

Research on Sustainability Related to Energy – Challenges Related to International Cooperation

Leena Srivastava

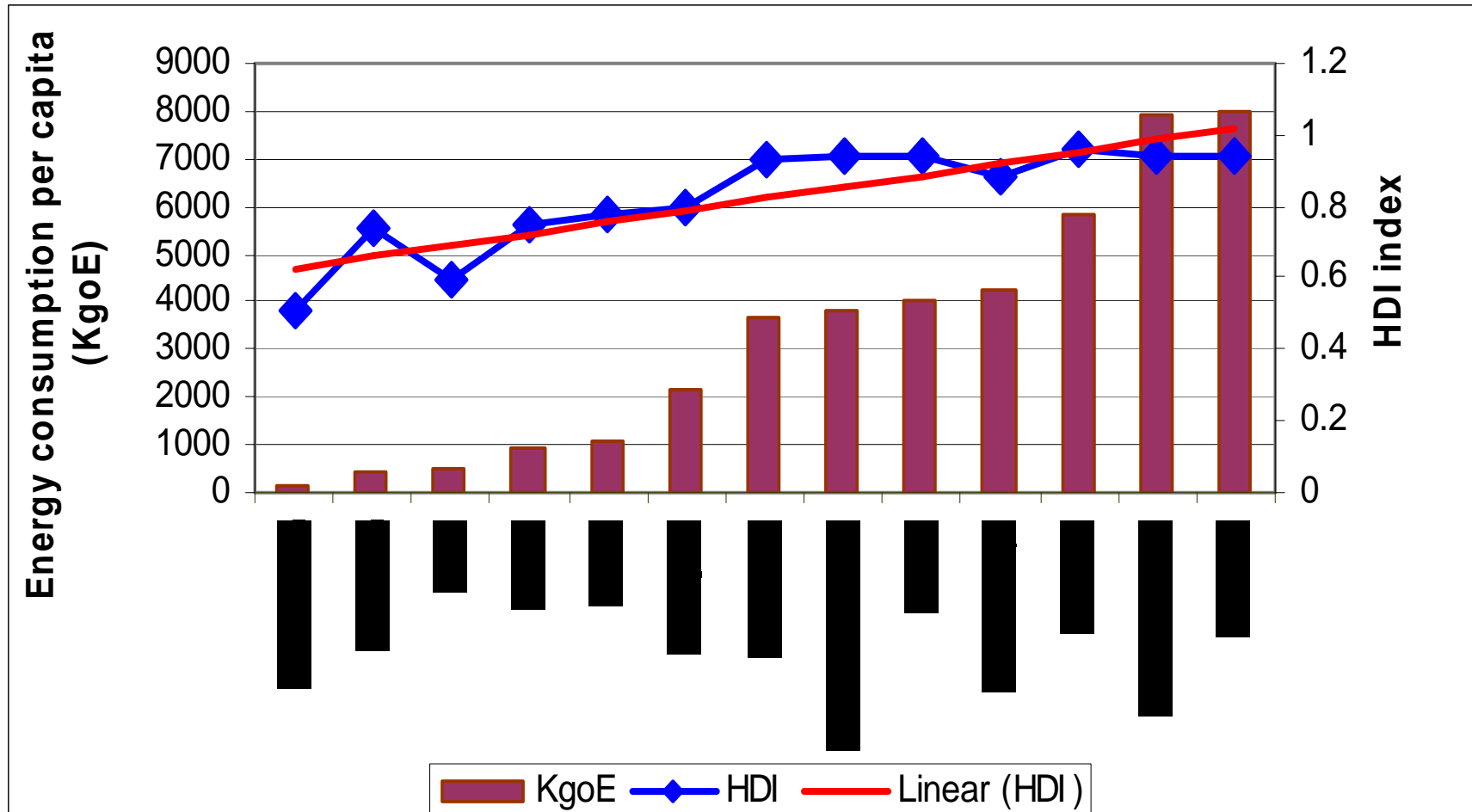




India

- Population: 1.1 Billion
- 5th in primary energy consumption
 - 438 mtoe: commercial; 139 mtoe: traditional sources in 2001
- 72% rural population
 - Largely depending on traditional fuels
 - Likely to shift to commercial fuels with improved access & better lifestyles
- Low per capita commercial energy use
- ~35% Below Poverty Line (\$1/day, 2000 PPP)

