

WHAT ON EARTH ARE WE DOING?

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Visible Earth/NASA

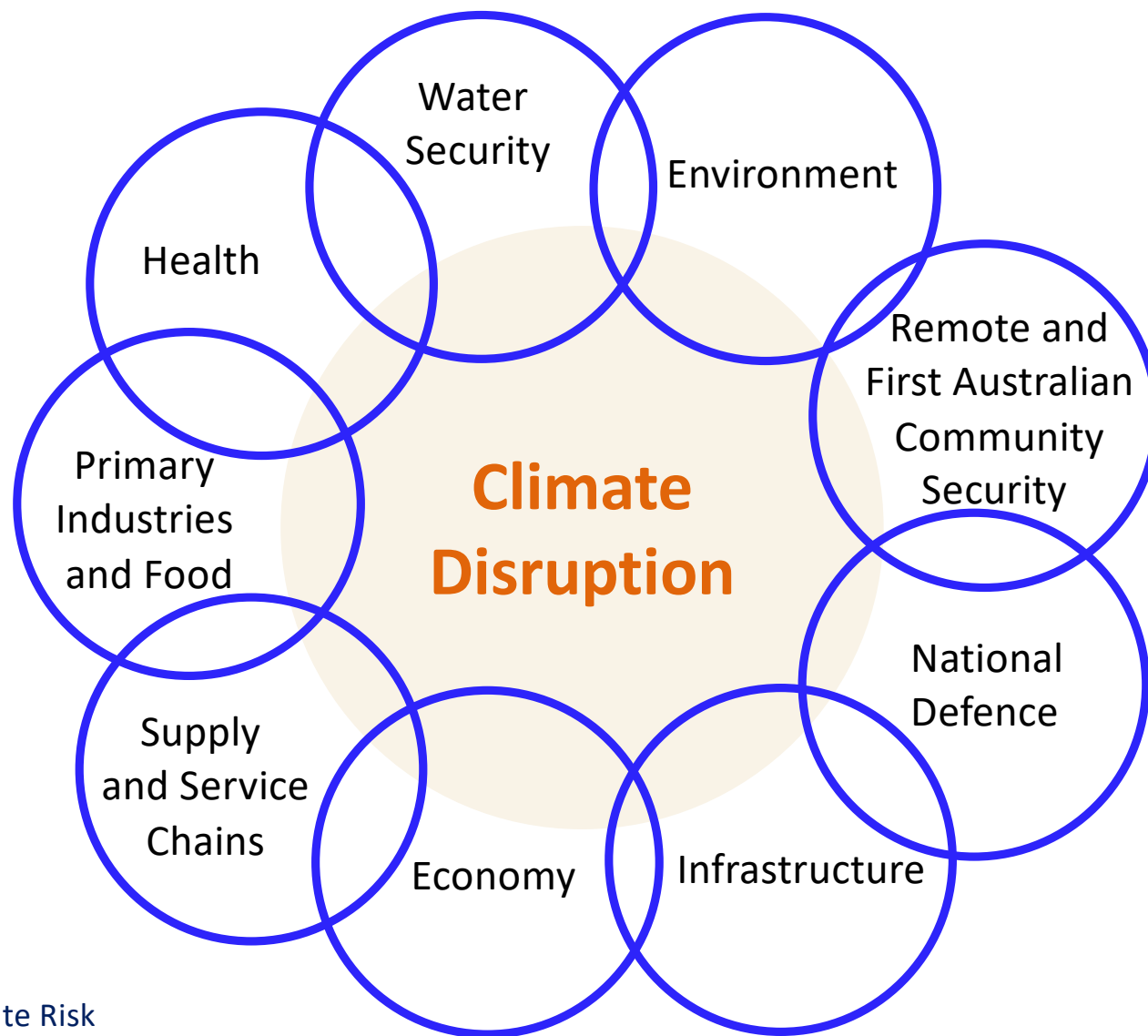


Security Report to Newly-Elected Leader

Update on the 20 May 2025 Siege:

The latest attack, which continues a series of more frequent and devastating assaults from the same agent, killed five citizens and held 50,000 others captive in 15 towns for days. Transportation routes were blocked, schools closed, and nearly 800 homes destroyed. In ravaged areas, citizens were able to make hundreds of rescues and, in some cases, essential medicines were delivered via drones.





(Australian) National Climate Risk
Assessment, First Pass Report 2024



Climate Disruption caused by Global Heating is an Existential Threat

Effects are being felt and reported worldwide

Science is clear and has been communicated widely

Most important solutions are at hand and cost effective



Yet *Homo Sapiens*
is not responding
proportionally to the threat



WHERE ON EARTH ARE WE?

