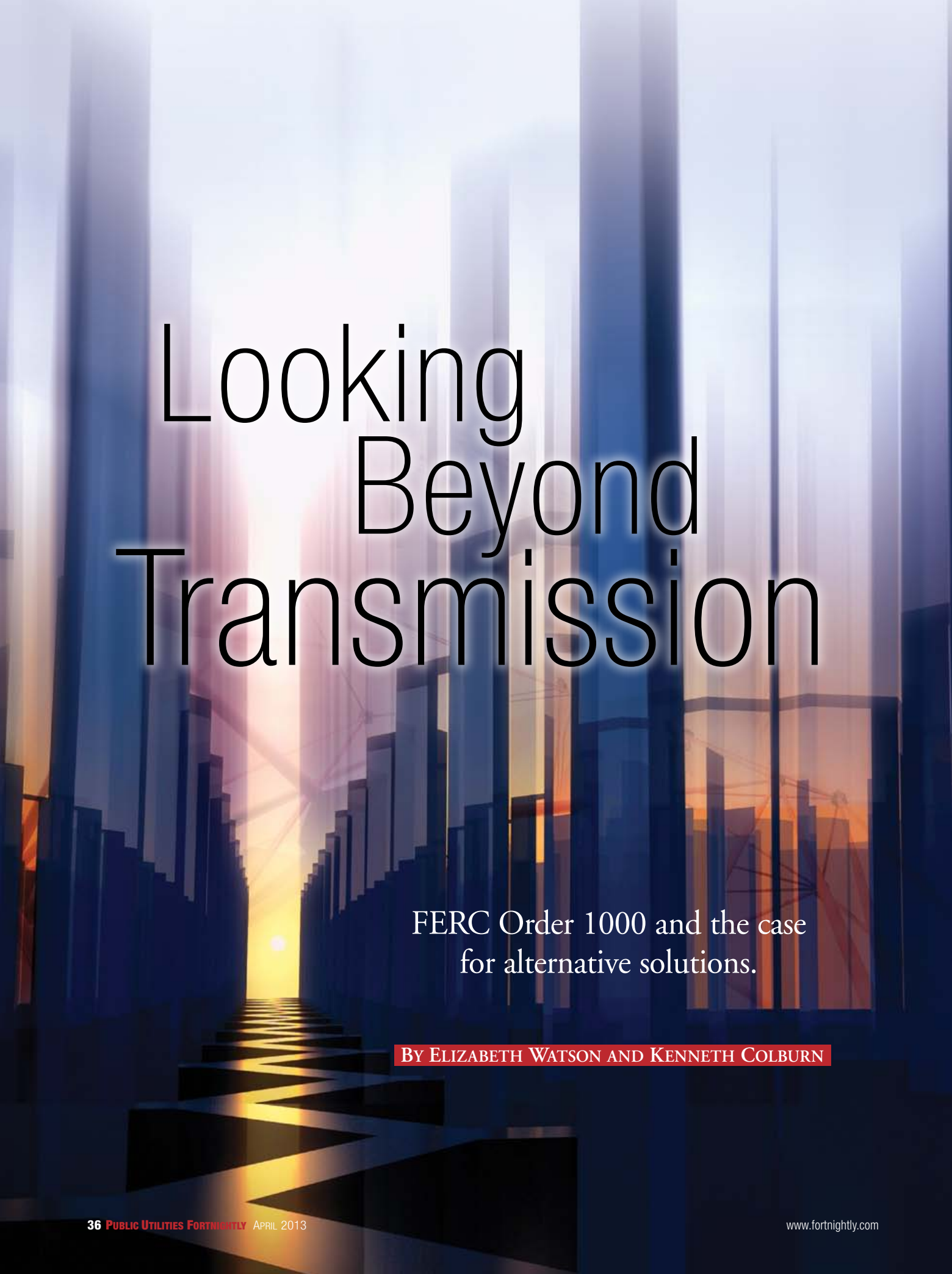

Looking Beyond Transmission

FERC Order 1000 and the case for alternative solutions.

