

The Potential of Energy Efficiency

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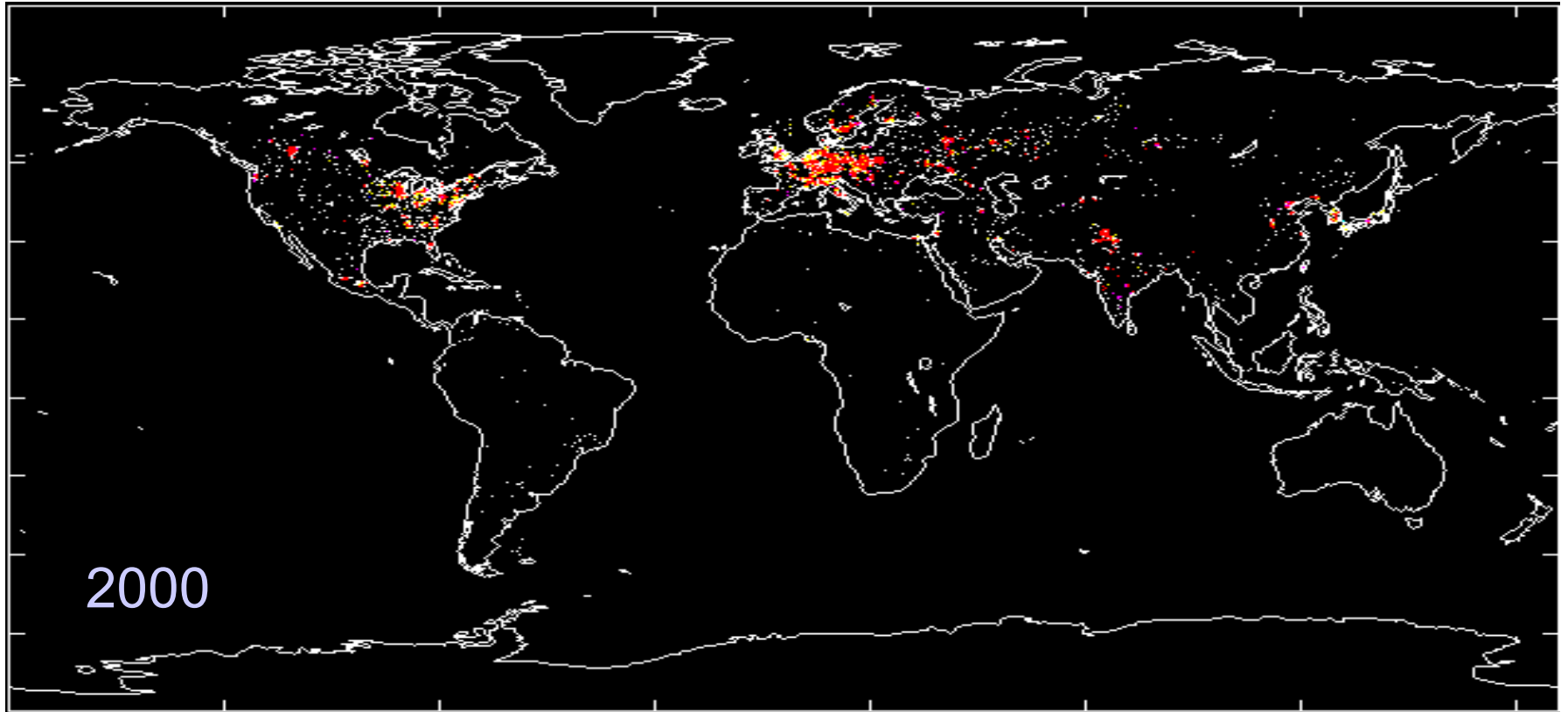


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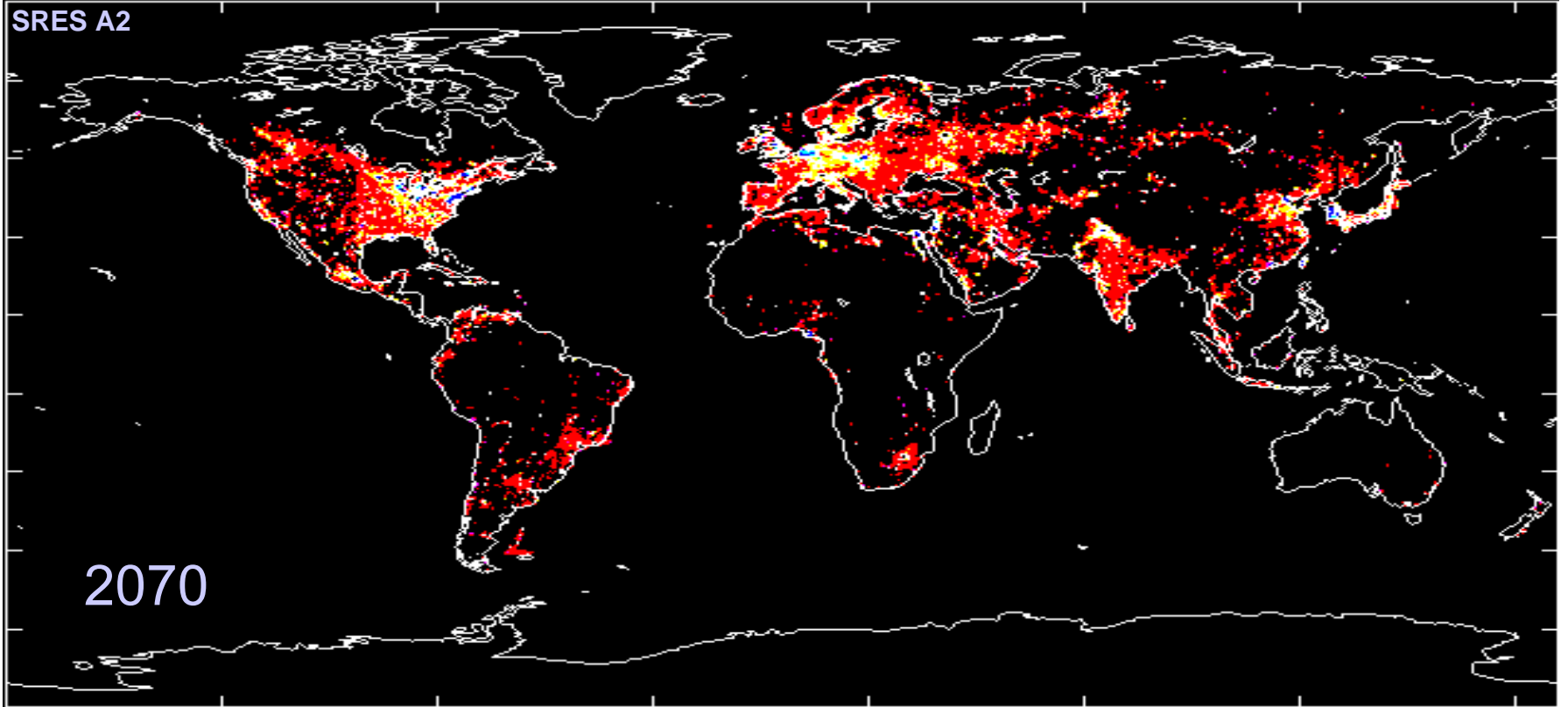
Energy Efficiency – Key Pillar for a Competitive, Secure and Sustainable Europe
15th Annual Conference of the European Environment and Sustainable
Development Council, Evora, Portugal – 1-13 October 2007



