

An Equity and Sustainability Based Assessment of the Kyoto Protocol

by

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Annual Average Anthropogenic Carbon Budget

CO ₂ Sources	GtC/yr.
(1) Emissions from fossil fuel combustion and cement production	5.5 ± 0.5
(2) Net emissions from changes in tropical land-use	1.6 ± 1.0
(3) Total anthropogenic emissions = (1) + (2)	7.1 ± 1.1

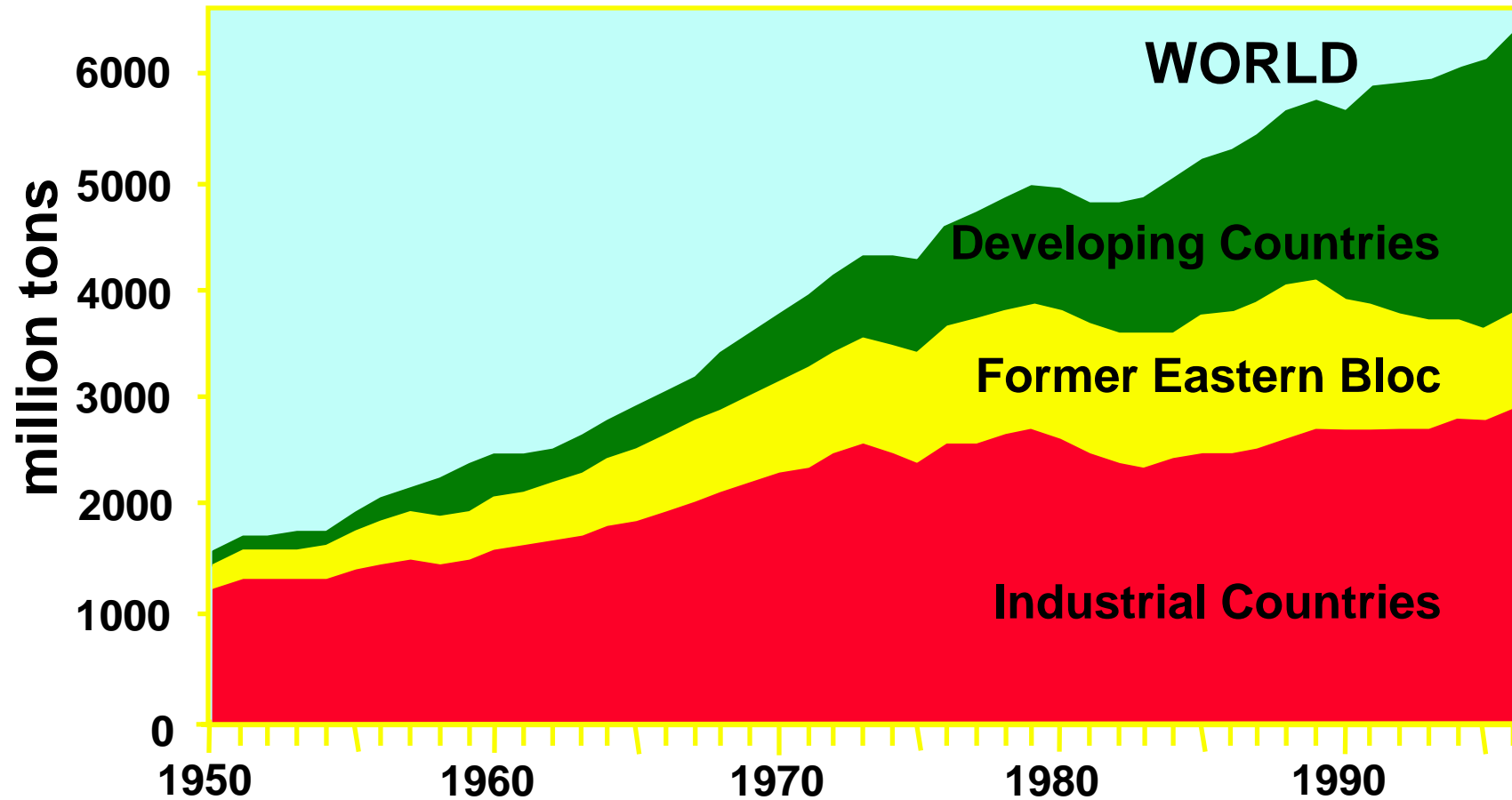
Partitioning amongst Reservoirs	GtC/yr.
(4) Storage in the atmosphere	3.3 ± 0.2
(5) Ocean uptake	2.0 ± 0.8
(6) Uptake by Northern Hemisphere forest regrowth	0.5 ± 0.5
(7) Inferred sink: (3) - ((4) + (5) + (6))	1.3 ± 1.5

Source: Intergovernmental Panel on Climate Change.



