

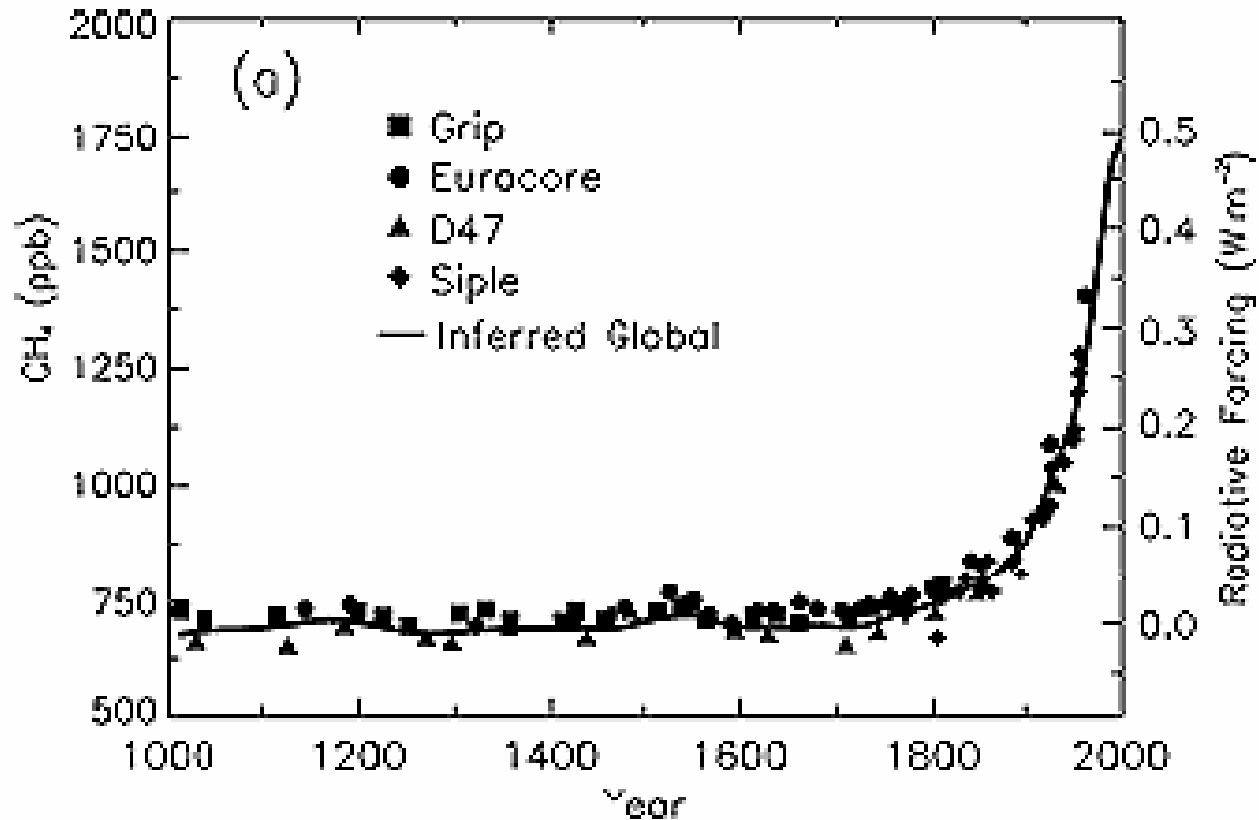
Methane in Climate Policy

Overview of benefits and problems of including methane in climate policies

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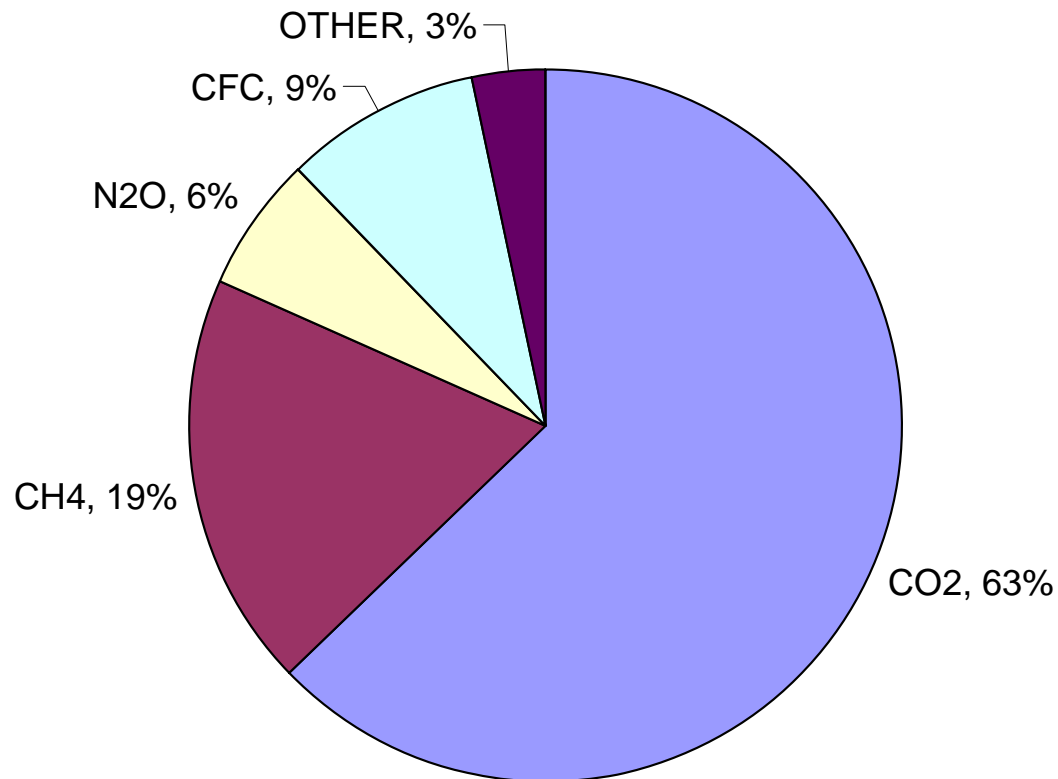
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Atmospheric concentration of methane

