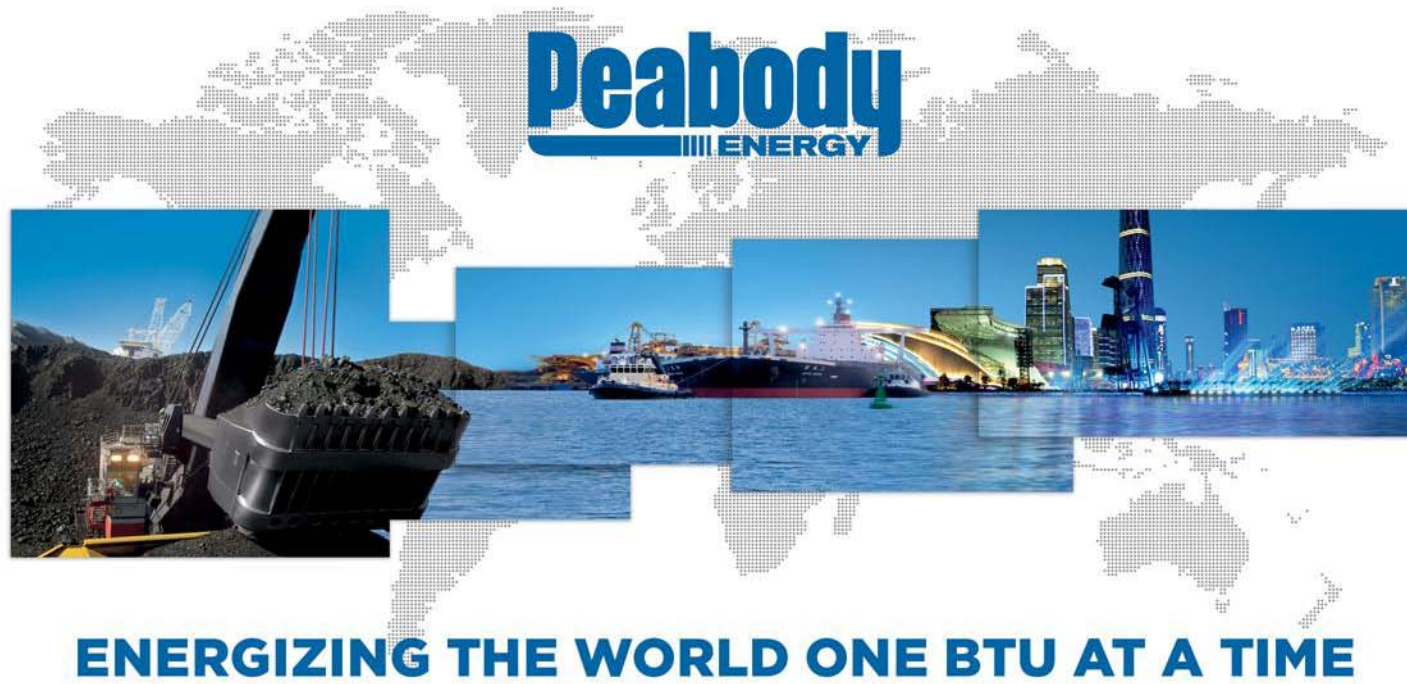


# Sustainable Energy Solutions from Clean Coal

*Rebecca Kujawa  
Vice President  
Business Development*

*March 1, 2012*

*Indian Energy Forum*



# Sustainable Energy Solutions from Clean Coal



## *Key Discussion Points*

- Coal Markets
- Clean Coal Technologies
- Sustainable Partnerships



# Coal is the Power Energizing the World



*Our Energy Needs in Perspective: In Just One Day...*

Global Population Will Increase By

**210,000**

**300,000**

Twitter Accounts Will Be Opened

**650,000**

People Open an Internet Account

**100,000**

People Will Move to Cities in China and India

**160,000**

New Cars Will Be Sold

**19 Million Metric Tons**  
of Coal Will Be Used

# World is Experiencing an Enormous Wave of Energy Demand



## Extraordinary Global Growth by 2050...

- World population reaches 9 billion
- Electricity generation up 130%
- Steel production up 275%
- Global GDP up 270%
- 16 billion tons of coal used annually

