



UTILITY
PERSPECTIVES

17TH ANNUAL UTILITY PERSPECTIVES IN REVIEW

COLLABORATING
FOR A BETTER FUTURE



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OCT 4-6,
2020
WASHINGTON, DC





UTILITY

PERSPECTIVES



**THANK YOU FOR
ATTENDING THE
17TH ANNUAL UTILITY
PERSPECTIVES
CONFERENCE.**

M-1 GLOBAL TRENDS AND THE IMPACTS ON NORTH AMERICAN INFRASTRUCTURE

This panel discussed global influences on North America’s infrastructure development and what impacts it might have on energy delivery.

Public Attitudes Regarding Electric Utilities and Wildfires Have Changed Significantly

Driven largely by California’s recent wildfire events, utilities are now being pushed by regulators to take a much more proactive and assertive role in wildfire prevention and mitigation. Looking forward, it is clear that as the general public changes how they view the utility’s role, utilities will step up to the new challenge. The threat of wildfires from warmer summers, changing forestry management practices and pine weevil infestation are generally all expected to increase significantly. Especially in the western regions of the U.S. and Canada, utilities will continue to evolve their plans to mitigate wildfire risks. Panelists noted we will have to make a significant investment and leverage new technologies to protect the public.

Rapidly Changing Energy Policy

Political and regulatory uncertainty creates challenges for major infrastructure investments’ risk profile. Several municipalities are now expressing opposition to fossil fuels, including natural gas. Decarbonization plans are also shifting increasingly to the transportation sector, which generates about 40% of Greenhouse Gases. Some regulators, in states such as California, are encouraging greater investments to support new electric vehicle deployments by authorizing new charging stations -- but other state regulators are reluctant to authorize adequate funds to modernize infrastructure as needed.

Alignment with Regulators is a Critical Success Factor

Rate design changes are needed to support new investments and to decouple revenue from volumetric sales trends. Many utilities are moving to a pricing structure that features greater recognition of fixed costs in a subscription-based pricing model. These types of rate changes require greater collaboration and consensus with regulators, as well as education to explain them to investors. In many ways, though, “coming together” has historically been a core industry strength.

Successful Collaboration in the Future will be Different than in the Past

It will require focused actions by leaders to create a culture where collaboration can thrive. Attracting the right people and fostering cross-functional teams, allowing greater risk taking and tolerance for failure are all key to a solutions-oriented innovative culture. This culture can attract more young, diverse, educated candidates to join the industry ranks. In the future, it is also foreseeable that some collaborators could evolve into competitors as more and more groups gain access or influence with energy customers. Technology is breaking down the meter boundary that once limited access to the customer. Utilities will need to be aligned with regulators to ensure this doesn’t happen.



MODERATOR

Nora Mead Brownell

Chair of the Board

PG&E Corporation

PANELISTS

Lisa Barton

Executive Vice President, Utilities

AEP

Siegfried Kiefer

*President & Chief Executive Officer,
Canadian Utilities Limited and President,
ATCO LTD.*

Steven Powell

Executive Vice President, Operations

Southern California Edison

Caroline A. Winn

Chief Operating Officer

San Diego Gas & Electric

M-2 GRID INVESTMENT AND INFRASTRUCTURE STRATEGIES

Utility infrastructure owners are investing capital in order to maintain and upgrade the integrity of their systems at a time when aging infrastructure and grid modernization is paramount. This panel discussed several trends affecting infrastructure strategies.

Evolving Priorities in Grid Investments

Three major priorities for customers today that drive most investments are clean energy, safety, and reliability. It seems that there is a shift in favor of distribution due to the two-way power flows that many in the public are supporting, but transmission remains a significant factor. Data centers are a large driver of new load growth in areas where they are being deployed.

Increased Involvement of Customers

Both customers and developers are showing up more frequently at earlier points of the development cycle than in previous years. Customers, in particular, are asking for more renewable options. This can create challenges since third parties have not always thought through all steps of the planning process and may need to begin including more options.

Need for Expanded Stakeholder Involvement

To be successful, utilities need to seek out and shape public input in the distribution planning process. Utilities are working to ensure reliability levels are not degraded without seeming to be obstructionists. Social responsibility and renewable energy are key.

