

**Federal and State Legislative and Regulatory Outlook
Connecting the Dots:
Options for Upcoming Electric Resources**

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**Powering the Future
Emerging Issues Policy Forum
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THE TOOLKIT:

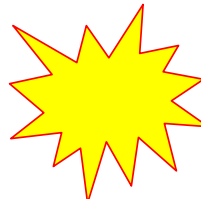
The “Classic” options that some of the industry participants are using to respond to the EPA regulations



Build a new power plant to replace a retiring one's capacity

NGCC or NGCT
IGCC (w/ or w/out CCS)
New pulverized coal (w/ CCS?)
Nuclear
Renewable (wind, PV, biomass)
Combo

Retrofit a power plant with pollution control equipment

 The current fight in Washington

Seek a delay:
-The entire rule, or
-The rule's application to a particular plant,
- A temporary delay (e.g., RMR)

The “Champ”: The tool we need

Seek surgical delay (from EPA, President) in applying a rule to a particular plant

Build a new power plant to replace a retiring one's capacity

Regulators: require owners of potentially exposed plants to state intentions, file plans

Regulators and utilities: update avoided cost analyses to account for new incremental generation costs

Regulators: ask TOs, RTOs, LDCs, to plan for using smart grid, pricing tools

Refresh & use competitive procurement tools (including long-term capacity auctions) to determine retrofit v. new build v 3rd party resource mix

Regulators and utilities: examine cost-effective demand-side options in light of new avoided costs

Retrofit a power plant with pollution control equipment

Policy makers: set new, tailored targets for energy efficiency, DR

Regulators: gear up for effective siting/ permitting processes

Initiate new rounds of IRPs targeted to situations with potential retrofits / retirement s

Regulators, RTOs: use RMR contracts where necessary

Identify specific ways in which invocation of DOE authorities can be applied as backstop

Regulators: clarify policies for long-term capacity, energy and gas contracts

Regulators: examine ratemaking tools for smoothing potential rate impacts

Regulators in traditional and restructured states:
Understand a system's exposure
- Ask air regulators to identify potentially affected plants (based on emissions)
- identify plants with potential to retire (e.g., age, capacity factor, heat rate, control equipment)

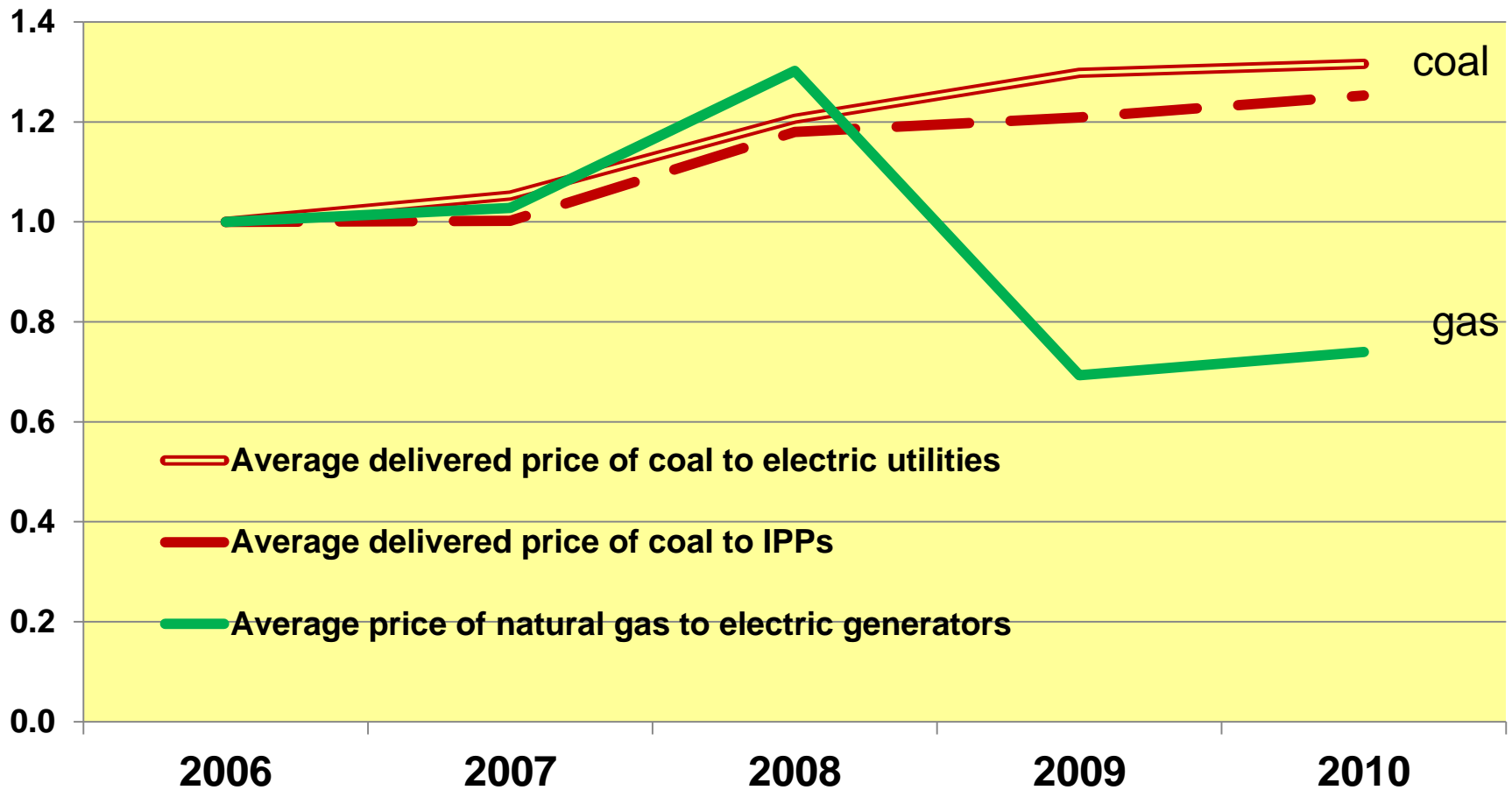
State, federal regulators: Ask TOs/RTOs to perform “what if” transmission studies based on lists of plants

