Working Group III contribution to the
IPCC Fifth Assessment Report

WMO UNEP

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1 Summary for Policymakers
1 Technical Summary

16 Chapters
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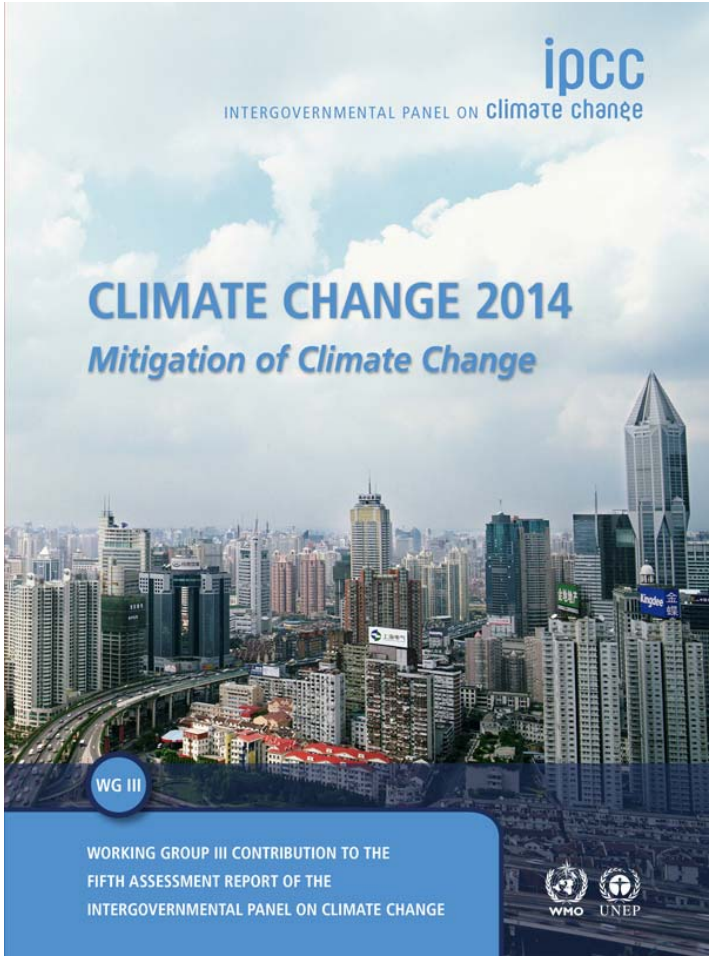
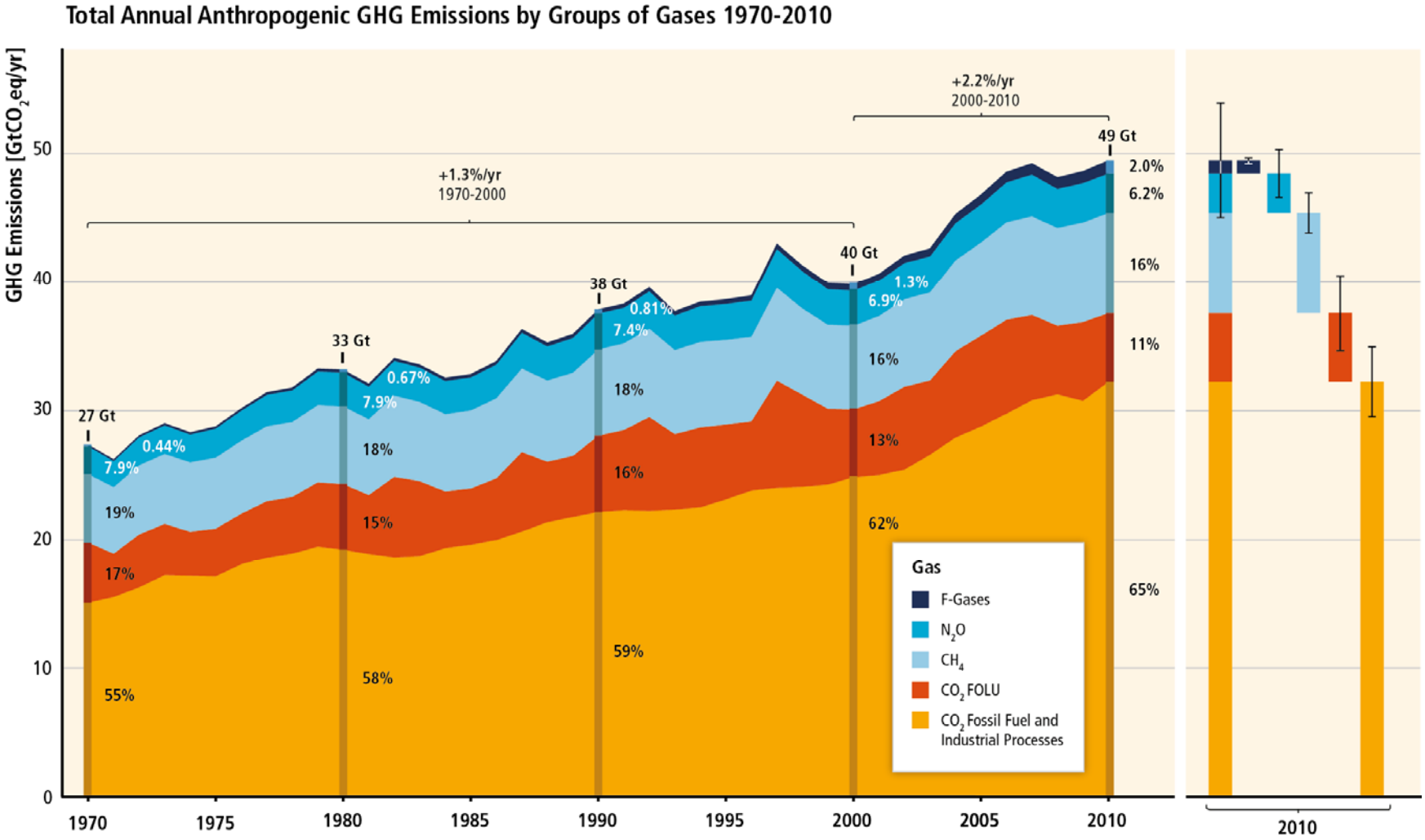


