

# CHAPTER 5

## Energy security and diversifying sources of energy in Western Australia

5.1 This chapter discusses energy security in Western Australia, including some possible options for diversifying sources of energy. As noted above, around 95 per cent of Western Australia's domestic gas supply is supplied from two sources in the north west of the state. Gas from the Varanus Island terminal is transported along the Goldfields Gas Pipeline and the Dampier to Bunbury Natural Gas Pipeline which extends almost 1600km from the Pilbara region to the main population centres in the south west of Western Australia. Furthermore, over 60 per cent of electricity in Western Australia is produced by gas fired engines so any interruption to these gas supplies invariably has consequences for the production of electricity.

### Energy security strategy

5.2 Witnesses such as the Chamber of Commerce and Industry of Western Australia and DomGas Alliance suggested that a broad-based energy security strategy is required in Western Australia and CCIWA noted that they had formally raised the need for such a strategy with the Government early in 2008. The Government supported that view and invited relevant stakeholders to start working on the strategy.<sup>1</sup>

5.3 The Department of Industry and Resources informed the Committee that interruptions to gas supply and the Department's own forecasting of supply and demand has meant that the Department:

... has put extra effort in putting forward to government recommendations for steps that would strengthen energy security. Those range from the acreage releases which have occurred in the past 12 months around geothermal energy in the state to heavy promotion of tight gas resources that are onshore in Western Australia to alternative energy. So, as well as the work we have done to negotiate with LNG project proponents for domestic gas offshore...there was a response to the fragility or the vulnerability of the state's heavy reliance on singular sources of supply for energy.<sup>2</sup>

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1 Chamber of Commerce and Industry of Western Australia, *Proof Committee Hansard*, 2 October 2008, pp 40–41.

2 Mr Stedman Ellis, Department of Industry and Resources, *Proof Committee Hansard*, 2 October 2008, p. 126.

5.4 The DomGas Alliance suggested that any energy security strategy be underpinned by a domestic reservation policy whereby gas is reserved to secure long-term domestic gas supply.<sup>3</sup>

5.5 Mr James Pearson from the CCIWA suggested that the work being undertaken by the Australian Department of Resources, Energy and Tourism on identifying key strategic energy security issues as part of its National Energy Security Assessment 'provides an opportunity for some dovetailing'.<sup>4</sup> The National Energy Security Assessment aims to identify key strategic energy security issues in the liquid fuels, natural gas and electricity sectors currently, and those likely to influence the level of energy security in 5 years (2013), 10 years (2018) and 15 years (2023).<sup>5</sup>

5.6 The former Minister for Energy, Hon Fran Logan MLA, also suggested that the National Energy Security Assessment could cover Western Australia to a greater extent:

When I was minister for energy I raised that with the minister for energy Martin Ferguson and suggested that the issue of security of domestic gas in Western Australia, given the nature of the system here in WA where you have effectively two 1,500-kilometre pipelines bringing gas, 95 per cent of it from the north west. It is a strategic issue. It is also an economic issue for industry, which is primarily in the south west.

Therefore it is not like the eastern states, where there is an integrated state system which primarily comes out of Moomba, Victoria and Queensland and where, if there is a catastrophe in one state, it can be supplied from another state or from another hub. We do not have that luxury here in Western Australia. Therefore, the energy security plan that is being developed federally should, I think, go further than simply border security and national security issues relating to energy infrastructure around the country and dig down to critical issues such as we faced here in Western Australia. So in that respect, yes, I do believe a national energy security plan would have major benefit for Western Australia.<sup>6</sup>

## **Diversifying sources of gas and energy**

5.7 A number of submissions suggested that in order to improve energy security Western Australia should have more diversified sources of gas and energy:

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3 DomGas Alliance, *Submission 20*, pp 8 & 14.

4 Mr James Pearson, Chamber of Commerce and Industry of Western Australia, *Proof Committee Hansard*, 2 October 2008, p. 35.

5 Department of Resources, Energy and Tourism, *National Energy Security Assessment*, [http://www.ret.gov.au/energy/energy\\_security/national\\_energy\\_security\\_assessment/Pages/NationalEnergySecurityAssessment.aspx](http://www.ret.gov.au/energy/energy_security/national_energy_security_assessment/Pages/NationalEnergySecurityAssessment.aspx).

