

Coal Industry Update ~ Markets & Public Policy

Society for Mining, Metallurgy &
Exploration (SME-DC Section)
September 8, 2009 ~ Washington,
DC

ACC
American
Coal Council

ACC Objectives

Business-to-Business

Support the business, marketing and management capabilities of American coal suppliers, coal consumers, coal transporters, coal traders and coal support service companies.

Advocacy

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

Liaison

Support the activities and objectives of associations involved in advancing coal industry interests

ACC Membership

The ACC represents the collective interests of 160 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



Energy Challenges

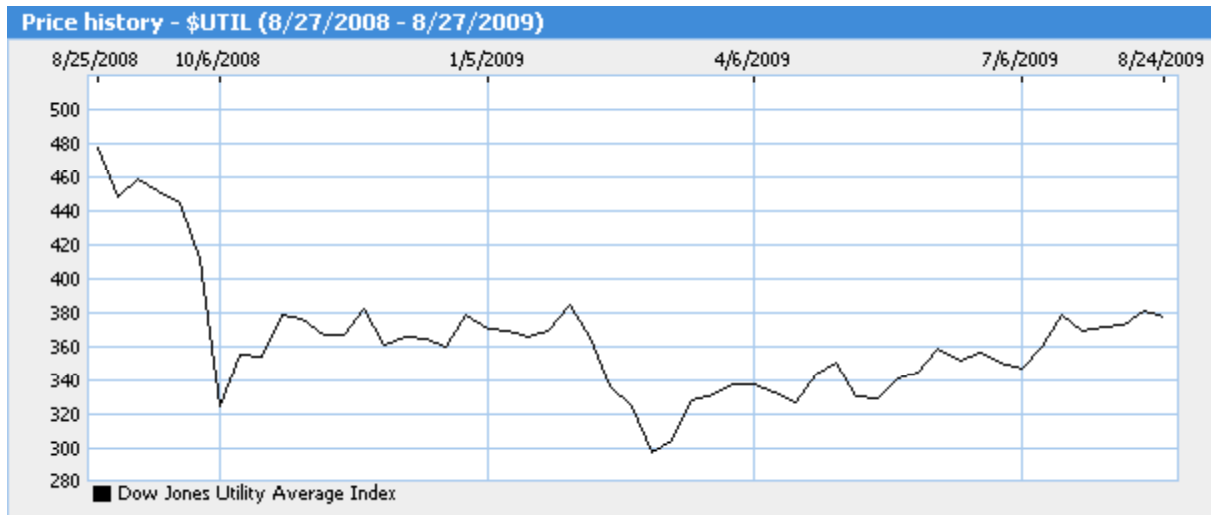
- Economic Downturn
- Global Energy Demand
- Security of Supply ~ Fuel Risk
- Energy & Environmental Policy ~ Regulatory Risk
- Data ~ Information Risk
- Technology & Infrastructure
- Education

Economic Downturn

Dow ~ US Markets ~ August 27, 2009



Dow ~ Utility Markets ~ August 24, 2009

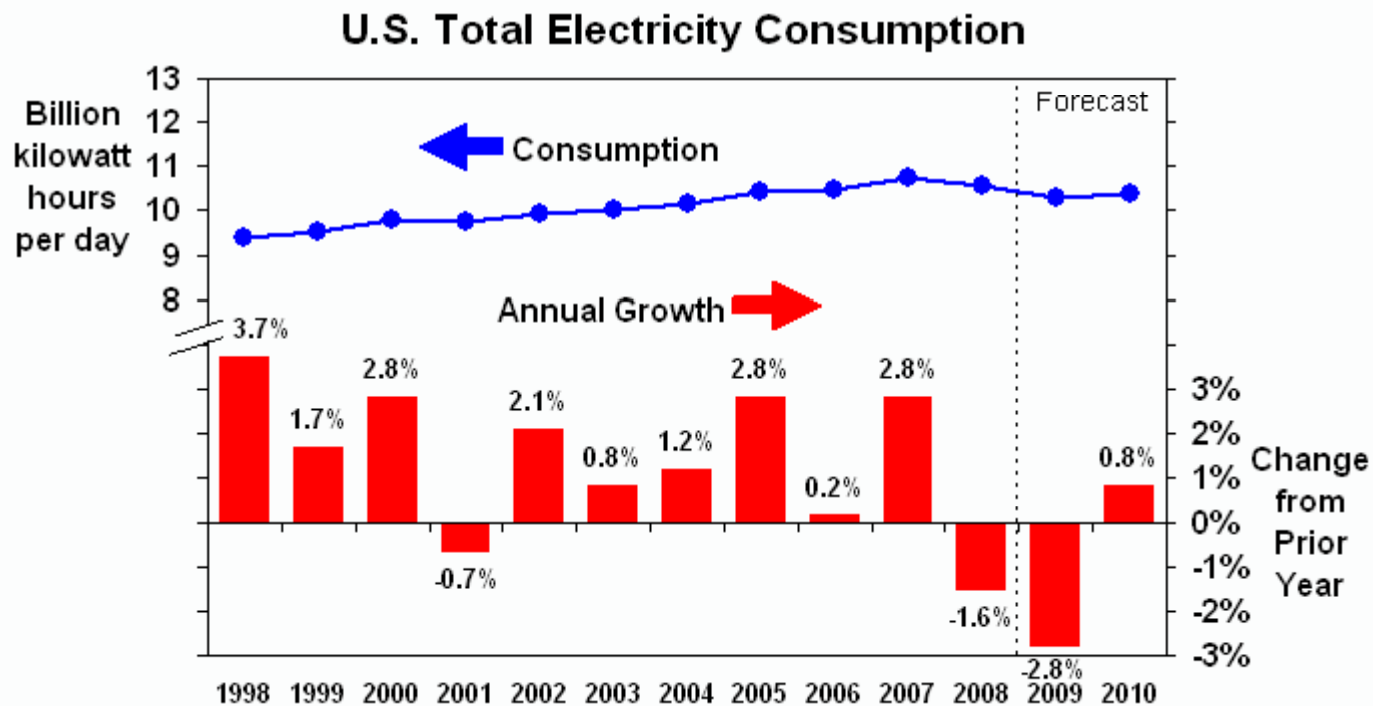


Utility Sector
-18.49%
8/27/08-8/27/09

Environmental Economics



Decline in Electricity Consumption



Short-Term Energy Outlook, August 2009



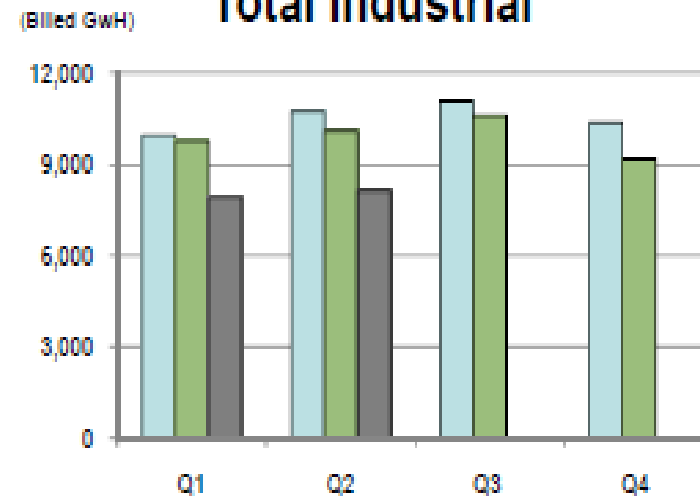
Decline in Industrial Demand

INDUSTRIAL VOLUME TRENDS (1Q07 – 2Q09)

