
Renewables Portfolio Standards: A Focus on Western States

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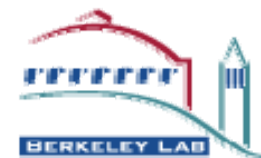
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AWEA Wind Power Finance & Investment Workshop

March 27, 2007

San Francisco, California



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):

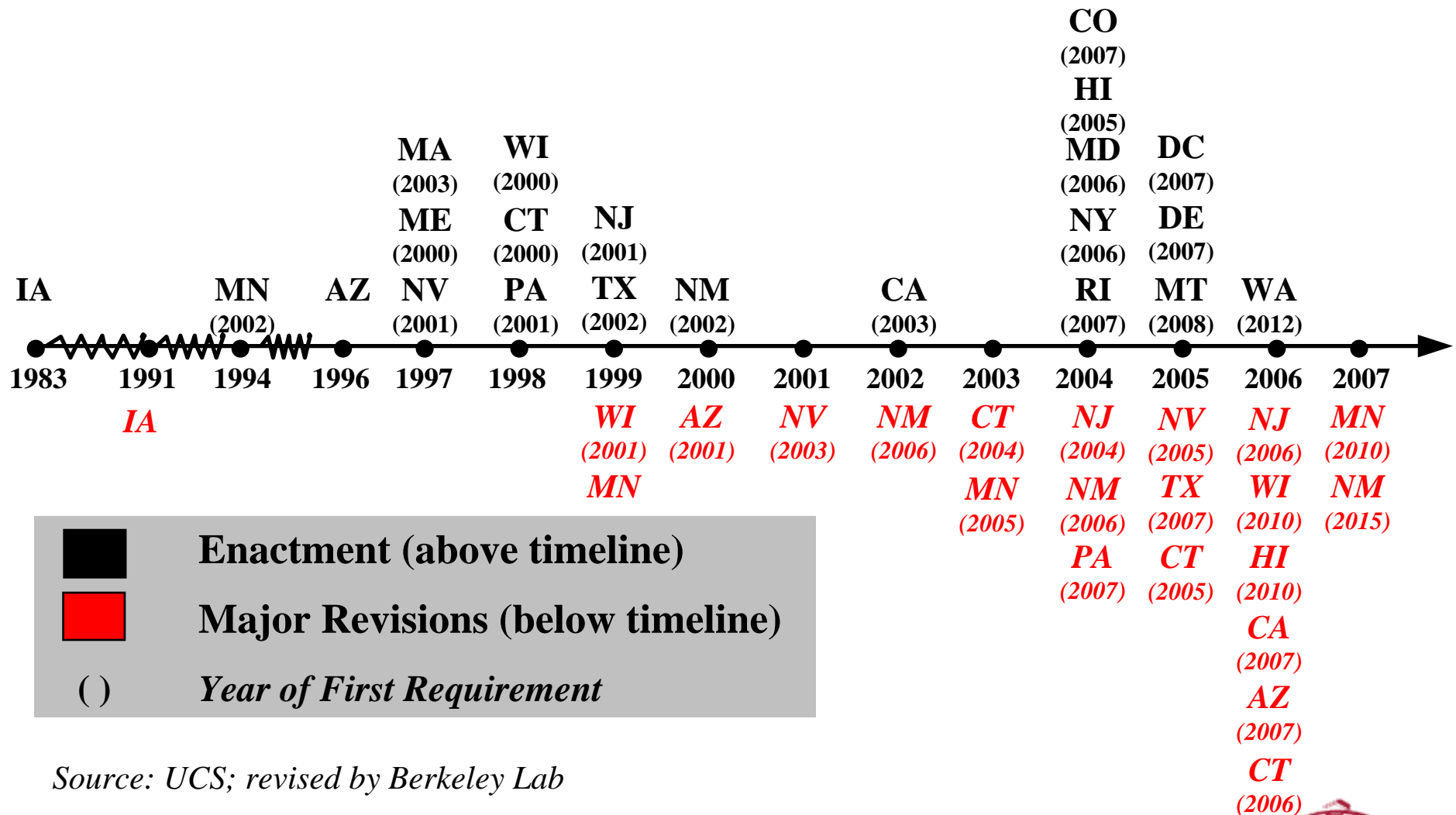
- A requirement on retail electric suppliers...
- to supply a minimum percentage or amount of their retail load...
- with eligible sources of renewable energy.

