



State Policy Options for Electric Supply Resource Support

Capacity Construct / Public Policy
Senior Task Force

March 27, 2017



“It is one of the happy incidents of the federal system that a single courageous state may, if its citizens choose, serve as a laboratory; and try novel social and economic experiments without risk to the rest of the country.”

Justice Louis D. Brandeis

(New State Ice Co. v. Liebmann, dissenting opinion, 1932)

- Provide stakeholder education on Key Work Activity # 2
 - Identify **current** and **potential** public policy initiatives **states** could take regarding:
 - Resource Adequacy;
 - Fuel Diversity; and,
 - Environmental policies.

- **Current and potential** public policy methods
 - Does not include already established, precluded methods
 - i.e., *Hughes v. Talen Energy Marketing*; *Public Utilities Comm'n v. Attleboro Steam Co, etc.*
- **State** public policy only
- Agnostic to public policy for **new or existing** electric supply resources
- Education of policy. Not exhaustive. Not deterministic

Standard Attainments

- Renewable Energy Credits
- Emissions Tax / Cap-and-Trade

Contracting

- Feed-in Tariff
- Mandated Power Purchase Agreements

Appropriations

- Zero Emissions Credits
- Loan and Grant Programs
- Tax Incentives

Regulation

- Advanced Cost Recovery
- State Takeover
- Holding Company Structure
- Rate-based Supply

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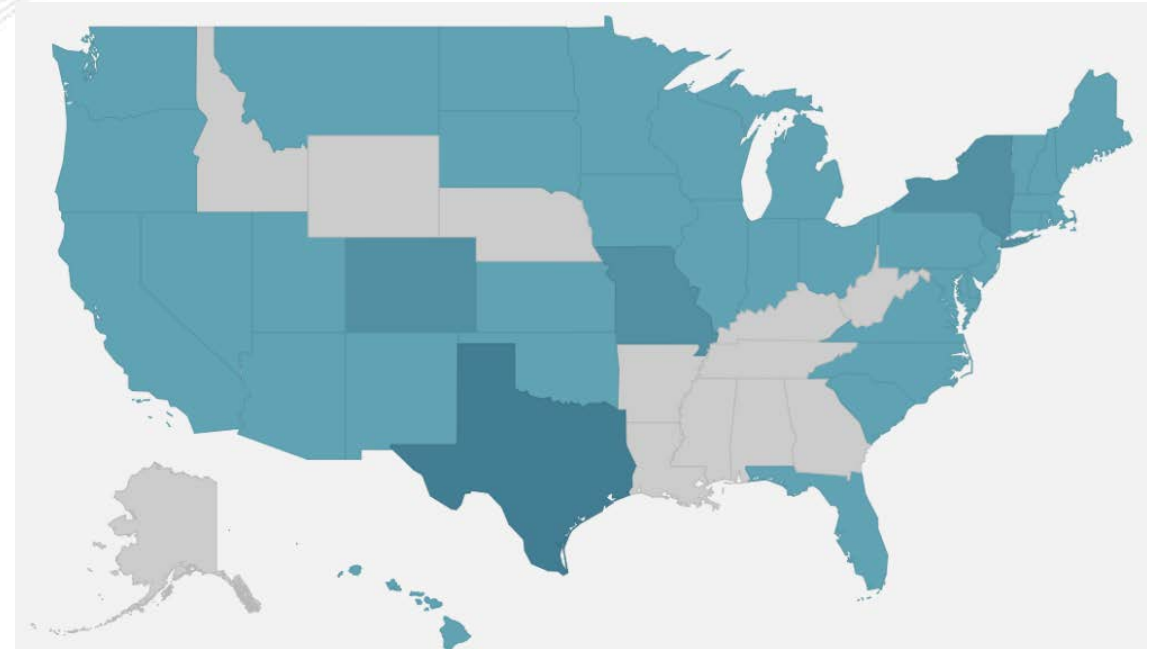
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- **Renewable Energy Credits (REC)**
- State LSEs or EDCs hold an annual compliance to purchase target amount
 - i.e., 8% of current-year load
- A REC is created for one MWh output of a qualified resource.
- RECs are generally fungible commodities

