

CLIMATE CHANGE 2014

Mitigation of Climate Change



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IPCC WGIII Vice Chair

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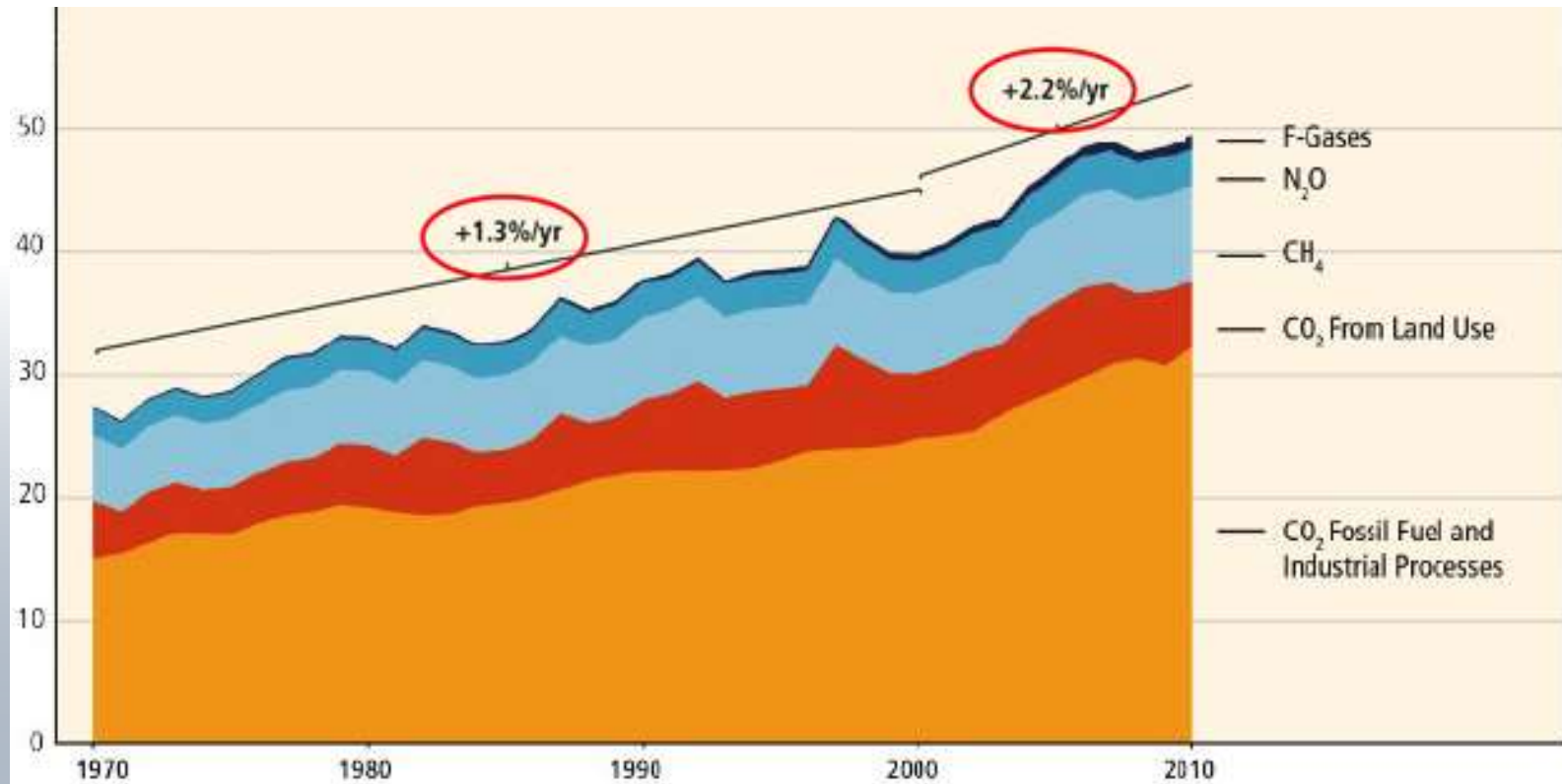
IPCC AR5 Key Messages

- **Human influence on the climate system is clear**
- **The more we disrupt our climate, the more we risk severe, pervasive and irreversible impacts**
- **We have the means to limit climate change and build a more prosperous, sustainable future**

