

The Role of Baselines in Stabilization Scenarios

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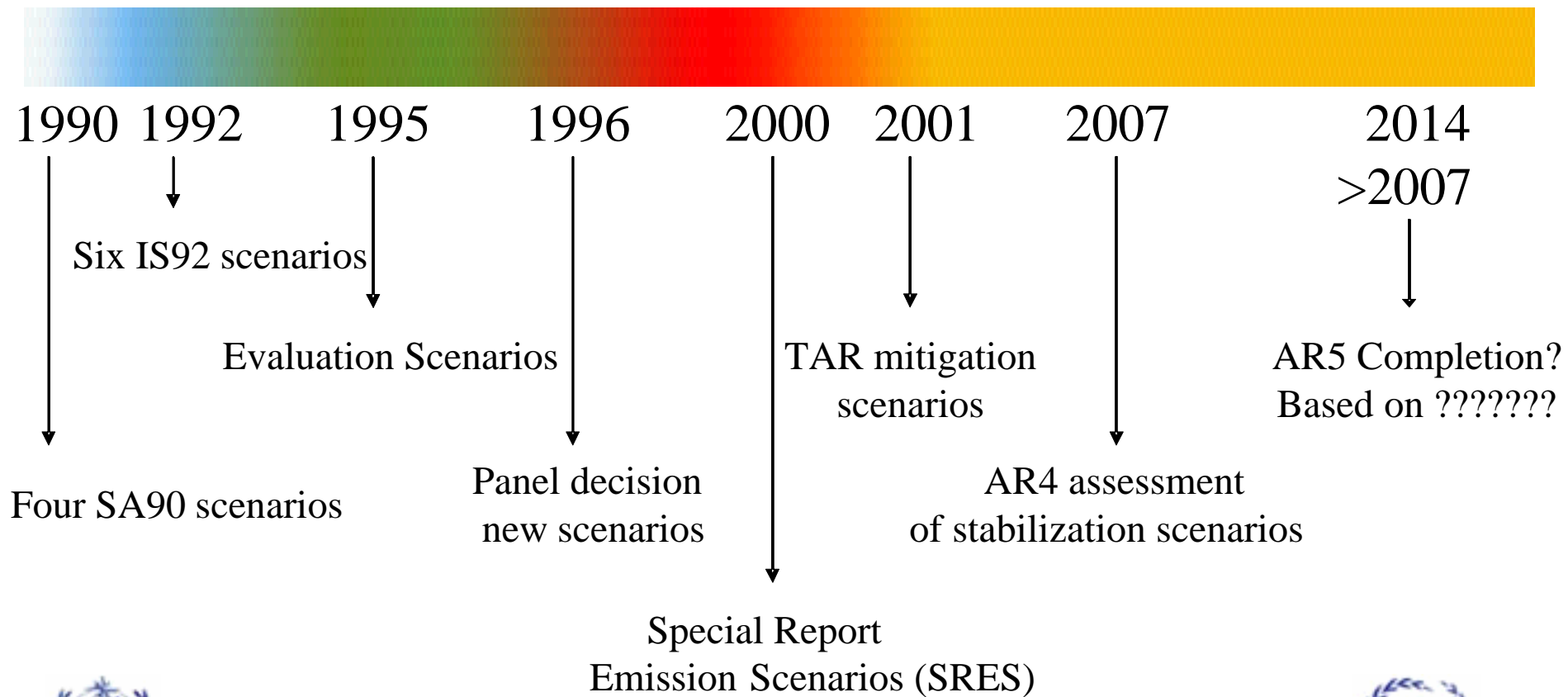
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SRES Reference Characteristics

- The ranges of drivers and emissions have not changed *very much* (growth)
- Population scenarios from major demographic institutions are lower (A2)
- SO_x and NO_x emissions are generally lower in the latest scenarios (mitigation)
- More scenarios with black and organic carbon emissions
- The choice of MER or PPP as GDP metrics does not affect the emissions

Previous IPCC Scenarios and Future Outlook



INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC)

