

Subcommittee on Clean Coal and Carbon Management

*Perspectives from the Coal Utilization
Research Council*

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Clean Coal and Carbon Capture & Sequestration (CCS) Technology Development in Perspective

- EPA CO2 regulations expected to be issued in early August, 2015
- Supreme Court remanded EPA's mercury rule on June 29, 2015
- U.S. House of Representatives and U.S. Senate reviewing proposals to restrict EPA authority and funding and possible energy legislation
- Global climate meeting (Paris) December, 2015
- Lawsuits to be filed presumably to be decided by the Supreme Court
- National (presidential) elections in 2016

The Current Program Initiatives

- Federal R&D programs & Congressional initiatives to promote technology development & use – not enough
- Countering the “War on Coal” with message bills, lawsuits (likely resolved in 2019-2020), empowering states to “just say no” without a strong technology-based message – is not enough
- This is why the 21st Century Coal program has been drafted
 - Use Congressional interest (the Energy Committees) in comprehensive energy legislation as a vehicle to present a comprehensive coal technology based program

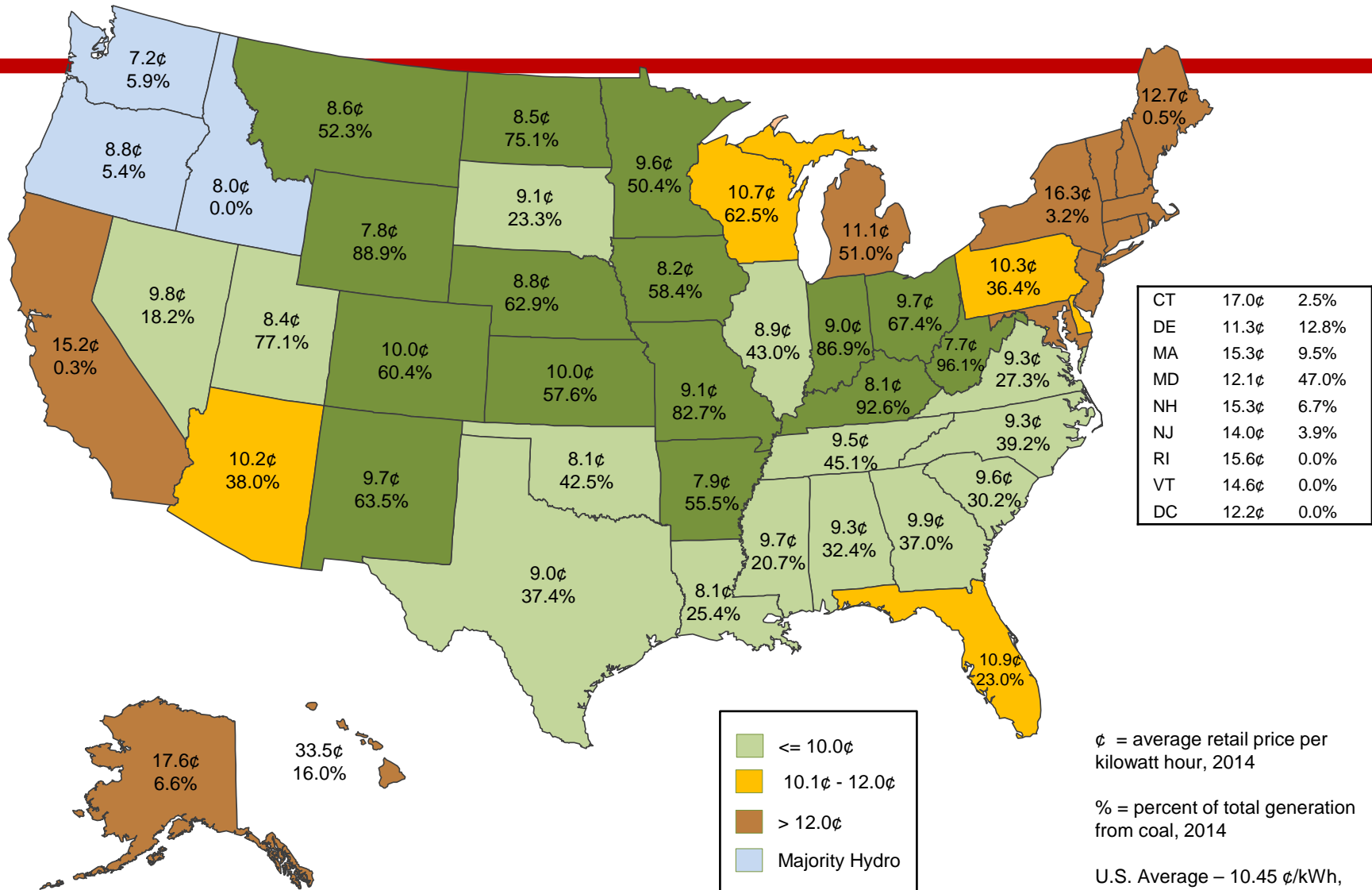
21st Century Coal Program

Why are we advocating this program?

