The Secretary
Senate Standing Committees on Environment and Communications
Parliament House
Canberra

Dear Senators

Clean Energy Finance Corporation Amendment (Grid Reliability Fund) Bill 2020

The above Bill would, among other things, establish a $1bn Grid Reliability Fund which would encourage investment in energy storage, transmission and infrastructure and "grid stabilising technologies". According to Minister Taylor these would include more gas generation projects, carbon capture and storage and pumped hydro.

While making the electricity grid more reliable and encouraging storage technologies are worthwhile objectives, how these are achieved – both in terms of strategy and chosen technologies – is critical.

In my view, both the announced strategies and the proposed technologies raise serious concerns. This submission explores those concerns.

Questionable investment strategy and choices

The Minister's second reading speech talks about "encouraging and supporting private investment" in certain technologies, although both the Minister and the Prime Minister have made it clear that they are prepared to override the private sector and build a gas-fired power station in the Hunter Valley to replace AGL's rapidly failing Liddell coal-fired power station.[1] This is notwithstanding the fact that AGL, when it announced years ago that it would close Liddell, also undertook to replace that generation capacity – something which it has already begun to do.[2]

Telling the private sector that it will build a facility using tax payer funds which the private sector does not see as viable, is hardly a strategy to support and encourage private investment. It is the very opposite. A point which successful business investors have already noted with concern.[3]

[1] Elouise Fowler, Canon-Brookes and Musk keen for big battery number two, Australian Financial Review, Sep 16, 2020 at: https://www.afr.com/companies/energy/cannon-brookes-and-musk-keen-for-big-battery-number-two-20200916-p55w2t, accessed 17 September 2020

[2] AGL, Upper Hunter Energy Integration Hub promotional video, at https://www.youtube.com/watch?v=_fZVmVTmW-M, accessed 1 July 2018

[3] Katharine Murphy, Mike Cannon-Brookes says he might bid to replace Liddell plant if PM 'declared the rules of the game' The Guardian, 15 September 2020, at: https://www.theguardian.com/australia-news/2020/sep/15/mike-cannon-brookes-says-he-might-bid-to-replace-liddell-plant-if-pm-declared-the-rules-of-the-game accessed 16 September 2020.

Encouraging more gas and gas-fired generation

Again, both Minister Taylor and the Prime Minister have made it abundantly clear that they support *more* gas and more gas-fired power generation.[4] Not only do these public announcements sound as if the government is "picking winners" – something which again it publicly eschews – but also it overlooks the fact that Australia already has an abundance of gas and the increasing scientific evidence about the serious risks of gas. Such pronouncements also overlook the fact that the Australian Energy Market Operator's (AEMO) recently released roadmap states that additional gas-fired power is not essential for Grid stability or for future energy price reductions. [5]

In 2019 Australia became the world's biggest exporter of natural gas.[6] According to a number of energy industry sources Australia has plenty of gas with one gas executive being quoted as saying that Bass Strait gas could supply Victoria, NSW and Queensland "indefinitely."[7,8] Furthermore, the East Coast transmission pipeline system is an "interconnected grid covering Queensland, New South Wales, Victoria, South Australia, Tasmania and the ACT" … most of which is "bi-directional which means that gas produced in Queensland can be used in Tasmania and gas from Bass Strait can be sent to as far north as Gladstone … and it means gas can be sent where it is needed."[9]

Taken together, the above factors suggest that it is, at the very least, contestable to assert that it is essential for energy security and/or reliability reasons to get more gas into the domestic market. Were it not so serious from the human and environmental health perspectives, it would be risible to suggest that the biggest exporter of LNG in the world is now unable to supply its own domestic gas needs quite comfortably.