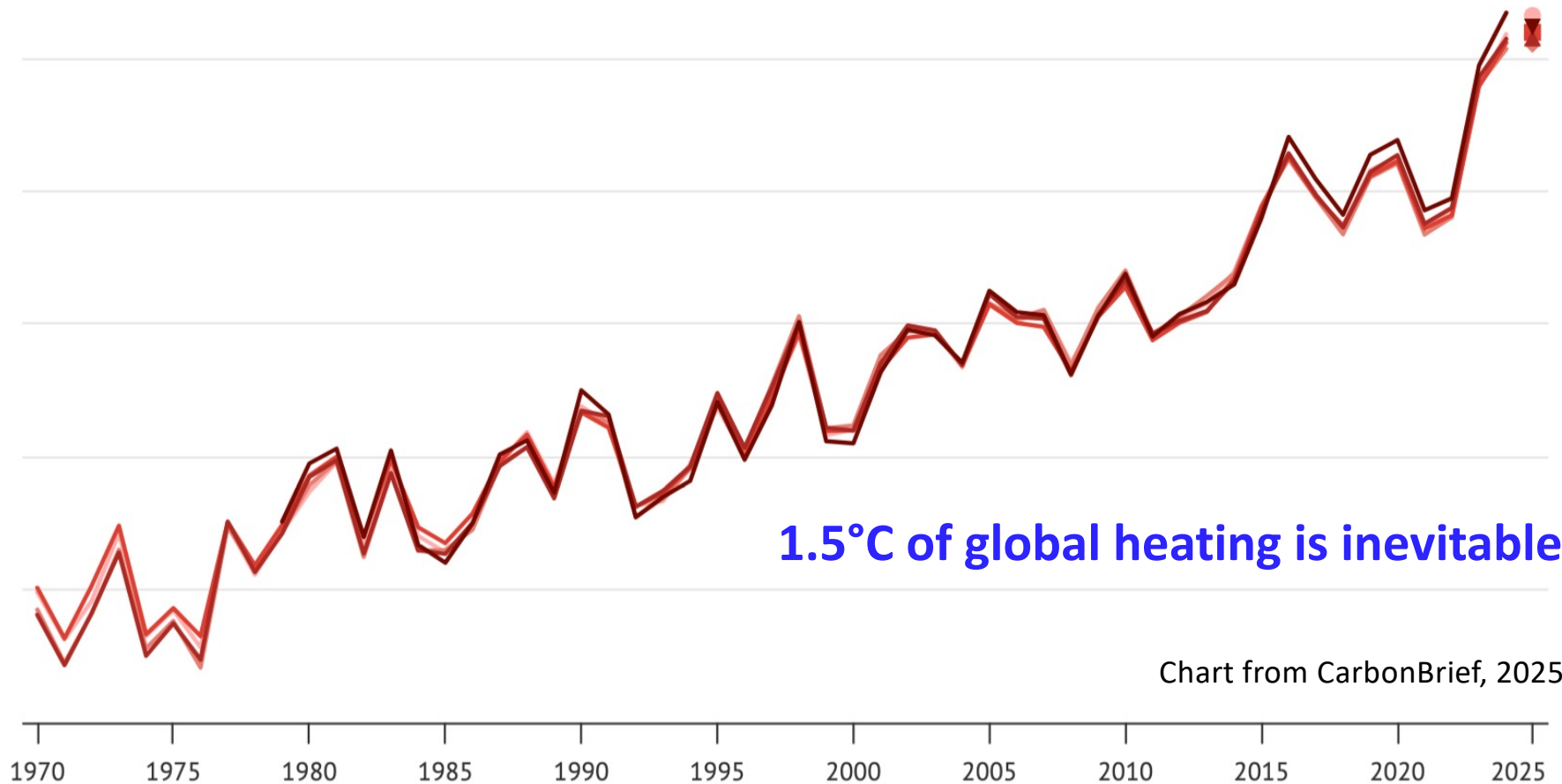


Global Surface Temperature 1970 to 2025

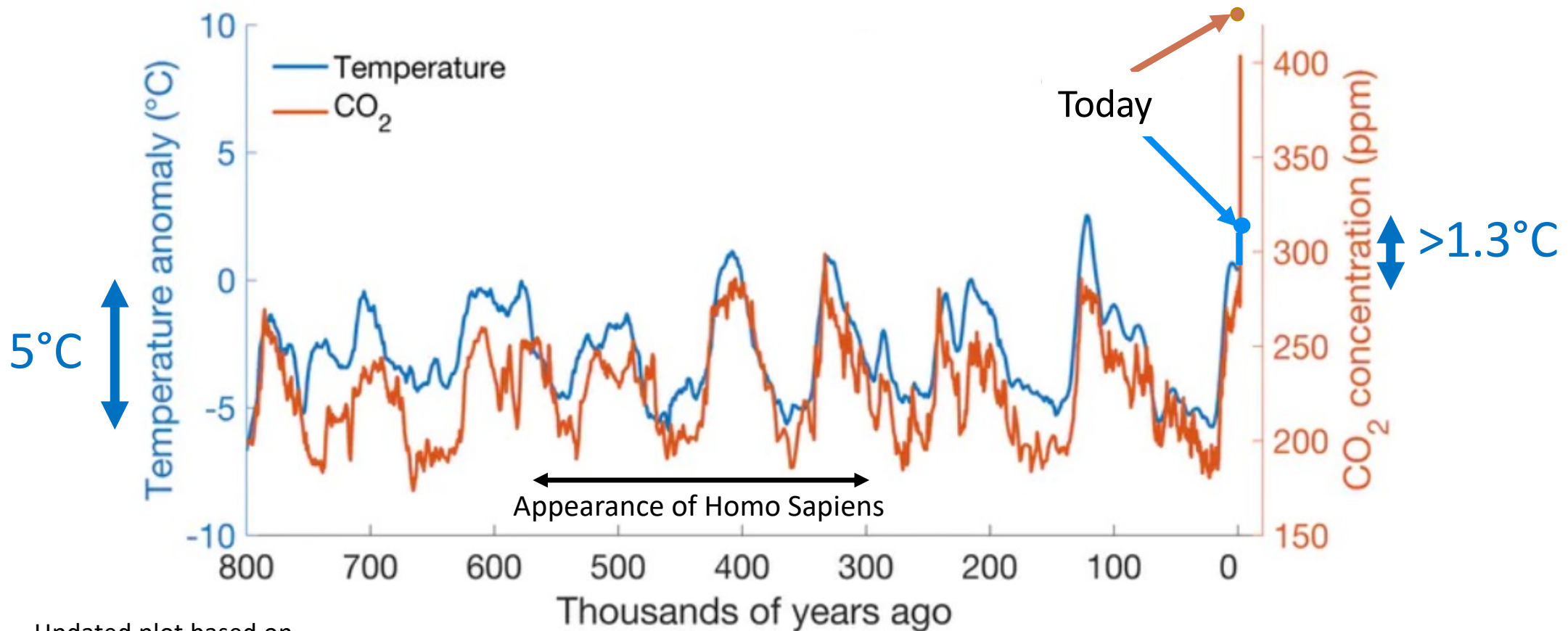
NASA Hadley/UEA NOAA Berkeley ERA5

°C Above 1850 to 1900 Average

1.5
1.2
0.9
0.6
0.3
0



800,000 years of natural Earth System changes and 150 years of fossil fuel economy

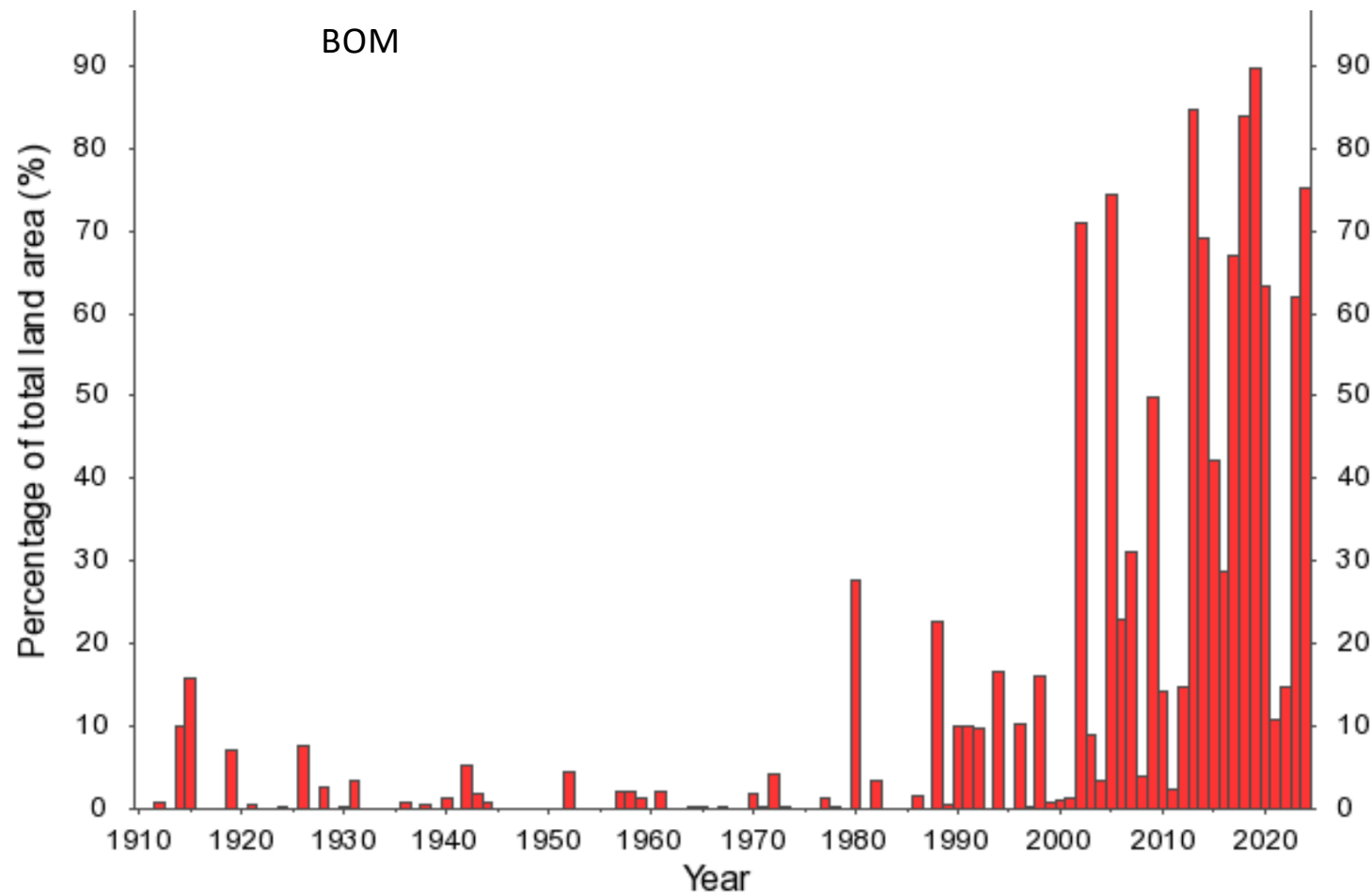


Updated plot based on
Henley & Abram 2017

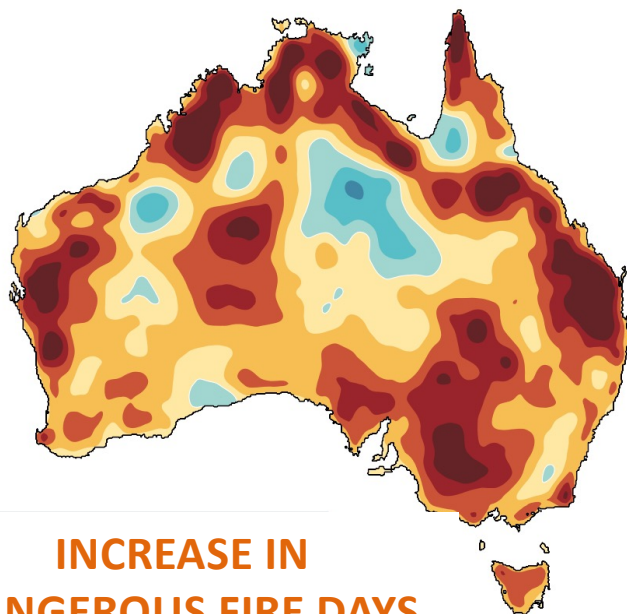
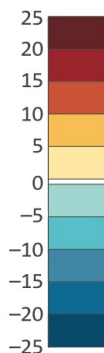


What has that meant for Australia?