Continued Focus on Climate Change

The trend toward steeper RPS targets is likely to accelerate. Large customers such as data centers are one of the main drivers of new renewable supply. Customers' attitudes seem to have evolved from "nice to have" to "valuable, and we will pay what it takes to get it." Utilities are working to convince regulators that we are part of the solution and not part of the problem.

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I THINK IT'S REALLY IMPORTANT THAT WE MATCH OUR INVESTMENT STRATEGIES TO WHAT THE LONG TERM TRENDS IN THE ENVIRONMENT WHERE WE EXIST ARE AND WHAT OUR CUSTOMERS NEED, AS OPPOSED TO, IN SOME CASES, JUST MAXIMIZING OUR OWN INDIVIDUAL INTEREST.

SCOTT DRURY

President

San Diego Gas & Electric



MODERATOR

Cristin Lyons

Partner and Energy Practice Lead
ScottMadden, Inc.

PANELISTS

J. Tyler Anthony

Senior Vice President and
Chief Operating Officer
Pepco Holdings, LLC

Robert (Bob) M. Blue

Executive Vice President, President and
Chief Executive Officer, Power Delivery Group
Dominion Energy, Inc.

Scott Drury

President
San Diego Gas & Electric

Shawn Schukar

Chairman and President
Ameren Transmission Company

Lloyd M. Yates

Executive Vice President, Customer and
Delivery Operations and President,
Carolinas Region
Duke Energy

M-3 ELECTRIC DISTRIBUTION: THE RENEWED FOCUS

Aging electric distribution systems are requiring unprecedented investment at a time of minimal population growth, energy efficiency and technological advances.

Finding New Workforce Continues to be a Challenge

Finding and recruiting younger workers who want to engage with customers is critical for utilities' future. Utilities are working to create an incentivized culture with younger, motivated workers. One result of the focus on California wildfires is that it has attracted younger, tech-savvy workers to the utility workforce, in order to fight one of the more deadly impacts of climate change. However, line workers play a critical role in the industry, and utilities continue to see an increasing rate of retirement among an aging workforce.

Utilities Working to Expand How They Engage with Customers Regarding Performance

Utilities have traditionally focused on reliability measures such as SAIDI/SAIFI, but other measures including power quality are also important to many customers. Utilities need to better understand the customer experience behind the meter. Technology offers many opportunities to improve these customer metrics, such as apps that are developed to give more accurate indicator of near-term demand fluctuation. Employees are a valuable channel of customer attitudes, particularly in smaller, remote locations. Employees in these areas understand the impacts, such as power quality fluctuations. Utility leaders are looking to other consumer businesses to develop creative new ways to provide information-related interactions with customers. Amazon and Domino's Pizza are prime examples of businesses that leverage precise information through every step of their value delivery system, and utilities are beginning to follow those models.

Weather-Driven Variability will become Increasingly Important

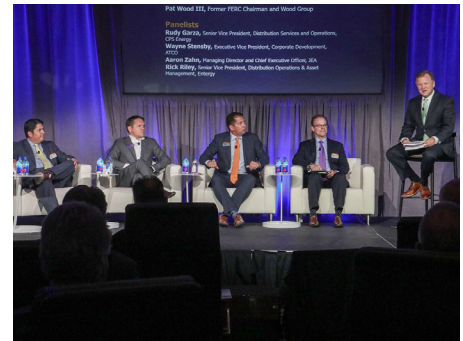
Weather has a large impact on variable generation resources, such as wind and solar. Some areas are also especially vulnerable to catastrophic weather events, such as hurricanes, ice storms and wildfires. These regions can be forever changed after a weather-related disaster. Utilities, regulators and the general public are generally united on the need for increased storm hardening measures such as elevating substations or converting wood poles to steel. Increased undergrounding remains a long-term option, especially as the cost continues to decrease. While undergrounding once cost nine to 10 times more than overhead, it has now decreased to three to four times more.

“

I THINK THAT DIVERSITY IN GENDER, ETHNICITY AND AGE REALLY IMPROVE OUR SAFETY CULTURE.

