



22 September 2020

Committee Secretary  
Senate Standing Committees on Environment and Communications  
PO Box 6100  
Parliament House  
Canberra ACT 2600

Dear Committee Members

***RE: Senate Inquiry into the Clean Energy Finance Corporation Amendment (Grid Reliability Fund) Bill 2020.***

Thank you for the opportunity to offer our feedback on the **Clean Energy Finance Corporation Amendment (Grid Reliability Fund) Bill 2020** (hereafter “the Bill”).

We offer our feedback as Australian researchers with expertise in the fields of International Political Economy and Strategic Business Management, and an expert understanding of East Asia’s clean energy transition and its implications for Australia.

We are currently joint Chief Investigators on an [ARC-funded Discovery Project](#) that identifies the geo-strategic drivers of East Asia’s ambitious clean energy shift and the related opportunities for our nation (DP190103669).

***We believe that the proposed Bill has major implications for Australia’s ability to capitalise on the remarkable economic, environmental and geostrategic opportunities associated with East Asia’s ambitious clean energy shift.***

We wholeheartedly welcome the Government’s stated intention to increase public investment in clean energy technologies via the Clean Energy Finance Corporation (CEFC).

As the Government has acknowledged in its [First Low Emissions Technology Statement](#), by investing in rapid technological transformation, Australia can effectively kill two birds with the one stone: we can address climate change while re-invigorating Australia’s techno-industrial base, laying the foundations for a new era of sustainable economic growth and export competitiveness.

Importantly however, aspects of the proposed Bill would seriously compromise our ability to realise these important goals. In particular, the proposal to amend the CEFC’s mandate and direct public money towards fossil-fuel related technologies and industries – especially gas – will compromise not only Australia’s environmental ambitions, but our economic ambitions as well. ***More specifically, the proposed Bill will reduce Australia’s first-mover advantage in the zero-emissions industries of the future, and thus our ability to capitalise on the remarkable export opportunities currently presented by East Asia’s ambitious clean energy shift.***

As we explain in detail in our recent submission to the Government’s Technology Roadmap consultation process (APPENDIX A), a number of our East Asian trading

partners are currently pursuing highly ambitious clean energy transitions – largely for geopolitical and geo-economic reasons. These regional clean energy transitions are opening up enormous new export opportunities for Australia. Yet as we emphasised in our appended submission, a number of recent international developments are now driving East Asia's 'clean energy' ambitions in an ever 'greener' direction, i.e, away from 'cleaner' fossil fuel solutions (such as gas or coal with CCS) and towards zero emission renewable solutions.

In this context, we believe that the government's proposal to amend the CEFC's mandate and expand public investment in gas-related production and export capabilities is risky to say the least; it threatens to neutralise any strategic benefits Australia might gain from taking an early lead in emerging green technologies such as green Hydrogen ('Green H2').

We refer you to our appended analysis of the economic risks of expanding Australian investment in gas-related technologies, and strongly urge Committee Members to reject the proposed Bill on the basis of the arguments we make therein.

We further urge Committee Members to consider the four key challenges that we identify in our appended analysis, in order to better understand the steps that the Government can take to maximise Australia's participation in - and potential gains from - East Asia's clean energy shift.

Yours sincerely,

Elizabeth Thurbon, Ph.D.  
Scientia Associate Professor in International Relations  
School of Social Sciences  
UNSW Sydney  
Sydney NSW 2050

On behalf of:

**Elizabeth Thurbon**  
Scientia Associate Professor in International Relations in the School of Social Sciences  
at UNSW Sydney.

**Sung-Young Kim**  
Senior Lecturer in International Relations at Macquarie University, Sydney

**John Mathews**  
Emeritus Professor in Strategic Management at Macquarie University, Sydney.

**Hao Tan**  
Associate Professor in International Business at the Newcastle Business School,  
The University of Newcastle.

APPENDIX A

# Submission to the Commonwealth Government's Technology Investment Roadmap Discussion Paper Consultation Process

12 June 2020

Elizabeth Thurbon (UNSW Sydney)  
Sung-Young Kim (Macquarie University)  
John Mathews (Macquarie University)  
Hao Tan (University of Newcastle)

We offer our feedback on the Technology Investment Roadmap Discussion Paper as Australian researchers with expertise in the fields of International Political Economy and Strategic Business Management, and an expert understanding of East Asia's clean energy transition and its implications for Australia.