Regulators: Sponsor stakeholder dialogue about “what does prudence look like” given uncertainty

Ask RTO/TOs to identify and cost out transmission reconfigurations, targeted upgrades to address local reliability issues

THE ROLE OF NATURAL GAS:

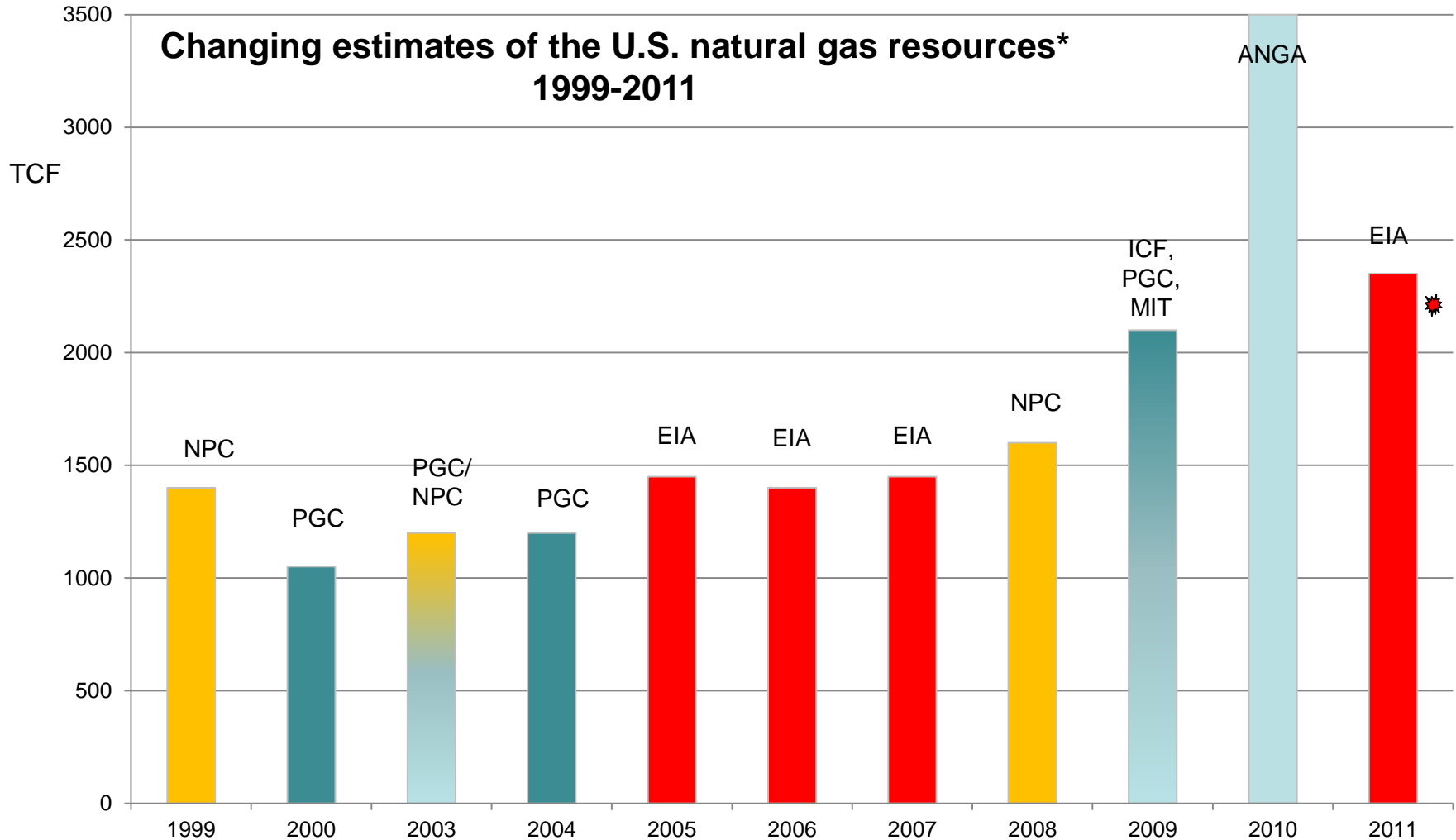
Lower natural gas prices



Source: Natural gas prices: EIA, http://www.eia.gov/dnav/ng/ng_pri_sum_dcu_nus_a.htm;

