STANDING COMMITTEE ON ENVIRONMENT AND PUBLIC AFFAIRS

INQUIRY INTO THE IMPLICATIONS FOR WESTERN AUSTRALIA OF HYDRAULIC FRACTURING FOR UNCONVENTIONAL GAS

TRANSCRIPT OF EVIDENCE
TAKEN AT PERTH
FRIDAY, 7 FEBRUARY 2014

SESSION THREE

Members

Hon Simon O'Brien (Chairman)
Hon Stephen Dawson (Deputy Chairman)
Hon Brian Ellis
Hon Paul Brown
Hon Samantha Rowe

Hearing commenced at 1.32 pm

Mr STEDMAN ELLIS
Chief Operating Officer, Western Region, Australian Petroleum Production and Exploration Association, sworn and examined:

Mr ANDREW TAYLOR
Senior Policy Adviser, Australian Petroleum Production and Exploration Association, sworn and examined:

The CHAIRMAN: We will commence our proceedings in a moment. Again, I notice that we have a number of visitors in the public gallery, which is good to see. Many of you were here this morning and obviously found proceedings interesting so you are obviously made of very sterner stuff if you are able to go another round. For the benefit of those who were not here earlier, this is a proceeding of Parliament and it is important that such proceedings be accessible by members of the public. So, firstly, I thank you for being here to fulfil that important function. It is also important, obviously, that the public is here to observe that the proceedings of Parliament or one of its committees are not disrupted or interrupted in any way. So, I just remind you gently that there is no opportunity for participation, whether it be from spontaneous applause right through the gamut to verbal interjection. We ask you to remain silent in the public gallery. On behalf of the committee, welcome one and all. Welcome to our witnesses as well on behalf of the committee. Before we begin, I ask you to take the oath or affirmation.

[Witnesses took the affirmation.]

The CHAIRMAN: Thank you very much. You will have signed a document entitled "Information for Witnesses". Have you read and understood that document?

The Witnesses: Yes.

The CHAIRMAN: These proceedings are being recorded by Hansard and a transcript of your evidence will be provided to you. To assist the committee and Hansard, please quote the full title of any document you refer to during the course of this hearing for the record and be aware we have been asked to lean back a bit from the microphones as we had some feedback problems earlier.

I remind you that the transcript will become a matter for the public record. If for some reason you wish to make a confidential statement during today's proceedings, you should request that the committee take your evidence in closed session. If the committee grants your request, any public and media in attendance will be excluded from the hearing. Please note that until such time as the transcript of your public evidence is finalised, it should not be made public. I advise you that publication or disclosure of the uncorrected transcript of evidence may constitute a contempt of Parliament and mean that the material published or disclosed is not subject to parliamentary privilege.

Mr Ellis, I think you want to make an opening statement.

Mr Ellis: Thank you, Mr Chairman and committee. We appreciate the opportunity to appear before the committee today. I would like to make some opening remarks.

APPEA is the peak national body for the oil and gas industry in Australia. We represent companies responsible for the production of 98 per cent of Australia's oil and gas and the vast majority of the exploration undertaken in the country. We also represent many of the companies who provide

goods and services to the oil and gas industry. I am, as you have heard, the chief operating officer for APPEA for the western region with responsibility for our association's activities in WA, South Australia and the Northern Territory.

We welcome the opportunity to appear before the committee, which we believe can play a very useful role in informing the Parliament and the broader community about the advantages of hydraulic fracturing for natural gas. These include job creation, increased state revenue and lower energy prices—benefits which can be delivered to WA safely and responsibly guided by strict regulation and modern technology. As the committee would be aware, estimates of WA's potential recoverable resources of unconventional gas are substantial—in the order of 235 trillion cubic feet from the Canning Basin and 32 trillion cubic feet from the Perth Basin. To put that in context, that would be enough gas to meet WA's domestic gas needs for more than 530 years.

There is an urgent need to encourage exploration to provide a clearer picture of the extent of these resources and to safeguard WA's domestic energy security and its position as a major world gas exporter. Exploration programs are underway, but as yet there are no commercial shale gas wells in operation in Western Australia, though we have seen a handful of conventional gas discoveries onshore in recent years, which have started to deliver gas to the domestic market. There is no doubt, however, that the successful development of our shale gas reserves has significant social, economic and environmental benefits for Western Australians.

The world is experiencing an energy revolution. Global demand for clean, safe, affordable natural gas is growing strongly and shale gas is playing a major role in meeting that demand. The United States, for example, is experiencing its lowest greenhouse gas emission levels in 20 years, thanks largely to a shift from coal to gas-fired power generation. At the same time the so-called manufacturing renaissance is creating new jobs in once struggling parts of America thanks to cheaper gas-fired energy. The game changer has been multi-staged hydraulic fracturing when combined with the practice of horizontal drilling, which has significantly increased the commercial potential of previously uneconomic shale reserves.

There are, fundamentally, two important questions for Western Australia to consider. Firstly, do we want to embrace the benefits of shale gas—the jobs, the investment in regional and Indigenous communities, reduced greenhouse gas emissions and the significant revenues to government? Secondly, can we be confident that shale gas can be developed safely and responsible and with minimal risk to the environment? APPEA believes the answer to both these questions should be a resounding yes. Western Australians can and should be confident that hydraulic fracturing is a safe, well-established and tightly regulated practice. They can rely on a comprehensive independent review published in 2013 by the Australian Council of Learned Academies—252 pages of peer-reviewed science—as well as the skills and know-how of organisations like the CSIRO.

