



# Asia and Europe's Energy Challenges

*Christopher M. Dent*  
*University of Leeds, UK*

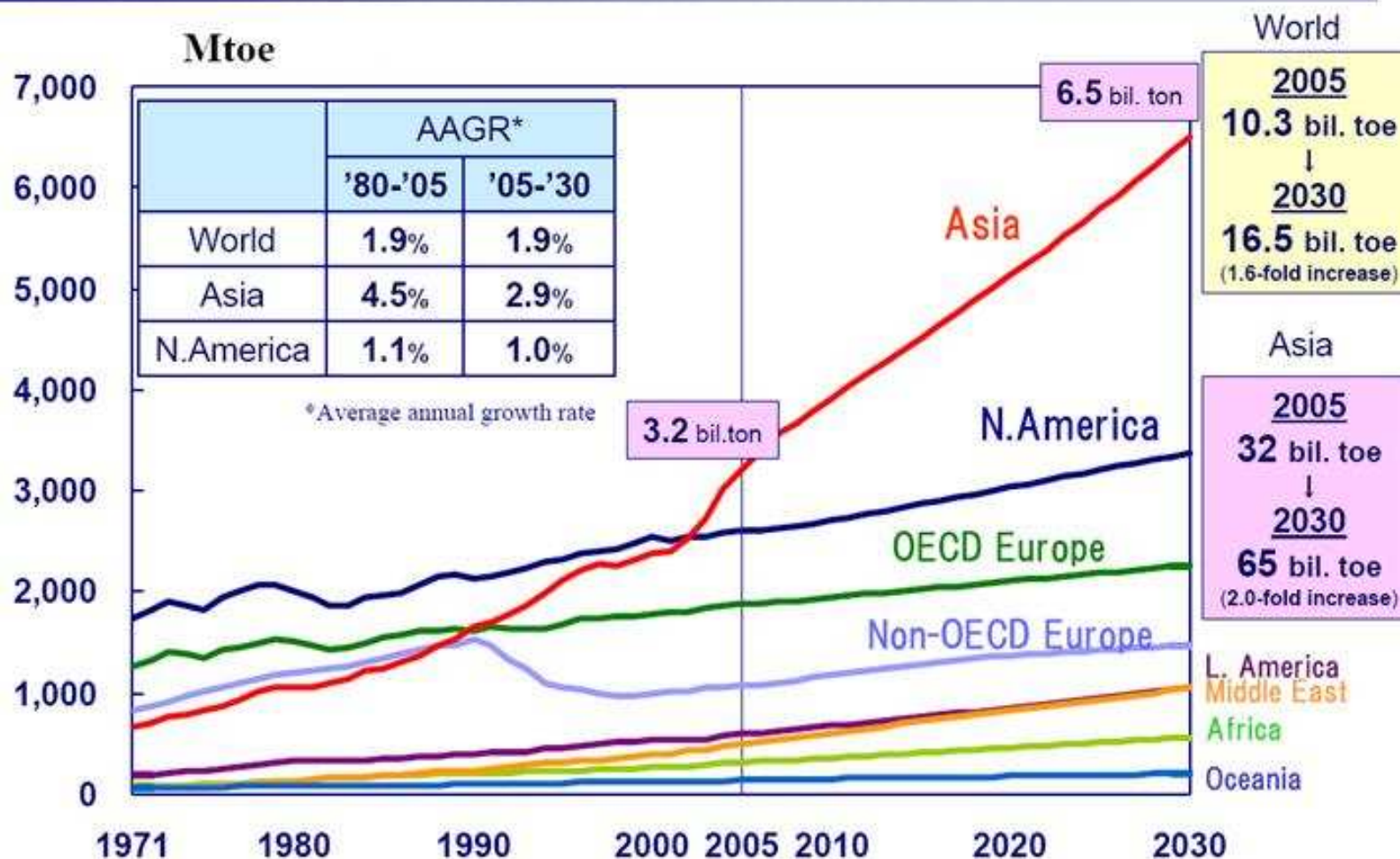
# Why Does Energy Matter?

