



cutting through complexity

KPMG GLOBAL ENERGY INSTITUTE

# KPMG Global Power & Utilities Conference 2012: Conference Report

28-29 November 2012  
Vienna, Austria

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WIND  
TRANSMISSION  
SMART METERING  
OPTIMIZATION  
SUSTAINABILITY  
SMART GRID  
EXPANSION CO<sub>2</sub>  
OPERATION  
PRICING SUPPLY  
NUCLEAR  
INVESTMENT

# POWER

GENERATION  
HYDROGEN LNG  
COAL POLICY PROJECT  
CUSTOMER  
DEMAND  
EFFICIENCY M&A

# NATURAL GAS

DISTRIBUTION ENVIRONMENT

STORAGE INFRASTRUCTURE TARIFF REGIME HYDRO SOLAR FOSSIL FUEL INNOVATION  
STRATEGY REVENUE SUBSIDY  
MANAGEMENT INCENTIVE FINANCIER

CLEAN COAL SMART GRID  
BENCHMARK REGULATION RESOURCES VALUE CHAIN  
GOVERNMENT SECURITY

# Overview

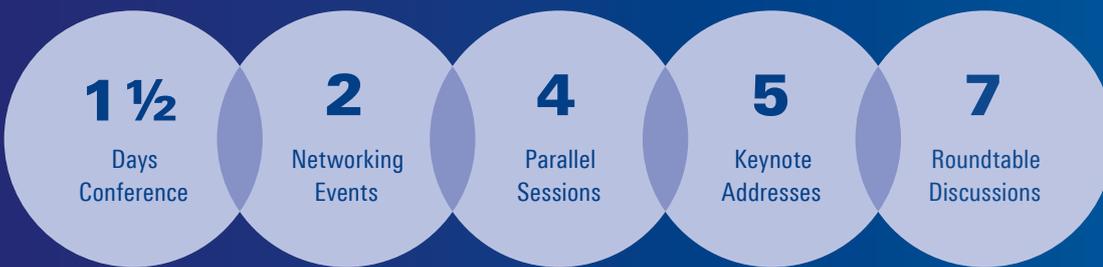
The KPMG Global Power & Utilities Conference is KPMG's premier annual event for CEOs, divisional heads and financial executives in the power and utilities sector.

## Goal

The goal of the conference is to provide participants with new insights, tools and strategies to help them manage industry-related issues and challenges. Attendees also have the opportunity to join their peers from leading power and utilities companies to share effective practices and participate in networking activities.

## Concept

The conference agenda focuses on strategic, financial, environmental and risk related issues that are top of mind for power and utilities executives. The intensive day-and-a-half program consists of keynote presentations by distinguished leaders, issue-focused plenary roundtable discussions and interactive parallel sessions.

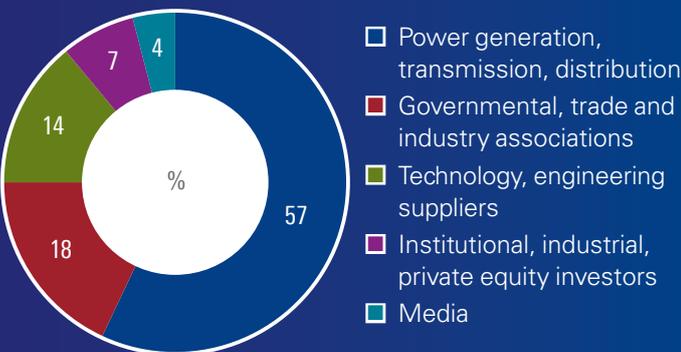


## Delegate profile

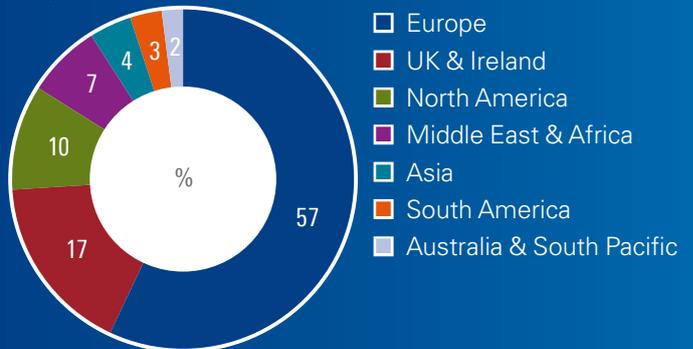
Our inaugural conference held in Paris in 2011, and the second one in Vienna in 2012 brought together 250+ executives of power producers, developers, investors, regulators and other industry stakeholders from over 40 countries around the world.

The charts below indicate a typical cross section of conference delegates by sector and geography.

### Sectors



### Regions



## Introduction

It is with great pleasure that I present to you this summary of the second annual KPMG Global Power & Utilities Conference, our leading global forum for peer-to-peer discussions on the strategic, financial, environmental and risk related issues shaping the sector.

Held in Vienna, Austria, the 2012 conference featured over forty distinguished speakers from all corners of the globe, addressing delegates via keynote presentations, seven issue-focused plenary roundtable discussions and four parallel sessions.

Among the keynote speakers, we were honored to host Nobuo Tanaka, former Executive Director, International Energy Agency (IEA), who opened the conference commenting on the fundamental changes in the international energy landscape and calling on Asian economies to develop regional power grids and natural gas transportation infrastructure to foster greater regional energy security post-Fukushima.

On the second day, Jeremy Rifkin, one of the world's leading thinkers in the field of energy, offered his vision of how to decarbonize the global economy and take us into a new socio-economic paradigm through the *Third Industrial Revolution*. His recommendations have already been subscribed to by the European Union, and were independently echoed by many of the speakers during the conference.

Moderated by KPMG's power and utilities experts, the conference's roundtable discussions touched upon a number of current issues, including global M&A trends in the renewable sector, natural gas sourcing strategies for power generation, regulatory risk management strategies, unlocking operational value in utilities, the challenges of financing nuclear new build, innovative customer value propositions, and energy market regimes for sustainable power generation.

Whether it is the boom in shale gas, the aftermath of the Fukushima incident, the continuing growth of renewables, the mass market adoption of electric cars, or the impact of global warming, it is clear that we are currently in the middle of a fundamental transition in the way that power is generated, distributed and used, which will ultimately have ramifications well beyond the sector.

I hope that you will find this summary an insightful overview of the key issues defining the power and utilities sector, and that we will have the pleasure to welcome you to the KPMG Global Power & Utilities Conference 2013.

For more information, I encourage you to visit the conference website:

[kpmg.com/powerconference](http://kpmg.com/powerconference)

Sincerely,



**Péter Kiss**

Head of KPMG's Power &  
Utilities Practice, EMEA Region

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Keynote Speaker

# Post Fukushima Energy Strategy: Energy Security and Sustainability in Asia

## Nobuo Tanaka

Global Associate for Energy Security and Sustainability, Institute of Energy Economics in Japan;  
Executive Director, International Energy Agency (IEA) 2007-2011

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It has been almost two years since the disaster, but the Japanese power market and economy are still being severely impacted by the accident at the Fukushima Daiichi nuclear power plant, which prompted a massive rethink of Japan's energy policy and power generation mix. Now security of supply has become the government's top priority, noted Nobuo Tanaka, Global Associate for Energy Security and Sustainability, Institute of Energy Economics in Japan in his opening remarks.