AR5 WGI SPM, AR5 WGII SPM, AR5 WGIII SPM

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

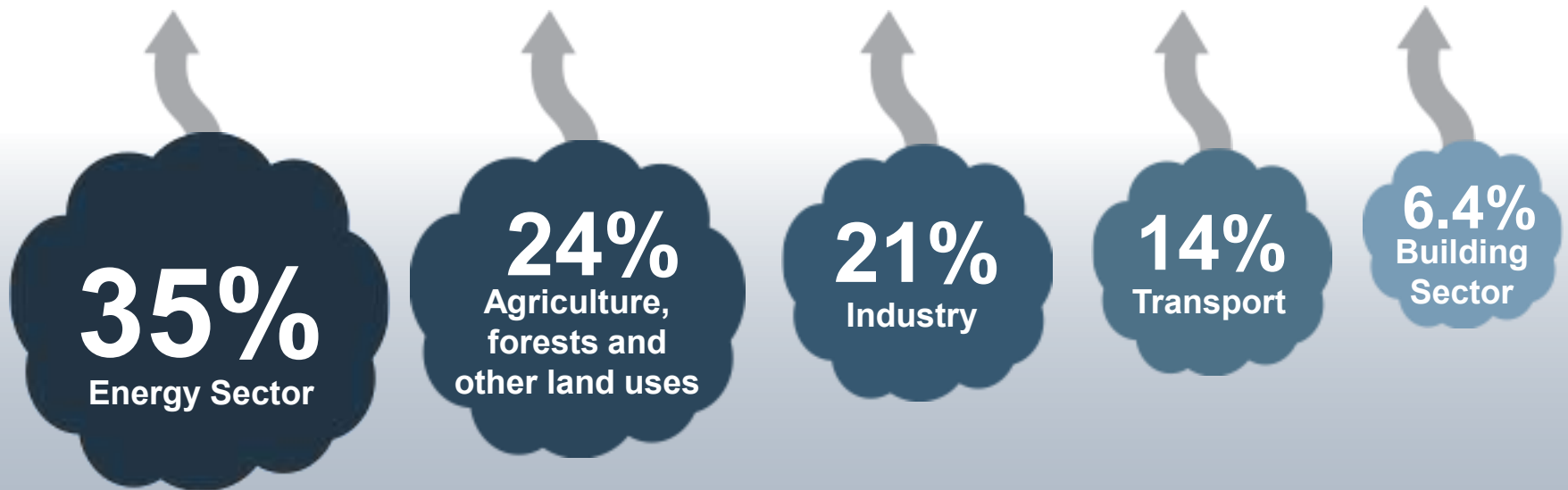
GHG Emissions [GtCO₂ eq/yr]



