Chapter 3

Australia's liquid fuel stockholdings and supply chain

3.1 This chapter considers Australia's current liquid fuel supply chain, stockholdings, IEA requirements, and market-based approach to fuel security. It considers the fundamental question of whether Australia's current liquid fuel supply system, stockholdings and domestic refining and storage capacity provide fuel security.

3.2 Australia's liquid fuel supply is maintained by way of domestic refineries, crude oil and refined product import terminals, as well as through other stockholding facilities. The fuels are distributed through complex transport system and retail supply arrangements. As retail prices are not regulated, effective competition is the basis for securing the best price for consumers.[1]

Australia's fuel stockholdings

3.3 Stocks of fuel can be expressed in either days of net imports or in terms of historical average daily consumption.[2]

3.4 As of December 2014 and based on the Australian Petroleum Statistics (APS), Australia had 4,275 kilo tonnes crude oil equivalent in terms of stocks, representing 52 days cover of daily net imports.[3] In terms of historical average daily consumption, the department informed the committee that Australia has 34 days of fuel stocks. The 34 day figure is calculated on the average daily consumption of fuel in Australia divided by what is believed to be the volume of fuel available to the market.[4]

3.5 The department informed the committee in an answer to a question on notice that while the APS complies with IEA reporting obligations, the data does not represent all fuel in the Australia fuel supply chain. It explained that:

> Petroleum en route to Australia by ships is excluded whilst fuel moving around the coast is included in the APS. In addition, all petroleum in pipelines, in transit by tanker (road and rail) and held at retail fuel sites and military stocks are excluded from the APS. These exclusions are required as part of the IEA reporting requirements for any country.[5]

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1 Department of Industry, *Energy White Paper – Green Paper*, 2014, p. iv.

2 Department of Industry and Science, Answer to question on notice at 2 February 2015 hearing, (answer received 24 February 2015).

3 Department of Industry and Science, Answer to question on notice at 2 February 2015 hearing, (answer received 24 February 2015).

4 Dr Gino Grassia, Department of Industry and Science, *Committee Hansard*, 2 February 2015, p. 96.

5 Department of Industry and Science, *Submission 41*, p. 11.

3.6 Therefore, when taken together, Australia's stockholdings include:

- IEA-eligible stocks which correspond to 34 days of consumption;
- stocks on water in transit to Australia which amount to 15–20 days of consumption; and
- stocks held at retail sites which equate to about 3 days of consumption.[6]

3.7 According to Engineers Australia, at any one time, Australia's total stockholding of oil and liquid fuel comprises of two weeks of stocks at sea, 5 to 12 days of supply at refineries, 10 days of refined stock at terminals and 3 days of stocks at service stations.[7]

3.8 In terms of the types of stock available in the country, the 2013–14 APS revealed that at the end of July 2014, monthly industry stocks were as follows:

- 20 days of automotive gasoline;
- 17 days of aviation turbine fuel; and
- 16 days of diesel oil (including automotive diesel oil, industrial and marine diesel oil).[8]

3.9 Noting these stockholding figures, NRMA suggested that Australia's total stocks of fuel and oil held within the country were not only precariously low but also set to decline.[9] However, the Australian Government does not mandate any minimum levels of fuel stock to be held by industry in the country or mandate the reporting of the actual industry fuel stockholding levels.[10] Therefore, fuel companies are not required to meet any fuel storage level but rather, concentrate on fuel delivery for reliability. Their focus is on just-in-time security of supply to keep their costs down.[11] For this reason, Australia is reliant on market forces to ensure secure access to transport fuel.[12]

3.10 The lack of mandated stockholdings was a concern raised by a number of submitters, particularly in light of Australia's growing dependence on liquid fuel

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6 Department of Industry and Science, *Submission 41*, p. 13.

7 Engineers Australia, *Submission 2*, p. 1.

8 Australian Petroleum Statistics, Issue 221, December 2014, Office of the Chief Economist, table 7.

9 National Roads and Motorists' Association, *Submission 18*, p. 6.

10 National Roads and Motorists' Association, *Submission 18*, p. 6; Truck Industry Council, *Submission 23*, p. 1.

11 Air Vice Marshal Blackburn (Retired), National Roads and Motorists' Association, *Committee Hansard*, 2 February 2015, p. 70.

