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1 April 2020

Committee Secretary  
Senate Standing Committees on Environment and Communications  
PO Box 6100  
Parliament House  
Canberra ACT 2600

Sent via email: [ec.sen@aph.gov.au](mailto:ec.sen@aph.gov.au)

Dear Committee Secretary

**RE: Proof Hansard transcript and answers to questions taken on notice**

Thank you for the invitation to appear before the Committee, on the 18 March 2021, and your follow up email, received 25 March 2021, containing the proof *Hansard* transcript for review.

The Australian Petroleum Production & Exploration Association (APPEA) would like to take the opportunity to provide answers to the questions taken on notice, during the hearing, located in Attachment A. Additionally, APPEA wishes to also provide supplementary clarification, for the record, to the Chair's statements around the Day *et al.* 2017 study (care of pages 25 and 26 of the *Hansard* transcript – see Attachment B).

The Australian oil and gas industry continues to ensure that the impacts from seismic surveying activities are well understood and reduced as low as practicable, and to ensure that those impacts are acceptable. The oil and gas industry is confident that with appropriate controls and mitigation strategies, seismic surveying can be undertaken without significant, lasting impact to the marine environment. APPEA members also recognise that we are not the only industry present in our oceans, and we seek to be good neighbours with other industries such as fishing and tourism. The industry supports a process which has genuine and informed engagement and consultation with relevant stakeholders in the areas in which we operate.

Should you wish to clarify APPEA's responses and supplementary material, please contact

Yours sincerely

Andrew McConville  
Chief Executive  
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Attachment A – APPEA answers to the questions taken on notice.

Page	Hansard proof	APPEA response
12	<p><b>CHAIR:</b> Unfortunately, I don't have enough time because I'd like to go to the other two witnesses now. But we'll come back to you, Dustin. Other senators will want to ask questions. I'll start with APPEA. In your opening statement you talked about substantial research funding programs, and I think Dustin's just used similar language. Can APPEA give the committee an estimate of how much money's been spent on that research in Australia, perhaps over the last decade?</p> <p><b>Mr McConville:</b> Yes, certainly, I can provide some estimates. In 2008 there was an IMAS study to the tune of about \$12 million, there was a behavioural response study of \$15 million and then, of course, there's the work of AIMS as well. From other members, there was a contribution of \$14 million to the AIMS research on the north west shoals and another \$6.5 million contributing to the AIMS research. What I have before me is a total of close to \$40 million over the last 10 years, and that's across only a few companies. I can actually take on notice to give you further numbers of detail, but it will be north of that sum of \$40 million.</p> <p><b>CHAIR:</b> Yes, thank you. I'd appreciate that because we have asked other witnesses, scientists and scientific agencies this question. Certainly, from some of the evidence we heard around studies on scallops and rock lobsters through the Institute and Marine and Antarctic Studies, which have only happened in the last 10 years, we're talking about hundreds of thousands of dollars, not even millions of dollars, for those two commercial species. Would that be your understanding?</p> <p><b>Mr McConville:</b> I'm not sure. I can ask Jason, but we can certainly take it on notice.</p> <p><b>CHAIR:</b> Okay.</p> <p><b>Mr McConville:</b> Jason, do you have the answer?</p> <p><b>Mr Medd:</b> Yes, we'd have to take that on notice.</p>	<p>The offshore petroleum industry continues to invest millions of dollars into extra research to improve understanding and industry practices, a broad summary of which is as follows:</p> <ul style="list-style-type: none"> <li>▪ Woodside spend (Submission 57) <ul style="list-style-type: none"> <li>○ Over the last 12 years Woodside has co-funded three large, field-based control exposure experiments with leading research and academic organisations. These studies have assessed impacts of seismic noise on tropical corals and site-attached reef fish; humpback whales; and red emperor, a commercially important fish species</li> <li>○ Maxima studies (2008) - \$12m</li> <li>○ Behavioural response study (BRAHSS) - \$15m</li> <li>○ North West Shoals to Shore – (AIMS) see totals below.</li> </ul> </li> <li>▪ Santos spend (Submission 61)</li> <li>▪ Santos direct contribution was over \$14 million to the AIMS North West Shoals to Shore Research Program. Plus, over \$6.25 million in kind support AIMS marine noise impact study alone is valued at \$6 million (theme 1)</li> </ul> <p>APPEA members have forged important partnerships with world class research organizations. These partnerships have demonstrated that collaborative, multi-disciplinary approaches to field-based science deliver the best scientific and environmental outcomes.</p> <p>Contrastingly, relying on anecdotes / observational data only to determine the responses of animals to noise is not sufficient, because observations do not allow cause-and-effect relationships to be established.</p>
17	<p><b>Senator FAWCETT:</b> Thank you. Could I go to APPEA now, please? In your submission, looking at alternative means of doing seismic, you talk</p>	<p>APPEA would draw the Committee's attention to The JIP – E&amp;P Sound and Marine Life Programme – Library<sup>1</sup> Database's references related to marine vibroseis:</p>