Proportion of Australia that had a maximum temperature in the top 10% of all record maximum temperatures

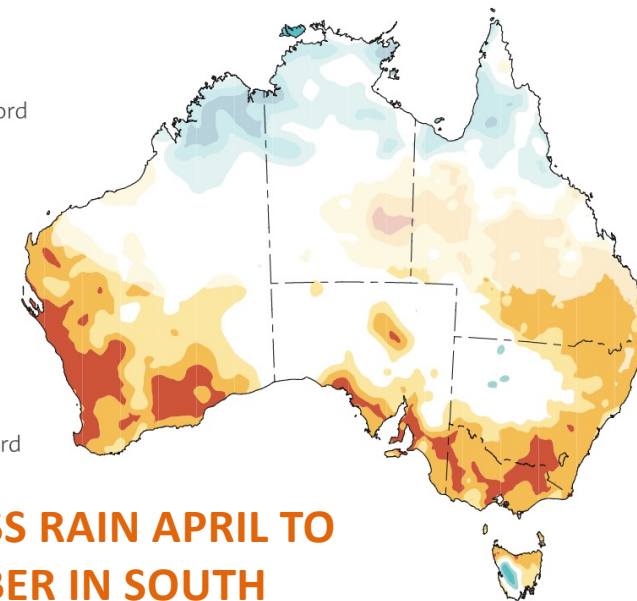
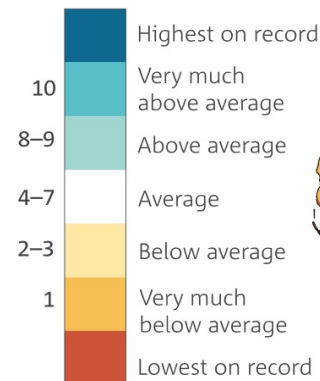


Change in number of dangerous fire weather days



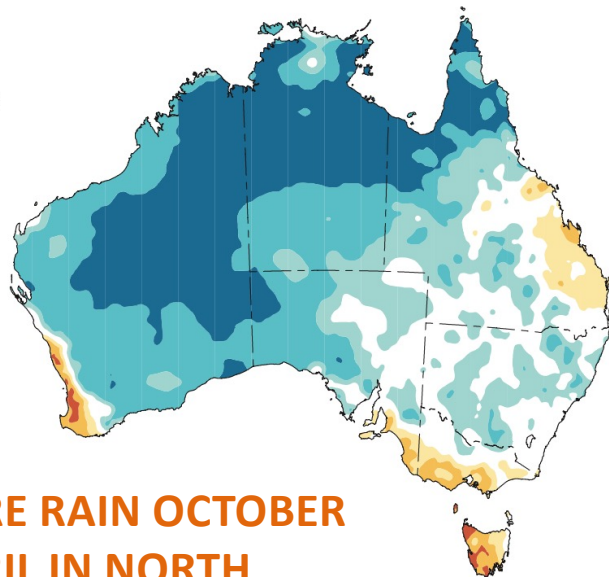
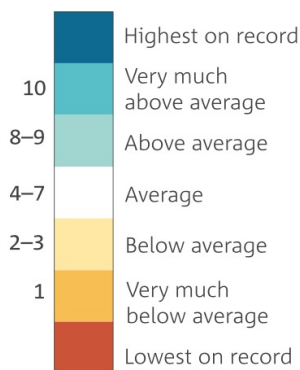
INCREASE IN DANGEROUS FIRE DAYS

Rainfall decile ranges



MUCH LESS RAIN APRIL TO OCTOBER IN SOUTH

Rainfall decile ranges

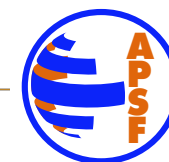


MUCH MORE RAIN OCTOBER TO APRIL IN NORTH

LONGER AND MORE FREQUENT MARINE HEAT WAVES

MORE INTENSE, SHORT-TERM, HEAVY RAINFALLS

State of the Climate 2024/BOM&CSIRO

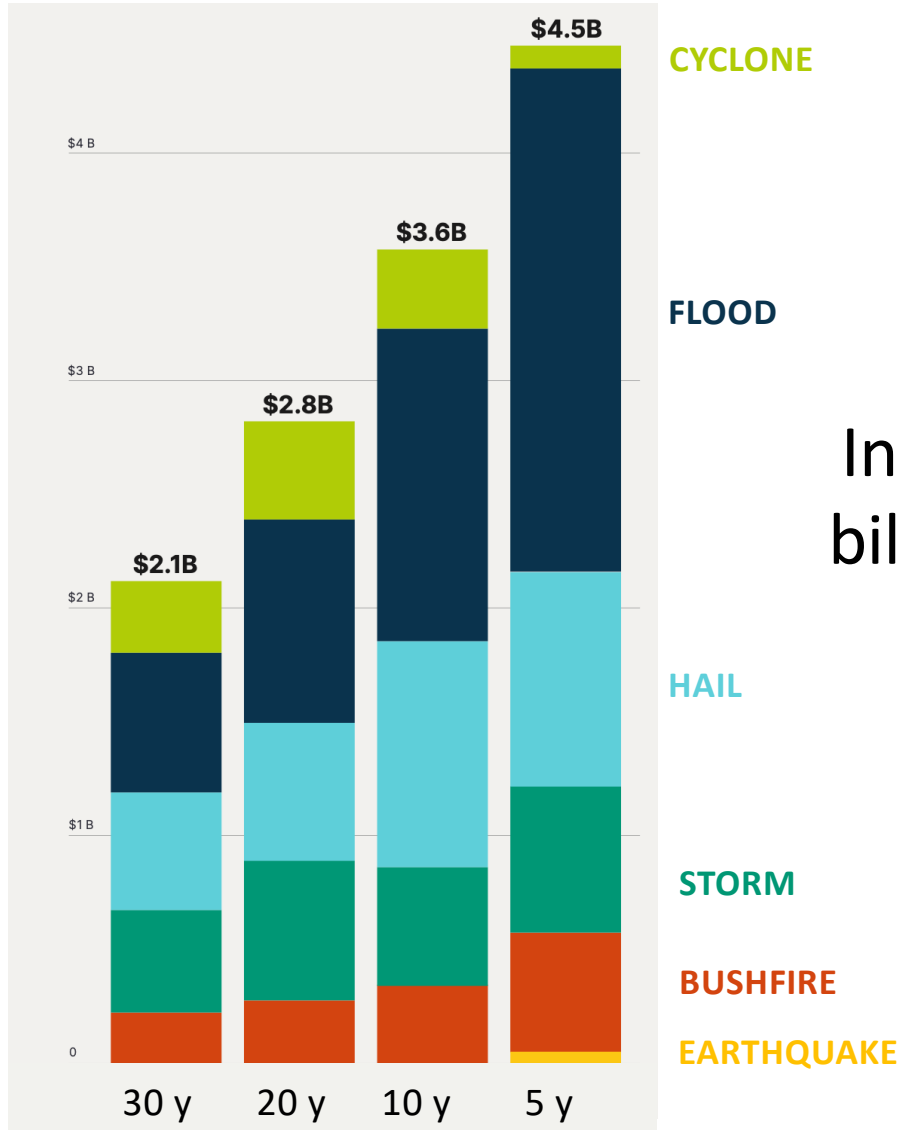


More, and more extreme, extreme weather events

Insurance payouts now averaging \$4.5 billion annually (averaged over 5 years)