The former Executive Director of the International Energy Agency (IEA), Mr. Tanaka brought a broader scope to his topic of what Japan would do in the wake of the Fukushima tragedy, by offering findings from the IEA's recently released World Energy Outlook 2012, which highlighted that global energy demand would grow by about 35% by 2035.

*"Where does the demand growth happen? It's China,"* he remarked.

He said the changes in North America had also had a huge effect – specifically, gas and oil production in the form of the *"shale revolution,"* which had led the continent towards energy independence.

In 2035, he said, the big importers of hydrocarbons from the Middle East would be China, India or Asian economies; the US would import almost zero oil from the region. *"This is a huge geopolitical change,"* noted Mr. Tanaka.

This shift could also have implications on energy security for Asian economies, which he emphasized, were seeking a stable supply of energy. Japan, for one, had almost 100% import dependency, for both gas and oil.

In terms of the crisis over Iran's controversial nuclear program, he described what was a worst case scenario for his homeland, Japan, which received 85% of its oil imports and 20% of its LNG shipments through the Strait of Hormuz.

*"The price of oil would get much higher and Japan would face a compounded crisis, rapidly eating away at its current balance surplus, and resulting in a total catastrophe for the Japanese economy without nuclear power running in Japan,"* he explained.

Mr. Tanaka said that the IEA's *"Golden Age of Gas"* would certainly come, but with a caveat for Japan: China would use vast amounts of natural gas for its development.

Currently, he reported, Japan only imported natural gas via LNG, but should consider Russian pipeline gas. *"Because the price of gas for Japan is very high – about five times higher than the US and around 50% higher than Europe's price. So how can we change this Asian premium?"*

In terms of power generation, he noted that Japan had moved toward renewables because of Fukushima, but in terms of the price of electricity, he said the country was in trouble, noting that industry could move out of the country if this dynamic continued – a great challenge for the country. He offered a parallel:

*"In Europe, Germany has the challenge because of its increased use of renewables. Do they come back to nuclear? We wish so, but don't know. It's an interesting effect of the investments in renewables and grids upon the entire economy."*

*"Germany can phase out nuclear power because of its renewable program, but also because it's importing more natural gas and has good interconnection within Europe; this is what Japan lacks."*

According to the IEA, Japan would gradually move back to nuclear, which would comprise 20% of the generation mix, later decreasing to about 15%.

Mr. Tanaka commented: *"We need more gas, much more renewables and some nuclear."*

The Japanese government's decision to phase out nuclear by 2030, he said, was unrealistic given the country's lack of connection to its neighbors.

He said that if global nuclear power production was to increase by 60% by 2035, that Japan's role would be to maintain some percentage of nuclear, but also to contribute safety systems and regulations to others.

*"Fukushima was, unfortunately, human error. We didn't think about the unthinkable: the huge risk was not incorporated before. This lesson must be shared with other countries by Japan,"* explained Mr. Tanaka, also referencing promising nuclear generation technology such as the 4<sup>th</sup> generation integral fast nuclear reactor and pyro processing.

Europe, he said, had a very diversified energy mix, as it varied according to country. *"The EU 25 has about 50% self sufficiency and very well diversified sources by connecting countries via gridlines and pipelines. This is a collective*

*energy security system for Europe. Can we learn and transfer that from Europe to Asia?” he asked.*

Mr. Tanaka concluded that Asia needed to overcome problems like rifts over islands to be able to work together in the energy sphere, and fostering a “collective energy security”.

**“ Fukushima was, unfortunately, human error. We didn’t think about the unthinkable: the huge risk was not incorporated before. This lesson must be shared with other countries by Japan. ”**



Keynote Speaker

# The Third Industrial Revolution: How Lateral Power Is Transforming Energy, the Economy and the World

**Jeremy Rifkin**

President, Foundation on Economic Trends

As one of the world's preeminent thinkers on the impact of scientific and technological change on the economy, the workforce, society and the environment, Jeremy Rifkin, President, Foundation on Economic Trends, offered an alternative vision for the power and utilities sector to counter what he sees as an economically and environmentally unsustainable paradigm for our current global economy.

Our current reliance on fossil fuels and nuclear is showing its limits for economic growth. He recalled that in July 2008, the price of Brent crude shot up to USD 147 per barrel, and, subsequently, the prices of all other global commodities soared, *"Because everything in this civilization is made out of and moved by carbon – fossil fuels."* He listed examples like pesticides, construction materials and pharmaceuticals.

He recalled that in 2011, the International Energy Agency (IEA) reported that crude oil had peaked globally at 70 million barrels per day in 2006, making it prohibitively expensive, according to the *"peak oil"* theory when half of total crude oil has been used up. The IEA projects it will cost USD 8 trillion to get that remaining crude oil out in the next 20 years, said Mr. Rifkin.

*"So when China, India and Southeast Asia made a bid to bring one-third of the human race into a flagging and mature Second Industrial Revolution, at an 8-12% growth rate in less than 20 years, the aggregate demand forced up against those limited reserves of crude oil - oil prices go up, all the other prices go up, shut down..."*

As he said he had predicted, Rifkin explained the world was now stuck in 4-year cycles of economic growth and slow down. He said the boom and bust would continue unless the business community changed its economic model for the global economy.

Meanwhile, the First and Second Industrial Revolutions had spewed massive amounts of CO<sub>2</sub>, methane and nitrous oxide into the atmosphere and now the globe is *"paying the entropy bill."*

*"With real time climate change now here, we could lose up to 70% of the plant and animal species by the end of this century,"* he remarked.

To counteract this, Mr. Rifkin offered his new economic vision, aiming to take the world off of carbon by 2040, via an amalgam of communication and energy revolutions. The new paradigm focuses on distributive energies instead of elite energies like coal, natural gas or uranium.

*"Distributive energies are found in your backyard when you go home – more energy than you'll ever need; 45 minutes of sunlight can power the global economy for a year,"* he said, mentioning wind, geothermal, biomass and tidal energy as well.

He reported that the European Union has committed to a 5-pillar, Third Industrial Revolution infrastructure, a mega technology platform that could change the economic paradigm in less than a generation.

Of the Pillars, Rifkin explained, *"Pillar 1 – the EU has made a formal commitment to 20% renewable energies by 2020; not a suggestion, a mandate."*

*"Pillar 2 – infrastructure. We have 191 million buildings in the EU: homes, offices and factories, and the goal is to convert every single existing building into its own personal green micro power plant,"* to collect solar, wind power, geothermal energy, hydro, and biomass on or around infrastructures.

New buildings, he added, will be mandated by law to be zero emissions and or positive power.

*"Pillar 3 – we've got to store these energies. The sun isn't always shining, the wind doesn't always cooperate,"* because of their intermittence." He said the EU was focusing on hydrogen, because it carries other energies and is completely modular.

*"Pillar 4 – how do we share this energy? We're using off-the-shelf internet technology and transforming the electricity grid into an energy internet – a distributive smart grid. This is where the IT and internet technologies converge with the new energies to create the nervous system for the infrastructure."*

This means, according to Mr. Rifkin, millions of buildings producing just a tiny bit of their own energy, storing it, and if not needed, potentially selling it to other locations, just like sharing digital information online.