12 National Roads and Motorists' Association, Benchmarking Australia's Transport Energy Policies, December 2014, p. 2, Document tabled at 2 February 2015 public hearing.

imports and declining domestic refining capacity.[13] Some estimates suggested that, with further closures of domestic refineries, Australia's reliance on imported transport fuels may shift towards 100 per cent in the near future.[14]

3.11 In terms of the accuracy and reliability of available stockholding figures set out above, NRMA asserted that it was not known exactly how much fuel is available within existing commercial stockholdings and where those stocks are held, because the fuel companies are not mandated to report their fuel stocks to the department.[15]

3.12 The department informed the committee that, on a monthly basis, it collects statistics through a voluntary data collection system which gives it a 'sense of how much fuel is in the system'.[16] Such data is used to make an assessment of how much fuel is coming into the country.[17] It further noted that, while data was provided by the four major companies (which collectively provide up to 90 per cent of Australia's fuel supply), some independent fuel companies do not report their stockholding.[18]

3.13 A review of Australia's emergency response measures undertaken by the IEA in February 2011 recommended that Australia take action to establish a mandatory reporting regime for petroleum statistics.[19] An October 2011 ACIL Tasman assessment of liquid fuel vulnerability commissioned by the Australian Government supported the recommendation to introduce a mandatory reporting mechanism for APS.[20] Furthermore, in its 2012 review of Australia, the IEA stated the following in relation to oil and gas data:

> Oil and gas data are collected on a voluntary basis. However, in common with other IEA countries, data quality needs to be improved markedly. Australia is to become a growing oil importer; therefore, better data collection should be encouraged so that market participants are able to take

13 National Roads and Motorists' Association, *Submission 18*, Attachment 1, p. 3.

14 Australian Pipeline Trust Group, *Submission 10*, p. 2.

15 Air Vice Marshal Blackburn (Retired), National Roads and Motorists' Association, *Committee Hansard*, 2 February 2015, p. 71.

16 Dr Gino Grassia, Department of Industry and Science, *Committee Hansard*, 2 February 2015, p. 90.

17 Dr Gino Grassia, Department of Industry and Science, *Committee Hansard*, 2 February 2015, p. 92.

18 Dr Gino Grassia, Department of Industry and Science, *Committee Hansard*, 2 February 2015, p. 91.

19 International Energy Agency, February 2011 cited in ACIL Tasman, *Liquid Fuel Vulnerability Assessment*, Department of Resources Energy and Tourism, 2011, p. 122.

20 ACIL Tasman, *Liquid Fuel Vulnerability Assessment*, Department of Resources Energy and Tourism, 2011, p. 122;

> informed decisions and so as to provide a sound platform for public policy development and implementation.[21]

3.14 BP Australia noted its support for the introduction of a mandatory reporting regime to ensure that Australia's stockholdings are reported accurately.[22]

3.15 However, in February 2015, the department informed the committee that a process was underway to improve fuel stock data collection through the use of existing mandatorily collected data obtained by the Australian Tax Office (ATO) and the Australian Customs and Border Protection Service (Customs).[23] The department also noted that the Office of the Chief Economist considered the APS to be 'accurate within a five per cent margin of error'.[24]

3.16 The department explained that, while work had initially been carried out to set up a discrete mandatory data collection scheme, the decision was later made to 'reduce the burden on industry' by sharing existing data across agencies.[25] Dr Ross Lambie, Acting General Manager, Resources and Energy Economics Branch, informed the committee that the department had taken an approach of using existing arrangements through the ATO and Customs rather than introduce a regulatory reporting regime on industry. He explained the approach:

> At the moment, what we have chosen to do is draw upon the data provided by the Australian Taxation Office, Customs and Border Protection and the national offshore petroleum titles management to give us data based on fuel excise and imports and exports of liquid fuels at the firm level and also production of oil and gas offshore. Because they require mandatory reporting, if we can tap into their data, we think we are going to achieve some very robust data figures compared to the basis we have been using up till now, which has been largely based on voluntary reporting.[26]

3.17 In April 2015, Mr John Ryan, Associate Secretary informed the committee that the IEA had expressed satisfaction with the way in which the department was now reporting on stockholdings to the international body.[27]

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21 International Energy Agency, *Energy Policies of IEA Countries – Australia 2012 Review*, p. 151, http://www.iea.org/publications/freepublications/publication/Australia2012_free.pdf (accessed 5 March 2015).

22 BP Australia, *Submission 30*, p. 12.

23 Dr Gino Grassia, Department of Industry and Science, *Committee Hansard*, 2 February 2015, p. 91; Department of Industry and Science, Answer to question on notice at 2 February 2015 hearing, (answer received 24 February 2015).

24 Department of Industry and Science, Answer to question on notice at 2 February 2015 hearing, (answer received 24 February 2015).

25 Dr Gino Grassia, Department of Industry and Science, *Committee Hansard*, 9 April 2015, p. 64.

26 Dr Ross Lambie, Department of Industry and Science, *Committee Hansard*, 9 April 2015, p. 61.

27 Dr John Ryan, Department of Industry and Science, *Committee Hansard*, 9 April 2015, p. 61.

International Energy Agency 90 day stockholdings requirement

3.18 The IEA regulations were created in 1974 following the Organisation of the Petroleum Exporting Countries (OPEC) oil embargo. The agreement commits IEA members to hold stocks and contribute oil to the global market during declared IEA emergency action. In instances of oil supply disruption likely to cause considerable economic damage, member nations can make their stocks available to offset the oil shortage. According to the IEA, the most common reasons for the release of stockpiled fuel included unforseen technical problems, weather and civil unrest.[28]