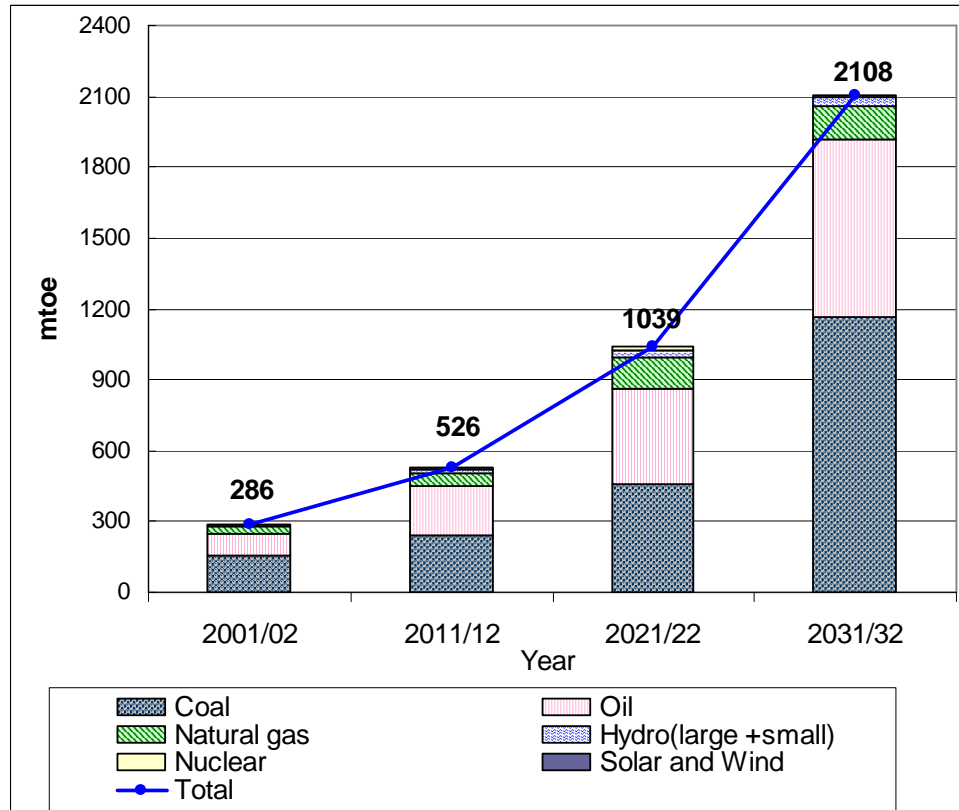
Increase in commercial energy needs – an inevitability !



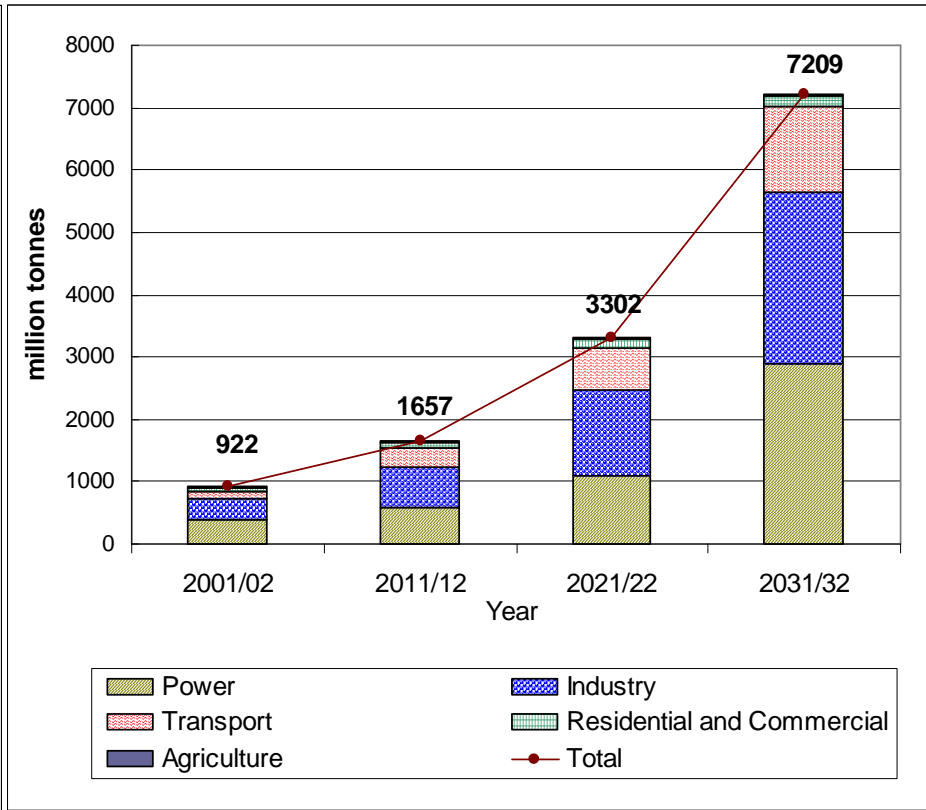
- Large unmet demands
- High targets for economic growth
- Developmental goals and energy access to all

