



**The Abdus Salam  
International Centre for Theoretical Physics**



**IAEA**  
International Atomic Energy Agency

**2061-9**

**Joint ICTP/IAEA Workshop on Alternative Response Actions to  
Climate Change and Energy Options**

*5 - 9 October 2009*

**Joint ICTP/IAEA Workshop on Alternative Response Actions to  
Climate Change and Energy Options: Overview of the Workshop**

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**Joint ICTP/IAEA Workshop on  
Alternative Response Actions to Climate  
Change and Energy Options**

**Overview of the Workshop**

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Department of Nuclear Energy



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# Climate Change?



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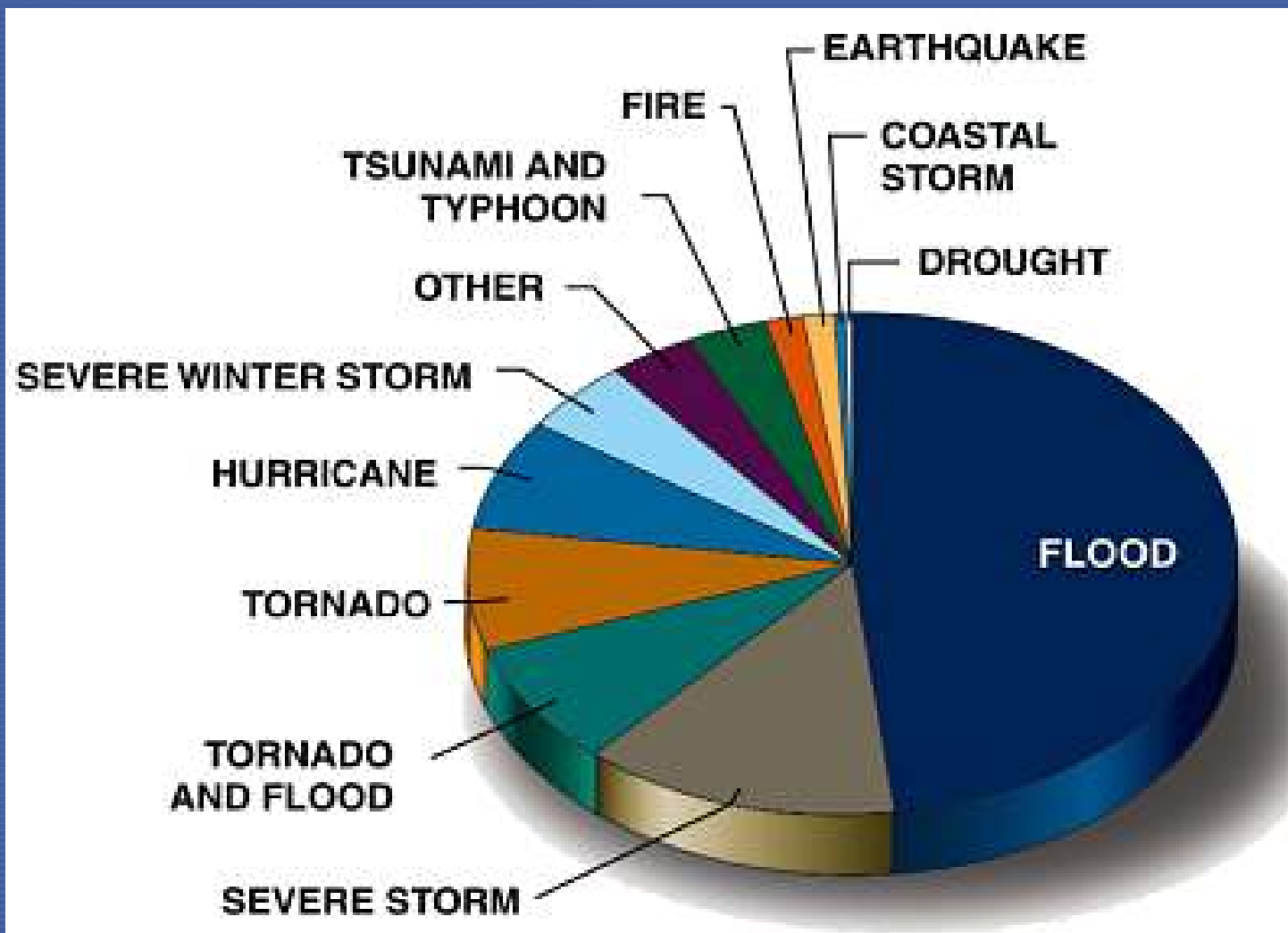
# Climate Change ?