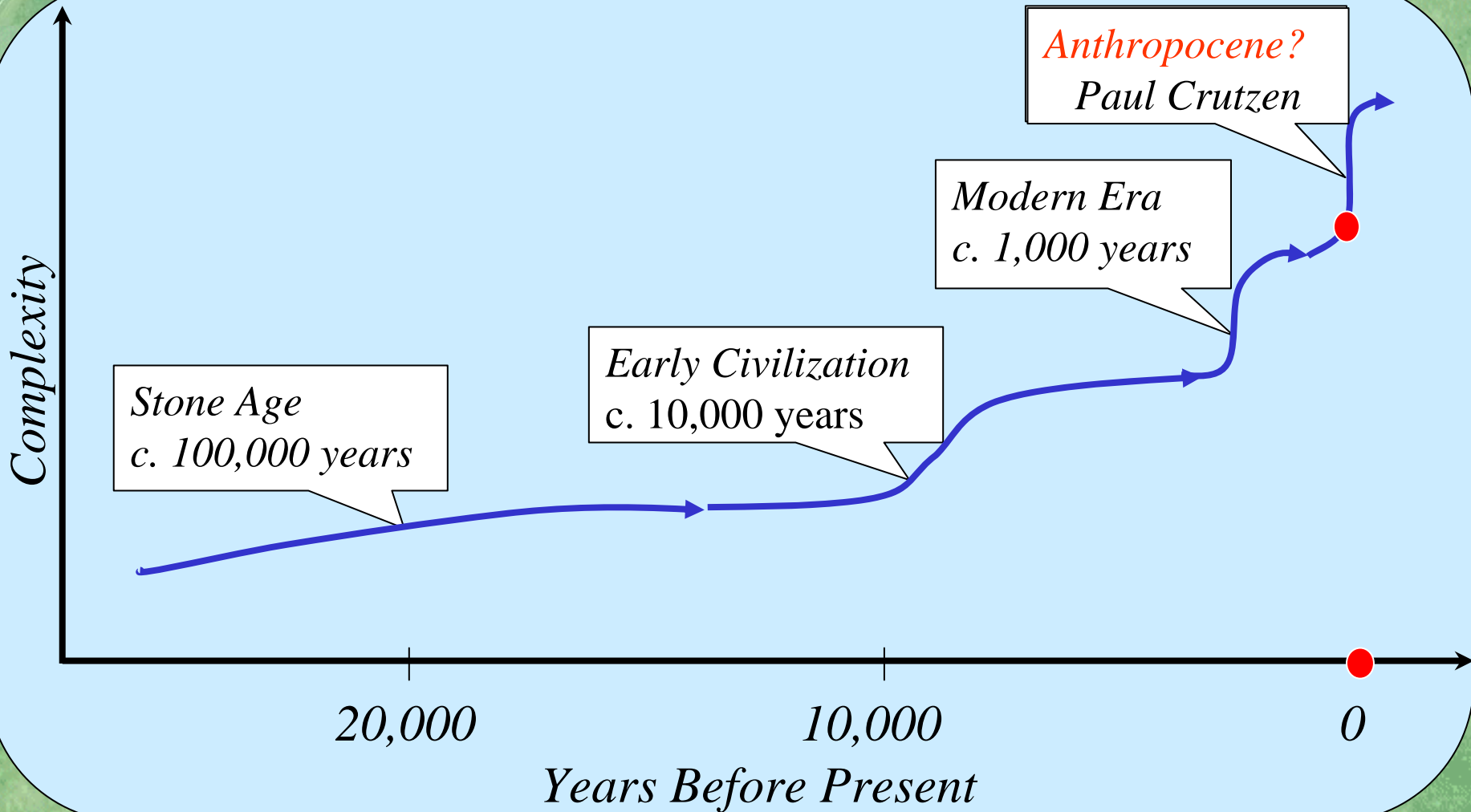




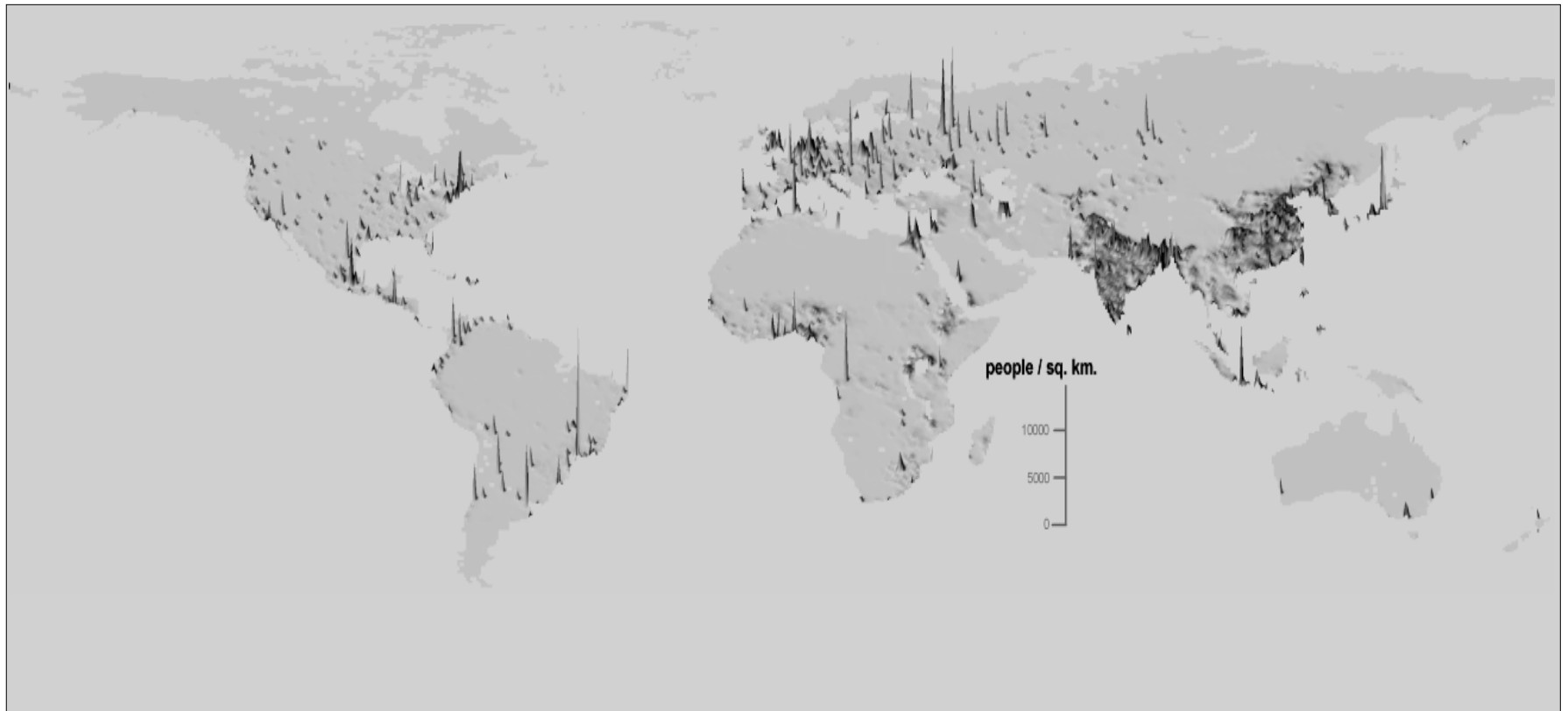
**Which world
do we want?**

The future is always present, as a promise and a lure.
Karl Popper

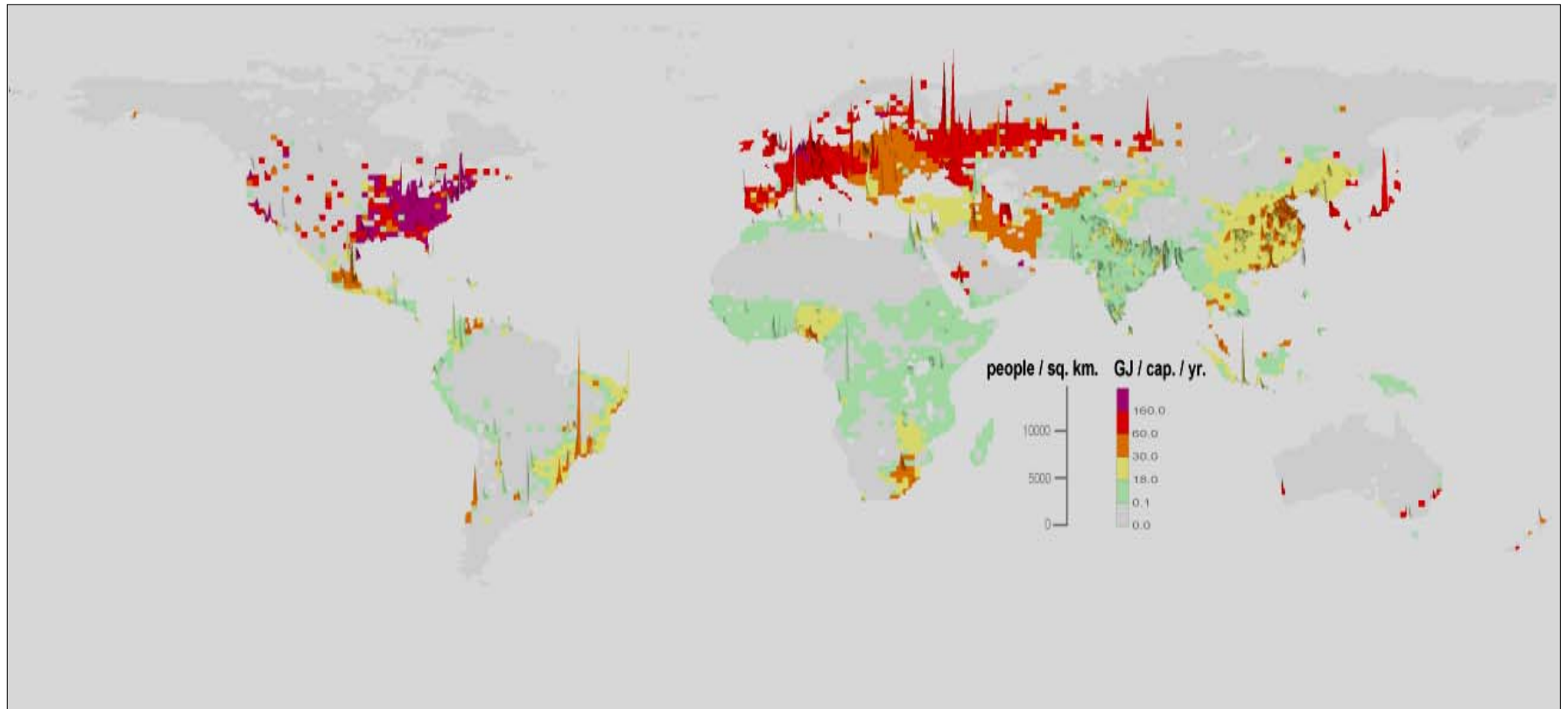
Historical Transitions



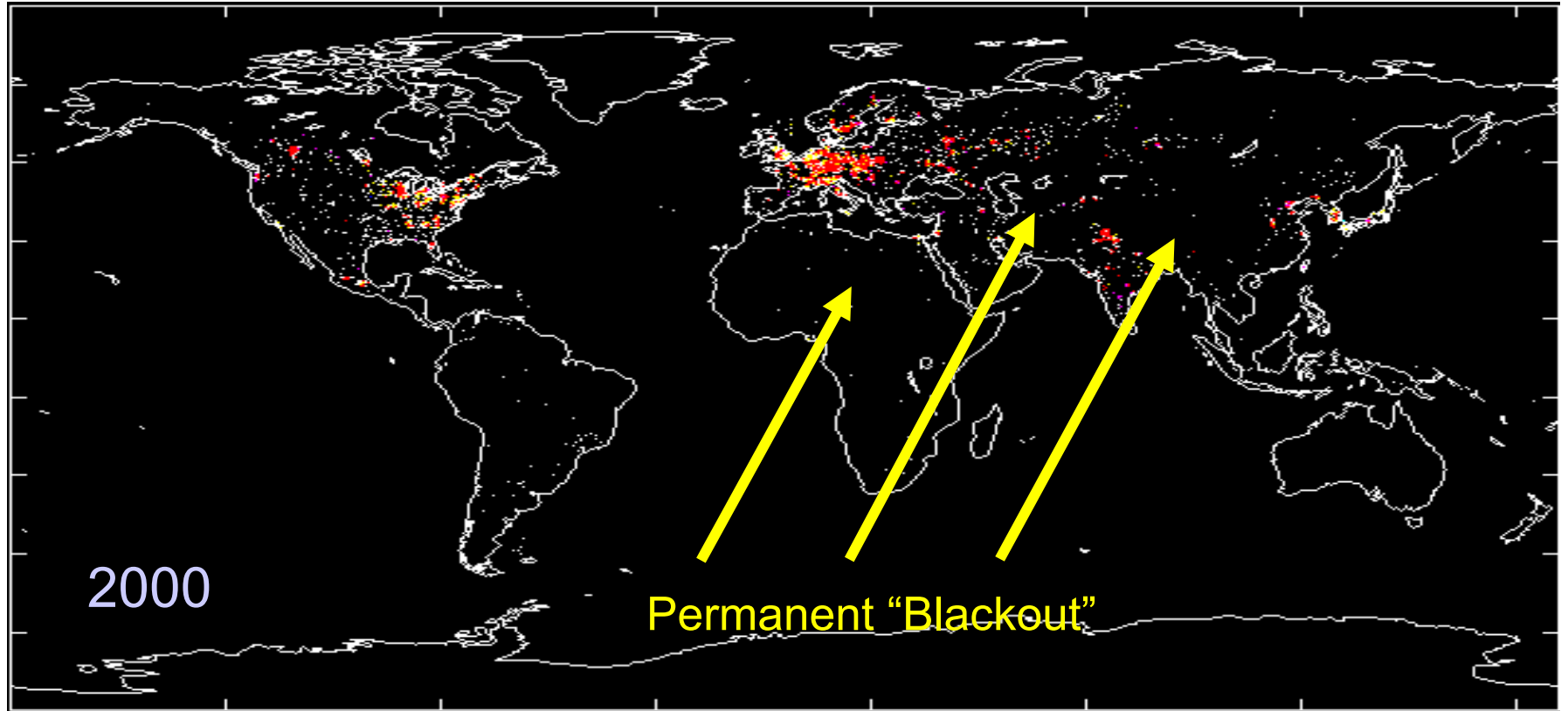
Global Population



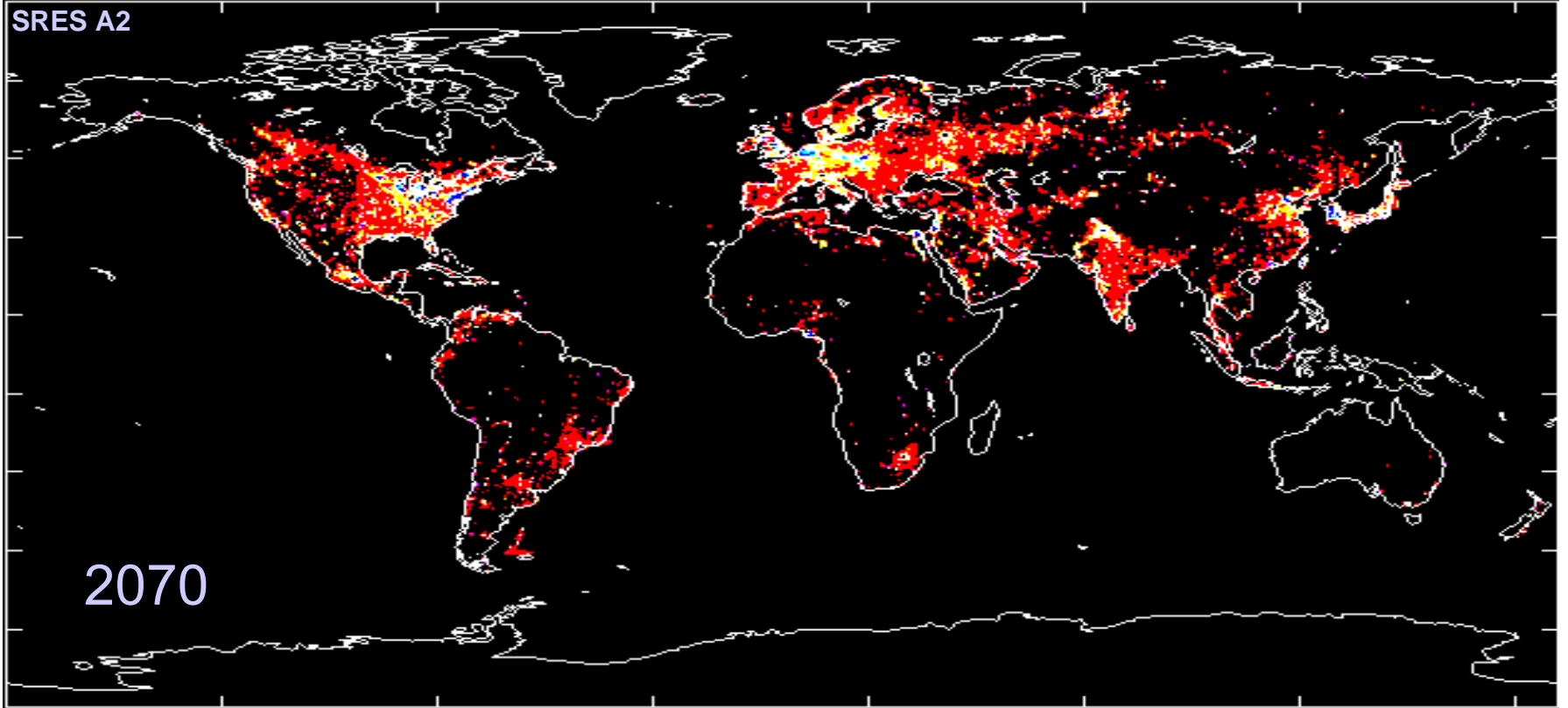
Global Final Energy



Night Lights

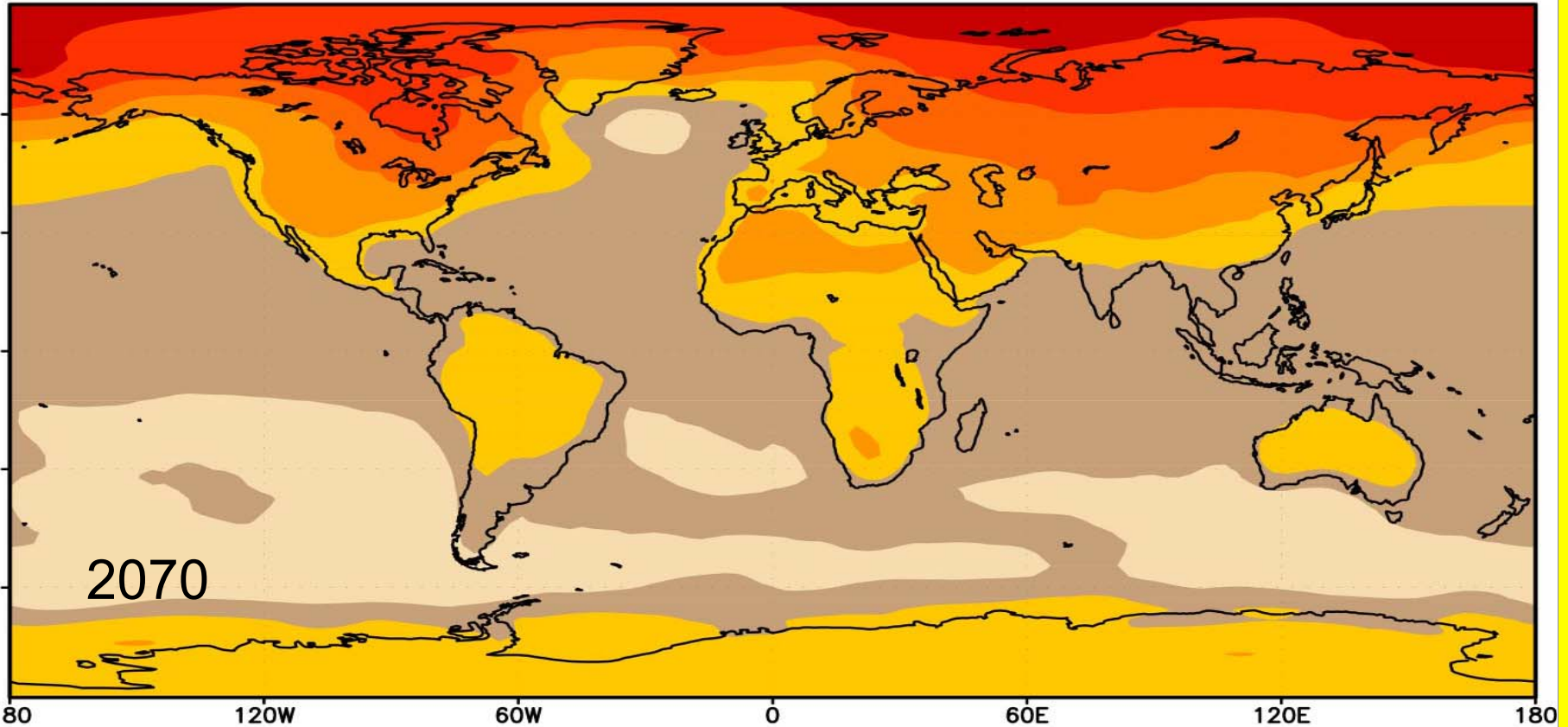


Night Lights

