

## U.S. State and Federal Energy Efficiency and Renewable Energy Policies: Climate, Resilience, and Economic Development Goals

David Terry, NASEO Executive Director



## About NASEO

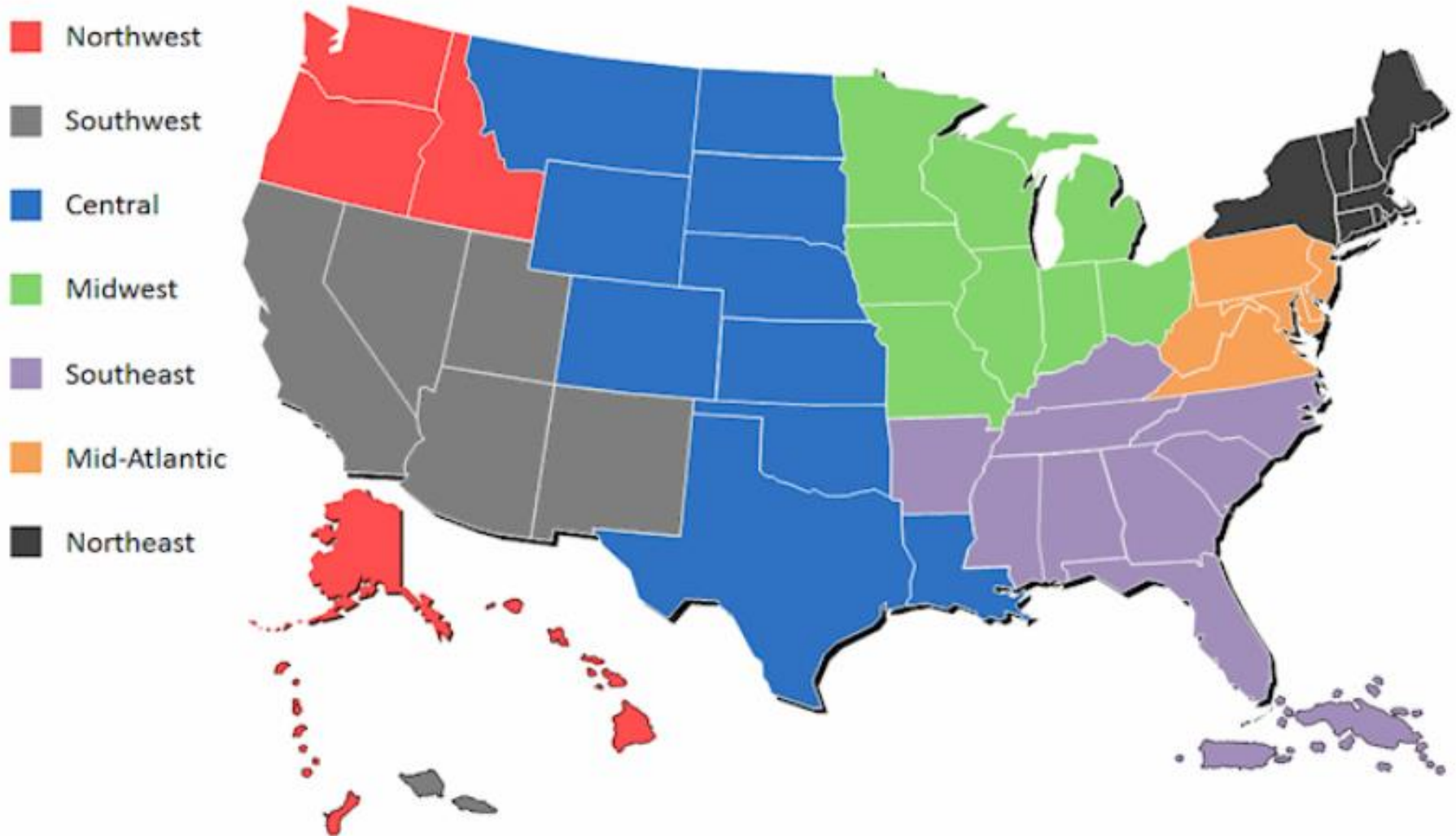
- Initiated in 1986 by the states
- Membership includes the 56 Governor-designated energy officials from each state and territory and over 60 private-sector affiliates
- Facilitate peer learning across states to improve the effectiveness of energy programs and policies
- Serve as a resource for and about state and territory energy policy
- Advocate on behalf of the state energy offices with Congress and the Administration
- Organized through regional and committee structures

