Abundant, Affordable, Reliable and Environmentally Responsible

Power for America's Energy Security

Coal

Holland Board of Public Works

October 6, 2011

Holland, Michigan

Janet Gellici, CEO

American Coal Council

Key Messages

- Coal is vital to the global & U.S. economy
- Coal is critical to energy reliability & security
- Coal technology continues to advance efficient, environmentally sound electric power
- Coal is competitive
- Coal means good jobs

ACC Mission & Objectives

Mission

Dedicated to advancing the development and utilization of American coal as an economic, abundant/secure, and environmentally sound fuel source.

Objectives

Business-to-Business

Support the commercial interests of American coal suppliers, consumers, transporters, traders and affiliated service companies.

Advocacy

Advocate for coal as an economic, abundant/secure and environmentally sound fuel source.

ACC American Coal Council

ACC Membership

The American Coal Council
represents the collective interests of 170 companies spanning the entire coal chain.

From the hole in the ground to the plug in the wall.

- Coal Suppliers
- Coal Consumers (utility & industrial)
- Transportation (rail/barge/truck/ports)
- Energy Traders
- Coal Support Services
- Contributing Supporters (universities & associations)

www.americancoalcouncil.org

ACC American Coal Council

Global Coal Markets

COAL IS ENTERING THE EARLY STAGES OF A LONG-TERM GLOBAL SUPER CYCLE

IN THE *IEO2011* REFERENCE CASE, WORLD COAL CONSUMPTION INCREASES BY 50% FROM 139 QUADRILLION BTU IN 2008 TO 209 QUADRILLION BTU IN 2035

EIA 2011 International Energy Outlook

Global Energy Demand

Figure 15. World energy consumption by fuel, 1990-2035
(quadrillion Btu)

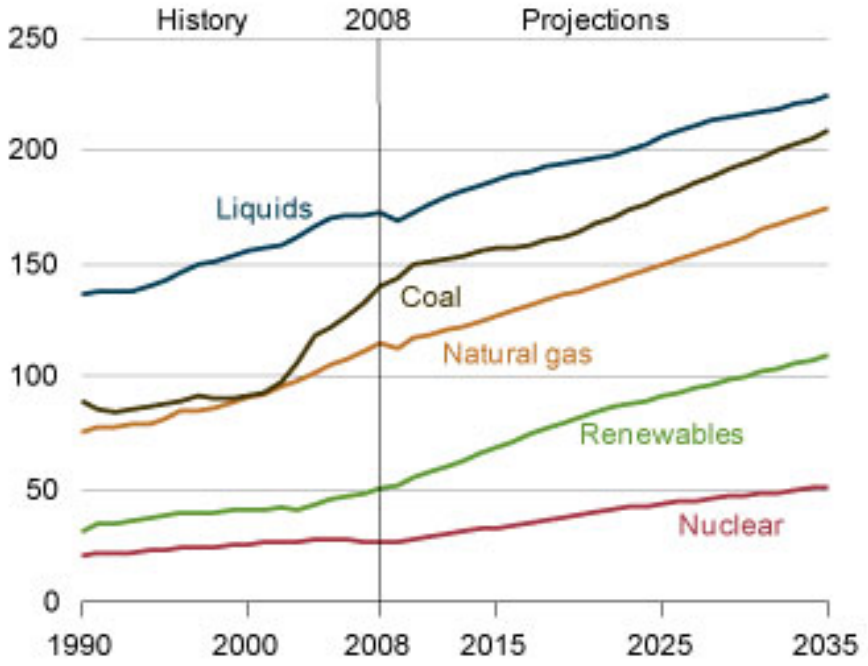
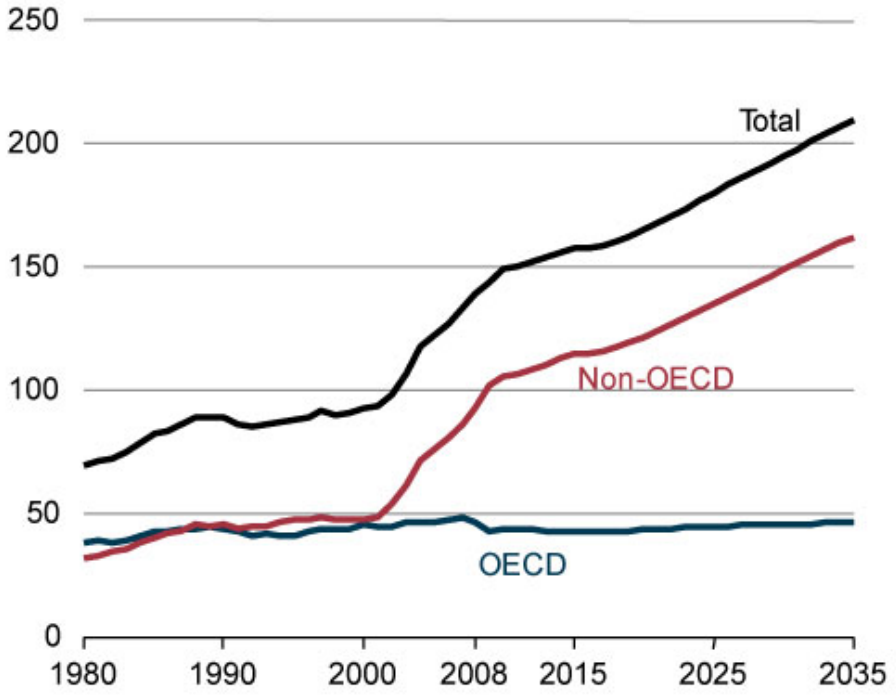


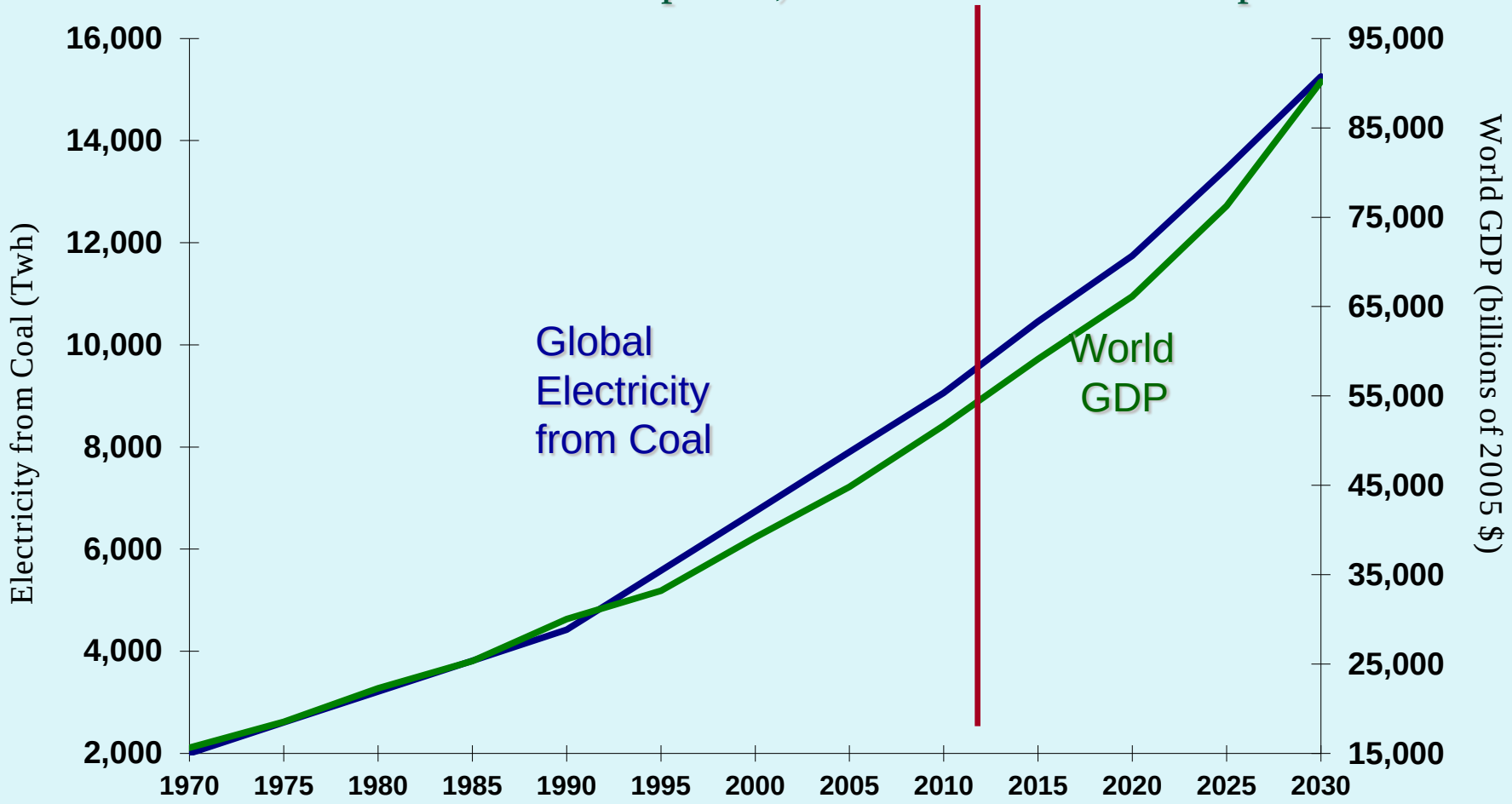
Figure 65. World coal consumption by region, 1980-2035
(quadrillion Btu)



