the increased prominence of natural gas as an energy source; the importance of “distributive power” as the global energy market becomes increasingly decentralised; and the coming age of mainstream renewable energies such as wind power. Putting forward policy proposals, Bolze advocated support for free trade, the protection of intellectual

property to encourage entrepreneurs, and greater backing for education and training.

The pair then sat down for a ten minute discussion with moderator WEC Secretary General Christoph Frei, who asked about uncertainties in the global market and the shale gas revolution. “Uncertainty has been part of the landscape since our beginning,” said Al-Falih, adding that Saudi Arabia has taken on a policy of “extra capacity” to cushion the market from global swings.

### Tomorrow’s energy: Connecting the dots

Industry leaders gathered at the World Energy Congress agreed on 14 October that the energy environment is getting more and more complex and uncertain, and policy makers need to chart a course that ensures both affordability and sustainability.

Christoph Frei, Secretary General of the World Energy Council, pointed to post-Fukushima safety concerns and the collapsing price of solar energy in some regions as just two sources of uncertainty. “[US] shale gas emerged from nowhere to become a game changer,” he said. “It’s the complexity and speed with which these things arise that determines uncertainty.”

Leonhard Birnbaum, Vice Chair of Europe, WEC, said that he is less concerned about whether engineers can meet energy challenges than whether markets can distribute new forms of energy efficiently. “Markets can deliver if there is clear political leadership and a clear political framework,” he said. He described Europe as “over-defined” in terms of energy targets. “We need to reform renewable subsidy acts and reform the markets to set example for the world. If other countries don’t see an example in us, then we have failed.”

Michael Suess, Member of the Managing Board & CEO of Energy Sector, Siemens, agreed Europe has made some mistakes. “A subsidy is like a medicine – for a short period it is good. For a long period it makes you sick. In Europe, we completely collapsed the market system.”

Hur Dong-Soo, Chairman of South Korea’s GS Caltex, agreed government must lead the way in shaping the energy future. “Supply-based energy policies are not enough in curbing greenhouse gases and curbing energy costs – managing energy demand is the key to what appear



**Michael Suess**  
CEO, Energy  
Sector, Siemens

to be contradictory goals – establishing a stable energy network and managing climate change.” He said supply-based policies alone are not sufficient to curb greenhouse gas emissions and rein in energy costs. “We must manage energy demand,” said Hur, explaining that demand-oriented policies are “keys to what may appear to be contradictory goals – establishing a stable energy network and managing climate change.”

Zola Tsotsi, Chairperson of South Africa’s Eskom, challenged participants at the World Energy Congress to help set new models for financing energy projects in the developing world, where hundreds of millions of people remain without electricity. “In order to have universal access, you must make sure power is affordable to the whole population,” he said. “Developing country governments have a dual responsibility – for raising capital to invest in infrastructure, and to assist citizens by subsidising the cost of power supply.”

Samantha Smith, Leader of the WWF’s Global Climate and Energy Initiative, reminded participants to keep the urgency of climate change in the front of their thinking. “If we don’t, our children can look forward to rising sea levels, more acid oceans, more extreme heat and precipitation events, and potentially more droughts.” She urged the world to both reduce energy demand and transition to renewable energy sources, warning harsher climate conditions will perpetuate inequality via food and water insecurity.

## New dynamics of Asian LNG markets

Participants from the US, Australia, Indonesia and Japan discussed the Asian LNG market with moderator Tatiana Mitrova, Head of the Oil and Gas Department at the Energy Research Institute of the Russian Academy of Sciences. “In the last couple of years there were some shifts on the demand side,” she said in her opening statement. “First of all, the Fukushima catastrophe has pushed up energy demand in Japan, at the same time with environmental concerns and demand growth in China and Southeast Asia.”



**Tatiana Mitrova**  
Energy Research  
Institute, Russia

The US potentially has a 100 year supply of natural gas, transforming the nation from an import consumer to a supplier, said Executive Vice President at ConocoPhillips, Don Walette. As demand

for LNG increases in Asia, North America is becoming another source for the Asian LNG market. Countries such as China, which has estimated shale reserves of 1,115 trillion cubic feet, are looking for ways to mimic the success of the US.

Discussants debated views on whether current developments in the gas sector constitute a “revolution” or are simply a part of the market’s natural “evolution,” and whether industry actors would focus on short-term projects or long-term planning.

