



# 2016 Deloitte Energy Conference

Exponential technologies, driving exponential change

Retrospective 

Deloitte Center *for*  
Energy Solutions



## Exponential technologies, driving exponential change

The Deloitte Center for Energy Solutions hosted the 2016 Deloitte Energy Conference at the Grand Hyatt in Washington, DC, June 21-22, 2016. With the theme, “Exponential technologies, driving exponential change,” the conference brought together executives, researchers, entrepreneurs, regulators, and investors from around the world to examine the ways in which technologies are transforming business models, processes, operations, and customer relationships within the energy industry.

John McCue, vice chairman, US Energy & Resources Leader, Deloitte LLP, set the stage for the day’s discussion by noting that the term “disruption” implies a strategic threat that must be defended against. While not wanting to minimize the disruptive factors surrounding the energy industry, instead he asked the audience to consider the many ways in which energy companies are leading the way, adapting and innovating, and ultimately leveraging exponential technologies to become the disruptors themselves. This positive and proactive stance is reflected in the form of new business models, growing customer-centricity, cleaner and more efficient energy production, evolving regulatory policy, greater digitization and modernization of assets, positive investor sentiment, and of great importance, growing trust among consumers and businesses. Building upon these themes, this retrospective provides an overview of memorable insights from the event, along with links to other conference materials.

*Click on the navigation tabs below to get started.*



John McCue



# Conference opening video

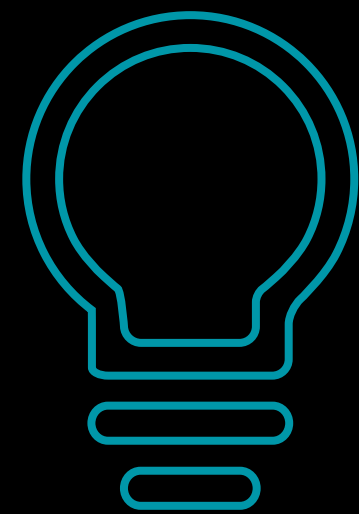


# Select conference speaker themes



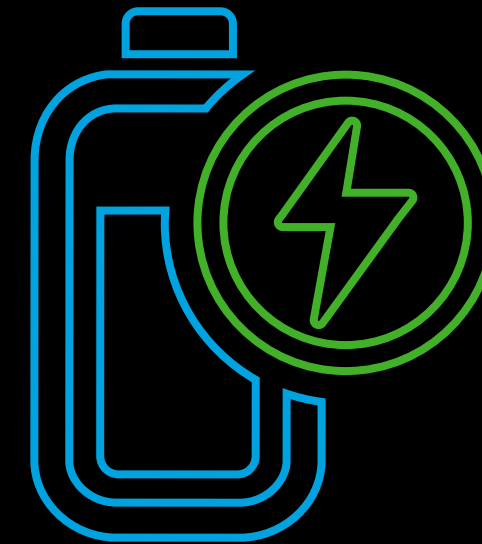
Traditionally “linear” businesses, like energy, need to adapt to an increasingly exponential pace of change, driven by the accelerating deployment of exponential technologies throughout the energy value chain.

Customer relationship models in industries already advanced in deploying exponential technologies, such as high tech, consumer products, and financial services, are raising the bar for energy providers.



Exponential technologies and exponential change sometimes come out of left field: even the world’s smartest geologists didn’t see fracking coming.

The proliferation of renewables is driving dramatic change in the power and utilities sector, with the growth of wind and solar power remaining strong.



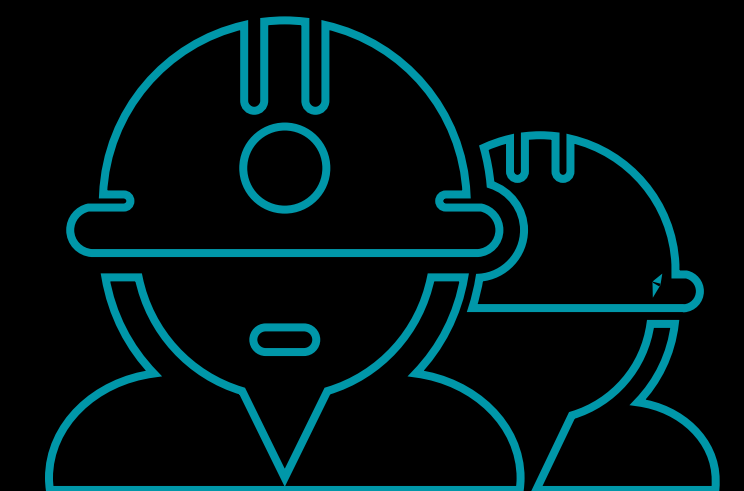
Storage is a game-changer: as costs come down, it will significantly improve the flexibility and efficiency of the entire electrical system.

Merger and acquisition (M&A) activity is expected to be brisk throughout the energy industry in the short-term as companies search for growth and dislocation remains high in certain subsectors.

