

Renewables Portfolio Standards: What Are We Learning?

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Presentation Outline

- ❑ Overview of the RPS
- ❑ Where have RPS policies been implemented in the United States?
- ❑ What positive impacts have been generated by these policies?
- ❑ What pitfalls have been experienced, and lessons learned?



Current Renewable Energy Market Drivers in the United States

- ❑ **Renewables Portfolio Standards:** 13 states have enacted RPS policies, which obligate suppliers to deliver a certain amount of renewable energy
- ❑ **Renewable Energy Funds:** 15 states have set-aside funds to financially support renewable energy sources
- ❑ **Green Power Markets:** Utility green pricing programs, competitive green power markets, and REC marketers have all emerged
- ❑ **Tax Incentives:** Federal production tax credit for wind, investment tax credit for solar and geothermal, and accelerated depreciation, as well as state tax incentives, all help spur development
- ❑ **Economics:** Some forms of renewable energy, especially with tax incentives, can compete on cost alone (e.g., wind at ~2-4 cents/kWh)

Renewables Portfolio Standard

WHAT IS IT???

- ❑ Requirement on retail electric suppliers...
- ❑ to supply a minimum percentage or amount of their retail load...
- ❑ with eligible sources of renewable energy.

Sometimes accompanied with a tradable renewable energy credit (REC) program to ease compliance

