Coal, Energy Security and Carbon – The Path Forward

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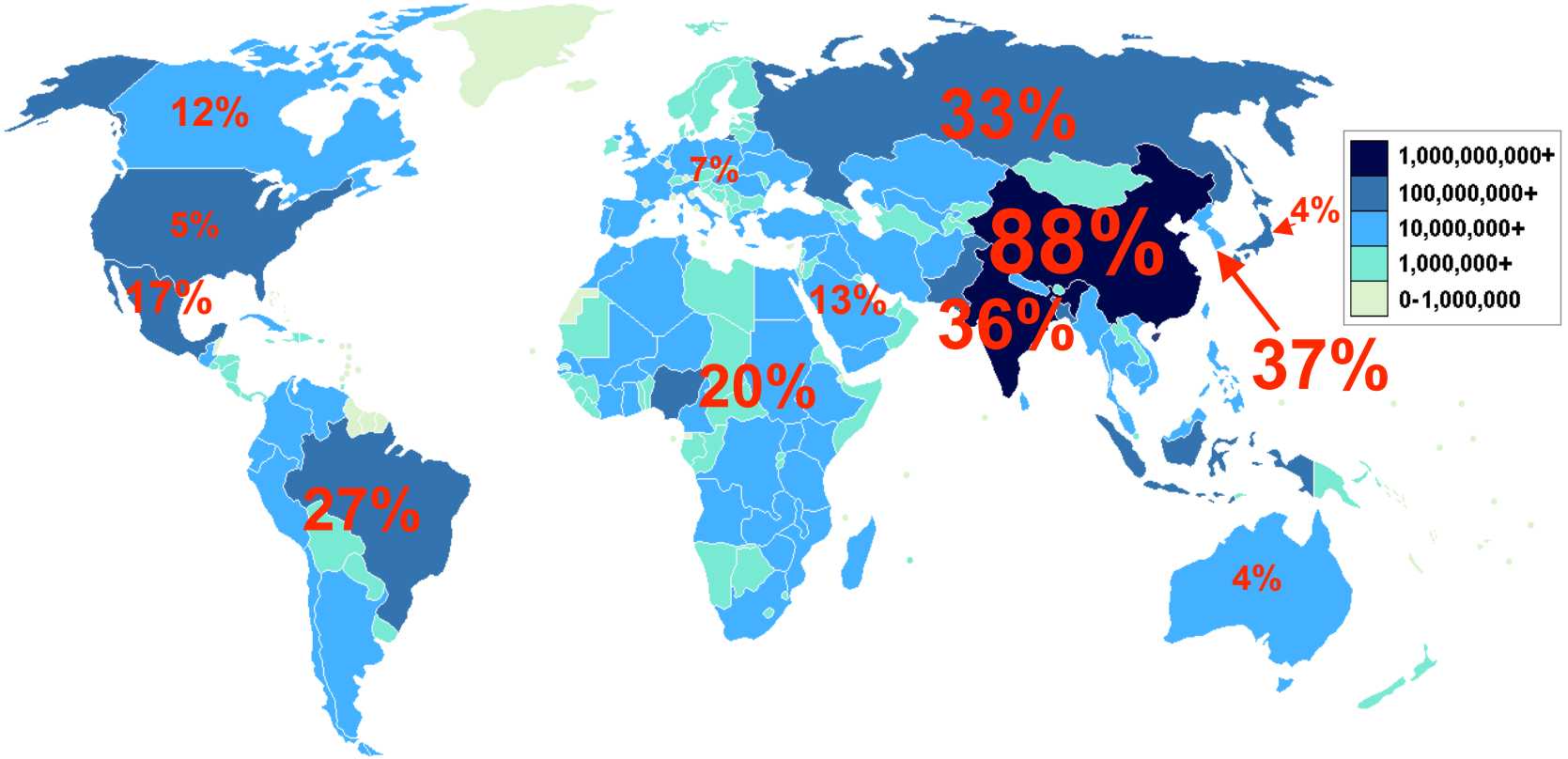
Energy is Key to All Human Activity