They can rely as well on the total commitment of the oil and gas industry to do the right thing, and that goes beyond the basics of just following regulations. Companies here in WA bring a wealth of knowledge to the search for gas and are able to transfer decades of experience in well drilling and construction, hydraulic fracturing and the use of sensing technology to monitor and minimise risks. We also know how this technology can be tailored to local conditions with hydraulic fracturing used more than 750 times in WA since 1965 and around 700 times in the Cooper Basin in South Australia over that period.

The committee can be assured that the industry will continue to work with government to ensure a robust and efficient regulatory framework is in place, supported by high standards of operating practice. Industry and government have also been working to ensure that fact-based information reaches the community, including through independent third parties such as CSIRO, to enable informed discussion and decision-making. It is important that we counter the misinformation that has been spread by groups ideologically opposed to natural gas who ignore the extensive body of science proving it poses negligible environmental and health risks. I strongly urge the committee to

use the Australian Council of Learned Academies report as a guide in its deliberation. This comprehensive and peer-reviewed report found, according to my notes —

> The evidence suggests that, provided appropriate monitoring programs are undertaken and a robust and transparent regulatory regime put in place (and enforced), there will be a low risk that shale gas production will result in contamination of aquifers, surface waters or the air, or that damaging induced seismicity will occur.

Last year, former Howard government minister Peter Reith completed a comprehensive review of the Victorian gas market on behalf of the Victorian government. Delivering his final report in October, he urged his state to embrace the potential of onshore gas development and issued the following warning —

> I have seen many scare campaigns in my time in politics but this particular campaign has been allowed to run for far too long and will have adverse repercussions for living standards and jobs.
>
> One key part of the scare campaign has centred on hydraulic fracturing, otherwise known as fracking.

I urge the committee to reject the scare campaign currently being waged by anti-gas activists here in WA. While there are challenges ahead, the pace and the manner in which the industry is approaching exploration and potential development provides time to meet these challenges head on. Ultimately, the realisation of the important benefits shale gas can potentially provide WA will require a foundation of community confidence. This can be achieved through safe and responsible operator practices, robust regulation and early and open communication. I am happy to answer any questions that you have.

The CHAIRMAN: Thanks for that, Mr Ellis. I want to refer first of all to a document "Western Australian Onshore Gas Code of Practice for Hydraulic Fracturing", which I understand is an APPEA-sponsored document.

Mr Ellis: Yes, it is Mr Chairman.

The CHAIRMAN: Can you describe the process which led to this voluntary code of practice being created and how has it been received by industry?

Mr Ellis: Mr Chairman, two years ago, APPEA sought to engage all of its onshore gas members in Western Australia to pre-empt some of the scare campaign that we could see happening on the east coast. We began to work with them to try to establish what were good operating practices in our industry; how might we ensure they were consistently applied; and how might we help explain them to communities with an interest in these activities. So, over a period of a year we worked with the companies that were active in Western Australia to develop that code of practice and we have used it as a tool to help set expectations about what communities and stakeholders can expect from oil and gas companies coming to their area and also to supplement and support the regulatory framework as that has been developed alongside the industry's activities.

The CHAIRMAN: Was there any consultation with non-industry stakeholders in the preparation of the code of practice?

Mr Ellis: There was not. As I see, Mr Chairman, you have a copy front of you. It was distributed widely. It has been the basis of facilitating feedback from a variety of stakeholders and that has informed a variety of submissions we have subsequently made to government and it is also been incorporated in a subsequent initiative. APPEA is now building on that WA code of practice for hydraulic fracturing to develop national codes of practice for the onshore gas industry to pick up questions and feedback and also to draw on activities happening across all states and territories.

The CHAIRMAN: You mentioned in your opening statement that you have sought to be proactive here in WA against the sort of campaign—your words, I think—that has been waged in the eastern

states on the eastern seaboard by opponents of the gas industry. Can you explain for the benefit of this committee what has been happening in the east and what is that you are trying to address?

[1.45 pm]

Mr Ellis: What we have seen with the development of the coal seam gas industry in Queensland, a very significant industry, is three liquefied natural gas onshore plants currently being developed in Queensland. That has focused enormous attention on the natural gas industry in Queensland, and it has focused some pretty extreme attention and claims about the industry's ability to coexist and work productively in the landscape where it was moving. I point to the fact that those projects are now well advanced. Relationships with farmers in Queensland are at a stage where 4 000 land access agreements have been signed by individual farmers. The level of support for the coal seam gas industry in Queensland is very strong, and it is strongest around the communities where the coal seam gas industry is most active.

Mr Chairman, if I might go on, I think what we have tried to do is to recognise Western Australia has a long tradition and experience in the natural gas industry. We saw the opportunity to be proactive and we recognised that the success of the natural gas industry in Western Australia over the past five decades has been built on winning community trust, which has been accomplished by a couple of things. It has been accomplished by strong industry standards, responsible stewardship of the state's resources, be they gas or water, and a proactive approach to engaging the community to ensure that they can see there is a positive dividend that will arrive to them in the community out of the development of the industry.

