THE PROMISE OF TOMORROW

ELECTRIC POWER INDUSTRY OUTLOOK

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Introduction

Thomas R. Kuhn
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Opening Remarks

Good afternoon and welcome to the Edison Electric Institute's (EEI's) annual briefing on the state of the electric power industry.

I am Tom Kuhn, president of EEI. With me today are five members of EEI's officer team—David Owens, Brian Wolff, Richard McMahon, Quin Shea, and Phil Moeller, who joined EEI just last week. I hope you will welcome Phil to our team, as he brings tremendous public policy and energy experience to lead EEI's energy delivery, retail energy services, and state regulatory outreach activities. Phil also will serve as our Chief Customer Solutions Officer.

We are pleased that you all can be with us today, and we look forward to engaging in a robust discussion about the profound transformation that is underway across the electric power industry. My colleagues and I are proud to represent EEI's member companies, our nation's investor-owned electric utilities, and we are excited about the promise of tomorrow—and the possibilities that lie ahead for our industry.

Each time I come to New York—with its kinetic lights, sights, and sounds—I am reminded that electricity runs our economy and powers our lives. I know I have said this before, but it bears repeating—we now live in a world where we all want to be connected, all the time and everywhere. Nowhere is this truth more evident than here in New York.

Not only is electricity essential to our everyday lives, but our industry is an integral and robust component of our nation's economy—a $930-billion industry that accounts for more than 2 percent of GDP. We directly and indirectly support more than 1 million jobs, and EEI's investor-owned electric utility members serve nearly 70 percent of America's industries, businesses, and consumers. On a personal level, I am filled with gratitude for the work that our industry does, day in and day out, to power America.

You will hear a lot today about our changing industry. What I hope you take away from this discussion is that we are laser-focused on customers and the benefits they will derive from the changes underway. Before I outline our vision for 2016 and beyond, I want to take just a few minutes to share with you our 2015 financial highlights.

Financial Outlook

Our industry spent $108.6 billion in total capital expenditures in 2015, according to projections, which would set a fourth consecutive annual record. This level of investment is more than twice what it was a decade ago. With renewed focus on infrastructure, it is not surprising that transmission and distribution are incrementally more important to overall investment. Based on an analysis EEI performed last fall, we expect that transmission commanded 18 percent of total capital expenditure dollars, up from about 17 percent in 2013, and distribution comprised 26 percent of total capital expenditures, up from 21 percent versus two years prior. Spending in both of these categories is expected to increase steadily in relative importance over the next few years.

The industry continues to face the challenge of an ongoing and projected slow growth in electricity demand. Although demand rose slightly in 2015, it remained below its 2010 level. But, we are confident that as the economy continues to improve, electricity demand will grow as well. Importantly, regardless of the short-run sales outlook, electric utilities are growing earnings by investing in the most attractive opportunities.

Just as the macro economy drives electricity demand, it also affects the returns that our members earn on their investments. This means that the downward trend in Treasury rates over many years has been a challenge. However, at the state level, regulators have recognized that the risks our industry faced were not falling in tandem. As a result, the spread between our average state-level return on equity and the 10-year Treasury has grown steadily for more than 20 years. We expect that spread to revert to more normal levels with the projected gradual rise in interest rates by the Federal Reserve.

Rising 10-year Treasury rates during the first half of the year and continued low natural gas prices contributed to the EEI Index's negative 3.9-percent performance in 2015, which compared to a positive total return of 0.2 percent by the Dow Jones Industrial Average, 1.4 percent by the S&P 500, and 5.7 percent by the Nasdaq.

Over the longer term, electric utilities' total returns were aligned with those of the broader market. For the 10 years ending December 31, 2015, the EEI Index's 112-percent return approximated the Dow Jones Industrial Average's 111-percent return, the S&P 500's 102-percent return, and Nasdaq's 127-percent return. Prior to 2015, the EEI Index recorded a positive total shareholder return in 11 of the last 12 years.

For the fifth consecutive year, all of the EEI Index companies paid a dividend. Strong dividend yields have supported utility stocks in recent years. The industry's average yield rose to 3.8 percent at the end of 2015, from 3.3 percent at year-end 2014, largely driven by the overall decline in utility stock prices over the past year. Thirty-nine electric utilities, or 85 percent of the industry, increased their dividend last year, the largest percentage on record.

Importantly, the industry maintained its credit quality with a BBB+ average (S&P scale) in 2015, after it increased from BBB in 2014. Prior to that increase, the industry average had remained unchanged at BBB since the early 2000s. Actions were predominantly positive as utilities continued to invest in their regulatory relationships and to focus on their regulated operations. Of note, 84 percent of the ratings outlooks are currently stable or positive.

This long-term improvement in credit is correlated with the gradual increase to a more regulated business model. It is widely known that electric utilities are pursuing a "back-to-basics" approach to their businesses, and have been since the early 2000s. In fact, between 2002 and 2014, the industry moved from a balance sheet that was roughly 60 percent regulated to one that is closer to 75 percent regulated. This is especially important as our capital investment levels have risen dramatically.

