Twitter Thread by Tim Baxter #athome

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@timinmitcham

The report that has been my life for months now finally came out today, and it has heaps of useful info.

I've been working in the space for years, and even I was shocked some the things I found.

I'm going to step through some bits I think will help others in threads.■

The report has its key findings.

They are perfectly serviceable - and were written by the comms geniuses at @climatecouncil - but if I'm summarising this multifaceted report in a single sentence:

Gas is more harmful than you know, and very much more unnecessary than you think.

Key findings

1

Australia's in the grip of a climate crisis. Extracting and burning more gas escalates risk and puts more Australians in harm's way.

- The past year of climate extremes—an unprecedented drought across vast swaths of Australia, the Black Summer bushfires, and a third mass bleaching of the Great Barrier Reef in five years—was driven by the 1.1°C of warming that's already occurred as a result of climate change.
- Climate change is driven by the consumption of fossil fuels: coal, oil and gas. Although a limited and discrete use of existing gas may be necessary as we fully transition to renewables and storage, if we are to avoid slipping from a climate crisis to a full-blown catastrophe there cannot be any expansion of fossil fuel production of any kind.
- There is still a chance to hold global temperatures to well below 2°C above pre-industrial levels, but any new fossil fuel infrastructure puts this target at risk. That includes any new gas production, or new gas projects.

2

Gas causes climate harm and its emissions are under-reported in Australia.

- Even before it is burned, gas causes climate harm. The main component of gas, methane, is a greenhouse gas nearly 100 times more potent than carbon dioxide in the short term. Along the entire gas supply chain large quantities of methane are emitted.
- Australia is not counting the true contribution of gas towards climate change. Upstream emissions of gas, as well as other leaks, are under reported, using out-of-date measures based on decades-old analyses conducted in other countries. Once corrected, the supposed climate benefit of gas often disappears.

3

The international gas market is in crisis, and Australia is dangerously exposed to job losses and power price volatility.

- A drastic increase in our gas exports has exposed Australia to international boom-and-bust market cycles. The wholesale price of gas reached record highs for most Australians between 2016 and 2019, before plummeting as a result of a global supply glut in late 2019.
- Most of Australia's gas is expensive to produce compared to international competitors. The centrepiece of the Federal Government's gas-led recovery, a stretch goal of $4 per gigajoule for gas, was described as a 'myth' by the extraction industry's own lobbyists.
- The combined impact of COVID 19 and a price war between Russia and Saudi Arabia saw the Australian oil and gas industry lose more jobs than any other sector of the economy in the first round of job losses this year; shedding 40% of its employees between March and April 2020.

Let's start with harmful.

Gas is harmful in two key ways: Bad for the climate and bad for jobs.

I've had a long day, so I am *just* going to do harmful to the climate tonight.

This really is a bumper report, and I'm paid to say that it has a lot to recommend it.

Gas is primarily made of methane. This makes it both a fossil fuel and a greenhouse gas in its own right.

First and crucially: To arrest the continued destabilisation of the global climate we must prevent the burning of fossil fuels in every instance where it is possible.

There's no room left in the global carbon budget for running a protection racket on your favourite fossil fuel. Anyone campaigning for the Volunteer Gas Industry Safety Brigade needs to have their claims scrutinised in the context of the climate harms already seen.

Australia is running a fever. The country's temperature is 1.44°C above where is was in 1910, and there is worse to come.

At that temperature, we've seen unprecedented drought, which @ClimateNerilie and colleagues have shown is linked to the destabilisation of the climate.

We've seen the third mass bleaching of the Great Barrier Reef in 5 years, which people like @ProfTerryHughes and @oveHG (along with *many* others) have documented.

@AndrewKingClim showed that this kind of event was 'almost impossible' without the destabilisation of the climate.

And then we've seen Black Summer.

I don't want to quantify that again. It's too much.

If you need to read it, it's on pages 4-5: https://t.co/SHtBbqA3LX

This *is* fossil fuels.

This *is* coal. This *is* oil. This *is* gas.

Gas is now the world's fastest growing fossil fuel and increases its burden on the global atmosphere every year.

Expanding gas production puts Australians in harm's way.

Making it your pet fuel is weird.

But the thing that really gets to me is the bullshit that is spread about gas in the process of advocating for it as the friendly, sunny way to bring about ever-worsening climate harms.

This trend happens across the world, but Australia is *just so good* at swallowing it

That brings us to the second point: Australia doesn't really require *measurement* of the full climate impact of the gas industry.