States with a Renewable Portfolio Standard



Courtesy of DSIRE



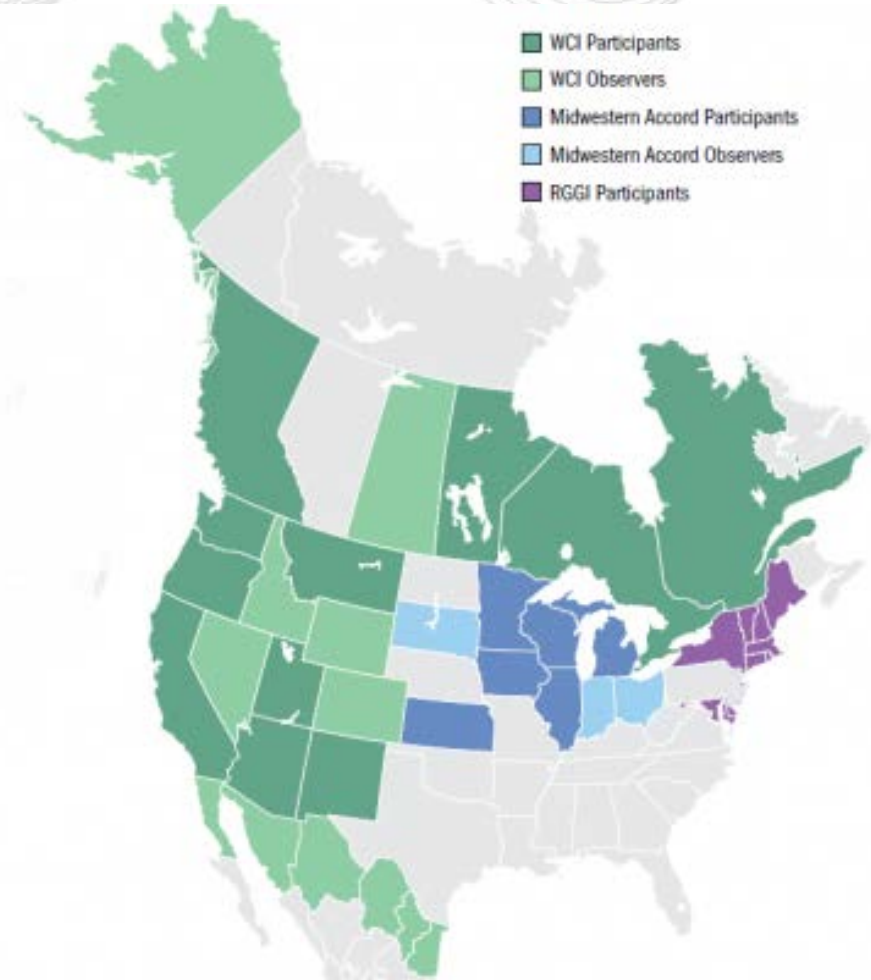
Method # 1 – Standard Attainments (RECs)

STATE	FUEL ELIGIBILITY	GEOGRAPHIC ELIGIBILITY	OTHER ELIGIBILITY	TARGET	ESTIMATED PRICE (\$/MWh)	CONTRACT LENGTH	TERM	PROCUREMENT / COST ALLOCATION
29 States 10 + D.C. in PJM	Various Renewable and Alternative sources Establishes differing tiers to regulate fuel-type promotion	<ul style="list-style-type: none"> Generally within Balancing Authority Solar generally within state boundary 	<ul style="list-style-type: none"> Bonus for in-state parts, labor, etc. 	Step goal to annual percent of electric load	National Average REC – 25 SREC – 200 ----- PA 2015 Tier I Avg = 12.51 PJM Feb 2017 SREC = 159	Credits competitively procured through: bilaterals, self-supply or exchanges	<ul style="list-style-type: none"> Varies. Most mature in 2025. Some plateau in perpetuity, others end. 	<ul style="list-style-type: none"> State contracts full term to achieve target