Pillar 5, he said, is plug in, electric, hybrid, and fuel cell-based transportation.

Ultimately, Mr. Rifkin contended, the Third Industrial Revolution would lead to the democratization of energy and a change in the role of power and utility companies. He outlined their new role: *"We have to be in two business models at once – centralized power from the 20<sup>th</sup> century with a second portfolio, which is a distributive business model."*

Millions of people with green feed-in tariffs are selling power back to the grid, he said, something which will increasingly happen all over the world, mandating a new role for the

Second Industrial Revolution power industries:  
*“Managing energy is your real expertise. You’re going to make money by selling as little electricity as you can sell.”*

*“By setting up thousands of partnerships with every country in your region, you’ll manage their energy flows. There’s far more money to be made in managing energy and sharing the productivity gains of your clients than selling electrons,” he explained.*

Rifkin reported that numerous power and utilities firms have already signed on to this new vision in Europe. He said that the transition needs to be performed carefully over 35-40 years, *“but at the end of the line we want to be off carbon for our children and grandchildren.”*

*“It’s going to be up to the power and utilities industry, among others, to move this forward. If not you, who?”* asked Jeremy Rifkin.

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**“ Distributive  
energies are found  
in your backyard  
when you go home  
– more energy than  
you’ll ever need ”**



Keynote Speaker

## Changes and Challenges for European Utilities

### Dr. Günther Rabensteiner

Member of the Executive Board (Thermal Production, New Renewables and International Activities),  
VERBUND AG

It is a historic time for Europe as it grapples with economic uncertainties that are rocking the continent's power and utilities sector.

The industry is under huge pressure, especially considering the industry's balance sheets for the coming years, opined Dr. Günther Rabensteiner, Member of the Executive Board of VERBUND AG.

*"The European idea was to create a pan-European energy market – not only for power but also for gas, which is very important. So, targets have been defined. The same targets are now hurdles when we look at the performance of the energy sector in Europe,"* he stated.

The main target, he explained, was to harmonize regulation, according to the European Union's Third Energy Package

whose aim is to create liberalized, transparent, liquid and competitive energy markets.

Europe, he recalled, had started this process some 15 years ago on continental Europe, but he pointed out some areas where that implementation was decidedly lacking.

*"Recent findings from the European Commission noted that in 50% of member states no competitive energy market had been implemented, and this was not expected by 2014; additionally, 18 EU member states are preserving their regulated energy tariffs in the end consumer segment."*

In addition, different nationally driven support schemes did not take into account significant grid deficits and prohibit efficient renewable integration in the European market.

*"We see imbalanced support schemes for new renewables impacting upon the price of power in a significant way,"* observed Dr. Rabensteiner. *"In case of solar and wind power production, low price levels and low spread are a part of everyday life for us – so there is no incentive for new flexible investments."*

*"The outcome,"* he explained, *"is that every country is trying to go back to national oriented regulation. As on the capacity markets discussion, the term 'market' is wrong – the countries are thinking about capacity regulation"*.

Meanwhile, the EU's Emissions Trading System, he contended, had not yet achieved its aims.

*"It's unbelievable that the inefficient lignite power plants with high CO<sub>2</sub> output are the only power plants which are profitable, while very modern ones, high efficient, low carbon footprint CCGT power plants are out of the money. So there is no incentive to support the switch from coal to gas."*

And subsidized renewables looked to be here to stay, according to Dr. Rabensteiner, who said: *"We have to expect that no politician will say 'stop immediately the subsidies for new renewables.' Hence significant investments will be made into renewables in the near future."*

At the same time, Europe is still in the middle of a general economic crisis, noted Dr. Rabensteiner, and that the outcome will be stagnation and a decrease in power demand over the next couple of years. This not a fundamental trigger for growing the industry as investments traditionally occurred in growing markets. Meanwhile, the continent's financial resources are also becoming increasingly limited.

Unfortunately, instead of creating a harmonized market oriented businesses model, more and more regulation is to be seen in the sector.



## Keynote Speaker

# Modernization of the Russian Power Sector

**Denis Fedorov**

Head of Directorate of Electrical Power Sector Development and Electrical Power Marketing, Gazprom;  
CEO, Gazprom Energoholding

One of the criteria for economic success of the Soviet Union in the 1930s was the country's electrification. Now, the entire country's power infrastructure must be modernized, noted Denis Fedorov, Head of Directorate of Electrical Power Sector Development and Electrical Power Marketing, Gazprom, and CEO of Gazprom Energoholding.

*"Our infrastructure is quite old," he explained, "and requires more investment to meet the present day requirements and demands."*

With 230 gigawatts – 4.8% of global power generation – Russia represents the fourth largest power generating country in the world and, based on current projections, the country's energy consumption is expected to increase by 50% by 2030.

To meet this, Mr. Fedorov said Russia is realizing a substantial investment program, specifically for thermal, hydro and nuclear power plants, and looks to build on a period of significant reform, which has characterized the Russian energy sector over the past 5 years.

*"Only 5 years ago, there was one monopoly company and now it has turned into many others – it is a very competitive market in Russia."* In all, fourteen territorial generating companies, six wholesale generating companies (now five are left after the merger of OGK-2 and OGK-6 in November 2011), and two specialized companies, Rosatom and Rushydro, have been created, with a federal grid company, MRSK Holding, and regional grid companies managing the country's networks.

In 2008-2011, with the support of private investors, these state-owned power companies spent USD 75.9 billion to build and modernize their facilities. An additional USD 20.6 billion was invested into the construction and modernization of thermal power plants, according to Mr. Fedorov.

*"The levels of efficiency are still low," he explained, "which will bring the continuation of reforms and will attract investments that are needed for our energy sector. Russia is a good place for investment and that looks to continue."*

He explained that the majority of these investments have been managed through efficient market-oriented capacity delivery contracts, enabling private investors to finance energy projects and increase the return on their invested capital. Through these contracts installed capacity increased by 11 gigawatts for thermal power plants over the 5 year period.

Existing investment plans, though, are not enough to fully modernize the country's power sector as Mr. Fedorov noted



that by 2020, the share of generating units in Russia older than 40 years will still increase to 39%, up from 31% in 2011.

*"According to calculations, EUR 35 billion should be invested by 2020. This is a significant amount," he noted.*

In terms of how this investment will take place, he revealed that Russia is realistically considering two models – a "liberal" model and a "semi-liberal" model.

Of the "semi-liberal" model, Mr. Fedorov stated: *"The function of the state will only be to determine the places where the generation of energy is needed, where grids are necessary. Everything else would be tendered and whoever provides the most competitive bid will be the winner."*

Mr. Fedorov dismissed the "liberal" model, whereby the market self-regulates, noting that this would lead to an unpredictable train of consequences for the Russian power sector and a low level of return on investments.

One thing was clear, Mr. Fedorov emphasized that Russia was taking significant steps to ensure a balanced and holistic approach to upgrade and modernize the country's power sector. *"Only mutual obligations towards consumers and investors will assure the modernization of the system with balanced energy prices,"* emphasized Mr. Fedorov.

