Smart Grid System Report Stakeholder Webinar Series

SGSR Policy Webinar

Two topics:

1. Standard Distributed Resource Connection Policies
2. Regulatory Recovery for Smart Grid Investments

Standard Distributed Resource Connection Policies

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Standard DER Connection Policies Description

- Increasing presence of backup generation among utility customers has led to various efforts for standardizing interconnection of these resources to the grid
- Distributed resources can be used to help alleviate peak load, provide needed system support
- Energy Policy Act of 2005 requires all state and non-state utilities to consider adopting interconnection standards based on IEEE Standard 1547
- FERC Order 2006 mandates that all public utilities that own transmission assets provide a standard connection agreement for small generators (under 20 MW)
- Each state and utility must determine how to define and implement these rules

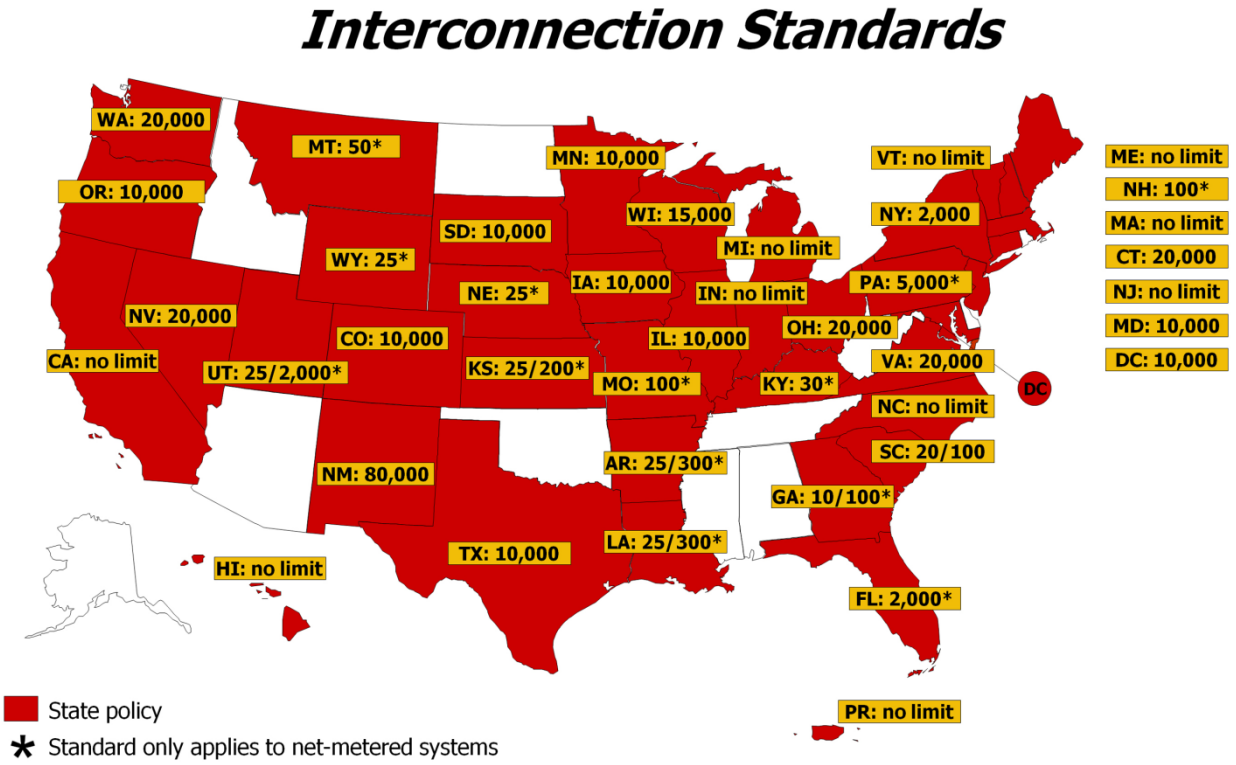
Standard DER Connection Policies Proposed Metrics

- Current metric
  - The percentage of utilities with standard distributed resource interconnection policies
- How many metrics do we need?
  - Number of states that mandate interconnection policies
  - Number of utilities with interconnection policies
  - Number of interconnection policies by wind, solar, geothermal, biomass across the nation
  - The percentage of states or utilities that meet certain favorability criteria?
  - How effective are the interconnection policies?
- Potential other metrics?