6 Hon Fran Logan MLA, *Proof Committee Hansard*, 2 October 2008, p. 148.

There are some key issues, such as a lack of diversity in the state's energy supply, which the incident has highlighted.<sup>7</sup>

The incident underlines the need for greater diversity of supply sources...<sup>8</sup>

The accident at Varanus Island in June 2008...has brought into focus Western Australia's reliance on a small number of gas suppliers and the need to encourage greater diversity in all aspects of the domestic energy market.<sup>9</sup>

...relying on few centralised sources for critical energy supply provides poor energy security.<sup>10</sup>

5.8 The Premier at the time argued that Western Australia had been well served by the Government's efforts to diversify energy supplies:

We currently have two major suppliers of gas and that number will increase in years to come... In addition, we have major coal reserves in the State's south, a growing fleet of wind farms, a rapidly growing renewable energy sector and the ability to switch between gas, coal and diesel when that becomes necessary... We are also encouraging more gas production activity closer to Perth and actively pursuing geothermal energy options.<sup>11</sup>

5.9 Furthermore, the former Minister for Energy, Hon Fran Logan MLA, noted that more sources of supply of gas are currently being developed:

...BHP is now working to bring on the Macedon field. There are some technical and registry difficulties to overcome in terms of gas specs, but those issues are nearly resolved. Gas is planned for 2011-12. Apache-Santos is currently building the Devil Creek onshore domestic gas train between Onslow and Dampier and that will provide significant large volumes of gas planned for 2010. Chevron has announced that they will be building a domestic gas plant ahead of their LNG facilities for the Wheatstone field. This is planned for approximately 2012 or later, but the volumes of gas from Wheatstone will be very large indeed. They are also planning for a domestic gas plant alongside the Gorgon LNG facility on Barrow Island. Woodside has also announced that it will be supplying domestic gas from its Pluto operations, in addition to LNG, and that is planned for 2011. If all those plants go ahead as planned, WA will have seven different points of supply for domestic gas around 2012, and nine different points of supply of gas by 2014, and that does provide extensive

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7 Mr James Pearson, Chamber of Commerce and Industry of Western Australia, *Proof Committee Hansard*, 2 October 2008, p. 35.

8 DomGas Alliance, *Submission 20*, p. 2.

9 Australian Petroleum Production and Exploration Association, *Submission 26*, p. 1.

10 Sustainable Energy Now, *Submission 27*, p. 1.

11 Hon Alan Carpenter MLA, Premier of Western Australia, *Media statement: Government orders review into gas security*, Media Statement, 6 August 2008.

coverage should there be an incident of the type that occurred on Varanus Island.<sup>12</sup>

5.10 Mr Logan also told the committee that there are drilling programs underway in 'tight gas' reservoirs in the mid-west and Busselton regions. Tight gas refers to gas that is difficult to extract because it is found in rocks with low permeability, needing specialised techniques and equipment for extraction.<sup>13</sup> Mr Logan informed the committee that:

The volumes of tight gas in the two regions north and south of Perth are significant; notionally, around 12 trillion cubic feet. If the geological problems facing the explorers are overcome, the security and competition of the gas market in WA will be resolved to a significant degree, and I put it to you that the explorers for the tight gas should be encouraged and assisted both by the state and federal government: through royalty concessions, I believe, in the state area and through funding for the geological sites of geological science support for that exploration through the federal government.<sup>14</sup>

5.11 In its submission, the Australian Petroleum Production and Exploration Association suggested that a policy similar to one introduced in South Australia in 2004 to encourage exploration expenditure (initially costing \$22.5 million over five years) could be applied in Western Australia to encourage the development of tight gas and other smaller onshore gas fields and geothermal projects.<sup>15</sup> The DomGas Alliance is also supportive of efforts to promote the development of tight gas reservoirs and noted in its submission that tight gas accounts for around 30 per cent of total gas production in the United States.<sup>16</sup>

### **Alternative and renewable energy sources**

5.12 A number of witnesses explained that increased use of renewable energy technologies would not only have desirable environmental outcomes but also provide a more diversified source of energy less vulnerable to disruptions.

5.13 Wave energy was advocated by the Carnegie Corporation. They aim to be making a significant contribution to the grid by 2011. They argued that wave power was a reliable source and scalable, and in Western Australia could provide substantial amounts of base-load power.<sup>17</sup> A pilot plant is operating in Fremantle. Wave-based

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12 Hon Fran Logan MLA, *Proof Committee Hansard*, 2 October 2008, pp 135–136.

13 Department of Industry and Resources, *Tight gas workshop to explore alternative energy sources*, [http://www.doir.wa.gov.au/4868\\_5936.aspx](http://www.doir.wa.gov.au/4868_5936.aspx).