WAYNE STENSBY

Executive Vice President, Corporate Development
ATCO



MODERATOR

Pat Wood III

Former FERC Chairman and Wood Group

PANELISTS

Rudy Garza

Senior Vice President, Distribution Services and Operations
CPS Energy

Rick Riley

Senior Vice President, Distribution Operations & Asset Management
Entergy

Wayne Stensby

Executive Vice President, Corporate Development
ATCO

Aaron Zahn

Managing Director and Chief Executive Officer
JEA

M-3.5 TELECOMMUNICATIONS AND THE FUTURE OF 5G

With technology rapidly advancing, there are different perceptions around the development of 5G communications and the impact it could have on society. This panel explored the confluence of technologies between utilities and telecommunication companies to enhance our industry.

5G Telecom Deployment will be a Major Game-Changer

The infrastructure investment required to support 5G networks will be enormous, and the capabilities and benefits it will provide will be equally huge. Capabilities that should interest utilities include augmented reality-based training, increased safety and efficiency, and increased automation of work processes. As it evolves, 5G also will enable more services such as integrating what are now “dumb” cameras and single locations into a “smart” monitoring network that can shift maintenance activities from reactive to predictive. 5G will change the way utilities can interact with customers and will move the boundary of the meter.

5G Build-Out Still Faces many Challenges

The first hurdle is increasing the collaboration for a sector that has traditionally worked in silos. There is a need to build out small cells to get densification. Municipalities and departments of transportation don't have the established processes that are necessary in order to be able to complete this work efficiently on a large-scale basis. The appropriate analogy of the coming buildout is that of a marathon, not a sprint. Eventually, the infrastructure will be embedded into the “street furniture” you see today.

5G Creates New Opportunities

Utilities are sitting in a unique position, and 5G could provide an opportunity to monetize installed utility assets. A broad swath of technologies with a multitude of frequencies and capabilities is involved, which includes a huge commitment to fiber. The scale of the buildout is enormous, and many different industry sectors and policymakers need to collaborate effectively to bring down installation costs. Pole attachment policies and permitting could be coordinated more effectively to increase efficiency and lower consumer costs. Some regulators are more resistant than others to the idea of electric rate-payer assets being used to support telecom. These obstacles will eventually be overcome as certain other regions' experiences demonstrate the increased benefits of 5G. This will be a game dominated by large players, and the country's biggest utilities likely will shape the direction for the rest of the industry.



MODERATOR

Thomas Seitz
Senior Partner, Houston
McKinsey & Company

PANELISTS

Phil Kelly
Senior Vice President, Corporate
Development and Strategy
Crown Castle International

Gerry Lawlor
Vice President, Fixed Broadband Services
T-Mobile

Toby Eduardo Redshaw
Senior Vice President, Enterprise
Innovation and 5G Solutions
Verizon



**WORKFORCE
DEVELOPMENT IS CRITICAL
TO THE SUCCESS OF OUR
INDUSTRY AS WE CONTINUE
UNPRECEDENTED
BUILDOUT ACROSS
NORTH AMERICA.**



M-4 NORTH AMERICAN TRANSMISSION PIPELINE INFRASTRUCTURE

The shale revolution, the evolving price of oil, pipeline flows and the challenge of pipeline construction all play a role in infrastructure development. This panel identified several trends that suggest both opportunity and near term challenges for which to prepare.

The Biggest Issue Facing the Pipeline Sector is Political Risk

Opposition to pipeline construction and even to natural gas consumption is increasing and becoming better organized and more effective. This makes it difficult to commit capital to long-duration development projects that could be disrupted by policymaker shifts during the development cycle. In addition, there are other risks associated with the rule of law in foreign countries, such as Mexico, that become more important as global markets become more integrated. Global emission benefits such as displacing coal with natural gas, or how electrification could benefit the people of Africa, are very positive but need to be tempered with the realities of today's political landscape. Another key political uncertainty is that the November 2020 elections will determine the composition of FERC for the next term.

Trade Policy Disputes are the Greatest Near-Term Factor Affecting Pipeline Development

The cost of steel has always been closely watched as it affects development project economics, but the magnitude of risks today are greater, due to the impact of new tariffs and anti-dumping concerns. This creates challenges, and developers are now putting more thought into items like project sequencing to look beyond the time-horizon of today's tariffs. The capacity in North America to produce pipeline quality steel has limits, and as a result, this can affect the level of competition with pipeline projects in other countries or the relative value of assets that are already installed.

