

16th ERRRA Energy Investment and Regulation Conference

September 25-26, 2017  Astana, Kazakhstan



State and Federal Roles in U.S. Carbon Policy

David Boyd

Midcontinent Independent System Operator, USA

www.erranet.org

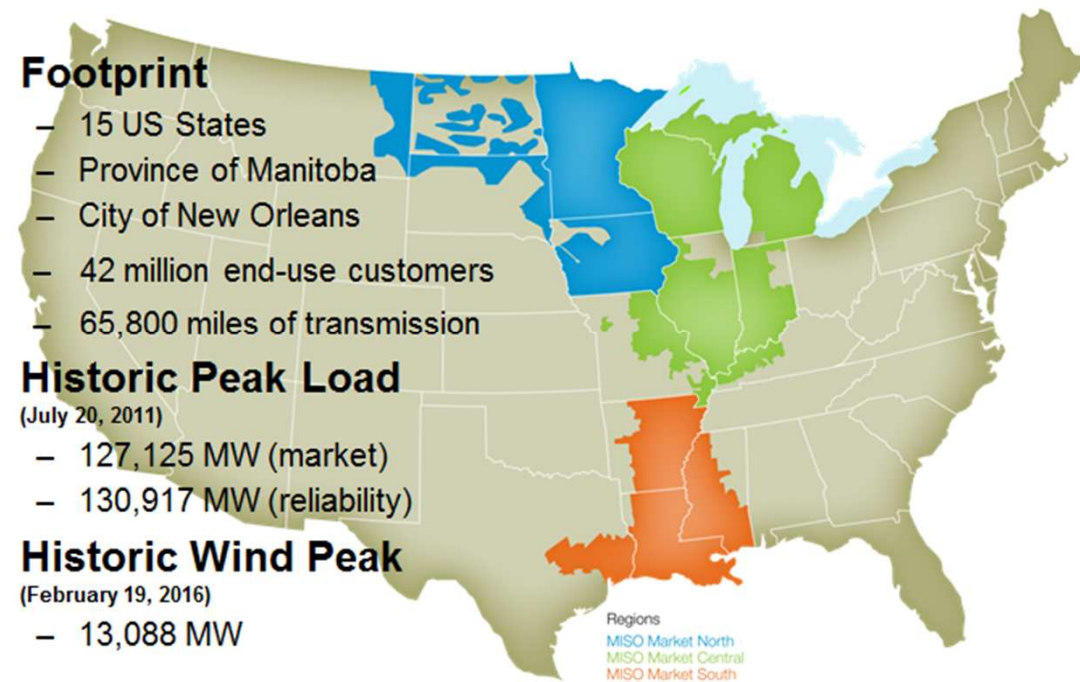

ERRA
ENERGY REGULATORS
REGIONAL ASSOCIATION

Disclaimer

The opinions expressed are mine, and do not necessarily reflect the policies or positions of any state, MISO, or the United States government.

Midcontinent Independent System Operator (MISO)

- **Footprint**
 - 15 US States
 - Province of Manitoba
 - City of New Orleans
 - 42 million end-use customers
 - 65,800 miles of transmission
- **Historic Peak Load**
(July 20, 2011)
 - 127,125 MW (market)
 - 130,917 MW (reliability)
- **Historic Wind Peak**
(February 19, 2016)
 - 13,088 MW