# Climate Change ?



# Natural Calamities



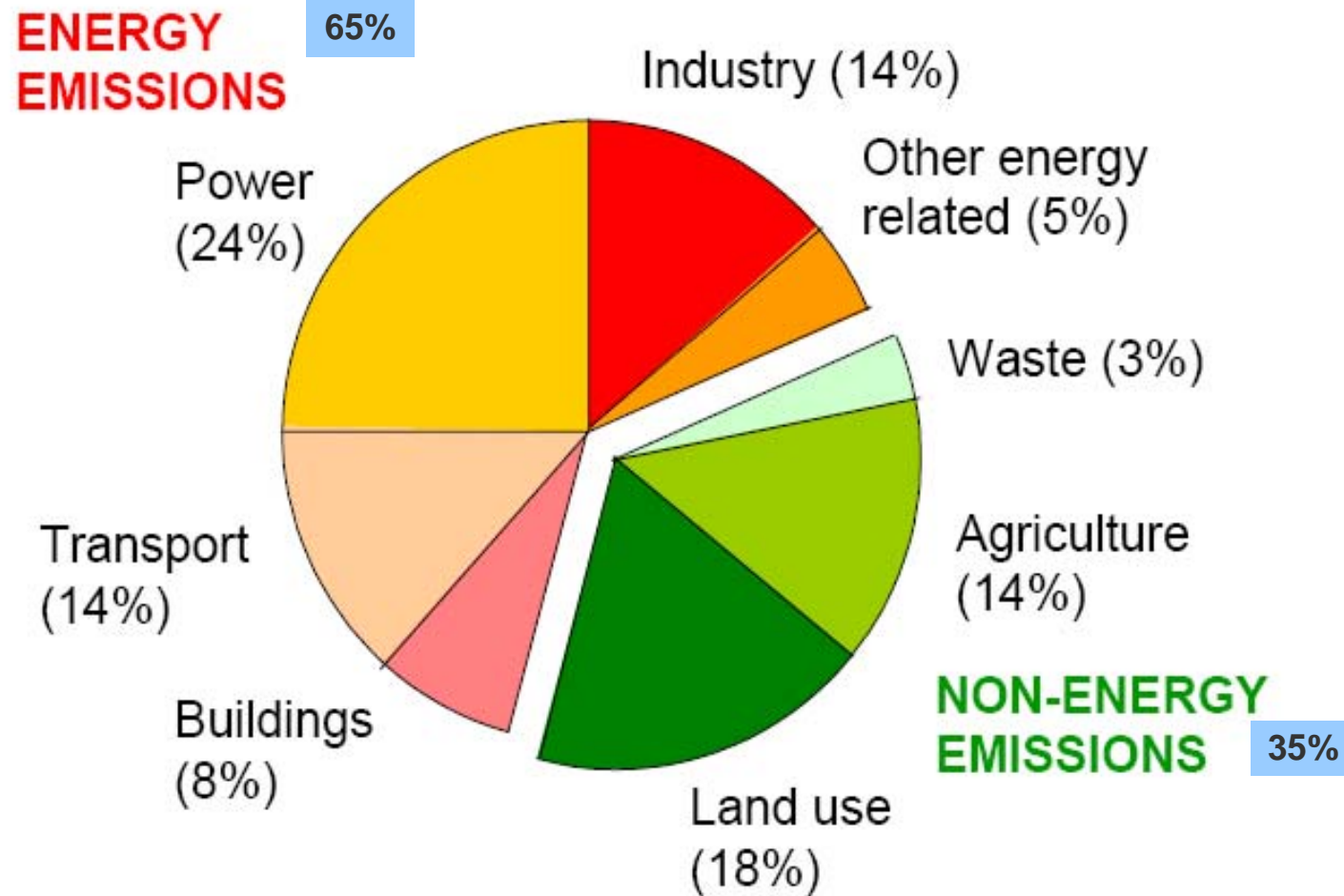
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# IPCC 4<sup>th</sup> Assessment Report