*"We think investors can find a lot of space to apply their skills in Russia," he concluded.*

Keynote Speaker

# Power Markets in Europe – How Can They Work?

## Dr. Matti Supponen

Policy Coordinator, Directorate General for Energy, European Commission

In offering the vision of European policymakers, Dr. Matti Supponen, Policy Coordinator at the Directorate General for Energy, European Commission, provided an optimistic outlook for the Union, noting that while the EU's Third Energy Package had yet to be fully adopted in all countries, many actions had already been taken to define the continent's power markets.

*"If you think about wholesale markets, almost every country has one, and there is a price in each one. Also, many activities are in progress, like the network codes following on from the Third Package, so one might even think that there is already a Fourth Package,"* he remarked.

Dr. Supponen emphasized that the decarbonization agenda is now driving the European power markets and that within this electricity, and in turn renewables, would play a more prominent role to resolve many of its related challenges.

From 2010 to 2020, he said that the DG Energy expected the share of renewables in overall electricity generation to increase from 19.4% to 34%, driven primarily by variable renewable generation such as wind and solar.

Dr. Supponen offered that the *"old thinking"* of having base load, mid merit and peak load needs to be revisited as renewables will form the basis of generation. *"And then one has to build what is missing to meet consumption."*

Touching on the phenomenon of capacity markets, existing and new, he said that the European Commission was holding a public consultation on the issue. He explained, *"This is not a statement that the EU wants to introduce capacity markets; for us, this is still an open question, but it looks like so many countries already have them or are considering them, so some action needs to be taken. At the least, the Commission should look at discriminatory elements and offer some guidance to the market as to what kinds of criteria they should have like proportionality, how it influences price and cross border trade."*

With respect to renewable support schemes, Dr. Supponen said they varied considerably throughout the EU and quickly harmonizing them was likely to be an unrealized dream, as the influence of local politics on them was great.

*"It would be difficult for any country to accept that much of the money would go to another country, but we are dreaming that renewables will be more rooted in the market and feel market signals, so that their behavior will more resemble market behavior. As their volumes increase, this becomes necessary - they can't be considered as marginal or infant technologies, but should really be part of the market,"* he said.

Overall, Dr. Supponen stated that the EU is focusing on 3 pillars to develop the European power market:

market integration, development and expansion of infrastructure, and new technologies.

On market integration, Dr. Supponen referenced the EU's 2014 target to introduce the electricity Price Coupling of Regions (PCR), which would integrate power exchanges throughout the continent. On its progress, he noted that while the majority of markets in Western Europe will be integrated by the end of 2013, *"questions marks remain regarding the connection between Central Western and Central Europe, Italy, Switzerland and some countries in South-East Europe"*.

On infrastructure development, he revealed that a new package is under discussion, encompassing more rapid permit granting, regulatory incentives as well as a substantial increase in available financial support, aimed at, among others, the development of new transport corridors and electricity highways.

On technology, Dr. Supponen noted that the EU is working to support the development of HVDC (high-voltage, direct current) transmission, smart technologies and especially new sources for flexibility and storage, such as pump storage, which he felt will become increasingly profitable in the future.

In his concluding remarks, Dr. Supponen noted that overall: *"A broader policy mix is needed"* addressing all challenges, including demand-side measures such as energy efficiency and smart metering. *"Now it's perhaps more wholesale market based and I think we need a holistic, market-based solution, which would include retail, demand side and all those good things,"* he stated.





## Roundtable Discussion

### Theme 1: Renewables M&A

# Global M&A Trends in the Renewables Power Sector – Challenges & Opportunities



At present, Europe has 100 gigawatts of installed renewables capacity, and Japan may be seeing a renaissance in renewables, but for the rest of the world it looks to be a mixed bag, making it a challenging time for mergers and acquisitions in the sector.

*"The good news is, transactions are getting done, and not just in Europe, but around the world,"* remarked Andy Cox, Head of Energy and Natural Resources for Transactions and Restructuring at KPMG in the UK, opening a panel discussion dedicated to global M&A trends in the renewables power sector.

Still, the industry faces both challenges and opportunities, primarily with the uncertainties surrounding incentives and government support, such as tariff reductions in parts of Europe.

Remarking on how the industry is dealing with this uncertainty, Rui Lopes Teixeira, CFO, EDP Renewables, said, *"We have experienced the changes, the ups and downs of different markets in terms of growth potential and what we tend to believe right now is that, for either wind or solar photovoltaic, unless they are sustainable and competitive within the energy matrix, vis-à-vis the other alternatives each country will*

*have, it's very hard to mitigate the regulatory risks that we are seeing today. So the challenge I believe, for the entire industry, is to make sure that it becomes competitive within the matrix for each of the individual countries."*

Mathew Herring, National Leader of Renewables, KPMG in Australia, and panel co-moderator, posed the question *"Are renewable sustainable without incentives/subsidies and how can we move forward?"*

Mary C. Hemmingsen, Senior Vice President for Business Development at Brookfield Renewable Power, said that renewables had received new lease on life in the United States after the reelection of President Barack Obama.

*"It was on life support before that, and right now 29 US states have renewable portfolio standards; Obama has a view, ultimately, towards having a national portfolio standard, and I think that's really going to drive further investment in the US going forward. I think there will be an extension of the production tax credits to support that and more states will take on renewable portfolio standards. The challenge is going to be in scaled renewables,"* she commented.

And what about carbon pricing? Yes, important, according to Liam O'Keefe, Managing Director, Head of Project Finance, Global Loan, who said it was essential to look at the underlying value of the renewable assets that the company was lending against – but there were greater concerns.

He stated, *"Carbon pricing helps to justify the long term investment and value, but what's more important is the certainty of the revenues, and that's why we look particularly at CFDs, feed-in tariffs and knowing that the revenues are going to be stable. Volatility in electricity markets and the commitment of government to provide support revenues and subsidies – that's what really worries us; we need clear transparency from them and need to know they're committed."*

Responding on how the industry was changing its approach, and what made a market attractive, Jean-Francois Thibodeau, Vice-President and CFO, Boralex explained what his company likes about France, including a fully indexed feed-in tariff, and the country's slower strategy, which had allowed Boralex to start on a smaller scale there.



*“But what we like also is their commitment towards their goal; they want to achieve their 19,000 megawatt onshore wind target by 2020, and they are at about 7,000 right now, so there’s lots to achieve there. The government wants to create a bank to support the development, they’re reducing the burden to develop projects and there was a lot of capital available until about a year and a half ago,”* he remarked.

As for the renewables sector’s future prospects, Tom Murley, Head of Renewable Energy, HgCapital, said the industry was *“coming into its adolescence.”*

He commented *“I think it’s going to be a troublesome adolescence, and is going to need a fair amount of parental guidance. From what I see, the really interesting dynamic is there’s a whole lot of interest from financial investors in the sector, but I think there’s still not a lot of understanding and managing through that’s going to be necessary for getting the capital needed.”*

In the closing off the panel, each panelist was asked to choose which country and technology they would most likely invest in, in the next 2 years. The response: an overall support for wind projects in Europe.

#### Moderators:



##### **Andy Cox**

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## Roundtable Discussion

### Theme 2: Natural Gas

# Natural Gas Sourcing Strategies for Power Generation



Few can cast much doubt on the importance of natural gas for power supply, both in Europe and around the globe, noted Dr. Thomas Edelmann, Partner, KPMG in Germany, as he introduced a panel on natural gas sourcing for power generation featuring executives representing each step of the natural gas value chain.