- Viewed as procuring a separated commodity from energy or capacity
 - REC viewed as purchasing ‘emissions attribute’ of a resource
- RECs in project financing:
 - Used as revenue stream for new project financing pro forma
 - Spot market trend; Collateralized bilateral REC purchase agreements
 - De-risks project financing → lowers financing capital
 - Incubates new projects

- **Emissions Tax**
- No state has an emissions tax:
 - Proposed in MA, NY, OR, RI, VT, WA
- Nov 2016 Washington state Ballot Initiative 732 failed by 59%
 - Levied \$15/metric ton on CO₂ emissions
 - Increase 3.5% plus inflation annually capping at \$100/metric ton
 - Across various industries

- **Cap and Trade**
- Late 2000s, 30 states involved in a regional program
- CA & RGGI only active programs
 - RGGI includes nine Northeastern states



Courtesy of: World Resources Institute, 2011



Method # 1 – Standard Attainments (Cap and Trade)

STATE	DESCRIPTION	DESIGN	TARGET	ESTIMATED PRICE (\$/Allow.)	TERM	PROCUREMENT / COST ALLOCATION
RGGI 9 States 2 in PJM	Caps and reduces in-state CO ₂ emissions from power sector resources <= 25 MW 163 covered resources	<ul style="list-style-type: none"> Sets regional cap Resources required to hold allowances equal to three-year control period States allocate tradable allowances in auctions Allows over-emitting resources to procure credits from under-emitting resources or bank unused allowances 	Entire Region <u>2017</u> 62m. short tons / year <u>2020</u> 56m. short tons / year	Weighted Average 2015 – 2017 \$6.42	In third of three-year control period (2015 – 2017) Fourth control period (2018 – 2020)	<ul style="list-style-type: none"> Cost to comply Cost of credit internalized in PJM energy offers States determine proceed reinvestment (i.e, EE programs, bill assistance, further abatement programs, etc.)

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- **Feed-in Tariff**
- Power production from qualified technologies required for automatic and full-output purchased by local utility
- Defines paid price per MWh of production for qualified technologies
- Distribution or Transmission-connected assets
- Limited use in U.S., none in PJM territory

- **Mandated Power Purchase Agreements (PPA)**
- In restructured states, does not cover entire load obligation
- Bypass of regional energy market settlement for mandated, direct bilateral contract with EDC or LSEs
- Contract is not competitively sourced
 - Differs for Default Service auctions and RFPs

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- **Zero Emissions Credits** (ZEC)
- A ZEC is created for one MWh output of a qualified resource
- State LSEs or EDCs hold an annual compliance to purchase target amount



Method # 3 – Appropriations (ZEC)

STATE	FUEL ELIGIBILITY	GEOGRAPHIC ELIGIBILITY	OTHER ELIGIBILITY	TARGET	ESTIMATED PRICE (\$/MWh)	CONTRACT LENGTH	TERM	PROCUREMENT / COST ALLOCATION
Illinois	Nuclear (existing)	MISO or PJM	<ul style="list-style-type: none"> • State emissions benefit • Plant retirement without procurement • State report identifies need 	16% of 2014 electricity delivered for ComEd & Ameren	14.88 - 24.59	10 Years	6/1/2017 – 5/31/2027	<ul style="list-style-type: none"> • State contracts full term to achieve target • Com Ed and Ameren Illinois distribution customers
New York	Nuclear (existing)	New York state	<ul style="list-style-type: none"> • State emissions benefit • Financial distress 	All output	17.48 - 29.15	Six, 3-year tranches	4/1/2017 – 3/31/2029	<ul style="list-style-type: none"> • State evaluates distress prior to tranche, contracts for tranche term • State Load Serving Entities