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

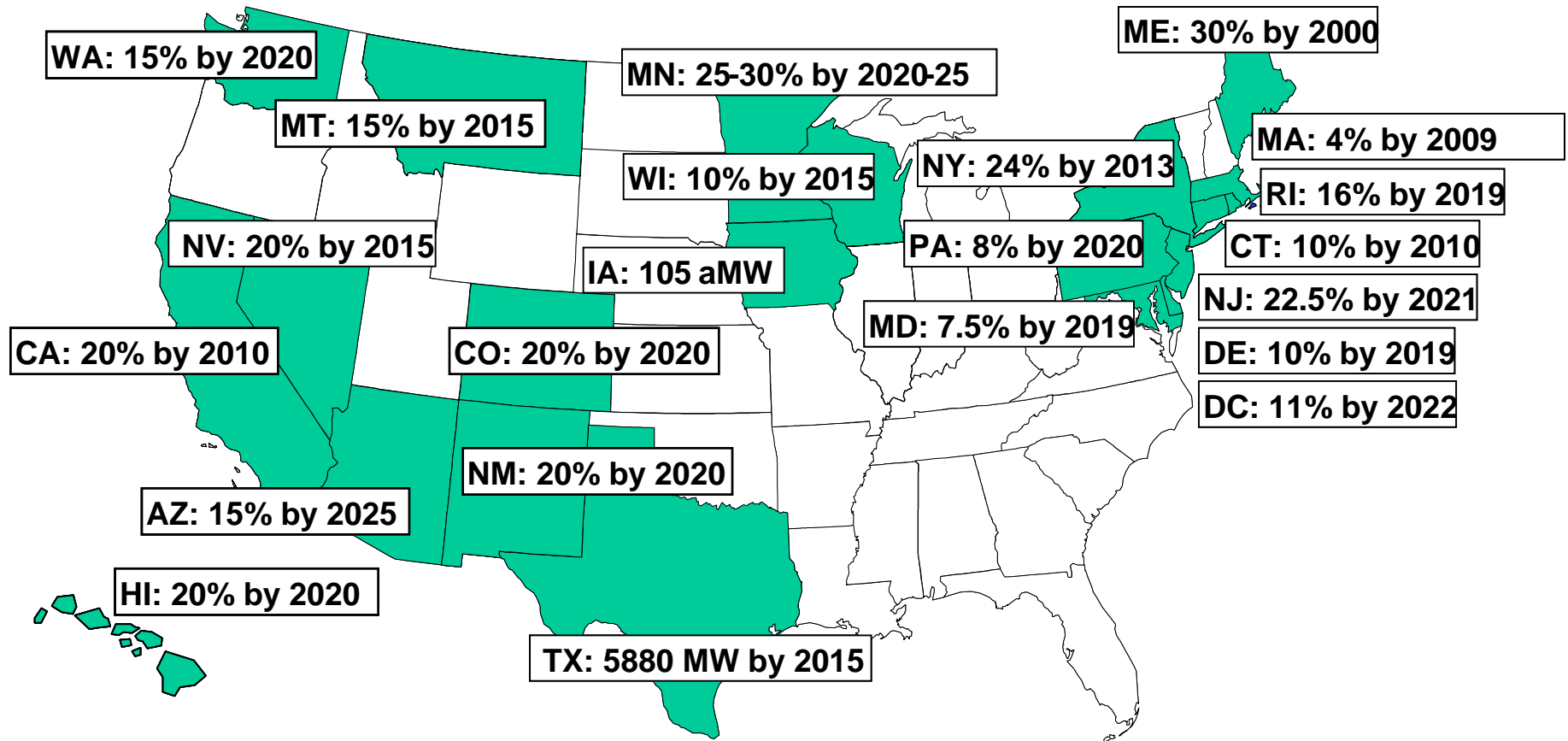
State RPS Activity Significant in Recent Years



Source: UCS; revised by Berkeley Lab



State RPS Policies: 21 States and D.C.