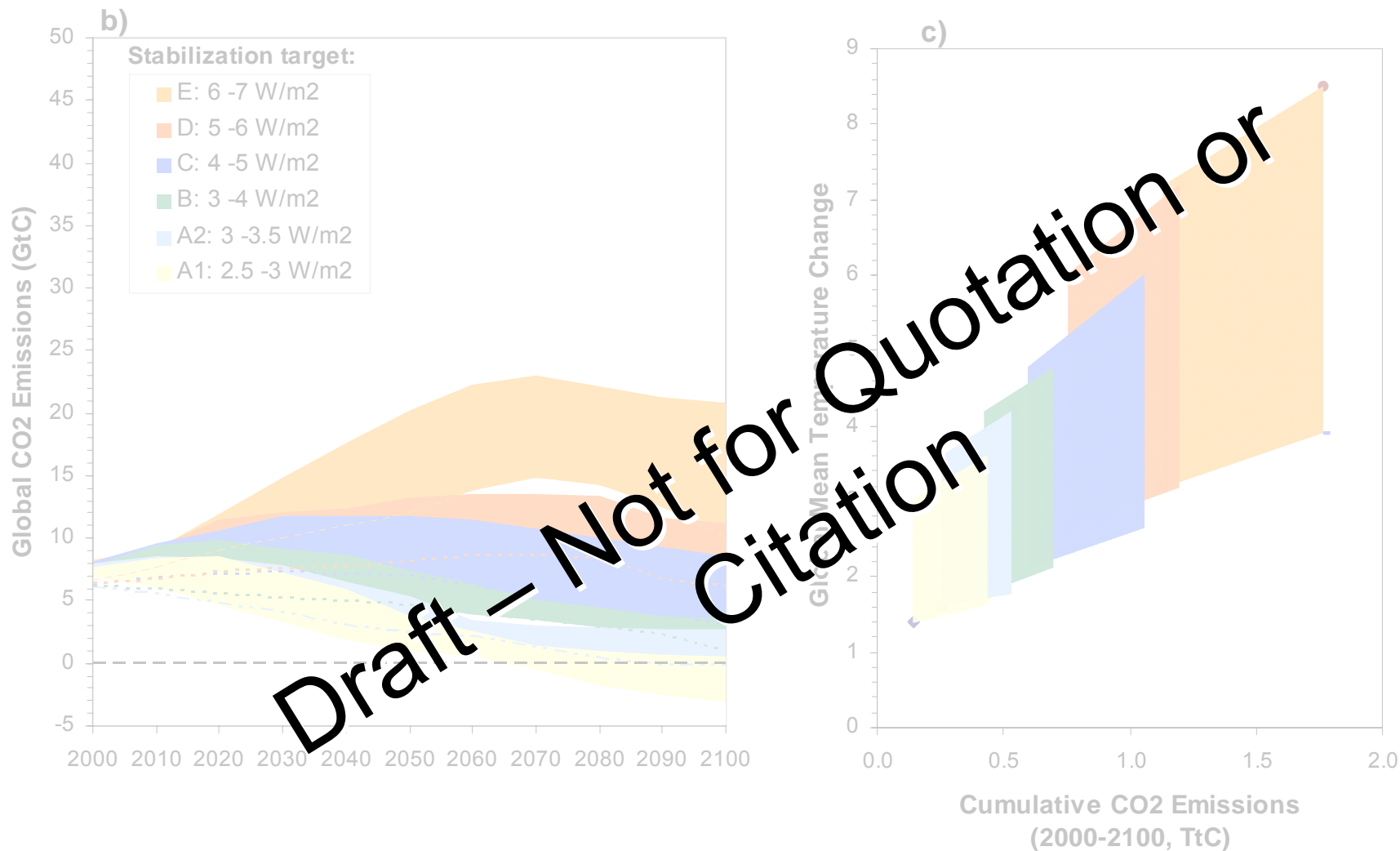


Δ Temperature

SRES A2



Multi-Gas Stabilization Scenarios

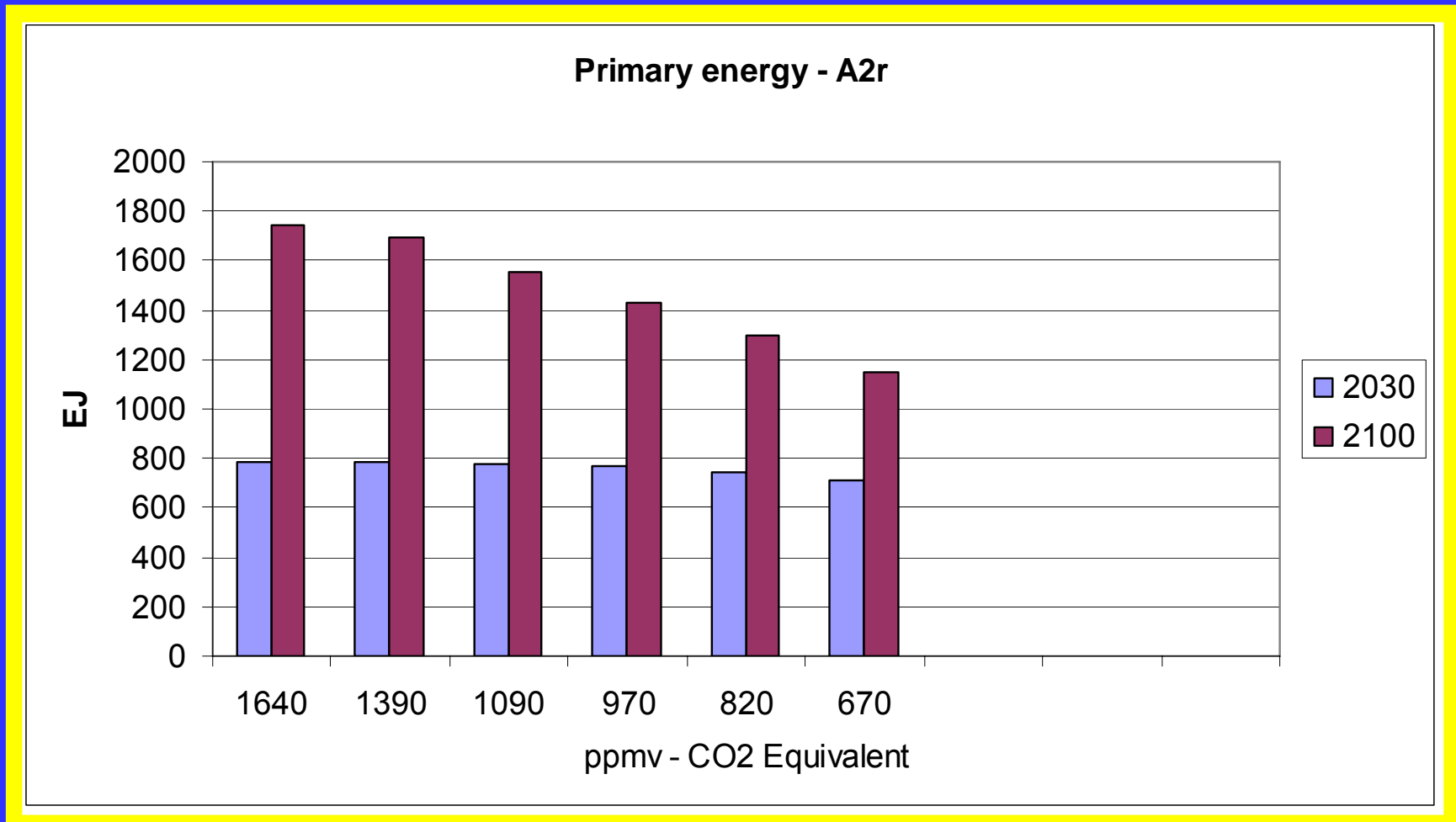


Draft — Not for Quotation or Citation

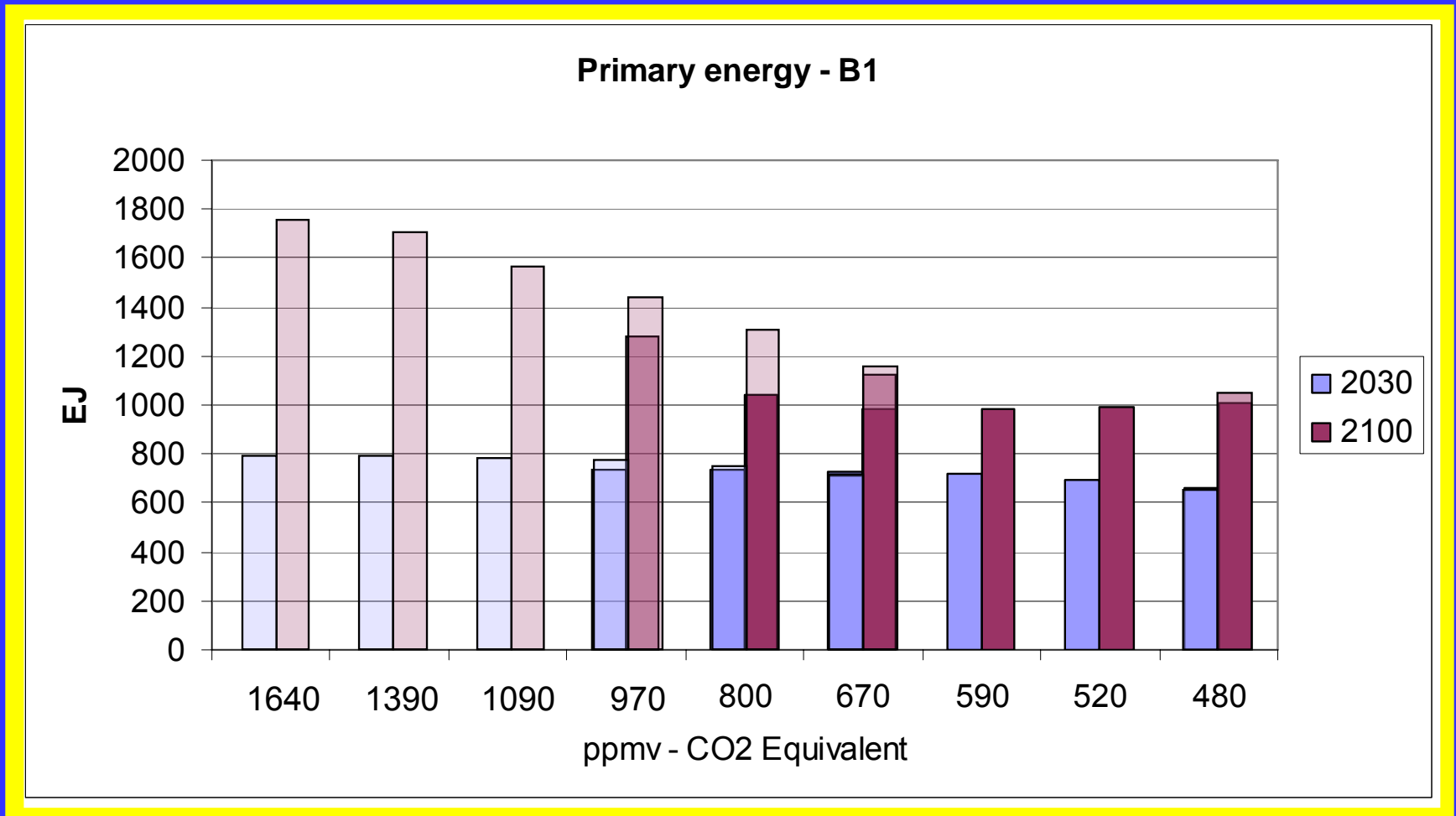
What's New in IIASA Scenarios?

- New demographic perspectives (lowering of “high” population projections)
- Low (EU) targets included (20% by 2020)
- Consistent multi-gas multi-sector analysis (land-use conflicts, impacts,..)
