

Renewable Portfolio Standards: Past, Present and Future?



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James Kotcon

Chair

West Virginia Chapter



**REVERSING GLOBAL WARMING
MAY BE THE MOST DIFFICULT
THING WE'VE EVER DONE...**

West Virginia's economy has been dominated by coal and natural gas (DUH!!!).



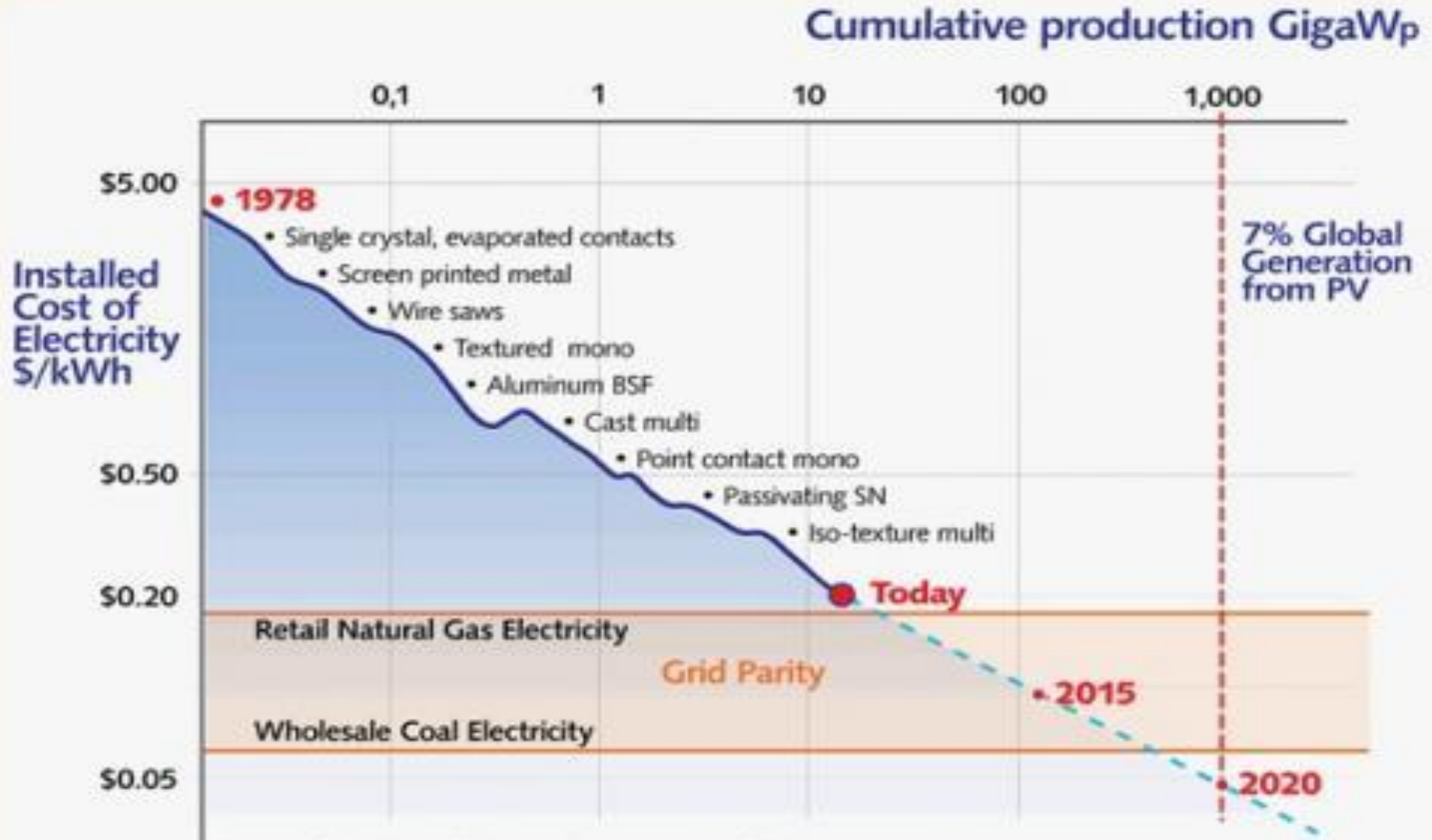
CREDIT: AP Photo/Pool/Rick Bowmer

US-DOE reports that cost of electricity from 2013 installed wind projects (\$25/MWh) is **lower** than from coal, and, in some areas, lower than that from new gas-fired power plants.

http://emp.lbl.gov/sites/all/files/2013_Wind_Technologies_Market_Report_Final3.pdf

See Figure 49. Average long-term wind Power Purchase Agreements and natural gas fuel cost projections.