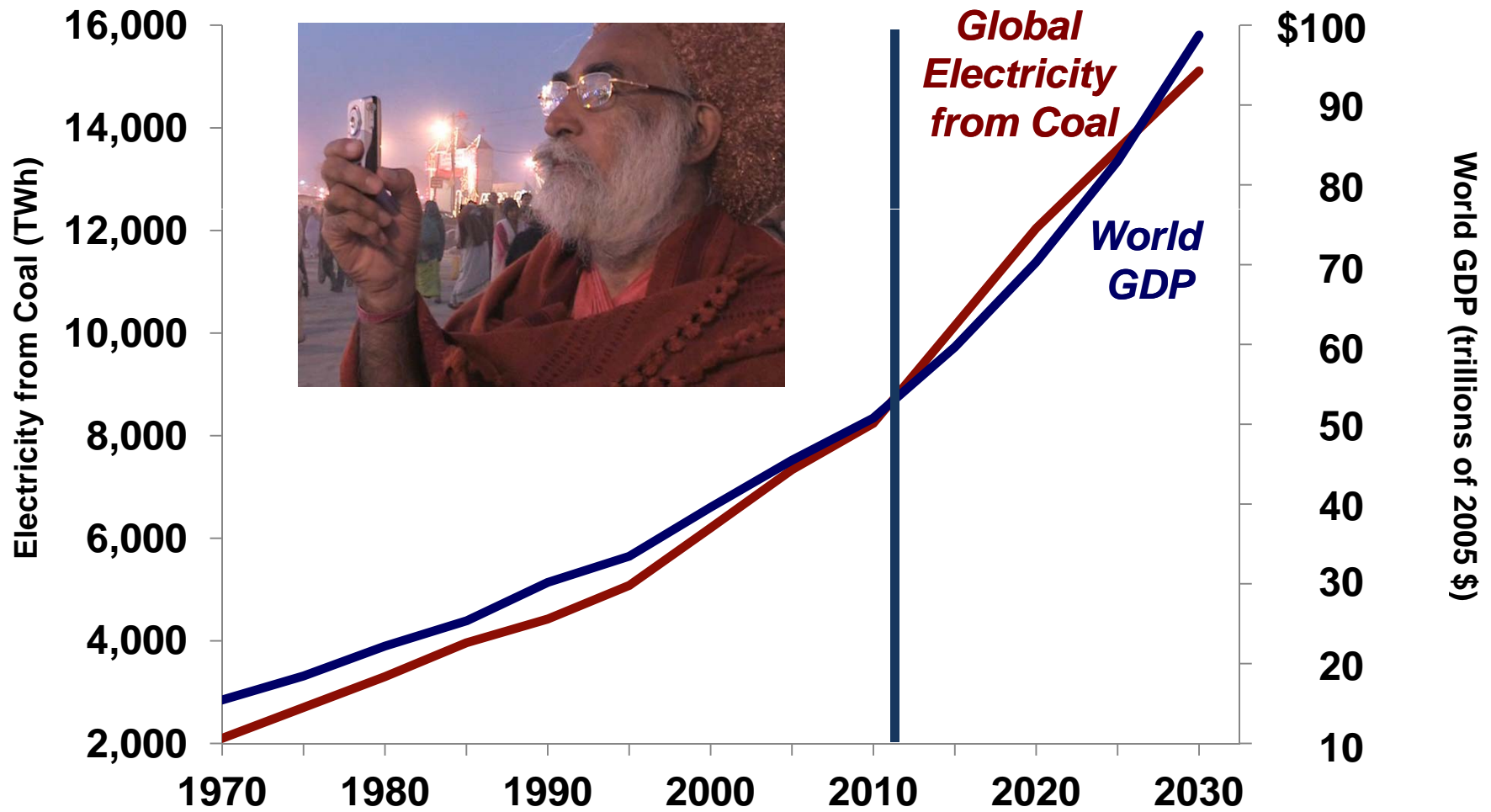


Guangzhou, China

# Coal Powers Economies in Perfect Step with GDP Growth

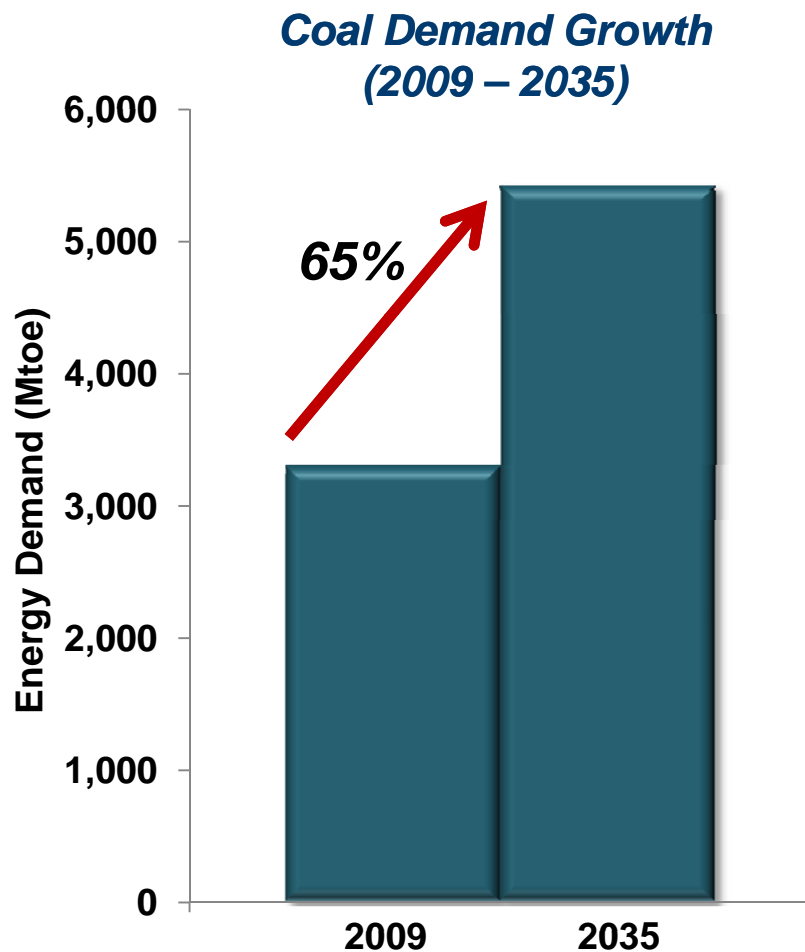


*“The Economic Miracle” Powered By Coal*



Source: Developed from International Energy Agency World Energy Outlook (1995-2011); USDA 2011.

