



FONDAZIONE ENI  
ENRICO MATTEI

# The Challenge of Controlling Global Climate Change

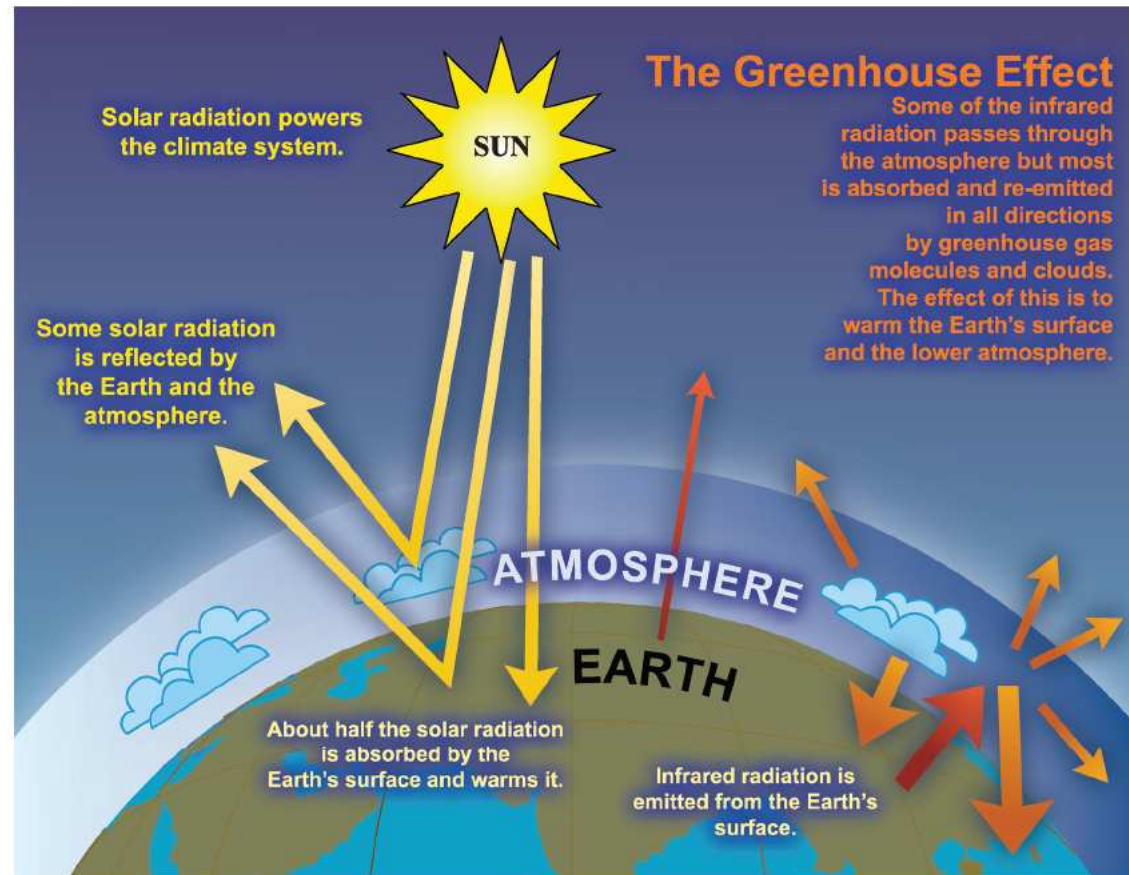
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Emanuele Massetti, FEEM

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Bocconi University  
Milan, 19 March 2009

