Annexure 10

Comparison of United States, European and Eastern Australian gas industries

1. Summary of differences between the industries

	United States 2002[1]	European Union 2001[2]	Eastern Australia 2001/2[3]
Supplies (PJs pa)			
Domestic production	20,700	8,662	603
Imports	5,025	7,054	0
Exports	(1,142)	-	0
Balancing/net storage (if material)	(1,401)	59	0
Total net supplies	**23,182**	**15,775**	**603**
Consumption (PJs pa)			
Residential	5,338	4,830	116
Commercial	3,387	1,590	45
Industrial	8,249	5,991	294
Power generation	6,192	2,616	135
Others	16	748	13
Total consumption	**23,182**	**15,775**	**603**
Customers ('000s)			
Residential (= households)	61,140	72,652	2,823
Non-residential	5,270	2,835	96
Total customers	**66,410**	**75,487**	**2,919**
Pipelines (km)			
Transmission	>480,000	182,174	12,039
Reticulation	>1,760,000	1,189,327	60,676
Storages			
Number	415	91	3[4]
Maximum working volume (m^3)	67,280	57,024	1,260[5]

[1] The statistics used for US **Supplies**, **Consumption** and **Customers** can be found at the Energy Information Administration – US Department of Energy website at: http://www.eia.doe.gov/pub/oil_gas/natural_gas/data_publications/natural_gas_annual/current/txt/i1_oog.txt. Statistics used for US **Pipeline** lengths and the number of **Storage** sites can be found at National Energy Technology Laboratory (***NETL***) – US Department of Energy at: http://www.netl.doe.gov/scngo/Natural%20Gas/index.htm. Statistics on the maximum working volume of US **Storage** sites can be found in Energy Information Administration Report 2004, 3.

[2] All statistics used for the EU can be found in the European Union of the Natural Gas Industry, *Annual Report 2001* (***Eurogas Annual Report 2001***). For a copy of the Report see: http://www.eurogas.org/database/documents/ANNUAL%20REPORT%202001.pdf.

[3] The statistics used for Eastern Australian **Supplies** and **Consumption** can be found in Australia Gas Association, *Gas Statistics Australia 2002* (February 2003) (***AGA Gas Statistics Australia 2002***). Statistics used for Eastern Australian **Total Consumption**, **Customers** and **Pipeline** lengths can be found in National Institute of Economic and Industry Research (***NIEIR***), Energy Working Party Conference, Melbourne, July 2004.

[4] Australian Gas Association, *Gas Statistics Australia 2001* (September 2001) (***AGA Gas Statistics Australia 2001***), 30.

2. US gas industry

2.1 Background

In the 1950s, the US gas industry was heavily regulated, with gas delivered through a complex hierarchy of sales.[6] Price regulated producers sold gas to price regulated pipeline operators, who then sold the gas on to local distributors. Local distributors were heavily regulated monopolies with exclusive rights of distribution within designated areas who sold the gas on to end users.

Deregulation of the gas sector began in 1978, with part liberalisation of wellhead prices. In 1985, interstate pipeline operators were given the option of becoming open access transporters, allowing consumers to purchase direct from the pipeline, or direct from the producer. Spot markets developed as producers made non-dedicated gas available to all purchasers and gas marketers began to establish themselves.

Gas wellhead prices were completely deregulated in 1989. In 1993, the pipeline network was also totally deregulated. Sales and transportation functions were unbundled, and a number of pipeline operators created affiliated marketing divisions, while also purchasing further pipelines to consolidate into national networks. Open access to interstate gas infrastructure storage became mandatory.

2.2 Consumption

Total consumption of natural gas in the US in 2002 was 23,182 PJs. Of this, the total amount of gas consumed in the US by industrial consumers was 8,249 PJs,[7] and the amount of natural gas used for power generation was 6,192 PJs.[8]

2.3 State of the gas industry

(a) Producers

The US gas industry is made up of approximately 8,000 independent producers, 160 pipeline operators and 1,600 local distribution utilities.[9] Texas, Louisiana, Okalahoma and New Mexico account for 73% of gas produced in the market.[10]

---

[5] Estimate based on VENCorp Gas Annual Planning Review 2005-2009, Melbourne, November 2004. For a copy of the review see: http://www.vencorp.com.au/docs/Gas_Transmission/Transmission_Planning/APR_2005_TO_2009.pdf.

[6] Energy Information Administration, *Annual Energy Review 2001*, US Department of Energy, November 2002 (***US Energy Review 2001***), 183. For a copy of this review see: http://tonto.eia.doe.gov/FTPROOT/multifuel/038401.pdf.