The Macro Picture

Commercial Energy Supply in India



CO₂ Emissions from Energy Use



Source: TERI estimates, (2006)



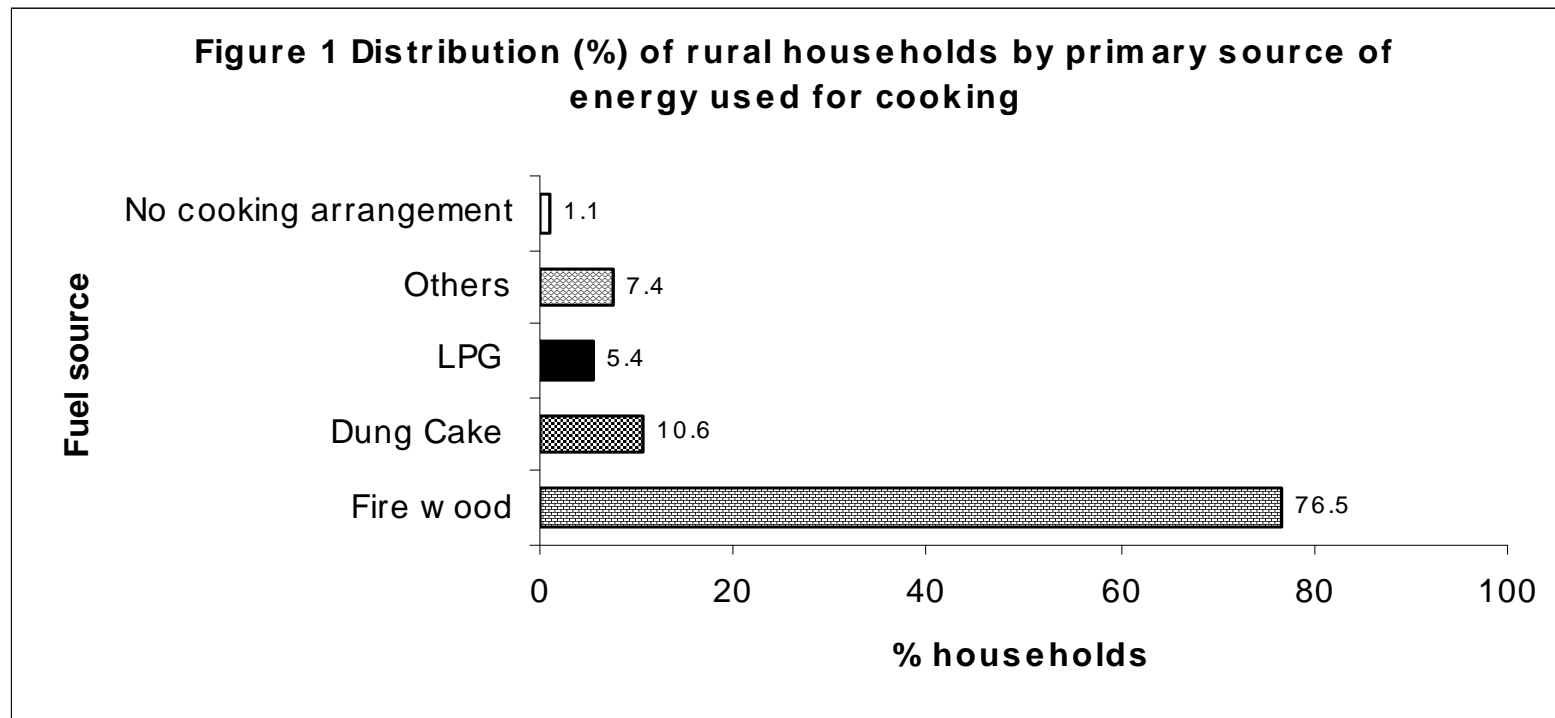
The Ground Reality...

Challenges ...