# Mitigation in Perspective

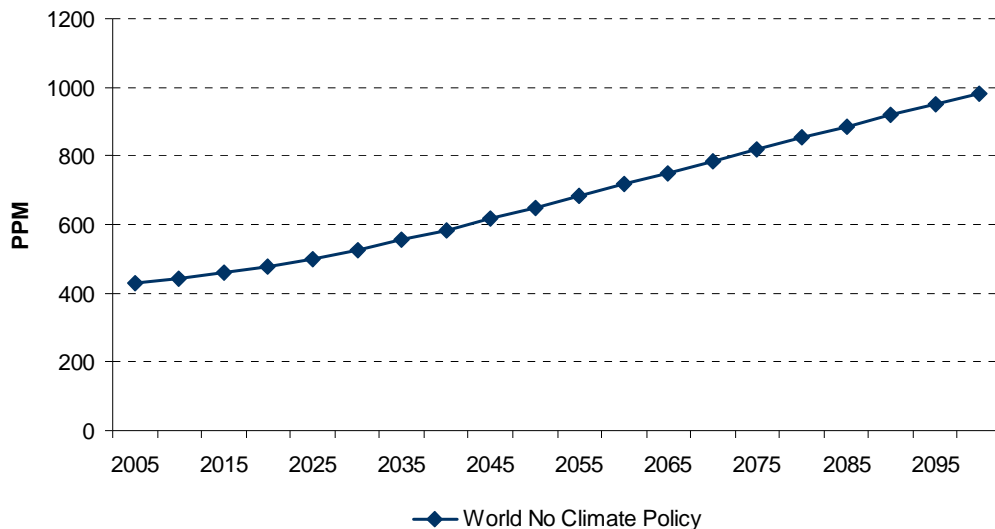


FAQ 1.3, Figure 1. An idealised model of the natural greenhouse effect. See text for explanation.

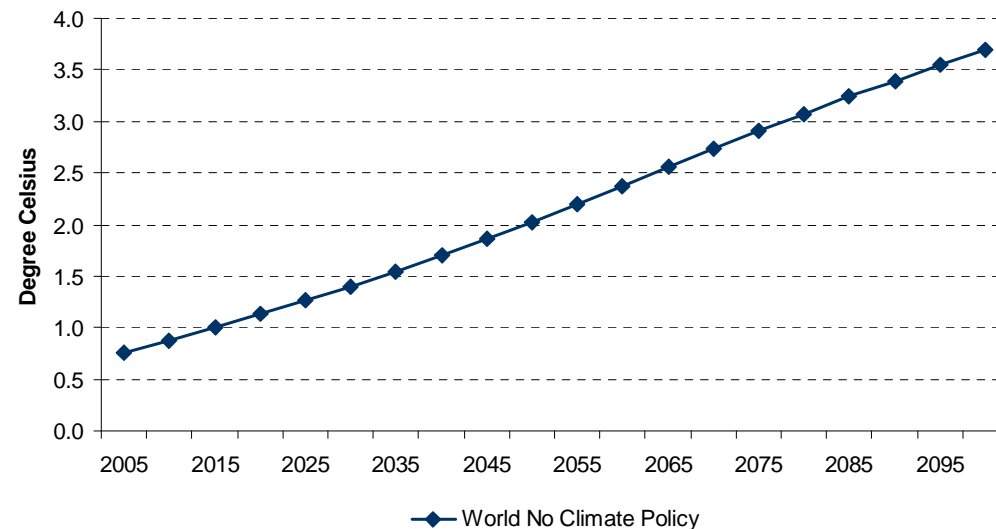
Source: IPCC, Working Group I, 2007

# Scenarios of GHG Concentrations and Temperature

Concentrations of GHG in the Atmosphere



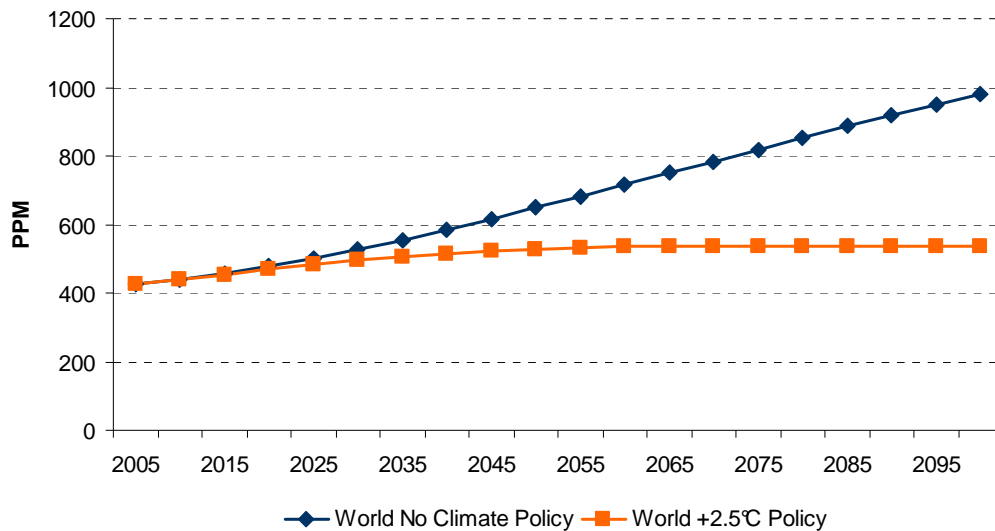
Temperature Increase Above Preindustrial Level