3.19 In terms of membership obligations, the IEA noted that member states are:

> …all committed to taking joint measures in the event of oil supply emergencies in order to avoid economic damage to their countries. They have all agreed to share energy information, co-ordinate their energy policies and co-operate in the development of rational energy programmes. Each of the IEA's 28 member countries is also required to hold oil stocks equivalent to 90 days of its prior year's net imports.[29]

3.20 Therefore, in addition to stocks for domestic use, as a member of the IEA, Australia is required to hold oil reserves that can be used to respond to a global oil supply emergency.[30] Australia is obliged to maintain reserves of crude oil and/or product equivalent to sustain consumption for 90 days, based on the prior year's average net oil imports which the government could access in a national emergency. IEA put the 90 day requirement in place to assist member nations in ameliorating global oil shocks.[31] At a 2014 Asia-Pacific Economic Cooperation (APEC) Energy Ministers Meeting, Executive Director of the IEA, Ms Maria van der Hoeven stated that APEC economies 'must be well-prepared for supply crises'.[32]

3.21 The IEA explains the requirement upon Australia and other IEA member nations as follows:

> The 90-day commitment of each IEA member country is based on average daily net imports of the previous calendar year. This commitment can be met through both stocks held exclusively for emergency purposes and stocks held for commercial or operational use, including stocks held at refineries, at port facilities, and in tankers in ports.

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28 International Energy Agency, 'How does the IEA respond to major disruptions in the supply of oil?', http://www.iea.org/topics/energysecurity/respondingtomajorsupplydisruptions/ (accessed 20 January 2015).

29 International Energy Agency, How does the IEA respond to major disruptions in the supply of oil?, http://www.iea.org/topics/energysecurity/respondingtomajorsupplydisruptions/ (accessed 20 January 2015).

30 National Roads and Motorists' Association, *Submission 18*, Attachment 1, p. 9.

31 Engineers Australia, *Submission 2*, p. 3.

32 APEC Energy Ministerial Meeting cited in National Roads and Motorists' Association, *Submission 18*, p. 3.

> The obligation specifies several types of stocks that cannot be counted toward the commitment, including military stocks, volumes in tankers at sea, in pipelines or at service stations, or amounts held by end-consumers (tertiary stocks). It also does not include crude oil not yet produced.[33]

3.22 In September 2014, the Energy Green Paper explained that, in terms of trying to meet its treaty obligations, Australia 'relies solely on the commercial stockholdings of the industry, which currently stands at less than 60 days of net imports'.[34] As noted earlier, Australia now has 52 days.[35] The point was made in evidence that the continual decline in domestic production and increased demand for liquid fuel has placed pressure on Australia's IEA commitments. The department noted that Australia has not met its 90 day obligations since March 2012 while, according to current projections, Australia may average below 45 days of reserves by 2024.[36]

3.23 The department explained in its submission that Australia's plan to 'participate in an IEA collective action' has always relied on market responses to price changes in the first instance, and industry mechanisms such as:

- 'bulk allocation' – a form of contractual wholesale rationing;
- voluntary demand restraint; and
- use of the strong regulatory powers available under the *Liquid Fuel Emergency Act 1984* (LFE Act), including possible rationing and redirection of commercial cargoes.[37]

3.24 A number of submitters raised concern about Australia's declining stockholdings and non-compliance with the 90 day liquid fuel stockholdings obligations under the IEA agreements.[38] NRMA and UQ noted that Australia is the only country amongst the 28 member states that fails to meet its IEA net oil import stockholding level obligations.[39] NRMA expressed the view that, while Australia is a member of a number of multi-lateral organisations with energy security/energy

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33 International Energy Agency, Explanation of the Closing Oil Stock Levels in Days and Net Imports Table, http://www.iea.org/topics/oil/oilstocks/ (accessed 4 December 2014).

34 Department of Industry, *Energy White Paper – Green Paper 2014*, September 2014, p. 54, http://ewp.industry.gov.au/files/egp/energy_green_paper.pdf (accessed 4 December 2014).

35 Department of Industry and Science, Answer to question on notice at 2 February 2015 hearing, (answer received 24 February 2015).

36 Department of Industry and Science, *Submission 41*, p. 7; Department of Industry, *Energy White Paper – Issues Paper*, December 2013, p. 12.

37 Department of Industry and Science, *Submission 41*, p. 7.

38 Gas Energy Australia, *Submission 6*, p. 6; National Roads and Motorists' Association, *Submission 18*, p. 7; APA Group, *Submission 10*, p. 3; University of Queensland, *Submission 12*, p. 2; Maritime Union of Australia, *Submission 21*, p. 4; Mr Christopher Blackburn, *Submission 24*.