We are currently joint Chief Investigators on an [ARC-funded Discovery Project](#) that identifies the geo-strategic drivers of East Asia's ambitious clean energy shift and the related opportunities for our nation (DP190103669).

We welcome the Government's intention to support rapid technological transformation as a means to both address climate change and re-invigorate Australia's techno-industrial base, laying the foundations for a new era of sustainable economic growth and export competitiveness.

*However, in our view, the draft Roadmap does not position Australia to fully exploit the remarkable economic, environmental and geo-strategic opportunities presented by the clean energy transition currently underway in our region.*

We identify four key challenges that must be addressed in order to overcome these limitations, and to maximise Australia's participation in - and potential gains from - East Asia's green shift.

**Challenge 1: Australian policymakers must grapple more seriously with the geo-strategic considerations driving East Asia's clean energy shift. These considerations are shaping the technological trajectory of that shift, and related opportunities for Australia.**

It is well understood that a number of Australia's key East Asian trading partners - including South Korea and China - are now pursuing ambitious clean energy shifts, despite their historic reliance on fossil fuels. For more than a decade, these countries have been ploughing public resources into creating, commercialising, deploying and exporting green technologies, in close collaboration with local firms. These ambitious government actions have helped to rapidly drive down technology costs to the extent that renewable energies are now cheaper than fossil-fuels in many instances.

Far less understood are the geo-strategic considerations driving East Asia's clean energy shift. ***Policymakers in South Korea and China in particular are not promoting clean energies because of climate change concerns*** - at least not principally. Rather, they are motivated by intense concerns about their countries' energy insecurity caused by their overwhelming reliance on fossil-fuel imports for domestic energy needs. This reliance exposes East Asian countries to dramatic energy price fluctuations caused by factors beyond their control, not least geo-political tensions in countries like Iran and Sudan. Energy price volatility poses a serious risk to the international competitiveness of South Korea's and China's energy intensive, export-oriented manufacturing industries, which have long underpinned their successful economic development strategies.

By embracing clean energy and promoting the creation, commercialisation, deployment and export of green technologies, South Korean and Chinese policymakers are now seeking to solve their energy and economic security concerns in one hit by '[manufacturing energy security](#)', and vying for leadership in the high-tech, high-wage, export-oriented green industries of the future. Fortunately, this distinctive techno-industrial strategy (which we label '[developmental environmentalism](#)') will also help to address climate change.

These geo-strategic drivers of East Asia's greening shift have important implications for Australia: ***In their vigorous pursuit of energy security and techno-industrial leadership, our key East Asian trading partners are likely to rapidly reduce their reliance on fossil-fuel imports in an effort to shore up energy security and seize first-mover advantage in green industries, taking the emphasis away from fossil fuels ('clean' or otherwise) and eventually leaving them behind.*** Unless Australian policymakers understand this dynamic, we will fail to develop a technology roadmap that is fit for purpose.

In this context, we would emphasise the need for government to focus on future industry possibilities such as green hydrogen exports to Korea and China, rather than legacy fossil fuel systems. We find the government's current focus on a 'gas fired' COVID-19 recovery for Australia deeply problematic; a point we return to below.

**Challenge 2: Australian policymakers must consider the very real possibility that East Asia's geo-strategic concerns will push the direction of technological transformation in an ever-greener direction, with profound consequences for Australia's export opportunities.**

We identify a number of recent international developments that are likely to drive East Asia's 'clean energy' ambitions in an ever 'greener' direction, i.e, away from 'cleaner' fossil fuel solutions (such as gas or coal with CCS) and towards zero emission renewable solutions:

- The dramatic oil price fluctuations of 2020, which have further amplified East Asian policymakers' longstanding anxieties about their fossil-fuel reliance and associated energy insecurity;
- Growing international concerns about climate change, evidenced by pledges by governments around the globe – from [the EU](#) to [South Korea](#) - to use their COVID-19 stimulus packages to expedite the green energy shift;
- Growing international commitments to achieve net zero emissions by 2050, including by the recently re-elected [Moon Jae-in government of South Korea](#);
- [Explosive new evidence about the negative climate effects of gas - even with CCS](#) - which shatters the myth of gas as a desirable coal alternative, even in the short-term;
- Clear evidence that [renewables are now capable of delivering grid stability at a price cheaper than gas](#);
- [Growing reluctance of global finance to back fossil-fuel projects](#) due to very real risks of stranded assets, and growing shareholder activism within fossil-fuel focused energy companies, [recently on show in Australia](#) with the Woodside shareholder revolt.

Developments such as these will continue to drive investment away from fossil fuel projects and amplify price instability, reducing East Asia countries' appetite for fossil-fuel imports and fueling their stated ambition to pioneer the renewable energy industries of the future.

In this context, we believe that the Technology Roadmap's pledge to further expand our country's conventional and fossil fuel-related production and export capabilities is risky to say the least; it threatens to neutralise any strategic benefits Australia might gain from taking an early lead in emerging green technologies such as green Hydrogen ('Green H2').

We can now see this 'from clean to green' dynamic playing out in the hydrogen space. Already, we have clear statements from South Korea, China, Japan and

Singapore that their ultimate ambition is to consume green hydrogen (i.e., hydrogen from renewables), and to this end, rapidly develop green hydrogen supply chains and relevant technologies. Japan and South Korea are now spearheading the development of international green hydrogen certification schemes, and there is growing evidence that in the near future, hydrogen exported to East Asian countries [will need to be certified as 'green' as part of these countries' efforts to scale-up the use of renewables](#). Based on recent discussions at the highest levels between our two governments, [the Koreans have made their position clear: they want the Hydrogen they buy from Australia to be produced via renewables](#).

***As East Asia's demand for renewable hydrogen expands rapidly, it will help to push down prices not just in East Asia but globally. Who then will buy Australia's fossil fuel-derived hydrogen?***

We are concerned that the Discussion Paper downplays the 'lock-in' effect of today's policy choices. The reality is that the short-, medium-, and long-term challenges and opportunities identified in the Paper (pp.29-31) are not static and will be influenced significantly by the actions taken by the government (and industry) today. In particular, the proposal that we continue to support LPG today, based on assumptions about our existing comparative advantage (p.22), will have a significant 'lock-in' effect, adversely changing the technological landscape of, and our strategic possibilities in, the future.

In our view, Australian taxpayers' funds should be used to support technologies in areas in which the risks are smallest and opportunities greatest, not least green hydrogen rather than fossil-fuel derived hydrogen. Should the government continue to insist upon investing taxpayers money in gas-derived hydrogen as a 'transition fuel', it must put in place a clear timeline - with milestones as our neighbours in our region are doing - for the full phase out of gas.

***Challenge 3: Australian policymakers must develop a more sophisticated, historically informed understanding of the government's role in expediting major techno-economic shifts, and the process of 'creative destruction' these shifts necessarily involve.***

Economic theory tells us - and economic history confirms - that in a capitalist system, [all major techno-economic shifts involve a process of 'creative destruction'](#). In this sense, the clean energy shift we are grappling with today is no different from the major techno-economic shifts that have preceded it, such as the shift to railways from canals in the early 19th century, to electric power from steam in the late 19th century, or to IT in office automation in the 20th century.

Economic history also tells us that governments wishing to turbocharge techno-economic shifts must be willing to support both the creative and destructive aspects of the 'creative destruction' dynamic. That is, governments must be willing to not only support new technology creation and deployment, but also to

impose costs on incumbent technologies, thereby encouraging finance, firms and consumers to switch to new technologies earlier than they otherwise might.

Throughout history, policymakers from the US to Europe and East Asia have sought to expedite the ‘creative destruction’ dynamic for two key reasons: (1) they understand that any jobs lost in the destructive process will be more than offset by the creation of new jobs in the rapidly expanding industries of the future; (2) they understand that by expediting the destructive dynamic in their own (domestic) market, they can help local firms capture first mover advantage, improving their chances of competing in new export markets.

