



# Conservation Law Foundation

Federal Energy Regulatory Commission

Demand Response in the Wholesale Market

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## Demand Resources as an Alternative or Complement to Transmission Expansion

### Introduction

Tremendous opportunities exist for demand resources to assist with transmission capacity expansion and to address both reliability and congestion problems on the grid. The Commission has consistently shown leadership and support for more fully integrating demand resources in wholesale markets. The obvious challenge in both wholesale markets and regional transmission planning is to create a level playing field for demand resources so that they can help meet society's needs for power in the most cost effective, reliable and environmentally sound manner.

### Integration of Demand Resources

A lot has been said in recent years about the importance of integrating energy efficiency and demand side resources into the power delivery system and into electric resource planning, and the Commission has supported important steps in this direction. This same focus needs to be given to the integration of demand resources into our transmission infrastructure. Currently most transmission planning processes do little more than gauge the demand that exists (and demand reduction programs in place) and then suggest building the poles, wires and other facilities to make sure the lights will stay on. To the extent efficiency or other demand resources are considered at all, they are treated only as an input into the forecast, helping to determine how much demand needs to be met over the forecast period. Such a limited consideration of demand resources fails to fully integrate demand resources into the transmission planning process. Targeted efficiency measures that could reduce demand in a constrained area sufficient to avoid or delay a new transmission project, for example, have not typically been considered in planning to address transmission problems or grid enhancements.

### Key Elements to Integrate Demand Resources

Key elements of a planning process that would effectively integrate demand resources would include:

1. *Time Horizon:* A time horizon for planning that is sufficient to permit consideration of alternative resources. In some cases, the ramping up and implementation of energy efficiency may take longer than building new transmission lines. If sufficient time is not allowed, energy efficiency resources cannot be an option.

2. *Clear Parameters or Equivalence:* The critical parameters of a transmission problem or need, including location and scale, must be clearly identified.
3. *Open Process:* A process that is open and accessible to a variety of resource providers. Potential suppliers of demand resources and other non-transmission alternatives must have access to data and a process that allows them to offer effective solutions. Potential solutions can be evaluated through some form of competitive bidding or an open market test.
4. *Resource Valuation:* A valuation of resources that recognizes the resource characteristics of alternatives and fairly compensates for differences in risk and benefits among alternatives.
5. *Funding Parity:* Demand resources that meet system reliability needs should have the same funding options available as transmission facilities proposed to meet reliability needs. Without equal funding treatment, demand resources will always be at a disadvantage despite lower costs or reduced impacts.

### **Outline of Effective Transmission Planning Process<sup>1</sup>**

The components of a transmission planning process that would effectively integrate demand resources include the following:

- I. Multiple base case scenarios over a 20 year planning horizon for the existing system that evaluate the following factors and utilize various planning tools:
  - a. Load growth estimates for various regions
  - b. Generation additions/retirements and power contracts in the region
  - c. Planned transmission enhancements in the region
  - d. Imports and exports within and outside the region
  - e. Reliability and economic congestion thresholds using both deterministic and probabilistic planning tools (as appropriate)
  - f. Scenario planning sensitivity analyses and market efficiency planning tools available
  - g. Region-wide and sub-regional problems identified by geographic scope
  
- II. Transmission enhancements warranted from base case scenarios
  - a. Identify base case transmission upgrades
  - b. Determine cost of base case transmission upgrades within a +/- 20% accuracy as is done for facilities studies
  - c. Specify megawatt equivalent for alternative solutions in terms of total dollar cost for each transmission upgrade.
  - d. Provide opportunity for public review of base case analyses

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<sup>1</sup> This outline is adapted from testimony of Paul Peterson of Synapse Energy on behalf of Conservation Law Foundation that was submitted in a Vermont regulatory proceeding. *In re Investigation into Least-Cost Integrated Resource Planning for Vermont Electric Power Company, Inc's Transmission System*, Vermont Public Service Board, Docket No. 7081. The testimony is available on Conservation Law Foundation's website [www.clf.org](http://www.clf.org) and can be found at the following link -- [http://www.clf.org/uploadedFiles/CLF/Programs/Clean\\_Energy\\_&\\_Climate\\_Change/Energy\\_Efficiency/VELCo/Peterson%20Testimony%20-%20Final%20-%202010-26-06.pdf](http://www.clf.org/uploadedFiles/CLF/Programs/Clean_Energy_&_Climate_Change/Energy_Efficiency/VELCo/Peterson%20Testimony%20-%20Final%20-%202010-26-06.pdf) .

- III. Identify alternative system enhancements (non-transmission alternatives) over the base case planning horizons. The analysis of alternatives should be both regional and sub-regional/ local as determined by the base case scenarios, and should, at a minimum, include:
  - a. Energy efficiency load reductions
  - b. Small-scale distributed generation
  - c. Demand response as a “generator”
  - d. Merchant transmission projects
  - e. Combinations of alternatives
  
- IV. Provide a market test that allows a wide range of solutions to come forward and be considered. It should:
  - a. Specify the criteria for evaluating alternative proposals and transmission upgrades.
  - b. Use a test for comparing alternatives that includes societal costs.
  - c. Identify cost bandwidths for alternatives (+50%) to capture the uncertainty of transmission upgrade costs and to capture the reduced impacts of most non-transmission solutions.
  - d. Establish a public review process that effectively incorporates public input for evaluating options.
  
- V. Provide funding parity for demand resources and other non-transmission alternatives equivalent to transmission alternatives. These may include:
  - a. Inclusion in regional transmission tariffs
  - b. Inclusion in local transmission tariffs.
  - c. Availability for designation as a Pooled Transmission Facility (PTF in New England) or a Reliability Upgrade (in PJM) or similar designation that makes a project eligible for regional sharing of all or some of the costs.

### **Advantages, Challenges, Obstacles & Solutions**

Demand resources, such as energy efficiency, are the cleanest and lowest cost resources available. On average energy efficiency can be acquired for about 3 cents per kilowatt hour without producing greenhouse gas emissions or other pollution. Effective incorporation of efficiency and demand resources into transmission planning allows a wider range of resources to be available and lowers the cost and pollution impacts for everyone.

The challenges, obstacles and solutions are many.

#### *Financial Disincentives*

Utilities make money by selling more electricity and have a financial disincentive to reduce demand. Rate making mechanisms that decouple utility profits from the volume of electricity sold are one means to overcome this disincentive.

### *Lack of Expertise and Effective Standards*

In transmission expansion planning, demand resources have typically been seen as square pegs for round holes. Individual utilities and RTOs often lack the experience, expertise or tools to evaluate adequately whether and how demand resources could contribute to meeting system needs. Clear standards to identify needs that must be met and to evaluate the variety of ways to meet those needs should be put in place by all RTOs. Standards that require all reliability solutions to look, act, and feel like transmission facilities will exclude many viable alternatives that would meet system needs and perform in a manner equivalent to transmission. Instead standards should be based on ability to meet identified needs. Just because everyone needs shoes does not mean that everyone needs to wear brown oxfords with laces. Standards should not be so narrow that they exclude viable solutions.

### *Funding Parity*

To effectively incorporate demand resources into the transmission planning process, they need to be afforded the same opportunities for regional and local funding as transmission facilities. If the costs of regional transmission facilities can be spread among the region's customers that benefit from them, but the costs of alternatives that would avoid or delay those same projects cannot be spread in the same manner, the playing field is not level. Instead, demand resources have to meet tougher requirements than transmission resources in order to provide services and meet system needs. For demand resources to be incorporated into the transmission planning process in a meaningful way, they need to be afforded the same opportunities for regional funding as transmission facilities.