Coal prices: William Watson, Nicholas Paduano, Tejasvi Raghuvver and Sundar Thapa, EIA, "U.S. Coal Supply and Demand: 2010 Year in Review," June 1, 2011 (available at <http://www.eia.gov/coal/review/pdf/feature10.pdf>)

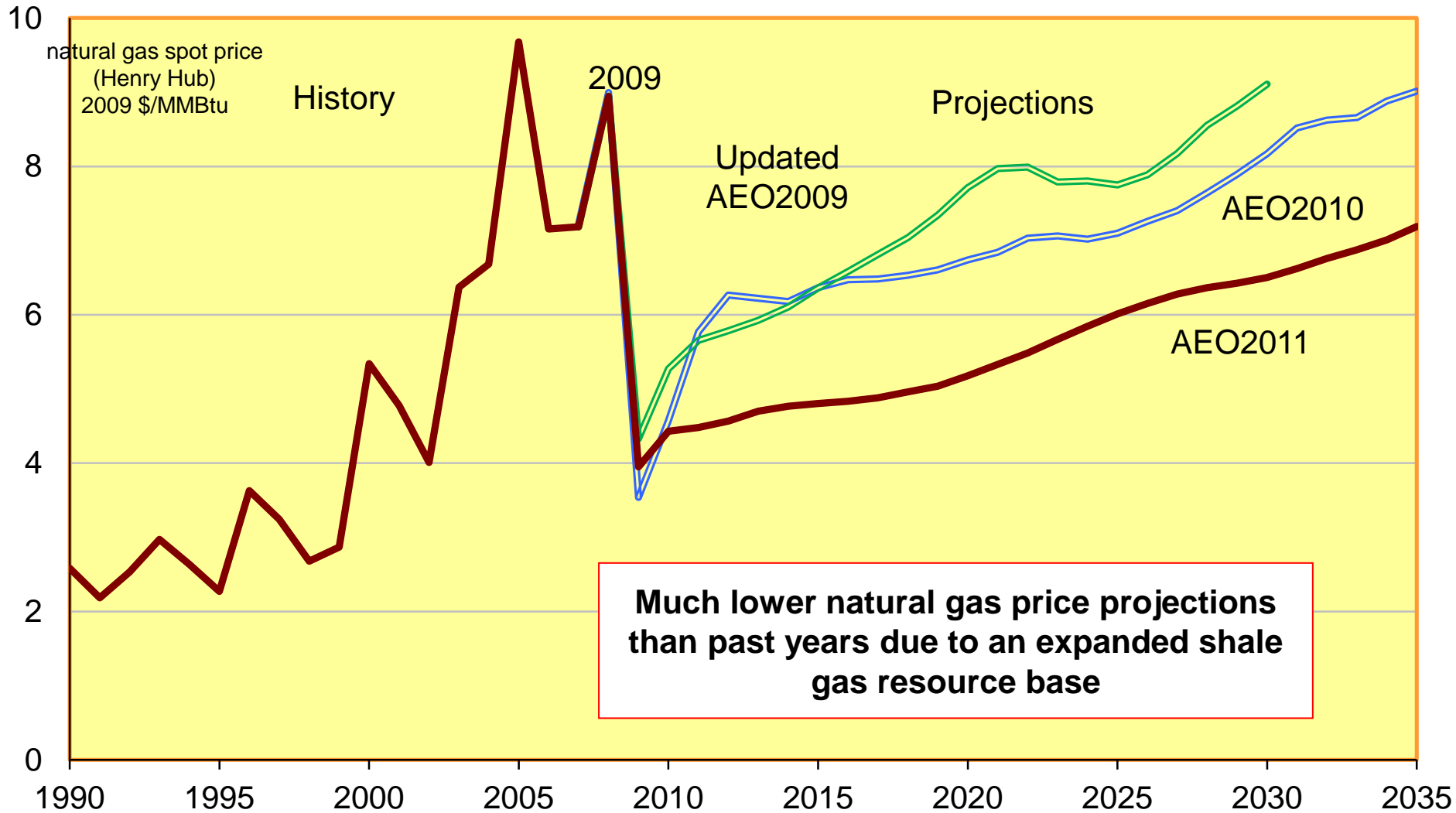
Natural gas supply estimates



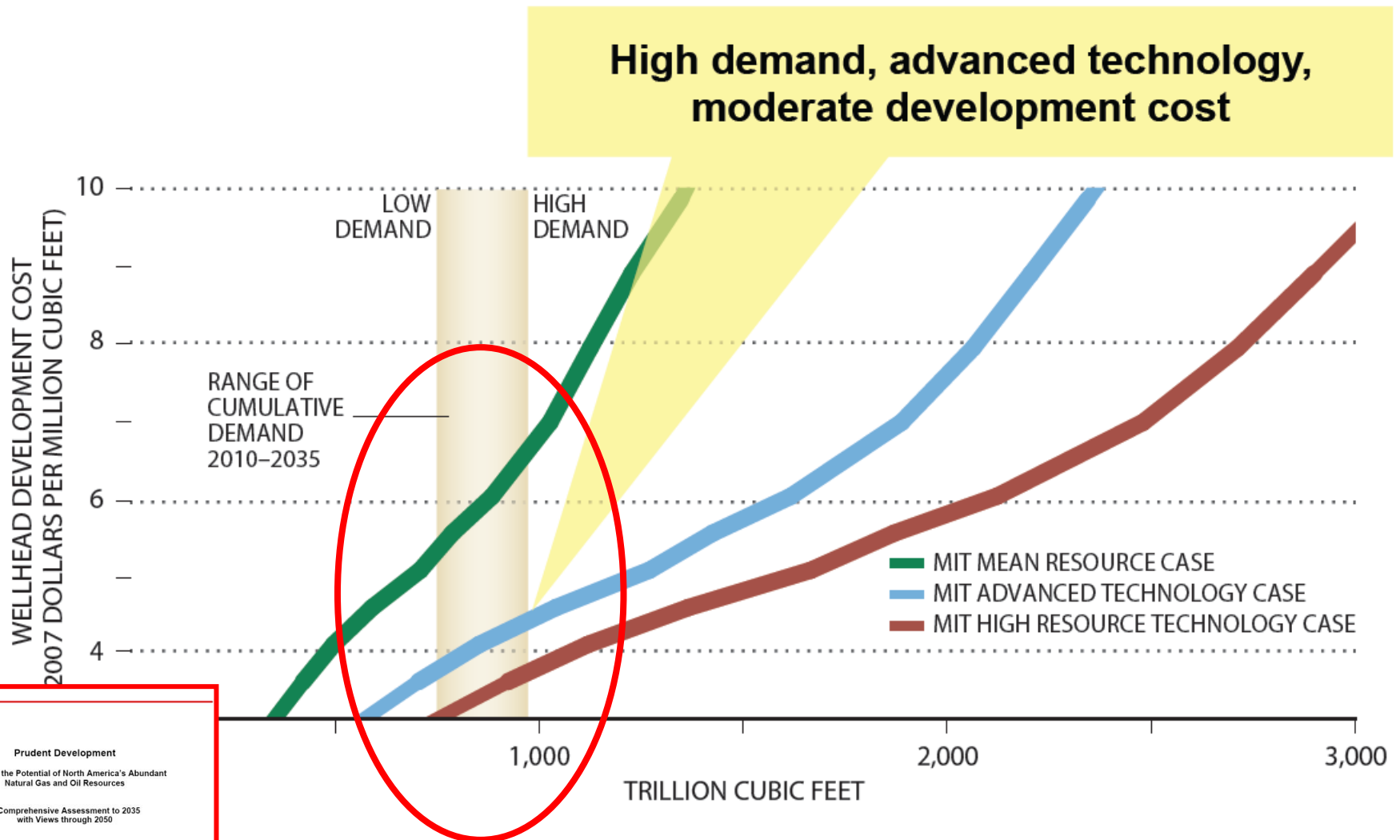
* **Technically recoverable** 

