



Lecture 5: Renewable Portfolio Standards

Energy Law and Policy

Fall 2013

Class Schedule

- 8/26: INTRODUCTION AND BACKGROUND
- 8/28: Forces controlling energy policy; Jim Halloran, PNC Bank.
- 9/4: Energy Policy Overview and History of Energy Regulation
- 9/9: History of Regulation
- 9/11: History of Regulation
- 9/16: Regulation of electricity in Ohio
- 9/18: Beth Polk – Retail Electricity Markets
- 9/23: David Fornari – Managing energy and resources
- 9/25: Bill Bowen – science and policy of global warming
- 9/30: Regulation of electricity in Ohio
- 10/2: Aggregation/Government Shut Down and Energy
- 10/7: Matt Brakey – Retail electricity
- **10/9: SB 221/315/Energy Efficiency**
- 10/14: Columbus Day
- 10/16: SB 221/315/58 and Distributed Generation

October

- 10/7 Matt Brakey
- 10/9 RPS/SB 221
- 10/14 Columbus Day
- 10/16 SB 221/315/58
- **10/21 SB 315/58; Distributed Generation**
- 10/23 CHP/Biomass/District Energy/CT
- 10/28 Jeff Burns – Solar/Renewable Power
- 10/30 LeedCo Wind/Energy Storage

November

- 11/4 Oil and Gas Policy/Ken Alfred
- 11/6 Shale Revolution
- 11/11 Fuel Cells/Pat Valente
- 11/13 Transportation Policy/Jim Halloran
- 11/18 Alternative Fuels/Joe Degenfelder
- 11/20 Energy and Urban Policy
- **11/22 Research Papers Due!!**
- 11/25 Economic Development/Iryna Lendel
- 11/27 CSU Energy Plan/Joseph Han

December

- 12/2 Student Presentations
- 12/4 Student Presentations
- Dec 9 Make up date
- Dec 14 Grades Due

Lectures

- Class presentations can be found on the Energy Policy Center website:

<http://urban.csuohio.edu/epc/research.html> .

Energy Implications of Government Shut Down

- Department of Energy
 - Using leftover dollars from prior appropriations
 - Furloughing 12700 of 13814 employees
 - Activities limited to human safety and property protection
 - EIA shut down
 - Hydro Power: TVA unaffected; SW and W power administrations working w small staff to keep power going

Government Agencies Affected

- EPA
 - 7% of staff working; Agency effectively shut down
- FERC
 - Continuing normal operations using carryover funds
 - Did not say for how long they could do this
 - When funds run out, will operate w 5% staff
 - Monitor energy markets, electricity reliability and infrastructure, inspecting hydropower and lng facilities
 - All processing of filings will be halted

More Government Agencies

- Department of Interior
 - 58000 of 72500 furloughed
 - Oil and gas inspections, drilling permitting will continue
 - Leasing and related activities halted
- Nuclear Regulatory Commission
 - Normal operations for one week
 - Thereafter 8% of 3900 employees kept on
 - Keep inspections, emergency response capability

And Lastly

- Department of Commerce
 - Meteorologists will continue on the job
 - Essential forecasting for utilities and RTOs
- Department of Agriculture
 - Houses Rural Utilities Service
 - Will stop processing loans and grants for electric cooperatives for transmission infrastructure

Renewable Portfolio Standards

- Regulation that requires increased production of energy from renewable energy sources
- RPS places obligation on electric supply companies to produce a specified fraction of their electricity from renewable sources,
 - Earn certificates for every unit of electricity produced.

RPS vs. Feed In Tariff

- Feed in tariffs guarantee purchase of all renewable energy, usually regardless of cost
 - Long term contracts are provided to renewable energy producer
 - Renewable power given a higher price on a per-kWh price.
 - First Feed in tariffs were under PURPA.
- RPS programs are more market based – allows for price competition between renewable sources

Federal vs. State RPS

- 30 of 50 US states have RPS standards
- 2009 – US Senate subcommittee on Energy & Natural Resources – proposed federal RPS
 - Asked for nationwide 3% generation to come from non-hydro renewable power by 2013
 - Tabled pending further consideration
 - Edison Electric Institute (IOU trade association) opposes
 - States' rights, exemption of coops, inequities, etc.