- An important functional element of the economy and society
- BUT... current energy production and consumption structures are unsustainable
- Conflation of energy security and climate change challenges at multiple levels
- Energy becoming an increasingly prominent feature of Asia – Europe relations

# Europe and Asia: Shared Energy Challenges

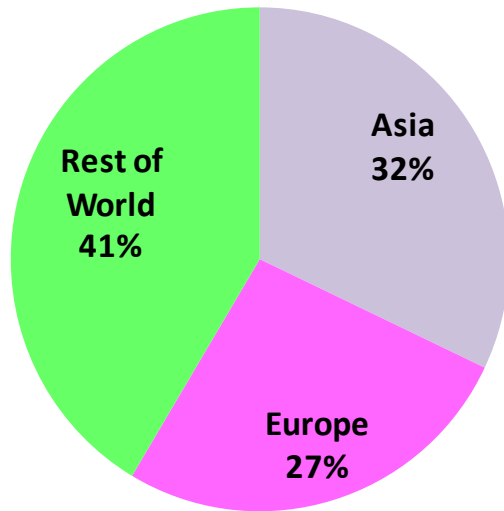
- Both net energy importers / consumers
- A growing mutual dependency on the same foreign energy suppliers
- Diversification as risk aversion
- Search and development of green energy paradigms
  - energy efficiency
  - renewables
- Crucial to broader endeavour of sustainable development

# Primary Energy Demand by region ; World

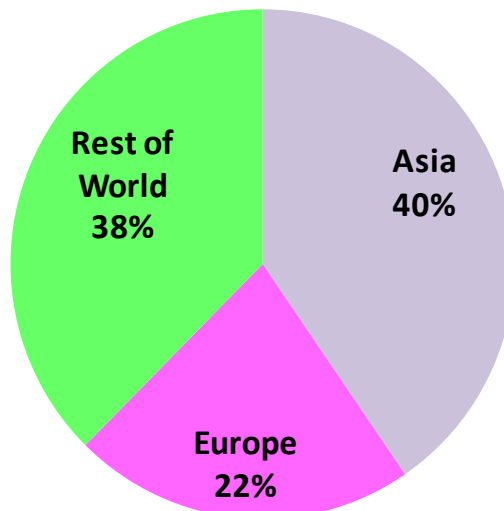


*In 2030, primary energy demand of Asia achieves twice as much as current level, reflecting highly economic growth. 3.2 billion toe(2005) → 6.5 billion toe (2030)*