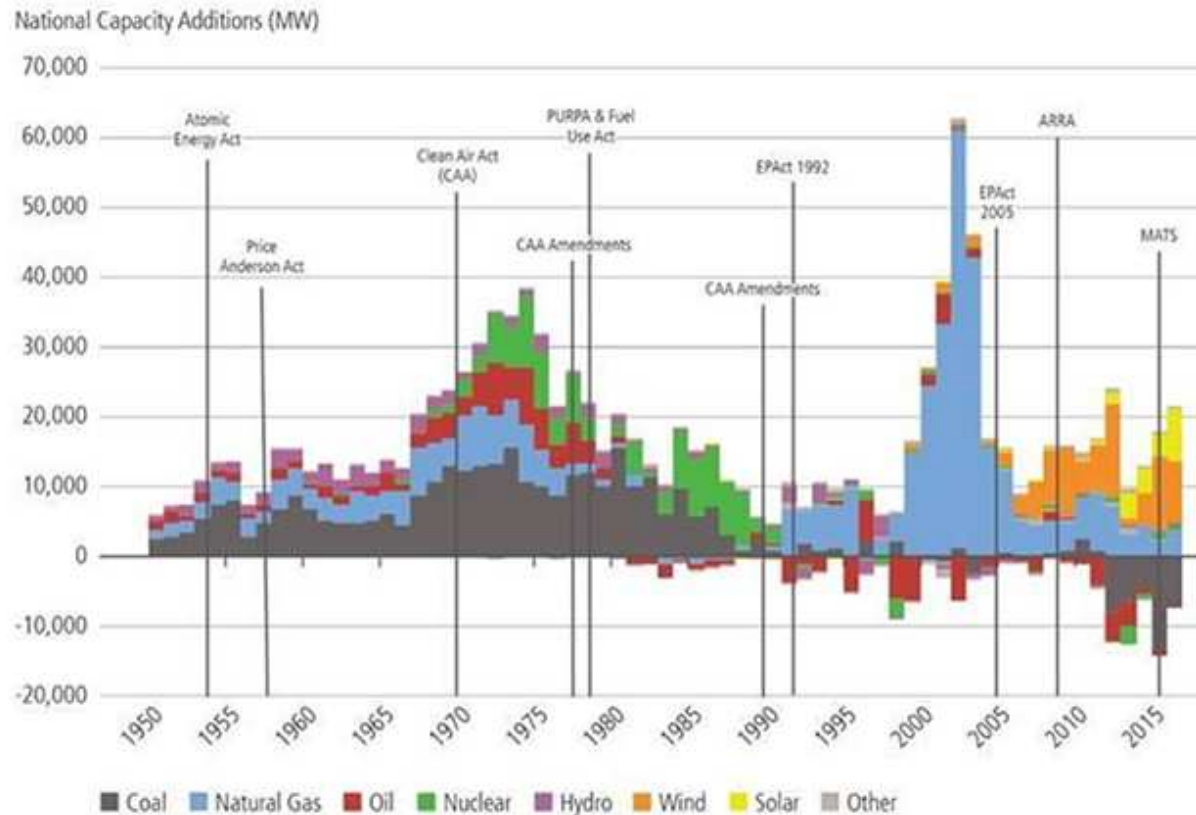


Is There a Carbon Policy in the U.S.?

Not at the federal level, but:

- U.S. EPA has authority to regulate (court decisions, endangerment finding)
- Some states and groups of states do have policies
- Electric sector economics and environmental regulation have led to carbon reduction
- New technologies are being adopted

Evolution of U.S. Electricity Generation



Examples of Federal Carbon Related Proposals

Waxman-Markey legislation

Mercury and Air Toxics Standards (MATS), U.S. EPA

Clean Power Plan, U.S. EPA

Paris Accord

Other Activities

Regional Greenhouse Gas Initiative (RGGI)

State based carbon reduction targets

State based energy efficiency standards

Renewable Energy Support

Tax credits

State based renewable portfolio standards (RPS)