Energy Information Administration ~ International Energy Outlook 2011

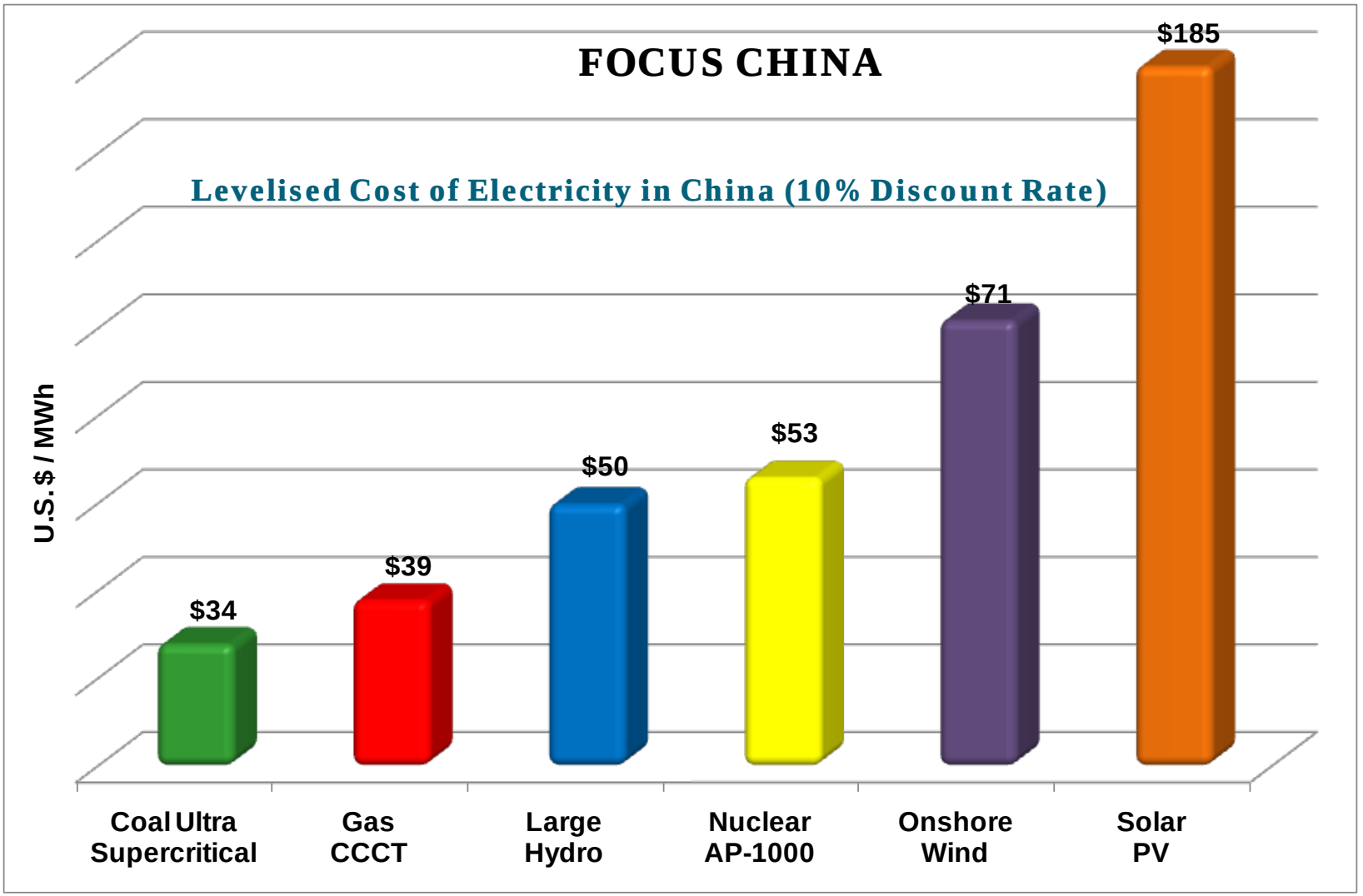
Global Coal Use & Economic Growth: Near Perfect Correlation

Coal-Fueled Electricity in 2030 Equal To Current Power in the Western Hemisphere, EU and Five Times Japan



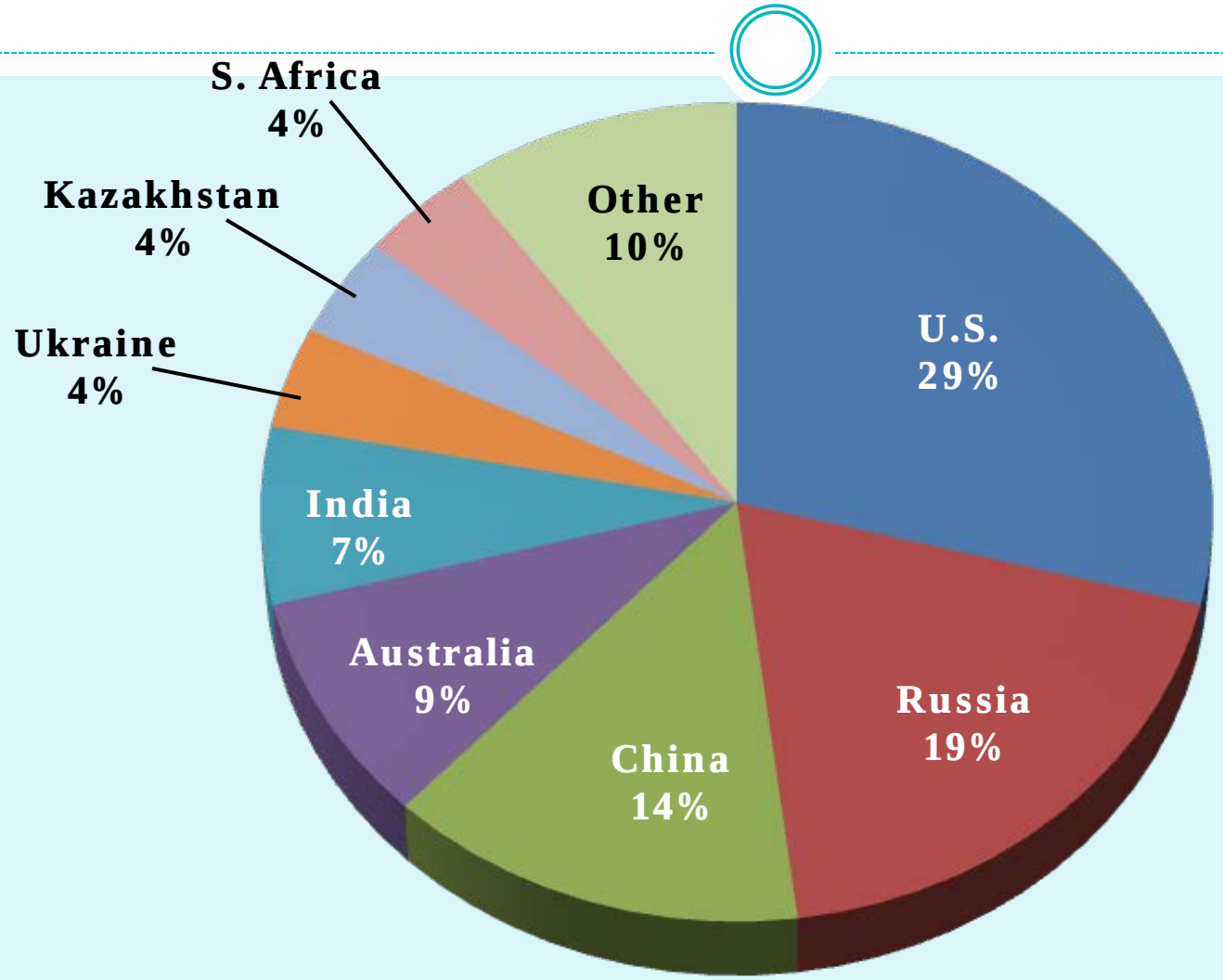
Source: Developed from International Energy Agency World Energy Outlook 2009 and Energy Information Administration International Energy Outlook 2010.

Affordability in Developing Countries



Estimated from IEA Report: Projected Costs of Generating Electricity, 2010

World Recoverable Coal Reserves



Source: Energy Information Administration

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International Coal Trade

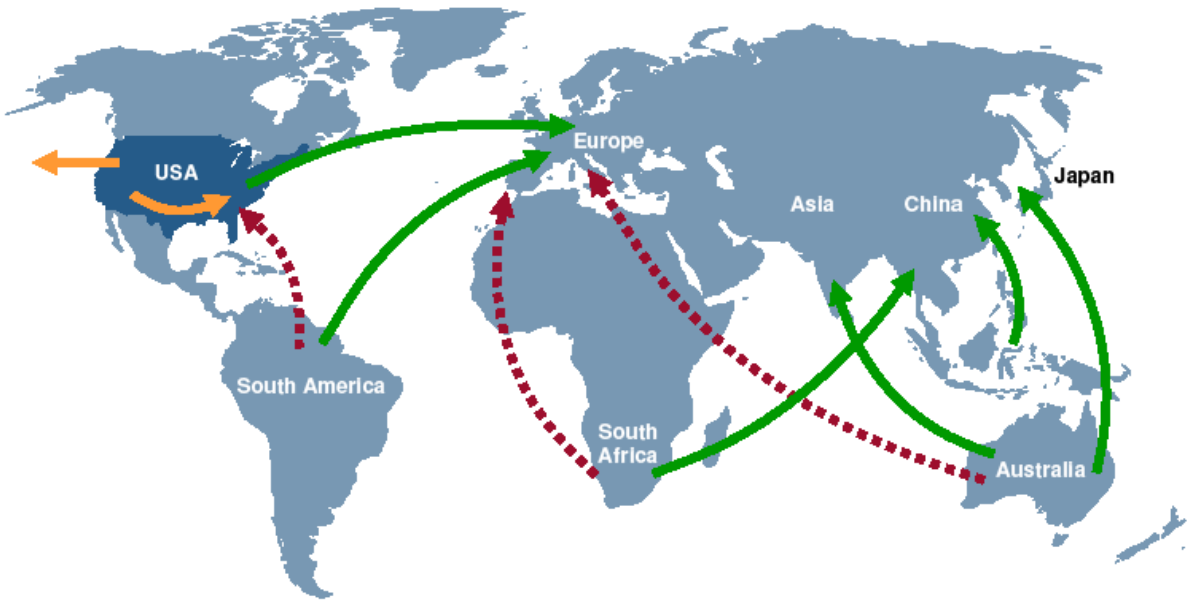
2010 U.S. Exports up 36%
~ from 60 mt in 2009
to 81 mt in2010
~ 56 mt met coal
~ 26 mt steam coal

Forecast for 2011
~ 100-105 million tons

U.S. Imports expected to decline to 15 mta over next 2 years from 19 mt in 2010

U.S. coal suppliers are investing in increasing export port capacity.

