

# CLIMATE CHANGE 2014

## *Mitigation of Climate Change*

### Key Insights from the AR5

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WCERE, Istanbul, Turkey  
29 June 2014

# Exploring the solution space



IPCC reports are the result of extensive work of many scientists from around the world.

1 Summary for Policymakers

1 Technical Summary

16 Chapters

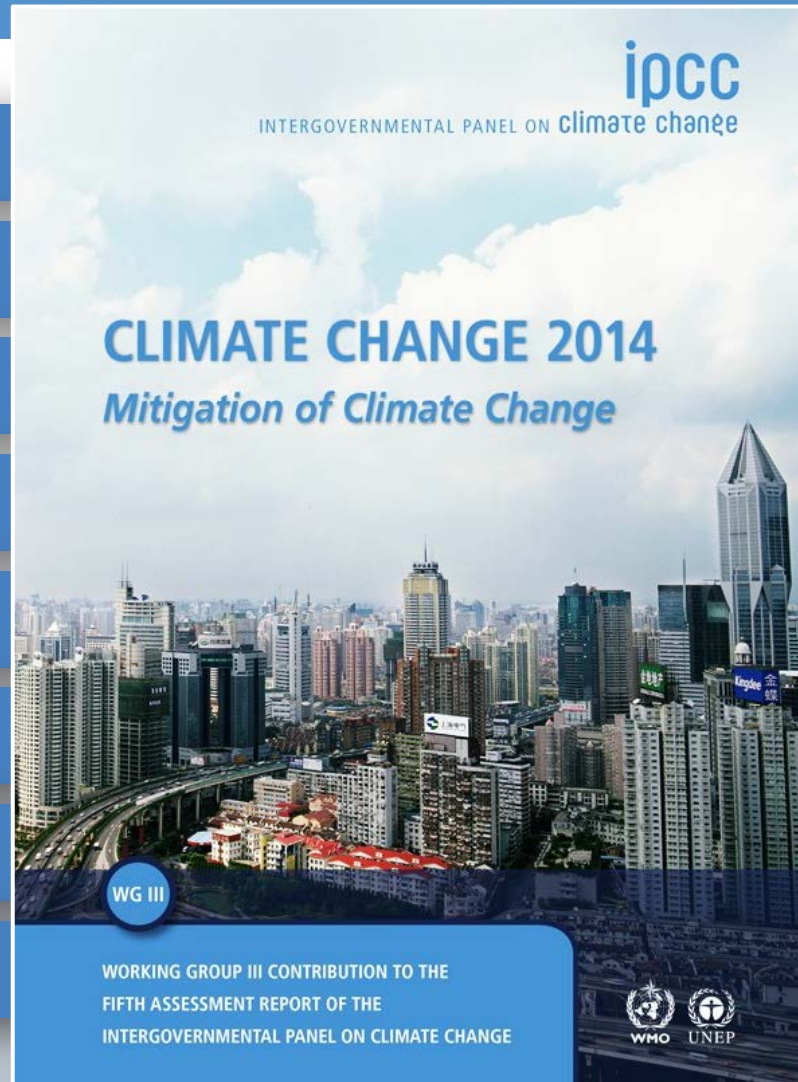
235 Authors

900 Reviewers

More than 2000 pages

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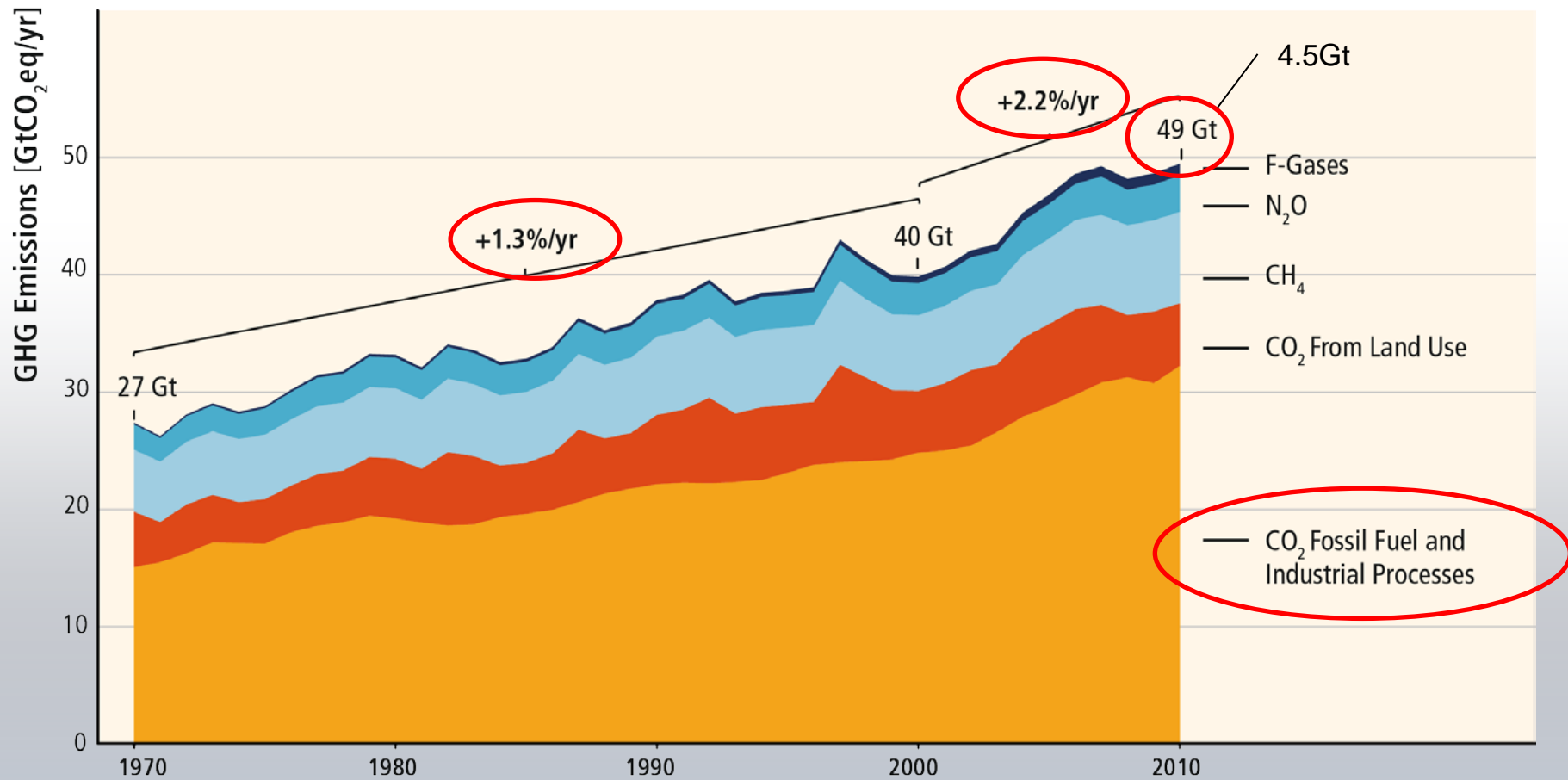