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World Carbon Emissions by Economic Region

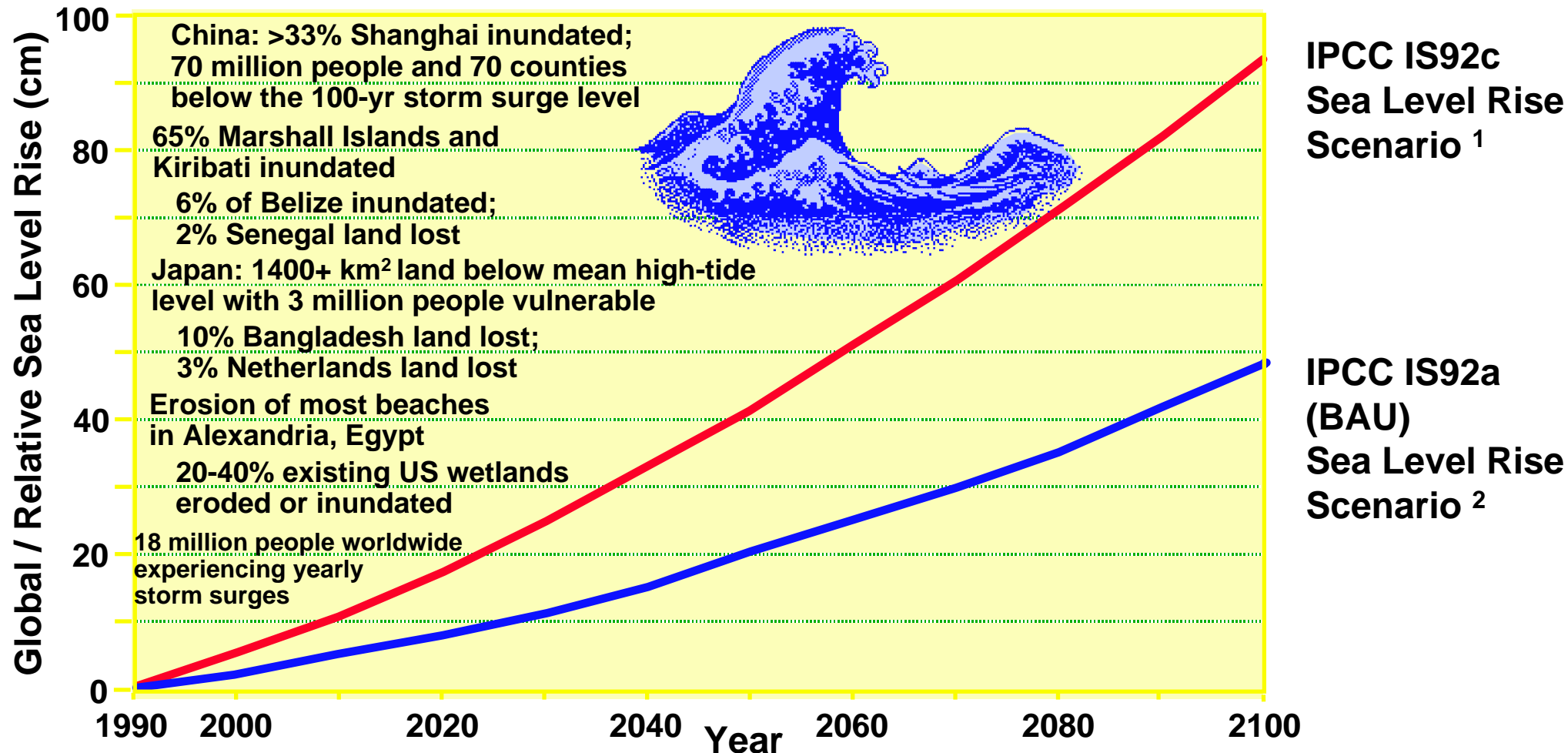


Source: Worldwatch Institute



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Impacts of Climate Change-Induced Sea Level Rise on Selected Coasts and Islands Worldwide



Notes: ¹ IS92c assumes high climate sensitivity parameters.