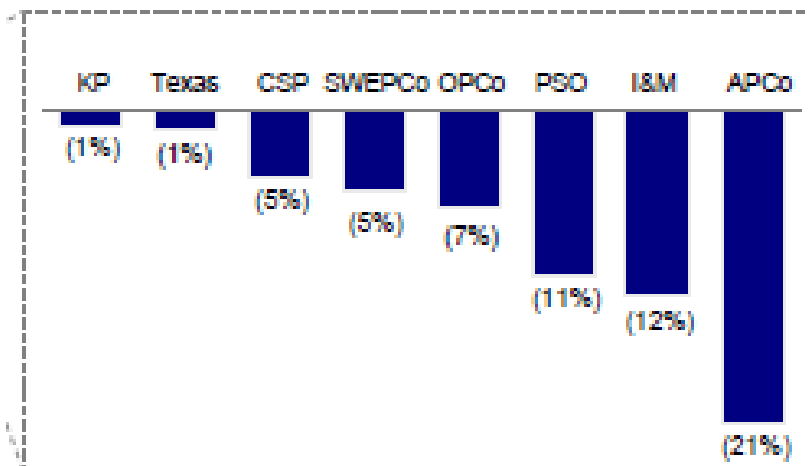


2007 2008 2009

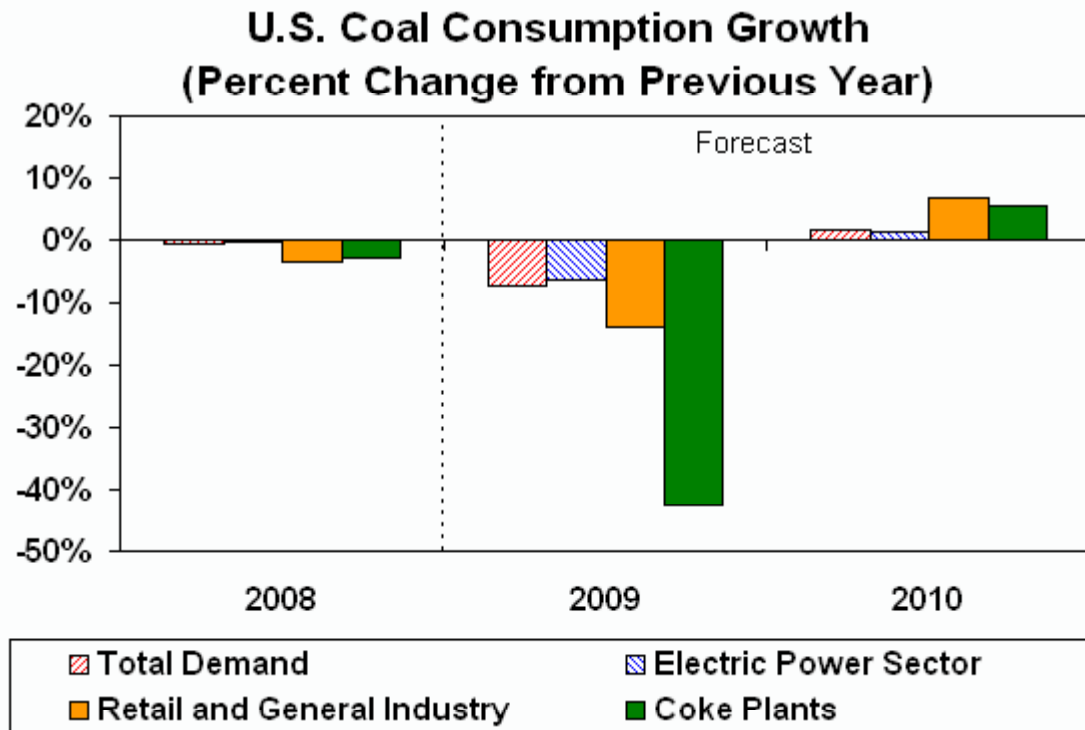
Total Industrial



Forecast Drop in 2009 Industrial Sales



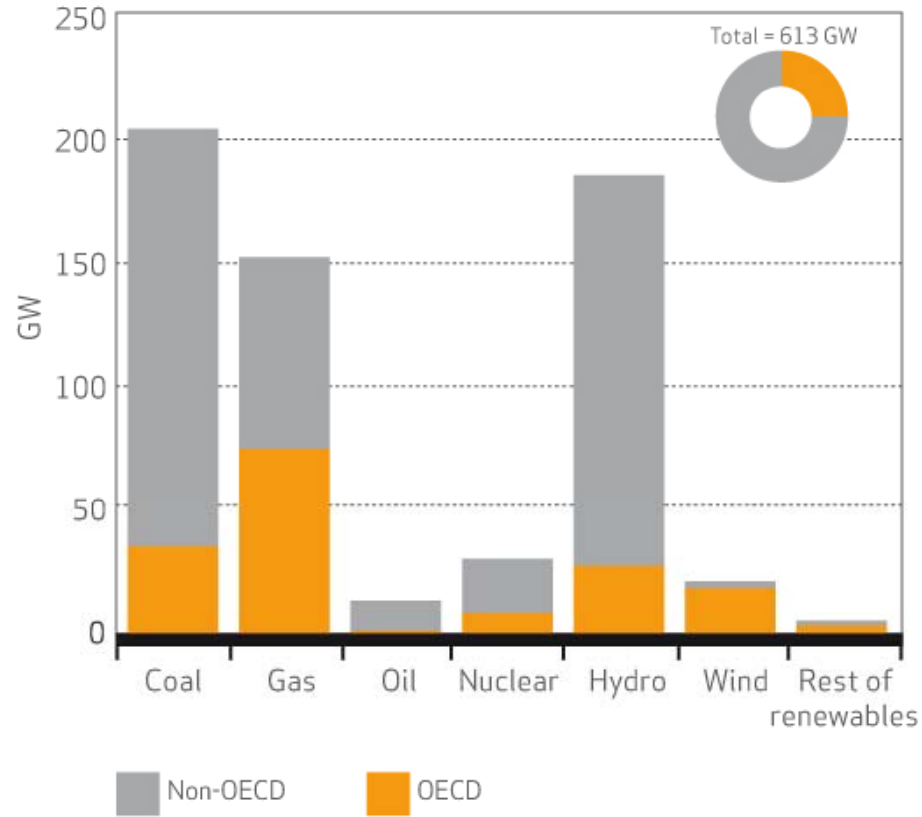
Decline in Coal Consumption



Short-Term Energy Outlook, August 2009



Global Energy Demand



Source: IEA "World Energy Outlook" (2008)

