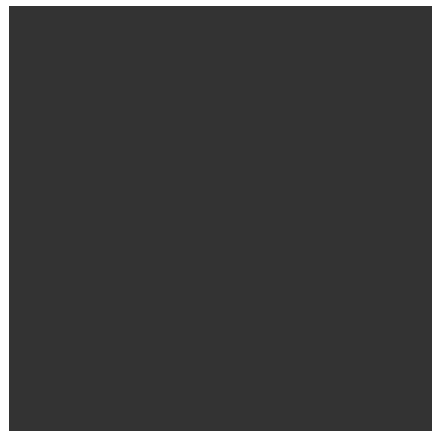




NASEO National
Association
of State Energy Officials

Renewable Energy: The State and Federal Landscape



September 2012

About NASEO

- Only national non-profit organization whose membership includes the 56 governor-designated energy officials from each state and territory
- Improve the effectiveness of state energy programs and policies
- Seven Regional Coordinators across the nation to aid in sharing lessons learned for successful policy and program replication
- Act as a repository of information on issues of particular concern to the states and their citizens (e.g., financing, buildings)
- Committee structure includes, Renewables, Electricity, Buildings, Industry, Energy Assurance, Financing, Government Affairs
- Serve as the voice of SEOs in Washington, DC

+ The Nation's 56 State and Territory Energy Offices



- Vital Resource
- Connect with utilities
- Support the private sector
- Advise State Legislators and Governor on policy development (e.g., policy, RPS, public benefit funds)
- Advance retrofits and energy management in buildings
- Deliver public energy education
- Conduct statewide energy planning
- Demonstrate and pilot innovative energy projects

