



November 14 – 16, 2008


New Orleans, Louisiana

**Session IV:**

# **Climate Change Policy Challenges Confronting US Electricity Markets**

**November 15, 2008**

7<sup>TH</sup> US-EU ENERGY REGULATORS ROUNDTABLE



Presentation By

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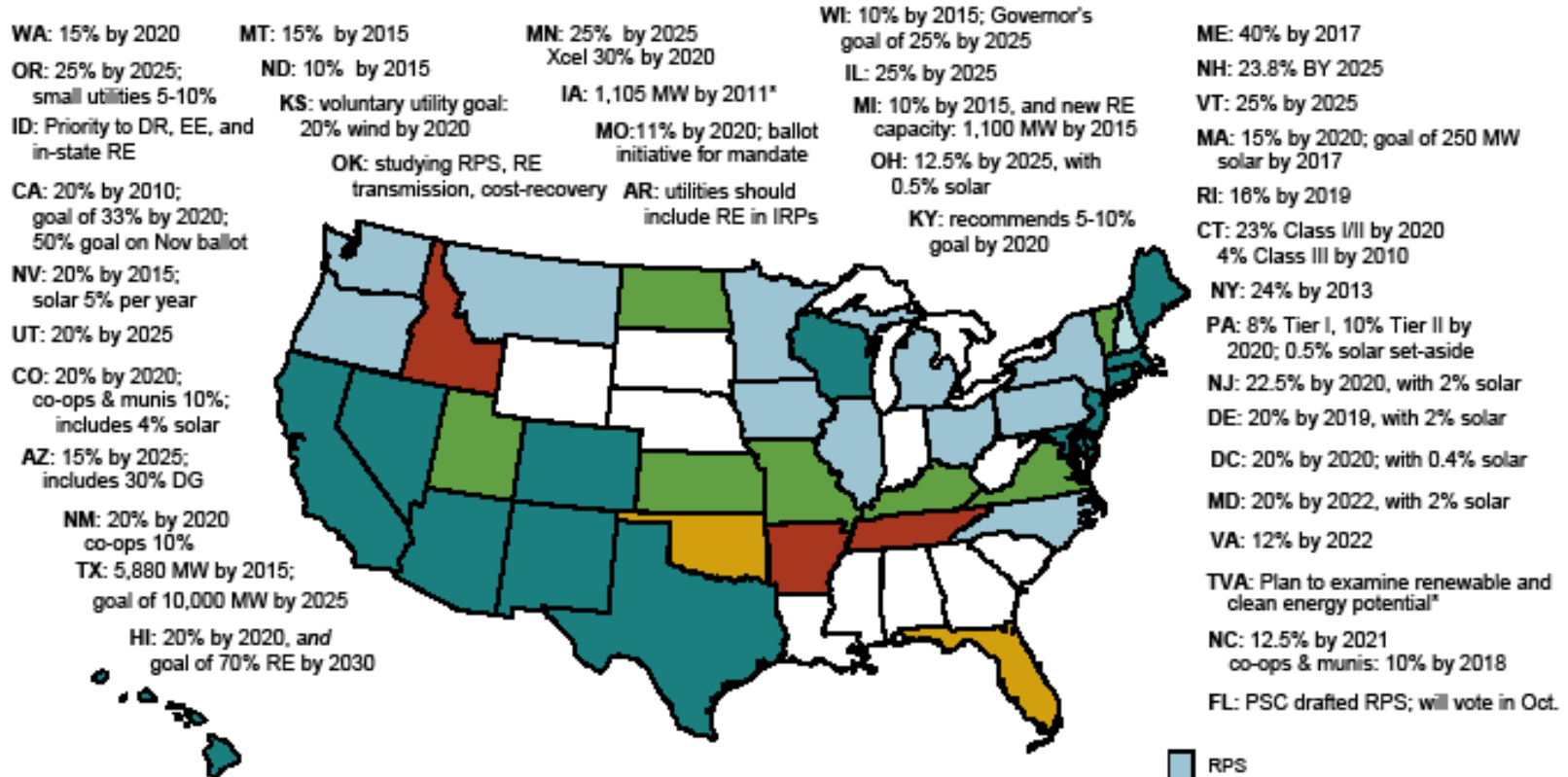