**GHG emissions growth has accelerated  
despite reduction efforts.**

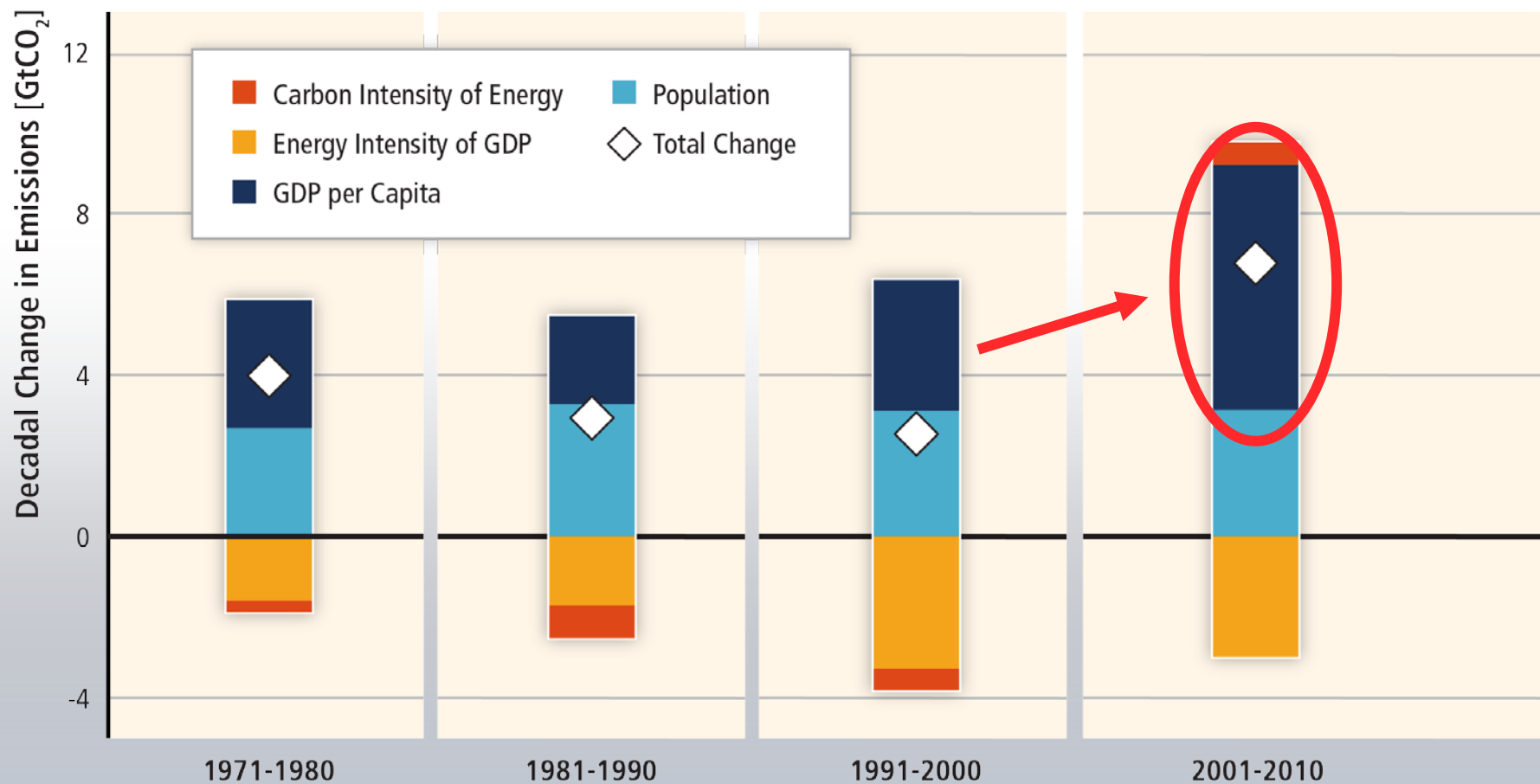




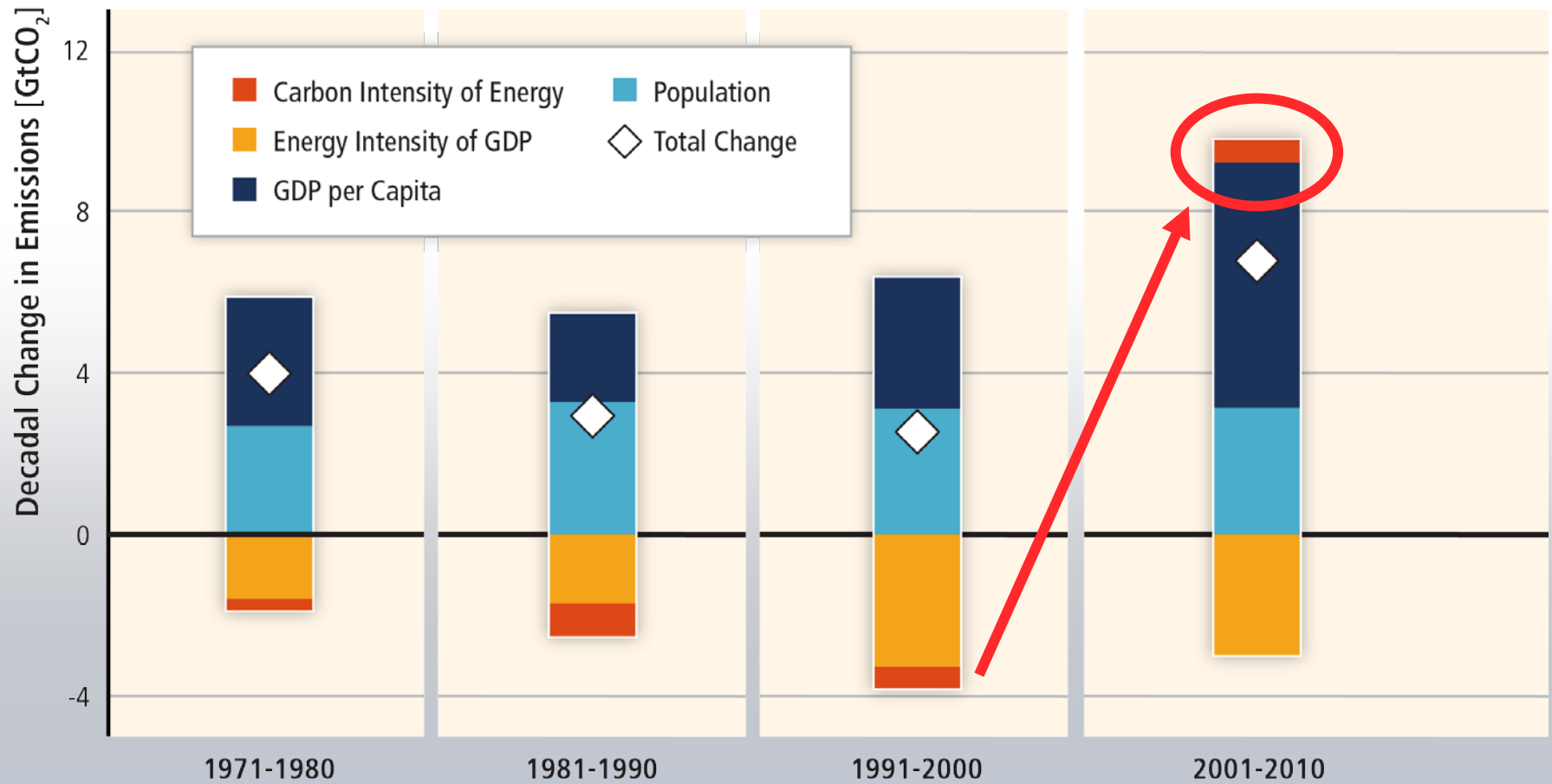
# GHG emissions growth between 2000 and 2010 has been larger than in the previous three decades.



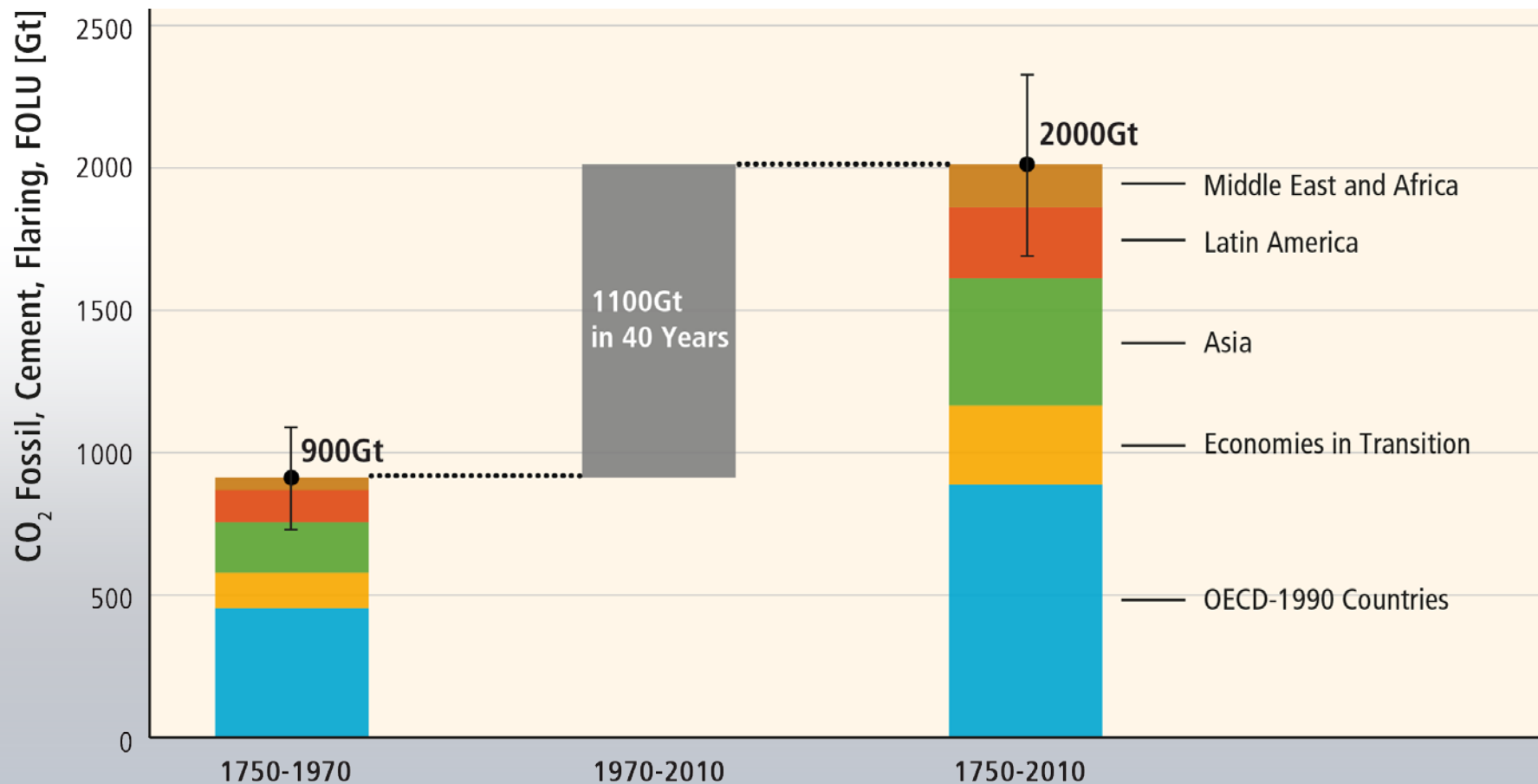
# Most of the recent GHG emissions growth has been driven by growth in economic activity.



# The long-standing trend of gradual decarbonization of energy has reversed recently.



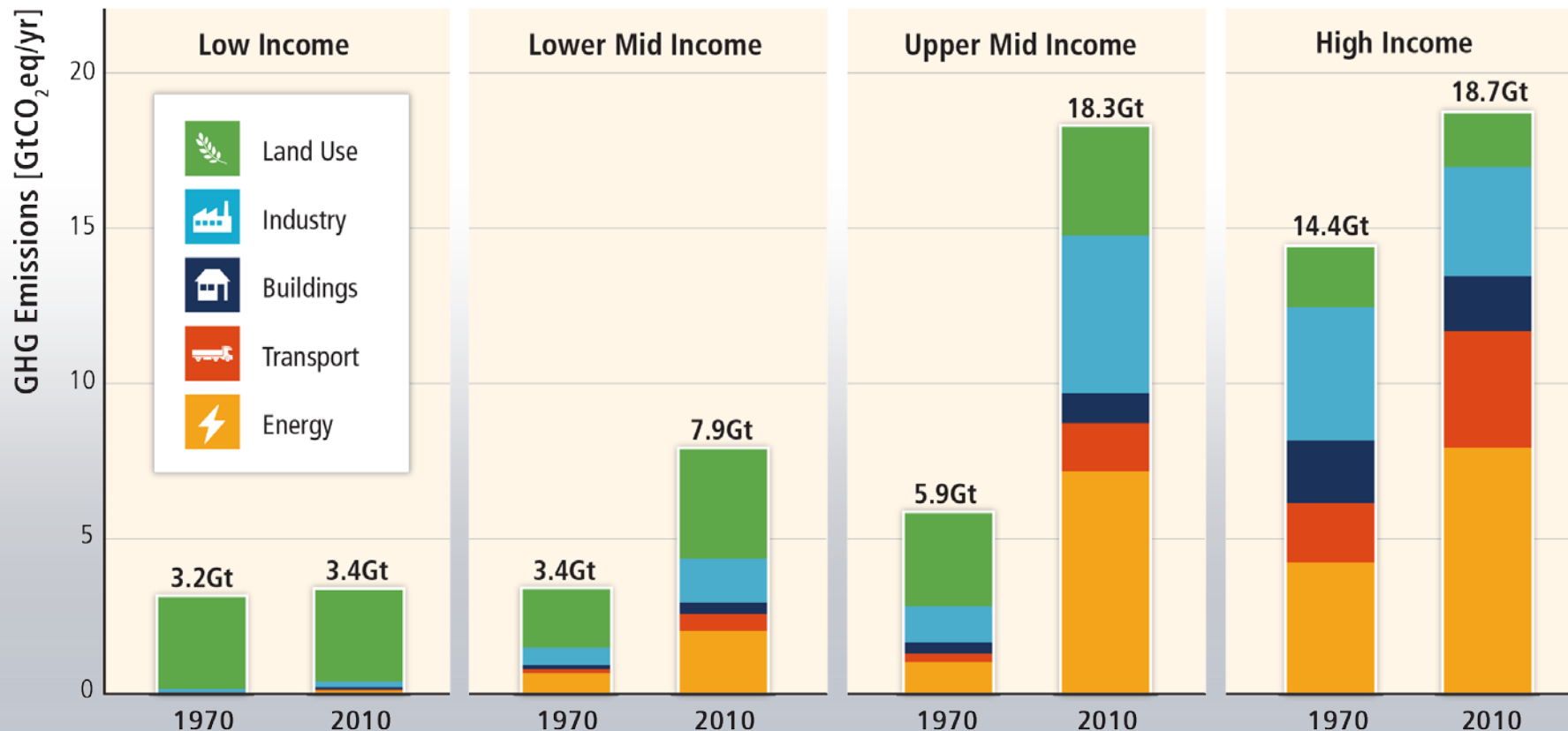
# About half of the cumulative anthropogenic CO<sub>2</sub> emissions between 1750 and 2010 have occurred in the last 40 years.