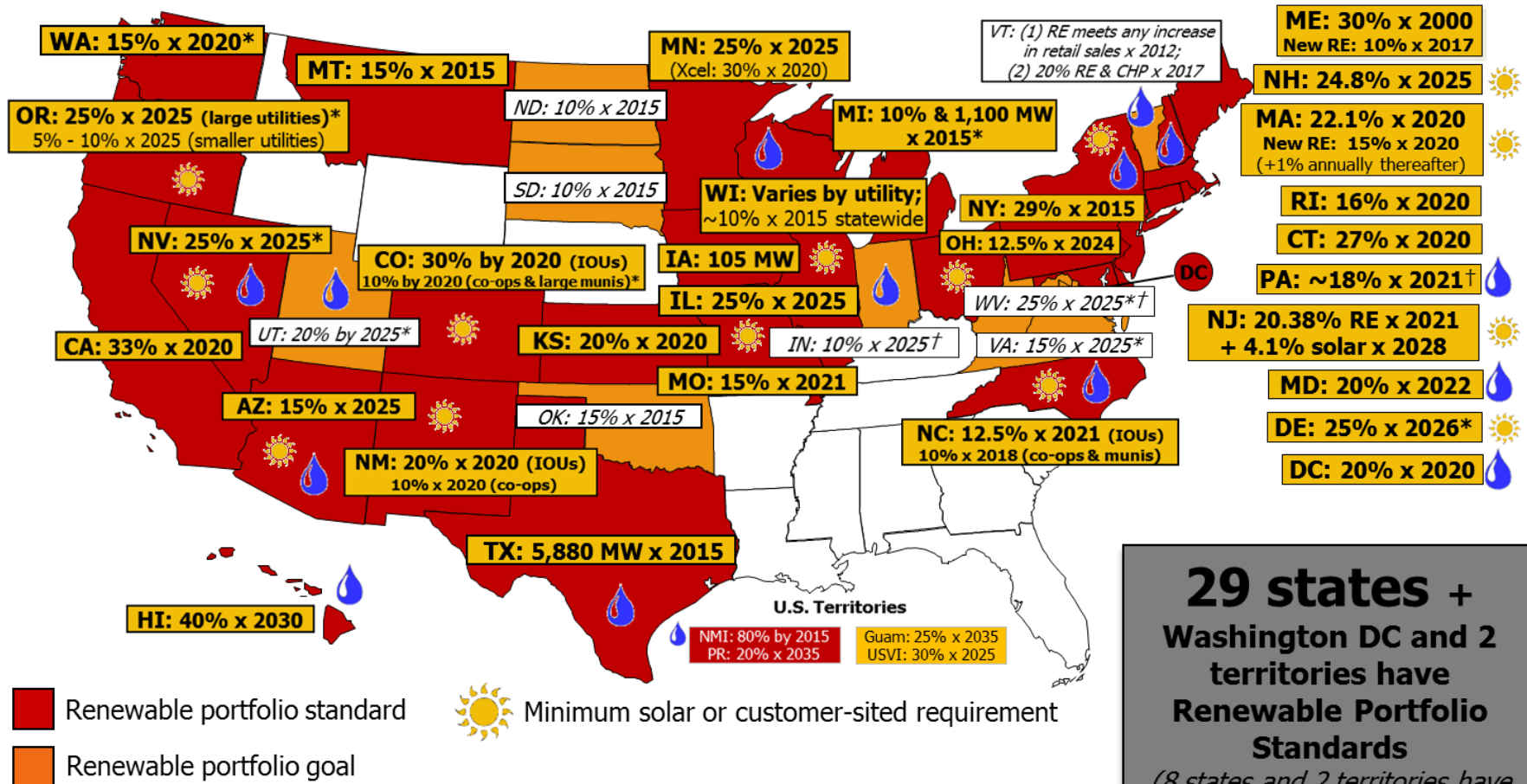


Presentation Outline

- Renewable Portfolio Standards
- Direct Incentives
- Economic Development
- Infrastructure
- Barriers to Implementation
- Federal Outlook
- NASEO/ASERTTI Renewable Energy Committee