39 National Roads and Motorists' Association, *Submission 18*, p. 7; University of Queensland, *Submission 12*, p. 4.

resilience as a focal area, it is out of step with the IEA position regarding member countries and baseline obligations.[40]

3.25 In its 2014 assessment of Australia, the IEA noted that:

> Australia does not impose minimum stockholding requirements on oil companies, nor does it have public stocks; all oil stocks in Australia are held by industry on a commercial basis. Until 2000, the year in which its domestic crude production peaked, Australia was either a relatively marginal oil importer or an occasional net oil exporter. As such, Australia's commercial stockholdings more than adequately met the requirement of the International Energy Agency (IEA). Since 2000, declining domestic oil production coupled with oil demand growth has resulted in a steady rise in net imports, and thus the amount of oil stocks necessary to meet Australia's IEA obligation.[41]

3.26 Evidence to the committee suggested that when the supply chain is broken down further into specific fuel types, the supply risks become more apparent. As a case in point:

> Australia currently imports 38 per cent of diesel as a refined product. The remaining 62 per cent is produced domestically and depends largely on imported oil; only 12 per cent of diesel is sourced from Australian oil processed in Australian refineries. By 2014, domestic production of diesel could reduce to only 45 per cent of domestic demand.[42]

Achieving IEA compliance

3.27 AIP argued that IEA stockholding obligations relate to international emergencies and therefore focus on balancing 'global supply' rather than specific supply imbalances or disruptions in individual countries.[43] Mr Andrew Warrell, Chairman of the AIP and Director of ExxonMobil Australia explained that:

> So if you we were holding stocks here in accordance with that treaty then those stocks could be used for each of the member countries within a global environment and it would be done in a coordinated fashion. So when we are sitting here talking about Australian fuel supply security, do not think that that suddenly gives us access to this overwhelming pool of international stocks to draw from if there is an Australia-specific issue that comes up.[44]

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40 National Roads and Motorists' Association, *Submission 18*, p. 7.

41 International Energy Agency, *Energy Supply Security 2014: Australia*, p. 70, http://www.iea.org/media/freepublications/security/EnergySupplySecurity2014_Australia.pdf (accessed 8 December 2014).

42 National Roads and Motorists' Association, *Submission 18*, Attachment 1, p. 10.

43 Australian Institute of Petroleum, *Submission 17*, p. 18.

44 Mr Andrew Warrell, Australian Institute of Petroleum, *Committee Hansard*, 2 February 2015, p. 27.

3.28 AIP further noted that when the IEA treaty was drafted, the Asian region was not the extensive trading hub that it has now become. As a case in point, Australia's primary source of fuel – Singapore – is not a member of the IEA.[45] AIP explained that the treaty was signed at a time when the global market was heavily centralised in Europe and came about under a different set of economic circumstances. It further noted that the supply chains into Europe are not as diverse as those coming into Australia, which is on the doorstep of Asia with ships arriving almost daily.[46]

3.29 ACIL Tasman also made the point in its 2011 assessment that a high proportion of crude oil and product is being shipped to Australia at any one time. These stocks are fully committed to the Australian market for commercial and shipping logistics reasons. It emphasised that this situation differs with that in Europe where cargoes can be destined for more than one country.[47] Notwithstanding this point, NRMA emphasised that Australia remained at the end of a long supply chain.[48]

3.30 According to ACIL Tasman, the method of calculating deductions for unrecoverable petroleum in storage tanks is not appropriate to the Australian situation. It argued that if these 'inconsistencies' were recognised in the calculation, the resulting stock cover would have exceeded 90 days in 2011.[49]

Stocks at sea

3.31 The Australian Trucking Association (ATA) and AIP argued that Australia should recommend that the IEA review the 90 day requirement given that it was originally set in 1974 and does not allow the inclusion of 'stocks at sea' which account for more than a quarter of Australia's oil stocks.[50] While acknowledging that inclusion of stocks at sea would not be adequate to achieve compliance with the 90 day requirement, AIP stated that stocks at sea represent more than 30 per cent of the stock in the supply chain of the four AIP member companies, who together provide 90 per cent of the transport fuel supply into the Australian market.[51]

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45 Mr Andrew Warrell, Australian Institute of Petroleum, *Committee Hansard*, 2 February 2015, p. 27.

46 Mr Nathan Dickens, Australian Institute of Petroleum, *Committee Hansard*, 2 February 2015, p. 28.

47 ACIL Tasman, *Liquid fuels vulnerability assessment*, Department of Resources Energy and Tourism, October 2011, p. 121.

48 Air Vice Marshal Blackburn (Retired), National Roads and Motorists' Association, *Committee Hansard*, 2 February 2015, p. 71.

49 ACIL Tasman, *Liquid fuels vulnerability assessment*, Department of Resources Energy and Tourism, October 2011, p. 121.

50 Australian Trucking Association, *Submission 7*, p. 3; Australian Institute of Petroleum, *Submission 17*, p. 18.

51 Mr Nathan Dickens, Australian Institute of Petroleum, *Committee Hansard*, 2 February 2015, p. 28; Mr Andrew Warrell, Australian Institute of Petroleum, *Committee Hansard*, 2 February 2015, p. 19.