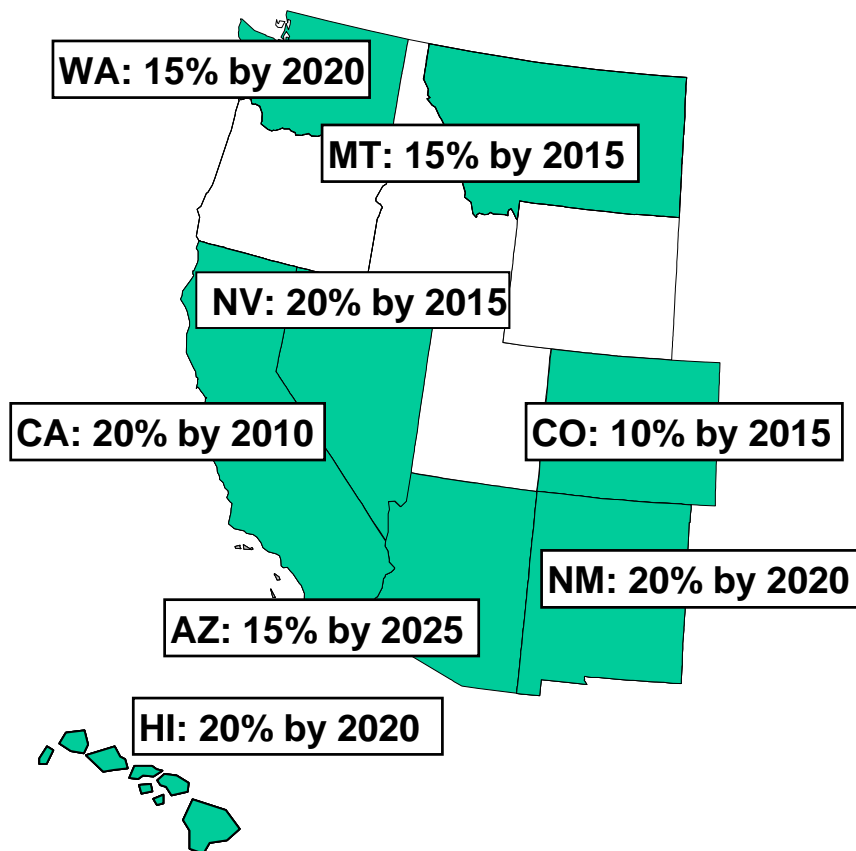


Additional renewable energy “goals” established in IL, IA, VT, and ME

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

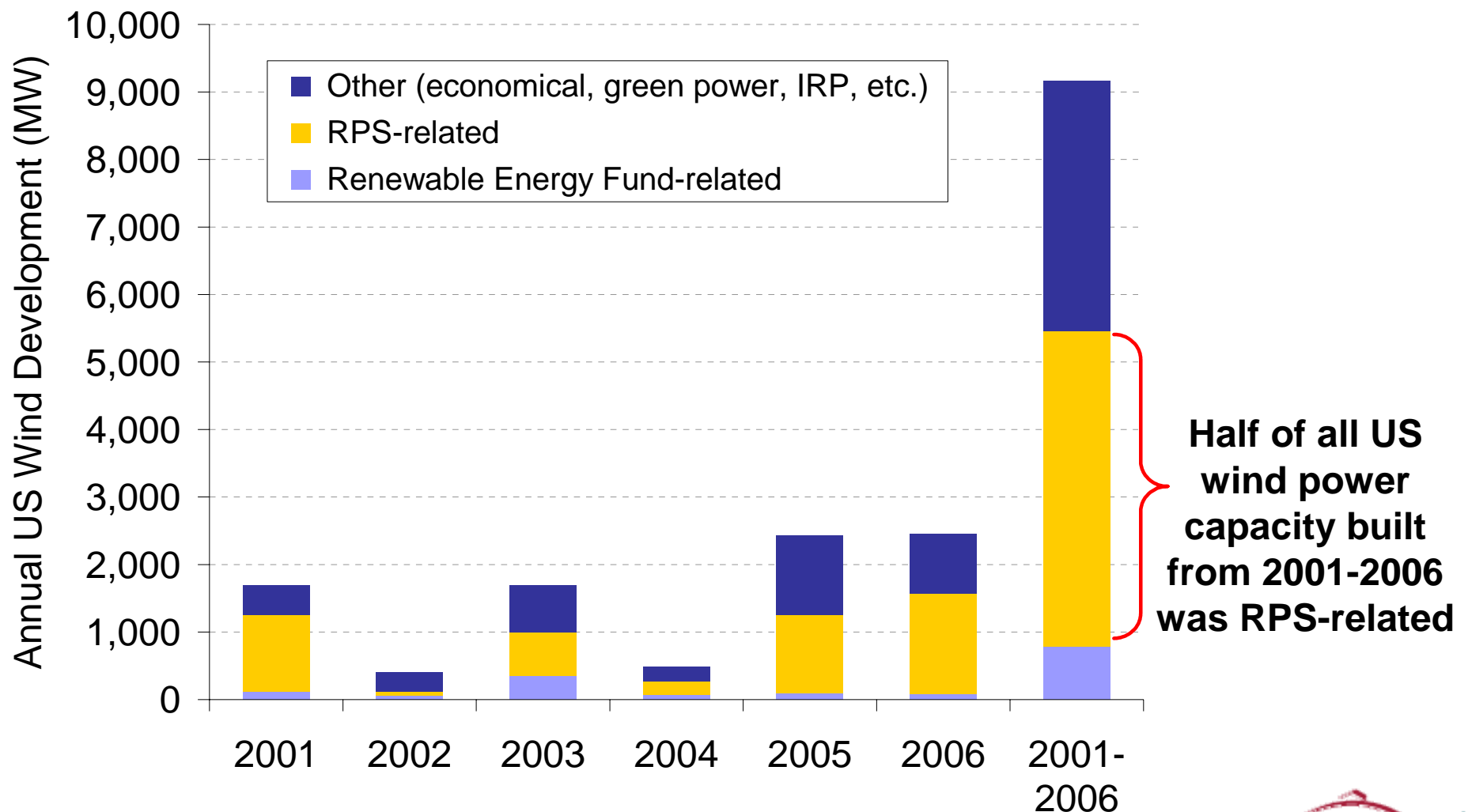


- Most Western states already covered by an RPS
- Arizona, New Mexico, California and Hawaii recently increased the stringency of their standards
