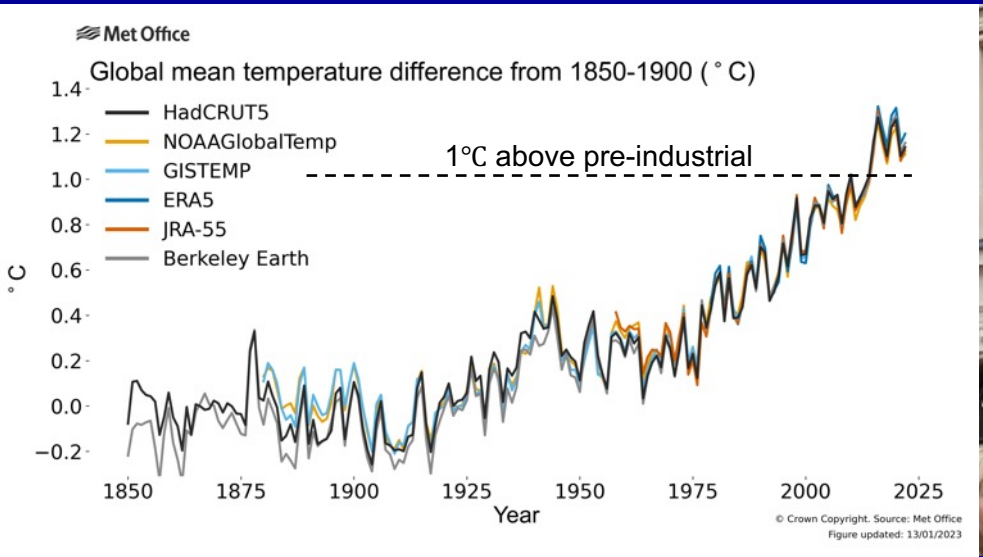
Climate change impacts on Australian industry and companies

Prof David Karoly and Prof Jacqueline Peel
Melbourne Climate Futures, University of Melbourne



