

**Western Australian Legislative Council  
Environment and Public Affairs  
Committee: 'Inquiry into the  
Implications for Western Australia of  
Hydraulic Fracturing for  
Unconventional Gas'**

**Supplementary Submission from the  
Australian Petroleum Production and  
Exploration Association (APPEA)**



appea

the voice of australia's  
oil and gas industry

# Submission

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## INTRODUCTION

The Australian Petroleum Production and Exploration Association (APPEA) welcomes the opportunity to provide supplementary information to the Inquiry into the Implications for Western Australia of Hydraulic Fracturing for Unconventional Gas. This submission should be read as an addition to our earlier submission provided in October 2013.

Outlined below are the key points from this submission:

- Natural gas developments result in less land disturbance than many other land uses, including alternative energy industries such as solar and wind generated power. As well, the natural gas sector is committed to working with landowners to minimise disturbance.
- APPEA supports the public disclosure of chemicals used in hydraulic fracturing, which is mandated under WA petroleum environment regulations.
- APPEA believes that the current regulatory framework provides the most effective means of protecting Public Drinking Water Source Areas.

## QUESTIONS WITH NOTICE

This section responds to questions and areas of focus raised by the Committee at APPEA's hearing on 7 February 2014.

## LAND USE AND REHABILITATION

In 2013 the Australian Council of Learned Academies review<sup>1</sup> found that shale gas was no different to any other development of the landscape.<sup>2</sup> Within this context, the industry remains committed to working with land owners to minimise the impact on their properties and rehabilitating any land disturbances to the highest standards.

### ***Minimising Disturbance***

Horizontal drilling from multi-wells pads has enabled companies to access multiple sections of a field from a central location. While multi-well pads are likely to require a larger surface area than a pad for an individual well, ACOLA notes that this increased area requirement "would be more than offset by the fewer well pads required within a given area and the need for only a single access road and gas gathering system to service multiple wells on a single pad."<sup>3</sup> ACOLA additionally notes that horizontal drilling provides the most flexible way of avoiding environmentally sensitive locations within the development area.

Provided at Figure 3 (Attachment 1) is an aerial photograph which illustrates the outcome of companies working closely with landholders in eastern Australia to optimise the layout of infrastructure and minimise disruption on intense farming land.

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<sup>1</sup> Cook, P, Beck, V, Brereton, D, Clark, R, Fisher, B, Kentish, S, Toomey, J and Williams, J (2013). *'Engineering Energy: Unconventional Gas Production.'* Australian Council of Learned Academies (ACOLA), [www.acola.org.au](http://www.acola.org.au).

<sup>2</sup> Ibid., P. 99

<sup>3</sup> Ibid.



### ***Decommissioning and Rehabilitation***

As illustrated in the photos below, the reality of a project's footprint and the rehabilitation of project impacts in WA is likely to be vastly different to the scenarios presented by groups opposed to the industry's development. For example, the images in Attachment 1 at Figures 4,5,6 and 7 illustrate the effectiveness of rehabilitation of petroleum exploration sites. Figure 8 similarly demonstrates the effectiveness of rehabilitation techniques on a pipeline corridor in Queensland.

Oil and gas operators in WA are required demonstrate how they will minimise impacts and remediate disturbance from the earliest stages of project planning. Beyond the requirements of the State's regulatory framework for environment and resource management, rehabilitation is also an issue intended to be addressed through the land access framework to be developed by APPEA, WAFarmers Federation and the Pastoralists and Grazier's Association (PGA).

Under the draft resource management regulations released by DMP for consultation, operators are required to detail how they will decommission a petroleum site prior to any approvals for exploration being granted. APPEA is currently reviewing these regulations in consultation with members.