- **Preserve low cost electricity**
- **Ensure availability of future energy supply options**
- **Pursue CCS as a cost-effective way to address the global issue of climate change**

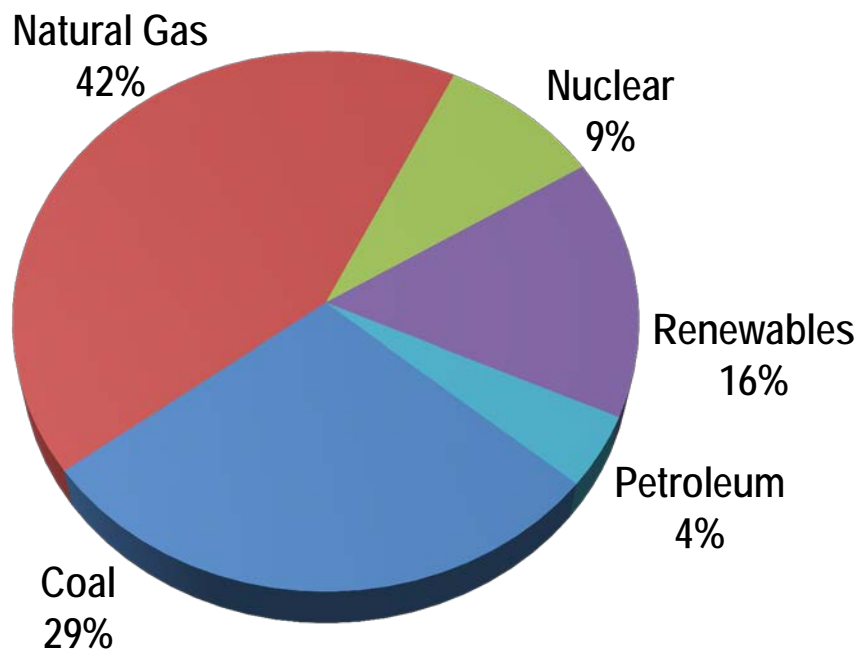
Coal = Low Cost Electricity

Cost Per kWh & Percent of Coal Power Sector Generation

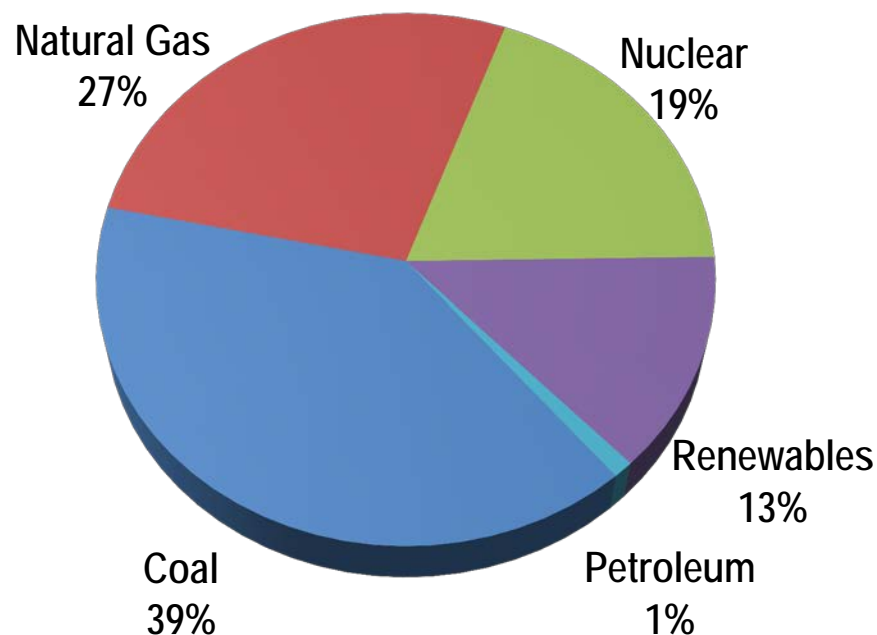


U.S. Installed Electric Generating Capacity and Actual Generation Delivered, 2013

