

Energy situation and Energy Saving Activities in China

Tian Zhiyu
Energy Research Institute
P.R. China
07 April 2009



国家发展和改革委员会能源研究所

Energy Research Institute National Development and Reform Commission

Outline

- Background
- Energy Situation
- Facing Big Challenges
- Energy Saving Activities
- Experiences and Challenges



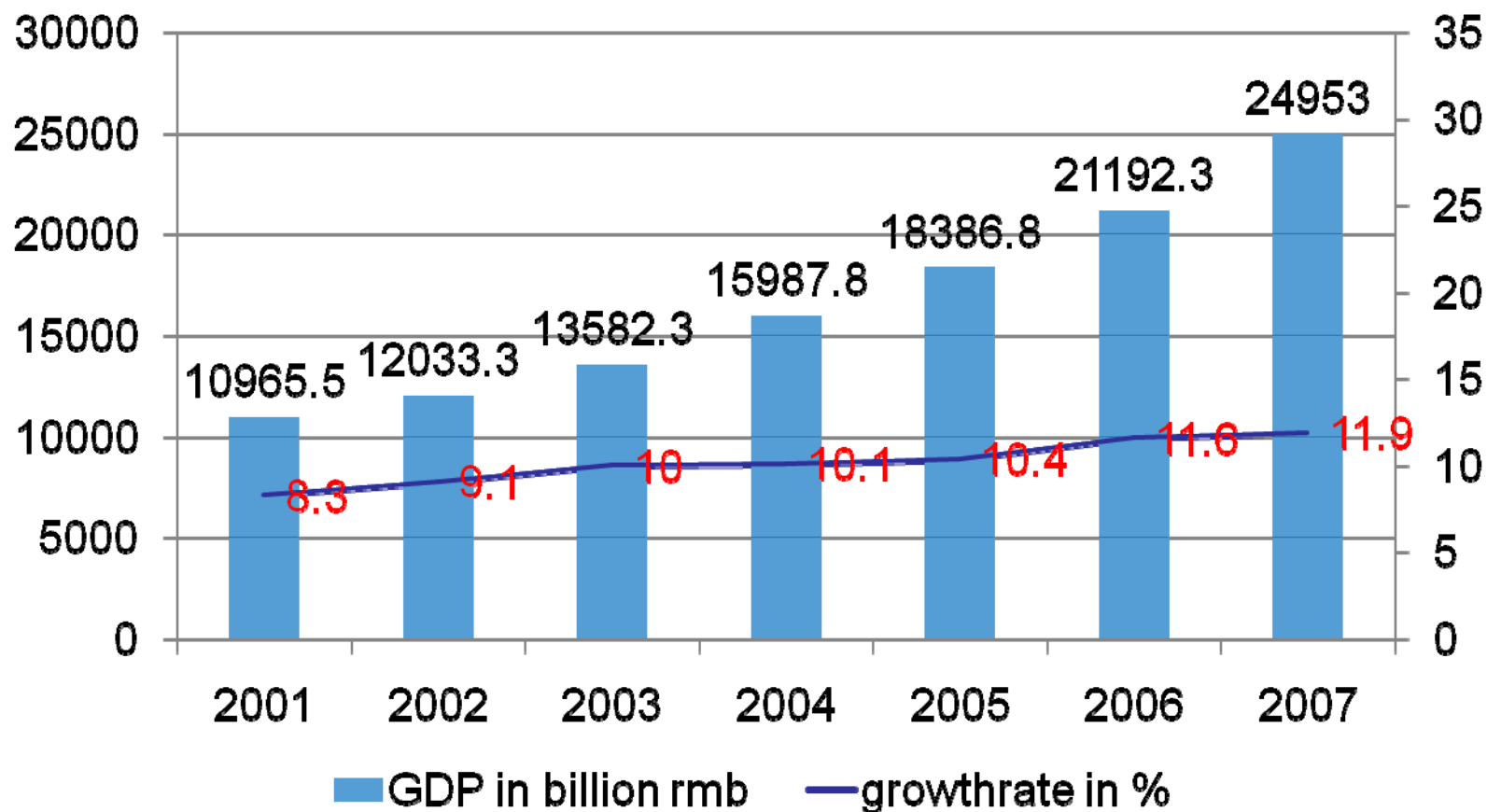
Background

- Booming economy
 - Average annual growth rate of GDP exceeds 10%
- Quick urbanization
 - 15 million people migrate from rural to urban area each year
- Fast growth of energy-intensive industries
 - Over capacity in many industrial sectors
- Soaring export
 - Energy embodied in export products accounts for 20-40% of total energy consumption
- Expanding building and transportation sectors
 - Newly-built building area exceeds 2 billion square meters
 - Possession of civil motor vehicles increased 6.6 million in 2007