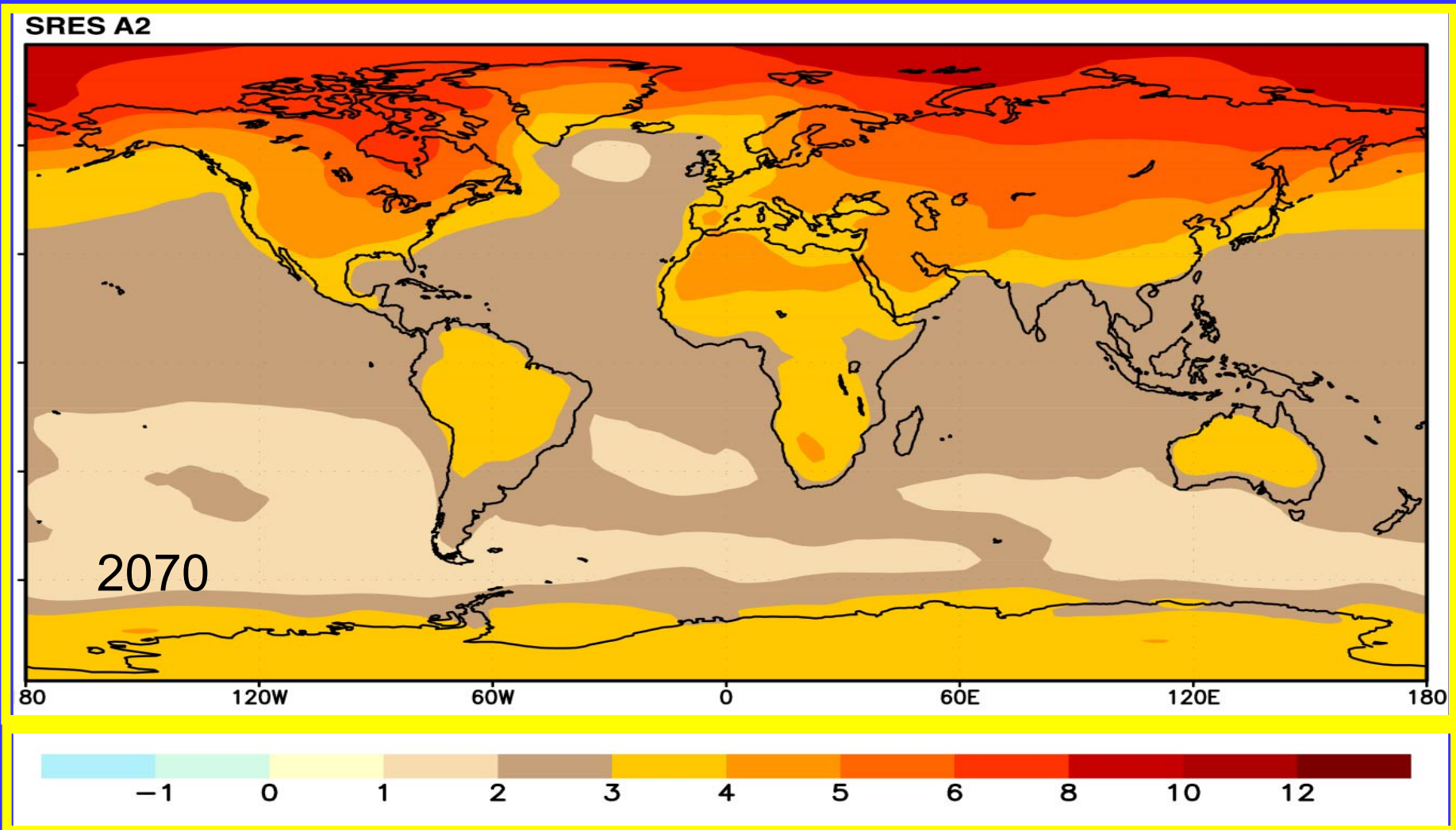
Night Lights



Night Lights

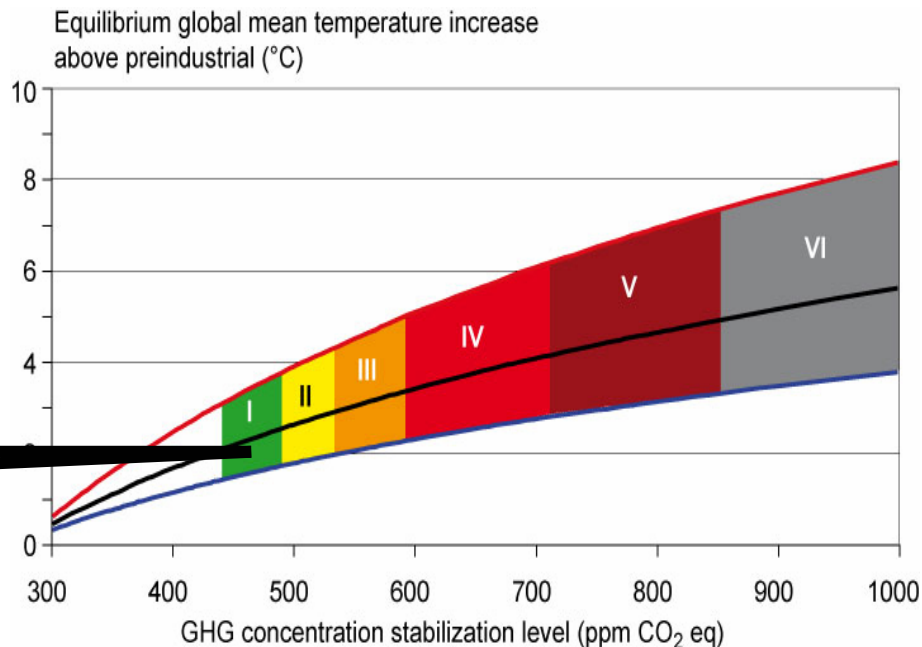
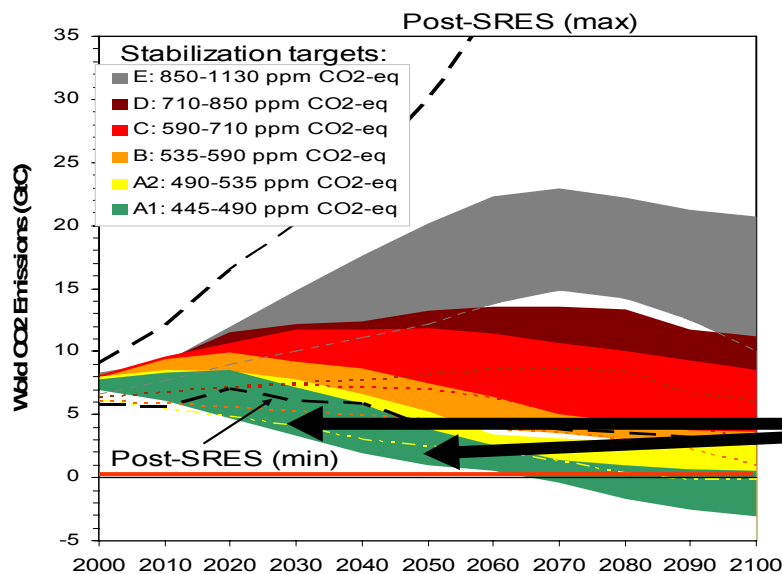


Δ Temperature



Long-term mitigation: stabilisation and equilibrium global mean temperatures

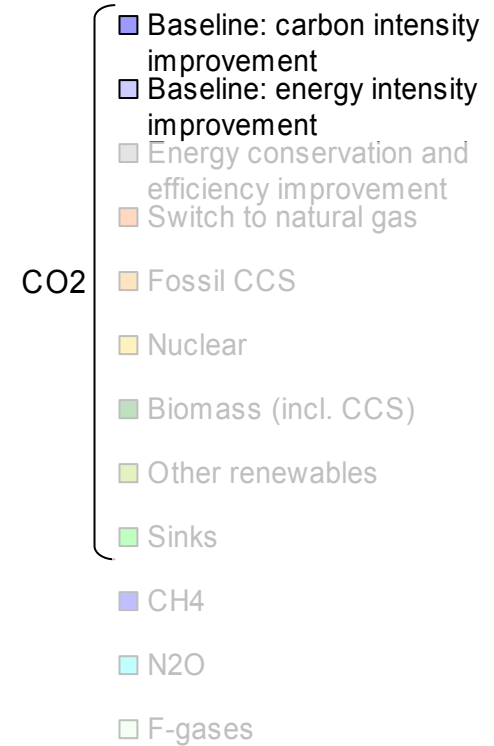
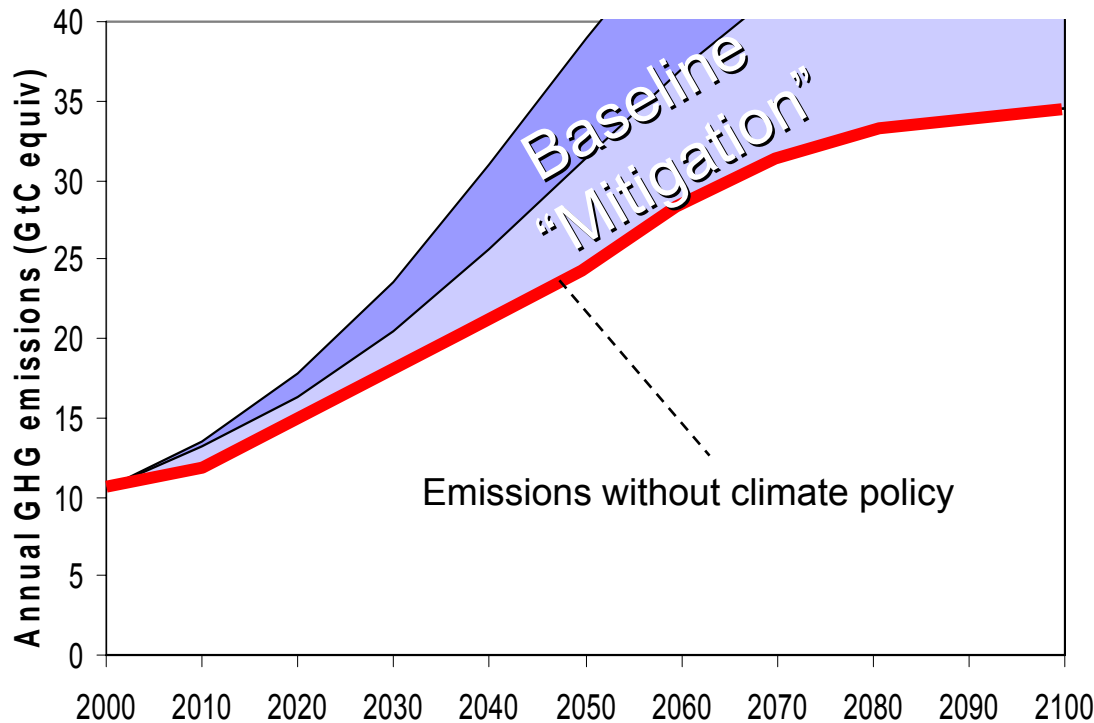
- The lower the stabilisation level the earlier global CO₂ emissions have to peak



Multigas and CO₂ only studies combined

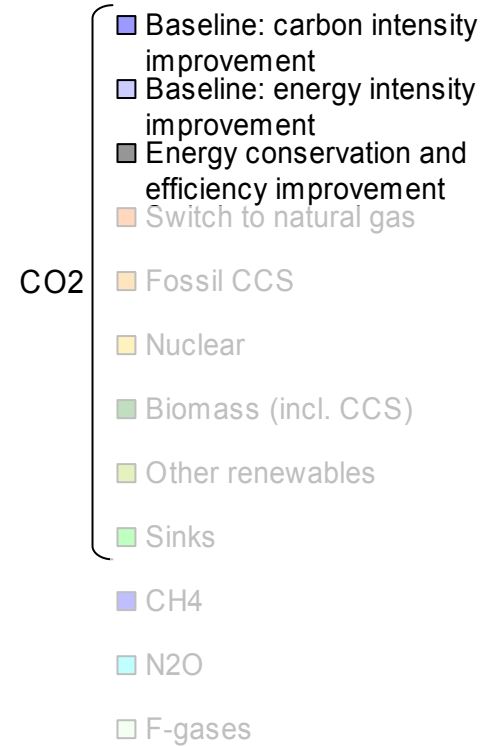
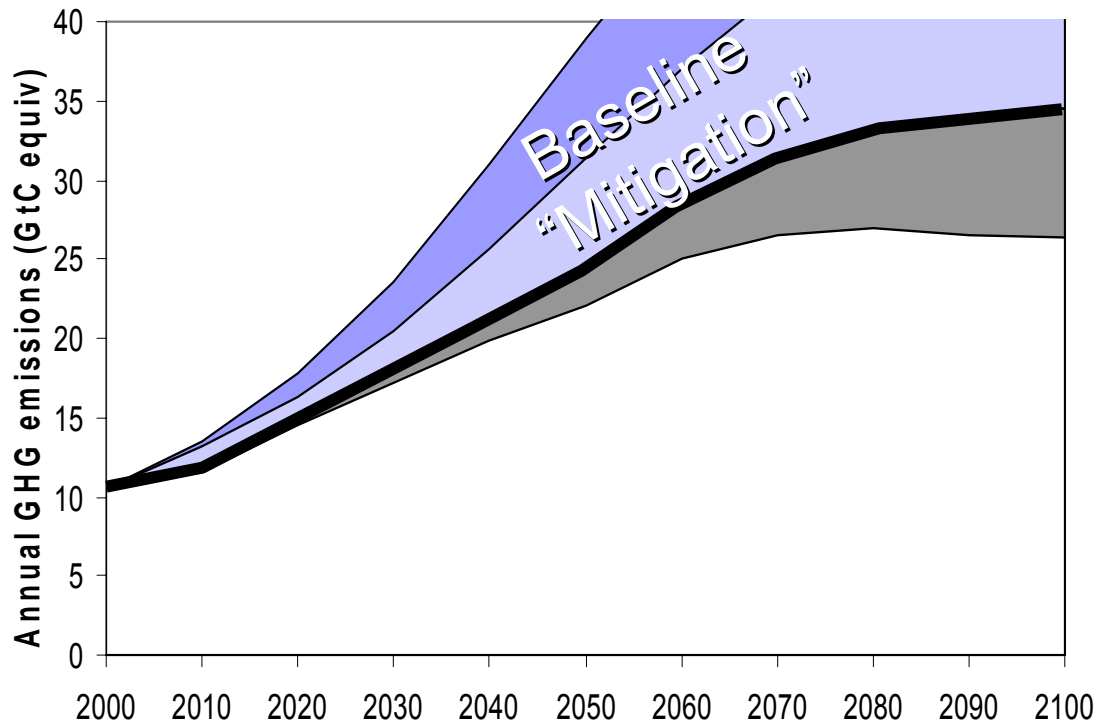
World GHG Emissions