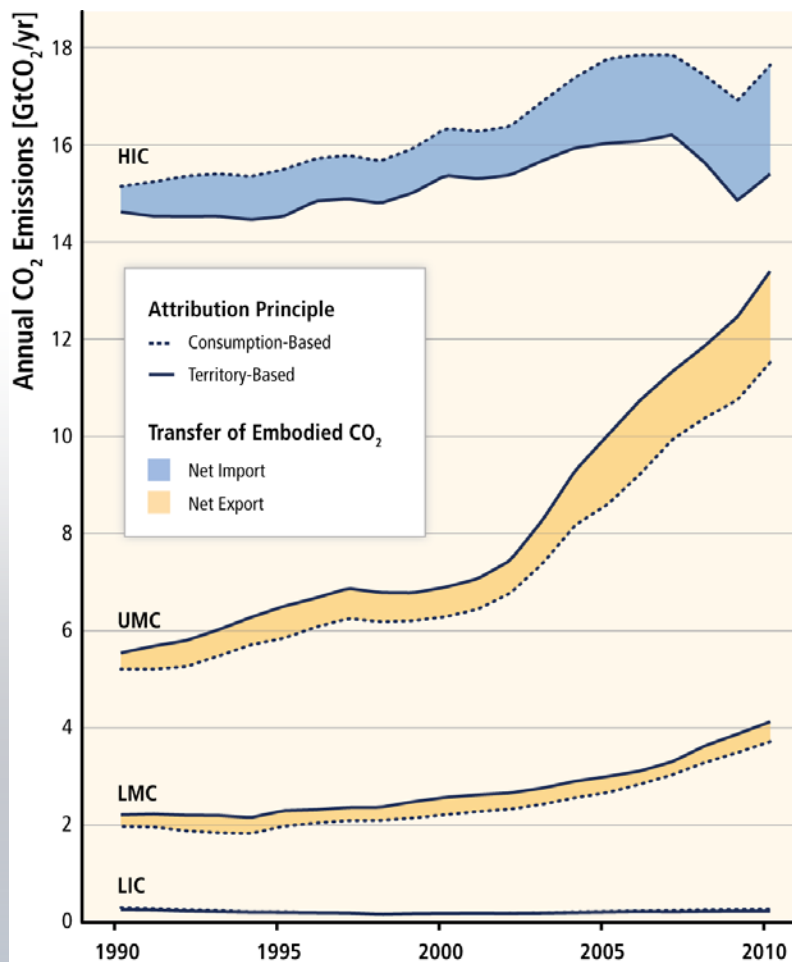


# Regional patterns of GHG emissions are shifting along with changes in the world economy.

## GHG Emissions by Country Group and Economic Sector



A growing share of CO<sub>2</sub> 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 to high income countries.

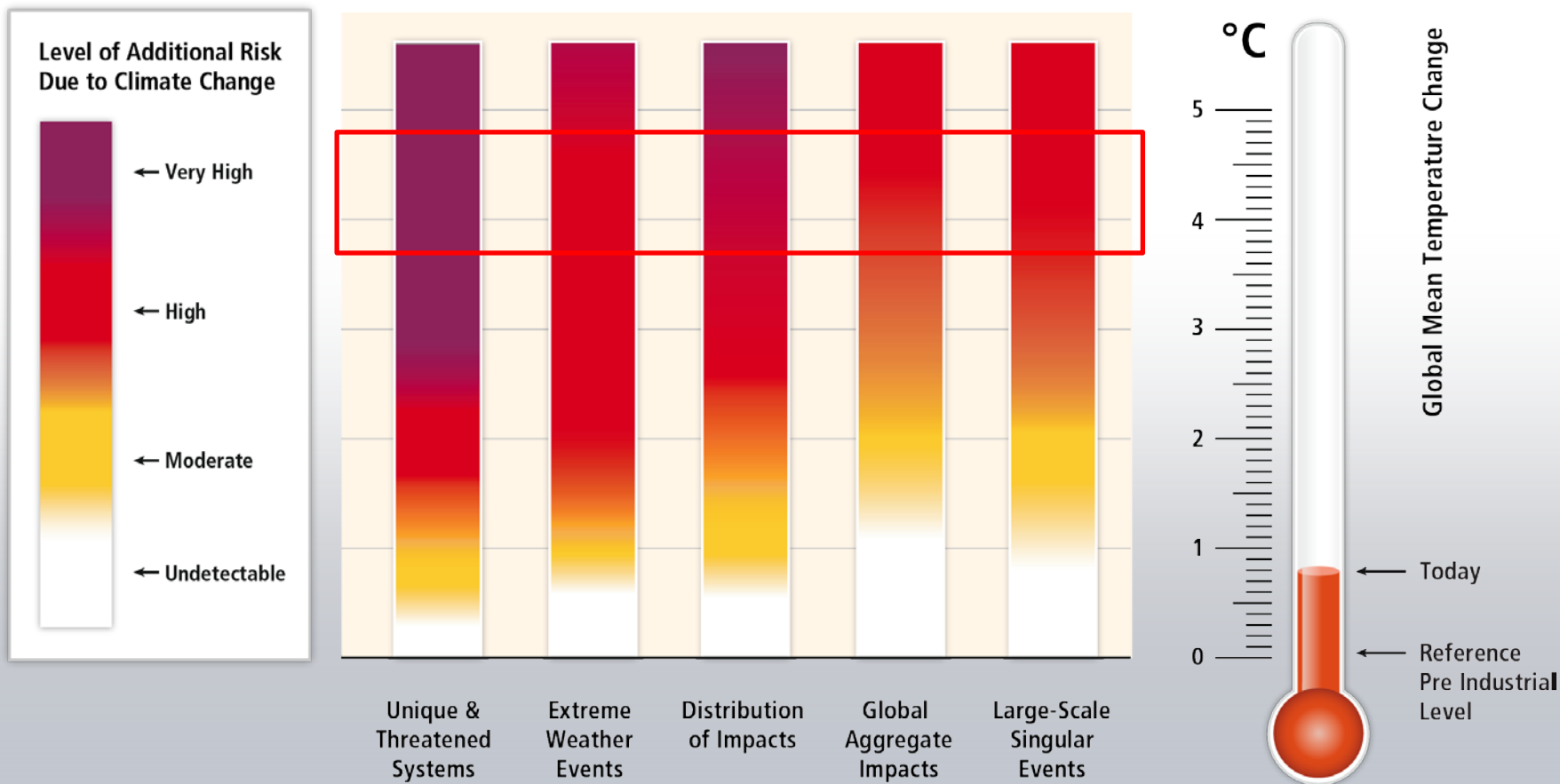


**Limiting warming to 2 C relative to pre-industrial levels involves substantial technological, economic and institutional challenges.**

