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October 10, 2014

Hon. Ernest Moniz
Secretary of Energy
U.S. Department of Energy
1000 Independence Ave., SW
Washington, DC 20585

Hon. John Holdren
Director
White House Office of Science and Technology Policy
725 17th Street, N.W.
Washington, DC 20506

Subject: Comment of WIRES on the Quadrennial Energy Review

Dear Mr. Secretary and Mr. Director:

It is an honor to submit to you the comments of WIRES¹ as part of the President's Quadrennial Energy Review (QER). WIRES comments take the form of recent studies, which are attached for your consideration, and the approach elucidated in this letter. The report written for WIRES by London Economics, entitled *Market Resource Alternatives: An Examination of New Technologies in the Electric Transmission Planning Process*, was released this week. It confirms the wisdom of the QER leadership in addressing the need for energy delivery infrastructure this year, before considering broader issues of supply and demand. WIRES will not recite the numerous studies, including DOE's own, that confirm the need for major transmission investment and the unfortunate obstacles to a timely and efficient build-out of the system. Those facts are well understood by the Department and the President. We will instead try to put the need for basic transmission infrastructure in the context of the beguiling and important new technologies that will help transform the power system and make it more resilient.

A former member of the Secretary's Electric Advisory Committee recently stated:

¹ WIRES is an international non-profit association of investor-, member-, and publicly-owned electric transmission providers, renewable resource developers, regional transmission organizations, and economic, technology, and policy consultants whose sole mission is promotion of investment in the high-voltage electric transmission. A description of its membership, its principles, and its activities are available at www.wiresgroup.com. WIRES educational efforts include several studies of the operational, environmental, and economic benefits of transmission and the regulatory barriers to development as well as public briefings about transmission operations and policies.

The explosion of controllable grid elements and market players by 2050 will challenge today's grid operating systems, calling for millisecond-level operational controls beyond human interaction ability. The glue will be a reliable, robust, interconnected, transparent, resilient and secure transmission grid, seamlessly connected to transformed distribution networks that smartly interact with customers and their systems.²

This observation encapsulates WIRES' view that a powerful transmission system is the principal lever that will enable and sustain power markets, new technology deployment, and grid modernization at the bulk power level and even across distribution systems, including new distributed and diverse energy resources, more elaborate markets for power, demand responsiveness, new sources of resilience like storage, microgrids, and smart technologies, and energy efficiency. The LEI report explains why these market resource alternatives (MRAs), also known as non-transmission alternatives or distributed energy resources, are both emblematic of the changing 21st century electric system but seldom if ever a substitute for transmission. The Report states:

MRAs are increasingly being put forth as possible solutions *in lieu of* transmission infrastructure. However, based on the characteristics of MRAs today, MRAs are rarely a complete substitute for transmission, and individual MRAs typically provide only a partial suite of the services that transmission provides. Nevertheless, MRAs (either individually or in combination) provide specific benefits and can serve as complements to transmission, and vice versa.³

The LEI report makes clear that our integrated electric transmission network will be the foundation of our evolving electric system for the foreseeable future. The U.S. will expend \$1.5 trillion during the next quarter century to improve, and in most ways replace, today's electricity system. The smallest share -- \$300 billion -- of that necessary expenditure will be electric transmission. Any contention that new generation, monitoring, and control technologies or a decline in demand growth affords the Nation an opportunity to avoid this investment in high voltage transmission is misplaced. It is our recommendation that, as the QER enunciates its findings and proposes legislation or other national policy initiatives, the QER should make crystal clear the strategic and economic centrality of electric transmission to an adaptive, resilient, and reliable electricity system.

Transmission provides a portfolio of benefits, including the ability to leverage and aggregate new investments in advanced technologies -- distributed generation, storage, microgrids, energy efficiency and more -- for the benefit of broader evolving markets. Modernization of the grid depends on the adequacy and ubiquity of the interconnections between

² Mike Heyeck, "Grid 2050 Reality Check," *T&D World* (Sept. 2014), p. 72.

³ LEI Report, at 22.

generation and load that only transmission infrastructure can provide. We cannot predict precisely how the North American electric system will be operated a generation or two from now because ours is a uniquely transformative era in this critical industry and there are multiple possible scenarios for change. Those changes will be driven variously by low carbon electric generation, the abundance of domestic natural gas, threats to the reliability of the system and the quality of power, emerging institutions and processes (some promoted by the Federal Energy Regulatory Commission), public policy choices at the state and federal levels, new technologies, and market realities that foster new ways to buy and sell electricity.

Under most any conceivable scenario, two factors will still apply, however. First and perhaps foremost, consumers will be entitled to the best electric service at the lowest reasonable cost. But second, transmission – if adequate, extensive, and redundant in many cases – will provide the kind of optionality and flexibility that will be essential to having the best service at reasonable cost over time. Admittedly, a strong grid is not the complete answer to every challenge to this electricity-dependent society. Yet, if we fail to seize this opportunity to replace aging facilities and old technologies and overcome the grid’s limitations geographically or capacity-wise, our options for growth and increased efficiency, not to mention our quest for a clean energy economy, will be dramatically reduced. The transmission grid we have is not the grid we will need. A more robust transmission system will equip the North American electricity marketplace to address a range of possible scenarios. As the attached studies demonstrate, timely investment in the grid ensures job creation and economic development and moves the North American power market toward greater integration and competitiveness.

In sum, WIRES respectfully requests that the QER heed the key messages in the attached reports and issue a muscular national infrastructure policy in recognition of the fundamental importance of major transmission investment as a vehicle for moving the industry, new energy resources, and our national economy forward. It is clearly time to put **new technologies, jobs, and market integration** in the power sector at that forefront of our national priorities. To the extent a stronger grid becomes a national goal, we are persuaded that industry and policymakers will then find new paths to building the robust transmission infrastructure necessary to move the Nation’s economy forward.

Respectfully submitted,



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cc: Hon. Mary Landrieu, Chair,
Committee on Energy and Natural Resources, U.S. Senate
Hon. Lisa Murkowski, Ranking Member
Committee on Energy and Natural Resources, U.S. Senate
Hon. Fred Upton, Chairman
Committee on Energy & Commerce, U.S. House of Representatives
Hon. Ed Whitfield, Chairman, Subcommittee on Energy and Power,
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Attachments (Studies Prepared for WIRES):

London Economics International, *Market Resource Alternatives: An Examination of New Technologies in the Electric Transmission Planning Process* (2014)

The Brattle Group, *The Benefits of Electric Transmission: Identifying and Analyzing the Value of Investments* (2013)

The Brattle Group, *Employment and Economic Benefits of Transmission Infrastructure Investment in the U.S. and Canada* (2011)