The CHAIRMAN: What were the sorts of problems with coal seam gas in Queensland and New South Wales that were identified by communities over there?

Mr Ellis: The problems that we as an industry association sought to address were primarily ones by—I guess we were surprised by the level of anti-gas campaigning that was undertaken by green environmental groups. If you wind back five or seven years, you find most environmental groups here and around the world were very supportive of natural gas on the basis of its benefits over coal in power generation and in reducing greenhouse gas emissions. We were surprised by the level of antagonism and the sort of campaigns that were starting to be run and the level that they were fostering concerns and anxieties in the community. As an industry association, that was the primary area to which we sought to respond. As I say, we recognised that there is a task there that falls partly to communication and partly to the industry's own performance, hence our focus on codes of practice.

Hon STEPHEN DAWSON: In earlier evidence today we heard that there is some concern from environmental groups but also in the general community. In your opening statement you referred to there being global demand for clean, safe and affordable natural gas. It is the word "safe" that I guess I want to look at further. Again from earlier evidence, we know that in Pennsylvania, for example—that is just one place in the world—six to seven per cent of new wells drilled in the past three years have been compromised structurally. So, we know there was well failure and there may have well been environmental issues and problems associated with that. Is it a safe process? Can you assure us it is a safe process? Can you assure the Western Australian community it is a safe process?

Mr Ellis: Can I make two comments in response to that. Firstly, the opponents of the natural gas industry tend to choose the science and the statistics they quote based on their ideology. Again, I would refer the committee to the Australian Council of Learned Academies for its assessment of well failure rates. It reaches a very different conclusion than those numbers you have just quoted. Secondly, in terms of guarantees, we sit here in a jurisdiction where nearly 3 000 oil and gas wells have been drilled off the coast of Australia over the last 50 years, most them off the coast of Western Australia, and more than 700 wells drilled onshore Western Australia. That is just one part of a broader story in terms of the industry's experience and the way it has used technology. There is

a long history. There is an overriding commitment in the industry, as both a value and a priority, to ensure its workers and communities near its operations are protected. I think the commitment to safety lies in looking at the industry's track record and its commitment to learn from any incidents and continuously improve.

Hon STEPHEN DAWSON: Sure, one of the contentious issues at the moment is the state government's decision not to have the EPA assess elements of hydraulic fracturing. Do you not think proper scrutiny of the process by organisations like the EPA would help with the view outside, would allay people's fears? If the EPA says it is environmentally safe, it would make for an easier time or a path for you and your clients and members.

Mr Ellis: I will answer that question in two parts. I think the continued claims that the EPA is not playing a role in this industry are mischievous. The EPA has issued specific guidance. It has looked quite specifically at the early stage exploration and proof-of-concept activities happening in the state and published a guidance bulletin saying it has reached the conclusion that they are unlikely to have any significant impact on the environment. The EPA has also said very clearly that before any of these projects move to commercial development or full-field development, it would expect to have a role. The industry would certainly expect—and I am sure the public would expect—that before we move the modest level of exploration currently being conducted, more or less the same level of onshore gas exploration this year than has occurred in Western Australia for the past 50 years, you would expect the state's environmental legislation to bring the scrutiny for public environmental review program. The industry understands that and would expect that.

Mr Dawson, excuse me, I have forgotten the second point I was going to make!

Hon STEPHEN DAWSON: That is all right; that will do for now, Chair.

Hon PAUL BROWN: One of the assertions today in previous testimony, and following on from what Mr Dawson raised, is about well integrity. Whether or not it is true, the six or seven per cent well failure has been raised today. You certainly said in your opening statement that this will meet the domestic needs of WA for 530 years if it is rolled out properly. How can we as a state guarantee the well integrity over that sort of period? The current information that I have is we are looking at well integrity of decades, but being that those holes are going to be in the ground and going to be an issue for the state, how are we guaranteed that integrity?

Mr Ellis: Well integrity is, I think, an appropriate issue for the committee to focus on. Again I point to the straw man that many of the opponents of the industry have created in recent years focusing on hydraulic fracturing, when well design construction integrity is indeed the critical issue. In the very rare cases in the oil and gas industry in Australia or globally where there has been any contamination of water resources, it has been as a result of well design and construction not of fracking. How can you have confidence? I think firstly I would say to start with an objective fact base. Again, the Australian Council of Learned Academies prefer the estimate that 0.5 per cent of wells may fail, rather than the numbers that are used by the Conservation Council and others. They also define quite clearly what does a well failure mean. They point to the fact that often this means a leak early in the process which is able to be remedied. So, I think we need to start from a clear fact base. We also need to look to the regulations which have been introduced just this week by the Department of Mines and Petroleum. They looked very closely at well integrity over the entire life cycle of a well. Dr Tim Griffin, the acting director general of the department, I heard on the radio this week describing them, in the department's view, the strongest well integrity regulations in the world. If we start with a fact base, if we look to the regulatory practice which governs it and we look to the industry's strong track record in the state, I think this is an area where while there is a risk, the probability of that occurring can be significantly mitigated by strong regulation, good operating practice, scrutiny and building on science and fact.

Hon PAUL BROWN: Thank you for that. What I was probably leaning more towards is not during the operational life of the well, but well after the well is operational. We are talking decades—40,

50, 60 years, if not a century later. What is the legacy that is going to be left to the state of having those wells still in the ground? That is more what I am interested in.

