

GTSP Technical Review

Energy Challenges in Northeast Asia

May 24, 2005

**Joint Global Change Research Institute
University of Maryland, USA**

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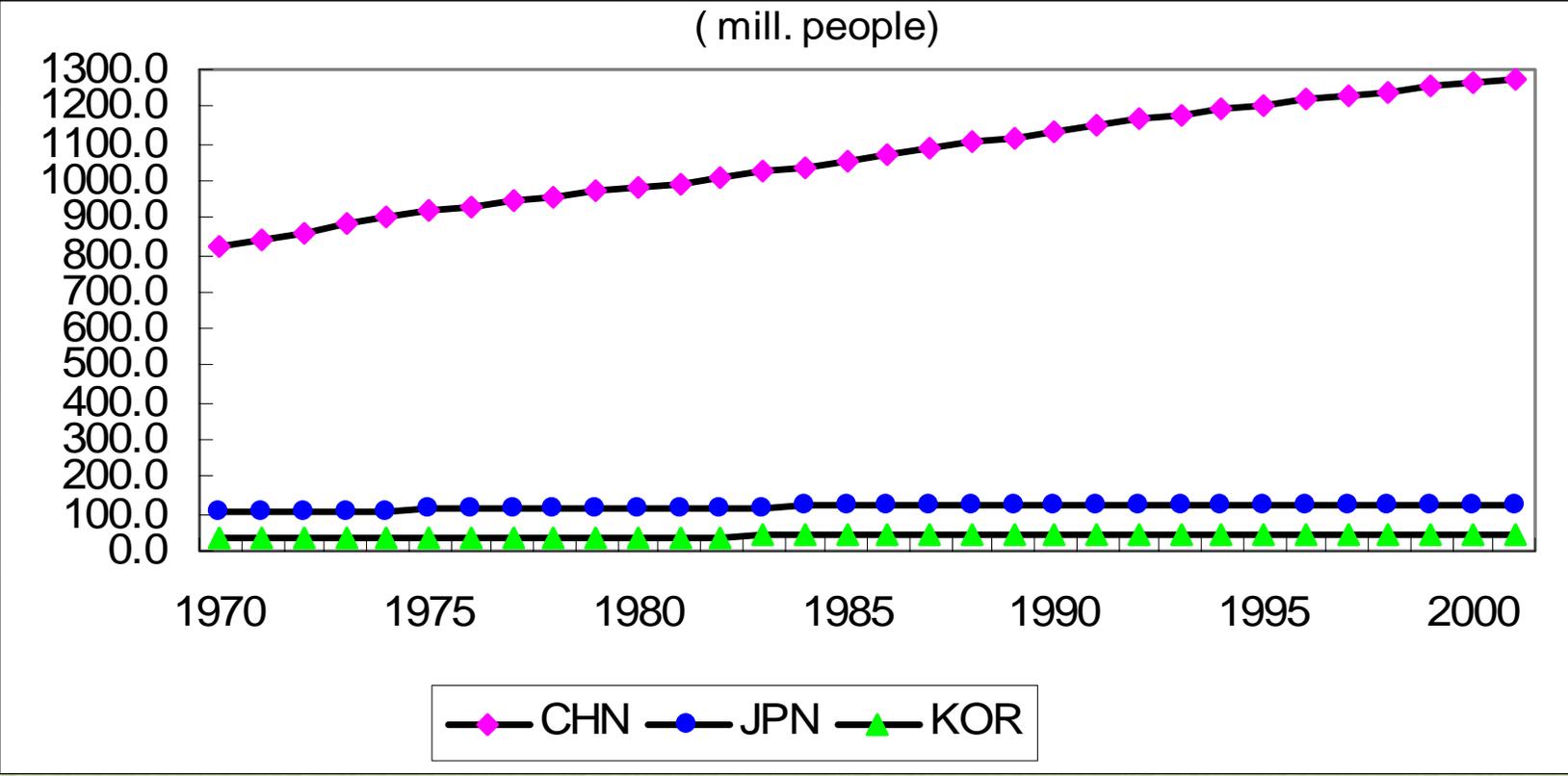
Institute for Global Environmental Strategies (IGES), Japan



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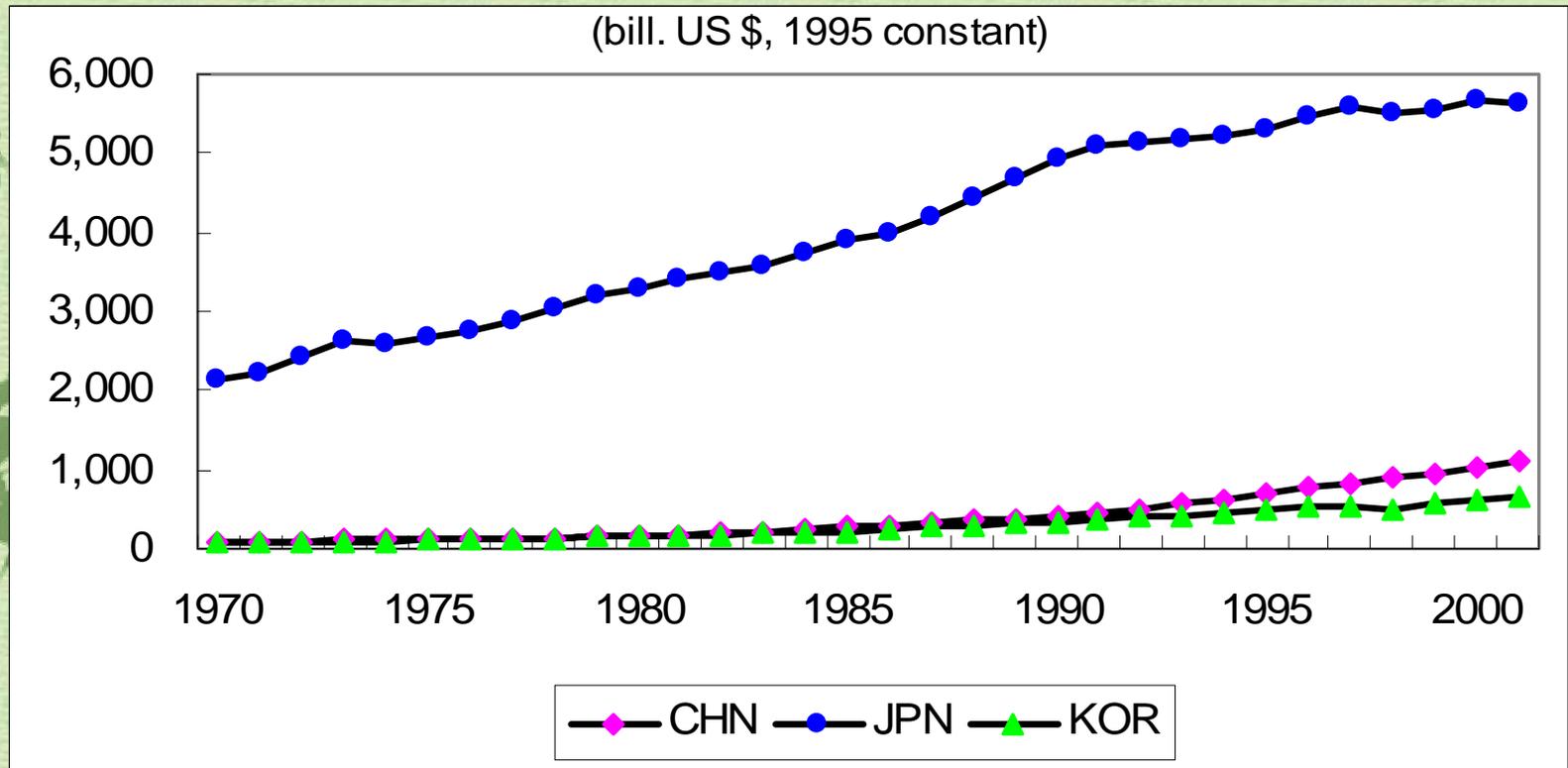
- **Basic Profiles**
- **Energy Projections**
- **Oil & Natural Gas in NE Asia**
- **Energy Cooperation**