GHG emissions accelerate despite reduction efforts. Most emission growth is CO_2 from fossil fuel combustion.



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INTERGOVERNMENTAL PANEL ON climate change

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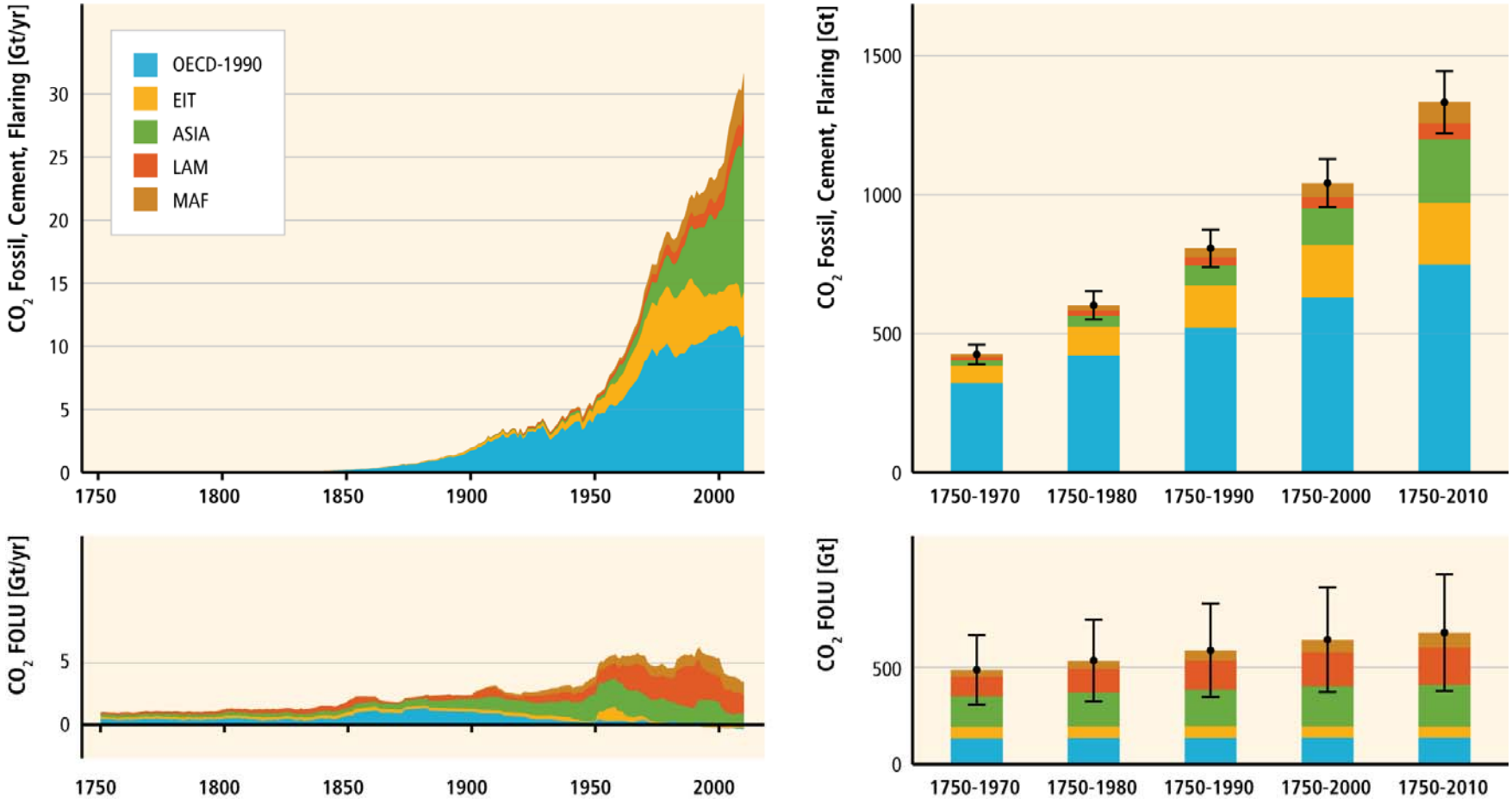
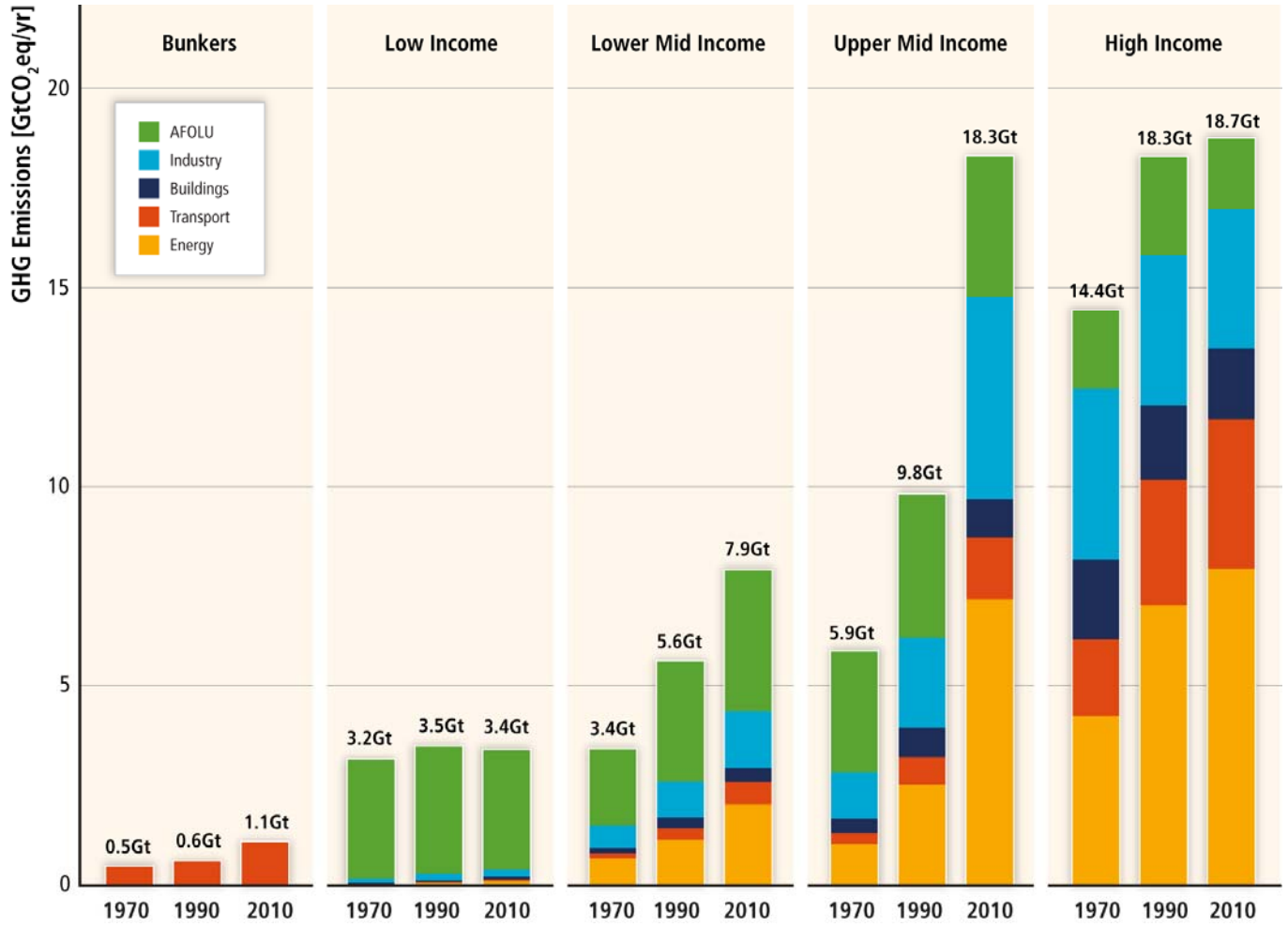
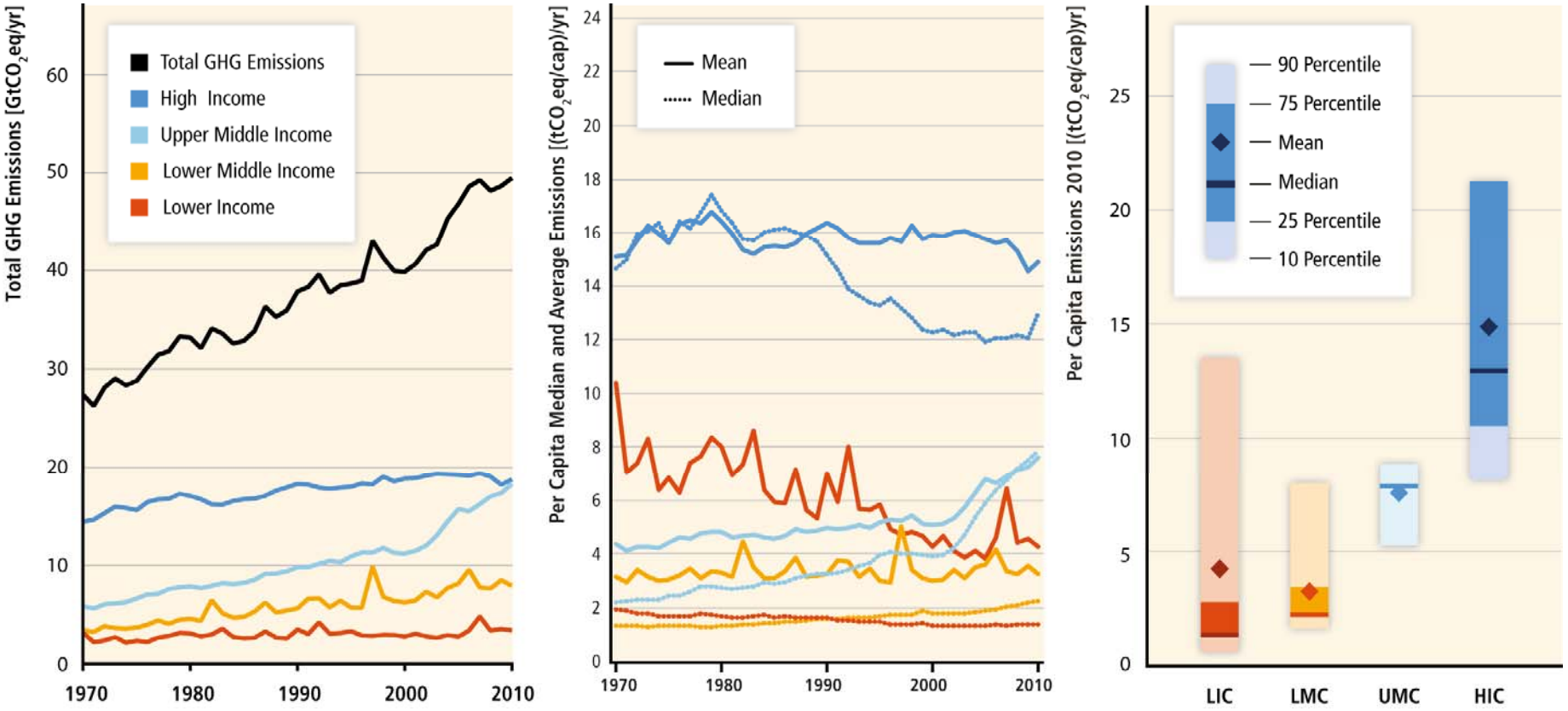
Cumulative CO_2 emissions have more than doubled since 1970.