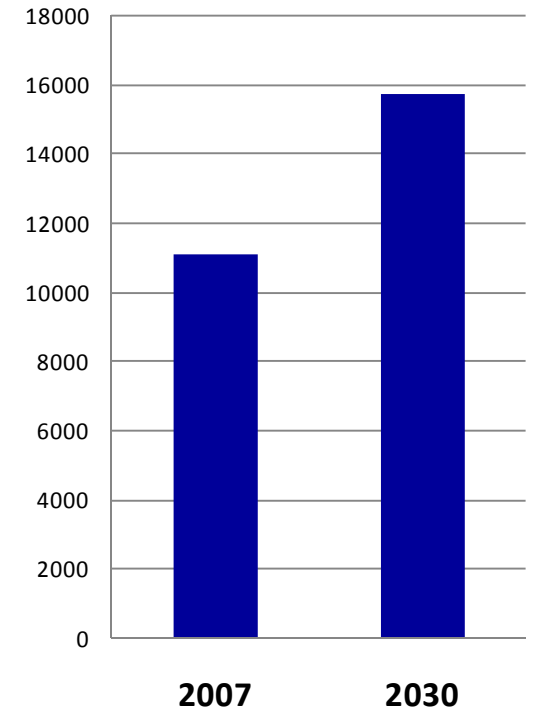
### World Energy Consumption, 2007



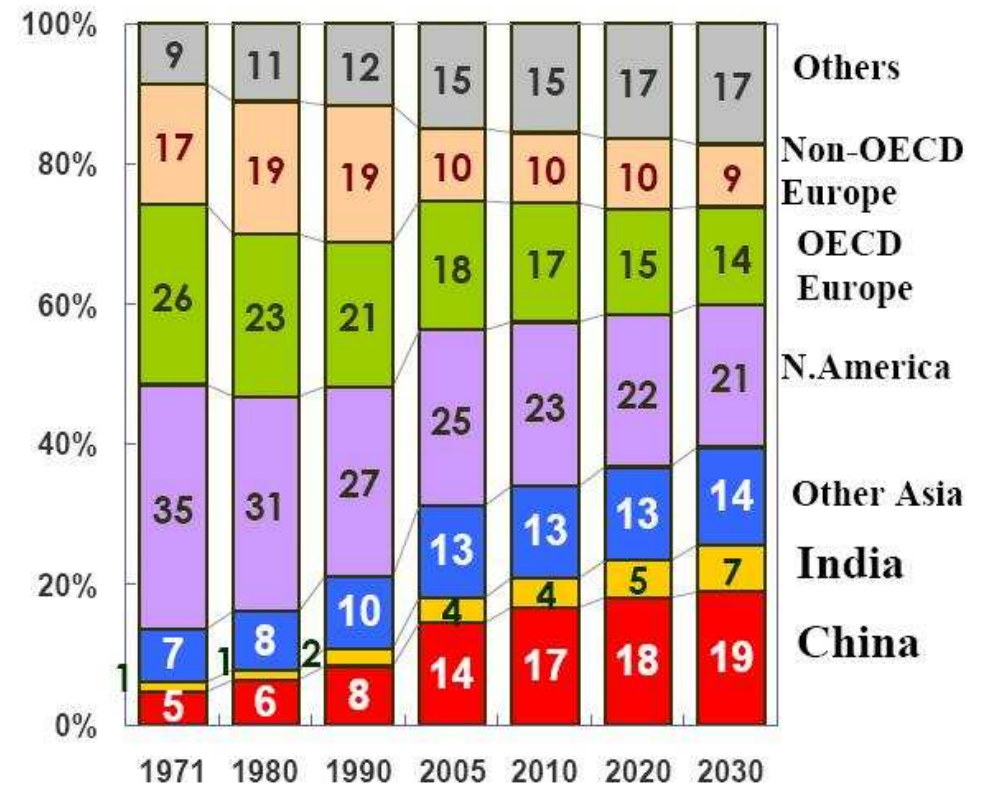
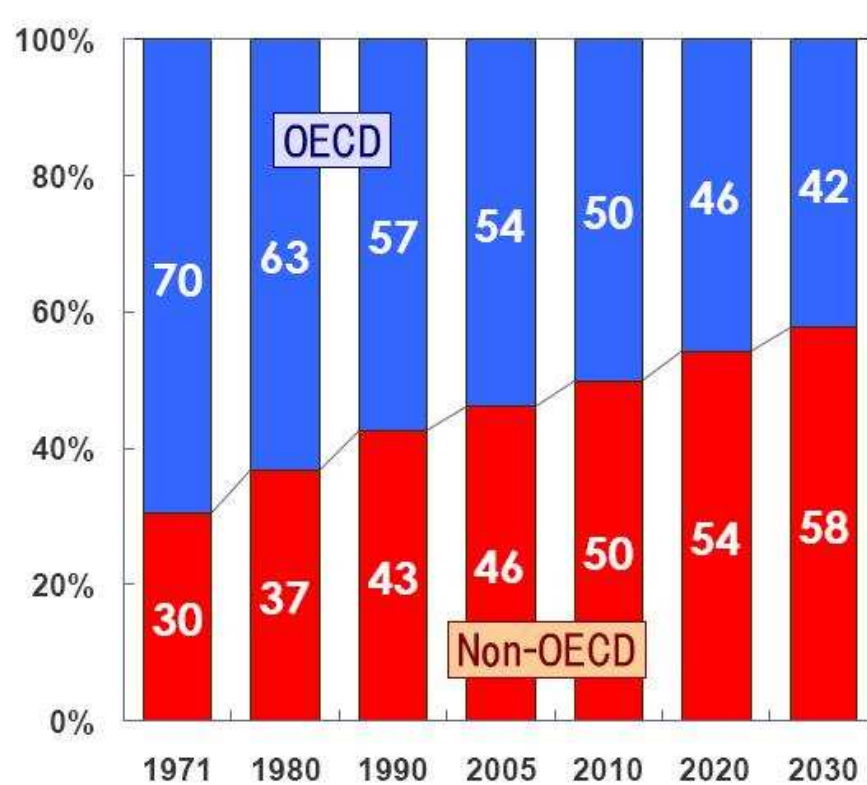
### World Energy Consumption, 2030



