

# **RENEWABLES PORTFOLIO STANDARDS: CASE STUDIES**



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# Renewables Portfolio Standards: Outline

2

- Introduction - RPS
- Hypothesis – Political Process
- Methodology – Quantitative and Qualitative
- Results – Case Study Interviews
- Conclusions - Case Studies
- Summary – Brief
- Sources -

# Renewables Portfolio Standards: Introduction

3

In the last 15 years, 34 states and the District of Columbia, through legislation, administrative rule-making, executive order, and referenda have adopted Renewable(s) Portfolio Standards (RPS), or “Renewable(s) Electricity Standards” (RES).

The RPS is a policy that requires retail sellers of electricity to include in their resource or generation portfolio a certain amount of electricity generated from “new” renewable energy resources (usually solar, wind, and biomass).

# Renewables Portfolio Standards: Introduction

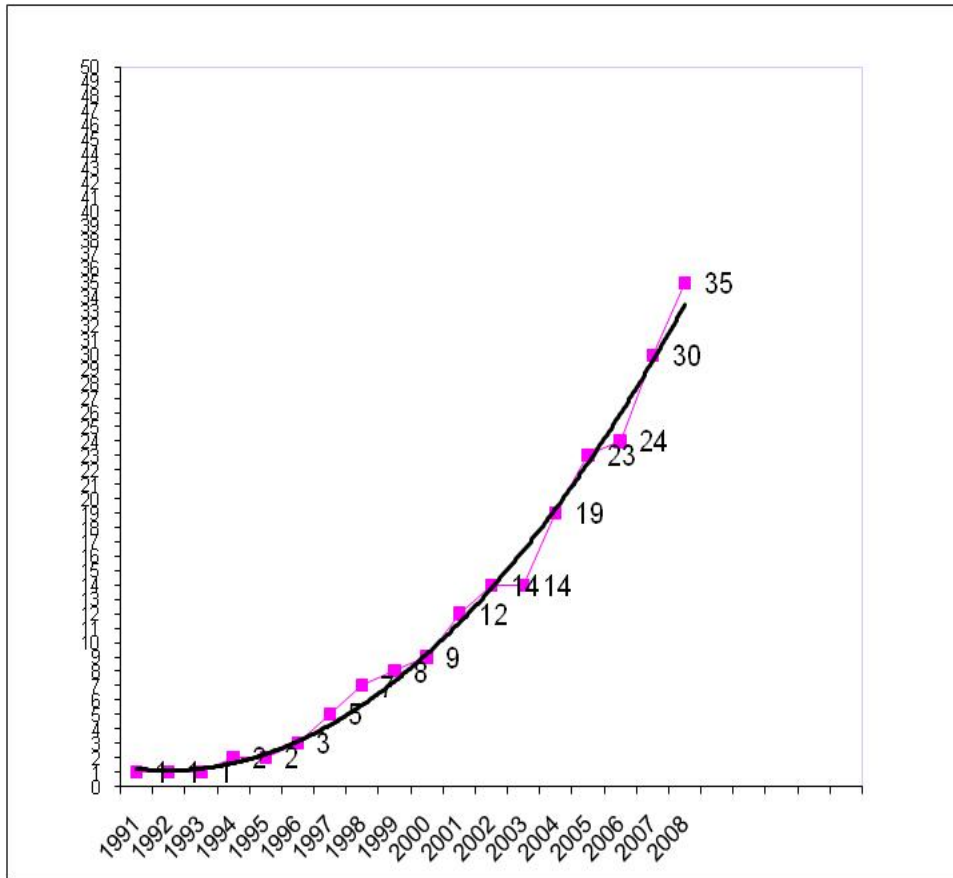
4

**Key characteristics of the RPS program are:**

- (1) RPS maximizes reliance on the market (long-term electricity contracts, “winning” technologies, and competition);**
- (2) RPS Maintains and increases the quantity of renewable energy in the system over time;**
- (3) RPS Non- compliance penalties ensure retail sellers will act to meet the RE requirements.**

# Renewables Portfolio Standards: Introduction

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Year That the RPS Was Adopted