² IS92a assumes medium climate sensitivity parameters.

Source: Gaffin, 1999, Environmental Defense Fund.



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IPCC Estimates of Reductions in Anthropogenic Emissions Needed to Stabilize Atmospheric Concentrations at Current Levels

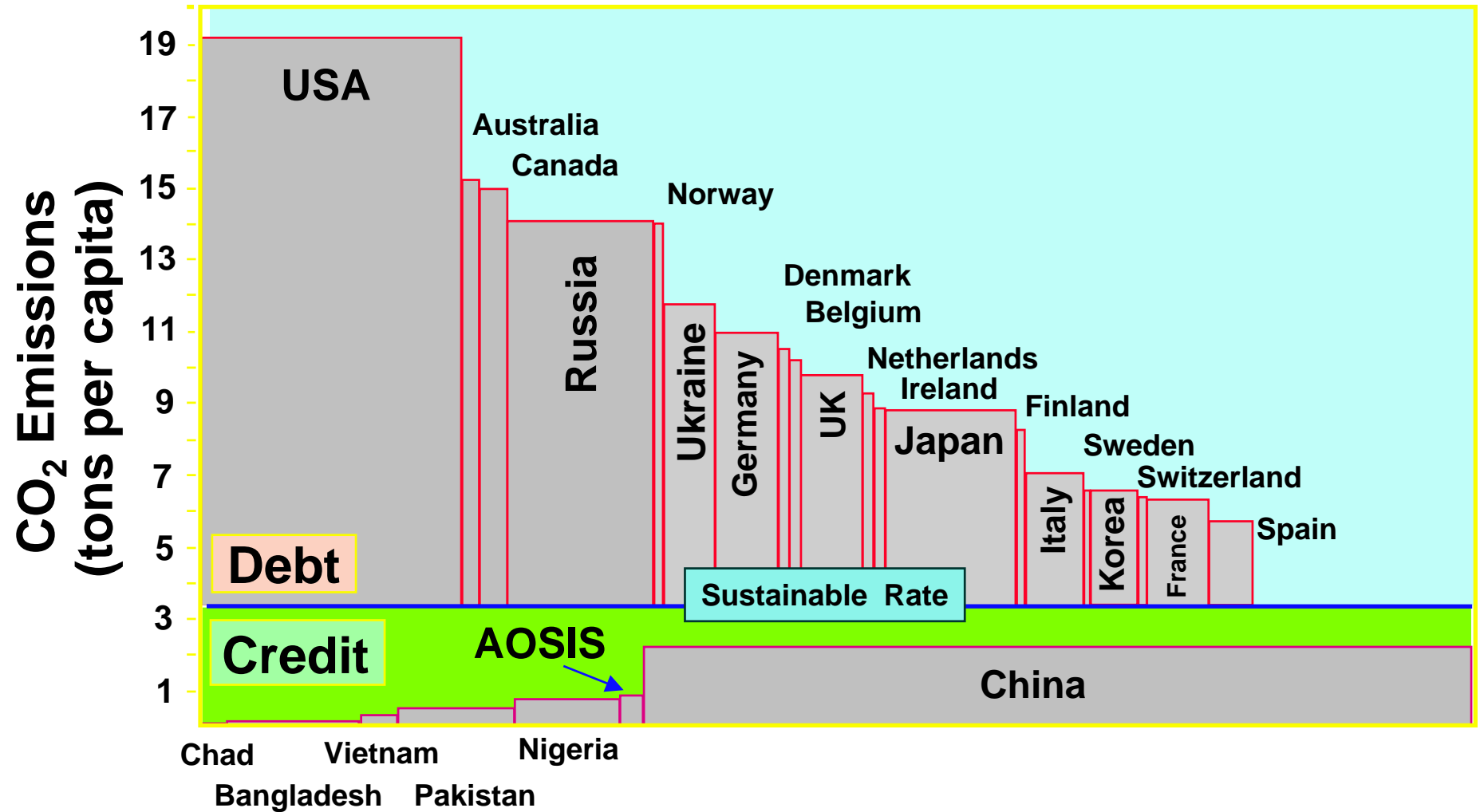
Greenhouse Gases	Reduction Required
Carbon Dioxide (CO ₂)	> 60%
Methane (CH ₄)	8 - 20%
Nitrous Oxide (N ₂ O)	70 - 80%
CFC-11	70 - 75%
CFC-12	75 - 85%
HCFC-22	40 - 50%

