Renewables Portfolio Standards: A Focus on Western States

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Presentation Overview

1. Overview of State RPS
2. RPS Impact on Project Development
3. RPS Design and Design Pitfalls
4. Impact on Renewable Energy Contracting
5. Federal RPS Implications
6. Conclusions
What Is a Renewables Portfolio Standard?

Renewables Portfolio Standard (RPS):
- A requirement on retail electric suppliers...
- to supply a minimum percentage or amount of their retail load...
- with eligible sources of renewable energy.

*Typically* backed with penalties of some form

*Often* accompanied by a tradable renewable energy credit (REC) program, to facilitate compliance

*Never* designed the same in any two states
State RPS Activity Significant in Recent Years

Enactment (above timeline)
Major Revisions (below timeline)

Year of First Requirement

Source: UCS; revised by Berkeley Lab
State RPS Policies: 21 States and D.C.

- WA: 15% by 2020
- MT: 15% by 2015
- NV: 20% by 2015
- CA: 20% by 2010
- AZ: 15% by 2025
- HI: 20% by 2020
- MN: 25-30% by 2020-25
- WI: 10% by 2015
- IA: 105 aMW
- CO: 20% by 2020
- NM: 20% by 2020
- TX: 5880 MW by 2015
- NY: 24% by 2013
- PA: 8% by 2020
- NJ: 22.5% by 2021
- CT: 10% by 2010
- MA: 4% by 2009
- RI: 16% by 2019
- MD: 7.5% by 2019
- NJ: 22.5% by 2021
- DE: 10% by 2019
- DC: 11% by 2022
- ME: 30% by 2000
- WA: 15% by 2020
- VT: 10% by 2015
- NY: 24% by 2013
- ME: 30% by 2000
- HI: 20% by 2020
- AZ: 15% by 2025
- NY: 24% by 2013
- DE: 10% by 2019

Additional renewable energy “goals” established in IL, IA, VT, and ME
State RPS Program Context

- **Load Covered**: Roughly 40% of U.S. load covered by a state RPS
- **RPS Development**: Most policies emanated from state legislation, but some from regulatory action (e.g., NY, AZ) and two from state ballot initiatives (CO, WA)
- **RPS Application**: RPS typically applies to regulated IOUs and competitive energy service providers; publicly owned utilities often – but not always – exempt
- **Regulated vs. Restructured**: Initially concentrated in restructured states, but now roughly half in monopoly markets
- **Operating Experience**: Experience with policy is growing, but few states have >5 years experience
A Focus on Western States

- Most Western states already covered by an RPS
- Arizona, New Mexico, California and Hawaii recently increased the stringency of their standards
- Colorado and California considering further increasing their RPS standards
- Oregon considering RPS this legislative session
- Montana trying to “fix” inadequate cost cap language under their RPS
- WREGIS REC-tracking program expected to be operational in 2007

NV: 20% by 2015
CA: 20% by 2010
WA: 15% by 2020
MT: 15% by 2015
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CO: 10% by 2015
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Half of All Wind Project Development in the U.S. from 2001-2006 Was RPS-Related

Half of all US wind power capacity built from 2001-2006 was RPS-related.
## Recent Examples of Impact of RPS Policies on Wind Power Development in the West

<table>
<thead>
<tr>
<th>State</th>
<th>Details</th>
</tr>
</thead>
</table>
| California  | • 211 MW installed in 2006  
              • ~3,000 MW new wind under contract                                                                                              |
| Colorado    | • 60 MW installed in 2006  
              • ~775 MW in pipeline/negotiations                                                                                             |
| New Mexico  | • 90 MW installed in 2006 (for AZ)  
              • 140 MW installed in 2005                                                                                                    |
| Montana     | • 135 MW installed in 2005, in advance of RPS                                                                                       |
| Washington  | • 428 MW installed in 2006, in advance of RPS                                                                                       |
| Hawaii      | • 41 MW installed in 2006, more on the way                                                                                          |
| Arizona     | • Wind contracting activity beginning  
              • 90 MW NM project in 2006 contracted with APS                                                                                   |
Looking Ahead, Existing State RPS Policies Could be a Major Driver of New Renewables Capacity

UCS estimates ~45,000 MW of new RE capacity required by 2020 under existing state RPS policies, if all goes well.

14,200 MW of this capacity expected in Western region.

Source: UCS
New/Revised RPS Policies in the West May Add to These Totals

• California (33% by 2020)
  ▪ ~ 7,500 MW above current RPS by 2020

• Colorado (20% by 2015)
  ▪ ~ 900 MW above current RPS by 2015

• Oregon (25% by 2025)
  ▪ ~ 2,600 MW by 2025

Source: Union of Concerned Scientists
Wind Expected to Fare Very Well, But May Not Always Be the Hands-Down Winner

Most RPS requirements have been met with wind so far, but increased competition in some states from geothermal (Nevada, California), and solar thermal (California, Southwest) in particular.

California’s RPS procurements are governed by “Least Cost, Best Fit” criteria

...and...