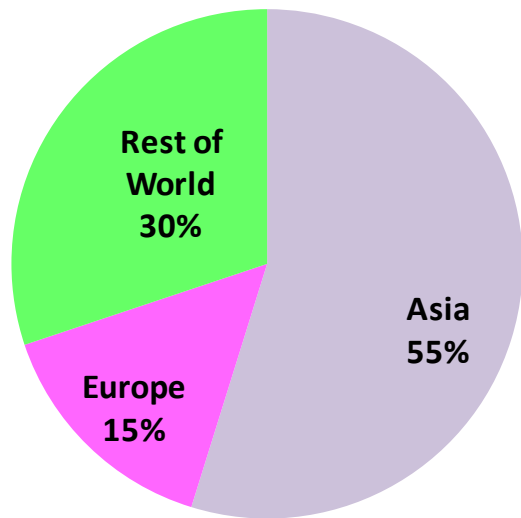
### World Energy Consumption (Mtoe)



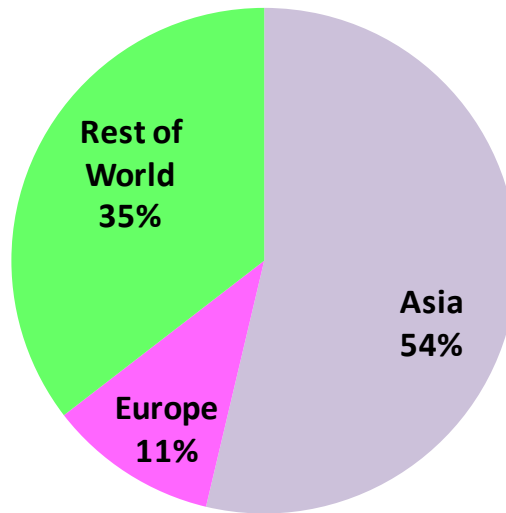
# Primary Energy Demand (Regional Share)