IIASA A2r Scenario



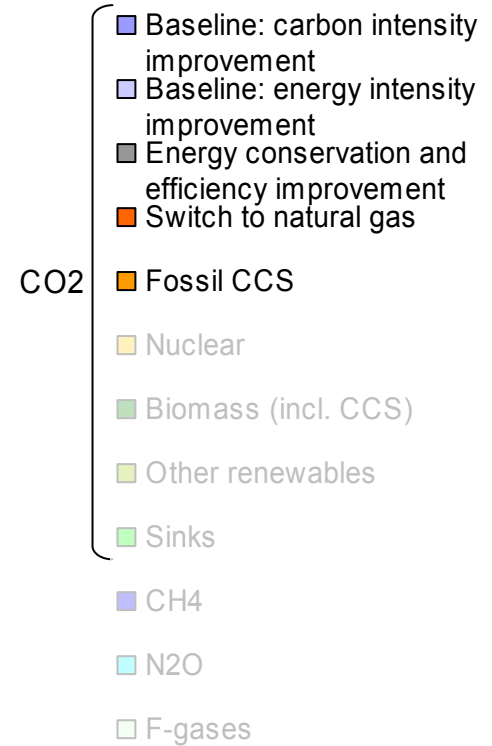
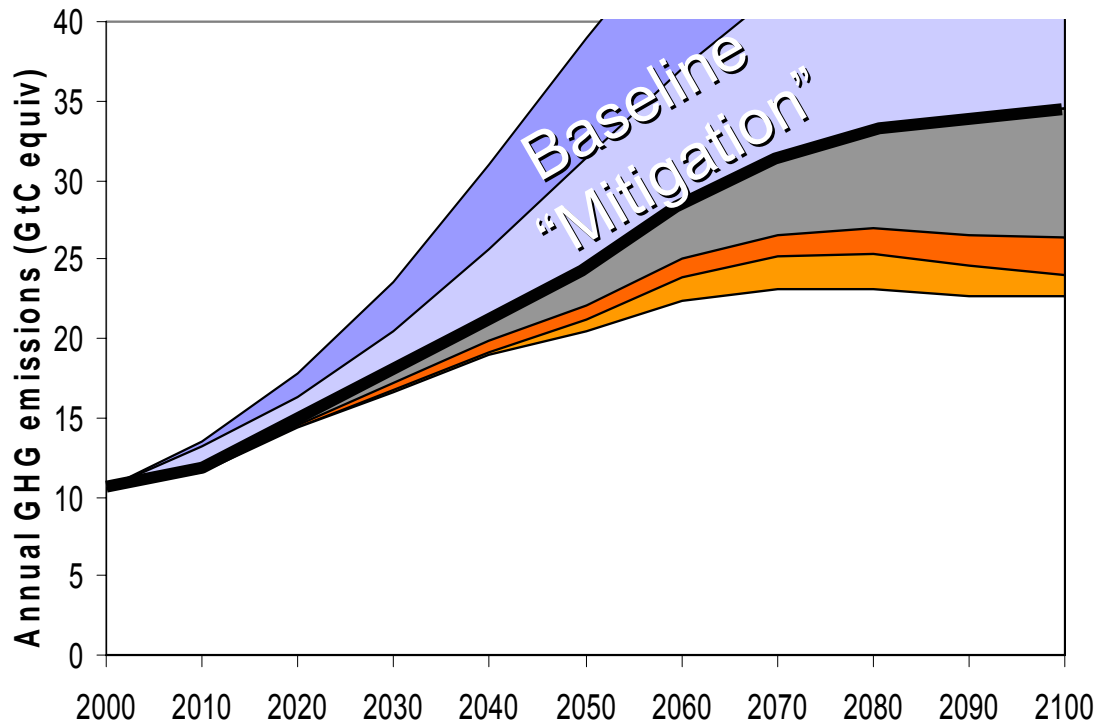
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IIASA A2r Scenario



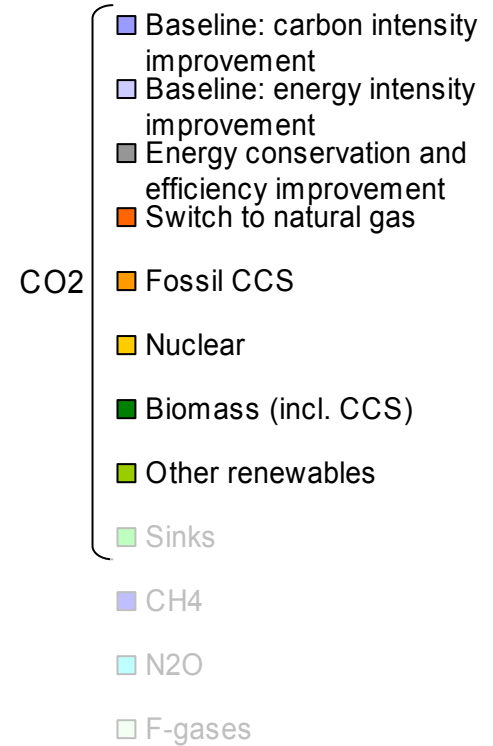
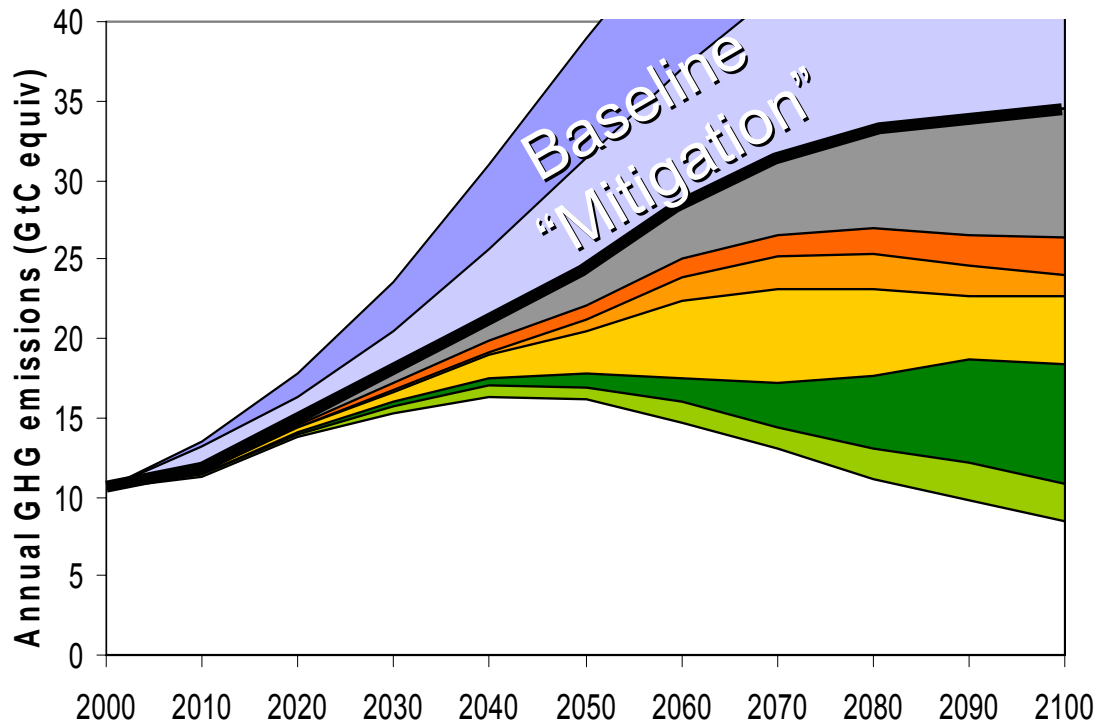
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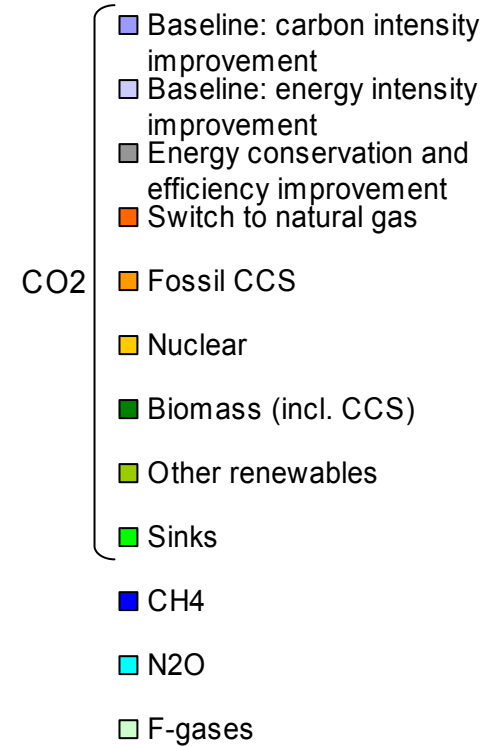
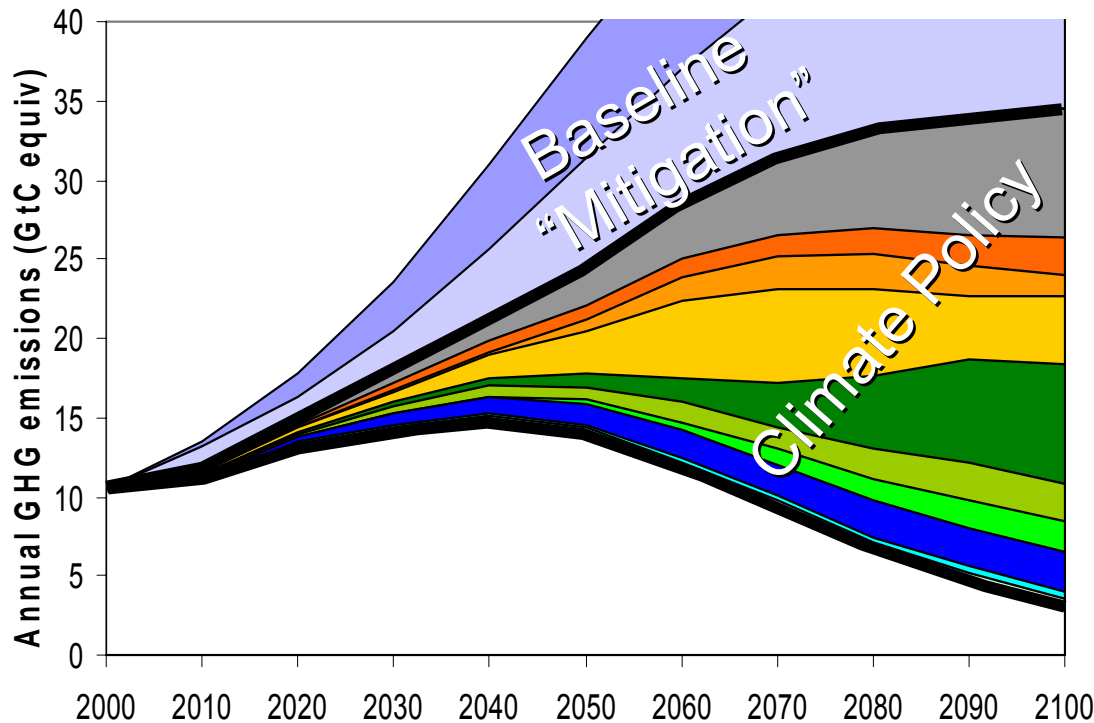
World GHG Emissions