3.32 However, Engineers Australia argued that such an approach was tantamount to one of 'the cheque's in the mail'.[52] Furthermore, NRMA noted that the IEA has warned that a 'high risk of supply disruption could have greater economic consequences for IEA member countries', and that Australia has no government control over oil/fuel infrastructure, mandated industry stockholdings or government-owned stocks.[53]

Cost impost

3.33 The 2013 Energy White Paper – Issues Paper noted that the costs involved in investing in strategic reserve stocks of fuel to protect against the long run risk of severe disruption in the global trade would be high.[54] It suggested that building strategic reserve stock to maintain compliance with the IEA treaty would add around 40 extra days of forecast daily consumption cover over the next decade. However:

> A build program for this significant level of stockholding via either Government-funded stockholding, Government-funded ticketing for overseas stocks, or legislated mandatory industry stockholdings (funded by passing costs onto consumers) requires an estimated $6.8 billion investment to provide both stock and storage infrastructure.[55]

3.34 AIP questioned the logic of a substantial investment of $6.8 billion when there was no evidence of disruption to the market – despite the fact that the market has been tested by a number of global events – and there have never been any significant widespread outages.[56] Mr Warrell suggested that:

> It becomes a judgement of a perceived risk rather than any kind of demonstration of actual risk that people can point to in the marketplace over the last several decades.[57]

3.35 Caltex indicated that the $6.8 billion outlay required for strategic reserve fuel stocks would be met by either increased fuel prices or the diversion of public funds.[58] It was suggested in the Energy White Paper – Issues Paper that there were opportunities to grow Australia's liquid fuel supplies with new oil discoveries in

52 Engineers Australia, *Submission 2*, p. 3.

53 National Roads and Motorists' Association, *Submission 18*, p. 8.

54 Department of Industry, *Energy White Paper – Issues Paper*, December 2013, p. 12.

55 Department of Industry, *Energy White Paper – Issues Paper*, December 2013, p. 12.

56 Mr Andrew Warrell, Australian Institute of Petroleum, *Committee Hansard*, 2 February 2015, pp 25–26.

57 Mr Andrew Warrell, Australian Institute of Petroleum, *Committee Hansard*, 2 February 2015, p. 25.

58 Caltex, *Submission 26*, p. 2.

proven areas and in under-explored frontier basins including the deep-water Great Australian Bight.[59]

3.36 The department highlighted the following three options to address Australia's non-compliance with the IEA treaty stockholding obligation:

- government-owned strategic stocks – estimated to cost $5.7 billion over nine years and funded via a direct levy on fuel users or indirectly from government revenue via the taxation system;
- government purchased oil/product 'ticket' contracts sourced from the international market and equivalent to the total treaty compliance gap – estimated to cost $2 billion to 2020; or
- industry-obligated stockholdings maintained by way of building physical stocks and holding stocks through ticket contracts – estimated to cost $6.6 billion to 2027.[60]

3.37 However, a number of submitters made the point that consideration of whether to increase Australia's oil stocks should take into account the costs and effectiveness in improving Australia's liquid fuel security compared to other options, rather than simply meeting IEA obligations as an end in itself.[61] UQ suggested that actual strategic stocks need to be determined from risk assessments and supply interruption scenarios.[62]

3.38 NRMA, the Truck Industry Council (TIC) and Engineers Australia warned that while increased stockholdings were part of the solution, it did not amount to fuel security as it would not address Australia's supply chain vulnerabilities.[63] NRMA held the view that fuel security could be achieved if part of the supply chain was controlled from the source, whether it is Australian oil, biofuels, gas, liquids or coal.[64]

3.39 However, AIP emphasised that, as a significant widespread outage has not taken place in Australia despite a number of global events that have tested the supply chain, the matter came down to a judgement of the likelihood of an extreme economic event.[65] Mr Nathan Dickens, General Manager – Policy for AIP further explained that

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59 Department of Industry, *Energy White Paper – Issues Paper*, December 2013, p. 12.

60 Department of Industry and Science, *Submission 41*, p. 9.

61 Gas Energy Australia, *Submission 6*, p. 9.

62 University of Queensland, *Submission 12*, p. 2.

63 National Roads and Motorists' Association, *Submission 18*, Attachment 1, p. 10; Truck Industry Council, *Submission 23*, p. 2; Engineers Australia, *Submission 2*, p. 3.

64 Air Vice Marshal Blackburn (Retired), National Roads and Motorists' Association, *Committee Hansard*, 2 February 2015, p. 70.

