



Peabody Essential

**U.S. Energy
Association
Technology and
Policy Forum**

**Peabody and
the Path to 21st
Century Coal**

January 14, 2010

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Senior Vice President
Government Relations
Peabody Energy***

Unlocking Coal's Power Around the World



Keys to Growth of Coal

- The Global Call for Green Coal
- Coal Wins at Copenhagen
- Coal: The Fuel of Social Progress
- Coal: The Low-Cost, Low-Carbon Solution
- Peabody Energy: Global Leader in Green Coal



Clean Coal... Green Coal...

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



Global Call to Action: Accelerate Development of Green Coal

Call for 10 Demonstration CCS Plants by 2016 in Letter to Science Leadership from Dr. Steven Chu



**U.S. Secretary of Energy
Dr. Steven Chu**

“We must make it our goal to advance carbon capture and storage technology to the point where widespread, affordable deployment can begin in 8 to 10 years.

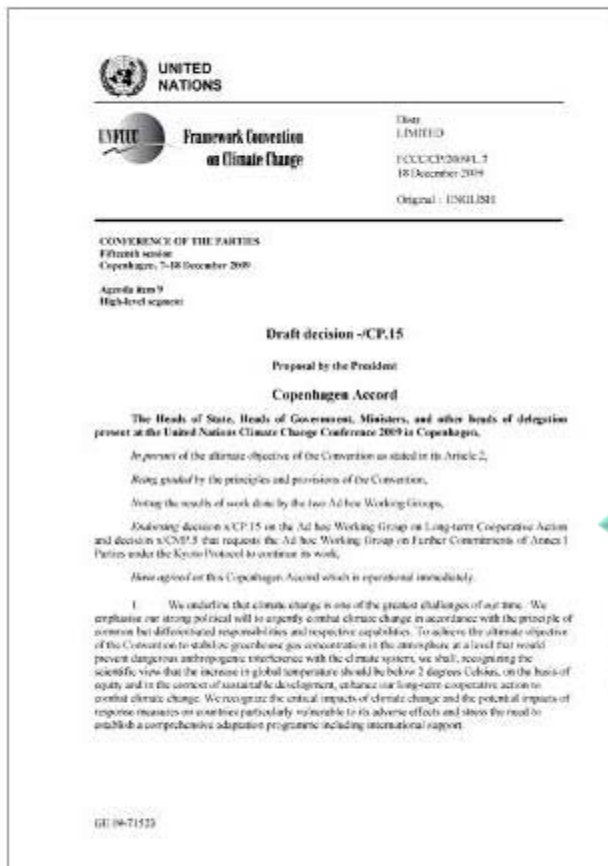
It will require an aggressive global effort, harnessing the scientific talent and resources of governments as well as industry. The U.S.’s commitment could bring up to 10 commercial demonstration projects on line by 2016.”

Coal is the Winner at Copenhagen



Nations Endorse *BTU* Path to Low-Carbon, High-Growth Economies

Paragraph II:
“We should cooperate in achieving the peaking of global and national emissions as soon as possible... bearing in mind that social and economic development and poverty eradication are the *first and overriding priorities* of developing countries and that a low-emission development strategy is indispensable to sustainable development.”



Nations Support Technology Before Caps at Climate Conference

Focus on Cold Hard Facts as Winter Arrives

- No Hard Caps for Carbon
- Rights of Development
- No Legally Binding Targets
- Global 2020 goal of 14% – 17% less CO₂, down from Waxman-Markey at 17%, Kerry-Boxer at 20%
- Positioned for Compromise



Why Coal? Because this is a Transmission Line for the World

3.6 Billion People Without Adequate Access to Electricity



“2.5 million women and children die prematurely from breathing fumes from biomass stoves.”

– World Health Organization, 2007

Access to Low-Cost Electricity Vital to Alleviate Energy Poverty

***Life Expectancy Increases 10 Years
for Every 10-Fold Increase in Electricity Use***



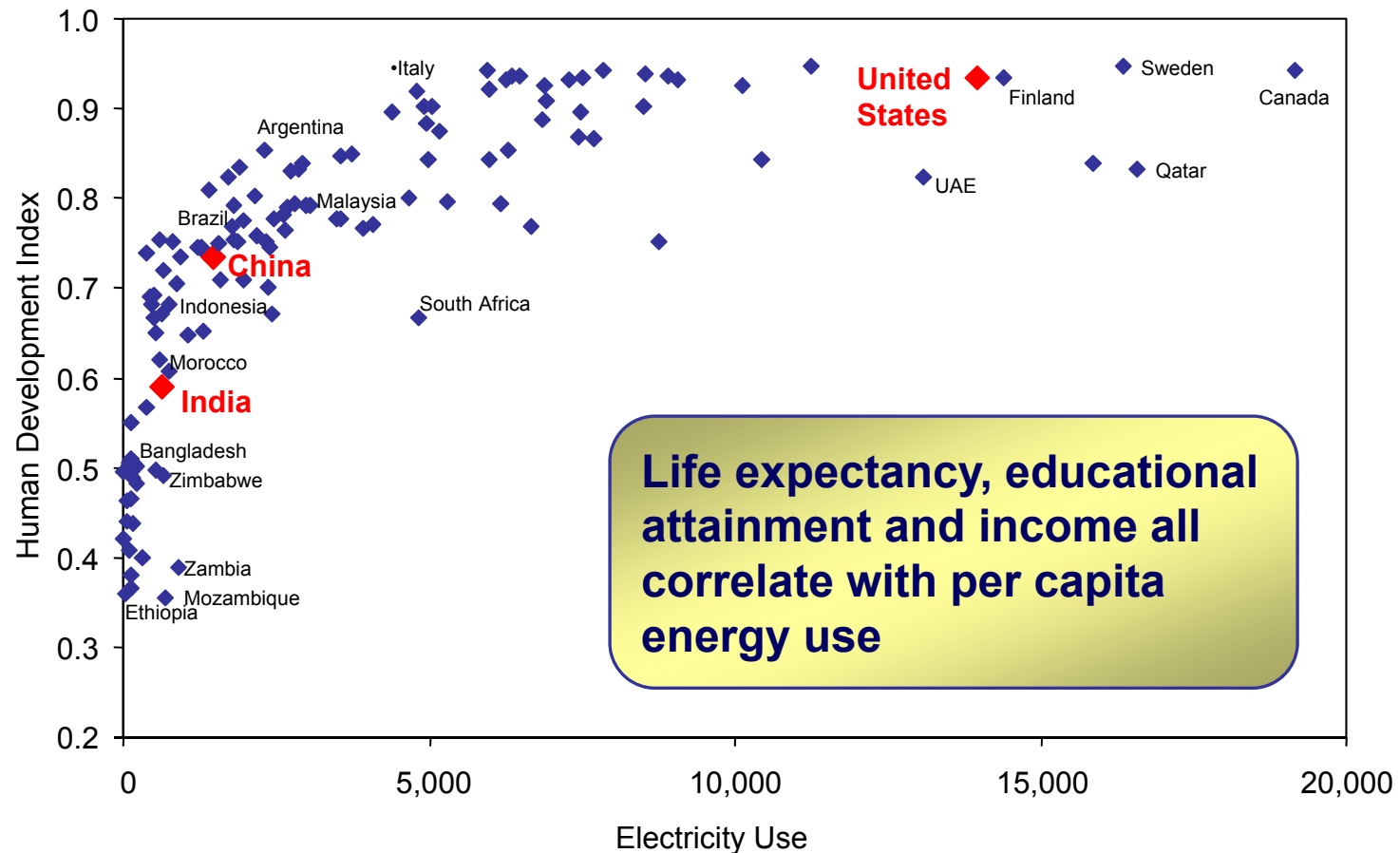
***Only 2.8 billion of the world's
population has adequate
access to electricity***