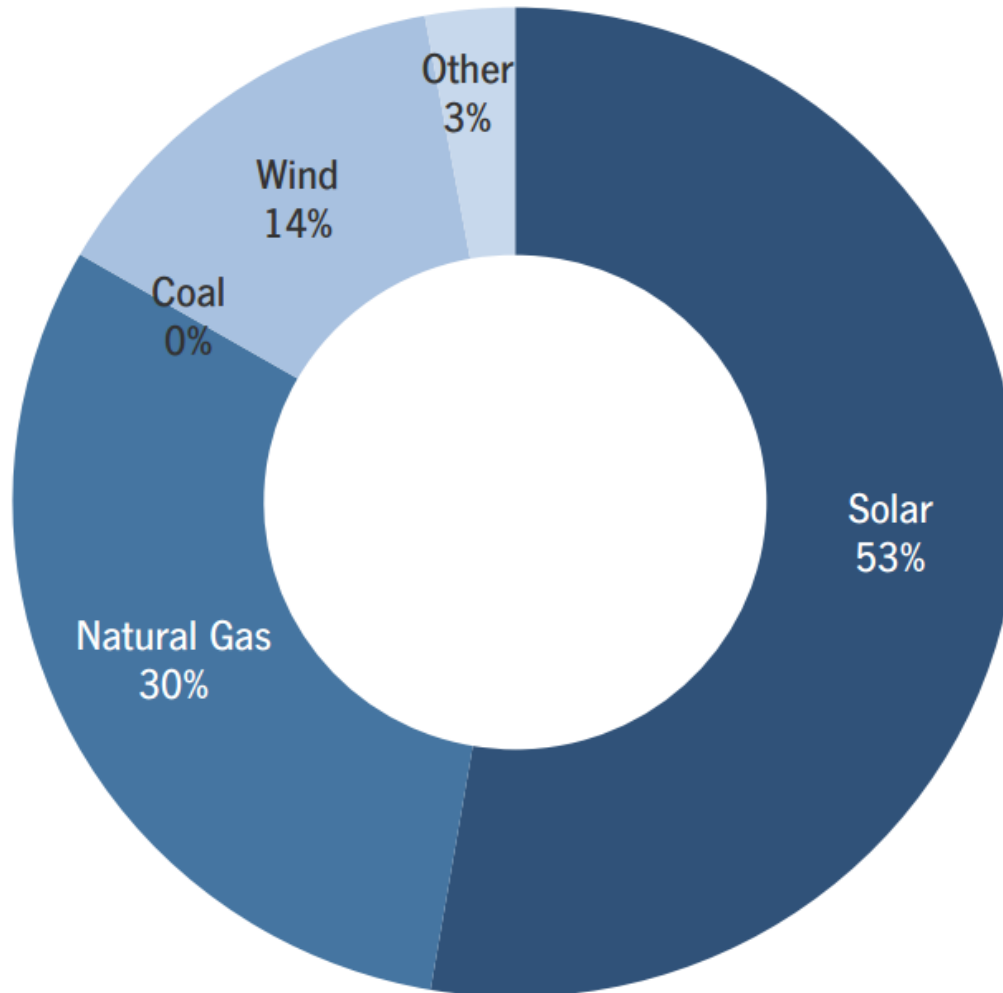
What Are the Current and Future Roles of Energy Resources?



Source: Professor Emanuel Sachs, Massachusetts Institute of Technology.

* Assumes annual production growth of 35% and an 18% learning curve. PV costs based on 18% capacity factor and 7% discount rate.

Renewables Make Up 67% of New Generating Capacity in First Half of 2014, 61 % in 2015 (Gas = 35 %).