- New technological options included (e.g. biomass, CCS, hydrates, hydrogen)
- Assessment of impacts (climate AND mitigation)
- “Downscaling”: spatially explicit scenario indicators available (POP, GDP, FE)
- Linkage to national policy frameworks (GAINS)

Primary Energy in A2r

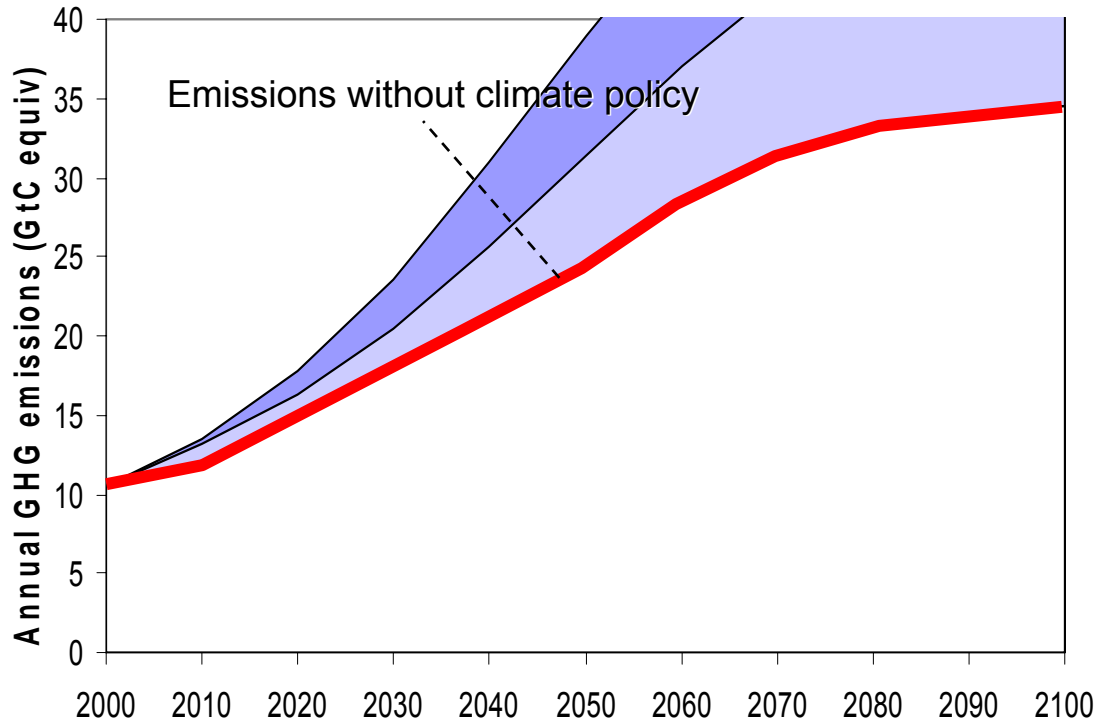


Primary Energy in B1



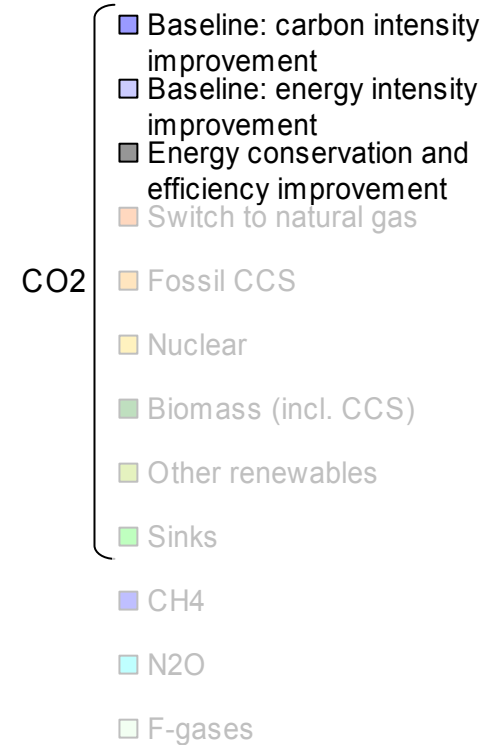
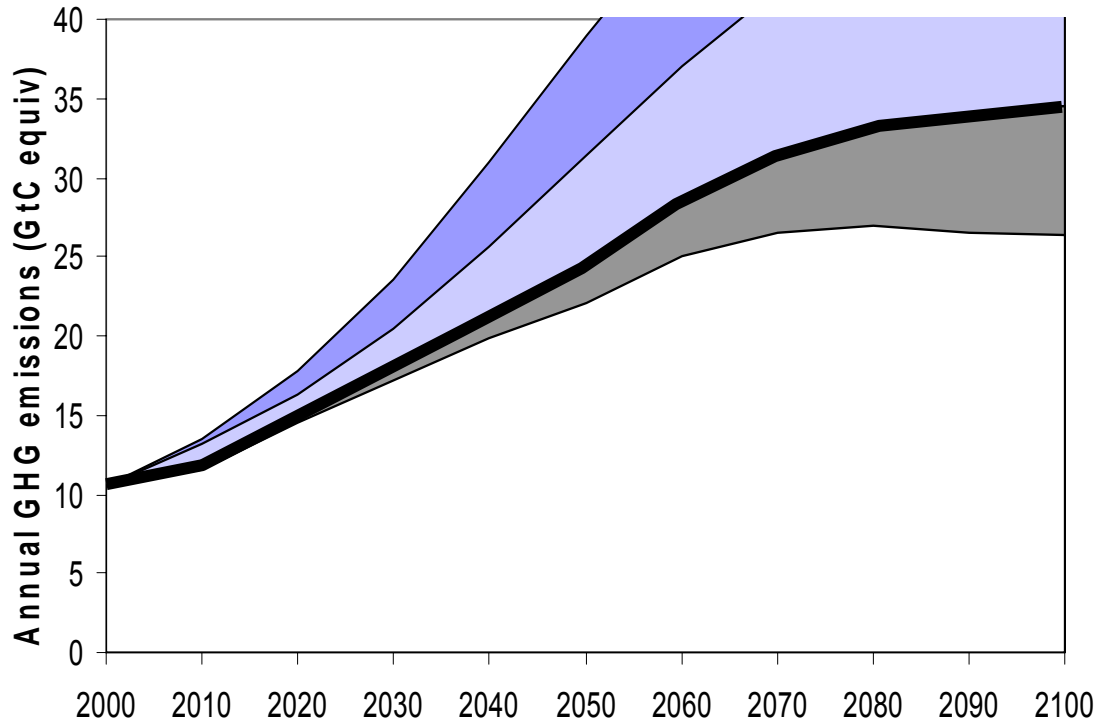
World GHG Emissions