Power Generation Capacity Under Construction Worldwide



Emerging Economies Still Emerging

- China's economy will expand faster than previously forecast this year and next as the government's 4 trillion-yuan (\$586 billion) stimulus package spurs domestic demand and boosts investment.
- The world's third-largest economy will expand 8.3 percent in 2009, from an earlier estimate of 6 percent.
- China's fiscal stimulus has already driven investment back to pre-crisis levels and lending surged more than six times in March.
- Growth will quicken to 10.9 percent next year, compared with a previous prediction for a 9 percent expansion, they said.

Goldman Sachs ~ April 22, 2009 (Bloomberg)

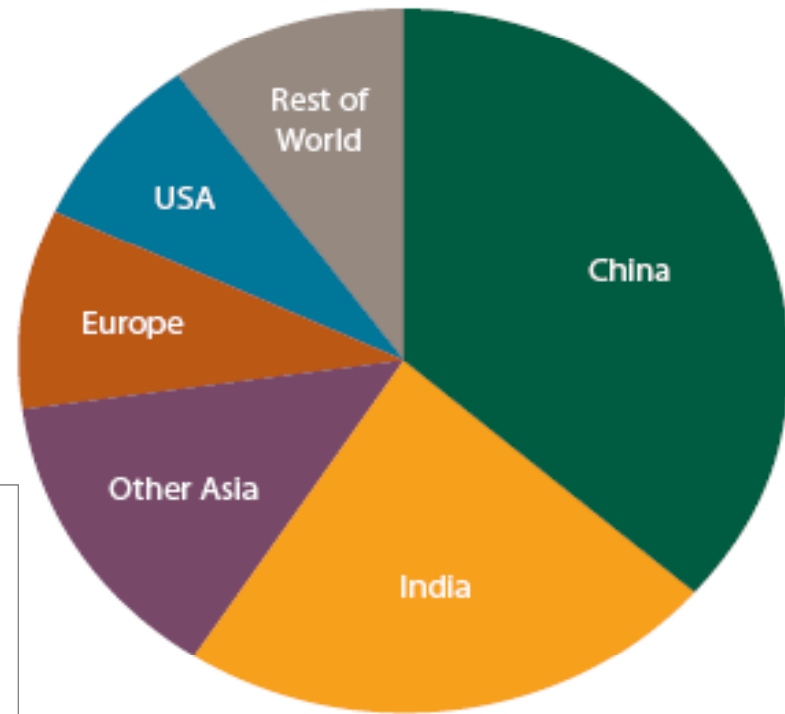
Emerging Economies Still Emerging

- While most of the world grapples with a crippling financial crisis and a recession, optimism reigns in much of India as its economy continues to grow.
- “India is not as vulnerable” as other countries, said Rajeev Malik, head of Indian and Southeast Asian economics at Macquarie Capital.
- India reported that its economy grew 5.3 percent in the quarter ended in December when compared with the previous year. While that was down from the 7.6 percent growth in the earlier quarter, it was in sharp contrast to the retrenchment in other countries.