Advantages and Disadvantages of the Renewables Portfolio Standard

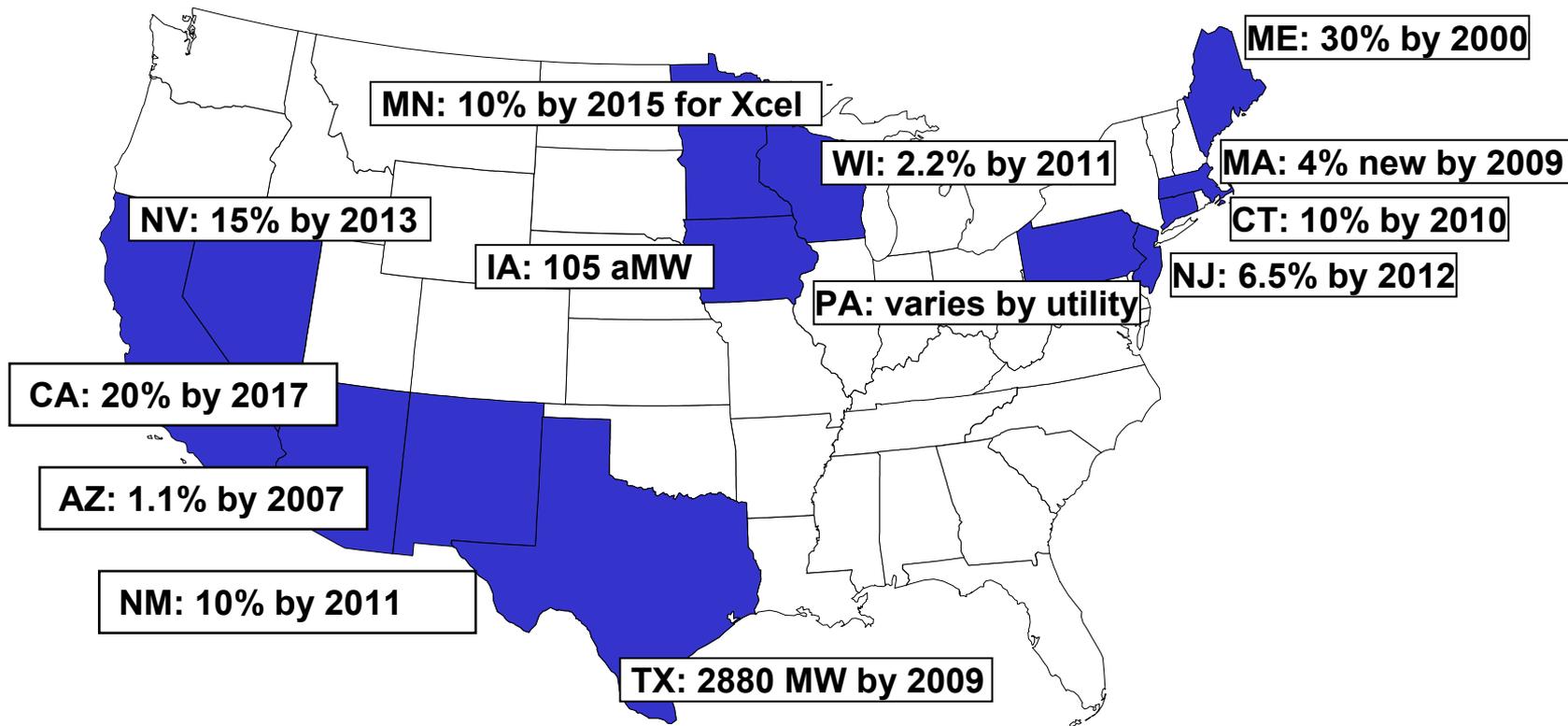
ADVANTAGES

- ❑ Can ensure known quantity of renewable energy
- ❑ Can lower cost of achieving target by giving private market flexibility
- ❑ Competitively neutral if applied to all load-serving entities
- ❑ Relatively low administrative costs and burdens
- ❑ Can be applied in restructured and regulated markets

DISADVANTAGES

- ❑ Due to complexity, can be difficult to design well
- ❑ Less flexible in offering targeted support to *specific* RE sources, or ensuring resource diversity
- ❑ Cost impacts not known with precision in advance
- ❑ Operating experience is limited
- ❑ Questions over whether RPS policies will necessarily lead to long-term contracts

State Renewables Portfolio Standards and Purchase Mandates – 13 States



- Renewable energy “goals” established in Illinois, Minnesota, and Hawaii
- RPS being considered in many other states (e.g., CO, NY, VT, WA, RI), potentially revised in some states (ME, NJ, PA, NM, WI), and national RPS has been discussed

State RPS Program Context

- ❑ **RPS Application:** RPS typically applies to regulated investor-owned utilities and competitive energy service providers; publicly owned utilities often exempt
- ❑ **Regulated vs. Restructured:** more than half in restructured markets, but increasingly in monopoly markets as well
- ❑ **Load Covered:** ~30% of U.S. load covered by a state RPS or a renewable energy purchase obligation
- ❑ **Operating Experience:** experience with policy is growing, but few states have >3 years experience
- ❑ **Potential Impact:** ~16,000 MW of new renewable energy capacity possible by 2017, if all goes well

State RPS Policies Differ: There is No Single Way to Design an RPS!

- ❑ Structure of RPS
- ❑ Standard levels
- ❑ Resource eligibility
- ❑ Treatment of existing plants
- ❑ Tiers and bands
- ❑ Start and end dates
- ❑ Application of standards
- ❑ Enforcement/penalties
- ❑ Flexibility mechanisms
- ❑ Renewable energy credit (REC) trading

The Most Important (and obvious) Lesson Learned to Date

An RPS Can Be A...

**Elegant, cost effective,
flexible policy to meet RE
targets**

?

**Poorly designed,
ineffective, or costly way to
meet RE targets**

**The legislative and regulatory
design details matter!!!**

The Impacts of State RPS Policies: The Good, the Bad, and the Ugly

Successful Outcomes	Mixed or Unclear Success	Unsuccessful Outcomes
<input type="checkbox"/> Texas	<input type="checkbox"/> Arizona	<input type="checkbox"/> Connecticut*
<input type="checkbox"/> Iowa	<input type="checkbox"/> California	<input type="checkbox"/> Maine
<input type="checkbox"/> Minnesota	<input type="checkbox"/> Massachusetts	<input type="checkbox"/> Pennsylvania
	<input type="checkbox"/> Nevada	
	<input type="checkbox"/> New Jersey	
	<input type="checkbox"/> New Mexico	
	<input type="checkbox"/> Wisconsin	

* CT revised its RPS in 2003, ensuring more positive effects in the future.

