

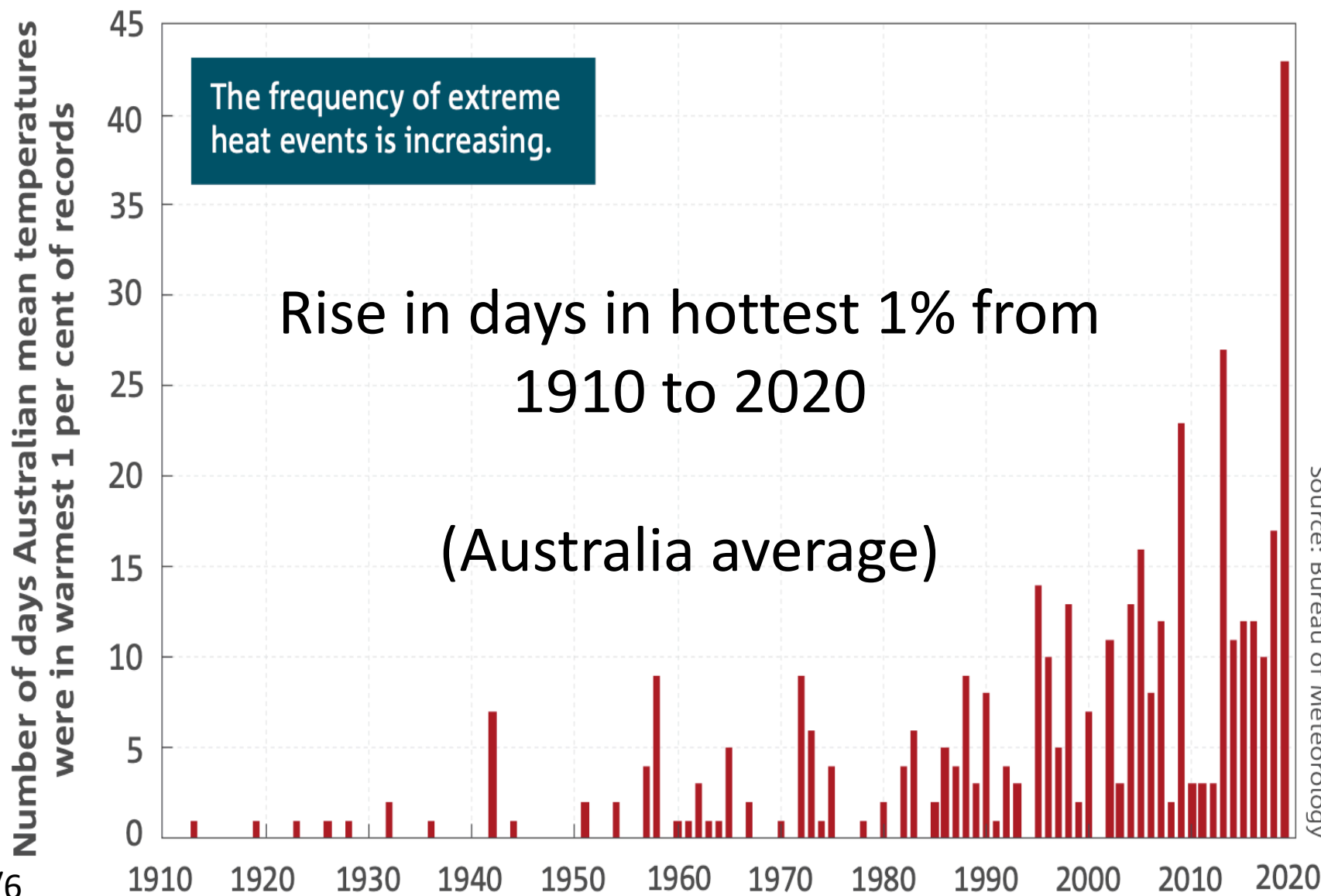
Accompanying Slides with explanatory notes
to evidence given to

NSW IPC Hearing on Tahmoor South Coal Project

Now using Appendix H of Amended Project, dated 22 July 2020

Professor Penny D Sackett
ANU Climate Change Institute
17 February 2021

What increase of 1.1°C (in average global temperatures) has meant to the number of extremely hot days in Australia



A rise in average global warming of 1°C should not be thought of as raising all surface temperature records by 1°C.

