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2014 Deloitte Energy Conference
A Global Industry...Competing Locally

Deloitte Center for Energy Solutions

Retrospective





The Deloitte Center for Energy Solutions hosted the 2014 Deloitte Energy Conference in Washington, DC, on May 13–14, 2014. With the theme “A Global Industry...Competing Locally,” the conference focused on how global energy markets and capital investment can affect the strategies and operations of energy companies — as well as how talent and technology developed locally can proliferate to help meet and manage future energy demand around the world.

The conference brought together executives, researchers, entrepreneurs, regulators, investors, and Deloitte practitioners from around the world to share ideas for meeting and managing future energy demand. It provided opportunities for participants to explore broad trends, such as the global energy outlook, the rise of North America as an energy producer, and evolving business models in the electric sector. It also allowed participants to delve into specific issues within their sectors and to learn from the experiences of other organizations. Along the way, the discussions spanned markets, geopolitics, policy, public affairs, the investment environment, climate change, water strategies, research, technology, and cyber risk.

This retrospective provides a snapshot of the memorable themes and insights from the event along with links to other conference materials.

Click on one of the boxes below to get started.

Overview of Conference Themes



Plenary Sessions



Breakout Sessions



Concluding Perspectives



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Click on the green folder icon to view additional Deloitte thought pieces related to conference topics.



Overview of Conference Themes



- Depending upon the analysis, global energy demand is expected to grow somewhere between 30–60% over the next 20 years. While energy is consumed locally, meeting the demand for it is a global challenge requiring unprecedented levels of cooperation.
- The United States has entered an era of supply abundance as a result of the shale revolution, with opportunities rippling throughout the domestic economy and across global energy markets. In order to fully realize these opportunities, the energy industry must not only compete globally but also locally to win public support and maintain its social license to operate.
- Food, water, and energy are interdependent and all three are at the heart of sustainability challenges. Climate change, energy demand, population growth, and the surging middle class are driving resource constraints around the world and increasing the issue of water stress.
- A “full energy portfolio” approach incorporating natural gas, renewables, energy efficiency, 21st century coal, and nuclear power is essential for power and utility companies to fulfill their mandate of supplying safe, reliable, affordable — and now environmentally responsible — electricity.
- Capital remains widely available for funding the enormous infrastructure requirements of the U.S. energy industry, but a confluence of factors suggests the cost of capital will increase.
- Innovation is occurring at an accelerated pace across all energy sectors — technology, business models, and operational practices. Yet, there is room — and an absolute imperative — for more.
- Regulatory models may need to be re-examined in light of the electricity sector’s disruptive innovation. For many of the supply chain participants, bundled, volumetric pricing does not accurately reflect the value they deliver.
- Oil is the most globalized industry accounting for 90% of the transportation fuel in the United States. As long as the transportation sector relies on oil, the United States, like all nations, will be dependent on global energy markets.



Overview of Conference Themes



Plenary Sessions



Breakout Sessions



Concluding Perspectives





Plenary Sessions



Global Energy Outlook

Natural Gas: Fueling Business Globally

Sustainable Energy for All

Global Water Strategy

The Future of Coal

North American Electricity Landscape

Energy Regulatory Landscape

Energy Investment Environment

Energy Technology Developments

U.S. Department of Energy: Perspectives on Energy Strategy

Oil Security 2025: U.S. National Security Policy in an Era of Domestic Abundance

“All speakers were very knowledgeable in their respective areas and points were clearly articulated.”

“Thoroughly enjoyed the conference and overall speakers were very good, relevant and thought provoking.”

“Excellent line up.”

“Range of topics and perspectives; candid; polished presenters.”

“Really enjoyed speakers and topics - very relevant topics.”

“Very applicable to my position and work. Good mixture of opposing views.”



Overview of Conference Themes



Plenary Sessions



Breakout Sessions



Concluding Perspectives





Global Energy Outlook

Energy is one of the most important keystones underpinning any successful society. However, the pressure on this building block is intensifying due to global population growth and a rising middle class in developing nations.

Citing the *BP Energy Outlook 2014*, which contains energy-related trends and projections through 2035, John Mingé, chairman and president of BP America, Inc., explained that global energy demand is expected to grow approximately 40% over the next 25 years. Most of this growth is expected to occur in the emerging economies with China leading the way, at least for now, until India surpasses it as the world's largest energy consumer. As people in these nations seek to improve their standards of living, industry will likely remain the largest driver of growth in global energy demand, followed by the residential, agricultural, and service sectors.

While energy is ultimately consumed locally, meeting the demand for it is a global matter, and it is one that will require thoughtfulness and ingenuity on multiple fronts. Despite rapid growth in renewables, Mr. Mingé noted the percentage of fossil fuels in the world's energy mix is expected to remain about the same between now and 2035, with the proportions of oil, gas, and coal equalizing to approximately 27% each. Accessing these fossil fuels, however, is becoming more difficult, as companies increasingly need to go deeper and farther afield with their exploration and production operations.

As Mr. Mingé stated, the global thirst for energy, along with more difficult operating conditions, is challenging for both companies and regulators to strike a balance. He stressed the need for public/private collaboration in developing sound policies based on science and encouraging, not limiting, market forces. He also suggested companies need to be more thoughtful in what they go after, playing to their strengths, and recognizing "no company or country can go it alone."