- Colorado and California considering further increasing their RPS standards
- Oregon considering RPS this legislative session
- Montana trying to “fix” inadequate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

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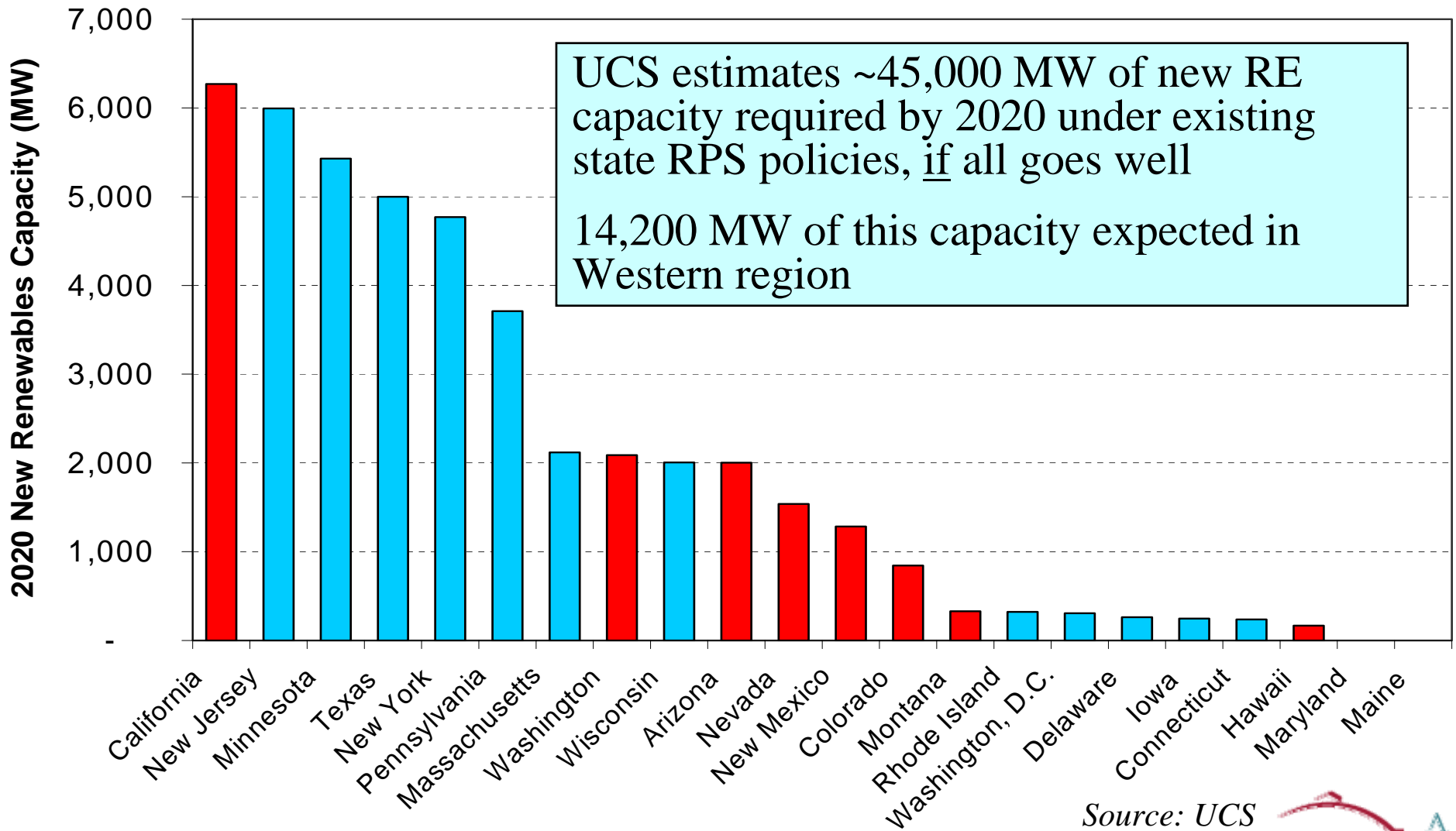
Half of All Wind Project Development in the U.S. from 2001-2006 Was RPS-Related