Energy

➤ Access to energy services

More than 75% of rural and 22% of urban households still depend on wood as the primary source of energy for cooking





Energy Consumption Must Increase

- 57% of rural population with no access to Energy
- Per capita Electricity
 - World 2429
 - US 13066
 - India 553
- Peak and energy shortages – 17% and 10% (2007-08)



Access to Resources

- Already dependent on oil imports to ~ 75%
- Coal reserves downgraded from 200 years to 45 years
- Quality a major concern
- Good solar radiation
- Large biomass resources



Energy Efficiency

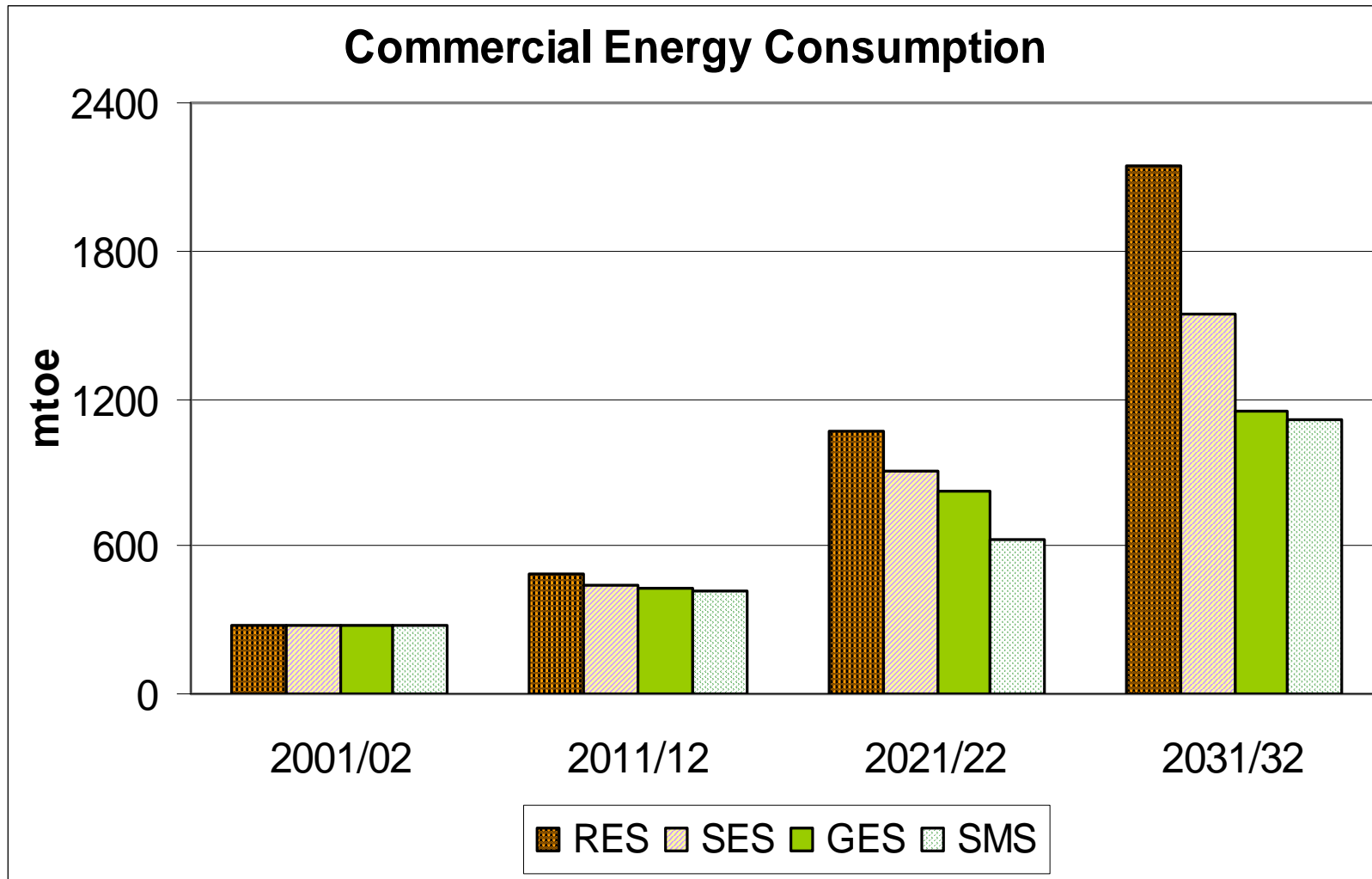
- Poor efficiencies all round
- Particular concern for SME sector, agriculture and household appliances
- Major initiatives of Green Buildings



Current Challenges for IC

- Poor information base
- Inappropriate technologies for Indian context
- Proper resource assessments
- Energy access to millions