Population



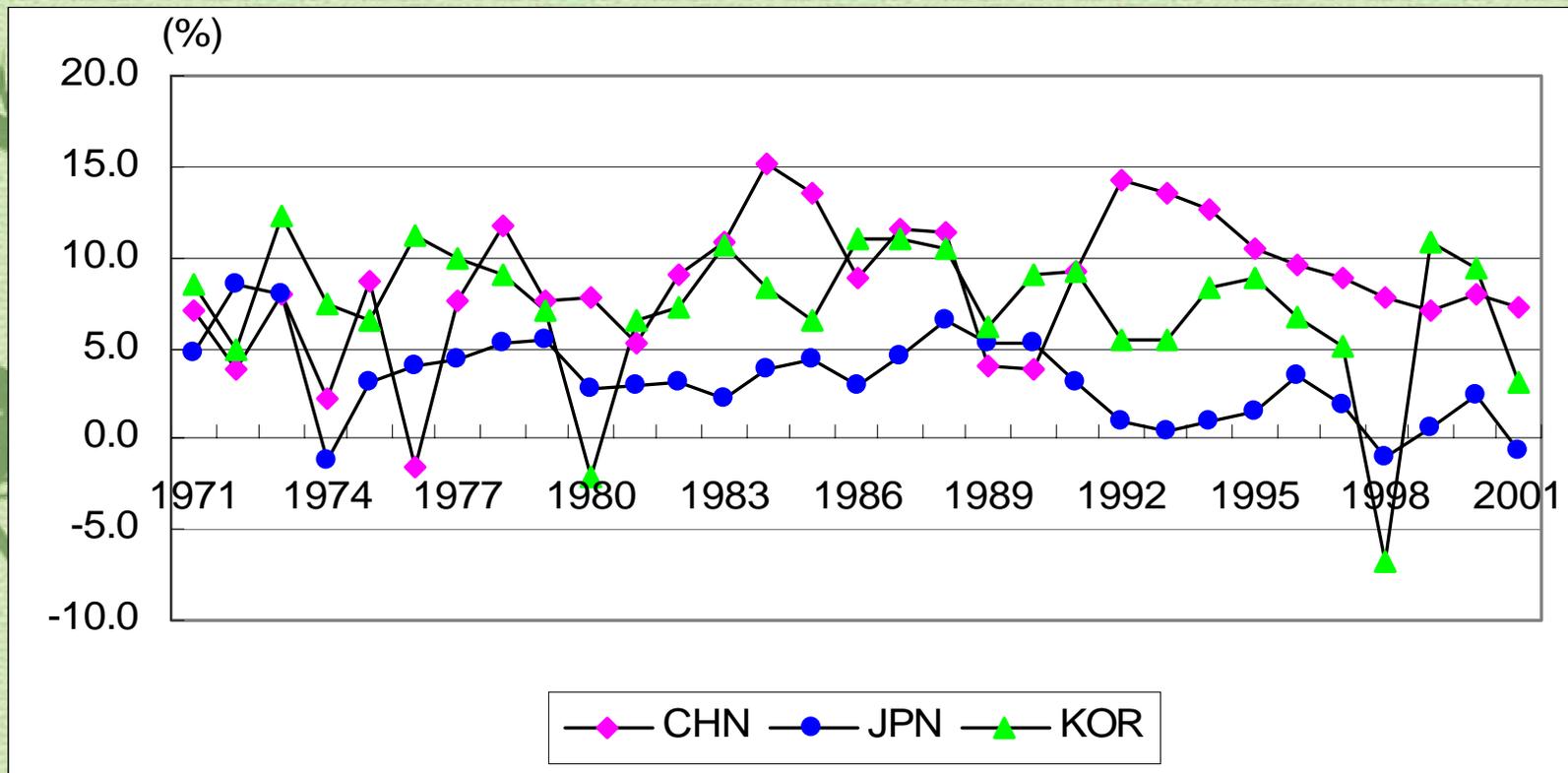
Source: World Development Indicators 2003

Real GDP (Constant, base year = 1995)



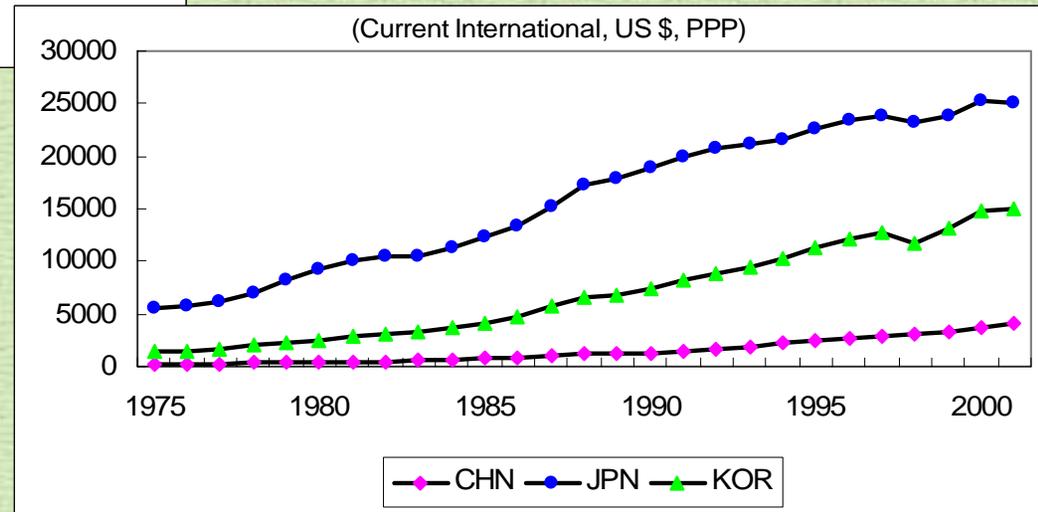
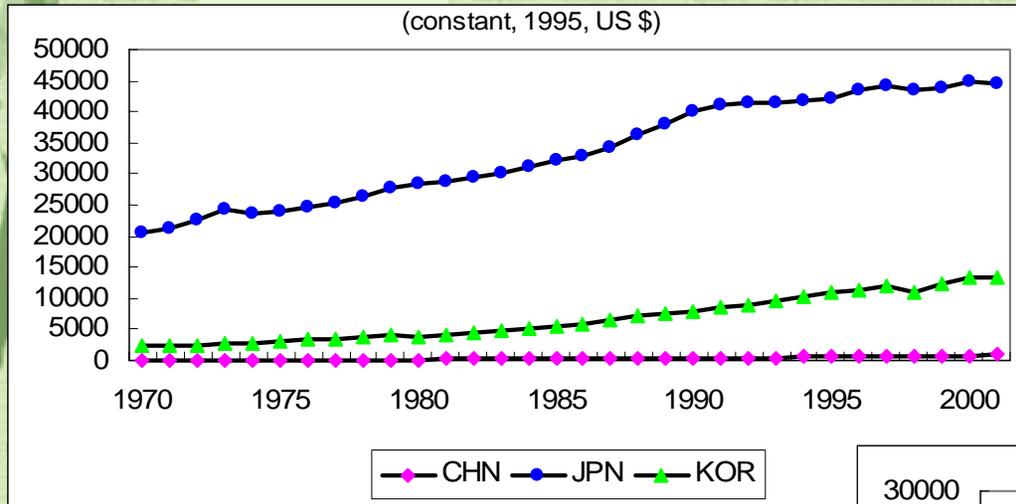
Source: World Development Indicators 2003