Principal Components of RPS

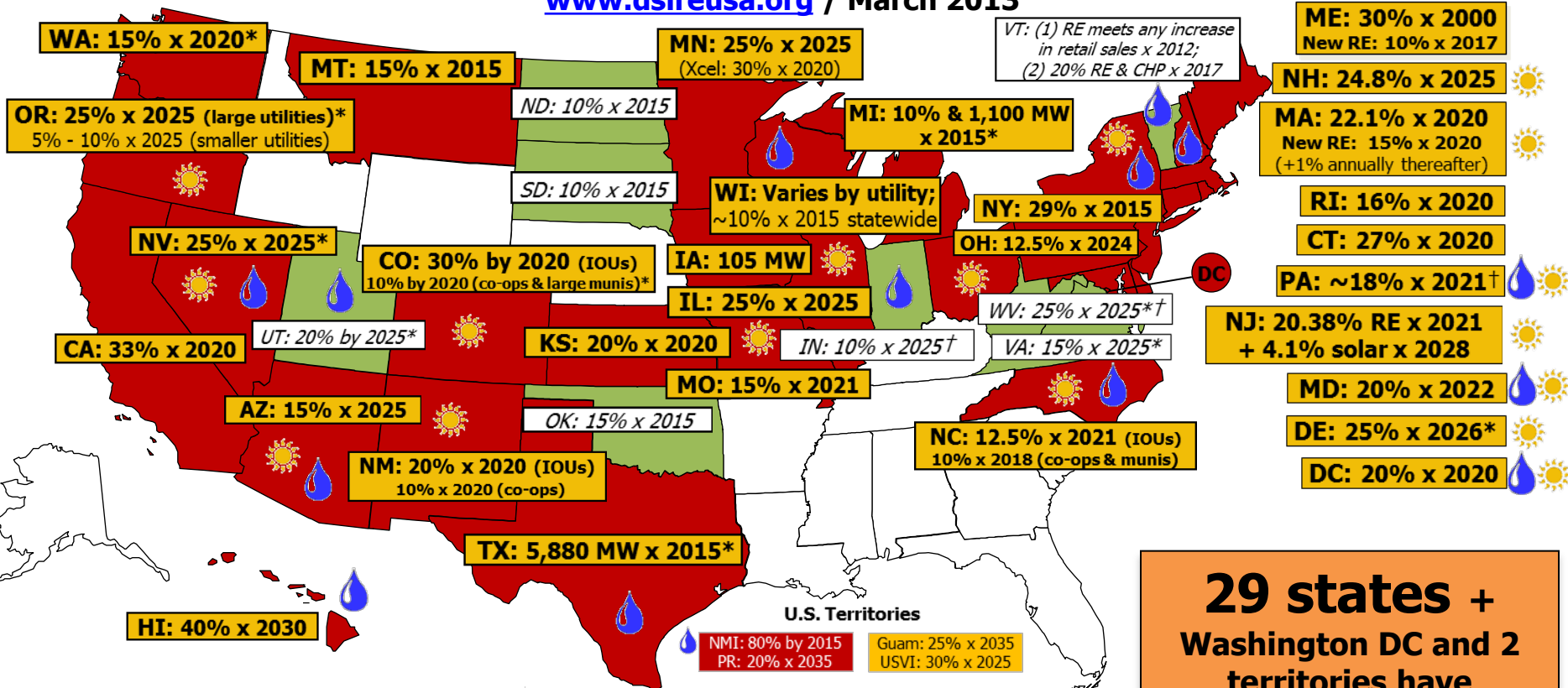
- Renewable Energy Portfolios
 - Mandate for percentage generation benchmarks
 - Renewable Energy Credits (RECs); Net Metering
- May Include Energy Efficiency Mandates
- Usually used in combination with other programs, such as federal tax credits, to support renewable generation.
 - 30% installed cost for solar, fuel cells, small wind
 - 10% for geothermal, CHP, microturbines

Renewable Energy Credits

- Mechanism to track the amount of renewable power being sold.
 - RECS are metered and registered in state registry
 - Sold on a per unit basis – usually MW-hrs
 - Can be purchased directly by utility or by broker
- Markets for RECS
 - National markets, but locally driven
 - Can bank credits
 - Different rules in different states is impediment

Renewable Portfolio Standard Policies

www.dsireusa.org / March 2013



- Renewable portfolio standard
- Renewable portfolio goal
- Solar water heating eligible

- Minimum solar or customer-sited requirement
- Extra credit for solar or customer-sited renewables
- Includes non-renewable alternative resources

29 states + Washington DC and 2 territories have Renewable Portfolio Standards
(8 states and 2 territories have renewable portfolio goals)

Ohio's RPS: SB 221

- Passed in May 2008
- Principally designed to re-regulate investor owned utilities to stabilize electricity rates.
- RPS Part of SB 221: Advanced Energy and Renewable Portfolios.
 - 12.5% renewable energy by 2025
 - 12.5% advanced energy by 2025
 - 22% increase in energy efficiency by 2025
- Basis for passing of Portfolio standard:
 - Create and keep jobs
 - Prepare for changing energy paradigm
 - Ensure affordable and stable rates
 - Clean environment and prepare for possible carbon legislation

Excused from Compliance with SB 221 Obligations

- Municipally owned utilities, such as Cleveland Public Power or Amp-Ohio.
- Local non-profit cooperatives, such as Medco.
- Rural Cooperatives.

SB 221 Requirements

- Baseline established on last three years sales
- Culminating in:
 - 12.5% renewable energy by 2025
 - 12.5% advanced energy by 2025
 - 22% energy efficiency savings by 2025
- Renewable portfolio includes a “solar carve out” of 0.5%
- Half of renewable power must be generated in Ohio

SB 221 Implementation

- Benchmark mandates for:
 - renewable energy
 - energy efficiency
- No benchmark for advanced energy
 - Result: advanced energy mandate has been largely ignored.

Acquisition of Renewable Energy

- Utilities can meet renewable energy obligations in three ways:
 - Generation of its own renewable power
 - Purchase renewable energy from third party contractors, e.g. through a power purchase agreement.
 - Purchase of Renewable Energy Credits (RECS)
 - Each MWh creates one REC
 - On site metering used to monitor creation of RECS
 - Registration with PUCO

Cost Recovery

- Costs of complying with RPS are recovered through customer rates.
- All compliance costs incurred by EDU can be “bypassable” by any consumer that has exercised a choice of supplier under ORC 4928.03
- Renewable energy compliance payments – if administered by PUCO – may not be passed through to the consumer.

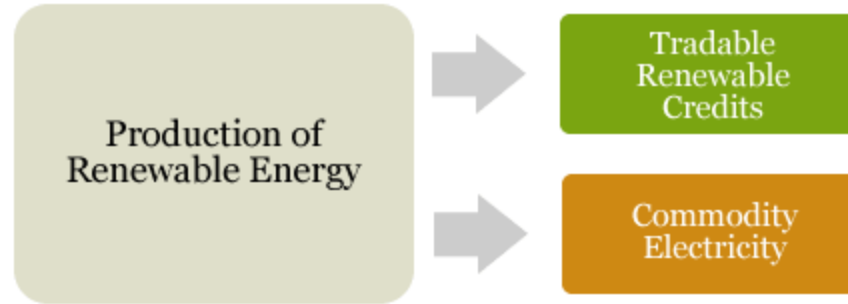
Cost Cap for Retailers

- EDU does not have to comply with annual requirements to the extent that its “reasonably expected cost of compliance” exceeds its “reasonably expected cost of otherwise producing or acquiring” the requisite electricity by 3% or more.
- Renewable energy compliance payment administered by PUCO serves as de facto cost cap.