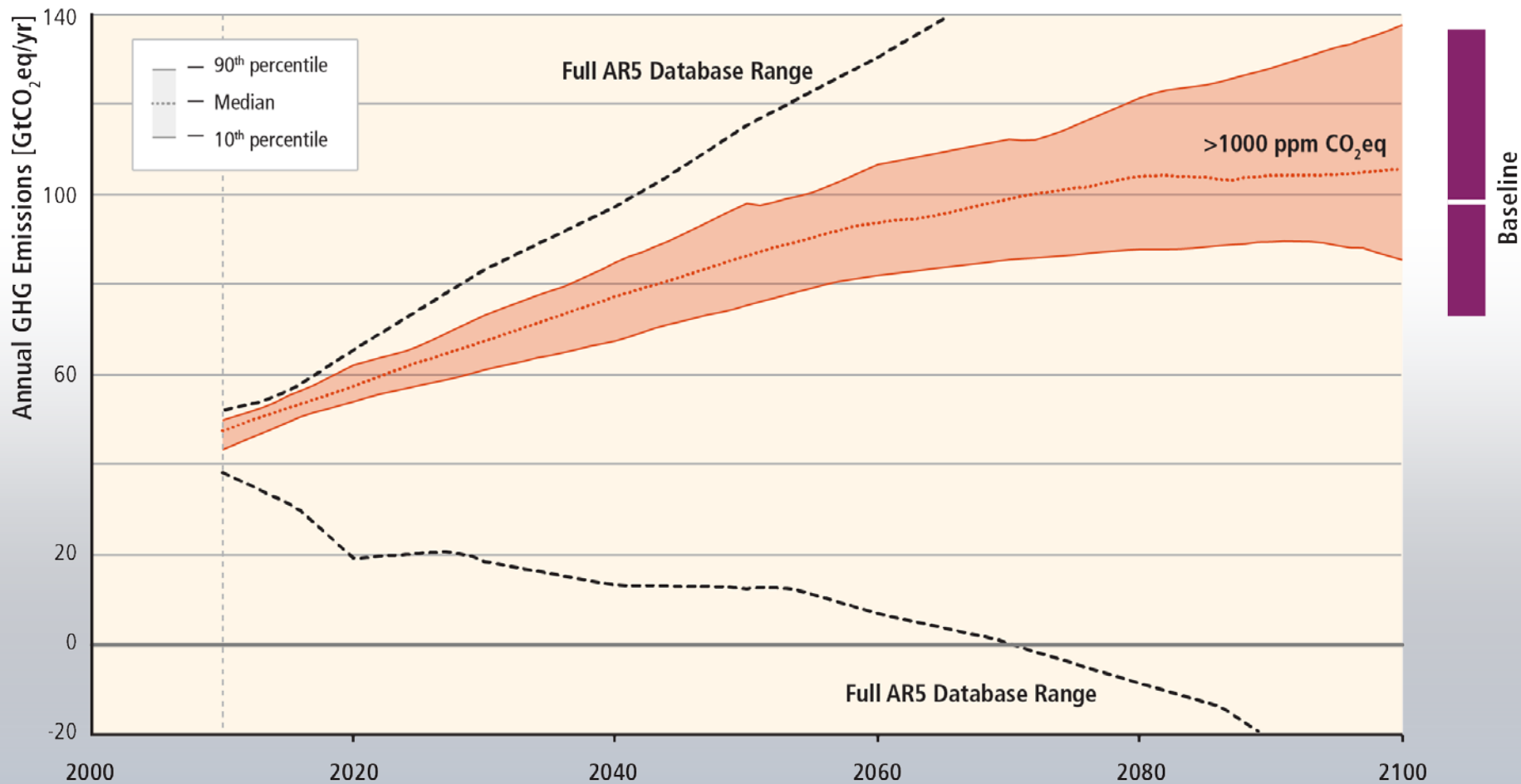




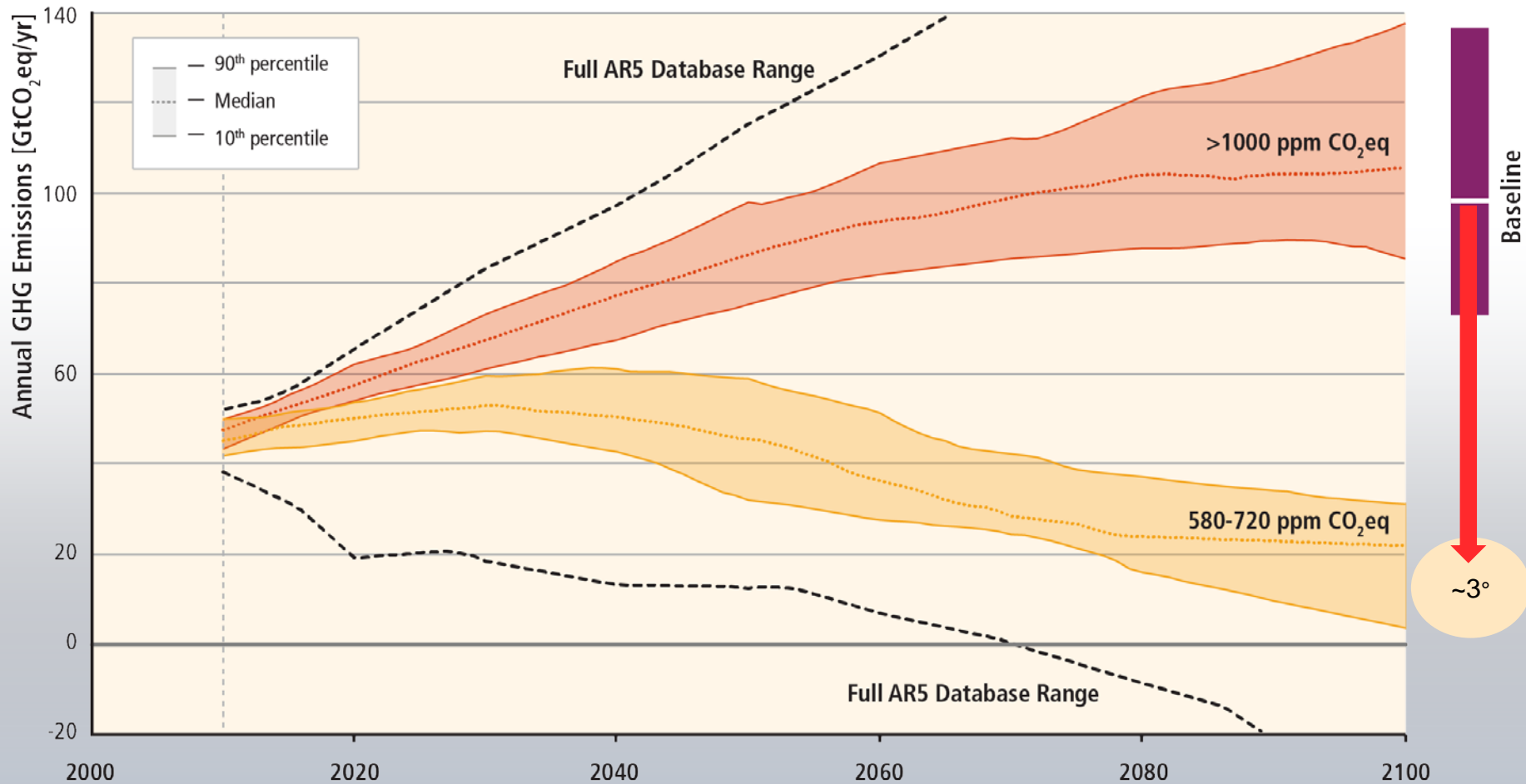
# Without additional mitigation, global mean surface temperature is projected to increase by 3.7 to 4.8°C (2.5 - 7.8°C) until 2100.



# Stabilization of atmospheric GHG concentrations requires moving away from the baseline, regardless of the mitigation goal.

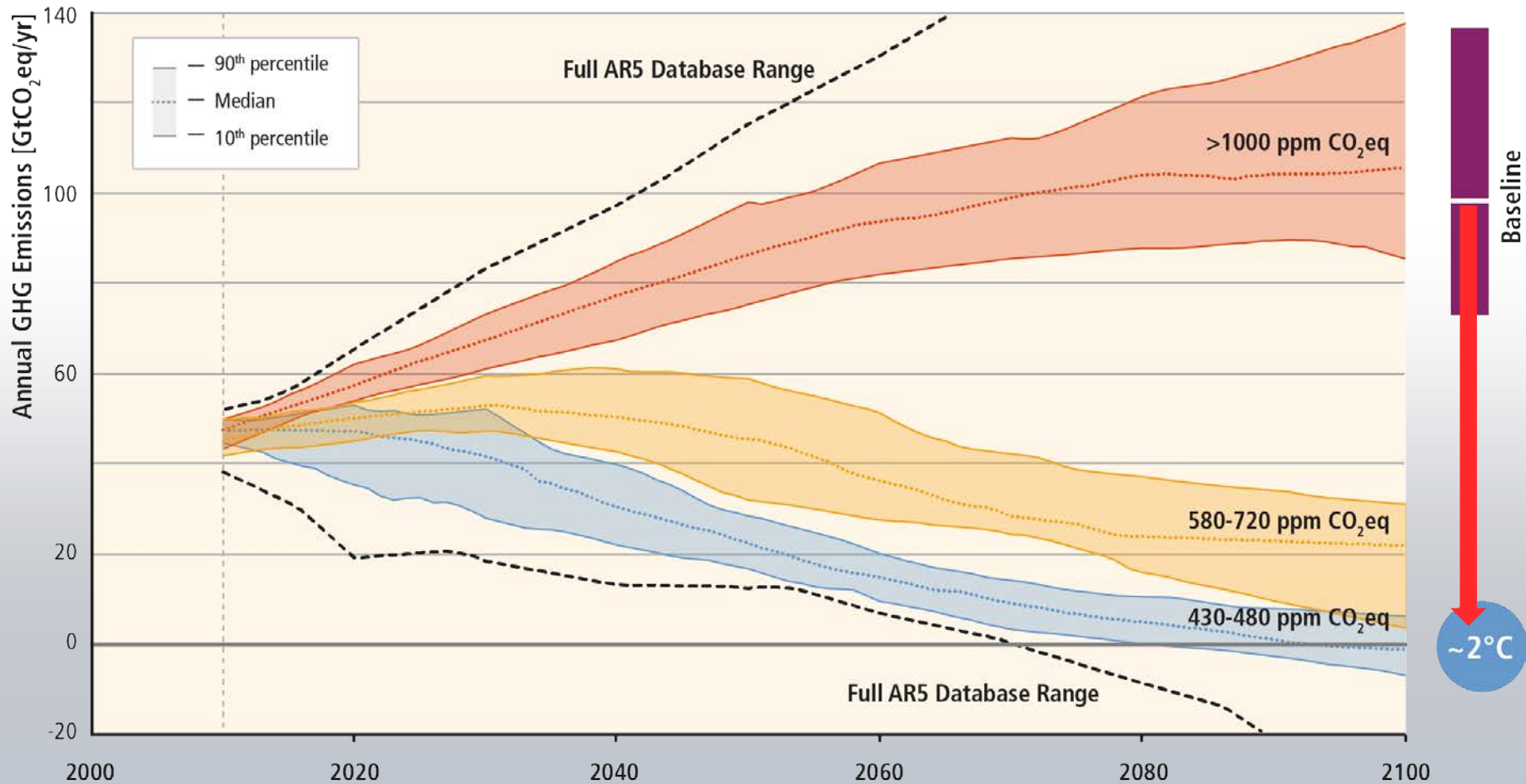


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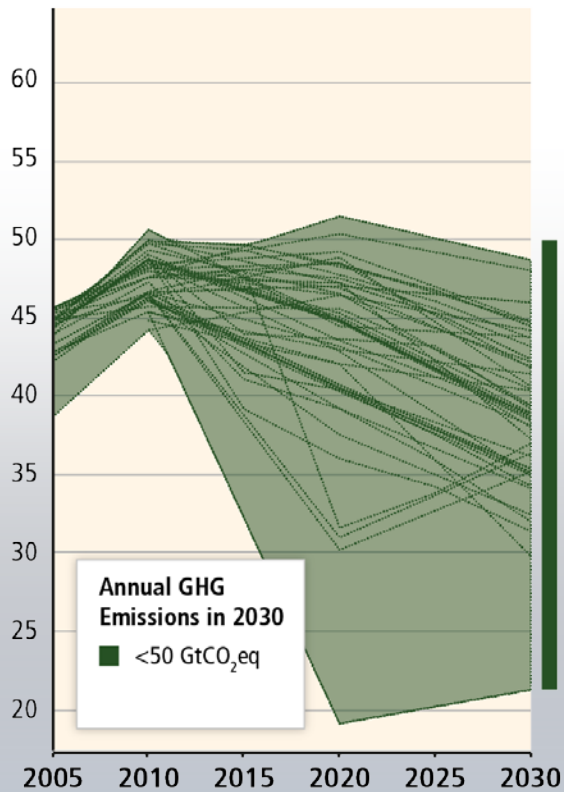
# Stabilization of atmospheric GHG concentrations requires moving away from the baseline, regardless of the mitigation goal.



# Delaying mitigation increases the difficulty and narrows the options for limiting warming to 2°C.

Before 2030

GHG Emissions Pathways [GtCO<sub>2</sub>eq/yr]

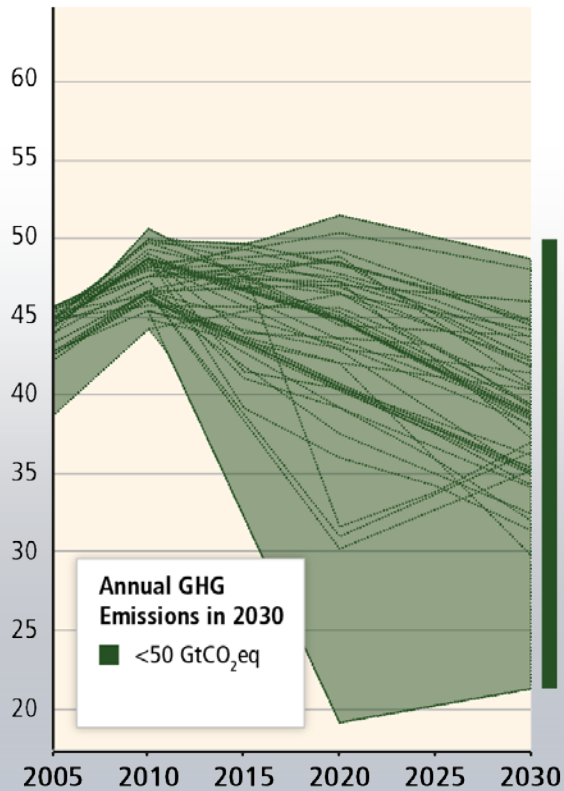


„immediate action“

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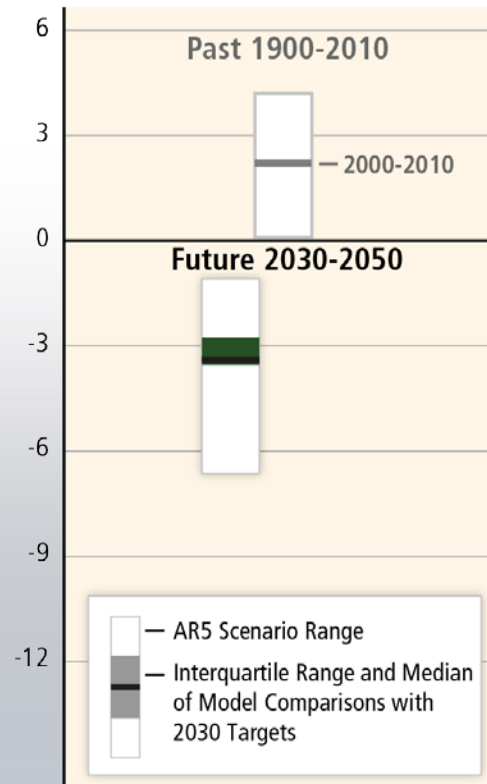
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GHG Emissions Pathways [GtCO<sub>2</sub>eq/yr]



## After 2030

Rate of CO<sub>2</sub> Emission Change [%/yr]