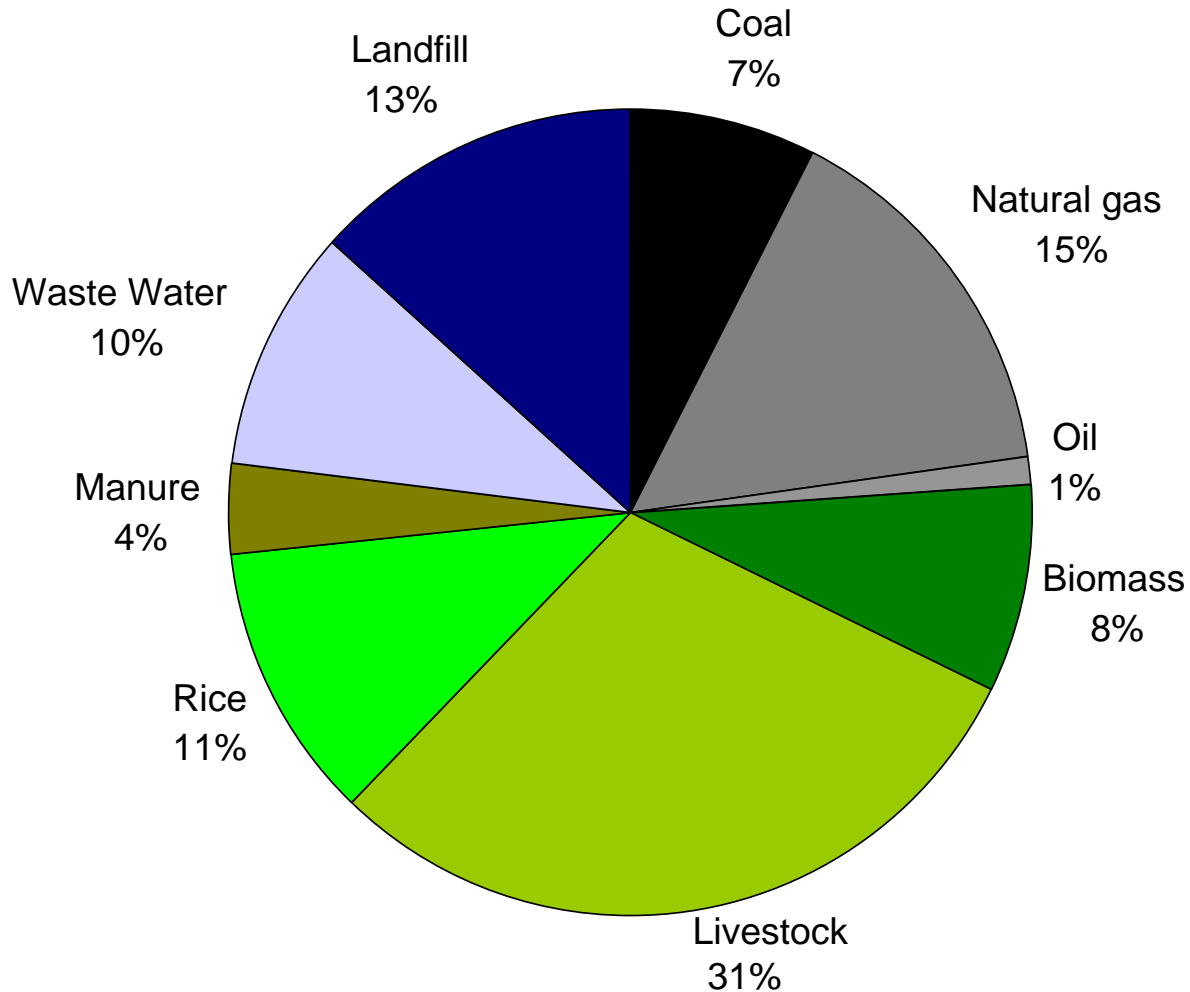


Radiative strength of well mixed greenhouse gases in year 2005

Radiative Forcing (2.64 W/m²)