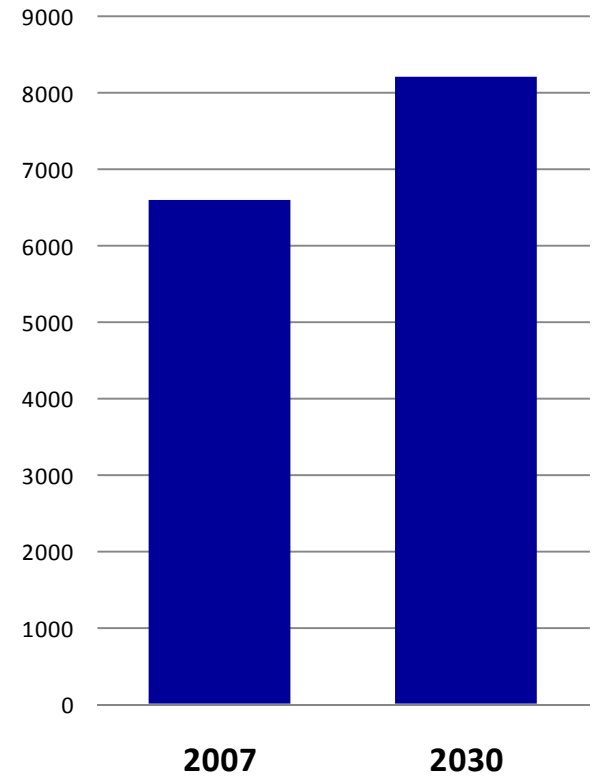
### World Population, 2007



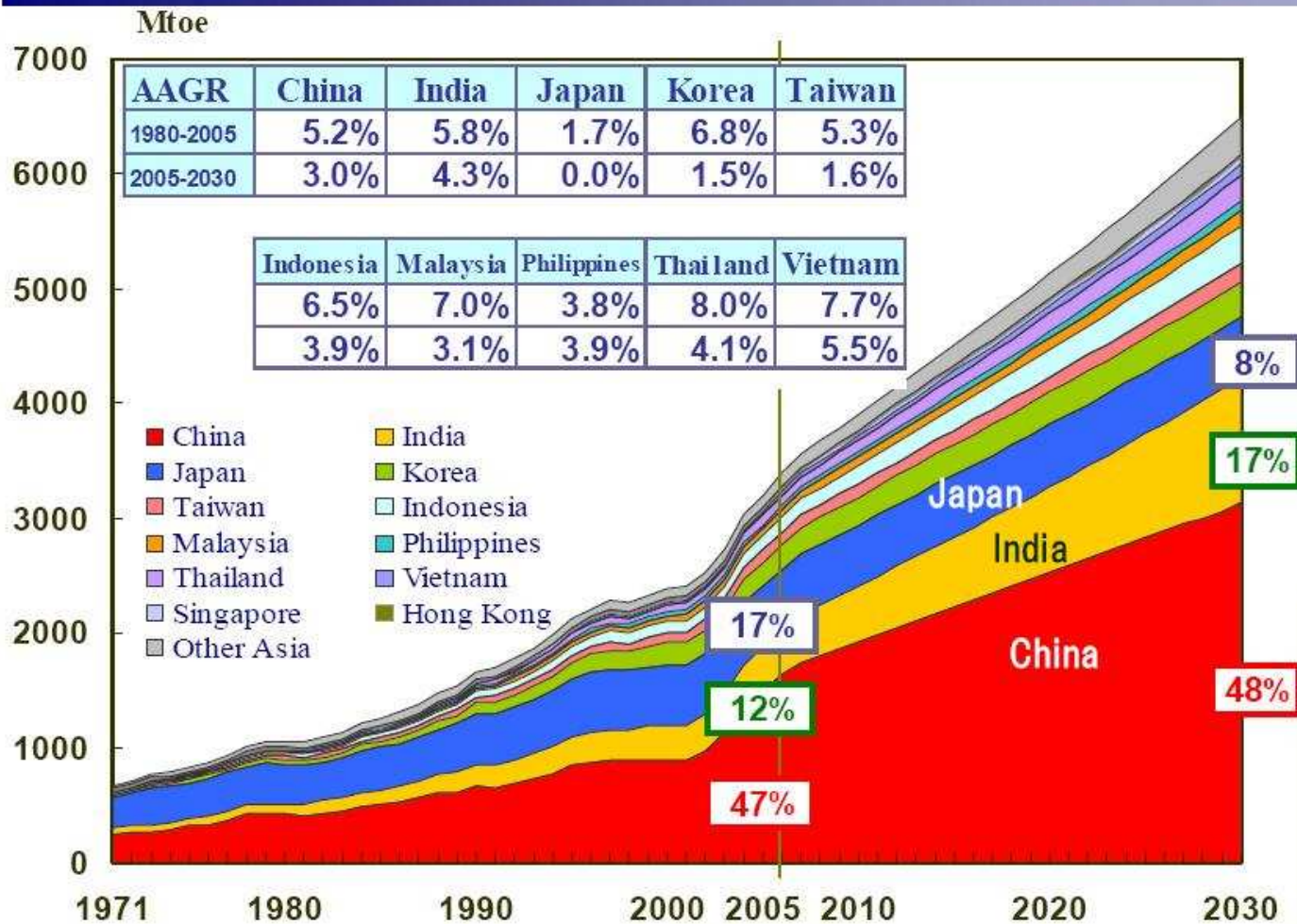
### World Population, 2030



### World Population



# Primary Energy Demand (Asia)



Asia

**2005**  
3.2 bil. toe

↓

**2030**  
6.5 bil. toe  
(2.0-fold increase)

China / India

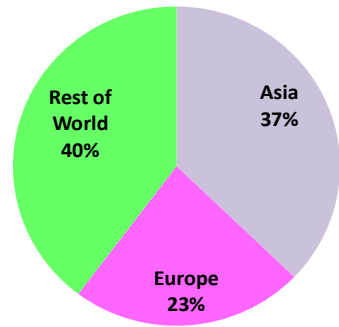
**2005**  
1.5 bil. toe / 0.4 bil. toe

↓

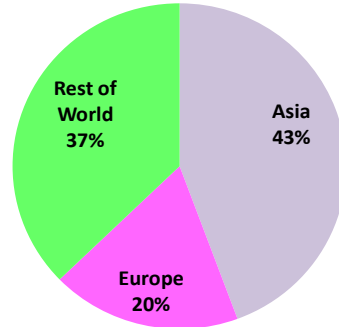
**2030**  
3.1 bil. toe / 1.1 bil. toe  
(2.1-fold inc. / 2.9-fold inc.)