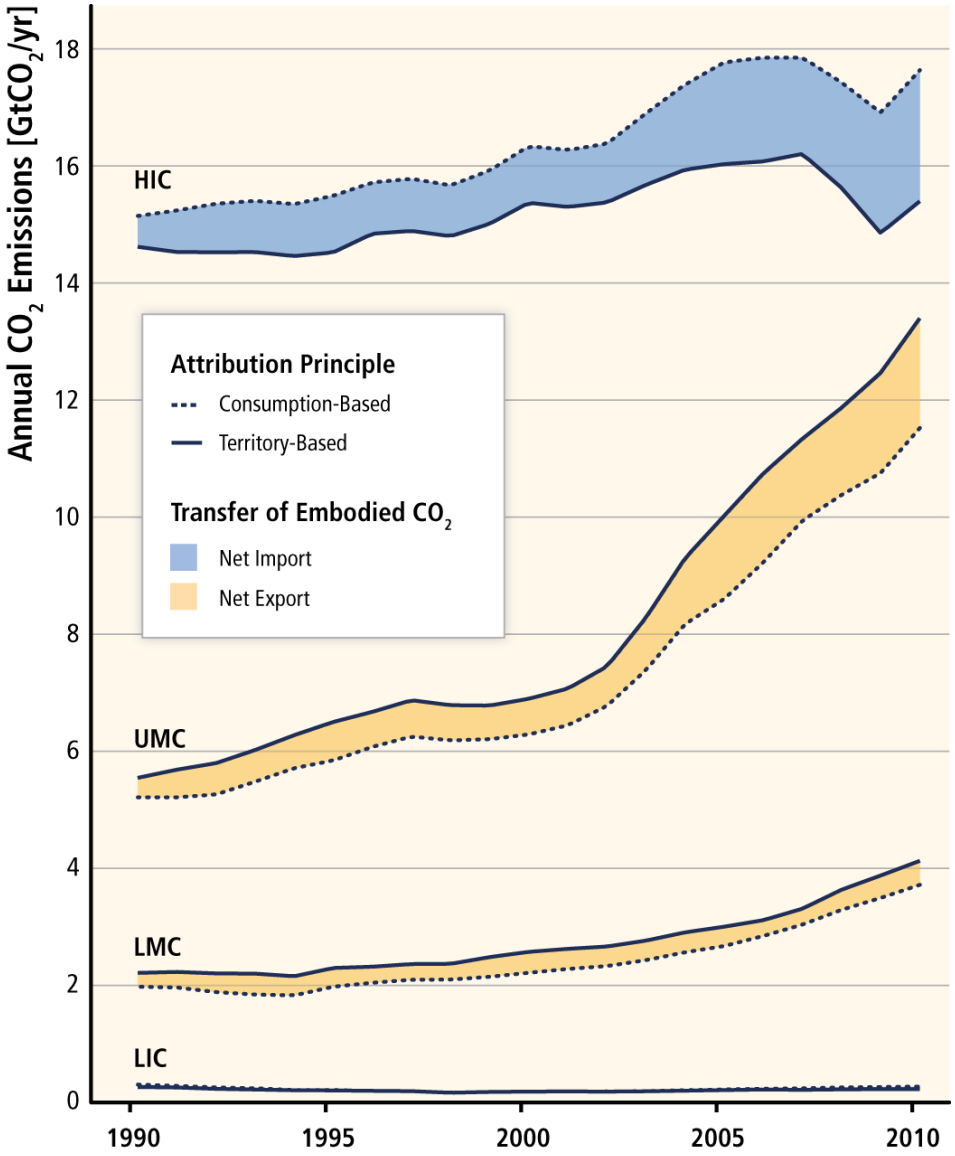


Regional patterns of GHG emissions are shifting along with changes in the world economy.



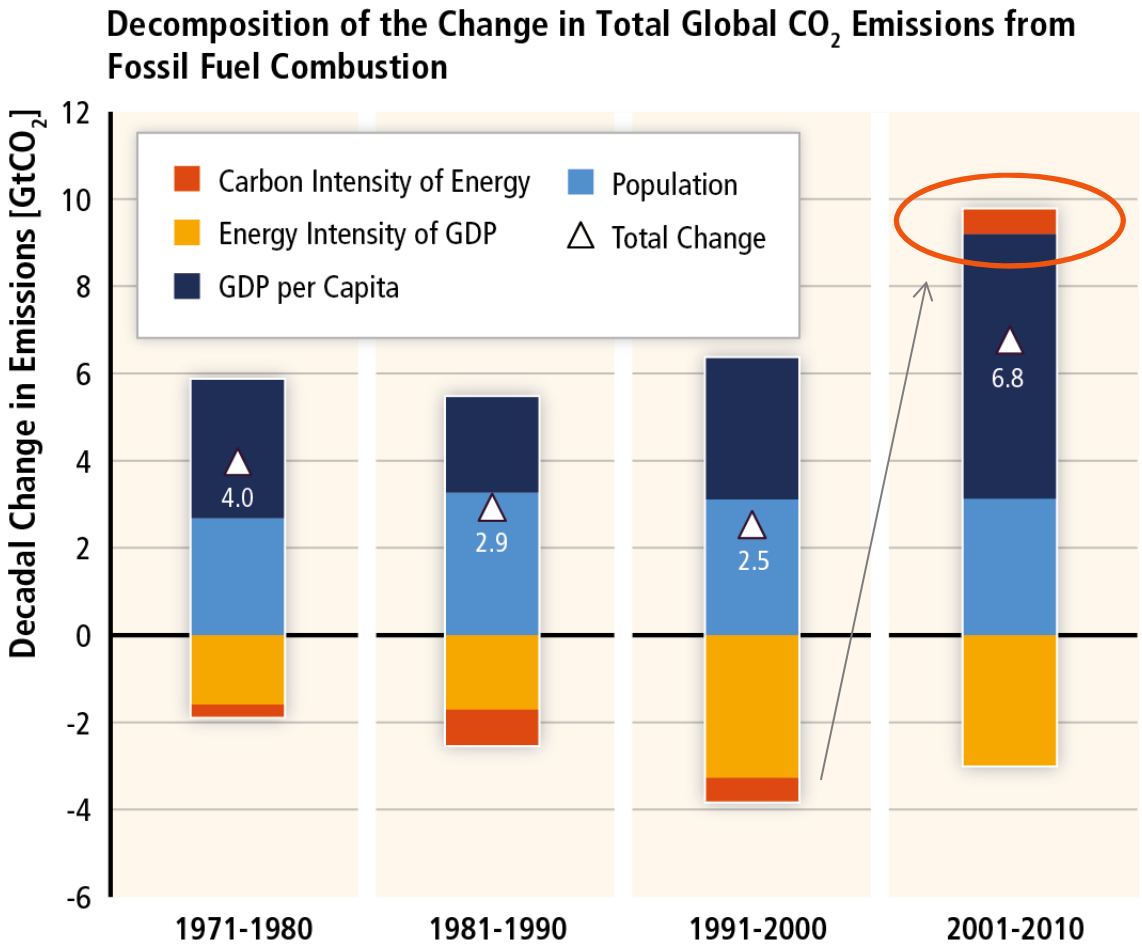
National per-capita GHG emissions are highly variable within and between income groups.