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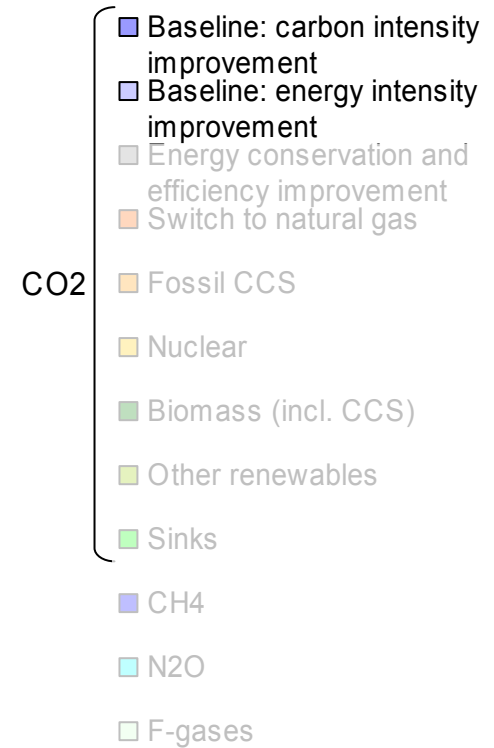
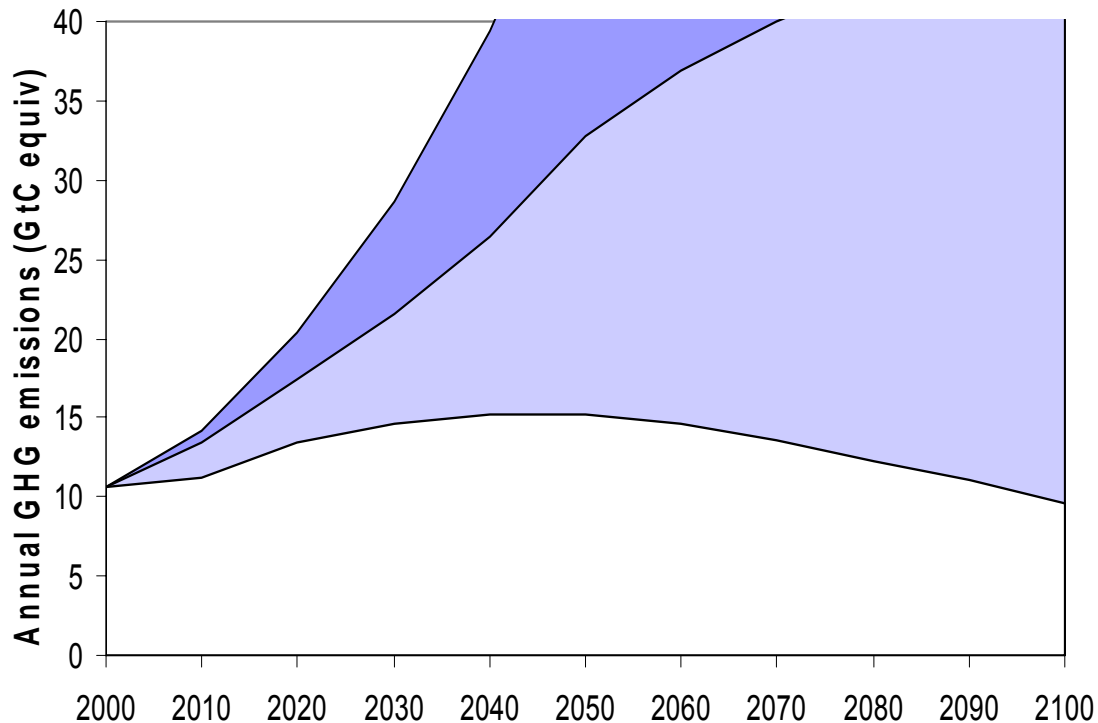
World GHG Emissions

IIASA A2r Scenario



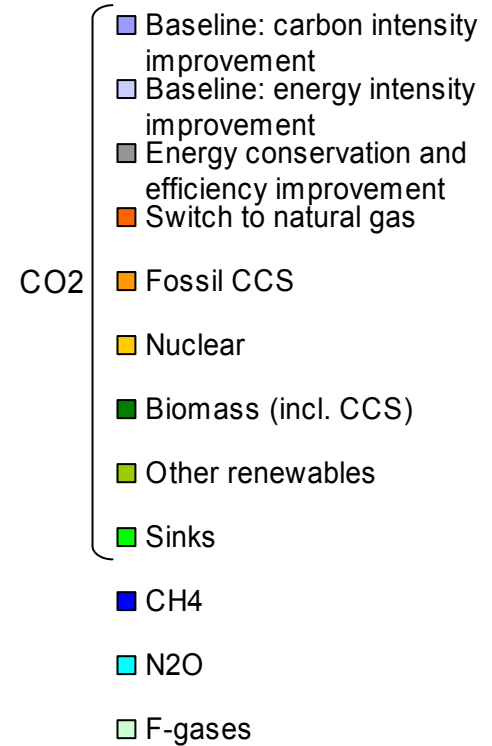
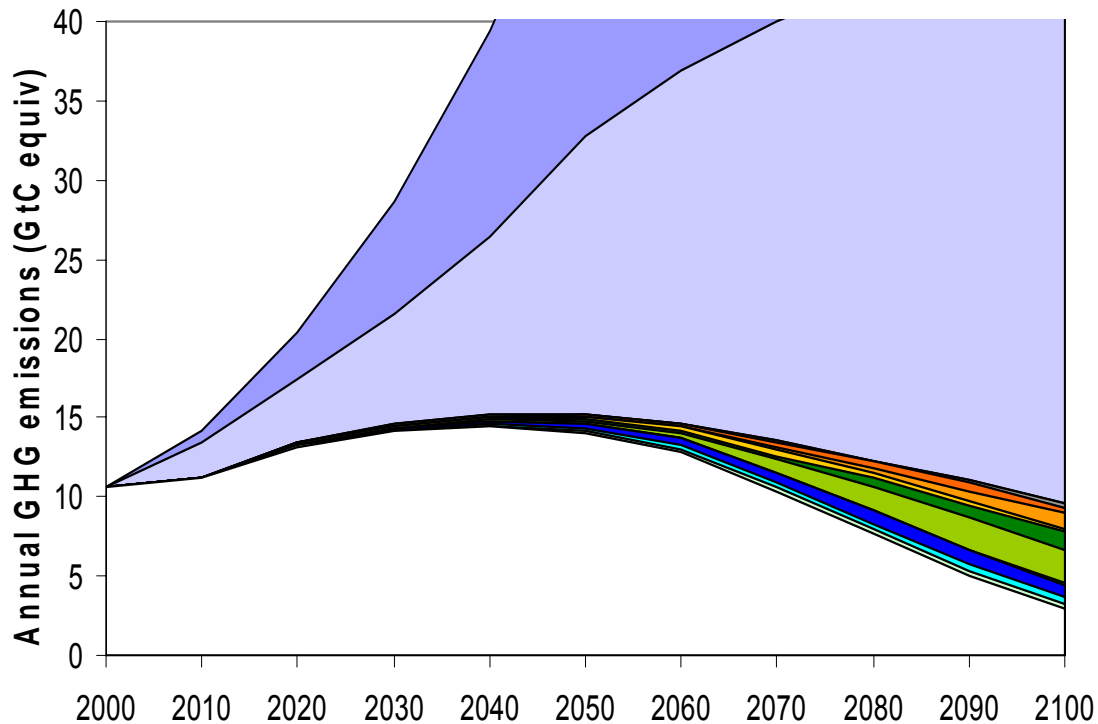
World GHG Emissions