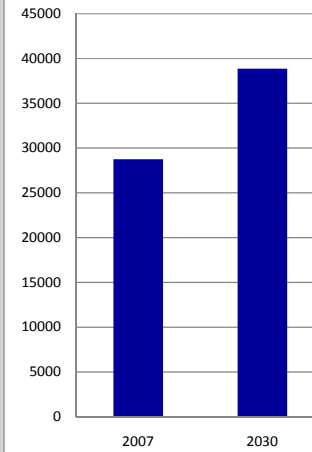
World CO<sub>2</sub> Emissions, 2007



World CO<sub>2</sub> Emissions, 2030

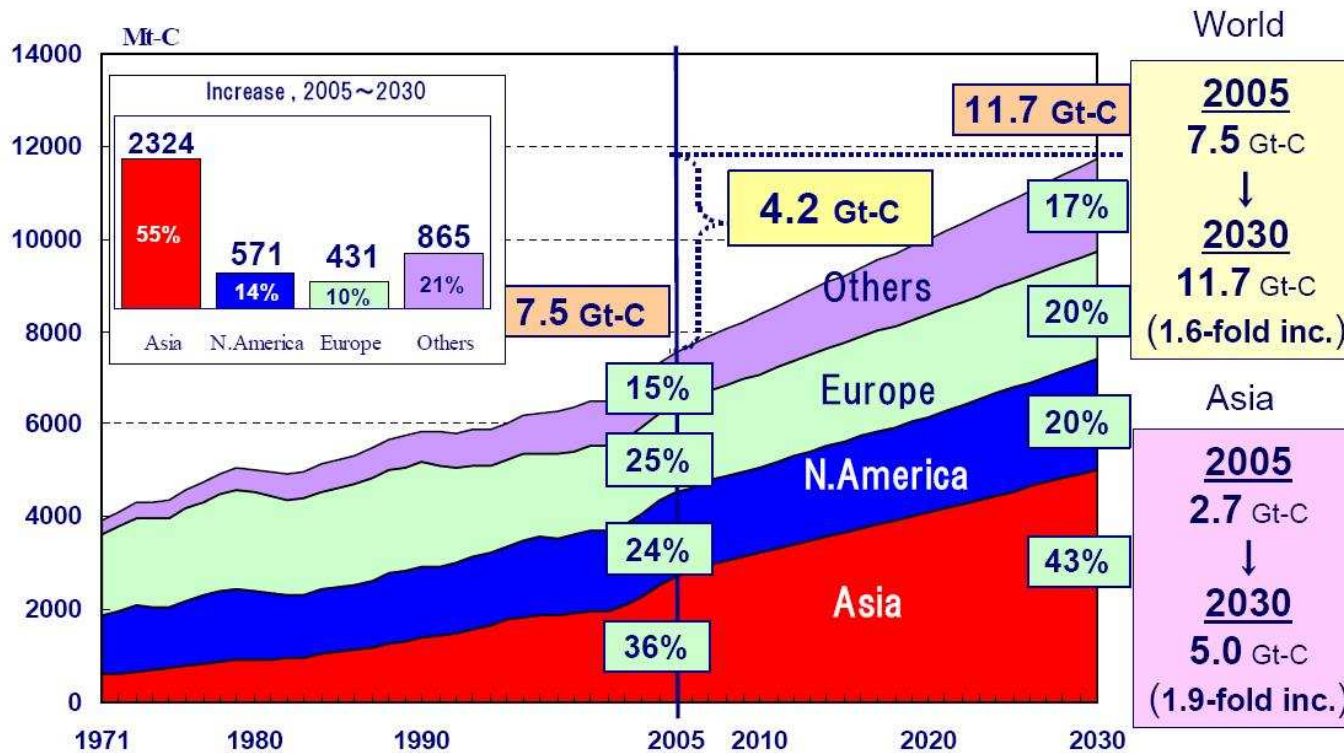


World CO<sub>2</sub> Emissions

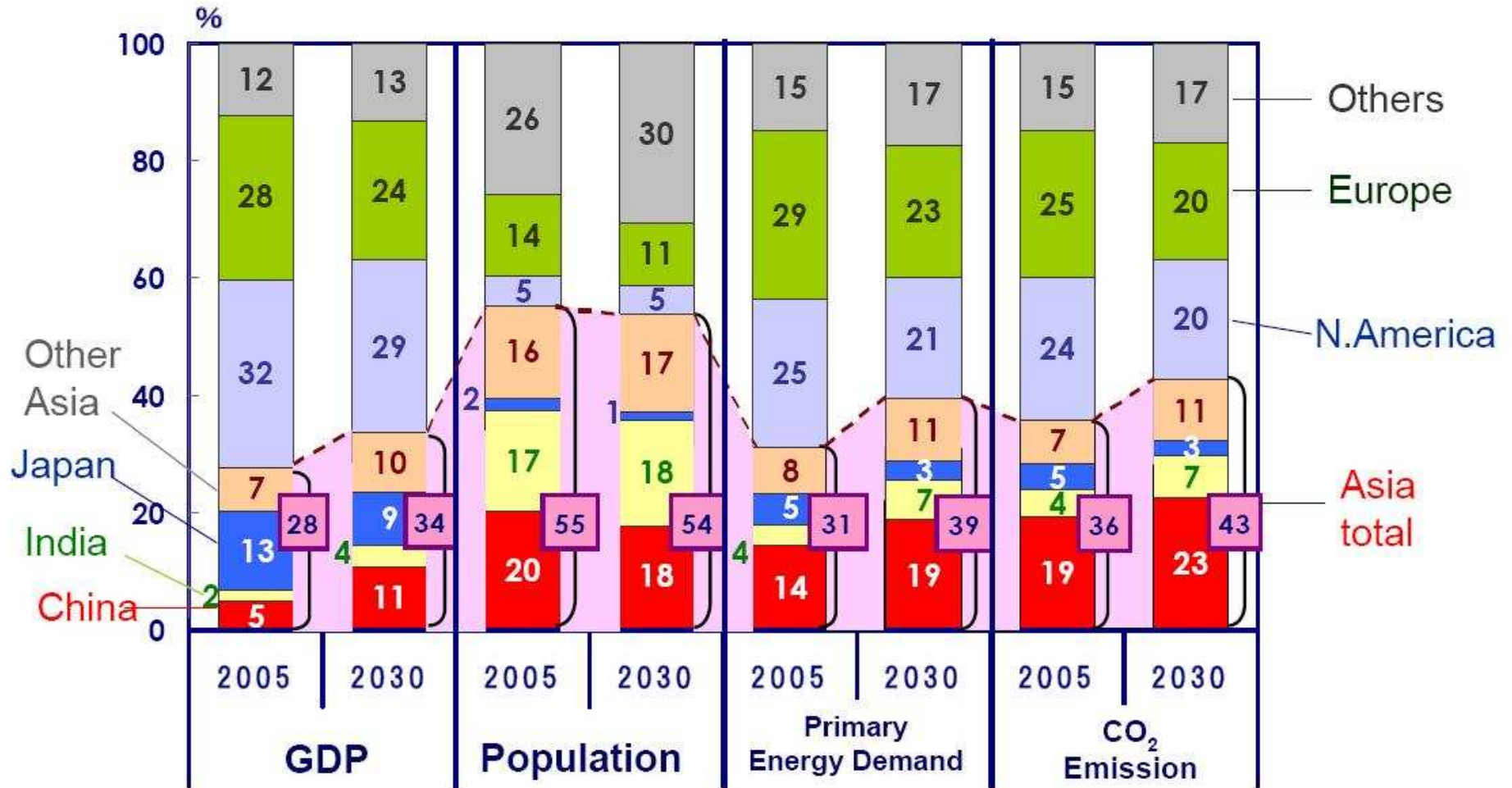


IEEJ : November 2007

## CO<sub>2</sub> Emission by Region ; World



# <Appendix> Importance of Asia in World Economy and Energy Economics



# EU Energy Dialogues with East Asia

- **Japan:** from the 1970s onwards... now esp. smart grids, green energy techs, Russia, multilateral co-operation (e.g. IEA, G8/20), policy learning generally
- **South Korea:** much less developed dialogue and co-operation... 'informal' work on best practices, energy poverty in developing nations (aid related)
- **Taiwan:** no substantive energy co-operation
- **China:** expanding agenda, esp. energy efficiency, renewables, other green related, e.g. CCP, CCT
- **ASEAN:** dialogue recently ramped up, esp. biofuels, nuclear safety, regional energy governance / markets
- **ASEM level:** Ministerial Conference on Energy Security in June 2009, more to follow?

# Ways Forward...

- **Context:** Asia and Europe as a very large global energy constituency...
- Establish strong green energy partnerships at multiple levels (EU and developed Asia has much to offer here, developing Asia increasingly so)
- Promote stronger multilateral co-operation and governance on energy security
- Prioritisation of energy co-operation in G20
- Closer working together with 'third regions' (e.g. Africa, Central Asia) on energy issues
- EU support of China's accession to IEA