Our Vision

Thomas Edison once said, "Vision without execution is just hallucination." With more than 2,300 patents worldwide—1,093 in the U.S. alone—Edison certainly was more than just a dreamer. He saw his ideas and inventions through to implementation. True to our namesake, EEI, working with our member companies, has outlined a comprehensive, strategic, and executable plan to lead our industry forward.

This plan took shape during our winter CEO and Board of Directors meeting last month, where we laid out our policy agenda for the year ahead. Much of the meeting focused on the profound transformation that is underway across our industry. This transformation—more evolutionary than revolutionary—is being driven in large part by new technologies, shifts in public policy at both the federal and state levels, and changing customer and market expectations. And, it is evident from the conversations among CEOs and senior executives that our industry is adapting to and leading enormous change right now, while continuing to provide value to our customers.

As you will hear today, EEI's member companies are investing in renewable energy, transitioning from coal to natural gas, and pursuing energy efficiency. They are partnering with technology companies and start-ups to bring innovation to the forefront and to make the grid smarter and stronger. And, they are leading the way in reducing emissions. In fact, nearly one-third of U.S. power generation now comes from zero-emissions sources like nuclear and renewables, including hydropower, wind, and solar. It is projected that our members will spend more than $300 billion over the next three years to enhance the grid and to make our generation fleet even cleaner.

Our research confirms that these changes are not lost on our customers. Across the country, we know customers believe that the way energy is used and produced is changing. They are excited about innovation and are paying attention to what is coming next. Most important, they expect our industry to be at the center of change and to deliver the future they want, in ways that do not jeopardize reliability and affordability.

At EEI, we remain focused on telling our industry's story and demonstrating the value that electricity and our industry bring to our customers' lives, to our local communities, and to our nation's economy. At the same time, we have embraced three core principles—a modern, reliable, and resilient grid; clean energy; and innovative customer solutions. These principles are at the center of our vision for the future. We are aligning our resources at EEI to support these new areas, and, as always, we will focus on getting the policies right along the way.

We have organized our remarks today to align with these core areas, and now I would like to ask David Owens to discuss the ongoing grid transformation and how our industry is seamlessly integrating new resources, technologies, and services into the grid to meet the changing needs of our customers.

The Ongoing Grid Transformation

David K. Owens
Executive Vice President,
Business Operations Group and Regulatory Affairs

Thank you, Tom. As you just heard, this truly is an exciting time to be part of the electric power industry. The industry's ongoing transformation offers many benefits for electricity customers and presents many opportunities for EEI's member companies. At EEI, we are in a position to help define and to shape our industry's future and to continue to lead this transformation.

Many of the changes happening today involve the grid. As we all know, the grid is the backbone of our electric system. It is the flexible, dynamic network that delivers reliable, resilient energy to power our lives and to keep us all connected—now and in the future.

In the U.S., the movement toward a more digitized, distributed, and integrated grid is already in progress. The grid continues to evolve from a one-way system, with a clear dividing line between producers and customers, to a dynamic, multi-directional network that delivers electricity and information to customers and back to the utility. As more customers assume a more active role in managing their electricity supply, these "prosumers" are adjusting their demand for electricity in response to price signals and, in some cases, becoming suppliers themselves.

The continued deployment of digital smart meters—with close to 65 million installed in about half of all U.S. households to date—is one key building block of a smarter, stronger grid. Utility investments that hasten the integration of new technologies—such as small-scale wind and solar, energy storage, microgrids, and other devices in our homes and businesses—are another. Today, investor-owned electric utilities are investing more than $20 billion per year in the distribution grid alone.

I want to be very clear that utilities will fill a number of roles within the future grid, including functioning as the Distribution System Integrator that creates, maintains, and operates the platform required to integrate distributed energy resources and to support multi-directional power flows. In addition, the utility should function as the Distribution System Operator that manages the various transactions between suppliers and customers being carried out on the grid. In order to fully realize the potential of new technologies, utilities also must be able to go "behind the meter" to provide a wide range of services and options to their customers.

To support the grid's ongoing transformation, rate designs and business models are evolving to provide more options to customers, to take advantage of technology commercialization, and to adopt regulatory innovations based on sound economic principles. Utilities also are working side-by-side with technology partners to integrate the many new technologies and innovations coming to the market each day, to fully unlock the grid's potential, and to drive innovation and change.

State & Federal Regulatory Activities

As the grid continues to evolve, some of the most significant policy changes are happening in the states. Not only are a number of discussions underway about the so-called "Utility of the Future," customer interest in the use of distributed generation (DG) systems, such as customer-owned wind and rooftop solar systems, also continues to grow. DG offers an attractive option for some customers, and utilities are actively examining the ways in which DG systems can be better integrated into the grid to enhance reliability and resiliency.