Background

Fast economic growth in China – unprecedented and overheated

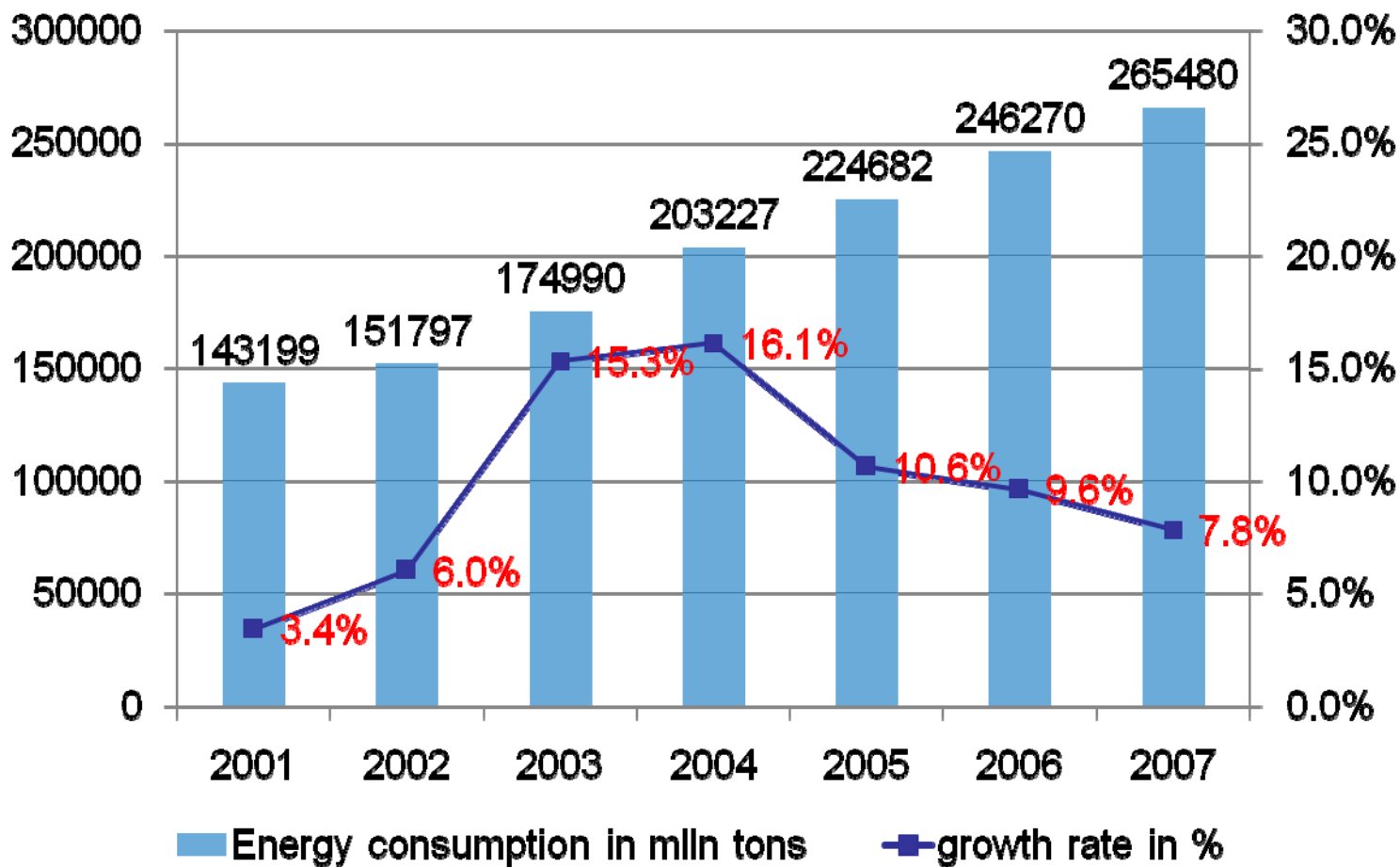


国家发展和改革委员会能源研究所

Energy Research Institute National Development and Reform Commission

Energy consumption grows even faster