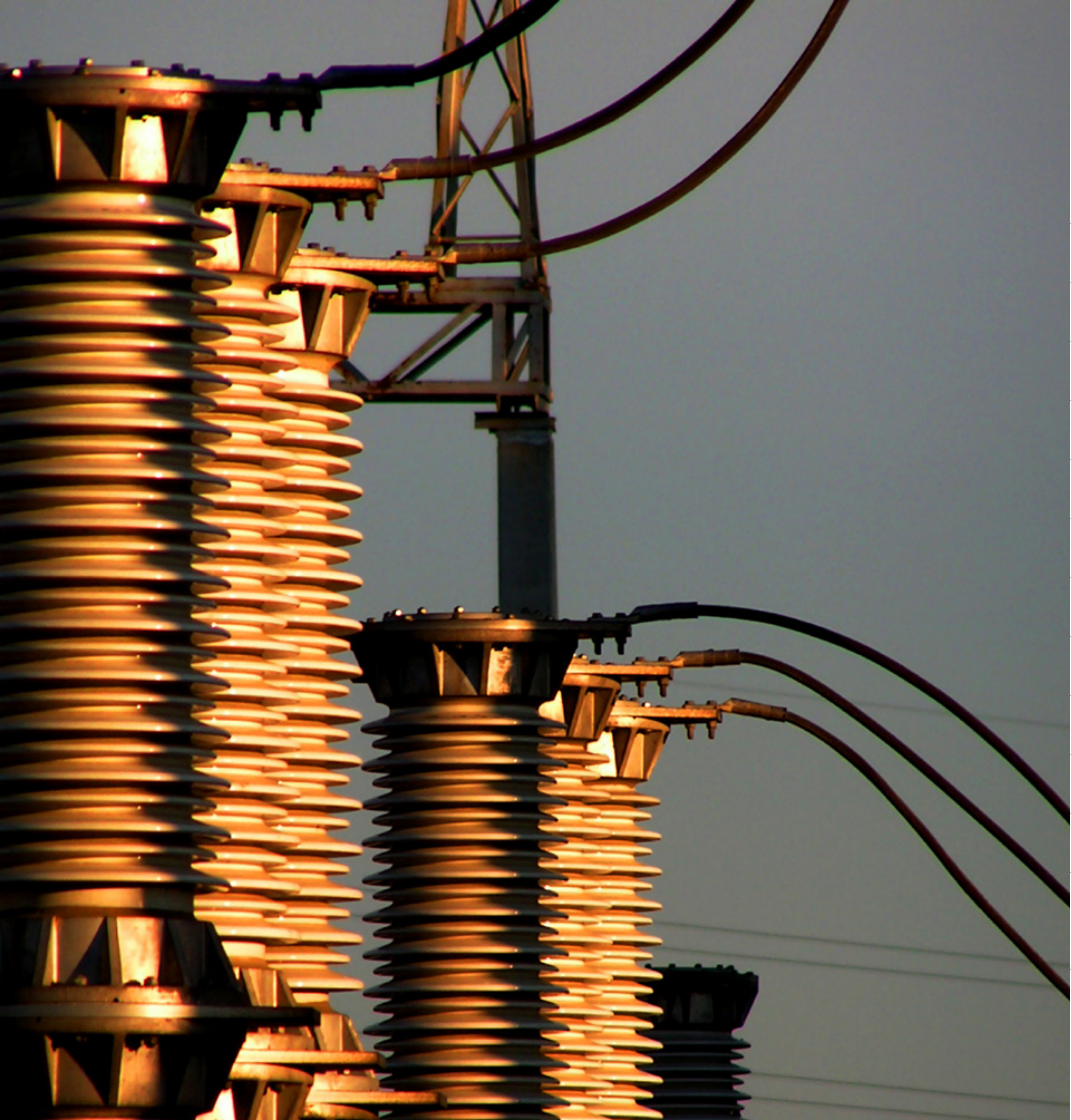


When it comes to developing new technologies, financing—not the science—is the hardest part.

Transforming energy business models will require collaboration throughout the entire energy ecosystem, including working with customers, regulators and an increasing array of third party technology and services providers.







## Plenary sessions

- ➔ North American utility landscape
- ➔ 2016 energy outlook
- ➔ Innovation in global power and utilities
- ➔ Unconventional oil and gas
- ➔ CFO Insights: Disruptive innovation is the new normal
- ➔ Leading transformation in the US energy industry
- ➔ Emerging business models
- ➔ Energy investment environment
- ➔ Emerging technologies
- ➔ The path forward
- ➔ Industry and regulatory perspectives
- ➔ Keynote luncheon – The second machine age: Work, progress, and prosperity in a time of brilliant technologies

*Click on session titles to go to the highlights.*



## North American utility landscape


It is now widely accepted that exponential technologies will disrupt how most industries operate—and power and utilities is no exception. When considering the challenges and the opportunities of deploying the latest advancements, companies are quickly recognizing they cannot chase “every shiny new thing.” Lynn Good, chairman, president and CEO, Duke Energy emphasized that the customer now serves as an essential guidepost in navigating through the rapidly shifting North American utility landscape:

- The leader of a business is not just deciding what technologies to implement but also considering how those technologies fit within the broader mosaic of the industry and the business in general.
- It's not only technology that's accelerating, it's also public policy, economic conditions, customer expectations, and investor sentiment that are rapidly changing and impacting the industry.
- The challenge of technology and innovation, coupled with rapid changes in other areas, equals transformation.
- Customer expectations are where the story begins. If you can deliver sustainable value to customers, you're going to deliver sustainable value to shareholders.



Lynn Good





“As we move through this period of transformation, we believe getting close to the customer is a ‘no-regret’ strategy.”

Lynn Good

## North American utility landscape

- Customers are empowered. They want choice, information, and transparency, to be involved in the conversation, and increasingly to have input into where their electricity and energy comes from.
- In order to meet customer expectations and to be thoughtful about investing in technologies to do that, the industry will need to stretch beyond its comfort zone of engineering and network operations to become more customer-centric.