Capacity



Generation



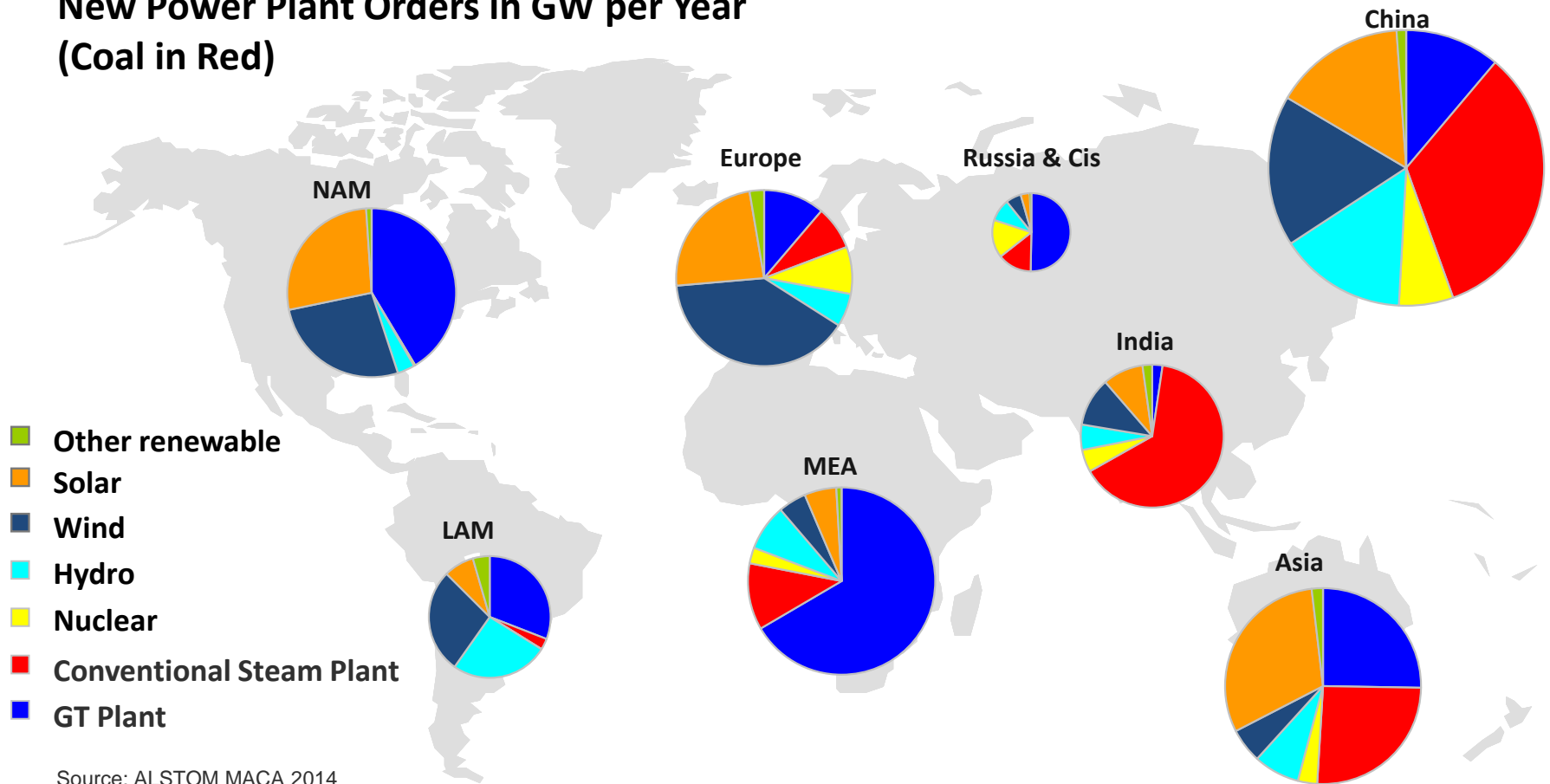
Notes: Natural gas includes combined cycle, combustion turbine and other gas-fired systems. Renewables includes conventional hydro and pumped storage.