Infrastructure Security Remains a Significant Concern

Physical security requirements have increased dramatically from the days when many projects didn't even have fences. Electric and gas convergence issues remain a high priority concern, but the biggest recent change is clearly cyber-security, where the IT/OT interface has become even more critical. In addition, the relationship with vendors is increasingly important -- and pipelines are taking new measures to ensure their vendors are cyber-compliant and are critically dependent on vendors' firewalls.

Pipelines Need to Do a Better Job Communicating Their Value to Consumers

To confront rising opposition, pipelines are developing new approaches. They are increasing the importance and involvement of their Government Relations departments earlier in the project life cycle. They are becoming more collaborative and working more openly with stakeholders. Development budgets are also reflecting increased spending for security and protest-control measures. The industry needs to do a better job of articulating its value especially when some regions see people paying more for their utility bill each month than they spend on their home mortgages. One recent success story in this area was in Seattle, where local restaurant associations, dry cleaners and other small commercial customers intervened and turned down a proposed moratorium on natural gas usage.



MODERATOR

Donald Santa

*President and Chief Executive Officer
INGAA*

PANELISTS

Stanley (Stan) Chapman

*Chairman, TC Pipelines, GP, Inc. and
Executive Vice President and President,
US Natural Gas Pipelines
TC Energy Corporation*

Micheal Dunn

*Executive Vice President and Chief
Operating Officer
Williams*

Andrew Harrington

*Vice President, Projects
Enbridge*

Crystal Heter

*President, Natural Gas Transportation
Tallgrass Energy*

George Lidgett

*Managing Director, Pipelines and Liquids
ATCO*

M-5 WORKFORCE DEVELOPMENT, DIVERSITY AND INCLUSION

Workforce development is critical to the success of our industry as we continue unprecedented buildout across North America. The goal of workforce development is to place workers in jobs where there are career development opportunities and to nurture that development to ensure a mutually successful relationship.

Identifying New Workers Will Continue to be a Challenge

In 2025, we will have 450,000 fewer high school graduates and this population decline will continue for another decade after that. The new Generation-Z demographic group is different than its' Generation-X siblings. Where Gen-X craved freedom and flexibility and were more likely to work multiple part-time jobs, the Gen-Z work group values security and job stability, traits which are a good fit with utilities. The motivation to find climate change solutions to save the planet is also high on their list of priorities and affects where they want to work.

Military a Close Cultural and Skills Match with Utility Work

Many utilities partner with military support groups and are increasing their visibility on bases to recruit and hire transitioning service members. They are also re-examining recruiting materials and the use of vocabulary which may unintentionally screen out ex-military applicants who tend to have a strong culture all their own. This industry is a great fit for former military as values and skills are aligned – safety, physical conditioning, loyalty to a team, solid execution). To increase success with attracting transitioning service members, companies should use current employees with a military background to handle the recruiting. The knowledge and experience these employees bring with them will help in the recruitment process – and also ease the adjustment from military to civilian life.

Younger Technical Workers Still Attracted to Utilities

One result of the increased focus on wildfires is that younger, educated candidates are now interested in joining utilities so that they can help. Many younger workers in California, in particular, are excited about the chance to help address one of the state's largest climate-related risks. This influx of younger talent is part of an exciting new trend revitalizing the work force.

Utilities Examining Screening and Recruitment Programs

While the recession of 2008 caused a good number of workers to temporarily defer retirements, it is clear we are now solidly in an era where younger, more diverse and more tech savvy workers are starting to transform our industry. Several speakers mentioned that “people are drawn to work for a culture, not a company.” With this in mind, utilities are examining whether their screening and recruiting programs are adequately adapting to these changes. Utility leaders are looking at whether unnecessary barriers to entry remain in these programs, with the goal of revamping them to attract new skills and personalities to the workforce.

They are also focused on creating not just jobs but career paths – and utilizing employees in positions that are well aligned with their skillsets. This creates a mutually beneficial, long-term relationship for employees and companies alike.