In the end, whether the industry can successfully meet the world's growing energy demand will likely come down to talent. But what will it take for the industry to attract and retain the best and the brightest? "People don't come to work to increase shareholder value," said Mr. Mingé. "They do it to make a difference."

Featured Speaker:

"The connection between drilling exploration wells and improving people's lives may not be obvious, but it is real."

John C. Mingé
Chairman and President, BP America, Inc.



Overview of Conference Themes



Plenary Sessions



Breakout Sessions



Concluding Perspectives





Natural Gas: Fueling Business Globally

The United States is looking at a supply picture that is stunning in its changes over the last decade. It has the largest fossil fuel reserves in the world; it is now the largest gas producer in the world; and it could potentially be the largest oil supplier in the world within a decade. An abundance of coal and a strong growth in renewables add even more brushstrokes to this multilayered supply picture. As Karen Harbert, president and CEO of the U.S. Chamber of Commerce's Institute for 21st Century Energy, emphasized, the United States has entered an era of abundance. However, the question for government and regulators is, "Do we have the policy to match the opportunity?"

According to Ms. Harbert, the answer is, "probably not." One of the challenges facing the industry is that government does not move as fast as opportunity. This challenge is compounded in relation to the shale boom, since the opportunity is expanding at an unprecedented rate. The boom has already created 2.1 million new jobs, and it has the potential to create 1.8 million more by 2025, not including the positive reverberations across other industries such as manufacturing, steel, and petrochemicals.¹

Ms. Harbert asserted that in order to fully realize the opportunity before us, "we have to get the policy right." This means taking a balanced approach that recognizes the energy realities of today, including the likelihood that the world will be dependent on fossil fuels for decades to come and that the United States will need to be a bigger player in the export market in order to stimulate production and provide a hedge in the marketplace for oil as well as gas. Session moderator Peter J. Robertson, independent senior advisor, Oil & Gas, Deloitte LLP, concurred with Ms. Harbert. "Natural gas is a bridge to the future, but it's a long one," said Mr. Robertson. Acknowledging these energy realities will require a fair regulatory process as well as a sensible permitting process that facilitates infrastructure expansion to carry the hydrocarbons or electrons from production to market.

With potential regulatory challenges ahead, Ms. Harbert cautioned the industry not to take the future of shale for granted. Citing the increasing number of moratoriums on fracking at the state and local levels, she emphasized the need for the industry to be cognizant of public opinion and the social license to operate. "We're not only competing globally, but also locally," she emphasized, "to win support and make sure the era of abundance continues."

Featured Speakers:



Peter J. Robertson
Independent Senior Advisor,
Oil & Gas, Deloitte LLP



"If it's about generating jobs and getting the economy on its feet, then it's about the oil and gas industry."

The Honorable Karen A. Harbert
President and CEO, U.S. Chamber of Commerce's Institute for 21st Century Energy

¹Shale Works for Us, Institute for 21st Century Energy http://www.energyxxi.org/shale_old



Overview of Conference Themes



Plenary Sessions



Breakout Sessions



Concluding Perspectives





Sustainable Energy for All

For those who live or work in modern cities, it is hard to imagine that approximately 1.3 billion people in the world do not have access to electricity.² It is perhaps even harder to fathom that about 2.4 billion still cook on solid-fuel stoves, which pose severe health hazards.³ But minimizing energy-related risks to health and prosperity is not simply a matter of access. Where modern energy services are plentiful, the equally formidable challenge becomes eliminating waste and pollution.

Sustainable Energy for All (SE4ALL), an initiative launched by Ban Ki-moon, Secretary-General of the United Nations, addresses the persistent dilemma of energy access in the developing world, as well as the global challenge of climate change. SE4ALL has set three goals to be achieved by 2030: (1) ensure access to modern energy services for all; (2) double the global rate of energy efficiency; and (3) double the share of renewable energy in the global energy mix.

As Chad Holliday, Jr., chair of the executive committee of SE4ALL explained, the initiative seeks not only to help governments bring these challenges into focus but also helps energy industry participants envision commercially viable solutions for resolving them. Among other efforts, SE4ALL has established an energy practitioners' network composed of more than 1,600 professionals in 90 different countries who mainly exchange energy efficiency practices. "If you have an energy efficiency idea, technology, or product, and you'd like to find a way to disseminate it to 90 countries fast, we might have an opportunity for you," commented Mr. Holliday.

He further explained the cost for accomplishing these goals is presently estimated at around \$50 billion per year. This clearly outstrips the capacity of public funding, so the initiative must bring in private investment if it is to succeed. This is now happening to a greater degree, mainly because banks and businesses see real commercial opportunities in expanding access to clean energy.

Featured Speaker:

"There are real commercial opportunities in making a difference."

Charles O. (Chad) Holliday, Jr.
Chair of the Executive Committee, Sustainable Energy for All (SE4ALL)



² Sustainable Energy for All, Universal Energy Access, <http://www.se4all.org/our-vision/our-objectives/universal-energy/>
³ Ibid.



Overview of Conference Themes



Plenary Sessions



Breakout Sessions



Concluding Perspectives





Global Water Strategy

Energy is required to treat and move water, and water is required to produce energy, while both water and energy are needed to grow food. Gregory Koch, director of global water stewardship with The Coca-Cola Company, asserted that in the coming years the primary challenge to sustainability, economic development, and security for all of us, meaning nations, businesses, and individuals, will be related to this “food-water-energy” nexus.