# Global Coal Use Overtakes Oil as Largest Energy Source by 2035

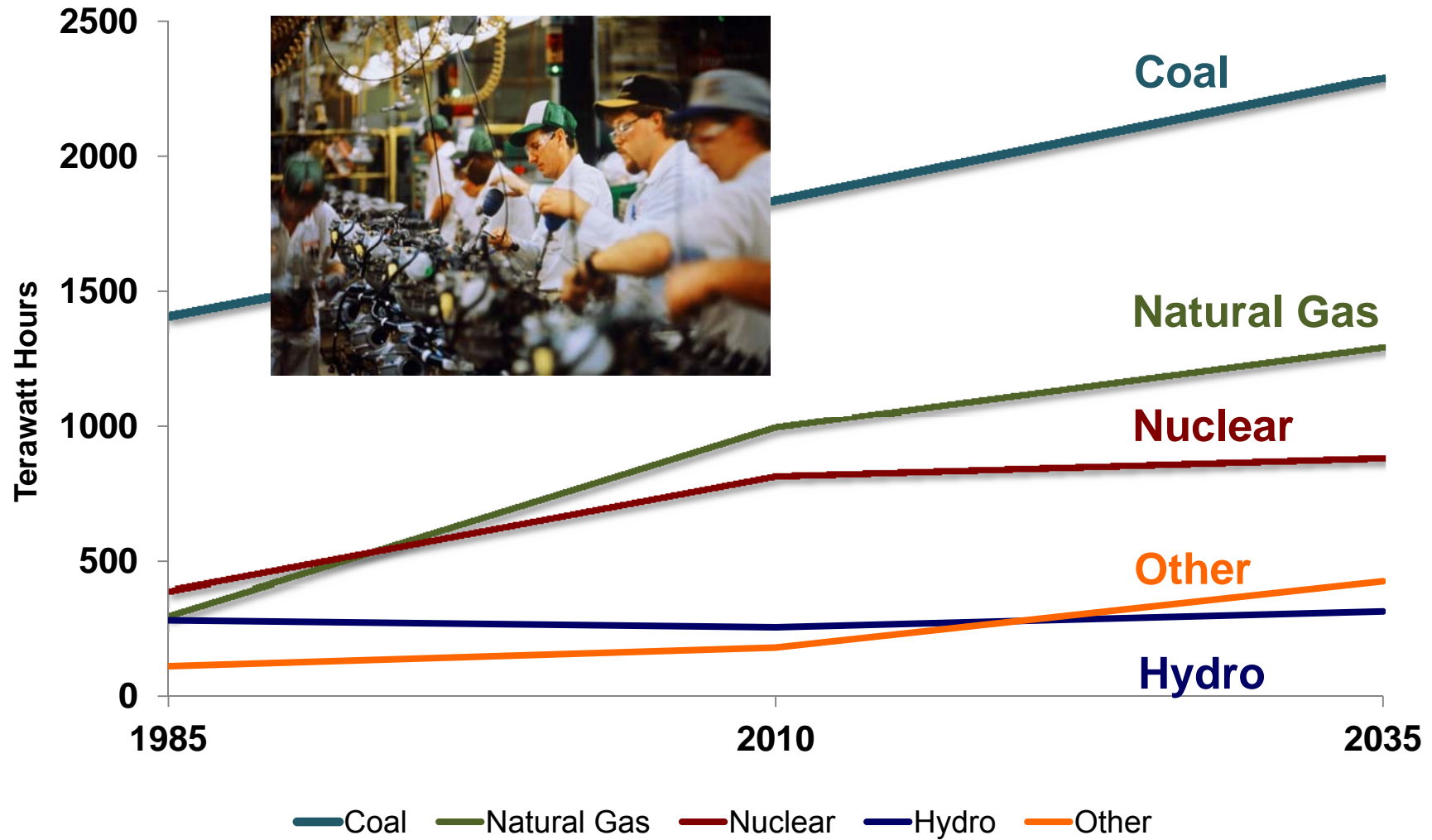


- Energy growth from coal:
  - 30% greater than natural gas growth
  - Double the oil growth
  - Twice the current global use of nuclear, hydro and other renewables combined

