



Examining Combined Energy Efficiency and Renewable Energy Standards



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Outline

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How much EE do states allow? How much is being used?

What is the price of EE?

How is EE tracked in RPS polices?

What implementation challenges exist?

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Background

States have increasingly developed renewable portfolio standards (RPS).

29 states, DC, and Puerto Rico have RPS standards in place; 8 states incorporate EE into their RPS standards.

There has been some movement at the state and federal level towards Clean Energy Standards.

- 2010 - President Obama mentions in State of the Union Address.
- March 2011 - Senators Bingaman and Murkowski issue white paper.
- It is unclear whether a federal clean energy standard would include energy efficiency.
- Challenging to pass a CES at federal level currently.

Types of Clean Energy Standards

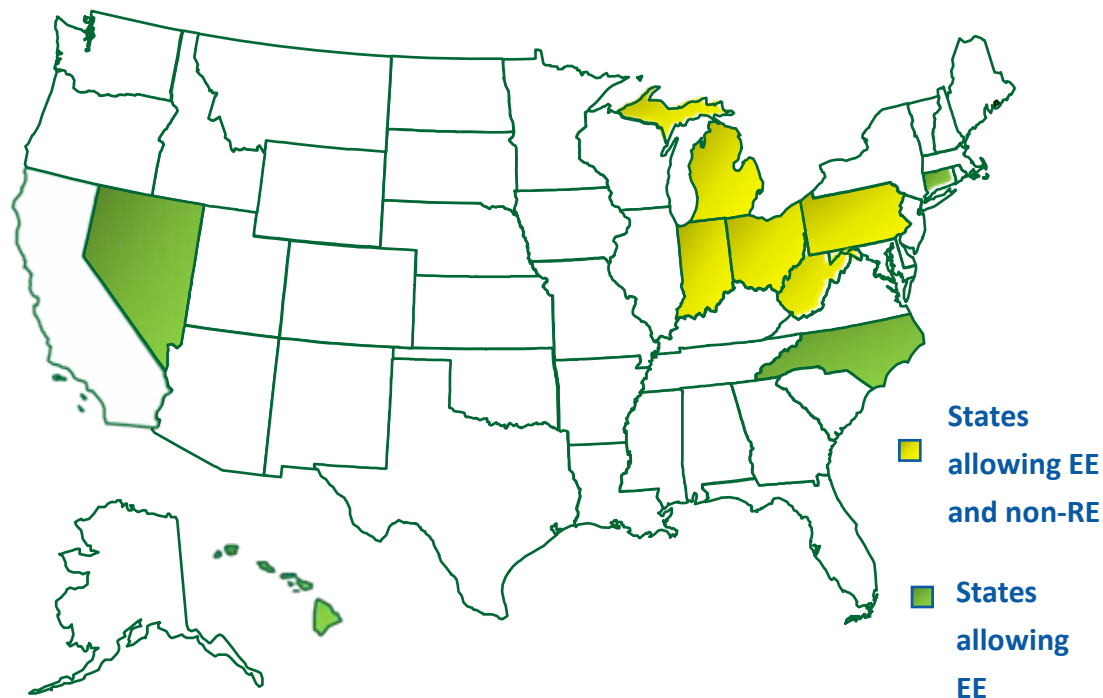
- Each state RPS policy is unique.
- CERES
 - » Combined Efficiency and Renewable Electricity Standard.
 - » Includes EE/DSM.
- CES
 - » Clean Energy Standard
 - » Can include some forms of coal generation, natural gas, or nuclear energy. (Eg. MI, OH, PA, WV)
 - » Currently, all states that allow non-renewables also allow EE.
 - » This presentation will not focus on non-renewables issues other than EE.

Combined vs. Separate EE Standards

- Many states also have a separate Energy Efficiency Resource Standard (EERS). EERS polices require a certain percent or amount of energy efficiency to be implemented by utilities by a given year.
- EERS policies impact RPS implementation; reducing the amount of total electricity sales through an EERS will subsequently reduce the amount of renewable energy needed to comply with the RPS.
- This presentation focuses on the current implementation of EE in RPS polices, and will not focus on EERS policies.