Real GDP Growth Rate

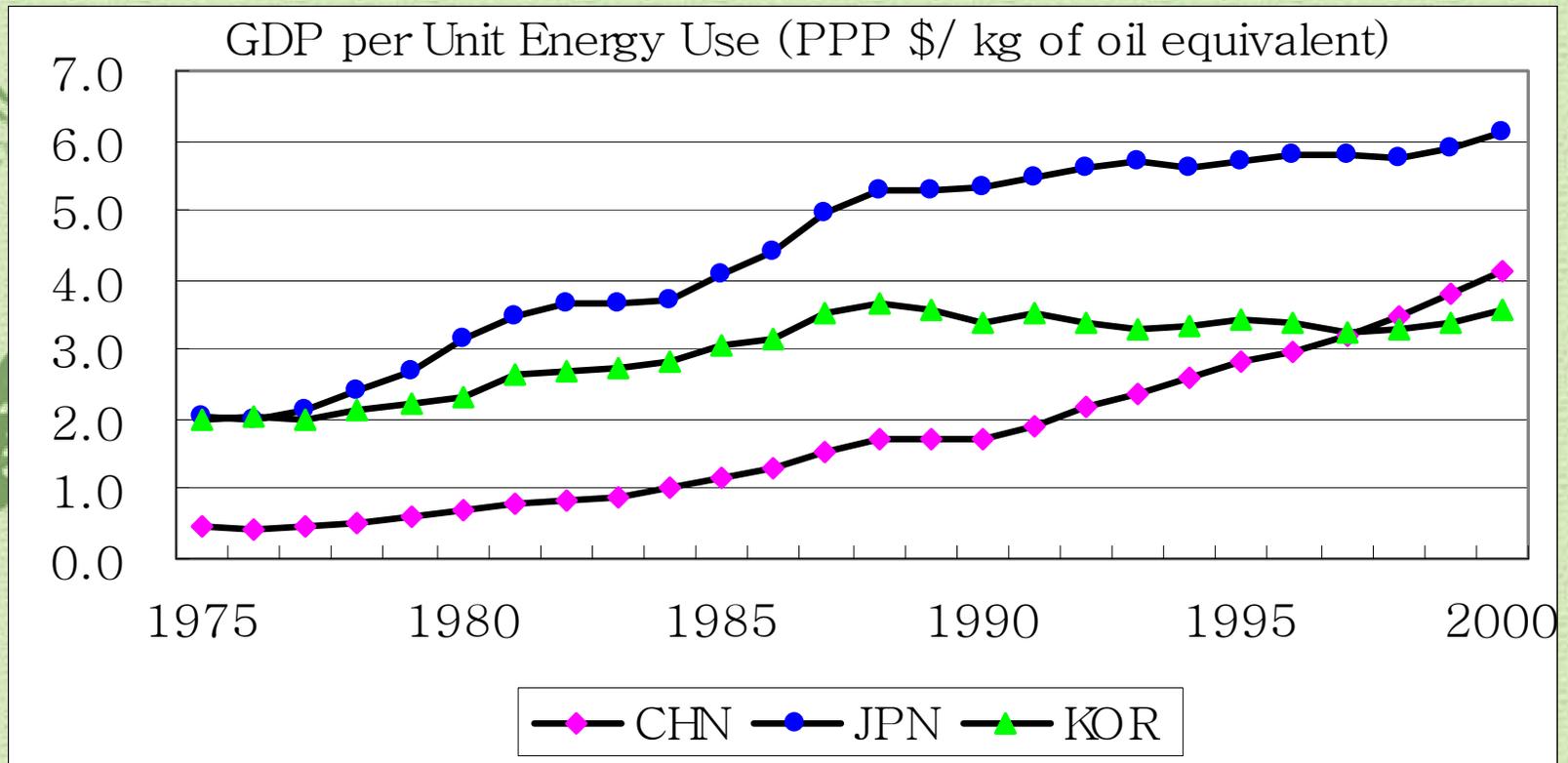


Source: World Development Indicators 2003

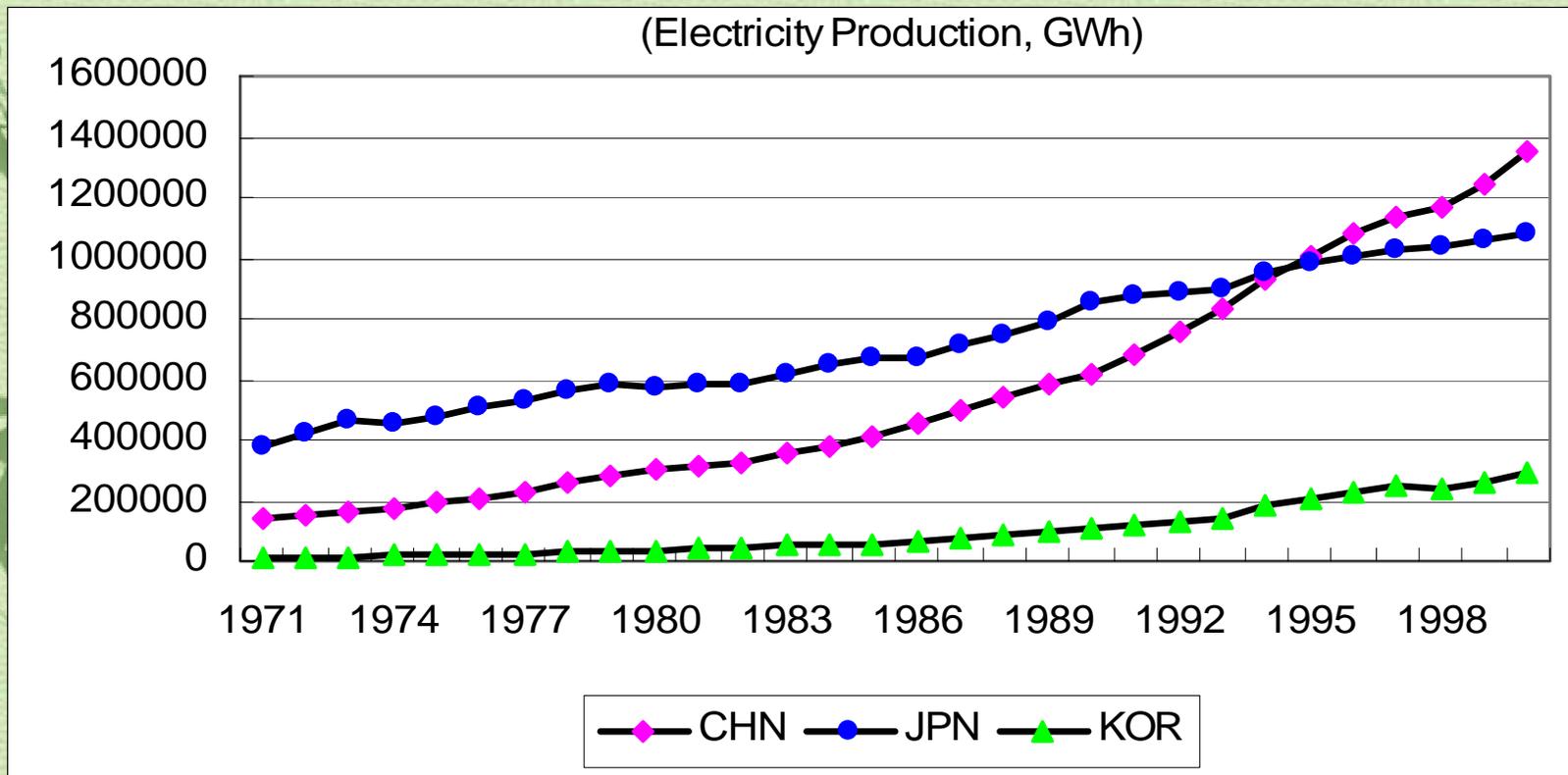
Per Capita GDP



GDP per Unit Energy Use

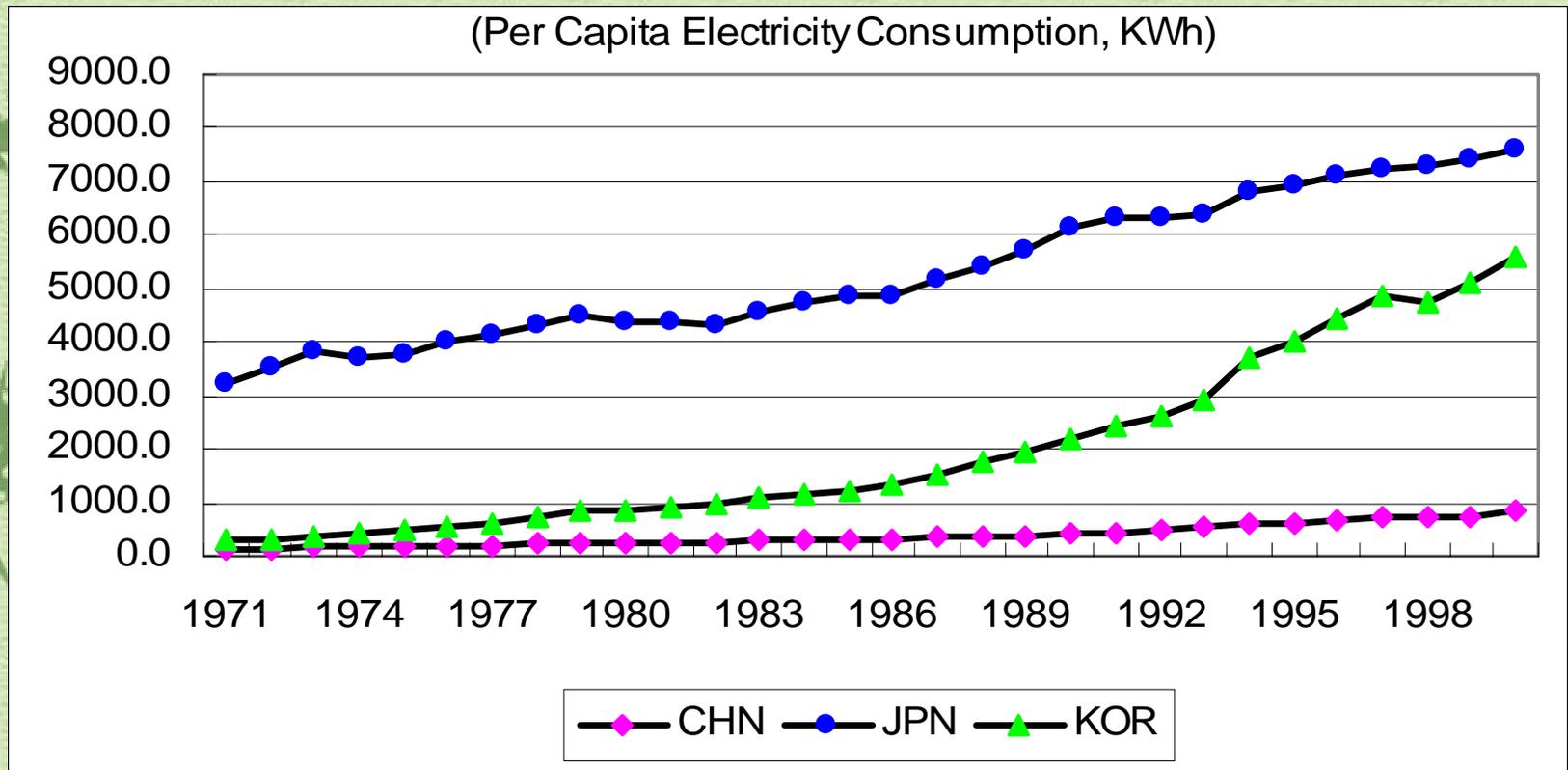