2013 Capacity: http://www.eia.gov/electricity/annual/html/epa_04_03.html

2013 Generation: http://www.eia.gov/forecasts/aeo/section_elecgeneration.cfm

Global Electricity New Generation: Growth in Next 5 Years

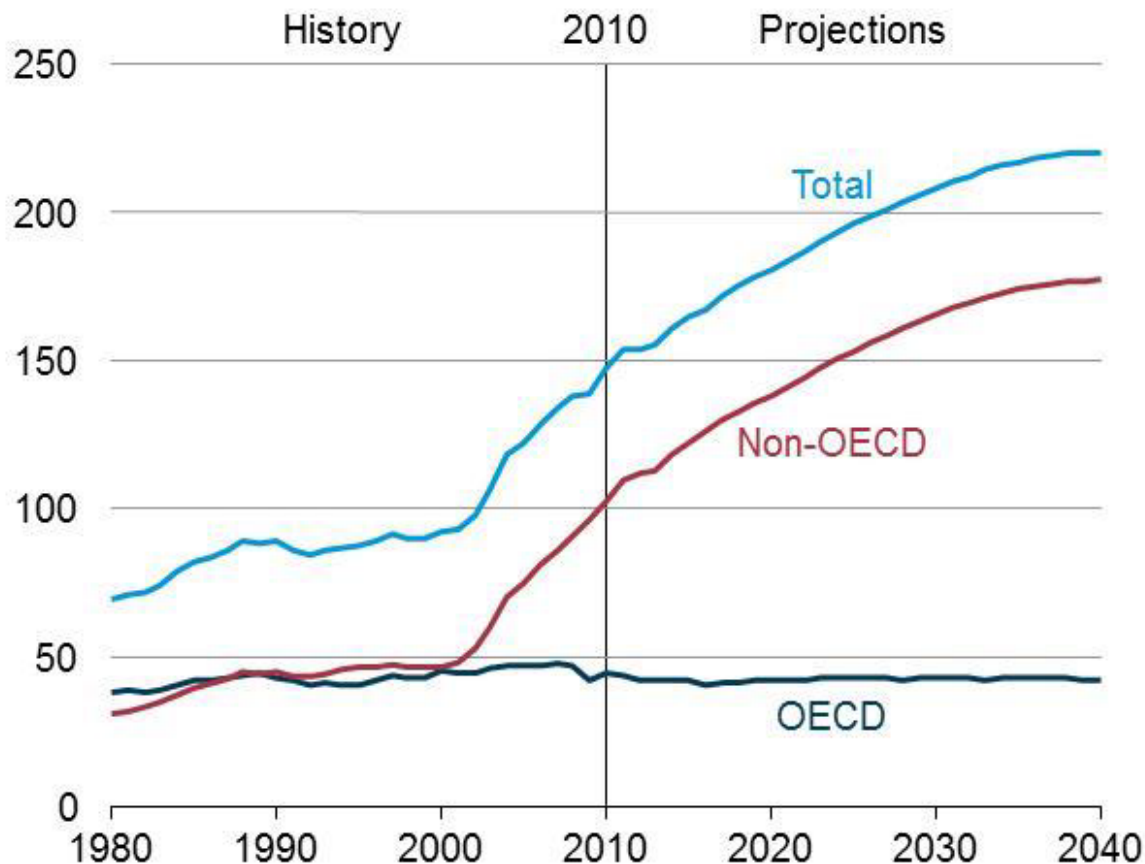
New Power Plant Orders in GW per Year (Coal in Red)



Source: ALSTOM MACA 2014

Alstom Five Year Global Power Market Forecast Shows diversified mix with more than 300 GW of new Coal Plants over next 5 years

Increased Global Use of Fossil Fuel Will Result in More Emissions of CO₂



Source: EIA IEO 2013 Reference

In a time of fossil abundance, US leadership is crucial for delivering CO₂ mitigation technologies for fossil fuels

21st Century Coal Program

What are the key elements of the program?

- **\$1.0 B/yr for 10 years** -- advanced coal technology R,D,D&D program using the revised CURC/EPRI Technology roadmap; requires DOE technology development re-direction
- Newly authorized **large-scale pilot plant** program focused on **transformational** power-generation and next generation CO₂ capture technologies
- Focuses on **EXISTING AND NEW** coal-fueled plants by defining pathways to accelerated regulatory and permitting approvals & novel financial assistance for “steel in the ground” projects – now

21st Century Coal Program: Existing Fleet – Preserving Reliable, Affordable Electricity

Existing Fleet Needs

Efficiency improvements

Operational flexibility

Possible CO₂ Retrofits

How Do We Address the Needs?

NSR-related issues in efforts to increase efficiency and reduce emissions of CO₂

Provide federal financial incentives to encourage application of technology designed to increase efficiency

21st Century Coal Program: New Plants – Ensuring Future Energy Supply Options

What is Needed to Construct New Coal Plants Today?

Accelerated Permitting

New Coal Plants without CCS (USC)

New Coal Plants with CCS

How Can We Support New Coal Plant Construction?

Consolidated permitting process and timing limitations to judicial challenges

Standards that encourage construction of highly efficient coal plants (USC)

**Adequate and targeted federal financial incentives to address CCS costs today and
Policy parity with other low carbon emission technologies**

21st Century Coal Program

How do we get this job done?

- Build on the foundation CURC has established
- Expand Senate ally base to support the bigger 3 Part Plan – **the 21st Century Coal Program**
- What is required to be successful?
 - Industry & Unions (not just CURC-wide) support and advocacy (coal producers, users, equipment suppliers, organized labor)
 - Position for discussion in the up-coming presidential campaigns
 - Nationally recognized personalities (e.g. Bill Gates) calling for urgency to develop technologies