Supply Contract Requirements

- There are no explicit supply contract requirements.
- In order to be granted a force majeure determination from the PUCO, the EDU must demonstrate good faith efforts to acquire renewable energy through long term contracts.
 - Long term contracts are not defined in the statute.

Renewable Energy Credits (RECs) represent a right to market characteristics associated with a “green” or an environmentally friendly generating facility and energy security. Distribution utilities may comply with the portfolio requirements through the acquisition of RECs.



Producers of “green” power (or customers) can sell RECs as well as the power itself, increasing their revenue, while other interests can buy or trade RECs for reasons ranging from improving corporate image to satisfying regulatory compliance. When RECs are traded, the entity purchasing the RECs gains the right to claim environmental benefits.

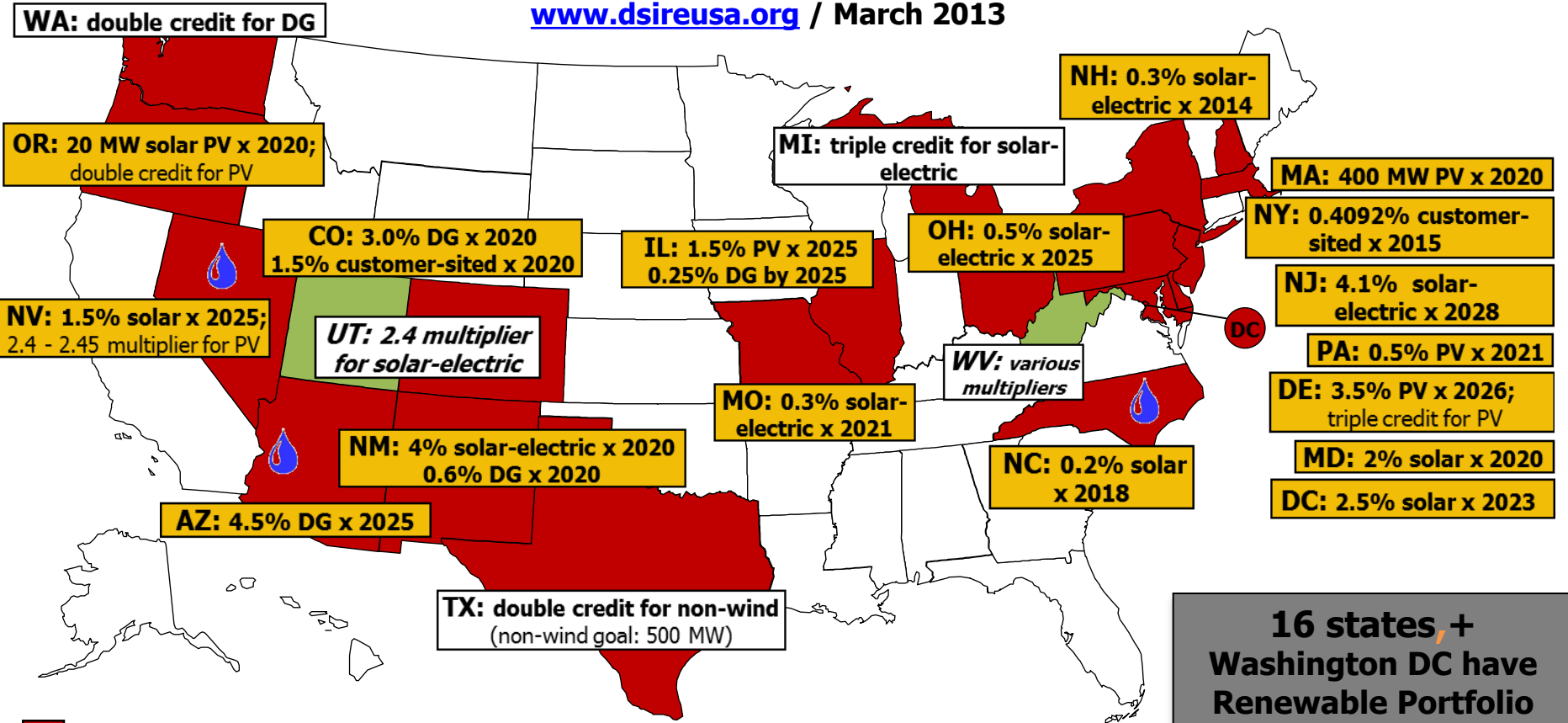
Renewable Energy Credits are also commonly referred to as Green Tags, Renewable Energy Certificates, Tradable Renewable Certificates (TRCs), and environmental attributes.

Value of RECS

- Solar RECS are in higher demand –
 - Selling past few years for around \$300/MW-hr
 - But long term contracts are difficult to get
 - Penalty for noncompliance in 2013: \$350/MWh
 - Typical solar project requires long term PPA – difficult to predict SREC values ten years out.
- Other RECS are much lower in value – around \$10/MW-hr.