IIASA B1 Scenario

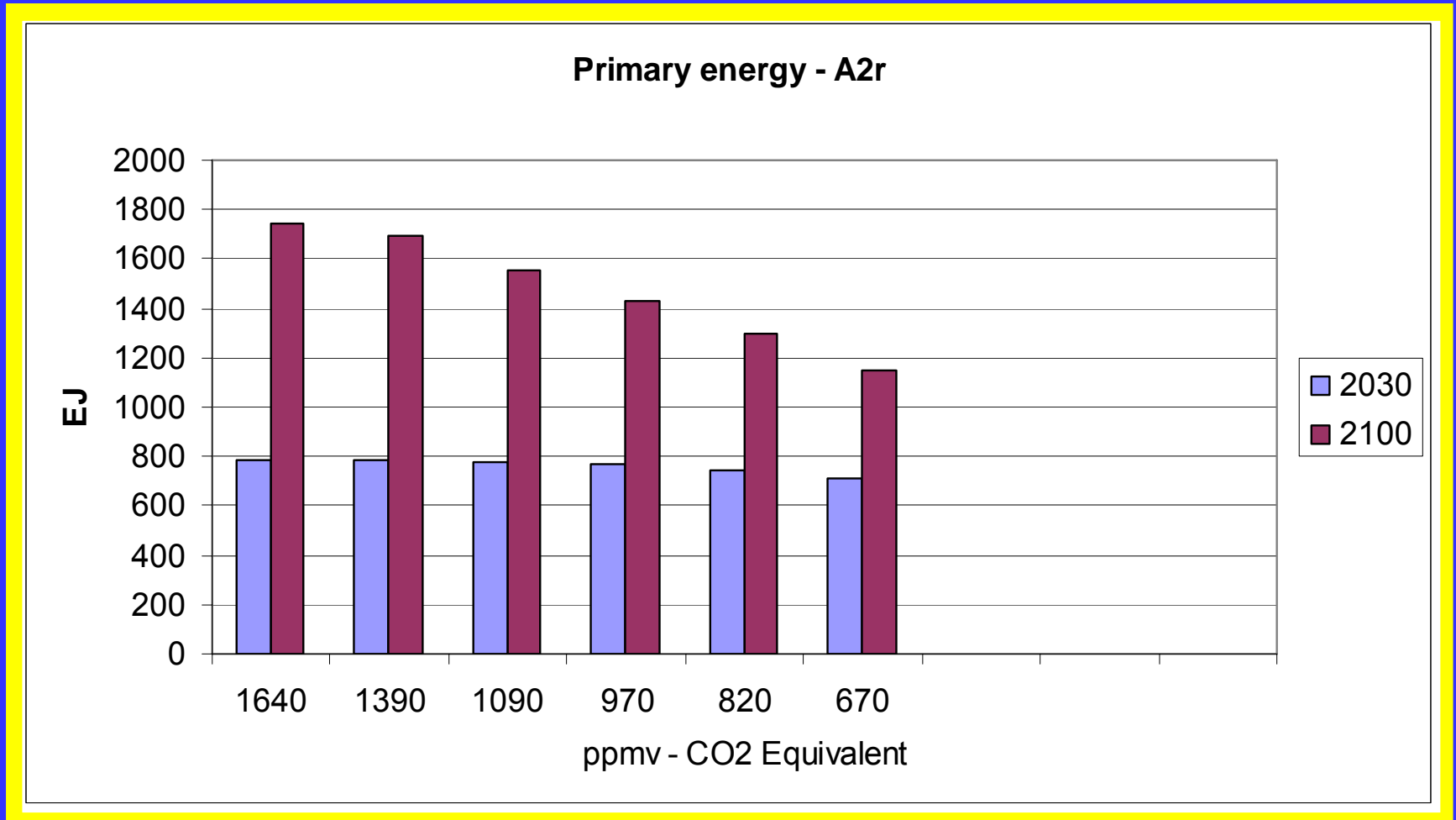


World GHG Emissions

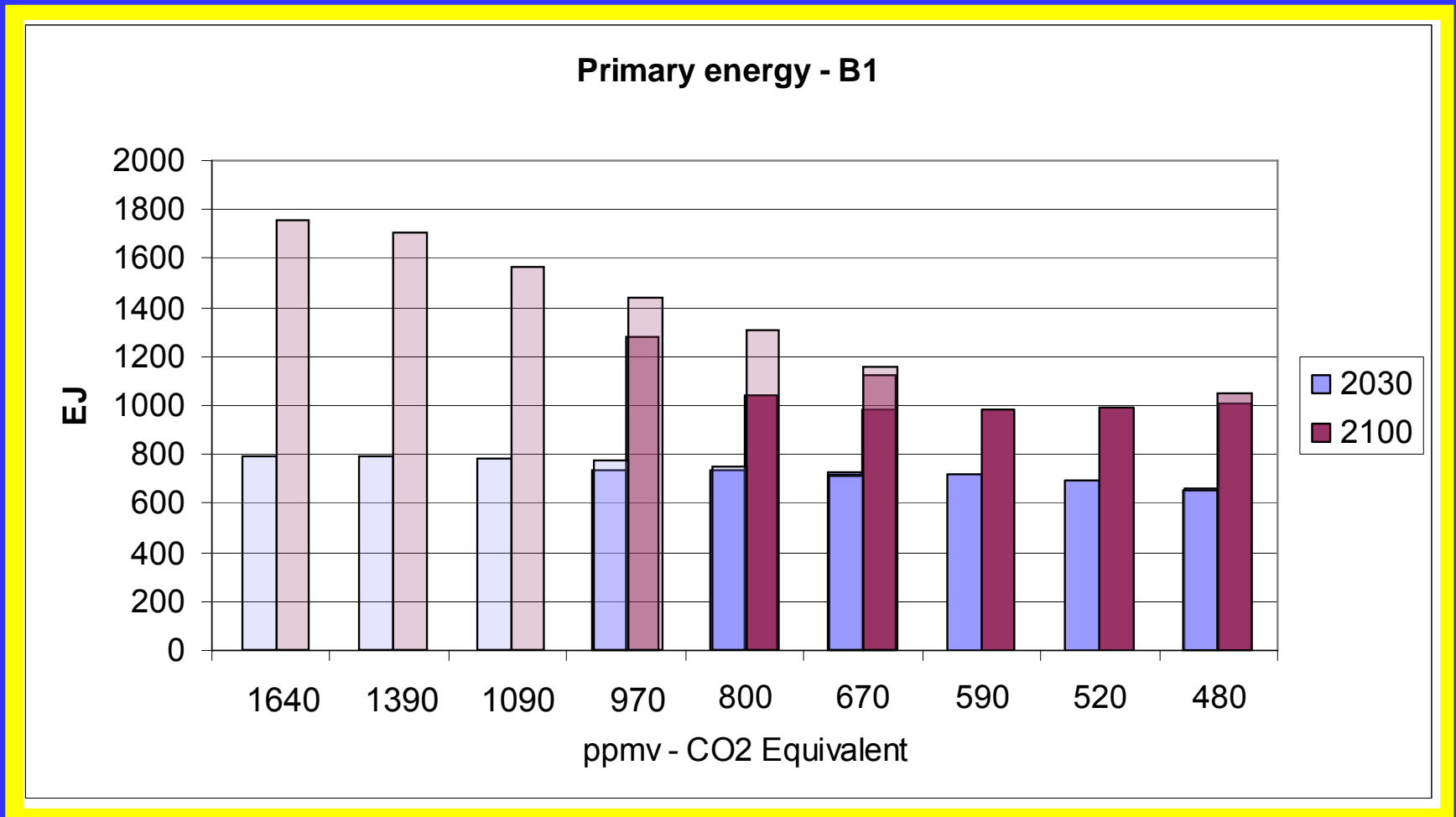
IIASA B1 Scenario



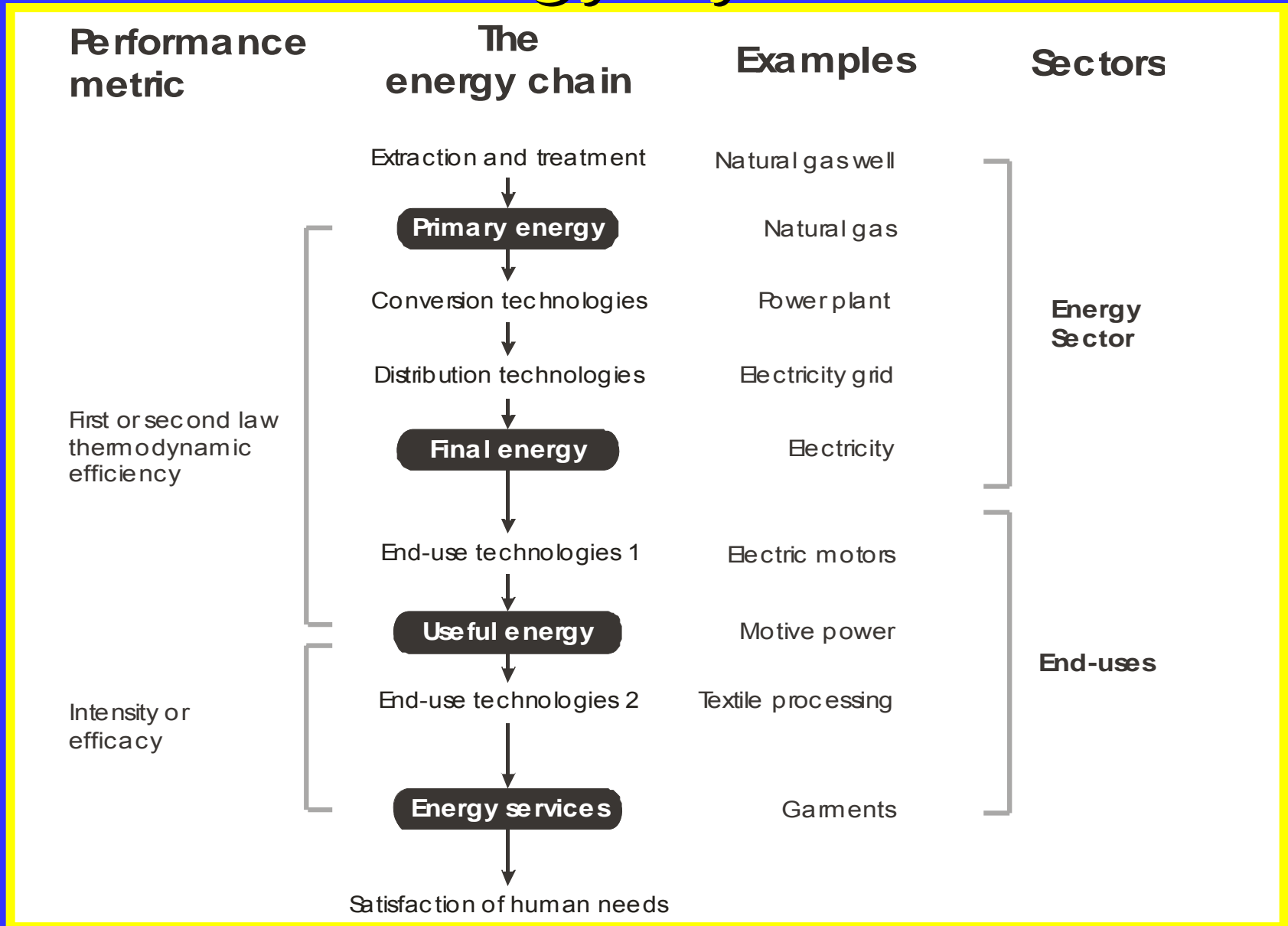
Primary Energy in A2r



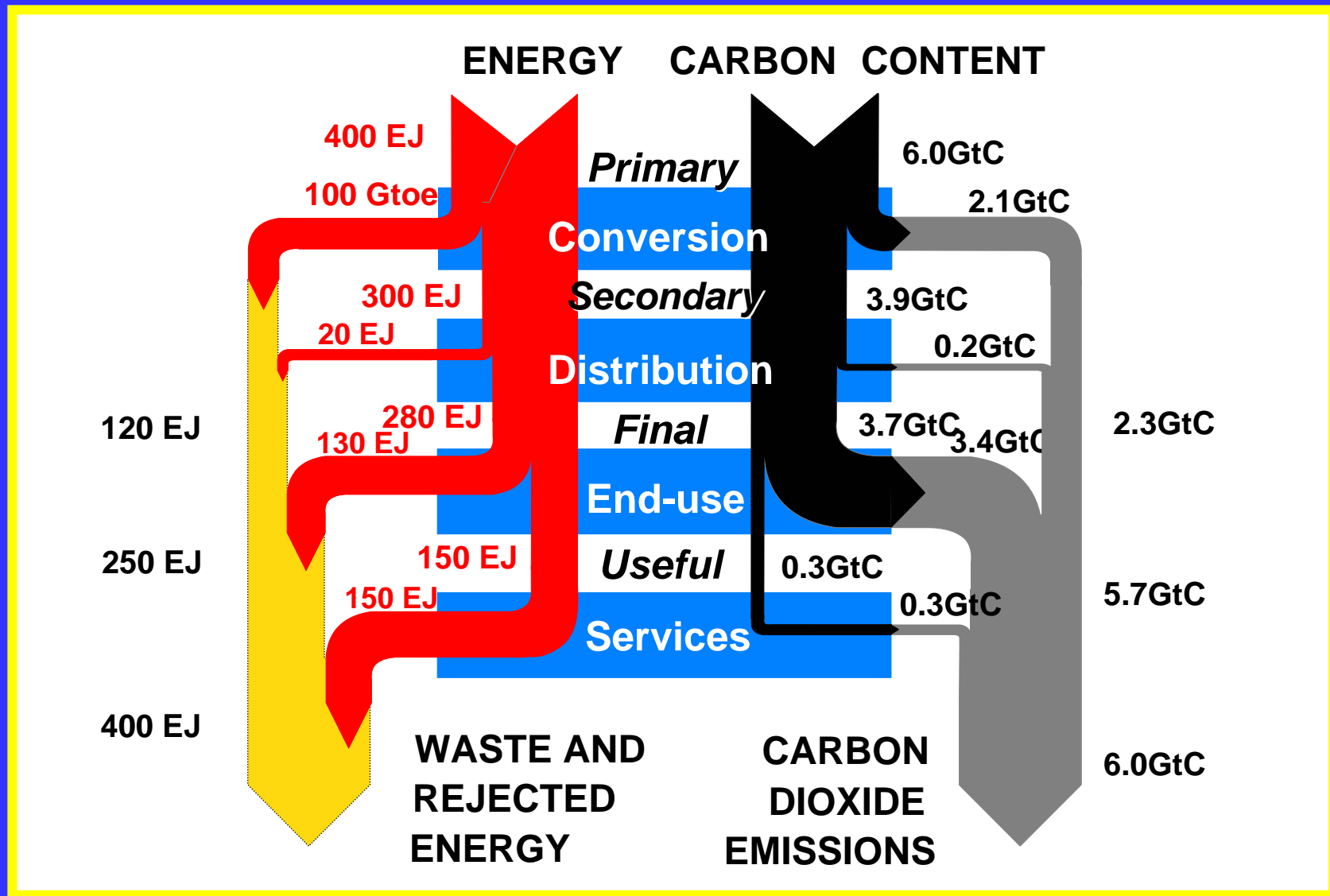