Solar Employment - 2015

	<u>Jobs</u>
• Maryland	4,269
• Ohio	4,811
• Pennsylvania	2,498
• Virginia	1,963
• West Virginia	349

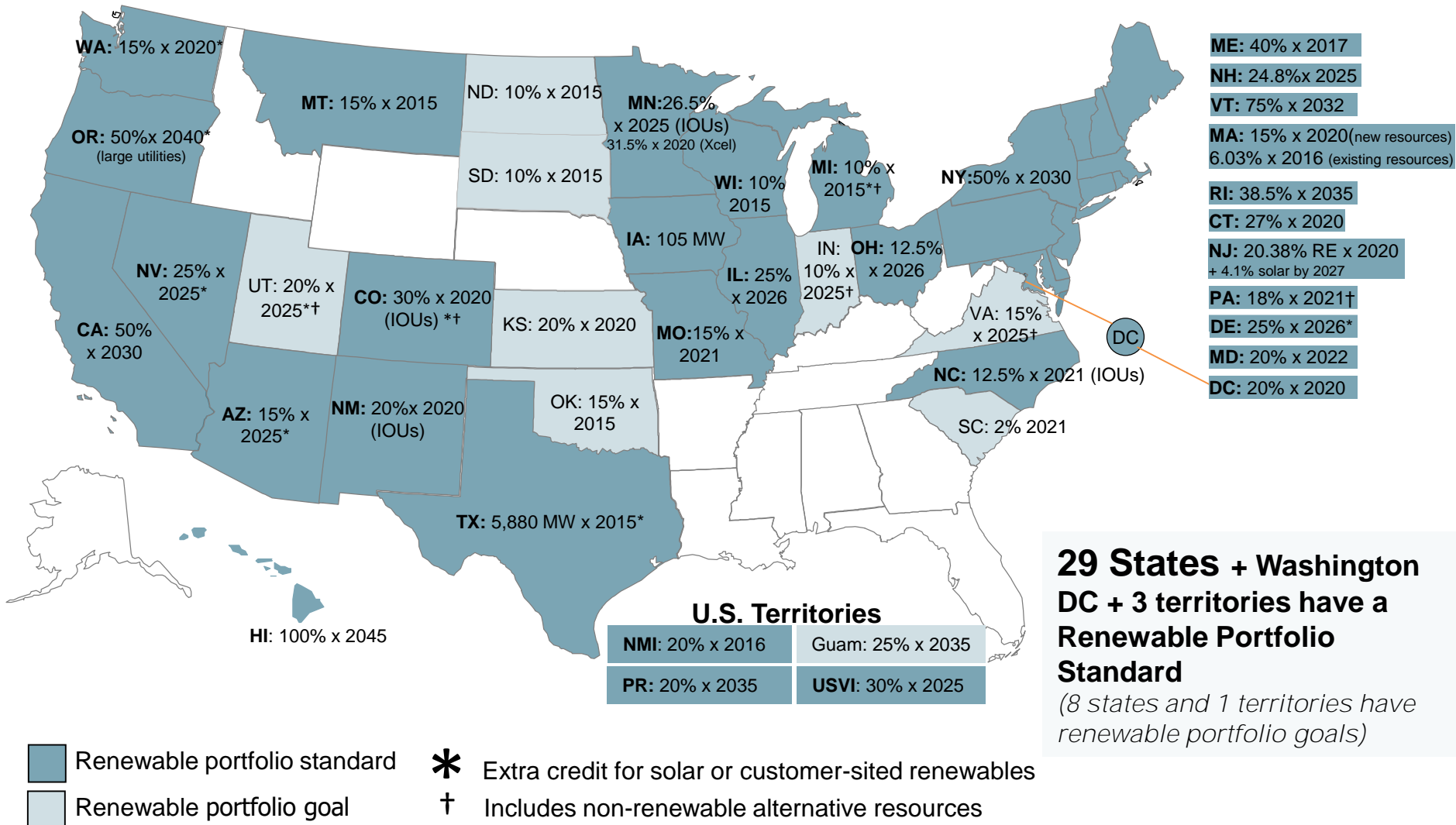
The Solar Foundation, <http://solarstates.org/#states/jobs>

Solar Growth versus the RPS

- All of the top ten states for Solar have RPS laws.
- “Solar Carve-Out” mandate a portion of the RPS comes from solar.
- SRECs. Solar Renewable Energy Credits. Utilities in states with RPS or Solar Carve-Out purchase “credits” from solar producers in other states to demonstrate that they have met the RPS goal.

