2014 Deloitte Oil & Gas Conference
The next chapter of the energy renaissance

Retrospective

Deloitte Center for Energy Solutions
The Deloitte Center for Energy Solutions hosted the 2014 Deloitte Oil & Gas Conference at the George R. Brown Convention Center in Houston, Texas, on November 18, 2014. With the theme, “The Next Chapter of the Energy Renaissance,” the conference brought together energy executives, political leaders, investors, and industry analysts from around the world to speculate on what might lie around the bend for the oil and gas industry in North America and to explore ways of maintaining the positive momentum the industry has enjoyed over the past few years.

While no one knows exactly how the next chapter will read, John W. England, Vice Chairman, US Oil & Gas leader, Deloitte LLP, set the stage for the day’s discussion by presenting possible story lines during his opening remarks. Building upon these themes, this retrospective provides an overview of memorable insights from the event, along with links to other conference materials.

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“Price volatility isn’t new to the oil and gas industry, neither is change,” observed John W. England, Vice Chairman, US Oil & Gas leader, Deloitte LLP. Despite oil price declines in 2014, he stressed the industry’s historic ability to manage change is one of the reasons he remains optimistic about the next chapter of the energy renaissance. Another is North America’s continuing ascendancy in the global energy outlook. Mr. England explained that the world needs stable supplies from North America more than ever in light of geopolitical unrest in other major producing regions.

These factors, he noted, point to an unprecedented opportunity for the North American oil and gas industry to become a role model for the rest of the world. “We can become a ‘city upon a hill,’ if you will, in terms of setting an example for what a new energy system can look like,” he observed. Mr. England further noted that his vision for the next chapter brings together several compelling story lines. They include:

**Increased production** – US oil production has risen over the last five years from 5.4 to 8.6 million barrels per day (bbl/d). Similarly, US natural gas production has grown from 59 billion cubic feet per day (Bcf/d) to 75 Bcf/d in the same time span.

**Innovation and optimization throughout the value chain** – In order to build upon these production increases, the industry will need to move toward technology-enabled, highly efficient methods for producing as well as transporting, processing, and storing hydrocarbons. This “new energy system” will need to provide enormous optionality for monetizing supplies.

**Development of the most sophisticated refinery system in the world** – The new energy system will need downstream facilities that are capable of handling different types of crudes and of producing refined products for export. It will also require new liquefied natural gas export facilities, advances in gas-to-liquids technologies, and an expanded array of petrochemical products in order to help monetize the tremendous supply of low-cost natural gas available in the United States.

**A North American view** – The energy renaissance is a North American story, not just a US one. As tremendous production continues in Canada, the industry is being challenged to find more ways of bringing it to market. In Mexico, energy reform is creating investment opportunities in infrastructure and technology with the potential to restore the nation to its former role as a key supplier in the world’s oil and gas markets.
As in any good book, Mr. England’s plot is not without conflict. In order to be a role model for the rest of the world, he contended the North American oil and gas industry will need to address tough challenges concerning:

**Cost containment** – Lower oil prices are forcing the sector to take a hard look at cost structures and to consider how technology and innovation can be applied to control escalating costs.

**Water stewardship** – Water is a key constraint, with producers spending a great deal of time thinking about how to access, produce, treat, and safely dispose of water.

**Social and environmental issues around hydraulic fracturing** – Misinformation abounds when it comes to public perception of fracking. Education and community involvement will be critical to gaining local support and influencing public policy.

**Climate change** – No matter what one believes scientifically or politically, climate change is a business risk that must be managed.
Public perception – With the advent of social media, the industry must address an every-broadening set of stakeholders, which collectively define public perception for the industry. This makes proactively shaping public perception more challenging, yet more essential, than ever before.

Overall, Mr. England asserted these challenges point to the need for the oil and gas industry to redefine its brand. This new image will need to encompass not only technical proficiency but also innovation, entrepreneurship, and environmental and social responsibility. While these qualities will be important for influencing public perception and policy, they will be even more critical for attracting the workforce necessary to realize the enormous potential that stands before the oil and gas industry today.

Featured speakers:
John W. England, Vice Chairman, US Oil & Gas Leader, Deloitte LLP

"It’s still a great day to be in the oil and gas industry.”

John W. England, Vice Chairman, US Oil & Gas Leader, Deloitte LLP
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The U.S. Energy Information Administration (EIA) forecasts substantial growth in world energy consumption over the next 25 years. While world energy demand is expected to remain robust, production activity and policy decisions in the U.S. will play a major role in how that demand is met and at what price. Adam Sieminski, Administrator, EIA, highlighted the following themes in his remarks:

- World use of petroleum and other liquid fuels is expected to increase by 38 percent between 2010 and 2040, mostly in developing nations.