Another \$1.5 billion in annual uninsured losses

Approaching 1% of Australia's GDP



From Insurance Catastrophe
Resilience Report 2023-2024

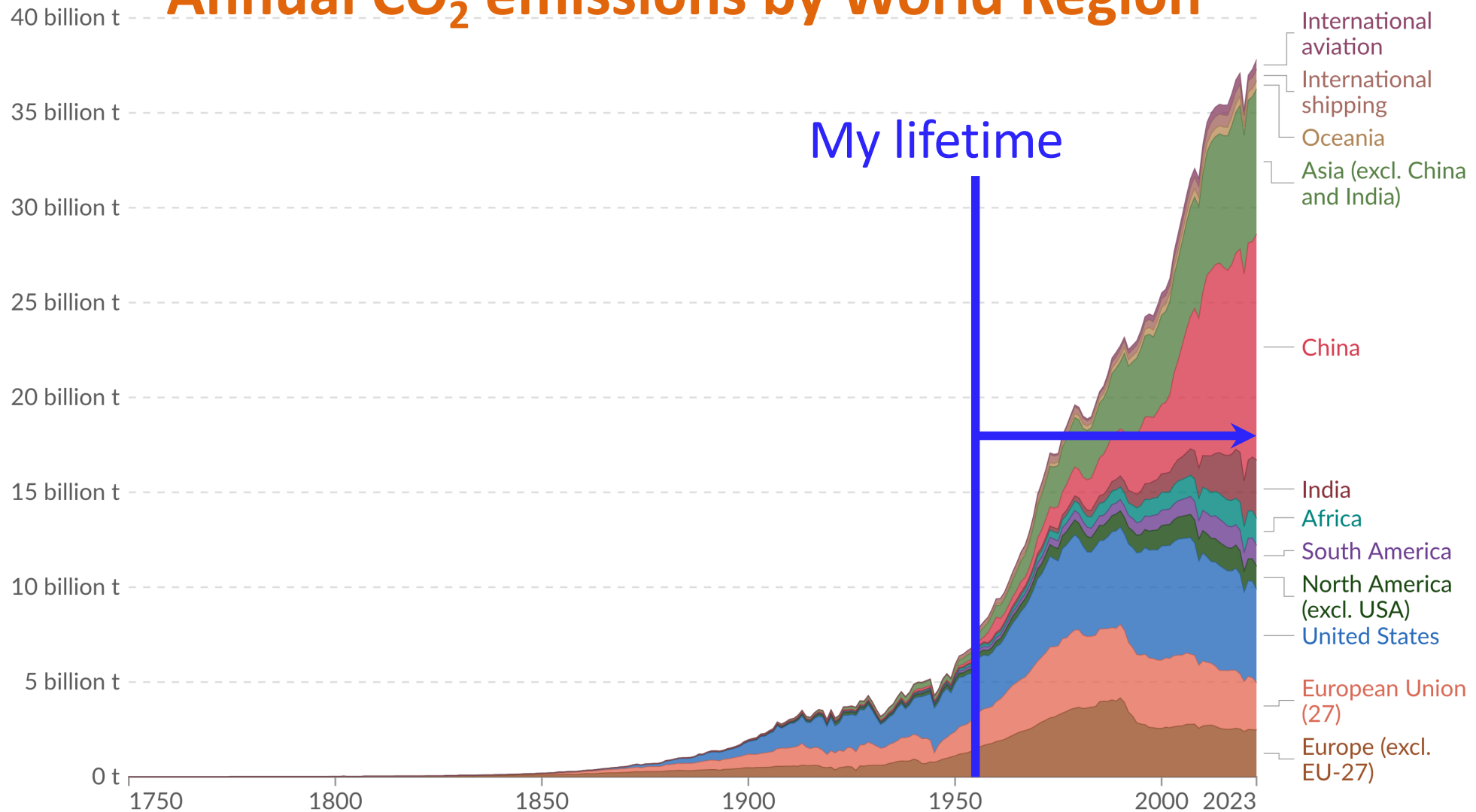


WHERE ON EARTH ARE WE GOING?

Allison Marion



Annual CO₂ emissions by World Region

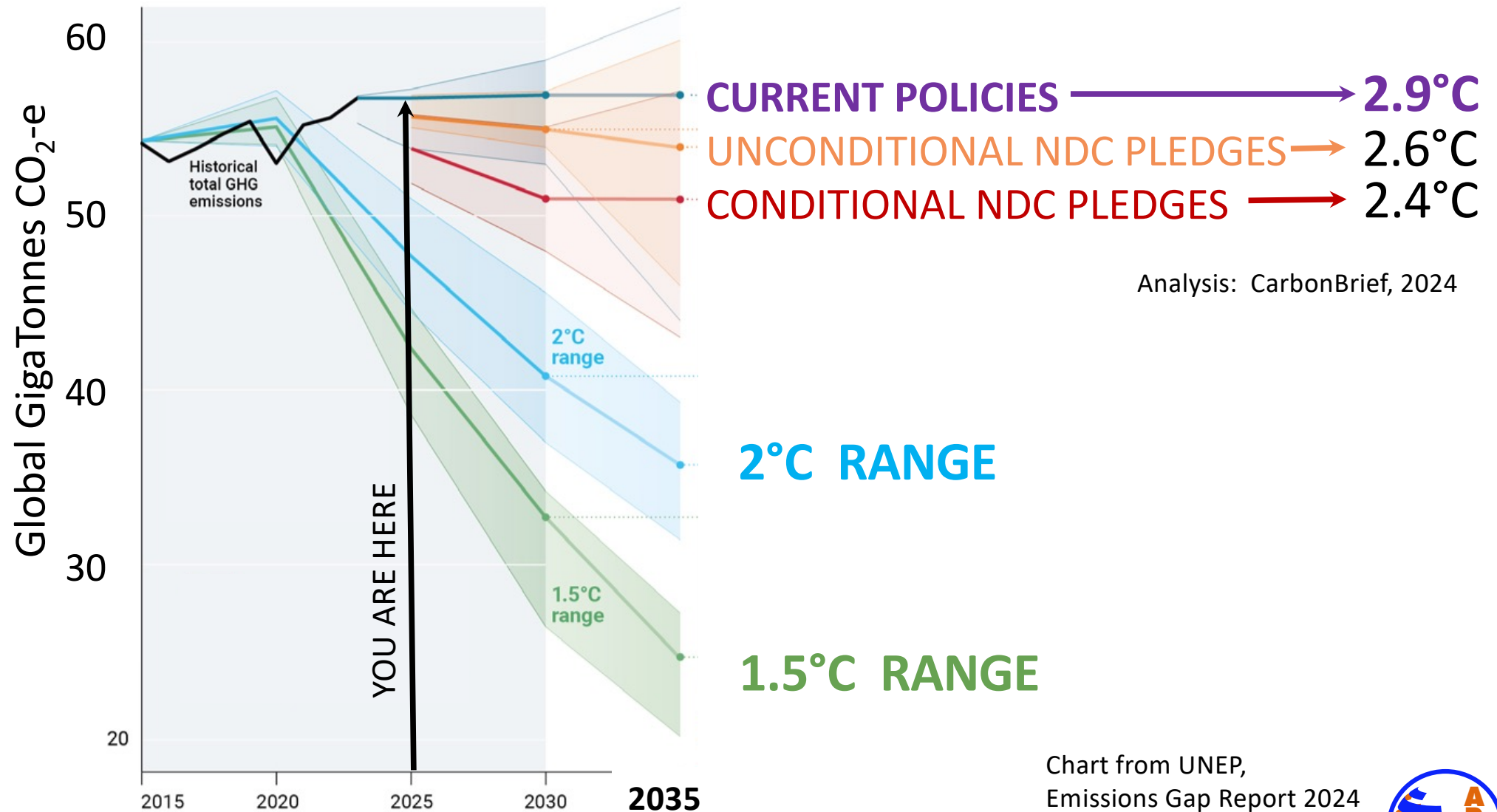


Data source: Global Carbon Budget (2024)

OurWorldinData.org/co2-and-greenhouse-gas-emissions



We are Headed for Almost 3°C of Global Heating



Every Fraction of a Degree Counts

1.5°C: (temporarily exceeded in 2024; inevitable, and likely by 2030)

‘Once-in-30-year’ heatwaves happen every 3 years.

‘Once-100-year’ sea level events are annual by 2100.

Significant likelihood of crossing some Earth System tipping points.

2.0°C: (beyond Paris Agreement)

World’s coral reefs gone.

Complete ecosystem transformation on 13% of Earth’s surface.

Moderately high risk of crossing several Earth System tipping points.

3.0°C+: (where world inaction is taking us)

Most world ecosystems destroyed or heavily damaged.

Large areas of world uninhabitable. Entire global economy damaged.