[7] Statistics from EIA – US Department of Energy, at: http://www.eia.doe.gov/pub/oil_gas/natural_gas/data_publications/natural_gas_annual/current/txt/i1_oog.txt.

[8] Ibid.

[9] ABS Energy Research, *Gas Deregulation Report – Global 2002 (Report summary)* (***ABS Energy Research Report Summary 2002***). For a copy of this report summary see: http://www.red-c.co.uk/~abs_upload/pdfs/Gas%20Deregulation.pdf; Energy Information Administration, *Natural Gas Annual 2000*, US Department of Energy, November 2001 (***Natural Gas Annual 2000***), 2.

[10] Natural Gas Annual 2000, 2.

The 10 largest producers account for 37% of domestic gas production and the 20 largest for over 50%.[11]

(b) Pipelines

Gas primarily flows from the Gulf Coast into the Northeast. There is also considerable flow from Canada to California and the northern states of the Midwest and the Northeast. The pipelines also extend into Mexico. The network is extensive and interconnected. Gas produced in the Gulf of Mexico can reach the furthest Northeast demand centres in a week.

Around 200 pipeline companies operate the transport pipelines, but the majority of the network is owned by the biggest six companies.[12] The major pipeline companies are CNG Transmission Corp., Colombia Gas Transmission Corp., EL Paso Gas Corporation, PG&E Gas Transmission, Northwest Corporation, Tennessee Gas Pipeline Company, Texas Eastern Transmission Corporation and TransCanada Pipelines Limited.

Approximately 1,600 distribution companies own and operate more than 1,760,000 kms of distribution pipelines.[13]

(c) Underground storage

In the US in 2002, there was an underground natural gas storage working volume of 67,280 million m^3.[14] As the industry continues to grow, there is an increased demand for underground storage facilities, particularly rapid injection/withdrawal storage (such as in salt caverns (currently 2% of storage capacity[15])). Sophisticated underground storage is becoming increasingly important to the interstate pipeline network to facilitate load balancing and system supply.

(d) Customers

Gas supplies to customers are channelled through more than 480,000 kms of mainline transmission lines[16] and over 116,800 kilometres of intrastate pipelines.[17] In 2002 the residential sector consumed 5,338 PJs of natural gas in 2002, which was 23% of total consumption for that year.[18] The commercial sector accounted

---

[11] International Energy Agency, *Energy Policies of IEA Countries – The United States 1998 Review*, October 1998, (***US 1998 Review***).

[12] US 1998 Review.

[13] ABS Energy Research Report Summary 2002; Statistics from NETL – US Department of Energy at: http://www.netl.doe.gov/scngo/Natural%20Gas/index.htm.

[14] Energy Information Administration Report 2004, 3.

[15] Natural Gas Annual 2000, 2.

[16] NETL – US Department of Energy at: http://www.netl.doe.gov/scngo/Natural%20Gas/index.htm; James Tobin, 'US Natural Gas Pipeline and Underground Storage Expansions in 2003', 5. For a copy of this article see: http://www.eia.doe.gov/pub/oil_gas/natural_gas/feature_articles/2004/Pipestor04/ngpipestor04.pdf.

[17] James Tobin, *Natural Gas Transportation – Infrastructure Issues and Operational Trends*, Energy Information Administration (Natural Gas Division), October 2001 (***Natural Gas Transportation Report***), 1. For a copy of the report see: http://www.eia.doe.gov/pub/oil_gas/natural_gas/analysis_publications/natural_gas_infrastructure_issue/pdf/nginfrais.pdf

[18] Energy Information Administration – US Department of Energy website at: http://www.eia.doe.gov/pub/oil_gas/natural_gas/data_publications/natural_gas_annual/current/txt/i1_oog.txt.

for 14.6% of consumption, having consumed 3,387 PJs of natural gas.[19] Industry used 8,249 PJs of gas, which amounted to 35.58% of total consumption while power generation consumed 26.7% of total consumption, 6,192 PJs of natural gas.[20]

(e) Spot markets

The US gas industry was highly regulated until the 1980s. Gas prices were regulated at very low levels until the 1970s. Gas demand was very high, but there was little incentive for producers to develop new gas resources. When supply was no longer able to meet demand in the late 1970s, the regulatory framework was adjusted to provide higher incentives in the form of higher prices. This had the effect of artificially increasing gas prices, leading to a decline in demand. There was enormous excess capacity, and a situation known as the 'gas bubble' was created. The US Congress then decided to deregulate the gas industry, and moved toward a more market-orientated approach. Open access to pipeline transport was introduced and well-head prices were slowly deregulated over a period. Eventually, sales of gas were separated from pipeline transport contracts, such that customers can now select supply and transportation services from any competitor in any combination. Encouraged by low prices, abundant supply and no restrictions on its use, gas demand in the US has increased dramatically.