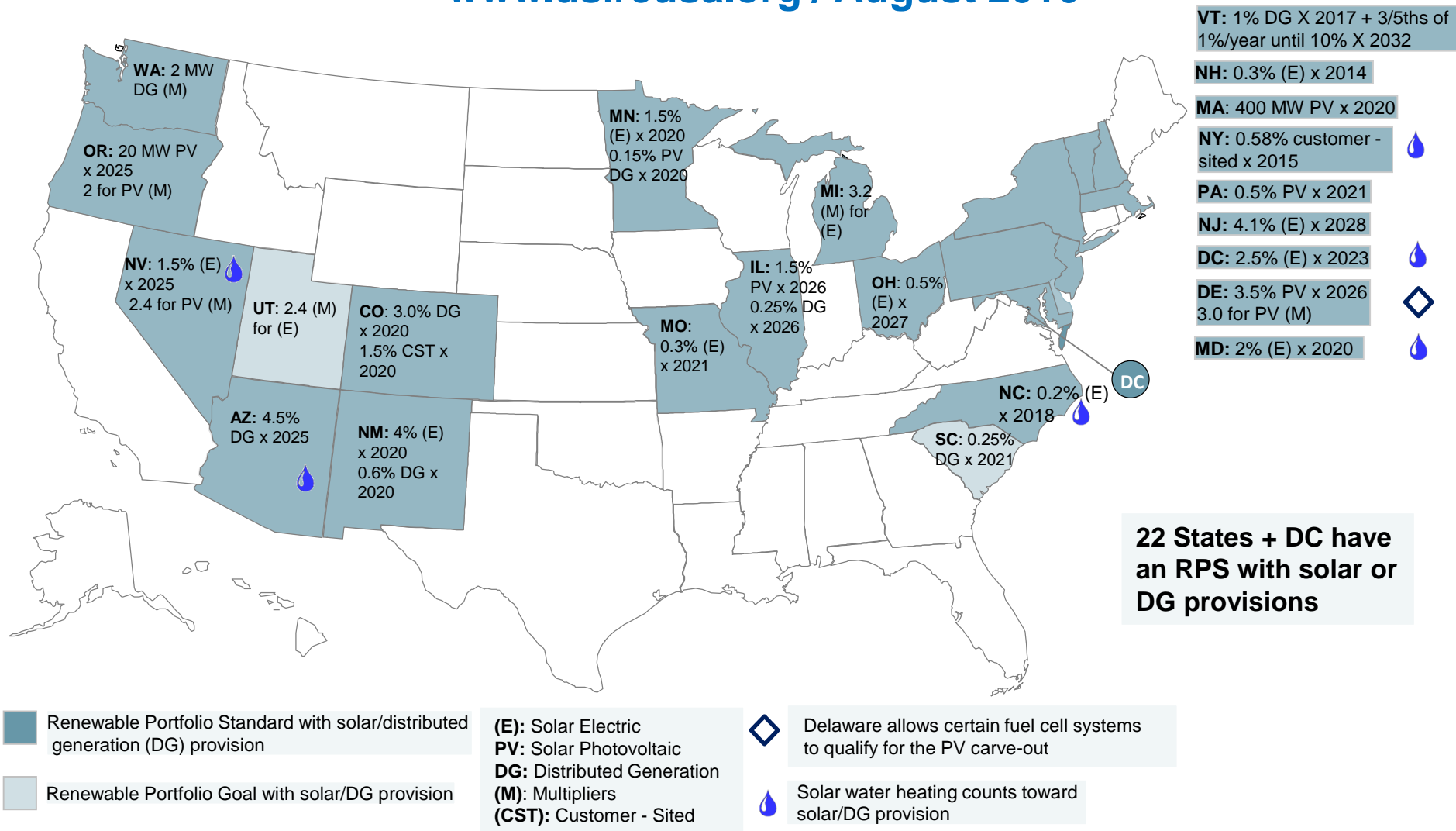
Renewable Portfolio Standard Policies

www.dsireusa.org / August 2016



Renewable Portfolio Standards (RPS) with Solar or Distributed Generation Provisions

www.dsireusa.org / August 2016



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So What is a Renewable Portfolio Standard?

- A renewable portfolio standard (RPS) is a regulatory mandate to increase production of energy from renewable sources such as wind, solar, biomass and other alternatives to fossil and nuclear electric generation. It's also known as a renewable electricity standard.