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Sources of emissions

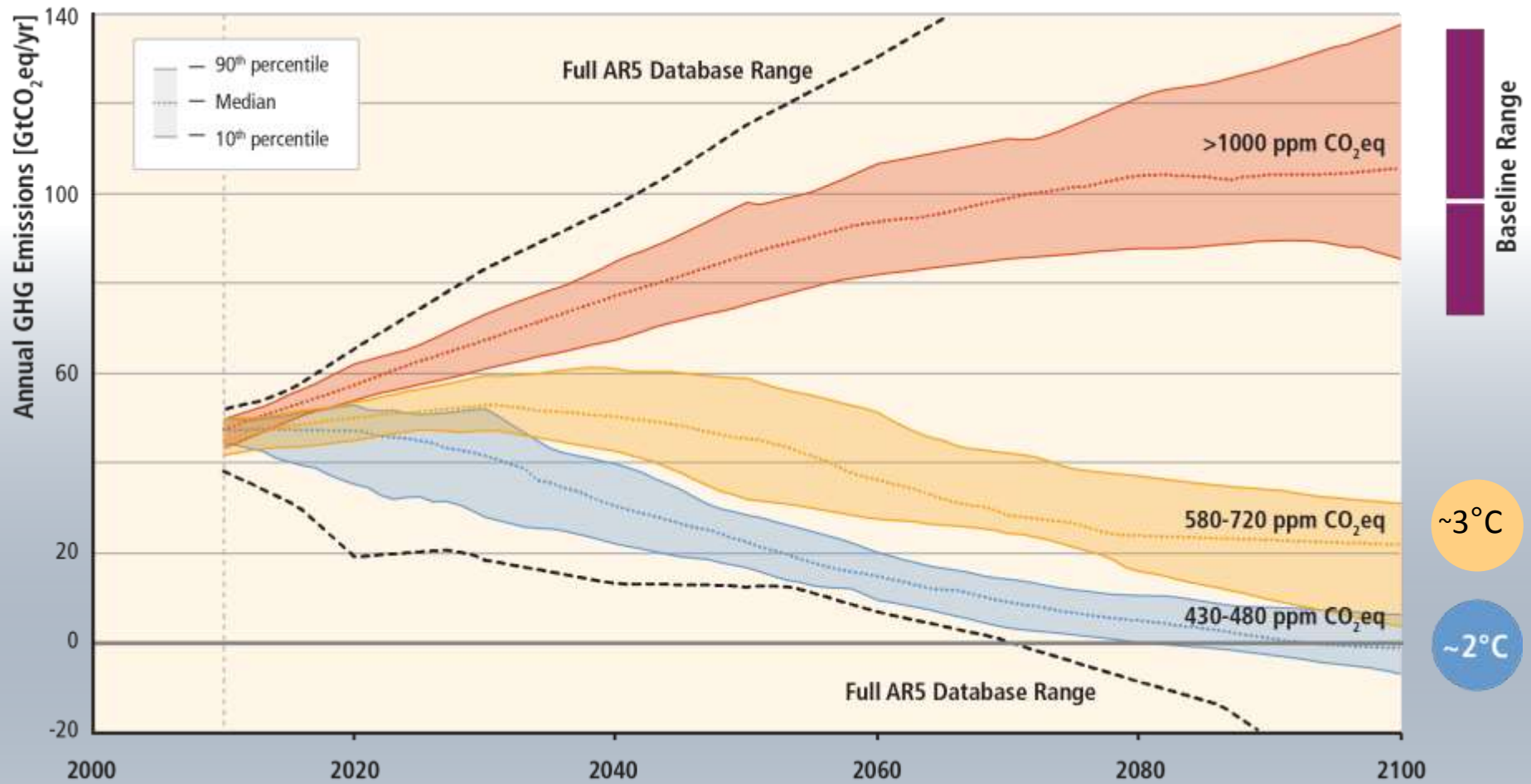
Energy production remains the primary driver of GHG emissions



2010 GHG emissions

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Stabilization of atmospheric concentrations requires moving away from the baseline – regardless of the mitigation goal