Source: IPCC. 1996. *The IPCC Second Assessment Synthesis of Scientific-Technical Information*

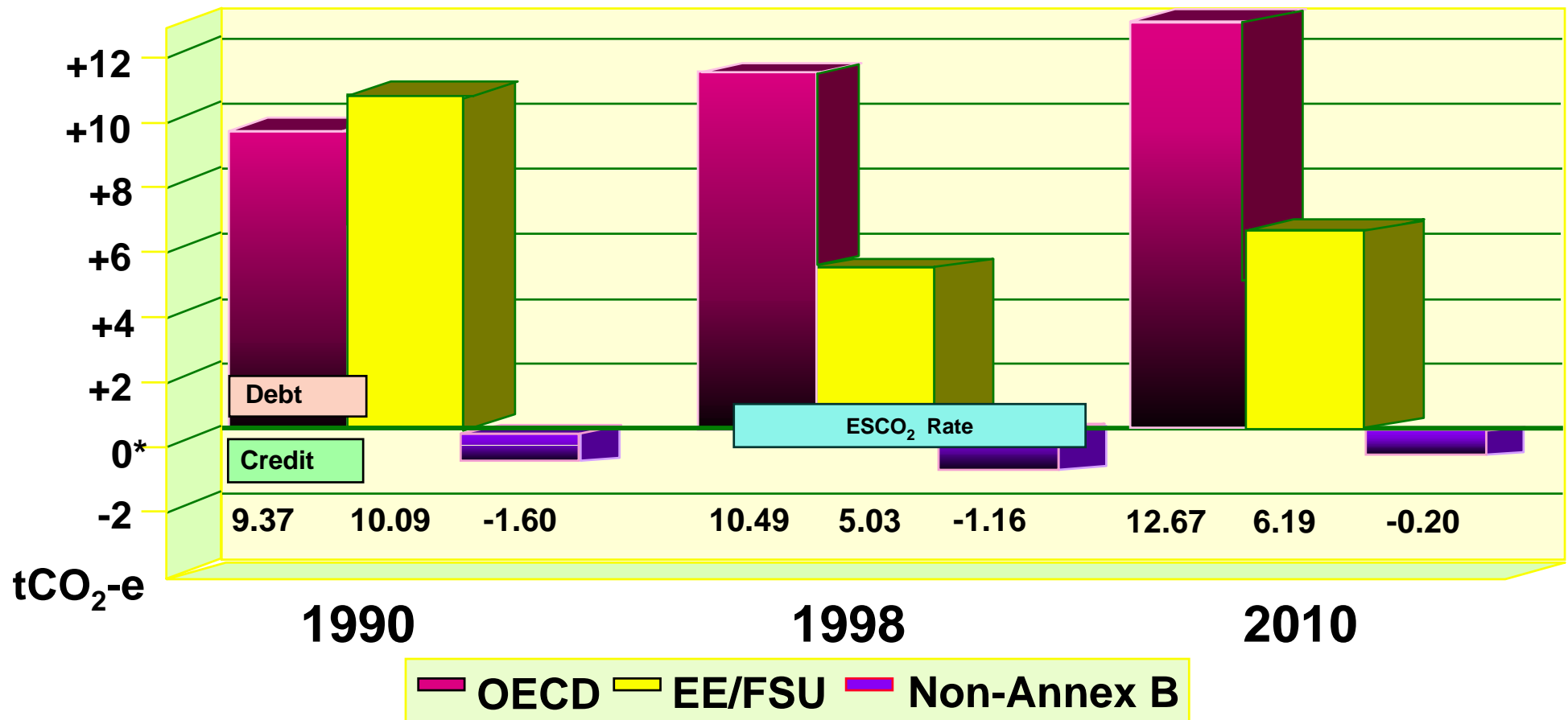


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CO₂ Emissions per Capita



Actual & Projected Annex B GHG Emissions (in per capita equivalents)



