



15 May 2020

Dr Fern Beavis
Senior Research and Policy Officer
Australian Council of Learned Academies

Re: submission from the University of Melbourne on the *Design Issues Paper* for the proposed *Australian Energy Transition Research Plan*

Dear Dr Beavis,

We thank the *Australian Council of Learned Academies (ACOLA)* for inviting the University of Melbourne to provide a submission on the *Design Issues Paper* for the proposed *Australian Energy Transition Research Plan*.

Our Deputy Vice Chancellor (Research), Prof. James McCluskey FAA FRCPA FRACP, has asked me to develop this response in consultation with several colleagues who specialise in aspects of the Energy Transition. The following University of Melbourne staff were consulted in the development of this submission.

Prof. Pierluigi Mancarella, Leader, MEI Energy Systems Program
Prof. Richard Sandberg, Leader, MEI Power Generation and Transport Program
Dr. Robyn Schofield, Director, Environmental Sciences and Leader, MEI Environment and Resources Program
Prof. Robin Batterham AO FAA FTSE FREng FNAE FSATW FCAE FINAE FAusIMM FICHEM FISS FAIM FIEAust
Prof. Mark Cassidy FAA FTSE FIEAust
Dr. Sangeetha Chandra-Shekeran, Deputy Director, Melbourne Sustainable Society Institute
Prof. Peter Cook CBE FTSE
Prof. John Freebairn AO FASSA
Prof. Ross Garnaut AC FASSA
Prof. Lee Godden FASSA
Prof. Ralf Haese
Prof. Fiona Haines FASSA
Prof. David Jamieson FIP FAIP
Prof. Sandra Kentish FTSE FICHEM FRACI FIEAust
Prof. Paul Mulvaney FAA
Prof. Mike Sandiford FAA
Prof. Geoff Stevens FTSE
Prof. John Wiseman

This group features a wide range of academic disciplines, and includes Fellows from three of ACOLA's four Member Academies.

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We hope that our submission is useful and look forward to discussing it further with ACOLA.

Yours sincerely,

A handwritten signature in black ink that reads "Michael Brear". The signature is written in a cursive, flowing style.

Prof. Michael Brear FTSE FCI FIEAust FAIE
Director, Melbourne Energy Institute
University of Melbourne

cc:

Prof. James McCluskey, Deputy Vice Chancellor (Research)
Prof. Mark Hargreaves, Pro Vice-Chancellor (Research Collaboration & Partnerships)
Ms. Kate Taylor, Director, Research Strategy
Ms. Carlene Wilson, Director, Policy & Government Relations

Submission from the University of Melbourne on

ACOLA's Australian Energy Transition Research Plan, Design Issues Paper

Answers to specific questions in the Design Issues Paper

Question 1: Would you or your organisation be willing to participate with ACOLA in the development and ongoing support of a Research Plan?

Yes, the University of Melbourne welcomes engagement with this initiative.

Question 2: What should be the scope of the Research Plan (how should we define 'energy', 'transition' and 'research')?

Agreement on the definitions of key terms should form part of the initial work in developing the Research Plan. Whilst the work of the United Nations Framework Convention on Climate Change (UNFCCC) should be foundational, there is a diversity of views on how the term 'energy transition' should be defined. We do not discuss this further in this submission, and instead welcome further discussion on this matter once this initiative commences.

This initiative should also start by establishing clear, compelling and lasting principles that can be used to define the Research Plan's scope as it evolves, and should consider:

1. identification of *who needs* the proposed Plan and *why they need it*;
2. how the Plan will respond to these needs; and
3. how the Plan's design and delivery will be continuously and robustly reviewed.

Consideration of each of these points, particularly the first, is a significant effort. For example, the community could need this initiative to enable more informed debate on the energy transition, with outcomes from the proposed research enhancing understanding of the issues involved. In our view, this could be a valuable contribution by constructively contributing to the democratic process.

We could also limit delivery of the Research Plan to those participating in the domestic energy system, which we all appreciate has its own, significant challenges. However, the greenhouse gas emissions produced off-shore by Australian energy commodity exports are larger than our domestic emissions, these exports bring significant economic value to Australia, and these exporters are significant domestic energy consumers. How we avoid these exported emissions, and therefore address this carbon risk, is key to Australia's long term prosperity and is also a significant part of the domestic transition.