Energy Consumption across Scenarios





Energy Security: High Import Dependency

Fuel Import in 2031

❖ Coal import: 1438 MT

➤ ~4 times of consumption in 2001

➤ Import dependency: 78%

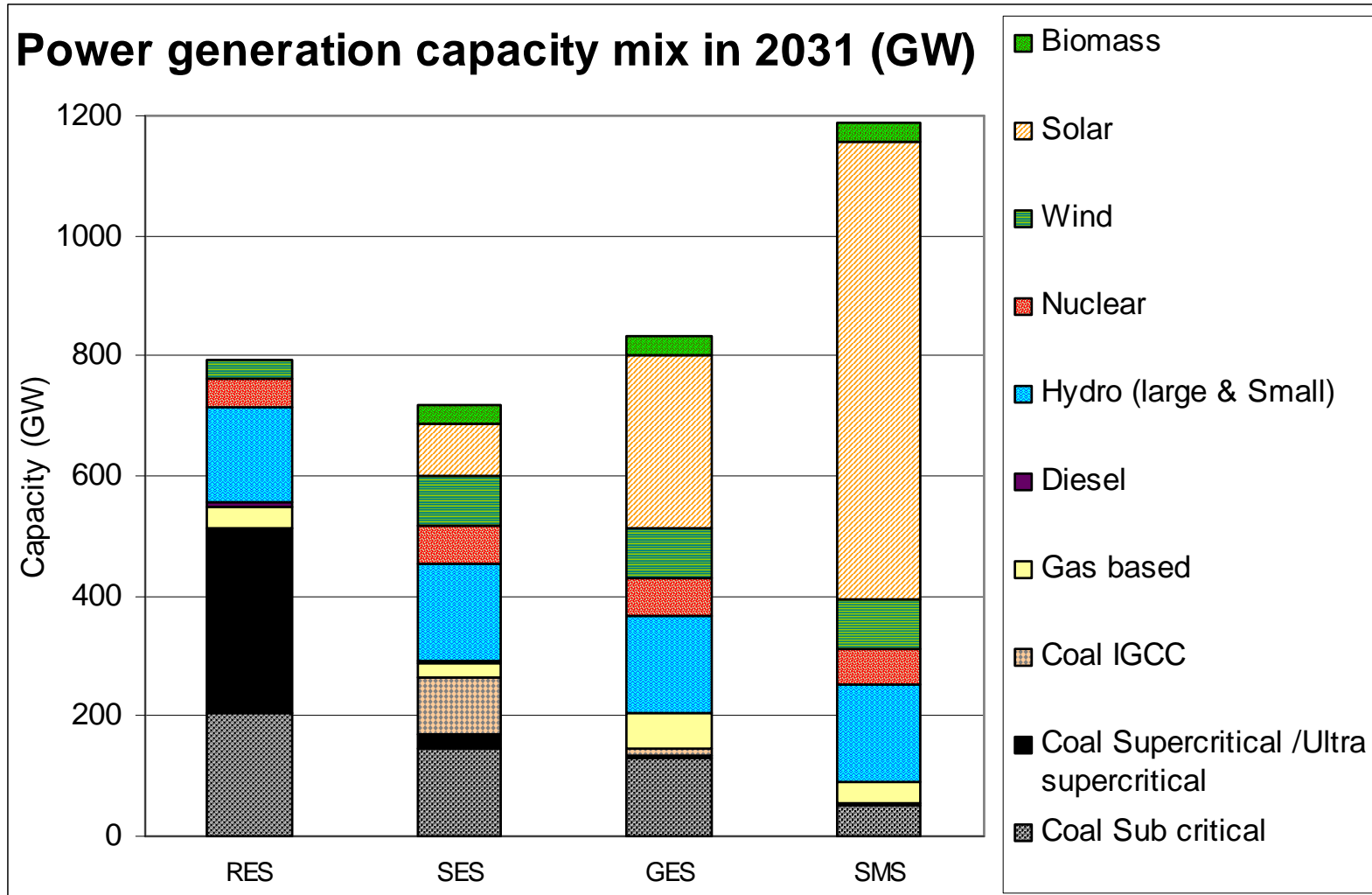
❖ Oil import: 680 MT

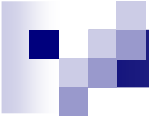
➤ Import dependency: 93%

❖ Gas import: 93 BCM

➤ Import dependency: 67%

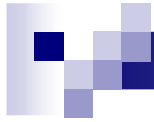
Power Generation Technology Deployment...





Challenges for International Cooperation – Future needs

- Accessibility of renewable energy technologies – particularly solar
- Second and third generation bio-fuel technologies
- Sustainable mobility needs
- Household energy efficiency



Thank you!