The effect of a reduction in EIA's Marcellus estimate from 410 Tcf to 84 Tcf (the new USGS estimate, up from 2 in 2002)

Lower outlook for natural gas prices....



Implications of gas supply/demand scenarios:



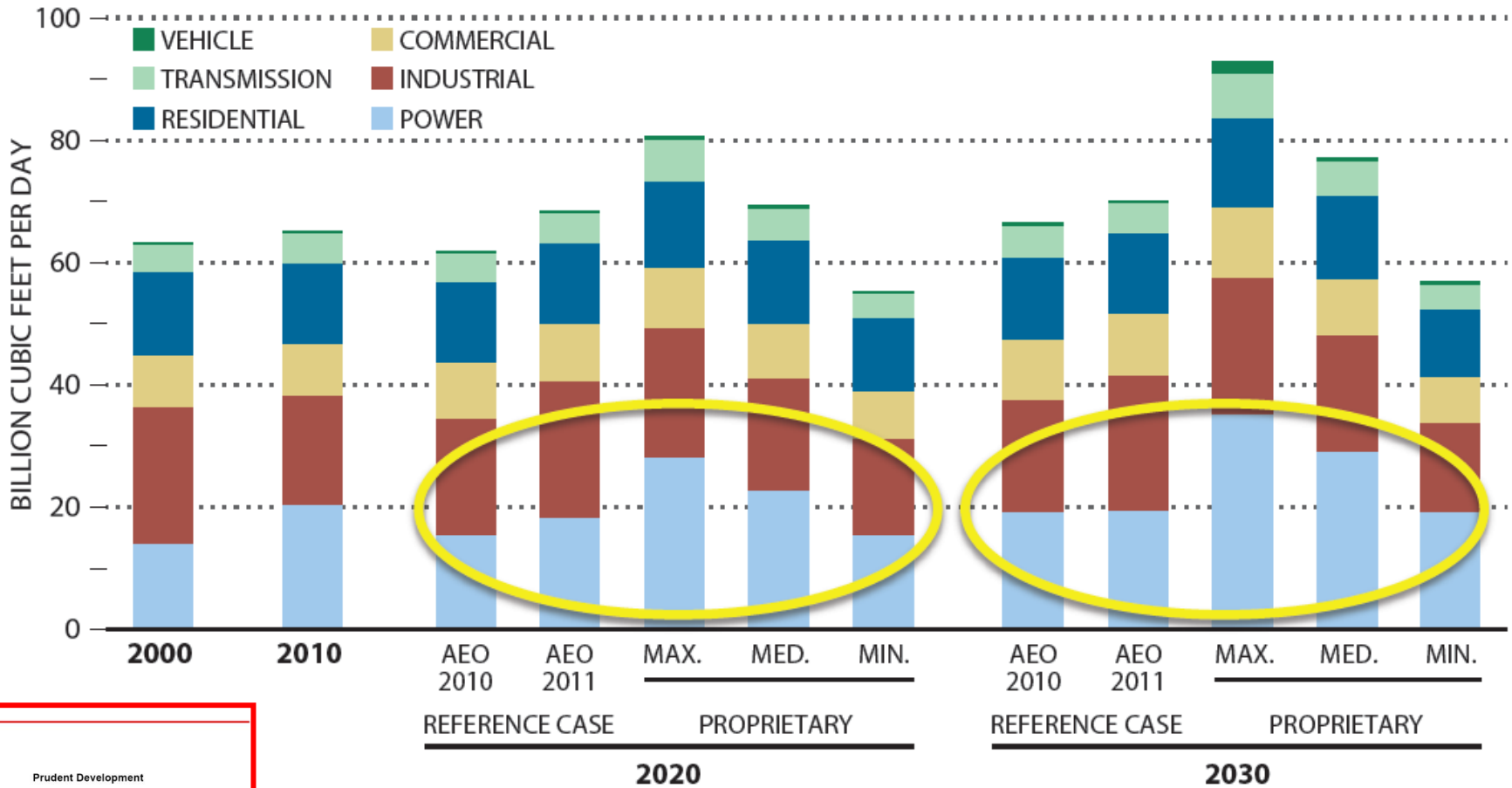
Prudent Development
Realizing the Potential of North America's Abundant
Natural Gas and Oil Resources