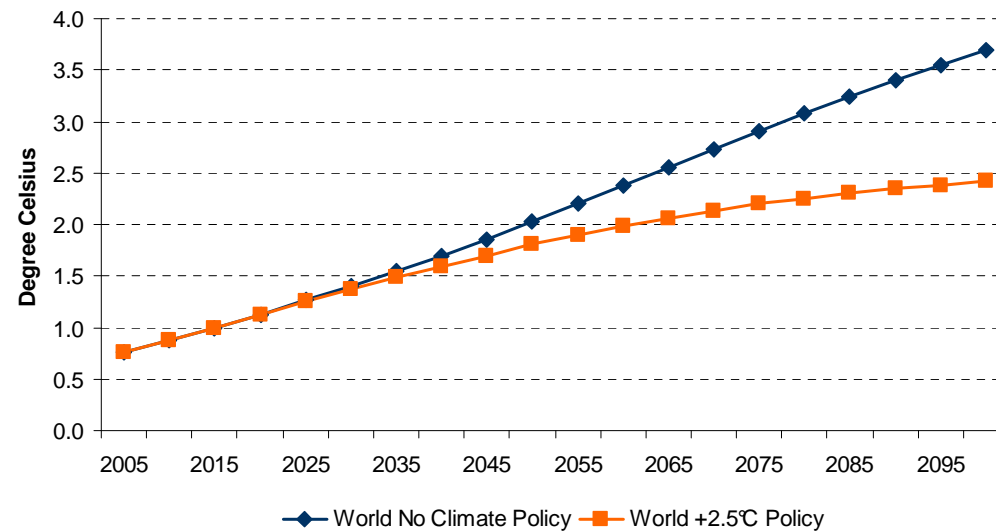
- Without climate policy concentrations will grow and temperature will achieve dangerous levels