Instead, we estimate, using 'emissions factors'. Emissions factors aren't necessarily problematic, if they are done right.

They aren't done right.

The emissions factors used in Australia are, for the most part, based on a single (extensive!) assessment the was conducted in the USA in 1992.

A 3-decade-old study, conducted on a different continent at a time where the unconventional gas industry barely existed.

Awesome.

Periodically, these factors are confirmed as appropriate for the 21st century Australian gas industry in non-peer-reviewed, gas-industry funded studies with small sample sizes.

■

After that, we also fail to account for the impact of the methane correctly. I went through this in a piece with @adamlmorton, and took a bit of a deep dive into the numbers afterward in the thread that starts in this.
https://t.co/b4Inh9IN5y

> Just going to give the quick run down of the facts and figures in this story, for those following at home.
>
> First, to be clear, this story is less about our *counting* of our emissions, and more about our *accounting* of their impact on the super heating of the climate. https://t.co/L6x7pIYjjf
>
> — Tim Baxter #athome (@timinmitcham) August 26, 2020

.@zebnicholls and I explained it a bit more here in this piece, as well. https://t.co/wPE9jxJDVj

The report steps through that again, in the context of the gas industry.

Then there's my favourite new bit. We *also* recalculated the emissions intensity of gas power station on the NEM (Vic, Tas, ACT, almost all of NSW, major populated regions of SA, Qld) and SWIS (SW WA).

You know how you've heard that gas is half of the emissions of coal?

No. Sorry. That is not true. It is a big fudge and reality is more complicated.

Gas-fired generators vary greatly by technology type.

Table 2: Average emissions intensity of Australian power stations by fuel, including direct (scope 1) and indirect (scope 3) emissions. **Source**: Clean Energy Regulator (2020) and ACIL Allen (2016).[2]

Power station type	Average direct emissions intensity (kg CO_2-e/MWh)	Average direct and indirect emissions intensity (kg CO_2-e/MWh)
Brown coal (subcritical)[3]	1,204	1,209
Black coal (subcritical)	890	921
Black coal (supercritical)	858	869
Gas-fired steam turbine	562	692
Open cycle gas turbine	616	672
Reciprocating gas engine[4]	*560*	*672*
Combined cycle gas turbine	411	471
Hydro	0.6	0.6
Solar	0.6	0.6
Wind	0.4	0.4

Even setting aside that these emissions intensities rely on the official data and so – as discussed in section 3.4 – very likely underestimate indirect emissions from the facilities, it is immediately clear that not all gas generators are created equal.

The generation types that are more efficient (steam, CCGT) are the types that are less-suitable to a 21st century grid.

The ones that ramp-up and down are arguably more useful (OCGT and reciprocating), but are nowhere near half the emissions of coal.

But *just* relying on the volume weighted averages in the table above is deeply misleading. The ten least efficient generators on the grid all rival the emissions intensity of coal. Here is their emissions intensities over FY16-FY19.

Table 3: A comparison of Australia's least efficient gas-fired power stations and the existing coal fleet. **Data source**: Clean Energy Regulator (2020), ACIL Allen Consulting (2016).[5]

Name	Ultimate owner	State	Emissions intensity (kg CO_2 e/MWh)[6]	Notes
Barcaldine	Queensland Government[1]	Qld	2,430	**Australia's dirtiest gas power station**
Yallourn	Energy Australia	Vic	1,320	**Australia's dirtiest coal-fired power station**
Dry Creek	Engie/Mitsui	SA	1,227	
Hallet	Energy Australia	SA	1,167	
West Kalgoorlie	WA Government[2]	WA	1,078	
Mintaro	Engie/Mitsui	SA	923	
Pinjar A & B	WA Government[2]	WA	869	
Mungarra	WA Government[2]	WA	845	
Valley Power	Federal Government[3]	Vic	840	
Millmerran	InterGen	Qld	832	**Australia's most efficient coal-fired power station**
Jeeralang A & B	Energy Australia	Vic	819	
Somerton	AGL	Vic	791	

[1] Via Ergon Energy [2] Via Synergy [3] Via Snowy Hydro

I'm really tired, and it has been a long day - but a good one - I will offer plenty more from the report.

If you want to read ahead though, try this: https://t.co/8eE37s6yFa

And I haven't chucked a plug out there for a while, but if you like what I do and want to support it: https://t.co/9kHxb2t2lI