A Comprehensive Assessment to 2035
with Views through 2050

September 15, 2011

National Petroleum Council

Gas demand outlooks – driven by power sector demand



Overview – Connecting the Dots: Options for Upcoming Electric Resources

Regulatory Drivers

The Toolkit: Classic and Expanded

The Role of Natural Gas

Conventional and Unconventional Options

CONVENTIONAL AND UNCONVENTIONAL OPTIONS:

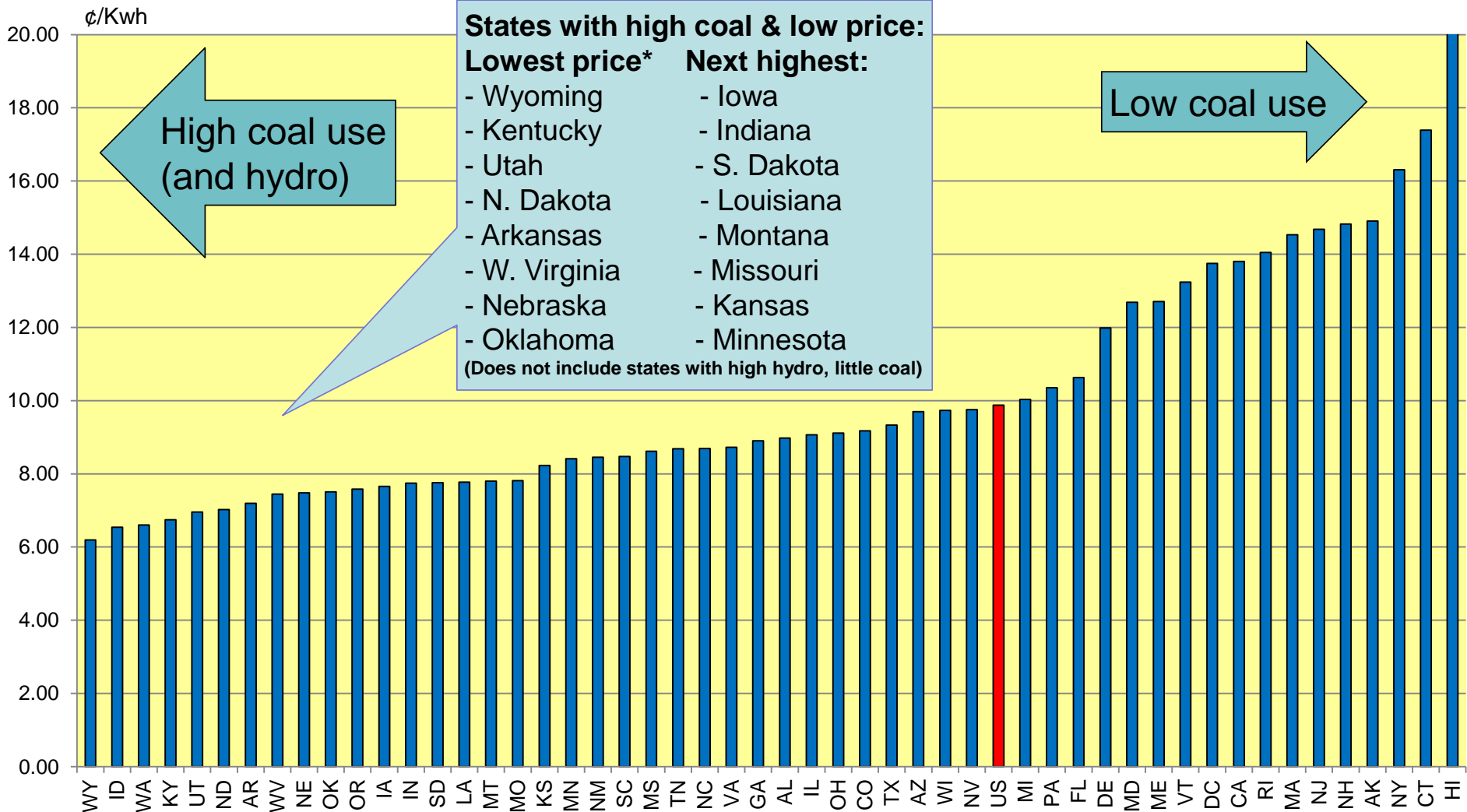
Power plants, energy efficiency, transmission