***3.6 billion people have
partial access or no
access to electricity***

United Nations Links Affordable Energy to Quality of Life



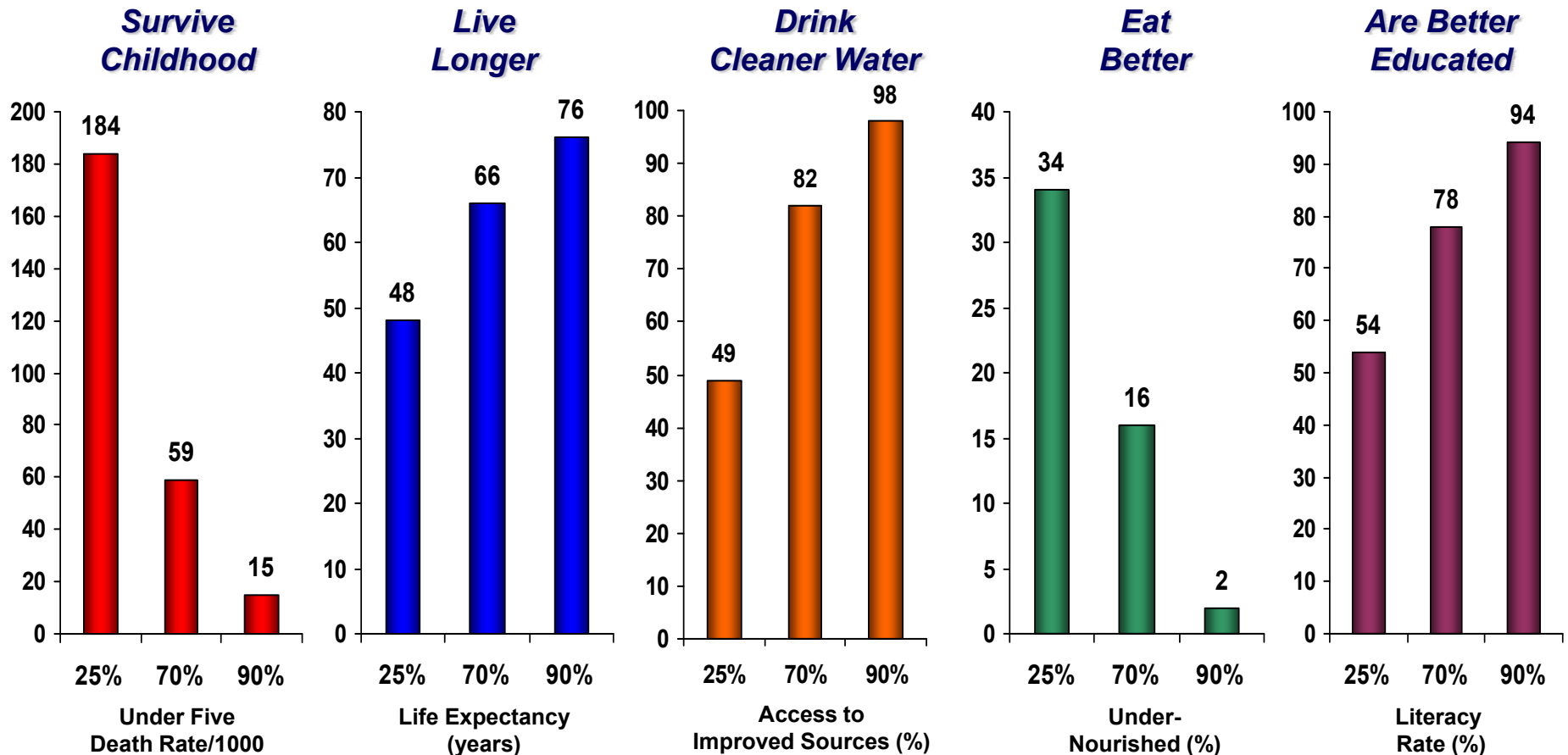
Energy Use Per Capita Improves Per Human Development Index



Societies With Greater Access to Electricity Live Longer and Better



Out of Poverty Study: Energy and Social Progress Closely Linked



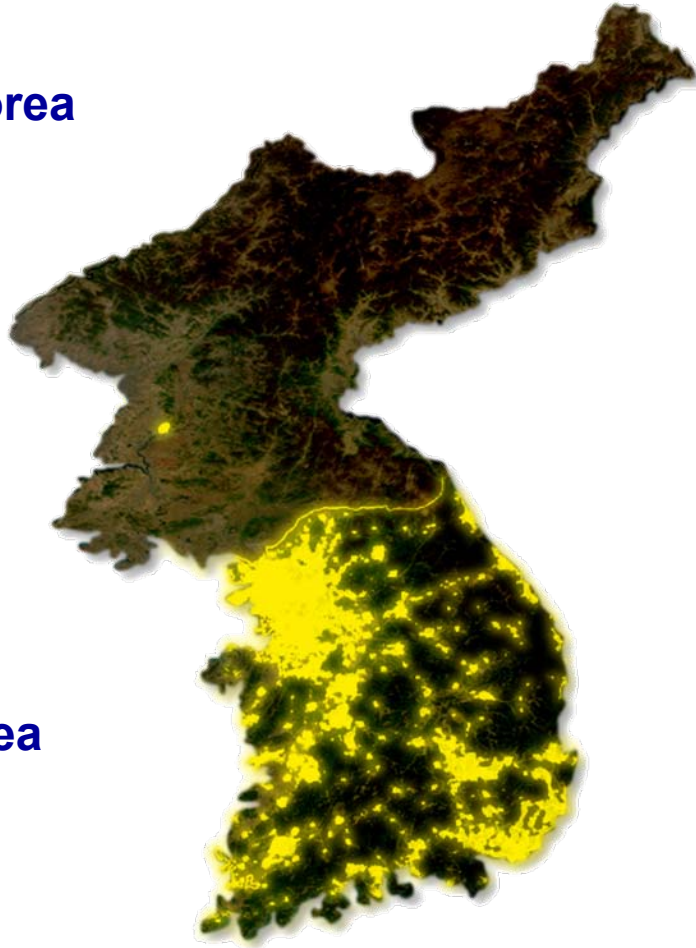
Source: Dr. Frank Clemente at Penn State University: 25%, 70% and 90% represent randomized samples of 25 countries in which 25% or less, 70% or 90% or more of the population has access to electricity.

Satisfying Basic Needs: Electricity Makes a Difference

***Only 20% of North Koreans Have Access to Electricity;
South Korean Access Approaches 100%***

North Korea

South Korea



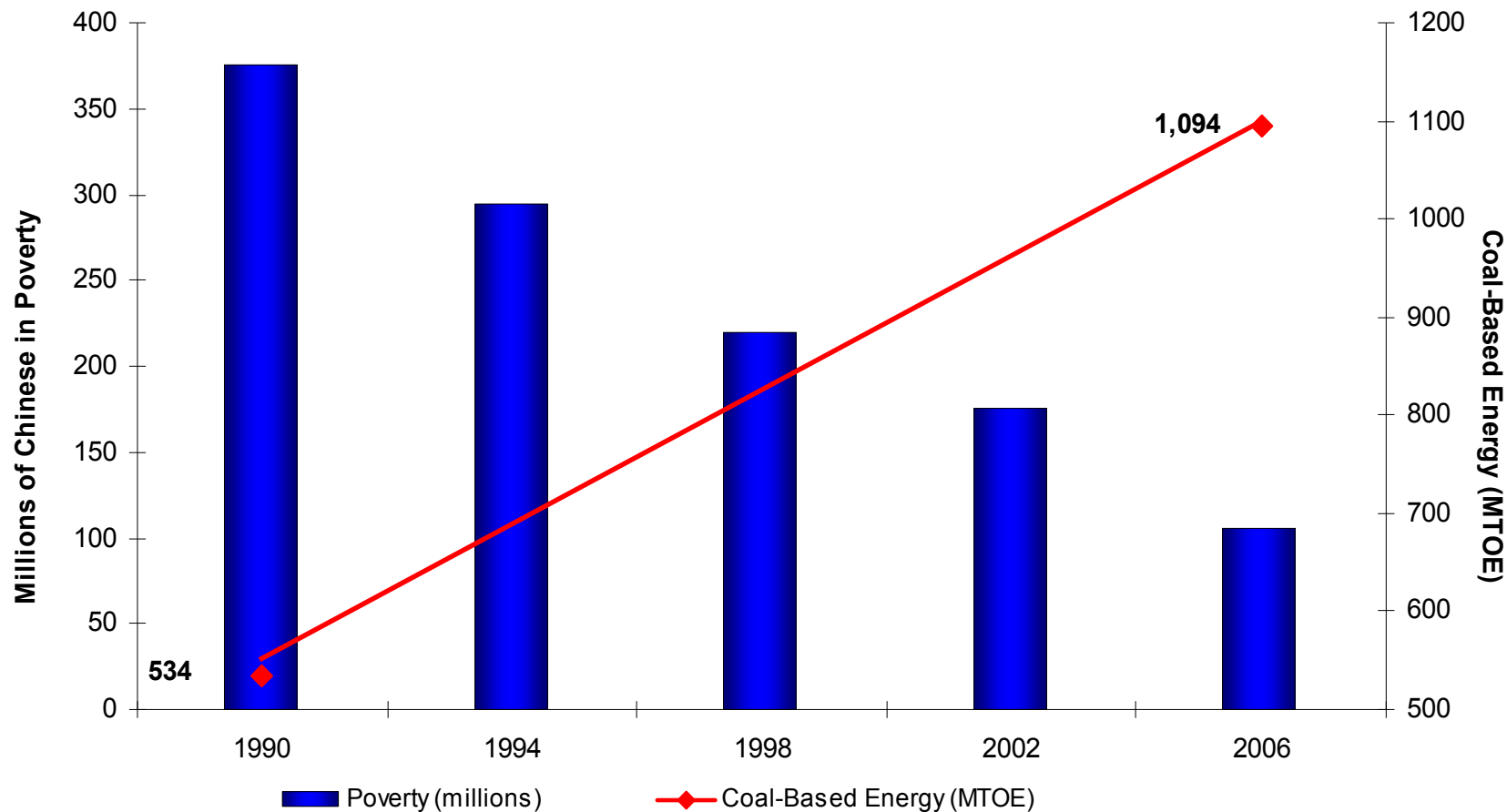
- South Korea ranks 32nd in GDP per capita; North Korea ranks 156th
- The Infant Mortality Rate in North Korea is 12 times higher than South Korea
- South Korean preschool children average 3 inches taller and 7 pounds heavier than North Korean children

Coal Propels China's Progress



“China is an example for the developing world”

-- IEA, 2007



Note: Poverty measure follows World Bank definition of \$1 per day income.