By Elizabeth Watson and Kenneth Colburn

The Federal Energy Regulatory Commission's (FERC) Order 1000 makes great strides towards ensuring just and reasonable transmission rates and a level competitive playing field. It does this, in part, by requiring the consideration of non-transmission alternatives ("NTAs" or "non-transmission solutions") during regional transmission planning. Unfortunately, however, the order fails to address certain significant barriers to the implementation of NTAs, making it unlikely that regional plans will ever approve their implementation—or that genuinely competitive solutions will prevail anytime soon.

Order 1000 improves transmission planning by requiring transmission providers to participate in regional planning. This process must consider public policy requirements, evaluate proposed transmission and non-transmission alternatives, and provide for regional cost allocation for transmission solutions that distribute costs commensurate with benefits.[1] Despite these positive steps, unnecessary barriers still remain to achieving the most efficient and least-cost transmission system. In particular, Order 1000 leaves intact several competitive barriers to the implementation of NTAs, including issues surrounding cost recovery, proposing and implementing NTAs, and the evaluation of their benefits. These barriers must be addressed because NTAs have the potential to provide the most cost-effective solution to many transmission needs. In short, a least-cost transmission system can't be achieved without them.

NTAs are resources that can replace the need for additional transmission through energy efficiency, demand response, energy storage, distributed generation, or centralized generation sited near load. In many cases, geographically targeted NTAs can provide the most cost-effective solution for transmission needs. For example, Con Edison was able to 1) reduce its projected capital expenditures on transmission and distribution by more than $1 billion by including energy efficiency and demand response in its forecasting;[2] and 2) achieve additional savings of over $300 million by utilizing geographically targeted demand resources to defer investments in its distribution system.[3] Similarly, the findings of ISO-NE's energy efficiency forecasting initiative, applied to its transmission planning analyses, helped create a revised transmission needs assessment for Vermont and New Hampshire. ISO-NE determined that 10 proposed transmission upgrades, totaling an estimated $260 million, could be deferred.[4] These NTAs had a demonstrably significant influence on transmission planning decisions in their regions.

NTAs—non-transmission alternatives—can take many forms: efficiency, storage, DR, or generation sited near load.

Many NTAs also provide further benefits by reducing energy costs, air pollution, and water used for generation. In addition, the use of NTAs might allow states to avoid contentious issues typically associated with the siting of transmission lines including land use, environmental impacts, and environmental justice concerns.

However, even when NTAs can provide the most cost-effective solution, competitive barriers impede their implementation over more expensive and less beneficial transmission alternatives, for a number of reasons:

- No ready source of funding or cost allocation methodology exists for non-transmission solutions. Without a clear source of funding, the implementation of cost-effective NTAs remains improbable. Additionally, cost allocation for NTAs must be comparable to that of transmission solutions in order for all alternatives to be accurately evaluated.
- No entity is obligated to propose or implement non-transmission solutions. While transmission providers are required to identify reliability needs and potential transmission solutions, FERC Order 1000 doesn't similarly obligate any entity to identify potential non-transmission solutions. Further, without a clear and comparable source of funding, no financial incentive exists to encourage third parties to propose non-transmission solutions.
- NTAs provide benefits that extend far beyond reducing the need for investment in transmission. NTAs might provide additional economic, environmental, and compliance

1. There are actually three levels of transmission planning: local, which is what each utility would do for itself; regional, which requires the utilities to plan together; and interregional, among the transmission planning regions. Only the regional transmission planning process is required by Order 1000 to consider NTAs.
2. Chris Gazze and Massarlian, M., "Planning for Efficiency," *Public Utilities Fortnightly*, August 2011.
3. Chris Neme and Sedano, R., "US Experience with Efficiency as a Transmission and Distribution System Resource," The Regulatory Assistance Project, February 2012.
4. Gordon Van Welie, "Evolution of an Energy-Efficiency Forecast," *Public Utilities Fortnightly*, January 2013.

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benefits. Currently, these benefits aren't valued in planning, but they should be.

These barriers create a significant risk that the transmission system developed under FERC Order 1000 will impose unnecessarily high costs on ratepayers and forgo the additional benefits offered by NTAs. Indeed, if such readily surmountable barriers to the ability of least-cost solutions to compete and be implemented remain, can transmission rates really be considered just and reasonable?