- Human activities are causing concentrations of greenhouse gases to rise at an unprecedented rate
- By the end of the 21st century temperatures may rise by between 1.8 and 4 deg C (best estimates) or 1.1 and 6.4 deg C (including all uncertainties)
- Sea level may rise by up to half a metre by the end of this century
- The projected warming will increase the frequency of heat waves and heavy precipitation events, affect storminess and reduce snow and ice cover

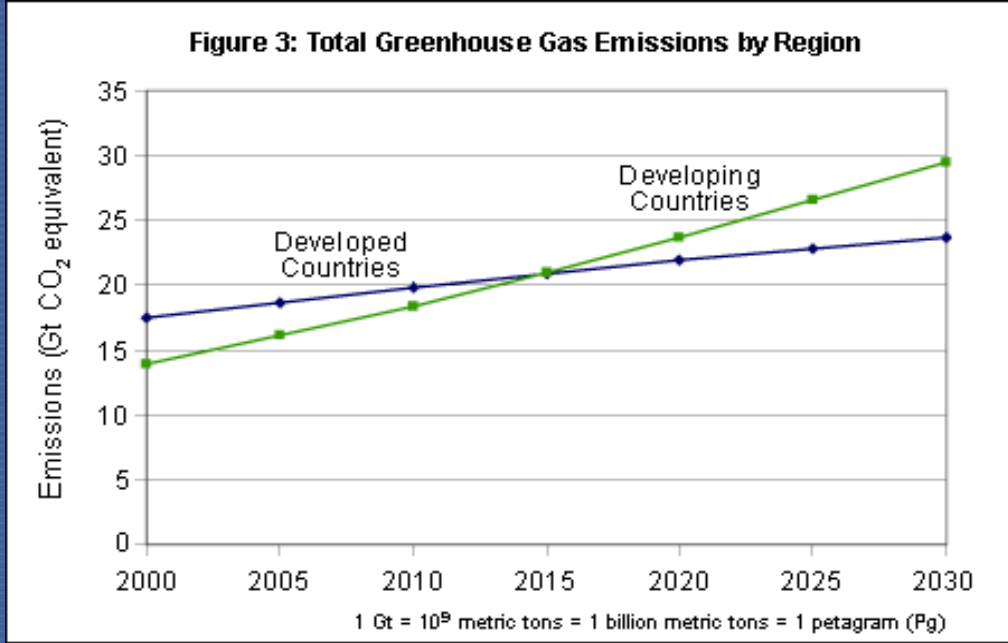
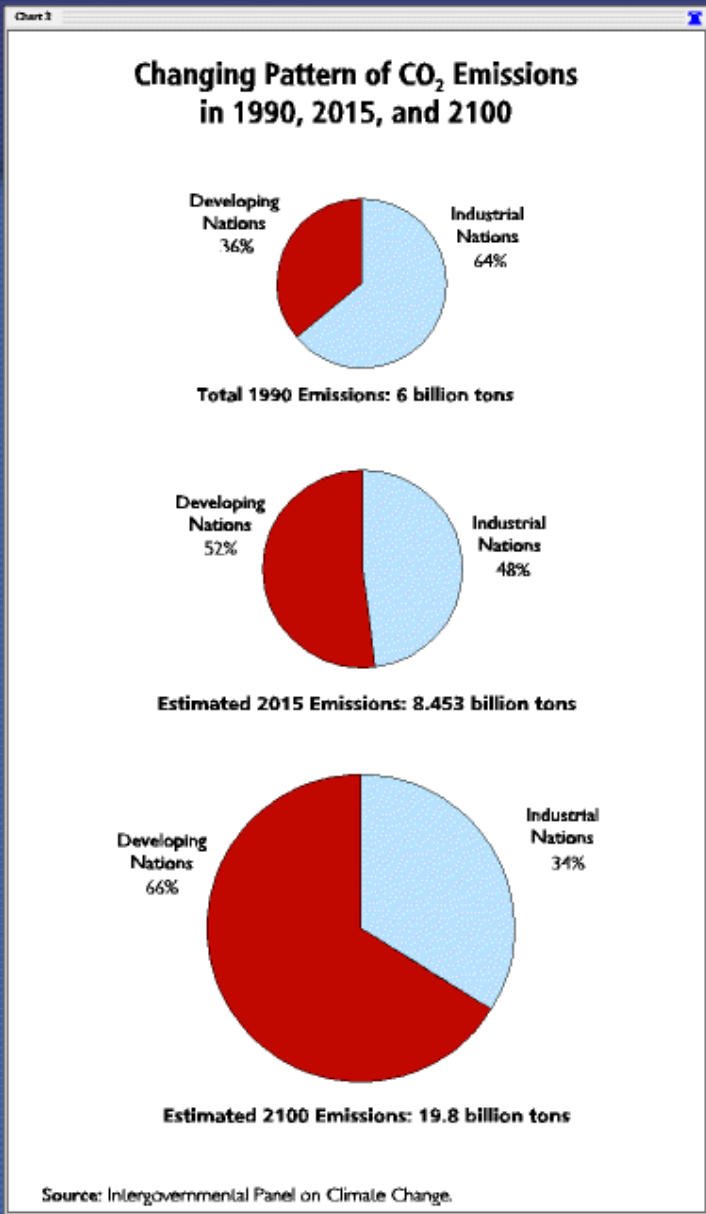