- Man's first great invention was also its first energy resource: the ability to create and harness fire using wood
- Modern energy is responsible for everything from:
  - Transportation
  - Manufacturing
  - Heating & Cooling
  - Communications
  - Medical Advancements
  - Education
  - Clean Water / Sewage Treatment
  - The list goes on and on and on …

India and China: The Second Industrial Revolution is Under Way

Population vs. Projected 10-Year Growth in Total Energy Demand per Capita

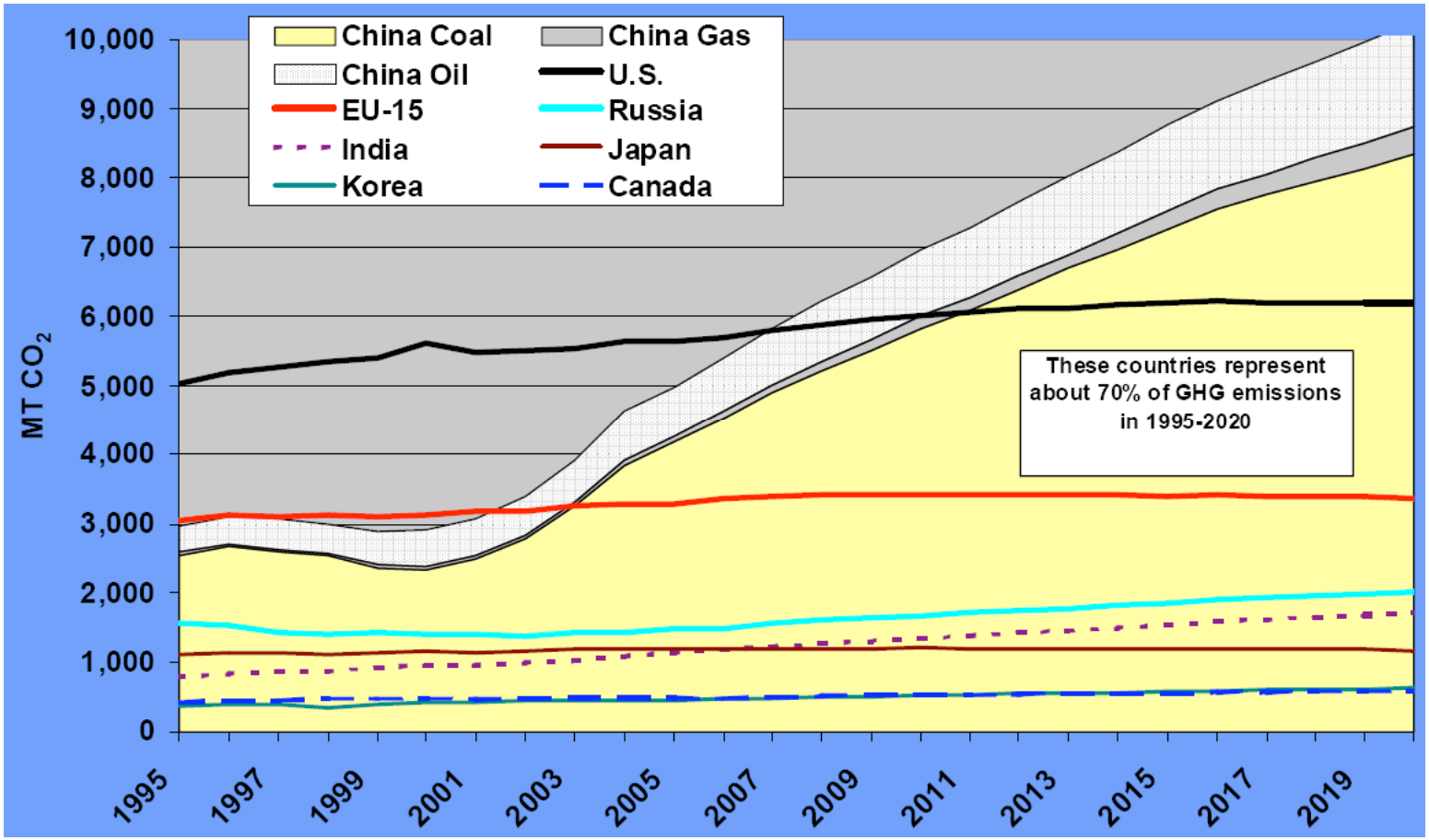


Industrial superpowers will compete with developing nations for access to energy resources

Source: U.S. Census Bureau, International Data Base; U.S. Energy Information Administration, International Energy Outlook 2006.