But what role will natural gas play given the rise of renewables? Dr. Ties Tiessen, Member of the Board of Executive Directors, Wintershall, noted that Germany had made up its mind that renewables would become the main provider of the country's energy, but that it would not be substituted 100%; other sources (mainly hydrocarbons) would still provide 60-70% until 2030.

On the trade and production of natural gas, he sees a bright future if gas can play its role as a companion to renewables. "From a technical point of view, when there's no wind or the sun is not shining, CCGT power stations are the best substitutes," remarked Dr. Tiessen.

"From an ecological point of view, the carbon footprint of gas is 20% less than oil, 25% less than hard coal, and 35% less than brown coal. That should be

realized by decision makers if they really want to reduce CO<sub>2</sub> emissions, not only by 2050, but by 2025 as they have promised" he added.

Laszlo Varro, Head of Gas, Coal and Power Markets Division at the International Energy Agency (IEA), agreed that gas-fired turbines were perfectly suitable for balancing energy systems and would play a prominent role, commenting: "This is good news for major gas turbine suppliers, but if your business is to sell gas, then we need to keep in mind that when we operate a gas turbine only for system balancing, you don't consume a lot of gas, but you need a lot of flexibility in the gas system: multi-cycle storages, flexible procurement contracts, flexible wholesale markets and so on. This is something that we currently do not have."

Philippe Boucly, CEO, GRTgaz underlined that natural gas' role in the energy transition will continue to be substantial because it is one of the only fuels that is "Triple A": affordable, abundant and acceptable." He also supported the call for increased investment into flexible infrastructure, urging that networks be built in order to facilitate all possibilities. "Networks in the future may carry gas from bio-installations, hydrogen from

wind farms or syngas, made from the recomposition of carbon dioxide and hydrogen. We cannot see right now what will be successful." He stressed that the prerequisite for such developments are the setting of long term objectives (50 years) and the need for a stable and clear regulatory network.

Queried on the importance of long term supply contracts for an infrastructure company like his, Paul Corcoran, Financial Director, Nord Stream, divulged that Nord Stream had invested EUR 7.4 billion into its twin pipeline project that runs along the bottom of the Baltic Sea. "That kind of investment, commitment needs some kind of long term perspective. Long term contracts are a question of risk sharing, for the customer and the supplier. If you're going to make the investments needed, you have to have some perspective on the long term, otherwise the risk is just too much."

The panelists were in consensus that, even without new demand from gas fired plants, there looked to be a slight increase in Europe's natural gas demand, resulting in a gap of 70bcm as the continent's traditional sources of conventional gas are going to plateau over the next 10 years.



*"What about unconventional gas? Is this an opportunity for Europe, will it play an essential role or is it just a niche?"* asked Andrew Korn, National Head of Power & Utilities, KPMG in Russia & CIS, who co-moderated the panel.

Shale gas in Europe would not likely fill the gap, according to Peter Sahota, Vice President at Eni, who said that he saw the most possibility for producing unconventional gas in Poland and Ukraine, but did not expect large amounts of shale gas, such as in the US, to be produced before 2020.

*"Europe is not the US,"* he opined. *"Europe has not yet fully assessed what the scale of unconventional gas' potential is; the infrastructure and*

*permitting doesn't exist here as it does in the US; and thirdly, there is quite a different mineral rights setup between Europe and the US, where you own the minerals beneath your land."*

The panel concluded that Europe will continue to be a net importer of natural gas, primarily via pipeline and LNG, wherein LNG provides a unique opportunity to transport energy across vast distances, but will remain comparatively more expensive due to the capital intensive processes for liquefaction and re-gasification and scarcity of required infrastructure, such as LNG terminals.

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## Roundtable Discussion

### Theme 3: Regulatory Risk

# Regulatory Risk Management Strategies



*“Over the last few years, the global energy sector has been involved in a process of liberalization, particularly as regards generation and supply activities. Despite this, the structures of the energy sector and, in particular, the natural gas and electricity sectors, continue to be developed under tough regulated conditions, especially for grid, transmission and distribution activities”* stated Carlos Sole, Partner, KPMG in Spain, as he opened a discussion with representatives of European utilities, regulators and system operators on regulatory issues surrounding regional markets, international interconnections and future industry trends.

In discussing regional energy markets, and how to make those attractive to investors, the topic of capacity markets/capacity payments came under scrutiny. Daniel Dobbeni, President, 50Hertz Transmission and ENTSO-E, offering the perspective of a Transmission System Operator (TSO), said the major issue is to ensure that there is both enough generation and transmission capacity, whether it be national or imported. Using a hypothetically isolated German power system to illustrate the issue, he stated *“The difference between forecast and*

*reality of wind generated power may reach 5 gigawatts. Up to 33 standard 400 megawatts CCGTs, each with roughly 150 megawatt flexibility, would be needed to compensate this difference. Who’s going to build them, knowing that these units would run between 1500 and 2500 hours a year?”* he asked. TSOs should hence be in favor of measures incentivizing generation capacity, but were not in favor of the current trend with capacity markets being solely designed with a national concern, having the potential to seriously degrade the functioning of the EU market model.

According to Walter Boltz, Chairman, E-Control, capacity markets were a self-inflicted wound stating that the situation resulted from overly ambitious subsidies oversupplying the market with power at certain periods of time. *“Not surprisingly, if we overload the market with a commodity, those people who don’t get subsidized start to suffer financially. Instead of subsidizing those as well, not knowing what to do with the surplus electricity, I think we should step back and consider how we can fix it without killing the market.”*

His solution: interconnecting the markets better. *“Build a couple of more lines –*

*which we have not done in the past 8-10 years – very little additional capacity has been built on the cross border level; and start planning our markets, products, border exchange capacities on a much shorter term basis.”*

Mr. Boltz added, *“Today, Europe has enough generation – we just don’t have it where and when we need it most.”*

For others, capacity markets may not pose such a problem. Regulatory stability, according to Fernando Lasheras, Director of Iberdrola’s Representative Office in Brussels, was most important for promoting investment.

*“In terms of capacity mechanisms, I think we have a short memory, because when liberalization started in 1990, the electricity pool of England and Wales had a capacity payment system that no one questioned,”* he recalled. *“Many markets in the world have some kind of mechanism. Prices are decreasing and unless you have price signals that are close to the long term marginal costs, people are not going to invest.”*

Jonathan Erling, Partner, KPMG in Canada and co-moderator of the panel, turned the discussion to future trends – smart grids, smart metering, storage technologies –



and their regulation, posing the question: *“What is the best way to promote the adoption of new technologies? Is more regulation the key?”*

Zsolt Bertalan, Member of the Board and CEO, MAVIR Hungarian Independent Transmission System Operator Company, said he thought the best way was to continue subsidizing renewables, *“because the growing ratio of renewables will really force us to reconsider all of our operation at present. Maybe it turns out that new technologies, innovations and solutions are required, so as to really guarantee further on supply.”*

He reported that MAVIR had initiated an R&D project on storage to investigate battery-based storage technologies,

emphasizing that TSOs could spearhead innovation with the cooperation of other stakeholders in the power sector.