# Sources of GHG Emissions



# GHG Emissions





# UNFCCC

**The ultimate objective is “... to achieve stabilisation of GHG concentrations in the atmosphere ...”**

**To a level that “ ... would prevent dangerous atmospheric interference with the climate system ...”**

**Within a timeframe that would be “... sufficient to allow ecosystems to adapt naturally to climate change ...”**

# Nobel Peace Prize 2007



IPCC and Al Gore for their efforts to build up and disseminate greater knowledge about man-made climate change, and to lay the foundations for the measures that are needed to counteract such change.

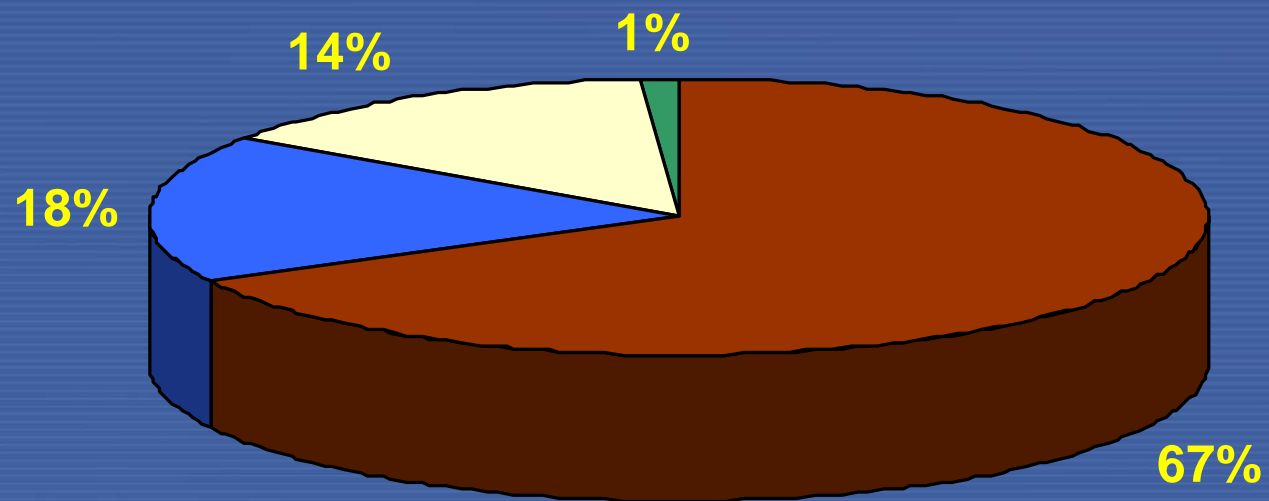
**Kyoto Protocol – a major step, but only up to 2012**