# Coal the Long-Term Leader for U.S. Power



## Coal Powers More Than Nuclear and Gas Combined in 2035



Source: International Energy Agency, World Energy Outlook 2011; Current Policies Scenario.

# Clean Coal Technologies

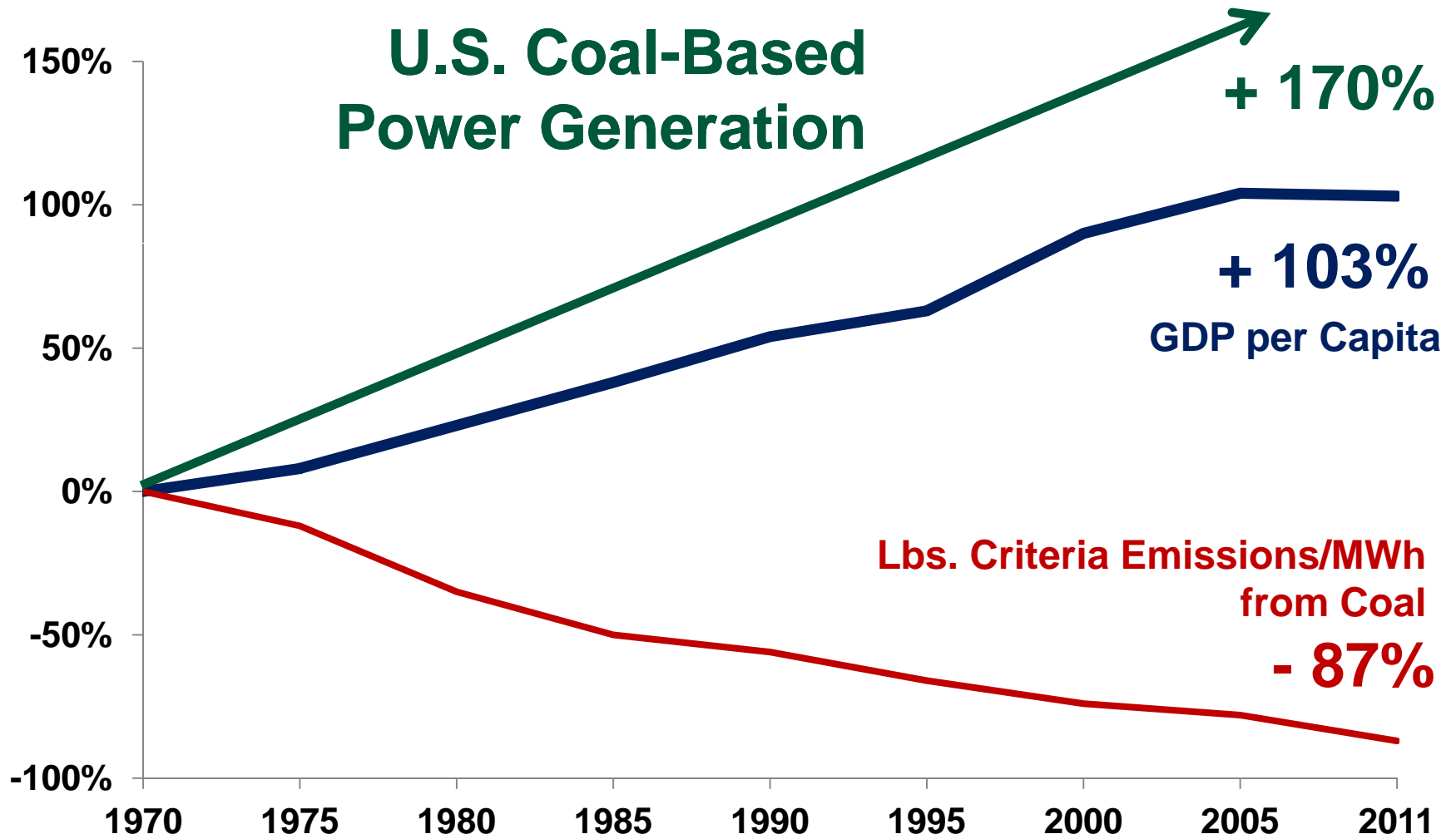
**GreenGen Power Plant and  
Carbon Research Center; Tianjin, China**