Given the significant decline in the cost of solar photovoltaics (PV), coupled with the rapid growth in residential rooftop solar and other DG systems, policymakers across the country continue to examine how to update current net metering programs to address the cost shifting that occurs among customers and to ensure that everyone who uses the grid continues to share equitably in the costs of paying for the grid.

While net metering policies vary by state, customers with residential rooftop solar systems usually are credited at the full retail electric rate for any excess electricity they generate and sell to their local electric utility via the grid. Under most net metering policies, utilities are required to buy this power at the full retail rate, even though it would cost them less to produce the electricity themselves or to buy the power on the wholesale market.

In addition, because of the way that current policies are structured, rooftop solar customers avoid paying for many of the fixed costs of the grid used to ensure that they have electricity around the clock. As a result, these grid costs are shifted to customers without rooftop solar systems through higher utility bills. In Nevada, for example, the Public Utilities Commission found that "the annual subsidy associated with the existing shift in fixed costs from net metering customers to other customers is approximately $623 for each residential net metering customer in southern Nevada and $471 for each residential net metering customer in northern Nevada."

While the costs of producing solar power have declined substantially since net metering policies were first introduced, the rates paid to net-metered customers have not been adjusted to reflect this. The intent of original net metering policies was to incentivize early adopters, not to create huge subsidies from one group of customers to another. Now that the cost of solar systems has come down significantly, there is no need for continued large subsidies. Furthermore, with the long-term extension of the solar investment tax credit at 30 percent, there is no need for additional state subsidies.

Importantly, state legislatures and/or utility regulatory commissions in 37 states are evaluating current net metering policies and are taking steps to update them to eliminate the shift in costs from customers with rooftop solar systems to customers without these systems.

Going forward, it is critical that state and federal policymakers recognize the value of the grid to all customers and adopt policies that support the grid's ongoing transformation. To that end, EEI will continue to advocate that net metering policies and rate structures in many states be updated to ensure that all customers have safe and reliable electricity and that electric rates are fair and affordable for everyone.

EEI also will advocate for policies in which utilities have primacy in planning, building, and operating the grid. We will continue to support policies that promote investment in new grid technologies. And, we will continue to encourage expanded utility partnerships with leading technology companies to accelerate the adoption of a modern, reliable, and resilient grid.

As grid modernization includes distribution and transmission, EEI will continue to urge the Federal Energy Regulatory Commission (FERC) to adopt policies for the enhancement of the bulk power transmission grid, including improving the efficiency of the planning process as contemplated in FERC Order 1000. It also is important that FERC provide compensatory returns on equity that recognize the risks associated with transmission construction.

We also are closely following the Department of Energy's (DOE's) Quadrennial Energy Review (QER) process. Last year, DOE released the first installment of the QER, which focused on energy infrastructure, with the goal of identifying vulnerabilities and proposing major policy recommendations and investments to replace, expand, and modernize infrastructure where appropriate. Last week, DOE began its rollout of the second QER installment, known as QER 1.2.

The second installment of the QER will include a comprehensive review of the nation's electricity system, from generation to end use, and will take a more detailed look at electricity transmission, storage, and distribution infrastructure. The QER ultimately may recommend additional executive or legislative actions to address energy challenges and opportunities. EEI will remain actively engaged in the QER process and will work to focus attention on key issues and to coordinate efforts among our member companies.

In the end, the transformation of the grid will occur in phases, beginning with grid enhancements and the adoption of advanced communication and information technologies; then proceeding to the development of an optimal platform for integrating and supporting distributed energy resources; and finally establishing a full network supporting distributed energy options. The pace of change will vary by region. As Tom said, this transformation is evolutionary, not revolutionary.

In every case, the goals remain the same—to give all electricity customers more flexibility and control over their energy use; to enhance their options; and to continue to provide them with the safe, reliable, affordable, and clean electricity they depend on to power their everyday lives. Every public policy initiative, regulatory action, and business decision made by electricity providers, regulators, and policymakers should be guided by these goals.

I will now ask Richard McMahon to begin the conversation about our clean energy future by discussing the important role that solar energy and other renewables will play; the state of wholesale energy markets and the ongoing need for fuel diversity; and the status of one of the newest emerging technologies, energy storage.

Our Clean Energy Future

Richard F. McMahon, Jr.
Vice President, Energy Supply and Finance

Quinlan J. Shea III
Vice President, Environment

Richard F. McMahon, Jr.

As you just heard from Tom and David, many exciting trends are shaping the future of our industry, and utilities are leading the way to a clean energy future.

Renewable Energy Investments

Our industry is the largest investor in renewable energy in the U.S. Virtually all of the wind, geothermal, and hydropower energy in the country—and the majority of installed solar capacity—is provided by utilities. As we continue to transition to an even cleaner generation fleet, utilities are integrating increasing amounts of renewable energy resources into the grid each year. About half of the new electricity generation capacity added in recent years uses renewable energy sources, and the Energy Information Administration estimates that output from renewable energy will more than triple between 2010 and 2040.