- Almost doubled since 2001

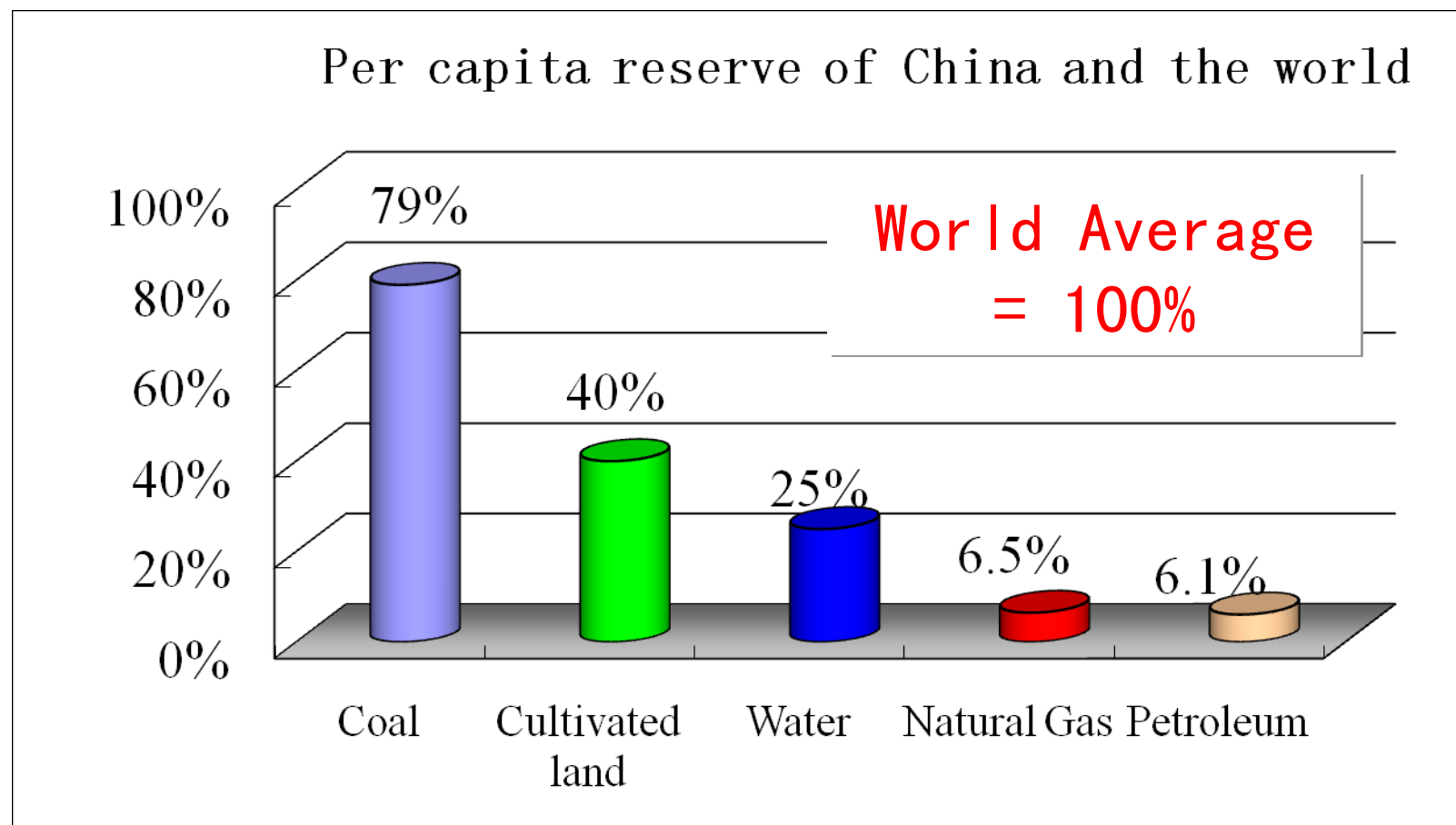


国家发展和改革委员会能源研究所

Energy Research Institute National Development and Reform Commission

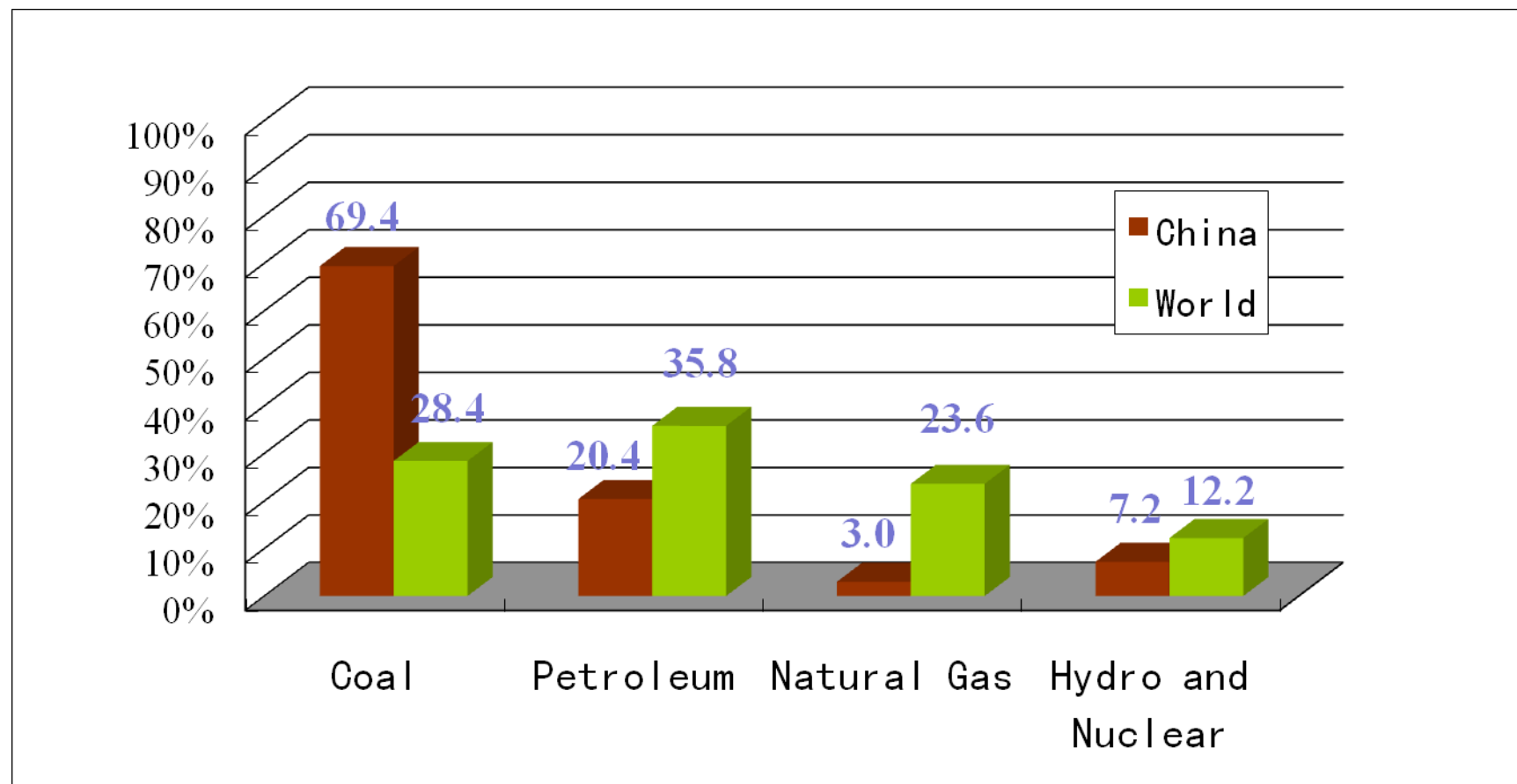
Facing big challenges