Mr Ellis: Okay. The regulations which have been released this week and the consultation and review go to that issue. They look to the whole life cycle of oil and gas wells. At the moment, at abandonment of a well, companies are responsible for plugging that well to the satisfaction of the state government. I think the question you raise around long-term well integrity is an appropriate one to review. Are the existing measures strong enough? Do we need to do more in terms of ensuring that the long-term maintenance and surety around the management of those wells is adequate? The industry would welcome engagement on that. I think it is a legitimate question to ask.

Hon SAMANTHA ROWE: Mr Ellis, thank you for your opening remarks. I would just like to touch on a few points that you have made. That you know of, has there been any groundwater contamination in Australia from gas fracking or well design failure?

Mr Ellis: The regulators in Western Australia and in South Australia put on record to say there has been no contamination of groundwater caused by the oil and gas industry. To the extent that I am aware of incidents that have occurred, I understand they have been remedied to the satisfaction of the state government.

Hon SAMANTHA ROWE: With those ones that have been remedied, was there actual pollution or contamination of the groundwater?

Mr Ellis: I do not believe so. There is only one incident I am aware of in recent times in Western Australia. The former Minister for Mines and Petroleum—I think I am paraphrasing his public commentary on that incident at the time—was satisfied there was not any impact on the environment.

Hon SAMANTHA ROWE: From one of the other submissions that we heard earlier today, I understand with the process of fracking that 98 per cent of it is water and sand and a there is a minimal two per cent that is made up of chemicals. But the chemicals used in that process include toxic allergenic, mutagenic and carcinogenic substances that, according to this submission, even in minute quantities can make the water toxic and potentially dangerous. Do have any comments to make in relation to that statement?

Mr Ellis: Yes, I do. Yes, you are right that in hydraulic fracturing a well, typically the fluid comprises 99 per cent or 99.5 per cent water and sand and 0.5 per cent chemicals. Those chemicals will vary depending on the particular rock that is being fractured. There is typically in the order of three to 12 chemicals chosen, which have a particular role in terms of preventing corrosion of the well or assisting in the fracturing process. Those chemicals range from familiar household products—things we would find in our home, either antiseptics or cleaning fluids. Some of the chemicals are toxic, but they are used in very small quantities. They are controlled within the steel and cement casing of the well and the selection and use of those chemicals is both subject to regulatory approval and full transparency.

Hon SAMANTHA ROWE: If there was well design failure, even though, as you say, it is minute chemicals being used, would that impact our groundwater adversely?

[2.00 pm]

Mr Ellis: Two and a half million wells have been drilled and fracked around the world. Every regulator who has gone on the record, including the administrator of the USEPA, said there is no evidence of contamination of groundwater from fracking. In terms of the focus that the opponents of the gas industry have put on the risk, the evidence would suggest that the possibility of that risk has not been translated into reality.

The CHAIRMAN: You mentioned transparency just then when discussing the additives. I think you meant to say 0.5 per cent not five per cent of the deposits—a slip of the tongue.

Mr Ellis: Thank you, Chairman.

The CHAIRMAN: I did not want you to get a fright when you saw the transcript. The question of transparency is one that has been raised with us before. My understanding is that there are significant potential players in this industry who do not want the make-up or the formula of their fracking fluids disclosed publicly because of issues with competitors. What is the situation there? Is there a commitment by your members to transparency and disclosure or not?

Mr Ellis: We have an absolute commitment to transparency. There are two areas where the oil and gas industry thinks policy in these areas needs to focus. One is transparency. Clearly, in regard to the confidence of the public, given the concerns that have been raised, it is critical that we actually find a mechanism to deliver full transparency to people. Claims of secrecy can be addressed effectively. That, of course, is the regime that operates in Western Australia today. There is one other area that we, in our submissions to the regulator, suggested they also need to consider; that is, the encouragement of investment in greener, less toxic chemicals. We have been approached by some of our member companies, including small companies who want to do research with local universities, expressing concern that the investment they might make in new greener chemicals might be subject to reverse engineering by competitors and they would not have an opportunity to recoup their outlay. In that circumstance we have suggested to the regulator that they should consider the opportunity for a regulatory decision-making process where a company is able to make the case that they disclose all to the regulator, but they also make the case that there is a public benefit from not disclosing publicly an element of what they are doing. If I have made it clear, that is the position that we are representing in terms of our members.

The CHAIRMAN: Can I just clarify that for my sake, please? We are all aware of Coca-Cola's secret recipe—if it still is a secret after all these years. We all know about Colonel Sanders and his 11, or however many it was, secret herbs and spices. We also know that our regulatory requirements for foodstuffs require that the ingredients in any of those products be disclosed on the packaging. Those companies have managed to comply with that and there is no community uproar. At the same time, they also seem to have preserved the key elements of their secret formulas and protected their commercial interests. Is it not open to your members to do something similar?

Mr Ellis: I think it is open to find ways to address that issue. However, I just make the point that there is a minor issue with complete transparency in the existing regime, which enjoys the support of APPEA—our members that we are representing—that we think the state needs to consider if it wishes to encourage investment here and elsewhere in greener chemicals. How you might achieve that in a way that preserves public confidence in the regime so that everything is disclosed, I think would require further work. That is how we would characterise that issue that we regard requires some further consideration.