# Stabilization of World Climate

Concentrations of GHG in the Atmosphere

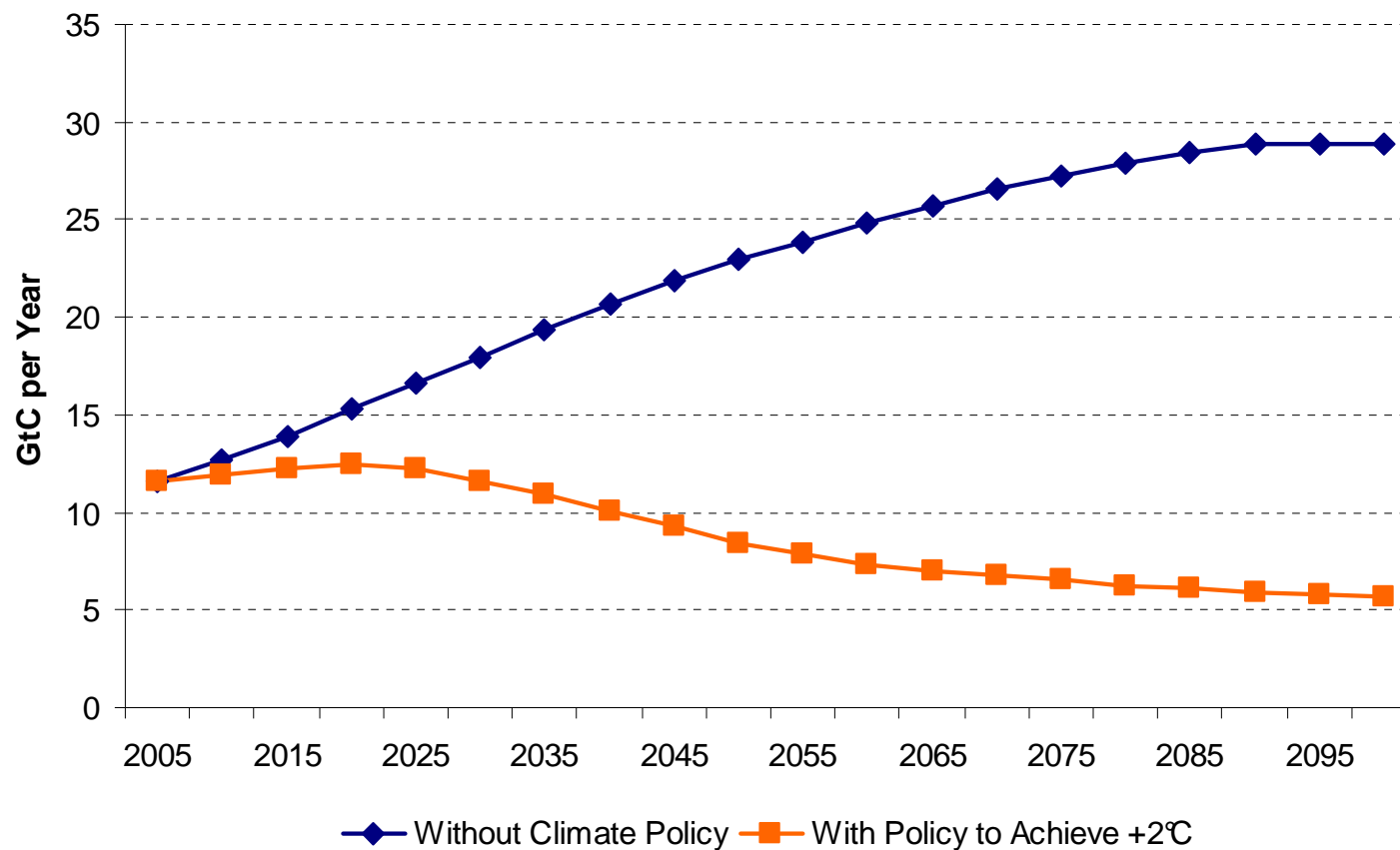


Temperature Increase Above Preindustrial Level



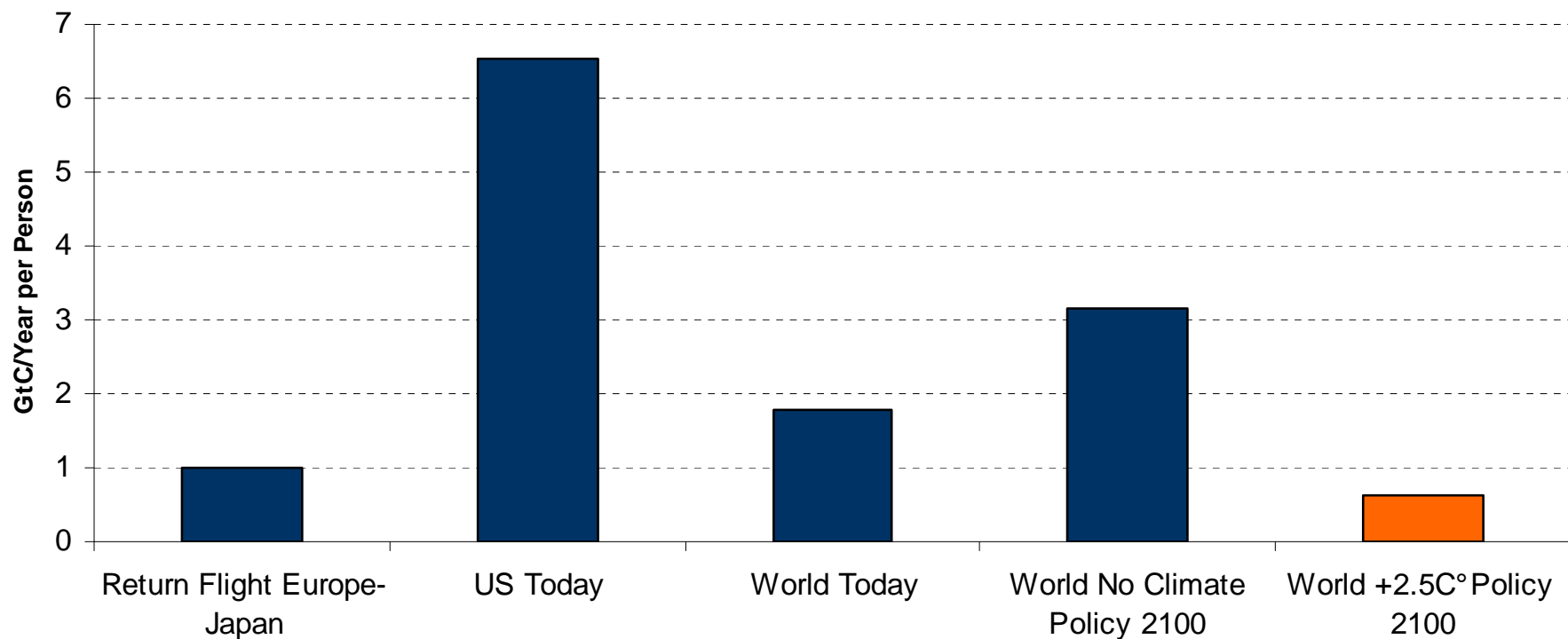
- Climate policy aims at stabilizing GHG concentrations and world mean temperature

