# Responding to Energy Challenges in China

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Washington, DC November 2007

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# World energy trends owe much to developments in China

Figure 1: Share of China and India in Incremental Energy Demand, Imports and Energy-Related CO<sub>2</sub> Emissions, 2000-2006\*



## China's energy future is in coal





# Industry remains the top consumer





# China will be a main driver of non-OECD oil demand growth in the medium term...



Source: IEA, Medium-Term Oil Market Report.

### ...and in the longer term



# New light-duty vehicle sales in China are helping to propel oil demand



## China's oil imports reach 13 mb/d in 2030 as car ownership jumps to 140 per 1 000 people from 20 today

### With domestic production flat, incremental consumption must depend on imports

#### REFERENCE SCENARIO



## China's net oil imports quadruple to 13.1 mb/d in 2030, their share of demand jumping to 80%

# Emergency stockpiles in IEA countries alone will no longer suffice



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### China & India in Global CO<sub>2</sub> Emissions



Around 60% of the global increase in emissions in 2005-2030 comes from China & India

 $(\mathbf{\hat{+}})$ 

Source: IEA, World Energy Outook 2007.

### World's Top Five CO<sub>2</sub> Emitters

#### REFERENCE SCENARIO

	2005		2015		2030	
	Gt	rank	Gt	rank	Gt	rank
US	5.8	1	6.4	2	6.9	2
China	5.1	2	8.6	1	11.4	1
Russia	1.5	3	1.8	4	2.0	4
Japan	1.2	4	1.3	5	1.2	5
India	1.1	5	1.8	3	3.3	3



# China's energy-related CO<sub>2</sub> emissions come primarily from coal



## *Emissions soar from 5 Gt in 2005 to 11 Gt in 2030, though they remain below current OECD levels in per-capita terms*

## Growth in fossil-fired electricity generation 2000-2005 exceeded OECD + India





source: Electricity Information 2006, IEA

## CO<sub>2</sub> emissions from coal-fired power plants



# China's focus on efficiency is leading to application of more resources

- **1. Amendment of the Energy Conservation Law**
- 2. Medium & Long-term Plan for Energy Conservation
- **3. Ten key energy-efficiency projects**
- 4. Top-1000 Enterprises Energy Conservation Programme
- **5. Energy-intensity reporting system**
- 6. Energy-efficiency labelling
- 7. Policy on small motor vehicle engines
- 8. Amendment of the Programme on Energy-Saving Technology Policies
- Government procurement & energy management
- **10. Energy-efficiency standards**

### Effectiveness of Policies to Promote Energy Efficiency in China



Tougher efficiency standards for air conditioners & refrigerators in alone would save the need to build a Three Gorges Dam by 2020

### **China's Local Pollutant Emissions**

**REFERENCE & ALTERNATIVE POLICY SCENARIOS** 



## Policies aimed at enhancing energy security & reducing CO<sub>2</sub> emissions also reduce local pollution

Source: IEA, World Energy Outook 2007.

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## China's energy-related CO<sub>2</sub> emissions can be brought down significantly



### **Global Energy-Related CO<sub>2</sub> Emissions**





Global emissions will increase by 57% in the Reference Scenario, but they level off in the Alternative Policy Scenario



Source: IEA, World Energy Outook 2007.

## **IEA cooperation with China**

Energy (oil) security

 Energy statistics Information sharing, simulation exercises

Information exchanges, training and capacity building

 Analysis (scenarios, indicators)

 Policy (supply, efficiency, env.)

 Technology cooperation Technical cooperation on modeling and indicators

Sectoral studies: gas, coal, electricity, efficiency

Participation in IEA's technology networks



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