



Australian Academy of Technological Sciences and Engineering

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President

Dr Alan Finkel AO FTSE

Mr Ivor Frischknecht

CEO

ARENA

GPO Box 643

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Dear Mr Frischknecht,

The Australian Academy of Technological Sciences and Engineering (ATSE)¹ welcomes the opportunity to provide input to ARENA's future research and development priorities. ATSE provides response to the call for input below.

Do the proposed priority areas (outlined above) address a current energy challenge for Australia? Are there any other energy challenges that industry-researcher partnerships could address?

ATSE believes that the proposed priority areas do address a key energy challenge for Australia.

There are a number of other specific areas that industry-researcher partnerships could address including: electricity networks facilitating the charging of electric vehicles; storage at building scale, precinct scale and network scale; renewable liquid biofuels; total system approaches that address how demand or supply can be reduced at times when renewable energy is low; end use efficiency (buildings, appliances and systems).

ATSE believes that storage (including pumped hydro) and renewable biofuels are very important priority areas that ARENA should consider incorporating into future research and development priorities. Storage is a key priority area for Australia if intermittent energy-producing technologies are to be effectively used.

How willing/able is industry to invest in R&D in these priority areas? What other areas would industry be willing to invest in? What level of support is industry willing/able to provide?

ATSE believes that overall industry is able to invest in research and development however drivers of the stated priorities do not always align with the objectives of individual businesses, and in addition, some businesses are less willing to invest in research and

¹ ATSE advocates for a future in which technological sciences, engineering and innovation contribute significantly to Australia's social, economic and environmental wellbeing. The Academy is empowered in its mission by some 800 Fellows drawn from industry, academia, research institutes and government, who represent the brightest and the best in technological sciences and engineering in Australia. The Academy provides robust, independent and trusted evidence-based advice on technological issues of national importance. ATSE fosters national and international collaboration and encourages technology transfer for economic, social and environmental benefit. www.atse.org.au

development due to increasing costs associated with high energy, labour, equipment and development costs in Australia.

Unlike the UK, the Australian regulatory environment for transmission and distribution companies does not strongly encourage and support investment in research, development and demonstration (RD&D). The lowering of incentives under RET revisions will most likely further disincline investment. Further, the current economic squeeze on the Australian power industry (especially transmission and distribution companies) is actively deterring funding of R&D. In comparison, the UK, Europe and China are each investing in RD&D projects in the priority areas and some countries have a mandated share of the electricity tariffs directed to research.

Long-term Commonwealth support, stable policies and Government subsidies and incentives could help encourage investment in research and development.

To what extent can existing researcher/industry linkages be leveraged? How easy (or otherwise) is it to establish a new industry-researcher partnership to develop and deliver a project?

There needs to be the right incentives for researchers to collaborate. The introduction of the Excellence in Research Australia and the push by universities for researchers to publish puts researchers under various performance pressures and metrics which can discourage researchers to collaborate with industry. However, some Australian universities are recognising the importance and benefits of collaborating and building stronger links with universities which is encouraging new industry-researcher partnerships. ATSE is currently working with the Department of Education and Training to explore options for developing a metric of research engagement.

Another potential barrier to establishing new industry-researcher partnerships is that industry is generally interested in research collaborations at late stages in the research process, where the technology is close to market.

Providing incentives to both parties could help establish new industry-researcher partnerships to develop and deliver projects. In the case of industry this may be financial incentives and for researchers it could include performance metrics that encourage industry collaboration.

What are the commercialisation prospects (either domestic or international) for research conducted in the proposed priority areas? Are there any areas not listed above where researchers and industry could collaborate effectively to achieve a commercial outcome?

ATSE considers the commercialisation prospects for research conducted in the proposed priority areas to be high and believes Australia could be a major player. However, Australia currently lacks a clear plan for funding in this area and has historically failed to invest in this space.

In addition, Australia is competing against international competitors in these fields and we may lose any research advantage we have to better supported and funded international organisations and research sectors. Greater Commonwealth support in addition to shortening the current grant approval process timeframe (for ARENA and other funding bodies) could advantage Australian researchers and industry to capture the higher ground and secure market uptake.

Other areas where researchers and industry could collaborate effectively to achieve a commercial outcome include storage, efficiency, advanced photovoltaics, and organic photovoltaics.

Does Australia have world-leading research capability in any (or all) of the above priority areas?

Australia does have world-leading research capability in the research priority areas. However, as previously mentioned, Australia does not commercialise well. Problems arise at the development and demonstration side where many energy technology developments are capital intensive and funding is scarce. Australia does not currently have the scale and appropriate market mechanisms to support our world-leading research capabilities.

Other comments

There is currently an oversupply of electricity in Australia which does not allow for the development or deployment of new energy technologies or infrastructure. In addition, the recent drop in oil price could mean that many businesses are not willing to invest in new technologies that will replace oil.

Should you require further information or input, the contact at ATSE is Dr Lauren Palmer (Senior Research and Policy Officer) on (03) 9864 0903 or via email at Lauren.Palmer@atse.org.au.

Yours sincerely



Dr Alan Finkel