Finally, Australia will meet its environmental and social objectives over the energy transition by the deployment of primarily imported energy technologies. Australian research collaboration with international manufacturers of many different energy technologies could bring multiplicative environmental and economic benefits via the uptake of Australian research in global markets.

Australian commodity exporters and the global manufacturers of clean energy technology will also invest far more on energy research over the transition than the total of Australia's governments and domestic industry. Bringing a lot more of this research investment to Australia than is currently the case could be an aim of any nationally coordinated initiative that attempts to "influence the direction, allocation and quantum of research funding".

We therefore encourage ACOLA to view the energy transition as an opportunity to leverage our natural endowment in energy resources to attract more global investment in world class, domestic energy research.

This would not be solely technical or scientific research. It should also include substantial development, demonstration and commercialisation activity. It could therefore foster a more vibrant domestic energy innovation ecosystem, with many professional and educational opportunities for Australians over the transition.

Should we take this approach, the potential domestic research spend over the energy transition also suggests that an Australian Energy Research Plan could afford to include support of options that are very uncertain, conflicting or duplicative. Since research costs will be such a small part of the total cost of the transition, good research planning should have a broad scope and be generous in its support of different options whilst of course retaining funding accountability. The costs of not supporting options that could have been transformative can be greater than the total research budget.

Perhaps several such needs can be met simultaneously by careful scoping of the Research Plan.

Question 3: What processes and products should the Research Plan deliver?

After establishment, we envisage regular reporting on the progress of the Research Plan, say every 2 to 3 years. These reports could be issued to the many different organisations at Commonwealth and State levels, as well as to industry and the community, perhaps with an ACOLA organised conference that aligns with the report release.

Question 4: What existing research plans and design approaches can ACOLA draw on for the proposed Research Plan?

We note those in the Design Issues Paper, as well as those mentioned during the ACOLA consultation with the Energy Research Institute Council for Australia on 11th May, 2020.

Question 5: How would you or your organisation like to be engaged in the development of the Research Plan?

The University of Melbourne welcomes engagement with this initiative. Most of the staff named in the accompanying letter are Fellows of ACOLA's Member Academies, and so could engage with this initiative via these Academies. The University would also welcome a direct approach, particularly since some of our most engaged energy researchers are not Fellows.

Question 6: How should ACOLA govern and fund the development and ongoing support of the Research Plan?

We strongly agree with ACOLA's statement that "A future Research Plan must therefore be administered in a way that is independent, strategic, objective, results-oriented, focussed on the interests of consumers, and is accountable."

Further to our answer to Question 2, the community, industry and government are those who might need the Plan, and together should have primary say on Research Plan development and delivery. This suggests a *Research Plan Steering Committee* or equivalent made up mainly or wholly by representatives from the community, industry and government. These representatives should ideally have deep experience of the energy sector and be able to translate that experience into advice on Research Plan development and delivery.

The diverse and deep experience of the Fellows in ACOLA's member academies should be drawn upon to support this Research Plan. It is likely that additional experience is also required, particularly from leading Australian energy researchers who are not Fellows of ACOLA's member academies. A direct approach to research providers is then also likely required.

Research Plan activities should be largely undertaken in an in-kind capacity, and thus involve relatively little funding for the employment of a secretariat and to cover other expenses. Funds for such an effort are hoped to be obtainable if requested collectively from several organisations; the State and Commonwealth energy departments or from all universities and CSIRO, for example.

Question 7: What do you see as the key risks that ACOLA will need to manage in the development of the Research Plan?

Conflicts of interest and challenges to governance are the two, obvious risks in the development and management of the proposed Research Plan. These conflicts can come from many directions: industry, prominent individuals, governments and their agencies and, indeed, Fellows and researchers. Compromised governance can then exacerbate this problem.

A coordinating initiative, such as this proposed Research Plan, has potential advantages and risks. One advantage may be its capacity to foster dialogue and robust debate between the community, government, industry and researchers, including bringing together of social, environmental and technical thinking. However, it is also potentially more vulnerable to issues of governance than more distributed initiatives. This is particularly since a fundamental aim of the proposed Plan is to “influence the direction, allocation and quantum of research funding in Australia”; something that will impact many careers and organisations significantly. Good governance of the Research Plan therefore needs to accommodate legitimate and diverse differences of opinion, premised on our need to meet our climate change and other objectives.

Question 8: Are there any other issues that ACOLA should be considering in the design of the Research Plan?

No.