Standard DER Connection Policies Data Sources

- Previous report
  - DSIRE Database
  - NNEC, *Freeing the Grid: Best and Worst Practices in State Net Metering Policies and Interconnection Procedures,* 2009
  - EIA, *Contact Information for Electric Utilities by State*
  - Previous SGSR overly reliant on a single one-time report whereas there is a need for consistent reporting over time
- Next report
  - Is there a more consistent source of information for rating DER favorability?
  - How best can we assign utilities to states?
  - Potential other data sources?

State DER Connection Policies



Notes: Numbers indicate system capacity limit in kW. Some state limits vary by customer type (e.g., residential/non-residential). "No limit" means that there is no stated maximum size for individual systems. Other limits may apply. Generally, state interconnection standards apply only to investor-owned utilities.

Source: DSIRE Database – http://www.dsireusa.org/documents/summarymaps/interconnection.ppt

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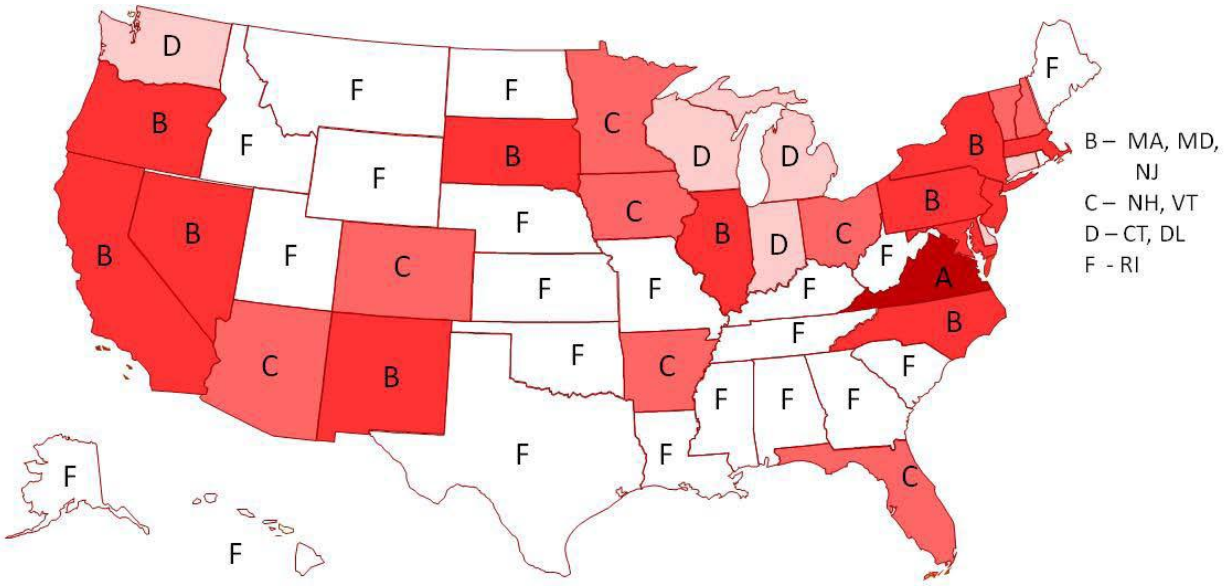
Favorability of State DER Connection Policies



Source: NNEC – Network for New Energy Choices. 2009. *Freeing the Grid: Best and Worst Practices in State Net Metering Policies and Interconnection Procedures.* Network for New Energy Choices, New York. Accessed July 15, 2010 at http://www.newenergychoices.org/uploads/FreeingTheGrid2009.pdf (undated webpage).

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Standard DER Connection Policies Stakeholders

- Distribution service providers and electricity service providers
- Manufacturers of DER products and services
- Regulators and policymakers
- End users
- Environmental organizations and other advocacy groups
- Other stakeholders?