Source: Cloud Peak Energy & Fitch Ratings



Source: Cloud Peak Energy management

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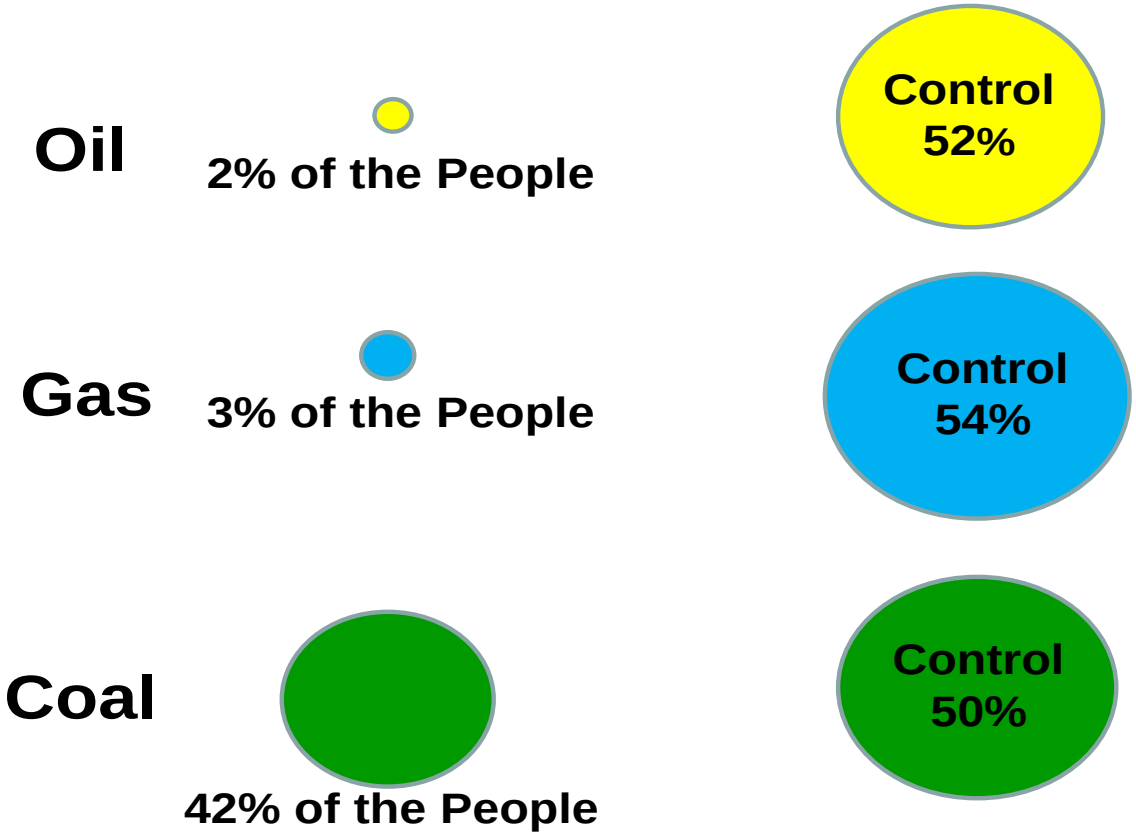
Global Energy Security



Sources: developed from British Petroleum, 2010; EIA 2010

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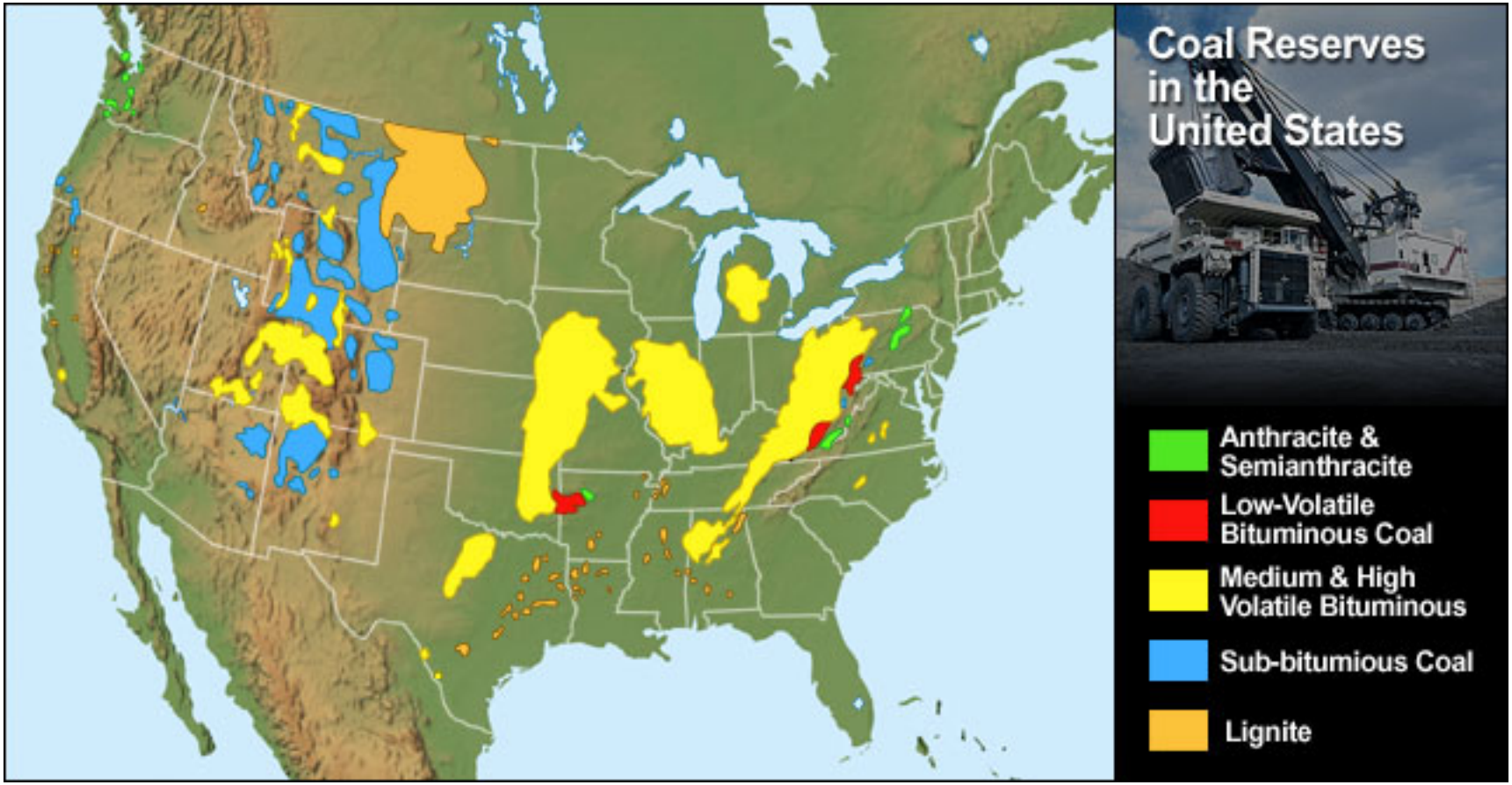
U.S. Coal Supply

"U.S. RECOVERABLE RESERVES OF COAL ARE WELL OVER 200 TIMES THE CURRENT ANNUAL PRODUCTION OF 1 BILLION TONS AND ADDITIONAL IDENTIFIED RESOURCES ARE MUCH LARGER. THUS THE COAL RESOURCE BASE IS UNLIKELY TO CONSTRAIN COAL USE FOR MANY DECADES TO COME."

NATIONAL ACADEMY OF SCIENCES

More than 200 Years of Proven Reserve



Source: American Coal Foundation – www.teachcoal.org

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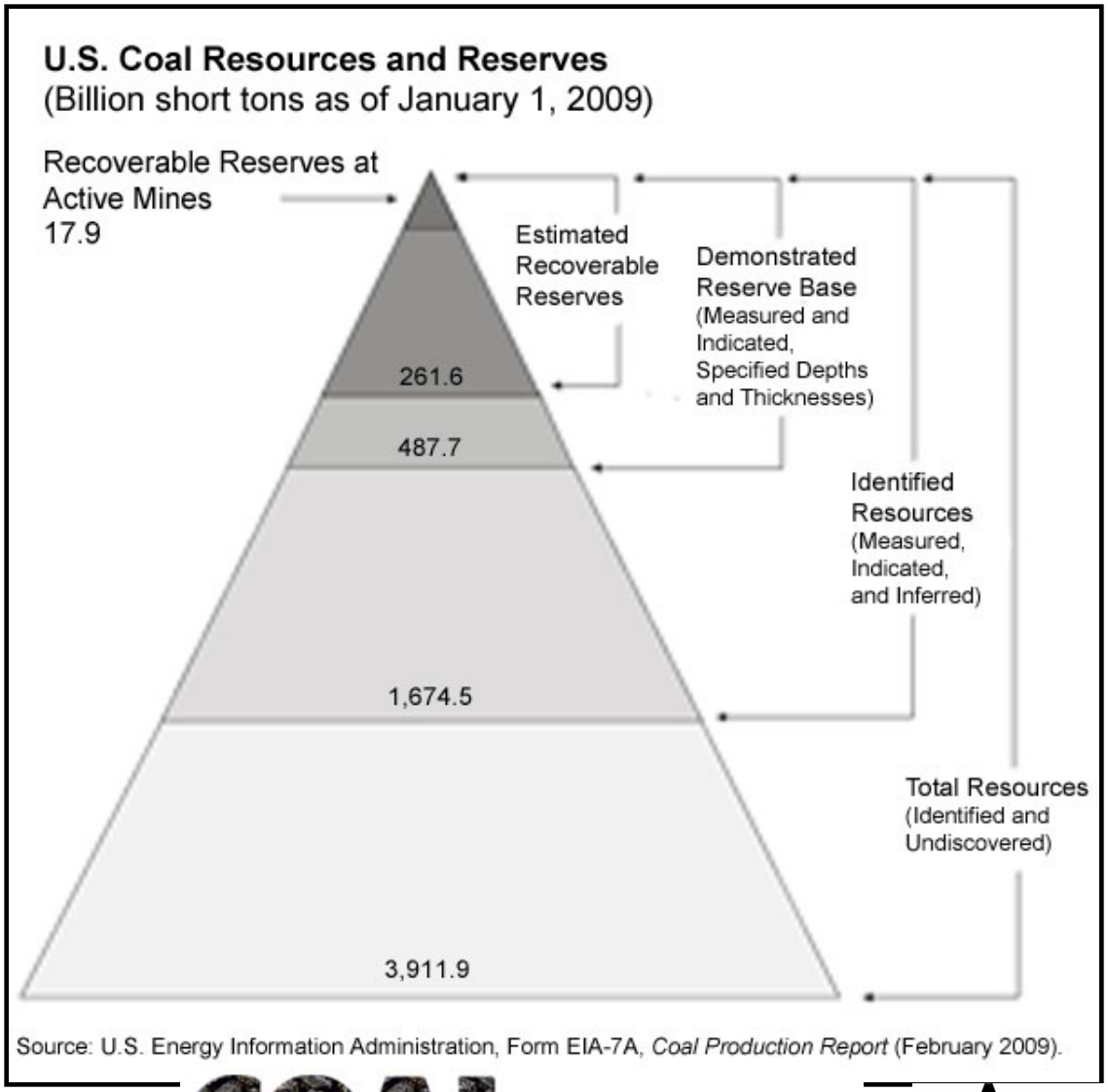
USGS 2008 Study of Wyoming Powder River Basin Coal Resources