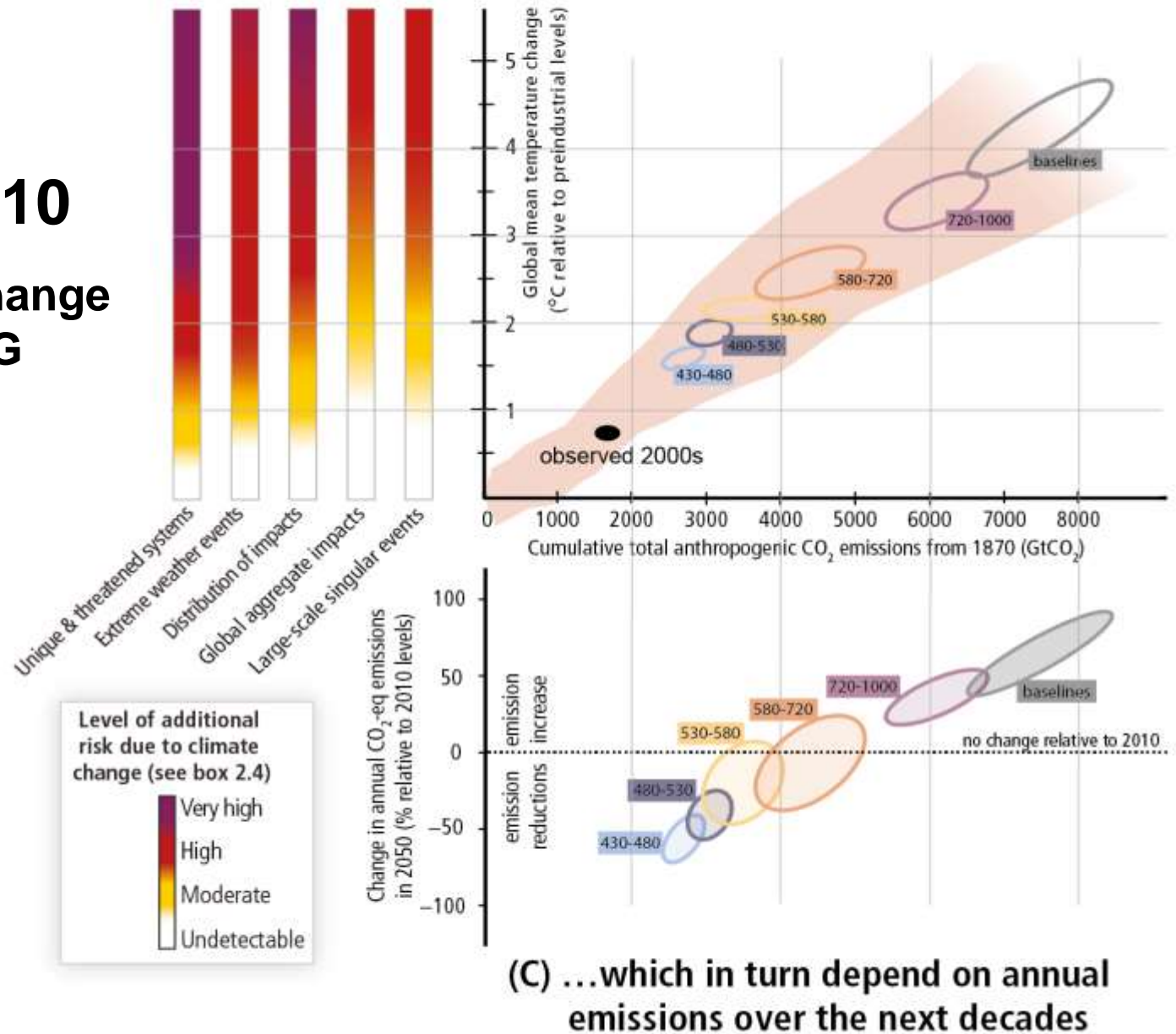
Based on Figure 6.7

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(A) Risks from climate change... (B) ...depend on cumulative CO₂ emissions...

Figure SYR SPM.10

From climate change risks to GHG emissions



Limiting Temperature Increase to 2°C



Measures exist to achieve the substantial emissions reductions required to limit likely warming to 2°C (40-70% reduction in GHGs globally by 2050 and near zero GHGs in 2100)



A combination of adaptation and substantial, sustained reductions in greenhouse gas emissions can limit climate change risks



Implementing reductions in greenhouse gas emissions poses substantial technological, economic, social, and institutional challenges



But delaying mitigation will substantially increase the challenges associated with limiting warming to 2°C

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Mitigation Measures



More efficient use of energy



Greater use of low-carbon and no-carbon energy

- Many of these technologies exist today



Improved carbon sinks

- Reduced deforestation and improved forest management and planting of new forests
- Bio-energy with carbon capture and storage