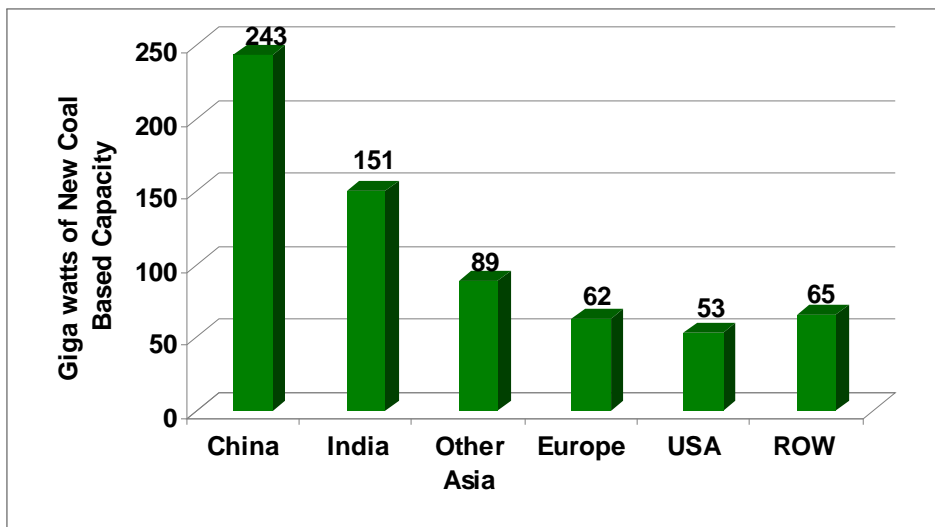
New York Times ~ March 1, 2009

Global Coal Build

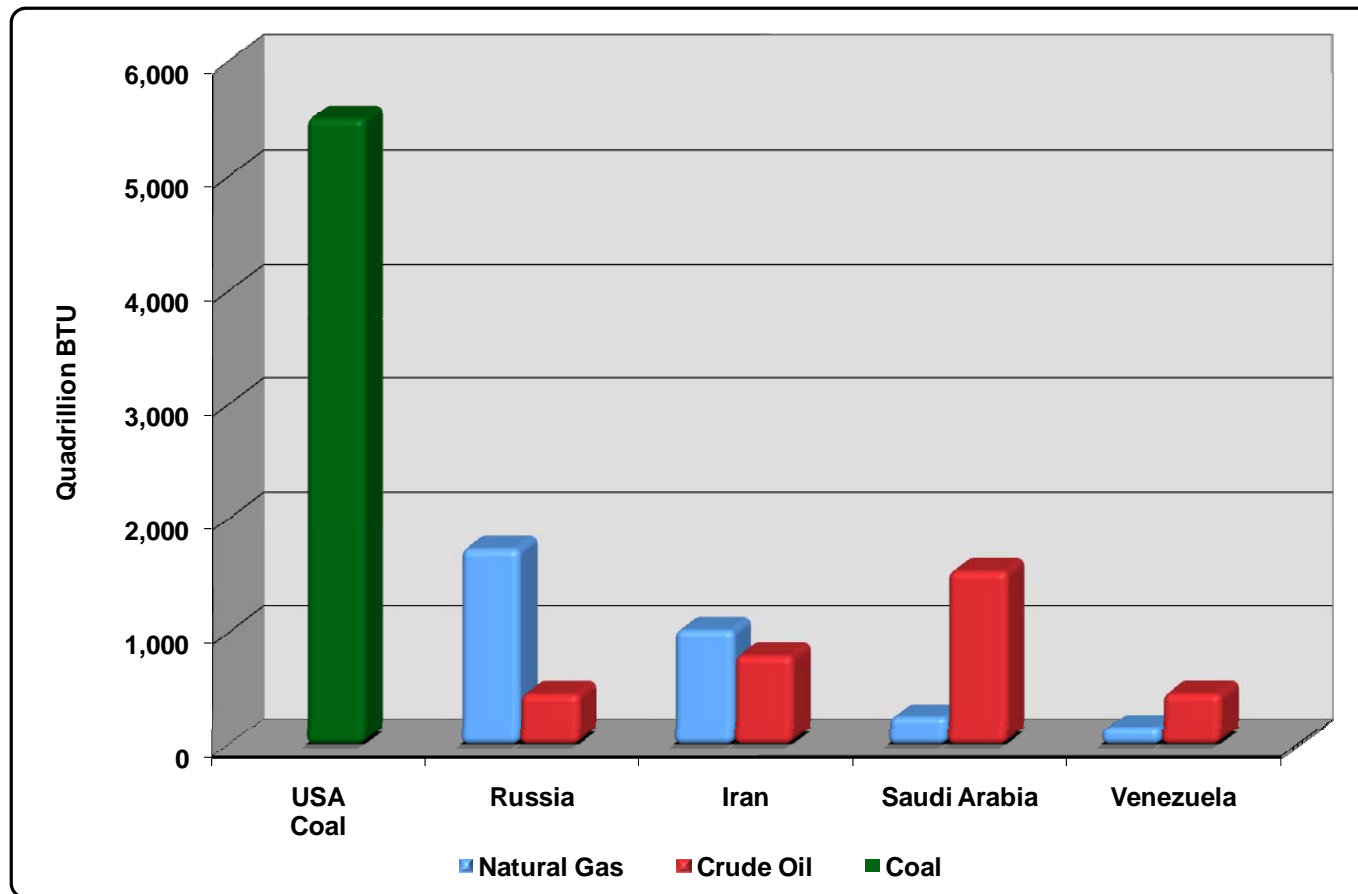
660+ Gigawatts of New Coal-Based Generation Planned or Under Construction



Source: Platts, 2008



Security of Supply ~ Fuel Risk



Source: EIA, 2008

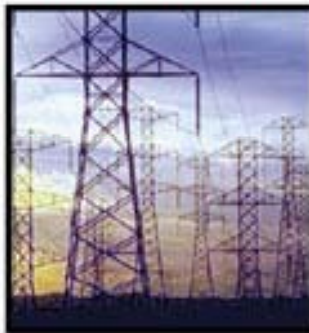
US Coal Trumps Saudi Oil

200 Billion Tons
of Coal

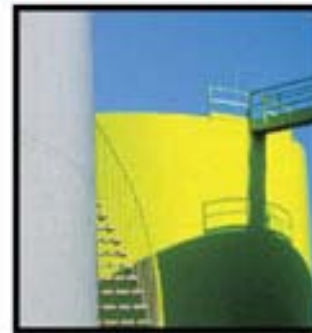


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*100 Years of
Electricity to the
Entire Nation*



*Trillion Barrels of
Oil Using Coal-To-
Liquid Technology*



*2,000 Trillion Cubic
Feet of Substitute
Natural Gas*



If Power Plants Were Draft Animals



Workhorse
Coal- 49%



Mule
Natural Gas- 21%



Sled Dog
Hydro- 6%



Burro
Nuclear—19%

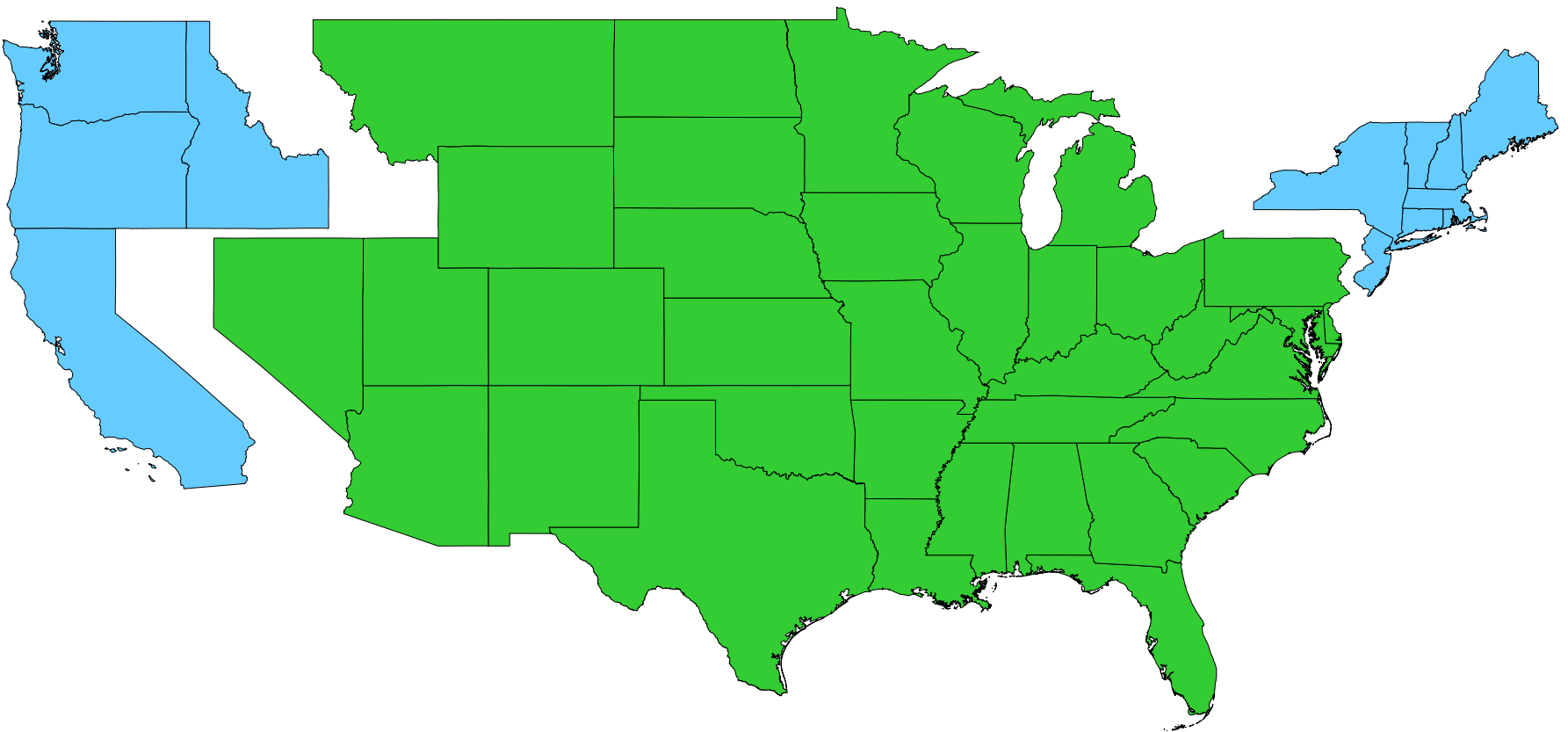


Carrier Pigeon
Wind- 1%

Scale sets the context.