MODERATOR

Aaron Howell
President
Northwest Lineman College

PANELISTS

Dr. Dana Gibson Hoyt
President
Sam Houston State University

Marketta L. Franklin-Thomas
Director, Transmission Learning & Developmental Programs
AEP Transmission

Ron Pate
Senior Vice President, Operations and Technical Services
Ameren Illinois

Kristen Senechal
Executive Vice President, Transmission
Lower Colorado River Authority

T-1 INFRASTRUCTURE SECURITY FOR THE FUTURE

Electric and Pipeline industries have been working extensively on innovative technologies that can help ensure the resilience of the grid and its operation. Utilities are looking at how to best prioritize investments to best secure infrastructure services.

Industry Developing New Mechanisms to Measure and Increase Resiliency

Whether from the perspective of physical or cyber security or when recovering from a disaster event, the ability of a grid to quickly and fully recover to normal service levels is a key priority. One way that technology is increasing resiliency is in the area of situation awareness. SDG&E has installed 180 new weather stations to increase their awareness and understanding of weather variations on a minute by minute basis. They have developed a fire rating system that is used to populate a wildfire risk reduction model, which performs 10,000 simulations each day and distributes the results to all operations centers via a smart phone app. This increases the region’s contingent response planning to any emerging wildfire threat.

In New England, many resiliency concerns revolve around energy security issues or “security of supply.” These issues are a result of rapid decarbonization and gas/hydro as the balancing fuel. ISO New England is managing these risks by adapting its market design to 1.) Align financial incentives with operations, 2.) Increase market optimization beyond 24 hours, and 3.) Identify the need for increased insurance to provide an energy buffer to meet required restoration times.

Large Data Center Customers are Driving Changes in the Markets

In many regions of the country, data centers are the primary source of new load growth. They are unique, highly visible loads frequently owned by a large corporate parent with significant brand-awareness in the consumer sector. They tend to have large corporate commitments supporting renewable energy, and they often represent a source of new jobs to a region, so they have considerable political and regulatory leverage and very high resiliency requirements.

Micro-Grid Developments Have Unique Challenges

More and more investments in micro-grids are occurring across the country, which comes with unique challenges and opportunities -- particularly in the area of resiliency metrics. This topic gets further complicated when trying to assess electric resiliency in the context of backup fuel and contractually required resiliency standards. The topic of resiliency metrics will receive increased scrutiny in the near term as more micro-grids are developed, LNG storage becomes more widespread, and distributed generation and two-way power flows become the norm. It is noteworthy that in some micro-grid developments, finalizing the contractual metrics and agreements can be even more difficult than the technology itself.



MODERATOR

Eric John
Quanta Technology

PANELISTS

Shay Bahramirad
Vice President, Engineering and Smart Grid
ComEd

Jim Laurito
Executive Vice President, Business Development and Chief Technology Officer
Fortis, Inc.

Will Speer
Vice President, Electric Engineering & Construction
San Diego Gas & Electric

Gordon van Welie
President and Chief Executive Officer
ISO New England, Inc.

Joseph Woomer
Vice President, Grid and Technical Solutions
Dominion Energy

T-2 GAS DISTRIBUTION PANEL

Natural gas is delivered to customers through a 2.5-million-mile underground transmission and distribution system that stretches across the country. With such a large system comes challenges that include how to keep it safe and reliable.

Innovation is Creating New Opportunities That are Changing Our Industry

Utility innovation is changing customer perceptions, services provided -- and is attracting new tech-savvy workers who will create long-term impacts from a trained, diverse and engaged workforce. However, this attraction to a more innovative utility sector still needs to overcome fundamental concerns of young workers asking whether they will have a job in this industry in 20 years -- and whether the industry as we know it will even exist. Concepts such as augmented reality-based training, wildfire prevention and mitigation and carbon reduction are all ideas that excite younger workers.

Regulatory Support for Gas Infrastructure Investment Working

32 states now have approved programs for accelerated recovery of underground pipe replacements, and, as a result, utility expenditures are increasing. In PG&E's case, they have gone from about 30 miles/year to 150 miles/year, while taking 30% out of costs. A disciplined, programmatic approach has been adopted by many utilities, which prioritizes projects by risk, imposes process discipline and utilizes management systems. All revolve around creating the right corporate culture.