Renewable Portfolio Standard Policies with Solar / Distributed Generation Provisions

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- Renewable portfolio standard with solar / distributed generation (DG) provision
- Renewable portfolio goal with solar / DG provision
- Solar water heating counts toward solar / DG provision

† Delaware allows certain fuel cell systems to qualify for the PV carve-out

16 states, + Washington DC have Renewable Portfolio Standards with Solar and/or Distributed Generation provisions

Force Majeure

- If utility shows good faith effort to comply with renewable benchmarks, PUCO may release them from obligation to comply.
- All utilities sought and received release from PUCO in 2009 for solar obligations.
- Since 2009 – only First Energy has sought the force majeure release

Non-Compliance Benchmarks

- Solar: 2009 \$450/MW-hr
 - 2010 \$400
 - 2012 \$350
 - 2014 \$300
 - 2024 \$50
- Renewable Energy: 2009 \$45/MW-hr
 - Adjusted annually thereafter

Alternative (Advanced/Renewable) Energy Supply Benchmarks

<u>By end of year</u>	<u>Renewable energy resources</u>	<u>Solar energy resources</u>
2009	0.25%	0.004%
2010	0.50%	0.010%
2011	1%	0.030%
2012	1.5%	0.060%
2013	2%	0.090%
2014	2.5%	0.12%
2015	3.5%	0.15%
2016	4.5%	0.18%
2017	5.5%	0.22%
2018	6.5%	0.26%
2019	7.5%	0.3%
2020	8.5%	0.34%
2021	9.5%	0.38%
2022	10.5%	0.42%
2023	11.5%	0.46%
2024 and each calendar year thereafter	12.5%	0.5%

At least half of the renewable energy resources component must be met through facilities located in Ohio; the remainder must be met with resources that can be shown to be deliverable into Ohio.

The renewable requirement may be relaxed. *Compliance with an advanced or renewable (or solar) energy resource benchmark may be excused to the extent that the reasonably expected cost of compliance exceeds by 3% or more the reasonably expected cost of otherwise producing or acquiring the requisite electricity.*

Upon request, the PUCO has the power to make a force majeure determination regarding compliance with any minimum, renewable energy resource benchmark. The PUCO can require the utility or company to make solicitations for renewable energy resource credits as part of its default service before the utility or company can make a force majeure request.

Portfolio Obligations -- Supply & Demand Side

Supply Side – Alternative Electricity Generation

The act requires an electric distribution utility, by 2025 and thereafter, to provide from "alternative energy resources" a portion of the electricity supply required to satisfy its Standard Service Offer obligation ("SSO" – the default supply of all "competitive" services such as generation supply).

An electric services company (competitive supplier) must also provide a portion of its Ohio retail electricity supply from "alternative energy resources."

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What Qualifies as Renewable Energy?

- Defined by the “Plain language” of statute.
- But: PUCO sets up regulations, and has considerable discretion in how to interpret the Statute.

“Renewable energy resource” means solar photovoltaic or solar thermal energy, wind energy, power produced by a hydroelectric facility, geothermal energy, fuel derived from solid wastes, as defined in Section 3734.01, Revised Code, through fractionation, biological decomposition, or other process that does not principally involve combustion, biomass energy, biologically derived methane gas, or energy derived from nontreated by-products of the pulping process or wood manufacturing process, including bark, wood chips, sawdust, and lignin in spent pulping liquors. “Renewable energy resource” includes, but is not limited to, any fuel cell used in the generation of electricity, including, but not limited to, a proton exchange membrane fuel cell, phosphoric acid fuel cell, molten carbonate fuel cell, or solid oxide fuel cell; wind turbine located in the state’s territorial waters of Lake Erie; storage facility that will promote the better utilization of a renewable energy resource that primarily generates off peak; or distributed generation system used by a customer to generate electricity from any such energy. As used in division (A)(35) of this section, “hydroelectric facility” means a hydroelectric generating facility that is located at a dam on a river, or on any water discharged to a river, that is within or bordering this state or within or bordering an adjoining state and meets all of the following standards:

- (a) The facility provides for river flows that are not detrimental for fish, wildlife, and water quality, including seasonal flow fluctuations as defined by the applicable licensing agency for the facility.
- (b) The facility demonstrates that it complies with the water quality standards of this state, which compliance may consist of certification under Section 401 of the “Clean Water Act of 1977,” 91 Stat. 1598, 1599, 33 U.S.C. 1341, and demonstrates that it has not contributed to a finding by this state that the river has impaired water quality under Section 303(d) of the “Clean Water Act of 1977,” 114 Stat. 870, 33 U.S.C. 1313.
- (c) The facility complies with mandatory prescriptions regarding fish passage as required by the Federal Energy Regulatory Commission (FERC) license issued for the project, regarding fish protection for riverine, anadromous, and catadromus fish.
- (d) The facility complies with the recommendations of the Ohio environmental protection agency and with the terms of its FERC license regarding watershed protection, mitigation, or enhancement, to the extent of each agency’s respective jurisdiction over the facility.
- (e) The facility complies with provisions of the “Endangered Species Act of 1973,” 87 Stat. 884, 16 U.S.C. 1531 to 1544, as amended.
- (f) The facility does not harm cultural resources of the area. This can be shown through compliance with the terms of its FERC license or, if the facility is not regulated by that commission, through development of a plan approved by the Ohio historic preservation office, to the extent it has jurisdiction over the facility.
- (g) The facility complies with the terms of its FERC license or exemption that are related to recreational access, accommodation, and facilities or, if the facility is not regulated by that commission, the facility complies with similar requirements as are recommended by resource agencies, to the extent they have jurisdiction over the facility; and the facility provides access to water to the public without fee or charge.
- (h) The facility is not recommended for removal by any federal agency or agency of any state, to the extent the particular agency has jurisdiction over the facility.

What Qualifies as Advanced Energy?

- Defined by the “plain language” of statute.
- But: PUCO sets up regulations, and has considerable discretion in how to interpret the Statute.