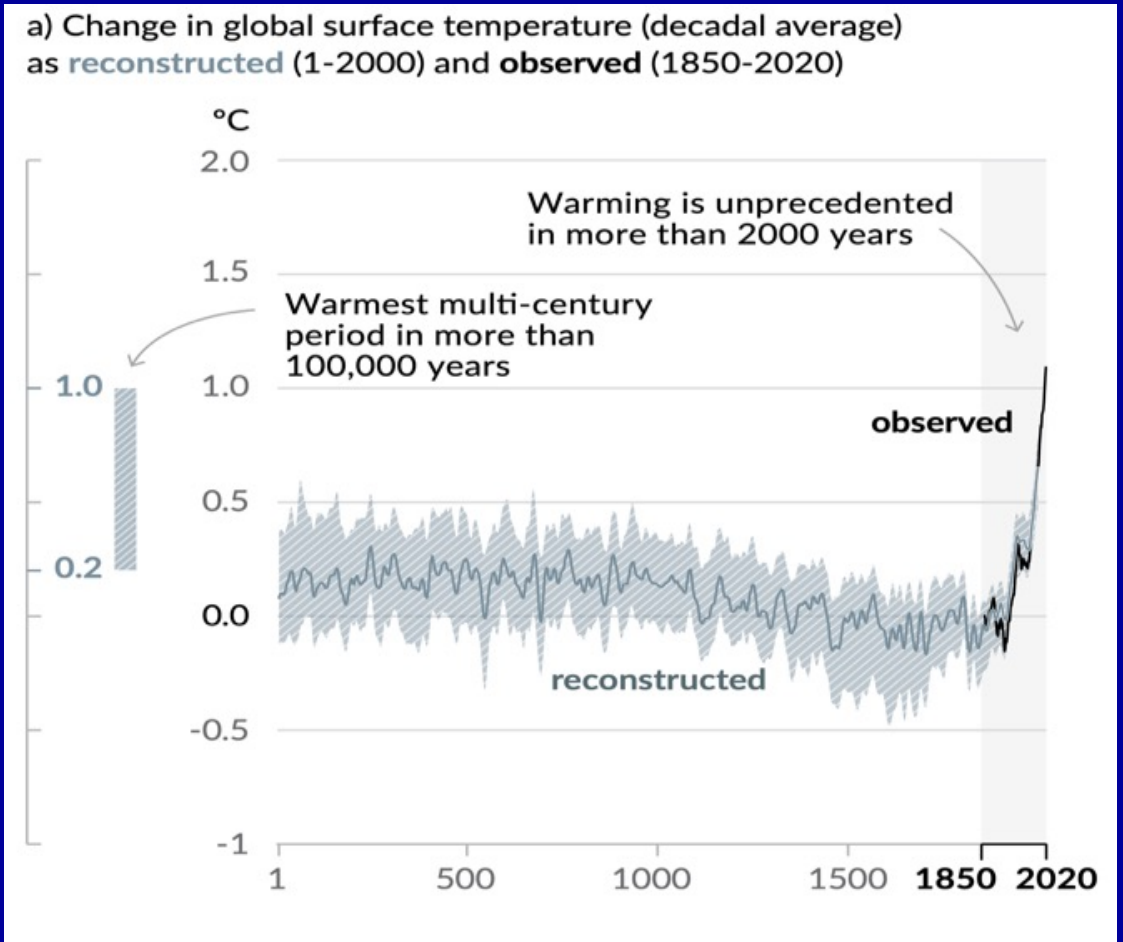
Some views from leaders

- Antonio Guterres, UN Secretary-General, 2021: "*The IPCC Report is a code red for humanity*"
- Andrew Mackenzie, BHP, 2019: *"The evidence is abundant: Global warming is indisputable. The planet will survive. Many species may not"*

Task Force on Climate-related Financial Disclosure (TCFD)

from APRA Prudential Guide: Climate change risks

Observed climate change



'Human influence has warmed the climate at a rate that is unprecedented in at least the last 2000 years'