# GHG Emissions



- Stabilization of world mean temperature at +2.5°C requires a dramatic contraction of GHG emissions

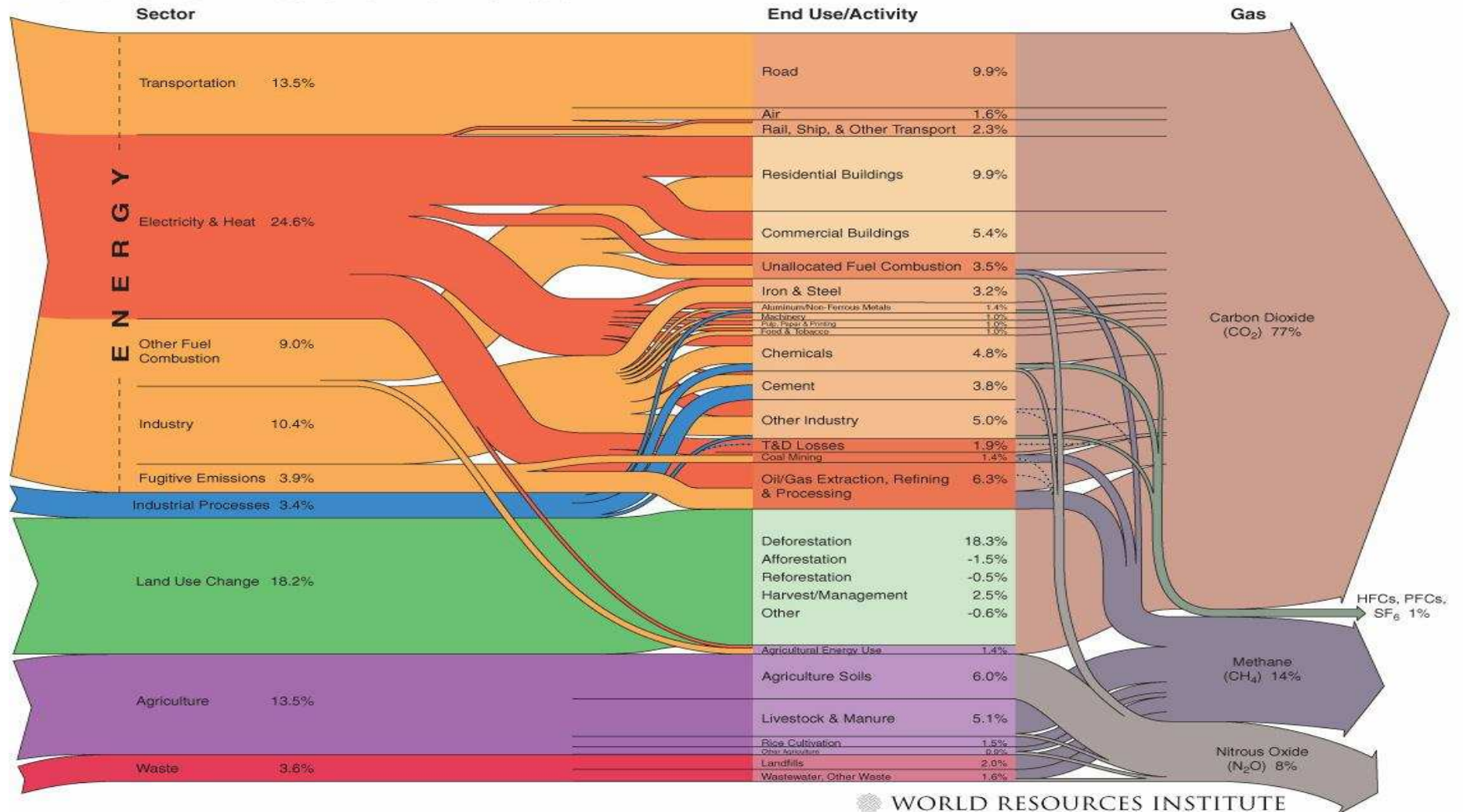
# Mitigation in Perspective



- A technological, costly, revolution is needed