“Advanced energy resource” means any of the following:

- (a) Any method or any modification or replacement of any property, process, device, structure, or equipment that increases the generation output of an electric generating facility to the extent such efficiency is achieved without additional carbon dioxide emissions by that facility;**
- (b) Any distributed generation system consisting of customer cogeneration of electricity and thermal output simultaneously, primarily to meet the energy needs of the customer’s facilities;**
- (c) Clean coal technology that includes a carbon-based product that is chemically altered before combustion to demonstrate a reduction, as expressed as ash, in emissions of nitrous oxide, mercury, arsenic, chlorine, sulfur dioxide, or sulfur trioxide in accordance with the American society of testing and materials standard D1757A or a reduction of metal oxide emissions in accordance with standard D5142 of that society, or clean coal technology that includes the design capability to control or prevent the emission of carbon dioxide, which design capability the commission shall adopt by rule and shall be based on economically feasible best available technology or, in the absence of a determined best available technology, shall be of the highest level of economically feasible design capability for which there exists generally accepted scientific opinion;**
- (d) Advanced nuclear energy technology consisting of generation III technology as defined by the Nuclear Regulatory Commission; other, later technology; or significant improvements to existing facilities;**
- (e) Any fuel cell used in the generation of electricity, including, but not limited to, a proton exchange membrane fuel cell, phosphoric acid fuel cell, molten carbonate fuel cell, or solid oxide fuel cell;**
- (f) Advanced solid waste or construction and demolition debris conversion technology, including, but not limited to, advanced stoker technology, and advanced fluidized bed gasification technology, that results in measurable greenhouse gas emissions reductions as calculated pursuant to the United States Environmental Protection Agency’s waste reduction model (WARM).**
- (g) Demand-side management and any energy efficiency improvement.**

Net Metering

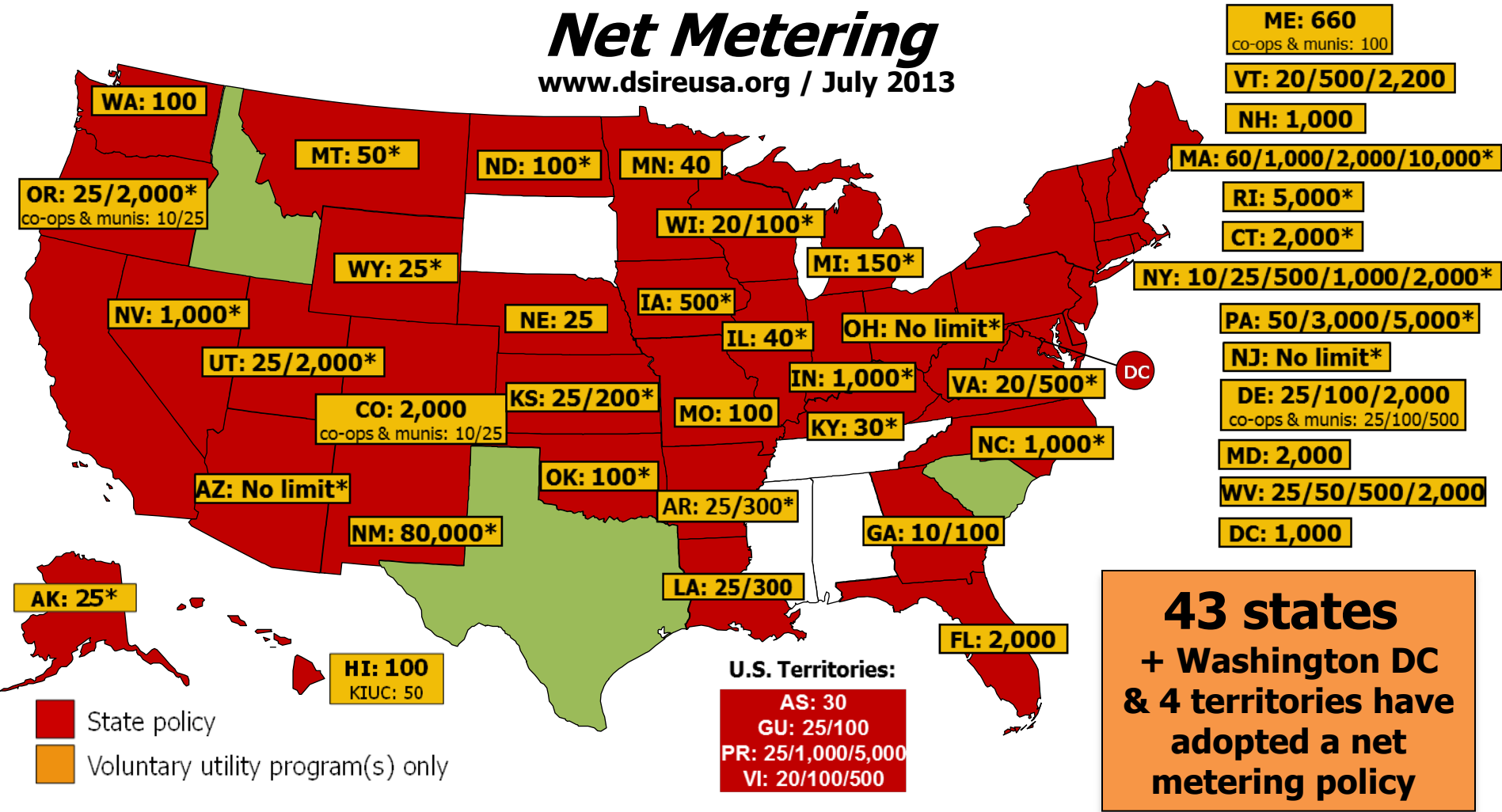
- Allows for on site generation whereby credit is given for generation in excess of amount used.
- Most jurisdictions (including Ohio) have bi-directional meters that “net out” the amount put into the grid from that used.
 - Meter runs backward – get retail rate
 - Simplest when all power priced the same
- Designed to encourage self-generation

Controversy

- Utilities argument:
 - Places cost of transmission and distribution of power netted out on other customers.
 - Consumer can net out peak consumption with off peak production (especially wind).
- Response:
 - Value of distributed generation to the grid in general worth it to ratepayers
 - Value to the environment worth it for ratepayers

Net Metering

www.dsireusa.org / July 2013



Note: Numbers indicate individual system capacity limit in kilowatts. Some limits vary by customer type, technology and/or application. Other limits might also apply. This map generally does not address statutory changes until administrative rules have been adopted to implement such changes.