### Featured speakers:

**Lynn Good**, chairman, president and chief executive officer, Duke Energy



## 2016 energy outlook

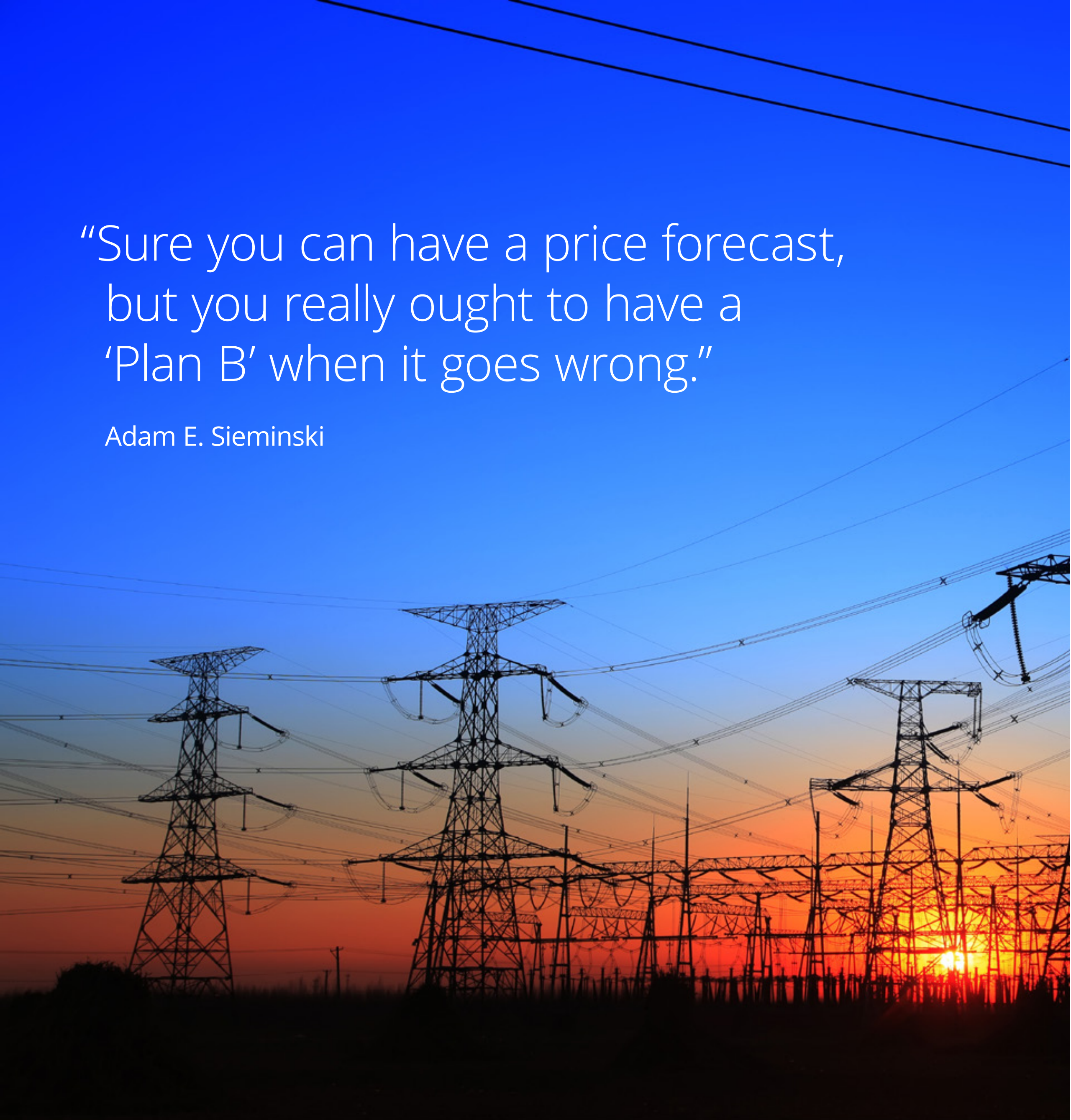
The task of forecasting future energy markets is not for the faint of heart, particularly since unforeseen technology breakthroughs, economic developments, and policy decisions can quickly throw the whole model off. Why bother with long-term forecasts then? As Adam Sieminski, administrator, US Energy Information Administration (EIA), explained that there is tremendous value in having a reference case that can be used for exploring the potential impacts of a major development, such as the US Clean Power Plan or changes in the US Corporate Average Fuel Economy Standards. With this in mind, Mr. Sieminski shared some of the EIA's latest forecasts, along with his thoughts on the variables that might affect them.<sup>1</sup>

- Global oil supply has consistently exceeded demand since 2014, but the EIA forecasts a return to market balance in mid-2017.
- The EIA expects oil prices (i.e., Brent crude spot prices) to increase starting in 2017, ultimately exceeding \$130 per barrel in 2040.
- Natural gas prices (i.e., Henry Hub spot prices) are projected to remain mostly below \$5 per million British thermal units through 2040 with or without the Clean Power Plan.
- The Clean Power Plan is not expected to make much of a difference in the rates that customers pay, but it will greatly affect the mix of fuels



Adam E. Sieminski





“Sure you can have a price forecast,  
but you really ought to have a  
‘Plan B’ when it goes wrong.”

Adam E. Sieminski

## 2016 energy outlook

used to generate electricity. The EIA projects that natural gas (38%) and renewables (27%) will account for nearly two-thirds of the US generation portfolio by 2040.

- The extension of the Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards, which basically plateau around 2025, and/or adoption of the recently proposed emissions and fuel-economy standards for heavy-duty vehicles could have a big impact on forecasted oil consumption in the US.
- Overall, global energy consumption is expected to grow through 2040, with the industrial sector continuing to account for more than half (53%) of the world’s energy consumption, transportation for about one-quarter (26%), and buildings for approximately one-fifth (21%).

### Featured speakers:

**Adam E. Sieminski**, administrator, US Energy Information Administration

 2016 energy outlook



## Innovation in global power and utilities

If you brought Nikola Tesla and Thomas Edison back to life, they would probably recognize most aspects of today's electric grid. But, if you brought back Alexander Graham Bell and showed him a network operating system, he probably wouldn't know what it was all about. Andrés Gluski, president and CEO, AES, used this comparison to illustrate the enormous potential for transformation that stretches before the global power and utilities sector. With this in mind, he shared his views on what is driving exponential change around the world and where that change might lead:

- Economic expansion has decoupled from electricity and energy use in the US: a one-to-one correlation between GDP growth and increasing electricity consumption and total energy demand can no longer be assumed.
- What is driving exponential change in the power and utilities sector? The introduction of renewables, especially solar in certain markets.
- The renewables boom is distorting some markets, with power prices on the grid going negative at certain times of the day—a situation that was unthinkable a few years ago.
- Electric vehicles (EVs) and grid-stability applications use the same battery, thus the power sector is poised to benefit from declining costs as EV sales increase.



Andrés Gluski





“Battery-based energy storage isn’t some Holy Grail we’re still looking for: it works today.”

Andrés Gluski

## Innovation in global power and utilities

- While the general perception is that battery storage technology isn’t ready, it works and it is being applied today within ancillary services, load-shifting, transmission efficiency, reliability, and energy management, particularly among commercial and industrial customers.
- “Massification” and its associated cost reductions are driving the proliferation of applications for battery-based energy storage.
- Battery-based energy storage installations could reach 10 gigawatts (GW) per year by 2020; if so, this would “change everything,” including how we price electricity, integrate renewables, and interact with the customer.

### Featured speakers:

**Andrés Gluski**, president and chief executive officer, The AES Corporation



## Unconventional oil and gas

The rapid increase in unconventional oil and gas production in the US is often attributed to innovation. Innovation is being credited once again for the sector's resiliency amid the commodity price downturn. But what do we really mean by "innovation"? Dr. Robert Kleinberg, Schlumberger fellow, Schlumberger, proposed some answers, as he explored the inter-relationship between innovation cycles and business cycles in the oil and gas industry.