Primary Energy in B1



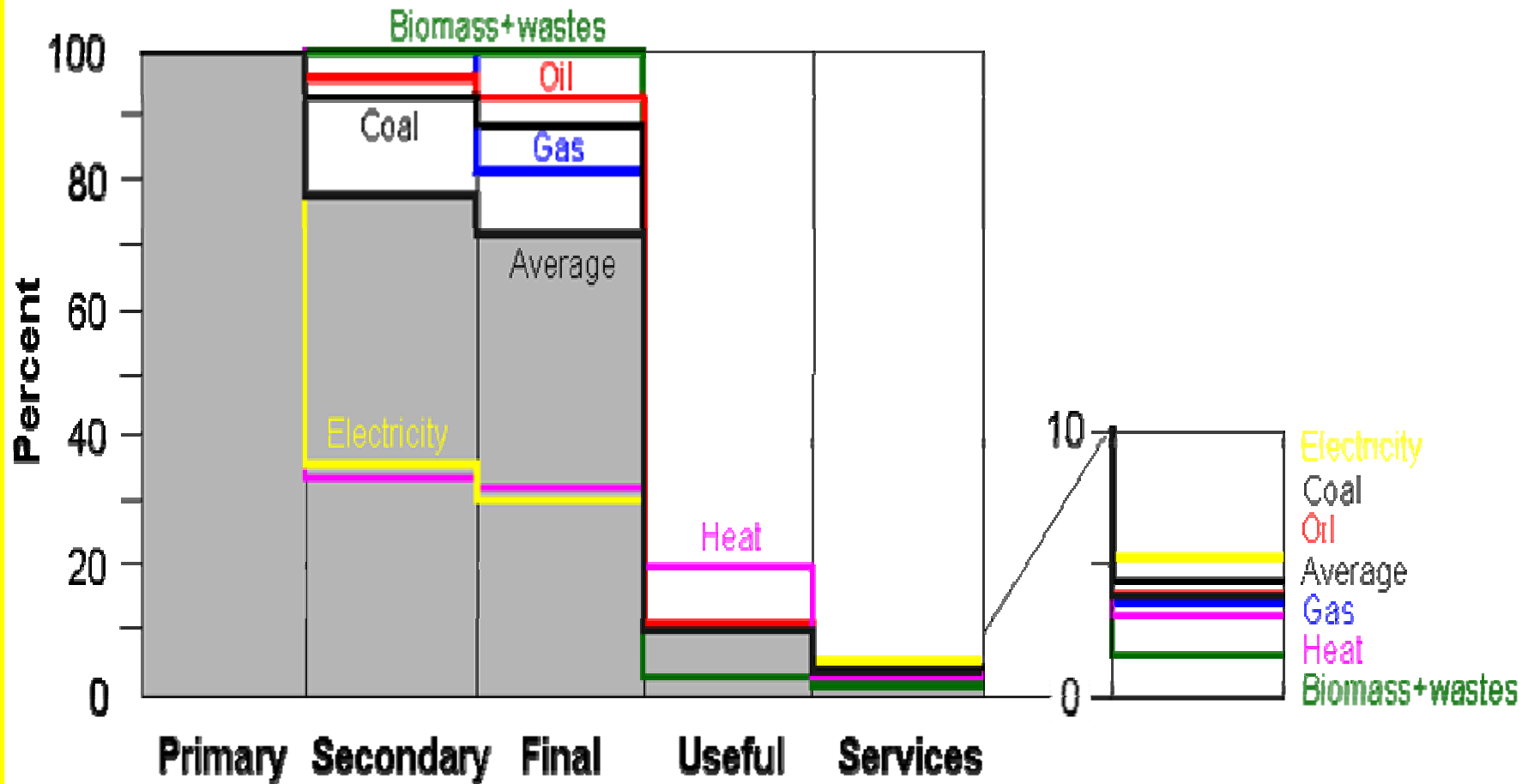
Energy System



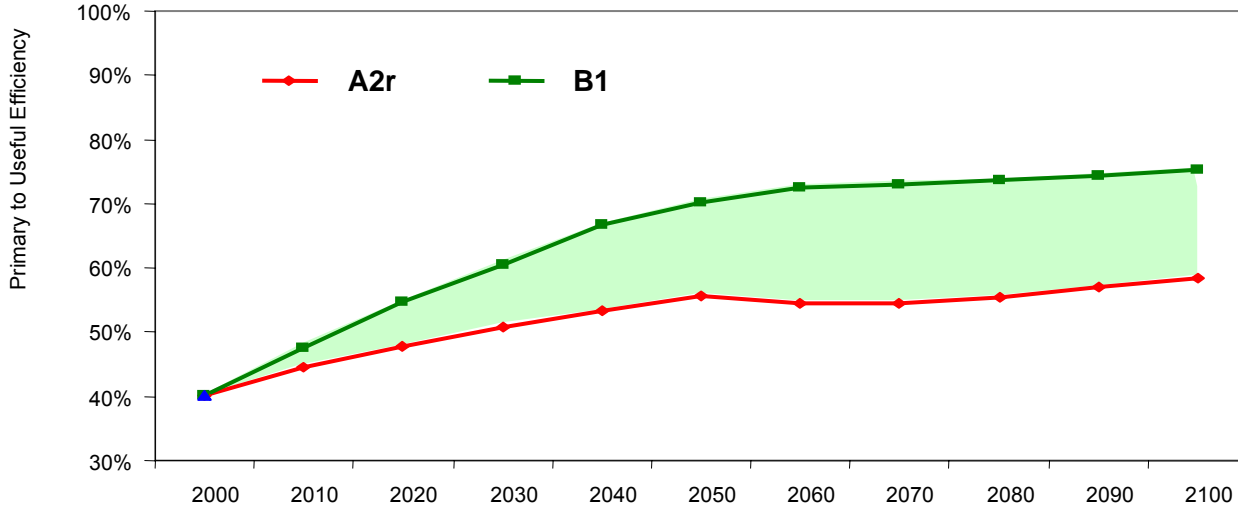
Global Energy and Carbon Flows



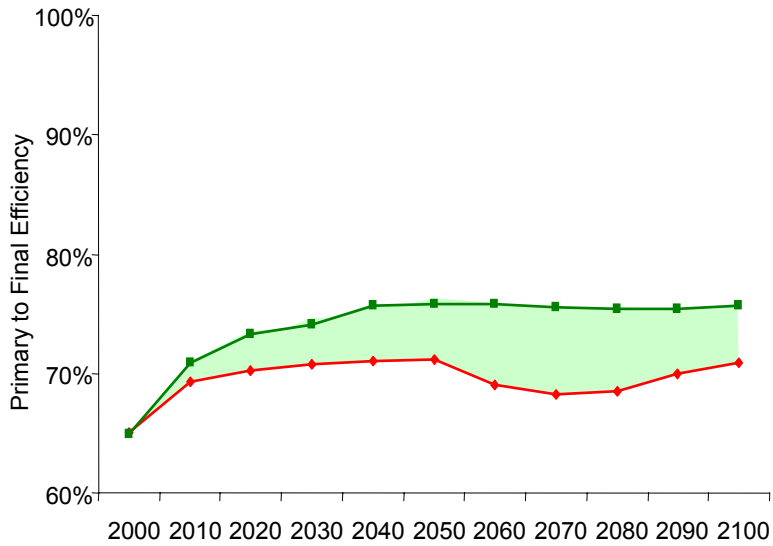
Global Exergy Efficiency (as percent of primary exergy)