# Flow of GHG Emissions

World GHG Emissions Flow Chart



WORLD RESOURCES INSTITUTE



# Mitigation Possibilities

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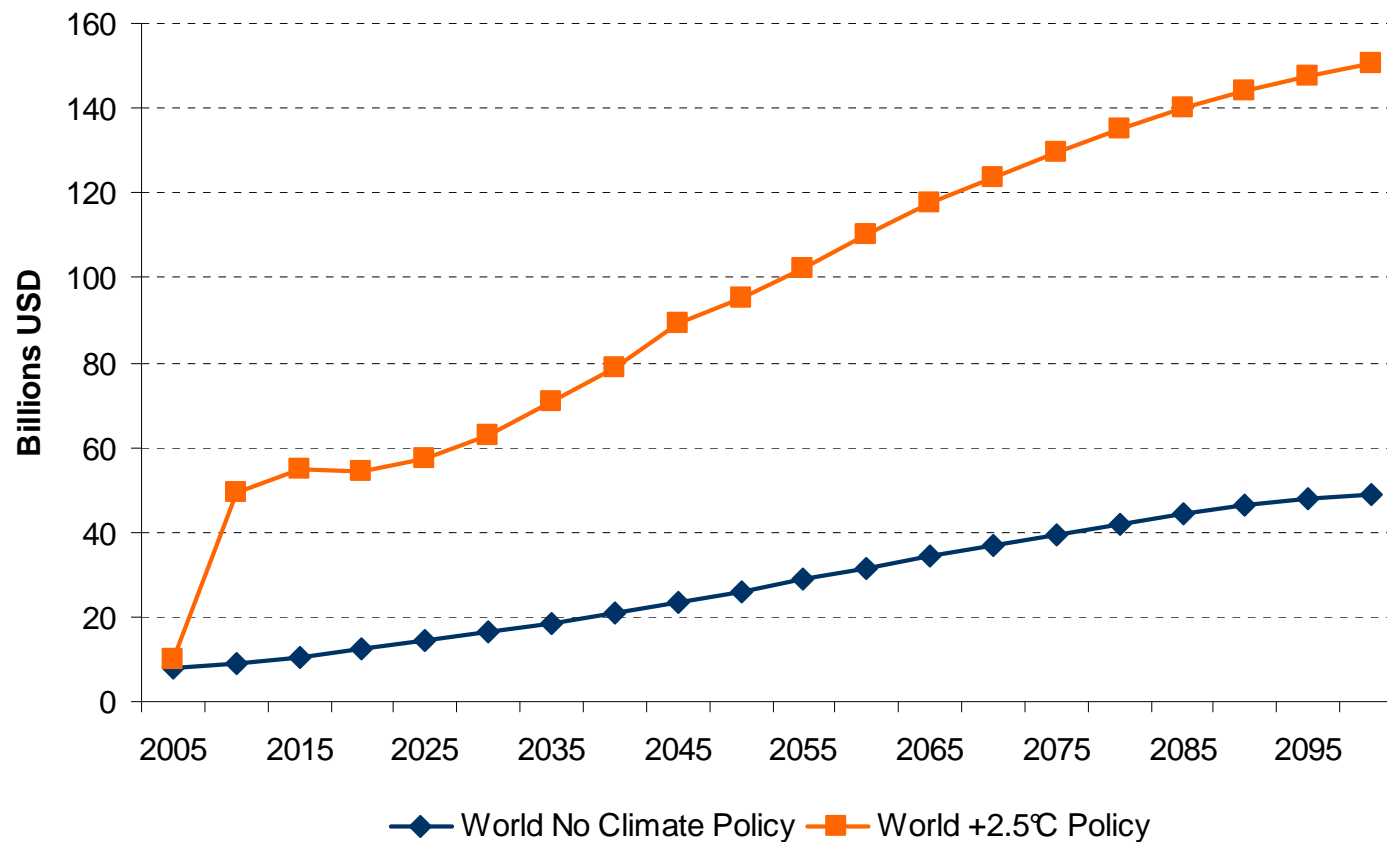
## Mitigation action in Energy Sector