Load Growth Emerging, Brings its Own Issues

While overall growth rates are still in the very low single-digits, there are signs of improvement. Targeted segment opportunities such as mobile home parks, vertical mains in apartment buildings and CNG/LNG applications for larger trucks all help increase growth. At the same time, LDCs are working to oppose efforts that restrict new natural gas applications. California utilities are trying to educate on the advantages of natural gas -- and monitoring many municipalities that could potentially follow the City of Berkeley's recent regulations against natural gas consumption. Recently, 100 cities and counties in California signed a joint letter supporting natural gas use and its economic advantages.

But there are issues with safety and workforce management that need to be recognized. Third party damage is a high risk for many utilities. Utilities are engaging their entire organizations to pursue safety. Damage prevention consultants seem more prevalent, and all employees are trained to be more focused and engaged even when just driving by smaller job sites. The three states with the highest potential consequence exposure have an incident rate that is less than half that of the rest of the country.



MODERATOR

Karen Harbert

*President and Chief Executive Officer
American Gas Association*

PANELISTS

Jimmie Cho

*Chief Operating Officer
Southern California Gas Company*

Victor Gaglio

*Senior Vice President and Chief Operating
Officer, Natural Gas Business
Duke Energy*

Peter Kenny

*Vice President of Gas Transmission and
Distribution Construction
PG&E Corporation*

Chuck Shafer

*Senior Vice President, Engineering and
Gas Support
NiSource*

T-3 ELECTRIC TRANSMISSION

The Electric Transmission Panel tried an innovative approach to explore some major uncertainties in today's planning environment, by simulating a "retrospective look-back" conversation that might occur 20 years in the future, presumably at some future utility perspective symposium. Their simulation speculated on how this future conversation might sound depending upon which of three different "future scenarios" might actually occur, and what factors were anticipated by the industry versus surprises.

Efficient Electrification Scenario

- Close engagement with customers was the key and we had to significantly change our way of thinking to support each customer class to increase their energy efficiencies and increase overall electrification.
- Lower income customers needed the most assistance to increase their efficiency. Most were highly reluctant to change without financial incentives.
- Cost savings from increased automation helped to offset the losses from stranded assets caught up in the higher efficient environment.
- The transmission system was the glue that held everything together, even though some regions did not invest adequate amounts and did experience some problems.

Zero Carbon Scenario

- Once thermal plant closure started to accelerate, there was a huge workforce shortage that required more outreach to high schools and middle schools to find new workers.
- Transmission construction increased, along with greater use of new synchronous condensers, but they couldn't be built fast enough to keep up with demand.
- Regional planning became the norm, and power flows to states on the outer edges of the country -- and even Canada -- became necessary to deal with over-generation problems stemming from excess solar production.

Tradition Drives the Future Scenario

- Many of the same problems are still with us, such as how to change the mindset of workers, how to increase investments in innovation, and how to rationalize and obtain regulatory approval for a technology roadmap.
- The benefits of collaboration and continued learning from each other remained throughout all technology evolutions. We scrapped our old SCADA data and based action plans entirely on PMUs.
- The need to handle big data was increasingly challenging, as bandwidths and data speeds increased exponentially.
- Safe, reliable and affordable power supply always remained our highest priority.
- Even as micro-grids solved some problems, they also brought new issues, such as cyber security and cost shifting. The transmission and distribution grid remained indispensable as a platform to enable new technologies.



MODERATOR

Mark Bridgers
Principal
Continuum Capital

PANELISTS

Kristie Barton
Power Delivery Services Manager
Alabama Power Company

Samuel L. Belcher
Senior Vice President and President
FirstEnergy Utilities

Dave Geier
Senior Vice President, Electric Operations
San Diego Gas & Electric

A. Wade Smith
Senior Vice President, Grid Development
AEP

**THE BENEFITS OF
COLLABORATION AND
CONTINUED LEARNING
FROM EACH OTHER
REMAINED THROUGHOUT
ALL TECHNOLOGY
EVOLUTIONS.**



FEATURED SPEAKER

EARL C. “DUKE” AUSTIN, JR.