State RPS policies rated based on amount of new renewable energy development, full compliance with RPS, reasonable and stable costs, and recovery of prudently incurred compliance costs

The Early Positive Impacts of State RPS Policies

- ❑ **Texas:** Over 1100 MW of wind installed since RPS established
- ❑ **Minnesota:** Largely met initial 425 MW wind/125 MW biomass mandate
- ❑ **Iowa:** Policy met with 250 MW of wind some time ago
- ❑ **Wisconsin:** 140 MW of RE so far, with more on the way
- ❑ **California:** Interim procurements resulting in lots of RE contracts, a fraction of which are coming from new RE
- ❑ **Nevada:** Initial procurement led to 277 MW of RE contracts
- ❑ **Arizona:** 7 MW PV, 5-10 MW LFG, 3 MW biomass, 15 MW wind (contract), 20 MW geothermal (contract)
- ❑ **New Mexico:** Contributor to 204 MW wind project installed in 2003
- ❑ **Massachusetts and Connecticut:** Merchant LFG, wind development, biomass repowering and re-development
- ❑ **New Jersey:** Mostly supported existing LFG so far, but some new wind and LFG indirectly affected by policy

Design Requirements For An Effective RPS

- ❑ Strong political support and regulatory commitment that is expected to continue over the duration of the policy
- ❑ Clear and well-thought-out renewable energy eligibility rules
- ❑ Predictable long-term renewable energy targets that ensure new renewable energy supply
- ❑ Standards that are achievable given permitting challenges
- ❑ Credible and automatic enforcement – penalties must exceed cost of compliance
- ❑ Applied to electricity suppliers that are credit-worthy and are in a position to enter into long-term contracts, if possible

Major Design Pitfalls: Lessons Learned

❑ **Narrow Applicability**

- An RPS that is applied un-equally to suppliers will limit the impact of the RPS, create competitive supplier entry barriers, and create political vulnerability
- *Example:* Until 2004, CT exempted providers of last resort (POLR) service (>90% of load); PA's RPS still applies only to certain competitive POLR suppliers

❑ **Poorly Balanced Supply-Demand Condition**

- An RPS will not protect or increase renewable supply if supply-demand balance is not carefully managed; at the same time, an RPS that is too aggressive may result in supply constraints and high costs
- *Example:* ME RPS ineffective due to considerable oversupply of eligible resources (NJ and PA have similar problems); MA and NV arguably gave too little time to develop new resources

❑ **Insufficient Duration and Stability of Targets**

- Standards must be durable and stable, or else makes financing difficult, raises costs, creates paralysis
- *Example:* AZ and ME standards unclear after 2003 and 2005, respectively; in other cases, fate of RPS after a certain date is unspecified (e.g., PA)

Major Design Pitfalls: Lessons Learned

❑ **Insufficient Enforcement**

- May result in non-compliance, investment risk increases
- *Example:* AZ RPS has no penalties; in other cases enforcement is vague or unspecified: ME, MN, NV, NJ, NM, PA

❑ **Lack of Contracting Standards and Cost Recovery Mechanisms**

- Contracting standards and cost recovery mechanisms are often required for utilities and regulated POLRs to ensure that long-term contracts are made available to RE projects
- *Example:* In MA, few suppliers are making long-term commitments; same thing may occur in NJ and other states

❑ **Undue Design Complexity**

- Complex policies that require considerable and detailed regulatory oversight may be unwieldy
- Concerns in CA that design complexity is already delaying RPS solicitations by the utilities, and will lead to legal battles

The Bottom Line

- ❑ 13 existing state RPS policies are currently the principal form of support for large-scale renewable projects
- ❑ Additional states are considering the RPS
- ❑ A state RPS can effectively deliver renewable energy supply and associated benefits, at a low cost
- ❑ But designing such an RPS requires careful attention – the devil is always in the details!!!
- ❑ Experience in other states can help point the way towards a well-designed RPS