# Reconciling Policy Objectives

- **Climate Change as Driver**
- **Environmental Policy Goal**
  - Reduction in Carbon Emissions
- **Energy Policy Goal**
  - Abundant Energy Supply/Reasonable Cost
- **Market vs. Regulated Solutions**



# Renewable Energy Portfolio Standards (RPS)



Updates at: <http://www.ferc.gov/market-oversight/mkt-electric/overview/elec-ovr-rps.pdf>

**Notes:** Alaska has no RPS; \* Iowa has a goal of 1,000 MW of wind by 2010; TVA's "Renewable Energy and Clean Energy Assessment" is from the Public Power Authority; it is not a state policy.

**Abbreviations:** DG: distributed generation; DR: demand response; EE: energy efficiency; IRP: integrated resource plan.

**Sources:** Derived from data in: EEI, EIA, LBNL, PUCs, State legislative tracking services, Database of State Incentives for Renewables and Efficiency, and the Union of Concerned Scientists.

- RPS
- Strengthened/ amended RPS
- Voluntary standards or goals
- Proposed RPS or studying RPS
- Other renewable energy goal

Updated October 6, 2008



# Collaborative Greenhouse Gas (GHG) Programs

## Collaborative Regional GHG Programs:

- Groups with goals to lower regional GHG emissions were initiated by Governors at three area Governor Association meetings.
- Each has Participating (or Partner) U.S. states and Canadian provinces.
- Observer jurisdictions do not commit to group GHG reduction goals, but participate in proceedings should they opt to join later.

## Western Climate Initiative (WCI):

- Created February 2007
- Partners: 7 states, 4 provinces; Observers: 5 states, 1 province\*
- WCI announced its design for a market-based, multi-sector cap-and-trade program. Sept 2008:
  - 15% CO<sub>2</sub> reduction below 2005 levels by 2020
  - Phase I to take effect Jan 2012

## Midwest Greenhouse Gas Accord:

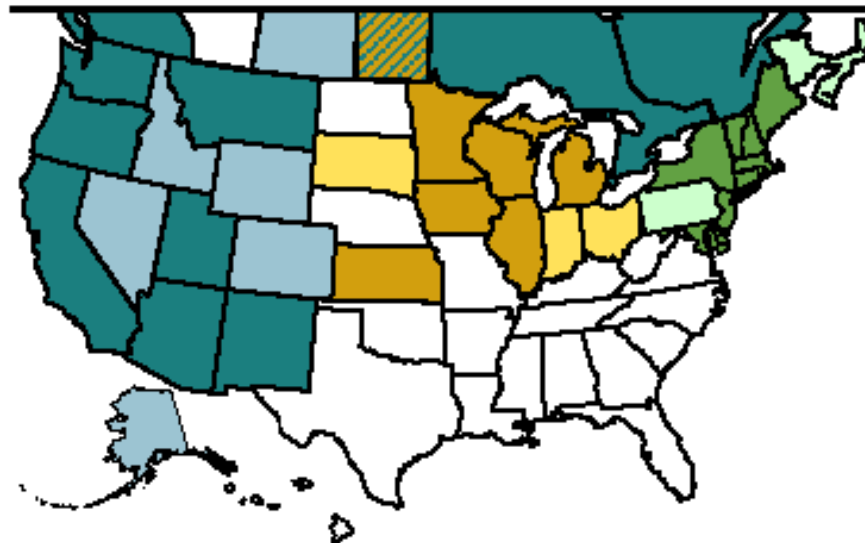
- Established November 2007
- Participants: 6 states, 1 province; 3 Observer states, 1 province
- Preliminary GHG policy recommendation: 15 – 25% reductions by 2020

## Regional Greenhouse Gas Initiative (RGGI):

- Takes effect Jan 2009; est. Dec 2005
- 10 Participant states; Observers: 1 state, D.C., 3 provinces.
- Market-based effort to cap and reduce power-sector CO<sub>2</sub> emissions.
- 10% CO<sub>2</sub> reduction by 2018 covers over 200 plants
- 188 million allowances to be auctioned through 6 auctions