# NASEO Committees and Issue Areas



- Buildings
  - ESPCs
  - Multi-state residential retrofits
  - Building energy codes
  - Zero net energy
  - Multifamily housing
  - LIHEAP
- Fuels and Grid Integration
  - Smart grid
  - Renewable energy advancement
  - Natural gas infrastructure
  - Combined heat and power
- Government Affairs
  - Congressional and Administration input
- Energy Security
  - Guidelines and exercises
  - Post-disaster rebuilding protocol
  - Cyber security
- Transportation
  - Electric and natural gas vehicles
  - Infrastructure and financing
- Financing
  - Investment, green banks, VC
  - Loans and bonds
- Industrial and Advanced Manufacturing
  - Competitiveness and economic development
  - Technology advancement

# + NASEO Regions



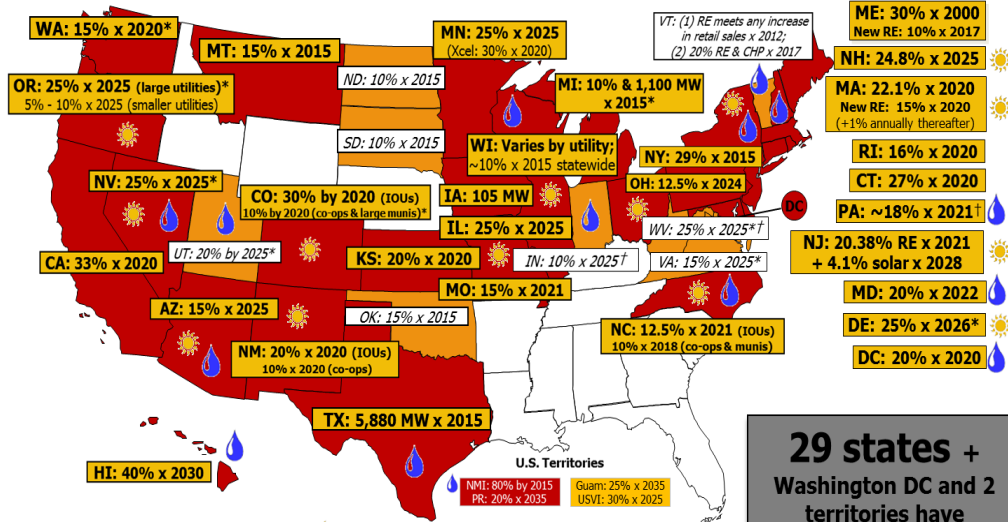
# NASEO's Private Sector Affiliates

*A robust and engaged network of 60+ private-sector partners, including representatives from business, trade associations, nonprofit organizations, educational institutions, laboratories, and government.*





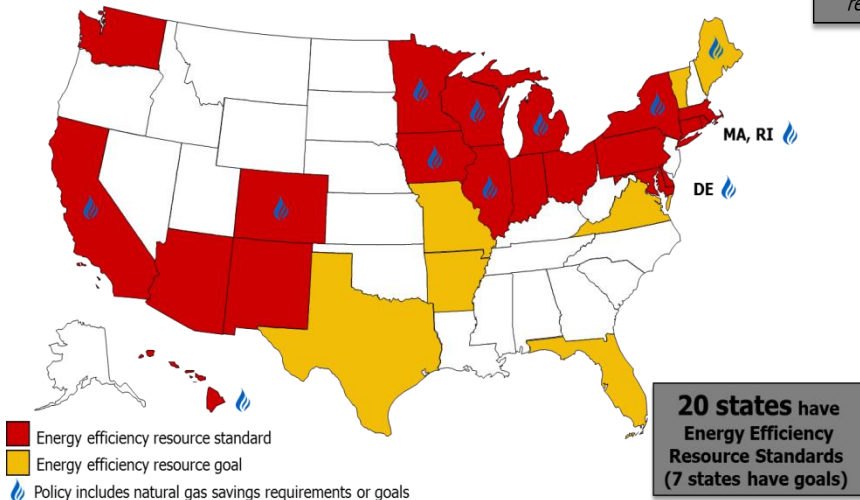
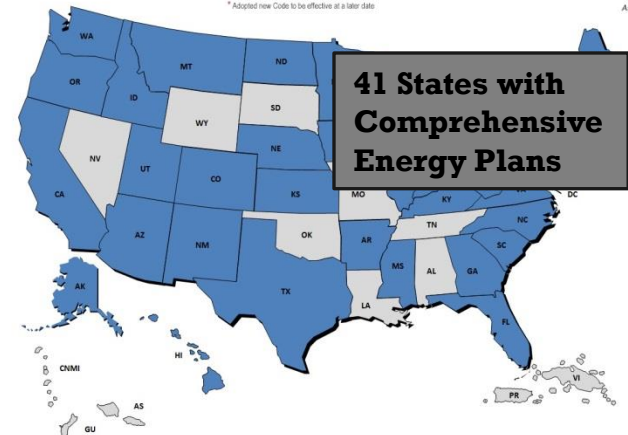
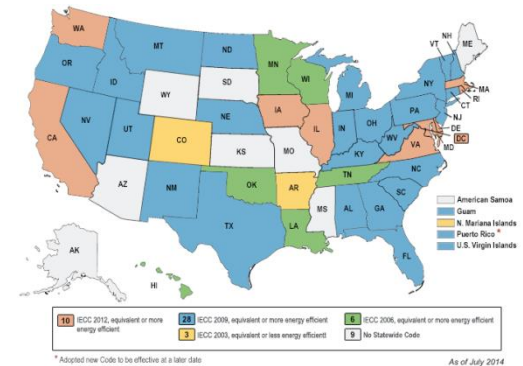
# + State Commitments to Clean Energy