Lots of views on energy efficiency as critical – if not “the” – answer

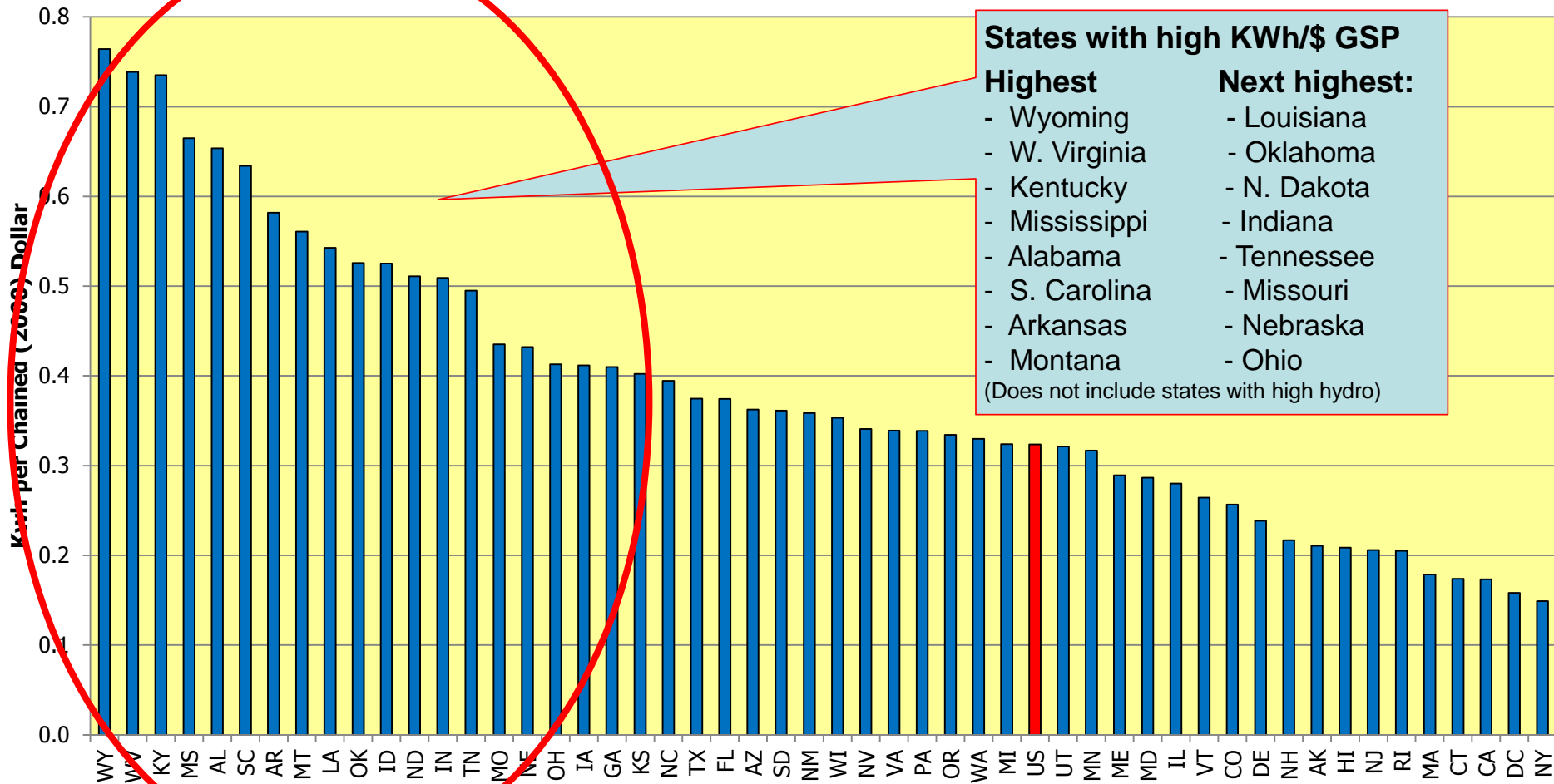
- EPRI’s “Prism” study
- McKinsey’s “Wasted Energy” Study
- WWF – G8 Energy Efficiency Potential
- Interacademy Council – “Lighting the Way”
- Northeast Energy Efficiency Partnership
- National Academy of Sciences – America's Energy Future: Energy Efficiency Technologies: Opportunities, Risks, and Tradeoffs
- National Action Plans for Energy Efficiency
- National Petroleum Council – 2007 Hard Truths, 2011 Report

But there is still much more to do that is (or will be) cost-effective.