State Policy Overview

RPS + EE (date enacted)	RPS + EE + Non-RE (date enacted)
Connecticut (1998)	Indiana ^b (2011)
Hawaii ^a (2002/2004)	Michigan (2008)
Nevada (1997/2005)	Ohio (2009)
North Carolina (2007)	Pennsylvania (2004)
	West Virginia (2009)



Source: NREL (September 2011)

^a Hawaii's Energy Efficiency Portfolio Standard (EEPS) will not be separate from the state's Renewable Portfolio Standard (RPS) until January 1, 2015. Rules have not yet been established for the EEPS.

^b Renewable portfolio goal (not required).

EE Allowed Contribution to RPS

	CT★	HI	MI	NV	NC	OH	PA★	WV
Overall RPS target	27% by 2020	40% by 2030	10% by 2015	25% by 2025	12.5% by 2021 for IOUs	25% by 2025	~18% by 2021	25% by 2025
% EE allowed in RPS	4% of retail sales in 2010 - 2020.	≤50% of RPS target through 2015.	≤10% of target	≤25% of target	≤25% of target for IOU's	≤50% of target	10% of retail sales in 2021 (~55% of RPS target)	No min. or max.

CT – Separate tier for EE, represents ~29% of RPS target in 2010, ~15% in 2020.

NC – Coops and munis have a 10% by 2018 requirement, with no limit on how much EE can contribute.

PA – Separate tier for EE, represents ~63% of RPS target in 2010, ~55% in 2021.

★ Separate tier for EE/alt. energy

Background on EE Cost in RPS

EE can lower overall RPS implementation cost (Mahone et al 2009, EIA 2009, Cappers & Goldman 2010, Brown et al 2007).

- The cost of implementing energy efficiency is typically less than the cost of procuring renewable energy (Brown et al 2007).
- Cappers and Goldman (2010) modeled the financial impact of various energy efficiency business models on ratepayers. In all scenarios, moderate and aggressive energy efficiency implementation reduced total ratepayer bills.

How Does EE Price Compare to RE Price?



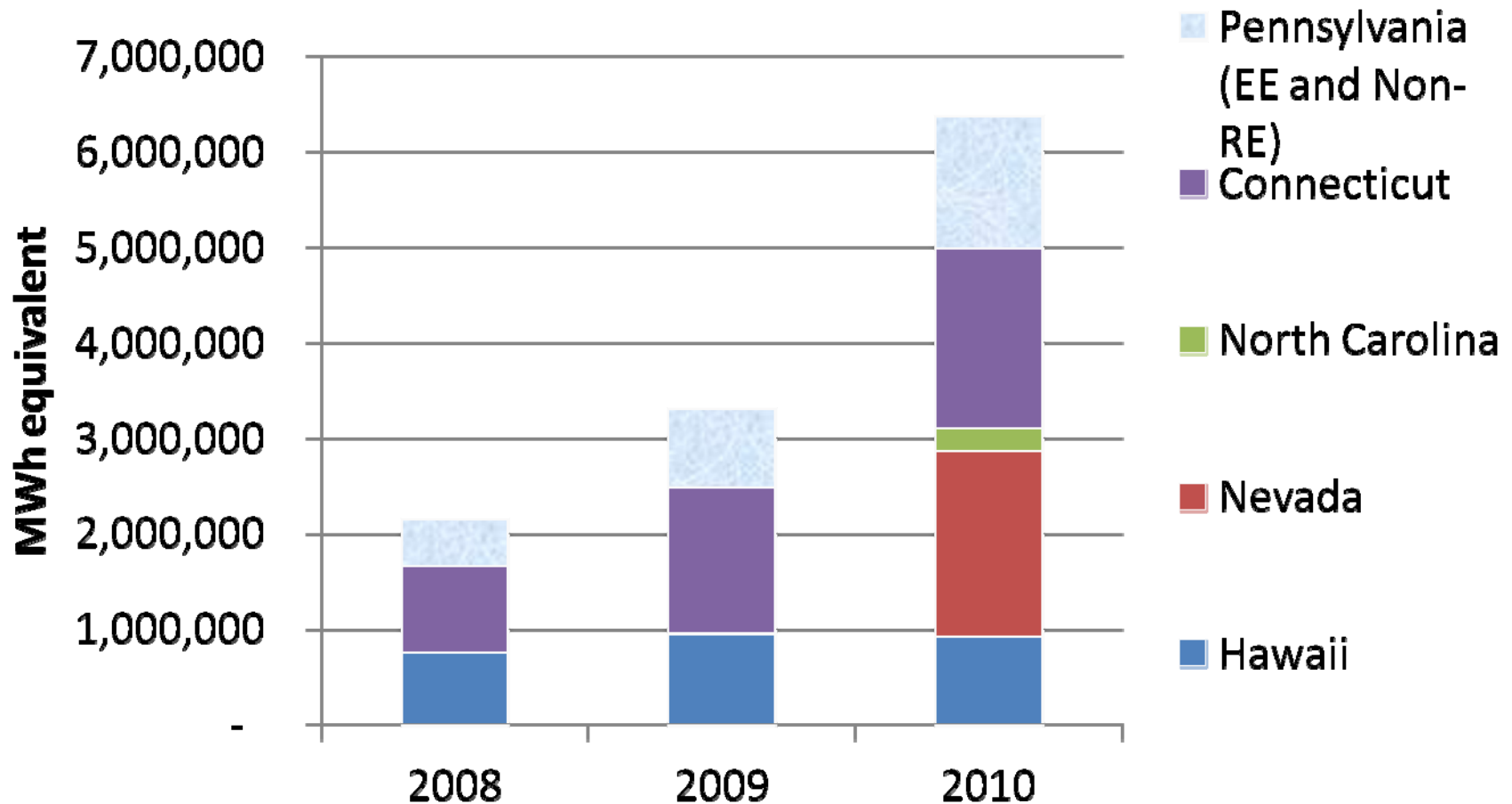
EE credits in Connecticut are consistently lower price than Tier I (renewable energy) credits. 2011 saw higher Tier I prices (mid/high \$20s in summer 2011, compared to ~\$10 for Tier III).