China Has Passed U.S. As Largest CO_2 Emitter

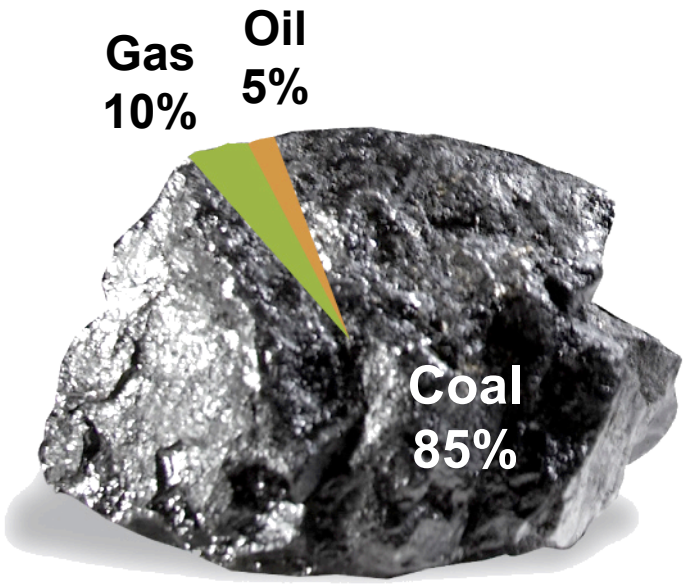
Worldwide CO_2 Outlook



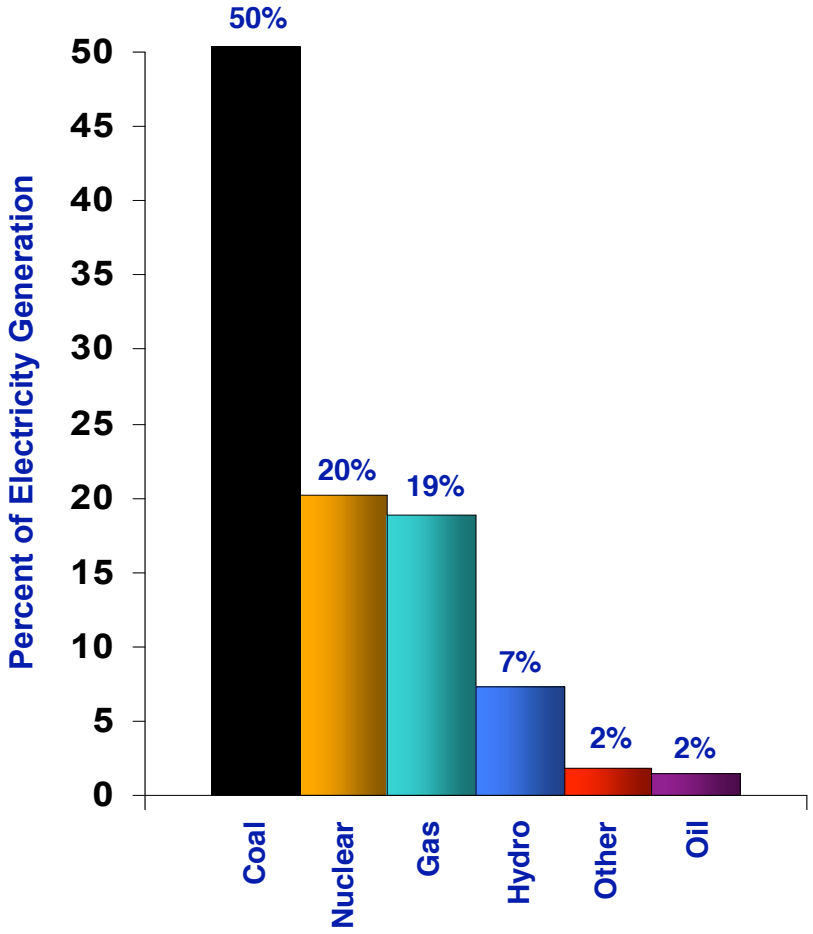
Source: PIRA

Coal is America's Most Abundant Resource

U.S. Fuel Resources



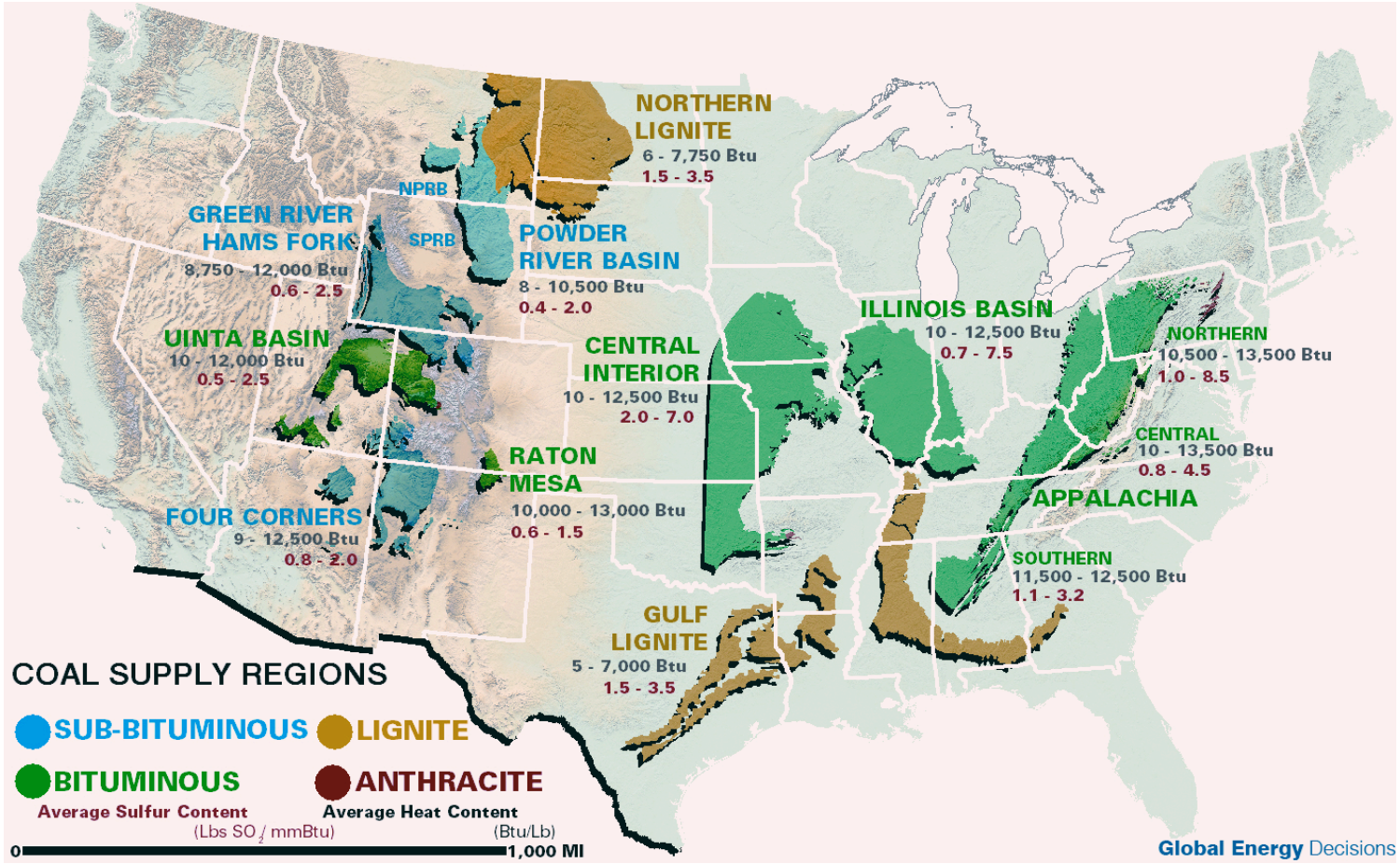
Electricity Fuel Sources



Ultimately recoverable demonstrated reserves on Btu basis. Source: USGS, National Assessment of United States Oil and Gas Resources, U.S. Coal Reserves; Energy Information Administration Monthly Energy Review, March 2007 Table 7.2b, 2006 data.