+ State Renewable Portfolio Standards



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

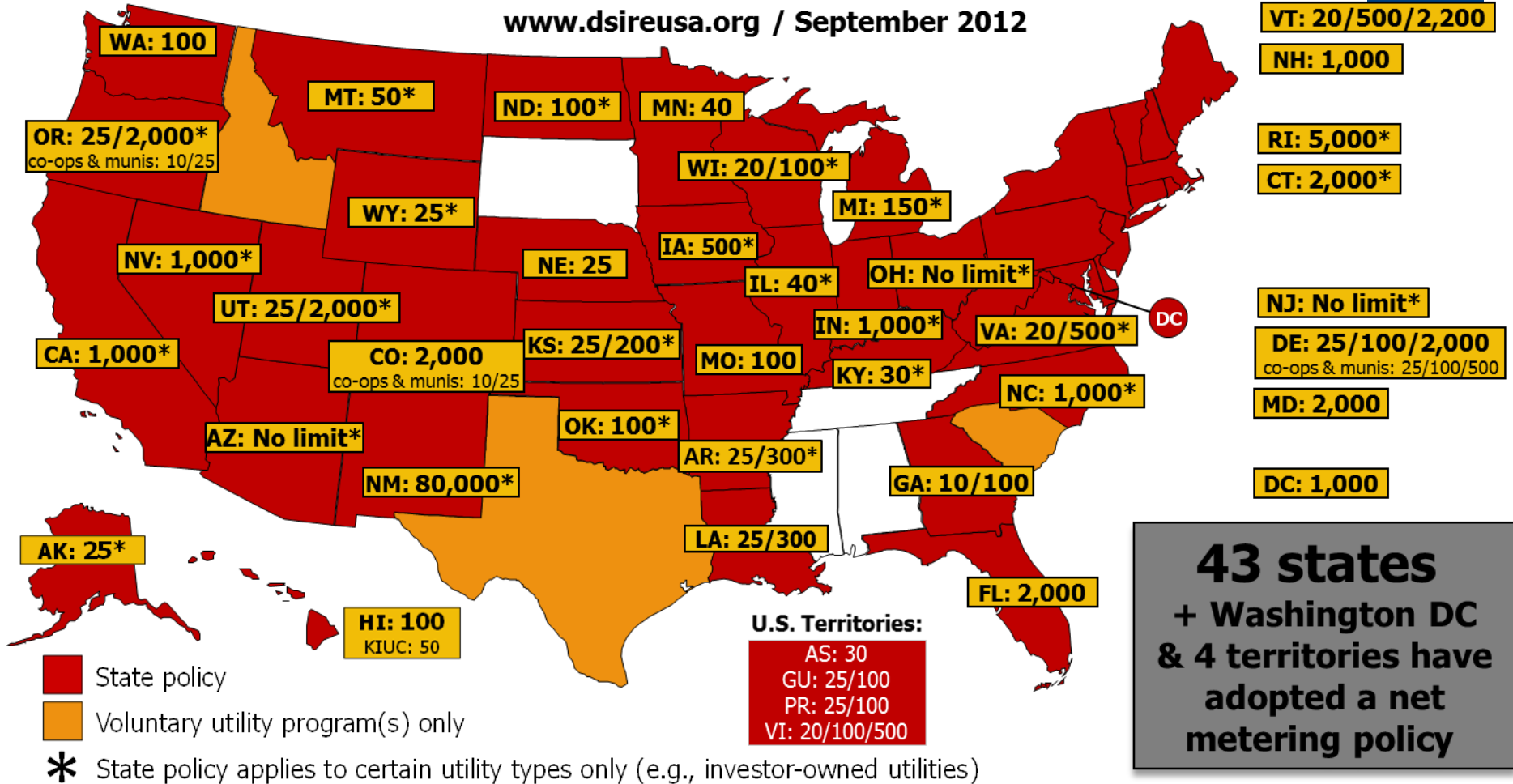
+ State Renewable Portfolio Standards

RPS States (Goal)	RPS Obligations by Year (MWh)						
	RPS Achievement by Year (% of RPS Obligations)						
	1999	2001	2003	2005	2007	2009	2011
Iowa (105 MW)	295,800 (100%)	295,800 (100%)	295,800 (100%)	295,800 (100%)	295,800 (100%)	295,800 (100%)	295,800 (100%)
Arizona (15% x 2025)		54,261 (85%)	217,024 (30%)	407,842 (25%)	631,122 (30%)	824,430 (90%)	1,181,860 (100%)
Maine (40% x 2017)		3,532,009 (100%)	3,360,998 (100%)	3,598,072 (100%)	3,510,587 (100%)	3,514,043 (100%)	no data (no data)
Minn. (30% x 2020*)			2,025,750 (72%)	3,297,996 (81%)	3,910,100 (99%)	3,860,255 (100%)	no data (no data)
Nevada (25% x 2025)			1,289,903 (30%)	1,714,769 (95%)	2,775,882 (50%)	3,551,815 (100%)	4,468,124 (100%)
Texas (10,000 MW x 2025)			1,322,161 (96%)	1,505,855 (99%)	3,421,626 (99%)	6,799,347 (100%)	no data (no data)
Calif. (33% x 2020)				21,748,036 (100%)	25,643,076 (100%)	29,537,501 (89%)	35,651,409 (98%)
Colorado (30% x 2020)					898,043 (100%)	1,646,899 (100%)	3,682,075 (100%)
New York (29% x 2015)					2,376,659 (25%)	4,868,849 (61%)	4,572,910 (67%)



Net Metering

www.dsireusa.org / September 2012



*Note: Numbers indicate individual system capacity limit in kW. 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.*

+ Kansas Renewable Portfolio Standard



■ Renewable Portfolio Standard

- 20% peak demand capacity by 2020
- House Bill 2369, enacted in May 2009
- Applies to IOUs and co-ops
- Target is set on *generation capacity*

■ Compliance Schedule

- 2011 - 2015: 10%
- 2016 - 2019: 15%
- 2020 onward: 20%

+ Iowa Alternative Energy Law



■ Alternative Energy Law

- Passed in 1983 (amended in 2003)

■ 105 MW of Renewable Energy Statewide

- Combined total for the two IOUs in the state
- MidAmerican Energy: 55.2 MW (52.57% of demand)
- Alliant Energy Interstate Power and Light (IPL): 49.8 MW (47.43% of demand)