**Mitigation of climate change – a challenge**

**Mitigation policies and strategies will affect energy choices**

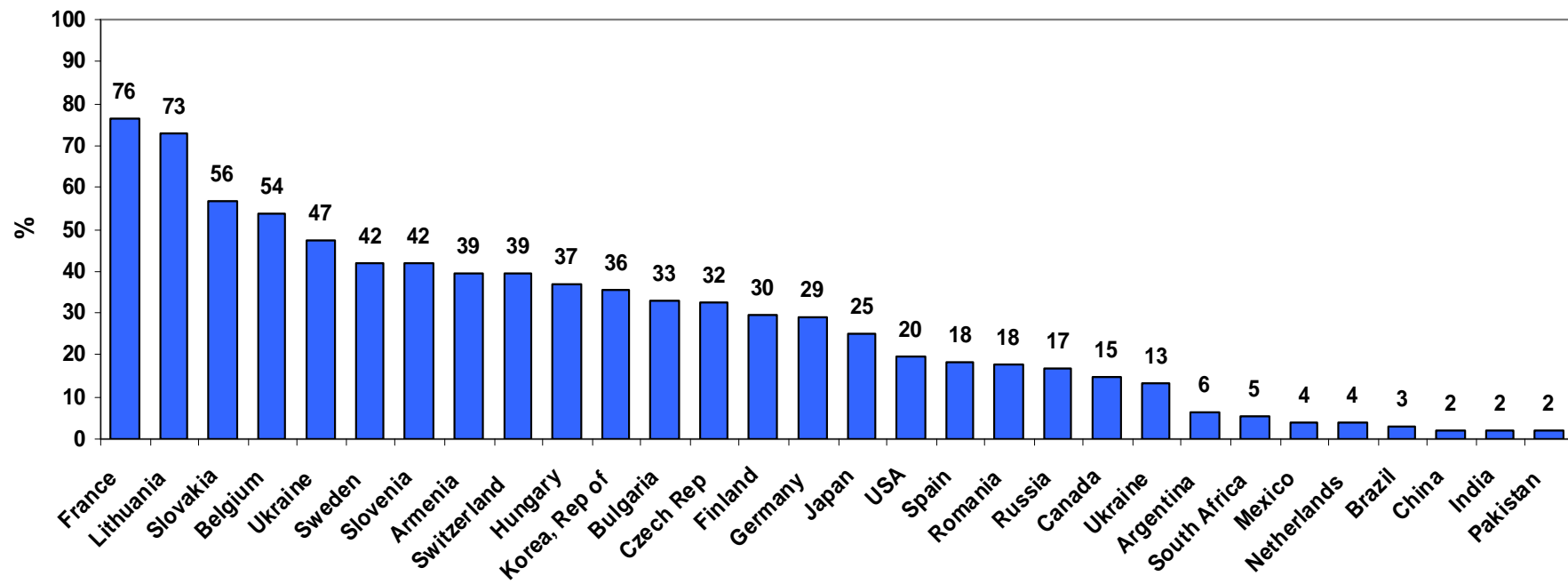
**Nuclear power, a proven “CO<sub>2</sub> free” technology for large scale application**

