



Australian Government

Chief Scientist

Dear Colleagues,

I write in response to your letter of 24 August 2020 in which you raised concerns relating to the potential expansion of natural gas usage in Australia.

I take this opportunity to thank you for acknowledging that I share your vision for the rapid development of Australia's renewable electricity sector. It is rewarding to see the contribution renewables have already made to reducing emissions.

To your point about my position regarding the supporting role that natural gas will play in the transition to a low emissions electricity supply, I can only reiterate what I said in my National Press Club address in February 2020. Namely, that the adoption of more renewable electricity will be faster, more economical and more reliable if natural gas fired electricity generation continues to be available in the near to medium term.

There will be times when supply from renewable electricity generators will be inadequate to meet demand and occasionally such periods will last many days and affect adjacent jurisdictions. Natural gas fired electricity can pick up where batteries and pumped hydroelectricity run short. Furthermore, natural gas fired electricity has an important firming role to play as and when existing coal-fired stations close due to age or competition.

Emissions from using natural gas to generate electricity are significantly lower than when using coal to produce the same amount of electricity, even when upstream fugitive

emissions of methane are included in the analysis.

In addition, the rapid ramping rate of natural-gas-fired electricity — in its supply firming role — means that it does not need to operate for nearly as many hours per year as slow ramping coal fired electricity would need to operate to meet shortfalls in the combined solar and wind generation.

The combination of lower emissions per megawatt-hour and a smaller number of operating hours means that natural gas fired electricity can make a valuable contribution to reliability during our transition to a low emissions electricity system. In my address to the National Press Club I also referred to the important role of an expanded transmission line network, large-scale batteries and pumped hydroelectricity in smoothing the variable renewable electricity supply, with any residual role of gas fired generators being ultimately met by fuelling them from clean hydrogen.

Responding to one of your other points, I have not commented on an expanded role of natural gas for industry. My focus has been on the use of natural gas fired electricity generation alongside renewable energy to offer redundancy and reliability for our electricity supply, as has been successfully demonstrated in South Australia, the United Kingdom and California.

The policy issues surrounding electricity supply are complex; the reliability of supply, the cost of electricity, and environmental issues all need to be addressed.

In summary, we need to use all of the tools available to us to achieve a low cost and

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secure transition to a low emissions electricity supply.

I thank you again for taking the time to write to me to express your position.

Yours sincerely



Dr Alan Finkel AO Australia's Chief Scientist

To:

Professor Nerilie Abram, Australian National University

Professor Nathan Bindoff, University of Tasmania

Professor John Church FAA FTSE, University of New South Wales

Professor Matthew England FAA, University of New South Wales

Professor Jason Evans, University of New South Wales

Honorary Professor John Finnigan FAA, Australian National University

Dr Joelle Gergis, Australian National University

Adjunct Professor Dave Griggs, Monash University

Professor Clive Hamilton AM, Charles Sturt University

Emeritus Professor Ann Henderson-Sellers, Macquarie University

Professor Ove Hoegh-Guldberg FAA, University of Queensland

Professor Mark Howden, Australian National University

Professor Lesley Hughes, Macquarie University

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Dr Sarah Perkins-Kirkpatrick, University of New South Wales

Professor Trevor McDougall AC FRS FAA, University of New South Wales

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