The CHAIRMAN: Thanks for that. Another point that you or Mr Taylor might like to address relates to a matter that also has been raised in other submissions. That is about the nature and tone of the regulation of activity in the areas that we are discussing. One specific concern has been that the practice of the Department of Mines and Petroleum has been to draft regulations which are extremely prescriptive. That is, they describe in some detail exactly what a proponent, such as one of your members, would have to do when running their gas operation. The flipside to that—the alternative—would be to have outcomes-based regulations which would require, for example, the gas drilling operator to achieve certain outcomes such as no spillage of product into the water aquifer or whatever it might be. I see from your nodding that you understand the subject I am talking about. Does APPEA have a view as to whether it could comply with a more outcomes-based approach? In any case, could you respond generally?

Mr Ellis: APPEA would strongly support a shift to a more outcomes-based regulatory regime and we can see that the Department of Mines and Petroleum is moving in that direction in the draft resource management regulations that it released earlier this week. This is an approach that is consistent with that adopted by the national offshore regulator and it is one that we think best serves the interest of regulation of the industry in that it puts the primary onus for understanding what the risks are and putting forward the mechanisms to handle that risk in the hands of the operator who creates the risks. The role of the regulator is to assess and review that rather than prescriptively try and anticipate and set a variety of conditions. We strongly support that regime; it is the one that operates offshore around Australia and we can see the department moving in that direction in its newly released draft regulations. We think that is a very positive move.

Can I just put on the record what government has done in this area which I think has been a positive step in support of our industry? I think the step it took to get an independent petroleum lawyer to review the legislation and release that for public consultation, and subsequently move to amend its regulations—of which the ones released this week are the second stage —

The CHAIRMAN: Are you referring to Dr Tina Hunter?

Mr Ellis: Tina Hunter, yes. I think that was a very positive public process and a critical process of a well-established petroleum regime. Secondarily, I would say that from the industry's point of view the efforts that have been made to get a whole-of-government approach to this means it is critical that the objectives and interests of the Department of Water, the Department of Health and the Environmental Protection Authority are taken into account in framing the regulatory framework for the oil and gas industry. That allows the industry to have access to a holistic response that meets all the objectives of government, and I think there has been some very good progress made in that direction. We strongly support the work that is going on to produce a whole-of-government strategic framework ahead of a move to potential commercial development of the shale gas industry in Western Australia. We think that is a healthy thing and a good thing for the industry as well.

Hon BRIAN ELLIS: Thank you, Chairman; you asked the question that I was going to ask. I think that is the main concern of most people when it comes to fracking—the fluid you are using and concerns about the chemicals and the toxicity. You have answered that quite well and I presume that in your submission that is what your explanation was all about at the second dot point "working towards a regulatory disclosure protocol". Is that what you mean?

Mr Ellis: That is correct, Mr Ellis. To the extent that some of our members have raised this issue of wanting to invest in creating greener, less toxic chemicals, they are looking for some protection. They recognise that they need to disclose, but in the current disclosure regime they cannot see adequate protection. I think, as the Chairman indicated, this is an area that warrants some further explanation to see if both objectives could be met.

Hon BRIAN ELLIS: I think so as well because you are claiming that they are not harmful but you are not disclosing. You can understand the public's concern; why will you not disclose them?

Mr Ellis: Again, if I may, Mr Ellis, I want to be absolutely clear that APPEA's position is to support full transparency of chemicals. That is what all the operators in the industry are currently doing. As the Chairman alluded, there are some companies, both small and large, which are prepared to invest in research and want to put forward the case for regulatory disclosure protocol.

Hon BRIAN ELLIS: I will move on to page 23 of your submission. I want to see where you are at when you talk about communicating with regional communities and farmer groups. Where are you at? You say that you are catching up with all the farm organisations and you have listed a number of concerns that farmers have. Where are you at with that? I think you are after a protocol between the farming communities.

Mr Ellis: Thank you, Mr Ellis. After running a series of public workshops and public meetings in the midwest last year, in which the CSIRO participated—in fact it facilitated some—we followed

up with the Western Australian Farmers Federation and the Pastoralists and Graziers Association to discuss how we might, at a peak body level, put some structural framework around addressing the issues to the satisfaction of their members. Subsequent to that we held, in November I believe, a roundtable between the three industry associations chaired independently by Dr Hendy Cowan. We have developed a draft protocol and we are now in the process of arranging follow-up meetings with those bodies. The intention is to come up with some guidance information that all the associations can jointly issue to their members. That would help set some expectations, particularly around common issues of concern, whether they be compensation and land access agreements or whether they are matters in terms of confidence about how water or other issues are being dealt with. We see that as a real priority for us and we recognise that we need to address those issues closely with farmers. That has been one of the key elements of success of the Queensland gas industry—the close working relationship it has managed to develop with farmers on the ground and their peak bodies.

Hon BRIAN ELLIS: Yes, because obviously some farmers are probably fearful of the amount of access you would need and how much land you would need to develop wells. In your submission you paint a picture of a house block for four to eight wells. Can you give us an overall picture of what you envisage would be the set-up of wells on a farm? That does seem to be a very big piece of land, even compared to the amount of land taken up by wind or solar power.