# World Electricity Production Mix 2008



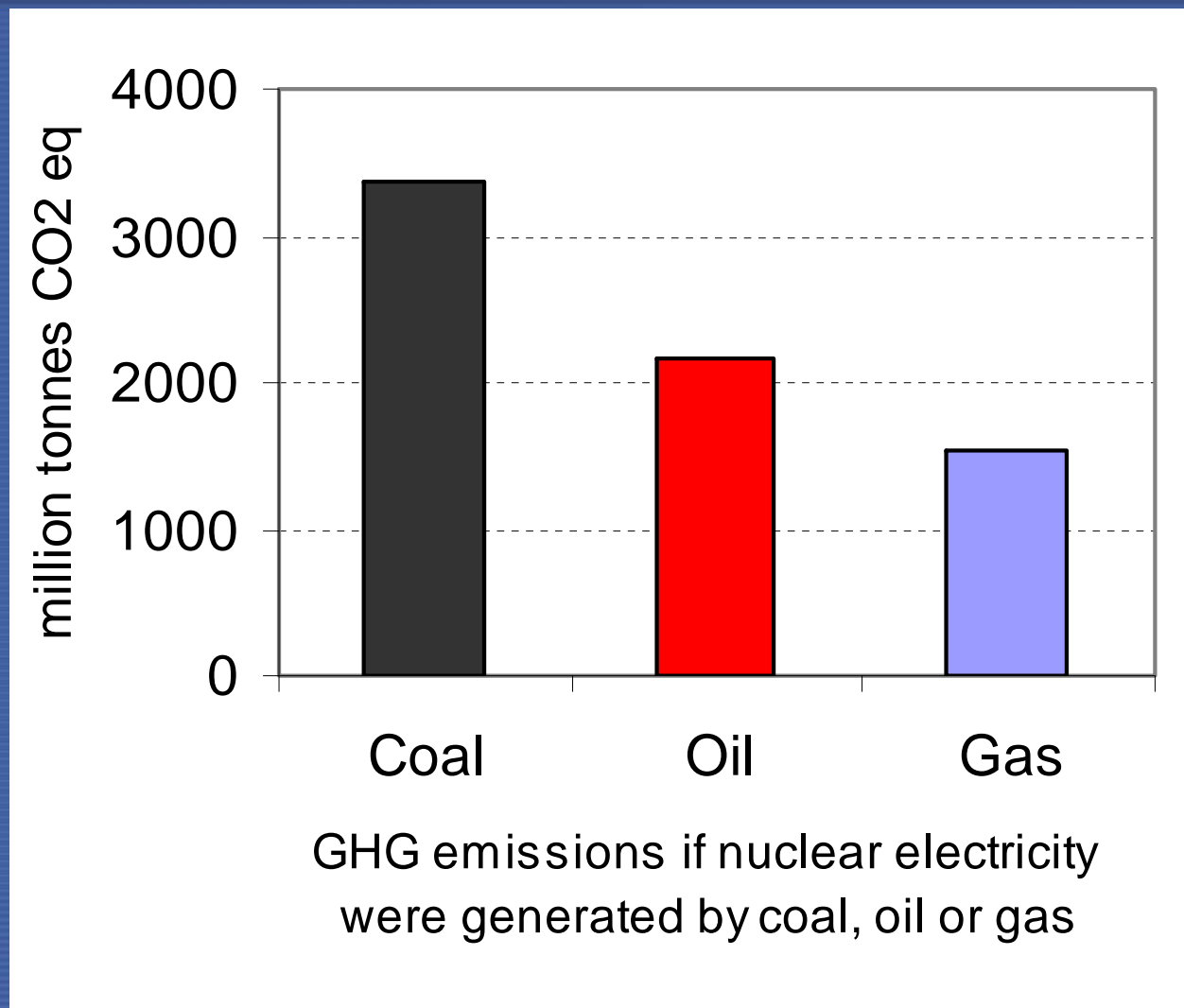
■ Thermal ■ Hydro ■ Nuclear ■ Renewables

# Nuclear share of electricity (2008)





# GHG avoided by Nuclear (2008)



# IAEA Projections 2009



IAEA

# Post-Kyoto Agreement



**Ad-hoc Working Group  
Dialogue  
Bali Action Plan  
Copenhagen Negotiations !**

The scientific evidence is now overwhelming: climate change presents very serious global risks, and it demands an urgent global response.



**"Failure to reach a broad agreement in Copenhagen would be morally inexcusable, economically short-sighted and politically unwise."**

UN Secretary General

# CRP – GHG mitigation strategies and energy options

To collect and disseminate up-to-date information on plausible post-Kyoto international climate protection regimes and the potential role of different energy options under different agreement designs and implementation mechanisms.

To develop and test assessment tools/framework for comparing various energy supply options, including nuclear power, in different climate protection regimes

# Post-2012 Climate Change Architectures

- ❑ over 50 post-Kyoto architectures discussed in the literature
- ❑ clustered according to common characteristics
- ❑ some architectures are not plausible / unlikely due to different views on climate science and policy approach
- ❑ focus on strategies / policy tools that have received wide-spread attention in the literature as plausible post-Kyoto options

# Common characteristics

- **Targets & Timetables**
  - *absolute*
  - *dynamic*
  
- **Policies & Measures**
  - *domestic*
  - *harmonised*
  - *supplement or alternative*
  
- **Technology cooperation & transfer, and adaptation**
  - *Adaptation fund*
  - *CDM*
  - *AP-6*