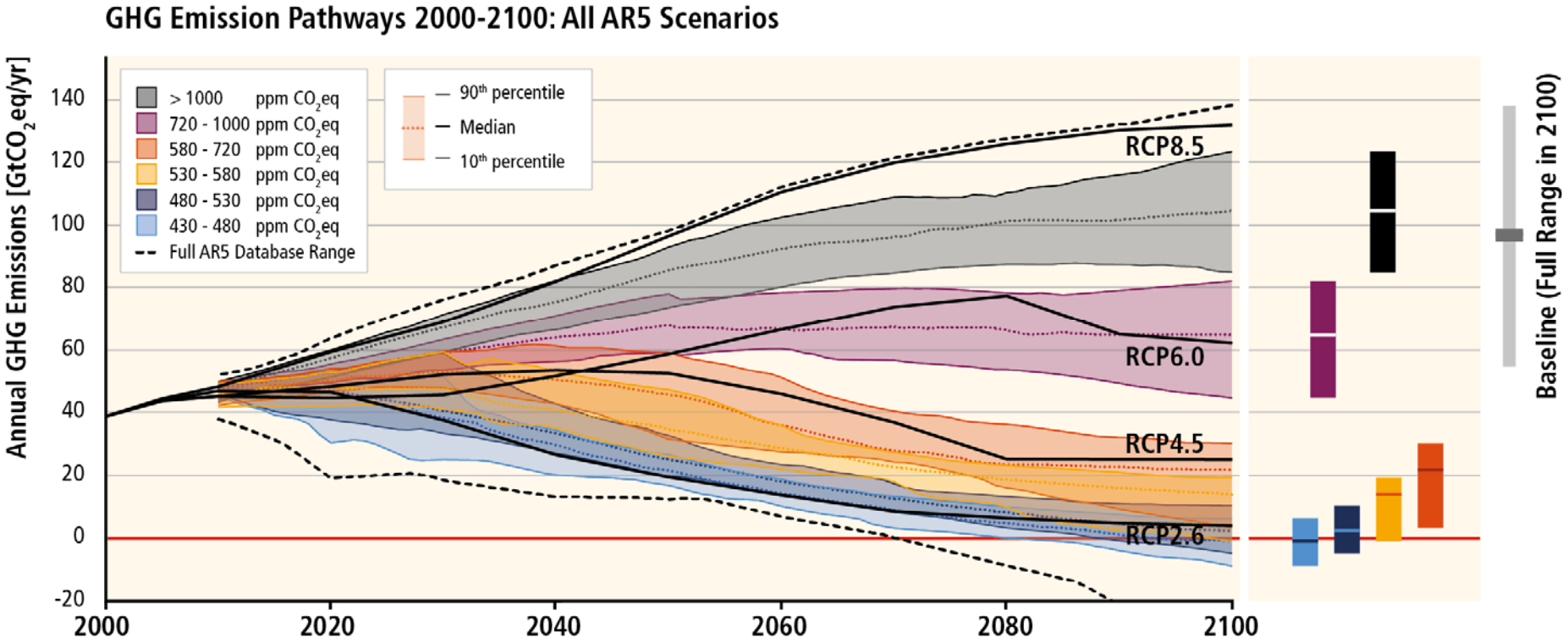


A growing share of CO_2 emissions from fossil fuel combustion and industrial processes in low and middle income countries has been released in the production of goods and services