77 billion short tons

176 year supply at 2007 production rates (of 437 mta)

Represents an increase of 14 billion tons (22%) over the 63 bt of coal in EIA's Demonstrated Reserve Base 2007 data

Of the 77 bt of recoverable resource, 10.1 bt is economically mineable at $10.47/ton; 33.9 bt at >$20/ton; and 48.5 bt at > $25/ton.



COAL our most abundant fuel

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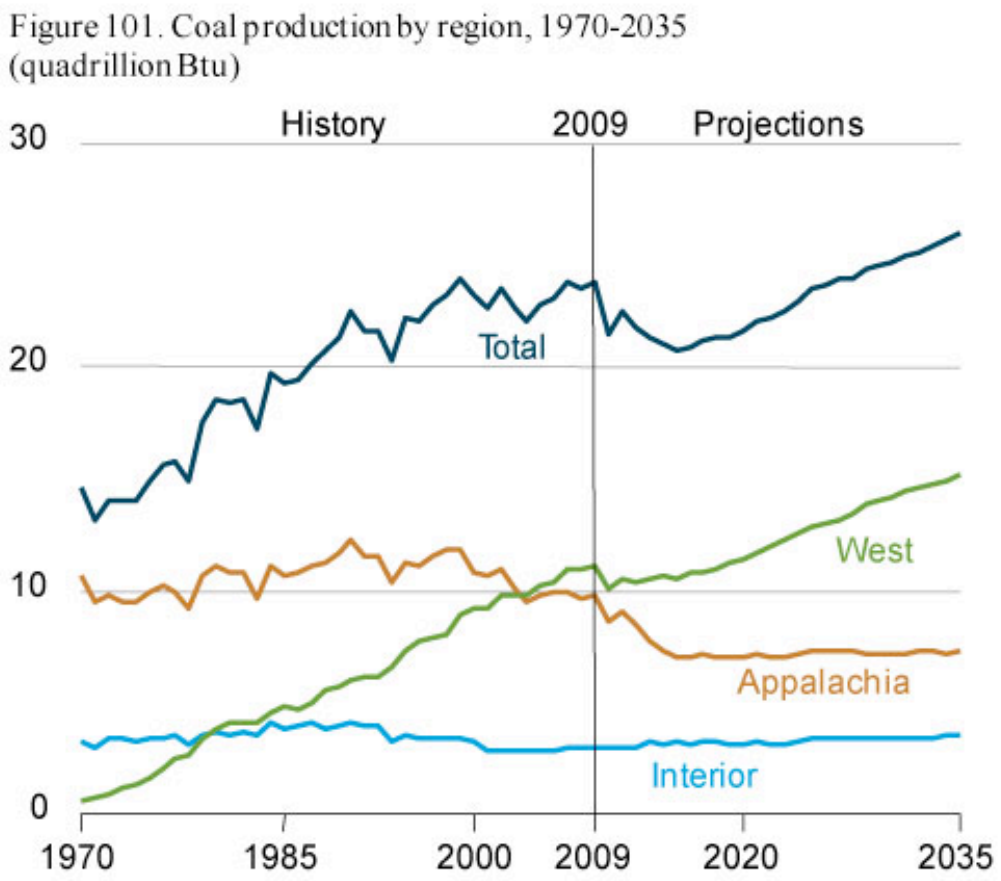
Appalachian production declined 22% from 236 mt in 2006 to 185 mt in 2010.

Illinois Basin production increased 12% to 106 mt between 2006 and 2010.

Powder River Basin has been growing steadily, reaching 447 mt in 2008 before falling to about 420 mt in 2009 and 2010.

Source: EIA AEO 2011 & Fitch Ratings



Coal Production by Region 1970-2035

American Coal Council

U.S. Coal Markets

"DESPITE RAPID GROWTH IN GENERATION FROM NATURAL GAS AND NON-HYDROPOWER RENEWABLE ENERGY SOURCES, COAL CONTINUES TO ACCOUNT FOR THE LARGEST SHARE OF ELECTRICITY GENERATION"

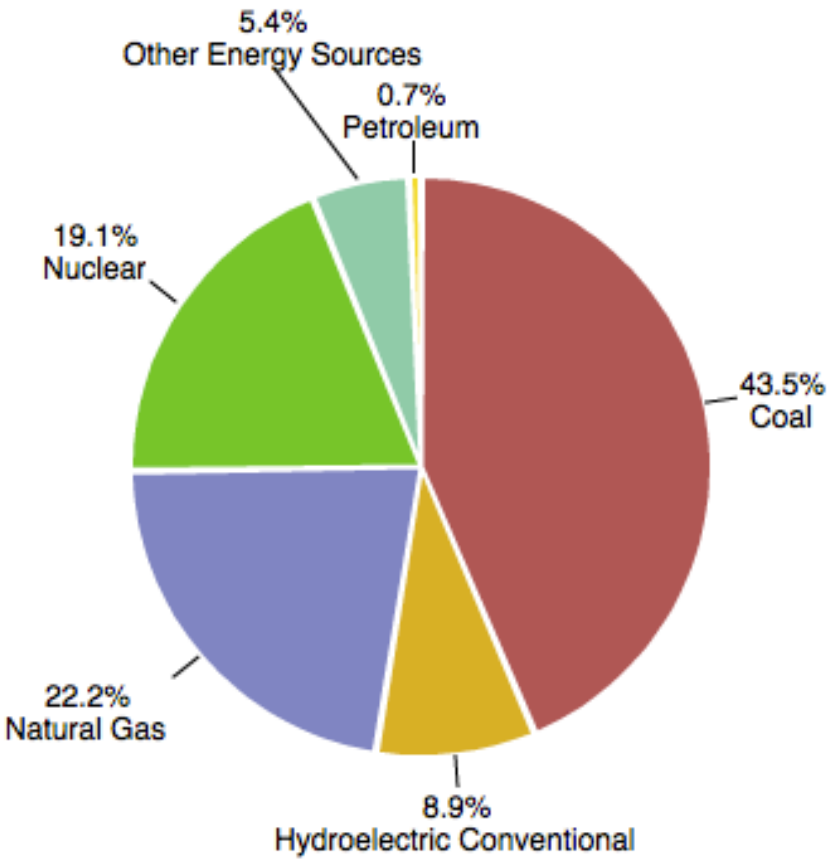
EIA ANNUAL ENERGY OUTLOOK 2011

Total electricity generation in the U.S. is driven primarily by two factors: economic growth and weather.

Electric power sector coal consumption grew nearly 5% in 2010 after two years of declines.

EIA projects a nearly 3% decline in coal consumption for power generation in 2011 due to increased generation from natural gas and renewable energy sources.