And what about the timing of that regulation? Søren Dupont Kristensen, Senior Vice President, Energinet.dk, said that the regulation most TSOs and Distribution System Operators (DSOs) faced was designed for a completely different purpose than what was presently being seen. Investments at Energinet.dk, he reported, had increased in the last 7 years from DKR 200 million to more than DKR 2 billion and would remain that high or perhaps even increase, a phenomenon also seen in Norway, Sweden and Germany. Investments, particularly in electricity

and heat, would be continuously needed, but with a caveat.

He commented: *“The regulation faced by many companies in the industry is not designed for an investment scenario, but more for an operational scenario. This could endanger the ‘green transition’ as well as the integration of the European electricity markets. So I think that’s a main challenge for regulators – both at the EU and certainly also at the national level.”*

#### Moderators:



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## Roundtable Discussion

### Theme 4: Operational Excellence

# Maximizing Operational Value in a Volatile Market



When it comes to operational excellence, it is no longer sufficient to simply invest in new assets and infrastructure, or make the 'right' transactions. *"Companies are being forced to really think about their value drivers, where value may be locked within the organization, and what they can do to release that,"* said Greg Pestrak, Partner, KPMG in the UK as he opened an international panel on operational value maximization for utilities.

Peter Berlin, Director of Capital Markets, EnBW, recounted what it was like for his company to deal with the German government's decision to shut down eight nuclear power plants, two of which were operated by EnBW, after a new nuclear tax, shrinking margins and low wholesale market prices had already challenged the company's A rating.

*"The counter measures were increasing efficiency and reducing debt, which meant that we set up an efficiency program of EUR 750 million, then we did a capital increase of approx. EUR 820 million; furthermore we issued a hybrid bond totaling EUR 1 billion; and finally a very strict investment policy, where we also scheduled to divest EUR 1.5 billion in assets,"* he explained, adding that EnBW, as with other utility companies in Germany, now prefers

partnerships for future investments to reduce the CAPEX requirement.

Keep costs low, but explore international opportunities was the paradox that Tima Iyer, Senior Vice President International Hydropower, Statkraft, grappled with. Responsible for the company's Southeastern Europe portfolio, which included 640 megawatts of hydropower in Turkey, she said that Statkraft had set the goal of keeping its operational costs at the same level as the previous year, but was looking for new opportunities.

*"This puts enormous pressure on us to demonstrate high rates of return on existing assets. We're being challenged on the value logic throughout the entire value chain of our international investments. On the construction projects, HSE (Health and Safety Executive) issues are number one on the management agenda, and project execution must be on time and on budget – challenges that we must address every day,"* she said.

Given the broad range of challenges facing utility companies, Barry van Bergen, Director, KPMG in the UK, asked *"How are you addressing your cost base in terms of value delivery?"*

Marco Sick, Director of Strategy Production, Vattenfall GmbH, noted that while it was good to be efficient, operational efficiency was not just about cutting costs any more. He explained that the industry had reached a point where it was difficult to cut costs any further, and now it was necessary to cut down internal costs.

He suggested to continue working on efficiency, but also to closely monitor and steer asset values: *"Understand your assets and your markets. Sometimes it's not good to cut costs; sometimes you need to understand, even in these tough times, that there are assets that require cash and need some investment. Smart maintenance is the name of the game, currently."*

Maintaining one's assets rang true for Kevin Kelly, CFO and Executive Vice President Finance and Commercial Services, Bruce Power, which operates the largest nuclear generating facility in the world.

He said, *"It's one thing to spend USD 5 billion to get these units online, then you want to run them efficiently and effectively. We've spent a considerable amount of time over the last 10 years focusing on equipment reliability for*



*our six units, and to get your equipment reliability indices up, you've got to be investing in the right equipment at the right time, both in terms of sustaining capital and your preventative maintenance program."*

Mr. Kelly added, that he found it almost equally important to ensure that people operating nuclear facilities were well trained, investing in people to curb performance errors. He said Bruce Power had taken some cues from the auto industry in terms of applying lean principles and cost methodologies so that personnel could spend more time on equipment performance and decrease errors.

For Taha Mohammed Azhari, Executive Director for Business Excellence, National Water Company in Saudi Arabia, ensuring availability of service was paramount in a nation where water was scarce, but per capita consumption was one of the highest in the world.

*"If cost cutting impacts service, that's not acceptable. Having an incomplete network for water or waste water is not acceptable. At the same time, costs must not rise. There are two sides to the equation: one is finding another source of revenue to cover some of these costs, the other is to look at them again to see if there's any chance they can be reduced,"* he said.

He reported that his enterprise was investigating the re-use of treated waste water as an example of finding such a new revenue source.

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## Roundtable Discussion

### Theme 5: Nuclear Power

# The Challenges of Building New Nuclear



With the tragedy at Fukushima still looming, the nuclear industry is being faced with new issues and challenges surrounding nuclear new build and decommissioning.

In his opening remarks, Laszlo Varro, Head of Gas, Coal and Power Markets Division, International Energy Agency (IEA), stated that there are still many countries around the globe that favored nuclear, as it is economically competitive versus other energy sources. *"The only showstopper is raising the initial capital investment,"* adding that up to now state investments had made up the lion's share of nuclear construction, with private investors shying away due to a track record of nuclear new builds persistently going online over budget and behind schedule.

Even coming from a company that is internationally successful in nuclear, Nikolay Solomon, First Deputy General Director, CFO, State Atomic Energy Corporation Rosatom, was all too familiar with some of the obstacles like delays, cost optimization, and reprocessing of spent nuclear fuel about which he reported: *"The new generation of power reactors is focused on fast neutrons and it should solve the*

*problem of increasing spent nuclear due to the closing of the cycle for the fuel."*

Fukushima, he said, was also an obstacle, adding increased CAPEX costs in the form of additional safety measures (stress tests), and reducing public acceptance of nuclear, which he said was the most crucial pre-requisite for nuclear new build.

Moreover, new nuclear build is a 100-year engagement, according to Jorn-Erik Mantz, Head of Nuclear New Build, RWE. *"Before the first kilowatt hour is even produced, you have a 10-12 year engagement already, therefore you need an extremely stable framework and full-scale public support – it doesn't help if only the government supports you, as even very stable governments may change over this period. Deregulated markets with global, volatile input as much as output price levels, make long-term investments like nuclear a very challenging undertaking."*

Recalling the Czech Republic's construction of the Temelin Nuclear Power station, co-moderator Peter Mitka, Director, KPMG in the Czech Republic, referred to the UK scheme to develop nuclear through a power purchase agreement (in an alleged

*"liberalized market"), asking: "I wonder whether the Czech government will be challenged if it decides to go the same way as the UK government. It's a big question whether the UK model will be picked up by other countries in the EU on how to develop nuclear."*

Speakers also addressed the mothballing of nuclear in Germany and Italy, countries whose populations, they said were a big contrast emotionally.

Umberto Minopoli, Commercial Director, Ansaldo Nucleare, explained why Italy had turned against nuclear. He said his country was a paradox, because it paid the highest electricity tariff in Europe and was dependent entirely on natural gas; 14% of the energy mix came from nuclear power from France. He said that there could be a place for nuclear in Italy (or even coal), but the country had held referendums on its use following the Chernobyl and Fukushima accidents.