- Examples of recent industry-changing innovations include 3-D seismic, logging-while-drilling and geo-steering, rotary steerable drilling, deepwater and ultra-deepwater technology, and horizontal drilling, plus massive hydraulic fracturing.
- In examining how these industry-changing innovations came about, Dr. Kleinberg found that in many cases the initial "bright idea" came when commodity prices were going up, but the actual engineering and commercialization took place during the down cycle.
- The "new frontier" is tight oil recovery, and several methods are under development right now—during the down cycle.



Robert L. Kleinberg, PhD



“In a down cycle, there’s less emphasis on novel techniques and more emphasis on efficiency improvements. Inevitably some innovations are lost, and we don’t always know what those are.”

Robert L. Kleinberg, PhD

## Unconventional oil and gas

- When oil and gas prices are rising or high, industry research and development (R&D) tends to grow: research prioritizes novel techniques; new people enter the field, generating new ideas; and academic and government research is driven by societal goals.
- When oil and gas prices are falling or low, industry R&D tends to contract: research prioritizes efficiency improvements; technology is outsourced to downsize risk; academic and government research winds down and people exit the field.

### Featured speakers:

**Robert L. Kleinberg**, PhD, Schlumberger Fellow, Schlumberger

### Unconventional oil and gas



## CFO insights: Disruptive innovation is the new normal

“Who here has bought a product from Compaq Computer, Kodak, or Blockbuster Video in the last six months?” asked Margaret (Peggy) Smyth, CFO, National Grid, US. Ms. Smyth used these notorious examples of rapid obsolescence to underscore what’s at stake for companies in an era of exponential technologies creating exponential change. She further shared her thoughts on why innovation and customer-focus are key to keeping “the great American utility company” off that list.

- Traditional utilities could become extinct if they don’t innovate their business models.
- Customers want services that are cheaper, cleaner, safer, more resilient, and available at the touch of a button.
- Utilities are being challenged to “put customers in charge” of how they interact with their electric service providers.
- Regulators are being challenged to transform how they work with utilities to make clean energy available and financially affordable to all.
- Smart meters, coupled with new time-of-use rate options; community or



Margaret (Peggy) M. Smyth



“The current system doesn’t make a priority of aggressively investing in innovation and infrastructure, and that’s what we’d like to see change.”

Margaret (Peggy) M. Smyth

## CFO insights: Disruptive innovation is the new normal

shared solar projects; and accelerated replacement of aging infrastructure offer examples of how utilities are innovating to address the evolving needs of their customers.

- Utilities and regulators need to work together to rethink how the industry is financed.
- Current regulatory models do not generally incentivize innovation. The future lies in performance-based incentives that allow utilities to improve performance and progress toward clean energy goals.

### Featured speakers:

**Margaret (Peggy) M. Smyth**, chief financial officer, National Grid, US

 **CFO insights: Disruptive innovation is the new normal**



## Leading transformation in the US energy industry


Transformation in the US energy industry is underway, with a focus not only on accessing cleaner and more sustainable energy sources, but also on creating a smarter and more efficient network. James (Jim) P. Torgerson, CEO, AVANGRID, explained how digitization is enabling this transition—changing the role of utilities and creating new opportunities for stakeholders throughout the energy value chain.

- The electricity sector contributes only 25-30 percent of US greenhouse gas emissions, but unlike some other sectors, it has the technological potential to de-carbonize.<sup>2</sup>
- While electricity use (i.e., consumption) isn't expected to grow a whole lot over the next two decades, electricity usage is: this paradox can be attributed to improving energy efficiency, alongside further electrification of the economy.
- A paradigm shift is underway: electrification of energy allows for clean solutions.



James (Jim) P. Torgerson





“We owe it to the customer to operate as efficiently as possible in order to keep rates down. Doing so is also in the best interest of the company and its shareholders.”

James (Jim) P. Torgerson

## Leading transformation in the US energy industry

- The electricity sector in the US will require more than \$2 trillion in investments over the next 25 years; about 75-80 percent of that will be for renewables and networks (i.e., the smart grid).<sup>3</sup>
- Through digitization of the grid, customers will gain more access to solutions based on their preferences, along with a greater ability to manage the cost and source of their electricity. Markets will broaden to include distribution-level exchange and operators will be able to manage the system at a more granular level, allowing for more targeted, cost-effective investments for improving efficiency and reliability.
- The utility role is expanding into “smart integrator,” owning and operating a diverse and intelligent distribution platform.

### Featured speakers:

**James (Jim) P. Torgerson**, chief executive officer, AVANGRID, Inc.

 **Leading transformation in the US energy industry**



## Emerging business models

Throughout the energy value chain, new business models are emerging in response to technology developments as well as changing customer demands. These models are diverse but they have a common denominator: they are generally more collaborative than traditional ones, with much of their success hinging upon their ability to build coalitions among value chain participants. John Jung, president and CEO, Greensmith Energy Management Systems, and Bert Valdman, president and CEO, Optimum Energy, underscored the importance of cooperation, while providing insight into the types of new business models that are emerging:

- The electrical grid is perhaps one of the only asset-intensive industries that still has an average asset utilization ratio of under 50 percent.
- Grid inefficiencies are largely an IT problem: the software that runs the grid today isn't contemporary, isn't distributed, and it doesn't gather the information needed to better balance load and manage congestion.
- Energy storage solutions and smart technologies ideally need to complement the existing grid, making the legacy equipment and the electricity generated from both renewables and fossil fuels more useful and more valuable.

"It doesn't cost a lot of money to put a lot more intelligence into the distributed edge of the grid."