# Advanced Technologies Drive Environmental Progress



**U.S. Emissions Decline 87% Since 1970 as Coal Use Nearly Triples**



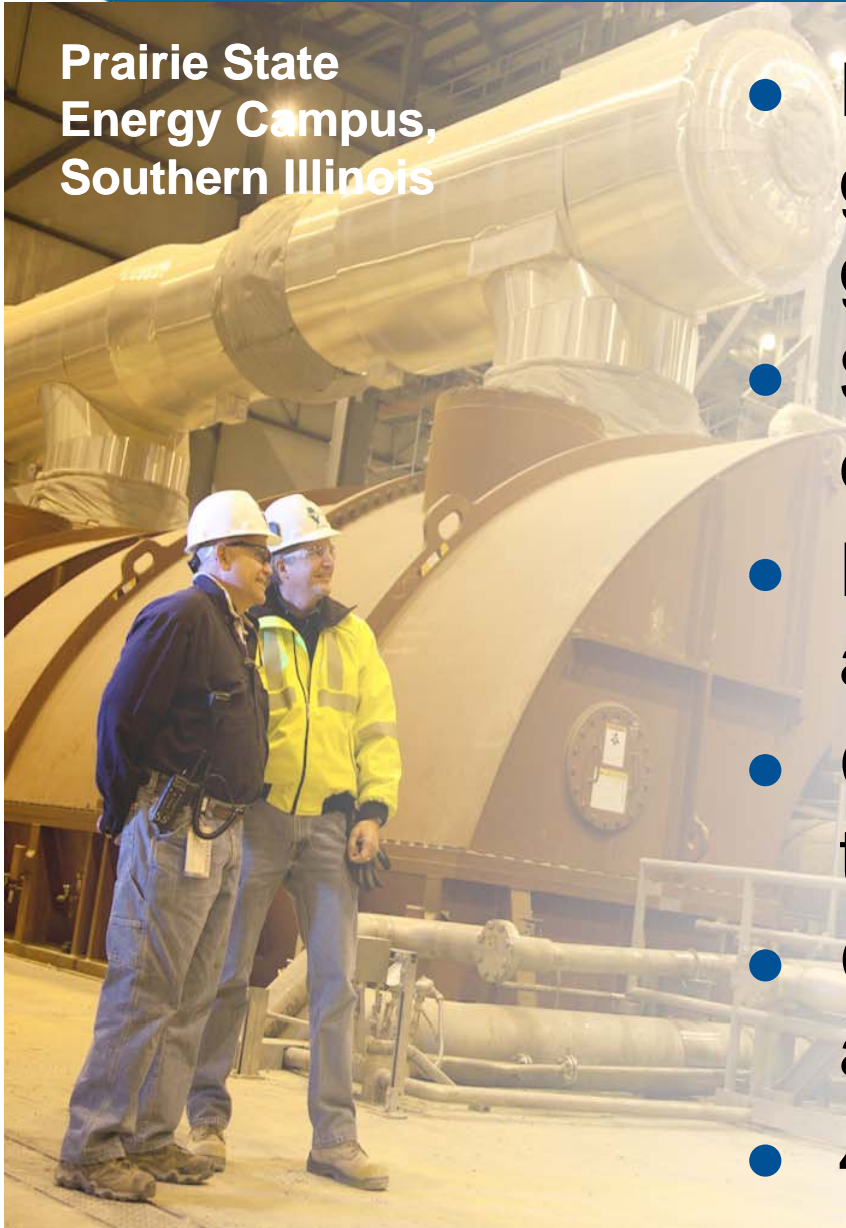
Source: USDA 2011; Energy Information Administration 2012; U.S. EPA Air Trends Data, 2012; Peabody analysis 2012. GDP in 2005 \$.

