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Senate Standing Committees on Rural and Regional Affairs and Transport

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Dear References Committee

ATSE Submission: Australia's Transport Energy Resilience and Sustainability

The Australian Academy of Technological Sciences and Engineering (ATSE)¹ welcomes the opportunity to respond to the inquiry by providing ATSE's Energy Action Statement on *Low Emission Fuels for Transport* (attached).

The ATSE *Low Emission Fuels for Transport* Action Statement supports the ATSE Energy Position Statement which sets out the challenges and priority focus areas, and a way forward, for the low emission energy systems required to sustain Australia's economic development and future prosperity. The Action Statement calls for accelerated progress towards sustainable mobility of people and freight by integrating low emission fuels into Australia's transport energy mix.

The Australian economy depends on well-developed and extensive transport networks that move people, goods and resources domestically and offshore. Australia has some unique characteristics that differentiate it from many other developed countries. These characteristics (outlined below) will guide the repowering of transport in Australia.

- A heavy reliance on imported (increasingly refined) petroleum products for transport fuels and chemicals, which is likely to increase. Australia is currently not meeting its treaty obligations to hold the equivalent of 90 days of net oil equivalent demand, making Australia vulnerable to disruption or misdistribution of supply because of our geographical isolation from overseas refineries.
- A highly urbanised but small population that is sparsely distributed and separated by long distances.
- Distances covered by national and international flights make secure sources of aviation fuel a priority.
- Electricity generation being primarily fossil fuel based, making meeting of internationally agreed emissions targets a challenge.
- Finite agricultural land and water, most of which is needed for production of food and fibre.
- A vibrant but under-resourced energy research, development and demonstration (RD&D) sector.

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.

The *Low Emission Fuels for Transport* Action Statement recommends a number of policies and actions to ensure the integration of low emission transport fuels into Australia's transport energy mix (as outlined below).

Energy productivity, electrification and low carbon fuel technologies in the transport system

Government and industry sectors (including electricity, oil, gas, chemicals, forestry, agriculture and waste) need to work together to develop national targets for reduction of emissions from our transport systems, increased transport energy productivity and accelerated utilisation of low emission fuels.

Security and diversity of transport fuel supplies

The Australian Government should review the security, diversity and independence of Australia's transport fuel supplies. The Government should facilitate the development of new fuel reserves, ensure diversity of Australia's fuel supplies (including alternative fuels and electricity), meet Australia's international oil security obligations and augment domestic transport fuel security at an acceptable cost.

Production of low emission fuels for aviation as a strategic priority

Industry, in conjunction with the Australian Government, should designate production of low emission fuels for civil and defence aviation as a strategic priority for Australia.

Regulations, incentives and market signals to improve vehicle efficiency and pollution standards

Australian Governments should create durable strategies, market signals, regulations and incentives for stringent vehicle efficiency and pollution standards. They should also greatly expand mass transit programs. Vehicle emission standards should be reviewed to ensure that Australia complies with international best practice.

Innovation to support future fuel research, development and demonstration (RD&D)

The Australian Government, in conjunction with industry, universities and research centres, should encourage innovation by supporting RD&D of new transport energy technologies, new methods of manufacturing renewable fuels (such as biofuels produced without competing for land and water resources), decarbonised electricity sources and first-of-a-kind demonstration plants.

ATSE notes that there are a number of ways to support and fund research, development, demonstration and deployment (RDD&D) of low emission fuel technologies, including:

- Direct research and development (R&D) grant funding;
- R&D tax concessions;
- Accelerated depreciation of investments in exploration, plant and infrastructure; and
- Support for demonstration projects (either in Australia or in collaboration with overseas partners).

The *Low Emission Fuels for Transport* Action Statement also notes that Australia should reform its transport fuel supply and use policies—including excise and subsidies—to ensure progressive and efficient transition without supply constraints to low emission liquid fuels (particularly for aviation, maritime and heavy logistics) and electricity (particularly for passenger and light-duty logistics vehicles), including fostering local production of transport energy supplies that significantly reduce Australia's growing dependence on imported liquid fuels.

ATSE has a number of Fellows with expertise in this area and would be pleased to assist the References Committee in any additional manner.

Yours Sincerely

Dr Alan Finkel