65 Mr Andrew Warrell, Australian Institute of Petroleum, *Committee Hansard*, 2 February 2015, p. 26.

economic modelling estimated that the economic impact on Australia of the total closure of the Singapore market over a 30-day period was 0.1 per cent of GDP.[66]

3.40 AIP held the view that, while Australia's compliance position had fallen below 90 days because of a decline in domestic crude production, commercial stocks of fuel held in the domestic supply chain (that is, stocks of petrol, diesel and jet fuel) had increased as a response to demand growth and increasing product imports following refinery closure. It suggested that as a consequence, the decline in the 90 day requirement did not raise the supply risk for the domestic fuels market or for fuel users. AIP concluded that:

> Indeed, there is a strong case that significant commercial stocks plus a robust, dynamic supply chain and competitive and efficient market obviate the need for any mandatory stockholding.[67]

3.41 AIP argued that the National Energy Security Assessment (NESA) and other reviews have found current levels of commercial stockholdings and their management by industry to be fundamentally sound. According to AIP, such reviews have upheld the view that Australia has adequate commercial stocks in the supply chain for supply security and that this situation will continue into the future with recent and planned increases in overall storage capacity in key locations and demand centres.[68]AIP concluded that:

> There is no evidence that the substantial cost of an emergency stockpile is justified on energy security grounds, given industry's efficient and reliable performance to date with no widespread or prolonged fuel shortages being experienced in Australia for decades. Even during international crude oil and petroleum product supply disruptions, such as in the aftermath of Hurricane Katrina in 2005, Australian fuel supplies have not been disrupted.[69]

ASEAN regional energy framework

3.42 NRMA informed the committee that while Australia sources the majority of its refined fuel from Singapore and other Asian countries, the Association of Southeast Asian Nations (ASEAN) itself has been moving towards a regional energy framework which is expected to include a voluntary oil stockpiling. In 2008, the ASEAN +3 group including Japan, China and South Korea agreed to jointly prepare a

66 Mr Nathan Dickens, Australian Institute of Petroleum, *Committee Hansard*, 2 February 2015, p. 26.

67 Australian Institute of Petroleum, *Submission 17*, p. 18.

68 Australian Institute of Petroleum, *Submission 17*, p. 12.

69 Australian Institute of Petroleum, *Submission 17*, p. 12.

regional oil-stockpiling plan to prevent shortages and reduce the impact of future oil price surges.[70]

3.43 According to the IEA, energy ministers of the +3 group recognised the necessity of oil stockpiling initiatives in light of the persistent risk of supply disruptions and highly volatile oil markets. The IEA further noted that, while most ASEAN countries rely on industry stockholding obligations, Myanmar and Vietnam hold a certain amount of government oil stocks. Thailand, Lao PDR and Indonesia have also been discussing the possibility of establishing government held stocks.[71]

3.44 NRMA suggested that the Australian Government play an activist and interventionist role akin to that of G7 governments and ASEAN +3 groupings to ensure energy security for Australia. The three areas it identified for consideration in this regard – energy policy, agriculture/food supply, and refinery capability are examined further in the following chapter.

3.45 In terms of regional initiatives, Australia is also a signatory to the *Cebu Declaration on East Asian Energy Security 2007* which commits member nations to a range of measures to ensure energy security for the region. One of the key areas of ASEAN engagement is that of renewables and to intensify the search for new and renewable energy sources and technologies. However, the NRMA questioned Australia's commitment to renewables transport fuels, which it argued must be part of any agenda for Australia's future energy security and resilience.[72]

3.46 NRMA also upheld the view that Australia lacks an energy security framework and would appear to be content with outsourcing the country's energy security to the market and thereby contributing to the degradation of Australia's domestic refining capacity. Under such circumstances, NRMA suggested that it was difficult to understand how Australia could assist less developed nations of the region to address their energy security needs.[73]

3.47 Gas Energy Australia expressed the view that Australia's membership of various multilateral bodies including the IEA should entail clear objectives which are underpinned by an assessment of whether those objectives could be achieved more effectively in other ways.[74]

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70 National Roads & Motorists' Association, Benchmarking Australia's Transport Energy Policies, December 2014, p. 3, Document tabled at 2 February 2015 public hearing.

71 International Energy Agency, *Energy Supply Security 2014*, pp 508–509.

72 National Roads and Motorists' Association, *Submission 18*, p. 13.

73 National Roads and Motorists' Association, *Submission 18*, p. 14.

74 Gas Energy Australia, *Submission 6*, p. 9.

Reliance on market forces

3.48 As previously noted, Australia currently relies on market forces to deliver fuel security. This approach has come into sharp focus in recent years in light of Australia's growing dependence upon fuel imports. In fact, while some submitters including the department, AIP and oil companies, provided evidence which supported the view that this approach remains viable, others including NRMA, Engineers Australia and the Queensland Government contended that changes to the way in which Australia meets its fuel demands required, at the very least, an examination of the appropriateness of such a policy.[75]

3.49 The department stated in its submission that:

> The Australian liquid fuel market is well served by current commercial market arrangements and international supply chains, and existing national liquid fuel emergency management arrangements. This is supported by observed experience over the past two decades of the performance of oil markets in the face of specific disruptions. A report commissioned by the department found that there is no evidence to suggest crude oil and refined product markets would not swiftly respond to unexpected interruptions to supply.[76]

3.50 However, NRMA highlighted that Australia's market-driven approach stood in direct contrast to 74 other fuel importing countries which mandate stockholdings. It noted that Australia is the only 'developed' oil/fuel importing country in the world that has no mandated industry stockholdings, no government-owned stocks or government control over any part of the oil/fuel infrastructure.[77] Other countries mandate industry stocks and/or government stocks as detailed in the graph below.