# Clean Coal Creates Green Jobs, Environmental Benefits



Prairie State  
Energy Campus,  
Southern Illinois

- Prairie State expected to generate 1,600 MW for grid by May 2012
- \$1 billion invested in environmental technologies
- Emissions rate 80% below average of U.S. fleet
- CO<sub>2</sub> emissions rate 40% lower than oldest plants
- Generates \$100+ million in annual economic benefits
- 450 jobs at plant and mine



# Peabody Plan: Boosts U.S. Energy, Economic and Environmental Solutions



## *Five Key Steps to Alleviate Energy Inequality*

- Ensure at least half of new generation from coal
- Replace older coal plants with supercritical plants
- Develop 100 CCS projects in a decade
- Deploy coal-to-gas, coal-to-chemicals, coal-to-liquids
- Commercialize near-zero emissions technology



GreenGen Power Plant, Tianjin

# Peabody Plan Energizes Economies With Green Coal



- Replacing traditional U.S. coal plants with supercritical plants would drive reindustrialization
- Benefit of constructing these plants includes:
  - \$1.2 trillion increase in economic output
  - 5.9+ million jobs
  - \$505 increase in personal income
  - \$213 billion in tax revenues



Source: International Energy Agency, Management Information Services and Peabody analysis.

# China Leads Global Technology Path With GreenGen



## *GreenGen: Among World's Largest Near-Zero Emissions Coal Plants*



**Control Room at GreenGen in Tianjin, China**

- Peabody only non-Chinese partner in GreenGen
- Multi-phase power project with carbon capture and carbon research center
- First 250 MW unit commissioning under way
- Expected on line first quarter 2012