- Energy Efficiency
- Energy with zero or low carbon emissions
  - Wind and solar (problems for large scale development)
  - Nuclear (questions about waste management)
  - Coal with Carbon Capture and Sequestration (uncertain)
  - Radical innovation in transport sector

## Land use and agriculture

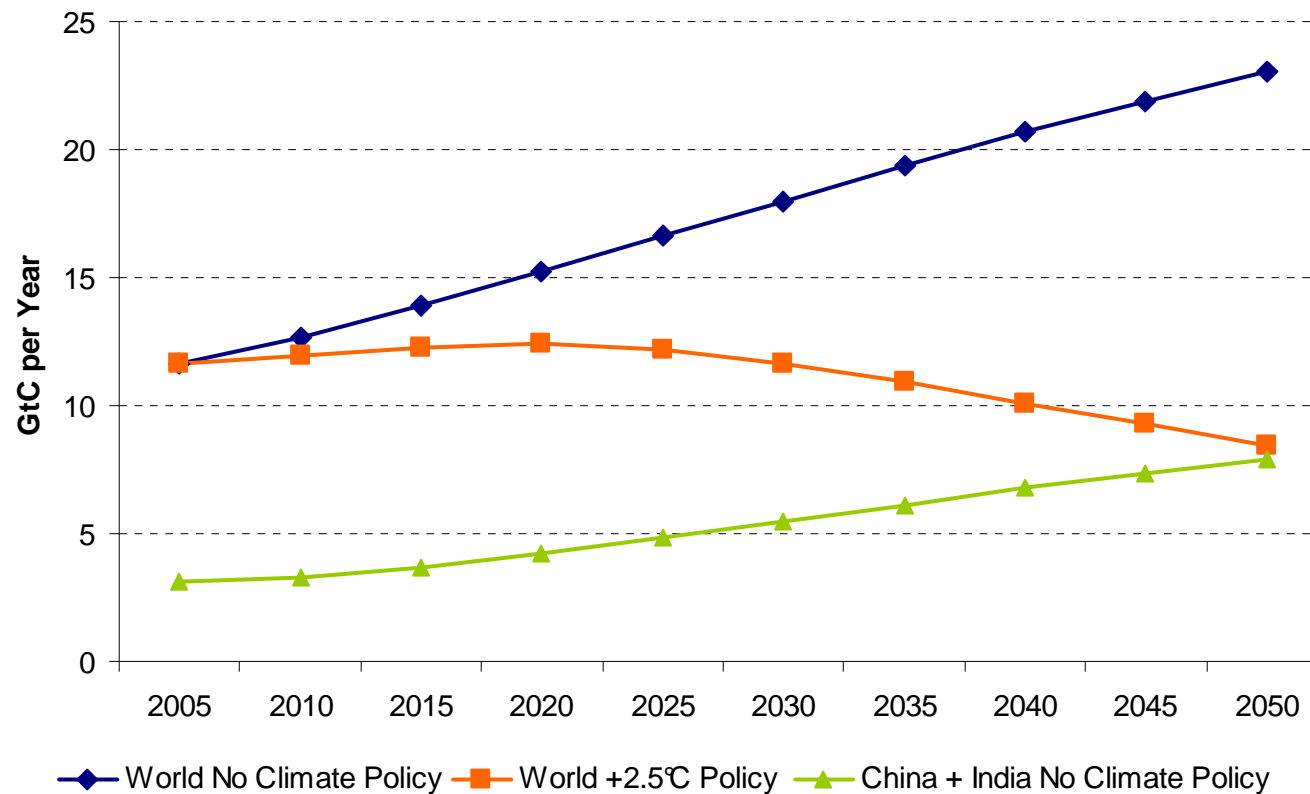
- Avoided Deforestation
- Soil Management
- Livestock Management

# Investments in Research and Development



- Research to increase energy efficiency and to develop new technologies, especially to substitute oil in transport