Mr Ellis: I would say there are two things, Mr Ellis. I think the industry recognises that while it has been active in the midwest for many years, it is now coming into some new areas and dealing with some new farmers and new regional communities and it needs to win their trust and confidence as a new entrant to those areas. I think we need to work at a relationship level to develop that trust and effectively be seen as someone who is bringing a potential positive dividend and can provide confidence that the risks and the disturbance or interference with farming activities is understood and can be managed.

In terms of the footprint of oil and gas activity, as our submission indicated, onshore gas activities have a smaller environmental footprint that any other energy source available. We refer in our submission to a building block size that perhaps would be a pad for four to eight wells. If you saw a move beyond the exploration phase to commercial field development, what might be anticipated is that those kinds of pads would shrink as you moved down to just the production wellheads because they actually become smaller, perhaps to the size of a cricket pitch.

[2.15 pm]

Rehabilitation would be required around the areas that we use during exploration. Secondarily, you might expect a pad or a drilling station perhaps every one to three kilometres depending on the size of the field. That is the potential footprint. Clearly, early engagement and recognition that farmers are conducting their own activities on the land and would want to have a view on—if there was development, or to fulfil development—where the placement of those activities would occur could be an important part of promoting coexistence if we see successful development.

The CHAIRMAN: On that point, we have been shown the odd photograph—elevated photographs—of landscapes, such as a shale gas field in Wyoming, in the USA that shows a whole range of pads with connecting roads. Quite clearly that does not fit with your description of a pad of cricket-pitch size every few kilometres. It seems from what we have been shown, from people who have been and had a look, that it is far more intense than that and the total impact on the actual surface-level landscape is significantly bigger than you have just described. As a committee we get these contradictory viewpoints that we have to work through. I would like to present that one to you and ask—because you have probably seen the same photos—if you could respond please?

Mr Ellis: Sure. First of all, we have clearly not been effective in providing some alternative aerial views to the committee as we should, and perhaps I should make sure the committee receives some

contemporary photos of shale gas wells in Saxony, Germany, and how they are located in the countryside, and perhaps also in Queensland. What we would anticipate, and —

The CHAIRMAN: The photos we have been given from Queensland are worse, but we would receive any further contributions gratefully.

Mr Ellis: What we are anticipating in terms of how field development might occur in Western Australia, noting that we would recognise that if we were to see a move beyond the exploration activities we are currently doing to commercial production, the industry would expect that part of the government framework being developed for the industry would involve public environmental review. We will not move from where we are now to full-field development without going through environmental protection legislation, so there will be some transparency to that. What we can say, in terms of what we would anticipate, is that based on the technology today and the reach of horizontal drilling that you really do not have the need in developing a gas field today—particularly when you think that some of the recent shale gas wells drilled in Western Australia have cost nearly $20 million; they are very deep wells; these are not activities you want to do; you cannot afford to have closely spaced well-drilling activities at that scale—you would need, as I indicated we would anticipate in a field development the producing wells might be one to three kilometre apart. It would depend on the well. I think there is every reason to think that the impact on the landscape could be managed in terms of setting some principles for coexistence in a way that does not deliver the images in those photos. I think we are at a good point, several years away from full field development, to ensure those issues are addressed and that communities in the areas affected get an opportunity to have an impact and have some input into how that might develop. Our view would be that those misrepresent the opportunity that WA has to lay out a framework for how these wells might develop—how these fields might develop if we are successful in exploration.

The CHAIRMAN: I think it is fair to say that this committee reflects the genuine fear in the community, not only localised to the midwest, that a potential shale gas industry could have an all-pervasive and frankly very unpleasant impact on our landscapes where it occurs. So if you are able to provide some more definitive information—whether it is illustrations or what—that will help answer the question of what such development would look like, we would be pleased to receive that as supplementary information at a later time.

Mr Ellis: We will certainly do that, Mr Chairman. Again, if I can just point to the effort to inflate and exaggerate the view of what the industry might look like. We anticipate there might be up to12 wells drilled in Western Australia. That is roughly the same level of onshore drilling that has occurred in the state for the last 50 years. The level of activity is relatively low; and there is significant time to get ahead of this and work out how we might plan effectively to ensure that the field development plans are ones that meet the needs of regional communities as well as environmental protection standards.

The CHAIRMAN: We have been receiving information from you on the one hand that indicates maybe a dozen wells over a massive state in the course of some years, whereas others are saying that what we can expect, based on the experience in Queensland, based on the experience in Wyoming is about 12 wells per acre or at least per hectare. That is a very big discrepancy so it would be helpful and, again, I thank you for offering to provide that information, if perhaps the industry representative could give us some better illustration of actually what the industry is seeking to do. That would help inform the debate as well as help inform our inquiry.

Mr Ellis: Certainly, we will do that, Mr Chairman. To the extent to which we can facilitate or assist in visits the committee might want to undertake to actually see the reality of either of what is happening on the ground in Western Australia or in South Australia or in Queensland. We would be happy to facilitate that because sometimes the reality looks very different from the exaggerated hyperbole we see in this campaign.

The CHAIRMAN: Okay. Any further questions?