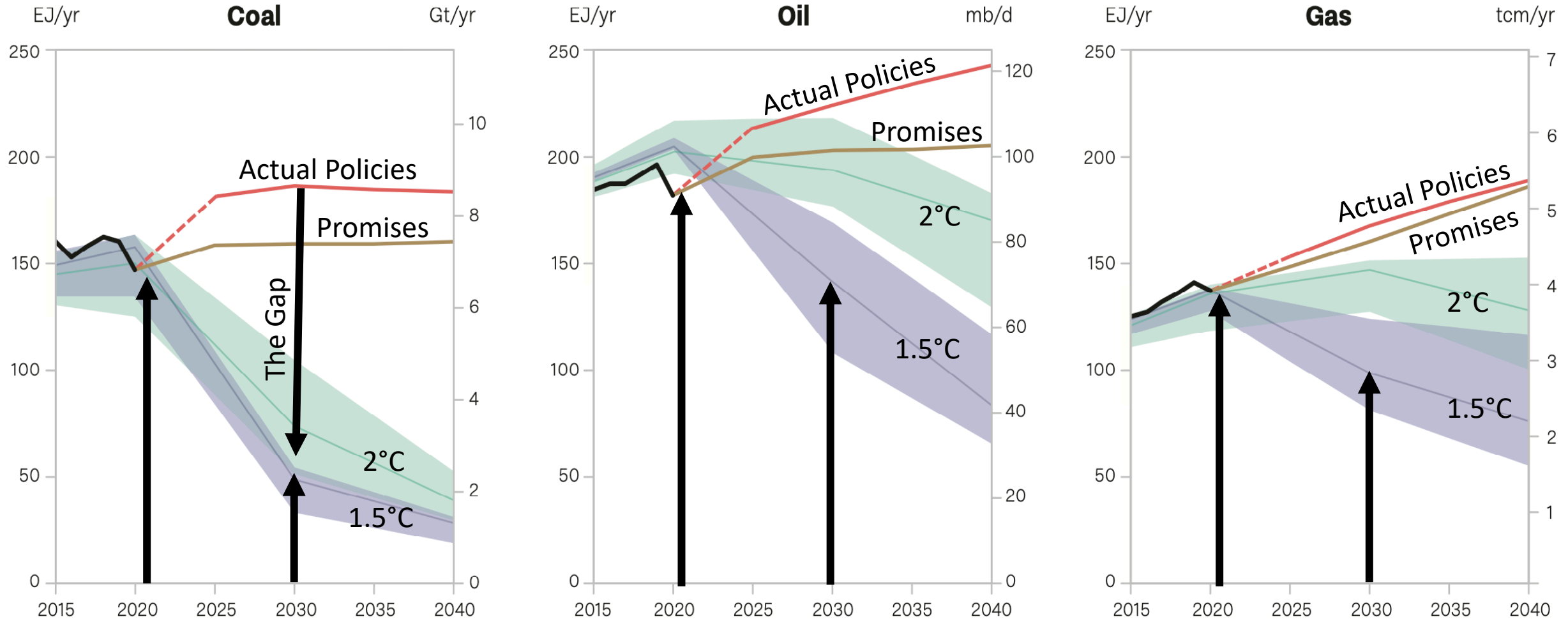
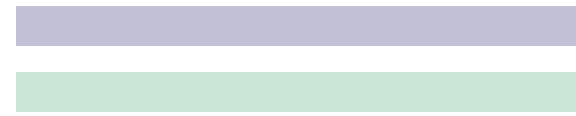
Rather, warming of surface temperatures by 1°C corresponds to a huge increase in the energy added to the interconnected Earth system, including its vast oceans.

This is an enormous amount of energy, which “supercharges” the climate.

Examples of why a small rise in global temperature makes a huge difference

- 1.1°C of global warming (now): Black Summer, 38°C in Siberia
GB Reef moving to tipping point
- 1.3°C: Unavoidable, due to delayed effect from previous emissions
- 1.5°C: Summer temps of 2019/20 will be an “average summer”
At current rates, this world occurs around 2040
- 2.0°C: Black Summer fire weather 4 times more likely than in 1900
Sydney: 50°C summer days
99% of all world’s coral reefs gone