<sup>1</sup> [DMS Home \(intertek.com\)](http://DMS Home (intertek.com))

<p>about marine vibroseis. It's not clear there whether it's yet an operational system or just a prototype, but it's expected, according to your submission, to have a lower impact in terms of disturbance to marine life. Could you give us an update on where alternative technologies are at and whether something like this is on the horizon as an alternative? Does it meet your needs in terms of actually getting the data that you need?</p> <p><b>Mr McConville:</b> I might ask Jason to answer that if I could.</p> <p><b>Mr Medd:</b> In reference to that question, it really ties back to the requirement of industry for constant improvement with regard to reducing impacts to the environment. With regard to that, there's the constant change of technology. The industry is always examining and looking at alternatives to the airguns or any other bespoke methods that would suit what they're proposing to do. We would look at technologies that would examine things like in situ vibroseis for 4D seismic, which is seismic acquisition over a period of time. It is particularly useful for monitoring time changes and subsurface as well. As I said, I don't have any particular or specific details; I'm happy to take that on notice. But that's probably one of perhaps a suite of technologies which would be under examination and development by industry as well.</p>	<ol style="list-style-type: none"> <li>1. Project Report – JIP reference 1.6 – <i>Environmental assessment of marine vibroseis</i> (2011)<sup>2</sup>; and</li> <li>2. A Modeling Comparison of the Potential Effects on Marine Mammals from Sounds Produced by Marine Vibroseis and Air Gun Seismic Sources – published in the Journal of Marine Science and Engineering (2021)<sup>3</sup>.</li> </ol> <p>PGS has also published a feature on marine vibroseis at <a href="https://www.pgs.com/publications/feature-stories/marine-vibrators/">https://www.pgs.com/publications/feature-stories/marine-vibrators/</a></p> <p>Beach Energy's publicly available environment plan<sup>4</sup> for the Prion 3D marine seismic survey at <a href="https://info.nopsema.gov.au/environment_plans/529/show_public">https://info.nopsema.gov.au/environment_plans/529/show_public</a> - section 3.7 describes a proposal to trial alternative acquisition technologies.</p> <p style="padding-left: 40px;">'3.7 Proposal for a Trial of Alternative Acquisition Technology As an adjunct to the Prion 3DMSS and immediately outside the retention leases, Beach is proposing to trial new MSS technology that may assist in reducing impacts to marine life. This involves using a 'popcorn' acquisition method, marine vibroseis and/or a Continuous Wavefield Acquisition (CWA) method.</p> <p style="padding-left: 40px;">This trial is proposed to acquire two survey lines of data only outside the permit areas but within the acquisition area. Given the small amount of data it could potentially acquire over the gas fields of interest, it is not considered 'exploration' as defined under the OPPGS Act. As such, this trial is not considered in this EP and will be the focus of a separate EPBC Act Referral process.'</p> <p style="padding-left: 40px;">Page 371 of the EP expands on the use of marine vibroseis as a (substitute) control:</p> <p style="padding-left: 40px;">Beach is investigating the acquisition of a field trial using alternative marine source technology such as Marine Vibroseis and/or Distributed Source to:</p> <ol style="list-style-type: none"> <li>(1) Determine if these alternative source technologies can provide the required data quality to meet the technical objectives;</li> <li>(2) Determine the optimum parameters for their use; and</li> <li>(3) Acquire real world field data to calibrate the sound modelling of the SPL and SEL.</li> </ol> <p style="padding-left: 40px;">Several contractors are working on each technology. Marine Vibroseis is still considered to be at prototype stage. Beach is in the process of determining which, if any, technology will be ready for an "in-sea" field trial in the rough waters of the Bass Strait. This has been complicated by the effect COVID-19 has had on the financial position of</p>
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<sup>2</sup> [Environmental Assessment of Marine Vibroseis \(intertek.com\)](#)

<sup>3</sup> [A Modeling Comparison of the Potential Effects on Marine Mammals from Sounds Produced by Marine Vibroseis and Air Gun Seismic Sources \(intertek.com\)](#)

<sup>4</sup> [A771510 \(nopsema.gov.au\)](#)

		many of the contractors and the follow-on impact on research and development funding.
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Geopolitical moratoria on offshore petroleum exploration are described in the table below.

Importantly the distinction must be made that while the policy positions are prohibitive of opening new discrete areas for petroleum exploration; exploration and development activities are still lawfully being undertaken in existing tenure.

