

Grid Modernization Initiative Peer Review Speech
Talking Points – Regional Manager
April 17, 2017

Good morning, and thank you for inviting me to speak to you today. I am Subhash Paluru, Senior Vice-President and Regional Manager for the Sierra Nevada Region (or SNR) of the Western Area Power Administration or WAPA. WAPA sells and transmits on over 17,000+ miles of high voltage transmission lines which it operates and maintains; hydropower is generated from 9 separate power systems with total installed capacity of around 10,500 MWs and delivered approximately 28,607 GWh of energy to 680+ customers over a 15 state footprint in the western United States. WAPA is headquartered in Lakewood, Colorado and our operations are managed in 5 regional offices organized along hydrologic basin boundaries. In addition, we have a Washington D.C. liaison office. During FY 2014, in which many of our regional offices were beset by below normal water years, WAPA generated over \$932 million in power sales, and our annual operating revenues totaled nearly \$1.4 billion.

As a power and transmission owner, operator, and service provider, WAPA has a strong business interest in ensuring the continued safe and reliable operation of the electric power grid. The topic of our discussions during the next several days, modernization of the grid, is especially important to WAPA as well as to the other Power Marketing Administrations, and the rest of the nation.

The nation's transmission infrastructure has been in place for many decades and was constructed over a span of many years and at many different places. Over the years, and as the nation has expanded, this system has evolved and has been transformed into a system of interconnected, regionalized transmission systems, which are both interdependent and interactive. With time, the facilities have aged, the advent of new technologies creating opportunities to make the grid smarter and better are creating challenges, as well as opportunities. Industry de-regulation and restructuring, has transformed the nation's electric utility industry and its players.

The proliferation of renewables as a result of the various states pursuing mandatory renewable portfolio standards have added additional challenges as many of these resources need new transmission to be able to interconnect into the grid. What

may have been overlooked is that while structural changes have been transforming the industry, the proliferation of new technologies coupled with the changes in consumer behavior buoyed by the creation of new business models have created additional new challenges and opportunities for utilities. This has caused the traditional line between transmission and distribution to be blurred, creating additional opportunities and challenges for utilities. These challenges as well as opportunities include behind the meter generation as well as the need to look for other ways to generate revenues. Load for example, in many parts of the country has been relatively stable, as energy efficient appliances, time of use metering, and the proliferation of distributed resources in the form of roof top solar has decreased the need for construction in some areas.

Renewables are here to stay in many parts of the country and are going to remain an ever present fixture in our daily lives. A number of states continue to pursue aggressive renewable power portfolios. New technologies are precipitating a transformation of our energy production systems. The cost of new renewable energy sources and technologies have not only increased the energy efficiency of our appliances and equipment, but are also rapidly reducing costs. With increased research and development into battery storage, coupled with research and development into fuel cells, new energy sources will become available in the near future

We all need to continue to be forward looking, evolving our services to meet the changes the future will bring to our industry. By sustaining the partnership between industry and government represented here today we can continue to collaboratively power the energy frontier.

The rise of smart technologies and the desire of consumers and new businesses to use the grid more smartly and efficiently have caused other issues in terms of upgrading and modernizing what already exists. The systems are no longer isolated. They are interdependent and interconnected. The emergence of new technologies create cyber and other physical-security related issues.

The emergence of new markets, and new emerging market structure have and will continue to create legal and regulatory issues for market participants, as well as legacy owner-operators of the nation's transmission systems

The pace of change that the industry and industry participants face is daunting. However, these changes provide not only challenges, but opportunities to change for the better. What are some of the implications of this for industry participants?

Partnerships; Seams; and Transitions. In order for us to be successful, we need to seek out new opportunities to partner with others to share information, so that we can build on the work of others and not continually re-invent the wheel. Seams issues are important. We need to avoid getting into the trap of dumping the rocks from our backyard into the backyard of our neighbors. We need to try avoiding situations where we have winners and losers. Everyone needs to be incentivized to participate freely and willingly. Transitioning to pareto-optimal solutions requires communications, collaboration, and cooperation. Parties with legacy investments in plant, property, people, and equipment need time to transition so that they may change their business processes/models to adapt to the changing new environment.