Methane emission sources



Emission today

~ 300 Tg CH₄

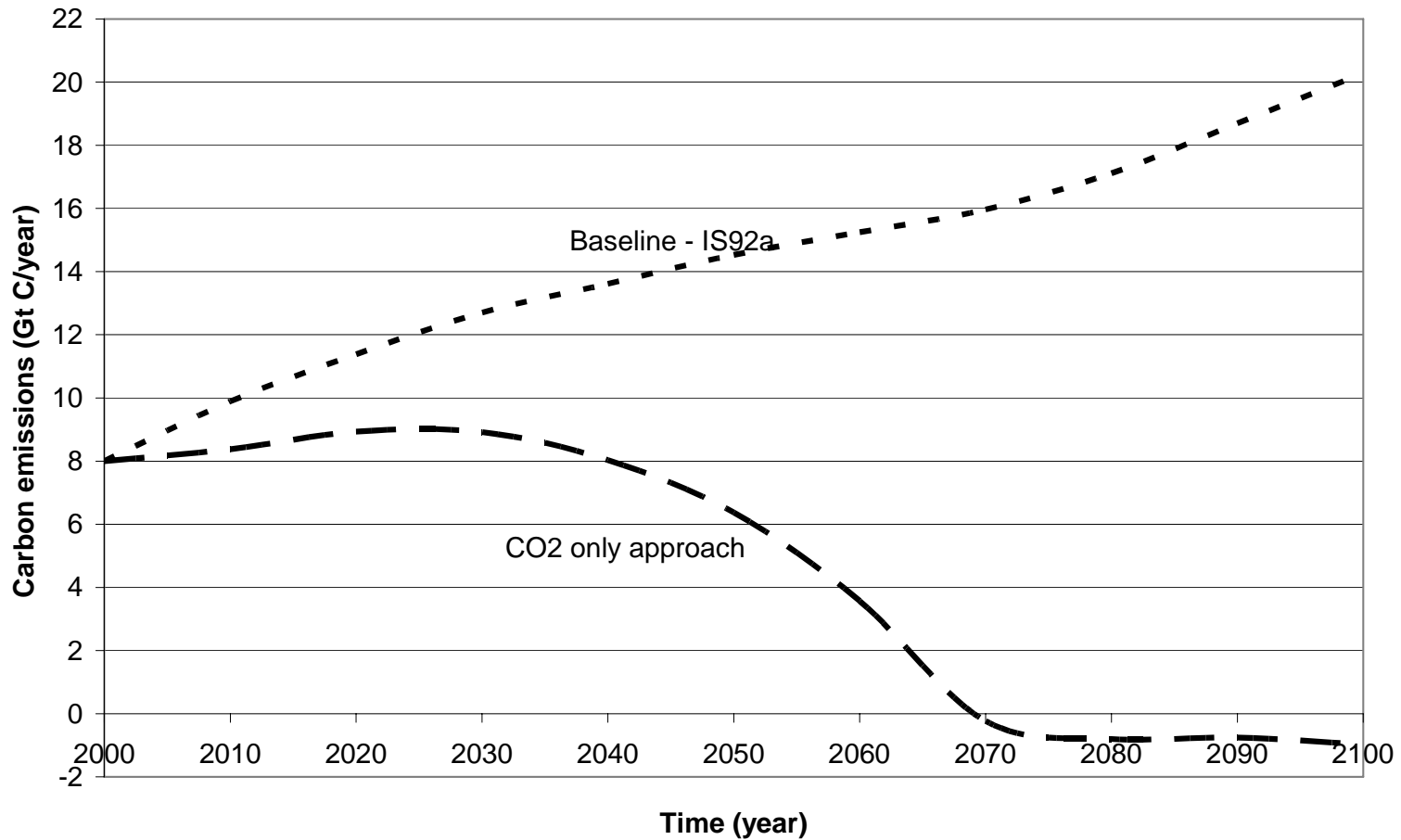
~ 7 G ton CO₂eqv

(GWP₁₀₀=23)