Iowa	1991
Minnesota	1994
Pennsylvania	1996
Maine	1997
Massachusetts	1997
Arizona	1998
Connecticut	1998
New Jersey	1999
Wisconsin	2000
Illinois	2001
Nevada	2001
Texas	2001
California	2002
New Mexico	2002
Colorado	2004
Hawaii	2004
Maryland	2004
New York	2004
Rhode Island	2004
District of Columbia	2005
Montana	2005
Delaware	2005
<b>Vermont</b>	2005
Washington	2006
New Hampshire	2007
Oregon	2007
North Carolina	2007
<b>Missouri</b>	2007
<b>Virginia</b>	2007
<b>North Dakota</b>	2007
<b>Utah</b>	2008
<b>South Dakota</b>	2008
Ohio	2008
<b>Florida</b>	2008
<b>Michigan</b>	2008

Bold = RPS goal or in process

# State Renewables Portfolio Standards: Introduction

6

## Why study the RPS?

RPS's now apply to over half (~60%) of the total U.S. population (residents in 34 states and D.C.), and are driving the deployment of renewable energy assets at an accelerated rate. Estimates are now that fully two-thirds of new renewable power generation capacity additions is occurring in states that have a RPS.

RPS is fundamentally affecting energy priorities in the US.

# Renewables Portfolio Standards: Introduction

7

RPS is part of RE “Triad” in US – includes Federal Production Tax Credit for Wind (PTC), Federal Business and Residential Energy Tax Credit (ITC), and State RPS’s.

The RO system gained support from the European Union (EU) Energy Commission, in part, because of its compatibility with market liberalization. (energy)

Belgium, Italy, Sweden, Poland, Norway, Australia, China, Japan, and Thailand, and India all have RPS.

(Contrasted with FIT – Spain, Germany, and Denmark)

# Renewables Portfolio Standards: Hypothesis

8

**The general research question for this study is why some states adopted a RPS and others have not?**

**The current consensus — the most widely held “best explanation” — seems to be that there are several US regional RPS adoption patterns (NE, MW, and West), with state economic competition being the main driver more recently.**

**These case studies are the second part of a three-part dissertation examining the state RPS.**

# Renewables Portfolio Standards: Hypothesis

9

First Stage was logit Study, Second is Case Studies, Third is event history analyses (EHA) or survival model - models the time it takes for events (RPS) to occur – what factors contribute

**Economics** - The logit model indicated that an increase of about 1.5 business groups per 10,000 population (range ~ 0-18) doubles the odds of a state adopting a RPS.

**Politics** - ~ a 9% increase (Range 0-100%) in the percent of time a state legislature is controlled by the Democratic Party doubles the odds that a RPS will be adopted.

**Resources** - for each one unit increase in the state's Total Renewable Energy Score (range 4-11), the odds of that state adopting a RPS more than double.

# Renewables Portfolio Standards: Hypothesis

10

It is the purpose of the case studies to test these quantitative results – *resources, economics, and politics*.

The full study is 5 states: Michigan, Arizona, Missouri, Pennsylvania, and Colorado. States were selected based on geography, politics (political culture), type of RPS passage (ref., leg., or admin.), voluntary vs. mandate, and logit scores – low/high.

# Renewables Portfolio Standards: Methodology

11

The process of adoption (diffusion) is investigated using data gathered from 45 interviews (85 attempted) with public utility commissioners, utility executives, environmental advocates, legislators, trade associations, and renewable and fossil fuel industry representatives. Additional data sources for the case studies include public testimony, administrative documents, voting records, print and online articles and reports, and demographic and polling data.

Why do you believe that the RPS has succeeded [failed] in your state? What are the political factors?

Why do you think that some states have adopted the RPS, and others have not?

# Renewables Portfolio Standards: AZ

12

Arizona was an early state to adopt small requirement for RE when the then three member Arizona Corporation Commission (ACC) put in place a solar portfolio standard as part of a 1996 regulatory proceeding that restructured the state's electric power industry to make it more competitive. The solar standard was later undone, and an environmental portfolio standard (EPS) was established. Then, in October 2006, the ACC made major changes to the EPS, including "ratcheting-up" the RE requirements, and changing the title of the policy to a renewable energy standard (RES). The RES is now established at 15 percent RE by 2025.