Electricity Production



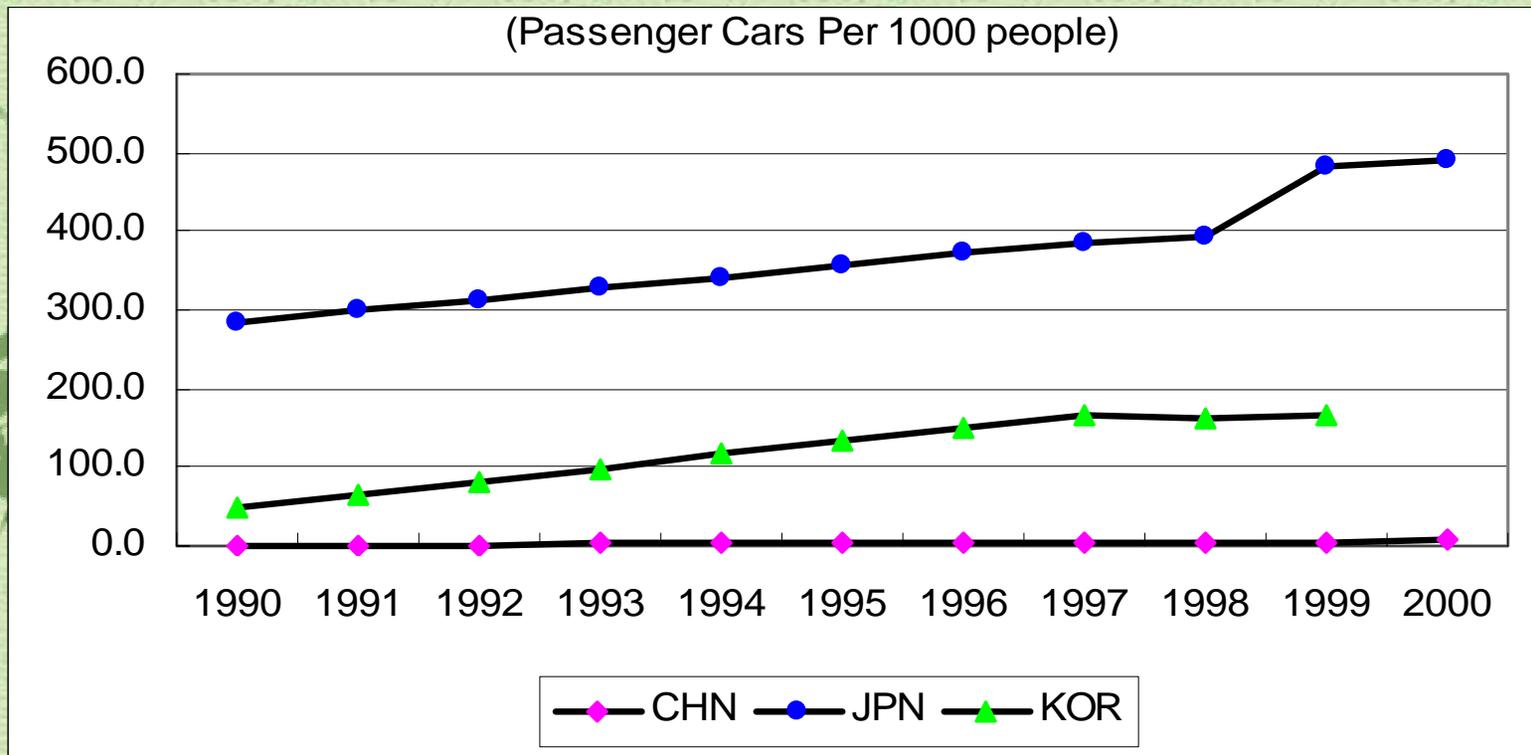
Source: World Development Indicators 2003

Per Capita Electricity Consumption



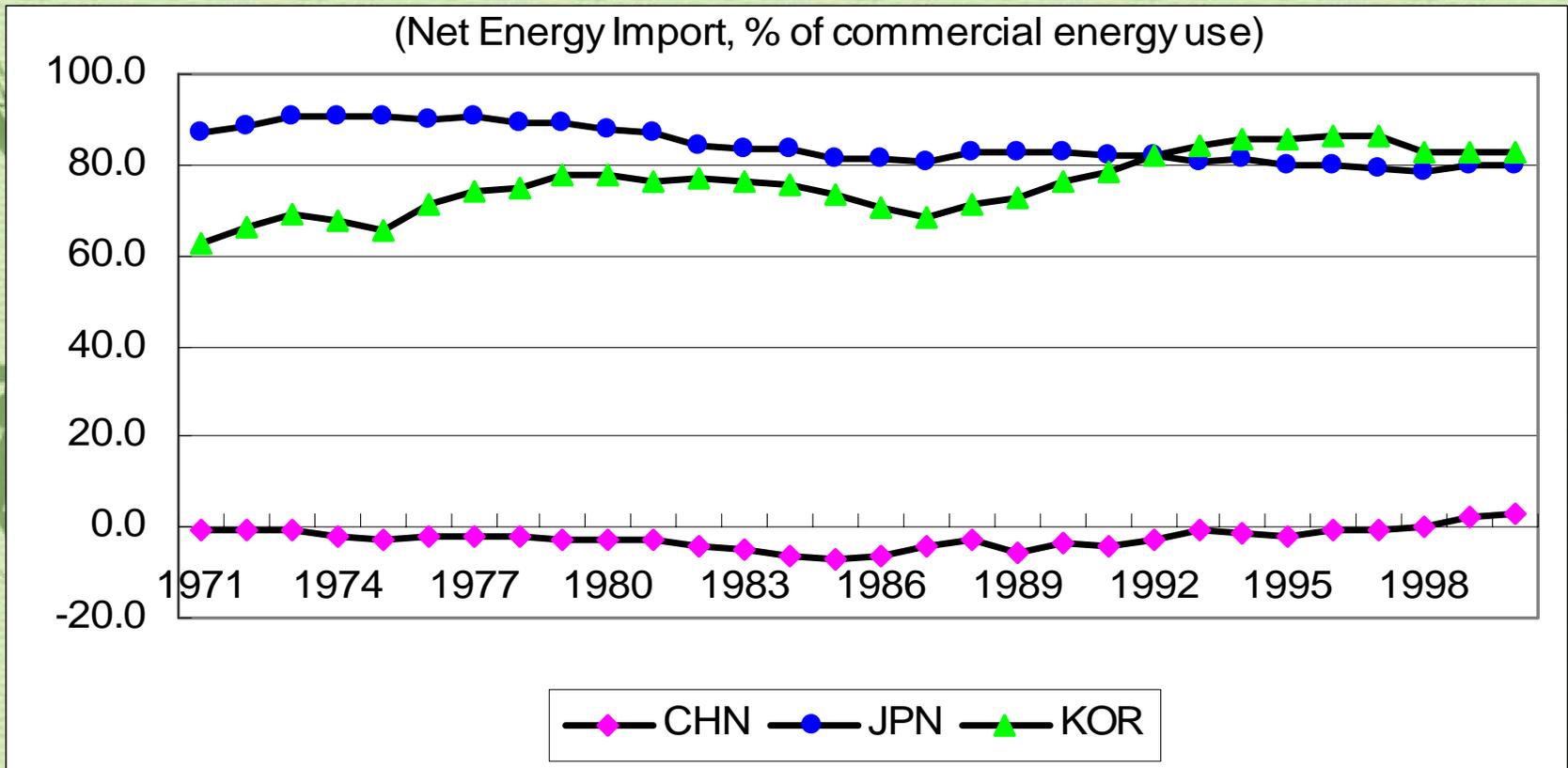
Source: World Development Indicators 2003