Hon PAUL BROWN: Can I just follow up—earlier you mentioned land access agreements; is the industry at this point ready to engage in a much more sophisticated manner, as has been done in Queensland and other parts of the world, in setting up, particularly in Western Australia—a mediation tribunal if you would call it, that allows equity in the negotiations between the gas producers and the landowners? We have two, we also have two spheres; we have the Canning Basin, of which, obviously, we are the landowner because it is unallocated crown land; whereas down in the midwest, around the Dongara area, there is a lot more freehold land. Those freehold owners just do not have the capacity to negotiate, on a dollars sense, with the industry. What I am asking you is: is the industry ready to set up and potentially pay for a committee or mediation tribunal, whereby the outcomes of those tribunals are enforceable and allow equity for the landowner to engage with industry?

Mr Ellis: So, in terms of the roundtable process we have begun with WAFarmers and Pastoralists and Graziers, absolutely, that issue is on the table and the industry is open to taking things that work in other jurisdictions, like in Queensland, and bringing them here if they are supported and sought by the members of those organisations. I think the principle that you point to in terms of that there needs to be equity in negotiations and people need to feel well informed to be able to enter into agreements in which they have confidence, is in the interests of the industry as well. If successful, the industry wants to be there for a long period and therefore it needs to have durable agreements in which people feel that they have been fairly dealt with. Yes, that is one of the issues we are talking about.

Hon PAUL BROWN: Because currently at the moment there is—whether it is perception or reality—a David-versus-Goliath negotiation at the moment. The landowners, who are generally cash-poor farmers, are trapped by the current system. You have a gas producer—the industry—that is very affluent. The perception is that they do not have any ability to engage in equity, in negotiations at an equitable level with industry. I am glad to hear that you are initially willing to do that because when I am out in my electorate that is one of the key things that is brought to me in regard to this—apart from the environmental factors—certainly, the engagement that the industry is having with landowners and the equity around that.

Mr Ellis: Absolutely. I guess I would say that in the roundtable we had with Pastoralists and Graziers and WAFarmers there were different pockets of content or discontent with the existing system that allows to take a dispute to the courts if necessary; but that has rarely occurred. But certainly at an in-principle level, if something is working in Queensland where you have now got quite a mature relationship between the industry and the coal seam gas industry, we would start with the principle of: can we take something that is working over there and bring it over here? That is very much in the frame in the discussions we are currently having.

Hon STEPHEN DAWSON: Mr Ellis, if I may go back to your opening statement where you referred to the experience in Western Australia in relation to shale gas fracking—in fact, it is also in the APPEA submission to the committee—is it not the case that oil field fracking involves vertical wells and lower pressures and less chemicals, whereas the fracking that we are looking at now in this state involves horizontal wells with different pressures and different chemicals? Is it fair to compare both? Is it fair to say that we have all this experience when, in fact, we have not really?

Mr Ellis: Mr Dawson, in a debate in which the opponents of the gas industry tend to pick their science purely based on the argument they are trying to make, again, I would urge the committee to look to the Australian Council of Learned Academies report for a credible, third-party, peer-reviewed view of where the truth of some of this lies. In terms of the comparison, yes, it is true to say that of the 750-odd wells that have been drilled and fracked in Western Australia most of those are on Barrow Island, which is why in my introductory statement I also referred to the similar number that have been drilled and hydraulically fractured in the Cooper Basin. Those sit within the broader context of something like two and a half million wells worldwide that have been drilled and

fractured—if you look to the last couple of years in the United States and the development of their shale gas industry, hundreds and thousands of wells. Is there experience that we can draw on in terms of the use of multi-stage hydraulic fracturing, deep depth and higher pressure? Yes, there is. I think I would argue that the industry is drawing on a tradition of technological innovation in Western Australia where we have been at the forefront of many areas of pioneering technology in the industry, whether that is the North West Shelf or the use of floating offshore production facilities. The use of technology is a fundamental part of this industry and it is one where we draw on international expertise. I think there is a track record and an ability to assess that experience in South Australia, recently here but also in the United States.

Hon STEPHEN DAWSON: I certainly undertake to have a look at the Australian Council of Learned Academies report, but I just make the point that, obviously, there are learned people on both sides for and against fracking, who have very, very different views. I guess our job is to work through that. But you have your experts and so have they. The other quick question, we are running out of time so it is on a totally different issue, if you do not mind indulging me, Chair. In your submission, again, you told us the onshore operators and the regions of exploration in Western Australia. Can you give us a sense of, I guess, where those projects are at? What stage they are at? Obviously, we know, we have read in the media that Buru are at a certain stage, but what about people like Latent Petroleum and Norwest Energy? Do you have a sense of where they are at and how far we are away from potential extraction?

[2.30 pm]

Mr Ellis: In both the midwest, where you have companies like AWE, Latent, Norwest, and in the Canning Basin, where Buru is perhaps the most advanced of the projects currently undertaking activity, we remain in what we describe as either exploration or proof of concept. What that means is, if we saw successful exploration and evaluation activities this year and next year, perhaps at the soonest—and this is probably more applicable to the midwest where you have got access to existing infrastructure, the resources are smaller—you might well see within that space of time one of those companies coming forward with a commercial field development plan, which would have to be referred to the EPA and be subject to a public environmental review. My assessment, based on the advice we have had from our member companies, is the Canning Basin will be a little bit further away than that and very much will be dependent on what they learn from exploration activity this year.

Hon STEPHEN DAWSON: Thank you.