- In 2015, US production of crude oil is expected to top 9 million bbl/d, and production of dry natural gas is forecast to exceed 76 billion Bcf/d.

- The US is expected to become a net exporter of natural gas sometime toward the end of 2016.

- Could the North American shale revolution spread elsewhere? The EIA thinks so, with the International Energy Outlook 2014 World Reference Case showing world tight oil production increasing to almost 8 million bbl/d in 2025.
Global oil and gas economic outlook

• Growth in the North American oil and gas industry is expected to continue, but its trajectory could be affected by low oil prices, global development of tight oil and shale gas resources, increasing global trade of natural gas and hydrocarbon gas liquids, policy decisions on crude oil exports, and carbon constraints.

• If there is going to be a policy to deal effectively with carbon dioxide, it must be global and it will need to involve China and India.

• Technology is a big part of the story. Why does the EIA often need to revise its production forecasts upward? Because technology is moving so fast, it is hard to keep up.

Featured speakers:
Adam Sieminski, Administrator, U.S. Energy Information Administration
John W. England, Vice Chairman, US Oil & Gas Leader, Deloitte LLP (Moderator)

“The US is now the world’s largest oil producer and the largest natural gas producer: If I had made that prediction five years ago, nearly everyone would have questioned my underlying assumptions.”
Adam Sieminski, Administrator, U.S. Energy Information Administration
Mexican energy reform: Striking a balance

For many, the extent of Mexican energy reform as well as the speed with which it is being implemented has come as a surprise—albeit a welcomed one. Jesús Reyes-Heroles, Executive President, StructurA, outlined some of the opportunities created by this policy shift:

• Energy reform is central to Mexico’s economic strategy.

• The reforms eliminate the exclusivity of Pemex, Mexico’s national oil company, throughout the entire hydrocarbon value chain, and they facilitate concurrent public and private investment, both domestic and foreign.

• Midstream is largely open to foreign investment, with immediate opportunities to relieve infrastructure bottlenecks.

• In 2015, a number of new areas will open to foreign investment, including storage and distribution terminals, oil pipelines, logistics facilities, maritime terminals, dry gas production, and oil production in mature fields.

• Shale oil and gas production and heavy oil exploration and production in shallow waters will open to foreign investment in 2017.
Mexican energy reform: Striking a balance

- Deepwater exploration and production opportunities will take time, presently scheduled for 2018.¹

- The scope and depth of the reforms are a source of pride for Mexico, and they are being implemented much faster than anticipated.

**Featured Speakers:**

Jesús Reyes-Heroles, Executive President, StructurA

Jorge Castilla, Partner, Deloitte Consulting Mexico LLP (Moderator)

“The train [of reform-related opportunity] is passing at a great speed. It is up to all of us, and especially to investors, to catch it.”

Jesús Reyes-Heroles, Executive President, StructurA
In the oil and gas industry, water is often viewed as something that must be managed in terms of quantity and quality within direct operations. This view may now be too narrow in the face of growing water scarcity. In this session, a panel of water experts contended it is time to think differently about the business dimensions of water:

• Global population growth and a rising middle class in developing nations are increasing the demand for food and energy, which in turn is intensifying water competition.

• Nearly half of the wells hydraulically fractured since 2011 were in regions with high or extremely high water stress, and over 55 percent were in areas experiencing drought.\textsuperscript{10}

• Water scarcity is increasingly compelling companies across sectors to move from water management toward water stewardship.

• Water stewardship goes beyond controlling the cost, quality, and quantity of water within direct operations to managing the physical, regulatory, and reputational risks associated with it.
Water stewardship: Adopting a successful strategy

• The big question remains: How can oil and gas companies align their water strategies with their business strategies to fuel growth and avoid disruption?

• Water treatment and reuse offers one option since the economics can be favorable compared to trucking produced and flowback water in and out.

• Oil and gas companies have an additional opportunity to improve their brand image not only by treating and reusing water but also by applying their know-how to aid communities in securing water supplies.

Featured Speakers:
Dr. J. Ashley Nixon, NGO & Stakeholder Relations Manager, Americas, Shell
William Sarni, Director and Practice Leader, Enterprise Water Strategy and Sustainability, Deloitte Consulting LLP (Moderator)

“Treatment and reuse of waste water are the ‘keys to the kingdom.’”

The ability to unlock shale oil and gas deposits not only transformed the oil and gas business but also the economic, environmental, and geopolitical course of history. Gregory Zuckerman, an award winning Wall Street Journal reporter and best-selling author, noted the following about “the frackers” during his luncheon address:

• Visionaries rarely conform to conventional norms, and this was largely the case for those behind the shale revolution.