### Auctions:

1. 9/25/08: 12.5 mil. tons of allowances cleared at \$3.07/allowance, raising \$38.5 million.
  - 6 states each auctioned 1/6 of their allowances: CT, MA, ME, MD, RI, VT
  - these 6 will offer 16.6% at next 5 auctions
2. 12/17/08: first 6 states plus NY, NJ, NH, DE: new states auction 20% in 5 auctions. 31.5 allowances in auction
- 3 to 6: All ten states on same percent basis as prior auctions. 2009 dates: 3/18, 6/17, 9/16, 12/16



- Participant in WCI
- Observer to WCI
- Participant in MGGRA
- Observer to MGGRA
- Participant in RGGI
- Observer to RGGI
- Participant in MGGRA & WCI

Updates at: <http://www.ferc.gov/market-oversight/mkt-electric/overview/elec-ovr-ohg.pdf>

Notes: Kansas is a MGGRA participant and WCI observer. Ontario is a Partner to WCI and MGGRA Observer.  
Sources: Regional initiatives: [www.rggi.org](http://www.rggi.org), [www.midwestemaccord.org](http://www.midwestemaccord.org), [www.westernclimateinitiative.org](http://www.westernclimateinitiative.org), trade press, Pew Center.



# Key Challenges

- **Regulatory Turf**
- **Operational/Reliability**
- **Building Needed Transmission**
  - Interconnection Queue
  - Regional Planning
- **Transmission Pricing**
- **Incorporating Demand Side**



# Regulatory “Turf”

- **Jurisdictional Lines**
- **State v Federal**
- **State v State v State**
- **Regional Issues =  
Regional Solutions**



