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The Inquiry Panel
Hydraulic Fracturing Taskforce
GPO Box 4396
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30th April 2017

**Scientific Inquiry into Hydraulic Fracturing in the Northern Territory -
Submissions on the *Background and Issues Paper***

Dear Panel,

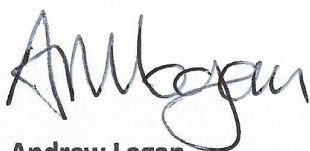
We respond to the request for feedback on the *Background and Issues Paper*:

- Examine the Socio-economic opportunity cost of not exploring, developing and producing the multi-trillion cubic feet of potential gas and billion-barrel oil resource potential of unconventional shale onshore NT, which can be characterised in terms of:
 - Local business and jobs lost
 - Community welfare projects investment denied
 - Local infrastructure spin-off benefits (roads, water bores, communications) not realised
 - Government revenues (royalties) not received
 - International sourced investment not made
 - Strategic resource and security of reliable national energy supply to all states
 - High value 95% Methane gas, and high quality condensates and oil from billion-year-old shale reservoirs of the NT, as opposed to lower value, lower quality alternatives
 - Reliance of imported foreign refined hydrocarbon products
 - Protecting Australia's long term energy supply and reducing the reliance on international markets to purchase oil and gas in unknown future pricing and supply/demand scenarios
- Consider the recent South Australia incident of total shut down of all power in the state and the opportunity that NT would have to ensure that as a neighbour / territory it could reliably supply gas to gas fired power stations as peak load shaving or critical needs basis.
- Unlocking the vast potential gas resource of the onshore NT would resolve in the long term the supply-demand imbalance on the eastern seaboard of Australia.
- Alleviate community concerns with other sources of assurances (other than science and regulation) – look at case studies and histories, empirical data. For example, the recent HFS of the Amungee NW-1 horizontal well by Origin in the Beetaloo Basin.
- Environmental focus (related to HFS) on handling, re-use or disposal of produced fracture stimulation fluids.

- HFS induces fractures in reservoirs a few tens of meters from the well bore itself typically several thousands of meters' depth. Risk of any effect on aquifers (a major community concern) is a well bore integrity issue and unrelated to the practice of HFS (notwithstanding the point above around produced fluids). An inquiry into wellbore construction of all types of wells used in the mining, agricultural and petroleum industries would be useful to address community concerns on impact on lands and aquifers.
- The opportunity to re-define areas that would not be allowed to be HFS, for example national parks, urbanised areas, sensitive indigenous and ecological areas, maintaining a balance to areas where HFS under regulation and control is allowed providing socio-economic benefits, without compromising core environmental and populated area values.
- Community consultation is important – to identify and analyse the key issues in the local communities as they see relevant to the Inquiry, and address those issues.
- Review the many inquiries on this and similar subjects in recent years in Australia, USA and UK. Virtually all credible (non political) Inquiries have arrived at similar conclusions, in that exploring for and developing gas and oil from unconventional sources (shale) with the use of hydraulic fracturing (fracking) is unlikely to pose any significant risk to groundwater (aquifers) or to human health, providing appropriate robust regulations (including environmental aspects) are in place, which are adhered to and enforced, such that the risk is acceptable and as low as reasonably practical (ALARP). The following is some of the recent outcomes of such credible Inquiries:
 - The Discussion Paper refers to (page 11) the previous work undertaken through the Hawke Reports (2014 and 2015) as well as the 2016 Hunter Report. These should be the building base for the current Panel's work.
 - Prior to the Hawke Report 2014 The Australian Council of Learned Academies (ACOLA) Report "Engineering Energy: Unconventional Gas Production A Study of Shale Gas in Australia" 2013, found that with appropriate safeguards in place shale gas (unconventional) with the use of fracking represents no greater risk than conventional gas. Although certain regulatory oversight needs to be maintained and adhered to maintain a risk profile which is acceptable and as low as practical (ALARP).
 - The NSW Chief Scientist and Engineer, Professor Mary O'Kane conducted a review of Coal Seam Gas (CSG) and while we note that CSG is not the subject of the panel's Inquiry, we believe her findings are pertinent to this Panel's deliberations. On page 7 of her Report (30 Sept 2014) "There is a perception in some parts of the community that CSG extraction is potentially more damaging and dangerous than other extractive industries. This perception was heightened following the release of the American movie Gasland in 2010. The Review examined this issue in detail and concluded that while the CSG industry has several aspects that need careful attention, as do almost all industries, it is not significantly more likely to be more damaging or dangerous than other extractive industries". The relevancy is twofold, in that the NSW Chief Scientist and Engineer's Review debunked the hype associated with the movie Gasland, and recognised each extractive industry has its own unique characteristics which must be recognised, managed and regulated appropriately to achieve ALARP.

- The Western Australian Upper House reviewed the issue of fracking, and after two years of examining evidence etc. concluded (Nov 15) that fracking can be carried out safely if regulated appropriately. It found the impact on human health and the environment were 'negligible' despite widespread concerns about the practice.
- The South Australian (SA) Natural Resources Committee recently completed a two year Inquiry into unconventional gas and the use of fracking, and issued it's final Report on 30 November 2016. It's key recommendation against it's first Term of Reference was that unconventional gas (fracking) is unlikely to have any impact on groundwater (aquifers).
- The UK is also very relevant to Australia, as its ownership to mineral rights is similar to Australia. The UK had a very rigorous inquiry carried out by the Royal Society and the Royal Academy of Engineering specifically to do a report on hydraulic fracturing and shale gas. Professor Sir Mark Walport UK Chief Scientist gave a speech predominantly focussed on Risk and Innovation in Germany in September 2014, summed up the findings, with the following:
 - "There are really 3 science and engineering concerns about hydraulic fracturing (fracking). The first of these is: will it cause earth tremors? The second is: will you get contamination of the water table? And the third is: will there be fugitive release of the methane gas? (In other words if you leak all the gas then you lose the advantage of it as a fossil fuel). And what the science and the engineering tells you is that this is a drilling technology and no drilling technology is completely risk-free. **But if it is done well, if it is engineered well, if it is governed well, then it is as safe as any other form of drilling,** recognising that there is no 'free lunch', there is nothing that is completely risk-free." He went on to note:
 - "Those are the engineering concerns, and that's what the Royal Academy of Engineers' report said and actually multiple other reports have all essentially said the same thing. But the public or publics who are protesting, at least in some parts of the world, about fracking are coming at it from a different angle. They're coming at it from the values angle and from the 'my pain, your gain' angle. And so there's a group that dislike fracking because they dislike fossil fuels, there's another group that dislike fracking because they actually just don't like big companies, and then there's a third group who just don't want the inconvenience of having something industrial happening in their back yard." The referenced speech can be found here <http://bit.ly/1CVyur7>
 - In line with the UK Inquiry and the recommended outcomes, the UK Infrastructure Bill 2014-15, was passed through the UK Parliament, and it, which among other things will permit fracking below 300 meters in the UK.

Yours sincerely,



Andrew Logan

CEO

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