### ***Land Use across Various Energy Sources***

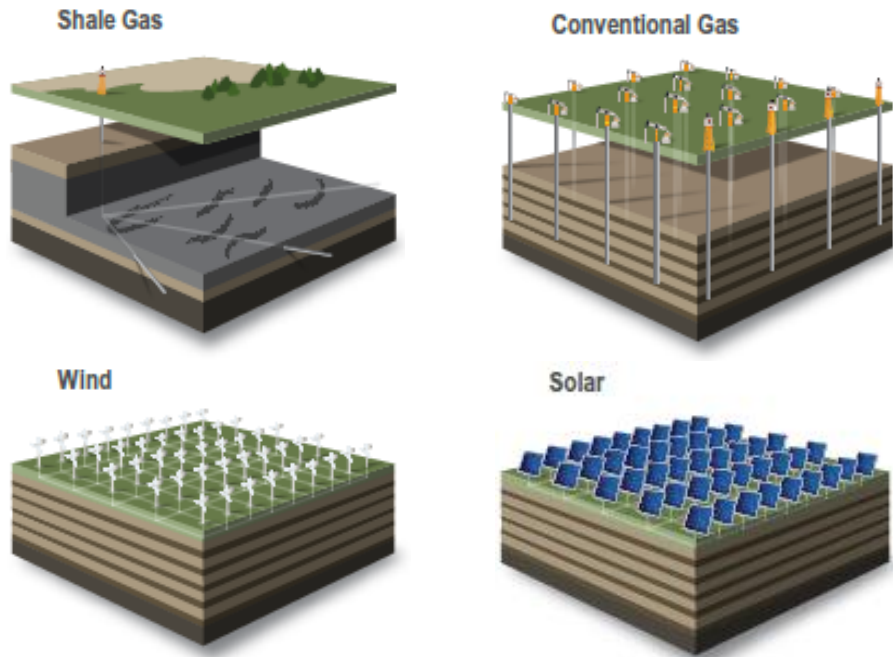
All energy sources have a land use footprint. Shale gas wells require less land to produce equivalent energy as wind and solar sources, which require 20 times the amount of land to power the same amount of houses.<sup>4</sup> Figure 1 below compares the various infrastructure requirements of different energy sources. Figure 8, provided at Attachment 1, shows 11 gas wells dispersed amongst a number of wind turbines, while Figures 9 and 10 show the footprint of wind and solar parks in Western Australia for comparison.

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<sup>4</sup> For further information see: 'The Solar Painted Desert', The Wall Street Journal, <http://goo.gl/Ewlvrz>; 'President Obama's Energy Outlook is Far too Sunny', Investors Business Daily, <http://goo.gl/buZH2j>; R.Bryce, 'The Gas is Greener', <http://goo.gl/JEF5CU>; O. Eugene, 'Focus on technology overlooks human behaviour when addressing climate change', <http://goo.gl/FzbRDg>; 'Shale Gas: The Facts About Environmental Concerns', International Gas Union (IGU) (2012), <http://goo.gl/rSp50L>, P. 13; 'Shale Gas in Europe', International Association of Oil & Gas Producers, <http://goo.gl/iZxoGC>



Figure 1.— Comparison of land use footprints across energy sources<sup>5</sup>



#### BUILDING LONG-TERM RELATIONSHIPS WITH LANDHOLDERS

##### ***Land Access Framework***

APPEA has previously outlined the work underway with peak farming and pastoral industry bodies to address some of the concerns about development of natural gas production on private land, including in relation to water management, farmers' and pastoralists' rights, mediation and equity of compensation.

The petroleum sector recognises that good communication and trust-building is necessary to underpin successful coexistence of the two industries in the future. In October 2013 a roundtable meeting was held with key representatives from CSIRO, WAFarmers, PGA, DMP, APPEA and two companies exploring in the Mid West region. The meeting agreed to the development of a draft agreement to articulate protocols relating to early communication and consultation and respect for management requirements.

The draft protocol will be progressed by a working group of APPEA, WAFarmers and PGA representatives in consultation with the DMP and CSIRO as technical advisors on scientific and regulatory issues. APPEA is in the process of seeking a meeting with working group representatives with the aim of meeting in March 2014.

#### CHEMICALS DISCLOSURE

APPEA supports current full disclosure of chemicals used in hydraulic fracturing. Prior to the introduction of regulatory requirements for chemicals disclosure, the industry recognised the high levels of public interest and committed to voluntary disclosure of chemicals.

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<sup>5</sup> IGU – Shale Gas, P. 13



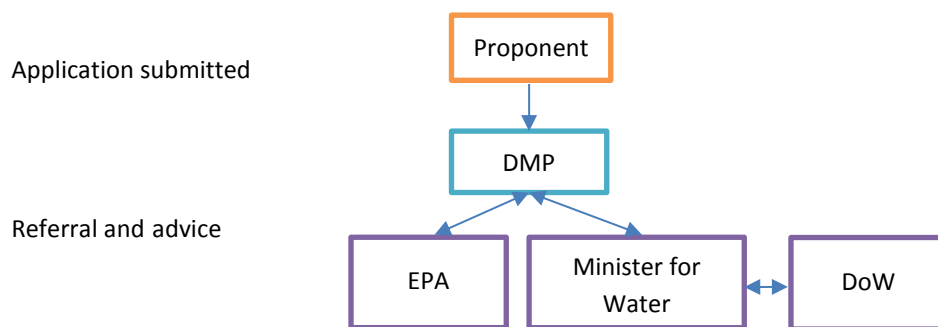
To lift the visibility of the chemical disclosure regime, APPEA would encourage consideration of a FracFocus.org style website for Western Australia, which could provide a one-stop-shop for information on areas being explored for shale and tight gas and the chemicals used in each well. The Queensland Department of Natural Resources and Mines (DNRM) has developed a similar model for providing information to the public on exploration activities, called the Coal Seam Gas Globe (further information is available at [www.dnrm.qld.gov.au](http://www.dnrm.qld.gov.au)). It is noted that the benefit of the DNRM model is that the data is government-sourced which enables a high level of consistency in the information.