Diagram 3.1: Government-mandated stockholdings of fuel/oil [78]

Country	Government-mandated industry stocks	Government-owned stocks
Korea	40 days	123 days
Japan	70 days	85 days
France	98 days	73 days

75 Queensland Government, *Submission 22*, p. 3.

76 Department of Industry and Science, *Submission 41*, p. 6.

77 National Roads and Motorists' Association, Benchmarking Australia's Transport Energy Policies, December 2014, p. 3, Document tabled at 2 February 2015 public hearing; Mr Graham Blight, National Roads & Motorists' Association, *Committee Hansard*, 9 April 2015, p. 20.

78 National Roads and Motorists' Association, Benchmarking Australia's Transport Energy Policies, December 2014, p. 2, Document tabled at 2 February 2015 public hearing.

Italy	90 days	-
Sweden	90 days	-
UK	67 days	-

3.51 The lack of mandatory oil stockholdings in Australia was questioned by a number of submitters.[79] Gas Energy Australia suggested that the options before the government for introducing such a system included:

- encouraging or mandating the private sector to increase its stockholdings of refined fuel;
- establishing a state-owned oil stockpile similar to the Strategic Petroleum Reserve in the United States; and/or
- mitigating the size of the required oil holdings by ensuring greater substitution of imported oil through domestically-sourced alternative fuels.[80]

3.52 UQ made the point that, while the government cannot create reserves, it can facilitate the release of acreage, undertake precompetitive exploration and incentivise new private-sector oil exploration.[81] It argued that the government must intervene to assure transport energy resilience through mitigation and contingency strategies.[82]

3.53 While supporting consideration of mandatory stockholdings, the Queensland Government made the point that any such enforcement on international fuel companies would be problematic:

> Refinery closures in Queensland could result in additional fuel product being sourced from overseas refineries, with the largest being located at Singapore, in which case attempting to impose production and supply conditions onto overseas countries is likely to be problematic. For example, should the companies currently involved in oil refining in Queensland choose to close, then the possibility of compelling international companies to commit to mandatory stockholdings is difficult under international trade agreements (Australia has a Free Trade Agreement with Singapore).[83]

3.54 In contrast, Mobil Oil Australia warned that any unnecessary regulation of the fuels industry for national security or other reasons would adversely impact industry competiveness and the commercial viability of fuel supply activities in Australia. It argued that mandatory stockholdings were not justified given the 'efficient and reliable

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79 National Roads and Motorists' Association, *Submission 18*, p. 8; Gas Energy Australia, *Submission 6*, p. 6; Biofuels Association of Australia, *Submission 32*, p. 3.

80 Gas Energy Australia, *Submission 6*, p. 6.

81 University of Queensland, *Submission 12*, p. 7.

82 University of Queensland, *Submission 12*, p. 7.

83 Queensland Government, *Submission 22*, p. 1.

performance of the industry and continued investment in supply infrastructure'. Mobil Oil Australia continued:

> We oppose any future requirement to fund and hold additional stockholding to meet Australia's international compliance obligations, especially a scheme which imposed further (unjustified) cost on local industry. If stockholdings were to be mandated, the system should be structured in such a way as to ensure (a) zero or minimal cost to local industry, and (b) any unrecoverable costs to industry are equally borne by all market operators (including refiners, manufacturers and importers).[84]

3.55 Similarly, Viva Energy Australia argued that any additional stockholdings over and above what is required for commercial reasons would come at a working capital cost.[85] Furthermore, Qantas suggested that mandatory stockholdings were only effective for immediate supply reliability. It suggested that a re-supply capability was required in order to provide security in the event of a short or longer term disruption of supply from overseas. In addition, Qantas emphasised the diversity of supply as a critical consideration in delivery fuel security and supported the development of alternative fuels.[86]

Risks and vulnerabilities

3.56 Australia has transitioned from operating as a major producer of transport fuels to become a major importer of transport fuels. The argument was repeatedly put to the committee that this change has exposed Australia to a range of risks emanating from its oil dependence including interruptions in the importation of its fuel supply. The point was made by Engineers Australia that, despite apparent and growing oil dependence, there are no current alternatives to substitute fossil liquid fuels used for transportation.[87] Its view that Australia's liquid fuel supply 'poses an enduring risk to Australia's economic security, national security, food security, and social stability' was supported by other submitters.[88]

3.57 The Australian Automobile Association (AAA) made the point that a major disruption to transport fuel supplies would be felt across society and in every sector of the economy.[89] It was suggested that even a 20 or 40 per cent cut in the fuel supply, brought about by factors such as conflict, would quickly lead to a situation whereby the country would start running out of food and medicines while the economy would

84 Mobil Oil Australia, *Submission 27*, p. 5.

85 Viva Energy Australia, *Submission 34*, p. 4.

86 Qantas Airways Ltd, *Submission 25*, p. 2.

87 Engineers Australia, *Submission 2*, p. 1.

88 Engineers Australia, *Submission 2*, p. 1; National Roads and Motorists' Association, *Submission 18*, Attachment 1, p. 3.