Oregon RPS



- **Oregon Renewable Energy Act of 2007**
 - Large Utilities (serving more than 3% of state's load)
 - 25% by 2025
 - Mid-size utilities (serving 1.5 – 3%)
 - 10% by 2025
 - Small Utilities (serving < 1.5%)
 - 5% by 2025
- **Renewable Energy Credits purchased to demonstrate compliance**
- **2009 Legislation**
 - IOUs to develop 20 MW-AC of solar PV by Jan 1, 2010
 - Multiplier for systems operational prior to January 1, 2016



North Carolina



- **Renewable Energy and Energy Efficiency Portfolio Standard (REPS)**
 - Passed in 2007
 - 12.5% of 2020 retail electric sales in NC by 2021 (applies to IOUs)
 - 0.20% from solar
 - 0.20% from swine waste
 - 900,000 MWh from poultry waste
 - Up to 25% of the REPS requirement may be met through energy efficiency
- **Compliance demonstrated through RECs acquisitions**
 - Utilities may meet up to 25% of REPS requirement from out of state facilities

- **Cost cap per customer account:**

Sector	2008	2012	2015
Residential	\$10	\$12	\$34
Commercial	\$50	\$150	\$150
Industrial	\$500	\$1000	\$1000

+ State Renewable Energy Financial Incentives

Financial Incentive	Number of States
Personal or Corporate Tax Credit	24
Sales Tax Deduction/Exemption	29*
Rebates	21**
Public Benefits Funds	20**
State Property Tax Incentives	33*
Loan Programs	37
Grant Program	16*

** includes Puerto Rico*

*** includes Puerto Rico and the District of Columbia*

+ New Jersey: Renewable Energy Incentives

Industry Recruitment/Support

- Edison Innovation Clean Energy Manufacturing Fund - Grants and Loans
- Edison Innovation Green Growth Fund Loans
- Wind Manufacturing Tax Credit

Utility Incentive

- PSE&G - Solar Loan Program
- Utility Solar Financing Programs (ACE, JCP&L, RECO)

Performance-Based Incentive

- Grid-Connected Renewables Program
- New Jersey Board of Public Utilities - Solar Renewable Energy Certificates (SRECs)

Property Tax Incentive

- Assessment of Farmland Hosting Renewable Energy Systems
- Property Tax Exemption for Renewable Energy Systems

Sales Tax Incentive

- Solar Energy Sales Tax Exemption

State Loan Program

- Clean Energy Solutions Energy Efficiency Revolving Loan Fund

State Rebate Program

- New Jersey Renewable Energy Incentive Program
- Renewable Energy Manufacturing Incentives (for End-Use PV Installations)

+ Hawaii: Renewable Energy Incentives

Corporate Tax Credit

- Solar and Wind Energy Credit (Corporate)

Green Building Incentive

- Priority Permit Processing for Green Buildings

Local Loan Program

- Honolulu - Solar Roofs Initiative Loan Program
- Maui County - Solar Roofs Initiative Loan Program

PACE Financing

- Local Option - Special Improvement Districts

Performance-Based Incentive

- Hawaii Feed-in Tariff

Personal Tax Credit

- Solar and Wind Energy Credit (Personal)

State Loan Program

- Farm and Aquaculture Alternative Energy Loan

State Rebate Program

- Hawaii Energy - Energy Efficiency Rebate Program
- Hawaii Energy - Energy Solutions Business Appliance Rebates and Customized Incentives Program
- Hawaii Energy - Solar Water Heater Rebate

Utility Loan Program

- KIUC - Solar Water Heating Loan Program

Utility Rebate Program

- KIUC - Solar Water Heating Rebate Program

Property Tax Incentive

- City and County of Honolulu - Real Property Tax Exemption for Alternative Energy Improvements

+ Qualified Energy Conservation Bonds



- QECBs:
 - Federally subsidized bond that may be issued to finance clean energy and energy conservation projects
- ARRA expanded the national bond cap for QECBs to \$3.2 Billion
- **111 projects financed with QECBs across 23 states for a total of \$671 million (June 2012)**
 - **\$2.5 Billion unspent bonds**
 - **33 states had not used any of their allocation**
- 75% of QECBs issued in the Southwest have financed renewable energy installations