What Order 1000 Says

Generally, FERC Order 1000 requires that transmission providers participate in both regional and interregional transmission planning processes and establish cost allocation methodologies for new regional and interregional transmission facilities. The transmission planning processes must provide an opportunity for stakeholder input and must consider transmission needs driven by public policy requirements. Also, transmission providers must consider alternative transmission and non-transmission solutions in regional planning processes. With these improvements, the FERC has opened the door for the coordination of transmission within and across regions and the identification of the least-cost and most beneficial solutions.

More specifically, FERC Order 1000 requires that transmission providers "consider proposed non-transmission alternatives on a comparable basis"[5] with transmission solutions during the regional transmission planning process. This implies that transmission providers have the obligation to consider NTA solutions proposed during the regional planning process. However, the order remains silent on which entities, if any, are responsible for identifying and proposing non-transmission solutions.

The order goes on to state that if "an alternative transmission solution is more efficient or cost-effective than transmission facilities in one or more local transmission plans, then the transmission facilities associated with that more efficient or cost-effective transmission solution can be selected in a regional transmission plan for purposes of cost allocation." By omission, this implies that only transmission facilities, not the NTAs themselves, can be selected in a regional plan for cost allocation. Later, the FERC makes this implication explicit by stating that "the issue of cost recovery for non-transmission alternatives is beyond the scope" of Order 1000. Paradoxically then, without a comparable cost allocation method, NTAs can't truly be considered in a manner comparable to transmission, contrary to FERC Order 1000. This creates a competitive barrier to the implementation of NTAs, even if they are more cost-effective.

Additionally, the order states that a transmission facility may be included in the regional transmission plan even if the transmission facility won't receive regional funding and cost allocation. However, the order again only refers to "transmission facilities" that are included in a regional transmission plan, suggesting that NTAs can't be included as a part of a regional transmission plan, even for informational purposes. Transmission providers who are responsible for the reliability of their system might not be willing to rely on a solution that can't be included in a region's transmission plan; they're likely instead to propose further investment in additional transmission.

Overall, while FERC Order 1000 recognizes the potential for NTAs to provide more efficient and cost-effective solutions to transmission needs, it leaves intact many barriers to the implementation of those solutions. The order doesn't provide comparable funding and cost allocation for non-transmission solutions. It also fails to create an obligation for any entity to propose or implement NTAs. Finally, the order remains silent on how NTAs should be evaluated. Combined, these barriers—along with historical transmission culture—make it unlikely that non-transmission solutions will replace traditional transmission solutions even if they're more competitive in terms of efficiency or cost-effectiveness.

Without any required regional cost allocation method, NTAs can't compete, even if they're cost-effective.

No Cost Allocation Method

One of the most serious barriers to the implementation of NTAs is the lack of a clear source of funding and comparable method of cost allocation. However, Order 1000 states, and Order 1000-A[6] confirms, that the issue of cost recovery for NTAs is beyond the scope of the order. Without clarity on these key issues, the implementation of NTAs remains unlikely.

Without a clear source of funding, greater uncertainty exists about the ability to finance any proposed non-transmission solution. Under FERC Order 1000, transmission providers recover the cost of a regional transmission project through their transmission tariff. These costs are distributed among the beneficiaries of the transmission project according to the established cost allocation methodology. On the other hand, no clear source of funding exists for non-transmission solutions to regional transmission needs. Transmission providers aren't required to fund non-transmission solutions, and it's unclear whether they

5. Order No. 1000, *Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities, 136 FERC* ¶ 61,051 (July 21, 2011) at p.148.

6. Order No. 1000-A, *Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities, 139 FERC* ¶ 61,132 (May 17, 2012) at p.745.