■ Renewable portfolio standard ■ Renewable portfolio goal  
☀️ Minimum solar or customer-sited requirement  
💧 Policy includes natural gas savings requirements or goals

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

- 41 States with Plans
- 29 States with RES
- 20 States with EERS
- 38 States with 2009 or > Building Codes



# + U.S. Energy Trends: A Confluence of Resource, Policy, Technology, and Market Changes

1. Growth in U.S. natural gas and oil production (e.g., ND, TX, PA) and a rapid shift to natural gas (electricity; vehicles; chemicals; exports)
2. State RES's (29); wind production significant (e.g., TX, IA, WY, KS)
3. Roof-top solar growth symbolic of evolving utility business model
4. State energy efficiency investment (\$12B+ annually)
5. State building energy codes and new technologies driving emergence of zero net energy buildings (e.g., KY, MD, CA, MA, WA)
6. **State energy resilience policies increasing (e.g., CT, NJ, FL, MA, NE)**
7. Federal RFS and elimination of MTBE results in +10% biofuel blend
8. Federal auto efficiency rules driving down gasoline demand
9. **U.S. EPA Clean Power Plan targets GHG reductions – 111(d)**
10. Private sector investment in clean energy growing (e.g., Tesla, Nest)
11. Congressional action on energy unlikely; new funding limited
12. State energy actions are seen as the driver of U.S. energy policy

# + U.S. DOE 2013 Wind Market Report

1. **U.S. overall** – 61 GW total installed wind power capacity equal to 4.5% of electricity demand; utility scale wind in 39 states; 1,087 MW installed in 2013; 95% of 2013 installations are independent developers.
2. **U.S. Overall** – Average nameplate capacity of newly installed wind turbines in the U.S. in 2013 was 1.87 MW, up 162% since 1998. Average hub height in 2013 was 80 meters, up 45% since 1998, average rotor diameter was 97 meters, up 103% since 1998.





## + Recent Major Wind Energy Installation and Production Announcements – The Trend is Big and Getting Bigger

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3. **Nebraska** – 11,000 acre wind development led by Volkswind.
4. **Wyoming** – \$4 billion, 2,100 MW wind development, plus a massive \$1.5 billion, 12,000 MW compressed air storage facility to serve CA.
5. **Iowa** and **South Dakota** produced more than 25 percent of their electricity from wind last year, with nine states above 12 percent and 17 states at more than five percent.
6. **Texas** – at times wind energy has supplied nearly 40 percent of the power on the Texas system. Texas and **Upper Midwest** grid operators each reliably accommodate more than 10,000 MW of wind energy on their systems.
7. **Offshore** – still little to no offshore wind, but 4.9 GW of projects in advance phases of development.



# Transmission is Key to Future U.S. Land-based Wind Development



- Access to lowest cost, highest capacity, land-based wind energy requires transmission development.
- FERC Order 1000 intended to spur more regional transmission planning and means to allocate costs.
- Wind industry claims, if completed, 19 near-term transmission projects identified in Plains states, Upper Midwest, Interior West and California could carry 69,580 MW of additional wind capacity.
- Three recent projects show promise: 500-kV Sunrise Power Link with potential wind capacity of 1,000 MW; 345-kV Hugo Valiant line in Oklahoma; and 345-kV KETA Kansas and Nebraska line.