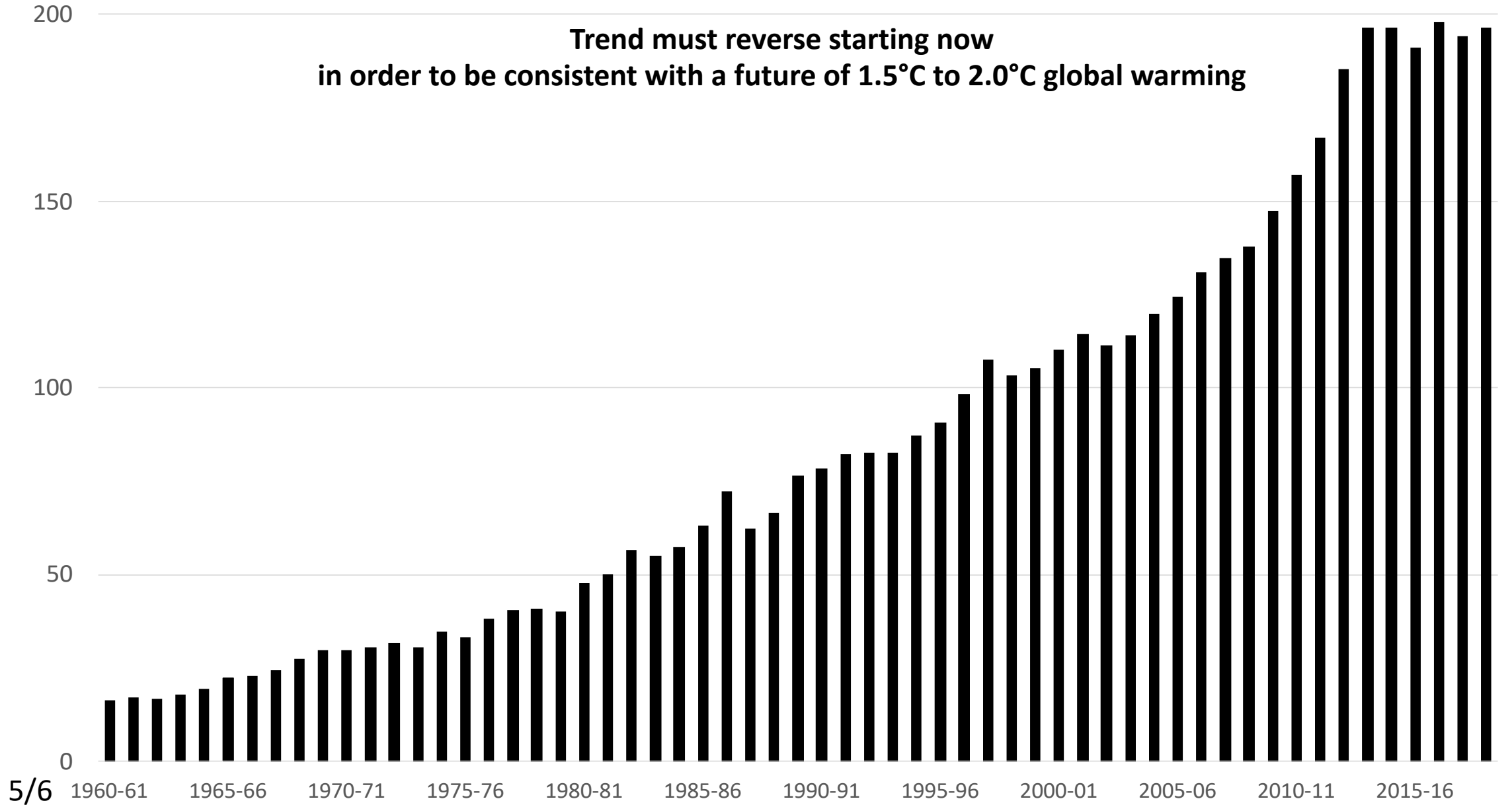
50% Chance of Holding Global Warming to 1.5°C
66% Chance of Holding Global Warming to 2°C



4/6 Global Fossil Fuel 'Production Gap' between actions and a more difficult, but still obtainable, climate

NSW Annual Black Coal Production (in Mt) over time

**Trend must reverse starting now
in order to be consistent with a future of 1.5°C to 2.0°C global warming**



Every year, Tahmoor South would increase NSW emissions by about 30% of the emissions REDUCTION that NSW must achieve to meet its own 2030 target.

Other NSW stakeholders would need to make up this difference.

35% on 2005 levels by 2030 *

26%–28% on 2005 levels by 2030

Basic Data in second column from Table in Section 4, Appendix H, 22 July 2020
Additional columns from P.D. Sackett

Note: Scope 3 emissions influence the environment of NSW every bit as much as Scope 1 or 2 emissions of same amount.

Nature makes no distinction concerning where fossil fuels are combusted.

		% NSW Average Annual Emissions (with trend to 2030 target, then constant)	% AUS Average Annual Emissions (with trend to 2030 target, then constant)	% NSW Annual Reduction Task to 2030	% AUS Annual Reduction Task to 2030
Tahmoor South Average Annual Emissions (over 12-year lifetime)	MtCO ₂ -e			2.9 MtCO ₂ -e	9.1 MtCO ₂ -e
Scope 1 + 2	0.87	0.75%	0.18%	30% In Wrong Direction	9.5% In Wrong Direction
Scope 1 + 2 + 3	6.35	5.5%	1.3%	220% In Wrong Direction	69% In Wrong Direction

* As set out by NSW Government in its 2020 publication: *Net Zero Plan Stage 1: 2020-2030*