Coal: Homegrown Energy Abundance in a World of Energy Shortfalls

The Resource: 27% of the World's Coal is in the United States



250 Billion Tons of Recoverable Coal

Clean Coal Technologies are Only Path for Affordable & Adequate Energy Supply

- **Coal-to-Liquids** – CTL with CCS can produce better fuels at the same rate of CO_2 emissions as imported oil. Adding biomass increases cost but improves CTL's carbon footprint.

- **Coal-to-Gas** – Coal can be gasified to create NG for power plants and the CO_2 can be captured and stored. SNG from coal with CCS has a better carbon footprint than natural gas and much better footprint than LNG.

- **Coal-to-Electricity** – New clean coal plants emit 15% less CO_2. FutureGen plants will have near-zero emissions.

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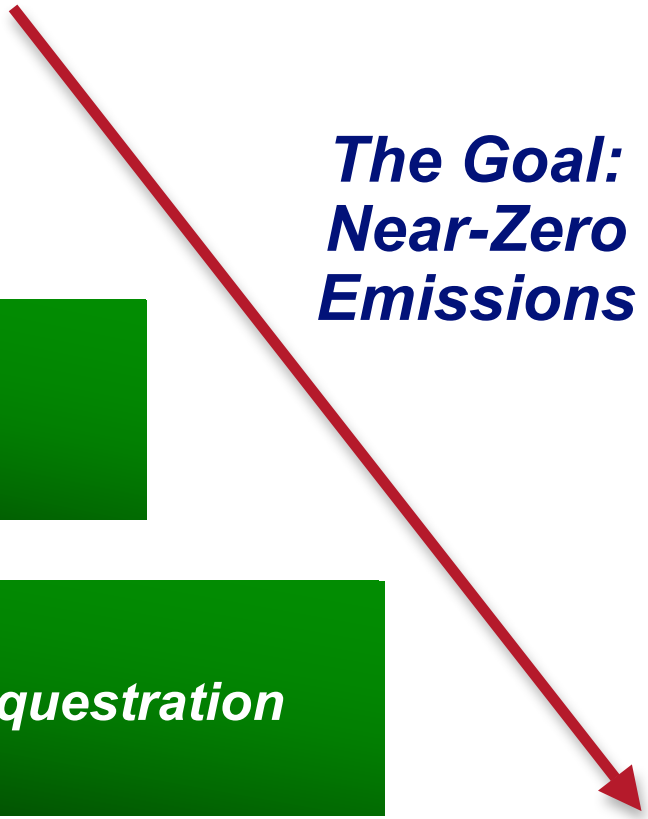
Technology is Also Key to Capturing and Sequestering CO_2

A Long-Term Approach to a Long-Term Challenge

Building New, Efficient Supercritical & IGCC Coal Plants
15% Lower CO_2 Emissions

Demonstrating FutureGen: IGCC and Carbon Capture/Sequestration
Up to 90% Lower CO_2 Emissions