Fig SPM.1, IPCC AR6 WG1

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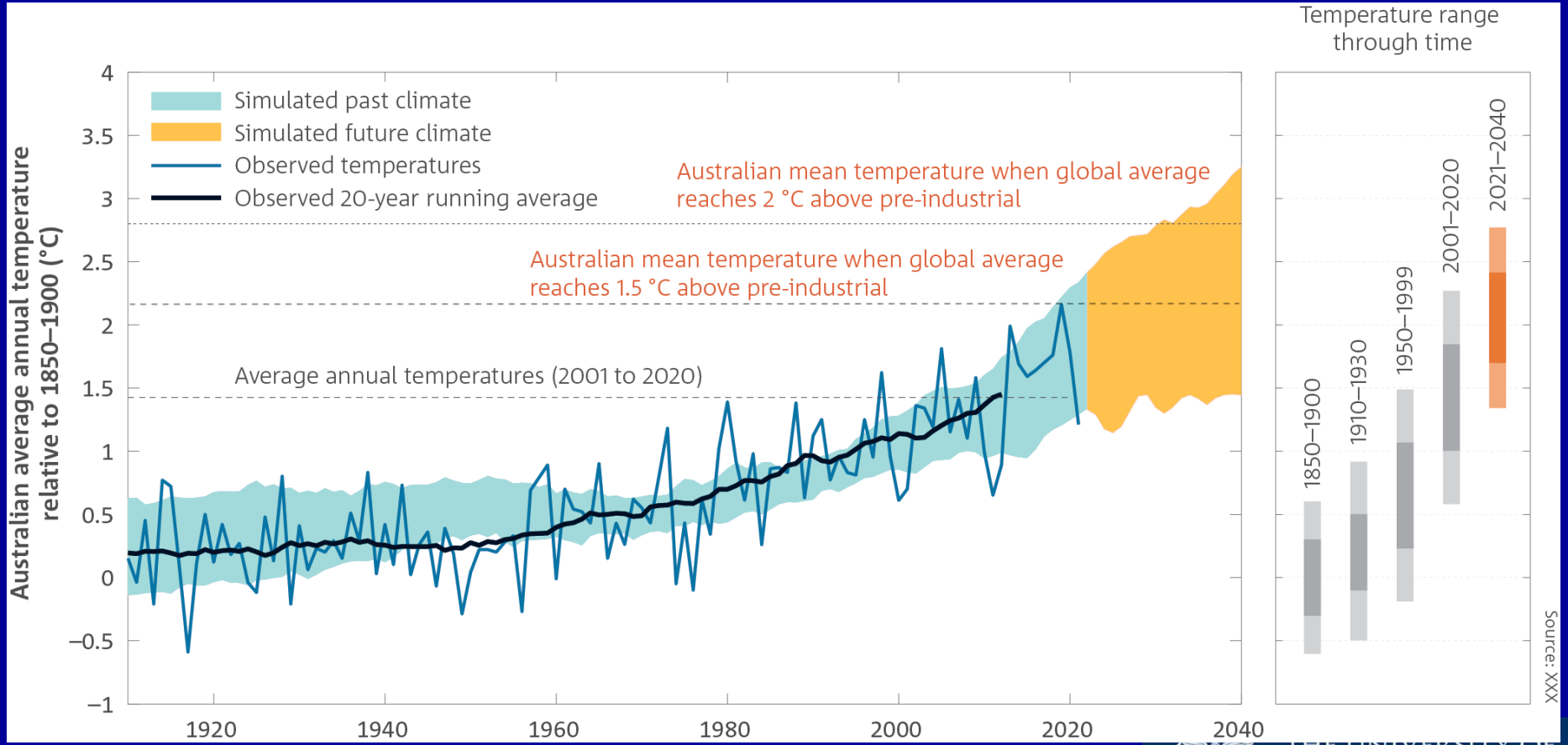
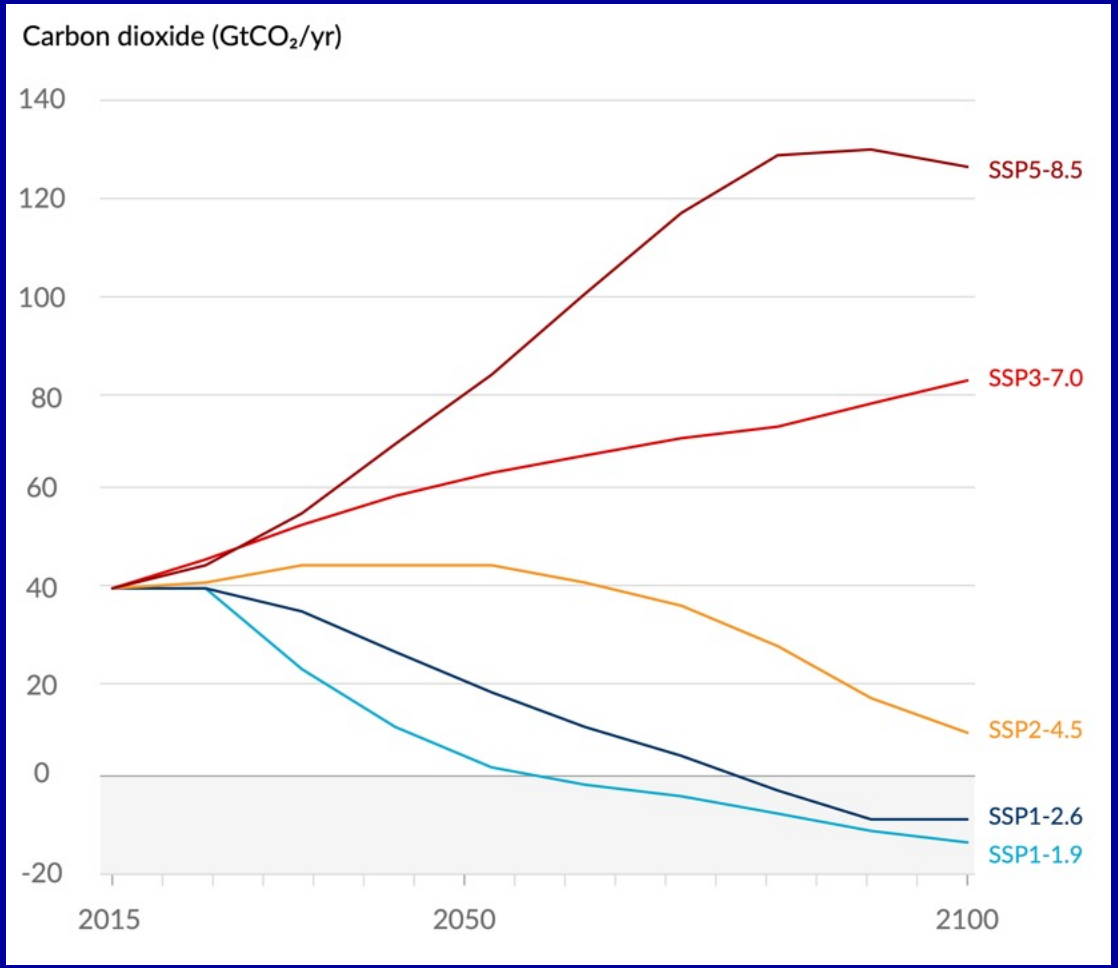
Observed and simulated Australian temperature