Source: International Energy Agency and World Coal Institute.

The World Takes Notice

***Norway and World Bank to Start Global Trust Fund
to Bring Green Coal Technology to Developing World***



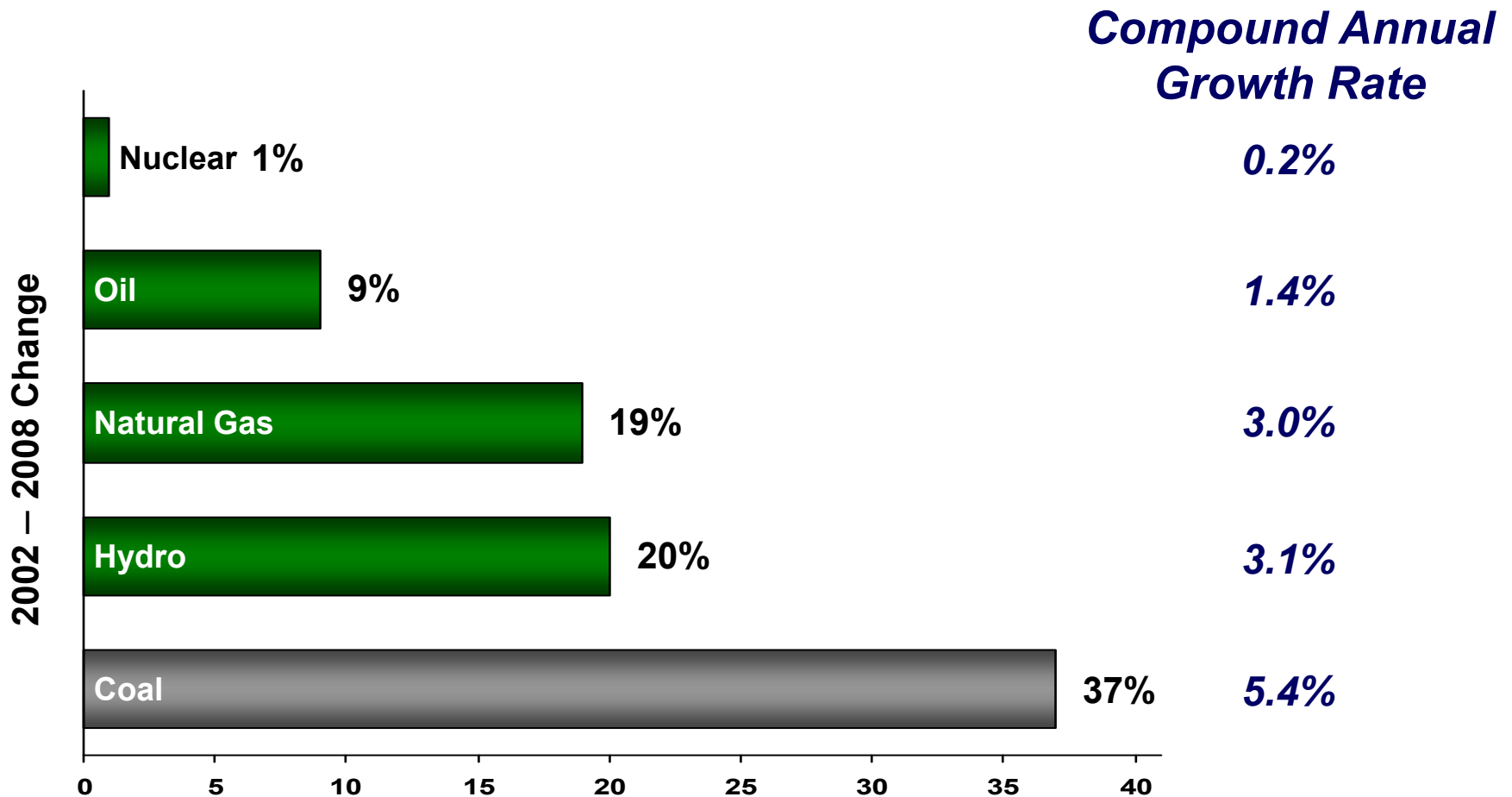
***“Coal is the cheapest
and most secure way to
deliver electricity.
Frankly, it would be
immoral to say we are
not going to touch
coal.”***