Richard Guerrant, ExxonMobil’s Global Vice President for LNG, noted that the panelists were all optimistic about LNG prospects in the long term. But, he added that “We need to ensure we can control costs, and provide an affordable product,” including a pricing formula that ensures long-term stability.

## Stalled international energy governance

Pierre Gadonneix, the World Energy Council Chair, issued an urgent appeal on 14 October for international cooperation in developing carbon capture, the technology needed to prevent CO<sub>2</sub> escaping into the atmosphere to cause climate change. “This problem is too big for any single nation to solve by itself,” said Gadonneix. “There is no way we can reach the 2050 emission targets unless countries agree to cooperate on carbon capture.”

Gadonneix called for political leaders to be candid in sharing information about environmental and safety issues with citizens. Speaking during a panel session on problems of governance in energy policy around the world, he urged leaders to tell their people, “Not everything is possible, everything has a cost, and some things have to be solved through international cooperation.” Gadonneix said international cooperation on safety issues is relatively easy because everyone see benefits from sharing information. Collaboration on environmental issues is a bigger challenge, he said.

Another member of the panel, Claude Mandil, former head of the International Energy Agency (IEA) agreed, saying, “It is very difficult for national government to implement policies that are seen to be dictated from abroad.” Mandil suggested that the IEA’s governance structure could be a model for



**Claude Mandil**  
Former Executive  
Director, IEA

further collaboration on the environment and safety because rather than forcing countries to adopt goals, it articulates “best practices” and then makes public statements when a nation engages in activities that are not in keeping with those practices.

Neil Hirst, Senior Researcher at London’s Imperial College stressed, however, that if the IEA wished to play a central role in energy governance, it would have to expand its membership to include nations that are not OECD members. “The IEA right now represents the world as it was 40 years ago,” said Hirst.

Mandil countered that the IEA is the only institution at present that has the human resources and accumulated skills needed to play a key role in strengthening governance in energy. Commenting on the difficulties United Nations Framework Convention on Climate Change has encountered in setting international targets on greenhouse gas emissions, Mandil said, “You cannot expect to reach agreement through an organisation that has 200 members. IEA has a lot of the skills and habits ideal for sharing best practices.”

Ibrahim Muhanna, an Advisor to the Saudi Arabian Petroleum Ministry, said organisations representing energy producers and consumers had not cooperated in the past, “unless there was a crisis.” The IEA only represents advanced energy consuming economies. Panel discussants agreed that non-Western countries needed to be accepted into the IEA for the organisation to be able to act globally. China, India, Russia, and South Africa were mentioned as potential new members of an expanded IEA.

### **Latin America and the Caribbean: Blessed with resources, overwhelmed by choice?**

Latin America is a fossil fuel-rich region with strong oil and gas reserves and a great potential for the exploitation of renewable energy sources, in particular large hydropower projects. But the region’s energy wealth is unevenly distributed and has enormous untapped potential, said panel moderator José Antonio Vargas Lleras, Vice Chair of Latin American and the Caribbean for the WEC.

Vargas and a panel of four experts and policymakers from Brazil, Argentina, Uruguay, and Venezuela discussed the challenges facing Latin America in an era of rising demand for energy. Some 40-50 million people lack access to electricity in the growing region, yet 22 per cent of the region’s feasible hydropower production, for instance,

remains untapped, he said.

The discussants presented their countries’ experiences, reviewed the challenges for the region, and offered solutions. For one, the region needs energy sector investments of around US\$1.5-2 trillion over the next 20 years, training more technical specialists, initiatives to foster innovation, and a smaller amount of energy consumed per unit of

GDP, explained Luis Enrique Berrizbeitia, Executive Vice President of CAF – Development Bank of Latin America. He added that there are “enormous advantages” to integrating the regional power system effectively, such as tapping into the complementary hydrological behavior between the Amazon and Andean basins. “We can minimise or at least reduce the amount of local reserve requirements if we are integrated more effectively,” he said.



**José Antonio Vargas Lleras,**  
Vice Chair, WEC

Ramon Mendez, the Secretary of Energy of Uruguay, reviewed the challenges in his country’s energy sector. Because Uruguay has already tapped into its major rivers for hydropower and does not have coal resources, he said, “We have only two possibilities, either to continue importing fuels and resources, or we have to face seriously our non-traditional renewable resources.” Uruguay has chosen the latter path, and now plans to attain more than 50 per cent of the primary energy mix from renewable sources by 2015.