Recent Examples of Impact of RPS Policies on Wind Power Development in the West

California	<ul style="list-style-type: none">• 211 MW installed in 2006• ~3,000 MW new wind under contract
Colorado	<ul style="list-style-type: none">• 60 MW installed in 2006• ~775 MW in pipeline/negotiations
New Mexico	<ul style="list-style-type: none">• 90 MW installed in 2006 (for AZ)• 140 MW installed in 2005
Montana	<ul style="list-style-type: none">• 135 MW installed in 2005, in advance of RPS
Washington	<ul style="list-style-type: none">• 428 MW installed in 2006, in advance of RPS
Hawaii	<ul style="list-style-type: none">• 41 MW installed in 2006, more on the way
Arizona	<ul style="list-style-type: none">• 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



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

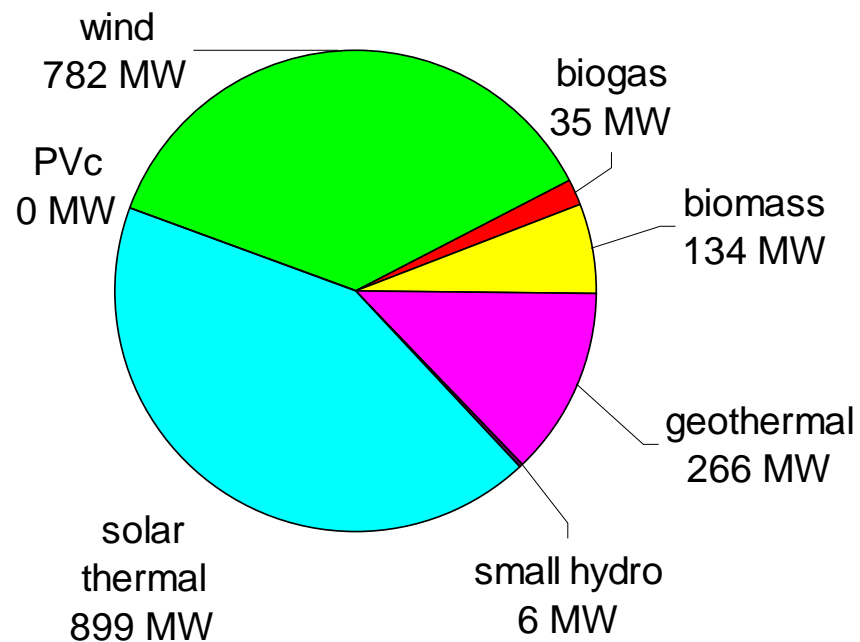
Most RPS requirements have been met with wind so far, but increased competition in some states from geothermal (Nevada, California), and solar thermal (California, Southwest) in particular

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)



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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