Energy reserve per capita is less than that of the world



Energy Supply by Source

China and World Average in 2006



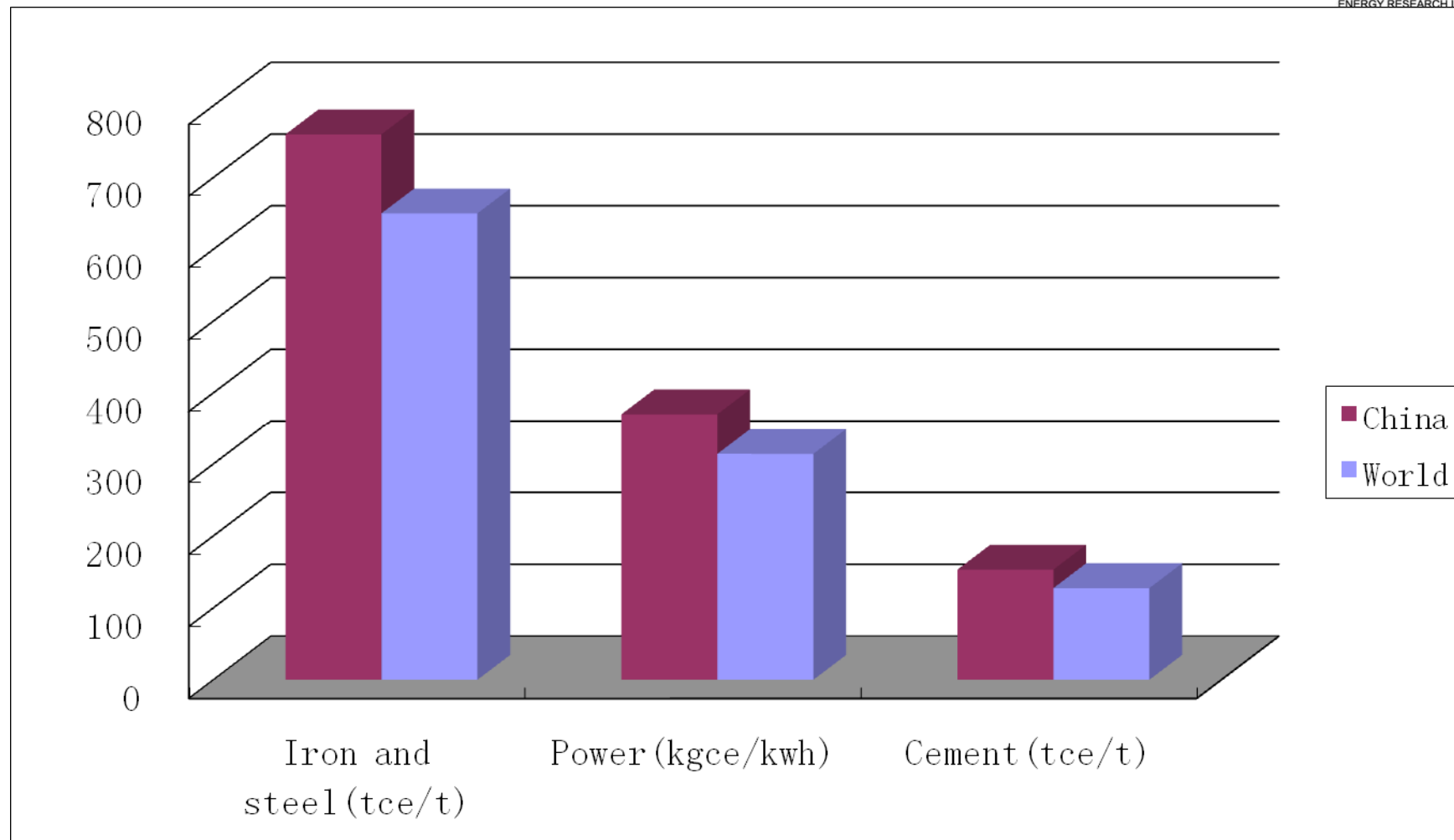
国家发展和改革委员会能源研究所

Energy Research Institute National Development and Reform Commission



ENERGY RESEARCH INSTITUTE

Low energy efficient



Coal Mining Safety Problems

Country	Death rate of million tons output	Annual death toll
China	2.04	4746
Russia	0.46	113
India	0.42	107
Poland	0.27	28
South Africa	0.085	11
The US	0.039	38
Australia	0.023	3