IIASA A2r Scenario



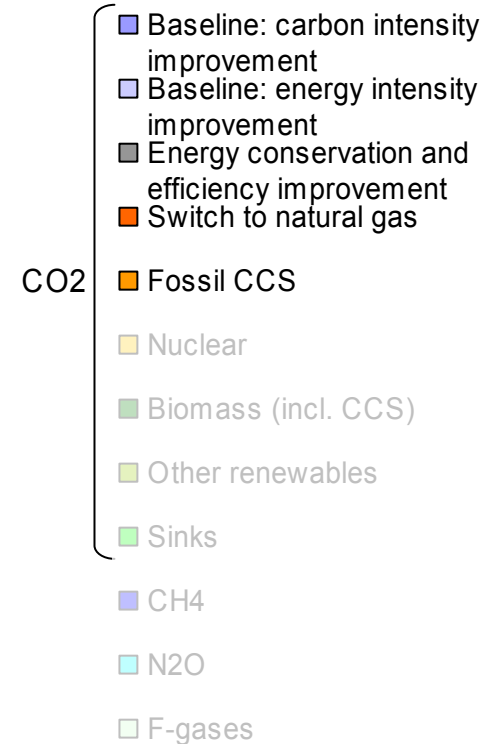
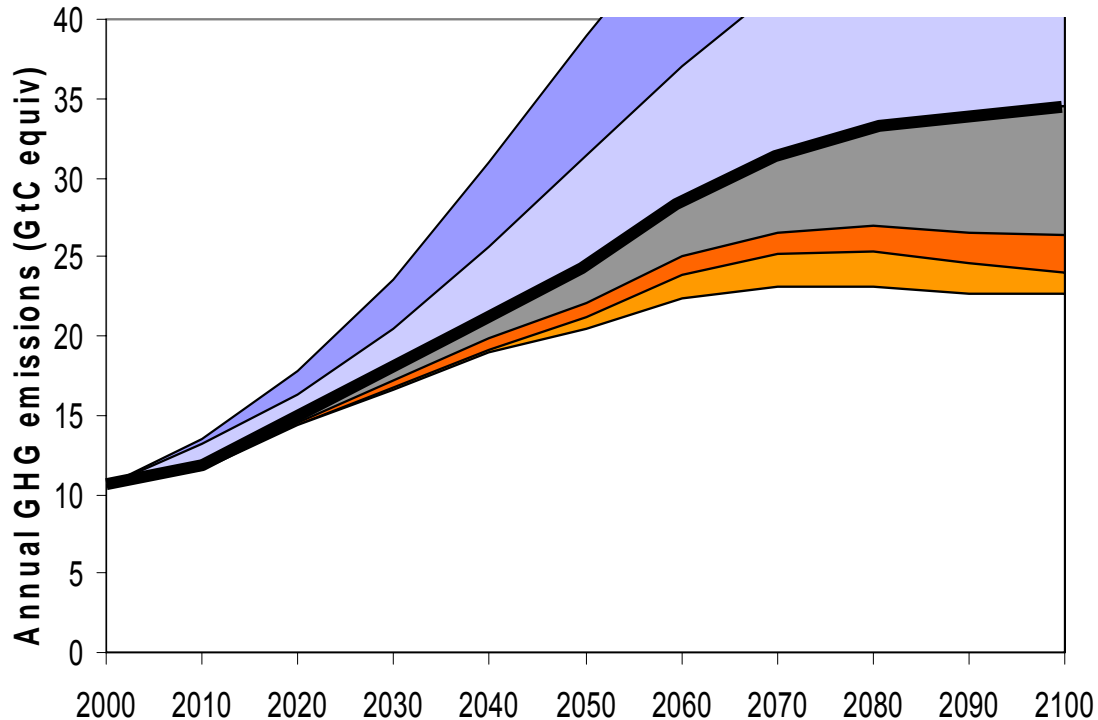
World GHG Emissions

IIASA A2r Scenario



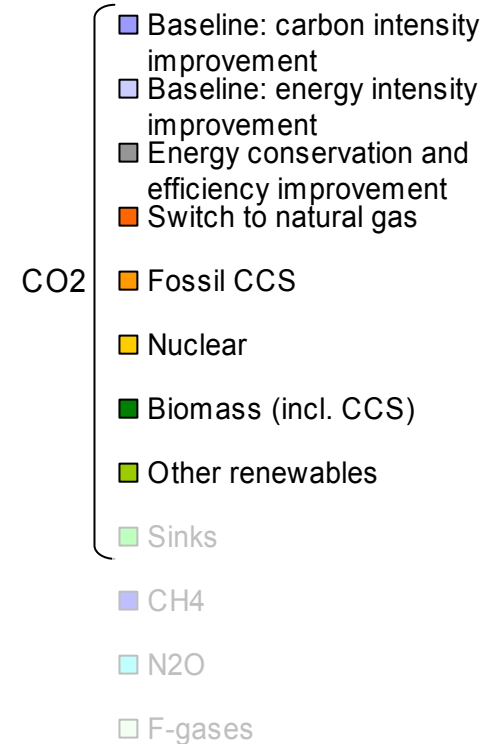
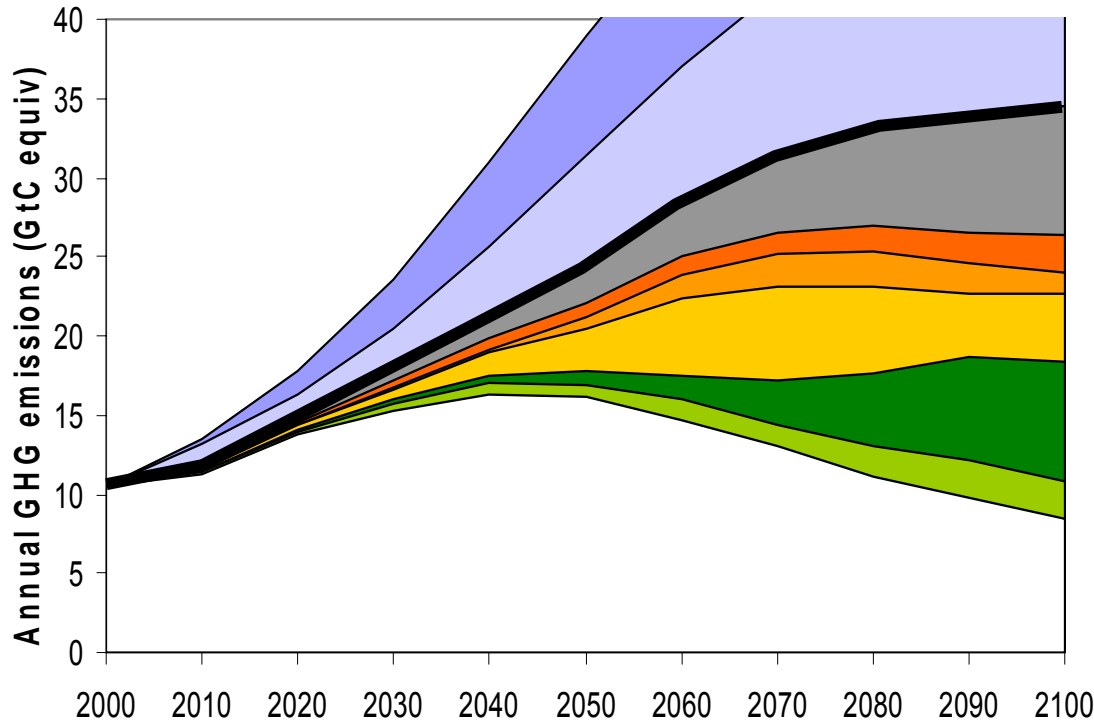
World GHG Emissions

IIASA A2r Scenario



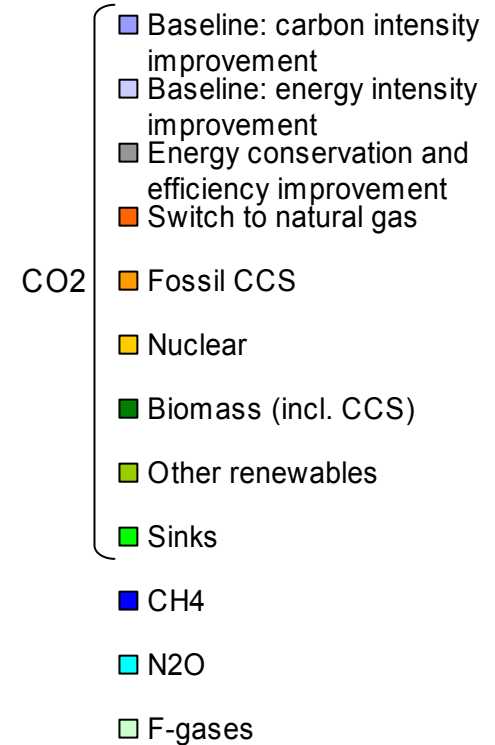
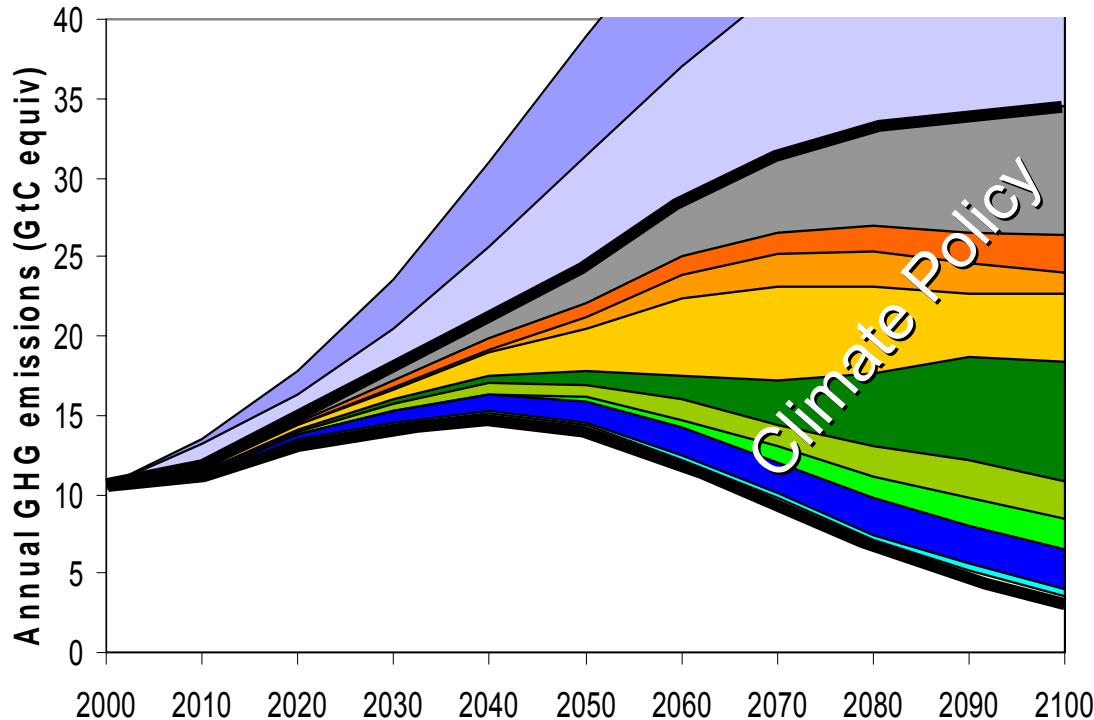
World GHG Emissions