# Renewables Portfolio Standards: CO

13

**In 2004, Colorado voters passed an amendment adopting the Renewable Energy Standard (RES) policy. The policy called for a renewable energy requirement of 3 percent beginning in 2007 and increasing to 10 percent in 2015 and beyond. In March 2007, the Colorado legislature adopted and the governor signed HB 1281, which increased the RE requirement to 20 percent by 2020 for investor-owned utilities – 10% for REAs.**

# Renewables Portfolio Standards: CO

14

The legislative and regulatory intent of the CO RPS is as follows: “...in order to save consumers and businesses money, attract new businesses and jobs, promote development of rural economies, minimize water use for electricity generation, diversify Colorado's energy resources, reduce the impact of volatile fuel prices, and improve the natural environment of the state, it is in the best interests of the citizens of Colorado to develop and utilize renewable energy resources to the maximum practicable extent.” (State of Colorado 2004)

# Renewables Portfolio Standards: MI

15

- The energy companies must supply 10 percent of the energy they generate from renewable sources (solar, wind, biomass, etc.) by 2015. Energy efficiency programs require a 1-percent annual reduction in electricity demand by 2012.
- Consumers and DTE wanted customer stability so they could seek loans to build new power plants to replace dated, inefficient plants, coal and nuclear. Environmentalists wanted the RPS and efficiency programs to make the state less dependent on coal-fueled electrical power plants.

# Renewables Portfolio Standards: MO

16

- Each utility must make a "good-faith effort" to generate or procure electricity generated by an eligible renewable-energy resources, so that by 2012, 11% of total retail electric sales is generated by eligible renewables by 2020.
- The ballot question (Prop C) will ask voters whether they wish to require power companies to provide 15% of their power from renewable energy resources by 2021, subject to a rate impact cap of 1%.
- Missourians for Cleaner Cheaper Energy put ref on ballot for Nov 2008 No major opposition.

# State Renewables Portfolio Standards: PA

17

- **Pennsylvania's Alternative Energy Portfolio Standard (AEPS), created by S.B. 1030 on November 30, 2004, requires each electric distribution company and electric generation supplier to retail electric to supply 18% of its electricity using alternative-energy resources by 2020.**
- **Tier I sources include (new and existing) photovoltaic energy, solar-thermal energy, wind, low-impact hydro, geothermal, biomass, biologically-derived methane gas, coal-mine methane and fuel cells. Tier II sources include (new and existing) waste coal, distributed generation (DG) systems, demand-side management, large-scale hydro, municipal solid waste, wood pulping and manufacturing byproducts, and (IGCC) coal technology.**

# Renewables Portfolio Standards: Results CO AZ

18

The results of the interviews and document examinations reveal a contrast between the states. For example, in Colorado the RPS process was highly politicized for quite some time, and continues to be so to some extent. In Arizona, the EPS/RPS has received widespread bi-partisan support, and has been much less politicized. The RES adoption process in AZ was in large part removed from the politics of the legislature. Nonetheless, it appears that one major factor in the passage of the RPS in both states has been the widespread public support that renewable energy receives – especially solar.

# Renewables Portfolio Standards: Results AZ

19

**Arizona - Strong support and leadership of commissioner(s)**

**Strong cost analysis**

**Hedging Against Natural Gas prices**

**RE as a resource to provide power to AZ – Solar**

**ACC “overstepping” constitutional authority**

**Disregards ACC statutory rulemaking process**

**Passing \$ to customers “charge whatever it will cost”**

**Public comment overwhelmingly in favor of RES**

# Renewables Portfolio Standards: Results CO

20

Public polling – CO polls showed overwhelming support for RE, sense that the “public was out ahead on the issue.”

Very important and unprecedented alliance between agriculture and environmentalists – wind development - \$4000.00/yr to farmers for wind turbine leases.

Initially Xcel Energy, Chambers of Commerce, Coal interests, Club 20, and most utilities said the RPS was “bad for business.”

Establishing rate caps for ratepayers as part of policy

RPS done on a state level because of fed opposition on a legislative and executive level

RPS with asset allocations rather than percentage of retail sales – this compromise was presented by opponents

Advocates concluded that the RPS would not be called a “tax.”

# Renewables Portfolio Standards: Results MI

21

- The main framing of the RPS in MI is an economic argument
- “Energy companies saw the popularity of the RPS and they attached the anti-customer choice legislation to it.” Lobbyist
- The reforms to Public Act 141 will guarantee about 90 percent of the electric market to Consumers and DTE Energy, the state's major utilities.
- Opposition to RPS (MI CoC), “Ratepayers”, MI COC, Manufacturers Association, AARP?, anti-tax groups, Mackinac Center for Public Policy
- “Wind doesn’t do much good.” MI utility executive
- “Nothing really ever happens in MI without the utilities agreeing to it.”
- “More in favor of RPS for jobs.” “This helps drive the legislature”
- RPS all close in on the same policy INCREMENTAL
- Re jobs – “if you do not have an RPS, you are not at the table.”