Deteriorating Environment



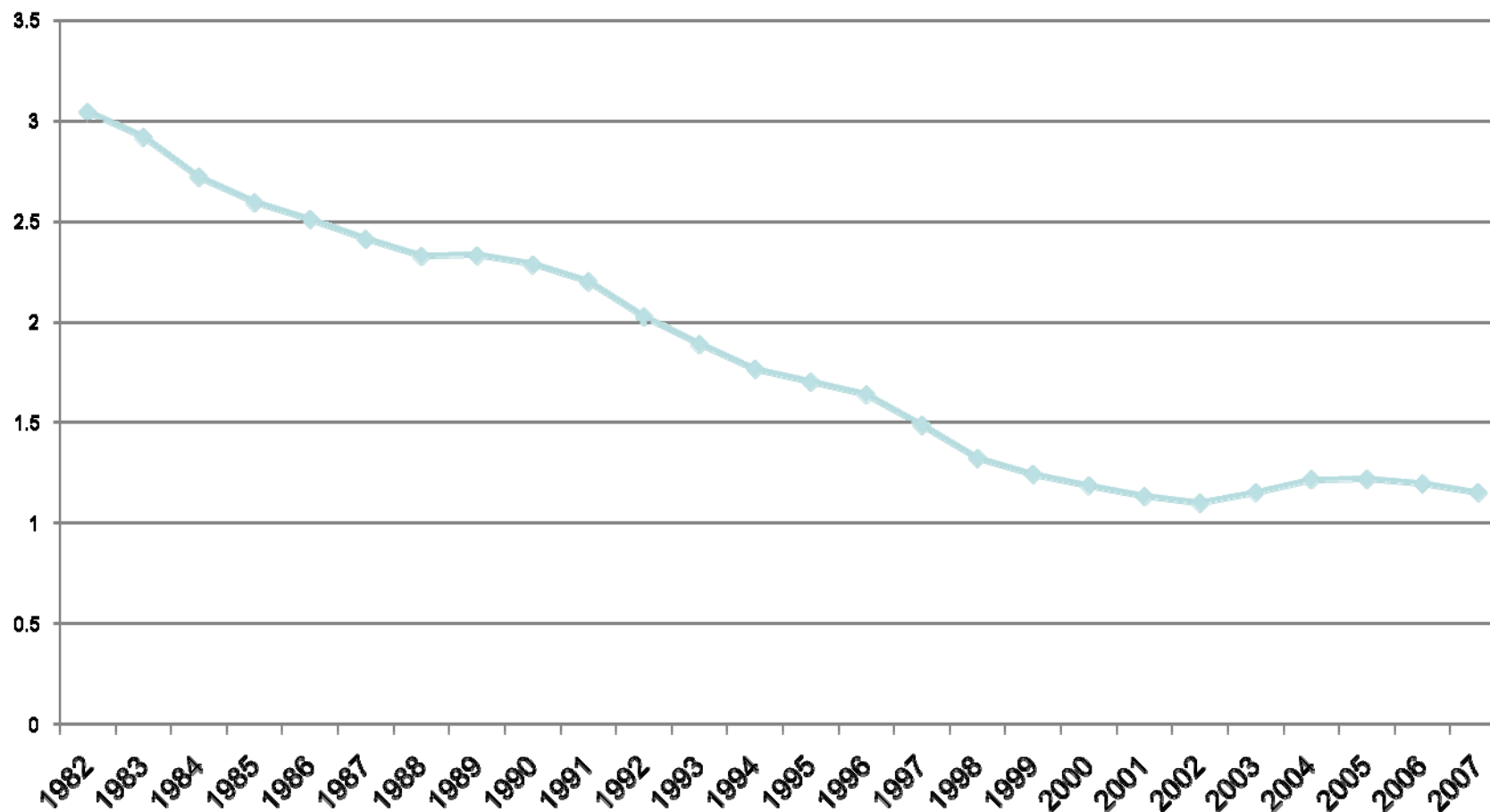
ENERGY RESEARCH INSTITUTE



国家发展和改革委员会能源研究所

Energy Research Institute National Development and Reform Commission

Energy Intensity of GDP



国家发展和改革委员会能源研究所

Energy Research Institute National Development and Reform Commission

Energy Saving Goals



- National Goal
 - 20% reduction of energy intensity (TPES/GDP) from 2006 to 2010
- The 20% reduction goal is decomposed
- MOUs of accountability have been signed
- Indicators to evaluate and examine officials' performance