Best Practices for an RPS

- RPS targets should be stable, and ramp up steadily over time.
- RPS program should be of sufficient duration to allow long-term contracting & financing.
- Should apply to all load-serving entities.
- Eligibility should be well defined.
- Tradable credits need a robust tracking system.
- Costs should be allocated fairly across all customers.
- Should be mandatory for all suppliers, with penalties for non-compliance.

US-DOE NREL

Benefits of an RPS

- Reduced emissions
- Water savings
- Fuel diversity
- Electric price stability
- Economic Development (Jobs!)
 - Economic Benefits (\$22-30/MWh) Often Greater than Environmental Benefits (\$4-23/MWh)
 - Wholesale market price reductions or price suppression benefits from supply of low marginal-cost renewables (\$2-50/MWh)

Heeter, et al. 2014. A survey of State-Level Cost and benefit estimates of renewable Portfolio Standards. Available at:

<http://www.nrel.gov/docs/fy14osti/61042.pdf>

West Virginia and the RPS

- 2009. Gov. Manchin proposes AREPS
- Alternative and Renewable Energy Portfolio Standard
- “Most aggressive RPS in the US” (25 % by 2025).
- SB 297 (HB 103)
- Modeled after AREPS in Pennsylvania
- Endorsed by WV Coal Association!



PRIVATE
PROPERTY
NO TRESPASSING

2008/02/02

“Alternative Energy Resources” means:

(A) Advanced coal technology;

(B) Coal bed methane;

(C) Natural gas;

(D) Fuel produced by a coal gasification or liquefaction facility;

(E) Synthetic gas;

(F) Integrated gasification combined cycle technologies;

(G) Waste coal;

(H) Tire-derived fuel;

(I) Pumped storage hydroelectric projects;

(J) Recycled energy, which means useful thermal, mechanical or electrical energy from:

(i) Exhaust heat from any commercial or industrial process;

(ii) waste gas, waste fuel or other forms of energy that would otherwise be flared, incinerated, ... or vented; and

iii) electricity or equivalent mechanical energy extracted from a pressure drop.

K) Any other resource, method, project or technology certified as an alternative energy resource by the Public Service Commission

"Advanced coal technology" means:

a technology used in a new or existing energy generating facility to reduce airborne carbon emissions associated with the combustion or use of coal and includes, but is not limited to, carbon dioxide capture and sequestration technology, supercritical technology, ultrasupercritical technology and pressurized fluidized bed technology.

Morgantown Energy Associates Power plant Fluidized Bed





**Fort Martin Power Plant
(SuperCritical)**

John Amos Power Plant (Big Scary)



2009/10/31

AREPS Credits

- One credit for each MWh from alternative energy facility in WV or PJM.
- Two credits for each MWH from renewables within WV or PJM.
- Three credits for each MWh of renewables from a reclaimed surface mine in WV.
- A “customer-generator” is awarded 1 credit for alternative energy and 2 credits for renewable.
- One credit per ton of Greenhouse gas offsets or reductions.
- Credits for EE/DR.

AREPS Compliance Plan

- Requires utilities to file compliance plans by 2011 to document how they plan to comply.
- Compliance plans filed show no utility in WV had to do *anything* before 2030, or later.

AREPS Included Net Metering

- Prior PSC rules did not have a legislative mandate.
- 24-2F-8 required PSC to adopt rules “increasing the allowed capacity to 500 kW for commercial and 2 MW for industrial customer-generators”.

Republicans Cry “Cap and Trade”

- 2010 Senate race for Robert Byrd’s seat. Raese attacks Manchin for passing “Cap and Trade” in WV.
- 2012 Raese versus Manchin, again calls Manchin part of the “War on Coal”, citing “Cap and Trade”.
- 2014. Republicans win control of WV Legislature attacking “Cap and Trade” law.
- 2015. HB 2001 repeals AREPS (except net metering).
- 2016. Republicans again take credit for repealing “Cap and Trade” law.

What's Next?

- Energy Efficiency legislation
- Incentives for renewables?
- PSC action?
- Comprehensive State Energy Policy Act.
 - West Virginia Environmental Council
 - EEPS, incentives for renewables, Siting standards for energy facilities, repeal Coal Jobs and Safety Act!
 - We need your ideas. **You can help!**



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Questions?
Comments?
Action!