14 Hon Fran Logan MLA, *Proof Committee Hansard*, 2 October 2008, p. 136.

15 Australian Petroleum Production and Exploration Association, *Submission 26*, p. 2.

16 DomGas Alliance, *Submission 20*, p. 13.

17 Dr Michael Ottaviano, Carnegie Corporation, *Proof Committee Hansard*, 2 October 2008, pp 49–53.

power-generating stations can be dotted around the coastline. Not only does this mean that power has to be transported shorter distances, a plant failure would only have local consequences.

5.14 On solar power, Dr Ray Wills from the Western Australian Sustainable Energy Association told the committee that:

One of the key issues in the Western Australian market for energy is the peakiness of our demand. We have a high demand during the daytime and a lot of that demand can easily be met through particularly solar production, which obviously is suited to daytime production. Solar photovoltaic and current technologies on solar thermal can all address the issue of peak load during the day. If you address that peak load through the day, gas production and gas-fired power stations are peak generators, so we could be taking the pressure off that gas load as a part of that process.<sup>18</sup>

5.15 Evidence was provided to the committee that Western Australia also has significant geothermal and wind resources.<sup>19</sup>

5.16 A major impediment to the expansion of wave and other renewable power is the difficulty in getting finance for new technologies.<sup>20</sup> The global credit crisis may exacerbate this problem as lenders become more cautious.

5.17 It was suggested that a further advantage of renewable energy sources is that they provide much greater certainty around future energy costs. Dr Wills informed the committee that:

One of the key advantages of renewables is that you know what your energy price will be in 20 years time because the sun will continue to come up, the waves will continue to wash on our shores and the wind will continue to blow past us. The cost of that energy source will not change. Sure, there will be maintenance costs, staffing costs, there will be other things that do add some inflationary pressures to that energy generation, but the reality is that we will still know the price of the source of the energy itself...<sup>21</sup>

5.18 There was support for new energy sources from some local business representatives:

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18 Dr Ray Wills, Western Australian Sustainable Energy Association, *Proof Committee Hansard*, 2 October 2008, p. 58.

19 Mr Paul Wilkes, Sustainable Energy Now, *Proof Committee Hansard*, 2 October 2008, pp 64–6; *Submission 27*.

20 Dr Michael Ottaviano, Carnegie Corporation, *Proof Committee Hansard*, 2 October 2008 and Dr Ray Wills, Western Australian Sustainable Energy Association, *Proof Committee Hansard*, 2 October 2008, p. 61.

21 Dr Ray Wills, Western Australian Sustainable Energy Association, *Proof Committee Hansard*, 2 October 2008, p. 61.

Investigation into alternative sources such as wave power and wind generation is very important... especially for regional areas like ours where we are very short of major infrastructure.<sup>22</sup>

5.19 On the other hand, witnesses involved in the gas industry saw only a limited role for alternative energy sources:

Renewable energies can play a role but I do not see them making a substantial impact on our current energy situation in Western Australia.<sup>23</sup>

5.20 The committee was also told that in industries that use gas as part of a heating process, such as the manufacturing, minerals processing, laundry and brick kiln industries, gas cannot be replaced with electricity.<sup>24</sup>

### **Committee view**

5.21 With its dependence on gas for industry and the production of electricity, and not being linked to the national electricity grid, Western Australia is particularly vulnerable to disruptions to gas supplies. The Varanus Island incident has highlighted this vulnerability. In this context it is particularly important for Western Australia to develop a comprehensive, long-term energy security strategy. The committee notes the work that both the Commonwealth and Western Australian governments have already done in this area.

5.22 In considering ways of improving energy security in Western Australia, the development of expensive contingency options, such as gas storage facilities or a LNG receival terminal in the Perth basin, does not seem the best response. An alternative would be to encourage the development of smaller-scale alternative energy and gas sources, located close to population centres.

5.23 While renewable energy sources cannot completely replace the need for gas, a significantly increased use of these sources would substantially enhance the diversity of energy sources in Western Australia. Furthermore, renewable energy sources will become more competitive once a form of carbon pricing or taxing is introduced, removing or reducing the implicit subsidy to fossil fuels.

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22 Mrs Louise Kingston, Manjimup Chamber of Commerce and Industry, *Proof Committee Hansard*, 3 October 2008, p. 36.

23 Mr Stuart Hohnen, DomGas Alliance, *Proof Committee Hansard*, 2 October 2008, p. 30.

24 Hon Fran Logan MLA, *Proof Committee Hansard*, 2 October 2008, p. 136.