***— Marianne Fay
World Bank, 2009***

Coal is the World's Fastest-Growing Fuel Six Successive Years

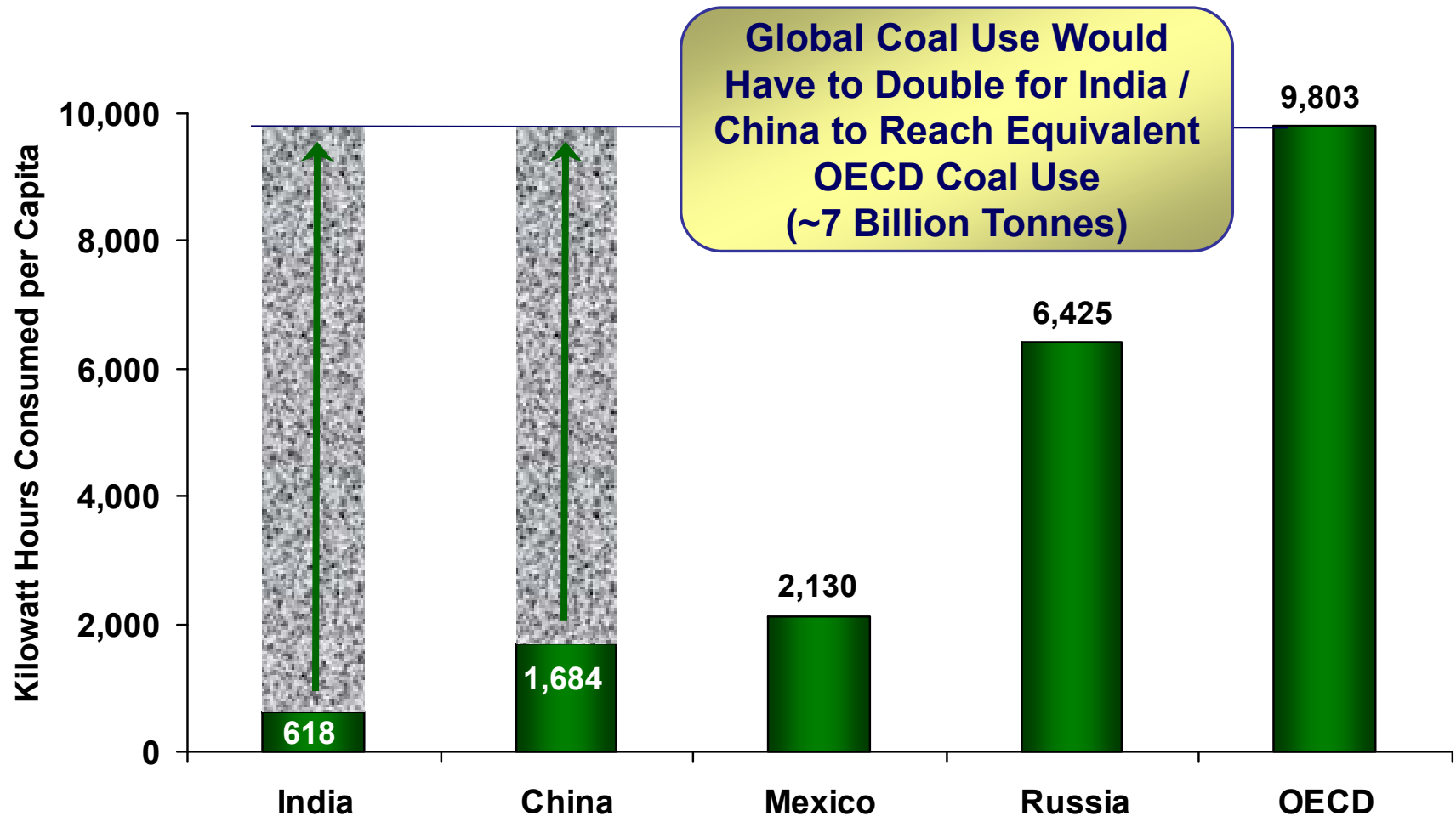


Change in Global Energy Consumption



Growth of Electricity and Coal Only Beginning

Per Capita Electricity Use (kWh) Tiny in Developing World

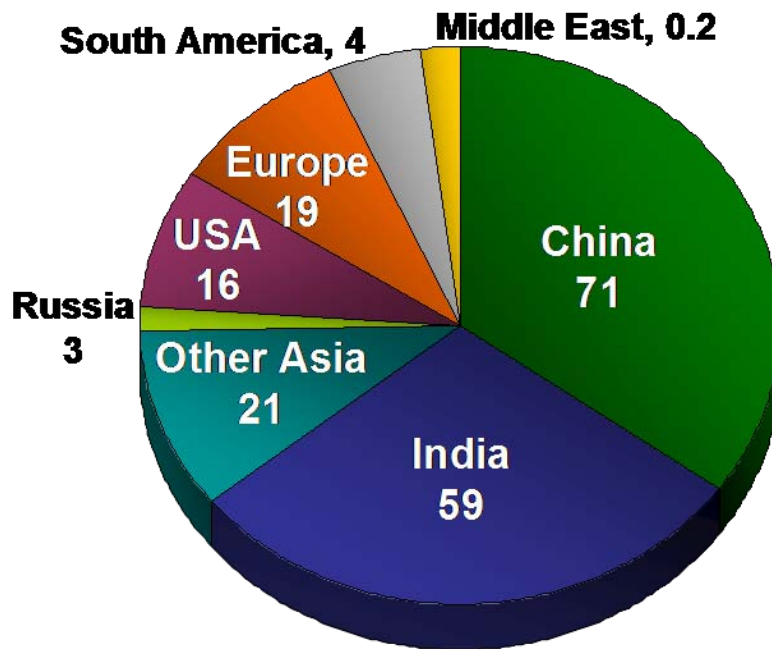


Global Coal Build-Out in Next Decade



***Global Coal Use Estimated to Grow 53% by 2025...
75% of New Coal Plants in China, India and Other Asia***

Coal-Fueled Generation Under Construction (GW)



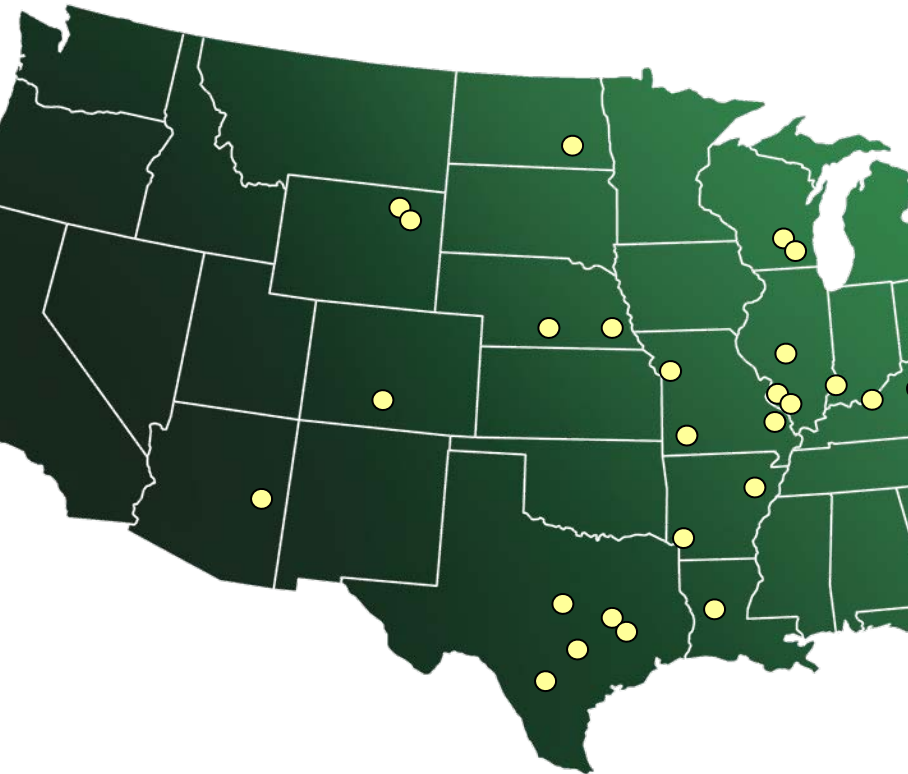
New Coal Plants Under Construction (2009 – 2014)

	<u>GW</u>	<u>Tonnes in Millions</u>
China	71	284
India	59	235
Other Asia	21	78
Russia	3	11
USA	16	61
Europe	19	70
Africa	9	33
South America	4	16
Middle East	0.2	1
Total	<u>202</u>	<u>789</u>

America Drives Largest Coal Build-Out in a Generation



29 Units in U.S. Under Construction Requiring 70 MTPA of Coal



The 1,600 MW Prairie State Energy Campus in Southern Illinois leads the largest build-out of coal power in a generation

○ Coal-Fueled Plants Under Construction

Includes units under construction and newly completed for 2009.

Prairie State: Economic Benefits from Concept to Construction



Global Model to Drive Creation of 4 Million Jobs

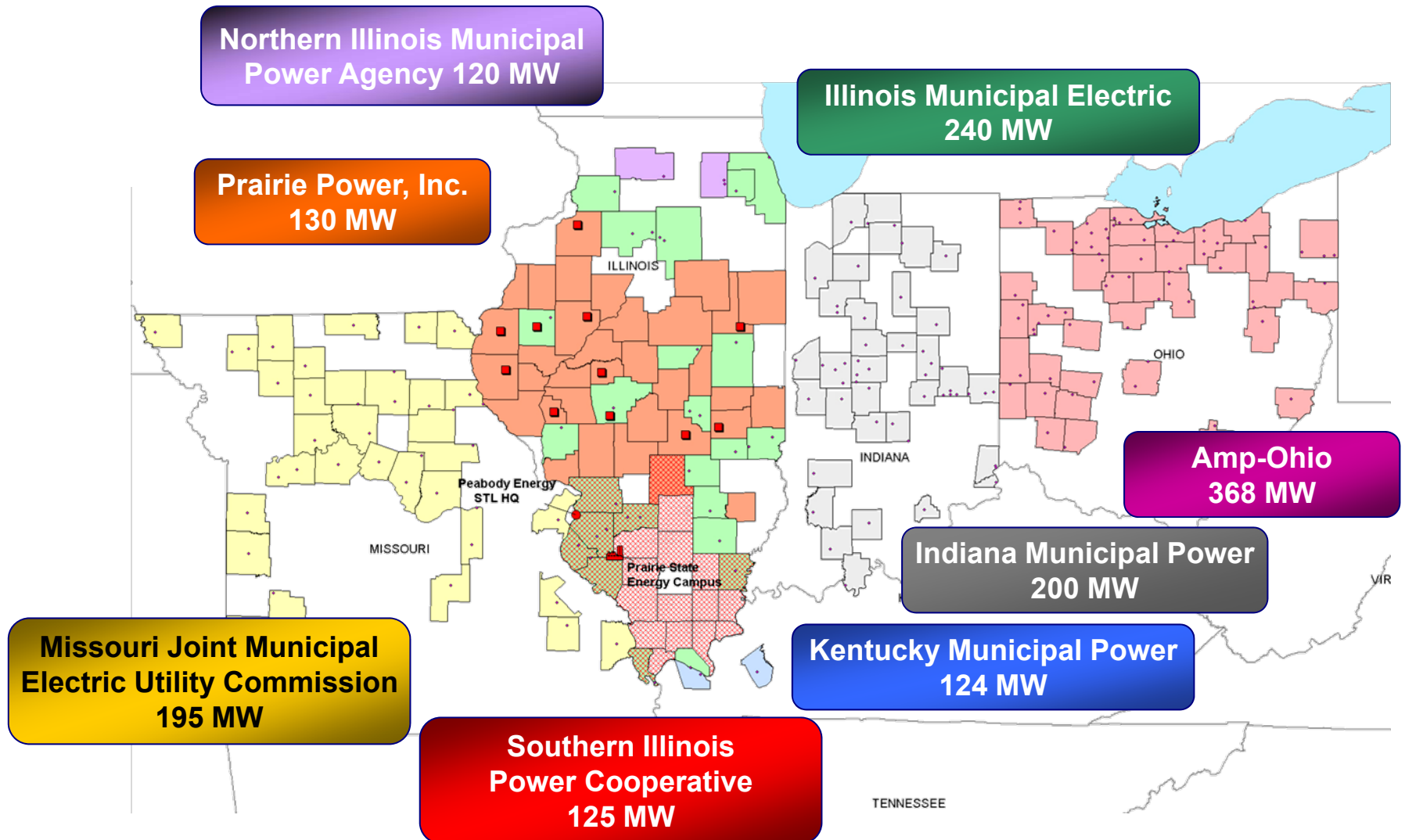


- Largest coal-fueled plant under construction in the United States
- More than 2,300 people hired to build the plant
- 1,600 MW generating plant fueled by 6+ million ton/year adjacent mine with approximately 200 million tons of reserves
- Unit 1 to be complete August 2011