Passenger Cars per 1000 people



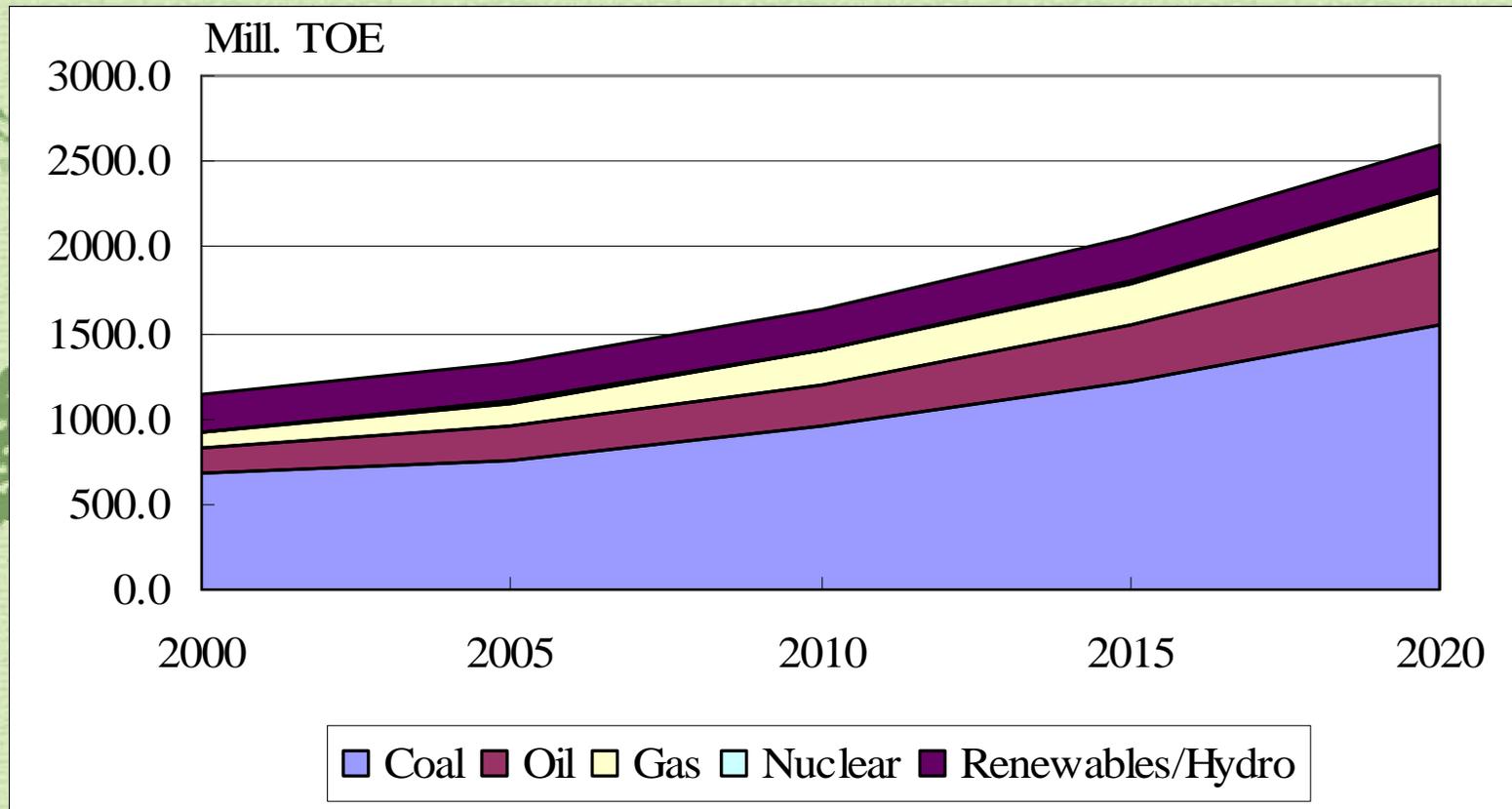
Source: World Development Indicators 2003

Net Energy Import



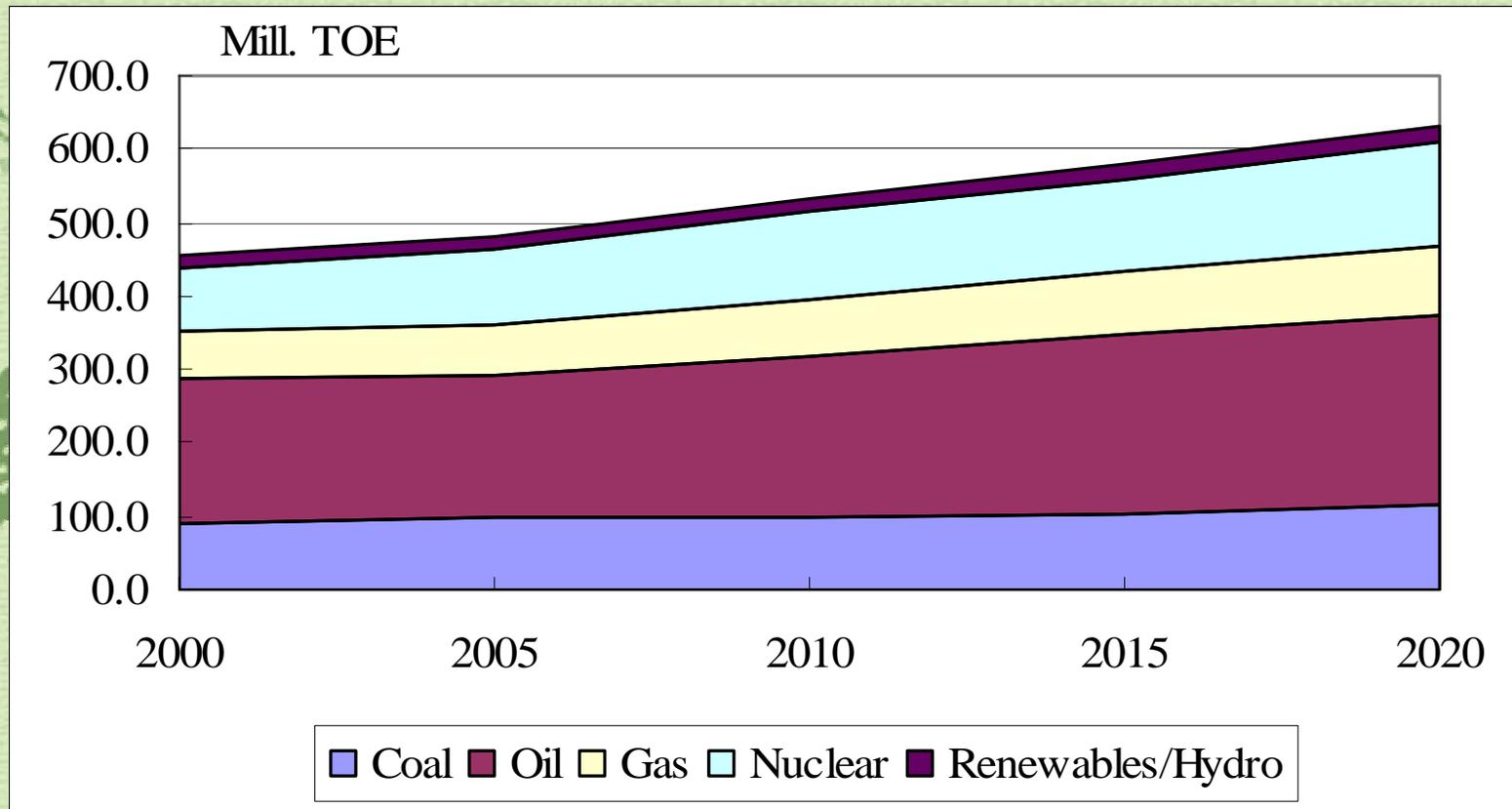
Source: World Development Indicators 2003