U.S. Coal Generation

36 States Obtain at Least 30% of Electricity from Coal



Source: Penn State University

Alternative Fuels

The Scale Needed to Replace Coal in the U.S.

- **NUCLEAR: 250 more reactors**
- **NATURAL GAS: 17 more Trillion Cubic Feet**
- **HYDRO: 500 facilities size of Hoover Dam.**

The reality of physics is that electricity cannot be stored in large quantities – an inevitable constraint on solar and wind generation.

Energy & Environmental Policy

Legislative & Regulatory Initiatives Currently Underway

- ~ GHG Legislation & EPA Endangerment Finding
- ~ SO₂, NO_x, Hg ~ CAIR/CAMR
- ~ Mountaintop Mining
- ~ Ash Management/Disposal
- ~ Roadless Rule
- ~ NSR
- ~ CWA
- ~ RES/RPS
- ~ MINER Act
- ~ CCS
- ~ CO₂ Registry



ACES Implications & Concerns

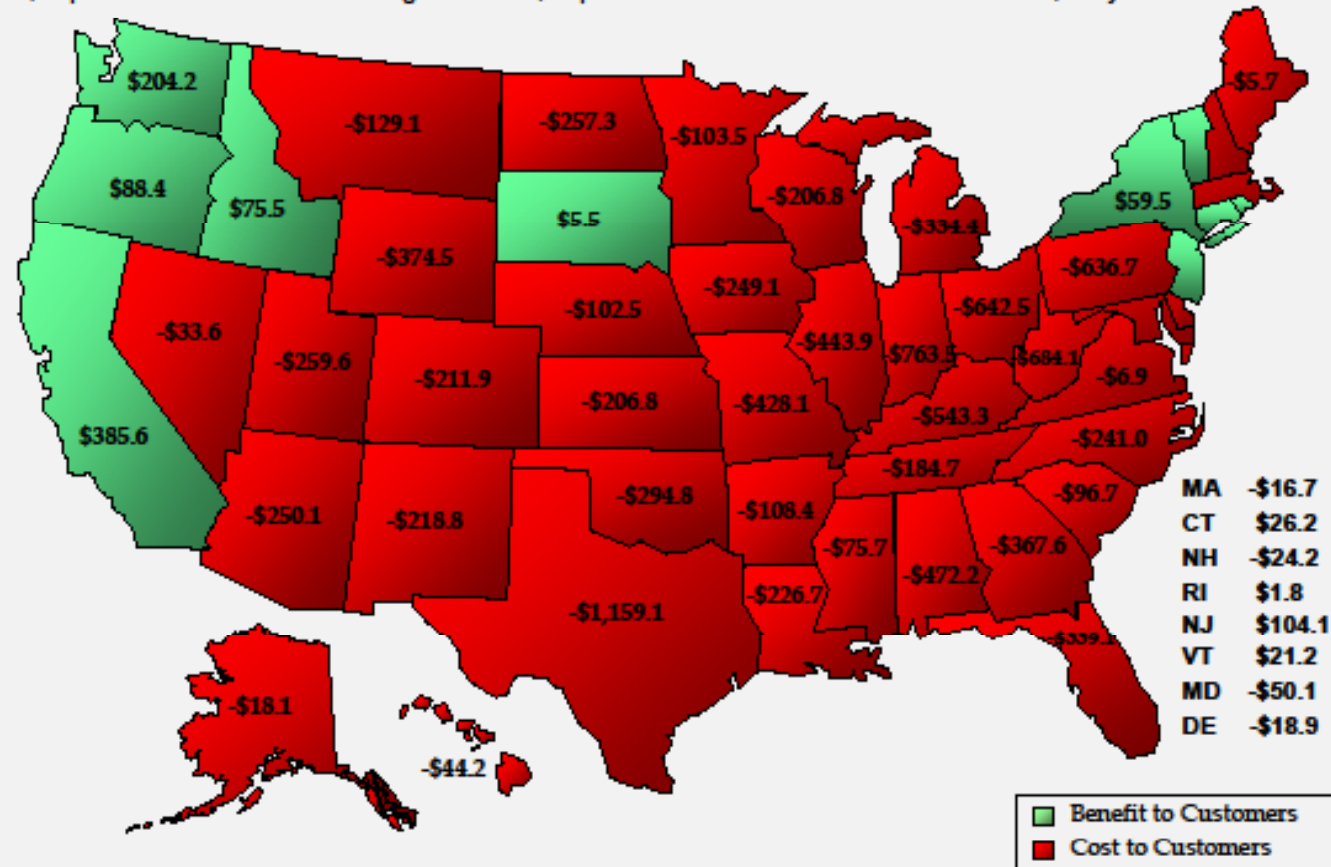
- What's Not Included
 - Safety Valve
 - Legal & Regulatory Framework
- Allowances
- Performance Standards
- Targets & Timelines
- Offsets
- Federal vis-à-vis State
- Global Competitiveness
- Costs



Most States Lose Under H.R. 2454

Consumers in red colored states will pay more for electricity to make up for the shortfall in allowances (dollars in millions).

Based on the allowance allocation formula in H.R. 2454 for electricity consumers, the red states will not have enough allowances to cover their emissions from electricity generation. The shortfall in allowances to the red states will lead to higher electricity costs for consumers, the total of which will roughly correlate with the dollar losses noted on the map. For example, Texas electricity consumers will see electricity costs go up by roughly \$1 billion. To make up the shortfall, red states will have to seek high-cost, non-CO2 emitting electricity sources, reduce electricity production and consumption, or purchase allowances from the green states, or purchase domestic and international offsets, likely a combination of the three.



Based on Energy Information Administration (EIA) and Congressional Budget Office (CBO) data. Dollars in millions. Approximate cost to customers in 2012 (at CBO estimate of \$15/ton).

Data ~ Information Risk

“I have become increasingly concerned that EPA itself has paid too little attention to the science of global warming. EPA and others have tended to accept the findings reached by outside groups ... as being correct without a careful and critical examination.” That examination shows that “available observable data ... invalidate the hypothesis” that humans cause serious global warming.”