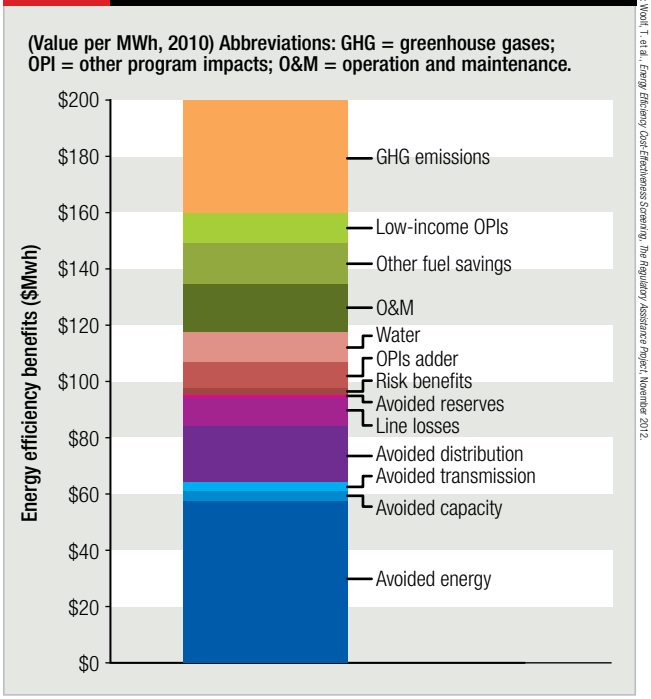
would be able to recover these costs through their transmission tariffs. Securing financing for non-transmission solutions would require that some entity fund NTAs, have the ability to recover those costs, and coordinate them within the regional transmission planning process. All of these steps are beyond the scope of transmission providers' obligation under FERC Order 1000, and together they create a virtually insurmountable competitive barrier to the implementation of NTAs.

The lack of an established cost allocation methodology for non-transmission solutions comparable to that of transmission solutions also poses a barrier to the implementation of NTAs, making it impossible to fairly compare competing non-transmission and transmission alternatives. While a non-transmission solution could be more cost-effective than a transmission solution overall, the way the costs of an NTA are shared across the region might make the NTA appear less cost-effective to certain parties funding the solution. For example, states in ISO New England share the costs of regional transmission facilities based on each state's percentage of the total system peak load. For a state that represents only 10 percent of the region's peak load, a regional transmission solution that costs $160 million would cost that state only $16 million according to the regional cost allocation methodology. But an $80 million NTA proposed to solve the same regional transmission problem—if it were located solely within the same state's borders, and thus paid for entirely by its ratepayers—wouldn't appear cost-effective to that state (because it would pay all $80 million for the NTA and only $16 million for the transmission project) even though as a whole this non-transmission solution would cost only half as much. Without comparable cost allocation, the cost-effectiveness of NTAs inherently can't be considered comparably with transmission alternatives.

No Duty to Propose Solutions

Another major barrier to the implementation of NTAs under FERC Order 1000 is the improbability that non-transmission solutions will be proposed at all. Because FERC Order 1000 requires only that "proposed" non-transmission alternatives be considered in a regional transmission planning process, the question arises of who will propose non-transmission solutions and why. The order fails to obligate any specific entity to identify or propose them, and the lack of funding for NTAs offers no financial rationale for any entity to voluntarily commit the necessary resources. If no entity proposes NTAs during the regional transmission planning process, then transmission providers can easily comply with Order 1000's requirements without ever considering potentially least-cost non-transmission alternatives. Therefore, a major barrier to the implementation of NTAs is the lack of any obligation or financial incentive for an entity to propose these solutions.

FIG. 1 VERMONT ENERGY EFFICIENCY PROGRAM SAVINGS



Source: Woolf, T. et al., *Energy Efficiency Cost-Effectiveness Screening*, The Regulatory Assistance Project, November 2012.

If no one is incented to act on NTAs and no one is required to act on NTAs, then there's no likelihood that anyone will propose NTAs.

If, however, some entity were to propose NTAs, and those NTAs were somehow approved and appropriately funded, there's yet an additional barrier to NTAs: it's uncertain what entity is best suited to implement non-transmission solutions. It isn't clear that providers of existing non-wires solutions—such as aggregators of retail customers or third-party administrators of energy efficiency and demand response programs—already possess the expertise to implement NTA solutions at scale for transmission needs, or that these entities possess sufficient capacity to perform this role over a wide area or in every region.

Valuing All the Benefits

Even if NTA solutions were to be proposed in a regional transmission planning process, FERC Order 1000 offers little guidance on how their benefits should be evaluated. The order states that selected transmission alternatives should be more efficient or more cost-effective. In the case of transmission solutions, many would take this to mean that the least-cost project should be selected. However, NTA resources frequently provide benefits beyond lower transmission costs. Energy efficiency, demand response, and renewable distributed generation provide additional benefits including avoided energy costs, reduced wholesale electricity costs, reduced air pollution and water usage, and avoided land use and siting issues, among others. For example, the State of Vermont requires that energy efficiency programs be evaluated based on a broad set of benefits. Figure 1 illustrates Vermont's

assessment that its 2010 energy efficiency programs provided benefits totaling $200 per MWh.