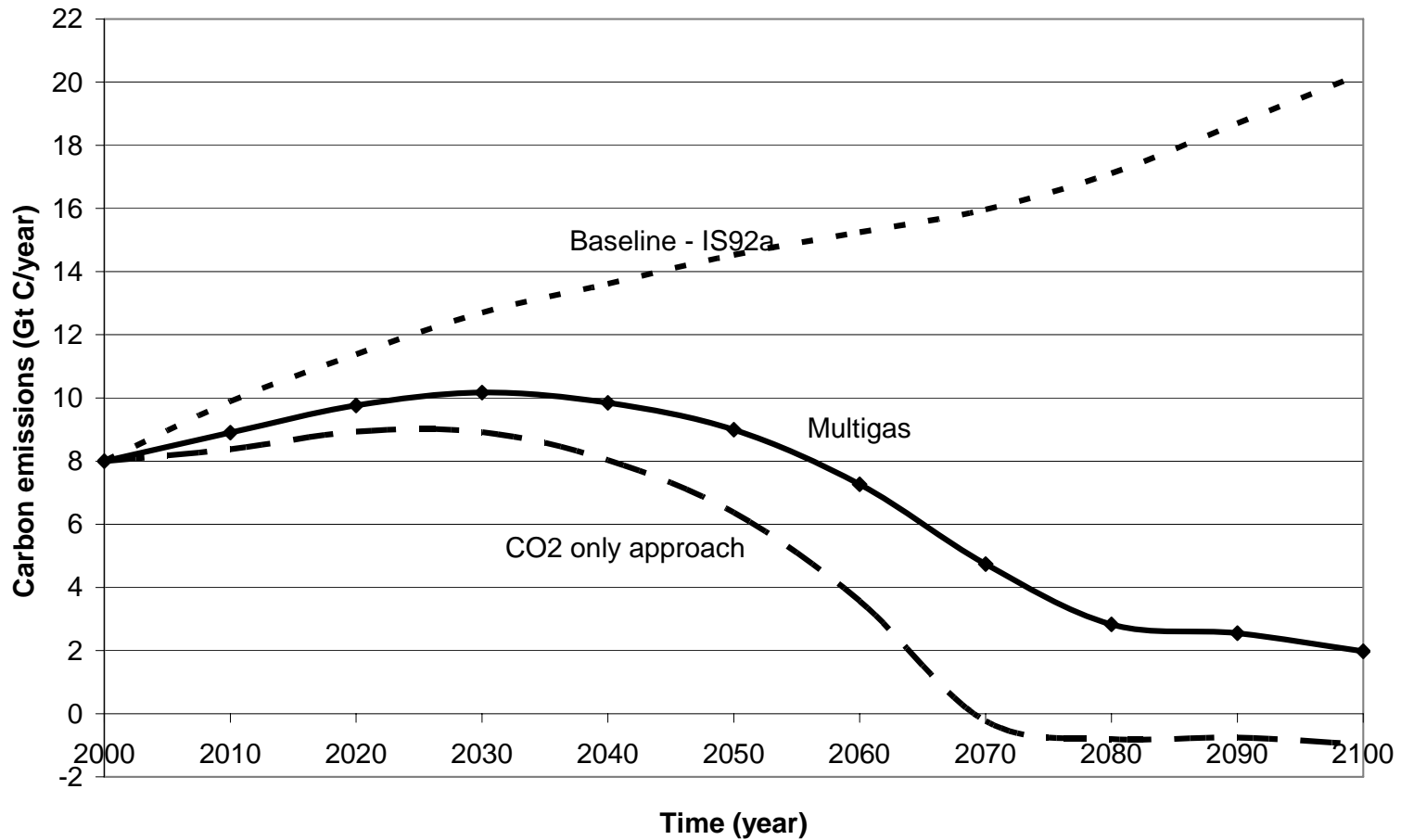
Stabilizing the global average surface temperature at 2K above the pre-industrial level