President & CEO

Quanta Services

Collaborating in a Changing Industry

- Duke Austin opened his speech noting that the industry continues to change every year. The one thing we all do the same is get the job done and ensure our customers are happy. Ultimately that’s what it’s all about, how we collaborate with our customers to execute the work.

Technology Driving Infrastructure

- Total infrastructure spending in the U.S. is in a strong uptrend and will approach \$75 billion this year. New innovations such as 5G telecom deployment will depend on the electric distribution grid, since it requires line-of-sight to connect to adjacent cells. Distribution poles are the best way to achieve this. Technology advances will continue to create new infrastructure-related opportunities. Technology is ahead of infrastructure, and it’s important to continue thinking about how we can advance – and how we can provide the infrastructure of the future.

Above the Line Culture*

- One simple graphic summarizes Quanta’s culture. Quanta attracts people who want to “be above the line.” We’re looking for the right kind of people who will move the company – and the industry -- forward. These people will see it, own it, solve it (SOS). To locate these people, Quanta is actively partnering with community colleges, high schools and transitioning military service men and women – in order to recruit, hire and retain the best workforce for Quanta and the industry as a whole.

Committed to Workforce Development

- Quanta has incrementally spent more than \$100 million on training its workforce over the past five years. We focus heavily on the first 12-18 weeks of onboarding to attract and retain the right workforce who share common characteristics sought by Quanta. The industry CAST test may need to be updated or changed – it has been used since the 1970s. Other simple indicators may be more indicative of success in our industry: New hires who held part-time jobs through high school and participated in high school sports programs have a much higher retention rate in the Apprenticeship Program.



Thinking about Safety Differently

- Quanta has been working on thinking about safety differently – and has established the Capacity Model program. The program focuses on the Stuff That Kills You (STKY) on a jobsite – to try to build capacity in so that if a mistake happens, employees still walk away unharmed.

Future is Bright

- The future is bright for our industry – and the people in this room, collaborating together, will determine the level of success. There is a fine line between confidence and arrogance. Arrogant people eventually become complacent, which can be their downfall. Confident people think differently, and together we can accomplish anything.

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**WE’RE GOING TO CHASE
 PERFECT, AND WE MIGHT
 GET TO EXCELLENT.**

EARL C. “DUKE” AUSTIN, JR.

President & CEO

Quanta Services

FEATURED SPEAKER

JEFFREY MARTIN

Chairman & CEO

Sempra Energy

Global Trends Impacting Industry

- Jeffrey Martin broke down global trends currently impacting the industry by the four D's.
 - o Digitalization
 - o Decentralization
 - o Decarbonization
 - o Dominance

Energy with Purpose

- We want to deliver energy with purpose. To do that, we need the right people and culture. Sempra is making large investments in People, Priorities and Culture to develop a high-performance culture. This internal initiative is how we attract, retain and recognize employees. A high-performance culture can itself be a source of competitive advantage and will attract new, younger technical talent since “young people want to work for a culture, not a company.” The idea is that we can become better by championing people and shaping the future, a proactive growth mindset that allows you to be more competitive and build a long-term sustainable franchise. Build great business with great inputs.

High Performance Culture*

- A high-performance culture at Sempra can be defined by a very clear mission, vision and values. Vision 2022 is our mission to build the premier energy infrastructure company in North America. We decided we could get smaller geographically, narrower in the value chain and much more profitable. To achieve this, we would need to be thoughtful about capital allocation and very thoughtful about our strategy.
- Sempra's recent strategic planning priorities were to simplify our business model and to focus on fewer areas where we could have the greatest impact -- and to locate ourselves on the value chain to be a super competitor. This meant getting out of the power generation sector and investing more heavily in transmission and distribution through our California and Texas based regulated utility businesses.



- Among our cultural traits which will attract new talent is a defined need to serve all stakeholders, which utilities have been doing for years. Last year, Sempra invested \$23 million on community engagement initiatives and its employees donated 80,000 volunteer hours.