Indeed, if there is a "shortage" of gas to the domestic market on the East coast it is not because there is insufficient gas but because of systematic policy failures by State and Commonwealth government over several years to allow the existence of a non-competitive

[4] Mike Foley, "NSW the winner from 'non-binding' energy deal with Morrison government," Sydney Morning Herald, 4 February 2020, at: https://www.smh.com.au/politics/federal/nsw-the-winner-from-non-binding-energy-deal-with-morrison-government-20200203-p53xah.html

[5] Adam Morton, New gas-fired power not needed as renewable energy expands, grid operator says, 30 July 2020, The Guardian, at: https://www.theguardian.com/australia-news/2020/jul/30/gas-prices-will-need-to-stay-low-to-compete-with-alternatives-on-renewable-grid-operator-says, accessed 12 August 2020

[6] Nick Toscano, "Australia tops Qatar as world's biggest LNG exporter", Sydney Morning Herald, 6 January 2020, at: https://www.smh.com.au/business/the-economy/australia-tops-qatar-as-world-s-biggest-lng-exporter-20200106-p53p5h.html

[7] Samantha Hepburn, Australia has plenty of gas, but our bills are ridiculous. The market is broken." The Conversation, 22 October, 2019 at: https://theconversation.com/australia-has-plenty-of-gas-but-our-bills-are-ridiculous-the-market-is-broken-125130

[8] Charis Chang, "How Australia is being screwed over its gas" 17 March 2017, at: https://www.news.com.au/finance/economy/australian-economy/how-australia-is-being-screwed-over-its-gas/news-story/4187e60617aec18e87d57453cfca0167

[9] APGA, Pipeline facts and figures – East coast gas transmission pipeline system, East Coast gas grid, at: https://www.apga.org.au/pipeline-facts-and-figures

gas market and the development of three LNG plants in Queensland which funnel Australian gas overseas.[10,11]

Earlier this year, the Royal Dutch Shell Group, one of the world's biggest fossil fuel and petrochemical producers, announced it is to build and operate a solar plant in Queensland with sufficient output to power around 50,000 homes. It will not be used for domestic purposes, however, rather it will be used to power natural gas processing plants[12] and in so doing reduce the carbon footprint of the company's Queensland gas extraction operations by approximately 300,000 tonnes per year.[13]

The Shell decision is the clearest of indications that renewable sources of power generation are cheaper than fossil fuel generated power, most pointedly in this case gas-generated electricity. It is also a clear indication of the huge amounts of greenhouse gas emissions emanating from the production and burning of gas.

Increasing air pollution health risks from gas

Coal Seam Gas (CSG) is almost pure methane and in terms of its climate warming capacity it is 25 times more potent than carbon dioxide. There is some debate about the quantity of fugitive methane emissions through the mining and production of CSG/LNG.[14,15] There is no doubt, however, that mining and burning gas do pollute. In addition to CO_2, gas-fired power stations produce substantial quantities of carbon monoxide, oxides of nitrogen and sulphur, VOCs and particulate matter – both PM10 and the particularly harmful PM2.5.[16]

[10] Samantha Hepburn, 22 October 2019, as cited above.

[11] Charis Chang, 17 March 2017, as cited above.

[12] Shell joins the renewable energy game solar panel investment, *Energy Matters*, February 11, 2020, at https://www.energymatters.com.au/renewable-news/shell-joins-the-renewables-game-solar-panel-investment/ accessed 13 February 2020 and The Gangarri Solar Project at https://www.shell.com.au/energy-and-innovation/the-energy-future/gangarri-solar-project.html#iframe=L2Zvcm1zL2VuX2F1X3NvbGFyX2VucXVpcnk

[13] Shell breaks ground on 120MW PV project to power onshore gas operations, February 7 2020, at https://www.pv-magazine-australia.com/2020/02/07/shell-breaks-ground-on-120-mw-pv-project-to-power-onshore-gas-operations/

[14] Adam Morton, Smoke screen: how Australia's biggest Polluters have been free to increase emissions, 23 Feb 2020, at: https://www.theguardian.com/australia-news/2020/feb/23/smoke-screen-how-australias-biggest-polluters-have-been-free-to-increase-emissions, accessed 13 August 2020.