# Participation

**1. Argentina**

**2. Australia**

**3. Brazil**

**4. Bulgaria**

**5. China**

**6. Cuba**

**7. Germany**

**8. India**

**9. Iran ?**

**10. Korea, Rep**

**11. Lithuania**

**12. Pakistan**

**13. Romania**

**14. Syria**

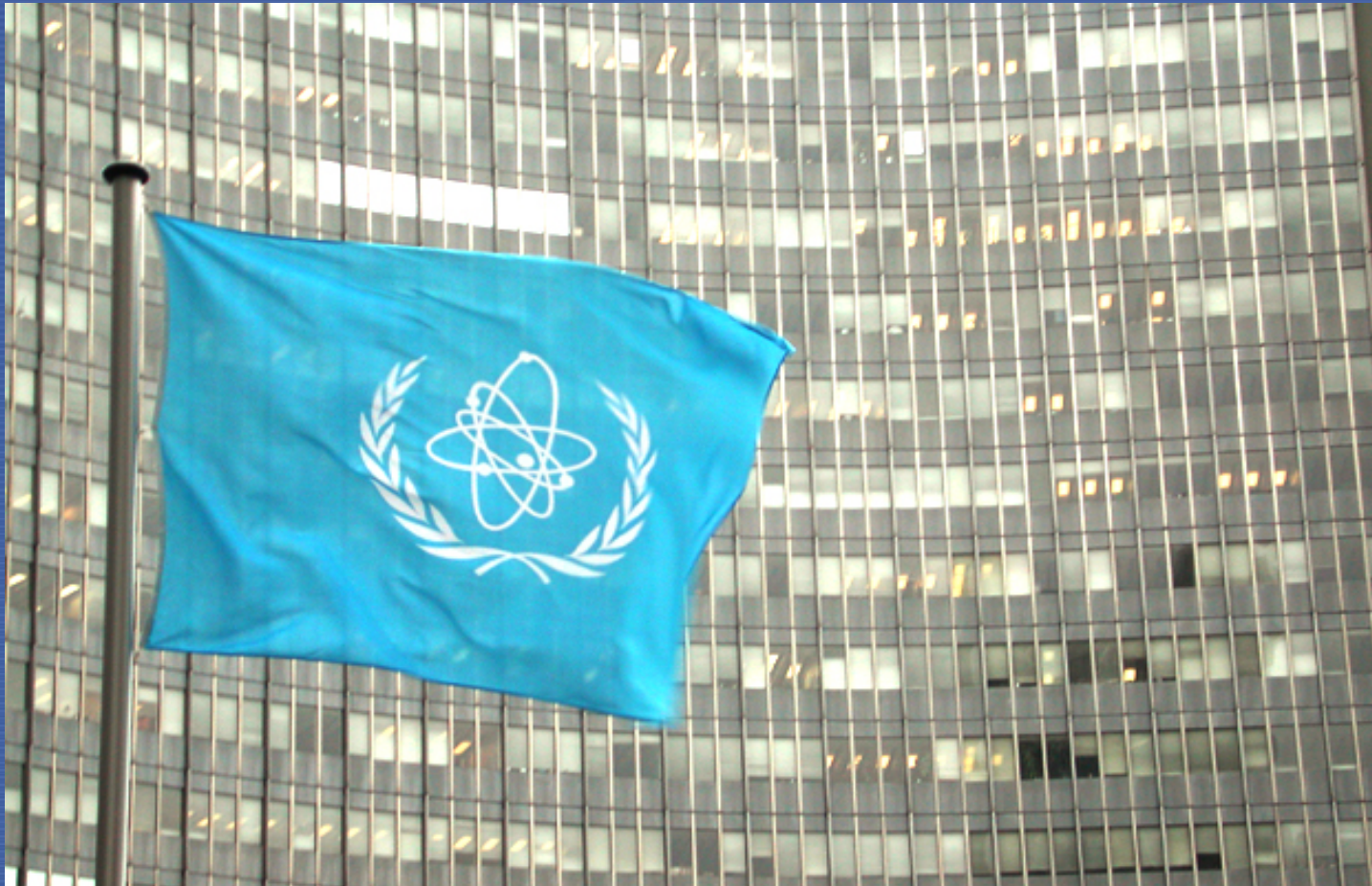


# Joint ICTP/IAEA Workshop on Alternative Response Actions to Climate Change and Energy Options

## Objective:

To review and discuss the results of the  
CRP and draw future directions for  
further research on response actions to  
climate change

# Thank You



*IAEA...atoms for peace.*