Jurisdiction	Policy position	Source
Offshore New Zealand	<p>Ban on the release of new offshore exploration permits.</p> <p>At the time of announcement there were - 57 offshore petroleum titles in force - 31 active exploration permits and 26 existing producing fields.</p> <p>Onshore blocks in Taranaki Basin continue for three years.</p> <p>In response the Gas Industry Co (GIC) announced an inquiry into the security of gas supply</p> <p>NZ is now considering importing LNG from Australia.</p>	<p>NZ Government  <a href="#">Planning for the future - no new offshore oil and gas exploration permits   Beehive.govt.nz</a></p> <p><a href="#">Fact sheet oil and gas exploration.pdf (beehive.govt.nz)</a></p>
Denmark	<p>Cancelled a licensing round; and committed to phasing out production by 2050.</p> <p>No interruption to existing producers until production stops in 2050.</p>	
US - Federal	<p>Sec. 208. Oil and Natural Gas Development on Public Lands and in Offshore Waters. To the extent consistent with applicable law, the Secretary of the Interior shall pause new oil and natural gas leases on public lands or in offshore waters pending completion of a comprehensive review and reconsideration of Federal oil and gas permitting and leasing practices in light of the Secretary of the Interior’s broad stewardship responsibilities over the public lands and in offshore waters, including potential climate and other impacts associated with oil and gas activities on public lands or in offshore waters</p> <p>The Secretary of the Interior shall complete that review in consultation with the Secretary of Agriculture, the Secretary of Commerce, through the National Oceanic and Atmospheric Administration, and the Secretary of Energy. In conducting this analysis, and to the extent consistent with applicable law, the Secretary of the Interior shall consider whether to adjust royalties associated with coal, oil, and gas resources extracted from public lands and offshore waters, or take other appropriate action, to account for corresponding climate costs.</p>	<p>Presidential Executive Order 14008 (January 27 2021)</p> <p>See section 208.  <a href="#">Federal Register: Tackling the Climate Crisis at Home and Abroad</a></p> <p><a href="#">2021-02177.pdf (govinfo.gov)</a></p> <p>Executive order ‘does not limit existing operations under valid leases...’</p> <p>See section 3 subsection (g) of Department of Interior Order SO-3395  <a href="#">so-3395-signed.pdf (doi.gov)</a></p>
UK (North Sea)	Ban under consideration – linked to climate effort.	

## Attachment B - Additional APPEA feedback

Page	<i>Hansard proof</i>	APPEA response
25 - 26	<p><b>CHAIR:</b> No, but you can't prove it otherwise, though, can you? You might be able to say there's no proof that it does, but you can also say that there's no proof that it doesn't. This is where I get a little bit confused sometimes. I'd like to just move on quickly before I go to my colleagues and ask you some questions on scallops. Also in point 186 you talk about the Day et al paper of 2017:</p> <p>While the experimental group suffered a higher mortality rate throughout the experiment to the control group, the mortality rates that were recorded in the experiment were within the natural mortality range (Day et al. 2017) and therefore could not be attributed to the seismic exposure.</p> <p>...</p> <p><b>CHAIR:</b> I read that, but did it say that therefore the effects could not be attributed to seismic exposure? Could you go back and check it? It seems that when you're interpreting a controlled impact experiment you should only be comparing the experimental treatment—in this case, with seismic signals—to the control. You're comparing apples with oranges there, talking about natural mortality rates. That's not what the experiment was about. Is my understanding of that correct?</p> <p><b>CHAIR:</b> I just get the feeling from your submission that you are dismissing these concerns. To me it came across as a key theme that you're saying that these aren't significant. You've got some pretty strong statements in your summary.</p>	<p>The Day et al. 2017 study was critiqued<sup>5</sup> by Przeslawski (2016) and Salgado Kent (2016) who suggested that the impact was a result of experimental factors. In addition, Przeslawski et al. (2016, 2017), Parry et al. (2002) and Harrington et al. (2010) found no increased mortality in scallops following exposure to seismic source exposure.</p>

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### <sup>5</sup> References:

Przeslawski, R., Hurt, L., Forrest, A. and Carroll, A., 2016. Potential short-term impacts of marine seismic surveys on scallops in the Gippsland Basin, FRDC Project No 2014/041. Geoscience Australia. Canberra.

Salgado Kent, C., McCauley, R.D., Duncan A., Erbe, C., Gavrilov, A., Lucke K. and Parnum, I., 2016. Underwater Sound and Vibration from Offshore Petroleum Activities and their Potential Effects on Marine Fauna: An Australian Perspective. Centre for Marine Science and Technology (CMST), Curtin University. April 2016. Project CMST 1218; Report 2015-13. 184 pp.

Przeslawski, R., Huang, Z., Anderson, J., Carroll, A.G., Edmunds, M., Hurt, L. and Williams S., 2017. Multiple field-based methods to assess the potential impacts of seismic surveys on scallops. Marine Pollution Bulletin 2017

Parry, GD, Heislars, S, Werner, GF, Asplin, MD, Gason, A., 2002. Assessment of Environmental Effects of Seismic Testing on Scallop Fisheries in Bass Strait. Marine and Freshwater Resources Institute Report No. 50. Marine and Freshwater Resources Institute, Queenscliff, Victoria.

Harrington, J.J., McAllister, J., Semmens, J.M., 2010. Assessing the Short-Term Impact of Seismic Surveys on Adult Commercial Scallops (*Pecten fumatus*) in Bass Strait. Tasmanian Aquaculture and Fisheries Institute, University of Tasmania.