Source: EIA Electric Power Monthly, Year-to-Date June 2011

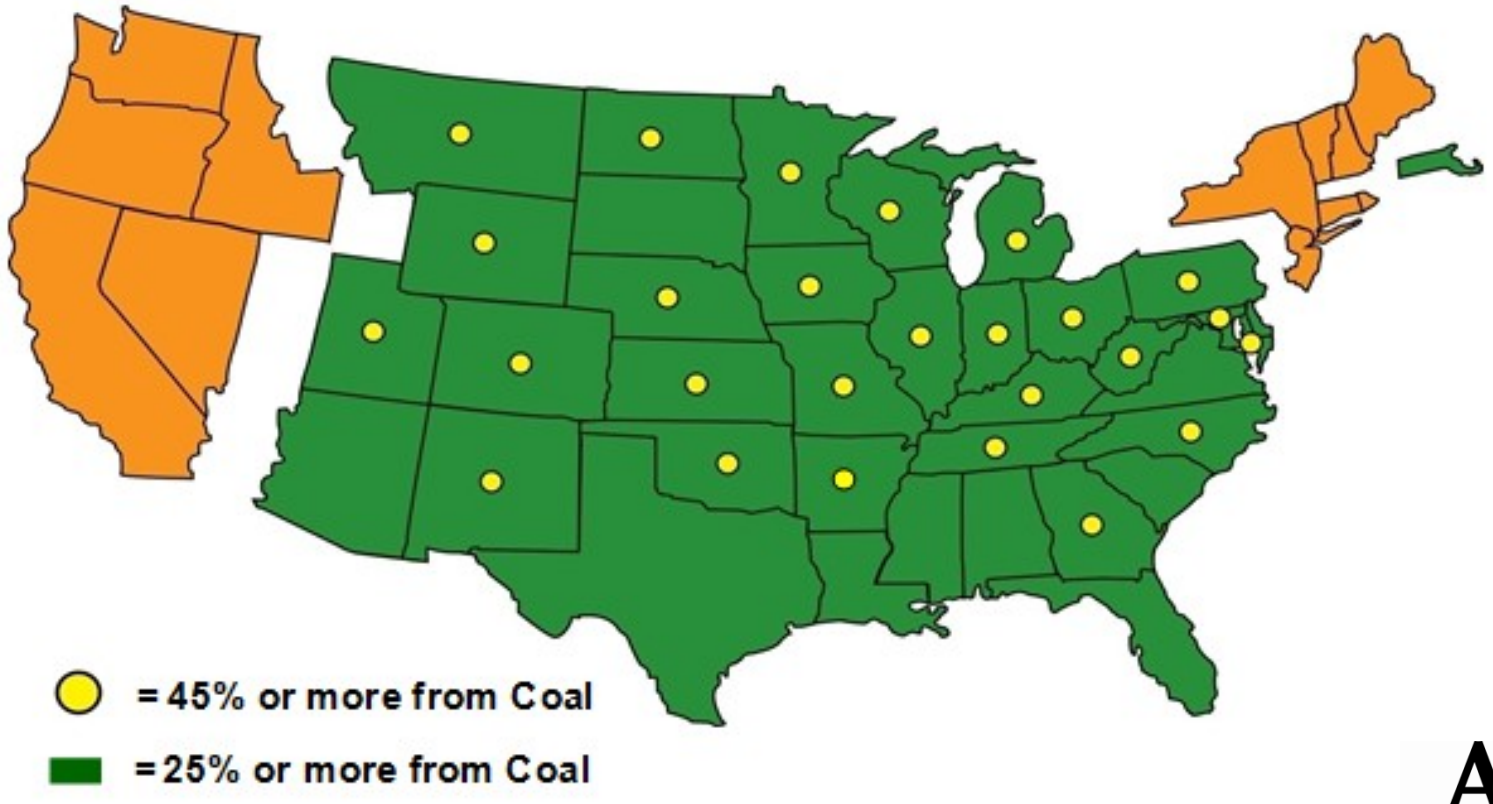


Net Generation by Energy Source

ACC American Coal Council

U.S. Coal Generation

36 States obtain at least 25% of their electricity from coal
26 States receive at least 45% of their electricity from coal



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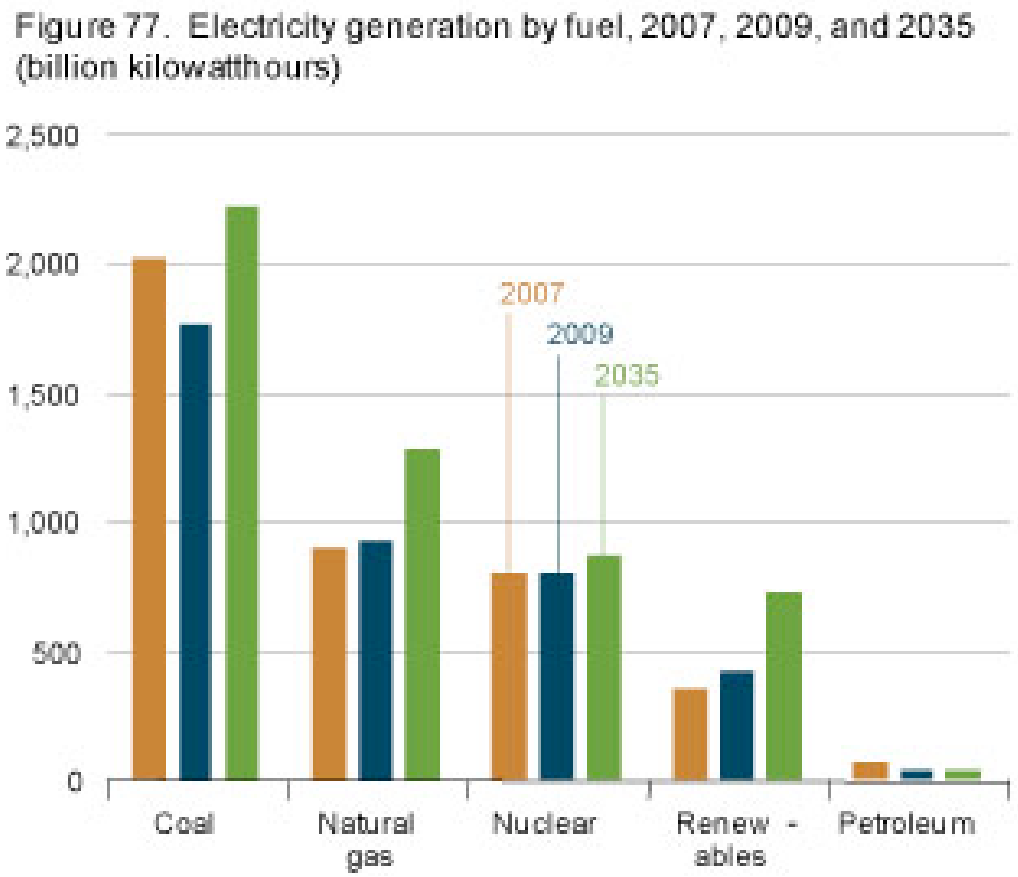
EIA forecasts U.S. coal generation **INCREASES** by 25% from 2009 to 2035

Coal's share of total generation remains at 43% in 2035

Source: EIA Annual Energy Outlook 2011



What Can We Expect?

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U.S. Coal Economics

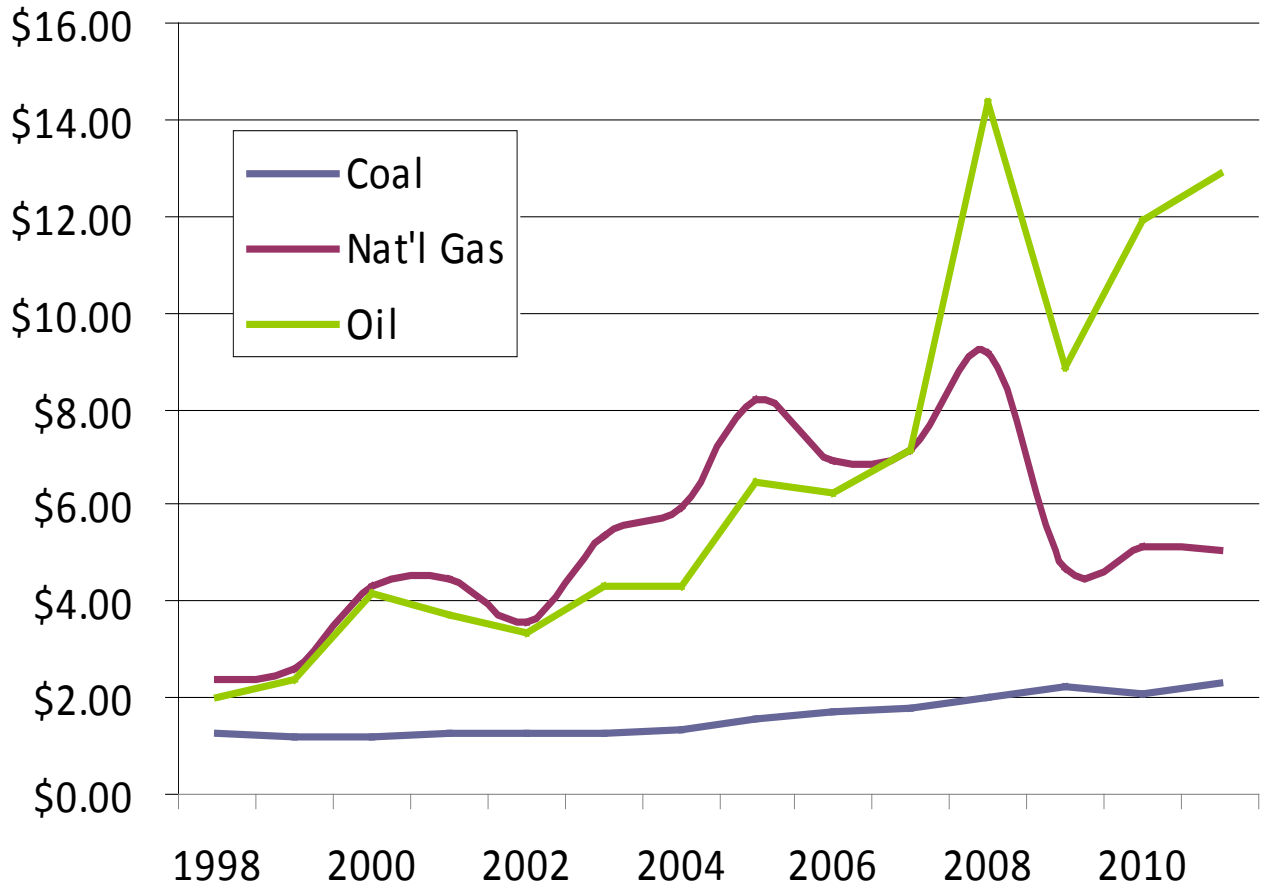
"ELECTRICITY IS BECOMING A LARGER SHARE OF U.S. ENERGY CONSUMPTION. IN 2000, IT WAS 37%; EIA FORECASTS IN 2030 IT WILL INCREASE TO NEARLY 43%.

WHATEVER ECONOMIC AND JOBS IMPACTS ELECTRICITY PRICES CURRENTLY HAVE ON THE ECONOMY, THESE IMPACTS WILL BE GRADUALLY INCREASING IN THE COMING DECADES."

MANAGEMENT INFORMATION SERVICES INC.
ENERGY COSTS AND THE ECONOMY

Coal Provides Price Stability

($/MMBTU delivered to utility power plants)



Source: DOE/EIA (2011 data are projections).