John Jung

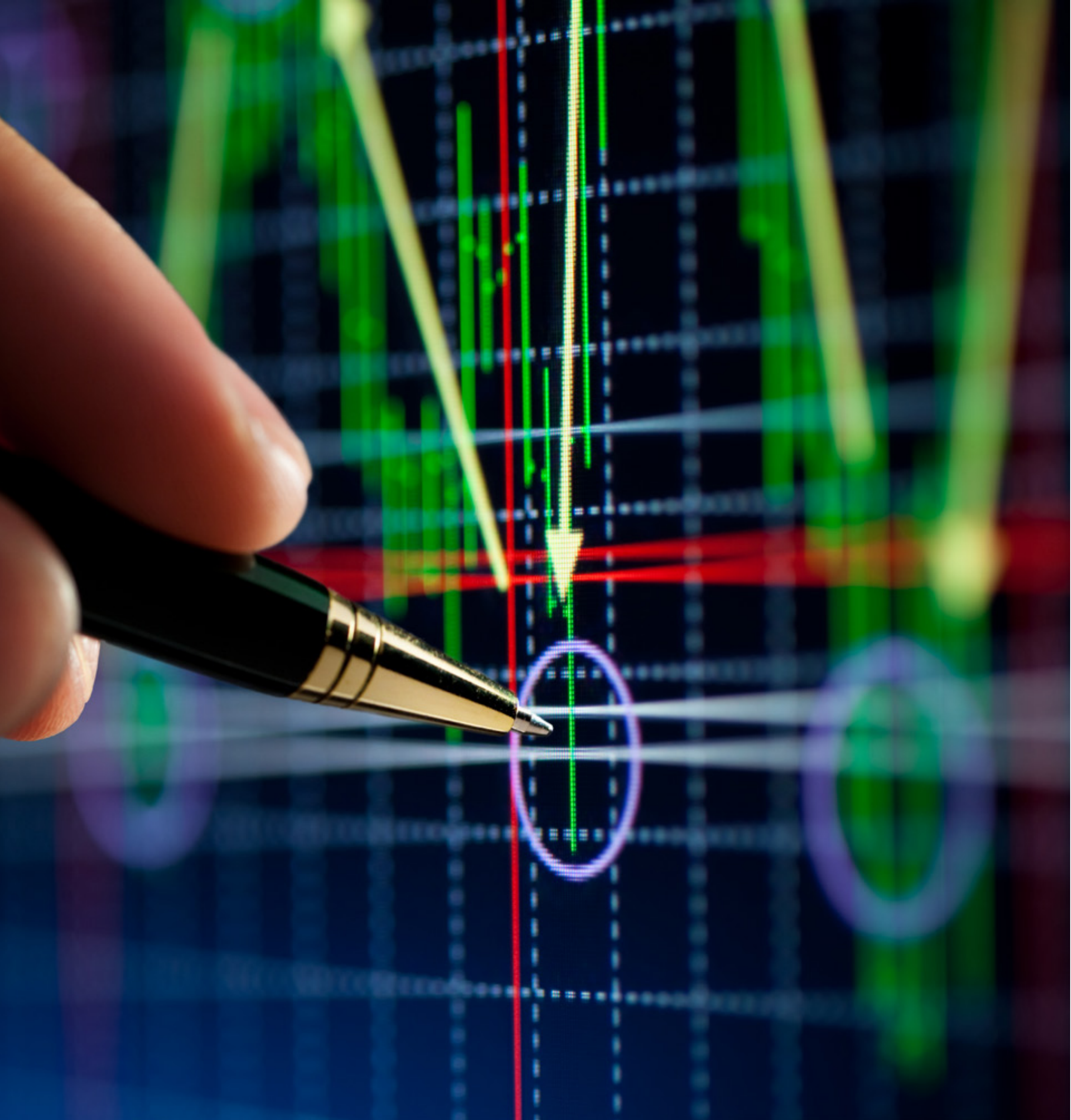


"It's time for us no longer to simply be practical, but pioneering."

Bert Valdman







## Emerging business models

- There is greater promise for those in energy who develop systemic, customer-oriented solutions; and there is greater peril for those who invest in one-off fixes and focus on assets, not on customers.
- Transforming our energy system will require a coalition of established players and new entrants that draws upon the best of both.
- Contemporary software is key; it's "the inner beauty" of many solutions today.

### Featured speakers:

**John Jung**, president and chief executive officer, Greensmith Energy Management Systems

**Bert Valdman**, president and chief executive officer, Optimum Energy LLC

 **Emerging business models**



## Energy investment environment

Explaining that the investment community often reflects what's going on in the world, Jeffrey R. Holzschuh, chairman, Institutional Securities, Morgan Stanley, described a general investment environment with much dislocation, volatility, and uncertainty. Nonetheless, he observed that year-to-date the safest two industry sectors across the entire US economy have been energy and utilities, suggesting that the industry as whole has been doing something right. In characterizing the energy investment landscape, he further noted:

- Over the next 18-24 months, the quest for growth is expected drive a lot of strategic M&A activity, along with dislocation, particularly among oilfield services companies.
- Foreign companies continue to show interest in acquiring assets in the US and some larger players may even decide to domicile here.
- One of the big disconnects is that the investment community is presently looking at 3-6 month time horizons, but energy executives are trying to make 50-year capital decisions.
- Two components that investors do not generally factor into their decisions are the cost of de-carbonization and the advent of exponential technologies; however, they are certainly being discussed in boardrooms.



Jeffrey R. Holzschuh





“You can really fall into the trap of managing heavy CAPEX industries on a 3-6 month investor cycle and make some pretty bad decisions.”

Jeffrey R. Holzschuh

## Energy investment environment

- Power and utilities and oil and gas companies should be given credit for getting ahead of other sectors on cyber security and strategic risk.
- Despite the investment community’s willingness to fund digitization of the grid, it will probably take several years longer than currently anticipated for it to fully come to fruition.

### Featured speakers:

**Jeffrey R. Holzschuh**, chairman, Institutional Securities, Morgan Stanley



## Emerging technologies

Smart technologies and battery storage are impressive, but is the energy industry on the cusp of even bigger breakthroughs? Two knowledgeable speakers, Douglas J. Arent, executive director, Joint Institute for Strategic Energy Analysis, National Renewable Energy Laboratory and Dr. S. Julio Friedmann, chief energy innovation fellow, Lawrence Livermore National Lab, think so. But, as they explained, the big challenge is often commercialization, as opposed to getting the science right:

- Materials by design have arrived: we are now inventing materials that didn't exist before, fabricating them and scaling them up.
- Additive manufacturing is here and being deployed today, which makes new properties and processes possible using existing materials.
- The ability to create materials, processes, and properties that didn't exist before has great implications for the energy industry in terms of creating superconductors, reducing friction and resistance, and chemically transforming fossil fuels without the need for large industrial facilities.
- Completely distributed operations and control of the grid is about 20 years out, but we're in the middle of the transformation now.

“The intelligent grid of the future is between now and reality and ubiquity.”