Net Metering In Ohio

- EDUs must offer net metering to customers who generate electricity using wind, solar, biomass, landfill gas, hydropower, fuel cells or microturbines.
 - PUCO docket Case No. 12-0250-EL-RDR
- Implied limitation: Facility must be designed to offset part or all of customer's load.
- Excess generation is accumulated over a one year period.
- Customers use single bi-directional meters

Demand Side Management: Energy Efficiency and Demand Response

- Energy Efficiency Programs
 - Designed to decrease consumption of electricity through conservation measures
 - Most common strategy: upgrading infrastructure
- Demand Response Programs
 - Designed to decrease capacity/standby generation and infrastructure requirements by reducing demand voluntarily during peak demand periods.

Portfolio Obligations – Demand Side

Demand Side

Beginning in 2009, an electric distribution utility must implement energy efficiency programs that achieve energy savings equivalent to at least 0.3% of the total, annual average, and normalized kilowatt-hour sales of the electric distribution utility during the preceding three calendar years to its Ohio customers.

The savings requirement, using such a three-year average, increases by an additional 0.5% in 2010, 0.7% in 2011, 0.8% in 2012, 0.9% in 2013, 1% in years 2014 to 2018, and 2% each year thereafter, achieving a cumulative, annual energy savings in excess of 22% by the end of 2025. The baseline for such energy savings is the average of the total kilowatt-hours the utility sold in the preceding three calendar years subject to adjustment by the PUCO to reflect new economic growth.

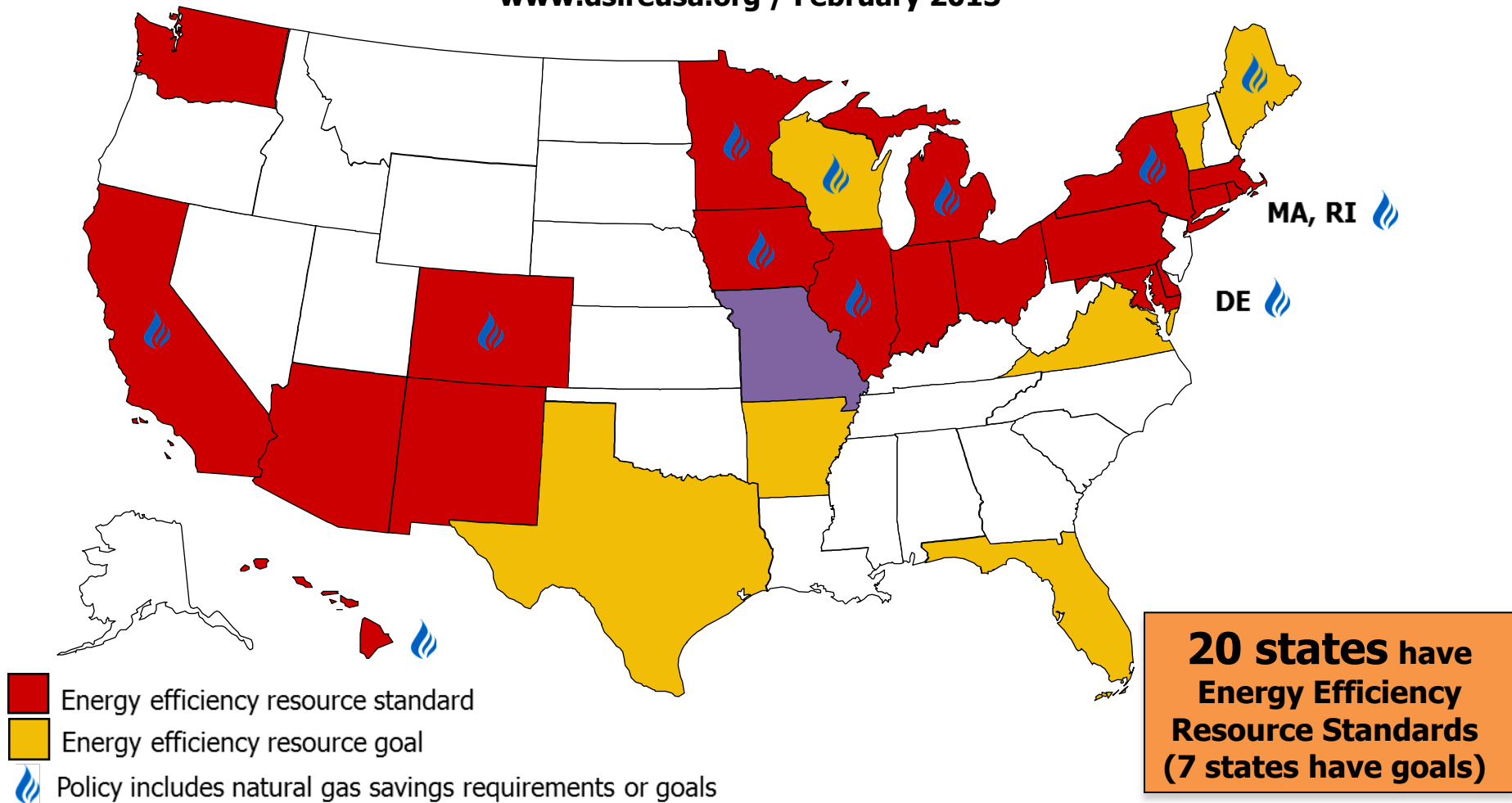
Beginning in 2009, an electric distribution utility must implement peak demand reduction programs designed to achieve a 1% reduction in peak demand in 2009 and an additional 0.75% reduction each year through 2018. The baseline for a peak demand reduction is the average peak demand on the utility in the preceding three calendar years subject to adjustment by the PUCO to reflect new economic growth.

What Qualifies as Energy Efficiency?