APPEA notes that several companies are investing in 'green' or non-toxic additives to hydraulic fracturing fluids. APPEA would support further consideration of whether supplementary approaches beyond current regulatory requirements are required to continue to encourage innovation.

#### PROTECTION OF PUBLIC DRINKING WATER SOURCE AREAS (PDWSA)

The current regulatory framework sets the bar very high for any activity occurring within the one per cent of land recognised as PDWSA. This framework is supported by APPEA as the most effective mechanism to protect critical water sources. The current regulatory approach requires any activity proposed on a PDWSA to be referred to the Environmental Protection Authority and Department of Water and also requires consideration by the Minister for Water, as illustrated below.

Figure 2. - Assessment process for an activity proposed within a PDWSA



The effectiveness of this framework was recently highlighted in media coverage with the Minister for Mines and Petroleum, who indicated that a proponent proposing to drill on a PDWSA would be taking “a very big risk in terms of the assessment... it would be assessed under fairly rigorous conditions... [as] the water supply is paramount.”<sup>6</sup> APPEA believes this framework is appropriate for managing any potential risks within a PDWSA.

<sup>6</sup> S. Lannin, ‘Minister says no to fracking ban near public drinking water’, ABC News, <http://www.abc.net.au/news/2014-03-05/minister-says-no-to-fracking-ban-near-public/5300464>

**ATTACHMENT 1 – SUPPORTING IMAGES**

Figure 3 – Well sites coexisting with intense farming land (Surat Basin – NSW/Qld)

Figure 4 – Mountain Bridge-1 well site post rehabilitation work, wellhead location highlighted by the yellow box

Figure 5 – Rehabilitation of Exploration Well Site (Mid West, WA)

Figure 6 – IGas drilling site, Willoughbridge UK

Figure 7 – Well site at Brawboy, Gunnedah Basin, NSW

Figure 8 – Rehabilitated 48-inch gas pipeline corridor in Queensland leading to LNG plant

Figure 9 – Land impacts of wind turbines and gas wells (Saxony, Germany)

Figure 10 – Collgar Wind Farm (Merredin WA) – 18,000 hectares/206 MW

Figure 11 – Greenough River Solar Farm (Mid West WA) – 50 hectares/10 MW



Figure 3.— Well sites coexisting with intense farming land (Surat Basin – NSW/Qld). This property contains 34 petroleum wells, identified by the small white boxes along property boundaries.





Figure 4. - Mountain Bridge-1 well site post rehabilitation work, wellhead location highlighted by the yellow box (Mid West, WA)



Figure 5. - Rehabilitation of Exploration Well Site (Mid West, WA)



Prior to site rehabilitation at the Kingia-1 well site in 2006



Post site rehabilitation at the Kingia-1 well site in 2006



Figure 6.– IGas drilling site, Willoughbridge UK



Before drilling



Drilling



Rehabilitated site



Figure 7.– Well site at Brawboy, Gunnedah Basin, NSW



Well pad



Well pad after  
removal of  
infrastructure



Rehabilitated site



Figure 8.— Rehabilitated 48-inch gas pipeline corridor in Queensland leading to LNG plant (carries equivalent to 40,000,000 tonnes per annum of coal which would need to be transported via railway line).





Figure 9.- Land impacts of wind turbines and 11 gas wells (Saxony, Germany)<sup>7</sup>



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<sup>7</sup> 'Energy Impact', Bishop Hill, <http://bishophill.squarespace.com/blog/2013/7/21/energy-impact.html>.



Figure 10. - Collgar Wind Farm (Merredin WA) – 18,000 hectares/206 MW<sup>8</sup>



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<sup>8</sup> 'Welcome to Collgar Wind Farm', <http://www.collgarwindfarm.com.au/>.



Figure 11. - Greenough River Solar Farm (Mid West WA) – 50 hectares/10 MW<sup>9</sup>



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<sup>9</sup> 'Photos – Greenough River Solar Farm', <http://www.greenoughsolarfarm.com.au/photos>