Primary Energy Demand (China)



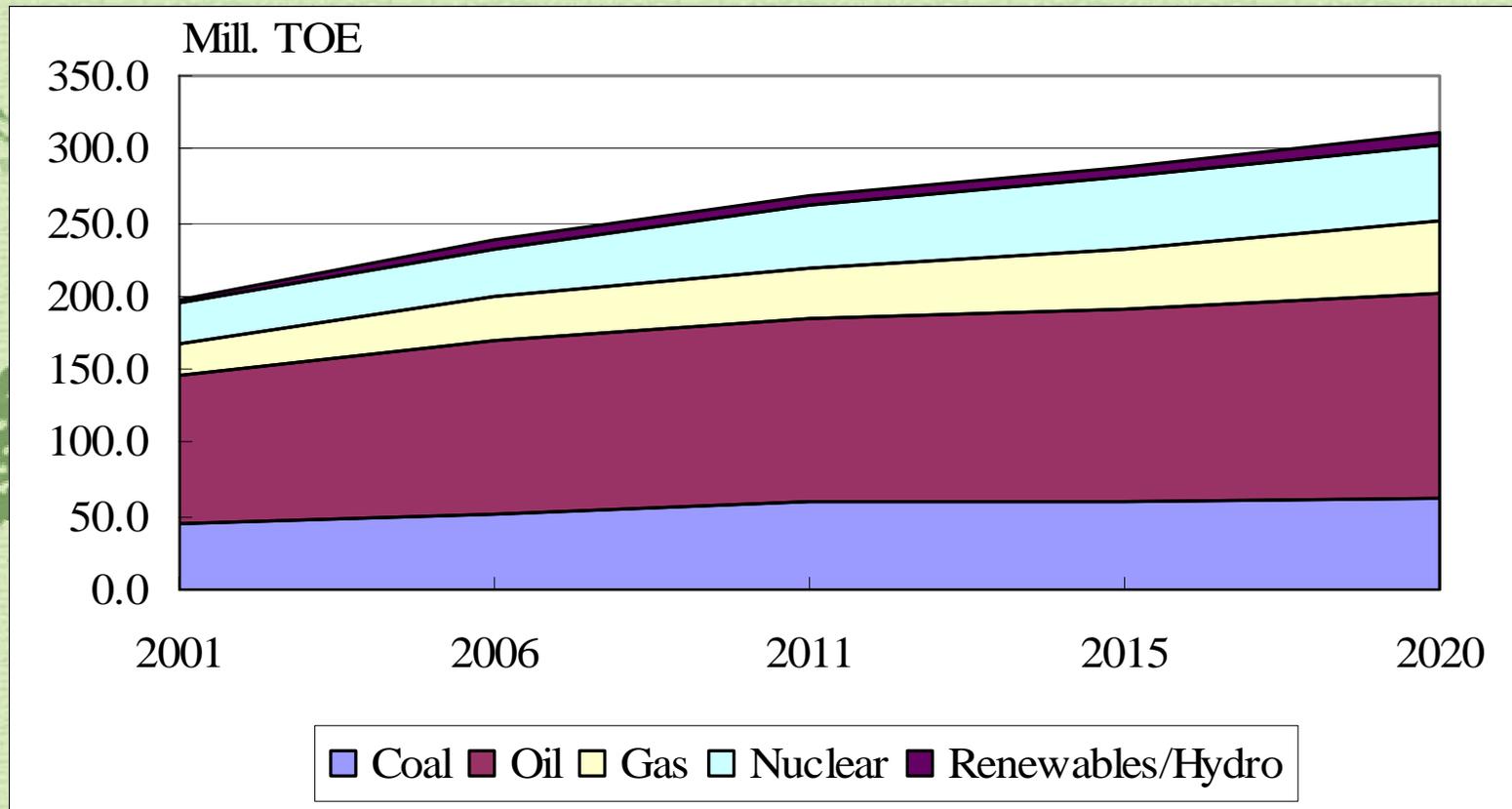
Source: APEC Energy Research Centre, 2002

Primary Energy Demand (Japan)



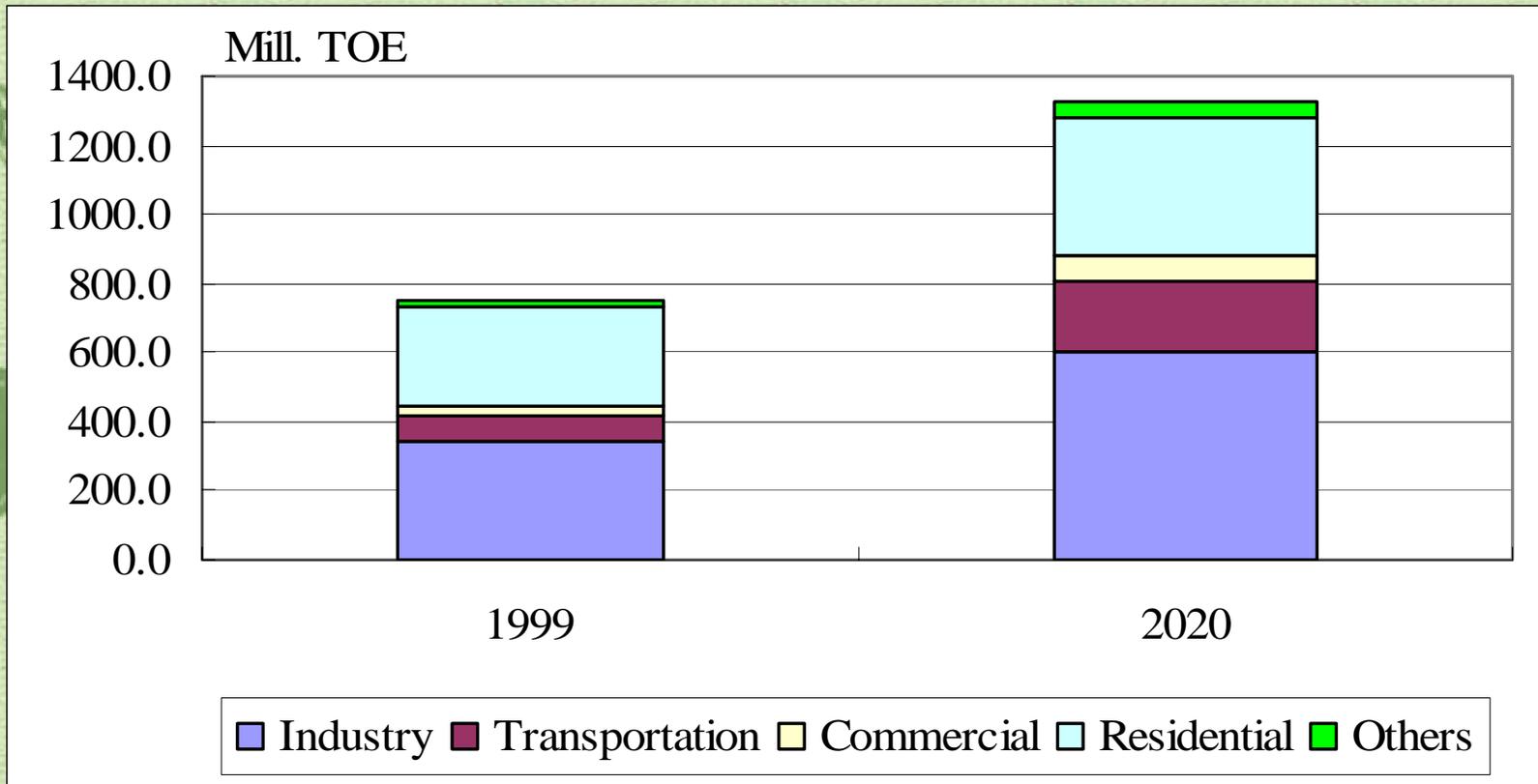
Source: APEC Energy Research Centre, 2002