Distributed energy resources

Shale Gas

Production

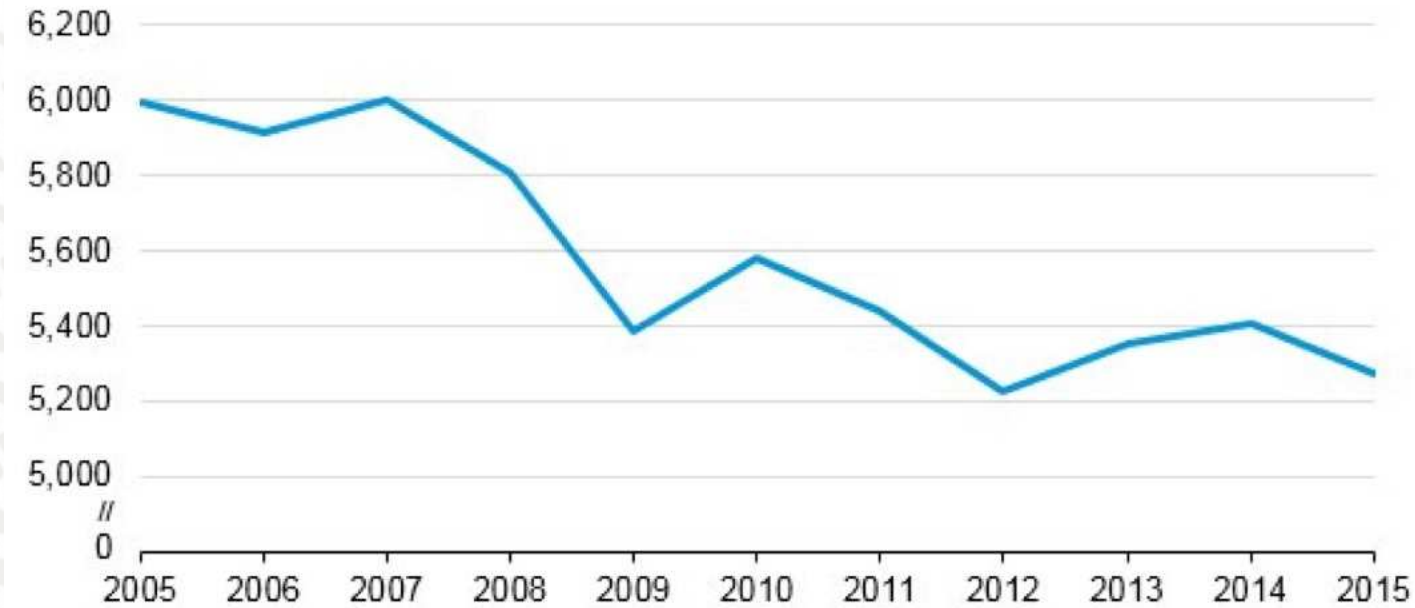
Transmission

Liquefied natural gas exports

Energy Sector CO2 Emissions Declining

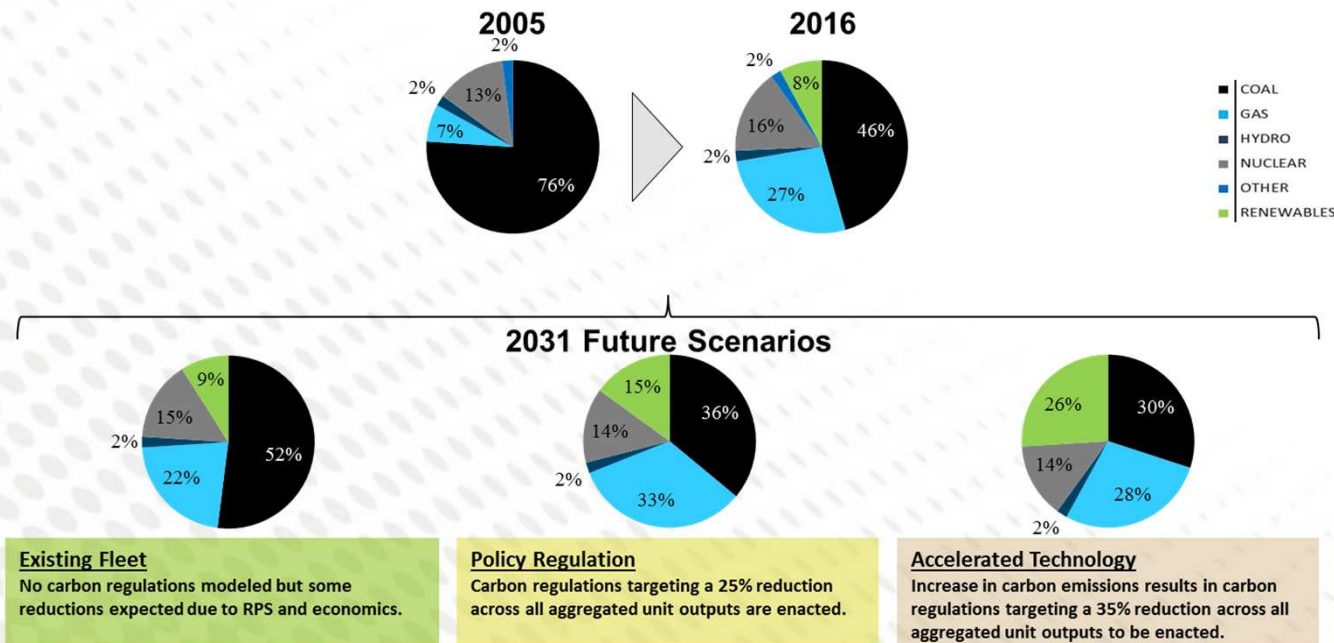
U.S. energy-related carbon dioxide (CO2) emissions (2005-15)

million metric tons



Generation Portfolio Evolution in MISO

MISO Generation Portfolio Evolution



Impact on Organized Wholesale Markets?