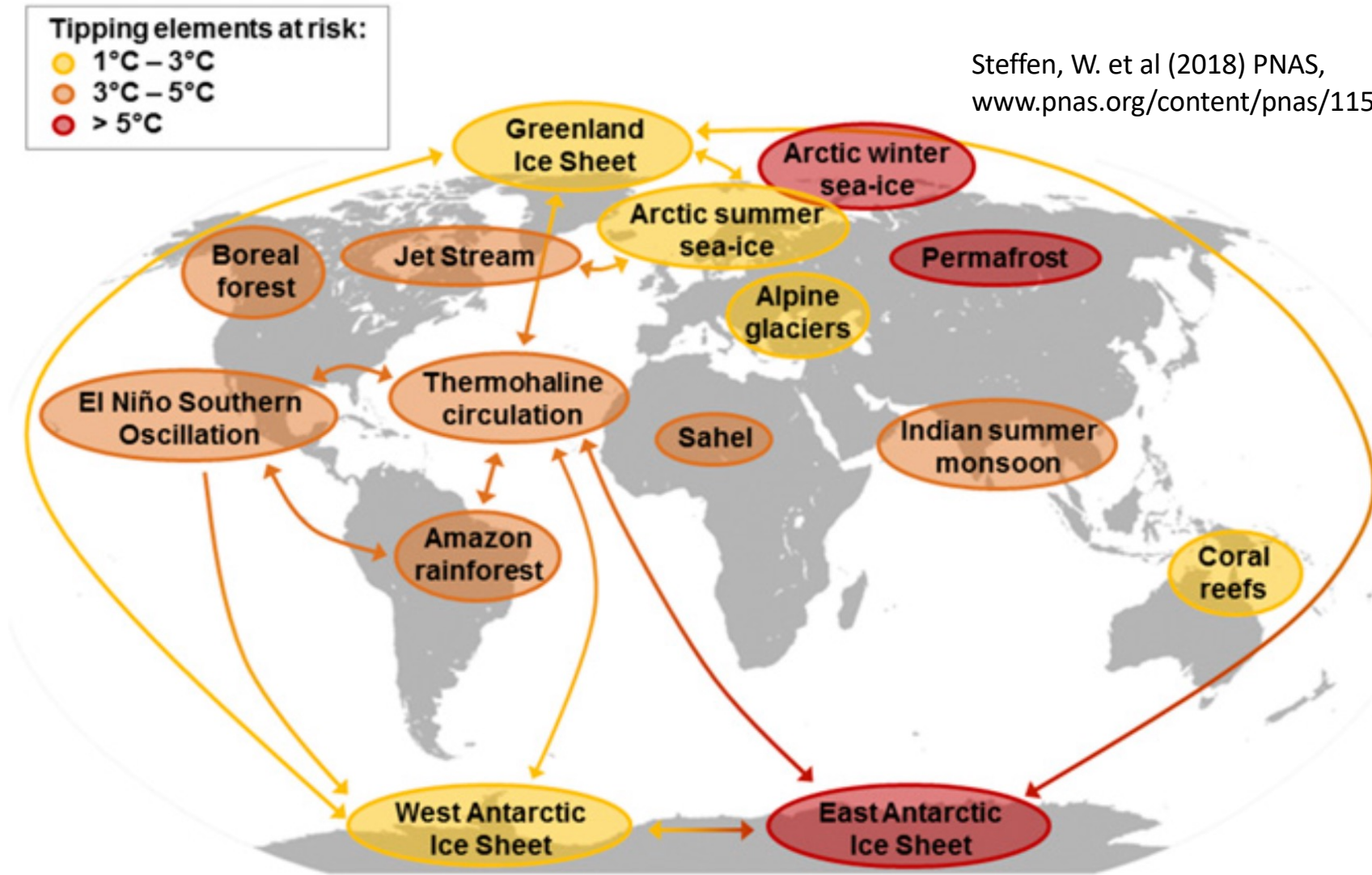
Irreversible Consequences Already Underway

- Changes global ocean temperature, deep ocean acidification, and deoxygenation are **irreversible** on **centennial to millennial** time scales.
- Mountain and polar glaciers are committed to **continue** melting for **decades or centuries**.
- Loss of permafrost carbon following permafrost thaw is **irreversible** at **centennial timescales**.
- Sea-level is **committed** to rise for **centuries to millennia** due to continuing deep ocean warming and ice sheet melt, and will **remain** elevated for **thousands of years**.

From IPCC AR6 WG1



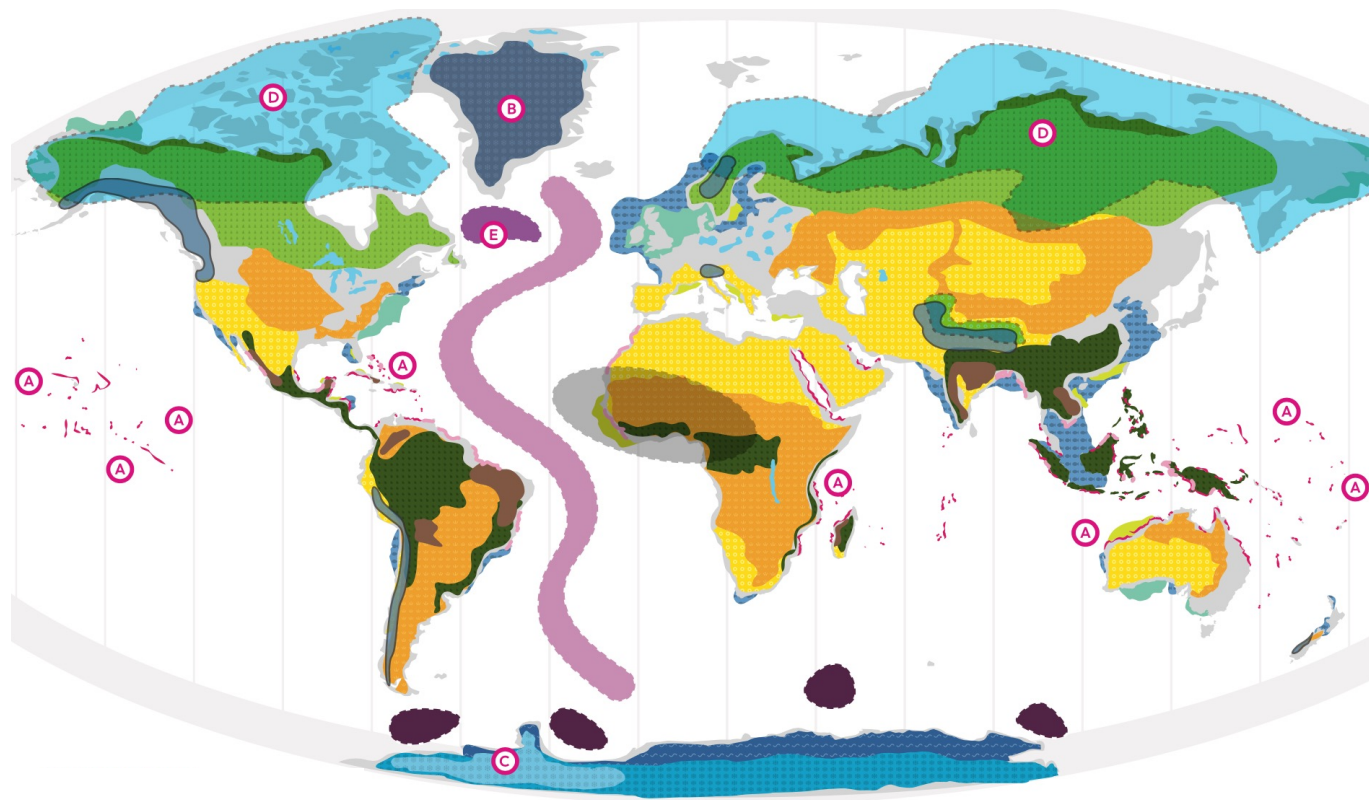
Earth System Elements at risk of 'tipping'



Steffen, W. et al (2018) PNAS,
www.pnas.org/content/pnas/115/33/8252.full.pdf



25 Tipping Elements Now Identified



Lenton, T.M. et al., 2023
Global Tipping Points Report

**Matters are in our hands
for only a little while longer**

Five in Play Now:

**Greenland Ice Sheet
Coral Reefs
Permafrost Thaw
West Antarctic Ice Sheet
Sub Polar Gyre**

Three more in play at 1.5°C

Still more at 2°C



Carl Sagan

Decades Ago

On this same pale blue dot



[Video on TikTok](#)



WHAT ON EARTH ARE
WE DOING?