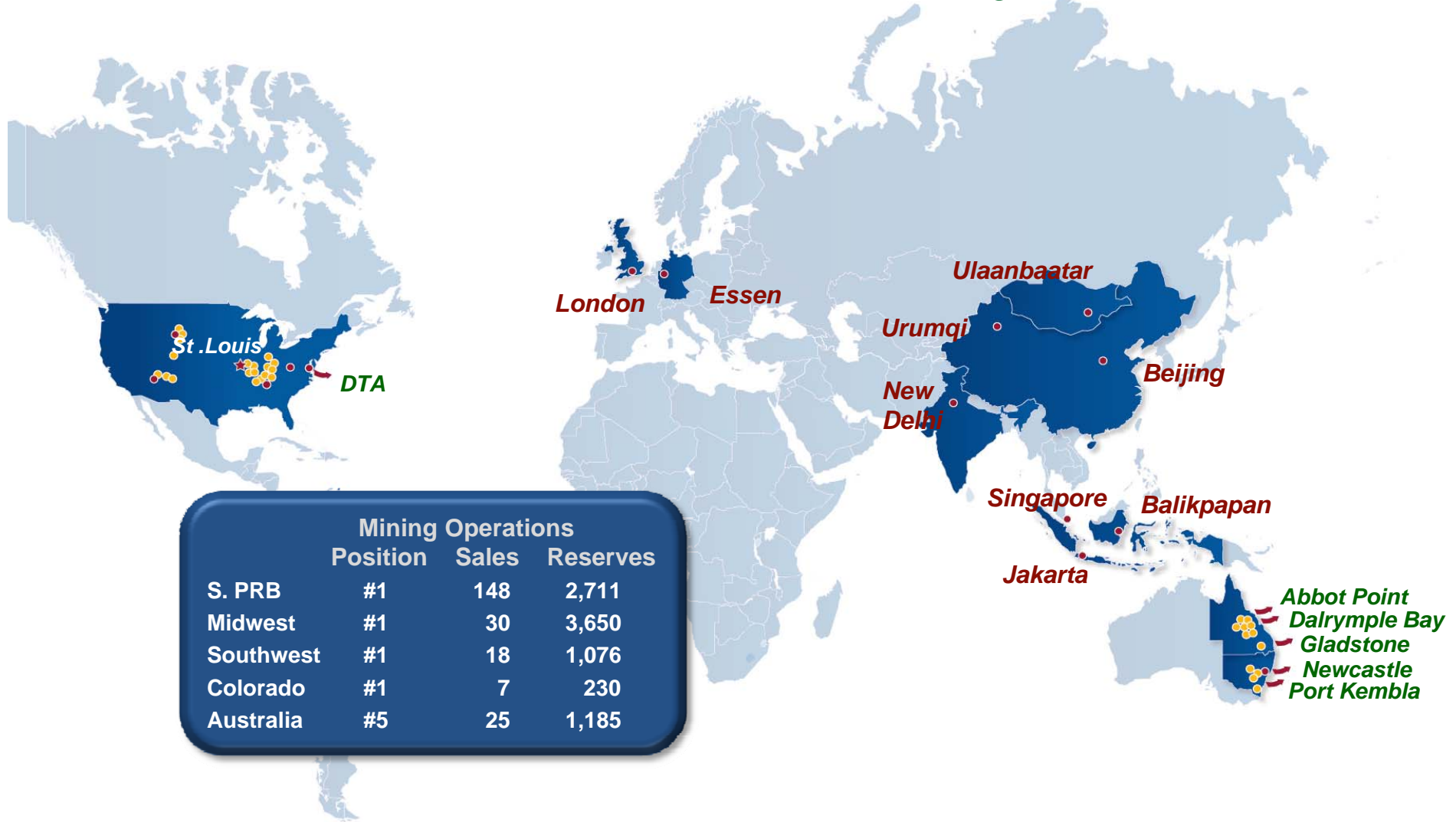
# Sustainable Energy Partnerships



# Peabody is World's Largest Private-Sector Coal Company

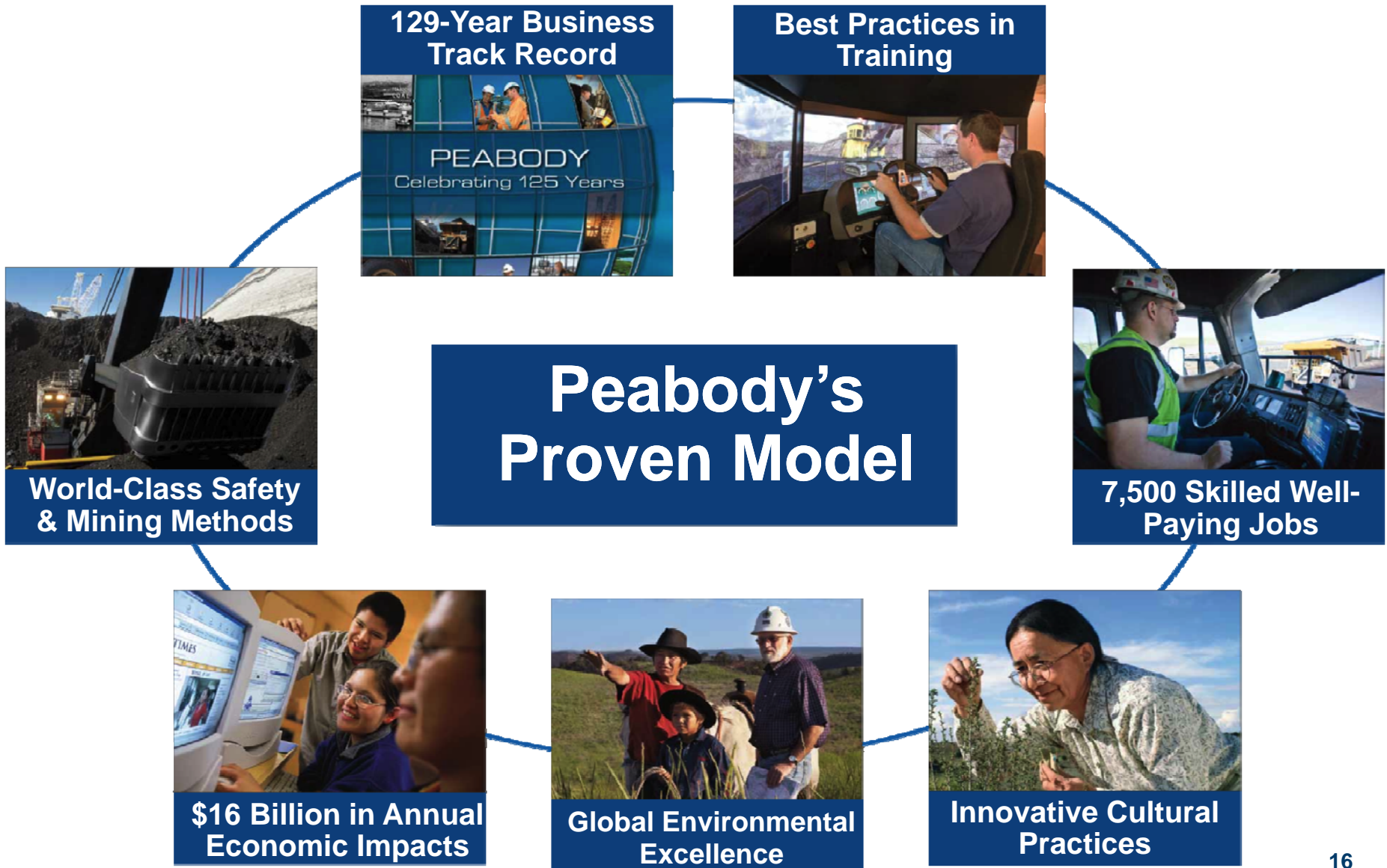


*Leadership Position in U.S. Market and Growing Global Presence*



Tons in millions. 2011 sales volumes and 2010 proven and probable reserves.

# Peabody Uses Sustainable Development Model





# Recognized Globally for Setting the Environmental Standard



## *Six Environmental Awards in the U.S. Australia and Asia in 2011*



**Former Ereen Mine in Northern Mongolia**

- Directed Mongolia's first coal mine restoration project
- Developed a government standard for reclamation
- Used best practices pioneered on Black Mesa
- Spend \$250 million on programs annually



# Peabody Has History of Successful Mine Development



## Powder River Basin

### 50 Years Ago

- Huge, untapped resource housing America's largest reserve
- 100-foot low-sulfur coal seams among cleanest in the world
- Landlocked, limited infrastructure, no mainline rail

### Today

- Largest U.S. coal region, leading U.S. production for two decades
- Provides fuel for one-third of U.S. electricity from one county
- Peabody's PRB flagship is world's largest and most productive coal mine

## Black Mesa

### 50 Years Ago

- Remote, landlocked region sparsely populated by traditional tribal people