One area where we are seeing incredible growth and opportunity is in solar. Large-scale utility solar projects account for about 60 percent of all installed solar capacity in the U.S. This capacity is expected to triple by the end of this year from the 2014 level. Estimates by GTM/SEIA, *Solar Market Insight 2014*, show that utility-scale solar capacity will reach 28.9 gigawatts (GW) in 2016, up from 10.2 GW in 2014. Large-scale projects offer the most cost-effective way to increase the use of solar in a community in a way that benefits all electricity customers.

A study released last summer by The Brattle Group confirms that large-scale utility solar is—and will remain—substantially more cost-effective than rooftop solar, particularly since the National Renewable Energy Laboratory estimates that around half of all U.S. residential rooftops are not suitable for solar panels. Moreover, the Brattle study concludes, "utility-scale PV allows everyone access to solar power. From the standpoint of cost, equity, and environmental benefits, large-scale solar is a crucial resource." A study by MIT, entitled *The Future of Solar Energy*, has similar findings and points out that "utility-scale PV is likely to remain much less expensive than residential-scale PV."

Fuel Diversity & Wholesale Market Issues

EEI's member companies always have relied on a variety of domestic fuels to generate electricity. As energy markets change and our generation fleet continues to evolve, maintaining fuel diversity and flexibility remains at the forefront of our industry's priorities. This is the only way to preserve the clean, reliable, and affordable electricity that our customers expect.

In addition to the growing investment in renewables, the use of natural gas for electric generation continues to grow. Both create opportunities and challenges for the markets.

In wholesale electricity markets run by regional transmission organizations (RTOs) and independent system operators (ISOs), energy price formation and capacity market rules need to evolve to ensure that the price signals are incenting efficient and economic behavior. This means market clearing prices should reflect the cost of operating the system by, for example, minimizing the out-of-market payments or uplift made to generators. These payments are not reflected in the market clearing price, which means that the market clearing price does not reflect the true cost of operating the system.

In markets run by RTOs and ISOs, electric generators rely on the market to provide both the short- and long-term price signals necessary to sustain and promote investment in generation and to recover capital costs. FERC reforms of competitive wholesale power markets as to market rules and grid operator practices are needed to improve investment signals for existing and new generation resources. This will help generators make economic decisions on the infrastructure needed to maintain reliability. Changes to the energy price formation in the markets operated by RTOs and ISOs especially are needed in order to ensure that the markets provide the price signals to incent and retain needed generation.

This is particularly critical now. The nation cannot achieve its long-term carbon-reduction goals without building new nuclear plants and continuing to operate the existing nuclear fleet. Electricity markets need to properly recognize and value the important attributes that all resources, including nuclear energy and coal-based facilities, provide to the grid and, ultimately, to our customers.

Nuclear plants provide large-scale baseload electricity production, clean air, and the highest amount of carbon-free electricity of any generating source, but current market policies and practices do not accord value to these benefits. This threatens the diversity of our nation's generating portfolio and our ability to meet environmental goals.

In wholesale markets, nuclear and other generating resources typically receive more than 80 percent of their revenue from energy markets. If the price signals are not accurate and do not compensate these resources, the market signal is that these resources are not needed to maintain reliability and resource adequacy. It is important to have a variety of resources with different fuel supply options so that our industry can respond to extreme weather events or other emergency situations that can affect the fuel supply of one particular resource.

The reality is that we are not building coal plants; getting approval to build nuclear remains difficult; and we cannot maintain the fuel diversity that ensures affordable and reliable electricity for customers with natural gas and renewables alone.

The industry is committed to working with FERC on thoughtful and effective solutions that promote accurate price signals, unit commitment, and transparency, while minimizing out-of-market solutions and payments. Proper energy price formation is critical to efficient markets and to ensuring that resources are compensated for the attributes that they provide to the grid.

Finally, it is critical that we double down on industry-wide innovation in deployment of energy technologies such as energy storage, which will be used for reliability, to enhance power quality, to provide peak power, and to enable the integration of ever-larger amounts of renewable energy. For our system's optimal efficiency and reliability, energy storage, as well as distributed energy resources, must complement the traditional electric grid and help the electric system provide important grid services. Thoughtful planning and strategy will be needed to construct a balanced, aligned system.

As David indicated, we envision utilities providing all types of distributed energy resources and technologies—including rooftop solar, microgrids, storage, and also energy efficiency and demand response—that are harmoniously integrated across the grid.

I will now pass it over to Quin to continue the discussion on clean energy by addressing the fleet transition in more detail and updating you on the Clean Power Plan and various other environmental issues important to our industry.

Quinlan J. Shea III

Thank you, Richard. As you have heard, EEI's member companies are united in their focus on delivering the clean energy future that our customers want and expect. To that end, our industry is making significant investments to transition to an even cleaner generation fleet. This transition is exemplified by the 73.5 GW of publicly announced coal plant retirements or retrofits scheduled to take place by 2024—that is enough capacity to power 36 million households.