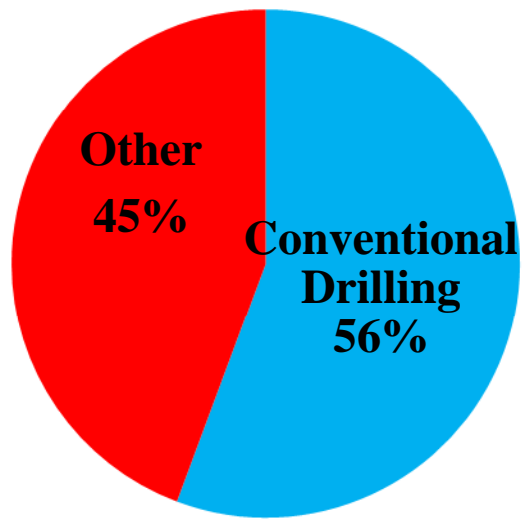
~ Dr. Alan Carlin, EPA

National Center for Environmental Economics

THERE ARE NO NATURAL GAS EXPERTS

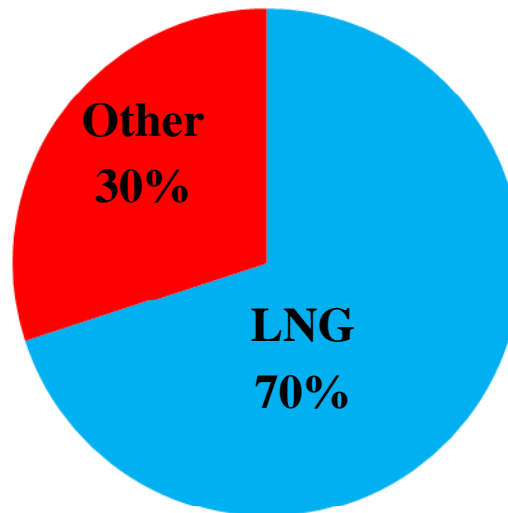
Bouncing Ball of EIA Forecasts of new NG in 2015

In 2001 it was
Conventional
Drilling



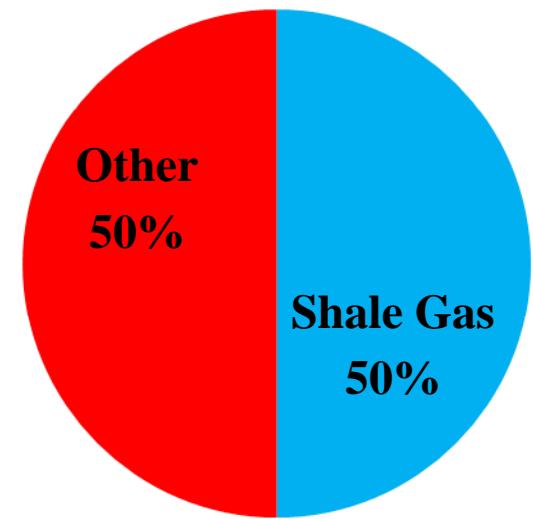
2001

In 2005 it was
Imported LNG



2005

In 2009 it is Shale
Gas

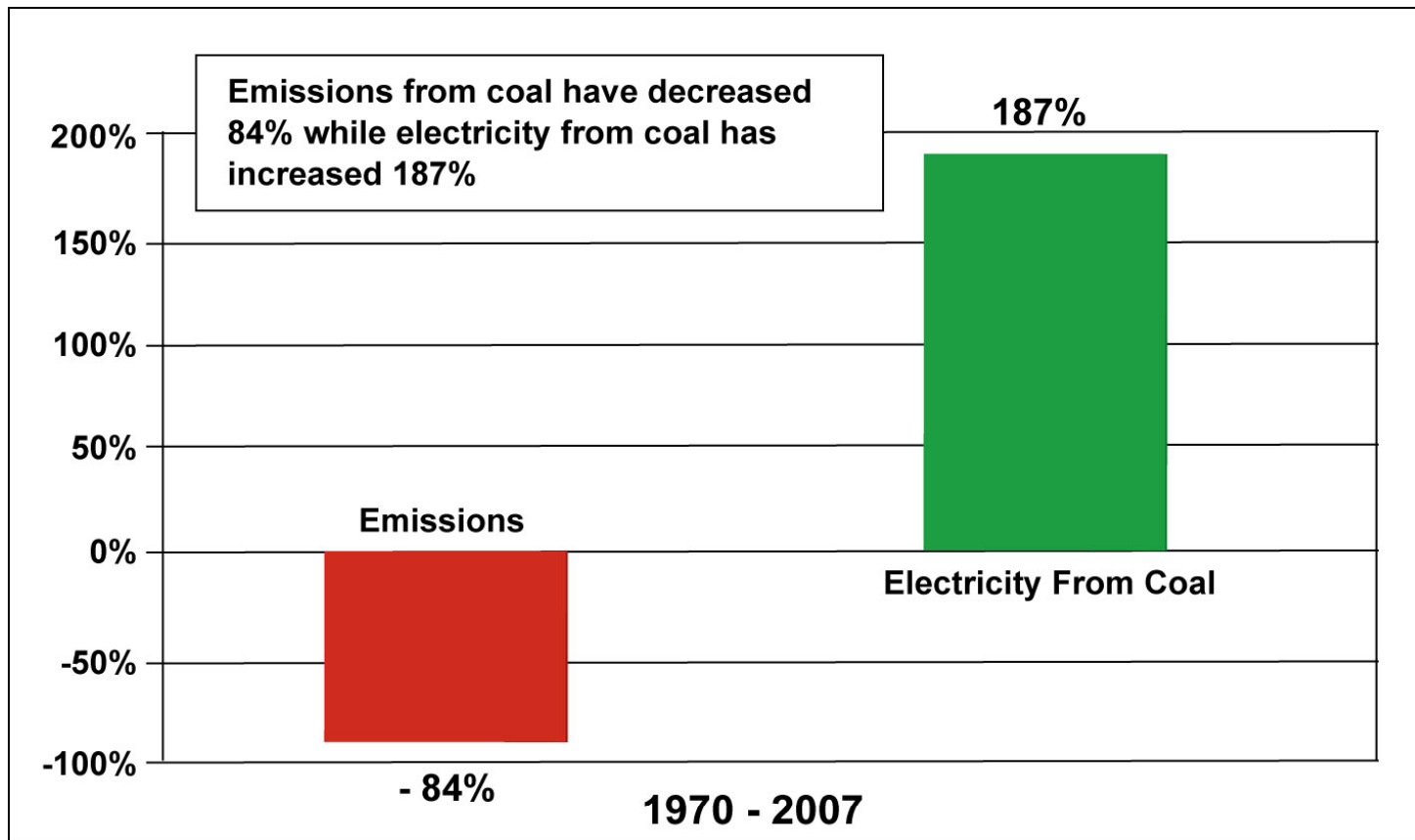


2009

EIA forecast of what the major source
of incremental NG will be by 2015

Technology & Infrastructure

The Dramatic Success of Clean Coal Technology



Clean Coal...Green Coal...