+ Qualified Energy Conservation Bonds



- NASEO and Energy Programs Consortium Collaboration
 - Tracking QECB issuances
- Barriers to Utilization
 - Inexperience with bond authority
 - Debt aversion
 - High transaction costs
 - Lack of information shared from IRS on QECB issuances at the national level
 - Economic downturn drives down demand
- Solutions
 - IRS clarification of requirements of QECB projects
 - State aggregation and administration

+ Technology Collaboratives



- **CO Renewable Energy Economic Development (CREED)**
 - Catalyst for economic development through clean energy and energy efficiency innovation and entrepreneurship
 - Stakeholders support the creation and growth of cleantech companies throughout the state
 - Joint NREL – State of Colorado activity
- **NY-BEST Consortium (New York)**
 - Industry-focused coalition on advanced battery and energy storage
 - Operates with support and guidance from NYSERDA and builds on existing cluster of companies and research capabilities – three DOE Frontier Research Centers, twenty universities, and BNL
 - Funding exploratory research, joint projects among companies, universities, and labs.



State Energy Office Support & Linkage to Broader State Energy Related Economic Growth Initiatives

- **California** - California Infrastructure and Economic Development Bank (I-Bank)
- **Florida** - Enterprise Florida
- **Maryland** - Invest Maryland
- **Michigan** - Pure Michigan Business Connect
- **New York** - Regional Economic Development Council
- **Ohio** - Ohio Third Frontier
- **Tennessee** - Jobs4TN/INCITE
- **Texas** - Texas Enterprise Fund
- **Virginia** - Commission on Economic Development and Job Creation



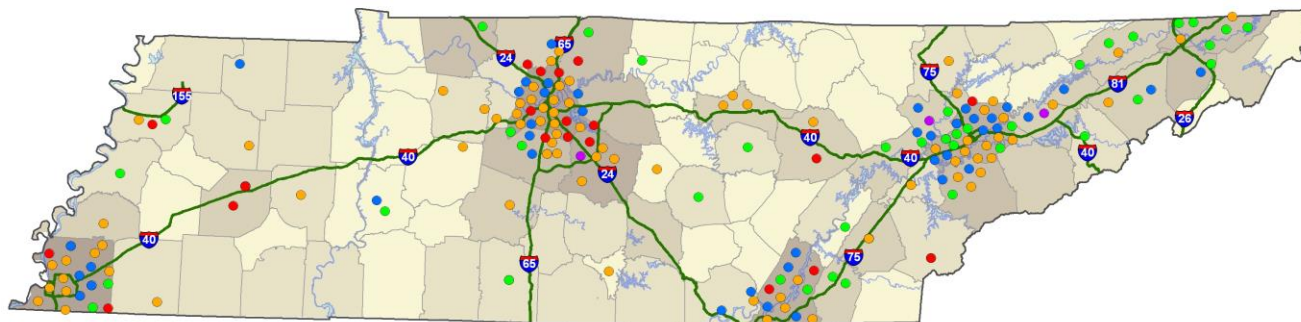
Mississippi Biofuels and Co-Products

Mississippi provides incentive payments to qualified ethanol and biodiesel producers of \$0.20 per gallon for up to 30 million gallons per year, per producer for a period of up to 10 years following the start date of production.

- Nearly \$200 million invested in state funds over the several years for biofuels and biochemical projects with the private sector, including:
 - Biocrude from agricultural wastes (Port of Columbus, MS)
 - Ethanol and other biofuels from MSW and agricultural waste (Pontotoc, MS)
 - Ethanol from cellulosic (Fulton, MS)
 - Biochemicals from bio-oils (Natchez, MS)
 - Ethanol and biochemicals from cellulosic (Olive Branch, MS)
- SEO and Other State Funds provided to the MS Technology Alliance and Strategic Biomass Solutions (SBS) Program
 - SBS includes public and private projects
 - Partnerships in applied R&D with six universities and nine states (MS, AR, TN, KY, MO, IL, MI, NC, GA)
 - SBS provides business and feasibility assessment, supply chain logistics analysis, and process efficiency assistance