A Partnership for Affordable, Reliable, Local Energy



Plant Serves 2.5 Million Families Covering Nine States



The Clear Path to Clean Air and Near-Zero Emissions with Green Coal



New Supercritical Plants and CCS Demonstration Essential

Advanced Supercritical Combustion Plants

Demonstrating Carbon Capture / Storage (CCS)

Commercial CTG/CTL with CCS

Commercial IGCC with CCS

Retrofitting PC Plants with CCS

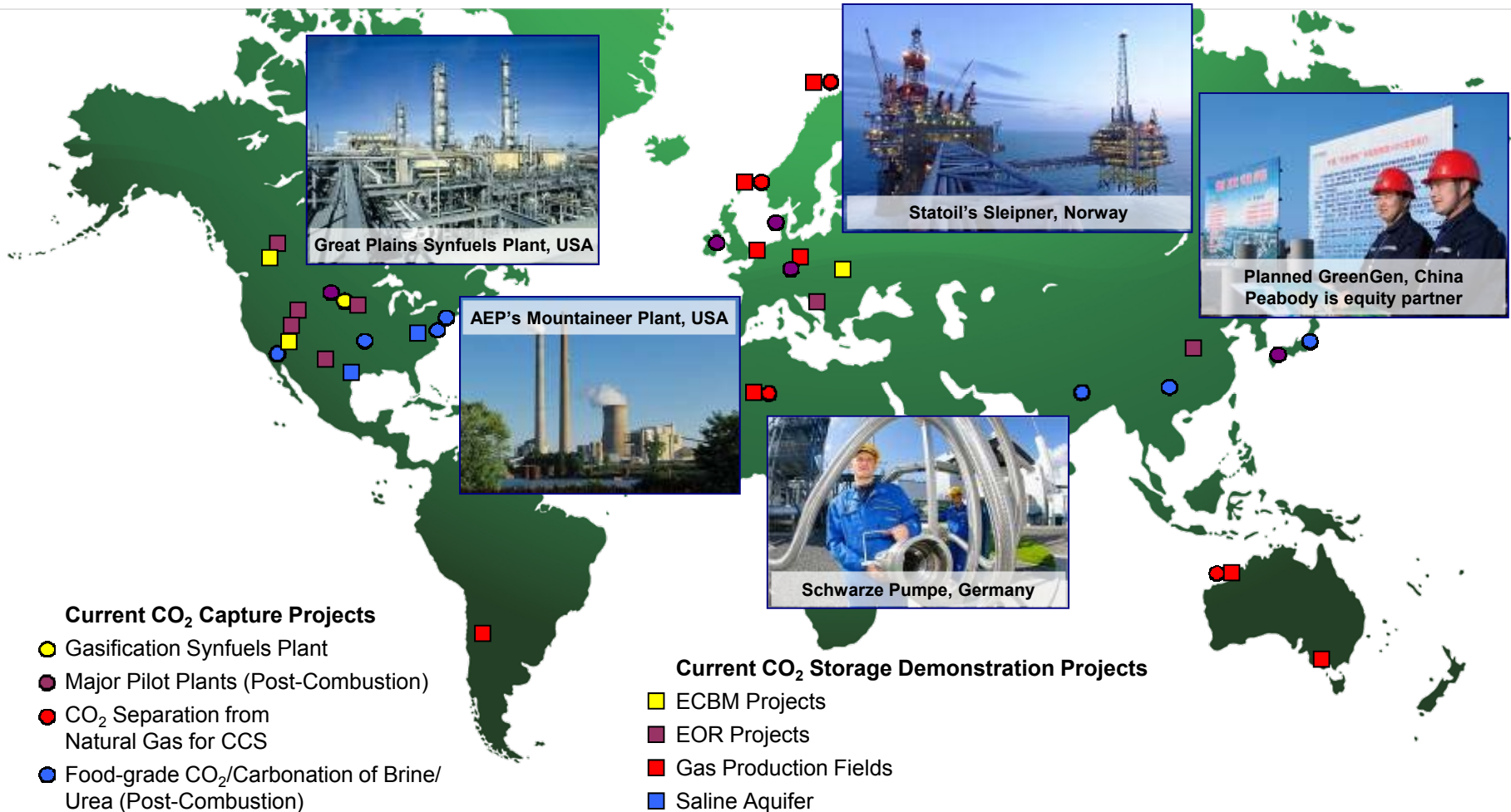
2007

2010

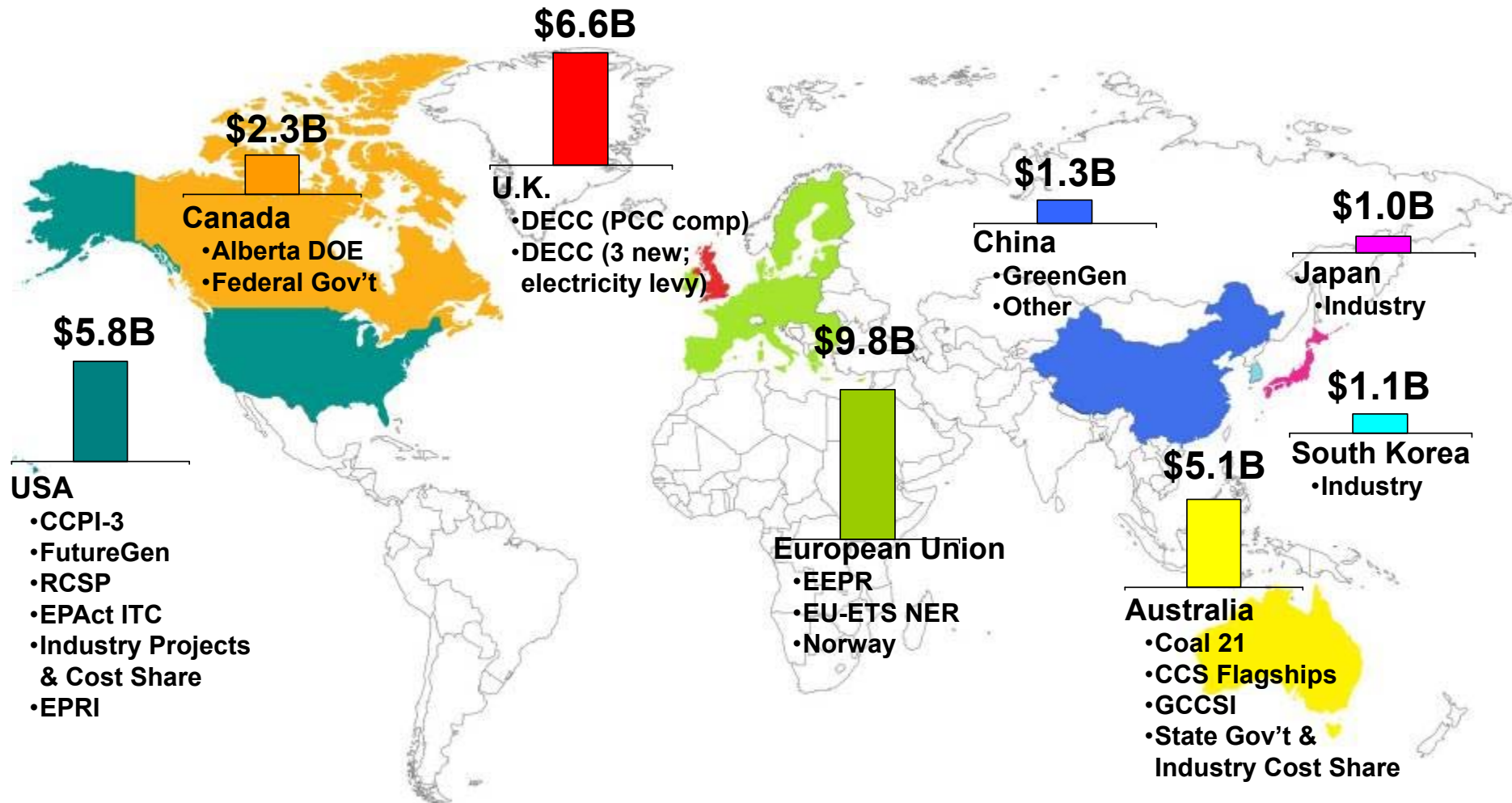
2020

2030

Green Coal Accelerates Around the World



Walking the Talk: Nations Set Aside \$30 Billion for Green Coal