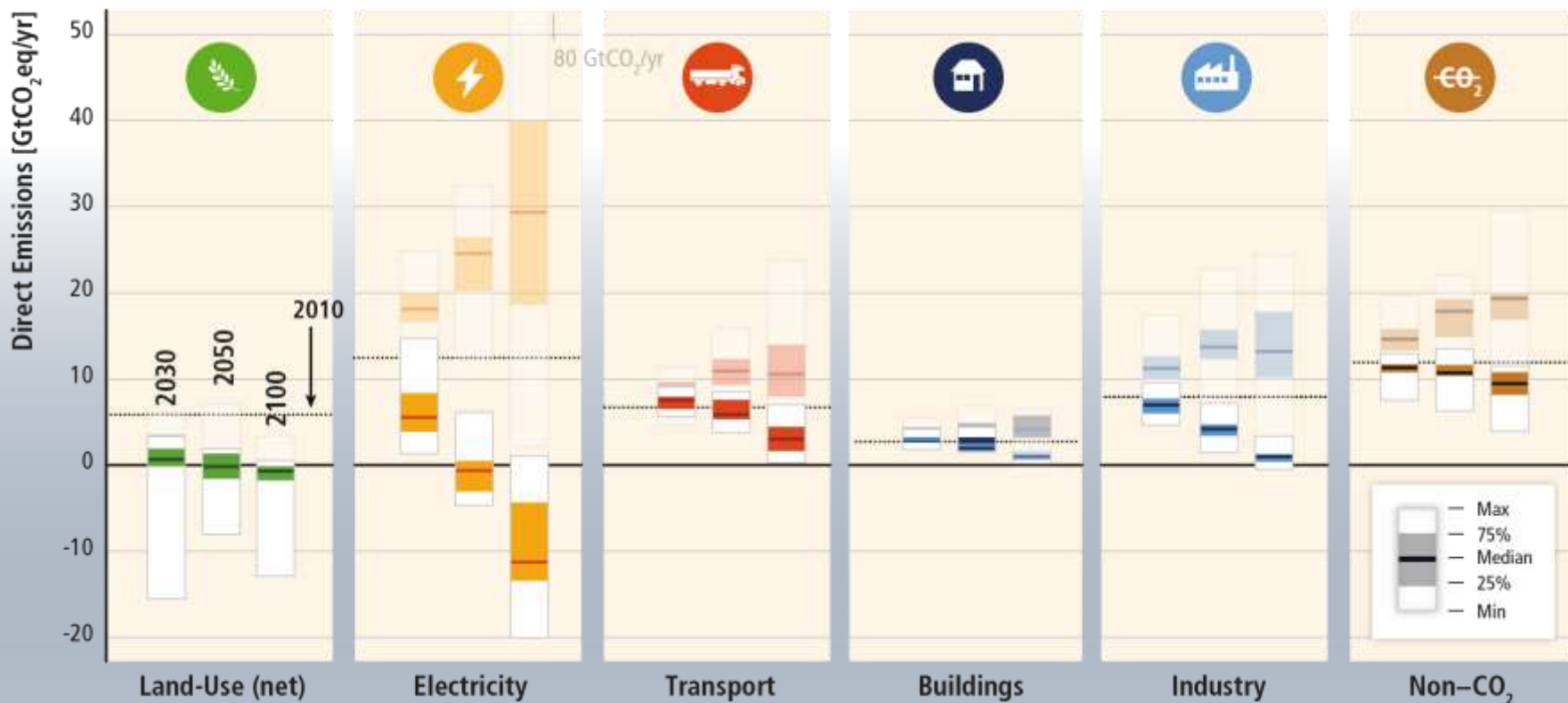


Lifestyle and behavioural changes

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Mitigation requires changes throughout the economy. Systemic approaches are expected to be most effective