# Global Cooperation for a Climate Agreement

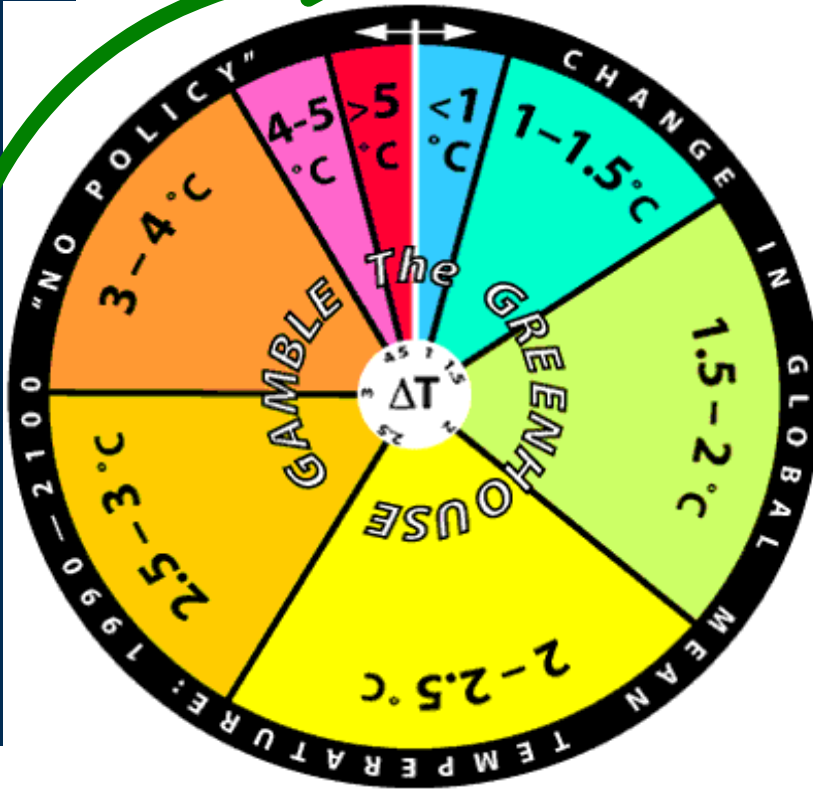


- Global cooperation is desperately needed

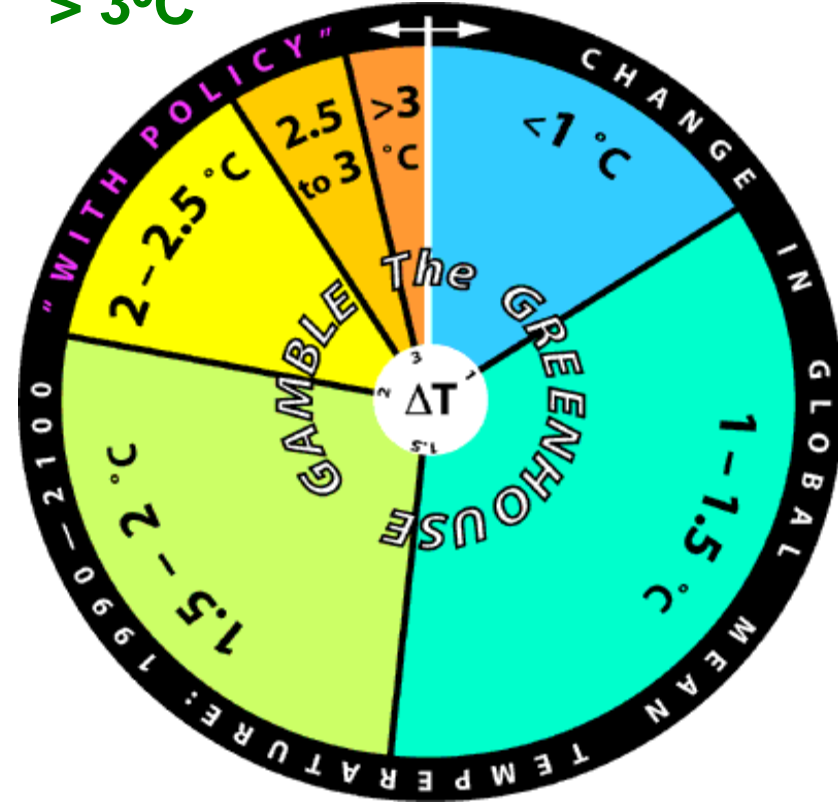
# The Climate Gamble

25%  
> 3°C

MIT Joint Program



5%  
> 3°C



Temperature increase by 2100 with no new GHG policy

Temperature increase by 2100 at +2°C stabilization



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