IIASA A2r Scenario



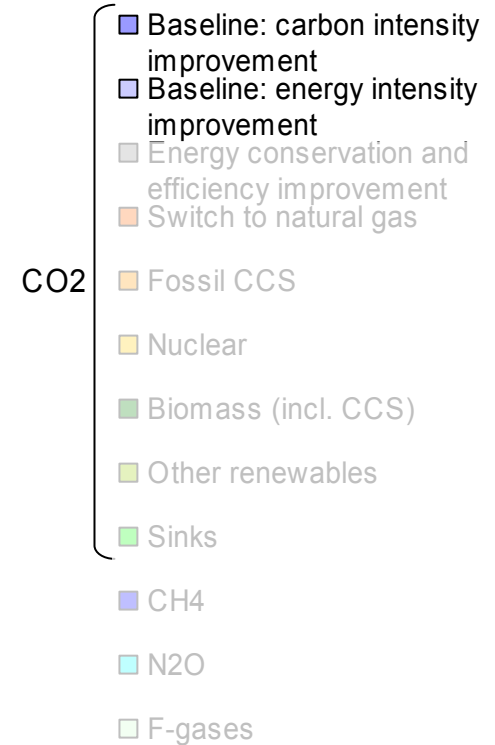
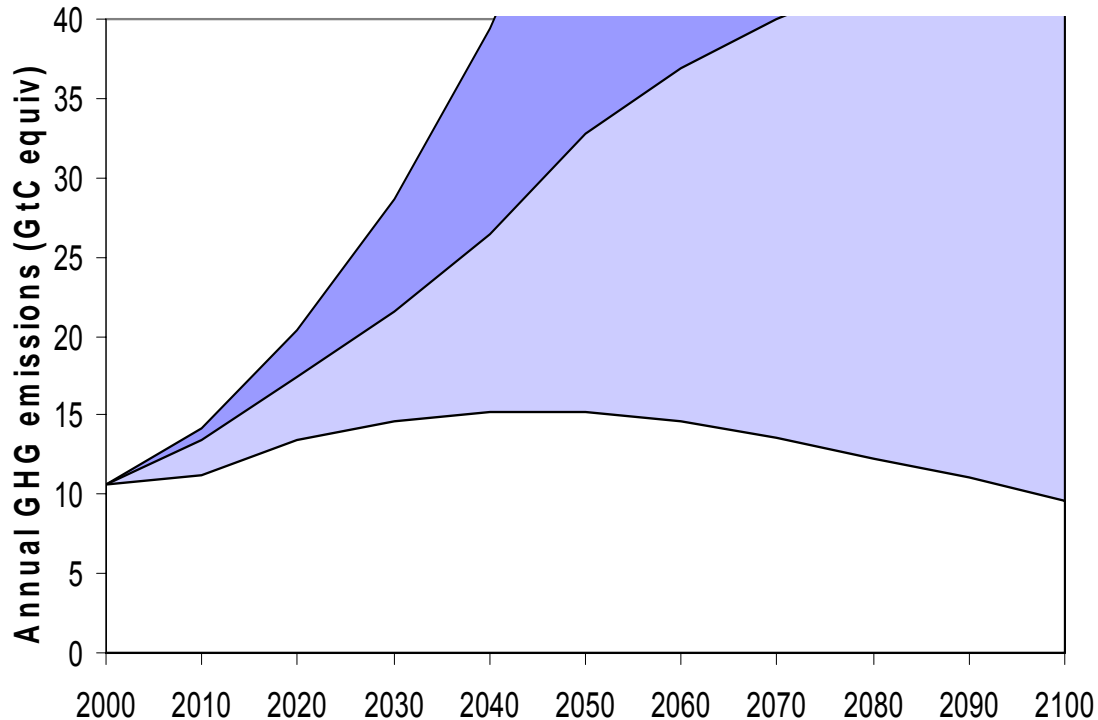
World GHG Emissions

IIASA A2r Scenario



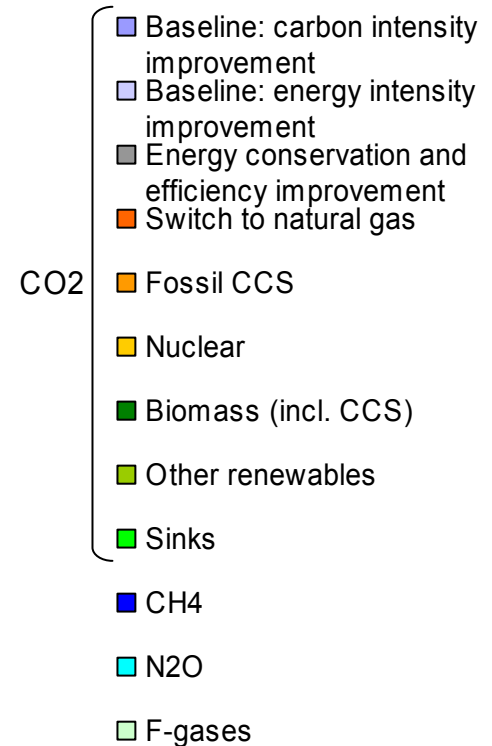
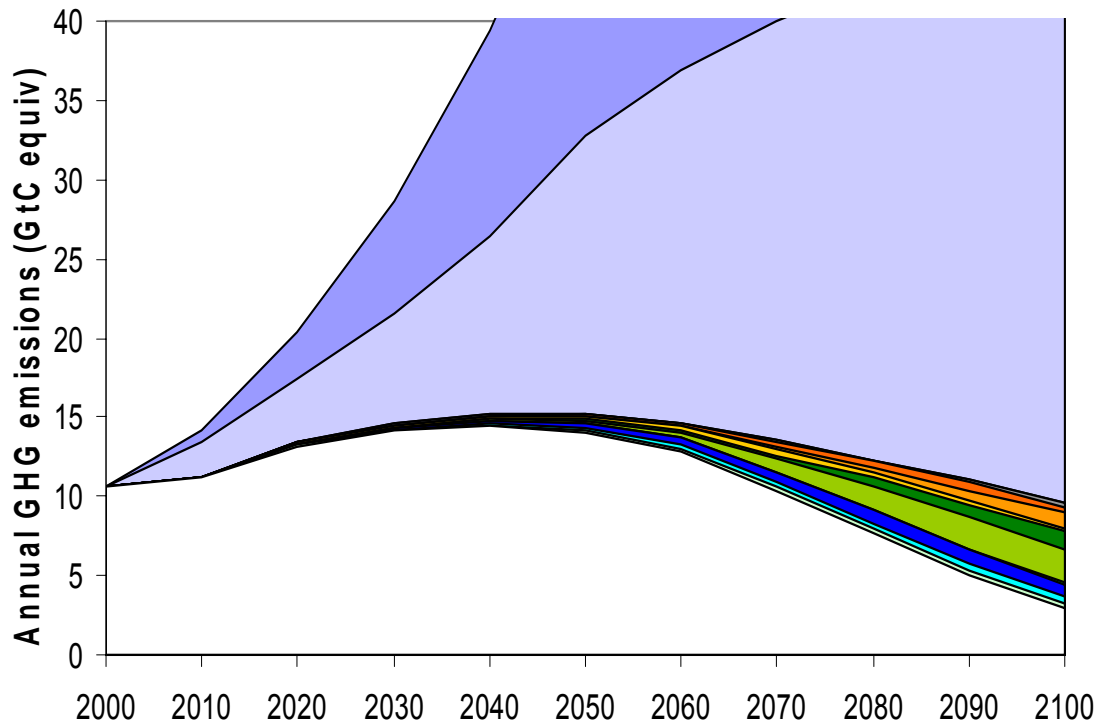
World GHG Emissions