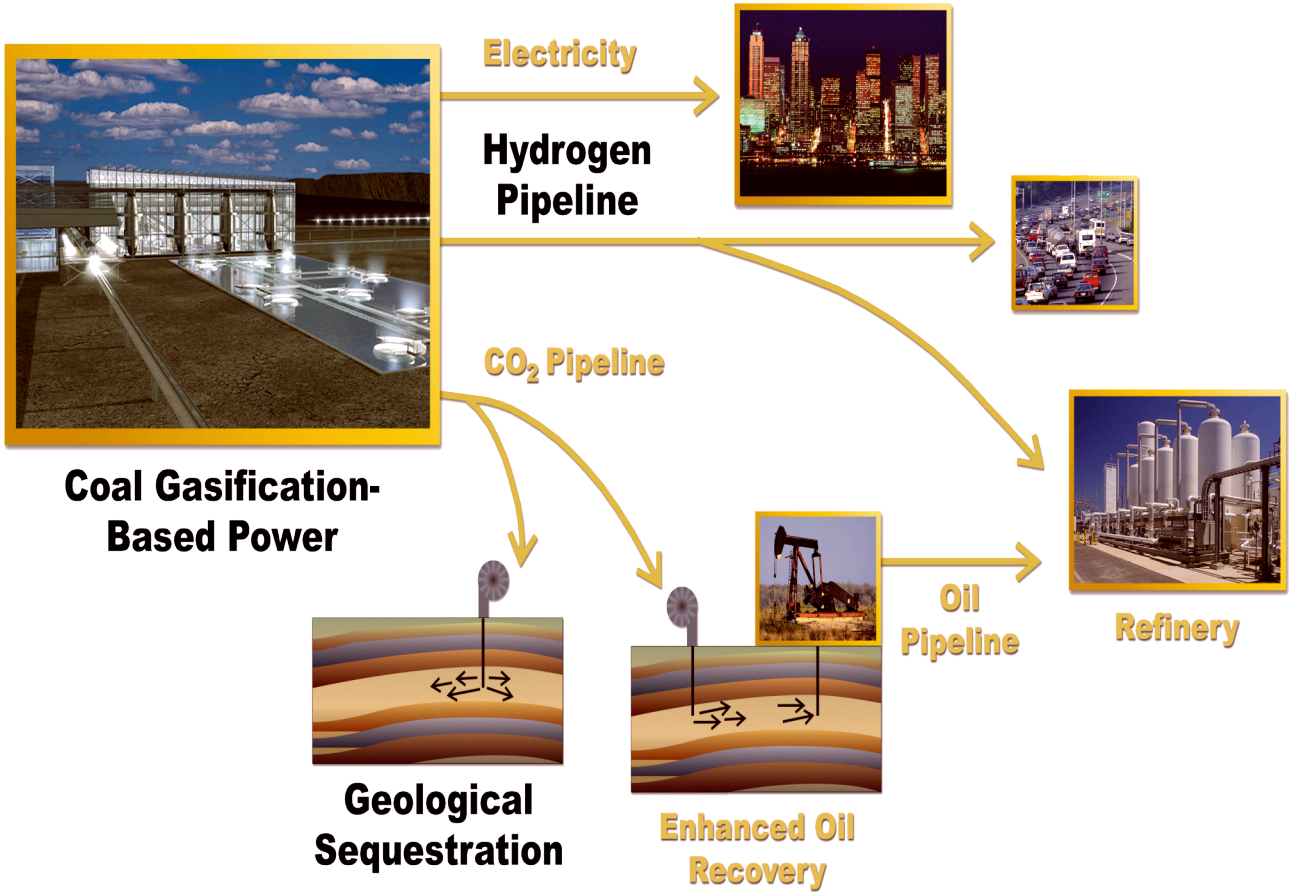
Retrofitting Existing Coal-Based Generation with Carbon Capture/Sequestration
Up to 90% Lower CO_2 Emissions



The Goal: Near-Zero Emissions

$1 Billion FutureGen Prototype to Sequester Carbon Dioxide Starting

U.S., China, India & South Korea Governments Participating



FutureGen Alliance

- Peabody Energy
- American Electric Power
- Anglo American
- BHP Billiton
- China Huaneng
- CONSOL Energy
- E. ON. U.S.
- Foundation Coal
- Kennecott
- PPL Corporation
- Southern Co.
- Xstrata Coal