+ Tennessee: Solar and Economic Development

Tennessee Solar Value Chain - 2011

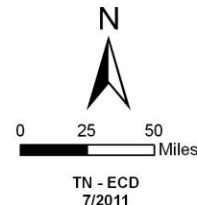


Primary Category

• Solar Distributor • Solar Installation • Solar Manufacturing • Solar Research and Dev • Solar Service

County Population

1 - 25,000
25,001 - 50,000
50,001 - 100,000
100,001 - 250,000
250,001 - 500,000
500,001 - 1,000,000



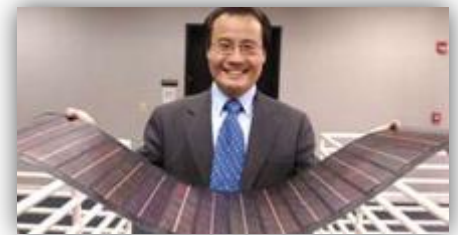
+ Ohio Third Frontier: Advanced Energy Program

- **Goal:** accelerate development and growth of the advanced energy industry in OH
- **Financing:** direct financial support to companies and organizations commercializing addressing technical and commercialization barriers to advanced energy systems, products, or processes
- **Renewables:** preference given to wind, biomass, and energy storage



+ Ohio Third Frontier: Solar Technology Hub

- \$33 million invested in the PV industrial cluster in NW Ohio
- 5,000+ solar energy jobs created in Toledo area in last 5 years
- First Solar – largest PV manufacturing company in the world
- Partnerships with the University of Toledo:
 - \$18.6 million grant to established the Photovoltaic Innovation Center
 - Recruit new faculty:
 - \$8 million Ohio Research Scholars Program grant
 - McMaster family donation of \$2 million
 - New Companies:
 - Xunlight - \$40 million in venture capital funding



+ Infrastructure: Eastern Interconnection States' Planning Council (EISPC)

- 39 states + DC, City of New Orleans, 8 Canadian Provinces
- State Utility Commissions, Governor's Offices, State Energy Offices, and others
- 12 in-person meetings, 16 webinars
- Phase 1 – Generation Resource Studies – “Futures & Sensitivities”
- Phase 2 – Transmission Studies
- **Clean Energy Zone Study and Mapping Tool**



+ Infrastructure: Natural Gas

- Natural gas is cheap
 - \$2.96/MMBtu (Henry Hub price, September 12, 2012)
- System optimization
- Economic benefits
- Portfolio diversification
- Pressure on renewables

Natural gas spot prices (Henry Hub)



+ Barriers to Implementation

■ Distributed Generation:

- Cost
- Net metering limits
- Rate design
- Interconnection procedures
- State tax policy

■ Utility-Scale Renewables:

- Need new transmission infrastructure
- Long interconnection queues
- Complicated utility RFP processes

■ Consumers:

- Consumer education
- Consumer access to loans or credit

■ Workforce Development:

- Training and certifying renewable energy installers and technicians

■ Policy Uncertainty

■ Regulatory Uncertainty

+ Federal Outlook

■ Congress:

- Production Tax Credit
- Investment Tax Credit
- Master Limited Partnerships Parity Act

■ FERC

- Order 1000

■ EPA

- Air regulations m- CSAPR, MATS, Boiler MACT
- EE/RE in State Implementation Plan
- NASEO-NARUC-NACAA Collaboration

■ DOE

- Secretary Chu's memo to the PMAs



Joint NASEO- ASERTTI Renewable Energy Committee

- Support the development of project and program implementation strategies to accelerate commercialization
- Identify issues and strategies to enhance the capabilities and success of existing efforts among states, DOE and the national labs
- Identify and share demonstrable program and project case studies
- Provide technical support to reduce gaps and barriers among basic and applied research

+ Committee Priorities



- Provide policy input for consideration by NASEO's Board
 - Better integration of distributed generation into regional transmission planning processes
 - Disseminate information on emerging renewable technologies
 - Develop best practices on streamlined, lower cost approaches to distributed renewable energy permitting
 - The role of renewable energy in statewide energy plans
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Questions?
Thank you!

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