



Dupont Summit 2016

Science, Technology, and Environmental Policy

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Panel

"Distributed Energy, Efficiency, & Storage to Harden Critical Infrastructure: To Address Resiliency, Cybersecurity, and Water Conservation, and Emissions Reduction"

The delivery of energy is challenged more than ever before. It is aging. It is a huge water hog, using more fresh water than agriculture. Even today's electric grid has been hacked and will continue to be as it evolves and "becomes smarter". Terrorist-inspired events and human error will become more frequent. And intense weather patterns, geological events, forest fires, and effects of climate change will add to these challenges in more impactful ways than ever before.

For an industrial country such as ours, loss of energy, especially electricity, has much more profound impact on our economy, health, and comfort than ever before. The internet and e-commerce is a major driver of our economic health. Our water, sewage, and fuels are carried hundreds of miles as well as their delivery locally, tied to electricity. Our transportation systems from signal lights to railway crossings and seaports are extremely grid reliant. And our buildings -- from safety systems, WIFI, elevators and HVAC systems in many cases must operate to be operational - for a safe and healthy work and living environment. These grid challenges, grid frailties become every so obvious. And the multi-attribute risk profile becomes even of greater concern.

While "smart grid" approaches are worthy, they also add a series of other risks including SCADA and controls web infiltration, including embedded codes in components from suppliers, out-right cybersecurity infiltration, and more service requirements to achieve peak performance.

The other trend is that while overall demand for energy for critical infrastructure is rising (one of the few growth areas in an otherwise flat electricity demand market), the actual infrastructure functions are becoming more digital and have lower energy demand. Additionally, recent advances in energy efficiency and control technologies can reduce these demands rather dramatically.

Moderator

Scott Sklar, *The Stella Group Ltd.*

Panelists

Ray Clark, *River Crossing Strategies*

Paul Sullivan, *National Defense University*