Mr Ellis: Mr Chairman, with your indulgence, can I just make one point about learned people on both sides. I have referred in our submission, and a couple of times I have referred, to the Australian Council of Learned Academies' report. I have done that to try and steer away from "let us cherrypick the science to counter the cherrypick science of our opponents". The Australian Council of Learned Academies was commissioned by the commonwealth government in response to the concerns that were raised. Its report is a result of independent academics, it has been peer reviewed by the CSIRO, it stands alone not as something commissioned or endorsed by APPEA, but as a piece of credible peer-reviewed science looking very intensely at this subject, which perhaps provides the committee a way to make sense of the competing claims they are hearing.

Hon STEPHEN DAWSON: As I said, I certainly undertake to have a read of it. Again, I make the point that we have had a range of submissions from a range of people from a range of universities, who might have had work peer reviewed. We just have to work through it all, and we will.

Mr Taylor: Mr Chair, if I could also just clarify an earlier comment from Stedman, it is 12 wells this year we would anticipate, not sort of in total.

The CHAIRMAN: I see, 12 wells. Are there any final questions?

Hon PAUL BROWN: I have got a few smaller ones, adding on to what we have already discussed. Previously, we talked about the exploration pad where a number of wells will eventuate, and that will be the size of a house pad. Moving into commercial production, it goes down to what you consider to be a cricket pitch–sized area. What sort of time frame are we looking at? If I put myself as a landowner and you are coming on to my property and you are going to do exploration, we have reached an agreement, how long am I expected to wait for you to go from a house pad or bigger down to the cricket pitch? And then how long will the rehab take of that area?

Mr Ellis: In answer to the first question, our assessments from the beginning of exploration to commercial production is perhaps in the order of three to five years as an average. In terms of rehabilitation, the requirements under the environmental plan are progressive but depend on the stage of activity reached. I would say, having listened to some of the farmers and pastoralists in the Dongara area who have had experience with the oil and gas industry, that that initial exploration pad does not always translate into a successful production well later. So, for some of the land access agreements and compensation have just been around exploration and then that has had to be rehabilitated to meet the requirements of the approvals.

Hon PAUL BROWN: In your talks with WA farmers and the PGA and other stakeholders, are you looking at implementing a buffer zone? We have heard earlier testimony today that noxious chemicals and air pollution from the activities are causing a range of problems in children, families and people. Would you be looking at putting in buffer zones? I know our population density is very different to that of the east coast of the United States, but are you prepared or at least looking at putting in buffer zones whereby a drill pad is not going to be just over the fence line from a landowner's residence?

Mr Ellis: Mr Brown, and my apologies, committee —

Hon PAUL BROWN: Paul.

Mr Ellis: — Paul, if I sound like a broken record. If you look at what the Australian Council of Learned Academies report had to say about the claims of health impact, it said there is no data to support the claims of health risk. It says health risk is not evident in either Queensland or North America, but it does recommend there needs to be baseline and continued monitoring of pollutants. So, I think that is the direction we support. If I go a step further, I would say that the Queensland government's response to these kinds of concerns about health was it commissioned their own health department to do a study in this and it also found there was no link between the claims of public health impacts and the coal seam gas industry. I think our view would be there is no evidence to support the need for buffer zones, but certainly there needs to be baseline monitoring and an assessment of pollutants and, as part of any development, the risk assessment—particularly, the risk assessment that would be required not just as part of exploration, but if you were to move to commercial field development. We would expect that the Department of Health is providing advice to the EPA and the Department of Mines and Petroleum at both stages of the process to ensure some confidence that that issue is adequately addressed. But I do not believe there is a case for buffer zones.

Hon PAUL BROWN: Thank you. I would just like to raise the idea or the spectre, maybe from the industry's point of view, of environmental bonds. Currently, the industry is not having to put up an environmental bond as part of the process, certainly in the exploration phase. How does the industry view the future necessity or willingness of putting up environmental bonds to actually negate the legacy to the state of any possible poor outcome from this industry?

Mr Ellis: Look, I think the oil and gas industry in toto, whether I am talking about our onshore or offshore members, accepts that they are stewards for state resources. They carry a responsibility to manage those resources wisely and, ultimately, they will need to demonstrate to regulators that they have left no liability for the state. In terms of the best mechanism for addressing that, if we are to see the shale gas industry develop, I think that is an area that the Department of Mines and

Petroleum has already flagged to the industry it wants to discuss. As you would be aware, Paul, it has completed a major reform of how mining is environmentally bonded in the state, and it is seeking a dialogue with the industry in advance of a move to shale gas development to look at how that might work onshore. I think we accept the principle that the industry needs to ensure it is not leaving a liability for the state. We are open to exploring the most efficient and effective methods to give the state confidence of that.

Hon PAUL BROWN: Thank you.

The CHAIRMAN: We have probably come to the end of our hearing for today, although, obviously, there are a number of your members who we will be having hearings with individually to follow up a whole range of other things, and you may find yourself involved with those. But for now, I think that brings our hearing to an end. Although, again, there were a couple of items of follow-up that you kindly agreed to provide—some expansion or further materials—so we look forward to receiving those in due course. But for now, I bid you a good day and thank you very much.

Mr Ellis: Thank you, Chairman; thank you, committee members.

Hearing concluded at 2.39 pm