- Defined by the “plain language” of statute –
But much delegated to PUCO rule making.
- E.g. replacement of appliances, motors or lighting with more efficient products, weatherization/insulation.

States with Energy Efficiency Portfolios

www.dsireusa.org / February 2013



Note: See following slide for a brief summary of policy details. For more details on EERS policies, see www.dsireusa.org and www.aceee.org/topics/eers.

DSE-2 Energy Rider

- Utilities are allowed to pass through the costs of energy efficiency to customers through a rider.
- In 2011 First Energy projected the rider will be around \$0.005/kw-hr in two years.
 - For CSU – means around \$200,000/yr assuming 40,000,000 kw-hrs.
 - For typical homeowner: probably around \$50/yr
 - FE experience in NJ much greater rider expenses – as much as 4 times this amount.

Actual Costs of DSE-2 Rider

- July 2011 \$0.001
- January 2012 0
- July 2012 0.005
- January 2013 0

Brakey Energy, Dec 2012

Projected Costs of DSE-2 Rider

- 2013 \$0.0025
- 2014 0.0035
- 2015 0.0055
- 2016 0.0070

Brakey Energy, Dec 2012

Mercantile Customer Exception

- Large power customers – greater than 700,000 kw-hrs/year – can escape DSE-2 rider.
 - Need to do own energy efficiency work.
 - Submit application to PUCO through an administrator for credit.
 - Over 25% of First Energy energy efficiency benchmarks have been met through mercantile customers.
 - In 2012 over 400 waiver cases were pending in PUCO for adjudication.

Look Back Problem

- How do you avoid penalizing companies who voluntarily undertook energy efficiency efforts prior to 2009?
- Compromise
 - SB 221 allowed for companies to reach back several years to receive credit for work undertaken.
 - Industrial users and utilities argue this still penalizes good energy management for those who have been conserving all along.

What Will be Result for Residential and Commercial Users?

- Costs are reallocated among stranded users.
 - Should we care? PM claims residents save \$7/yr, commercial users \$47/yr – after payout.
- Rebates and other incentive programs will be offered by utilities.
- First Energy's program to distribute energy efficient light bulbs was abandoned.
 - Resurfaced as voluntary program

Energy Efficiency Performance

- In 2012 First Energy got 26% of savings from Mercantile DSE-2 rider waiver
- Much of rest comes from lighting programs
 - Residential CFL programs – 21%
 - Commercial lighting programs – 12%
- Low Hanging Fruit being used up? What will this mean for rising DSE-2 rider costs?

Opposition to Mercantile Program

- Ohio Consumer's Counsel initially opposed every filing for a waiver.
 - Biggest complaint – retroactively allowing mercantile customer upgrades to count (2006)
 - These programs were not targeted for upgrades – not supposed to cover projects would have done anyway
 - But unfair to penalize proactive companies?
- Should stranded ratepayers – those who cannot get a waiver – be concerned?

Performance on SB 221

- Policy Matters Analysis – August 2010 – only about a year of data. Analyzes:
 - Economic Growth
 - Reduction of Emissions
 - Energy Savings
 - Energy Independence
 - Ohio's IOU performance
 - Problems with the program

Economic Growth

- Ohio had already made significant strides in renewable energy job growth by 2008.
 - Manufacturing base made Ohio natural for components and supply chain.
- 132 projects have been submitted for approval to PUCO for REC credits through June 2014 totaling 614,000 MWhs.
- Solar industry has taken off in Ohio
 - Wyandot Solar Facility -- \$45 mm project 10 MW
 - First Solar ramped up from 50 to 840 employees

Solar Growth

- But....First Solar creating more jobs in Asia
- Impossible to get solar panels from Ohio.

Wind Growth

- Three large wind farms have been approved in Ohio.
 - But jobs are mostly construction – not permanent.
- Leedco project is promise of jobs for NE Ohio.
 - GE collaboration not in Ohio
 - Relying on supply chain opportunities being created
 - Still uncertain future as to financing.
 - Price per kW is over 20 cents

Energy Efficiency Jobs

- Policy Matters projects 1 full time job created for each \$46,000 invested.
 - Anticipates 1700 direct permanent jobs over 2 year period
 - “Short term jobs” are around 1000 per year
 - Does not include indirect jobs resulting from increased efficiencies, savings.
 - Unclear if projected jobs are service related or manufacturing related or both.

Emissions

- 2008: Ohio ranked 2nd in carbon, 1st in SO₂ emissions.
- Must cut coal/increase renewable energy.
- Assuming 88% coal, SB 221 will lead to:
 - 342 million tons CO₂ cut over 16 years
 - 2 million tons of SO₂
 - 500 thousand tons of NO and NO₂

Energy Savings

- PM estimates \$386 mm for 2009-2011
- By 2012 -- \$7/yr residents, \$47/yr for commercial users, and \$1639/yr for industrial users
- Average anticipated savings over time: \$82/yr for residents, \$580/yr commercial, \$20,000/yr for industrial users.
 - Estimates include average costs of implementation of energy efficiency program.