*"Emotion prevailed over reason. We have no public debate for big energy investments. It's very difficult for nuclear supporters to deal with the misinformation,"* he explained, saying that Italy still showed how much it and other countries in Europe needed



other contributors to their power mix like nuclear.

*“Nuclear could make an important contribution,”* he added.

On the topic of decommissioning, the panelists were in consensus that, as now mandated in the UK, decommissioning plans should be in place and that the funding for these should already be secured at the start of any nuclear new build project.

Mr. Solomon also noted that it is vital to have a clear agreement with the government on how nuclear waste and radioactive material is handled. *“Most of the problems arise from the fact that the government resists, that*

*the public resists, to even talk about spent fuel or radioactive waste, but if you go for nuclear power, you should understand the outcomes.”*

In addition, he noted that more investments are required into the development of decommissioning technologies, advocating an industry-wide cooperation to *“save time, establish standards, and improve decommissioning results”*.

Summing up the session on nuclear, David Simpson, Partner, KPMG in the UK, said:

*“It is simply a larger scale, low carbon generating process than any of the other low carbon plants on the market.*

*I, certainly for one, am absolutely convinced that in a low carbon world, nuclear is a key component.”*

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## Roundtable Discussion

### Theme 6: Customer Value

# The Customer Value Focused Utility



Faced with deregulation and increased competition from home grown power generation and increased consumer choice, utility companies are now finding that they must carefully cultivate and maintain their relationships with their customers, going beyond simply selling kilowatt hours and moving towards offering new customer value propositions.

Noting that the average household bill for power and gas in the UK had increased threefold over the past 10 years, and was believed to double again by 2020, panel moderator, Nick Horler, Chairman of the ENR Advisory Board, KPMG asked *“Does today’s utility even have the ability to adapt its interaction with customers?”*

Anthony Haines, CEO and President, Toronto Hydro Corporation, recalled how his company had gone through a complete re-assessment of its customer approach, which had been predominantly reactive following 95 years of market dominance. Seeing that consumers were more frequently holding utilities accountable for outages, even if beyond their control, and that aging networks would bring service quality down, in spite of rising prices, he said that Toronto Hydro queried its customers directly on what they needed.

*“We came back with five things” he explained including, “Make sure we’re safe, a reliable electricity service, and when the power goes out, we want you to give us a sense of urgency that you are dealing with this problem. Most importantly, though, we want you to be easy to do business with.”*

So, Mr. Haines said, his company decided to develop a more proactive relationship with its customers, investing into new service based models and *“retooling the way we looked at our customer relationship.”*

A rapidly changing retail market, driven by rising energy costs, is also pushing down traditional sources of profit for utilities in the Netherlands, according to Kees-Jan Rameau, Member of the Board of Management, Eneco.

He reported: *“There’s a lot more churn in the market than there used to be – 12% of the retail customers per year. There is aggressive hunting for each other’s customers via internet-based offers. There are intermediaries, such as consumer interest groups, who are bundling customers and holding auctions in which utilities can bid for 100,000 retail customers at a time and the lowest bidding utility wins and that’s*

*rapidly driving down margins in our traditional retail supply business.”*

To replace lost income, Eneco has expanded into energy management services and entered non-traditional areas, such as IT hardware with the introduction of a highly popular smart thermostat for retail customers.

Mr. Rameau also noted that energy performance contracts were rapidly taking off in the Netherlands, offering another new revenue stream. Giving one example, *“We do the investment in completely upgrading an office building, guaranteeing that energy cost per square meter is brought down to a specified number. That gives the real estate owner certainty on the energy costs, a state-of-the-art comfortable building, and a higher attractiveness for tenants. The business case for us is that we share the energy savings with the real estate owner, and secure their loyalty for a period of 10 years.”*

In connection with the more interactive relationship being forged with customers, Linda Jackman, Group Vice President, Industry Strategy, Oracle Utilities, said this surpassed utilities simply informing customers of their usage.



*“Halfway through the month, if you’ve got a smart meter installed, you could look at the current energy bill, compare it to that customer’s profile and proactively alert that customer that ‘your energy usage is actually a bit different than what it normally is, your bill at the end of the month will be higher;”* she explained.

Ms. Jackman also added that increased customer data allows utilities to better segment their customers, giving them the insights and the ability to be proactive and to answer the question: *“What is the best thing I can be to the customer?”* She added that customers expectations were also no longer shaped by competitors in the sector alone.

*“Today, customers are taking cues from banks and travel agencies, and applying this to the utilities sector on how their data can be accessed and managed.”*

To address that situation, Götz Wehberg, Partner, KPMG in Germany, was adamant about the potential for utilities to partner with technology firms. He said, *“If energy prices are so high, there’s a much more significant need for dealing with your energy costs on a customer basis, a demand for more information and control.”*

He added that better knowing your customers also provided opportunities for new or better services. For business-to-business clients, products that consider industry

specific risk patterns can create additional value and help to differentiate against competitors. In the residential and SME market, transparency on customers behavior is a key for multi channels and efficient customer operations as well as effective pricing, product innovation and customer retention.

**Moderator:**



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## Roundtable Discussion

### Theme 7: Energy Policy

# New Energy Market Regimes for Sustainable Power Generation



*“How do we create the environment for the right investment in sustainable power, what are the levers for encouraging investment and how should we pull those levers?”* asked James Stewart, Chairman of KPMG’s Infrastructure Practice in framing a discussion on energy policies for sustainable power generation.

One broader question for co-moderator Matt Firla-Cuchra, Partner, KPMG in the UK, was whether decarbonization of an economy meant deindustrialization. *“Are we going for competitive markets or are we going for regulated markets,”* he asked in light of the recent unveiling of the UK Energy Bill.

Thomas Raffener, CEO, The Mobility House, responded *“I think it’s both, actually. Of course, everybody appreciates a free market – we as customers want to choose our electric power supplier, telephone provider, so why should it be different in this industry? Liberalization is good for all of us. At the end of the day, it drives efficiency, service level. I’m not quite sure that regulation is the answer to complexity; I think the opposite is true – we should allow the market to happen, but this is not the case.”*

The sector, he said, had contradicted liberalization with limitations and over regulation.

In the context of a regulated market, the public had been deceived on what things actually cost, according to Alan Svoboda, Executive Director Sales and Trading, CEZ Group. *“They say it’s going to be for the public good, because there will be greener power and less dependency on carbon, but they forget to mention how much investment is needed and how much subsidies will be involved – not just direct investment, but indirect, like backup services. If you sum it up, it’s a tremendous bill that everyone has to pay with the current level of technology,”* he explained. *“When it comes to light how big the bill is, I think we’ll face serious opposition, even in such a ‘green’ country like Germany.”*

Mr. Svoboda also remarked on the ability (or lack thereof) of policies to respond to market conditions promptly, leading to paradoxical situations such as carbon schemes favoring coal fired power plants.

Alain Bucaille, Special Adviser to Chairman on Energy Future and Strategy, AREVA, agreed with

defending the free market, noting *“we are too focused on electricity because, in the end, the real difficulty is oil price and oil volume. The oil and gas reserves are located in only a few countries, which has had many effects in terms of geopolitics over the last 50 years, and energy did not embrace the free market economy because of that. In the end, we know the production price for oil and gas. If it were a free market, those companies would take over the utilities, but that’s not what has happened.”*

Noting the weight of sustainability on national energy policy making, Mr. Bucaille added that it is possible to address climate change, without compromising economic growth. This would be detailed in a soon-to-be-published research report (February 2013) by the Imperial College in London, at which he is also a visiting professor.