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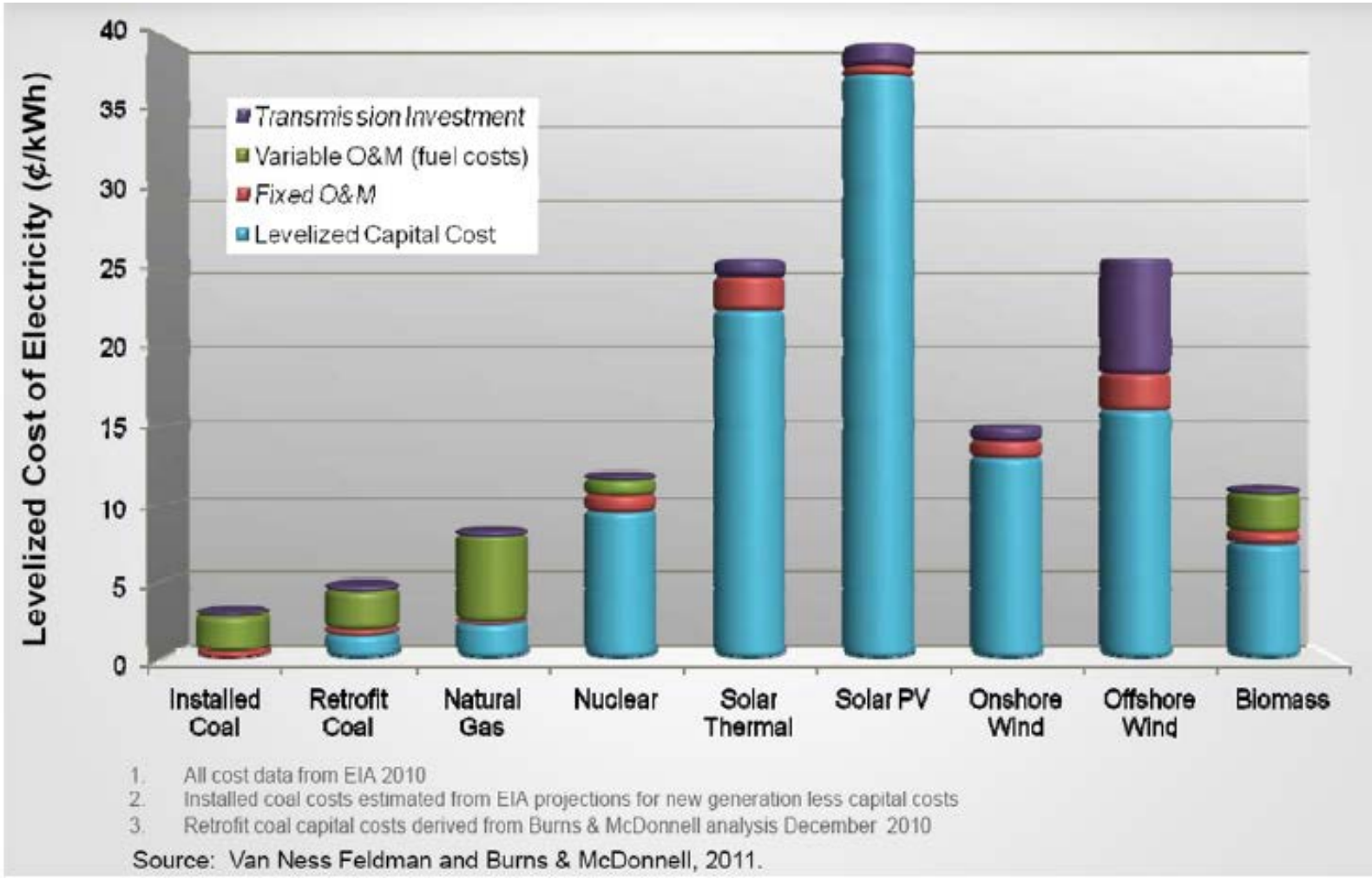
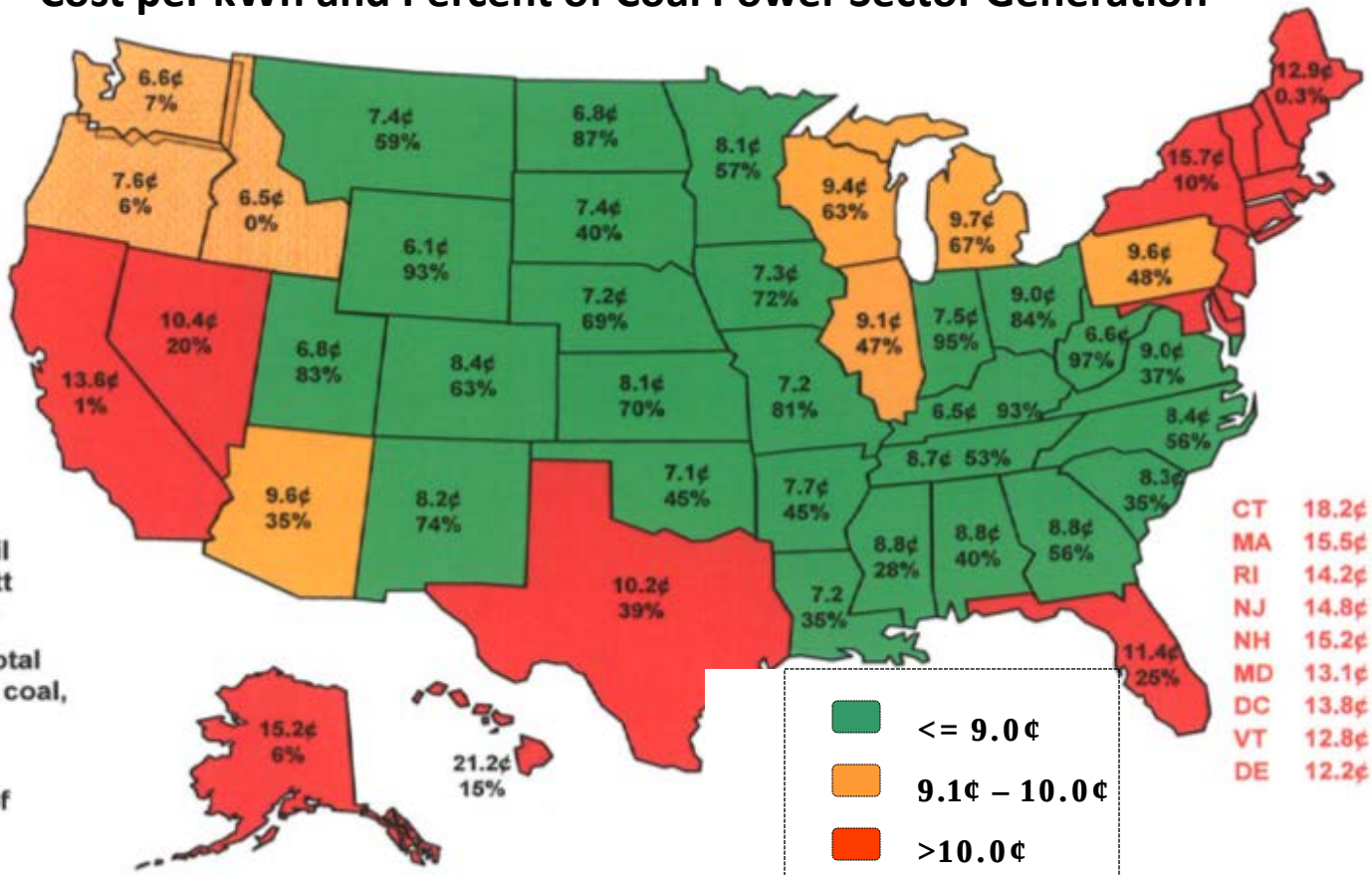
Levelized Costs of Electricity by Generation Source



Coal Provides Low Cost Electricity

Cost per kWh and Percent of Coal Power Sector Generation



¢ = average retail price per kilowatt hour, 2009

% = percent of total generation from coal, 2009

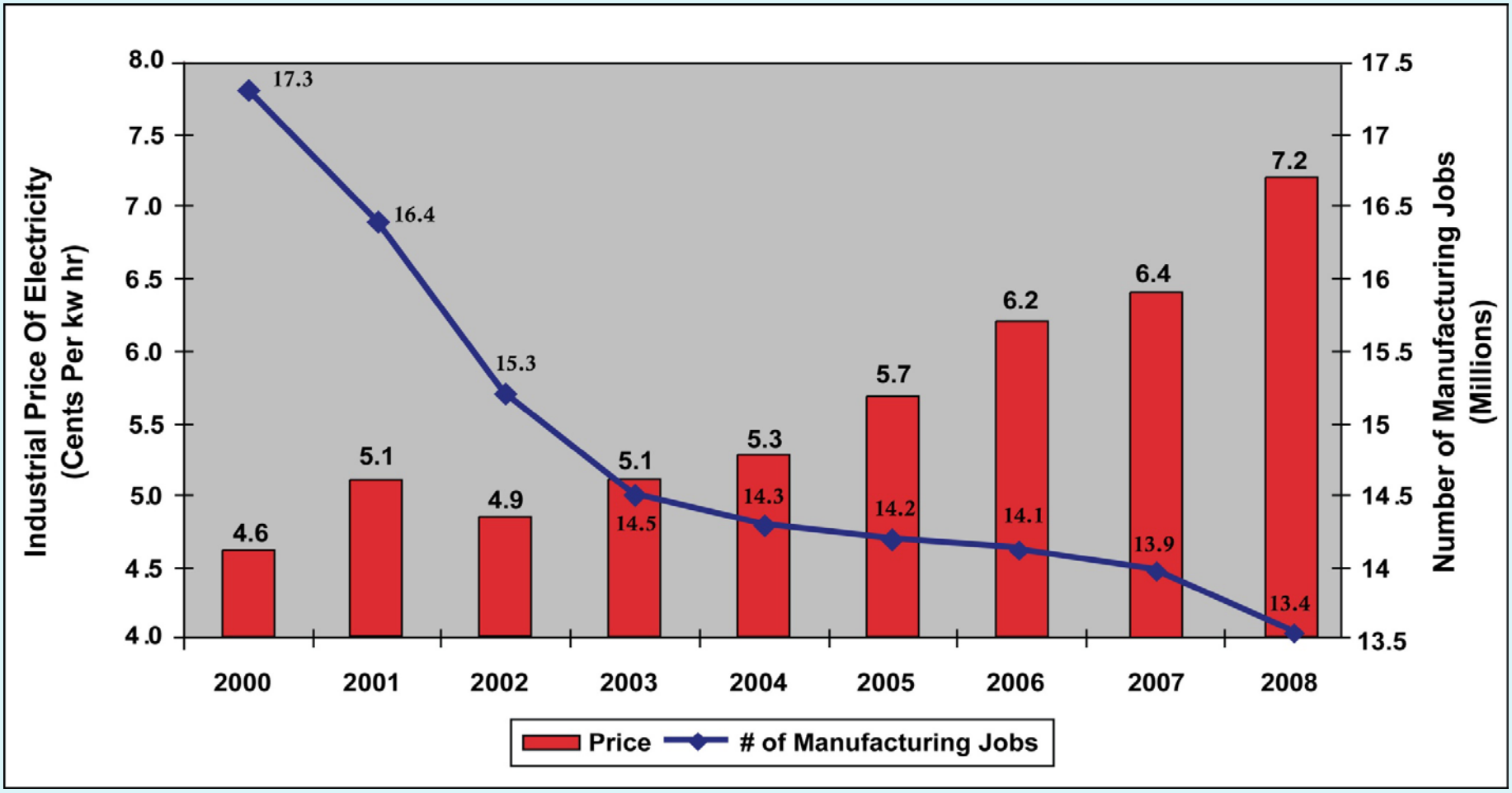
U.S. Average – 9.9¢/kWh 46% of generation