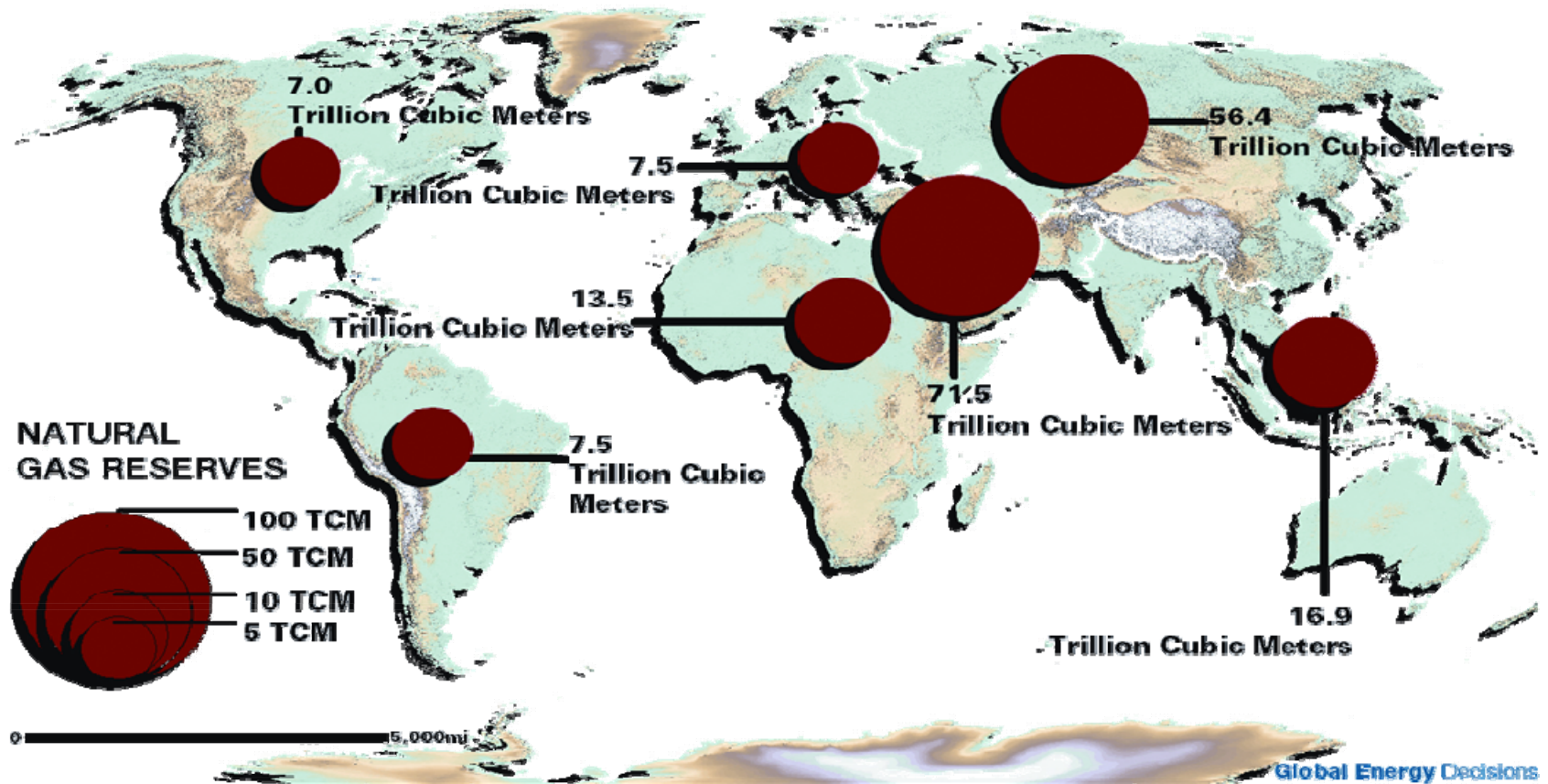
Clean Coal: A Fuel for All Seasons

A Flexible Power Source for the 21st Century



Iran, Russia, Qatar, Algeria and Indonesia Have Announced an LNG Cartel

Most Gas Reserves Are in the Middle East and Asia



LNG is a Global Commodity, Priced Off of Oil Benchmarks

Coal Recognized as Low-Cost, Low-Carbon Option



European Union

- Costs of achieving climate goals would be **40%** higher without carbon capture and storage



International Energy Agency

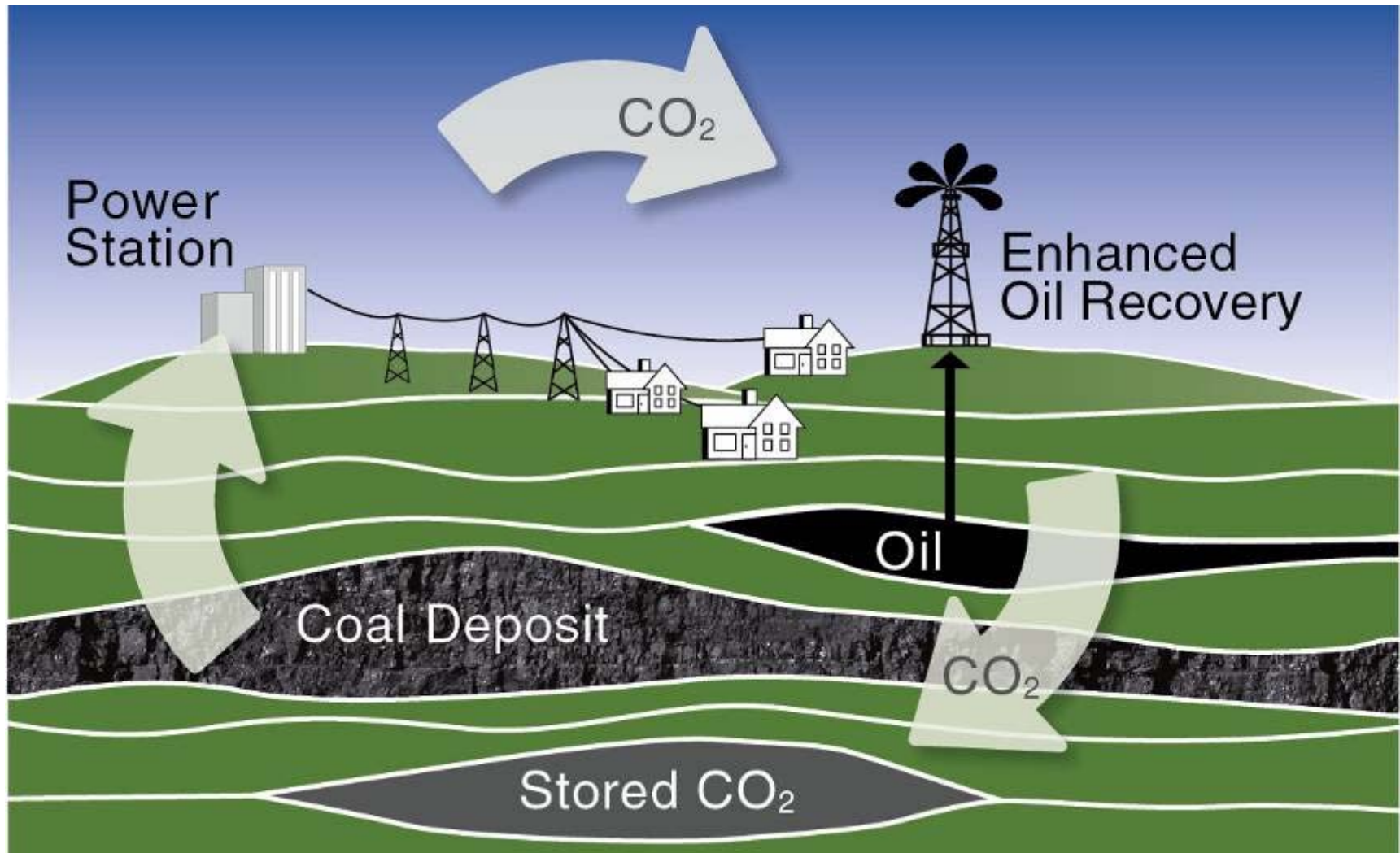
- Without CCS, cost to meet climate goal is \$1.3 trillion more by 2050
 - 71% higher than if coal with CCS is included