Electricity Prices (Retail) by State (2010)

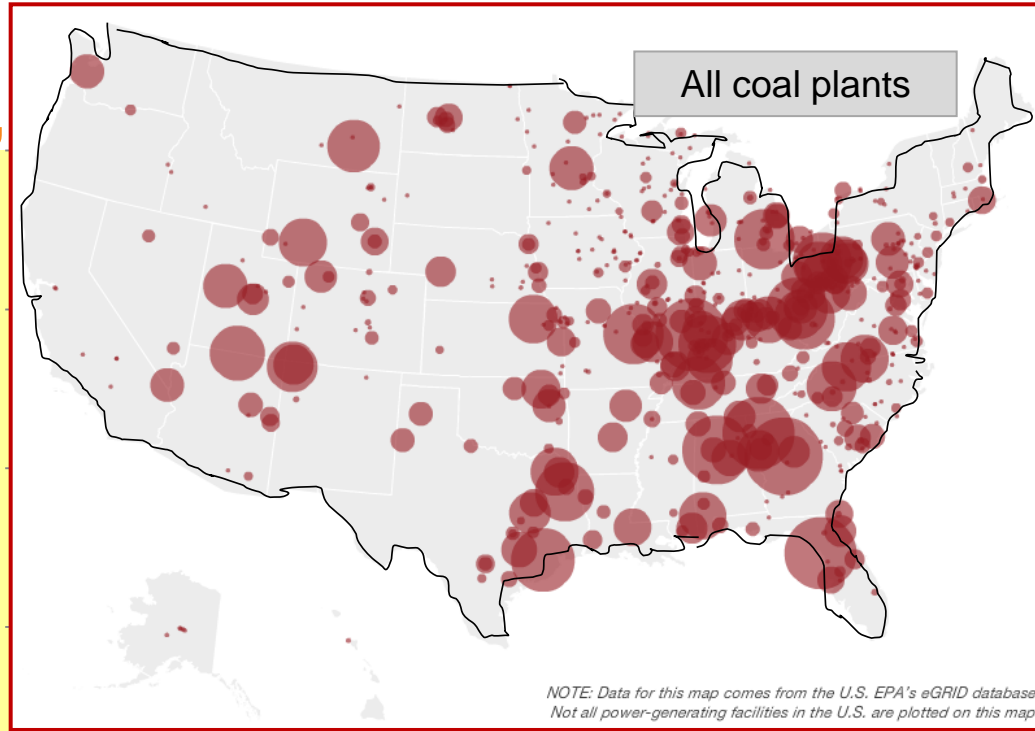
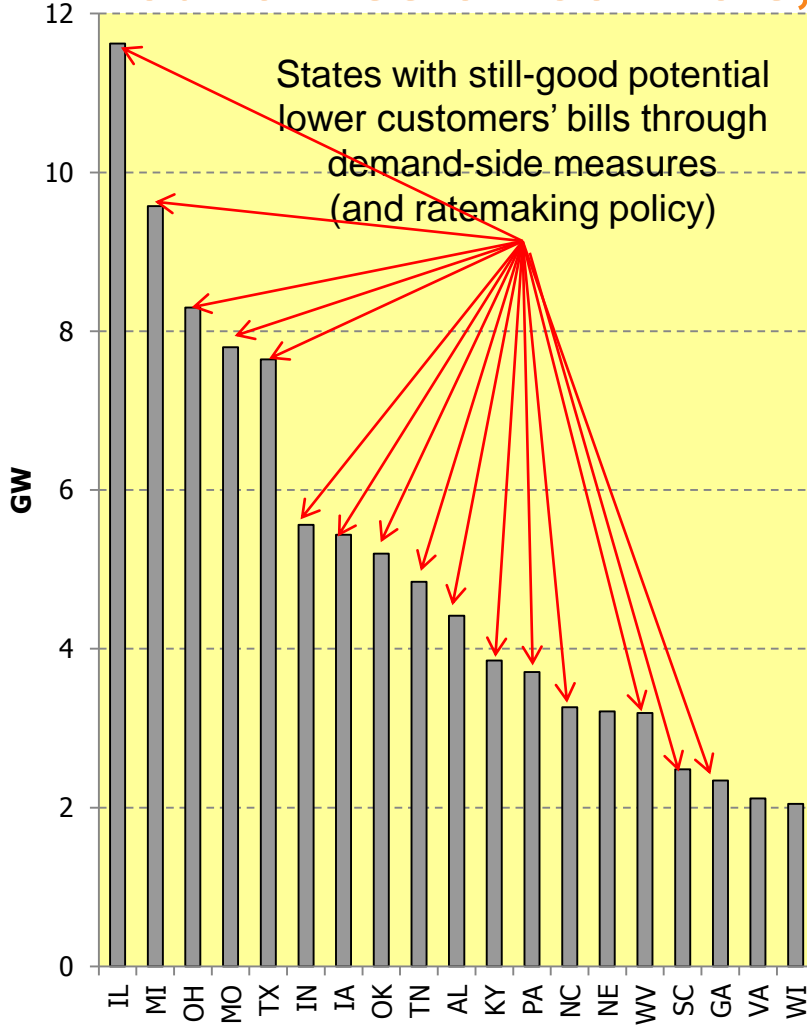


Retail Sales of Electricity per Dollar of GSP – by state



Source: EIA, State Energy Data System (SEDS), Table R3, available at http://www.eia.gov/emeu/states/_seds.html.