Wind may not always provide the “Best Fit” (even if “Least Cost”)

New, Repowered, or Re-Started Capacity, by Technology (minimum MW, IOUs only)

- Wind: 782 MW
- Solar thermal: 899 MW
- Biogas: 35 MW
- Biomass: 134 MW
- Geothermal: 266 MW
- Small hydro: 6 MW
- PVc: 0 MW
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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!!!
### RPS Design Varies Substantially From One State to the Next

<table>
<thead>
<tr>
<th>Structure, Size and Application</th>
<th>Administration</th>
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<tbody>
<tr>
<td>Basis (energy vs. capacity obligation)</td>
<td>Regulatory oversight body(ies)</td>
</tr>
<tr>
<td>Structure (e.g., single tier or multiple tiers)</td>
<td>Compliance verification (TRCs or contract-path)</td>
</tr>
<tr>
<td>Percentage purchase obligation targets</td>
<td>Certification of eligible generators</td>
</tr>
<tr>
<td>Start date</td>
<td>Compliance filing requirements</td>
</tr>
<tr>
<td>Duration of purchase obligation</td>
<td>Enforcement mechanisms</td>
</tr>
<tr>
<td>Resource diversity requirements or incentives</td>
<td>Cost caps</td>
</tr>
<tr>
<td>Application to LSEs - Who must meet targets?</td>
<td>Flexibility mechanisms (banking, borrowing, etc.)</td>
</tr>
<tr>
<td>Product- or company-based application</td>
<td>Implementing future changes to the RPS</td>
</tr>
<tr>
<td><strong>Eligibility</strong></td>
<td>Contracting standards for regulated LSEs</td>
</tr>
<tr>
<td>Geographic eligibility</td>
<td>Cost recovery for regulated LSEs</td>
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<td>Resource type eligibility</td>
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<tr>
<td>Eligibility of existing renewable generation</td>
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<tr>
<td>Definition of new/incremental generation</td>
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<tr>
<td>Treatment of multi-fuel facilities</td>
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<tr>
<td>Treatment of off-grid and customer-sited facilities</td>
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Variations in Design Are Driven By Different Goals, Market Circumstances, Political Influences

- Unfortunate result is uneven historical and expected market impacts of state RPS policies
- Some RPS policies seemingly working well…
  - Texas, Minnesota, New Mexico, others
- Other policies are under-performing so far…
  - Under-compliance in Arizona, Nevada, Massachusetts, and California so far
  - Other policies have largely supported or will support existing (not new) renewable generation (ME, MD, etc.)
- Many others are just getting underway, but there are reasons to be concerned
Design Pitfalls in the West

Lenient Geographic Boundaries/Eligibility Restrictions

• Can enlarge the market for RECs, but may also moderate need for new wind and reduce local benefits

Force Majeure Clauses and Cost Caps

• Compliance flexibility should be encouraged, but new RPS policies increasingly including a lot of “wiggle room” to possibly allow escape from full compliance (e.g., MT, HI)

Funding Caps

• Where funding caps are in place, they may be insufficient to allow the RPS to be achieved (AZ, CA)

Application to Publicly Owned Electric Utilities

• Publicly owned utilities often exempt or provided more lenient requirements (CA, NM, NV, CO, MT, etc.)
Inadequate Enforcement

- Where full compliance is apparently not being achieved (NV, CA)...will penalties be used to enforce compliance?

Policy Instability

- Uncertainty in RPS duration, target, or eligible technologies can impede development (e.g., CA, others)

Transmission Bottlenecks

- CA, NM, CO trying to be more proactive with transmission planning/construction, but transmission remains a key barrier in many states

Design Complexity

- Is the complexity inherent in the California RPS worth it?
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RPS-Driven REC Markets Are Not Particularly Relevant in the West, Because...

Average Monthly REC Prices ($/MWh)

- CT Class I
- Massachusetts
- NJ Class I
- Texas
- MD Class I
- DC Class I
Two Types of RPS Markets Exist, and Western States Are Predominantly Regulated

**Regulated Markets**
- Dominated by long-term bundled contracts for electricity and RECs
- Utility RFP solicitations or bilateral negotiations, with PUC oversight

**Restructured Markets**
- More often dominated by short-term trade in RECs to multiple parties, without PUC oversight
- Developers often sell electricity and RECs separately

WREGIS will provide increased REC-tracking functionality starting in 2007, but is unlikely to alone be sufficient to jump start the RECs market in the West
Regulated Markets: RPS Helps Create Buyers for Renewable Energy

- RPS’ can yield profitable/financeable long-term deals, but…

- Often an RFP-driven environment, with fierce competition among developers for contracts

- Emerging concern that utilities are selecting low-priced contracts that may fail to yield operating projects
  - **CA**: Of 2,121 MW of new RE under contract – 7% cancelled; 55% delayed; 38% on track
  - **NV**: As of early 2006, of 414 MW of new RE under contract since RPS began; 57% cancelled; 37% delayed; 6% online or on track

- In other cases, PPAs impose contractual requirements (construction milestones, performance, credit) that some view as unduly severe ➔ likely to favor the larger developers
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State RPS Impacts Relative to Possible Federal RPS Policies

Aggregate impact of existing state RPS policies likely to be somewhat modest (by some standards): increased RE equates to ~3% of national electricity demand by 2020, meets ~16% of load growth over 2006-2020.

*In addition to hydro and MSW. Sources: EIA and UCS
Federal and State RPS Policies

• Multiple RPS policies proposed at Federal level, and Federal RPS has passed Senate in the past
  – Standard levels of 10-20% are in play, but with numerous exceptions/exemptions
• No unique insight into likely fate of RPS this legislative session, or in any future session
• But... If a Federal RPS is passed, then interactions between state and federal RPS policies become key
• Federal pre-emption seemingly unlikely, but also somewhat unclear whether states would require that in-state utilities purchase at levels above the Federal RPS... issue not addressed in most state RPS policies
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Conclusions

• State RPS policies, in West and otherwise, are a principal form of support for wind projects, and are becoming increasingly popular

• A state RPS can effectively deliver wind power and associated benefits at a low cost

• RPS is opening markets for wind, but not without corresponding risks

• Designing an effective RPS requires careful attention – the devil is in the details!!!