• In his book, The Frackers, Mr. Zuckerman tells the story of these entrepreneurs, whom he describes as “the new billionaire wildcatters.”

• These colorful men were determined to tap the massive deposits of shale oil and gas that many of the leading exploration and production (E&P) companies had dismissed as being a waste of time.

• To do so, they developed and refined horizontal drilling and hydraulic fracturing techniques, transformed the industry, and made and lost fortunes in the process.
“Drilling in shale and other long-overlooked rock formations has created the biggest phenomenon to hit the business world since the housing and technology booms.”

Gregory Zuckerman, Special Writer, The Wall Street Journal, and Best-selling Author

The Frackers: The Outrageous Inside Story Of The New Billionaire Wildcatters

- Why weren’t the leading E&P companies among the first to seize the shale opportunity? Innovation is often easier for upstarts because they can pivot faster.

Featured Speakers:
Gregory Zuckerman, Special Writer, The Wall Street Journal, and Best-selling Author
Anne Taylor, Vice Chairman and Managing Partner, Deloitte LLP (Moderator)
By law, US companies generally cannot export crude oil. Whether or not this export ban is repealed will greatly influence the next chapter of the energy renaissance. Thomas D. O’Malley, Executive Chairman, PBF Energy, explained why the fate of the ban is important to the downstream sector:

- The crude export ban, which was instituted as part of the US Energy Policy and Conservation Act of 1975, has generally resulted in lower US crude prices, which is why many producers want the law changed.

- Mr. O’Malley contended repealing the ban would lead to higher oil prices, higher gasoline prices, and ultimately voter anger.

- Low oil and natural gas prices are generally a boon to the refining industry since they lead to increased crude runs and more gasoline production, which allow for greater economies of scale.

- Many refiners, including Mr. O’Malley, do not want to see the US crude export ban lifted.
The next chapter of the energy renaissance

- Concerning the trade of refined products in the Atlantic Basin, Mr. O’Malley believes the US refining sector is competitively advantaged, the European refining industry is disadvantaged, and Mediterranean refiners will be gravely threatened by new competition from Saudi Arabia.

- Rail transport will likely remain a big part of the US refining sector, at least in the short-term, with some refiners investing in a new generation of rail cars to help ensure safe and economical access to supplies.

Featured Speakers:

Thomas D. O’Malley, Executive Chairman, PBF Energy

John W. England, Vice Chairman, US Oil & Gas Leader, Deloitte LLP (Moderator)

“I never thought I’d be running a railroad.”

Thomas D. O’Malley, Executive Chairman, PBF Energy
Pipe to pipe: A look at the transformation of the midstream sector

Over the last five years, a tremendous amount of value has been created in the midstream sector. However, this positive momentum now faces headwinds relating to regulatory conditions, the potential for rising interest rates, and activists who want to stop pipelines from being built. Against this backdrop, speakers made the following observations about current and future midstream opportunities:

- Industry studies estimate between $30-70 billion per year will be required in infrastructure investments over the next 10-20 years to support new supplies.\(^{11}\)

- Competition for infrastructure projects is strong, making the ability to execute a differentiator for midstream companies.

- Many midstream companies are moving toward integration in an effort to enhance returns and competitive position by expanding services across the full value chain.

- There has been a massive expansion and transformation of the master limited partnership (MLP) landscape, with the number and average market cap of midstream MLPs increasing significantly since 2008.
Pipe to pipe: A look at the transformation of the midstream sector

• MLPs are now large-cap investment opportunities, having captured the attention of institutional investors.

• The historic correlation between MLP valuations and interest rates is starting to break down as investors increasingly seek total returns, comprising growth as well as coupon payments.

• In the near term, speakers generally maintained a robust outlook for midstream financing, suggesting the sector’s tremendous growth prospects will likely override any downward pressure on MLP valuations due to rising interest rates.

**Featured Speakers:**

Will Bousquette, Managing Director, Goldman Sachs

Guy G. Buckley, Chief Development Officer, Spectra Energy

Sean O’Brien, Group Vice President & Chief Financial Officer, DCP Midstream

Jim Balaschak, Principal, Energy & Resources, Deloitte Services LP (Moderator)

“If you can’t get excited about the energy industry today, I’m not sure you should be in it.”

Guy G. Buckley, Chief Development Officer, Spectra Energy
Innovation has always been part and parcel of the oil and gas industry. Today, the convergence of the Internet with different fields of science and technology is paving the way for significant leaps in everything from exploration and production methods to prescriptive analytics. Speakers explained why the time is ripe for new game changers to emerge:

- Several spheres of technology and science are poised to transform the energy industry in profound ways over the next 20-30 years.