Recently suggested `Save the Planet' Solutions

Eating insects and worms

Studying the microbes living in the sludge in your home

Selling as much gas to Asia as humanly possible

Getting rid of your dog but keeping your internal combustion car

Detonating a nuclear bomb under the ocean floor

This two-word message from Arnold Schwarzenegger: `Stop whining'



Furphies, Myths and Magical Thinking Abound

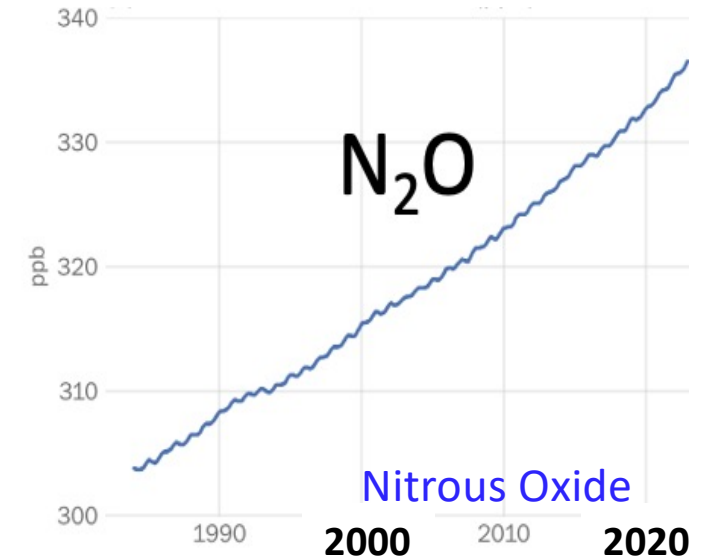
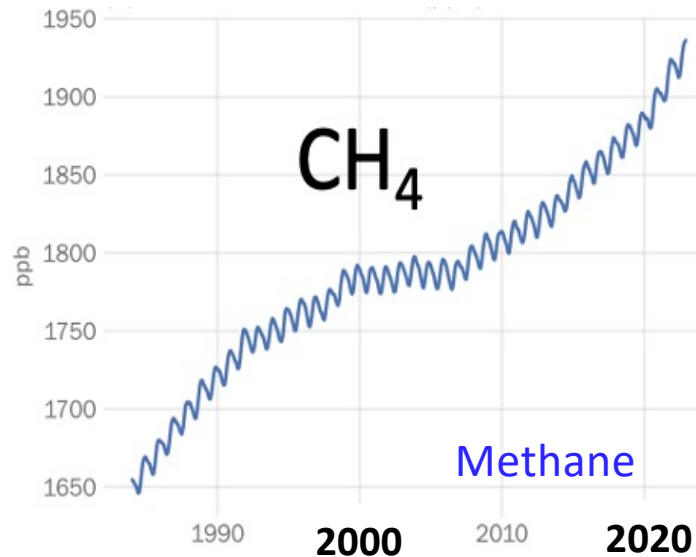
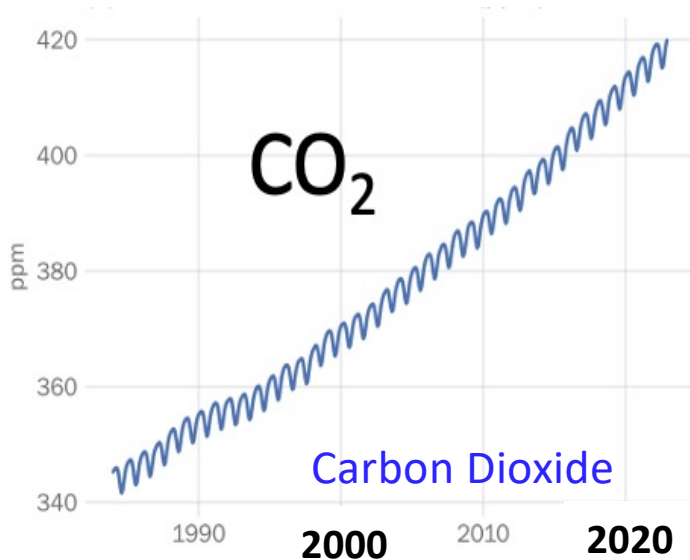
- Holding global heating to 1.5°C is still within reach
- Net Zero by 2050 will keep global heating below 2°C
- UN Paris Agreement is the key
- Renewable energy (per se) lowers GHG emissions
- `Offsets' can balance GHG emissions
- CCS and DCC from the air are viable solutions
- Artificial Intelligence will give us the answer



What Nature Responds to:

Greenhouse Gases (GHG) in the Atmosphere

Atmospheric Concentrations of 3 Major GHG are all **Accelerating**
Primarily Fuelled by the **Combustion of Fossil Fuels by Humans**



WMO 2023

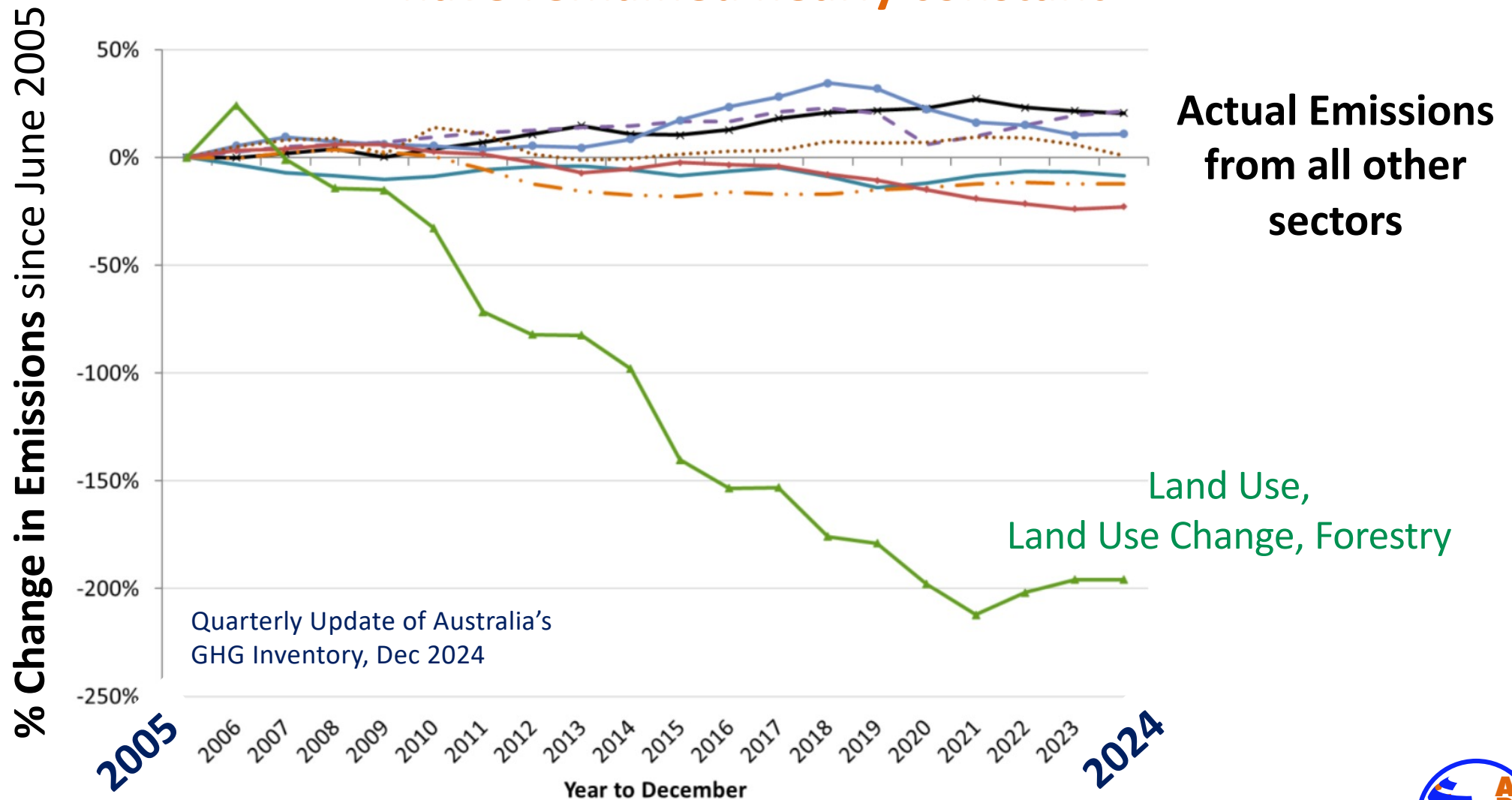


Current Narrative (The Climate Lullaby)