Structure, Size and Application
Basis (energy vs. capacity obligation)
Structure (e.g., single tier or multiple tiers)
Percentage purchase obligation targets
Start date
Duration of purchase obligation
Resource diversity requirements or incentives
Application to LSEs - Who must meet targets?
Product- or company-based application
Eligibility
Geographic eligibility
Resource type eligibility
Eligibility of existing renewable generation
Definition of new/incremental generation
Treatment of multi-fuel facilities
Treatment of off-grid and customer-sited facilities

Administration
Regulatory oversight body(ies)
Compliance verification (TRCs or contract-path)
Certification of eligible generators
Compliance filing requirements
Enforcement mechanisms
Cost caps
Flexibility mechanisms (banking, borrowing, etc.)
Implementing future changes to the RPS
Contracting standards for regulated LSEs
Cost recovery for regulated LSEs

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 “wobble 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.)

Design Pitfalls in the West (cont.)

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

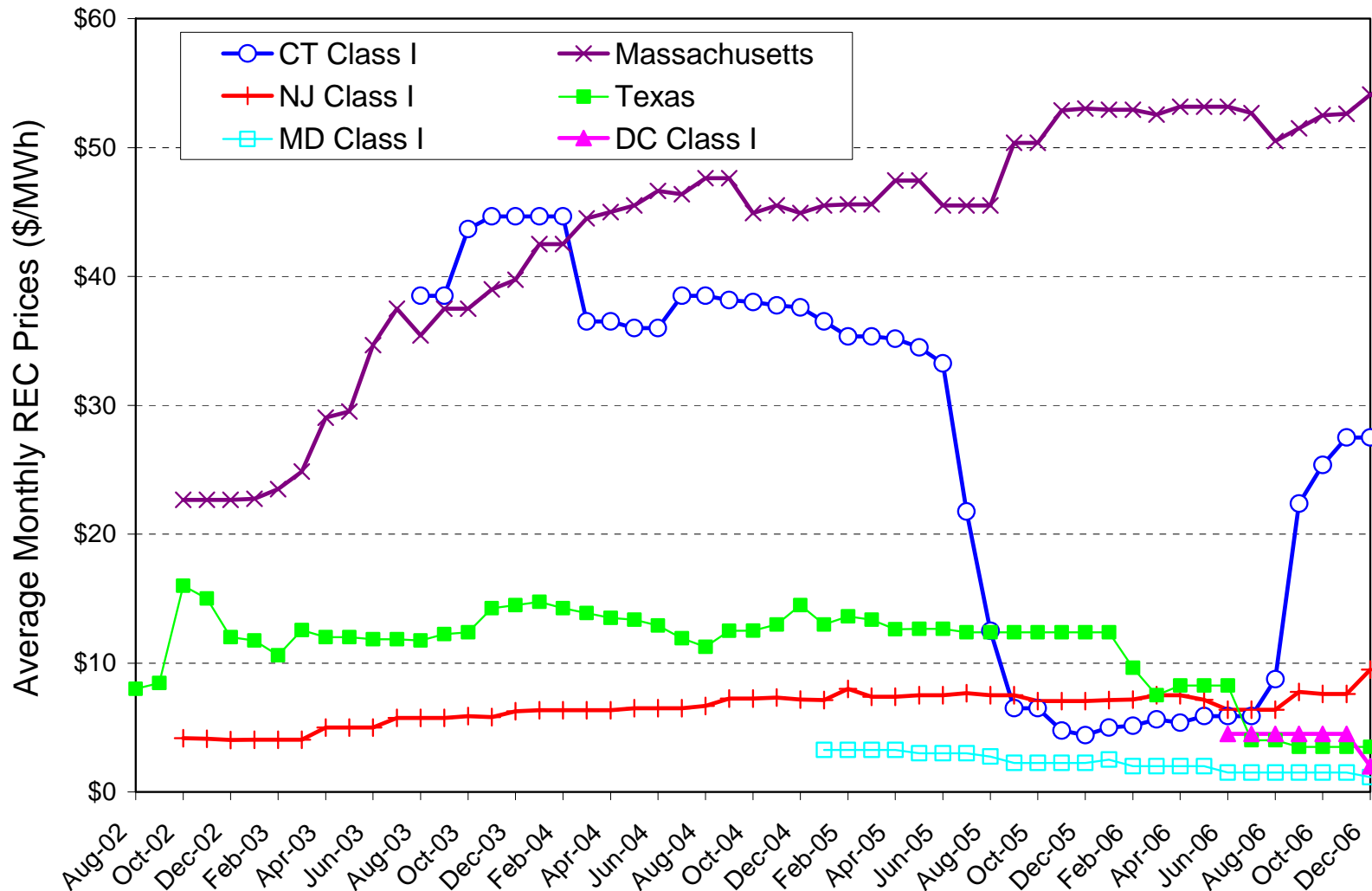
Design Complexity

- 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...