# Renewables Portfolio Standards: Results MO

22

- Economic impact of the RPS on shareholders and ratepayers Resistance to any kind of mandate
- In “Jeff City” anything that is mandated “will not fly”
- The volunteer RPS Goals was a utility initiative, it was the voluntary that passed.
- Goal = Take first steps... The RPS “mandate was DOA”
- a “political stunt” “meaningless” “What good is it if it is voluntary?”
- There was a “summit” of green groups in Sept 2006 – this included the local chapter of the NRDC, Audubon, Sierra Club, MCE, and the Green Bldg. Co. (GBC).
- These groups set legislative priorities for True net-metering and RPS
- The voluntary RPS was a vehicle for passing the net-metering.
- The utility lobby group is strong and very well funded, and has the power to kill legislation.
- “Disorganized environmental groups”

# Renewables Portfolio Standards: Results PA

23

- The advocates got the Coal companies not to oppose
- The compromise was the cost recovery provisions
- The RPS was sold as an economic development bill
- The problem the PA Chamber of Co had(s) with the AEPS is that it
  1. Cause problems in marketplace (runs counter to competition)
  2. Raise rates for commercial users
- RE is displacing mostly NG
- Gov Rendell and Sec McGinty chief public champions
- Bipartisan support and recognition associated with the economic development potential and support for PA's waste coal power generators (Tier II resource)
  - states are seeking to diversify their energy mix within their states,
  - states recognize the climate change benefits and
  - States recognize the economic development potential that comes with establishing not only new renewable generation but also the potential to establish manufacturing for renewables

# Renewables Portfolio Standards: Results PA

- **Success Factors**

  - **Broad public support for clean energy**

  - **Fossil fuels – “dirty and expensive”**

- **“those who believe that there is free market in energy are living in a fantasy world.”**
- **Arguments were energy, economics, jobs, and diversification “downplayed environmental terms”**
- **What got utilities to be comfortable with the AEPS was the**
  1. **“forced majeure” (an unexpected and disruptive event that may operate to excuse a party from a contract.)**
  2. **cost recovery**
  3. **banking with credits**
- **What are other factors that led to the success of AEPS in PA?**
  1. **legislative leadership**
  2. **governor’s support**
  3. **a compromise package**

# State Renewables Portfolio Standards: Conclusions

25

A fundamental question becomes “how much is the public willing to pay” for the RE?

Public Supports, but how much (who bears) \$?

ACC Commissioner put forward these reasons for supporting the AZ RES; “The benefits of cultivating this industry in Arizona are many — cleaner air, increased reliability, decreased dependence on fossil fuels, and economic development.”

Larger economic debate centers around what the cost will be to the ratepayers vs. what the benefits will be to the economic development of the state.

# State Renewables Portfolio Standards: Summary

26

*Politics* – Leadership (Gov, state agency, enviro), Coalitions, Public Support, Stakeholder involvement, and a Democratic legislature

*Economics* - advocates built a broad-base around economic issues, RE Industry lobbying (“rent seeking”) – RE lobbyists have gone from “Mother Earth News” to Mainstream, rural interests

*Resources* – RPS In states with good RE resources, wind and solar primarily

# Renewables Portfolio Standards: Sources

- LouVillaire AZ, CO, MI, MO, and PA RPS Interviews 1-6, September 2007 – March 2008.
- Colorado RPS Interviews 1-10, September 2007 – February 2008.
- Villaire, Louis A, (2006). State Renewable Portfolio Standards (RPS): the Political Process of Adoption, Dissertation Proposal, Northern Illinois University.
- Culhane, Paul J., and Villaire, Louis A. (2005). Proceedings from MPSA 2005, “State Renewable Energy Portfolio Standards,” Northern Illinois University.
- Wisner, Ryan (April 2007), Renewables Portfolio Standards: A Factual Introduction to Experience from the United States, Environmental Energy Technologies Division, Berkeley National Laboratory, LBNL-62569.
- Interstate Renewable Energy Council (IREC), Database of State Incentives for Renewable Energy (DSIRE), <http://www.dsireusa.org/>, accessed 2005 - 2008.
- Mundell, William A., (2007, November 21). Arizona could become solar-energy capital, Arizona Daily Star, Opinion Page

# State Renewables Portfolio Standards

28

**Thank You**

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