Path to Premier

- Sempra's Path to Premier includes:
 - o World-class safety
 - o Energy, choice, security and reliability
 - o Innovation and technology
 - o Talented, diverse and engaged workforce
 - o Financial excellence
 - o Energy leadership with purpose

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THEY WANT TO WORK FOR A CULTURE. THEY WANT TO WORK FOR A COMPANY THAT HAS A PURPOSE THAT ALIGNS WITH THEIR PERSONAL PURPOSE.

JEFFREY MARTIN

Chairman & CEO

Sempra Energy

FEATURED SPEAKER

NEIL CHATTERJEE

Chairman

Federal Energy Regulatory Commission

Several Rapidly Occurring Changes in the Landscape

- The shale revolution has totally upended global oil and gas markets and continues to impact all future scenarios.
- The rise of renewable generation is only beginning. In early years, it was driven by subsidies, but now it is the lowest cost resource, and demand is driven by corporations and their sustainability strategies. For example, two-thirds of the Fortune 100 companies are actively buying renewable energy supplies.
- Transmission is still a critical need, and FERC is working hard to create an environment to spur investments in tomorrow's grid.
- Electrification of the vehicle fleet will require \$30 - \$90 billion by 2030, according to a recent FERC study.

FERC's Policies Aimed at Maximizing Value by Incentivizing

- FERC has recently proposed a revision in the methodology for incentive policies, which is expected to receive much scrutiny and debate in the near-term.
- FERC initiated a program to revisit FERC Order 679 "Transmission Policy Incentives" to shift the focus away from permits and construction issues and towards a more fundamental question of what is the rationale to build that particular pipeline in the first place.
- FERC is evaluating how to address barriers to wider distributed generation deployment and allow 5G to be aggregated.

FERC May Begin to Allow States Greater Flexibility

- The markets require a major expansion of natural gas infrastructure to achieve the huge environmental benefits of displacing more carbon-intensive forms of generation.
- FERC is taking several actions to support increase in LNG export capability.
- FERC will soon be issuing a Notice of Proposed Rulemaking ("NOPR") on Public Utility Regulatory Policy Act ("PURPA") reform.

Several Potential Threats, Uncertainties are on the Horizon

- Increasing reliance on electric infrastructure increases the risk exposure from a cyber attack.
- Extreme storms and wildfire threats are just two examples of increased risk exposure to variable weather-related risks.



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I STILL EXPECT THAT NATURAL GAS CAN AND WILL CONTINUE TO PLAY AN IMPORTANT PART IN THE TRANSITION TO OUR ENERGY FUTURE.

NEIL CHATTERJEE

Chairman

Federal Energy Regulatory Commission

FEATURED SPEAKER

PHILIP MOELLER

*Executive Vice President, Business Operations Group and
Regulatory Affairs
Edison Electric Institute*

Wildfires a Major Focus

- A major recent focus for EEI has been wildfires. This includes increasing awareness and detection by using the transmission system as a “Fire Detection System” -- and evaluating impacts of various incentive policies. We are working with the national labs to continue advancing the technology in this space.

Sustainability Initiative

- EEI’s new ESG reporting template will be rolling out soon in Europe.
- The sustainability initiative includes ways to increase gas consumption, and EEI is trying to develop an equivalent to the “Good Housekeeping Seal of Approval” for environmentally produced gas.

Security, Business Continuity Key

- Security and business continuity issues remain at the forefront of EEI interactions. EEI coordinates several areas of storm recovery and other responses to major disaster events

A Culture of Security

- One area we have developed over the last year is a culture of security – when it comes to cyber security, every EEI member is trying to figure out how to improve the areas of vulnerability. A major effort is cyber mutual assistance – we are up to 145 entities. The idea behind it is that if and when there is a cyberattack, this group of individuals will serve as mutual assistance.

Transmission Planning Process

- Transmission Planning Process continues to receive considerable effort – EEI is looking closely at transmission development and ROEs, because it is clear many state regulators do not fully understand the Transmission Planning Process.



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I DON'T THINK THERE'S ANY OTHER INDUSTRY THAT HAS COME TOGETHER IN THIS WAY AND IS AS COMPREHENSIVE IN THE AREA OF ESG.

PHILIP MOELLER

*Executive Vice President, Business Operations Group and
Regulatory Affairs
Edison Electric Institute*



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