17th September 2020.

The Hon Josh Frydenberg MP
Federal Treasurer, and Member for Kooyong,
695 Burke Road
Camberwell, VIC, 3124

Dear Mr Frydenberg,

Firstly, congratulations to your Government for brokering an Agreement with Germany last week for developing low-emissions Hydrogen produced from Renewables.

The purpose of this letter though, is our ever-growing concern regarding the National Covid-19 Commission's prioritization of a gas-led recovery. This adds to our previous letter of September 1, which was written before the announcement of some of your Government's plans. This letter contains a lot more detail, explaining our concern.

The problems with a so-called Government sponsored, gas-led recovery are three-fold:

1) The problem associated with emissions, in particular ***methane***, and the growing awareness of its catastrophic contribution to global warming.
2) The economic reality of ***the decline in gas required*** for electricity 'firming' here and overseas.
3) The resultant erosion of a ***social license for new gas development.***

These three factors mean that 'Gas Assets' will be stranded assets and then suffer 'write downs' in a much shorter timeframe than was the case 5 years ago. The growing decisiveness and emboldened co-operation among superannuation companies like Australian Super and VicSuper locally, and Investment Funds like the Church of England, UK, the Norwegian Investment Fund, Blackstone and Allianz will see a trickle become a torrent to exit fossil fuel investments. This is, and can only be, headed one way. This is as much the Treasurer's job as it is the Environment Minister's job.

1. Methane emissions:

The most recent IPCC assessment report on Global Warming Potentials (GWPs), in 2014, found that 1 tonne of methane is equivalent to 28 tonnes of CO2-e over a 100 years period.

On a 20-year horizon, 1 tonne of methane is equivalent to 84 tonnes of CO2e.

Professor Bryce Kelly, an associate professor at the University of NSW, is one of 100 scientists in 14 locations around the world working on the study that measures for the first time how much methane we are leaking into the atmosphere.

"As a result if more than 3 per cent of total natural gas extractions leak into the atmosphere during its extraction, processing and transmission, natural gas becomes as bad or worse for climate change as burning coal".

Reuters reported last month that the EU's fleet of Sentinel-5P satellites detected huge plumes of invisible methane gushing from the Yamal pipeline running from Siberia to Europe.

"Critics of gas see this as the industry's Volkswagen moment. From 2006, the German carmaker promoted its "clean diesel cars". But in 2015 the US Environment Protection Agency exposed VW had used special software to fake emission levels. Emissions of nitrogen oxides were 40 per cent above legal limits. VW was hit with devastating fines and class actions.

Mapping of methane will be on the agenda of the UN climate summit planned for next year. It will feed evidence into the rolling update of the Paris Agreement. If Joe Biden wins, he's promised a global climate summit within 100 days of his inauguration, likely to comprise G20 leaders — it will have to talk methane. European leaders will present readings from their satellites, Canadians and Japanese from theirs.

If the satellite evidence keeps firming, investors will class gas assets as risky. Big energy has been downgrading oil and gas assets, scared they will be stranded, and not just because of COVID-19 market conditions. This year, investors such as BlackRock and Allianz have dumped thermal coal from their portfolios; as the science mounts, gas will probably get the same attention, at first gradually, then with some speed"[1].

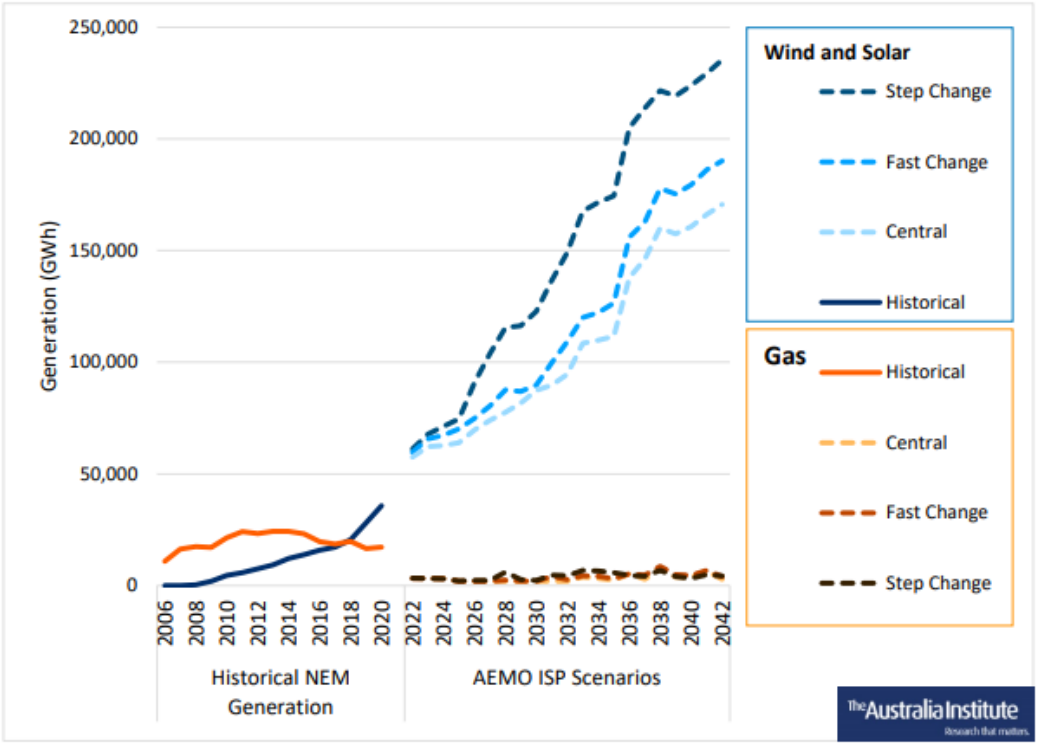
[1] https://www.smh.com.au/national/we-now-know-gas-is-far-from-the-clean-fuel-it-s-claimed-to-be-20200715-p55c7g.html