IIASA B1 Scenario

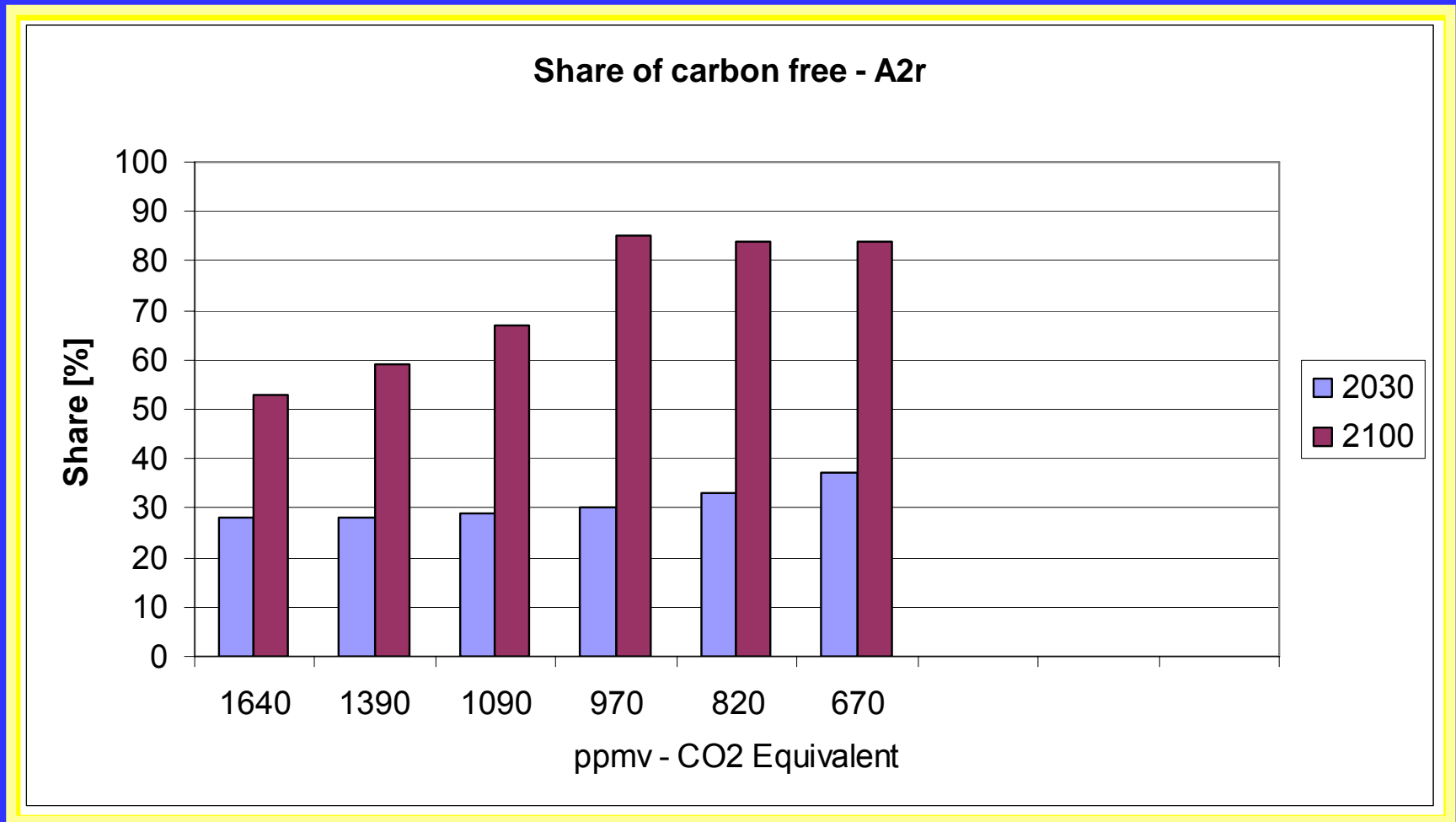


World GHG Emissions

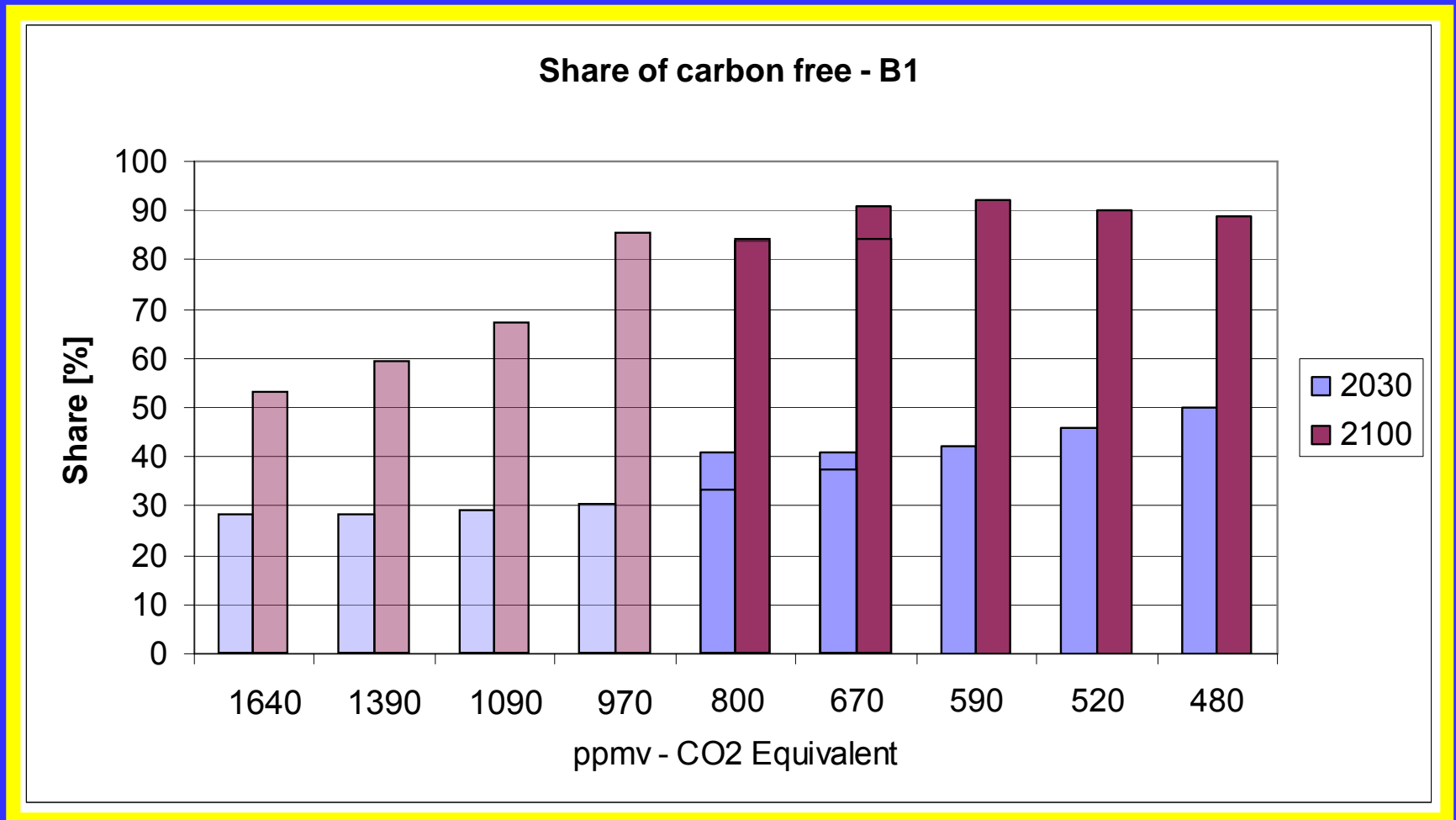
IIASA B1 Scenario



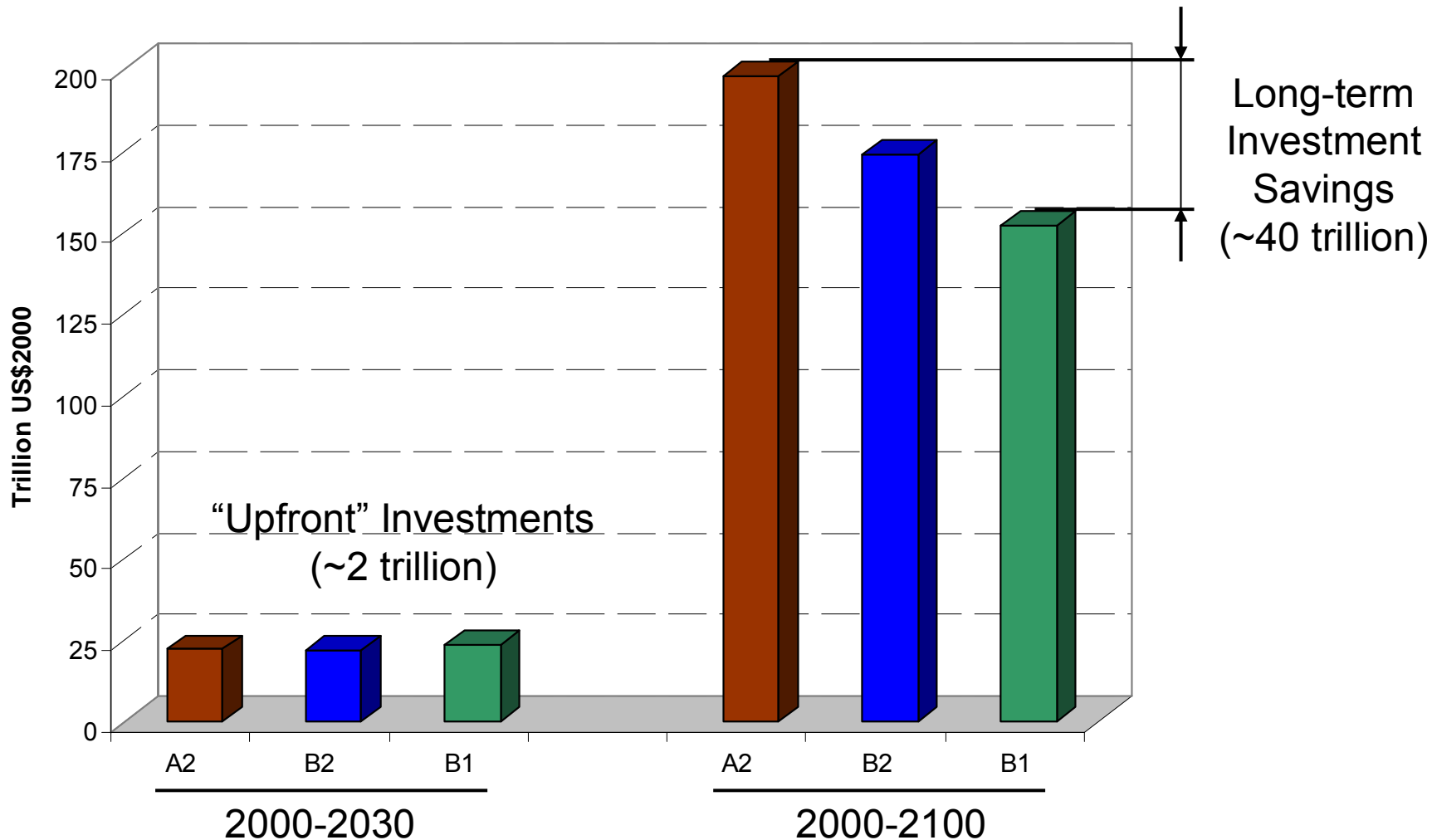
Share of Carbon-Free in A2r



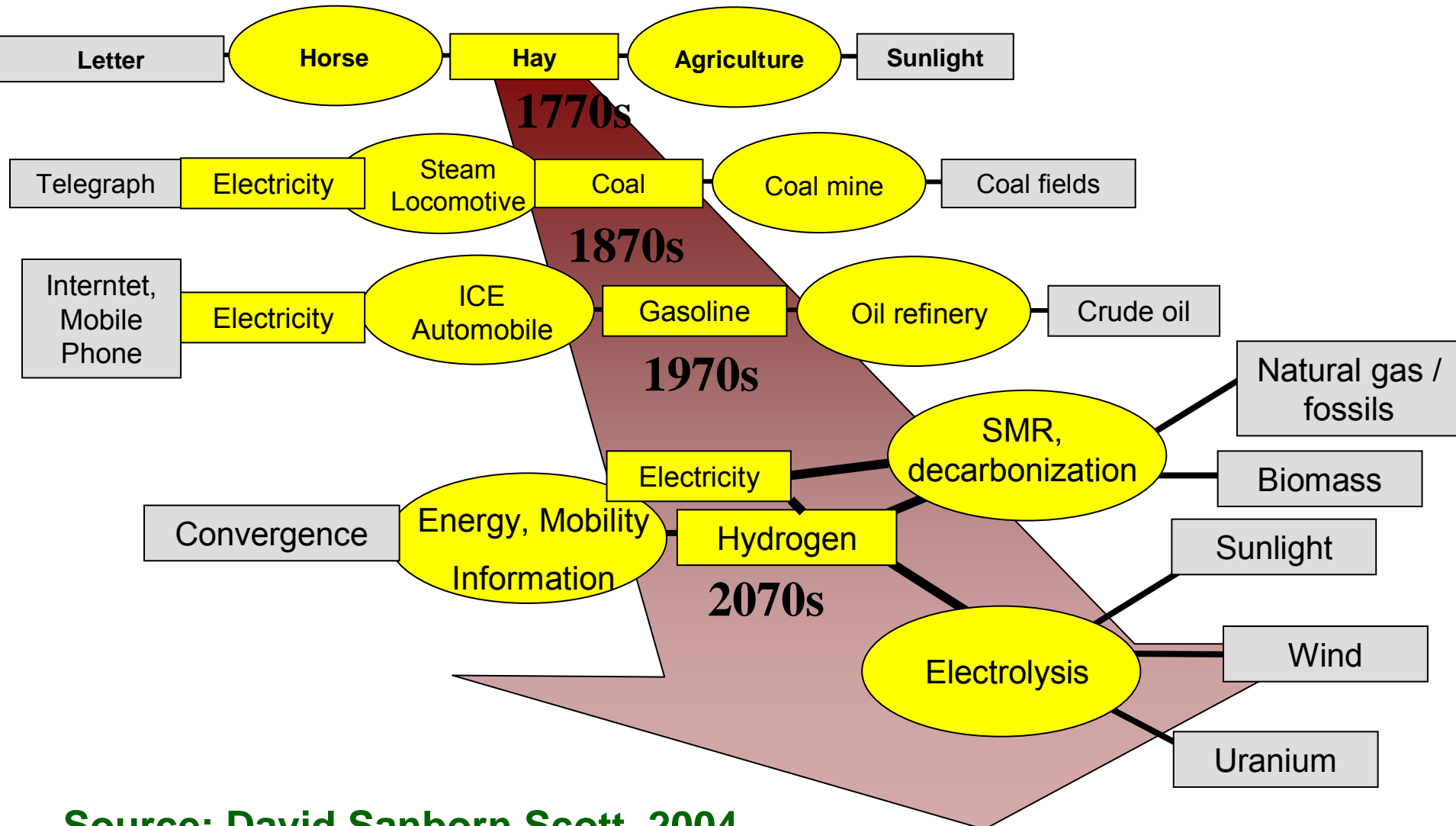
Share of Carbon-Free in B1_r



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

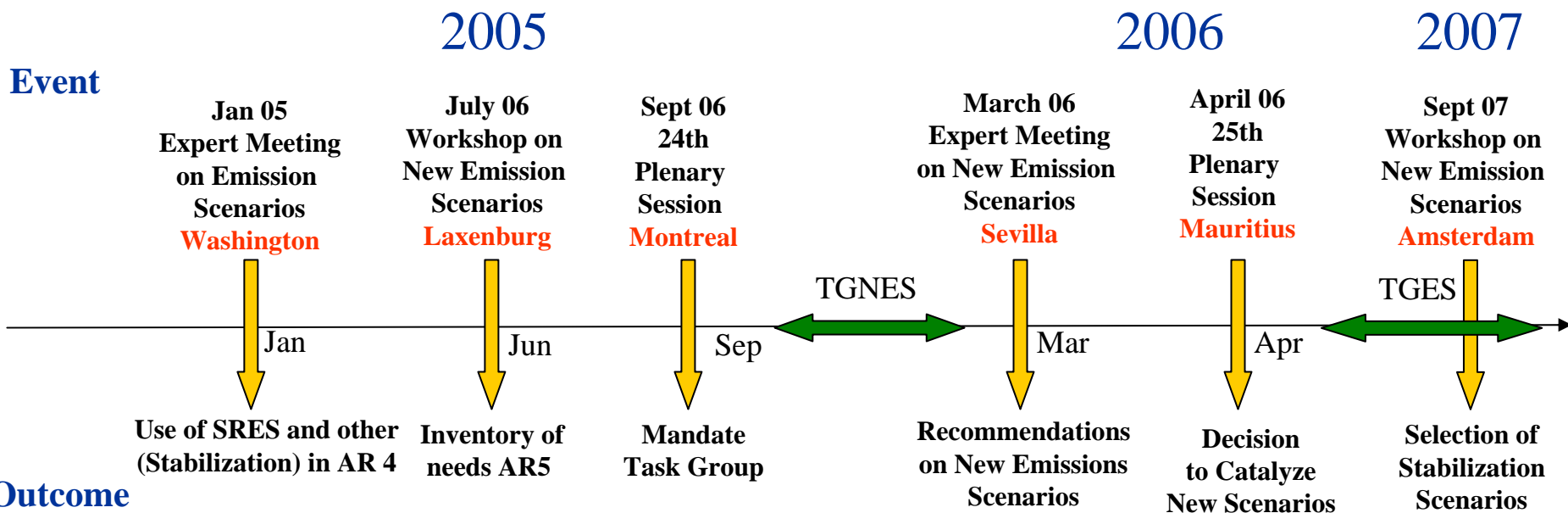


Energy Services and Sources Through Time



Source: David Sanborn Scott, 2004

IPCC Scenario Events and Outcomes

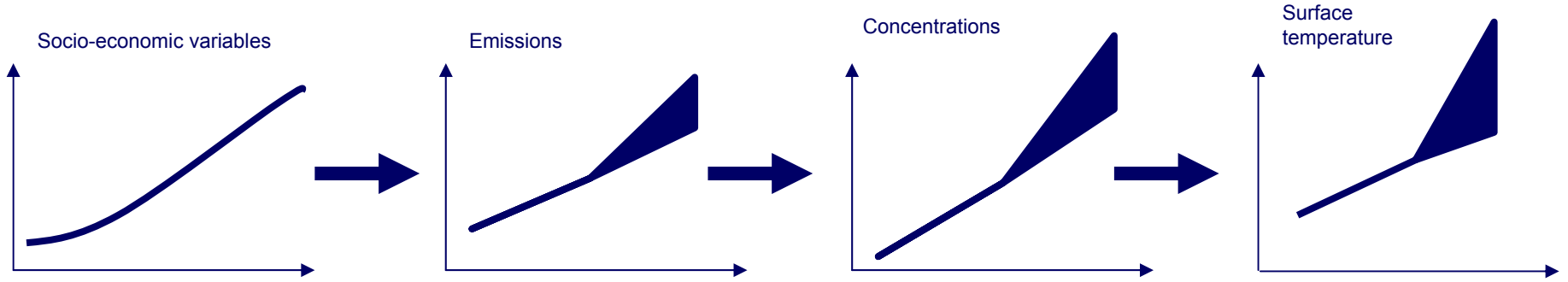


SOURCE; AFTER BERT METZ, 2006

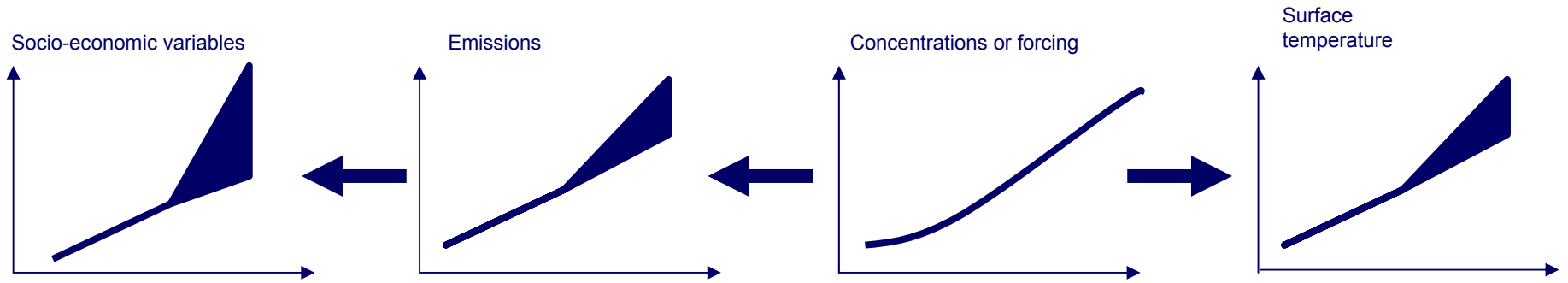
INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC)



Forward approach: start with socio-economic variables