- Sovereign nations own reserves and have able workforce

### Today

- 40+ year tribal partnership; created \$12+ billion in economic benefits
- Model for sustainability recognized globally

# Arizona Operations: \$12+ Billion In Economic Benefits Over Time



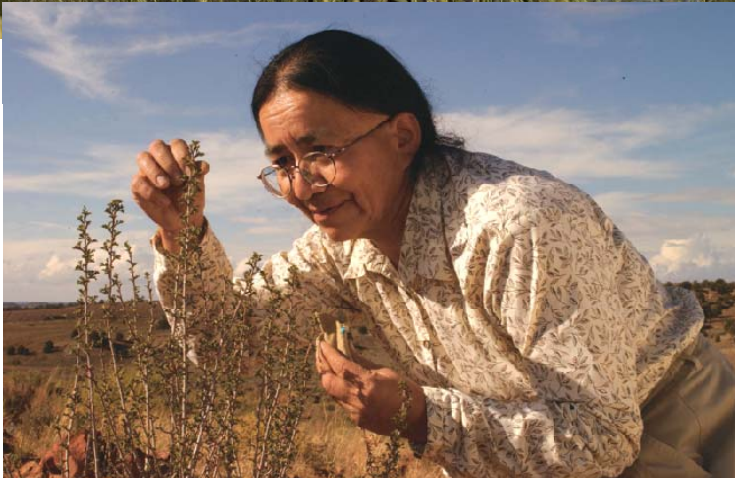
Lands Restored to a Condition More Than  
10X as Productive as Native Lands



# Quality of Restoration Important for Traditional Land Use



*“We Will Leave Land in a Condition Equal to or Better Than We Found it.”*



- Collaboration with area residents promotes good range management
- Residents have access to productive reclaimed range under Peabody control
- Program provides framework for long-term sustainability of range

# Mining Builds Communities Through Excellence in Education



- Peabody contributes \$360,000 annually in Navajo and Hopi scholarships
- Peabody helped develop infrastructure to “wire” town of Forest Lake; award-winning program recognized nationally
- Virtual classroom contains 15 work stations with video conferencing & Internet access to high school

***Coal is the sustainable  
energy solution for the long  
haul...***

***and clean coal technology is  
the path for green jobs and  
environmental goals.***

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