Mr. Koch explained that climate change, population growth, and global development are driving water stress. Notably, this stress is multifaceted, relating to quantity, quality, infrastructure, policy, price, and even emotions, since water is linked to our primal instincts for survival and is central to our physical, as well as spiritual well-being.

But who should be worried about water stress? The answer is, “everyone, everywhere.” “Water stress,” said Mr. Koch, “is not only a developing world issue.” Water stress can manifest in many different ways and cause risk to a community, a country, and a business. Citing declining water levels in Lake Mead and the recent floods in Tennessee, he contended water stewardship should be on the agendas of local governments and businesses in the United States and throughout the world. As the global population continues to grow, and incomes rise, increasingly resource intensive lifestyles will only add pressure to the water stress issue.

The energy industry, in particular, should be keenly focused on water-related risks and mitigation strategies since they are a crucial part of the “food-water-energy” nexus. According to Mr. Koch, about 25% of electricity production capacity in the United States is currently located in areas of high water stress. This stress will change in the future, but no one knows to what extent or at what rate. With this in mind, he predicted increasing challenges for energy industry participants related to determining where to locate power plants; accessing sufficient amounts of cool, fresh water to operate them; managing the aquifer impacts of carbon capture and sequestration; and mitigating risks related to emerging contaminants.

In conclusion, Mr. Koch offered a word of caution about hydraulic fracturing. “Your data and your legal permits aren’t enough,” he said. “When you engage with people, you have to acknowledge that water isn’t a social issue; it’s an emotional one.”

Featured Speaker:

“The regulatory licenses are important, but at the end of the day, it’s the emotional license that matters.”

Gregory J. Koch
Director, Global Water Stewardship, The Coca-Cola Company



Overview of Conference Themes



Plenary Sessions



Breakout Sessions



Concluding Perspectives





The Future of Coal

Regulatory hurdles and low natural gas prices have been pressuring the coal sector in the United States, as well as in other developed nations. While some see the story of coal as nearing the end, others believe it is just now approaching its most riveting chapters.

Hal Quinn, president and CEO of the National Mining Association, pointed out that over the last decade, coal has been the fastest growing fuel globally. Moving forward, he sees the future of coal remaining bright as the developing world marches toward greater energy access, lifting hundreds of millions of people out of poverty. He further explained that urbanization, industrialization, and technological developments are driving an unprecedented demand for electrification, as well as an extraordinary need for infrastructure build-out, which in turn will require massive amounts of steel, cement, and other materials. Much of the energy required for these activities will depend on coal, as it is abundant, affordable, and its energy density cannot presently be matched by renewables.

In the United States, the story of coal is becoming more complex, but it is far from over. While the sector has been fighting headwinds related to low natural gas prices and tightening U.S. Environmental Protection Agency regulations, Mr. Quinn maintained coal-fired generation will continue to play an important role in meeting electricity demand in the United States. While regulations are forcing many coal-fired plants into retirement, the remaining ones by default will be larger, younger, and more efficient, which will enhance their cost competitiveness, potentially allowing their capacity factors to return to prerecession levels. Nonetheless, Mr. Quinn advised the industry to be wary of policies that rob the electric grid of fuel diversity, and that do not factor in the value of optionality, i.e., being able to produce electricity from the most economic fuel source at any given time.

While U.S. coal producers are optimistic about regaining at least some of their electricity generation business in the United States, the long-term prospects for the sector also hinge upon its ability to participate in international markets. Although U.S. coal exports have been trending upward, stable policy frameworks are critical for attracting the capital needed to support future growth. “The question here,” observed Mr. Quinn, “is whether or not we’re capable of building the infrastructure needed to get it [the coal] out.”

Featured Speaker:

“There are costs to policies that produce a more monolithic generation portfolio, in terms of less diverse and less reliable fuel sources, which equate to more expensive electricity.”

Hal Quinn
President and CEO, National Mining Association



Overview of Conference Themes



Plenary Sessions



Breakout Sessions



Concluding Perspectives





North American Electricity Landscape

By some estimates, the United States could become a net energy exporter by 2020 and the largest global energy provider by 2035. “We are in a position to completely rethink the energy complex in America as well as to provide solutions broadly across the world,” stated Tom Fanning, chairman, president, and CEO of Southern Company. However, along with this enormous opportunity comes tremendous responsibility. For leaders of power and utility companies, this responsibility is to provide clean, safe, reliable, and affordable energy. According to Mr. Fanning, fulfilling this role in an environment of rising infrastructure costs and moderating demand will take three things:

- A “full energy portfolio” approach incorporating natural gas, renewables, energy efficiency, and the “old work horses” of nuclear energy and 21st century coal.
- Energy innovation, particularly related to making, moving, and consuming electricity. Similar to the value that has been created in the information technology (IT) space, Mr. Fanning challenged industry participants to ask, “Why can’t we do that in energy?”
- Restoration of America’s financial integrity. A stable investment framework is important for any business, but particularly for energy, which is one of the most capital-intensive industries in the world.

Mr. Fanning further noted Southern Company, like many others in the industry, has made the strategic decision to shift a substantial portion of its generation portfolio away from coal and toward natural gas. After all, leveraging abundant, domestic supplies for power generation can potentially help electric providers fulfill the clean, safe, reliable, and affordable mandate while returning economic benefits to consumers, as well as to the nation as a whole. Nonetheless, he stated the following reasons the power and utilities industry should be cautious about natural gas despite their exuberance for it: the ultimate ramifications and environmental consequences of fracking are still unknown; much of the midstream infrastructure still needs to be built out; a huge demand curve swing could occur as the use of natural gas in manufacturing and transportation grows; exports could affect prices; and the industry needs better ways to hedge natural gas price volatility.