[15] CSIRO Fact Sheet, What does science tell us about fugitive methane emissions from unconventional gas? May 2017, at: https://gisera.org.au/wp-content/uploads/2017/06/Fugitive-methane-emissions-from-unconventional-gas-170531-3.pdf, accessed 6 February 2020.

[16] National Pollutant Index e.g. AGL's gas-fired LPG liquification plant at Wallumbilla, QLD at: http://www.npi.gov.au/npidata/action/load/emission-by-individual-facility-result/criteria/state/QLD/year/2019/jurisdiction-facility/Q012SAN013 and Somerton gas-fired power station in Victoria at: http://www.npi.gov.au/npidata/action/load/emission-by-individual-facility-result/criteria/state/null/year/2019/jurisdiction-facility/00021386

Air pollution alone, including that from extracting and burning fossil fuels and motor vehicle emissions, costs Australia an estimated $16 billion per year[17] and contributes to over 3,000 premature deaths each year.[18]

Gas production risks and the need for best practice regulation

The expert committee established by the Australian Chief Scientist to look into CSG mining concluded that such gas would "not be cheap"[19] – so much for lowering prices – and would require best practice regulation and monitoring and stated that it was a matter of urgency to develop and implement a transparent, adaptive and effective regulatory system.[20] The Australian Council of Learned Academies' report on unconventional gas production also pointed out that companies involved in CSG mining "will require great skill, persistence, capital and careful management of any impacts on ecosystems and related natural resources" if they are to successfully mine CSG.[21]

The NSW Chief Scientist and Engineer said in relation to CSG extraction that risk management had to be of a high order with stringent requirements and that current risk management needed improvement to reach best practice.[22] In that connection, the NSW Department of Planning, Industry and Environment in stating that the proposed 850 well Narrabri Gas Project was "approvable" subject to a "comprehensive suite of strict conditions" 61 pages of conditions in fact.[23]

Regrettably gas producers and CSG miners in Australia (and in other parts of the world) have had a litany of accidents, spills, cover ups and non-disclosures.[24,25,26] Equally regrettably,

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[17] Health Effects Institute (2017), 'State of Global, Air 2017' (online database), www.stateofglobalair.org. Ambient PM + Ozone mortality: Australia -3099 deaths (2015 global burden of disease x $A5.2M the 2010 value of statistical life)

[18] Institute of Health Metrics and Evaluation (IHME). GBD Compare Data Visualization. Seattle, WA: IHME, University of Washington, 2016. Available from: http://vizhub.healthdate.org/gbd-compare.

[19] Australian Government, Office of the Chief Scientist, "Engineering Energy: Unconventional Gas Production, Recommendations", June 2013, page 1 at: https://acola.org/wp-content/uploads/2018/08/shalegas-osc-recommendations.pdf

[20] Australian Government, Office of the Chief Scientist, *Engineering Energy: Unconventional Gas Production, Recommendations*, June 2013, page 1 at: https://acola.org/wp-content/uploads/2018/08/shalegas-osc-recommendations.pdf.

[21] Cook, P, Beck, V, Brereton, D, Clark, R, Fisher, B, Kentish, S, Toomey, J and Williams, J (2013). *Engineering energy: unconventional gas production*. Pp 19, Report for the Australian Council of Learned Academies, www.acola.org.au.

[22] Chief Scientist & Engineer. Final Report of the Independent Review of Coal Seam Gas Activities in NSW, NSW Government, September 2014.

[23] DPIE Letter of Referral, 12 June 2020 at: https://www.ipcn.nsw.gov.au/resources/pac/media/files/pac/projects/2020/03/narrabri-gas-project/referral-from-the-department-of-planning-industry-and-environment/dpie-letter-of-referral.pdf

[24] Mike Foley, Santos fined over Pilliga spill, The Land, 10 Jan 2014, at: https://www.theland.com.au/story/3581836/santos-fined-over-pilliga-spill/

[25] Peter Hannam, "'Embarrassing': Santos fined for using CSG water without a permit", Sydney Morning Herald, 17 October 2018, at: https://www.smh.com.au/environment/conservation/embarrassing-santos-fined-for-using-csg-water-without-a-permit-20181017-p50a7v.html

many of these same accidents, incidents and cover ups reflect poorly on the competence and effectiveness of the responsible regulators.