国家发展和改革委员会能源研究所

Energy Research Institute National Development and Reform Commission

Loose Sector-specific Goals



- Building sector
 - The Ministry of Construction commits to conserve 200 million TCE by 2010 in building sector
- Transport Sector
 - The Ministry of Communication raised a similar 20% goal in transport sector
- Industry Sector
 - Unlike the situation in Japan
 - A loose association of enterprises
 - No voluntary energy conservation goals yet



Energy Saving Policies



- National Action Plan for Energy Conservation
 - Issued by the State Council
- Revised and enhanced Energy Conservation Law
 - Enforce from April 1, 2008
- High on the agenda
 - Central and local governments must develop long-term and annual energy conservation action plan
 - Adopted unprecedented actions
 - Annual examination and evaluation



国家发展和改革委员会能源研究所

Energy Research Institute National Development and Reform Commission

Top-1000 enterprises EC Action



- Industry sector is playing a pivotal role
 - Consume 70% of energy consumption
 - Have big energy conservation potential
- Learn from Japanese experiences
- Top-1000 Energy Conservation Action
 - Include enterprises which consumed over 0.18 million TCE annually
 - Account for 46% of total industrial energy consumption
- Energy Saving Target
 - 100 million TCE in 5 years
 - Improve average energy efficiency level remarkably



国家发展和改革委员会能源研究所

Energy Research Institute National Development and Reform Commission

Ten Energy Conservation Projects



- Target
 - To form energy conservation capability of 240 million TCE in 2010
- Ten EC Projects
 - Coal based Boiler (Furnace)
 - Co-generation
 - Waste heat & pressure recovery
 - Oil saving and substitution
 - Motor system energy conservation
 - Energy system optimization
 - Green light
 - Building energy conservation
 - Energy conservation in government agencies
 - Capacity building of energy conservation technical assistant



国家发展和改革委员会能源研究所

Energy Research Institute National Development and Reform Commission

- Eliminate capacity in 2007
 - Small coal fired power plants:21.57GW
 - Small coal mines:11.2 thousands
 - Iron production capacity:46.59 million tons
 - Cement production capacity:87 million tons
- Specific funds for energy efficiency
 - 5.58 billion Yuan in 2007, 720% higher than that of 2006
 - Soft loans and financial rewards
 - Adopt rewards rather than subsidies



Other policies

- Energy efficiency assessment for new project approval
- Regular release energy efficiency indicators
- Building Energy Conservation Bill
- Energy Conservation power generation scheduling
- Enhanced energy efficiency standard
- Raising social awareness
- Reinforce organizing capacity
- Fiscal and tax incentives
- Accountability
- Complementary support



Energy Saving experiences



- Compulsory energy saving goal suits China's condition
 - A centrally-planned economy
 - Market failure is much severer than advanced economies
 - Organize capacity and law enforcement capability in government
- Strong government commitment creates policy expectation
- Decompose target in provinces and take examinations
- Consolidate organizational structure and accountability system
- Incentive and compensation measures



国家发展和改革委员会能源研究所

Energy Research Institute National Development and Reform Commission

Future Challenges



- Market-based approaches is relatively weak
 - Energy pricing and taxation system
 - Incentive measures
- The decompose method needs improved
 - Reflect EC potentials in different regions
 - Encourage strong EC willingness
- Establish long term EC mechanism
 - Government force & Market force & Act voluntarily
- Negative drivers
 - Downturn economy
 - Over capacity of production
 - Lower fuel prices



国家发展和改革委员会能源研究所

Energy Research Institute National Development and Reform Commission



Thank you for your attention

Tian Zhiyu

tianzy@eri.org.cn

Energy Research Institute

P.R.China

Contact: report@tky.ieej.or.jp



国家发展和改革委员会能源研究所

Energy Research Institute National Development and Reform Commission