Featured Speaker:

“Energy security breeds national security breeds economic security.”

Tom Fanning
Chairman, President, and CEO, Southern Company



Overview of Conference Themes



Plenary Sessions



Breakout Sessions



Concluding Perspectives





Energy Regulatory Landscape

What should governments do about energy? Some want government to do absolutely nothing, while others want government to be the sole supplier of energy because they do not trust private industry. And of course, there is a myriad of perspectives in between these two extremes. However, Walt Patterson, associate fellow at Chatham House, explained that determining the role of government today is both more complicated and more urgent because traditional regulatory models are breaking down.

Mr. Patterson asserted electric regulation and electric business models need to move away from the traditional emphasis of selling units of a commodity (i.e., electricity) and back toward selling access to the whole system used to produce, distribute, and consume it. Notably, this was the model Thomas Edison originally used, which motivated the early electric companies to optimize not only the steam engines, generators, and cables but also lamps.

“Optimizing the whole system should once again become the guiding principle of regulation and the objective of genuine energy policy and energy business,” stressed Mr. Patterson. While wholesale acceptance of this principle is a long way off, he stressed innovative regulation and business models are gradually emerging as companies and nations compete to replace electric power produced from combustion, or “fire,” with sustainable electric power generated from harnessing natural forces.

Mr. Patterson further explained that “regulators have failed to cost accurately the pernicious consequences of fire,” which has given the traditional, centralized distribution model a cost advantage over distributed generation. This has slowed, but not stopped, the adoption of renewables and microgrids. These technologies, which can increase system resiliency and sustainability, are gaining momentum among universities, hospitals, and small communities around the world. Consequently, disruption to the traditional electric business model is underway.

Against this backdrop, he asserted the most important role governments can play is not as regulators, but as the largest energy users. As highly desirable customers, governments can lead the way in reshaping the energy business by hiring companies to conduct detailed audits of their energy systems, design improvements, optimize entire systems, and share their achievements with the private sector.

Acknowledging that the transition to decentralized generation will take some time, what should regulators do right now? “Refocus incentives and help us to sell less electricity,” concluded Mr. Patterson.

Featured Speaker:

“When you talk about energy, you have to talk about whole systems.”

Walt Patterson

Associate Fellow, Chatham House, and Visiting Fellow, University of Sussex



Overview of Conference Themes



Plenary Sessions



Breakout Sessions



Concluding Perspectives





Energy Investment Environment

Some analysts suggest the electric power sector in the United States will need upward of \$1 trillion in capital investment over the next two decades. While raising “one million million” dollars is a daunting prospect, Jeffrey Holzschuh, chairman of institutional securities at Morgan Stanley, emphasized the financial sector is capable of meeting this need — even if the number turns out to be much bigger, which some believe it will.

Eric Fornell, vice chairman of Energy & Power at Wells Fargo Securities, concurred with this assessment, pointing out the private capital market is now sitting on about \$2 trillion in cash. Nonetheless, even though the pool is large, both Mr. Fornell and Mr. Holzschuh stressed companies should not assume they can jump right in. “Getting the capital is really not a constraint; it’s getting it at a fair return and with balanced risk,” remarked Mr. Holzschuh. And in a world of evolving business models and balance sheets, not all companies will be equally equipped to do that.

Regulated businesses may face particular challenges in attracting capital within these parameters due to presently high utility equity values, the risk of disruptive change, and confusion around regulatory pricing models and policy. When asked what role regulators can play in helping electricity businesses within their jurisdictions to attract capital, Mr. Fornell stressed it is important for the regulator to consider whether the entity is capitalized in a way that it can attract capital even under duress. He also said capital market participants want assurance that regulators have a rational process for evaluating proposed transactions. Both Mr. Holzschuh and Mr. Fornell mentioned they have been observing a change in tone among regulators, with many now favoring cooperative relationships with the investment community rather than simply pushing for the lowest possible cost.

The shifting regulatory landscape is affecting the energy investment environment in another way. Speakers noted it is more costly for financial institutions to lend money and hedge risks as a result of new banking and securities market regulations. Competition for capital will also intensify as the economy picks up and other sectors grow. What is the bottom line for an industry with a voracious appetite for funding? “There will still be plenty of capital available,” Mr. Holzschuh concluded, “but it will be more expensive.”

“Money always flows into things with interest and promise.”

Eric Fornell

Featured Speakers: (from left to right)

- **Eric Fornell**, Vice Chairman, Energy & Power, Wells Fargo Securities
- **Jeffrey Holzschuh**, Chairman, Institutional Securities, Morgan Stanley
- **The Honorable Branko Terzic**, former Executive Director, Deloitte Center for Energy Solutions and Regulatory Policy Leader, Energy & Resources, Deloitte Services LP



Overview of Conference Themes

Plenary Sessions

Breakout Sessions

Concluding Perspectives





Energy Technology Developments

“Innovation in the energy industry is going strong,” observed Mark Little, senior vice president and CTO of GE. He noted virtually every segment, ranging from nuclear to solar, is experiencing profound change as a result of ongoing technology developments. Some of these developments are well known, such as the improvements in solar-module technologies that have driven down costs, while others are less publicized, but potentially just as impactful, such as hybrid distributed generation units that pair solid oxide fuel cells with highly efficient reciprocating engines powered by diesel or natural gas.