CT	18.2¢	8%
MA	15.5¢	25%
RI	14.2¢	0%
NJ	14.8¢	9%
NH	15.2¢	15%
MD	13.1¢	55%
DC	13.8¢	0%
VT	12.8¢	0%
DE	12.2¢	64%

Source of Data: Energy Information Administration, Electric Power Monthly, March 2010

Price Matters

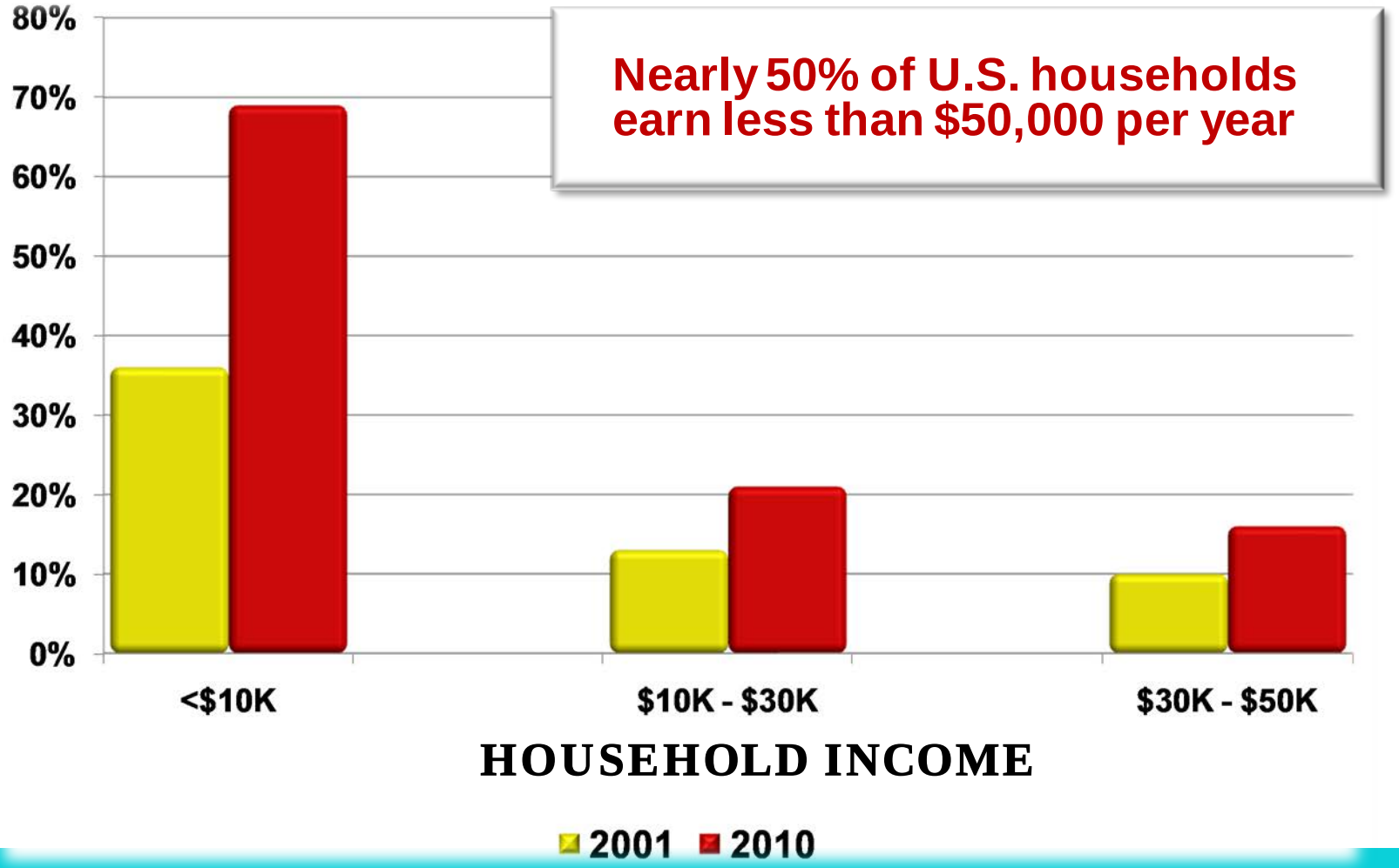
"Industrial customers are more likely to be price responsive than any other customer group"*



* Shively and Ferrare, 2008

Energy Costs Disproportionately Hurt Low Income Americans

Rising Energy Costs as Percent of After-Tax Income*



Nearly 50% of U.S. households earn less than $50,000 per year

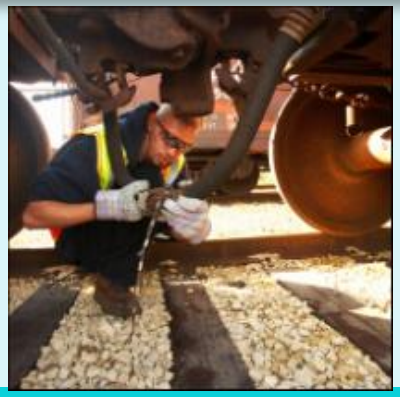
* Households with incomes under $50,000

Coal Mining & Transportation Employment

	Mine workers	*Support Activities*	*Transportation*	*Indirect and Induced*	*Total Jobs*
Total Operations	93,000	64,000	61,000	372,000	590,000

Mine Workers are in 28 states
Coal-based generation in 47 states
Transportation is in 49 states






Coal & Nuclear Create 5-10x More Direct Jobs than Wind or Natural Gas

Man-years per 1 Gigawatt of New Capacity

Development plus Construction Phases

Technology	*Salaried Workforce*	*Hourly Workforce*	*Total Man-Years*
Nuclear	4,785	9,575	14,360
Coal with CCS	2,140	8,435	10,575
Natural gas combined cycle	495	1,270	1,765
Onshore wind	305	1,180	1,485

Source: NCEP, Task Force Report on America's Future Energy Jobs (2009).

Coal & Environmental Objectives

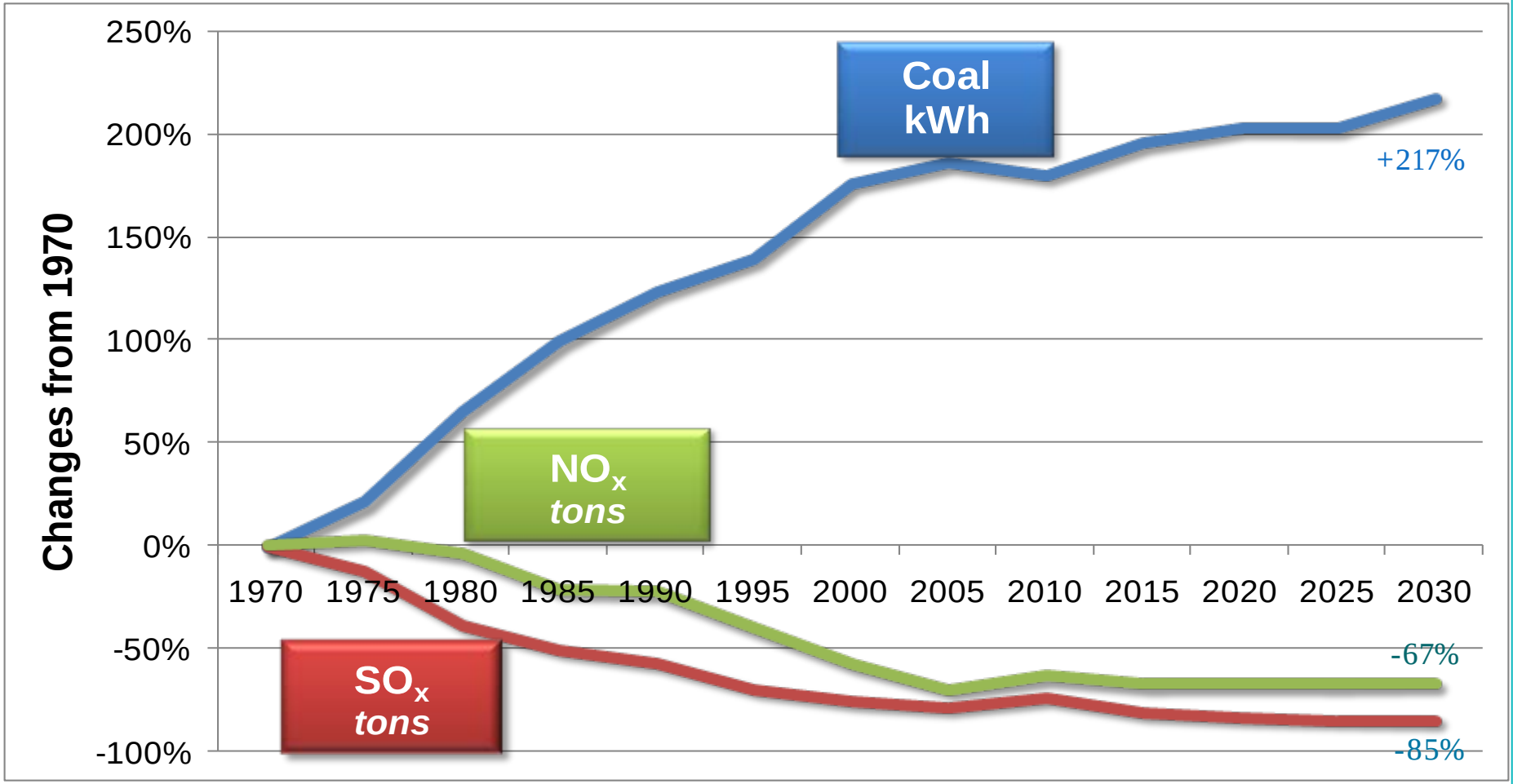
"COAL IS AN ABUNDANT RESOURCE IN THE WORLD. IT IS IMPERATIVE THAT WE FIGURE OUT A WAY TO USE COAL AS CLEANLY AS POSSIBLE."