# + Transmission Infrastructure: ERCOT Example

## Competitive Renewable Energy Zone (CREZ):

- Geographic area where wind generation facilities will be constructed



# + Texas is Wired for Wind . . .

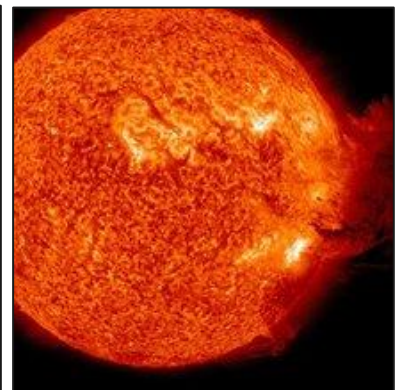
## **Texas' Competitive Renewable Energy Zone (CREZ) and Wind Development:**

- Texas legislature initiated planning for CREZ lines in 2005; Scale is enormous with 3,600 miles of transmission at a cost of \$7 billion (more than the entire U.S. spent on transmission in recent years).
- Texas has installed wind capacity of 12,755 MW and 7,986 turbine with 6 of the 10 largest developments in the U.S.
- An additional 7,000 MW of capacity of wind energy under construction in 2013.
- Texas' ERCOT – main grid – provided 9.9% of its electricity from wind in 2013.
- Total capital investment in Texas' wind projects is \$23.2 billion.
- Texas RES aimed to reach 10,000 MW of renewable energy by 2025, which the wind production met in 2010.



# State Energy Resilience Policies:

- **Respond** to events that disrupt energy supply and assuring a rapid return to normal conditions. This is a coordinated effort involving the private energy sectors' response, augmented by local, state and federal government as needed.
- **Prevent and mitigate** risks by making investments that provide for a more secure, reliable, and resilient energy infrastructure.
- **State renewable energy and energy efficiency** strategies encourage fuel diversity and mitigation measures.