*Coal use triples as regulated emissions decline 80%+;
Green coal now provides a path to near-zero emissions.*



Why CCS?

- “CCS is the single most important new technology for CO2 savings.” IEA
- “CCS provides 1/5 of needed CO2 reductions in 2050.” IEA
- “Without CCS the cost of stabilisation rises by 70%.” IEA
- “CSS is the only low-carbon solution for gas/coal, cement and iron and steel sectors.” IEA
- “Coal with CCS is the low-cost, low-carbon solution, capable of powering a green economy at 15 to 50 percent less cost than wind, nuclear or natural gas with CCS.” CarnegieMellon



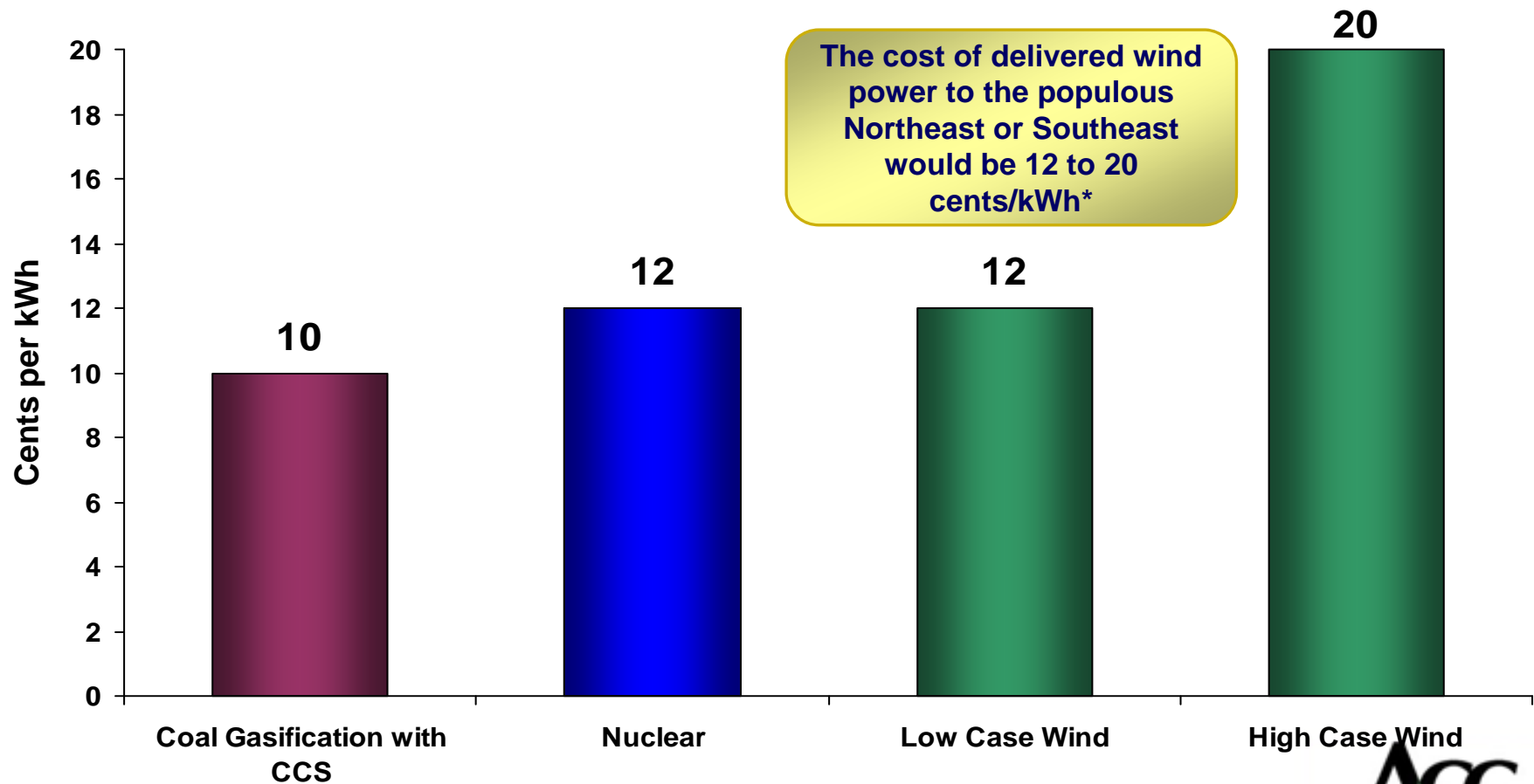
**International
Energy
Agency**

CarnegieMellon

ACC
**American
Coal Council**

Coal with CCS ~ The Low Cost, Low Carbon Option

Coal with CCS: 15% - 50% Less Expensive than Alternatives



* Apt. et al., "A National Renewable Portfolio Standard? Not Practical." Carnegie Mellon University, 2008.