***Carnegie Mellon Study: Coal with CCS
15% to 50% Below Nuclear, Wind or Natural Gas with CCS***

Green Coal: Carbon Becomes A Competitive Advantage

Recycling CO₂ Could Create an Additional 200 Billion Barrels of Oil, Says International Energy Agency

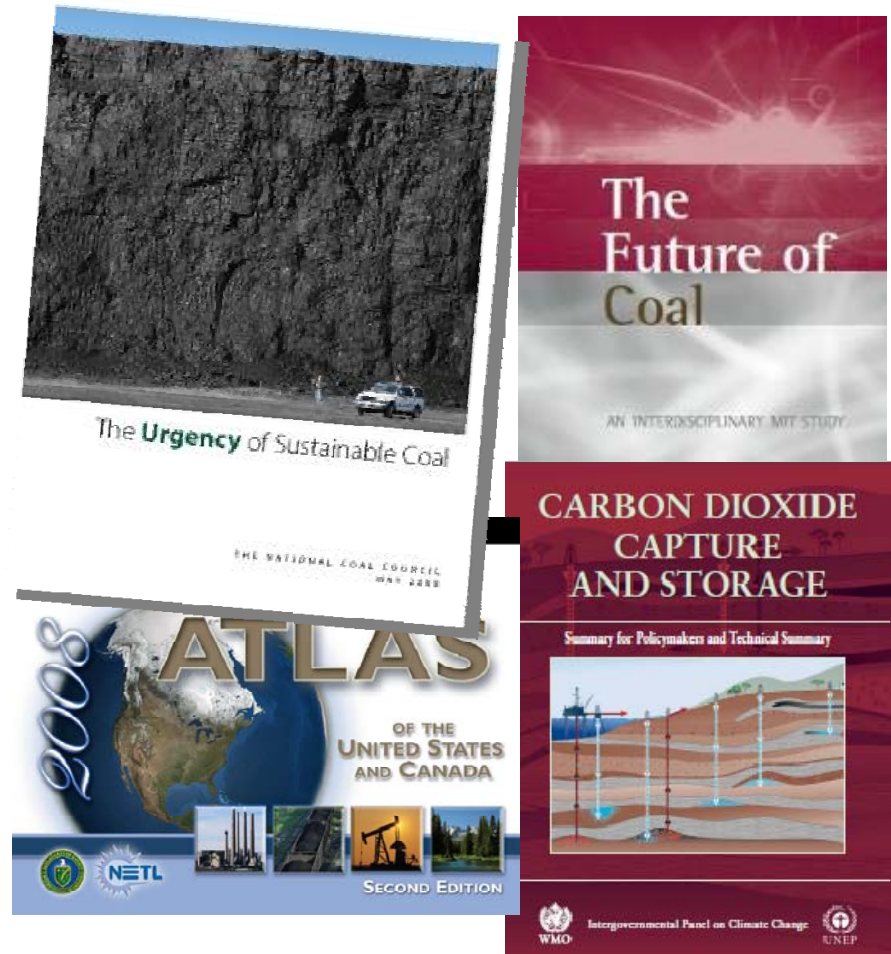


Growing Expert Consensus: CCS Makes Economic Sense

***New Advisory Study for DOE:
CCS Creates 28 Million Jobs, \$2.7 Trillion in GDP***

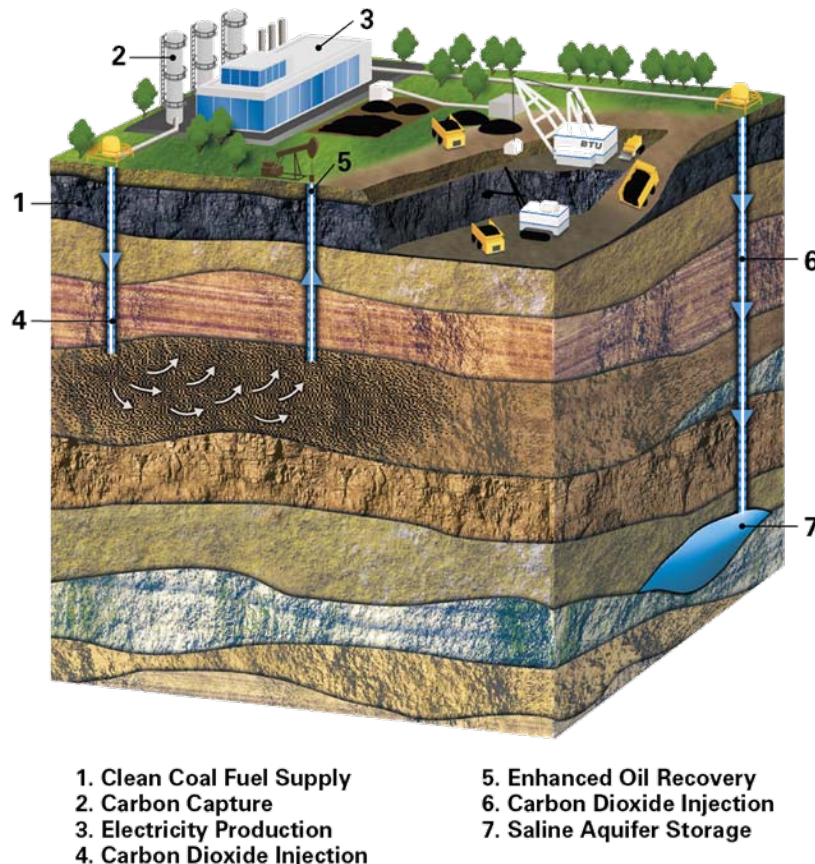
“ *Investing in...
low-carbon technologies
will enable the United
States to meet increasing
electricity demand and
strengthen national
security by using captured
CO₂ to recover more
domestic oil.* ”

– National Coal Council 2009



EOR Market Adds to U.S. Energy Supply

NETL: New Economic Market for Coal Gasification with CCS for Enhanced Oil Recovery