Coal plant capacity – Without emission controls,

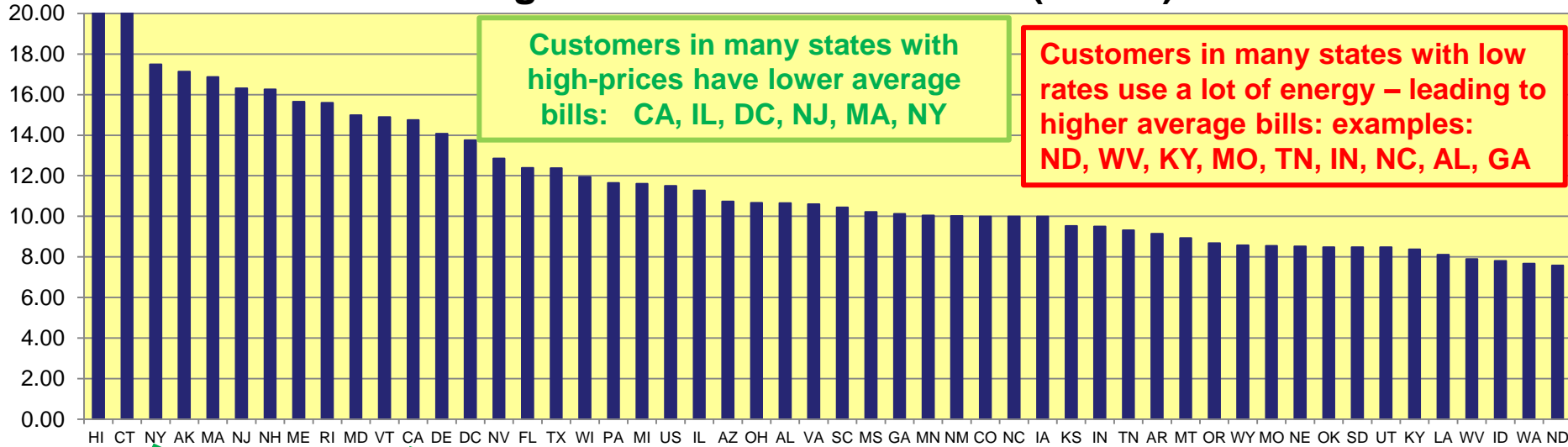


**Coal Units Without Emissions Controls
(Total GW – 2009)**

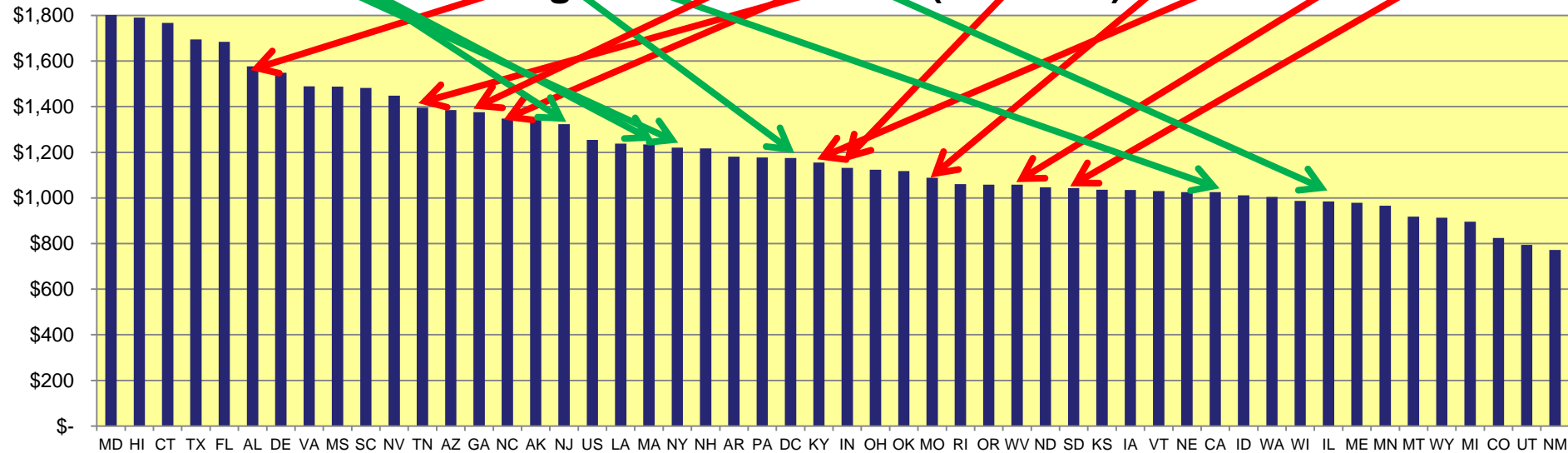
Notes:

- [1] Totals do not include Alaska or Hawaii.
- [2] Units without emissions are those units without SCR or FGD systems.

Average Retail Price Residential (c/kWh)



Average Bill - Residential (Annual \$)



Source: 2010 price and usage data from EIA.

States with strong demand-side management programs