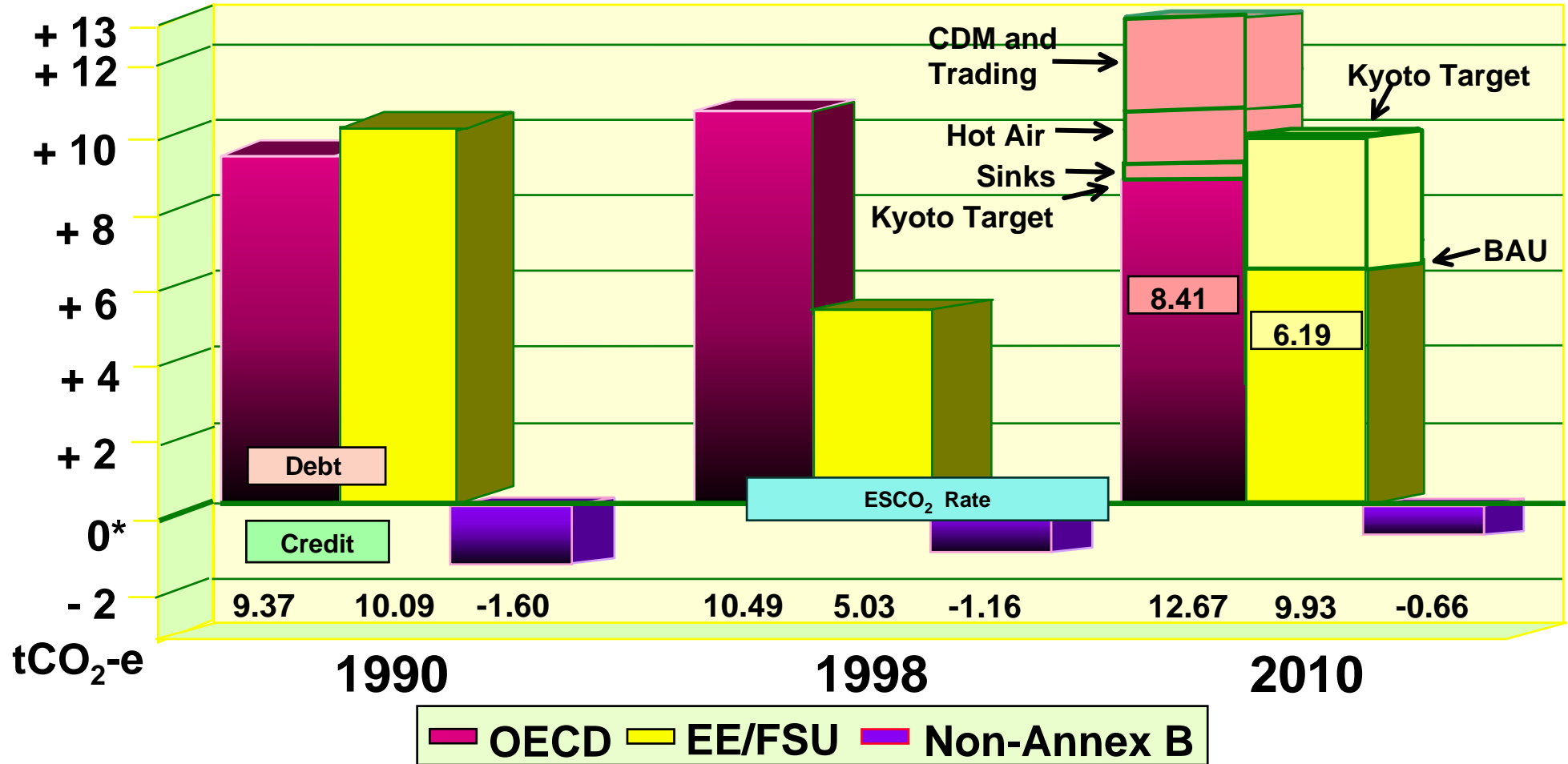
* Equitable and Sustainable CO₂ Emissions Rate

Sources: 1990, 1998 Emissions – Marland, et al, 2001; 2010 Emissions Projections – EIA, 2001; Population – World Resources Institute, 2001; ESCO₂ Rate – Byrne, et al, 1998