In recent years Australia has seen writ large huge failures both in private and public sector governance and management and government regulation in a wide range of areas from child sexual abuse, the aged care sector, the banking and insurance industries, management of water in NSW, Queensland and Victoria, wide-spread wage underpayment, the Centrelink Robo debt collection scheme, through to massive fraud in private Registered Training Organisations. And yet governments continue to talk about "light touch regulation" and "cutting green and red tape".

Such a history hardly encourages public trust in the competence and professionalism of both the gas industry and the government regulators, especially when it is widely acknowledged that both need to be at best practice level to manage the identified, complex and multi-faceted risks and exposures inherent in gas mining, production and use.

Carbon Capture and Storage (CCS)

The Global Carbon Capture and Storage Institute was established with much fanfare by Prime Minister Rudd in 2009. Since then, however, its career has been chequered at the very least. Its budget has been cut by hundreds of millions of dollars by following Labor Governments and by both the Abbott and Turnbull Governments.[27]

In December 2019, ten years after its establishment, the Institute's global database of CCS projects indicated that Australia had one such project operating (none in 2018), with none in construction and one each in "advanced and early development" in unspecified future years. It also recorded two "pilot and demonstration projects and test centres" in Australia.

Its 2020 publication states that "just under half of the [global] CCS projects announced since 2010 are no longer in the CCS facility pipeline" that is that they were never built; that the average global build rate over the past decade has been one facility per year; and that for CCS to play its part in meeting the Paris Agreement goals, 70-100 large-scale facilities would need to be built each year until 2050. Such an increase in the rate of development and construction, would require a "monumental shift in policy" it recorded.[28]

This is hardly a ringing endorsement of CCS technology or something into which more public funds might be committed.

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[26] Ricketts, A. (31 October ,2012) Contaminated sites and accidents related specifically to CSG/LNG in Australia. *ACTIVIST*. Accessed on 4th April, 2017 from: http://aidanricketts.com/contaminated-sites-and-accidents-related-specifically-to-csglng

[27] Lenore Taylor (2014-11-04). "Carbon capture and storage research budget slashed despite PM's coal focus". *The Guardian*

[28] Global CCS Institute, 2020 Thought Leadership. Scaling up the CCS market to deliver net-zero emissions-digital 6, pages 4 and 5, at: https://www.globalccsinstitute.com/ accessed 22 September 2020

Pumped hydro

While pumped hydro is a well-established storage technology, it needs to be noted that only a high-level business case for the much publicised Snowy 2.0 scheme has ever been released. That business case was developed by Snowy Hydro, the proposed scheme developer and owner; hardly an independent assessment. Even though this business case is at a high level, energy experts have claimed that the proposed development is likely to cost five times more than originally stated, take much longer to build and end up with a significantly reduced capability.[29]

Such criticism underlines the need for decisions, especially those involving large sums of public monies, being made only after rigorous, independent evaluation and with full transparency.

Conclusion

Taken as a whole, the concerns raised in this submission demonstrate that the proposal to expand the remit of the Clean Energy Funding Corporation to include funding gas generation projects and essentially unproven CCS technologies, is at the very least highly debatable.

Further, using such a vehicle to try to force the hand of private investors is completely at odds with the Government's and the Minister's stated intention to encourage and support private investment in this field.

David Roden

[29] Carrington Clarke, Snowy Hydro 2.0 a costly white elephant that won't deliver, says energy expert. ABC News, 14 October 2019, at: https://www.abc.net.au/news/2019-10-14/snowy-hydro-2.0-expensive-and-wont-deliver-energy-expert/11594768, accessed 22 September 2020.