Price of EE and Non-RE in Other States

State	Price of Energy Efficiency	Metric
Connecticut	\$10-\$25/MWh	Price of energy efficiency credits (EECs) within CT's energy efficiency tier, 3/2009-8/2011
Michigan	\$13.25/MWh	Weighted average energy optimization cost

EE price is less than RE, though not many states have published data.

Energy Efficiency Used in RPS Through 2010



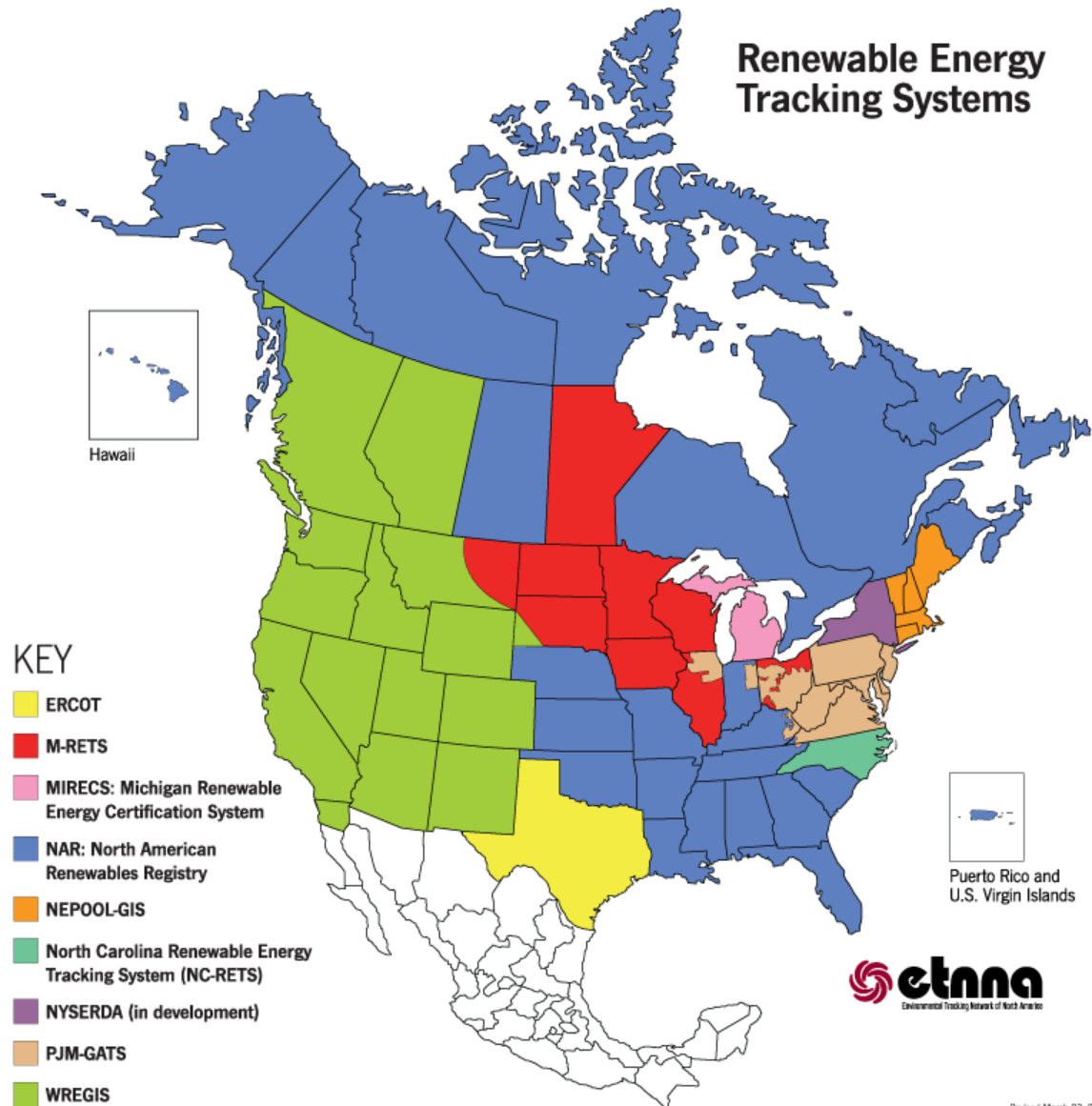
The amount of EE being used in RPS is rising, due to increased overall targets and new compliance obligations. Nevada is projected to meet 25% of RPS target with EE through 2015.

Percent of RPS Being Met with EE

State	Amount of EE used for compliance (2010)	Percent of RPS target
Connecticut ¹	1,882 thousand MWh registered certificates	~20% of total registered certificates (less than allowable ~29%)
Hawaii	916 thousand MWh	~92% of target (exceeded allowable 50%)
Nevada	1,944 thousand MWh actual, but only 843 thousand MWh allowed	~57% of target (exceeded allowable 25%)
Pennsylvania	1,387 thousand MWh (non-RE)	~63% of target (matched allowable)

¹ Connecticut has not issued a compliance report, however, certificates registered in NEPOOL GIS provide a preliminary estimate of the magnitude of EE being used.

Existing REC Tracking Systems



EE Tracking

CT	EE and conservation certs. tracked through NEPOOL-GIS
HI	No tracking
MI	Energy Optimization Credits tracked through MIRECS
NV	Portfolio Energy Credits tracked through NVTREC
NC	Energy Efficiency Certificates tracked through NC-RETS
OH	EE and DSM credits -PJM-GATS and M-RETS
PA	EE and DSM credits -PJM-GATS
WV	EE and DSM credits -PJM-GATS

EE typically tracked through REC tracking systems; states are responsible for M&V.

EE Implementation Challenges

RPS administrators may need to coordinate with other agencies.

e.g. Connecticut and Hawaii have existing central third-party EE implementation

Measurement and verification can be more challenging for EE than for renewable energy. In PA, only 18 EE/DSM projects are currently registered, compared to 6,636 RE projects.

EE trading is limited to Connecticut market, some trading of PA Tier II credits; market is not developed.

Conclusions

Competing EE against RE will lead to lower RE adoption; NV and HI are developing more EE than maximum standards allow.

Cost of EE is less than cost of Tier I RECs.

Differences between federal and state policy:

- Federal level: Provides additional resource in order to ensure that all states have ability to meet standard at least cost.
- State level: May want to guarantee the amount of EE and amount of RE by implementing separate standards.

Thank you.

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