I think it is important emphasize that utilities are—and have been for more than two decades—taking meaningful actions to address climate change and to move us toward a low-carbon energy future. Whether it's by expanding the use of solar energy and other renewables, as Richard discussed, by improving energy efficiency, or by steadily retiring coal-based power plants, the nation's utilities are intensifying efforts that, so far, have cut carbon dioxide (CO_2) emissions by 15 percent below 2005 levels. In addition, between 1990 and 2014, utilities cut emissions of nitrogen oxides by 74 percent and sulfur dioxide by 80 percent, during a period when electricity use grew by 36 percent.

Every utility today is transforming itself for the future, and, as Tom indicated, nearly one-third of U.S. power generation (32.3 percent) comes from zero-emissions sources (nuclear and renewables). This trajectory will continue and will be accelerated under the Clean Power Plan.

The Clean Power Plan*

It goes without saying that the final Clean Power Plan is one of the most sweeping and far-reaching environmental regulations ever promulgated by the federal government to affect our industry. The Environmental Protection Agency (EPA) projects that the Clean Power Plan will lead to a 32-percent reduction in power sector greenhouse gas emissions from 2005 levels by 2030. In many ways, the Clean Power Plan will be a driver of market forces already underway.

Throughout the Clean Power Plan rulemaking process, EEI led industry efforts to improve the final guidelines to minimize the costs to customers and to protect the reliability of the electricity system. While presenting challenges, particularly in certain states, the Clean Power Plan will spur additional investment as we transition to a cleaner generation fleet.

The final Clean Power Plan affords a good deal of flexibility for the states. It also acknowledges a need to make resources available to states as they work to meet targets and to maintain reliable electricity. EEI continues to promote cost-effective Clean Power Plan implementation options by supporting member company efforts to work with the states to develop practical compliance plans, and by advocating for a federal plan and model trading rules that preserve flexibility to address state-specific concerns, while creating broad, liquid trading markets that promote least-cost compliance.

We also are conducting outreach to key state officials, including the state regulators and environmental officials who will be responsible for developing and implementing state or federal plans, to help them understand the final guidelines and the impacts of the various choices that will have to be made going forward. It is important for these officials to understand how the Clean Power Plan deadlines interact with the requirements of other environmental regulations that require long-term capital investments, including recently finalized rules addressing coal combustion residuals, effluent limitation guidelines, and cooling water intake structures. States and utilities will need to look at compliance for this suite of rules holistically.

As Richard mentioned, electric utilities rely on a variety of domestic fuels to generate electricity, and we remain focused on preserving fuel diversity and flexibility. Achieving the goals set forth in the Clean Power Plan will require the use of all fuels, including natural gas, renewable energy, nuclear energy, and energy efficiency.

Other EPA Rulemakings

In addition to the Clean Power Plan, EPA finalized numerous other major rules last year that impact our industry, three of which warrant specific mention.

**These remarks were prepared before the Supreme Court issued a stay of the Clean Power Plan on February 9, 2016.*

First, in May, EPA released its final rule revising the definition of "waters of the United States" (WOTUS), which broadened the scope of waters subject to federal jurisdiction. Of importance to EEI, EPA added language in the final rule emphasizing that waste treatment systems largely are excluded from jurisdiction, as are most artificial lakes and ponds, including cooling ponds. While the language is helpful, it does not provide an effective and simple on-the-ground solution to the jurisdictional question. Moreover, the rule will trigger substantial new Clean Water Act regulatory requirements governing critical utility operations, including permitting challenges for critical infrastructure projects.

Last year, EEI and allied stakeholders engaged in congressional efforts to require EPA and the U.S. Army Corps of Engineers to withdraw, narrow, and re-propose the final WOTUS rule. Similar efforts are expected to continue this year. EEI is working with member companies in support of legal challenges to this rule. A federal appeals court has stayed implementation of the rule nationwide while challenges to the rule play out in a complicated series of court proceedings.

In September, EPA finalized its steam electric effluent guidelines. The rule sets strict technology-based effluent limitations that will force technological and operational changes, particularly at existing coal-based facilities. It has the potential to impact long-term investment decisions companies are making relative to compliance with the Mercury and Air Toxics Standards (MATS) rule and the Clean Power Plan, as it may cause marginal units to become unprofitable. EPA estimates the total annual pre-tax industry cost of the rule is $496 million (2013$), but this likely is a significant underestimate of the rule's costs. EEI did achieve a number of important improvements that will help to ameliorate the cost of compliance. EEI is working with member companies and allied groups in support of legal challenges to this rule. Concurrently, EEI is working to assist member companies in permit proceedings to achieve cost-effective and flexible implementation of the final guidelines.

Finally, in October, EPA issued its final new ozone standard. Throughout the rulemaking process, EEI advocated that, should a new ozone standard be set, it should be at the top end of the proposed range at 70 parts-per-billion (ppb), which is what EPA adopted. While compliance challenges remain with the new standard at 70 ppb, EPA recognized the serious implementation concerns raised by EEI and other stakeholders of setting the standard below 70 ppb.