2. Gas use in the NEM is declining Year-on-year (Ref: AEMO)

According to AEMO's most recent *Gas Statement of Opportunities*, of gas produced in Australia, only 3.5% will be used for gas powered generation in 2022, declining to 2.4% in 2025[2].

By contrast with gas, renewable energy generation grows very strongly in each of these lowest cost scenarios.

Figure 22: Gas vs renewables in the NEM – historical & AEMO ISP optimal scenarios



Source: OpenNEM (2020) OpenNEM: An Open Platform for National Electricity Market Data, AEMO (2020) 2020 Integrated System Plan (ISP), 2020 ISP Generation Outlooks, Scenario 2 for "optimal path" in each case, optimal development pathway for each scenario, as per Table 10 in ISP report.

Across the NEM, since the beginning of the decade, gas use has fallen and wind and solar have grown dramatically, overtaking gas in 2018. In each of these scenarios, wind and solar generation continue to grow rapidly to 2042, while gas use falls dramatically.

This is possible because the technology is cost effective. CSIRO's GenCost study shows renewables with 6 hours of storage are already comparable in cost to closed cycle gas and far cheaper than peaking gas, and will get cheaper still in later years. Renewables are far cheaper on a standalone basis. Not all renewables will need storage and overbuilding renewable capacity will often be cheaper than storage.

[69] AEMO (2020) *2020 Integrated System Plan (ISP)* Report, p. 56

[2] https://aemo.com.au/-/media/files/gas/national_planning_and_forecasting/gsoo/2020/2020-gas-statement-of-opportunities.pdf?la=en

In a decarbonising world, the role for gas is one that shrinks, not grows. Just **2.4%** of Australia's gas production is needed in 2025, and the trend shows this declining out till the end of the decade.

3. Social License for Gas is rapidly being withdrawn!

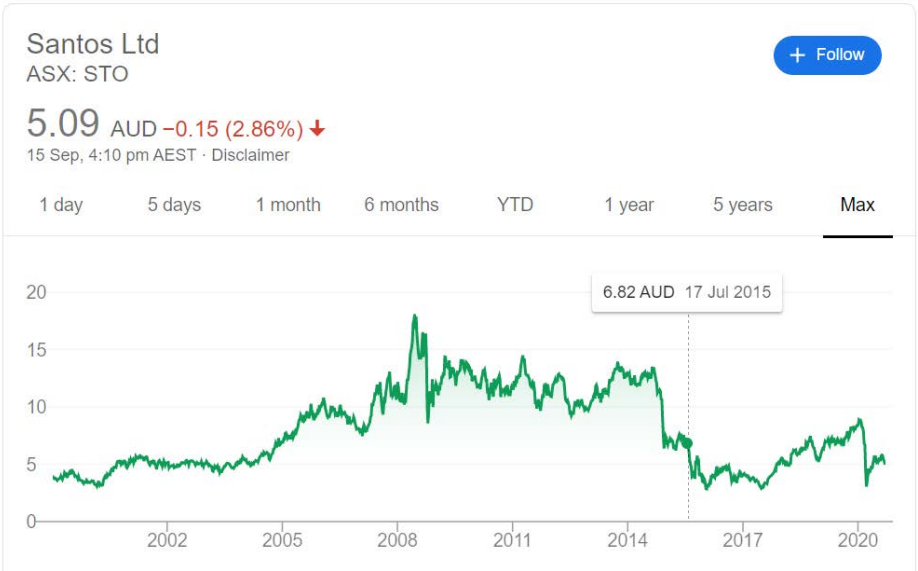
Awareness is quickly rising in Melbourne and Sydney as to the real facts about gas. Not only is gas problematic to extract, not only are gas fields declining, but now the 'methane 'global warming' effect is being revealed.