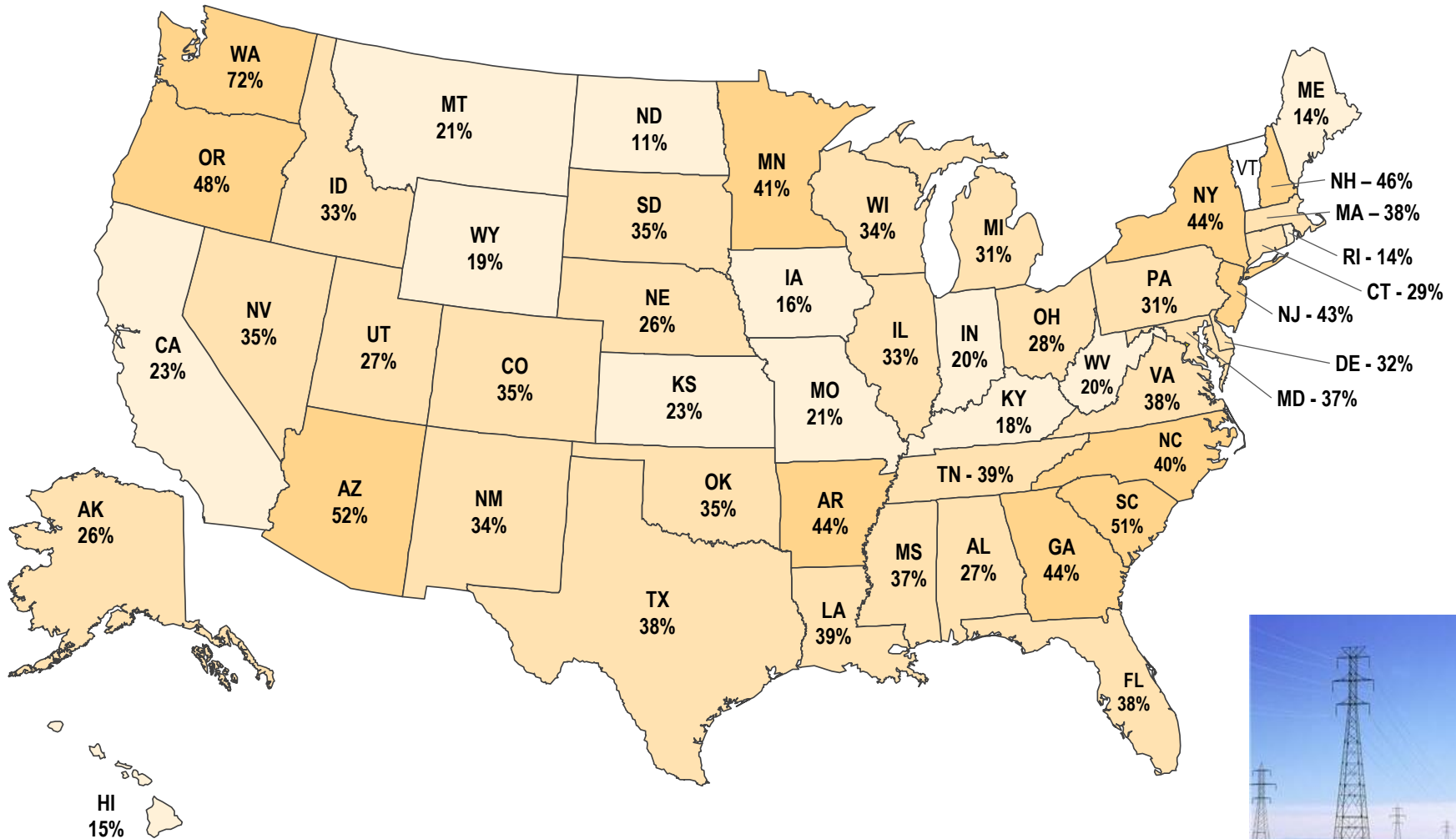


## **EPA's Clean Power Plan – “111(d)”**



- Legal authority: Section 111(d) of the *Clean Air Act*
- Requires federal-state approach
- Proposed rule: “Clean Power Plan”
- EPA sets state-specific emission rate goals
- States submit “compliance plans” for EPA approval
- Projected result of state plans would reduce power sector CO<sub>2</sub> by 30% by 2030 from 2005 levels
- Equals about 17% reduction from 2013 levels

# EPA Proposed 2030 Goals as Percent Reductions from 2012 CO<sub>2</sub> Emission Rates



# **EPA's Clean Power Plan – “111(d)”**



- Proposed Rule (June 2, 2014)
- Comments Due (December 1, 2014)
- Final Rule (June 2015)
- State Plans Due (2016-2018)
- Compliance with Initial Goal (2020-2029)
- Compliance with Final Goal (starting in 2030)

# “3N” Energy Efficiency Cooperation

- Ongoing cooperation among NASEO, the National Association of Clean Air Agencies and the National Association of Regulatory Utility Commissioners – “3N”
- Sector-by-Sector energy efficiency compliance development
- 3N compliance pathways meeting December 2014
- Assist states in development on energy efficiency state plan elements



May 12, 2014

Gina McCarthy  
Administrator  
U.S. Environmental Protection Agency  
1200 Pennsylvania Avenue NW  
Washington, DC 20460

Dear Administrator McCarthy:

On behalf of the National Association of Clean Air Agencies, the National Association of Regulatory Utility Commissioners and the National Association of State Energy Officials, we are pleased to submit to the U.S. Environmental Protection Agency the attached principles regarding the use of energy efficiency as a compliance measure under Section 111d of the Clean Air Act. As you know, while our associations may not all agree about other aspects of Section 111d (including whether it should go forward), we believe that state plans should allow demand side energy efficiency measures to be considered as a potential option.

Our three organizations have worked diligently over several months to accommodate the states' various interests, and we believe these principles set forth a road map that is worthy of consideration.

Please let us know if you and your staff are interested in discussing these matters in more detail.

Respectfully submitted,

Bill Becker  
Executive Director,  
National Association of  
Clean Air Agencies

Charles Gray  
Executive Director  
National Association of  
Regulatory Utility Commissioners

David Terry  
Executive Director  
National Association of  
State Energy Officials

cc: Janet McCabe  
Joe Goffman



# Why States Agree on Energy Efficiency as a Compliance Pathway



- Residential and commercial buildings account for 40 percent of all energy consumed in the U.S. – or – \$432 billion annually.
- Industrial energy efficiency increases competitiveness and productivity.
- Increased energy efficiency delivers environmental benefits at no cost.



# NASEO 111(d) Activities

- Exchanges between State Energy Offices and EPA ahead of and following the release of the proposed rule
- Ongoing cooperation with the National Association of Clean Air Agencies (NACAA) and the National Association of Regulatory Utility Commissioners (NARUC) to coordinate member education and assistance efforts
  - Hosted “3N” joint meeting and developed consensus “Energy Efficiency Principles” document:  
[http://www.naseo.org/Data/Sites/1/principles\\_3n\\_2014.pdf](http://www.naseo.org/Data/Sites/1/principles_3n_2014.pdf)
- 111(d) sessions, including Regional EPA presenters, at NASEO Regional Meetings in spring 2014 and 2015
- State 111(d) Resource Hub: [www.111d.naseo.org/](http://www.111d.naseo.org/)
- State Energy Office 111(d) Task Force to foster peer-exchange on topics of interest



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