Other Priority Issues

Here is a snapshot of other environmental issues we are closely following.

- *Endangered Species Act (ESA):* Congress is expected to consider ESA reform legislation this year. The reach and scope of the ESA have expanded, impacting electric utilities' ability to site, operate, and maintain generation and transmission facilities. In addition, the Administration has sharply increased ESA listings. Through regulations and legislation, EEI will continue to advocate for ESA implementation in a way that is less burdensome and more responsive to the siting and permitting of electric generation and transmission facilities.
- *Coal combustion residuals (CCRs):* Last year, EEI supported legislation to ensure effective and efficient implementation of EPA's final coal ash rule by state regulatory agencies. While the House passed a bill with bipartisan support, the legislation is pending in the Senate. In the absence of congressional action, EEI continues to support member company compliance with non-hazardous waste regulations for CCRs and to advocate for CCR mine placement regulations that allow for the continued beneficial use of coal ash in mine reclamation activities.
- *Reissuance of Nationwide Permits:* The U.S. Army Corps of Engineers currently is revising and reissuing nationwide permits for specific activities in jurisdictional waters with minimal environmental impacts. These "general" permits are widely used by the electric utility sector, and reduce the transactional costs and time associated with transmission line construction, operation, and maintenance. EEI is working with the regulatory agencies to ensure nationwide permits remain a viable and effective tool to assist in creating and maintaining the infrastructure necessary to transition the fleet.
- *Toxic Substances Control Act (TSCA):* Last year, both the House and the Senate passed EEI-supported legislation to reauthorize TSCA to address industry issues, particularly regarding polychlorinated biphenyls or PCBs, in a satisfactory manner. A House-Senate conference is pending.

While we do not yet know how all of these regulations will cumulatively affect the electric power sector and its customers, they certainly will impact us. At the end of the day, EEI and our member companies will continue to support achieving the nation's environmental goals in a manner that preserves fuel diversity, ensures electric reliability, and minimizes costs to customers.

Now, I will hand it over to EEI's newest officer, Phil Moeller, to discuss energy delivery issues and our customer-driven promise.

Our Customer-Driven Promise

Philip D. Moeller
Senior Vice President, Energy Delivery and
Chief Customer Solutions Officer

Thank you, Quin. I am truly excited to participate in my first Wall Street briefing. My colleagues have only positive things to say about this forum, and I look forward to working with all of you.

Business Continuity & Reliability

As Tom said, in my new role at EEI, I will be responsible for managing retail energy services, state regulatory outreach activities, and our energy delivery practice. The energy delivery group works on a wide range of issues, all of which are focused on enhancing and ensuring the reliability and resiliency of the grid.

Not surprisingly, cybersecurity, physical security, storm response and restoration, and other business continuity issues that are critical to reliability remain top priorities for EEI. Our focus is on improving planning and response to major incidents, conducting joint exercises, fostering a better understanding and protection of our mutual dependencies, and sharing information more effectively.

The electric sector often is described as the most critical of the critical infrastructure sectors. And, while it is true that the other critical sectors depend on a reliable supply of electricity for their operations, the electric sector is dependent on them as well.

At the national level, industry-government coordination continues to take place through the Electricity Subsector Coordinating Council (ESCC). The ESCC is CEO-led and meets three times a year with senior Administration officials to address national security threats to the grid. One of the primary areas of focus is cross-sector coordination. The ESCC has CEO liaisons assigned to the communications, financial services, transportation, water, and downstream natural gas sectors.

While the industry already engages in information sharing and has mandatory and enforceable reliability and cybersecurity standards in place, taking steps to improve the sharing of actionable security information between the government and industry is vital to protecting the electric grid.

To that end, EEI helped to secure congressional passage last year of cybersecurity information sharing legislation that was included as part of the omnibus appropriations bill. This legislation provides legal and regulatory incentives for the voluntary sharing of cyber threat information between the private sector and the government, and will enhance communication among the federal government, electric utilities, and other critical infrastructure industries.

Separately, Congress also clarified DOE grid emergency authority and enacted important protections against public disclosure of critical electric infrastructure information shared with FERC and DOE as part of a major transportation bill.

Among our priorities this year, EEI will be focused on establishing an industry-wide cyber mutual assistance program in coordination with federal agency partners. This will help to reinforce industry efforts to strengthen cyber and physical security defenses and to enhance grid resiliency. We also will continue our work to coordinate with the railroads and other private- and public-sector transportation partners to develop transformer transportation processes and procedures. And, we will continue to strengthen our restoration capabilities through enhanced mutual assistance and emergency equipment-sharing programs to respond to natural disasters and manmade threats.