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Possible Per Capita GHG Emissions if Kyoto Mechanisms are Fully Employed and U.S. and Australia Participate



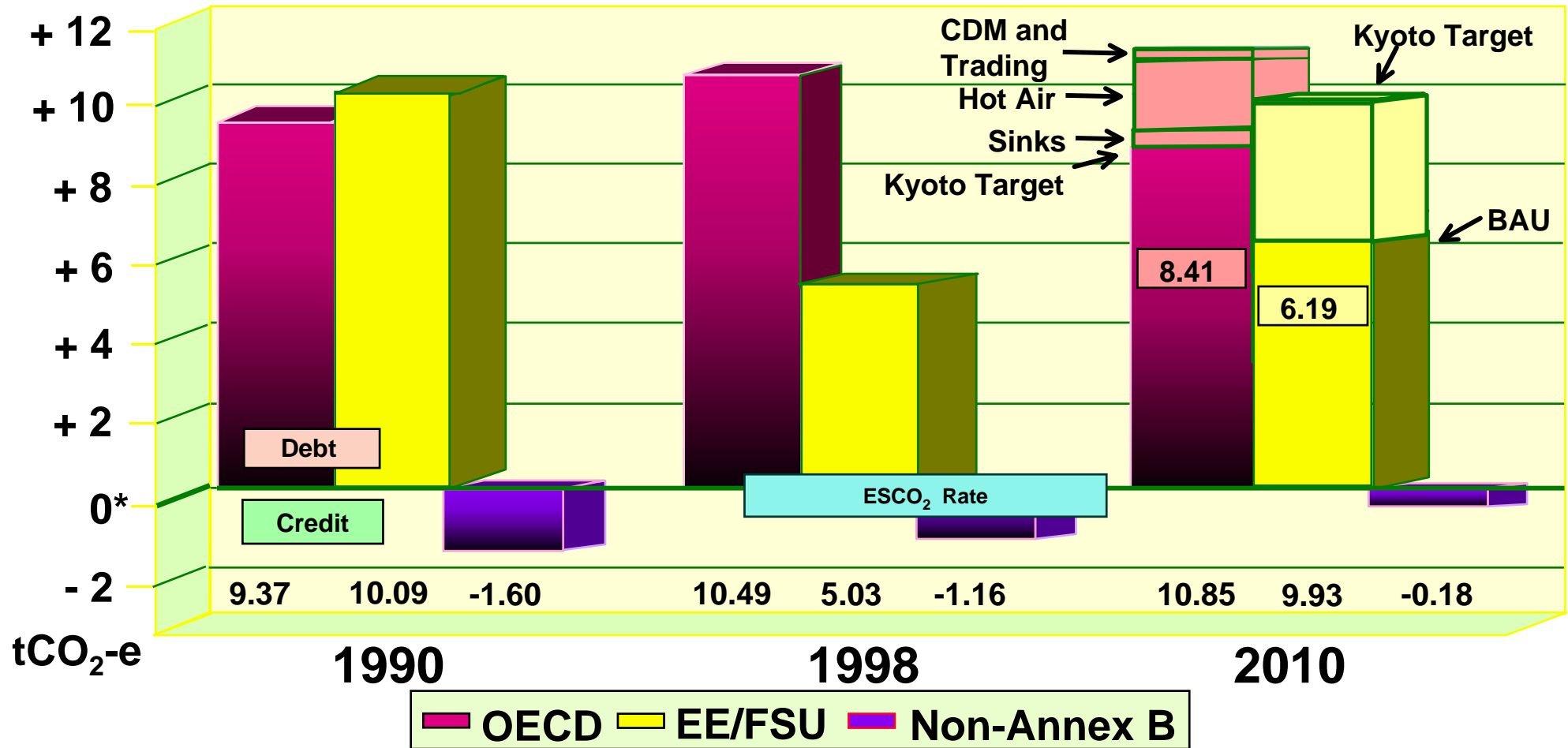
* Equitable and Sustainable CO₂ Emissions Rate

Sources: 1990, 1998 Emissions – Marland, et al., 2001; 2010 Emissions Projections – EIA, 2001; Population – World Resources Institute, 2001; ESCO₂ Rate – Byrne, et al, 1998



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Possible Per Capita GHG Emissions if Kyoto Mechanisms are Fully Employed and U.S. and Australia Withdraw