exported, notably from upper-middle income countries to high income countries.

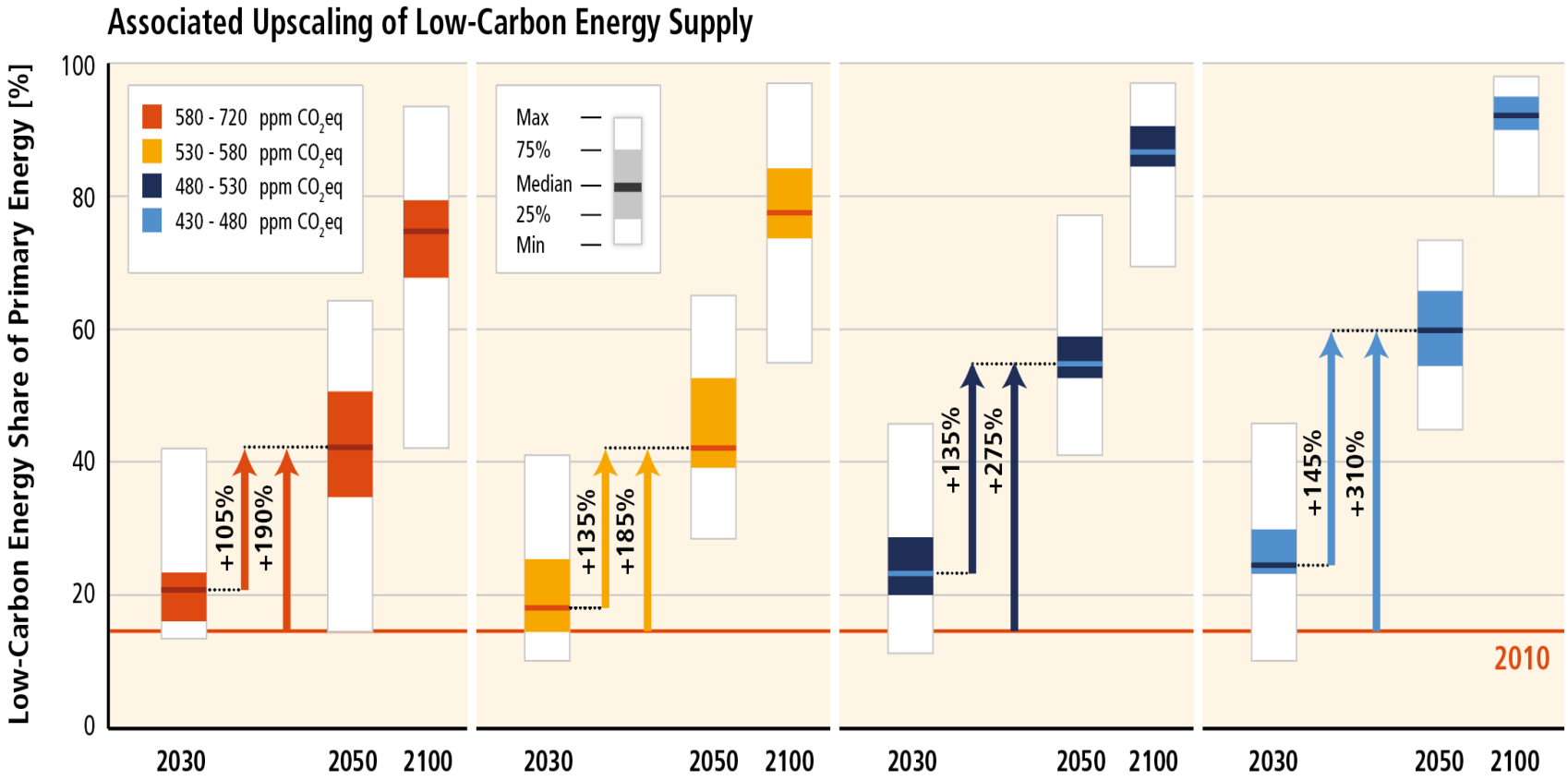
GHG emissions rise with growth in GDP and population; long-standing trend of decarbonisation of energy reversed.