- **Loan Programs**
- Provides loans or physical property below market rates
- Programs may have application process
 - But target specific technologies types

STATE	FUEL ELIGIBILITY	GEOGRAPHIC ELIGIBILITY	OTHER ELIGIBILITY	ESTIMATED LOAN	TERM	PROCUREMENT / COST ALLOCATION
Montana	Coal	Montana	<ul style="list-style-type: none"> • <= 200 MW • Exempt wholesale generator • "Prevent elimination of jobs and provide stability in community impacted by operation of a coal-fired unit" 	<ul style="list-style-type: none"> • Not to exceed \$10 M • 2% annual interest rate 	<ul style="list-style-type: none"> • 15-year payback term • Loan is not to support operations beyond 7/1/2022 	New bill language would allow the Montana Board of Investments to offer loans based on new eligibility criteria from the state's Coal Tax Trust Fund

Note: Bill introduced in Montana House on 3/13/2017

- **Grant Programs**
- Provides grants at zero financing cost or zero pay-back
- Administered through state public financing authorities.
 - Application process may apply
- Promotes development of public policy objective
 - Economic development
 - Natural resource utilization
 - Energy technology development

- **Tax Incentives**
- Provides a tax rebate or tax-exempt bond financing to resource owner
- Based on:
 - Percentage of Investment (flat; Investment Tax Credit)
 - Energy Production (volumetric; MWh, Production Tax Credit)
 - Resource Utilization (flat or volumetric; i.e., land purchased, fuel source, employment credit)

Method # 3 – Appropriations (tax)

STATE	FUEL ELIGIBILITY	GEOGRAPHIC ELIGIBILITY	OTHER ELIGIBILITY	TARGET	ESTIMATED INCENTIVE	CONTRACT LENGTH	TERM	PROCUREMENT / COST ALLOCATION
<p>North Carolina</p> <p><i>Investment Tax Credit</i></p>	<p>Anaerobic Digestion, Biomass, CHP, Hydro, Landfill gas, Solar, Wind</p>	<p>North Carolina</p>	<p>New resource placed into service</p> <p>Commercial, Industrial, Residential, Agricultural</p>	<p>No stated system size limits</p> <p>Some investment caps may apply</p>	<p>35% of property investment</p> <p>Not to exceed 50% payer's annual tax liability</p>	<p>Taken in equal parts over Five Years</p>	<p>Program expired 12/31/2015</p>	<p>Deducts owner's state franchise, corporate, income or gross premium tax liability</p>
<p>Oklahoma</p> <p><i>Production Tax Credit</i></p>	<p>Geothermal Electric, Hydro, Solar, Wind,</p>	<p>Oklahoma</p>	<p>Operation results in zero emissions</p> <p>Resource must be <= 1 MW</p>		<p>\$0.0025/kWh – \$0.0050/kWh</p>	<p>10 years of eligibility</p>	<p>Program ends 1/1/2021</p>	<p>Deducts owner's state income tax liability by (incentive rate * kWh)</p>

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- **Advanced Cost Recovery**
- Regulated assets
- Allows collection of construction costs prior to operation
 - Florida, Georgia, and South Carolina all use
 - Lowers financing costs

- **State takeover** - State serves as “caretaker” of asset
- State capitalizes operation through special taxes
 - NY S.B. 8032 (2016)
 - Did not move from Committee
 - Directed NYSPA to purchase FitzPatrick
 - Included eminent domain
 - Sought to keep plant operational

- **Holding Company Structure**
- Diversified Company with regulated and merchant subsidiaries
- Regulated asset cost-of-service profits to parent company
- Fungible assets used to capitalize merchant affiliates

- **Rate-based Supply**
- After determination of resource adequacy or conservation need
- Demand Response, Energy Efficiency, Microgrids, Generation, Storage
- Regulated Utility assets in wholesale markets paid through retail rates
 - Prudency test applies