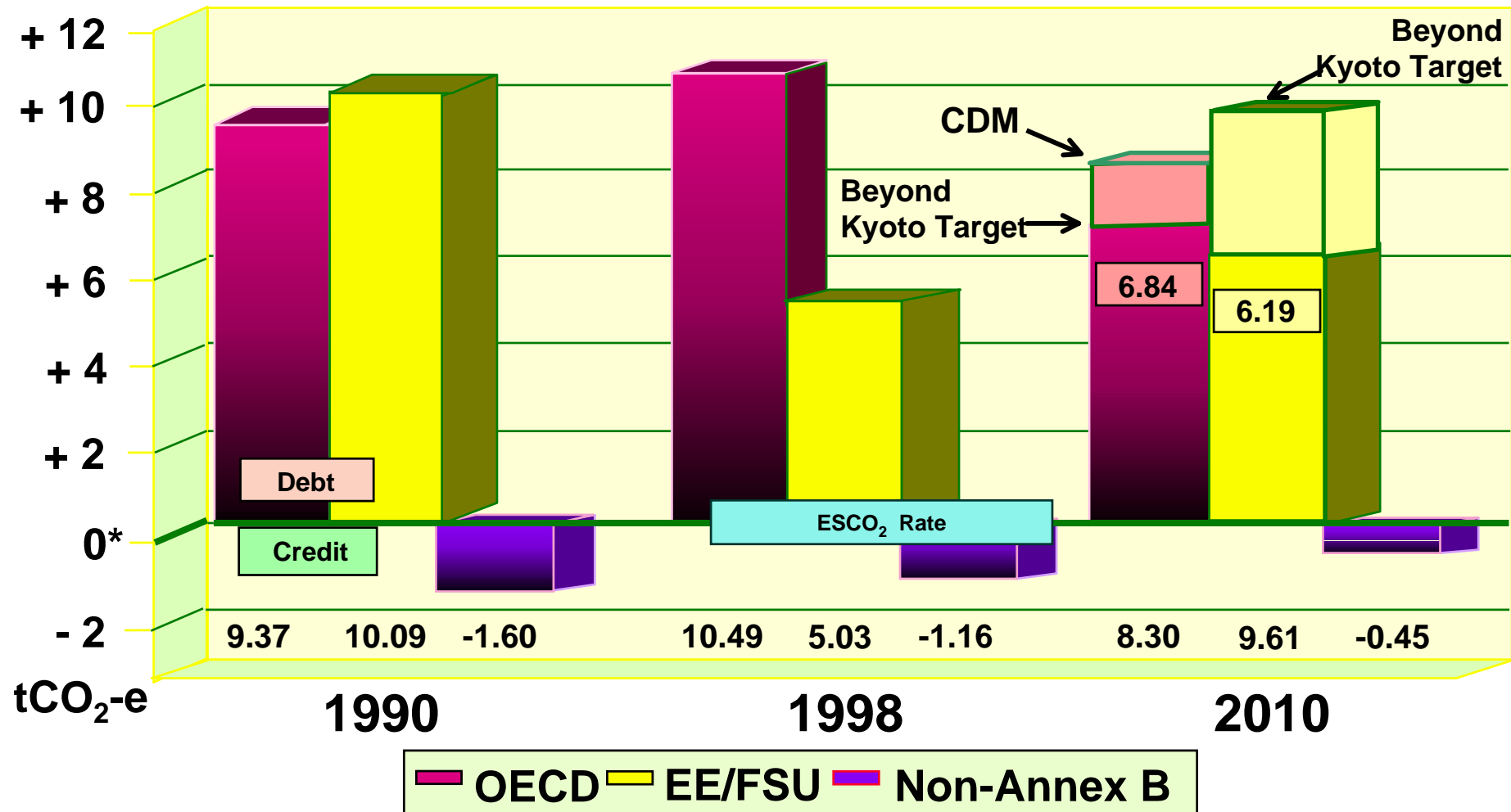
* Equitable and Sustainable CO₂ Emissions Rate

Sources: 1990, 1998 Emissions – Marland, et al., 2001; 2010 Emissions Projections – EIA, 2001; Population – World Resources Institute, 2001; ESCO₂ Rate – Byrne, et al, 1998