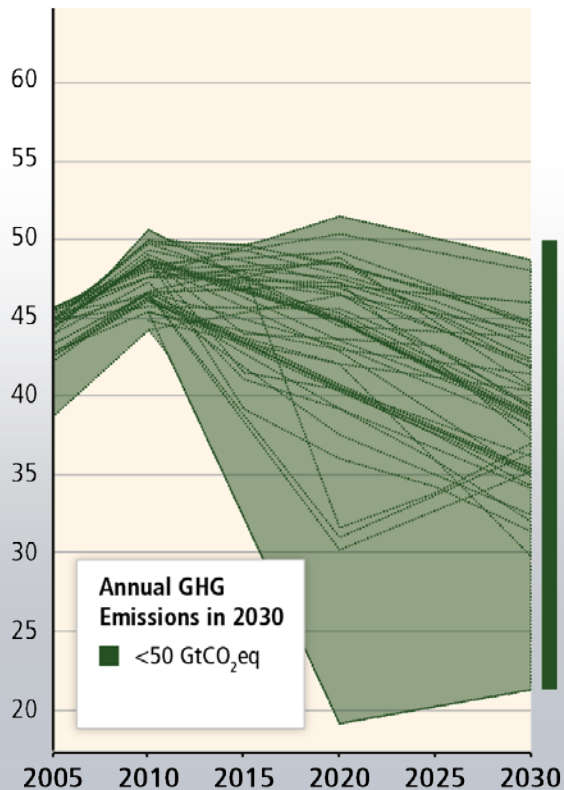




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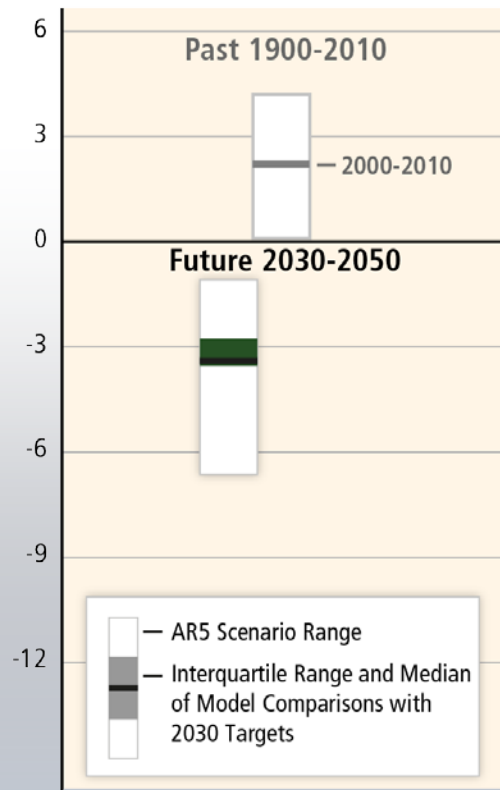
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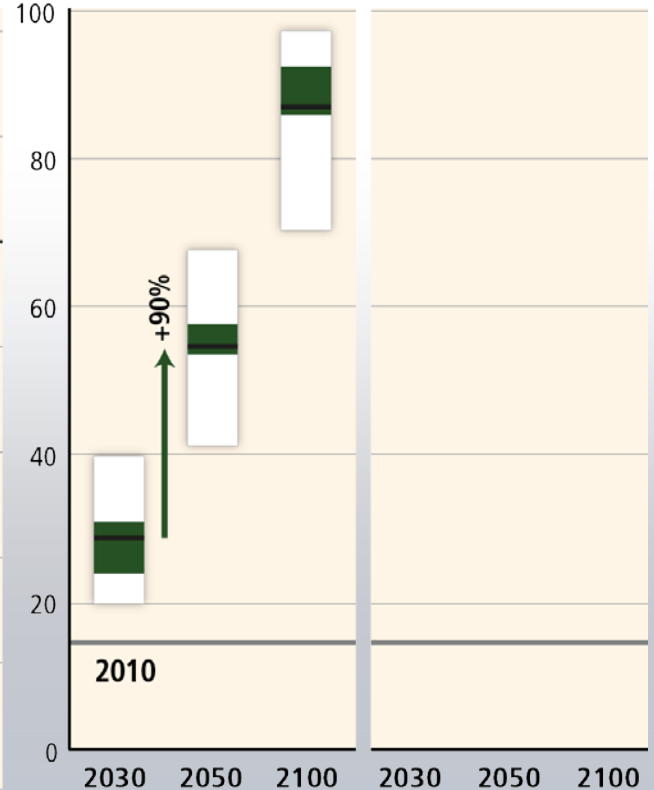


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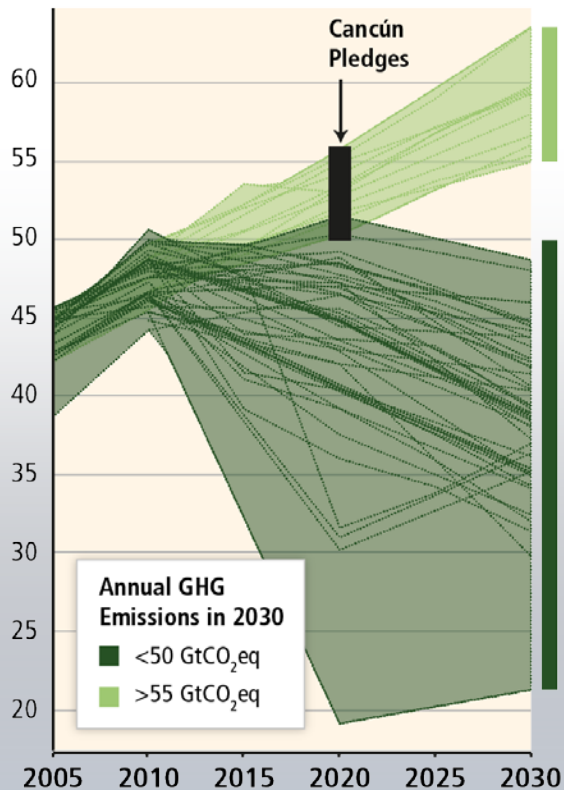
Share of Low Carbon Energy [%]



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Before 2030

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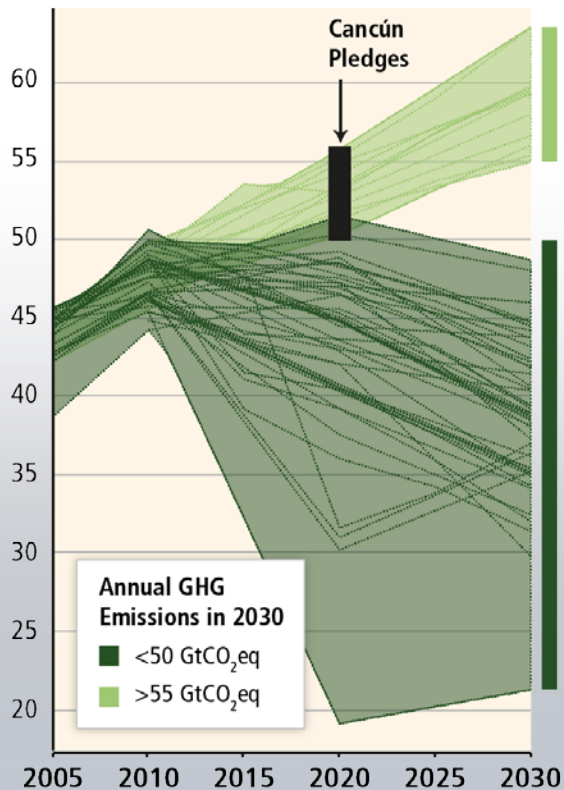
„delayed mitigation“

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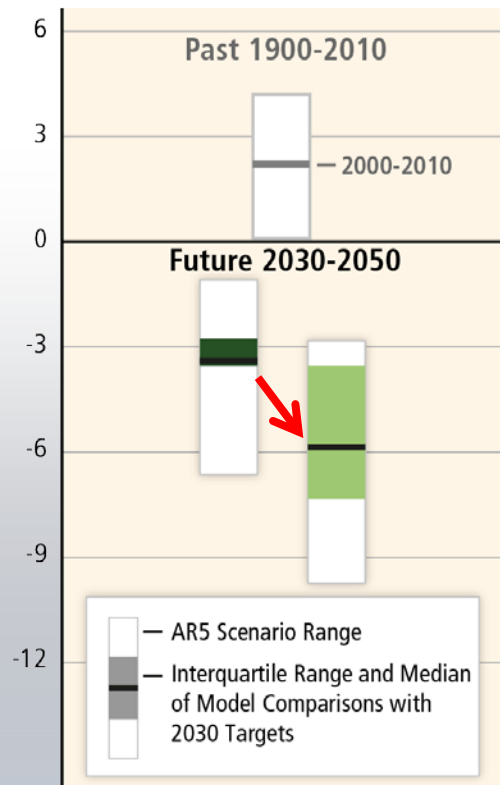
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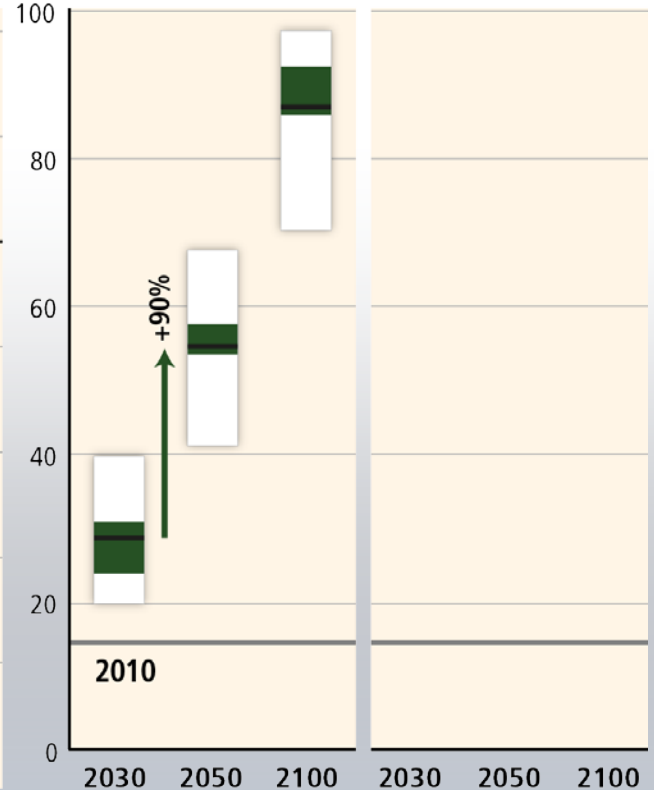