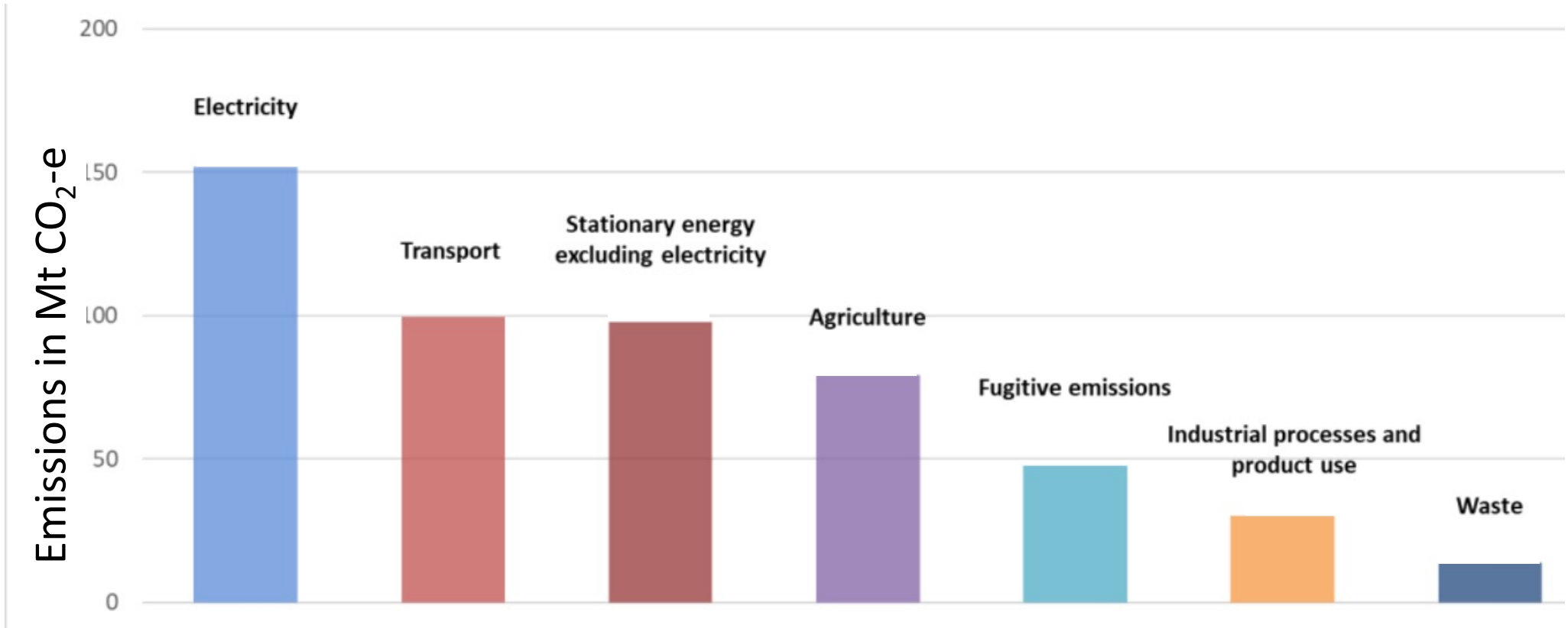
- We have time (25 years) to stabilize the climate to safe levels
- Appropriate to take decisions at national/international levels
- We're doing as much as we can, and it is enough
- We need more fossil fuels to create a Net-Zero future
- Scientists are looking for 'Solutions'
- In the meantime, we can 'offset' emissions (by planting trees)
- New (costly) technologies need to be developed



Australia's Domestic GHG Emissions have remained nearly constant



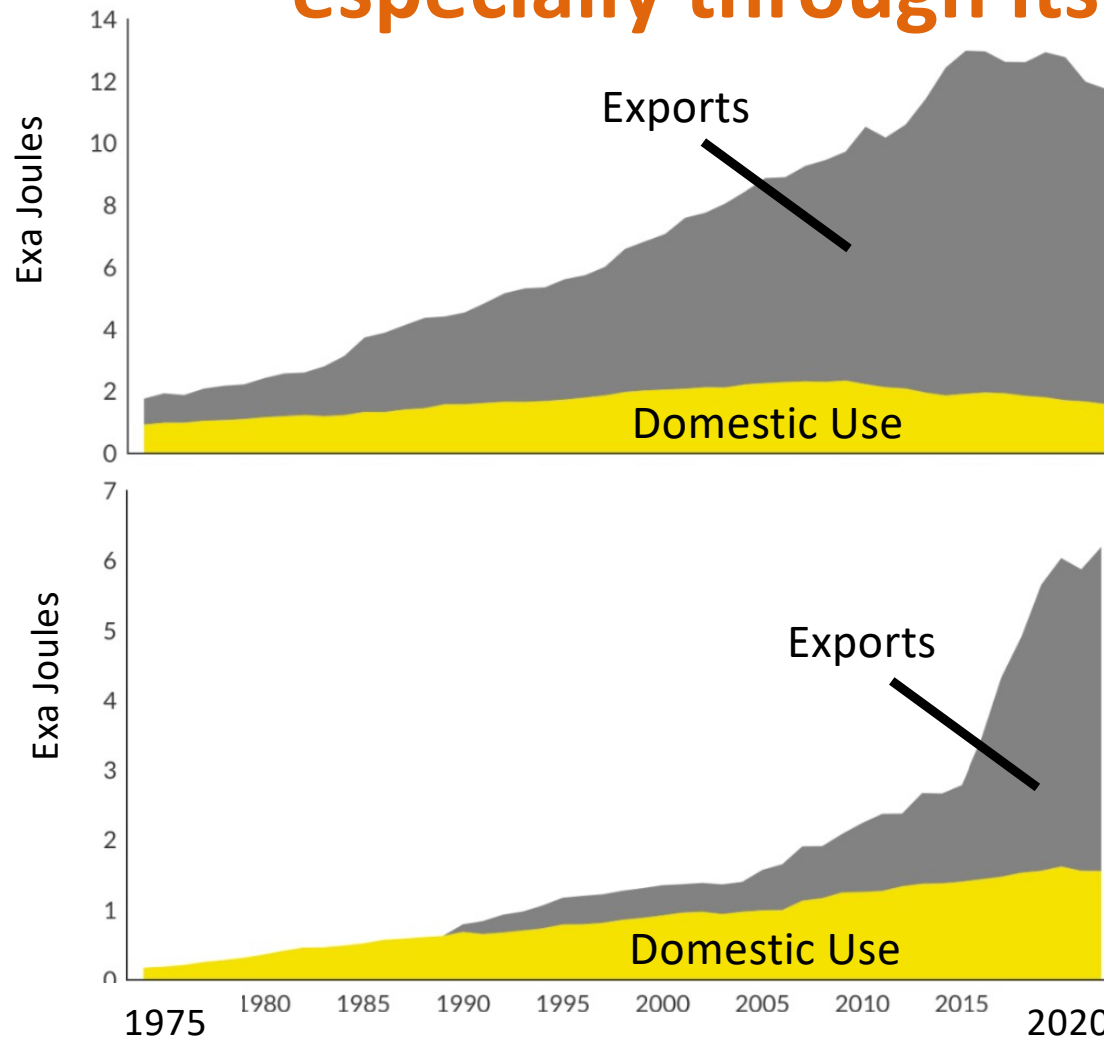
Relative Domestic GHG Emissions By Sector in 2024 Calendar Year