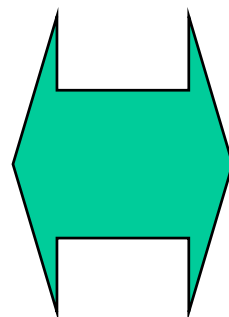


Two Types of RPS Markets Exist, and Western States Are Predominantly Regulated

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

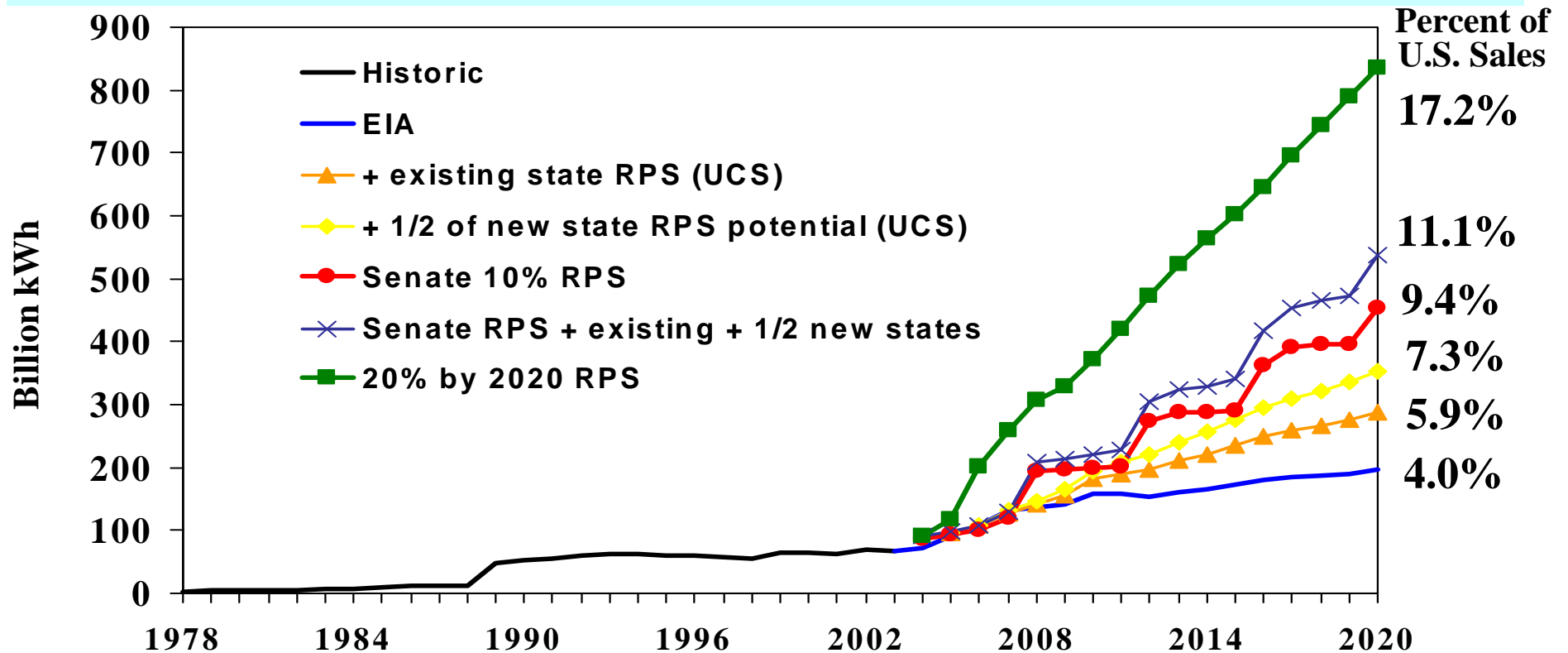
- RPS' can yield profitable/financeable long-term deals, but...
- Often an RFP-driven environment, with fierce competition among developers for contracts
- Emerging concern that utilities are selecting low-priced contracts that may fail to yield operating projects
 - **CA:** Of 2,121 MW of new RE under 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!!!