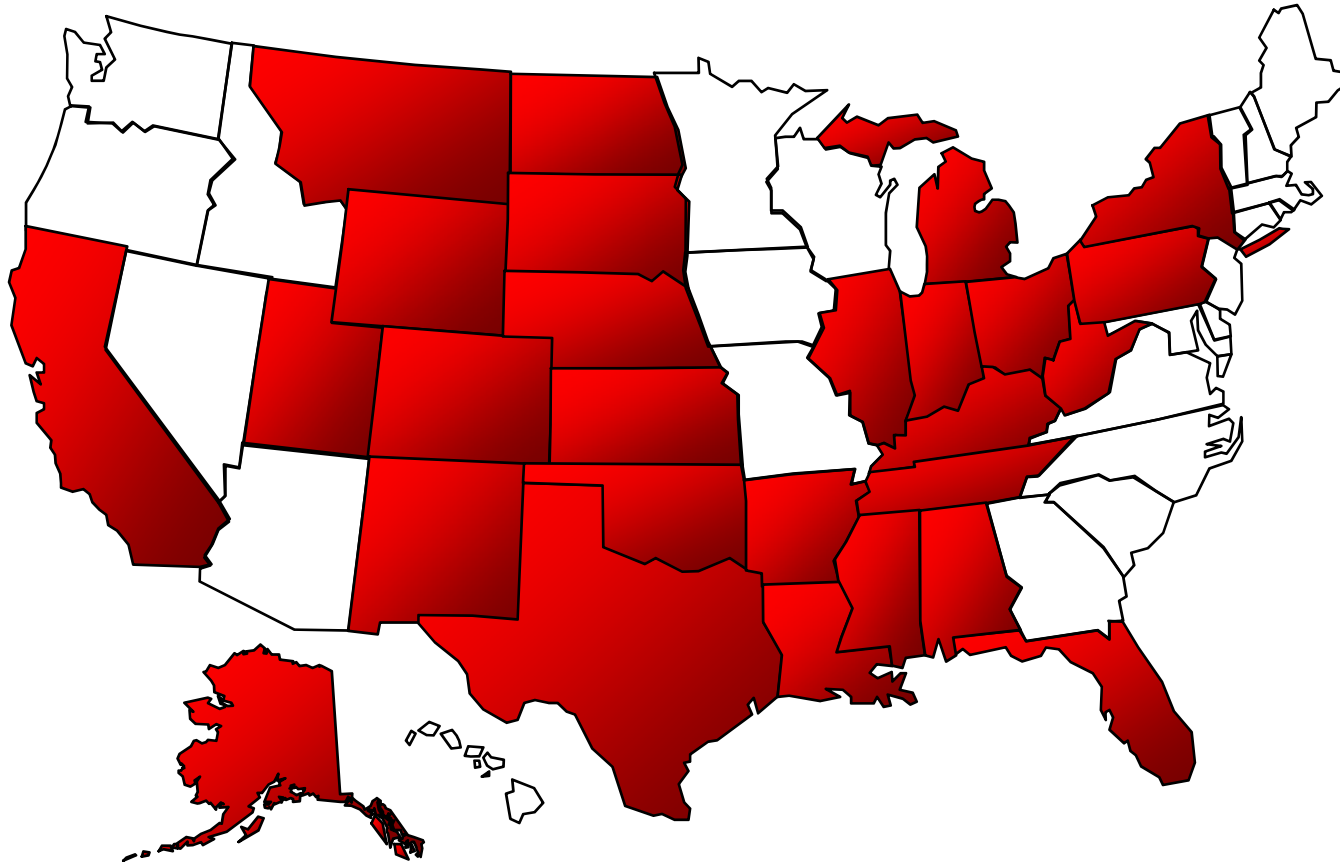


Over the next three decades:

- Best practices 64 billion barrels EOR
- Next generation 87 billion barrels EOR
- Net new market 12 billion tons of CO₂ best practices
- Net new market 14 billion tons of CO₂ next generation
- Total coal use: 6 – 7 billion tons for EOR

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In Red, U.S. Basins/Regions Studied for Future CO₂ Storage and Enhanced Oil Recovery



The 27 states with shading are included in the 11 Advanced Resources International updated “basin studies” of CO₂ storage with enhanced oil recovery. Source: National Energy Technology Laboratory, U.S. Department of Energy, “Storing CO₂ and Producing Domestic Crude Oil with Next Generation CO₂-EOR Technology, Jan. 9, 2009.

Peabody Advancing a Dozen Global Technology Projects and Partnerships



- Advancing development of clean coal technology through participation in Australia's COAL21 Fund, China's GreenGen and U.S. FutureGen projects
- Founding member of Australia's Global Carbon Capture and Storage Institute
- Advancing research through Consortium for Clean Coal Utilization via Washington University in St. Louis
- Founding member of U.S. Department of Energy National Carbon Capture Center
- Pursuing clean coal-to-gas plants with ConocoPhillips and GreatPoint Energy



GreenGen: A Green Coal Solution with Steel in the Ground



***GreenGen Signing Ceremony in the Great Hall of the People
November 18, 2009***

Representing 'Rest of the World' in China's Centerpiece Carbon Initiative



- BTU is only non-Chinese equity partner in GreenGen carbon initiative led by China Huaneng Group
- Multi-phase commercial project: 650 MW IGCC plant with carbon capture for EOR and polygeneration
- Final regulatory approval received, construction has commenced; first 250 MW phase on line in 2011

Peabody is a Proud Member of U.S.-China Energy Cooperation Program



Public-Private Partnership to Develop Clean Energy Projects

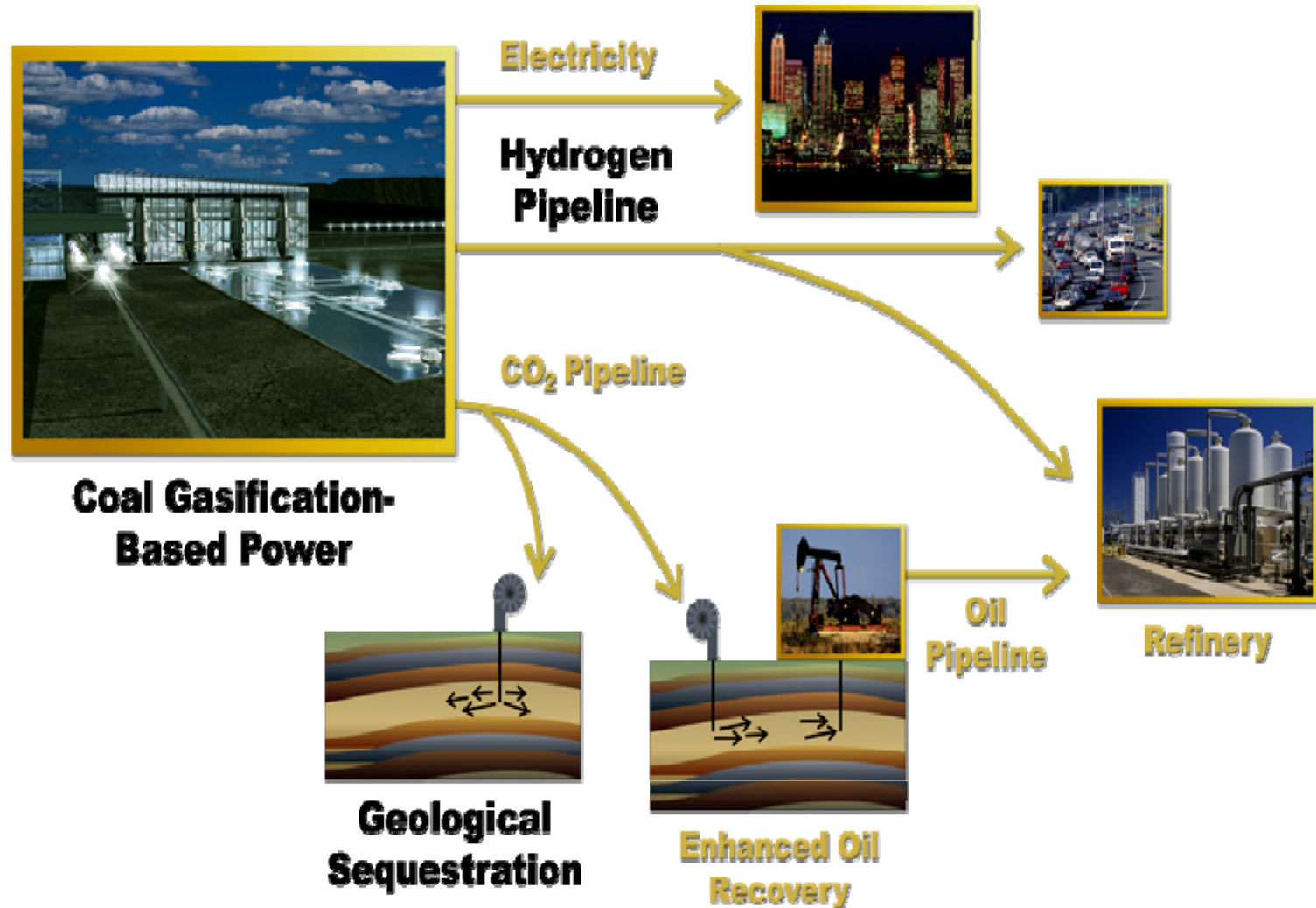
- Advancing clean coal, smart grid and electric transportation projects in China
- BTU among five Fortune 500 companies invited to govern as part of Executive Committee
 - Also one of 21 founding members

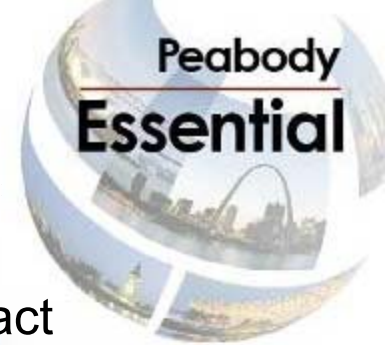


FutureGen: America's Path to Green Energy



Peabody is a Founding Sponsor of the FutureGen Alliance





FutureGen History: Powerful Progress

February 2003:
FutureGen
announced

March 2006:
7 states issue
12 proposals
to host site

November 2007:
Environmental Impact
Statement issued on
preferred sites

December 2007:
Alliance selects
Mattoon, Ill.

Feb 2008:
FutureGen
restructured;
Alliance continues
to fund, receives
Illinois grants

March 2009: \$1B
stimulus for near-zero
emissions power
projects, bold vision
from new DOE
• Alliance contributions
of ~\$300MM, \$2B+ gap

June 2009: “Statement
of Principles,” Limited
Scope Cooperative
Agreement

**July 2009: DOE
cost sharing
restored, Record of
Decision issued**

Summing Up with Simple Truths

Coal is Our Low-Cost, Low-Carbon Solution

- Coal helps people live longer
- Coal helps people live better
- Coal's lands are greener
- The environment is far cleaner
- The industry is far safer



Coal is Life



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Essential

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