89 Australian Automobile Association, *Submission 14*, p. 1.

start to shut down.[90] Evidence to the committee from the Biofuels Association of Australia (BAA) highlighted that, as Australia's agricultural and transport sectors are almost totally reliant on liquid fuels, they would be particularly vulnerable in the event of supply disruption.[91]

3.58 NRMA argued that without an adequate supply of liquid fuels, Australians would not be able to access health services while food production and distribution would be curtailed, many businesses and the transport system would cease to function, and the Defence Forces would not be able to operate.[92] It was noted that the food supply chain, Australia's retail pharmacy supplies and utilities are all potentially vulnerable to large-scale events such as a national fuel shortage. It provided the following estimates of Australia's stockholdings at the point of sale to make the point:

- Chilled/frozen goods – 7 days' supply;
- Dry goods – 9 days' supply;
- Hospital pharmacy supplies – 3 days' supply;
- Retail pharmacy supplies – 7 days' supply; and
- Petrol stations – 3 days' supply.[93]

3.59 A number of submitters raised concern that one month's supply of fuel should be regarded as an absolute minimum requirement. Noting Australia's reliance on imported refined fuel, Mr Ken Grundy, who supported this view, questioned how long it would take to bring tanker loads of fuel to suitable points around Australia during a crisis period.[94] Similarly, in highlighting the need to build up a stockpile of emergency fuel, Mr David Lamb suggested that a minimum level of self-sufficiency for each type of liquid fuel should be established.[95]

3.60 However, in direct contrast to these views, AIP argued that a month's disruption of all fuel supplies would be an unprecedented circumstance. Mr Warrell emphasised to the committee that the fuel supply market actually constituted a large number of separate markets rather than one homogenous one. He continued:

> So the coincident disruption of all fuel supplies to every capital city in Australia, and then the distribution through the vast network that goes out to supply fuel to the rest of the country given our geographic scale—to say that we would then be without a fuel supply to all those locations and all

90 Fusion Australia, *Submission 19*, p. 2; National Roads and Motorists' Association, *Submission 18*, Attachment 1, p. 2.

91 Biofuels Association of Australia, *Submission 32*, p. 2.

92 National Roads and Motorists' Association, *Submission 18*, Attachment 1, p. 5.

93 National Roads and Motorists' Association, *Submission 18*, Attachment 1, p. 7.

94 Mr Ken Grundy, *Submission 1*.

95 Mr David G. Lamb, *Submission 4*.

> those shipping lanes would be disrupted, resulting in a month of a complete stock-out in Australia—I think is a very, very extreme case.[96]

3.61 Caltex suggested that Australia does not have a fuel security problem and that fuel suppliers have demonstrated the capability to optimise stockholdings so as to minimise costs (and therefore consumer prices) while ensuring a high level of supply reliability.[97] This view was supported by a 2011 ACIL Tasman assessment which found that the declining ratio of stocks to net imports was not a concern for supply security reasons in the short to medium term. According to ACIL Tasman:

> This is because of the nature of the petroleum market in the Asia-Pacific region, where supply security depends on being able to source product from a diverse range of refineries that can meet Australian standards, and the fact that a high proportion of cargoes bound for Australia are pre committed and under contract to Australian buyers.[98]

3.62 AIP's Mr Warrell informed the committee that, in terms of supply security, integration into the Asian product trading market was more important than self-sufficiency. He emphasised the importance of ensuring supply diversity given that there was no path to 100 per cent self-sufficiency.[99] This position was also supported by the 2011 ACIL Tasman assessment which noted that, in the longer term, the adequacy of Australian stocks will depend on the structure and operation of the Asian market, and in particular the role of the Singapore trading hub. However, the assessment did note that, while this structure was not expected to change in the longer term (2020–25), 'any change would justify a re-evaluation of this conclusion'.[100]

3.63 The department informed the committee that, in terms of assessing fuel security risks, it assessed how much storage was available in Australia together with the country's supply lines before assessing the risks associated with any disruption that might be encountered.[101] This evidence raised the question of how accurate these assessments have been in light of the fact that the department was not provided data from independent fuel companies.[102]

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96 Mr Andrew Warrell, Australian Institute of Petroleum, *Committee Hansard*, 2 February 2015, p. 26.

97 Caltex, *Submission 26*, p. 2.

98 ACIL Tasman, *Liquid fuels vulnerability assessment*, Department of Resources Energy and Tourism, October 2011, p. 120.

99 Mr Andrew Warrell, Australian Institute of Petroleum, *Committee Hansard*, 2 February 2015, p. 31.

100 ACIL Tasman, *Liquid fuels vulnerability assessment*, Department of Resources Energy and Tourism, October 2011, p. 120.

101 Mr John Ryan, Department of Industry and Science, *Committee Hansard*, 2 February 2015, p. 89.

102 Dr Gino Grassia, Department of Industry and Science, *Committee Hansard*, 2 February 2015, p. 91.