Jorge Ferioli, Chair of the Argentine National Member Committee of WEC, discussed the challenges of tapping into unconventional shale oil and gas reserves in his country. Argentina currently imports US\$10 billion of oil and gas every year, but hopes to be self-sufficient in oil by 2030 and not to import any LNG. Improving the situation will require significant investment and know-how in fracking, he said.

### **UAE Minister comments on energy future**

Suhail Mohamed Al Mazrouei, the Minister of Energy of the United Arab Emirates (UAE), and Gao Jifan, Chairman & CEO of the China-based Trina Solar, commented on the changing conditions of the world energy sector in a session summing up the discussions on 14 October at the Daegu 2013 Congress.

“We recognise that change is part of this industry, and it is clear that major changes are underway,” said Al Mazrouei, speaking about the future of energy. “The supply costs of

certain energy forms are reaching unprecedented lows, while others are reaching peaks." He said that the UAE sees "opportunities" and "tensions" in the shifts. The UAE is on its way to expanding its oil production capacity to 3.5 million barrels per day by 2017, improving global energy security, Al Mazrouei said. The UAE is also expanding its infrastructure, such as the opening the Habshan-Fujairah pipeline in July 2012. The pipeline can transport up to 1.5 million barrels a day of crude. Al Mazrouei also pointed to a good environmental record. The UAE, he said, is the



**Suhail Mohamed Al Mazrouei**  
Minister of Energy,  
United Arab  
Emirates

first producer in the region to introduce a policy of eliminating gas flaring whenever technically possible. Still, he declared, traditional energy is "not enough," and efficiency in energy consumption is needed, along with the education of the next generation of energy problem-solvers.

Trina Solar Chairman & CEO Gao Jifan expounded on the benefits if solar photovoltaics (PVs) go mainstream in the coming decades. He cited solar energy as having minimal environmental impact, the difficulties conglomerates would have dominating an industry in which households directly participate, and the ideal use of solar power in developing countries with scant electricity infrastructure. Drawing on a history of falling costs since the mid-2,000s in China and Germany, he expected a further reduction in both costs and subsidies, making PV more viable. "Solar energy is still young, but there have been big advances in the past 15 years," he said.

## Energy and climate scenarios: From vision to reality

The world faces a multitude of climate change scenarios that threaten to disrupt the lives of billions of people while causing havoc in markets across the globe, delegates were told at the Daegu 2013 Congress on 14 October.

These environmental challenges will inevitably affect the way we procure and consume energy. Experts evaluated the risk of some of the worst case scenarios in order to influence government policy and advise businesses to adapt to the changing environment. But advances in technology could help us prepare for some of the forthcoming crises, said Lee Hoe-sung, the Korea-based Vice Chair of the Intergovernmental

Panel on Climate Change (IPCC). "By recognizing these warning signs, science has a vital role to play", he said.

"We live in an era of great uncertainty", said Brian Dames, CEO of South Africa's Eskom. He said the developing world, Africa in particular, will suffer the greatest from climate change, including severe water shortages. Dames believes the developed world needs to share efficient, energy saving technologies with emerging economies in order to offset the effects of crises such as global warming, which some scenarios indicate could rise by 5°C later this century. "Energy access isn't just about giving people facilities, it's about changing their economic futures," Dames said.

Even though scientists have been warning about the effects of global climate change, Ged Davis, CEO of Swiss-based Forescene SA, an energy consultancy, said the reality of the threats "could be much worse" than what we can imagine. He said both the public and private sectors fail to grasp the gravity of the troubles that await us due to poor communication at all levels. If public opinion is not in favour of new approaches to tackling climate change, he



**Brian Dames**  
CEO, Eskom

explained, governments tend to place less emphasis on developing effective policies to confront the potential scenarios.

Intergovernmental miscommunication as well as "legally binding targets, which are impossible to reach" contribute to our inability to address the threats put forth in climate change scenarios, said Yvo de Boer, Special Global Advisor to Climate Change and Sustainability at KPMG. He argued that rather than rich nations dictating environmental standards from the top down, individual regions should be allowed to set their own targets to offset and cope with climate change outcomes. He said there should be "different approaches to different countries" that recognise their specific economic needs and access to technology.

How global businesses react to the climate change scenarios will also determine their impact if the threats come to fruition, explained Philippe Cochet, President of Alstom Thermal Power and Executive Vice President of France's Alstom. Cochet believes technology can "change the game," but companies will require government support to implement these advances and create more environmentally sustainable business practices. "If at the political level, there is real consistent help to invest in new technologies and improve technologies, which would tremendously help businesses and customers." □