While the pace of development varies, speakers stressed the risk of disruptive innovation is high both within the electric power and oil and gas sectors. On the electric power side, Lee Davis, executive vice president and president of the East Region for NRG Energy, Inc., explained that his company’s strategic vision has been shaped by the disruption that is already occurring. This vision involves investing in utility-scale renewable generation as well as in distributed solar photovoltaic and microgrids. Noting continuing developments in smart technologies and an overall movement toward smaller-scale generation, he eventually foresees placing devices inside the home that “look like mini combined heat and power (CHP) units.” These CHP units would provide hot water and electricity, as well as optimize efficiency by “talking to” solar panels on the roof or in the backyard.

Meanwhile, Vikram Rao, executive director of Research Triangle Energy Consortium, observed that a shift toward distributed production could also occur in the oil and gas sector, largely as a result of the shale revolution. “Where we used to have big oil and gas fields, we now have distributed raw materials,” said Mr. Rao. “The innovation occurring today is the conversion of gas into liquids at the source, either at the rig site or aggregated among a number of rigs.” While he does not see oil going away anytime soon, he believes advances in gas-to-liquids technologies could eventually lead to oil being displaced.

Speakers further noted several other innovations in areas ranging from energy efficiency to business models. The technology-enabled developments they see ahead include:

- Transforming the aviation industry, including engine redesign and significant improvements in fuel efficiency
- Using carbon dioxide for fracking
- Tapping networks of electric vehicle batteries to supply power to the grid
- Completely eliminating the need to use fresh water in fracking
- Moving away from commodity-based services in favor of delivering customized solutions to electricity customers

Featured Speakers: (from left to right)

- **Mark M. Little**, Senior Vice President and CTO, GE
- **Lee Davis**, Executive Vice President and President, East Region, NRG Energy, Inc.
- **Tomás Díaz de la Rubia**, Director, Deloitte Consulting LLP
- **Vikram Rao**, Executive Director, Research Triangle Energy Consortium

“Mostly anything made from oil can be made from natural gas.”

Vikram Rao



Overview of Conference Themes



Plenary Sessions



Breakout Sessions



Concluding Perspectives





U.S. Department of Energy: Perspectives on Energy Strategy

While it may seem theoretical or far off in the distance, climate change is already having a dramatic impact on the planet. Citing the *Third National Climate Assessment*, which was recently released by the congressionally-mandated U.S. Global Change Research Program, John MacWilliams, senior advisor to the Secretary of Energy of the U.S. Department of Energy (DOE), noted climate change is affecting every region of the United States and key sectors of the U.S. economy. According to the assessment, sea levels are expected to rise by at least one foot, and perhaps as much as four feet, by the end of the century. While presenting obvious challenges to coastal cities, rising sea levels coupled with warmer temperatures also portend stronger storms and changing weather patterns around the world.

"The alarming consequences of climate change require action now," stressed Mr. MacWilliams. Accordingly, energy and climate issues are very much a part of the Obama administration's policy and priorities. This includes pursuing an "all-of-the-above" energy strategy to help mitigate climate change and reduce carbon emissions. He further explained the DOE has been supporting this strategy for a long time, investing steadily in research and development around unconventional gas production since the late 1970s. This sustained investment helped to support horizontal well stimulation and hydraulic fracturing technology through its infancy before it was market-ready. Today, the DOE aims to play a similar role in developing clean versions of "all-of-the-above."

Among other efforts, the DOE has recently announced a new loan guarantee program to attract new sources of financing for innovative, clean fossil fuel energy technologies. It is also funding several carbon capture and sequestration projects, as well as a coal gasification project. In addition to its ongoing commitments to renewables, energy efficiency, and nuclear energy, Mr. MacWilliams explained these fossil fuel efforts seek to ensure America has access to clean energy produced from all of its available fuel sources.

Featured Speaker:

"All-of-the-above isn't a slogan; it's a policy that's spurred steady growth in U.S. energy production and significantly reduced carbon pollution."

John MacWilliams
Senior Advisor to the Secretary of Energy, U.S. Department of Energy



Overview of Conference Themes	Plenary Sessions	Breakout Sessions	Concluding Perspectives
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Oil Security 2025: U.S. National Security Policy in an Era of Domestic Abundance

"It's always been poignant that local activities, whether they're political, social, or economic, can impact the global marketplace," observed Admiral Dennis Blair, United States Navy (Ret.), former director of national intelligence and commander in chief, U.S. Pacific Command. And today, that observation is more poignant than ever, largely due to the information age.

In terms of national security, Admiral Blair explained there are two main consequences of the IT revolution: (1) backup supplies have largely been eliminated in favor of tighter, more efficient logistic chains, thereby leaving little cushion for disruptions, and (2) expectations about how local events will affect the world form almost instantaneously. As a result, the economic and geopolitical ripples from local events spread far and fast.

Pointing out that the oil industry is a global one, Admiral Blair emphasized the United States cannot relax regarding supply security despite the recent surge in domestic oil and gas production. He noted American consumers and businesses would be subject to price spikes if global oil supplies were curtailed, and as long as over 90% of the transportation sector is powered by petroleum, the United States cannot be energy independent.