Primary Energy Demand (Korea)



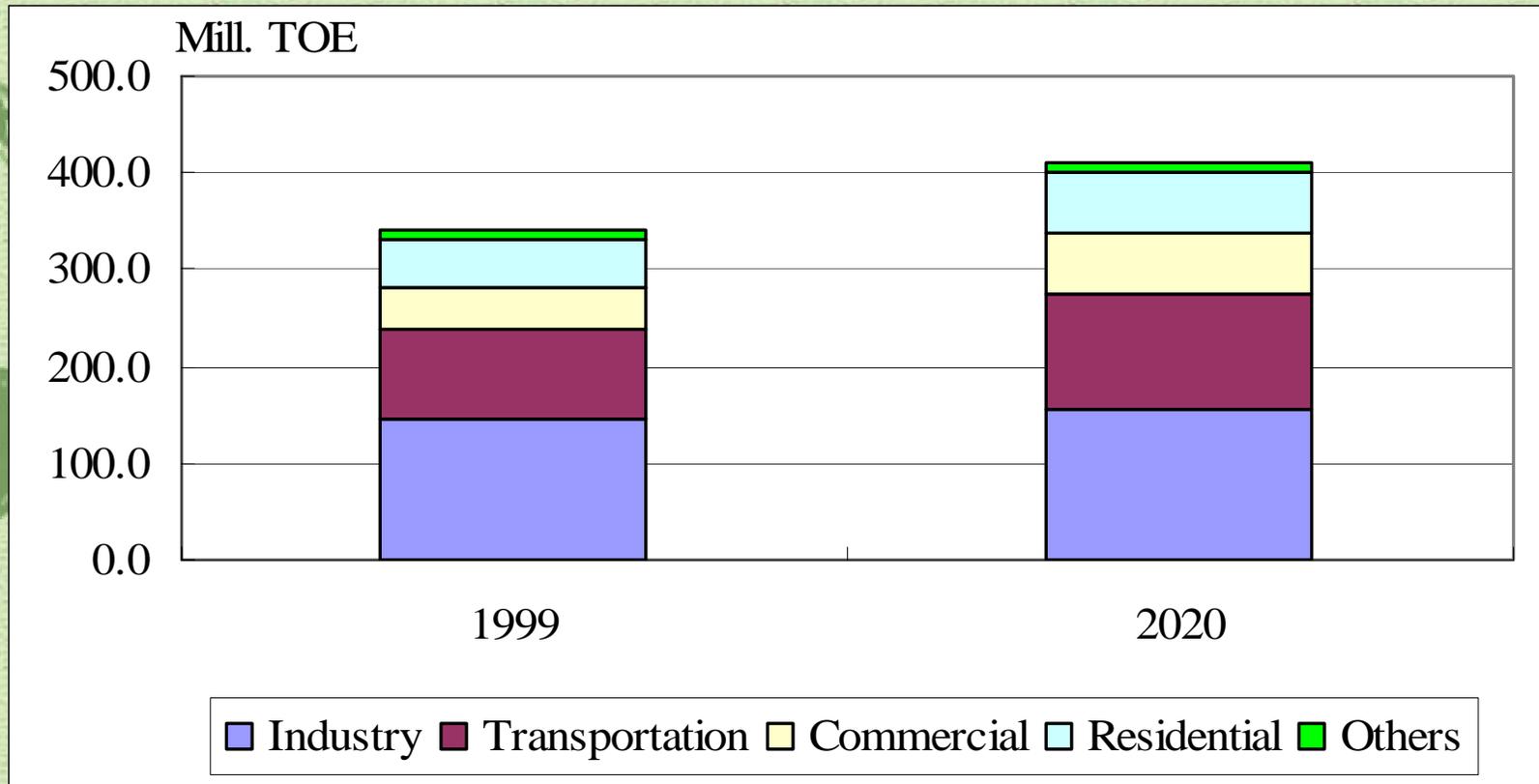
Source: Korea Energy Economics Institute, 2002

Final Energy Demand by Sectors (China)



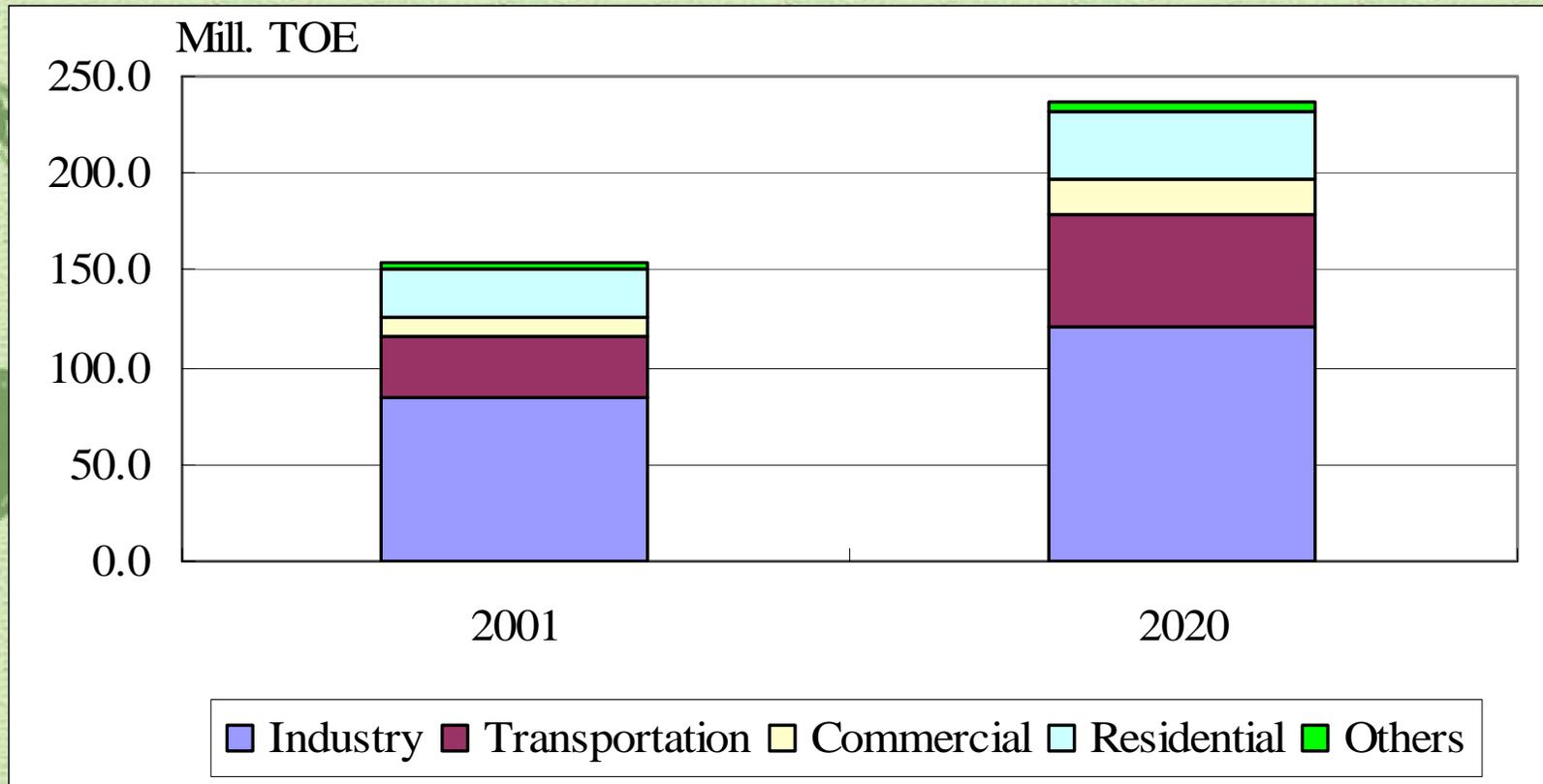
Source: APEC Energy Research Centre, 2002