Energy Independence

- Ohio imports 2/3 of its coal.
 - Results in \$1.4 billion trade deficit in 2008
- PM projects 28 MW-hrs of coal saved by 2025
 - a savings on trade deficit of \$563 mm/year

Biomass Problem

- Threat that Biomass projects will overwhelm the renewable portfolio obligations.
 - All Ohio utilities looking to biomass to meet RPS
- First Energy received certification from PUCO to convert 156 MW Burger plant from coal to biomass.
 - Will burn woodchips, cornstalks, switch grass, and grains as fuel – to generate 1.3 mm RECS/yr
 - Would fulfill RECs through 2014 in one year
 - *Ultimately abandoned.*

HB 2 and Weighted RECS

- Under HB 2, biomass projects over 75 MW receive more than 1 REC for MW-hr.
- Burger Plant – roughly 4 RECS per 1 MW-hr.
- Objections:
 - Most of fuel comes from out of state
 - Unclear how much of fuel is really renewable; no policies in place to ensure sustainable supply
 - REC market flooded by cheap biomass

PM Policy Recommendations

- Expand and extend SB 221
- Enforce Benchmarks
- Reconsider Biomass problem
- Close Mercantile loopholes
- Require transparency
- Expand clean energy standards

Senate Bill 315

- Reworked certain aspects of SB 221, together with oil and gas regulatory scheme
- Drivers – clean technologies left out of SB 221
 - Combined heat and power
 - Waste heat recovery systems
- Vested Interests
 - Utilities – generally opposed to DG
 - Other renewable power – opposed to CHP and waste heat – fear they will overwhelm REC market

Passage of SB 315

- May 2012
- Provides for:
 - Waste heat recovery systems are deemed to be “renewable” for purposes of SB 221
 - CHP is not considered to be renewable.
 - But considered advanced energy.
 - And can be counted toward meeting the energy efficiency portfolio requirements.

Problem with SB 315

- How to monetize energy efficiency value for CHP.
- Two ways to monetize energy efficiency:
 - Rebates.
 - But maximum rebates (around \$250K) are small compared to cost of CHP – \$10s or 100s of millions
 - Utilities have no incentive to cooperate with this
 - Waiver on DSE-2 rider.
 - Better value for large industrial user
 - But if CHP takes most of load, the value of the DSE-2 waiver is diminished.
 - Possible solution – microgrid.

Energy Efficiency Under Attack

- Began with Senator Seitz Utility subcommittee hearings in 2012
 - Subcommittee invited public comments on whether advent of shale gas and the drop in wholesale prices required reconsideration of energy efficiency mandate.
 - Utilities, consumer groups, environmental groups, industrial groups all weighed in.
 - Consumer and environmental groups opposed changing the mandate.

Utility Arguments for Rolling Back EE Mandates

- Utilities Oppose Energy Efficiency Programs
 - Real Reason: reduces sales
 - Arguments given publicly:
 - EE should compete with generation for market share
 - Electricity prices have dropped
 - Delays badly needed new generation
 - Cost of mandate is too high
 - Penalizes mercantile users who were good corporate citizens and had already undertaken EE work.
 - Jevons' Paradox – EE programs do not work.

Position of Industrial Users

- OMA and WireNet argue that “Negawatt” is least cost option for electricity
- IEU and OEG argue that the program is too expensive

ACEEE Study

- “Levelized” of energy efficiency costs between 1 and 5 cents/kw-hr.
 - Factors in fuel, capital investment and operating costs
 - Compare to natural gas – 6 to 10 cents/kW-hr
- Value Proposition for Ohio: \$5.6 B by 2020
 - Reduce power consumption
 - Constrained capacity charges
 - Deferred infrastructure upgrades
 - Drop in wholesale prices

Senate Bill 58 Introduced

- Introduced into Ohio Senate in September 2013 (Senator Seitz)
- Scope
 - Energy Efficiency – broadens what qualifies as EE, and creates ways for customer opt out
 - Peak Demand – broadens what qualifies as DR
 - Renewable – expands type of renewable, allows double counting of energy efficiency and renewable, eliminates mandated penalty and removes “in state” requirement for siting.

SB 58 and Energy Efficiency

- Keeps Benchmarks intact.
- Creates limits on total costs of energy efficiency.
- Allows Large Industrial Users to bypass.
- Allows utilities to count toward meeting the mandate:
 - Old and new upgrades on existing power plants
 - Upgrades on transmission and distribution lines

Problems with SB 58

- What are effects of replacing behind the meter energy efficiency with generation/transmission efficiency?
 - On the environmental?
 - On capacity charges?
 - On ratepayers?
- Why would FE want this change?

Upgrades to Generation

- Proposes counting upgrades to old plants dating back to 2006.
 - But have plants already been paid for by ratepayers?
 - Doesn't this shift the DSE2 rider money from savings for end users to savings for utility shareholders?
 - Fair to CRES providers to subsidize cost of old traditional generation in Ohio?

Upgrades to Transmission

- Could this help capacity issue, constrained grid problems?
- Aren't these upgrades already paid for by ratepayers through the "cost plus" accounting?
- Will this reduce the number of electrons purchased by end users?

Shared Savings Under SB 58

- Originally put into SB 221 as a bonus for utilities that met the targets at low costs.
 - Utilities share in small percentage of savings if they can beat the targets.
 - Incentive for utilities to go above the target.
- SB 58 proposes utilities will now share in 33% of the savings – but no bonus for doing better than target.
 - Now bonus is for doing what is required.
 - Consumers all pay utility taxes – losing over half of the value from savings.

“Lost” T&D Charges Under SB 58

- SB 58 allows the utilities to charge consumers for “lost” T&D revenues as a result of sales reductions due to energy efficiency.
- PUCO in 2011 indicated it was not inclined to allow utilities to recover for anticipated lost revenue from energy efficiency plans.
 - What is purpose of EE portfolios – to reduce emission or to reduce costs? Both?
 - Would this effectively eliminate the latter motive?

Unilateral Application Approval

- SB 58 diminishes the authority of the PUCO to balance the interests of the customers and the utilities in the ratemaking process.
- Gives utilities sole discretion to modify pending or approved efficiency applications.
- Would enable utilities to choose those projects that most benefit utilities, not ratepayers.
- Utilities could decide to not bid ee into PJM capacity markets

SB 58 Changes to RPS

- Renewable generation curtailed to 2013 levels.
- Makes penalties for noncompliance voluntary.
- Gets rid of “in state requirement” for generation.
 - Problem: can bringing in out of state renewable power essentially end the RPS?
 - E.g. MISO and Canadian Hydro power projects.
 - Query: does the in state generation requirement violate the commerce clause?

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Thank you!