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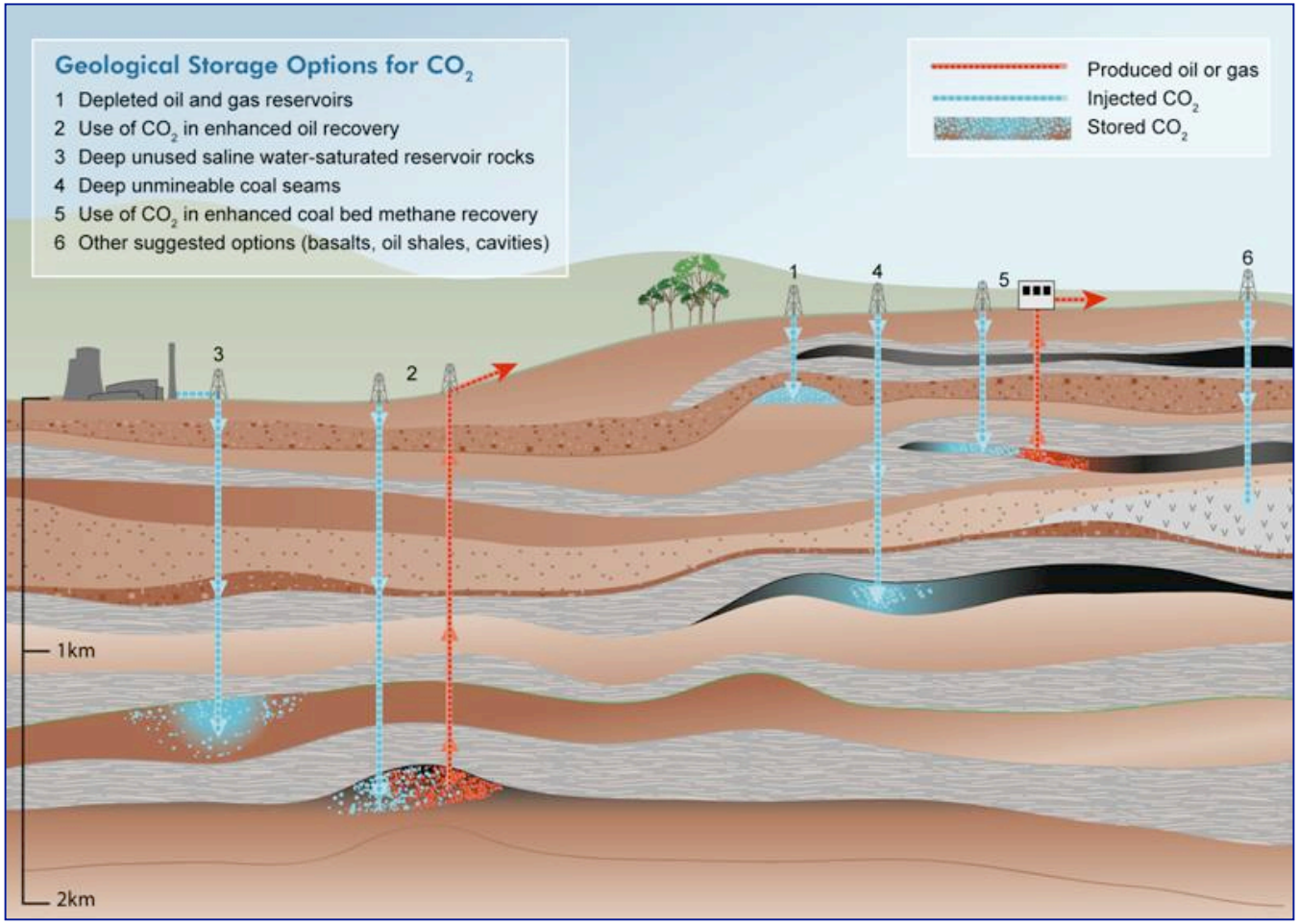
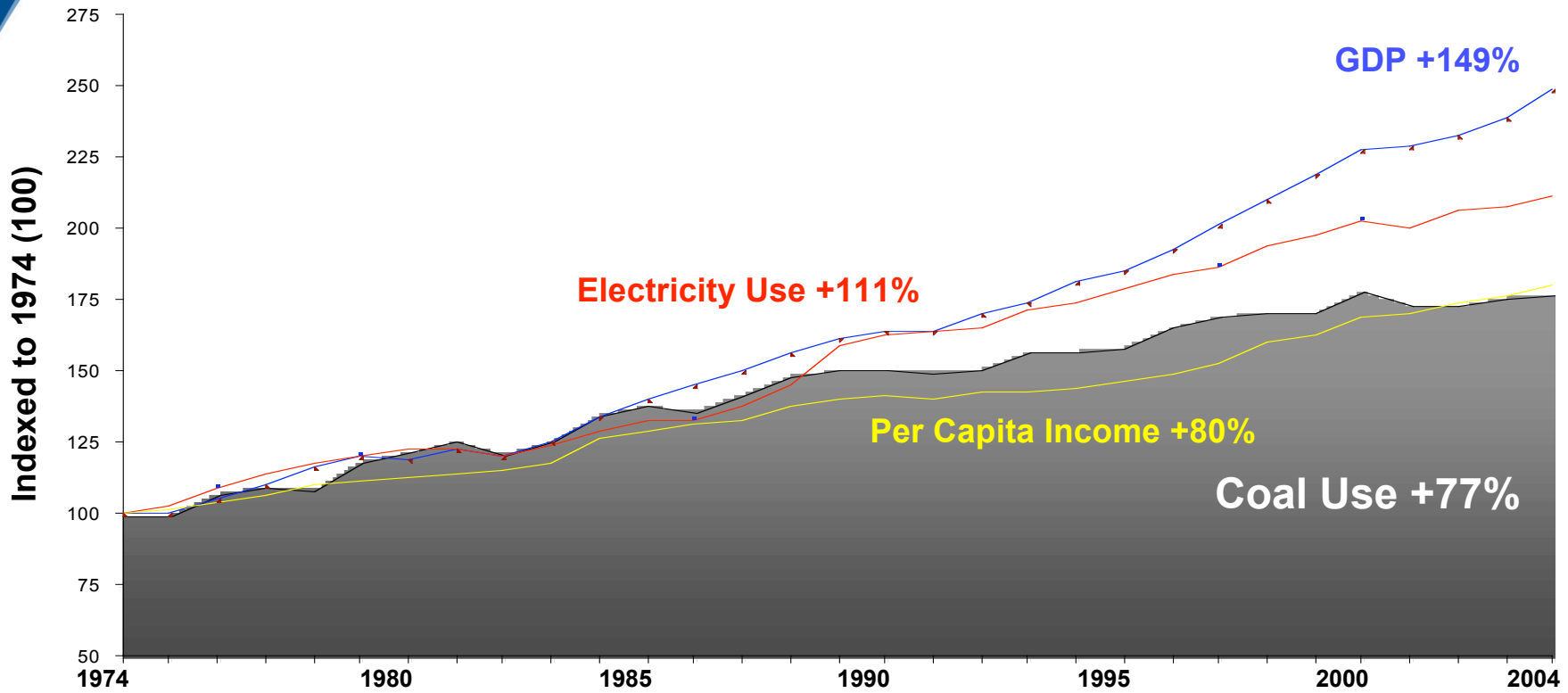
U.S. Has Ample Room for Carbon Dioxide Sequestration

DOE: Storage Potential of 3.5 Trillion Tons



Use of Our Coal Resource Advances the Well-Being of the American People

U.S. Economic and Energy Growth



Life Expectancy

1974	1980	1985	1990	1995	2000	2004
72	*73.9*	*74.7*	*75.1*	*75.7*	*76.7*	*77.6*

Source: Energy Information Administration Annual Energy Review 2005; U.S. Department of Commerce, Bureau of Economic Analysis.

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