450 ppm CO₂eq with Carbon Dioxide Capture & Storage



Based on Figure TS.17

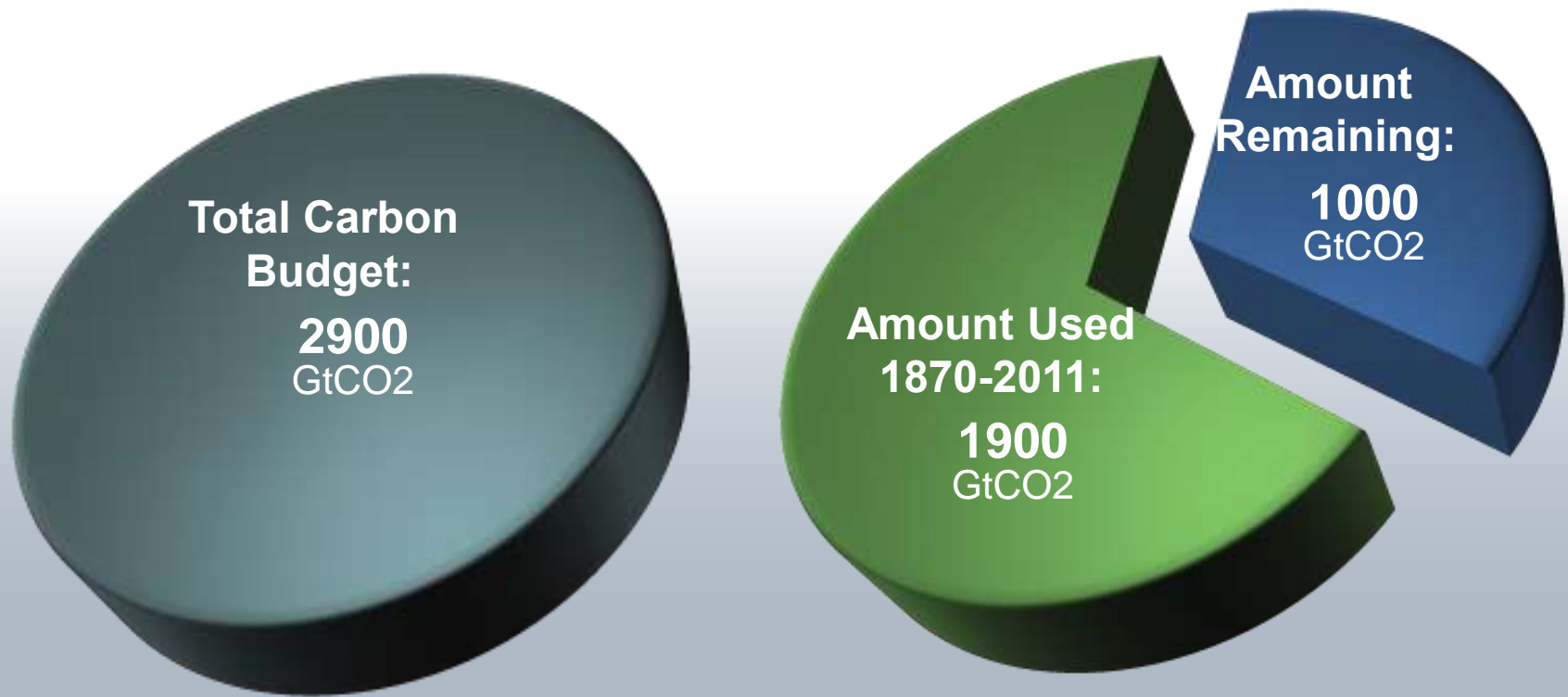
Ambitious Mitigation Is Affordable

- Economic growth reduced by ~ 0.06%
(BAU growth 1.6 - 3%)
- This translates into delayed and not forgone growth
- Estimated cost does not account for the benefits of reduced climate change
- Unmitigated climate change would create increasing risks to economic growth

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The window for action is rapidly closing

65% of our carbon budget compatible with a 2°C goal already used

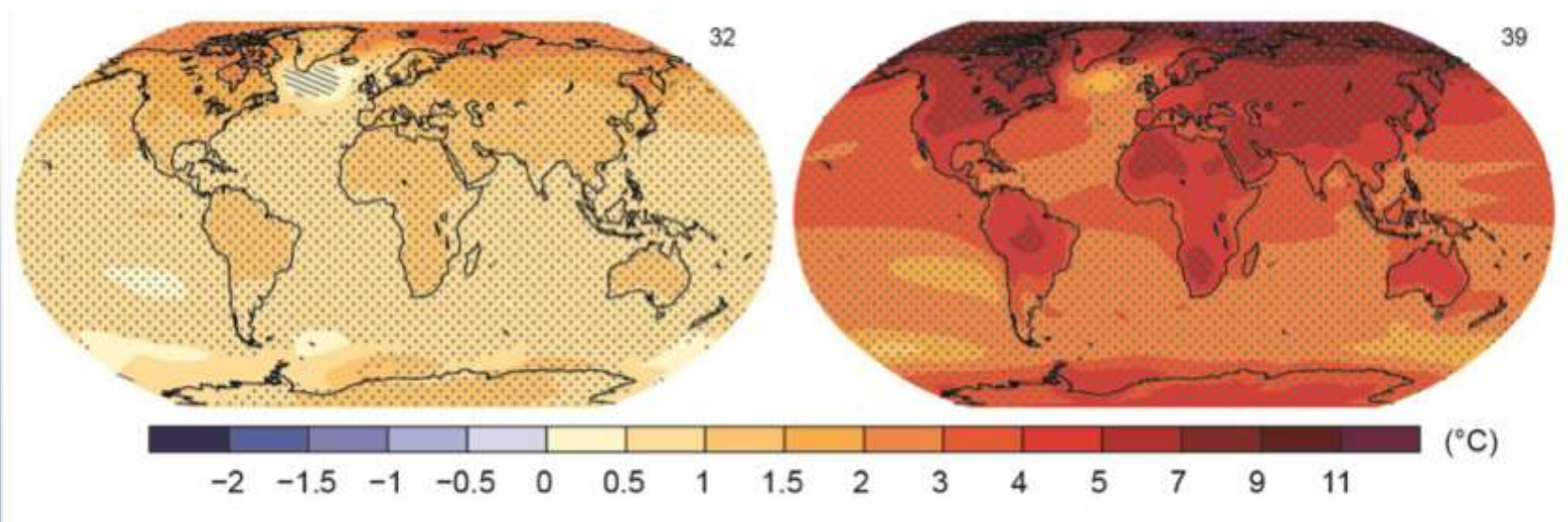


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The Choices We Make Will Create Different Outcomes

With substantial mitigation

Without additional



Change in average surface temperature (1986–2005 to 2081–2100)

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