- Target suggested by several scientists
- Target adopted by the European Union
- Large scientific uncertainties in climate sensitivity (we have 3K for a doubling of atmospheric CO₂)
- Climate-economic model – MiMiC

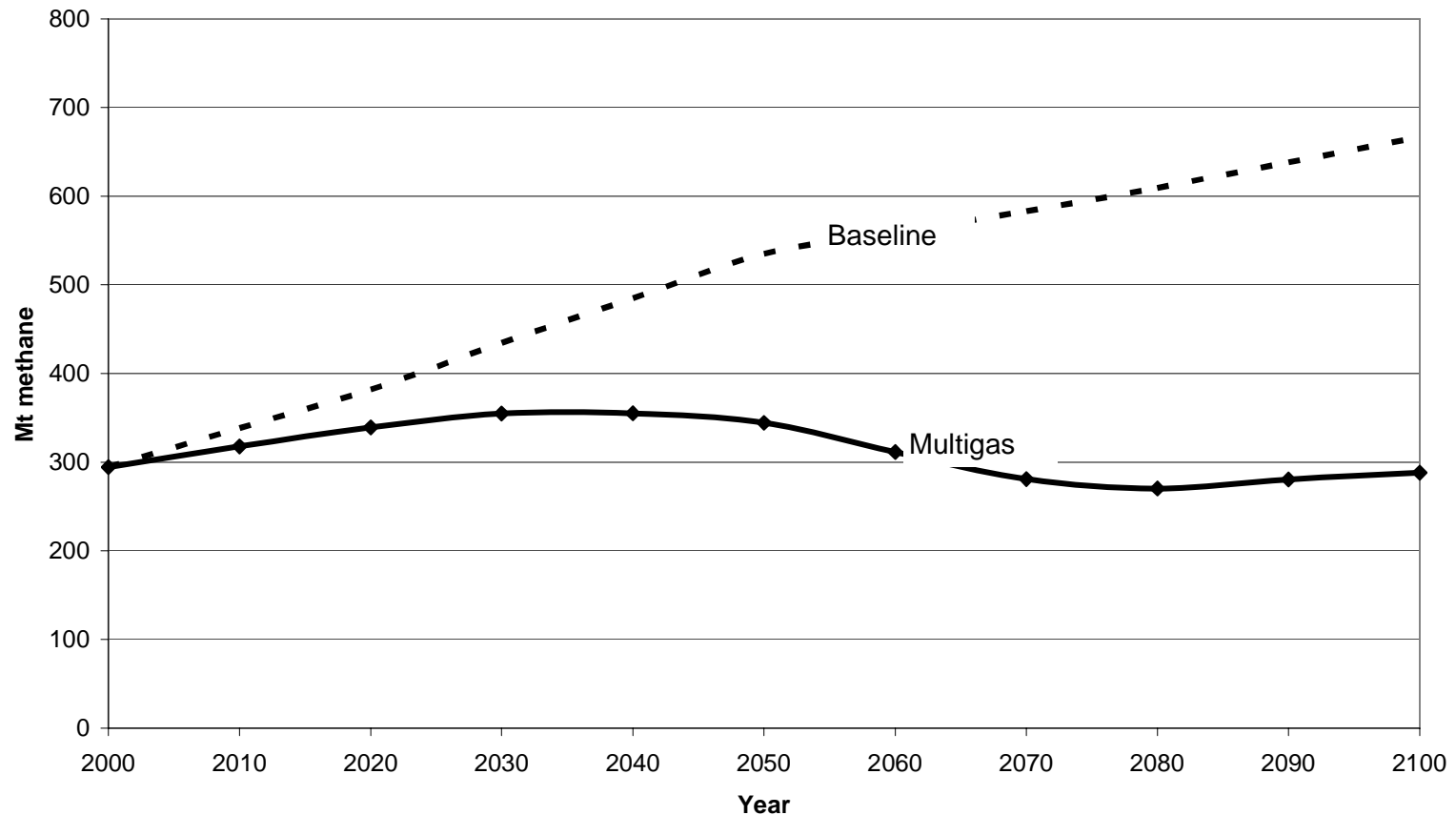
Stabilizing at 2K above the pre-industrial level with only CO₂ abatement given a climate sensitivity of 3K for a CO₂ doubling – CO₂ emissions