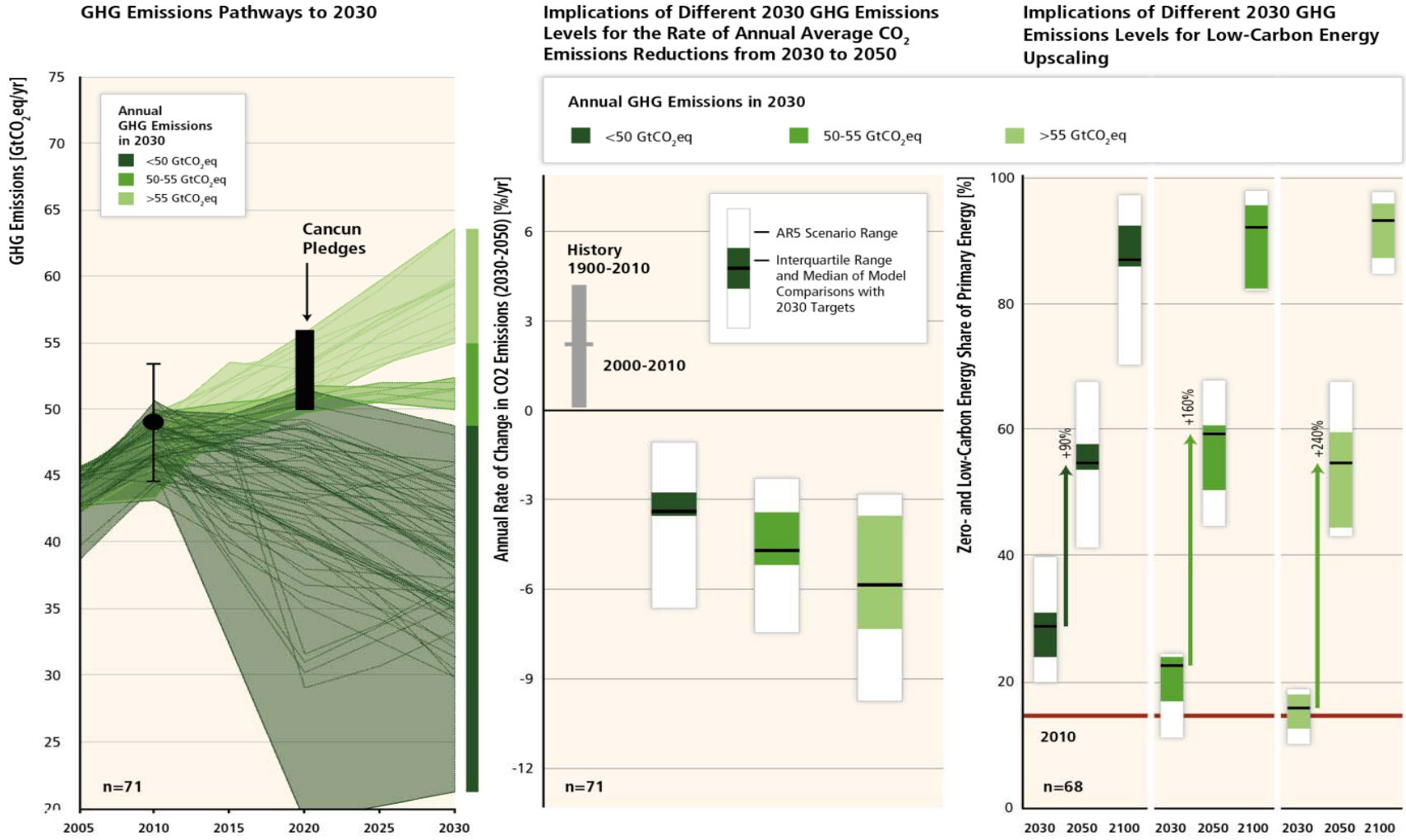
Without more mitigation, global mean surface temperature might increase by 3.7° to 4.8°C over the 21st century.



