

**Testimony of Commissioner Lauren L. Azar
Public Service Commission of Wisconsin¹
Before the House Committee on Energy and Commerce
Subcommittee on Energy and the Environment
United States House of Representatives
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Introduction and Summary

Mr. Chairman and members of the Committee, thank you for the opportunity to appear at this hearing on the “Future of the Grid.” There is no question that America is facing new and mounting challenges in the way that we plan for and build electric transmission lines. However, while I am certain that America is entering a new era of energy policy, what this new policy will require of the transmission grid remains unclear. This uncertainty is preventing the development of meaningful transmission plans.

Forthcoming energy policy *may* require that the grid be developed to deliver significantly more renewable energy from remote locations to far-away electricity customers. Additionally (or alternatively), imminent policy changes *might* require that a significant amount of our energy come from no or low-carbon generation. To truly debate the “Future of the Grid,” it is essential that Congress first identify the future of our energy policy. Once Congress defines the goals that our transmission grid must meet, then we can design that transmission grid. This hearing will identify a number of

¹ My appearance today should not be construed as a representation of any official position of the Public Service Commission of Wisconsin (“PSCW”). I appear today as a member of the PSCW, but not on its behalf. As a three member Commission, any position we adopt must garner the support of at least two Commissioners, and the arguments I identify today have not been considered by the full Commission due to time constraints.

potential frameworks for ensuring our nation's transmission grid is properly planned and timely sited in light of changing policies.

I urge Congress to adopt a framework that maintains the initial responsibility for the adoption of transmission plans and transmission siting on state and regional entities. With clearly established mandates, goals and timelines, I believe that state and regional transmission entities can develop and site the transmission facilities necessary to meet our future energy needs. Indeed, I believe that plans that are developed and implemented by state and regional entities will be better and more accepted than if the plans were developed in Washington.

If Congress identifies the goals that states need to meet, and the states fail to develop and site these transmission facilities in a timely manner, then I can agree that more aggressive federal action will be necessary. However, I do not believe that we are at that tipping point today.

Identifying the Problem

It should be universally understood that it is difficult to solve a problem when you don't really know what the problem is. In the context of transmission planning and siting, it is difficult to conclude that state planning and siting processes have failed to address the transmission needs of the nation, since it is unknown what power the national transmission grid is going to have to convey and from where.

As it stands today, the biggest impacts on the future of the transmission grid remain largely unknown. Recent action by the House Committee on Energy and Commerce makes it more likely that we will have a nation-wide renewable energy

standard that will require electric utilities, by 2020, to meet 20% of their energy requirements through renewable energy sources and energy efficiency. To the extent this becomes law, it will have a dramatic effect on the transmission system that is needed, since many of the largest population centers are located far from the most viable renewable energy zones.

Additionally, this same proposal includes limitations to the amount of carbon dioxide that certain entities, including electric generators, may emit. This policy change, if enacted, will require the building of carbon-free or low-carbon emitting resources along with the retirement of many existing generation facilities. These generation changes will also have a significant impact on what type of transmission grid will be needed to meet this national goal.

Without a clearly defined problem, it cannot be expected that states (or the federal government) will be able to identify and adopt regional solutions. For example, it will be easier for a region of states to agree on the need and location of a large, multi-state transmission line if they knew that it was necessary to meet a mandated national renewable energy standard. When I work with colleagues from other states, we spend much of our time trying to guess what the mandate might be, and less on how we will meet that mandate. With clear identification of the mandates, we can begin the work of solving the transmission problems necessary to meet those mandates.

Stated more bluntly, planning to integrate renewable, low-carbon or carbon-free resources will be dramatically more effective if all the parties knew the mandates and the

timelines that apply. I encourage Congress to act quickly to answer these questions so that transmission planners and policymakers can narrow their sights.

We Are Facing New Challenges

States are currently facing the challenges of implementing renewable energy standards and evaluating their generation portfolios in light of carbon constraints. These challenges are relatively new to policy-makers, utilities and transmission planners. Historically, transmission planning was an exercise in reliability forecasting. Under this paradigm, a utility would evaluate the reliability and the adequacy of the grid to deliver capacity to customers within their service territory. This discrete function has changed dramatically in the last decade.