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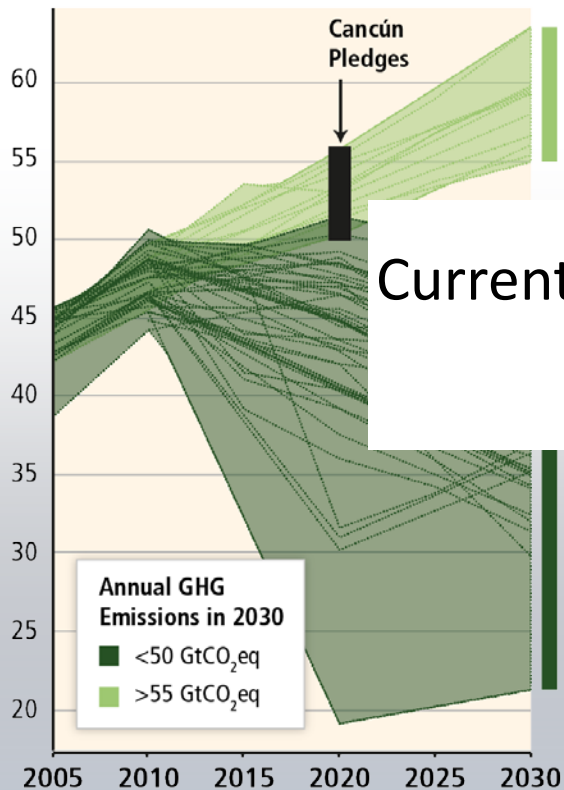
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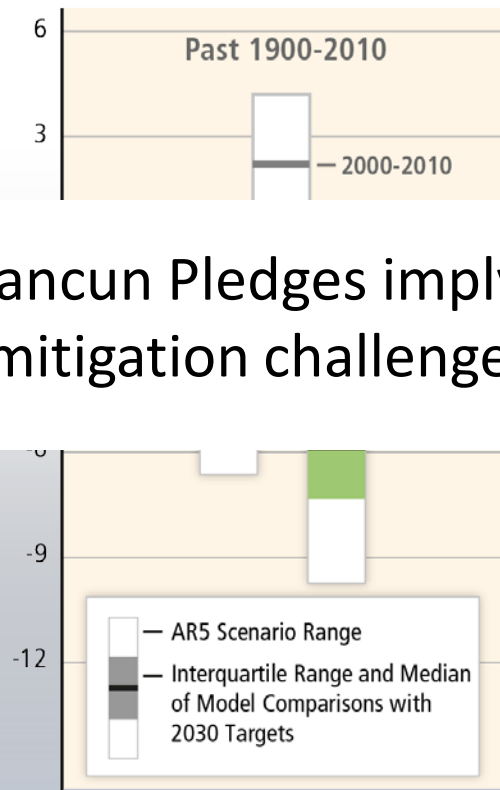
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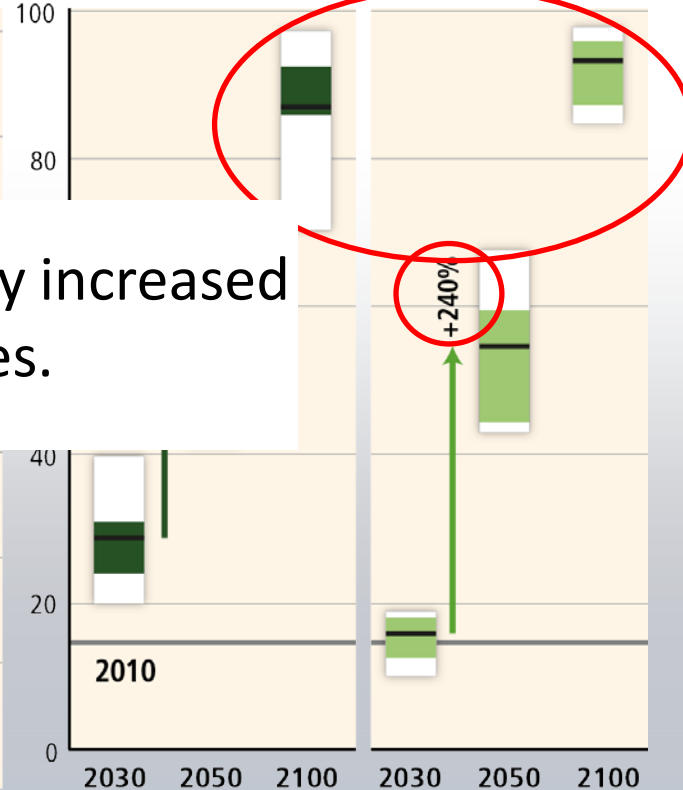


## After 2030

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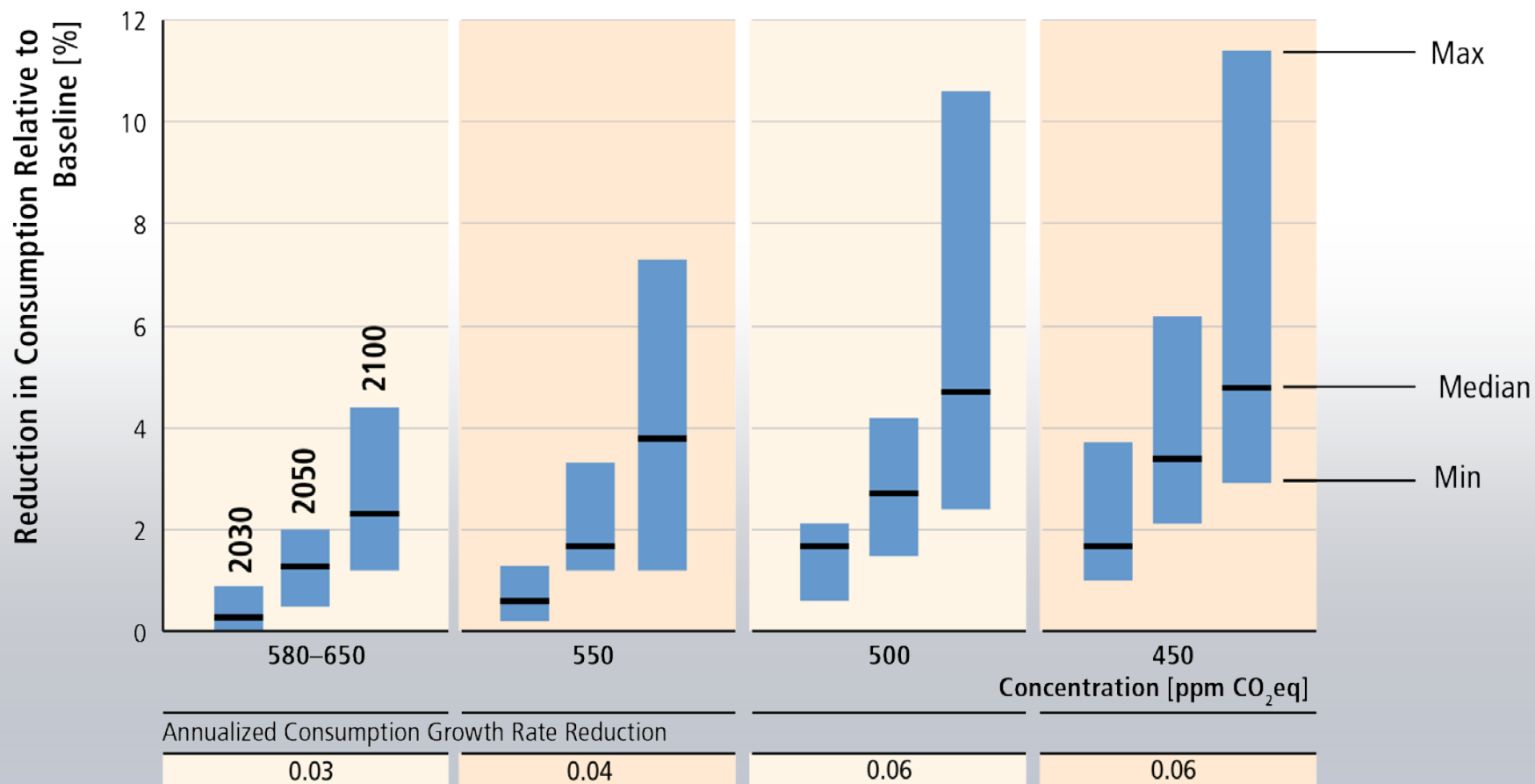
Current Cancun Pledges imply increased mitigation challenges.



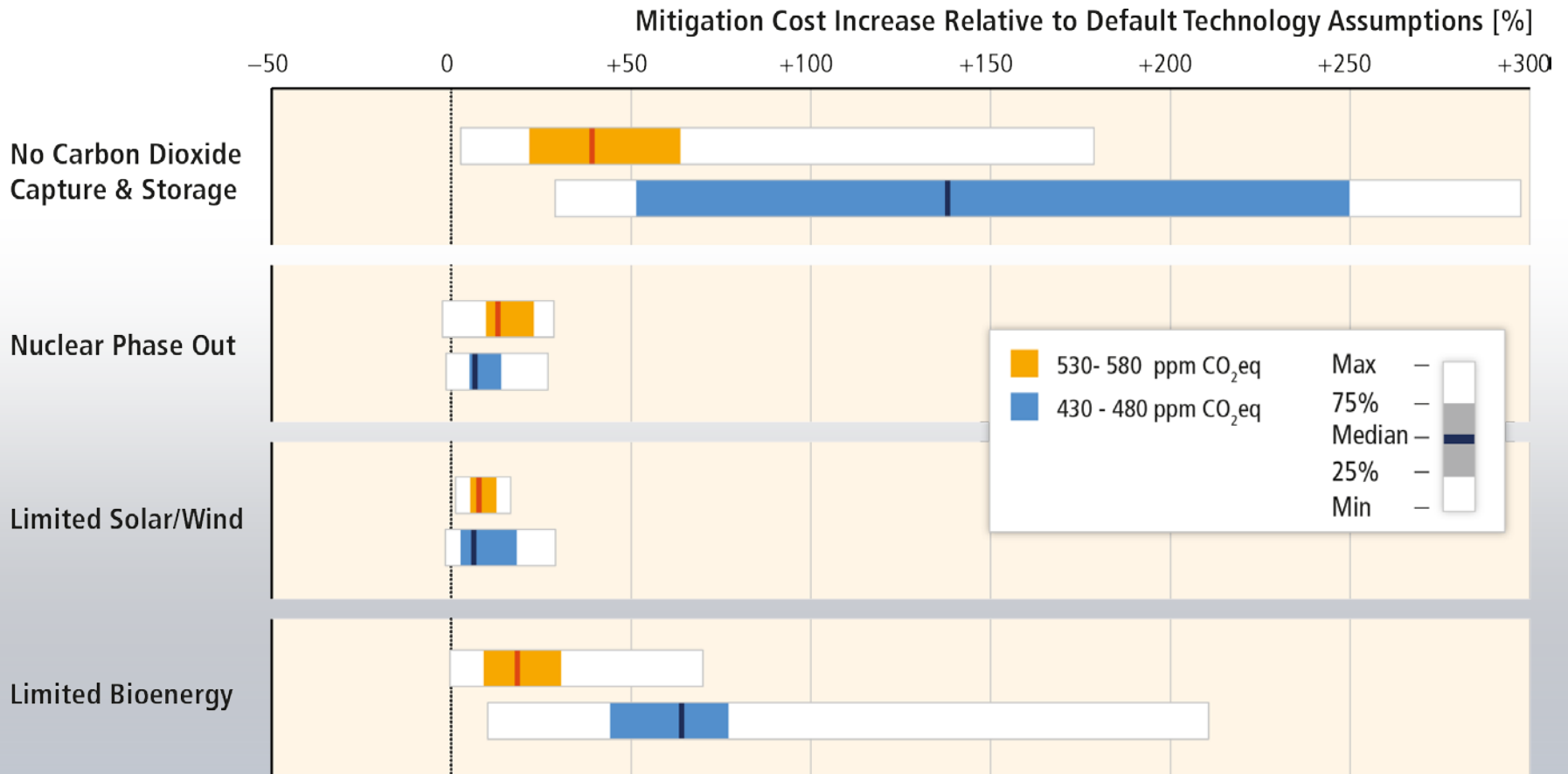
**Mitigation cost estimates vary, but global GDP growth is not strongly affected.**