Quarterly Update of Australia's
GHG Inventory, Dec 2024



Australia Fuels Global Heating especially through its Exports



Coal

Combined, equals
4.5% of Global
Fossil CO₂

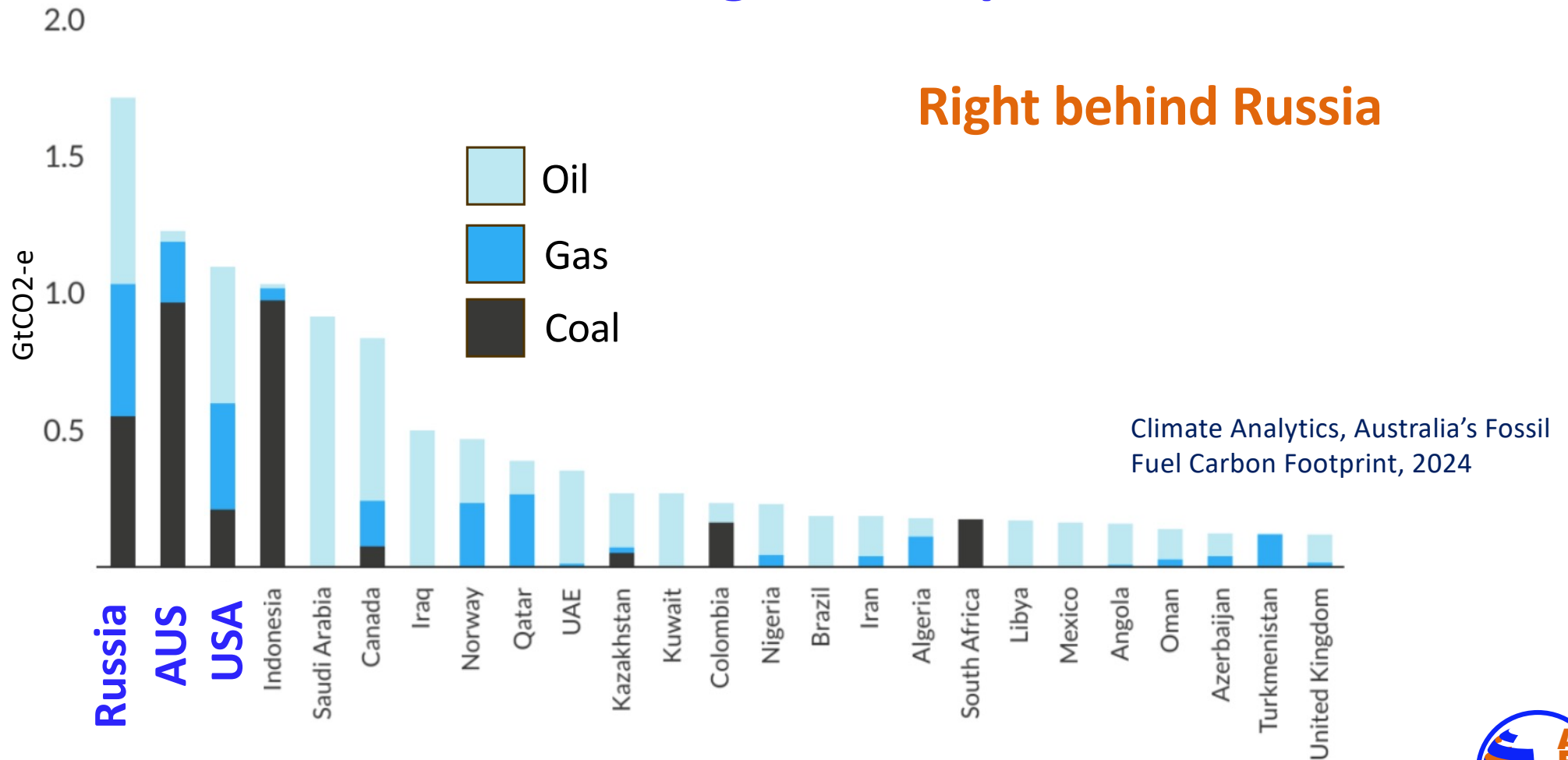
Gas

Climate Analytics, Australia's Fossil
Fuel Carbon Footprint, 2024

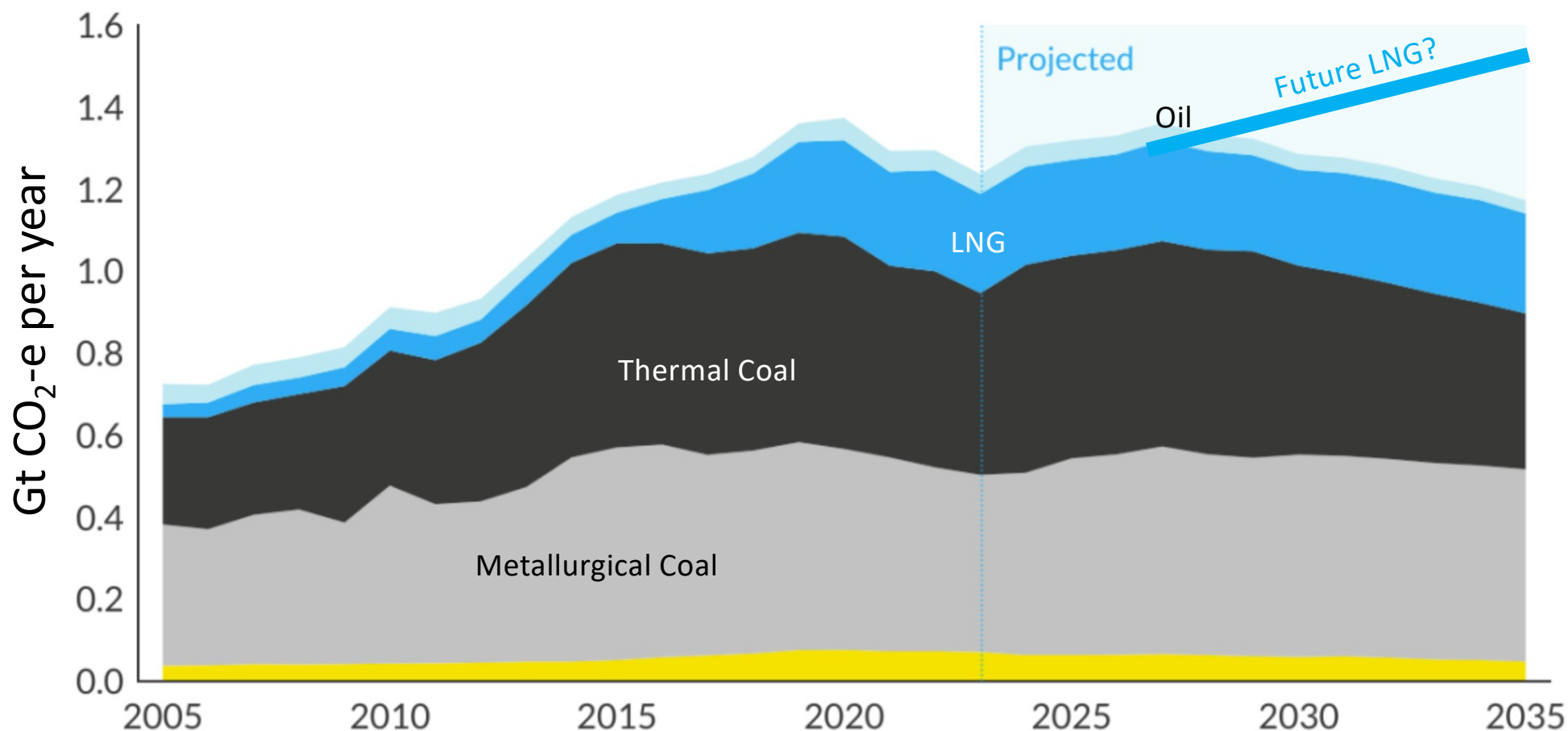


Australia = second largest world polluter of GHG emissions resulting from exported fossil fuels

Right behind Russia



Australia Will Fuel Future Global Heating



Climate Analytics, Australia's Fossil
Fuel Carbon Footprint, 2024



Travesty of the North West Shelf Extension Approval

- **Approved lifetime 'til 2070**, 20 years beyond 'Net Zero' goal
- Over lifetime, Woodside's NWS Extension will be responsible for **4 Billion tonnes of CO₂-e**, equaling about 8 years of current emissions of all Australians
- Disregards **harm to 50,000 year-old Murujuga rock art**, causing UNESCO to deny World Heritage listing



This is just one example. How many more are coming?



Transformational Change is Coming

Whether we like it or not . . .

Current situation is unsustainable

- Human GHG emissions continue to rise every year
- Climate disruption impacts are accelerating very rapidly
- Some Earth System tipping elements are already in play,
at 1.5°C – 2°C several at moderately high risk of tipping
- Earth's natural carbon sinks are weakening

Crises foster fundamental change for better or worse

Triggering human tipping points to change current social power and decision-making structures is best hope to shape this transformation



This Transformational Change Should Include

- **A Comprehensive Australian Peace and Security Strategy**
that includes Human Security, Climate Security,
Economic Security and Regional Defense Security
- **Australian GHG Reduction Plan with Science-based GHG targets**
for both domestic and 'exported' emissions that phases out
essentially all fossil fuel use
- **A Comprehensive and 'Living' Australian Adaptation Action Plan**
that is evidenced-based, locally-relevant and recognises that the
world is on a current trajectory to 3°C of global heating



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