- These spheres include:
  - Information, or the ability to acquire data and rapidly convert it into knowledge
  - Nanotechnology, which involves molecular design and the ability to create new substances
  - Bioscience, which focuses on understanding the structure and function of living things
  - Neuroscience, where new tools are being developed to understand brain function as well as individual and societal behavior, including networks.

- We essentially have the ability to monitor and measure everything everywhere.
Technology: The new game changers in the oil and gas industry

- Prescriptive analytics aims to improve future outcomes by making the most of this “data from everywhere,” which goes beyond numbers to encompass images, videos, sounds, and texts.

- In the oil and gas industry, prescriptive analytics are presently being used to improve completions and optimize production by prescribing well settings and predicting operational events such as pump failures.

Featured Speakers:

- Atanu Basu, Chief Executive Officer & Founder, Ayata
- Steven E. Koonin, Director, New York University’s Center for Urban Science and Progress
- Curt Mortenson, US Oil & Gas Consulting Leader, Deloitte Consulting LLP (Moderator)

“It’s very interesting to consider: If I can measure anything, what do I want to measure?”

Steven E. Koonin, Director, New York University’s Center for Urban Science and Progress
In order to optimize outcomes, businesses must solve simultaneous equations subject to constraints. With many new constraints arising in the form of regulations, speakers explored potential policy developments and shared their thoughts on how oil and gas companies can respond:

• The oil and gas industry is experiencing significant cross currents in the form of historically unprecedented growth opportunities and a federal government that is aggressively pursuing new regulations.

• Federal environmental regulations will continue to command the industry’s attention, with speakers expressing concern that the US Environmental Protection Agency (EPA) will seek to regulate greenhouse gas emissions associated with upstream oil and gas production.

• In addition to heightened interest in the industry’s carbon emissions, speakers also expect increased federal scrutiny of methane emissions from natural gas production, processing, transportation, and end-use, with gas flaring in shale plays becoming unsustainable.
The Next Chapter of the Energy Renaissance

The regulatory landscape

• Crude oil transportation is anticipated to remain a focal point for state and local regulators, extending beyond the Keystone XL pipeline debate to encompass rail and truck transport.

• The industry will likely see further efforts to ban hydraulic fracturing at local, state, and federal levels.

• While most anti-fracking efforts will fail, they underscore the growing need for oil and gas companies to educate stakeholders about the benefits of shale production and the precautions being taken to mitigate the risks.

Featured Speakers:
Jeffrey M. Logan, Executive Deputy Secretary, Pennsylvania Department of Environmental Protection
Kathleen Hartnett White, Distinguished Senior Fellow and Director, Texas Public Policy Foundation
Barry K. Worthington, Executive Director, United States Energy Association
John McCue, Vice Chairman, US Energy & Resources Leader, Deloitte LLP (Moderator)

“The oil and gas industry will be influenced less by states and more by the federal government, but perhaps most of all, by geopolitics.”

Kathleen Hartnett White, Distinguished Senior Fellow and Director, Texas Public Policy Foundation
The next chapter of the North American energy renaissance is still in draft form, but some prominent story lines are emerging. Optimization throughout the value chain is the central theme. Geopolitics, water scarcity, and the regulatory environment are important sub-plots. But, the denouement will likely center upon the industry’s ability to rebrand itself to reflect technology, innovation, entrepreneurship, and social responsibility—characteristics that are imperative not only to influence public policy but also to attract the next generation of industry leaders.

John W. England, Vice Chairman, US Oil & Gas Leader, Deloitte LLP

"We need to redefine the brand of oil and gas to one that’s about innovation and environmental and social responsibility: That’s what we want to be known for in the oil and gas business.”

John W. England, Vice Chairman, US Oil & Gas Leader, Deloitte LLP
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2 Ibid.
7 EnergeA.
8 Ibid.
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11 Interstate Natural Gas Association of America (INGAA)/ICF International Study 2014; American Petroleum Institute/IHS Inc. Study 2013.
About the Deloitte Center for Energy Solutions

The Deloitte Center for Energy Solutions (the “Center”) provides a forum for innovation, thought leadership, groundbreaking research, and industry collaboration to help companies solve the most complex energy challenges.

Through the Center, Deloitte’s Energy & Resources Group leads the debate on critical topics on the minds of executives – from the impact of legislative and regulatory policy, to operational efficiency, to sustainable and profitable growth. We provide comprehensive solutions through a global network of specialists and thought leaders.

With locations in Houston and Washington, DC, the Deloitte Center for Energy Solutions offers interaction through seminars, roundtables, and other forms of engagement, where established and growing companies can come together to learn, discuss, and debate.

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