In light of these conditions, Admiral Blair presented some policy recommendations as outlined in a report sanctioned by Securing America's Future Energy (SAFE), a nonpartisan policy organization of which Admiral Blair is co-chair of the Commission on Energy and Geopolitics. Among other actions, the report, entitled *Oil Security 2025: U.S. National Security Policy in an Era of Domestic Abundance*, suggested the United States should:

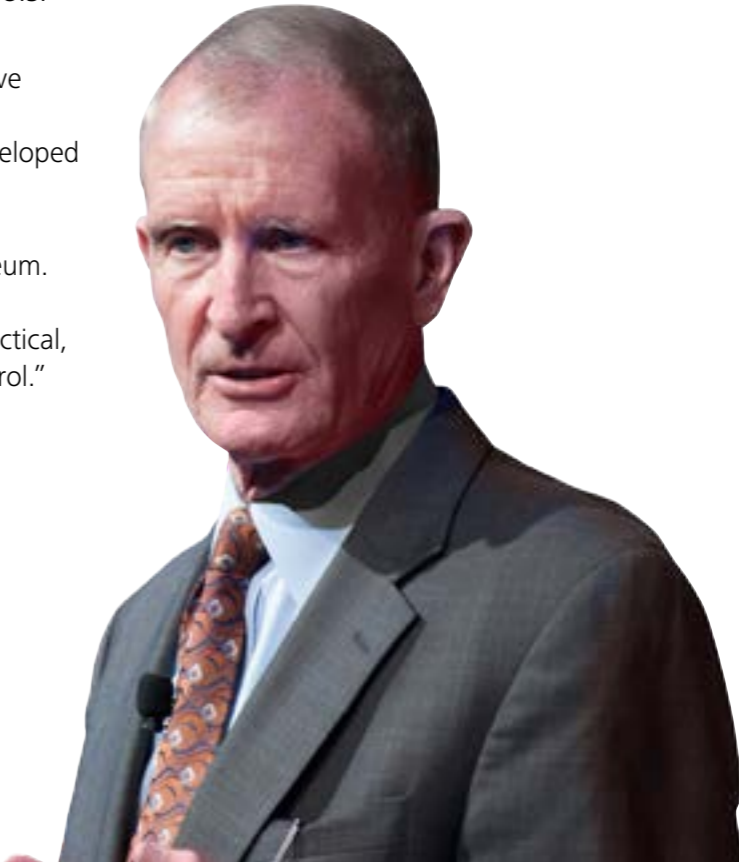
- Build an international consensus among oil consuming nations on the importance of shared responsibility and coordinated action to improve responses to supply disruptions.
- Share oil and gas production technologies by encouraging domestic companies to expand abroad with those countries that have underdeveloped energy resources.
- Develop a common understanding of how China and the United States can work together on energy security.
- Address the source of dependency in the U.S. and give American consumers and businesses options for transportation fuels besides petroleum.

"The key lesson is that no country is independent of global markets," said Admiral Blair. "Instead of striving to achieve the alluring, but impractical, mirage of energy independence, our nation must embrace policies and pursue goals that mitigate the risks of global events beyond our control."

Featured Speaker:

"In today's economic and political environment, no one is independent of local developments that affect global markets — not companies, not countries."

Admiral Dennis C. Blair
United States Navy (Ret.), Former Director of National Intelligence, Commander in Chief of U.S. Pacific Command, and Co-Chair of the Commission on Energy and Geopolitics at Securing America's Future Energy





Breakout Sessions



Alternative Energy — From Alternative to Mainstream

Oil & Gas

Power

Regulated Utilities and Rate Design

Avoiding a CIPwreck — Planning for North American Electric Reliability Corporation (NERC) Critical Infrastructure Protection Version 5 Compliance

Energy Accounting, Financial Reporting, and SEC Update

Is the Shale Revolution Turning America into an Energy Exporter?

Meeting the Cyber Risk Challenge — A Secure, Vigilant, and Resilient Business Case

Mexico Energy Reform — Creating Investment Opportunities

Optimizing Finance Performance within the Power & Utilities Industry

Shifting North American Integrated Energy Markets

The Evolving Electric Sector Business Models

The “Internet of Things” — Opportunity or Threat for the Utility Sector?

Sector-specific and topical sessions were offered on the second day of the conference. Conference attendees chose one sector-specific session and two topical sessions aligning to their interests. Facilitated by Deloitte practitioners and featuring subject matter specialists, these intimate gatherings encouraged knowledge sharing through attendee participation.



Overview of Conference Themes



Plenary Sessions



Breakout Sessions



Concluding Perspectives





Alternative Energy – From Alternative to Mainstream

Renewable energy sources (e.g., biomass, geothermal, hydropower, solar, and wind) accounted for about 40% of new electric capacity additions in the United States in 2013⁴ — not to mention more solar capacity was installed in the last 18 months than in the last 30 years.⁵ This suggests “alternative energy” is becoming less the exception and more the rule. Speakers noted that subsidies in the United States have played a large role in attracting private investment into the alternative energy sector, and once these subsidies expire, investment in the sector may decline. Despite this possibility, they remained upbeat about the long-term future of renewable energy for one main reason: Subsidies may go away, but carbon constraints are here to stay. Even with competition from low-priced, cleaner burning natural gas, renewable energy sources such as solar, wind, and technological innovations including advanced metering and microgrids stand to play a key role in helping the electric sector manage the two-pronged challenge of curbing emissions while improving the resiliency of the electrical grid.