The development of wholesale energy markets and central dispatch of generation requires transmission planning to perform the reliability analysis over a much larger footprint while also accounting for economic and uneconomic congestion. In this context, transmission planning has evolved rapidly from simply needing to overcome certain contingencies (i.e., line outages), to identifying an optimal grid to move energy through multi-state networks.

Presently, transmission planning in areas with state-sponsored renewable energy standards and greenhouse gas initiatives² is making another paradigm shift. Planning

² There is some irony in the context of today's hearing. The fundamental question at issue here is the power balance between state and federal authority as it relates to planning for and siting a transmission grid that will fulfill certain policy goals. There is a suggestion that states cannot accomplish this goal in a timely manner. The irony is that many states have actually adopted renewable energy requirements and have entered into greenhouse gas accords, and are taking action to develop transmission to support those state policies. At the same time, the federal government continues to consider similar renewable and climate-related policies. Given that states have already proven to be effective laboratories of energy

now begins with identifying the type, size and location of generation and then designs the transmission lines necessary to carry that power to electricity customers.³ In this new paradigm, generation and transmission planning have become intertwined. The “Future of the Grid” is going to largely depend on the placement of new generation facilities, for example, the placement of large wind farms. The placement of these generators will be largely made by state-level policy-makers, and not transmission engineers. This is a major shift in the role of transmission planners, and one that will create new challenges for policy-makers and planners alike.

There are also challenges involved with the uncertainty of who will pay for the new transmission infrastructure necessary to meet these identified policies. Most current transmission tariffs were developed to address reliability with those who benefit the most, paying the most for the grid improvements. The beneficiary metric for reliability improvement on an AC system rightly places most of the cost allocation on ratepayers most proximate to the new transmission line.

These reliability driven tariffs may not make the most sense for new transmission needed to tie remote generation to distant electricity customers. Indeed, the Midwest Independent System Operator (Midwest ISO or MISO) is working right now to modify a tariff for generation interconnection to make sure that wind generation located in sparsely

policy, Congress should look to the states to provide the initial answers on transmission planning and siting once the appropriate national policies are finalized.

³ It is a misconception to suggest that, on an alternating current (AC) system, you can move an electron from Point A to Point B. In an AC system, power flow cannot be actively controlled and it will follow the path of least resistance. Extra high-voltage AC systems must have a sufficiently robust underlying system in place to ensure that power flows efficiently. This is contrasted with a direct current (DC) system where power flow of the line can be actively controlled and directed.

populated areas does not disproportionately increase electric rates in places like North Dakota. How costs are allocated is a responsibility of both the state regulators and the FERC.

Changing policies are creating new challenges with respect to transmission planning and cost allocation, and it is essential that energy policy be resolved quickly to remove the uncertainty.

Some States Are Already Taking Action

Despite the fact that there are many unknowns about our energy future, there are several examples of states that recognize we are pivoting to a new energy world. These examples show that states *can* work collaboratively amongst themselves to design and site transmission facilities that will enable tomorrow's energy policy.

First, there are several states taking action to respond to state-based renewable energy requirements and goals. Given the problem that many renewable resources are located far from the customers that need the energy, some states are collaboratively identifying renewable energy zones and the transmission infrastructure needed to export the energy from those zones.

My home state of Wisconsin offers a good example of a changing state perspective. Currently, all three of the Commissioners from the Public Service Commission of Wisconsin (PSCW) are engaged in at least one forum to discuss regional transmission development. The PSCW Chairman Eric Callisto is working with Commissioners and Governors from a five-state region to identify prime renewable energy zones and develop transmission plans associated with them. My other colleague,

Commissioner Mark Meyer, is working with the Midwest Governors Association in their transmission collaborative.

I am currently chairing a Cost Allocation and Regional Planning (CARP) initiative formed by the Organization of MISO States (OMS). In January of this year, this group of 13 states in the Midwest ISO, began an initiative to prepare a regional transmission plan and a cost-allocation to pay for that plan. At this time, CARP has identified a variety of future scenarios to model, including scenarios that assume increased renewable requirements and increases in smart grid technology. Also, for the first time, at the request of CARP, the Midwest ISO will be modeling a scenario that sets a cap on the amount of carbon emissions. This is a significant policy shift, and one that is being led by state regulators.