# Operational Challenges

**Availability**

**Technological**

**Reliability**

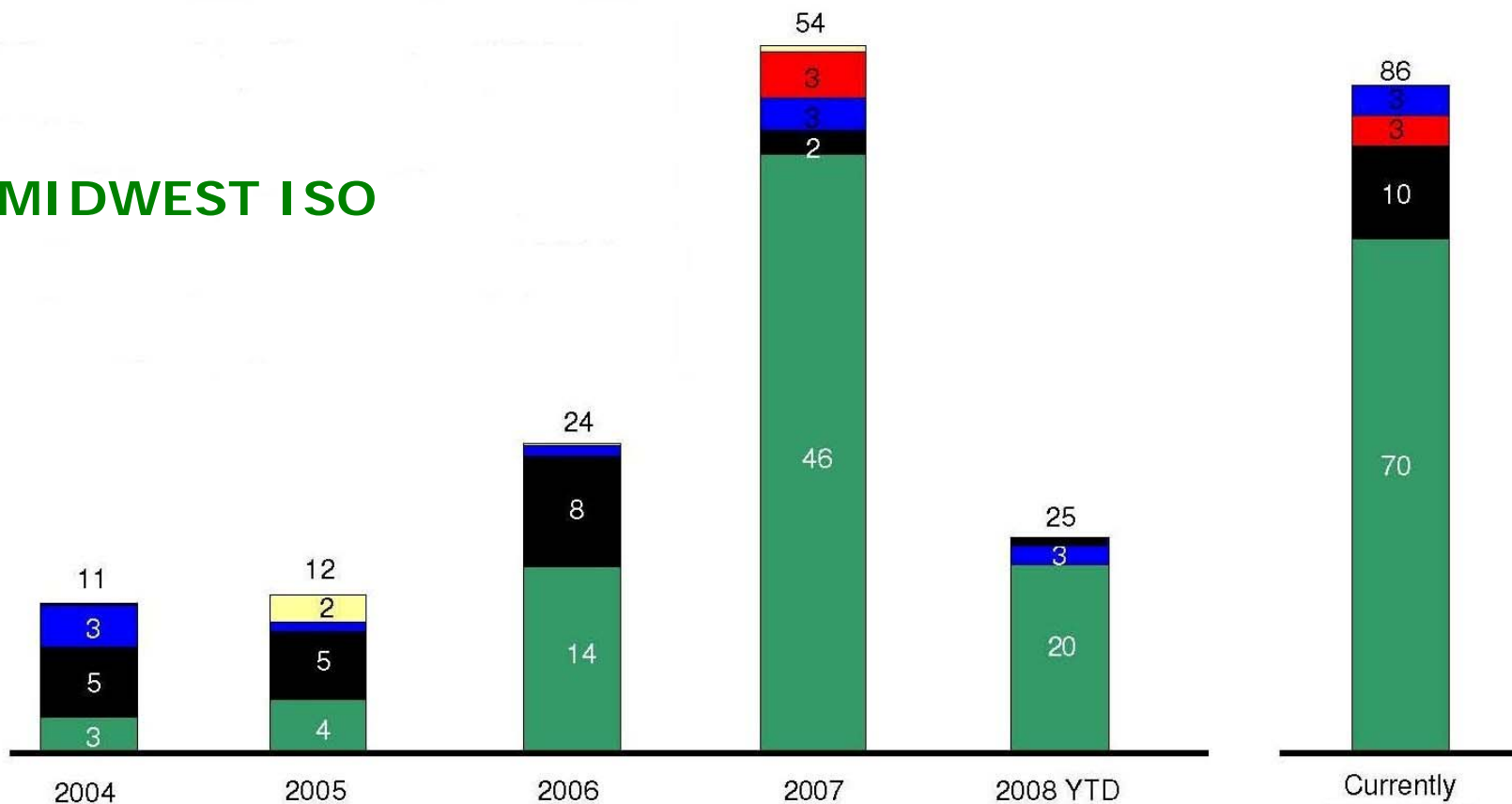
**Fuel Diversity**





# Building Needed Transmission: Queue Reform

## MIDWEST ISO



Total # of Requests	79	90	131	214	86
Wind	43 (54%)	51 (57%)	99 (76%)	165 (77%)	70 (81%)