*“Sometimes it may sound like the sector is asking for competition, but wants to be fully protected by regulation,”* commented Dr. Urban Keussen, Senior Vice President Technology & Innovation, E.ON. *“Regulation is necessary – but just regulate what is really necessary like infrastructure. Secondly, if you*



*have to subsidize or support certain developments at an early stage beginning, find the right point in time to stop subsidies – something which is regularly missed. Third, if you design subsidies try to design them on the basis of efficiency incentives.”*

If one violates those principles, he said, it may end up like Germany or other countries, where the renewables as a significant share of the electricity market are no longer part of the competitive market, while the remaining competitive segment is shrinking. This creates mid- to long-term risks for economic investments on the competitive side. *“We have to find a framework where private capital is*

*attracted to invest in the energy business to transform the energy sector.”*

In discussing the future of energy markets, the panel was asked what role technology would play in helping the market to develop, and whether the sector has already seen the emergence of a 'game changer' technology.

Dr. Oliver Weinmann, Managing Director, Vattenfall Europe Innovation supported the nomination of solar photovoltaic. *“This development is going so fast, faster than any one predicted. Three years ago, I was shown an optimistic growth scenario for renewables for Germany and solar was only a small part, now we already*

*have approximately 30 gigawatts installed. So this is a game changer.”*

He added that not only technology, but also the organization of power generation, was having a dramatic impact on the sector. *“We are going from big centralized assets to more decentralized assets, which is also placing greater demands on IT, something that has not been a strength for utilities historically. We are going to be seeing an increasingly important role for IT in order to stabilize networks and manage numerous and intermittent power sources.”*

#### Moderators:



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## About KPMG Global Power & Utilities Practice

**Around the world, the power and utilities sector is facing unprecedented challenges and change. There is a global focus on the impact of climate change, extraordinary economic turbulence, a lack of liquidity in financial markets, significant anticipated growth in power demands, increasing cost pressures, substantial legislative volatility, new and emerging technologies, and the rise of alternative and renewable energies. Businesses in this sector need forward thinking advice and practical strategies from professionals who understand their businesses and their challenges.**

### **KPMG's vision:**

We aim to maintain our position as a leading advisor to the power and utilities sector by continuously developing strategic thought leadership and practical strategies that help our firms' clients meet their challenges. Our industry-leading initiatives include KPMG's Global Energy Institute, KPMG's Global Power & Utilities Centres of Excellence (CoEs), the KPMG Global Energy Conference and the KPMG Global Power & Utilities Conference.

### **KPMG's reputation:**

Through our firms' national practices and KPMG's Power & Utilities Centers of Excellence, we constantly strive to provide services of the highest quality and the best available advice to clients around the world.

### **KPMG's commitment:**

Our understanding of the demands and challenges power and utilities companies face enables our firms to develop services, methodologies and original thinking that specifically

address the needs of this sector. We look at industry challenges from multiple angles, pooling our knowledge and resources to develop holistic services that are designed to fit our firms' clients' ever-changing requirements.

## **KPMG's Power & Utilities Centers of Excellence**

KPMG member firms offer global connectivity. We have 13 dedicated Power & Utilities Centers of Excellence in key locations around the world, working as one global network. They are a direct response to the rapidly evolving power and utilities sector and the specific challenges that this is placing on industry players.

Located in Budapest, Calgary, Dallas, Essen, Hong Kong, Johannesburg, London, Melbourne, Moscow, Paris, Sao Paulo, Singapore, and Tokyo, the centers support companies along the whole value chain and service industries around the world, helping them to anticipate and meet their business challenges.

In each center, there are professionals with practical, in-depth power and utilities experience. They draw on our wider global network of power and utilities practitioners to provide clients with immediate access to the latest industry knowledge, skills, resources and technical developments.

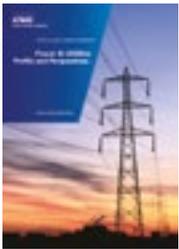
Our Centers of Excellence also enable us to transfer knowledge and information globally, quickly and openly. With regular calls and effective communications tools, we share observations and insights, debate new emerging issues and discuss what is on clients' management agendas. The centers also produce regular surveys and commentary on issues

affecting the sector, business trends, changes in regulations and the commercial, risk and financial challenges of doing business.

**We have 13 dedicated Power & Utilities Centers of Excellence in key locations around the world, working as part of our global network.**



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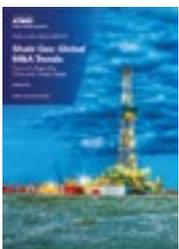
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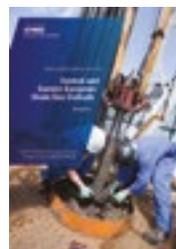
### Taxes and Incentives for Renewable Energy 2012

Designed to help energy companies, investors and other entities stay current with local country policies and programs supporting renewable energy around the world.



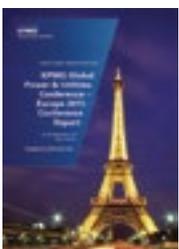
### Shale Gas: Global M&A Trends

In a world of rising energy prices, pressure to reduce harmful emissions, and geopolitical instability, some countries have taken a huge stake in developing their shale gas production and distribution capabilities—changing the game for decades to come.



### Central and Eastern European Shale Gas Outlook

Many Central and Eastern European countries, especially Poland, Romania and Ukraine, will potentially be important markets for shale gas production in the next decade.



### KPMG Global Power & Utilities Conference – Europe 2011: Conference Report

This publication provides a comprehensive summary of the key issues and perspectives discussed during the KPMG Global Power & Utilities Conference – Europe 2011.



### U.S. Power and Utilities Outlook

This publication discusses the forecast for the power and utilities market in the United States, and highlights the current issues, challenges, risks, and opportunities executives should consider as they plan their strategies for the years ahead.



## The KPMG Global Energy Institute (GEI)

Launched in 2007, the GEI is a worldwide knowledge-sharing platform detailing insights into current issues and emerging trends within the Oil & Gas and Power & Utilities sectors. Energy professionals will have access to valuable thought leadership, studies, outlooks, events and webcasts, about key industry topics. A regional focus to the GEI provides decision makers tailored insight within the Americas, Asia Pacific and the Europe, Middle East & Africa regions. The GEI strives to arm professionals with new tools to better navigate the changes in this dynamic arena. To become a member, please visit [www.kpmg.com/energy](http://www.kpmg.com/energy)

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Please mark your calendars for the 11th annual Global Energy Conference, 22-23 May 2013 to be held in Houston, Texas. We are pleased to announce this years conference will feature luncheon keynote presentations by Tony Blair, former prime minister of Great Britain and Northern Ireland, and Cokie Roberts, political analyst for ABC News.

Join us in Singapore, 25-26 April 2013 for the inaugural Global Energy Conference-Asia Pacific, Opportunities in Asia, dealing with complexity in the fast changing energy landscape. Hear from government, industry and other stakeholders as they share insights on the quest for solutions balancing the requirements of regional economic growth, operational efficiency and energy security.

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