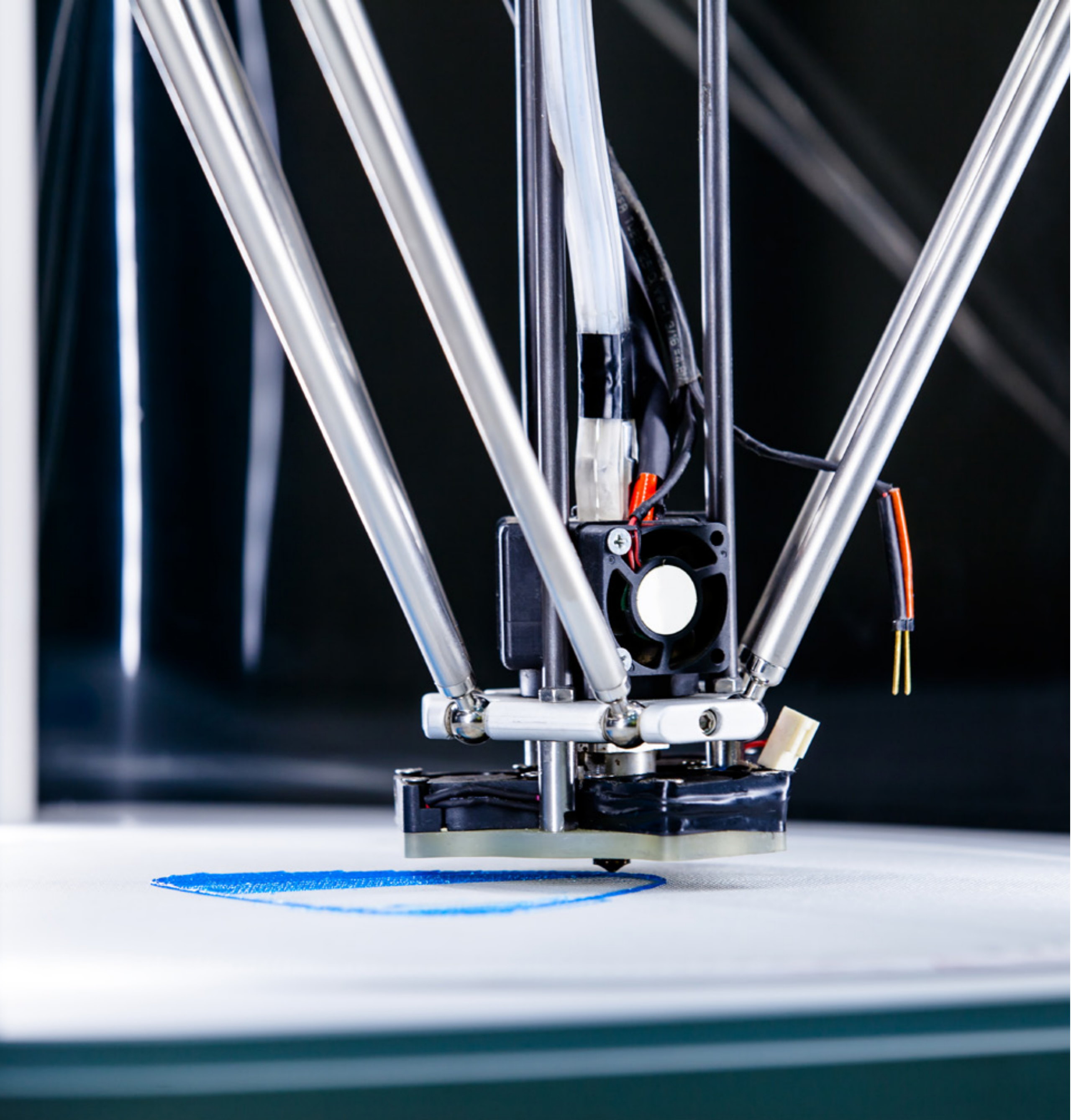
Douglas J. Arent

“Energy innovations often require ‘patient capital’ to get to market.”

Dr. S. Julio Friedmann







## Emerging technologies

- A recent materials innovation could provide the technological basis for solar cells with 80 percent efficiency.
- A drive toward smaller, modular solutions is coming, since they are easier to fund and commercialize.

### Featured speakers:

**Douglas J. Arent**, executive director, Joint Institute for Strategic Energy Analysis, National Renewable Energy Laboratory

**Dr. S. Julio Friedmann**, chief energy innovation fellow, Lawrence Livermore National Lab

 **Emerging technologies**



## The path forward

What is the path forward in a world where people increasingly can switch electricity providers on their mobile phones at a moment's notice? While financing and technology are important, John F. Young, president and CEO, Energy Future Holdings, emphasized that what customers want will ultimately determine where the industry is heading:

- Because innovators want certainty of funding and investors are increasingly risk-averse, most of the financing for emerging products and services will have to come through some regulatory model.
- That creates the situation where regulation and certainty of financing are driving innovation and “that doesn’t sound right.”
- The path forward is staying connected to the customer. The customer will ultimately determine how a product is made, delivered, consumed, and paid for.
- The innovations occurring in our national labs and elsewhere will be commercialized if people want those services.
- Disintermediation is happening: we have to re-earn our customers every day.

### Featured speakers:

**John F. Young**, president and chief executive officer, Energy Future Holdings

“We have to regain customer loyalty every day.”

John F. Young





## Industry and regulatory perspectives

The energy industry is expected to look much different in 2030 than it does today, featuring decentralized power supplies, microgrids, mobile technologies, and a networked, intelligent electric grid. But this exciting future is not assured. James T. Gallagher, executive director, New York State Smart Grid Consortium, and David K. Owens, executive vice president, business operations group and regulatory affairs, Edison Electric Institute, explained why revising the regulatory model is essential to getting “from here to there.”

- The industry needs a much more dynamic regulatory model than it has today. One that can send adequate pricing signals to incent behavior and to encourage investment (and recovery of those costs) in modernizing the grid and moving it toward a distribution system platform.
- A new regulatory construct must also acknowledge that the customer, or “prosumer,” is a vital player who can supply power one day and be “load” the next.
- New York State is moving away from utility planning and toward market-based price signals for determining where to add distributed resources for the greatest benefit of all parties.
- Utilities and their customers (i.e., mainly commercial and industrial) must be able to work together to align their goals and to plan collaboratively, sharing information that is beneficial for system design.

“We can’t just expect utilities to change and not change regulation at the same time.”