2.4 Future industry

(a) Retail unbundling

The pipeline network and production process is now largely unregulated. The current state based reform process is focussed on unbundling of the retail segment by allowing residential gas users to select their gas suppliers. Programs vary from state to state. Three states allow users to choose their own supplier, eight have begun unbundling programs, nine states have pilots in place and 11 states are considering unbundling options. Other states are yet to take action.[21]

(b) Imports

Gas imports are becoming increasingly important, particularly in the Northeast. Between 1991 and 1996, domestic production rose by 1.5%. Demand for gas rose by 3%.[22] Imports of Canadian gas made up the short fall.

---

[19] Ibid.

[20] Ibid.

[21] Trading Opportunities and Transparency, 159.

[22] Energy Resources Branch, *Canadian Natural Gas: Review of 1996 & Outlook to 2002: North American Supply*, Natural Resources Canada. For a copy of this review see: http://www2.nrcan.gc.ca/es/erb/prb/english/View.asp?x=447&oid=444.

3. EU gas industry

3.1 Background

In 2001 the member countries of the EU consumed a total of 15,775 PJs of natural gas.[23] Between 2000-2002, the demand for natural gas in Western Europe increased by more than 6%.[24] Approximately one quarter of the EU's primary energy consumption is based on natural gas and 'its use is set to grow to an estimated gas demand outlook of nearly 500 million tons oil equivalent [MTOE] in 2020, compared to the current 350 MTOE.'[25]

A large proportion of the current Western European gas demand is covered by indigenous sources, in particular from the Netherlands, United Kingdom (***UK***) and Norway.[26] The rest is imported, mainly from Russia and Algeria. Other regions, including the North African countries, the Caspian Sea and the Gulf regions, are also expected to take on a greater role.[27] Transport from the more remote locations occurs via long-distance pipelines or liquefied natural gas tankers. Seventy per cent of the EU's primary energy will be imported in 2030 compared to the 47% which was imported in 2000.[28] A large proportion of this increase will be natural gas. The countries in Europe that are heavily reliant on gas imports include Belgium, France, Spain, Italy and Germany.[29]

The EU intends, ultimately, to establish a single European energy market. To this end, the European Commission (***EC***) has issued various directives asking member states to meet certain liberalisation targets. In 1998, it passed the 'Gas Directive', which was to be implemented by member states by 10 August 2000. The objective of the Gas Directive is, broadly speaking, to see member States separate upstream and downstream markets, introduce competition and ensure fair and transparent third-party access to the pipeline network.[30]

---

[23] Eurogas Annual Report 2001.

[24] European Union of the Natural Gas Industry, Annual Report 2002-3 (***Eurogas Annual Report 2002***), 2. For a copy of the report see: http://www.eurogas.org/database/documents/EUROGAS-BR%2006-02-2004.pdf.

[25] Ibid, 6.

[26] Ibid.

Norway is not a member of the EU. However, because Norway is party to the European Economic Area Agreement (***EEA Agreement***), it is bound by certain EU directives, such as the Gas Directive.

See Energy Information Administration, *Norway Country Analysis Brief* (***Norway Brief***). For this brief see: http://www.eia.doe.gov/cabs/norway.html. See also Dag Claes, 'The process of Europeanisation – the case of Norway and the Internal Energy Market' *Arena Working Papers* (December 2002) at http://www.arena.uio.no/publications/wp02_12.htm; Svein Andersen, 'European Integration and the Changing Paradigm of Energy Policy: The case of natural gas liberalisation' *Arena Working Papers* (December 1999) at http://www.arena.uio.no/publications/wp00_13.htm. Arena is a research program based in Oslo studying the dynamics of the evolving European systems of governance.

[27] Eurogas Annual Report 2002, 6.

[28] European Commission Directorate General for Energy and Transport Memo, 'Energy infrastructure: increasing security of supply in the Union. New legislative rules proposed', December 2003, 5. For a copy of this memo see: http://europa.eu.int/comm/energy/electricity/infrastructure/doc/2003/memo_en.pdf.

[29] Eurogas Annual Report 2001, 6.