■ Wind 
 ■ Coal 
 ■ Natural Gas 
 ■ Nuclear 
 ■ Other



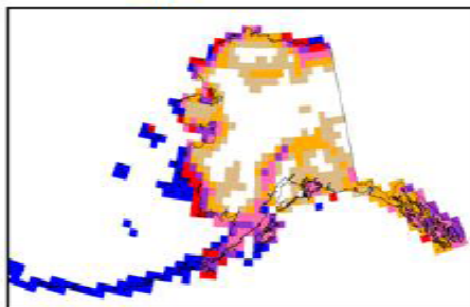


# Building Needed Transmission: Planning & Siting

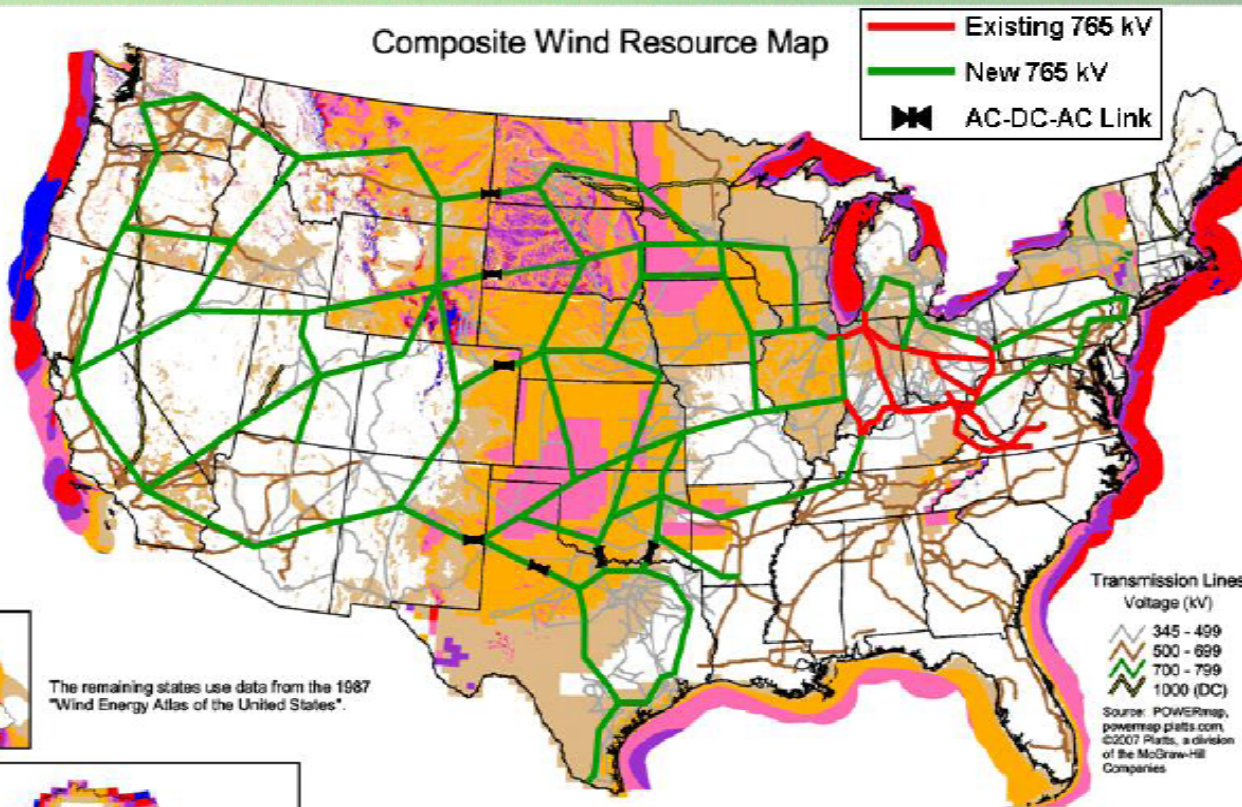
NREL Updated Maps:  
 Arizona (2003)  
 California (2002)  
 Colorado (2004)  
 Connecticut (2001)  
 Delaware (2002)  
 Hawaii (2004)  
 Idaho (2002)  
 Illinois (2001)  
 Indiana (2004)  
 Maine (2001)  
 Maryland (2002)  
 Massachusetts (2001)  
 Michigan (2004)  
 Missouri (2005)  
 Montana (2002)  
 Nebraska (2005)  
 Nevada (2003)  
 New Jersey (2002)  
 New Hampshire (2001)  
 New Mexico (2003)  
 North Carolina (2002)  
 North Dakota (2000)  
 Ohio (2004)  
 Oregon (2002)  
 Pennsylvania (2002)  
 Rhode Island (2001)  
 South Dakota (2001)  
 Texas mesas (2000)  
 Utah (2003)  
 Vermont (2001)  
 Virginia (2002)  
 Washington (2002)  
 West Virginia (2002)  
 Wyoming (2002)



The remaining states use data from the 1987 "Wind Energy Atlas of the United States".



Composite Wind Resource Map



Wind Power Classification				
Wind Power Class	Resource Potential	Wind Power Density at 50 m $W/m^2$	Wind Speed at 50 m m/s	Wind Speed at 50 m mph
2	Marginal	200 - 300	5.6 - 6.4	12.5 - 14.3
3	Fair	300 - 400	6.4 - 7.0	14.3 - 15.7
4	Good	400 - 500	7.0 - 7.5	15.7 - 16.8
5	Excellent	500 - 600	7.5 - 8.0	16.8 - 17.9
6	Outstanding	600 - 800	8.0 - 8.8	17.9 - 19.7
7	Superb	800 - 1600	8.8 - 11.1	19.7 - 24.8

<sup>a</sup> Wind speeds are based on a Weibull k value of 2.0

U.S. Department of Energy  
National Renewable Energy Laboratory



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# Transmission Pricing

- **Incentives**
  - Order No. 679
- **Cost Allocation**
  - Determining Beneficiaries
  - Roll-In vs. Incremental
- **Merchant Transmission**



# Incorporating Demand Side

- **Other Side of Carbon Equation**
- **Again - Jurisdiction Can Complicate Issues**
- **Recent Commission Rule on Improving Wholesale Competitive Markets - Order 719**
- **Congressional Direction - Energy Independence and Security Act of 2007**



# Conclusion

- **Need for Regulatory Certainty**
- **Regional Cooperation**
- **Calibrating Expectations**
- **Multi-Tiered Approach**
- **Opportunity - Catalyst for Change**