State of the Climate report, 2022



Global warming

4.8°C

4.0°C

2.8°C

1.8°C

1.5°C

Future emission scenarios

'*Every tonne of CO_2 emissions adds to global warming*'

Fig SPM.4 IPCC AR6 WG1

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Future climate change

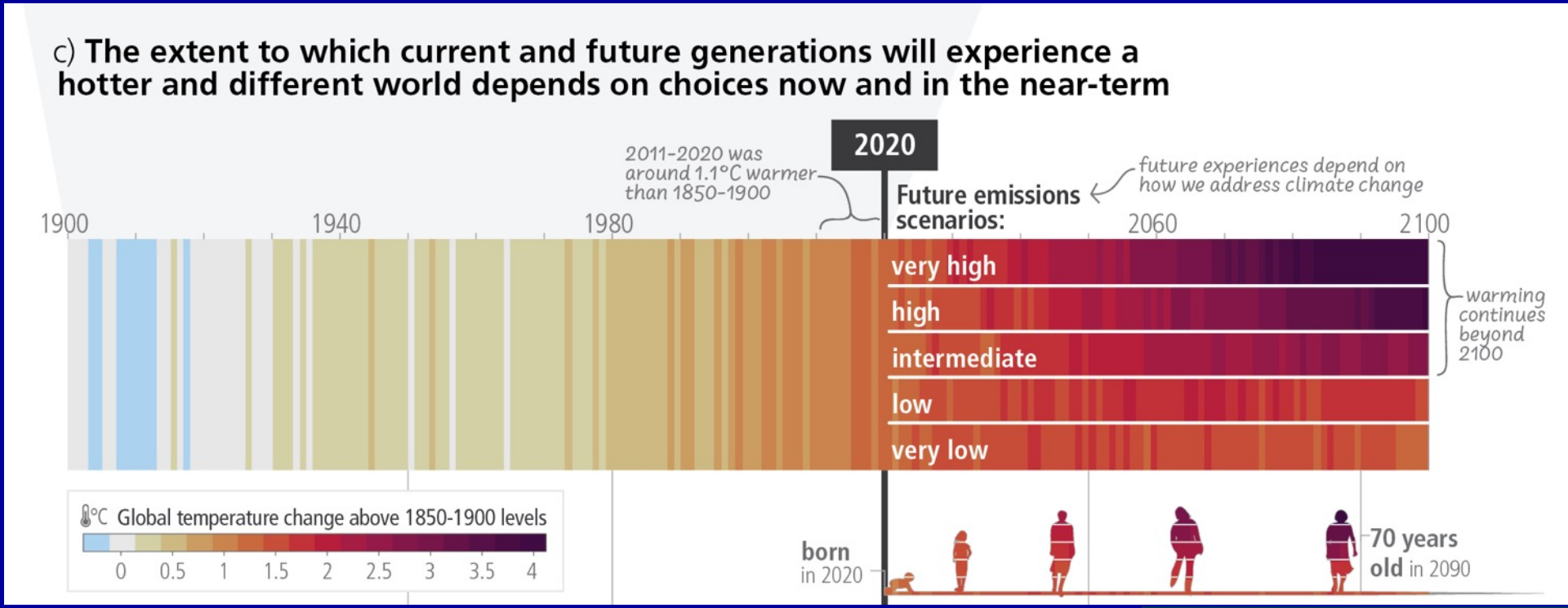

Fig SPM.1, IPCC AR6 Synthesis Report

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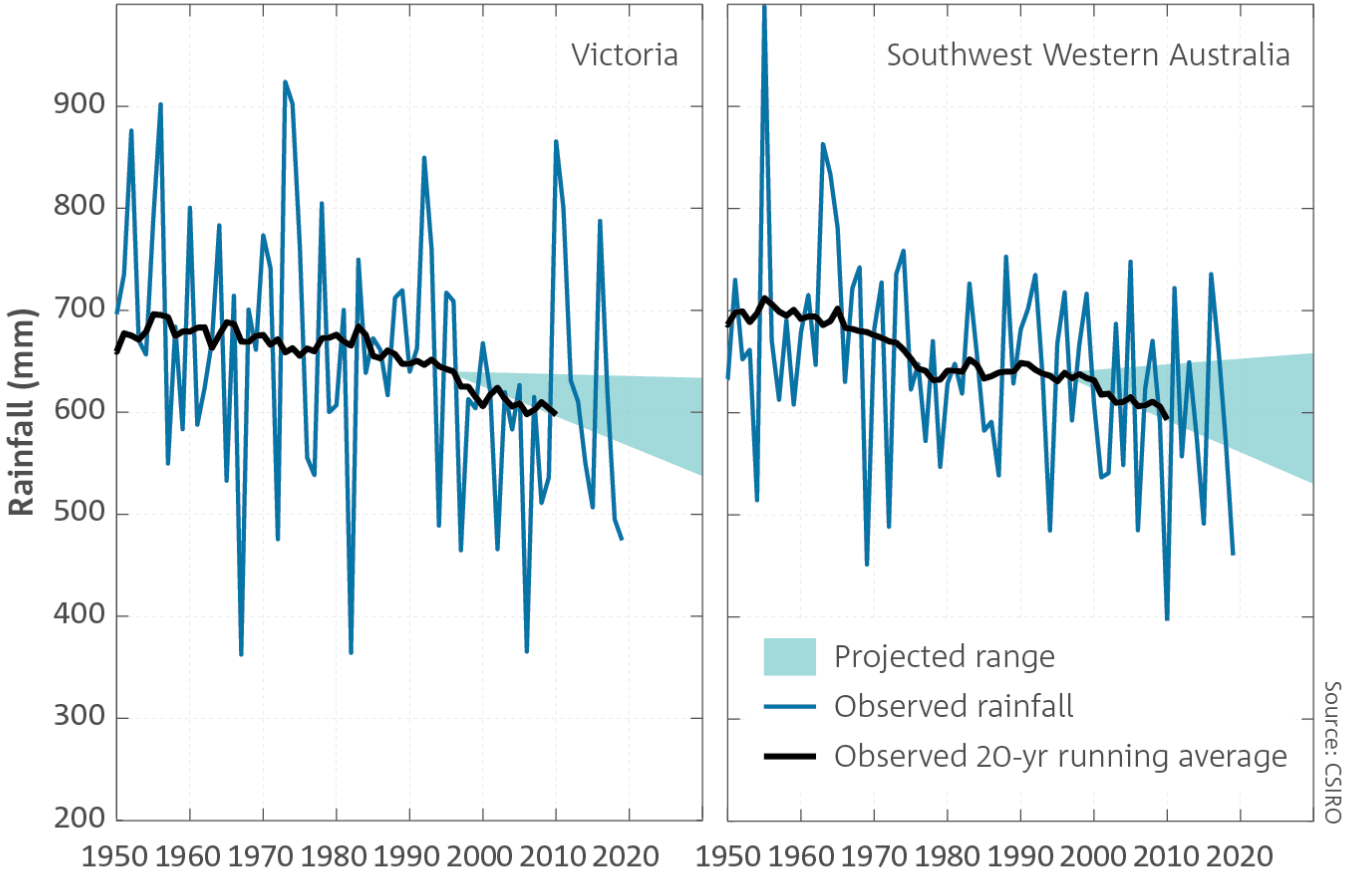
Observed and projected annual rainfall