# Global costs rise with the ambition of the mitigation goal.



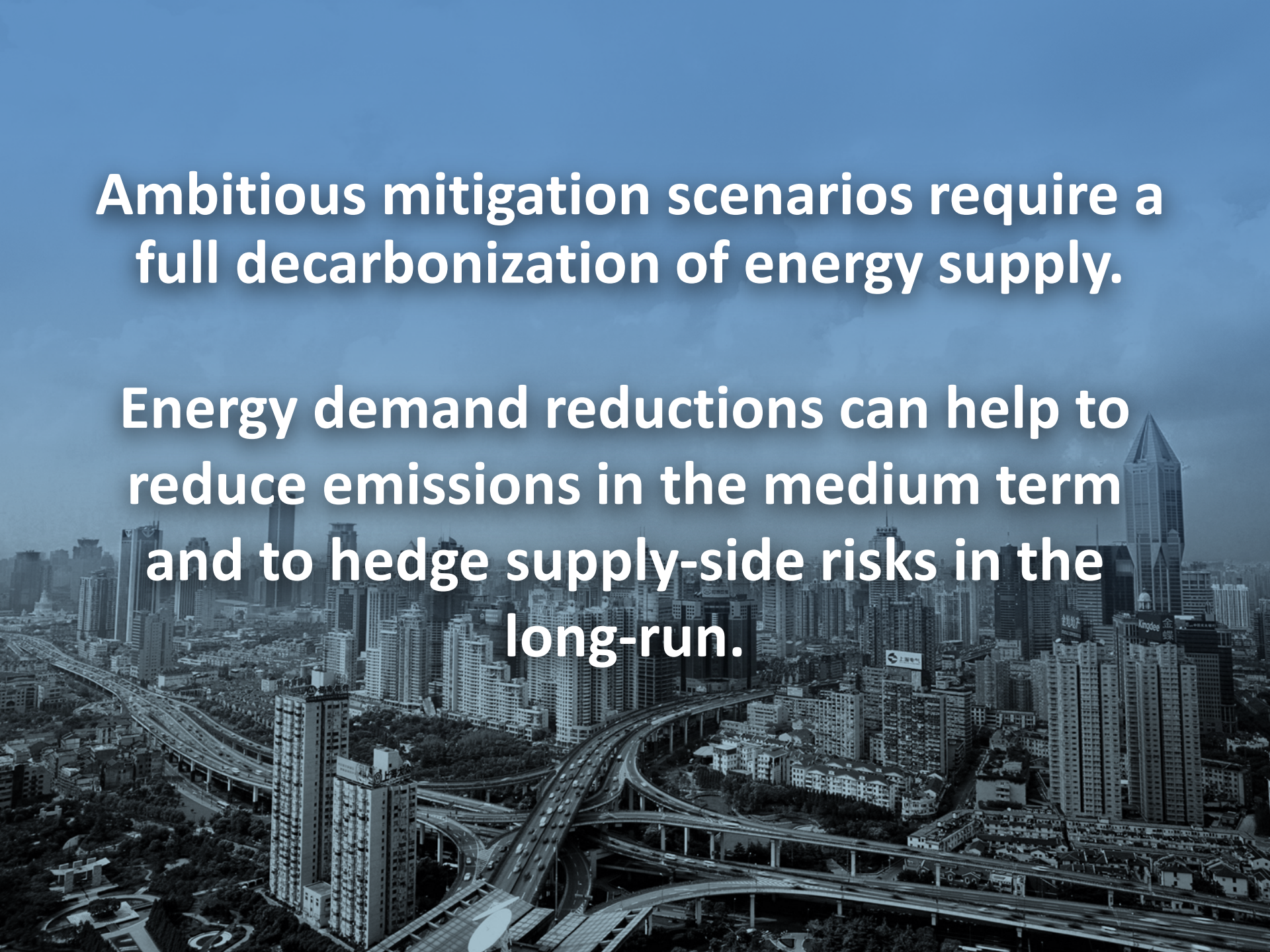
# Limited availability of technologies can greatly increase mitigation costs.





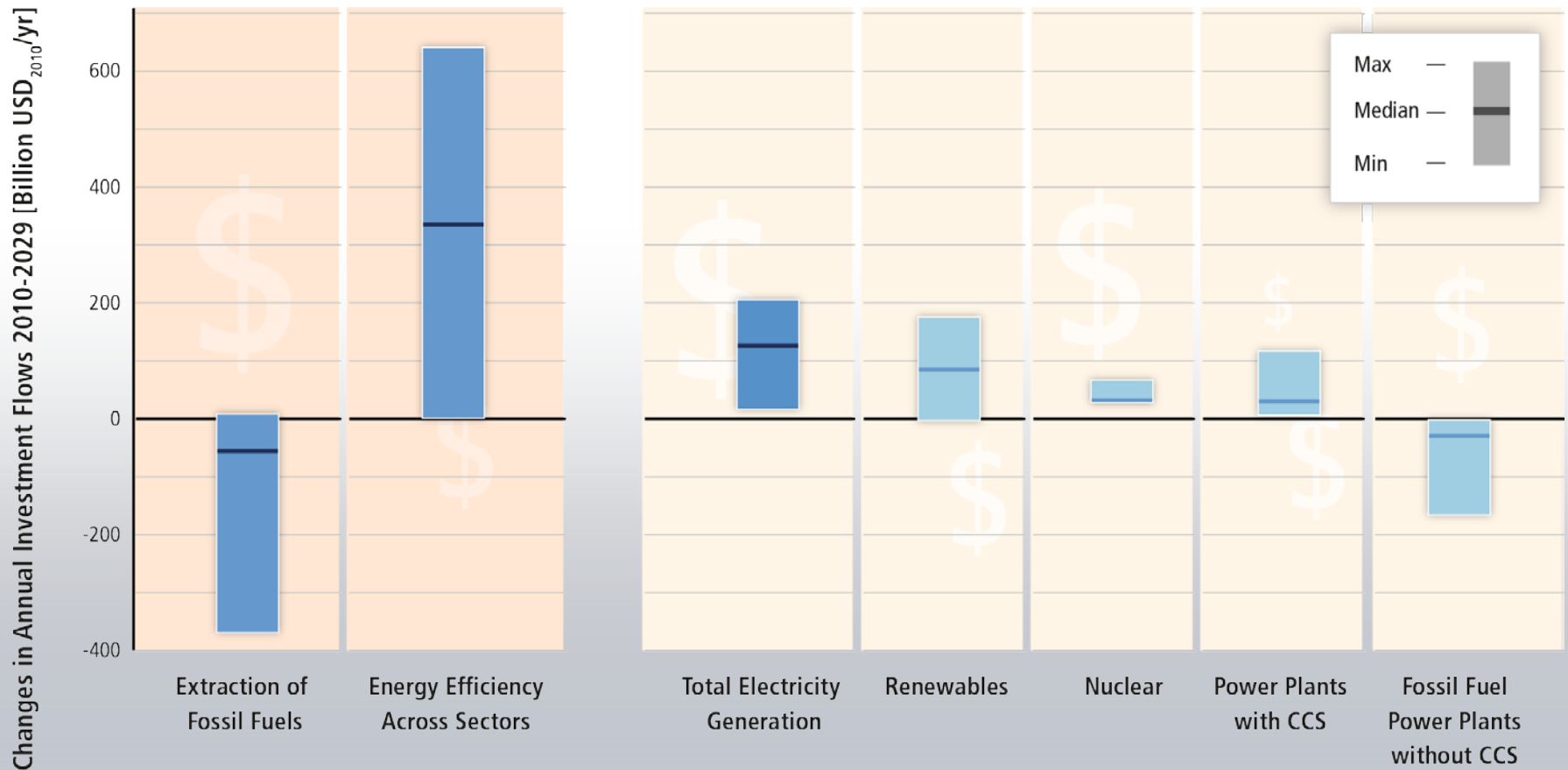
**Ambitious mitigation scenarios require a full decarbonization of energy supply.**

**Energy demand reductions can help to reduce emissions in the medium term and to hedge supply-side risks in the long-run.**





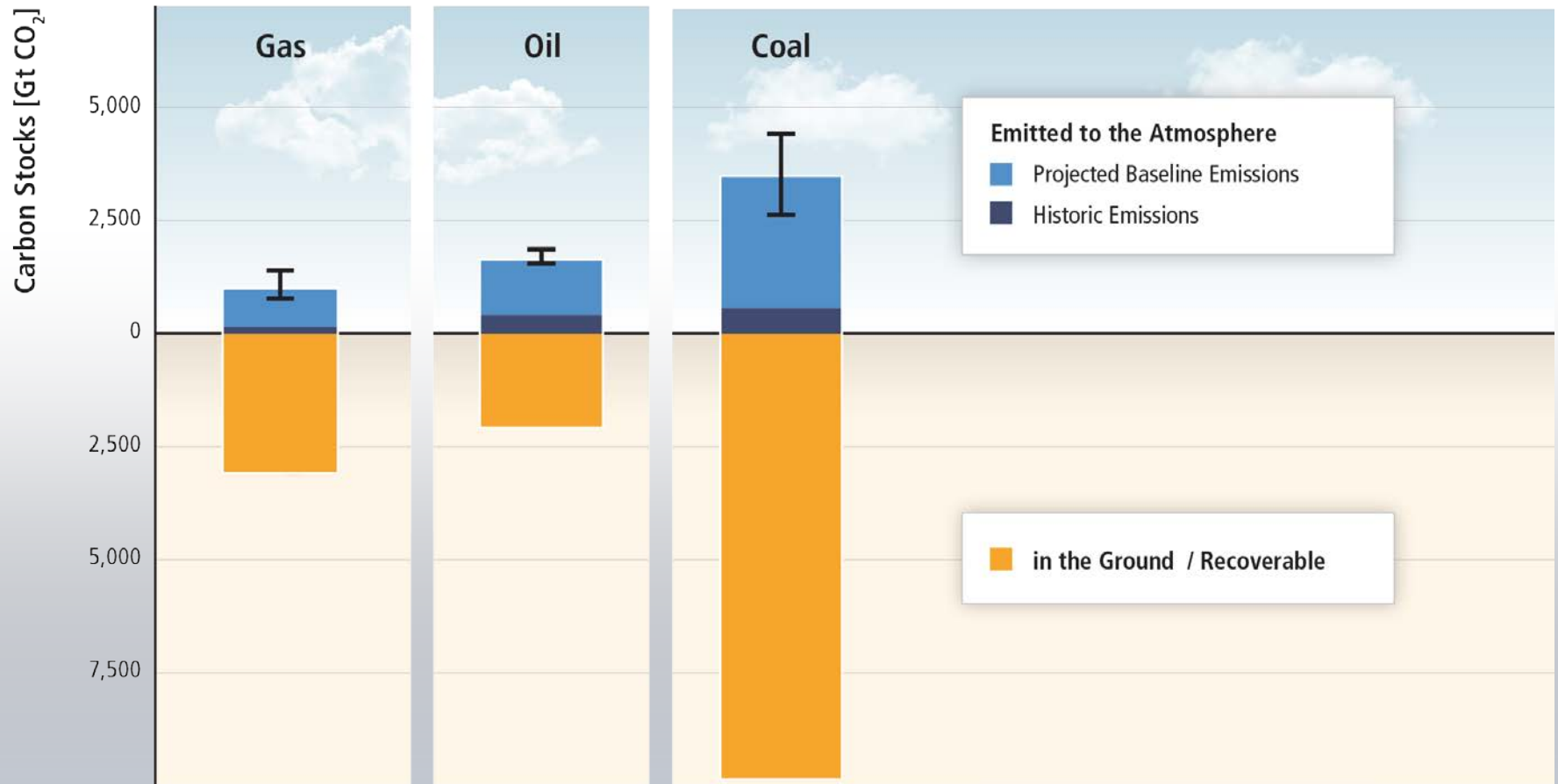
# Substantial reductions in emissions would require substantial changes in investment patterns.