Further supporting these grid security efforts, investor-owned electric utilities and stand-alone transmission companies invested a record $42 billion in transmission and distribution infrastructure in 2014. This includes significant expansion and fundamental improvements to integrate new resources and to increase system hardening, resiliency, and security. The projected level of annual transmission investment remains significantly higher than previous periods. In fact, the industry's capital expenditures on transmission totaled $19.5 billion in 2014—a 15.5-percent increase over the $16.9 billion that the industry invested in 2013.

The true value of this investment was captured in media coverage of the blizzard that struck the East Coast just a few weeks ago. This was one of the most powerful winter storms in history, and, as the coverage highlights, our industry was well-prepared for the event, activating our mutual assistance network and coordinating response efforts with state and local officials. While the storm caused some power outages, particularly in areas hard hit with ice and high winds, utilities' ongoing investments in grid-hardening measures and technology advances—including upgrading transmission lines; replacing wires and switches; installing wider, heavier power poles; and raising the height of substations vulnerable to flooding—helped to minimize the number of outages and the impact on customers.

Innovative Customer Solutions

As you have heard, our industry is innovating and finding new ways to generate electricity and to manage electricity use. Staying focused on our customers' changing expectations must form the foundation of our strategy and requires continued innovation.

In my role as Chief Customer Solutions Officer, I will be working with EEI's member companies to look at challenges to our traditional business model as new business opportunities to better serve our customers. As David outlined, the modern electric grid we continue to build will be more relevant than ever as a platform to integrate new technologies and maximize their capabilities.

Not only are utilities leading the way in renewable investments, they also are aggressively pursuing energy efficiency. In fact, utilities are responsible for 90 percent of total customer-funded electric efficiency expenditures nationwide. These efficiency programs avoided the generation of 107 million metric tons of CO_2 in 2014 and saved 155 terawatt-hours of electricity—that's enough to power 14.7 million U.S. homes for one year.

We know that our customers want more flexibility and want to be more engaged with their energy use. They want clean energy, and they expect reliability. As an industry, we need to balance these services with affordability—customers expect maximum value. This is the beginning of a new era where customers have greater control over their energy supply and usage, and customized services for electricity customers will continue to grow.

In addition to enhancing offerings for residential customers, EEI's member companies also are partnering with major industrial and commercial customers to provide specialized offerings such as increased renewable energy, as well as electrification and energy efficiency incentives. Large commercial customers increasingly want renewable energy to meet their corporate sustainability goals, while cities and towns are requesting customized services, such as help with microgrids, smart city services, and renewable energy.

Last year, EEI launched a collaborative with the World Resources Institute, the World Wildlife Fund, and a host of large commercial and industrial corporate national key accounts customers to develop clean energy products and regulatory mechanisms that support customer renewable and sustainability goals. In addition, EEI continued to support the efforts of our member companies to finalize deals with military customers to build utility assets on federal military bases, including solar, microgrids, and energy efficiency technologies.

While new technologies and customer expectations are playing critical roles in the industry's ongoing transformation, the speed of transformation will depend, to a great extent, on whether regulation evolves to accommodate these changes. The grid is more complex, and customers have different expectations, meaning that the regulatory model also must change. The utility business model only can change to the extent that regulation adjusts to facilitate these changes.

Over the next decade, regulation will have to provide a way for utilities to achieve new corporate and policy goals that meet the needs of their customers. That means meeting the traditional goals of providing safe, reliable, and affordable electricity, as well as the new goals of providing even cleaner electricity and individualized customer services, while also integrating and connecting more distributed energy resources and devices.

At the end of the day, what all customers need most is for utilities, technology companies, and regulators to collaborate and partner to help them take advantage of these new service offerings and maximize their value. I'll now turn it over to Brian Wolff to discuss this further.

The Power of Partnerships

Brian L. Wolff
Executive Vice President,
Public Policy and External Affairs

As we just heard from Phil, our industry is customer-driven, and technology has a critical role to play in our ongoing evolution. To unlock the full potential of the future and to drive innovation and change broadly, we need the help of industry stakeholders and technology partners to make the transformation possible and to meet the evolving needs and expectations of our customers.

The Institute for Electric Innovation released a book last year highlighting the perspectives of thought leaders on the evolving power grid. In the book, Ralph Cavanagh, co-director of the Energy Program for the Natural Resources Defense Council (NRDC), writes, "For those committed to a clean energy future, utilities remain the most important investors."

As the most important investors of the power grid, partnerships will be critical, and our partners represent an extremely broad cross-section of technologies. We view many of the so-called "competitors" or "disruptors" to our industry as partners. Technology companies like Tesla, Google, Apple, and Nest are helping our industry to power our nation forward and to bring tomorrow's technologies to customers today.

One area where we already have seen tremendous results is transportation electrification in both on-road and off-road applications. Electrification of the transportation sector is a potential "quadruple win" for electric utilities and customers—it enables utilities to support environmental goals, builds customer satisfaction, reduces operating costs, and enhances national security by using more of our domestic energy resources. According to a study by the Electric Power Research Institute and the NRDC, the widespread adoption of electric vehicles (EVs) could reduce greenhouse gas emissions by 550 million metric tons annually in 2050, equivalent to removing 100 million (conventional) passenger cars from the road.