Standard DER Connection Policies Regional Aspects

- Regional differences in perception of the risk and benefits of distributed resources; impact on where they have been employed
- Regional policies driven by major state players
  - California's progressive distributed-generation interconnection policies place no limits on resource size
  - New York continues to provide support for distributed generation
  - The Mid-Atlantic Distributed Resources Initiative has proposed a model adopted by many states
  - States in Southeast region of US have been resistant to adopting more favorable DG policies

Standard DER Connection Policies Challenges

- Technical
  - Disagreement among some utilities and DER manufacturers concerning how to handle DER interconnection at high levels of penetration
  - Technical specifications for DER are written conservatively in order to err on the side of safety
  - Transmission and distribution congestion mitigation impacts are difficult to quantify
- Business and financial
  - Utilities still have difficulty making the business case for distributed resource integration
  - The financial benefits associated with transmission and distribution congestion mitigation benefits of DER are difficult to quantify
- Other perspectives?

Regulatory Recovery for Smart Grid Investments

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Regulatory Recovery Description

- Regulatory recovery complicating factors
  - Smart-grid investments are capital intensive and expensive
  - Multiple jurisdictions within a utility's service area
  - Benefits of smart-grid investments (e.g., reducing meter-reading costs, enhanced billing accuracy, improved information regarding outages) can be difficult to quantify
- Energy efficiency, demand reduction, demand response, distributed generation, and asset optimization can be discouraged by current regulatory frameworks
- Cost recovery for smart grid investments
  - Trackers
  - Balancing accounts / rate base
  - Customer surcharge
  - State funding

Regulatory Recovery Proposed Metrics

- Current metric
  - The weighted average percentage of smart grid investment recovered through rates
- How many metrics do we need?
  - Potential other metrics
    - The number of utilities and weighted average percentage share of customers served by utilities where incentives, mandates, and recovery are available
    - The number of utilities and weighted average percentage share of customers served by utilities where cost recovery is enabled through specific concepts – e.g., trackers, balancing accounts, customer surcharges, state funding, revenue decoupling, lost revenue adjustment mechanisms

Regulatory Recovery Data Sources

- Previous report
  - APQC survey conducted for SGSR
    - Type of regulatory policies in place to support smart-grid investment (e.g., mandates, incentives)
    - Percentage of current and expected future regulatory recovery rates
  - IECC, *State Energy Efficiency Regulatory Frameworks,* 2010.
- Next report
  - NARUC
  - Potential other data sources?

Regulatory Recovery Stakeholders

- Regulatory agencies considering smart grid business cases
- Residential, commercial, and industrial customers who could benefit from the deployment of smart grid technologies, but are wary of the significant costs
- Transmission and distribution service providers and balancing authorities interested in reducing peak demand, enhancing efficiency, and reducing the costs to supply energy
- Policy advocates, such as environmental organizations, interested in reducing the need for new power generation plants
- Policymakers interested in fostering competitive markets and managing load while reducing the need to expand existing generation, transmission, and distribution infrastructure
- Other stakeholders?

Regulatory Recovery
Regional Aspects

- There are opportunities for expanded smart-grid investment through decoupling, which breaks the link between the amount of energy sold and the revenue utilities collect to recover the fixed costs of providing services to customers
- For utilities operating in multiple jurisdictions, the regulatory requirements in one area may not be consistent with those in another
- Specific policies in Georgia, Illinois, Oklahoma, Hawaii, and California were highlighted in the 2011 SGSR
- Other regional issues and state programs worth highlighting?

Regulatory Recovery Challenges

- Technical
  - Proof of concept may be required to make the case to utility commissions
  - General agreement is needed on the points in smart-grid systems where interfaces can be defined and stabilized
  - **How do we define smart grid and regulatory recovery? What constitutes a smart grid investment?**
- Business and financial
  - There are significant costs to utilities deploying new smart-grid technologies
  - It may be difficult to demonstrate positive net benefits
  - Utility commissions may require more timely cost recovery than levels projected for some smart-grid investments
  - Regulatory requirements may vary between jurisdictions
  - Business cases should consider the societal benefits by internalizing the external costs of energy generation and thereby monetizing the benefits associated with reduced emissions
- Other perspectives?