State of the Climate report, 2020

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Future climate change at Canberra Airport

	Baseline 1981-2010	Present 2011-2020	2030 (2015-45) medium emissions
Ann mean max temp	20.0°C	+1.3 °C	+0.8°C (0.6 to 1.1°C)
Winter rainfall	161mm	-7%	-3% (-15 to +8%)
Days/year over 35°C	7.1	11.3	12 (9.4 to 14)
Days/year over 40°C	0.3	1.6	0.6 (0.4 to 0.8)

- Larger rainfall decline in the cool season
- Increased intensity of extreme daily rainfall events (*high confidence)*
- Increased evapotranspiration (*high confidence*)
- A harsher fire-weather climate (*high confidence*)

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IPCC AR6 Climate change impacts

Some high confidence key risks for Australia

- Loss … of coral reefs … due to marine heatwaves
- Increase in heat-related mortality … for people and wildlife due to heatwaves
- Cascading impacts on cities, settlements, infrastructure and services due to wildfires, floods, droughts, heatwaves, storms and sea-level rise
- Inability of institutions and governance systems to manage climate risks

IPCC AR6 WG2 Regional Factsheet Australasia

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Australia's emissions projections to 2035 by sector

Sector	National Greenhouse Gas Inventory		Projection	
	2005	2020	2030	2035
Electricity	197	172	79	66
Stationary energy	82	101	101	94
Transport	82	93	103	99
Fugitives	43	53	55	55
Agriculture	86	73	79	78
Industrial processes and product use	30	32	28	25
Waste	16	13	11	10
Land use, land-use change and forestry	85	-39	-33	-44
Total	**621**	**498**	**422** (-32%)	**383**

Table 5, *Aust. Emissions Projections 2022*, DCCEEW

Addressing the challenges

Companies, Boards and Directors need to:

- manage climate risks & opportunities in their activities associated with
  - physical risks due to climate change, and
  - transition to a zero-carbon economy faster than current Australian targets
- consider risks regionally, across Australia and globally
- consider both direct risks and indirect risks affecting supply chains and markets
- consider risks from extreme events and chronic, longer-term risks
- use scenarios to 2050s plus experience over last two decades for stress-testing activities and planning for surprises, with expert advice
- include information on all findings in Annual Reports

References

- APRA *Prudential Guide Climate Change Risks*, 2021
  https://www.apra.gov.au/sites/default/files/2021-11/Final%20Prudential%20Practice%20Guide%20CPG%20229%20Climate%20Change%20Financial%20Risks.pdf
- ASIC *Managing climate risk for Directors*, 2021
  https://asic.gov.au/about-asic/news-centre/articles/managing-climate-risk-for-directors/
- IPCC AR6 WG1 Science report Summary for Policy Makers (SPM), 2021
  https://www.ipcc.ch/report/ar6/wg1/chapter/summary-for-policymakers/
- IPCC AR6 WG1 Summary for all (Simpler, less technical summary), 2021
  https://www.ipcc.ch/report/ar6/wg1/downloads/outreach/IPCC_AR6_WGI_SummaryForAll.pdf
- IPCC AR6 WG2 Impacts Regional Factsheet Australasia, 2022
  https://www.ipcc.ch/report/ar6/wg2/downloads/outreach/IPCC_AR6_WGII_FactSheet_Australasia.pdf
- IPCC AR6 Synthesis Report SPM https://report.ipcc.ch/ar6syr/pdf/IPCC_AR6_SYR_SPM.pdf
- Australian Academy of Science *The risks to Australia of a 3°C warmer world, 2021*
  https://www.science.org.au/files/userfiles/support/reports-and-plans/2021/risks-australia-three-deg-warmer-world-report.pdf
- CSIRO & Bur of Meteorology *State of the Climate 2022*
  https://www.csiro.au/en/Showcase/state-of-the-climate

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