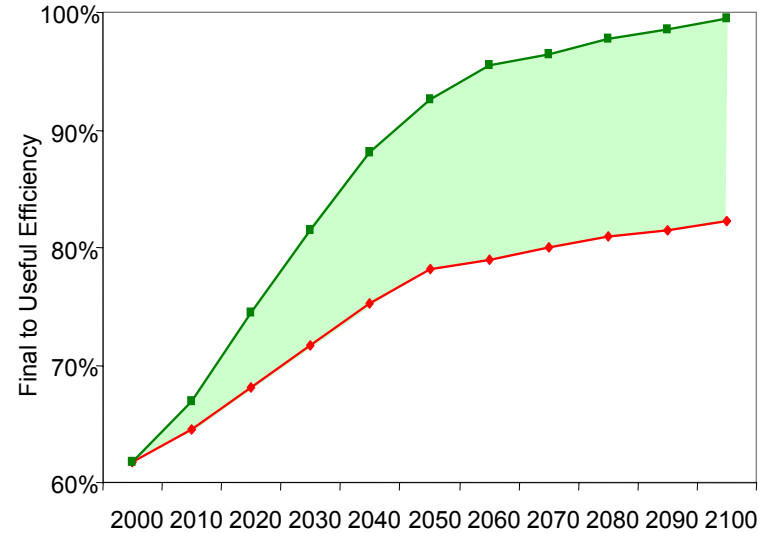
System Efficiencies



Primary Energy

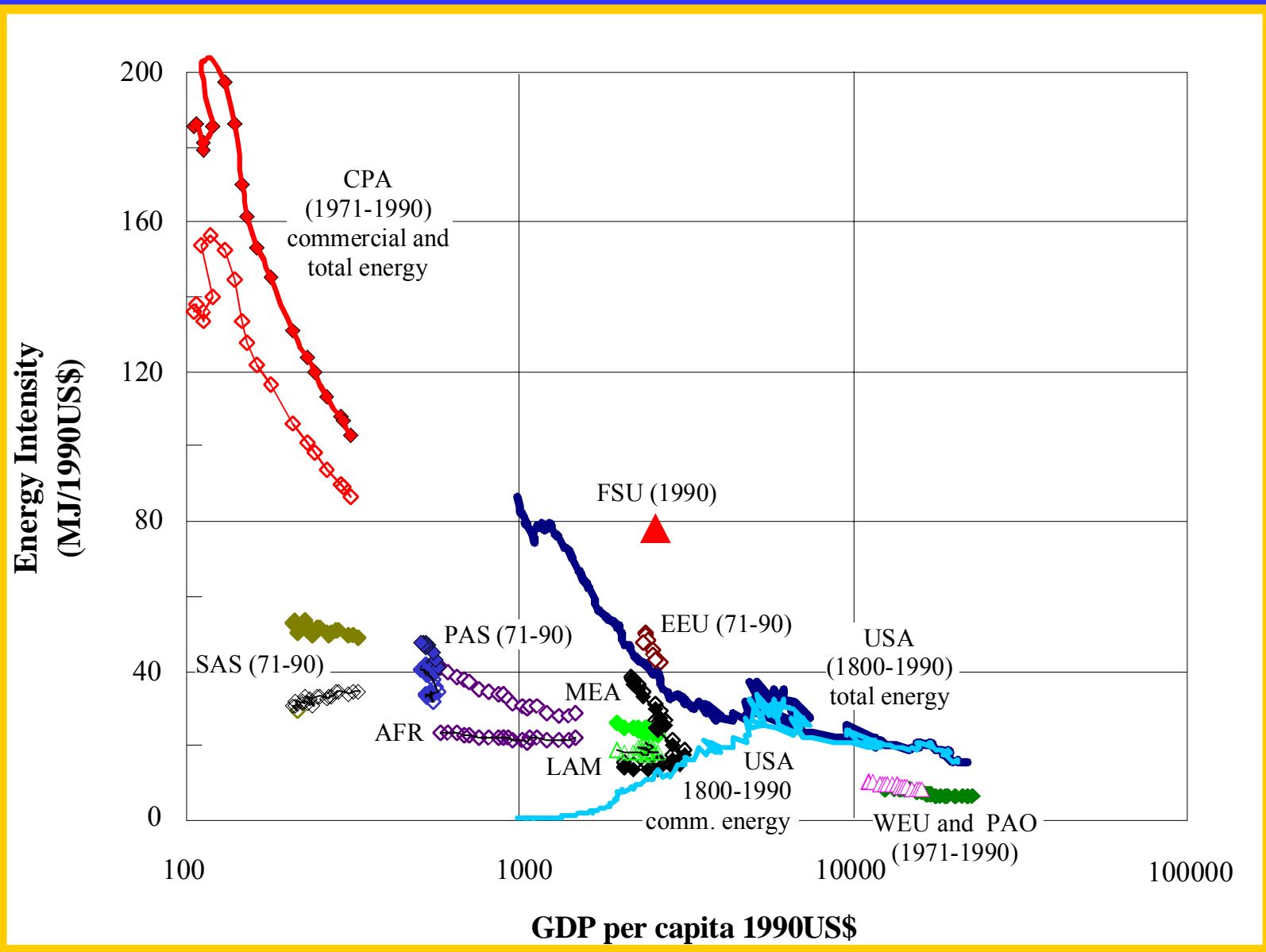


Final Energy



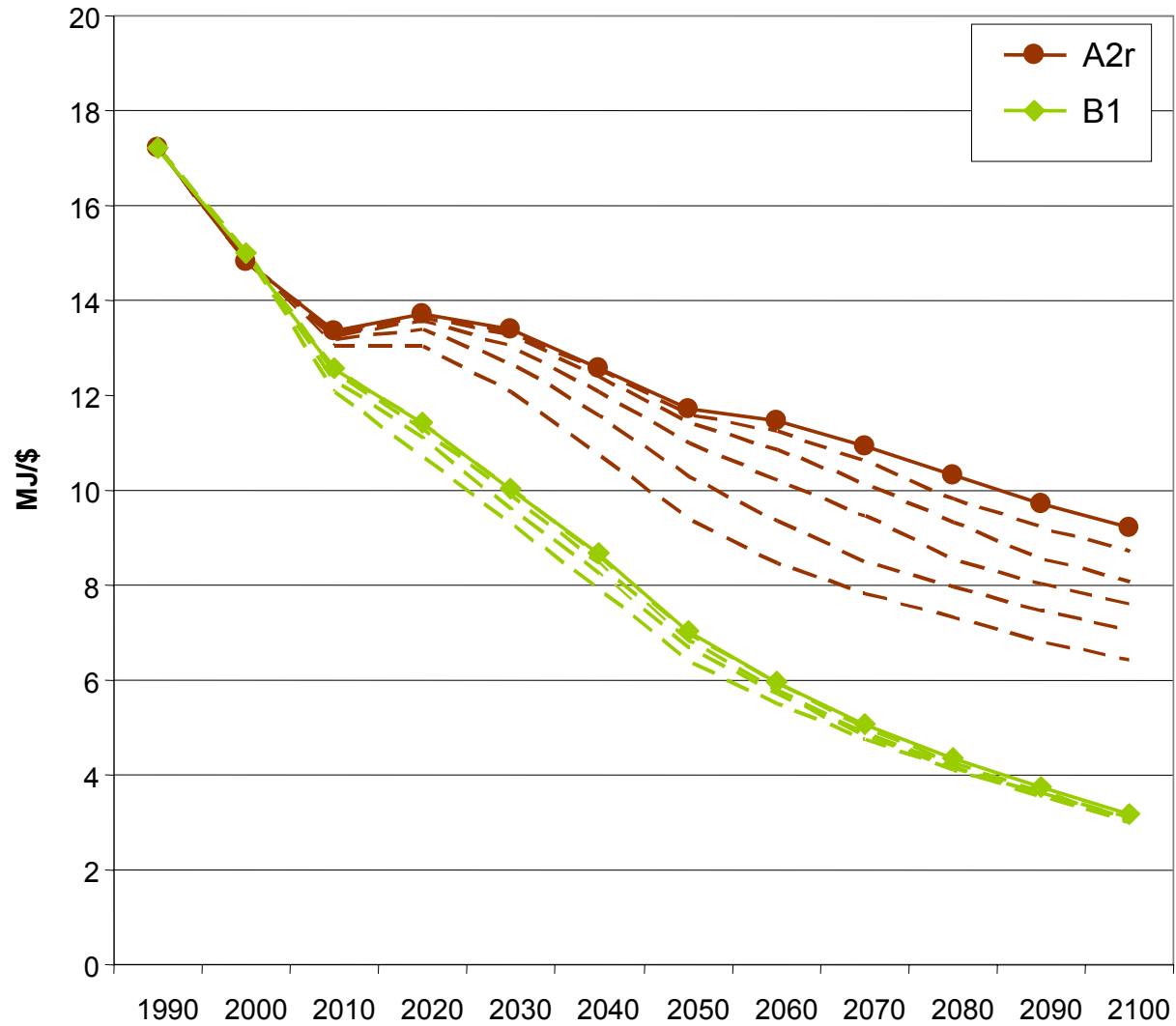
Useful Energy

Energy Intensity of GDP and GDP/cap

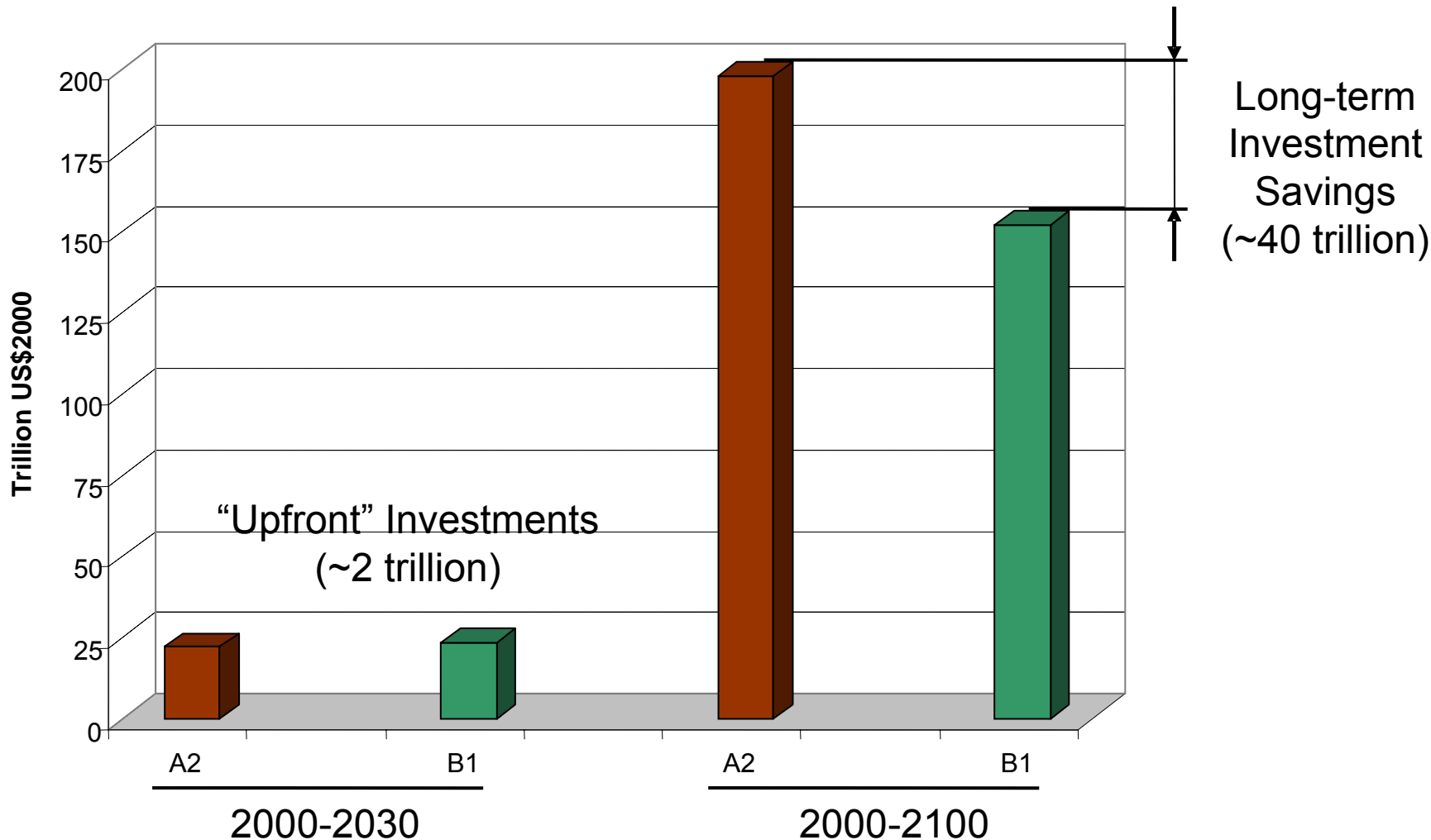


Energy Intensity

Energy Intensity [MJ/\$]



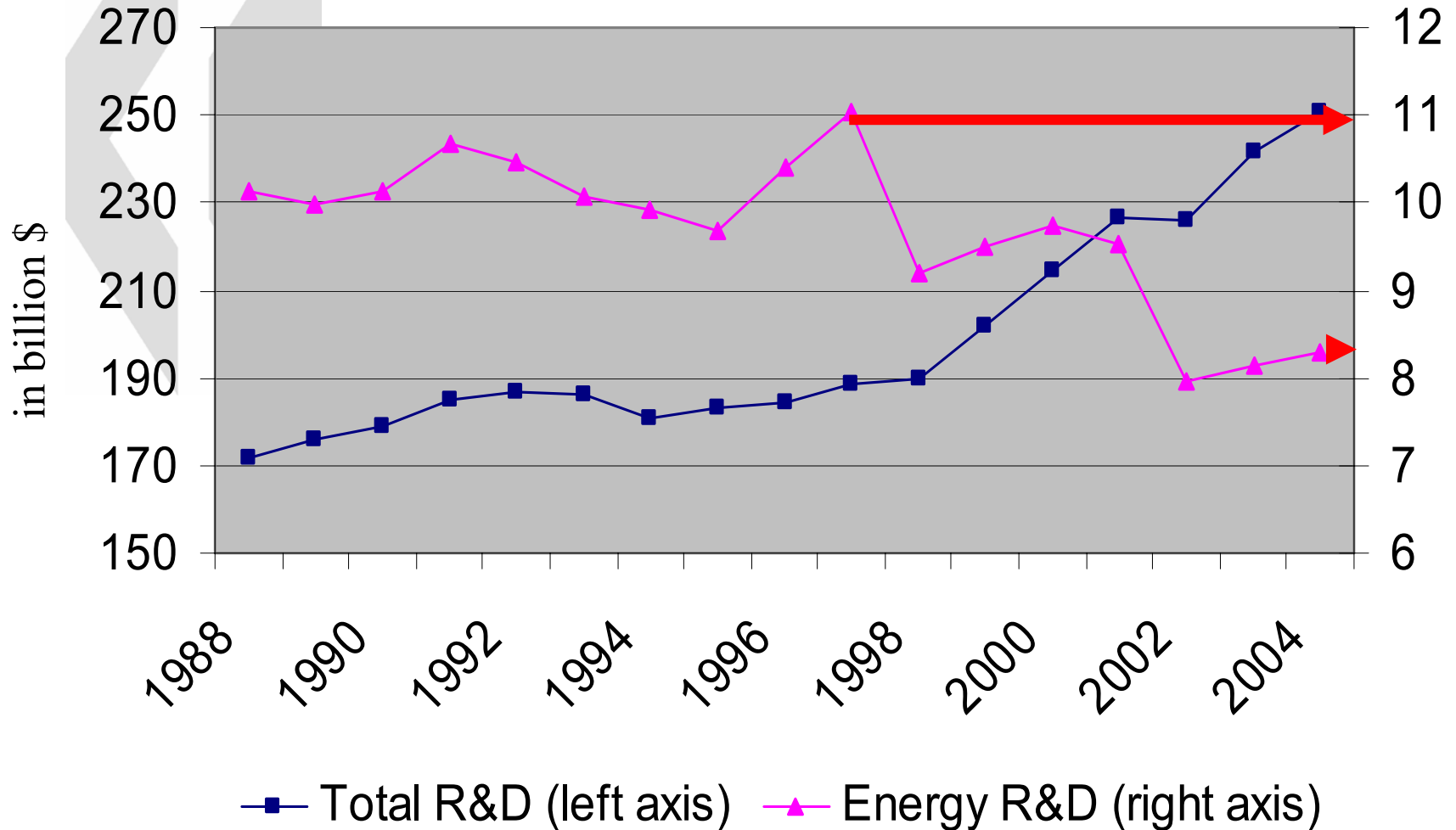
Total Energy-related Investments (World, short & long-term)



Efficiency and Energy Productivity

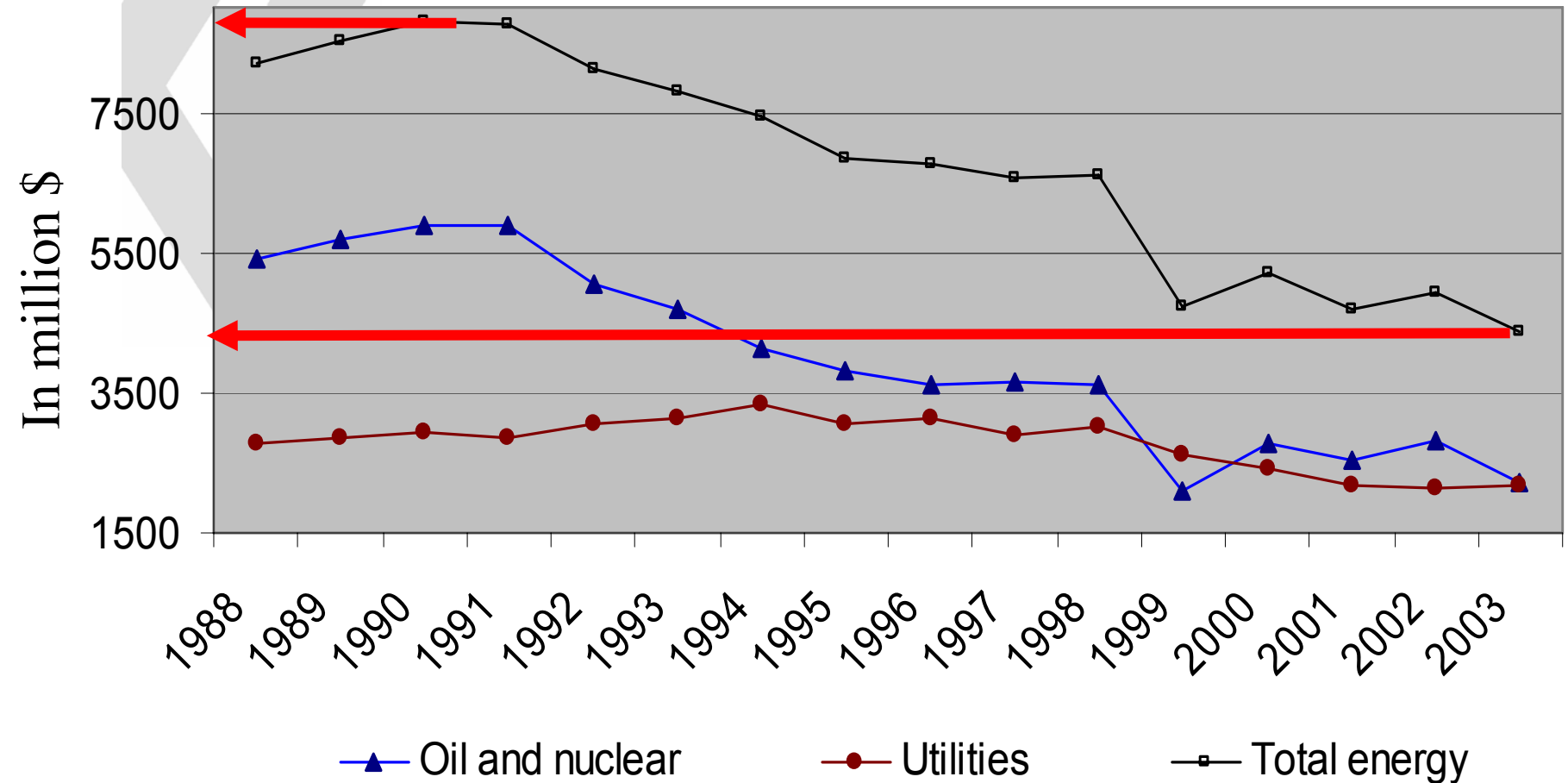
- Energy services (not primary energy) are indispensable for human well being and prosperity
- Efficiency potential is huge and comparable to the magnitude of fossil resources
- Energy productivity improvements are in principle not limited
- Technological change essential for increasing efficiencies and reducing energy systems costs
- “Upfront” investments increase efficiencies and can reduce emissions
- Investment in RD&D and diffusion reduces the costs of innovative and more efficient technologies

Development public R&D expenditure (in OECD)



Source: Doornbosch, 2006

Development private R&D expenditure (in OECD)



Source: Doornbosch, 2006

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