Mitigation requires major technological and institutional changes including the upscaling of low- and zero carbon energy.



Delaying mitigation is estimated to increase the difficulty and narrow the options for limiting warming to 2°C.



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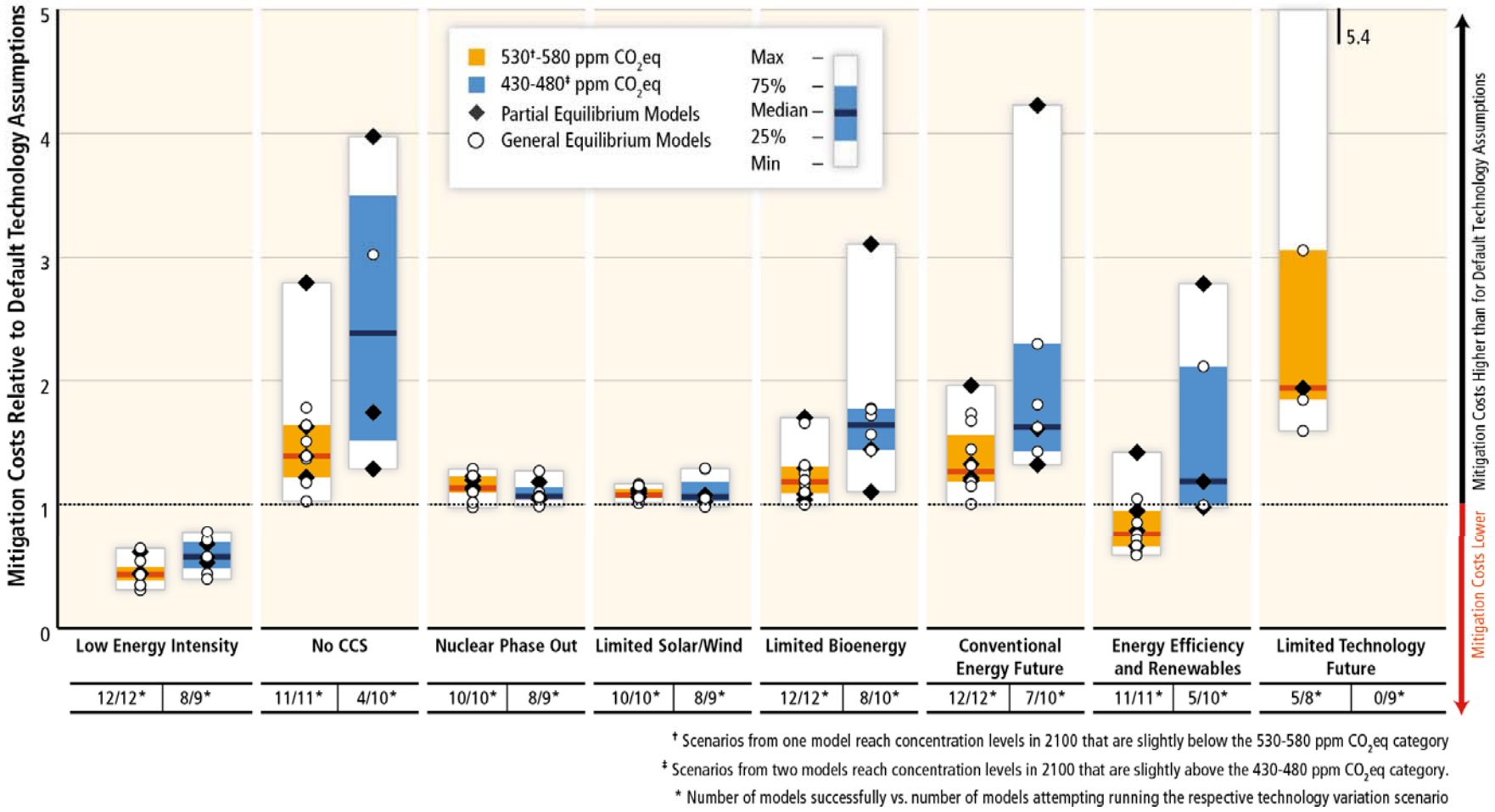
Estimates for mitigation costs vary widely.

- Reaching 450ppm CO_2eq entails consumption losses of 1.7% (1%-4%) by 2030, 3.4% (2% to 6%) by 2050 and 4.8% (3%-11%) by 2100 relative to baseline (which grows between 300% to 900% over the course of the century).
- This is equivalent to a reduction in consumption growth over the 21st century by about 0.06 (0.04-0.14) percentage points a year (relative to annualized consumption growth that is between 1.6% and 3% per year).
- Cost estimates exlude benefits of mitigation (reduced impacts from climate change). They also exclude other benefits (e.g. improvements for local air quality).
- Cost estimates are based on a series of assumptions.

Limited availability of technologies increases costs.



† Scenarios from one model reach concentration levels in 2100 that are slightly below the 530-580 ppm CO_2eq category

‡ Scenarios from two models reach concentration levels in 2100 that are slightly above the 430-480 ppm CO_2eq category.

* Number of models successfully vs. number of models attempting running the respective technology variation scenario