

March 2, 2017 Chicago Advanced Energy Stakeholder Breakfast:

Critical Infrastructure & Microgrids

Once again it is my pleasure to welcome you all to the Chicago Advanced Energy Series Breakfast Meeting and the Chicago office of Holland & Knight. I'm an energy partner with the firm based in our New York City office. As in the past, my Chicago colleague Barb Adams is here to welcome you and join in the conversations.

Thank you once again H.G. Chissell and thanks to all of you, our growing group of loyal sponsors that have been supporting the Chicago Advanced Energy Group. For nearly four years now, we have been meeting here about quarterly and collaborating on important issues and opportunities for advancing energy projects especially in advanced energy opportunities, including energy efficiency, storage and demand resources. This time, we've got a great panel of speakers and thought leaders ready to talk to us about critical infrastructure and microgrids.

As I've done with each one of these meetings, I'd like to spend just a few minutes on some legal and public policy issues relevant to today's agenda to help set the stage and put the discussion in the broader context. Now more than ever, as President Trump's cabinet settles into the key agencies like EPA and DOE, our collaborations and networking are more important than ever.

So while we could all be talking about President Trump's pledge to make coal great again in America, I commend HG Chissell and our distinguished panel for focusing on critical infrastructure and microgrids because clearly, that's what so many people want to talk about despite what's going on in Washington. Many of the attendees here raised very interesting

questions about grid reliability, cybersecurity, critical infrastructure, the role of microgrids and who are going to pay for them. These are some great questions and I'm sure our panelists are going to help frame the answers.

It's very interesting to see that the marketplace is demanding these solutions be part of the mix. We know that FERC's Demand Response Order 745 was upheld by the Supreme Court and so there's a place for customer side distributed resources in competitive wholesale markets like Chicago in the PJM, and that means there's a way for these resources to qualify for and receive compensation in the wholesale markets – because after all, the Court said, negawatts equal megawatts, right? Recently we saw a Court in New York instruct the NY ISO to revise its tariff so that distributed resources like microgrids can qualify for compensation both at the ISO level and the state level because, rather than double dipping, those payments are compensating the resources for performing separate services. So the monetary opportunities for projects like battery storage and the switch gear and related systems that make up microgrids have a place in competitive markets like New York and Chicago.

And that's a good thing because New York recently negotiated with the owner of the Indian Point Nuclear Power Plant to close down by 2021, which means that the 2,000 MW from that plant that currently serves 25% of New York City's load will be going away. So ConEd and the other utilities in and around NY will need to rely on demand response, distributed generation, energy storage, microgrids and other customer solutions, plus grid scale renewables and new natural gas generation in the pipeline, to ensure reliability and grid security. If NY is to keep its lights on, all of the above is needed more so than ever especially with the major nuclear facility going dark. Creative solutions to finance these microgrids and other distributed solutions are especially important to find.

Meanwhile, there was a report released just about a month ago by the Electric Power Research Institute (EPRI) and the Smart Electric Power Alliance (SEPA) that lays out three basic economic business models—third-party, utility, and hybrid—that are going to be driving growth in the microgrid sector.

The study, entitled “Microgrids: Expanding Applications, Implementations, and Business Structures,” finds that, to date, most existing microgrid installations have taken place in isolated campus situations – for example, at universities or military bases. But the researchers predict that in the future, microgrids will provide a range of customer and grid solutions for greater integration of distributed energy and enhanced resiliency. The installations will evolve along a continuum that flows from majority customer control at the third-party model end to overall utility control in the integrated utility model space. But in the end, customers will pay most costs, in one of 3 ways:

First, there is the third-party model driven by end user(s) or by third parties who will finance and own the microgrid, determine economic dispatch (potentially with utility guidance), agree on appropriate islanding conditions, and pass the operating costs on to customers in their monthly bills.

Second, an unbundled model will allow these microgrids to be financed and owned by a utility or third party, which will dispatch DER assets on behalf of customers and agree on appropriate islanding conditions (with the utility and end users always involved). Under this model, the end users pay the utility for grid assets, pay the implementer (utility or third party) for microgrid assets, and receive credit from their own distributed energy resources.

Third, the study notes that the utility control model will be financed and owned by the utility company, which will dispatch DER based on system economics and agree with end users on appropriate islanding conditions. Costs will be passed on to customers, who will pay the utility for added resiliency and premium power services.

The researchers also explained that regulators must strive to achieve clarity on price signals, rate structures, and regulations in order for the sector to expand. Also, while current technical standards can provide guidance on microgrid development, a more detailed and nuanced set of standards is needed, in order to put in place interoperable designs, and communication and testing practices.

Given the transition underway in Washington and how important federal energy policy is to all of our professional lives, I thought I would comment on two early impacts of the Trump Administration on energy issues. First, immediately after President Trump demoted then chairman Norman Bay and promoted Commissioner Cheryl LaFleur to the chair position, Bay submitted his resignation and left office on February 3, 2017, leaving FERC without a quorum to conduct business or to carry out its statutory mandate on things like new pipeline projects or enforcing standards.

Apologies for raising this because it is not exactly a critical infrastructure or microgrid issue, but the other notable issue worth commenting on this early in President Trump's term is his pledge to make coal great again. When I discuss this idea of bringing back coal, I typically explain that President Trump cannot, despite his best intentions and campaign promises, change the fundamental laws of economics, such as supply and demand and the need for competitive wholesale power markets to tap into the lowest-price of wholesale power generation. That, my

friends, is natural gas powered generation, which sets the marginal price of power. For nearly a decade, notwithstanding environmental regulations at the EPA, coal has been on a steady decline because domestically produced natural gas through hydro fracking has supplied such an abundance of natural gas. So cheaper natural gas is displacing coal generation, and nuclear. Just last month, the owners of 3,000 MW of coal generation in Ohio announced they would close. Also, just last month, the owners of a 2,500 MW coal powered generation.

I mentioned in December that it is hard to imagine that Trump will be able to reverse the laws of economics and promote coal as a power source, even if he undoes the Clean Power Plan with an executive order, as his office said yesterday he was planning to do. This, because coal is simply out of the money as a fuel source unless the Federal Government offers the coal industry and coal-fired power plant owners significant federal subsidies and tax breaks or creates a national strategic coal reserve like the national petroleum reserve. So Washington can say let's make coal great again, but economics will drive the real outcome.

Our speakers here today are thought leaders especially in critical infrastructure and microgrids and they are prepared to offer some real solutions and suggestions and to help respond to your questions. And so, without further ado, it is my pleasure to bring up HG to introduce our speakers and kick off our collaborations. Please enjoy the meeting and stay involved for future programs as our collaborations continue.

And now, H.G. Chissell will introduce our guests.

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