Stabilizing at 2K above the pre-industrial level with multigas abatement given a climate sensitivity of 3K for a CO₂ doubling – CO₂ emissions

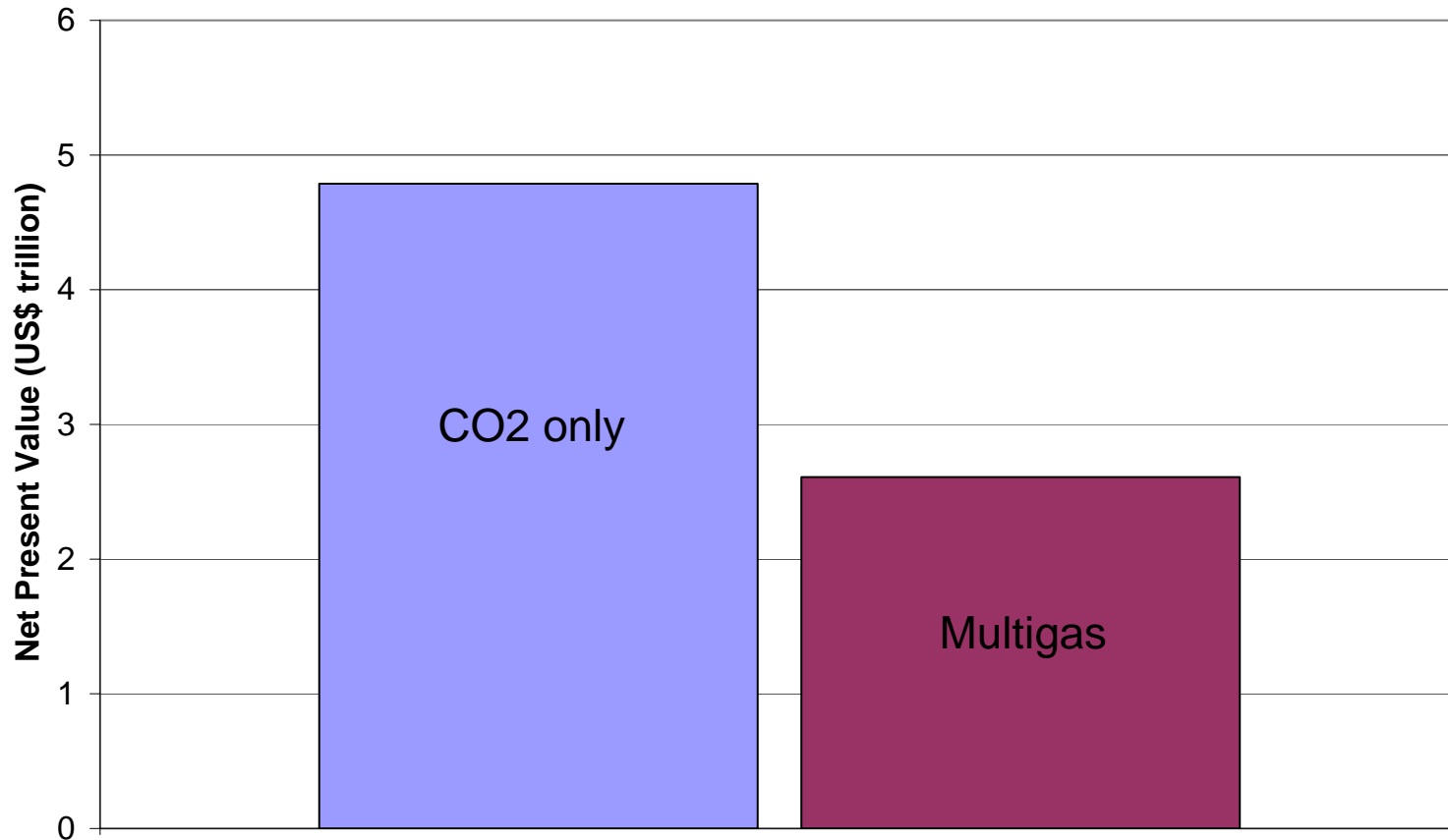


Stabilizing at 2K above the pre-industrial level with **multigas** abatement given a climate sensitivity of 3K for a CO₂ doubling – **CH₄ emissions**