Prices are low

- Natural gas; renewable policies

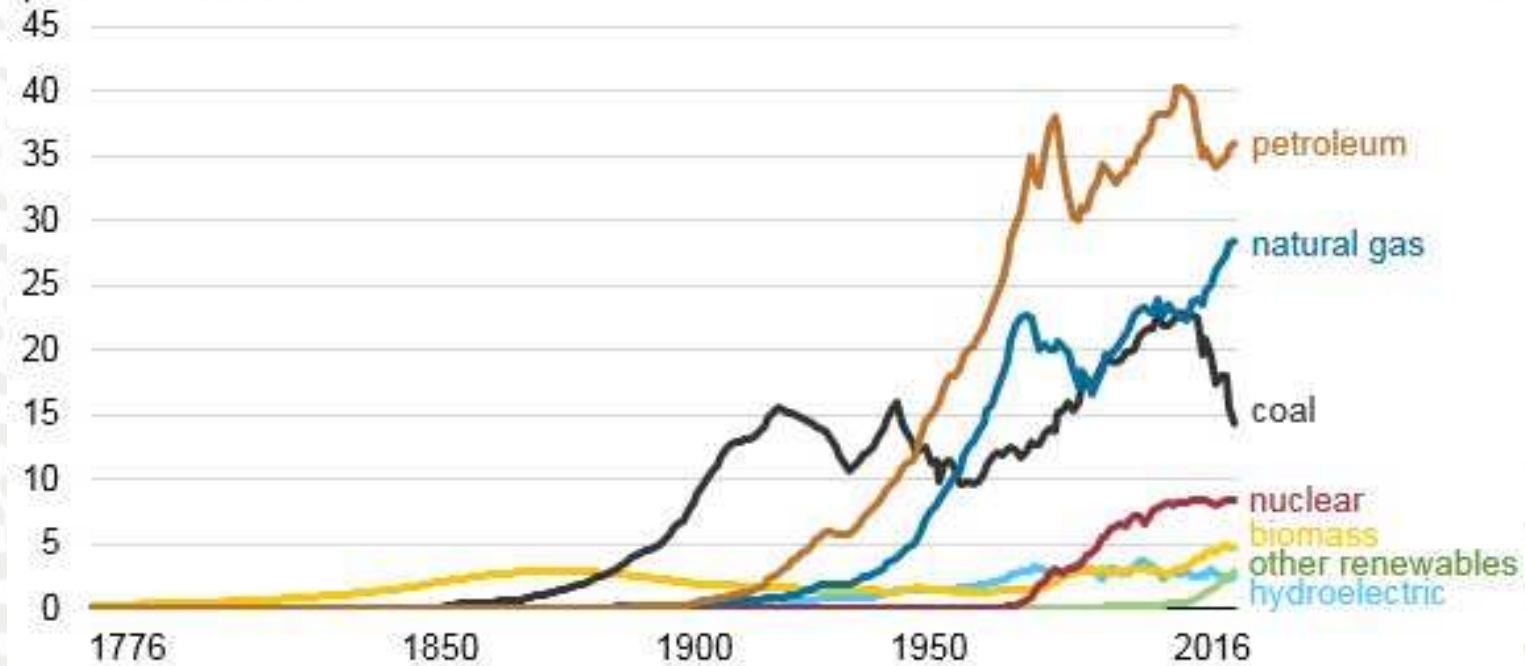
Accelerated retirement of generation?

State initiatives to support generators

Department of Energy study of baseload resources

Energy consumption in the United States (1776-2016)

quadrillion British thermal units



Other Sources

Electric sector has made progress in carbon reduction

Industrial

Transportation and agriculture sectors slower

- Fuel efficiency standards
- Natural gas and electric vehicles

THANK YOU FOR YOUR ATTENTION!



David Boyd



E-mail: dboyd@misoenergy.org



Web: www.misoenergy.org