The tide is turning. Gas is the next fossil fuel to be exposed. Only this time, compared to coal a decade ago, there are clearer alternatives to gas, almost all involving electrification. We recognize that displacement of gas from production of fertilisers will be slower.

Public opinion in Australia's southern states, Victoria, Tasmania and South Australia is rapidly turning and this trend will continue in these states.

For example, over 9,000 submissions opposing AGL's Westernport Gas Terminal proposal were recently submitted

Corporate investors will punish gas as Funds desert fossil fuel investments for ethical reasons. Companies like Woodside and Santos are already losing their social license in southern states as well as profitability on the decline since 2008. And economically, Renewables will continue to 'cut their lunch'. The following graphs show un-equivocally a declining share price since 2008. Satellites publishing methane data in 2021 will accelerate the prevalence of renewables at the expense of gas.



Santos and Woodside share prices from 2002 to 2020. Note decline in share prices of both since 2008. Note also, Woodside Petroleum suffered a record $US4.067 billion ($5.68 billion) first-half 2020 loss.[3]

The future for Australia

And so to a better future with clean energy investment and jobs.

Renewable energy is now clearly the lowest cost energy. AEMO and CSIRO have confirmed this repeatedly over the last 3 years. Australia has natural advantages of solar and wind resources. As well, Australia has the experience and runs on the board to take this advantage to the next level.

State Governments and State Energy Ministers are recognizing this strategic advantage as are people like Michael Cannon-Brooks (Sun-Cable), Sanjeev Gupta (steelworks at Whyalla, SA, and Laverton, Vic) and Twiggy Forest (Hydrogen and Renewables powered iron ore conversion onshore to steel). And just this week, the Queensland government announced three Renewable Energy Zones (REZ's):

> The Palaszczuk Government announced it will invest $145 million to establish three renewable energy zones in the state, including one in the Gladstone region.
> Gas is a fossil fuel and increasingly it looks doomed to a quicker demise as the effects of methane emissions are understood. The science is known, we have lacked the measurement tools on a broad scale. Satellites and cameras are now being directed at un-covering this largely hidden problem.

Government investment in our economic recovery is an 'opportunity cost' that must be future-proof. Australia's economic future depends on future-proof investments in the clean economy and a jobs economy. The Hydrogen announcement is a case in point.

[3] https://www.afr.com/companies/energy/woodside-primed-for-deals-despite-huge-loss-20200813-p55ldr

The AEMO, CSIRO and IEA all forecast this trend is clearly to Renewable technologies. Australia has some of the best natural advantages in wind and sun. CSIRO Reports shows how quickly batteries are coming down the cost-curve. We have the upstream industries to capitalize on this economic transition, iron ore and aluminium ore for example, and other mining more generally.

Summary

This issue will not go away. Not in Melbourne and Sydney at any rate. Though Queensland will be slower. Momentum is building. Voters are getting educated on gas. Australia's scientists are now publicly holding Alan Finkel to account on his proclamations, and his under-estimation of the dangers of increasing gas development.

Satellite data will, within a year (or two), publicize the actual methane emissions. Globally. Regularly. On-line. For everyone to see.

Make no mistake, once this breaks through into general public awareness Australians will treat this as contributing to global warming, to bushfire severity and the connection will be easier to make than it was for coal. We are not dependent on gas in Australia like we were for coal. The likes of Twiggy Forest, Sanjeev Gupta and Mike Cannon-Brookes will demonstrate this economic reality to voters and the broader public.

- The Paris Agreement must be honoured.
- Domestically in Australia, the promotion of a gas-led recovery will be seen in hindsight as a major political failure, and unlike the coal transition. Gas employment is not comparable to the La Trobe valley in Victoria or Hunter Valley in NSW. This will mean social license decline in Vic and NSW will be rapid.
- Globally more broadly, the reality of the effect of methane emissions through the supply chain will soon be starkly revealed by satellite data.
- GenCost (CSIRO) data and AEMO reports, confirm that renewables are economically better and that information is there for anyone who wants to study it.

Gas leads us no-where. The alternative to gas is here now. Renewables and electrification are the future.
The comments in this letter may well need further clarification and discussion. We request that you might find a slot in the next two weeks for us to connect with you on Zoom.

Yours sincerely,

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