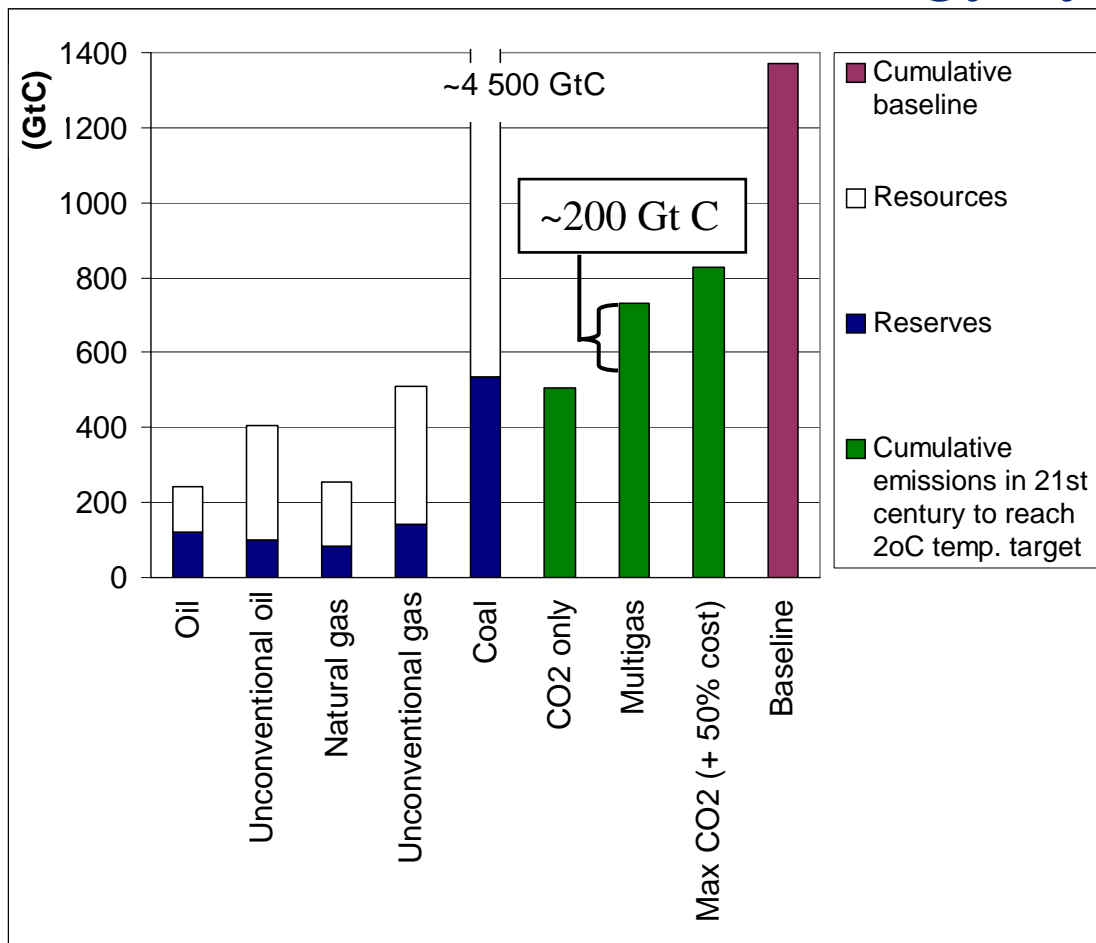
Benefit 1

Cost of reaching 2K above pre-industrial level given a climate sensitivity of 3K for a CO₂ doubling



Benefit 2

Relieving the pressure for transformation of the energy system



Cumulative Carbon Emissions Over the 21st Century Vs. Fossil Fuel Resources (Rogner, WEA, 2000 and own estimates)

Benefit 3

Ancillary benefits

- Methane is one of the most important precursor to the increased background concentration of tropospheric ozone
 - Negative effect on crop and forest yields
 - Causes health problems and premature deaths
 - An important greenhouse gas

Potential problem 1

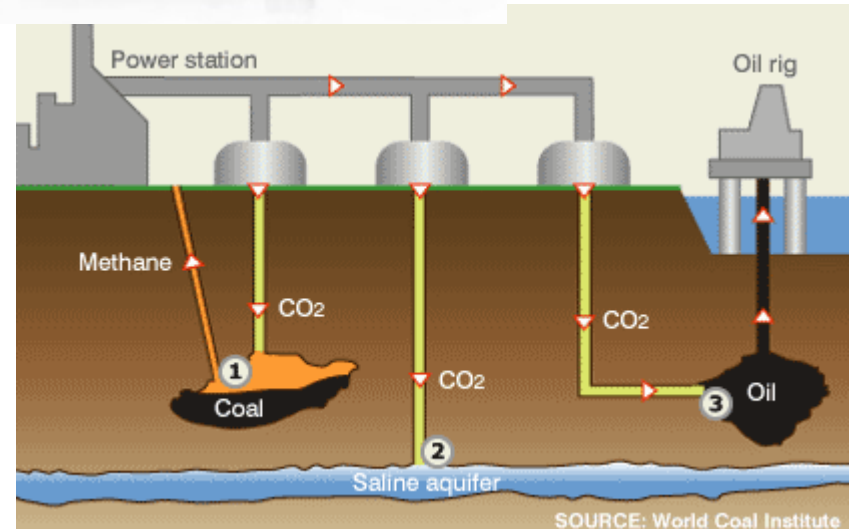
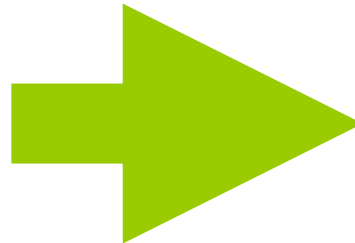
Verification and monitoring

Accurate monitoring and verification of emissions is vital for determining compliance with targets and for the functioning of permit trading systems



Potential problem 2

Do not forget that CO₂ have to be reduced and new technologies have to be developed and adopted



Benefits of reducing methane emissions

- *Large potential cost reductions*
- *Relieving the pressure for transformation of the energy system*
- *Ancillary benefits from CH₄ abatement*

Potential problems with reducing methane emissions

- *Relieving the pressure for transformation of the energy system*
- *Monitoring and verification of CH₄ emissions*
- *Implementing cost-effective policies*