



Public Utilities Commission

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FY 2013 Appropriations Outside Witness Testimony

Organization: Chairman Todd A. Snitchler, Public Utilities Commission of Ohio (PUCO)
Subcommittee: Energy and Water Development, and Related Agencies
Department: Energy

The President's proposed FY 2013 budget includes a \$20 million request to create and fund a new Electricity Systems Innovation Hub within the Department of Energy, Office of Electricity Delivery and Energy Reliability. The Public Utilities Commission of Ohio (PUCO) files this testimony in support of and advocacy for the funding of the Electricity Systems Innovation Hub.

The Electricity Systems Hub fills a critical gap in the Department of Energy's research portfolio. Most of the Department's programs are structured to address individual issues or technologies. The new Hub will address the barriers to grid modernization from a systems perspective. The power grid is an integrated system from generation through transmission and distribution to consumers and the devices in their homes and businesses. The new Hub will focus on systems integration, examining how the different elements of the power system can best work together in an efficient and reliable manner. By taking a systems approach, the Hub will be able to identify new issues and opportunities for improvement that would not be identified or realized in more narrowly targeted research programs.

Additionally, the Hub brings together a multi-disciplinary team of researchers to determine how to reliably and efficiently integrate the many aspects of electricity systems including; power flows, information exchanges, markets, and regulation to meet the requirements of a modern power system. The Electricity Systems Hub will support innovation through a multi-disciplinary approach patterned after the nation's most successful institutional approaches to solving complex challenges.

The electricity system is entering a period of significant change brought about by the retirement of central station power plants that have helped maintain grid stability, deployment of intermittent renewable resources, a need for resilience to cyber-security threats, growing interdependence between electricity and natural gas, changes in electricity demand, recognized risks to infrastructure from electromagnetic storms, advances in distribution automation and voltage management, and the potential of emerging power electronics, energy storage, and other new technologies.

The integration of new technology and modernization of the power system is an issue of national importance. A modern grid must incorporate a range of new generation, storage, transmission, distribution, demand management, electric vehicle, communications and control technologies. Power systems are connected and operate across large regions and must integrate with many distribution utilities. No single utility or state by itself can successfully address how best to achieve a seamless integration across the interconnection between transmission and distribution and between wholesale and retail markets. Moreover, the benefits of developing and

demonstrating better approaches to integrating these systems are likely to be broadly shared across the industry. All elements of the electric system, both old and new technologies, must work together to maintain reliability. The Electricity Systems Hub will address this integration challenge. If it is not successfully addressed, the reliability of the power system could be compromised.

As proposed, the new Hub will help ensure the continued reliability and resilience of the U.S. power grid, the cost-effective modernization of an aging power system, and the ability U.S. companies to compete in the global market for power system technology. The Hub will focus on integrating the interconnection between transmission and distribution systems, including the complex interactions between wholesale and retail power markets and the relationships between federal and state regulation. This integration is both challenging and critical to power system operations.

Moreover, a large global market for advanced power system technologies is emerging as more countries modernize and build-out their power systems. The Hub will be key for American businesses to better compete and sell into this global market.

The PUCO has encouraged and worked with both the public and private sectors to develop a significant regional cluster of firms and institutions involved in grid modernization. Within this cluster there have been valuable exchanges and collaborations involving the PJM Regional Transmission Organization, our four large electric utilities, our major universities and research institutions, manufacturing companies, and start-ups. However, much remains to be done. The Electricity Systems Innovation Hub will play an important role in ensuring the reliable and efficient operation of the power system and providing a foundation for a growing economy.

Lastly, the Department has requested the flexibility to fund either a single Innovation Hub or up to three regional Hubs. The request for this flexibility is understandable given regional differences. In the event more than one Hub is funded by the Department, the PUCO recommends that the Department seek effective alignment and coordination among the regional Hubs.

Thank you for the opportunity you have granted the PUCO to express its support of the Electricity Systems Innovation Hub. If you have any questions or would like additional information about the PUCO's efforts, please feel free to contact me at (614) 644-4722.