



Australian Academy of Technological Sciences and Engineering

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President

Dr Alan Finkel AO FTSE

Mr Keir Delaney

Secretary,

Legislative Council Standing Committee on Environment and Planning

Parliament House

Spring Street,

Melbourne VIC 3002

10 July 2015

Dear Mr Delaney

Inquiry into Unconventional Gas in Victoria

The Australian Academy of Technological Sciences and Engineering¹ (ATSE) welcomes the opportunity to provide input into the inquiry into unconventional gas in Victoria.

The Australian Council of Learned Academies (ACOLA) which combines the four Learned Academies (Australian Academy of Science, Academy of Social Sciences in Australia, Australian Academy of the Humanities and the Australian Academy of Technological Sciences and Engineering) published a Report in June 2013 on unconventional gas in Australia, titled: *Engineering Energy: Unconventional Gas Production – a study of shale gas in Australia*². Please find a copy of the report enclosed. ATSE provided project services on behalf of the ACOLA Secretariat and the Chair and Deputy Chair of the report were ATSE Fellows. The ACOLA Report provides information on a number of issues related to the Terms of Reference for the inquiry and it is in the above context that ATSE provides the Report.

The ACOLA Report reviewed the range of issues facing shale gas development in Australia and made 51 key findings considering the potential environmental, social and economic impacts of an Australian shale gas industry (under its terms of reference, the Report did not make 'recommendations'³). The ACOLA Report also addressed the potential impact of hydraulic fracturing, the regulation of fracking chemicals, and the use of groundwater, brackish water and produced water for fracking operations.

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

² <http://acola.org.au/index.php/projects/securing-australia-s-future/project-6>

³ Recommendations were developed by the Office of the Chief Scientist in consultation with relevant government departments and can be found here: <http://www.chiefscientist.gov.au/wp-content/uploads/shalegas-recommendationsFINAL.pdf>

Whilst shale gas exploration is still at an early stage, Australia needs to act quickly to assess its shale gas reserves and resources, as well as consider the potential social, economic and environmental impact of shale gas production - including the benefits and the challenges. Due to the manner in which shale gas is produced, there is potential for shale gas exploration and extraction to have an impact on the landscape and biodiversity in Australia.

There are many processes that occur during a shale gas fracking operation which have the potential to impact the environment; however the ACOLA Review was of the opinion that most if not all of these impacts can be managed. Nonetheless, if not adequately managed, the clearing of land to establish drill sites, levelling of the site, and establishment and construction of access roads can result in impacts on soil, increased fire risk, spread of invasive species and fragmentation of patches of native vegetation, habitats and landscape function. Other potential environmental impacts on the landscape may include impacts to surface and ground water systems, ecosystems, and induced seismicity. Research into Australia's sedimentary basins and related water resources, landscapes and ecosystems, and how best to monitor them, will be essential to ensure careful management of shale gas production and minimisation (and avoidance) of potential impacts.

The ACOLA Report notes that if a commercially viable gas industry is to be developed in Australia with minimal impact, it will be important to acknowledge co-use landscapes and it will be essential to have a whole-of-system framework in managing the impacts of multiple land uses. It will be important to begin to undertake research and collect baseline information on ecological systems, groundwater chemistry, methane emissions, landscape changes and seismic activity. The ACOLA Report noted that the baseline information will need to be at a level of resolution and accuracy that will enable any potential future impacts of shale gas activities to be identified at an early stage. Such baseline information could also assist with rehabilitation of the land and monitoring of well closure.

In response to strong interest received from the ACOLA Report, ATSE has decided to hold an international Unconventional Gas Conference and Workshop on the 22-24 September 2015 in Sydney, Australia⁴. The Conference will be interdisciplinary in scope and aims to involve not just scientists and technologists but also social scientists and economists, in recognition of the fact that many of the issues surrounding unconventional gas are community issues. While the Workshop will be an invite-only academics workshop that will draw from national academy reviews, as well as the preceding two days, to produce a set of findings on unconventional gas. The Academy would invite members and staff of the Committee to attend and participate in the Conference, and hope that its discussions may help inform the inquiry.

I also understand that Professor Peter Cook CBE FTSE, chair and lead author of the ACOLA Report and chair of the upcoming ATSE Conference and Workshop, has been invited to present to the Committee. Professor Cook would be pleased to provide further information relating to this submission and the attached ACOLA report during his attendance.

Should you require any further assistance, the contact at ATSE is Daniel Raftopoulos, Research and Policy Officer, [REDACTED]

Yours sincerely

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Dr Alan Finkel

⁴ More information can be found at www.atse.org.au/gas