DR. STEVEN CHU, SECRETARY OF ENERGY, SENATE CONFIRMATION HEARING

JANUARY 13, 2009

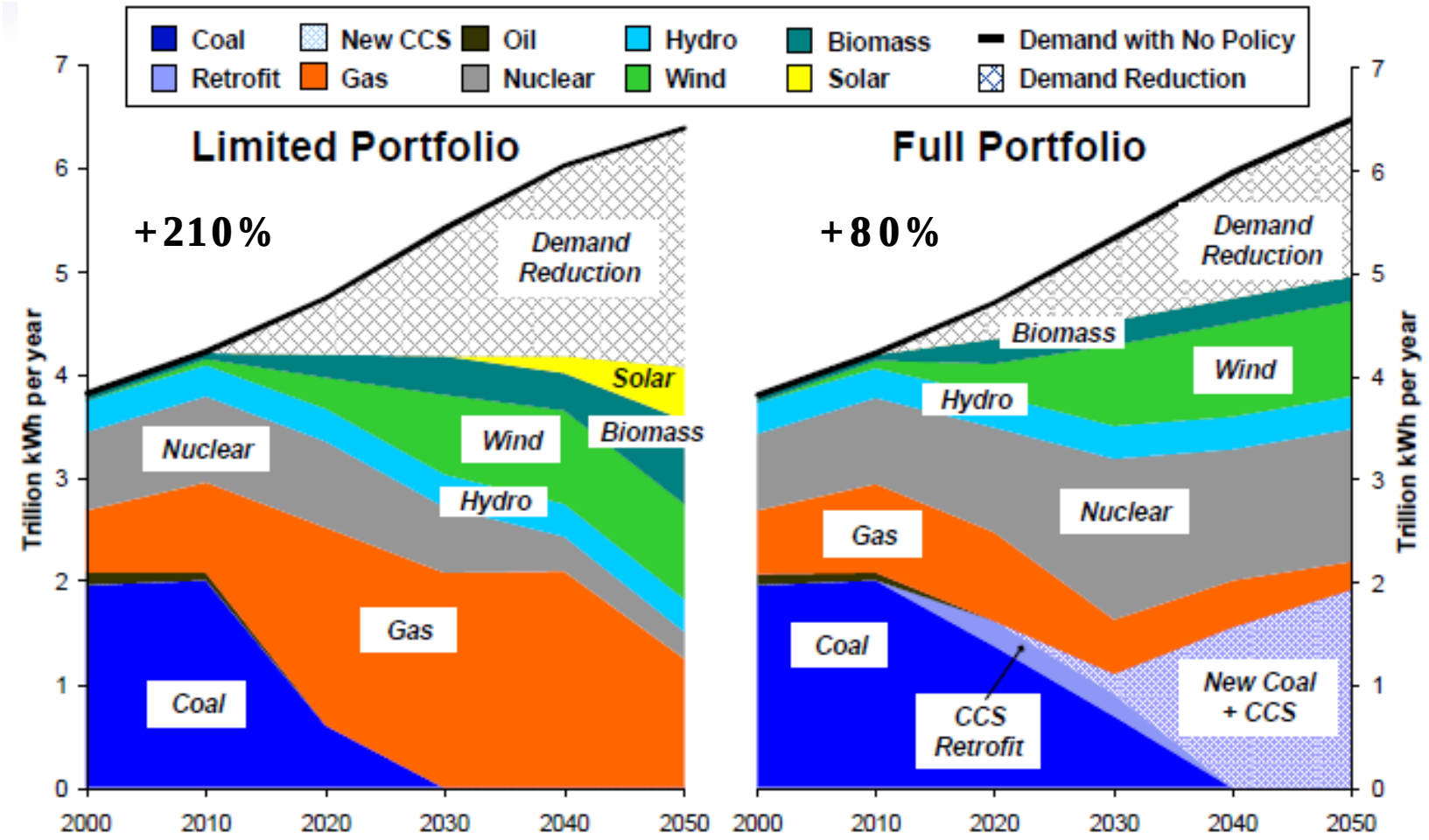
Technology is the Key to Clean Coal

Emissions Continue to Decline
While Coal-Fueled Generation Increases Through 2030



Sources: EPA National Air Pollutant Emission Trends; EIA Annual Energy Review and EIA AEO '09 AARA

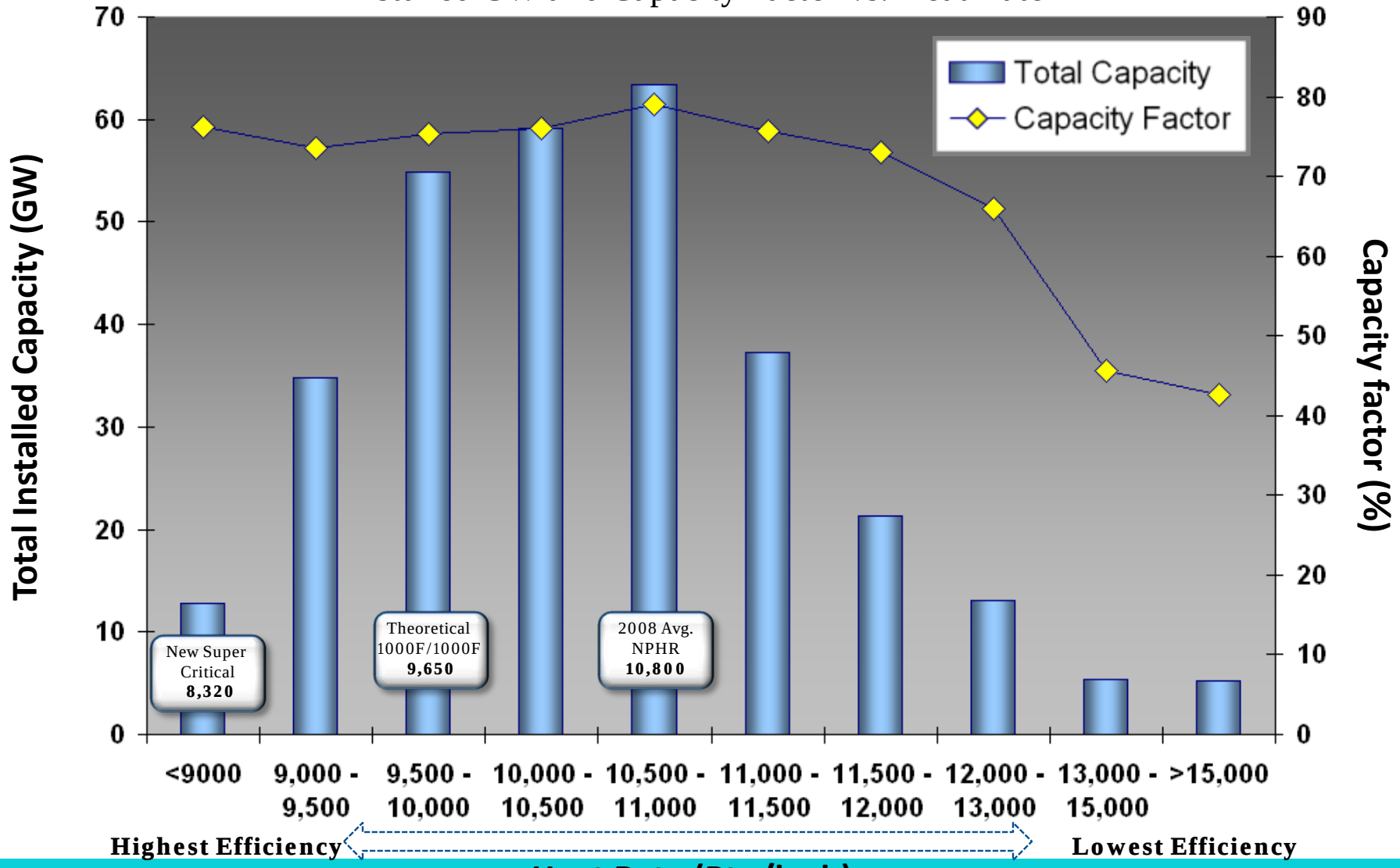
EPRI Merge Analysis



EPRI ELECTRIC POWER RESEARCH INSTITUTE

Most Efficient Coal Plants Operate at Highest Capacity Factors

Installed GW and Capacity Factor vs. Heat Rate



Fluidized Bed Combustion (FBC)

- 170 units deployed in the U.S.
- 400 units worldwide
- Highly commercialized
- More the $6 billion in U.S. sales
- Nearly $3 billion in overseas sales
- Inherently low NOx emitting technology
- Economic & environmental benefit of $2 billion through 2020

In the early 1990s, *POWER* magazine called the development of fluidized bed coal combustors "the commercial success story of the last decade in the power generation business." The success, perhaps the most significant advance in coal-fired boiler technology in a half century, was achieved largely through the technology program of the U.S. DOE's Office of Fossil Energy .

U.S. DEPARTMENT OF ENERGY

"With continuing advances in boiler size, efficiency, and reliability, CFBC boiler technology has become a viable and mature alternative to PC boiler technology ... CFBC plants have demonstrated high availability, heat rates comparable to PC boilers with FGD, 91-95% in-situ SO2 capture, lower NOx emissions, fuel flexibility, and the ability to burn high ash and slagging/fouling fuels that would be problematic in a PC boiler." EPRI 2011 Technical Report

EPRI | ELECTRIC POWER RESEARCH INSTITUTE

“Today U.S. coal generation produces more than $1 trillion in GDP, generates more than $360 billion in household income and supports nearly 7 million jobs … coal creates a tremendous strategic advantage and that’s why America must use every ton.”

Dr. Frank Clemente, Penn State University

Coal

JANET GELLICI

ACC CHIEF EXECUTIVE OFFICER

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