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'Beyond Kyoto' Scenario



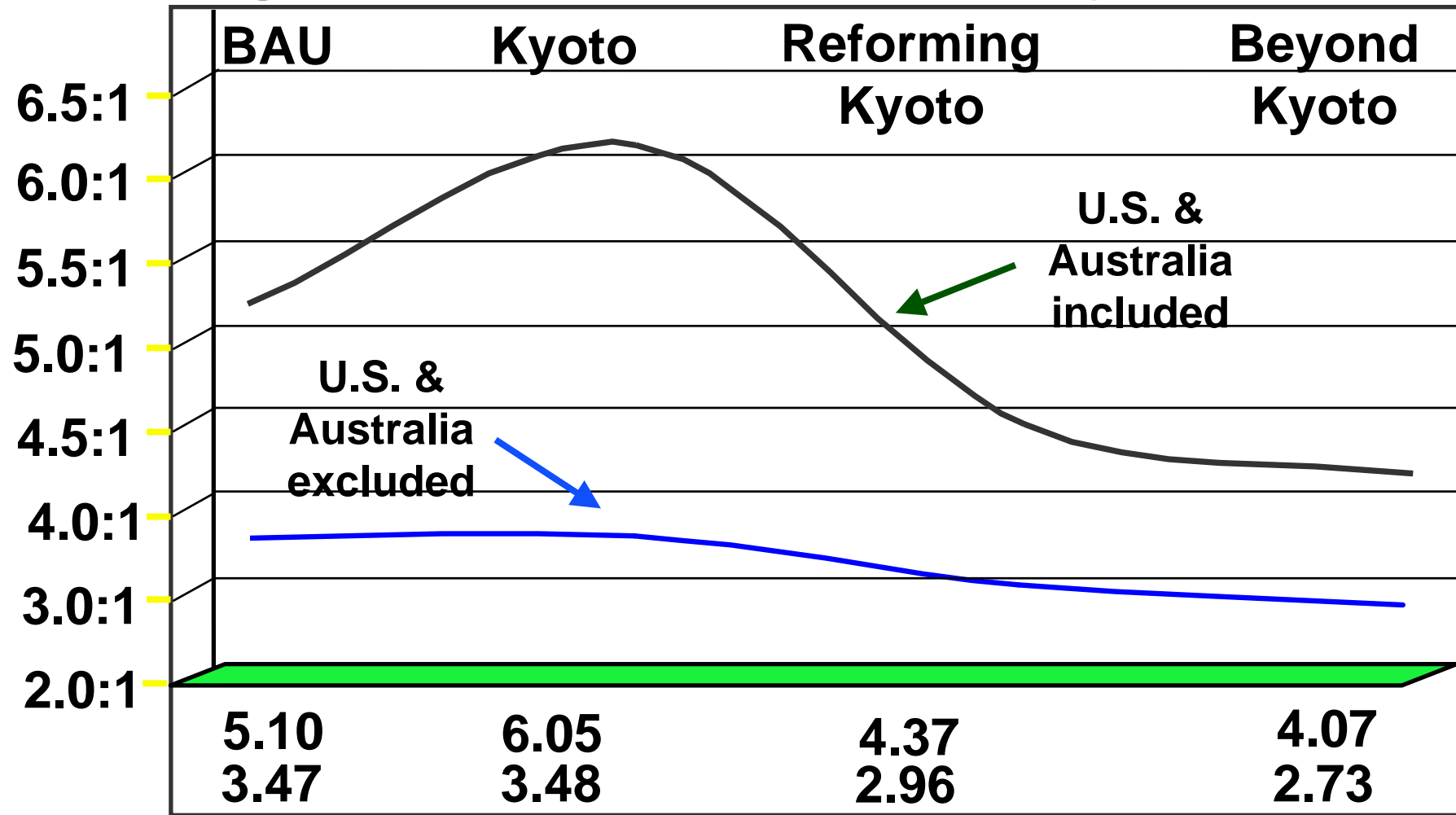
* Equitable and Sustainable CO₂ Emissions Rate;– Byrne, et al, 1998

Sources: 1990, 1998 Emissions – Marland, et al., 2001; 2010 Emissions Projections – EIA, 2001.



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Projected Inequality Ratios at the End of the 1st Budget Period for Three Policy Scenarios



Global Emissions by Policy Scenario