Working in partnership with our member companies, EEI spearheaded a nationwide fleet electrification initiative to expand the adoption of plug-in EVs in utility fleets. To date, this initiative has exceeded the anticipated $50 million annual industry commitment, and totaled more than $90 million in 2015, adding 800 new plug-in EVs and 740 new charging ports.

Seventy of the nation's largest utilities have committed to invest at least $250 million over the next five years to increase the use of electric drive technologies in their fleets. This helps to push down vehicle development costs for automakers, making EVs more affordable for customers.

EEI and DOE announced a new private-public partnership last year that will identify and pursue collaborative opportunities between the government and our industry to promote and accelerate the nationwide adoption of EVs. EEI also continues to support large customers in their fleet electrification efforts, helping to advise the military on a new procurement of EVs to be deployed at Navy and Marine Corps bases throughout southern California.

Finally, we launched a new initiative last year to encourage the adoption of EVs by both utility employees and customers. This year, we will focus on building coalitions with cities, states, and other stakeholders to continue to promote electricity as a transportation fuel.

As customers and technologies change, it is critical that we have employees who are trained and prepared for the high-tech and digital society. Significant retirements of the existing workforce, as well as ongoing infrastructure investments and changing technologies, have created a demand for a talented pool of workers to meet the industry's current and future workforce needs.

Through the Center for Energy Workforce Development (CEWD) and other outreach, EEI is working to build awareness of the need for a diverse and skilled energy workforce. Among other efforts, EEI and DOE partnered last year on the Utility Industry Workforce Initiative to promote training and credentialing opportunities for veterans, helping them to transition successfully to civilian jobs following their military service. The leadership abilities, mission focus, commitment to safety, and team orientation that military service members consistently demonstrate are exactly the skills our industry needs in its workers.

Through CEWD, our industry also became the first industry to sponsor FIRST® Robotics on a national level. Our Get Into Energy / Get Into STEM program provided support for the 2015 FIRST Robotics competitions and the FIRST Tech Challenge. This program educates and exposes STEM students to careers within our industry, while helping them to get valuable, hands-on experience.

We also continue to partner with non-traditional technology innovators. We are working side-by-side with technology partners and the start-up community to integrate the many new innovations coming to the market each day. For example, through a partnership with global incubator and seed fund 1776, which is known for driving innovative technology solutions to address the world's toughest problems, utilities are gaining insights into the fast-moving trends and engagement opportunities with those at the center of the web-based sharing economy. With 1776, utilities are working to cultivate the next generation of innovators who will be needed to integrate game-changing technologies into the modern, reliable grid.

While it is difficult to predict what our industry will look like 20 or 30 years from now, our success is contingent upon the strategic partnerships and collaborative efforts that we are charting today. Through connected conversations, teamwork, and partnership, we can seize the opportunity to push the boundaries of innovation and to craft a vision for the future.

Election Outlook

That future also will be dictated by what happens later this year during the November presidential election. While the field of candidates is beginning to narrow, we all know that there is still a lot of jockeying taking place. It is possible that we may not know who will run in the general election until after the political conventions this summer.

No matter who the Democratic and Republican nominees are, energy and environmental issues will be an important part of the economic and domestic agenda. Voters across the country have expressed growing interest in the future—in where their energy will come from, how they can manage their personal energy use, and how they can help ensure a clean environment for future generations.

As we have in the past, EEI will continue to lead industry efforts to educate the candidates and their campaigns on a host of important energy and electricity issues, including creating a smarter and stronger grid, maintaining and improving grid security, and delivering electricity that is safe, reliable, affordable, and clean.

The campaigns are likely to dominate the Washington agenda for most of the year, making it even more difficult to achieve consensus on challenging issues in Congress. This year, we expect continued congressional focus on energy legislation, as well as cybersecurity and other grid security issues; ongoing discussion about comprehensive tax reform; and potential action on a number of environmental, regulatory, and infrastructure priorities.

I know my colleagues all share my enthusiasm for what's to come for our industry. I would now like to turn the microphone back to Tom Kuhn to offer some closing remarks before opening the floor to questions.

Conclusion

Thomas R. Kuhn
President

One thing that is constant is change. The variable is who adapts. In recent years, where others have seen risk and disruption in our industry, we have seen opportunity. Perhaps that's because we remember that Thomas Edison was one of our nation's original disruptors—and his legacy of innovation and invention speaks for itself.

If you take away one thing from today's discussion, it should be this: The electric power sector is innovating for the future today. We are an industry in transformation, and the starting and end points will always be customers.

As you have heard this afternoon, EEI's member companies are working together and are committed to creating the energy future that customers want. A clean energy future that is customer-driven and delivered by a modern, reliable, and resilient grid. That is our vision—and we are excited by the promise of tomorrow.

We truly value the partnership that we share with each of you, and we look forward to continuing our dialogue throughout the year.

Thank you.