



FERC's Wellinghoff Urges Systematic Planning Of U.S. 'Backbone' Grid

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FERC Commissioner Jon Wellinghoff, a protégé of Senate Majority Leader Harry Reid (NV) and a potential pick for chairman at the commission, is calling for a "systematic nationwide transmission planning process" to build a high voltage "backbone transmission system" that would enable wind, solar, and a multitude of distributed energy resources to connect with the grid. The issue is gaining attention among key members of Congress and president-elect Barack Obama as part of growing interest in a national goal of expanding clean energy.

Wellinghoff's call is part of increasingly detailed discussions taking place about how to begin transforming the U.S. energy system to achieve climate change and energy security policy objectives.

While a national transmission planning process is certain to be politically charged because it would create conflicts between state and federal jurisdictional authorities, Wellinghoff noted, it could be implemented using both existing regulatory authorities coupled with new initiatives discussed by Reps. Jay Inslee (D-WA), Earl Blumenauer (D-OR), and other politicians, Wellinghoff said.

Wellinghoff, who is known for his strong interest in renewable energy, spoke at a Nov. 18 Capitol Hill briefing on "A Vision for a Modernized Electric Grid: Clean Infrastructure for a 21st Century Economy," sponsored by NDN, which describes itself as "a progressive think tank and advocacy organization." Inslee and Blumenauer also spoke at the same event.

To make his point about the need for a national process, Wellinghoff presented a map showing proposals for transmission projects coming to FERC from companies in the western U.S. He noted that the proposals are "scattered all over the place," representing separate proposals from some 20 companies representing "their own parochial company interests" but not necessarily a national interest overall. At the same time, another map showed where high voltage lines currently exist. They are all on the East and West coasts, where there is load; in the Northwest, where federal hydro-power dams were built; and in the Southeast, where considerable nuclear power operates. But throughout the entire Mid-West, there are virtually no high voltage transmission lines, he said, even though all the wind energy is in that region -- in North and South Dakota, Minnesota, Montana, Wyoming, and Texas. In the current configuration, the U.S. lacks transmission to deliver the wind energy to load centers on the coasts, where 78 percent of electricity use occurs.



Wellinghoff also showed a proposal for a 765 kV national high voltage backbone transmission line for delivering the major wind resources in the Mid-West to the coasts. The plan -- developed by DOE's National Renewable Energy Laboratory, the American Wind Energy Association (AWEA), and the North American Electric Reliability Corporation -- is a good start, Wellinghoff said, but added, "I question, 'Is this the one we want?'"

Given the political hurdles to building a national backbone line, Wellinghoff said "before we can build the infrastructure, we need to define the goals." For example, a proposed national energy plan developed by Google for transforming the economy from a fossil-fuel based to a largely clean energy-based system between 2008 and 2030 calls for substantial energy efficiency, demand response, conservation, wind, solar, geothermal, and "backing off coal" and other fossil fuel energy. With the Google chart to illustrate his point, Wellinghoff said: "To design that backbone transmission line, we need to know where we're going," together with a systematic plan for how to get there.

Although AWEA's 20 percent wind or California's 33 percent renewable energy proposals are cited as goals, Wellinghoff said that in addition to "location-constrained resources," a variety of "distributed" energy sources, such as solar PV (photovoltaics) in homes and businesses, combined heat and power, energy efficiency, dispatchable demand response, plug-in hybrids and other sources will be part of the system. Such demand response resources will serve as "the glue" to balance, regulate and sustain the wind and other intermittent sources, he said, noting that this would be cheaper and have less environmental impact than the alternative of building new gas-fired power plants. "It is very important to remember that if we're going to build a national backbone transmission system, don't forget the demand side, don't forget the dispatchable resources," Wellinghoff emphasized.

The commissioner also laid out various "parameters" that would have to be met in a national planning process, including reliability and how the various distributed resources would fit into the current RTOs, ISOs, and non-organized markets operating in the U.S. In addition, critical questions would have to be addressed, such as whether the backbone transmission grid will be operated independently, or by a government entity or traditional utility, and how it will be operated to maximize efficiency on a national basis. "We need to optimize nationally," not on the basis of discrete local or regional areas, he said.

Ultimately the impact of how much solar PV and other distributed resources are put in place will impact the size of the grid. The more we're storing locally will impact how big the grid needs to be, he said. "We don't want to overbuild the grid," making it twice as big as it needs to be if five years from now it makes economic sense to roll in the cost of a new PV system every time a house is built, he said. Wellinghoff predicted "that's going to happen in less than 10 years from now." The impact of deploying those distributed resources is going to be essential in defining how to design, build, and finance the 21st century national grid, he said.



In discussing FERC's current authorities and their limitations -- such as the various regional planning processes and the commission's limited siting authority under the 2005 energy law's National Interest Electric Transmission Corridor provisions -- Wellinghoff stressed that cost allocation and pricing are "key to building infrastructure." While the historical view that is that the "beneficiary pays," FERC is now looking at proposals in some ISOs to spread the costs of building new high voltage lines and "this is potentially a way we could spread the costs of a backbone line across the country," he said. As Inslee has proposed in legislation, "This [cost spreading] is definitely something we need to look at," he added.

The bottom line, Wellinghoff said, is that to modernize the grid to accommodate a diversity of energy resources, "We need to define our goals, we need to establish a national transmission planning process using a systems approach that considers all critical parameters, we need to determine ownership and structure for financing and operation, to solve the cost allocation and pricing issue" and to "determine the siting process overall." -- David Clarke