James T. Gallagher



“It’s about ‘customerization’: we’re moving from a model that relies on volumetric sales to one that depends upon expanding services to the customer.”

David K. Owens







## Industry and regulatory perspectives

- The fixed cost debate is the wrong debate; the right one is how we can evolve the grid and what is the regulatory model that allows that to occur?
- The regulatory model and the utility business model must both support the evolution of the grid, since it is the main platform through which transformation takes place.

### Featured speakers:

**James T. Gallagher**, executive director, New York State Smart Grid Consortium

**David K. Owens**, executive vice president, business operations group and regulatory affairs, Edison Electric Institute



## The second machine age: Work, progress, and prosperity in a time of brilliant technologies

What will happen when machines can learn faster than people can? Get ready, because that day has arrived. During his keynote address, Andrew McAfee, MIT professor and best-selling author, highlighted the Google team who recently created a computer program that was able to beat one of the world's best human players at the ancient Chinese strategy game, GO—a feat that has eluded developers for decades. He further elaborated on the exponential impact that machine learning and the automation of cognitive tasks could have upon energy—and the world:

- Technological progress is coming “so fast and furious” that even industry insiders are frequently surprised by the rapid pace of innovation.
- A dematerialization of the economy is taking place, with data and code being increasingly substituted for the atoms of raw materials.
- Solar power is “on fire,” with more surprises yet to come.
- The path forward needs to be “a combination of technological progress, innovation, markets—and goodwill.”



“Exponential technology develops gradually—and then suddenly.”

Andrew McAfee





## The second machine age: Work, progress, and prosperity in a time of brilliant technologies

- We've just recently entered the exponential part of the progress curve in many disciplines.
- What we've seen so far isn't any sort of crowning achievement; it's the warm up act.

### Featured speakers:

**Andrew McAfee**, researcher, writer, MIT professor

 **The second machine age: Work, progress, and prosperity in a time of brilliant technologies**



## Elective sessions

Several elective sessions were offered concurrently throughout the seminar. Some provided insights into broad special topics while others explored regulations and the technical aspects of accounting, tax and finance as applied to energy.

- ➔ Alternative energy – Outlook for growth remains strong
- ➔ Clean power plan – Coordinating actions between federal, state, and power and utilities stakeholders
- ➔ Energy accounting, financial reporting, and SEC update
- ➔ How the changing energy landscape will play out in disputes
- ➔ NERC CIP standards for the utility industry
- ➔ Oil and gas – LNG at a crossroads
- ➔ Strategic value of risk management
- ➔ The smart power ecosystem – A discussion on competitive positioning





## Alternative energy – Outlook for growth remains strong

Driven by rapidly falling prices, renewables (mainly solar and wind power) have been growing at an exponential pace. Representatives from the American Wind Energy Association (AWEA) and the Solar Energy Industries Association (SEIA) explained why the remarkable growth trajectory of renewables is poised to continue in the US, with no apparent end in sight:

- The US is now the largest wind energy producer in the world.<sup>4</sup>
- With 209,000 workers, the US solar industry now employs more people than the oil and gas and coal mining industries.<sup>5</sup>
- Wind turbine technician is now the fastest growing profession in the US.<sup>6</sup>
- Distributed solar PV is moving beyond traditional markets and it is technically viable in all 50 states.
- A major trend is underway: a growing number of multinational corporations intend to obtain all of their electricity from renewables over the long term.

### Session speakers:

**Keith Adams**, principal, Deloitte Transactions and Business Analytics LLP (Moderator)

**Peter L. Kelley**, vice president, public affairs, American Wind Energy Association

**Tom Kimbis**, interim president and chief executive officer, Solar Energy Industries Association

 **Alternative energy – Outlook for growth remains strong**

## Clean power plan – Coordinating actions between federal, state, and power and utilities stakeholders

The US Supreme Court recently granted a stay of the Administration's Clean Power Plan (CPP), pending the resolution of legal challenges. Nonetheless, many believe the CPP will eventually be implemented in some form. If so, it would boost deployment of clean technologies and distributed energy resources, thus creating many challenges and opportunities for stakeholders throughout the electricity value chain.

- A stay does not imply that stakeholders should stop planning for implementation of the CPP.
- States, power and utilities companies, and the Environmental Protection Agency continue to collaborate on compliance with the Plan on a voluntary basis.
- Many states and power and utilities companies are moving toward their own goals to reduce emissions, improve resiliency, and modernize the electric grid, and they will continue to do so with or without the CPP.
- Without coordination among stakeholders, large-scale deployment of renewable energy resources could impact reliability.

### Session speakers:

**Ron Chebra**, principal, utility consulting services, Schneider Electric

**Sarah Dunham**, director, office of atmospheric programs, US Environmental Protection Agency

**Rod Kuckro**, reporter, E&E's EnergyWire (Moderator)

**David Terry**, executive director, National Association of State Energy Officials



## 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 power and utility companies and regulated utilities. Speakers discussed:

- The impact of new lease and revenue standards, along with respective implementation issues.
- How power purchase agreements will be treated under the new lease rules.
- Areas that the SEC staff has focused on in recent comment letters.
- What companies should be cognizant of when submitting their filings to the SEC.

### Session speakers:

**James Barker**, partner, Deloitte & Touche LLP

**Christine Davine**, partner, Deloitte & Touche LLP

**George Fackler**, partner, Deloitte & Touche LLP

### Energy accounting, financial reporting, and SEC update

## How the changing energy landscape will play out in disputes

Disputes are inevitable whenever things change. The big question is: how can the industry structure policies and contracts to accommodate technological change and how it might play out in disputes? In this session, speakers explored litigation and arbitration trends and potential responses:

- Oil and gas companies are coming under increased scrutiny concerning climate change disclosure, well decommissioning, and LNG contracts.
- Unions will play a key role in the acceptance of new technologies, such as wearables and various tracking capabilities.
- The growing ability to access real-time information will change the way disputes and claims will be handled, potentially curtailing the number of disputes.
- Privacy and confidentiality concerns should be considered when implementing new technologies, especially for companies with global operations since some countries have stricter privacy laws than others.