Order 1000's requirement that transmission needs driven by public policy requirements be considered in transmission planning allows for the consideration of these external issues. Stakeholder input—particularly from state environmental agencies—might be required to ensure that these benefits are appropriately accounted for and included when competitive NTA and transmission solutions are compared. Because of these additional benefits, NTA solutions could be far more cost-effective than they appear based solely on the avoided costs of transmission alternatives. These benefits could be particularly important in areas facing nonattainment of federal air quality standards, serious water constraints, or land use restrictions. Regions that fail to account for all the benefits of non-transmission solutions might undervalue NTAs and fail to implement the most cost-effective solutions.

Status Quo and Rate Fairness

Simply put, inertia creates a final barrier to NTAs. Transmission providers, charged with overseeing the regional planning processes under FERC Order 1000, possess an inherent disincentive to choose NTAs over transmission solutions. First, transmission providers have a financial incentive to build transmission, particularly when their recovery of costs and return on investment are guaranteed through a regional cost allocation method. Choosing a competitively superior NTA solution over a transmission solution comes with a significant opportunity cost for the transmission provider: the return on investment that would have been earned on the transmission solution. Second, the Energy Policy Act of 2005 required the FERC to establish incentives for public utilities to invest in transmission in order to help ensure reliability and reduce the cost of delivered power for customers. These incentives, established in FERC Order 679, further increase the opportunity cost to a transmission provider of choosing non-transmission solutions.

FERC Order 1000 allows the selection of a regional transmission solution that's more efficient or more cost-effective than transmission facilities in individual utility transmission plans. But it doesn't explicitly allow for the inclusion of non-transmission solutions in the regional transmission plan or explicitly allow their costs to be allocated in a manner similar to transmission alternatives. How can regional transmission providers ensure the reliability of their systems by replacing transmission solutions with NTAs—and reap the additional benefits of doing so—if NTA solutions can't be included in a regional transmission plan?

And if regional plans don't consider NTAs, can transmission rates be considered just and reasonable?

FERC Order 1000 is intended to help ensure that transmission services are provided at just and reasonable rates by establishing better coordination in transmission planning, consideration of transmission needs driven by public policy requirements, and consideration of alternative non-transmission solutions. On the other hand, Order 1000 doesn't explicitly allow for the selection of competitive non-transmission alternatives, and it explicitly fails to address the issue of cost-recovery for NTAs, making the selection of NTAs over transmission alternatives entirely unlikely. How can a regional plan that ignores more competitive, more efficient, or more cost-effective solutions meet the just and reasonable standard?

In order to achieve a least-cost transmission system, ensure just and reasonable rates, and extract the greatest benefits from the solutions implemented, remaining barriers to non-transmission solutions must be addressed. While the FERC might provide guidance on these issues in the future, states have the opportunity to remove competitive barriers to NTAs now. By doing so, they can help ensure that the transmission system built under Order 1000 provides the greatest benefits to ratepayers at the lowest possible cost. Within their jurisdictions, states can take the following steps:

Order 1000 remains silent on who, if anyone, must pinpoint potential NTA solutions.

- Authorize transmission providers or third parties to recover the costs of cost-effective NTAs and cooperate with other states to allocate the costs of NTAs in a manner comparable to transmission solutions.
- Require or encourage utilities or third parties to participate in regional transmission planning processes and to propose non-transmission solutions.
- Participate in regional planning processes—through public utilities commissions, air and water quality regulators, state energy offices, land use managers, and other agencies—to ensure that all costs and benefits to citizens are included for any alternative considered. A state also could require that its transmission providers represent the state's interests in regional transmission planning processes.

Regardless of the methods used, competitive barriers to NTAs must be removed expeditiously. If they remain in place, ratepayers will be compelled to fund a transmission system that imposes unnecessarily high costs and lacks the multiple benefits offered by NTAs. Or, in the alternative, transmission providers could face litigation and possible disallowance of recovery in rates that can't be considered just and reasonable.