On top these efforts, in the recent American Reinvestment and Recovery Act (ARRA), Congress directed \$80 million to the Department of Energy (DOE) to conduct resource assessments and provide technical assistance for eastern and western interconnection-wide planning. At this point, DOE is planning to release requests for proposals for this planning. The Regional Transmission Organizations (RTOs), Independent System Operators (ISOs) and the transmission planning authorities from the southeastern states have met to discuss their potential collaboration for the Eastern Interconnection planning. Concurrently, I have been working with regulators and representatives from Governors' offices throughout the 40-state region to organize and develop a strategy for state involvement in this process. Our first meeting of all 40 states

will occur at the end of this month. These are unprecedented steps toward state collaboration in the field of transmission planning.⁴

I recognize that these examples may be unique and that some states may not embrace a planning process the way Wisconsin has.⁵ But these situations evidence that states can address transmission development issues and these ongoing efforts cannot be characterized as failure. Indeed, I believe that we are witnessing the start of a transformation in the role that states play in regional transmission planning and development.

State Leadership on Transmission Planning and Siting Is Preferable

There are a variety of reasons why a state-led process will lead to better results than a federally-led process. First, state commissions have the ultimate responsibility for retail electric rates and are therefore keenly aware of how the costs of interstate transmission lines will flow to the ratepayers of their states and will be able to ensure that ratepayers are not overburdened by transmission decisions. Second, transmission planning must accommodate state choices with respect to generation portfolios and the complementary demand-side programs. This issue will only be magnified if carbon constraints are implemented, since some states will be impacted more by this policy change than others. Third, state regulators and their staffs are better situated to identify

⁴ FERC also recently announced plans to hold regional conferences this year to obtain information on current planning processes as well as information about potential improvements to those processes to ensure that there will be sufficient and reliable energy supplies. I look forward to seeing beneficial outcomes from these outreach efforts.

⁵ Wisconsin's success in this area is demonstrated by the fact that between 2001 and the end of this year, there will be approximately \$2.5 billion in new transmission infrastructure, which includes over 1,700 miles of new or upgraded transmission lines.

and address transmission upgrades such that they do not harm or require excessive upgrades to existing facilities.

Finally, having represented a transmission company in the past, and now as a state regulator, I know that one of the most important components of actually constructing a transmission line is to ensure that there is sufficient buy-in from those who will be affected most by the lines – those who will have to live with a line in their community. State decision-making allows more complete public information, participation, and acceptance.

Whenever I have to make a decision about a power plant or transmission line, I make sure I recognize that, while the structure will be a benefit to society as a whole, some people have to bear a greater burden for that societal good. I am not so naïve to suggest that this recognition will fully mitigate the burdens some people bear, and I know that there will never be 100% buy-in when a transmission line is constructed. However, I firmly believe that if these decisions were to be made in Washington, those individuals that have to bear these burdens would feel they have less opportunity for participation in the process and there would ultimately be less acceptance of the result.⁶ Significant state participation in the planning and siting process will mitigate this concern.

⁶ This same logic applies to the decisions that will have to be made based on the policies adopted by Congress, including the retirement of some, if not many, generation facilities that emit significant carbon dioxide. The decision to retire these plants, which will be inevitable, will also carry negative economic impacts to many communities. When made close to home, with ample opportunity for local input, these decisions will be more acceptable to those communities.

Congressional Leadership Can Enhance State and Regional Planning Efforts

As identified above, I believe that there needs to be a strong state role in transmission planning and siting. Once Congress identifies what energy policy will require of the transmission system, ongoing state and regional planning efforts should have the opportunity to address these policies. A strong state role will lead to greater acceptance of what will likely be significant construction of transmission facilities.

Congress can and should play an important role in bolstering and catalyzing state efforts by setting clear mandates and guidelines as well as strict deadlines for state and regional transmission planning efforts. If these planning efforts fail to meet these mandates or deadlines, Congress can set up additional backstop authority for federal agencies to take action and ensure that projects identified in the regional planning efforts move forward. This framework will require states to work quickly and efficiently to meet our future energy requirements.