Education

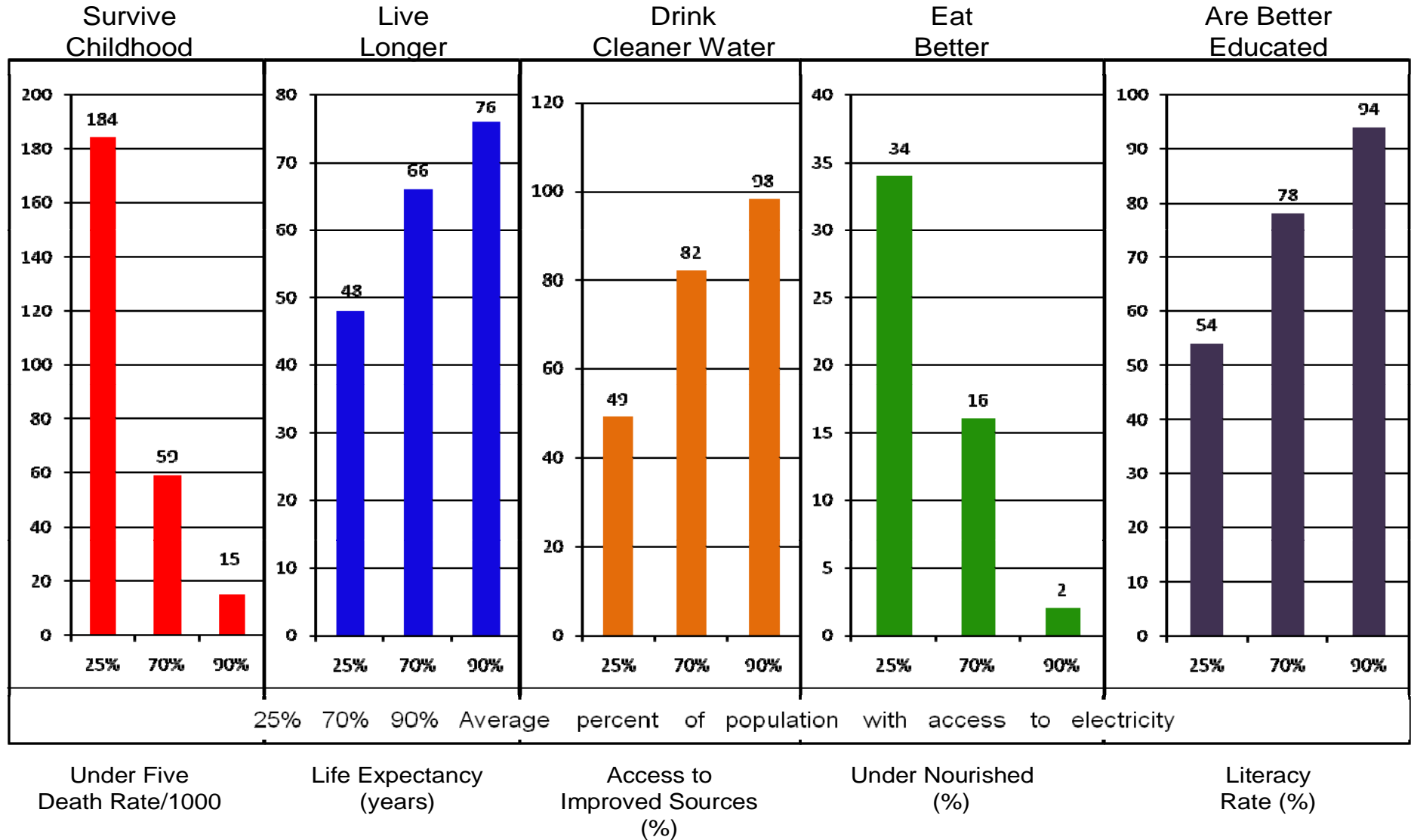
“The electric power industry has come to be defined by its discharge, rather than its product (electricity) and the benefits of electricity.”

**~ Jason Makansi
Pearl Street**

Energy is Good

Access to Electricity and the Quality of Life

People in Societies with Great Access to Electricity:





Electricity... LIFELOOD OF AMERICA



ELECTRICITY...
 as much for an economy
 ... as for an idea

One of a line of advertisements prepared by
 The Robert R. Wilson Company in doing the
 job when there's power in the picture.

Every minute of every minute every hour... around
 the clock... day in and day out... all America from
 north and south to the dynamic pulse of electric
 power. It is the lifeline that puts the colossal produc-
 tive strength into U.S. industry... that gives our nation
 the maximum living standards the world has ever
 known. For how? Indeed we the present day activities of
 factories, mines, farms, homes, and offices... of your very
 daily routine... that we are dependent on electric
 power... and on a far greater extent than is generally
 realized. For instance, in horsepower use in industry
 today gives each worker the equivalent of over 500
 horses. Add to the fact that most of today's most man-
 made tools are electric. High grade tools and machines
 in work shops, shops, chemical and mechanical plant
 are available only through the usage of electric
 power. And this... is a constant factor in the production of
 the freedom the give from household designers of to-
 day's days with her varied electrical services... merely
 by hitting a switch. The working man in factory now
 here, can or do it so generally taken for granted in the

great multiplier of productivity, the greatest work-
 ing and creative force in the world... **ELECTRICITY.**

Essential as it is to our national economic strength,
 security, and modern standard of living, electric power
 is still America's last big... open industry less than one
 per cent of total product value... the average family
 only a few cents a day... with both men using more
 of it than ever before.

To keep the great electrical base of America looking
 healthy, the nation's power companies have already
 planned far in advance to meet tomorrow's growing
 demands. Only a lack of necessary resources for con-
 struction and equipment will prevent their fulfillment.

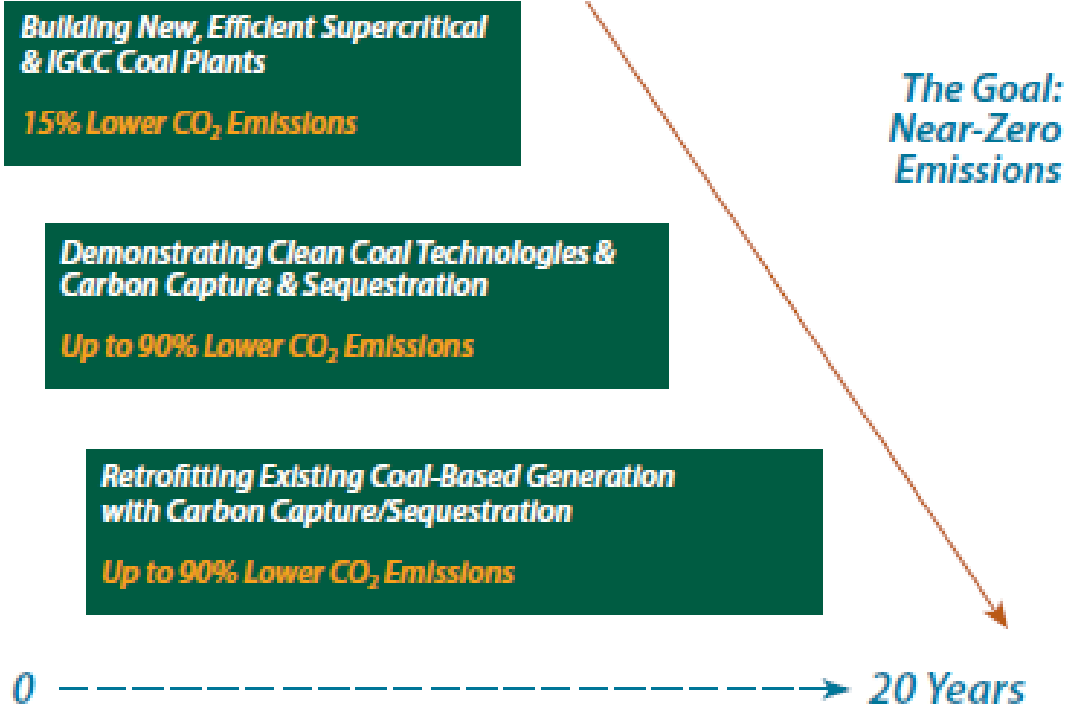


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Coal: America's Energy Future

A Multi-Step Process to Near-Zero Emissions



Source: National Coal Council, Urgency of Sustainable Coal, May 2008.

American Coal Council

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