Session Speakers:

- Jane Allen, Partner, Global Renewable Energy Leader, Deloitte LLP
- Gautam Chandra, Vice President, Non-Utility Operations, Strategy and Business Development, WGL Holdings, Inc.
- Ray Henger, CFO, OwnEnergy
- Christopher Mansour, Vice President, Federal Affairs, Solar Energy Industries Association
- Marlene Motyka, Principal, U.S. Alternative Energy Leader, Deloitte Transactions and Business Analytics LLP

⁴ Federal Energy Regulatory Commission’s Office of Energy Projects, “Energy Infrastructure Update,” December 2013

⁵ Solar Energy Industries Association, “It’s now official: U.S. solar industry has record-shattering year in 2013,” <http://www.seia.org/blog/it-s-now-official-us-solar-industry-has-record-shattering-year-2013>

Oil & Gas

Rising shale production in the United States is having a trickle-down effect, except in this case it is more like rushing waters. When measured by enterprise value, speakers noted midstream is the fastest growing oil and gas sector in the United States. Indeed, this sharp growth has led to the emergence of “midstream majors,” some of which are overtaking pure-play upstream companies in size. To fuel this growth, the industry has been relying heavily on the capital markets, since midstream remains an advantaged asset class under present tax law. Speakers cautioned that U.S. tax reform could potentially redefine the qualification and treatment of master limited partnerships (MLPs), and thus potentially pose future financing challenges for the sector. However, speakers remained optimistic the sector will continue to grow, especially since impending liquid natural gas and propane exports will open up new markets. They also noted the highly fragmented midstream sector is ripe for consolidation, which bodes well for merger and acquisition activity. “Midstream is the sweet spot for the industry,” observed John England, vice chairman, U.S. Oil & Gas leader, Deloitte LLP. Why? Because it answers the key question of, “How are we going to monetize the enormous amount of gas we have?”

Session Speakers:

- John England, Vice Chairman, U.S. Oil & Gas Leader, Deloitte LLP
- Scott Magzen, Partner, Deloitte Tax LLP
- Jed Shreve, Principal, Deloitte Transactions and Business Analytics LLP



Power

Managing capital projects in the power sector today requires nerves of steel. Projects routinely cost billions of dollars and take several years to complete. In this environment, speakers stressed project delivery systems must evolve to keep pace. This evolution may involve technical aspects such as defining the project scope in more detail or allocating all risks by contract. In nearly every instance, however, speakers concurred it involves greater collaboration with project stakeholders, including regulators, local communities, suppliers, and engineering, procurement, and construction contractors. Speakers also emphasized the importance of preparing in advance, such as gaining preapproval from regulatory agencies as well as integrating engineering, procurement, and construction schedules. Regardless of the processes and technologies deployed, they further emphasized the importance of people, who are ultimately responsible for implementing the tools and schedules and troubleshooting any deviations.

Session Speakers:

- Jimmy E. Addison, Executive Vice President and CFO, SCANA Corporation
- Albert Bates, Jr., Partner, Duane Morris LLP
- Mark Cohen, Director, Deloitte Transactions and Business Analytics LLP
- Melissa A. Jones, CFO, Bechtel Power Corporation



Overview of Conference Themes



Plenary Sessions



Breakout Sessions



Concluding Perspectives





Regulated Utilities and Rate Design

Will the “utility of the future” need a new regulatory model? Speakers asserted it will, and the basis of that model will be new rate policies. Some believe legacy rate structures are unsustainable for two reasons: (1) they rely on volumetric charges to recover fixed costs, a premise that breaks down in the face of rising infrastructure costs and moderating demand, and (2) rate incentives for solar photovoltaic and other favored technologies contribute to increasing cost imbalances. One potential remedy is to charge users for “the pipes and wires” independent of demand because what the customer is really getting today is less about the commodity and more about the network. Speakers also noted the policy environment today favors distributed generation, and as it grows, customers will need new services that are different from those that utilities are accustomed to providing. Consistent with the Deloitte reSources 2014 Study, speakers stressed utilities need a new level of flexibility to offer differentiated value-added services to customers. Here, speakers contended regulators can help by redesigning rates in a way that keeps pace with evolving customer needs and provides the utility of the future with avenues for growth.

Session Speakers:

- Eric Ackerman, Director, Alternative Regulation, Edison Electric Institute
- Bill Graf, Partner, Deloitte & Touche LLP
- Mark B. Lively, Consulting Engineer, Utility Economic Engineers
- Dr. Philip R. O’Connor, President, PROactive Strategies, Inc., and former Chairman, Illinois Commerce Commission



Avoiding a CIPwreck – Planning for NERC Critical Infrastructure Protection Version 5 Compliance

Power and utility companies must comply with the updated Critical Infrastructure Protection (CIP) requirements put forth by the North American Electric Reliability Corporation by April 2016. This new version of the CIP standards seeks to significantly tighten cyber security throughout the grid, and thus, many more assets are impacted than in Version 3. The new requirements define cyber assets and systems as being “high, medium, or low impact,” and they prescribe different levels of compliance for each. Sharon Chand, director, Deloitte & Touche LLP, emphasized the evidence standards for compliance have been enhanced in Version 5, and the amount of change management needed to successfully implement the program is high. “This requires a very cross functional team of skills,” she said. Outlining important milestones on the way to meeting the standards, Ms. Chand suggested asset identification should start soon, and companies should additionally consider taking a control-oriented approach. Overall, she noted a trend toward more automation around compliance management.