Final Energy Demand by Sectors (Japan)



Source: APEC Energy Research Centre, 2002

Final Energy Demand by Sectors (Korea)

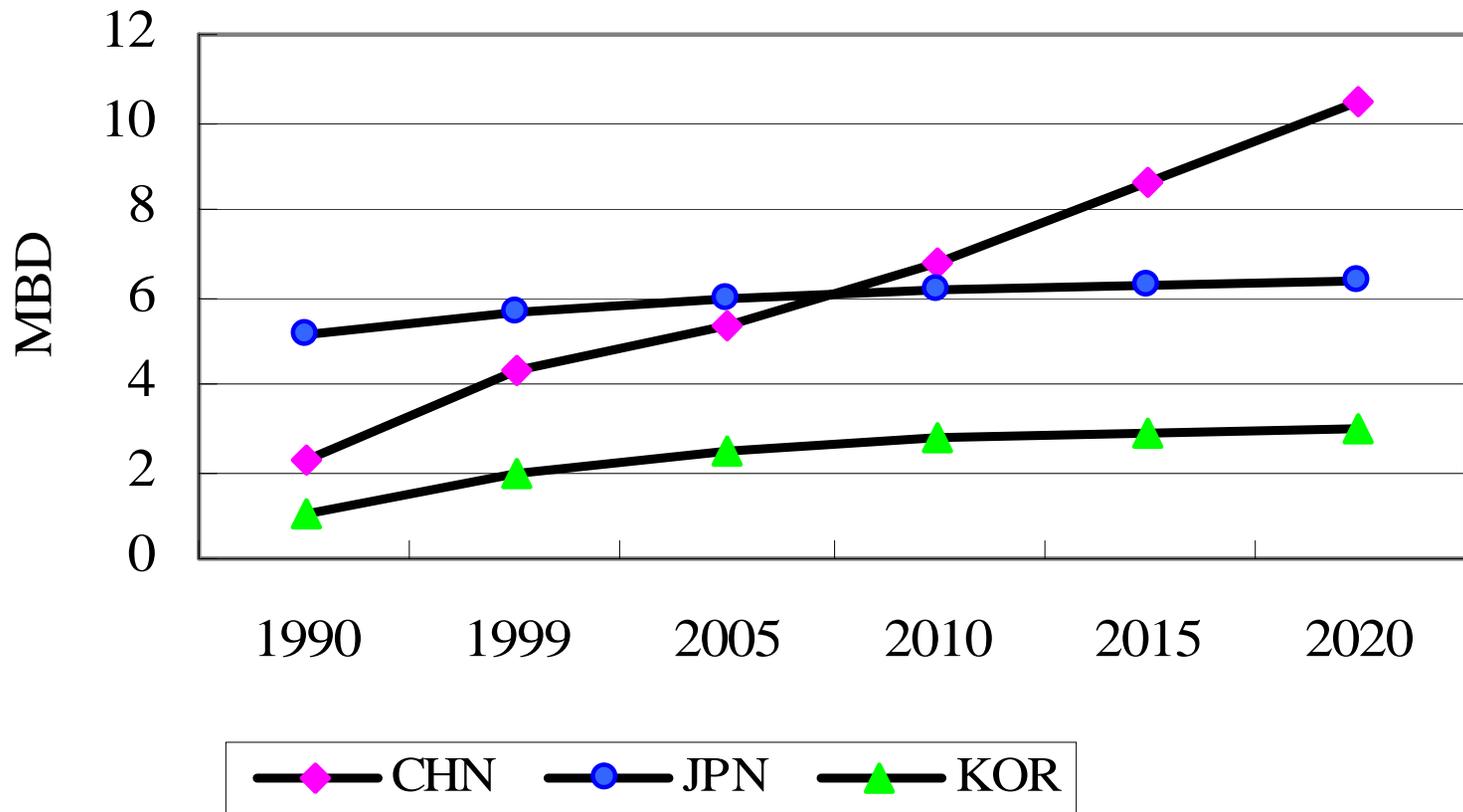


Source: Korea Energy Economics Institute, 2002

Oil & Natural Gas in NE Asia

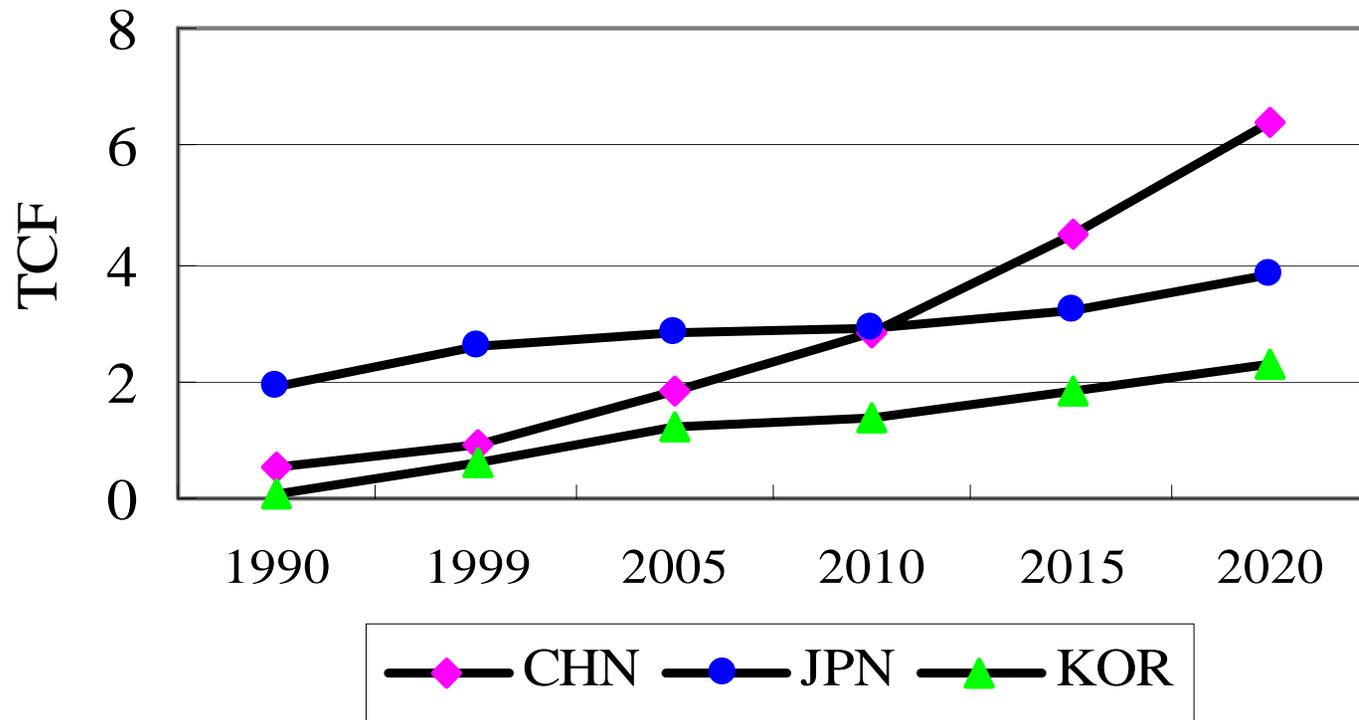
- **Large Incremental Volumes**
- **China Overtaking Japan before 2010's**
- **Pipeline Gas (PNG) to Supplement LNG**
- **Cross Border Pipeline Networks**
- **East-West Pipeline in China**

Oil Demand Projection



Source: EIA, 2002

Natural Gas Demand Projection



Source: EIA, 2002



Energy Cooperation

- **Change of Geopolitics**
- **Better Energy Security in NE Asia**
- **Natural Gas Development (LNG & PNG)**
- **Facilitating Competition in Energy Area**
- **Private Sector Initiatives**
- **Sustainable Development**