In this context, we are deeply concerned by the government’s statement that the technology roadmap must be about ‘technology, not taxes’ (p.3). When it comes to expediting the technoeconomic shift of the moment - the clean energy shift - *technology and taxes are necessary flip sides of the same coin.*

We are also concerned that the government describes its primary role in expediting the clean energy shift as one of correcting ‘market failures’ (p.34). Our East Asian neighbours may be viewed as having a more sophisticated view of the government’s role - one informed by both deep historical awareness and practical experience. East Asian policy makers know that supporting new technologies is less about ‘correcting market failures’ than actually seeing ahead to [create new markets](#). To this end, East Asian governments deploy policy instruments that go far beyond ‘supporting R&D’ - policies primarily aimed at stimulating domestic demand for new technologies. By stimulating domestic demand, governments can help local firms scale new technologies more swiftly, driving down costs and making them more competitive in export markets. This has been a tried and tested techno-industrial transformation strategy in East Asia since the 1970s.

We are concerned that the government takes a similarly narrow view of its role in the international arena. When it comes to scaling clean hydrogen, the roadmap envisages Australia ‘following international demand’ (p.31). However, our government can actually help to stimulate international demand in a variety of ways, not only by international standard setting but through its diplomatic engagements - not least with ASEAN nations. A focus on green hydrogen in development assistance would be one way of expressing this perspective.

This is important not just from an economic but a geo-strategic perspective. As [we have argued elsewhere](#), by encouraging ASEAN to embrace renewables, we can develop deeper economic ties and reduce our export dependence on China.

We are concerned by the government’s neglect of broader geo-strategic factors when it comes to weighing the relative merits of clean energy technologies. The Discussion Paper sets out four overarching goals, including affordability, security and reliability, emission reduction commitment, and employment and

growth. However the criteria that are explicitly adopted in the discussion paper to evaluate technologies, including technology readiness level (TRL) and the commercial readiness index (CRI) (e.g. p. 53), tell us nothing about the strategic benefits of certain technologies, and whether they are more or less likely to help Australia meet its broader strategic objectives.

**Challenge 4: The Government must commit to using its full policy toolbox to promote the rapid technological development and uptake of renewable energies as the basis of Australia's future energy security and export competitiveness.**

Evidence tells us that [it is now possible for Australia to achieve net zero emissions before 2050 by accelerating the deployment of mature and demonstrated zero-emissions technologies, and rapidly developing and commercialising emerging zero-emissions technologies in 'harder to abate' sectors.](#)

To do so, the government must be willing to deploy the full suite of tools in its policy toolbox. A full elaboration of these tools is beyond the scope of this submission; we would be happy to discuss further in a face-to-face meeting.

However, in the context of COVID-19 and the government's intention to embark upon the largest stimulus spending endeavour in Australian history, an essential tool is strategic government procurement. [Strategic procurement can be used not only to stimulate technology creation and commercialisation, but also market creation and expansion.](#) Unfortunately over the past decade, [Australia has become an outlier amongst developed countries in its reluctance to use the purchasing power of the government to stimulate technology and market creation and expansion.](#)

We have ample room to move. Three examples:

- The government could mandate targets that will eventually ensure that all new transport/vehicle fleets be battery-electric or green H2 powered.
- The government could specify that large scale infrastructure projects include renewable energy systems – e.g. the proposed Sydney to Melbourne rail link should specify FVEC trains with renewable hydrogen focus.
- The government could provide a procurement market for products produced with industrial carbon emissions, e.g. [building materials produced by carbon mineralization.](#)

Importantly, these are just three possibilities where local companies could play significant roles in their development and implementation.



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**Elizabeth Thurbon** is Scientia Fellow and Associate Professor in International Relations in the School of Social Sciences at UNSW Sydney.

**Sung-Young Kim** is a Senior Lecturer in International Relations at Macquarie University, Sydney

**John Mathews** is Emeritus Professor in Strategic Management at Macquarie University, Sydney.

**Hao Tan** is Associate Professor in International Business at the Newcastle Business School, The University of Newcastle.