Session Speaker:

- Sharon Chand, Director, Deloitte & Touche LLP



Energy Accounting, Financial Reporting, and SEC Update

This technical session discussed recent developments in financial accounting, reporting, and Securities and Exchange Commission (SEC) comment letters for energy companies and regulated utilities. Speakers discussed footnote disclosure of dividend restrictions, provided updates on treatment of MLPs, and explored what companies should generally be cognizant of when submitting their filings to the SEC. Additionally, the session explored several sector-specific accounting topics, such as rate regulation and Financial Accounting Standards Board convergence projects, and provided an overview of emerging matters, such as the Jumpstart Our Business Startups Act, cyber risk disclosures, and environmental liabilities associated with hydraulic fracturing. Speakers explained the SEC review process and noted SEC staff members are paying attention: they routinely listen to analyst and earnings calls and review press releases and websites as a means of informing their comments.

Session Speakers:

- Christine Davine, Partner, Deloitte & Touche LLP
- Bill Graf, Partner, Deloitte & Touche LLP
- David Horn, Senior Manager, Deloitte & Touche LLP
- Tom Kilkenny, Partner, Deloitte & Touche LLP



Overview of Conference Themes

Plenary Sessions

Breakout Sessions

Concluding Perspectives





The Evolving Electric Sector Business Models

Transformation of the U.S. electric sector will likely be very chaotic since new competitors, new technologies, and greater customer choice raise several difficult questions:

- Who will manage the distribution system?
- Who is going to pay for the grid when customers can choose alternate sources of supply, such as self-generation?

Although right now “it seems like nobody’s in charge,” speakers stressed “chaotic” also implies “exciting.” A metamorphosis is occurring in the industry, as new market participants emerge and new partnerships and consolidation occur. Speakers see two possible scenarios for industry transformation: First, it could be rough going as customers leave the system to self-generate and electric companies end up with a system that cannot pay for itself, similar to what the U.S. Postal Service is facing. Second, electric companies could proactively partner with technology companies and participate in the disruption by offering customers (who are now more powerful than ever before) the choices they seek. The industry is gradually veering toward the latter, more favorable trajectory, the panel agreed. But electric companies could smooth the transformation by better understanding their customers, not just in terms of demographics and income levels, but also psychologically, in terms of what motivates them to adopt new technologies and purchase new services.

Session Speakers:

- Gregory E. Aliff, Vice Chairman and Senior Partner, Energy & Resources, Deloitte LLP
- Andy Karsner, CEO, Manifest Energy
- David Owens, Executive Vice President, Edison Electric Institute
- Dan Yates, CEO and Founder, Opower



The “Internet of Things” — Opportunity or Threat for the Utility Sector

In a world of digital interconnection, companies that do not know their customers or have relevant insights to share, risk being disintermediated. As electric utilities reevaluate their business models and try to figure out their roles in this new space, speakers stressed the importance of understanding what their customers want, as well as demonstrating the value of their transmission and distribution networks. They further emphasized the table stakes in the utility sector continue to be the provision of safe, affordable, reliable — and environmentally responsible — electricity. But how do you move from safe to secure, reliable to resilient, from clean to sustainable — and possibly from affordable to “free”? Distributed generation and CHP units may be that future. Additionally, as one speaker asserted, it may lie in energy efficiency, specifically metering it and then buying and selling it, just like generation. While they had different visions of how the electric utility can take advantage of the “Internet of Things,” the speakers agreed the current utility model will go away at some point, but “no one knows when.”

Session Speakers:

- David Dollihite, Specialist Leader, Deloitte Consulting LLP
- Rob Harmon President and CEO, EnergyRM
- Val Jensen, Senior Vice President, Customer Operations, ComEd
- Jim Steffes, Senior Vice President and Retail Regional President, Northeast, NRG Energy, Inc.



Overview of Conference Themes



Plenary Sessions



Breakout Sessions



Concluding Perspectives





Concluding Perspectives

Energy is sourced globally. This reality places the energy industry squarely at the intersection of geopolitics, national security, economic growth, and sustainability. Balancing these often opposing forces will require innovation throughout the entire energy value chain, encompassing not only technology but also regulatory policies and business models. It will also require a global mindset in terms of energy access, climate change, capital availability, talent development, and other challenges we all share. Industry participants, however, must not overlook the other reality of the energy business: Every action we take is felt locally in the quality of people's lives. Throughout the conference, speakers stressed that regulatory approval is no longer sufficient for managing the local, economic and environmental implications of the energy companies' activities. Energy companies must also preserve their social license to operate by engaging with individuals and communities around the precautions they take and the benefits they deliver.



“When you're planning to deploy capital, whether tomorrow or 20 years from now, it's a mistake to forget you're investing in a globally interconnected business.”

John McCue, Vice Chairman, U.S. Energy & Resources Leader, Deloitte LLP



We bid a fond farewell to our good friend, The Honorable Branko Terzic, Executive Director for the Deloitte Center for Energy Solutions and Regulatory Policy Leader, Energy & Resources, Deloitte Services LP as he heads into the next phase of his distinguished career. His insights and perspectives have been and will continue to be instrumental and highly regarded by Deloitte and the industry at large.