Examples of the type of leadership that would be helpful include the following:

- A mandate for state-led transmission planning efforts that requires participation in regional planning processes. Those states that choose not to participate will have to abide by the outcomes identified by states participating in the process.
- Strict but reasonable timelines for the preparation of regional transmission plans.
- A requirement that transmission plans be determined by neutral parties that work in the public interest and not by utilities or developers who have a duty to their shareholders.
- Timelines for siting approval of transmission projects that are identified in regional plans.

- Clear and powerful backstop authority for federal action to plan for, approve and site transmission lines that are identified as vital in the state-led transmission planning process.

With specific guidelines in place, state and regional transmission planning entities can realize the benefits of state action and identify cost-effective transmission facilities that will carry out national energy policies. Many of the proposals pending before Congress recognize that states can bolster the planning and siting process. Any Congressional action should ensure that States have the opportunity to act before full federal preemption is considered.

What Congress Should NOT Do

I encourage committee members to take a “Hippocratic oath” with respect to transmission planning and development to, first, do no harm. Pursuant to this oath, it is critical that any federal transmission legislation be agnostic as to the technologies that may be employed to meet our transmission policy goals. The fact is, meeting policy requirements and energy needs in the most cost-effective ways may require the use of many technologies, some of which may not even be known to us now. If Congress identifies particular technologies at the start, this is likely to result in a grid that will be insufficient to meet our energy needs, one that is untested and fails, or one that is too robust and overly expensive. Transmission planners need to have all options available to them as inputs if we expect to have the most optimal outputs.

Currently, there is discussion that a large, high-voltage alternating-current overlay is the proper solution to move renewable energy from western states to eastern ones.

While this option is certainly one that transmission planners should consider, I cannot say today that it would create an optimal solution.

As an example, an extra high-voltage 765-kV AC overlay may or may not be the best option to move renewable energy across America. If this option were mandated today, there may be unintended consequences for many places along the route of that line. In the AC system, energy will flow along the path of least resistance; therefore a 765-kV line is going to require that much of the underlying grid between the start and terminus of the line be upgraded as well. In Wisconsin, the American Transmission Company has designed a 345-kV grid for most of our state. Should a 765-kV overlay be brought into our state, it will undermine our very deliberate design efforts to date. Wisconsin will be forced to significantly build up our underlying grid in order to accept the larger voltage lines. If the goal is to move energy from a remote source to far-away electricity customers, there may be lower cost options that will not require unnecessary upgrades to the existing grid.

Flexibility is also necessary with respect to cost allocation issues. Some advocate for widespread use of a cost allocation called a “postage stamp,” where the cost of a new transmission facility is spread to all ratepayers over a large geographic footprint. Postage stamp allocation is usually proposed in concert within the framework of an AC overlay, because it alleviates the tedious and contentious inquiry of identifying specific cost-causers and beneficiaries of the new line. This is a difficult exercise when dealing with an AC overlay, but identifying cost-causers and beneficiaries is simplified if DC lines are used. Mandating a specific cost allocation may have unintended negative consequences.

To determine the best solutions, transmission planners should not be constrained in their choices. Therefore, at this point, neither Congress nor federal agencies should require the use of a single technology or the adoption of a single cost allocation methodology.

Additionally, it is critical that those charged with determining the “Future of the Grid” not be tied directly to the profits that may flow from the development of a particular technology or a particular transmission project. Decisions that are made in a transparent manner, by unbiased parties, are likely to result in better solutions that will be more accepted. This is true of the decision-making made by the members of this Committee, and it will be true in the context of electric generation and transmission planning as well.

Conclusion

The future of our electric transmission grid is going to largely depend on the decisions that Congress makes with respect to America’s energy future. I urge members to move quickly and decisively on these issues so that we can narrow our focus to develop a grid to meet those policies. At that time, I believe that Congress should turn toward state and regional transmission development initiatives, many of which are already underway. With clear goals, mandates and timelines, these entities can identify and site the generation and transmission facilities that will make our energy future a reality.

Thank you again for the opportunity to testify on this issue. I look forward to answering any questions you may have.