**Climate change mitigation is a global commons problem that requires international cooperation and coordination across scales.**

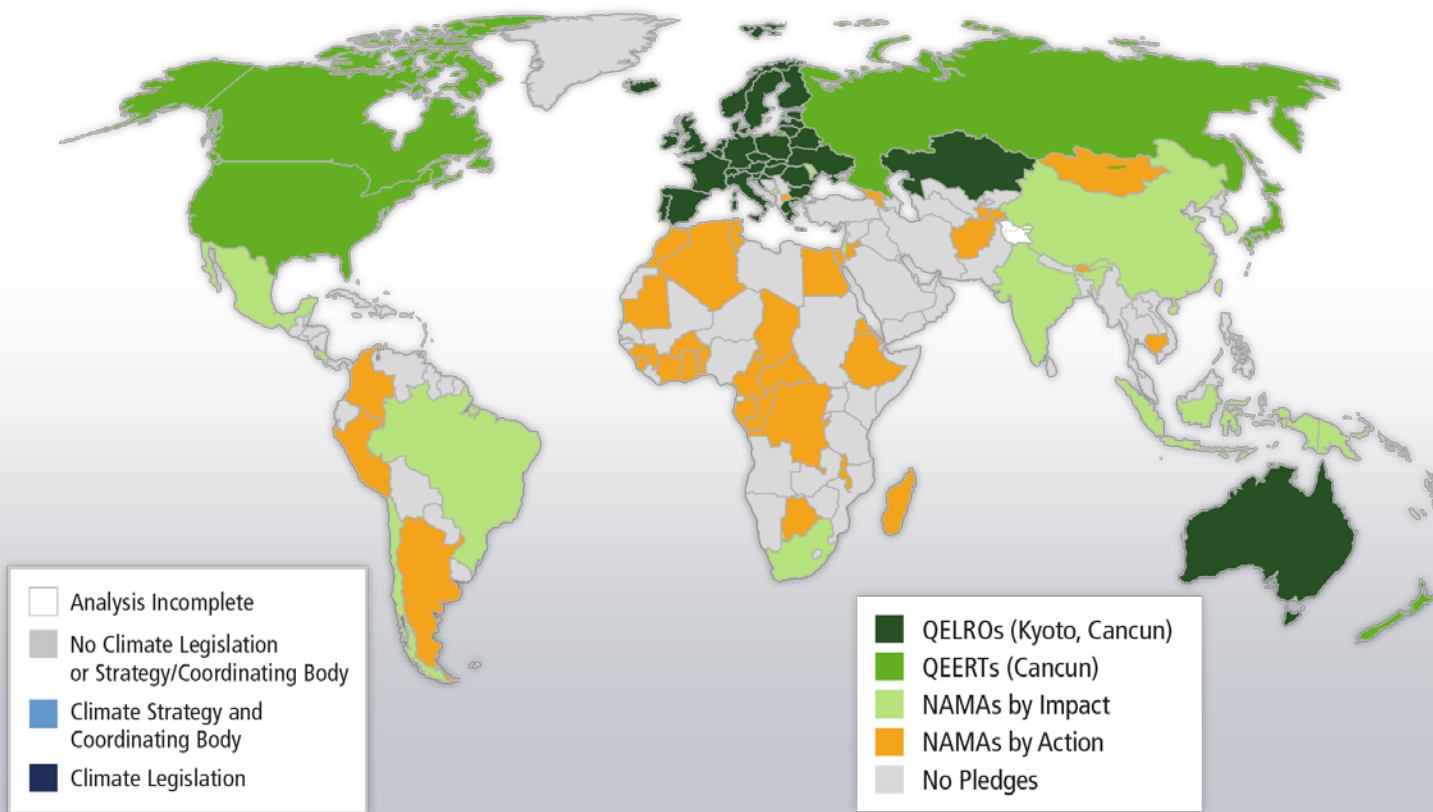
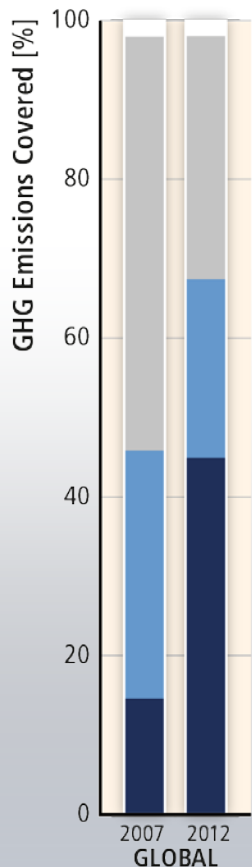


# There is far more carbon in the ground than emitted in any baseline scenario.



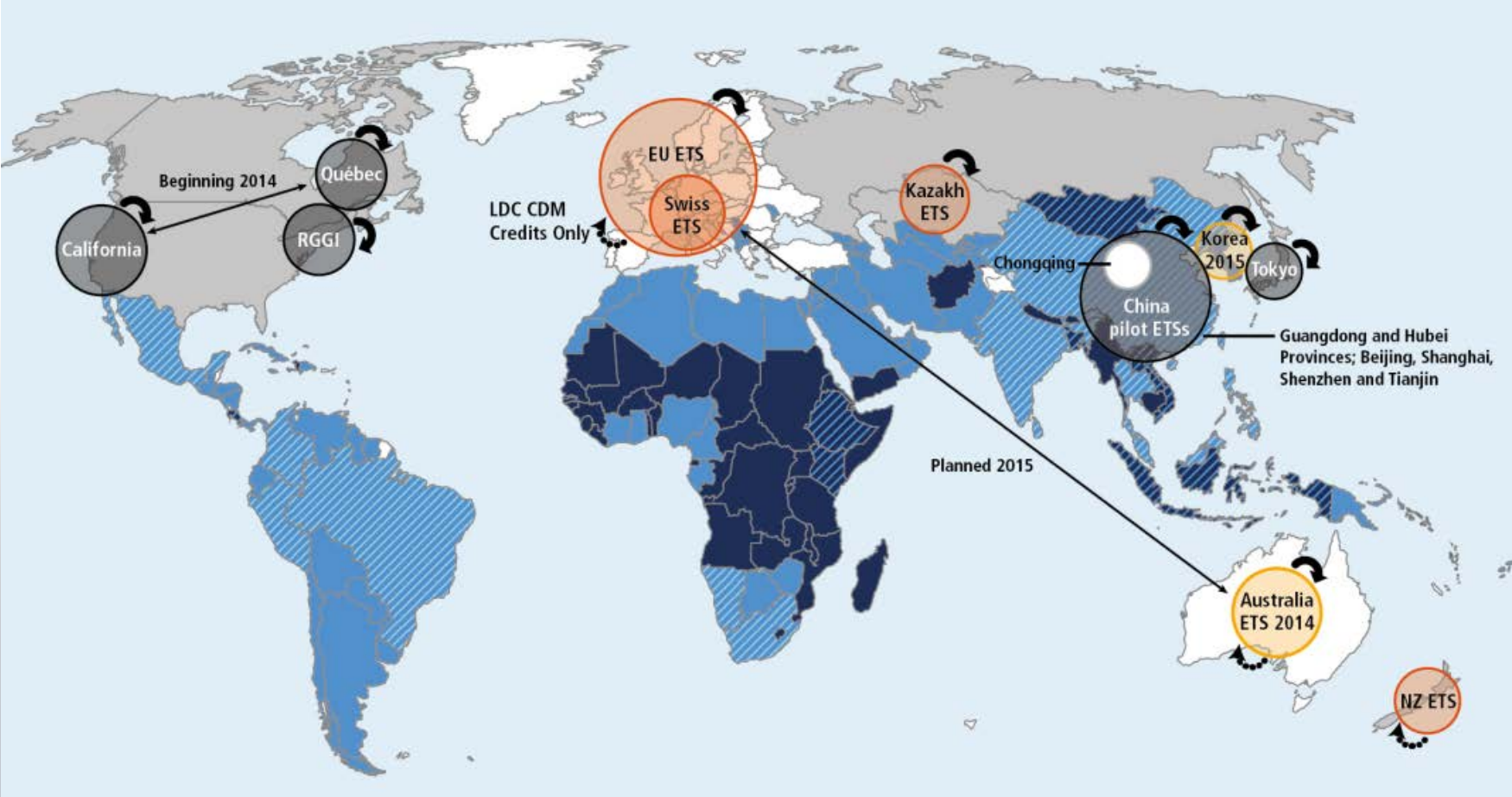


# The number of climate change policies at the national and international level is growing. So far, these policies have not influenced the emission trend significantly.

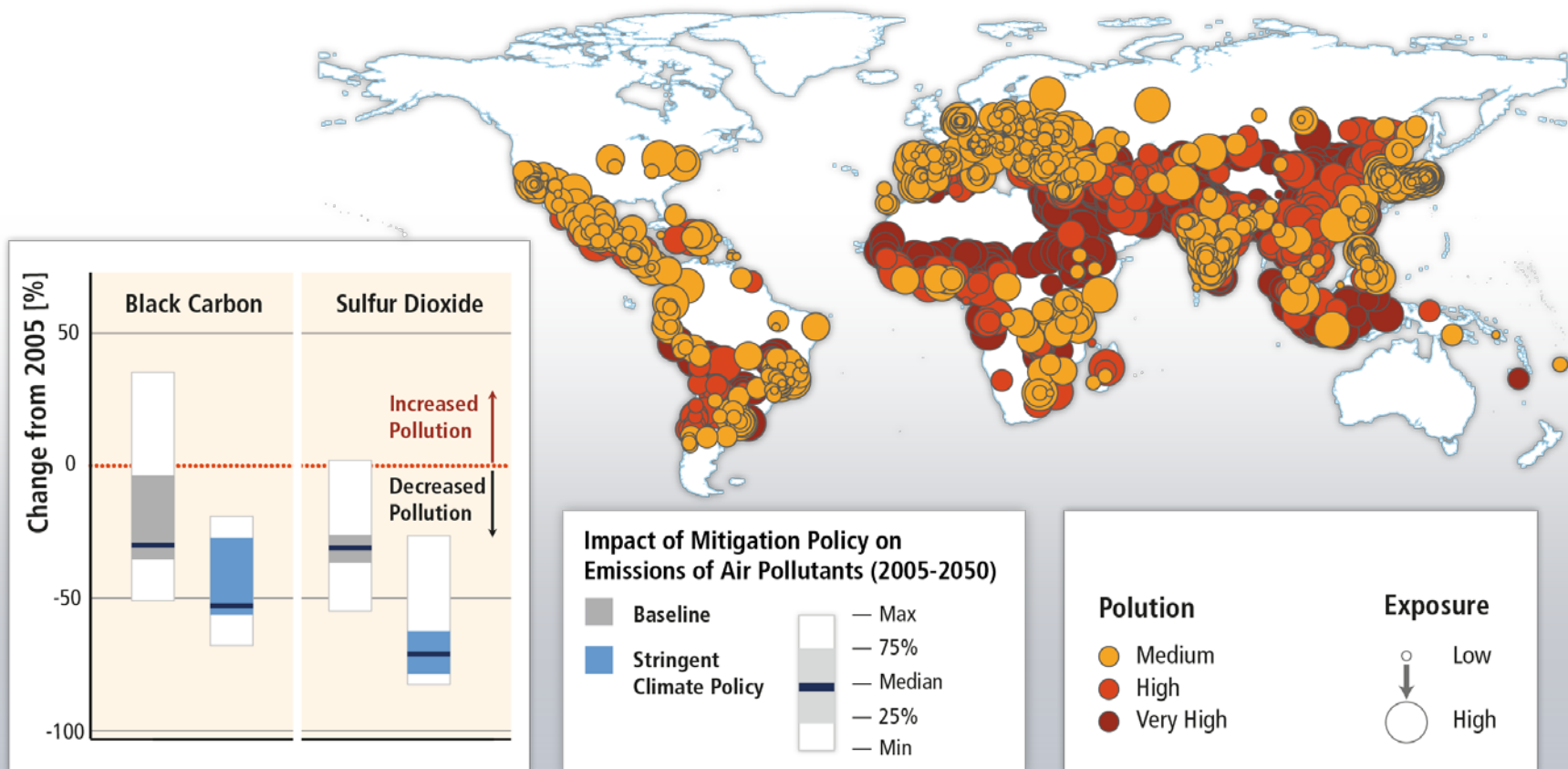




# Regions are starting to cooperate.



# Mitigation can result in large co-benefits for human health and other societal goals.



## Some final thoughts beyond IPCC

- After all, carbon pricing is a good idea: Taxing bads instead of goods.
- Finance ministers might be interested in carbon pricing even if they doubt scientific evidence of climate change.
- Infrastructure investments can create short-term benefits.



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[www.mitigation2014.org](http://www.mitigation2014.org)