Reverse approach: start with stabilization scenario concentrations



International Consortium

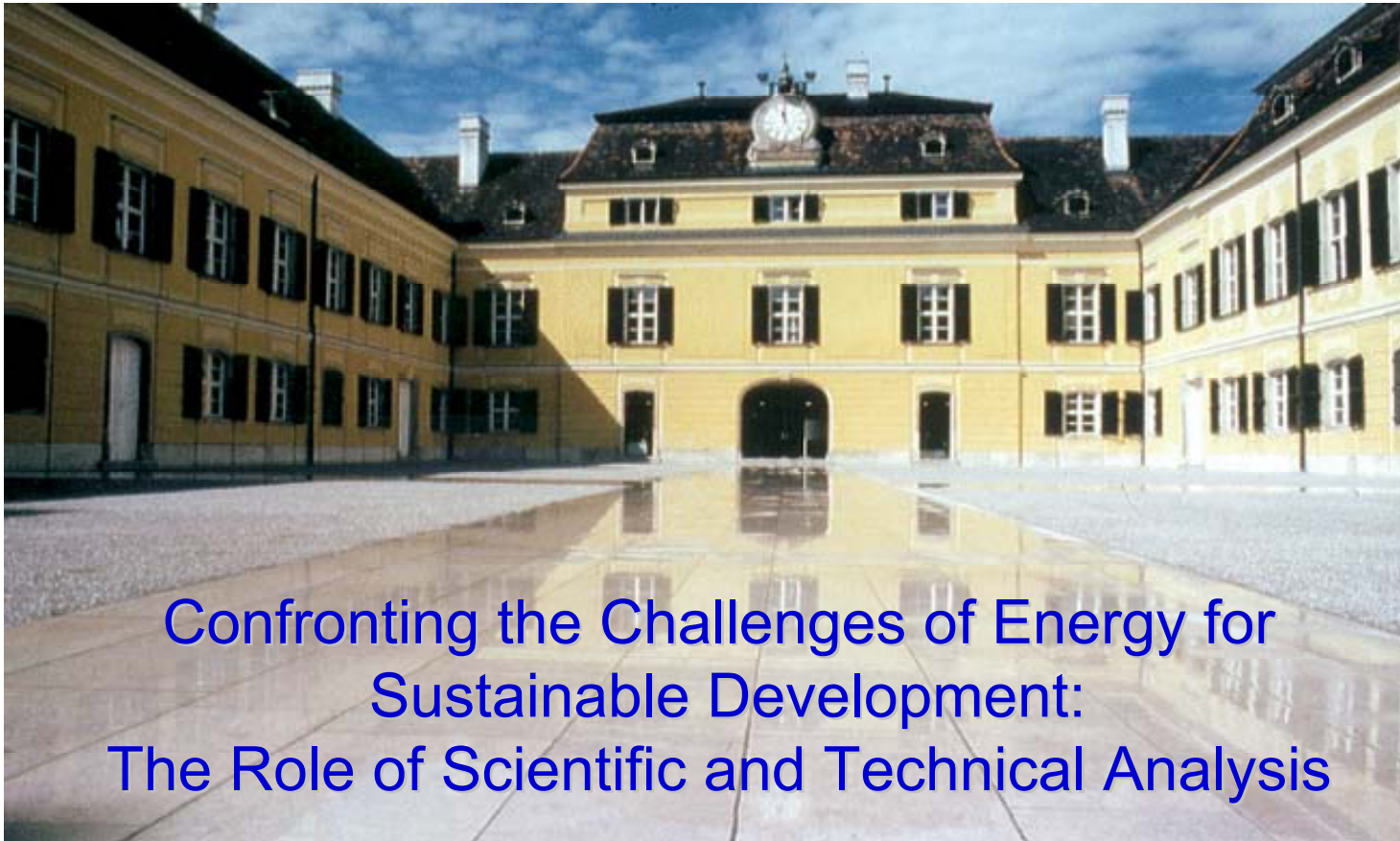
Facilitate the coordination of scenario development efforts

		
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Global Energy Assessment

Towards a more Sustainable Future

- The *magnitude* of the change required is *huge*
- The challenge is to find a way forward that addresses all the issues *simultaneously*
- A paradigm shift is needed: energy end-use efficiency, new renewables, advanced nuclear and carbon capture and storage.



Confronting the Challenges of Energy for
Sustainable Development:
The Role of Scientific and Technical Analysis

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