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

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<tr>
<th>ADVANTAGES</th>
<th>DISADVANTAGES</th>
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<tr>
<td>Can ensure known quantity of renewable energy</td>
<td>Due to complexity, can be difficult to design well</td>
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<td>Can lower cost of achieving target by giving private market flexibility</td>
<td>Less flexible in offering targeted support to <em>specific</em> RE sources, or ensuring resource diversity</td>
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<td>Competitively neutral if applied to all load-serving entities</td>
<td>Cost impacts not known with precision in advance</td>
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<td>Relatively low administrative costs and burdens</td>
<td>Operating experience is limited</td>
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<td>Can be applied in restructured and regulated markets</td>
<td>Questions over whether RPS policies will necessarily lead to long-term contracts</td>
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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

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<th>Successful Outcomes</th>
<th>Mixed or Unclear Success</th>
<th>Unsuccessful Outcomes</th>
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* 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 unequally 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
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