### Session speakers:

**Andrew M. Behrman**, partner, Baker Botts LLP

**Mark W. Cohen**, managing director, Deloitte Transactions and Business Analytics LLP (Moderator)

**Christopher B. Holt**, assistant general counsel litigation, NRG Energy, Inc.

**Anthony C. Walsh**, chief global litigation counsel, GE Power



## NERC CIP standards for the utility industry

The Critical Infrastructure Protection (CIP) standards from the North American Electric Reliability Corporation (NERC) influence the ways in which utilities address cyber security. In discussing important aspects of version 5 (V5) of the rules, speakers noted:

- While standards are smarter, V5 criteria nomenclature has changed, requirements are complicated (and open to interpretation), and coverage is much more complex.
- The standards' scope now encompasses electronic security perimeters; one or more methods for detecting malicious intent for inbound or outbound traffic; utilization of encryption; restrictions on USB/port usage; and mitigation plans for security patches.
- Asset management is the foundation of compliance: knowing what your assets are, what's new, and what potentially could be an issue.
- While leadership commitment is essential, compliance is ultimately everyone's responsibility.

### Session speakers:

**David Nowak**, senior manager, Deloitte & Touche LLP (Moderator)

**Marie Potter**, manager, IT operations and compliance, Exelon Corporation

## Oil and gas – LNG at a crossroads

While commercial shipping of liquefied natural gas (LNG) began as early as 1960, only recently has a monumental LNG industry emerged, as previously high natural gas prices allowed for infrastructure to be constructed. But, did the sector build too much, too fast? Today, LNG producers find themselves at a crossroads, taking a much needed pause in order to let demand catch up with abundant LNG supplies and excess liquefaction capacity:

- Global LNG use is expected to increase by about 70 percent over the next decade.<sup>7</sup>
- More flexible contract terms, along with an active spot market, are important for driving LNG growth.
- Global environmental initiatives give LNG a competitive advantage over coal.
- New technology in the form of floating storage and regasification units is expected to broaden markets by allowing LNG to be distributed to local demand centers.
- Fostering new demand for natural gas is critical to the LNG sector's success.

### Session speakers:

**George Given**, advisory senior manager, Deloitte MarketPoint LLC

**Jairam Gopal**, advisory specialist leader, Deloitte MarketPoint LLC

**Andrew Slaughter**, executive director, Deloitte Center for Energy Solutions, Deloitte LLP (Moderator)

 **Oil and gas – LNG at a crossroads**



## Strategic value of risk management

The energy industry is entering a new era of risk management. Speakers stressed that effective risk-mitigation strategies have never been so valuable to the industry, as regulated and deregulated businesses merge, customers become more demanding, and companies rapidly innovate to remain competitive:

- People are at the heart of many uncertainties in business, with the unpredictable habits and consumption patterns of customers being a prime example.
- Most (unregulated) competitors have the ability to pivot their position in the marketplace at any time, and regulators can change the game completely through an unforeseen ruling.
- Creating standardized reporting rules and templates are helpful in aligning the risk organizations and strategies of two or more merged entities.
- Risk management requires organizational and cultural change as well as prudent planning.

### Session speakers:

**Dmitriy Borovik**, managing director, Deloitte & Touche LLP (Moderator)

**Felicia Brown**, vice president, risk management and chief risk officer, AVANGRID, Inc.

**John W. Judge**, vice president, corporate risk and chief risk officer, First Energy

**Guru Nadkarni**, vice president, strategic planning, Consolidated Edison

 **Strategic value of risk management**

## The smart power ecosystem – A discussion on competitive positioning

The smart power ecosystem comprises energy service providers, utilities, and original equipment manufacturers as well as the telecommunication/internet providers who connect them. While these players offer diverse products and services, speakers explained that they all have one thing in common: they are increasingly awakening to the needs of the customer:

- The smart power ecosystem means many things and it spans many markets.
- Regardless of where one sits within the smart power ecosystem, it's not about selling a commodity; it's about understanding the customers' needs and identifying a real problem that they see value in solving.
- We have to stop talking about kilowatt hours: neither residential customers nor commercial and industrial customers are interested in "utility speak."
- Analytics and pilot projects are essential for identifying what types of products and services will resonate with customers.

### Session speakers:

**H. Ward Camp**, chief regulatory affairs officer, Edison Energy, LLC

**Paul Camuti**, senior vice president, innovation, and chief technology officer, Ingersoll Rand

**Jim Hendrickson**, principal, Deloitte Consulting LLP (Moderator)

**Jennifer Pulliam**, senior director, TXU solutions, TXU Energy

**Kevin Yates**, president, Energy Management Division, Siemens

 **The smart power ecosystem – A discussion on competitive positioning**



## Concluding perspectives

Exponential technologies have infiltrated every aspect of the energy value chain. Speakers acknowledged that these technologies can alter how businesses think about their operations, customer relationships and business processes virtually overnight. The time for taking a defensive posture has passed. Speakers expressed a realism that the transformation of the electric grid is underway and that the customer now serves as “true north” in finding the path forward. They also acknowledged that we can’t do this by ourselves and that we need to work alongside innovative business models, engaging new entrants, regulators and other stakeholders through business ecosystems. Perhaps most significantly, we would not have heard perspectives such as this even a few years ago in the energy industry. It’s good to see we’ve finally turned the corner and have moved from a mindset of being disrupted by exponential change to being agents of it.

Please join us at our upcoming conferences to continue the dialogue.

**John McCue**, vice chairman, US Energy & Resources Leader, Deloitte LLP

### Mark your calendars for our upcoming conferences:

2016 Deloitte Oil & Gas Conference, September 21 – Houston, TX

2016 Deloitte Alternative Energy Seminar, November 14-16 – Scottsdale, AZ

“We’ve turned the corner from being disrupted to being disruptors as we embrace the opportunities presented by exponential technologies.”

John McCue





# References

- 1 All statistics drawn from the following EIA publications: *Short-term Energy Outlook, June 2016*; *Annual Energy Outlook 2016*; *International Energy Outlook 2016*; and *Analysis of the Impacts of the Clean Power Plan*, May 2015.
- 2 US Environmental Protection Agency, <https://www3.epa.gov/climatechange/ghgemissions/sources/electricity.html>.
- 3 International Energy Agency, *World Energy Outlook 2015* and *World Energy Investment Outlook – Special Report*.
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- 5 The Solar Foundation National Solar Jobs Census and the Bureau of Labor Statistics.
- 6 US Bureau of Labor Statistics and AWEA blog, <http://www.aweablog.org/meet-americas-fastest-growing-profession-wind-technician/>.
- 7 Deloitte MarketPoint LLC.



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