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Gas is not a transition fuel to a safe climate. That ship has sailed.

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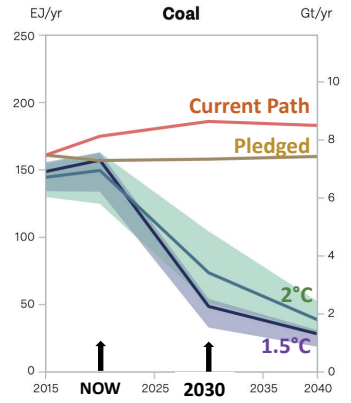
If gas-fired electricity emissions can be lower than that from coal-fired plants, should Australia expand its fossil gas industry as a means of combating climate change? The answer is a clear no if we want to avoid the worst climate change outcomes.

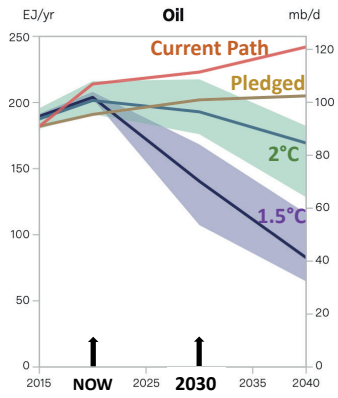
Science has repeatedly demonstrated that the most important action to limit global warming to well below 2°C is to begin to reduce all fossil fuel consumption — coal, yes, but oil and gas too — in this decade.

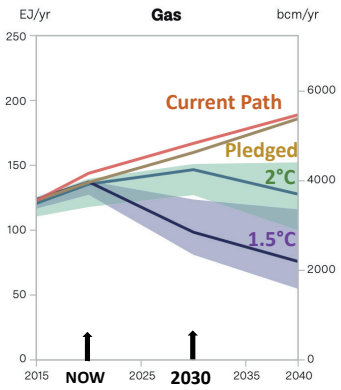
The primary difficulty is the large mismatch between what is required to meet that stated climate goal of the Paris Agreement and what nations have actually pledged to do. Worse still, the current policies of many countries, Australia included, would increase their national production of fossil fuels, increasing emissions above their own weak pledges.

This so-called "production gap" is the subject of a recent multi-institutional, multinational report led by the Swedish Environment Institute (SEI 2019). Its analysis shows that governments are planning to produce about 50 per cent more fossil fuels by 2030 than would be consistent with a 2°C pathway and 120 per cent more than would be consistent with a 1.5°C pathway. This means that plans for fossil fuel development or extension that are already on the table must be shelved to hold warming to the Paris target range.

Consistent with other research, the report demonstrates that to have a 66 per cent chance of holding warming to well below 2°C, coal, oil and gas production must all decline significantly in the next decade. That is why increasing gas development to displace coal is no longer a viable approach to maintaining a reasonably safe climate.







Stockholm Environment Institute (2019)

Over the past 30 years, coal-to-gas "fuel-switching" has played a role in reducing emissions in the United States and Britain. However, the latest information from the US Energy Information Administration (2019) shows that the US energy grid has decreased its emissions from a shift to non-fossil fuel sources by almost as much as a shift to gas. Despite the shale boom, non-carbon energy sources have now overtaken any other single source of fossil fuel in supplying energy to the US grid.

In Britain, renewables played a large role in reducing emissions in the electricity grid. Between 2006 and 2016, the renewables share of electricity production rose from 2 per cent to 25 per cent, even excluding large hydro. While the 1990s' "dash for gas" was responsible for the largest cumulative amount of avoided greenhouse emissions in Britain since 1990, the situation is different now (Hausfather 2019). In 2017, the transition to renewable energy was the largest driver in its electricity sector's emission reductions. In second place was lower electricity demand (think what we could do with energy efficiency in Australia), while coal-to-gas switching came in third.

The world we live in has already changed dramatically with global average temperatures now 1.1°C above pre-industrial levels. Cyclones and storm surges are more intense. Droughts are more damaging. Fire seasons are longer and bushfires more fierce. Billions of animals died in last year's Australian bushfires alone. Entire species are becoming extinct at rates far above normal. The point of no return may have already passed for Arctic sea ice — in 15 years, globes in schoolrooms may show white ice at only one pole.

At 2°C of warming, heatwaves would be even more severe and more deadly to humans, animals and agriculture. Sydney and Melbourne would need to brace for 50°C days. The fire weather that produced Australia's Black Summer would become at least four times more likely, the amount of water available to feed dams and rivers in NSW would be reduced by 30 per cent from what was typical mid last century, and coral reefs around the world would almost certainly be eliminated.

We have all the tools to avoid that future of 2°C of warming. What has been lacking is coherent, science-based action that does not add yet more fuel to the climate fire. Today, when the enormous human, economic and ecological costs of even 1.1°C of warming are so clear, when prices of renewable energy have plummeted, and several non-fossil energy storage options are available, gas is not a transition fuel to a safe climate. That ship has sailed.

Planned and rapid coal-to-renewables switching is now the responsible path. Gas will have a role in the near term, certainly, but the science is clear. The role of gas needs to be a significantly declining one, not a growing one, if we are to avoid the worst of climate change so that Australia's future is safe, sustainable and competitively modern.

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References

Hausfather, Zeke (2019) Analysis: Why the UK's CO_2 emissions have fallen 38% since 1990. *Carbon Brief* 4 February https://www.carbonbrief.org/analysis-why-the-uks-co2-emissions-have-fallen-38-since-1990

SEI, IISD, ODI, Climate Analytics, CICERO, and UNEP (2019) *The Production Gap: The discrepancy between countries' planned fossil fuel production and global production levels consistent with limiting warming to 1.5°C or 2°C.* http://productiongap.org/

U.S. Energy Information Administration (2019) *U.S. Energy-Related Carbon Dioxide Emission, 2018*. November. https://www.eia.gov/environment/emissions/carbon/