[30] Oxford Economic Research Associates, *Energy Liberalisation Indicators in Europe* (October 2000) (***OXERA Study***), 5 (for a copy of this report see: http://www.ofgem.gov.uk); D Claes, 'The process of Europeanisation'.

Compliance with the Gas Directive varies enormously across European countries. For example, privatisation in the UK began well before the issuing of the Gas Directive and is currently well in advance of EU requirements,[31] whereas, the French parliament enacted the Gas Directive into national law in 2003.[32]

A new gas directive on common rules for a single European natural gas market was issued on 16 June 2003.[33] The new directive aims to make the EU the 'most integrated energy market in the world' by fully opening the market for all businesses by 1 July 2004 and for all households by 1 July 2007.[34] It also requires third party access and legal separation of transmission activities from July 2004 and of distribution activities from July 2007.[35] The successful implementation of this directive largely depends on appropriate legislation being adopted by Member States to allow for its implementation.

3.2 Consumption

In 2002, the total amount of natural gas consumed by industry in the EU was 5,991 PJs while the total amount used for power generation was 2,616 PJs.[36]

3.3 Upstream: producers and 'primary sellers'

(a) European statistics

In 2001, there were up to 22 companies producing gas for sale into the EU[37] and 16 'primary sellers' selling gas into the EU, as follows:[38]

(i) Gazprom (17%)

(ii) Gasunie (16%)

(iii) Norwegian GFU (13%)

(iv) Sonatrach (12%)

(v) Other (42%), made up of approximately 12 participants.

---

[31] Ibid. See also S Andersen, 'European integration and the changing paradigm of energy policy'.

[32] Energy Information Administration, *France Country Analysis Brief*. For a copy of this brief see: http://www.eia.doe.gov/emeu/cabs/france.html.

[33] Directive 2003/55/EC of the European Parliament and the Council of 26 June 2003 concerning common rules for the internal gas market.

European Commission Directorate General for Energy and Transport Memo, 'Towards a competitive and regulated European electricity and gas market. Opening of the Internal Energy Market: progress so far', 9 July 2004 (***EU Energy and Gas Memo***), 1. For a copy of this directorate see: http://europa.eu.int/comm/energy/gas/publications/doc/2004_07_09_memo_en.pdf).

[34] EU Energy and Gas Memo, 1.

[35] Eurogas Annual Report 2002, 5.

[36] Ibid.

[37] *Report for the European Commission Directorate General for Transport and Energy to determine changes after opening of the gas market in August 2000, Volume 1: European Overview* (July 2001) (***EC Report***). This report was commissioned by the European Commission and prepared by DRI WEFA, a privately owned economic and energy consultancy. For a copy of this report, see: http://europa.eu.int/comm/energy/gas/publications/doc/finalcor-vol1.pdf.

[38] Ibid, 14, 75.

Exxon and Shell form part of Gasunie, GFU and 'others'. Since these figures were published, the GFU has been abolished by the Norwegian Government, as discussed below.

The degree of supply-diversity varies from country to country. For example, 12 different suppliers supply gas to the UK, eight to Germany, seven to France and four to the Netherlands.[39]

(b) Norway and the GFU

Norway is one of the three major suppliers of gas to the EU (along with Russia and Algeria).[40] Norwegian gas is conveyed to Germany, Belgium, France and the UK through large transmission pipelines (or 'trunklines'). About half of the gas arriving in France continues on to Spain and Italy.[41]

As at September 2002, 17 companies from Germany, France, the Netherlands, Belgium, Spain, Austria, Italy, Poland, the Czech Republic and the UK bought Norwegian gas.[42]

Until 2002, the *Gassforhandlingsutvalget* (***GFU***)[43], a committee comprising the major Norwegian oil suppliers, set the price for all Norwegian gas sales.[44] The GFU, which was set up by the Norwegian government in 1973,[45] sold gas under long-term contracts.

In January 2002 the Norwegian government permanently abolished the GFU.[46] According to the Norwegian Ministry of Petroleum and Energy, this decision was based on a number of considerations including the maturity of the Norwegian Continental Shelf, the opening of European gas markets and changes to company structures.[47] The long-term contracts already concluded by the GFU remain unchanged.[48]

---

[39] Ibid, 84.

[40] S Andersen, 'European integration and the changing paradigm of energy policy'.

[41] Ibid.

[42] Ibid.

These companies were: Ruhrgas, BEB, Meeg, Thyssengas and Verbundnetz Gas (Germany); Gaz de France; Gasunie and SEP (Netherlands); Distrigaz (Belgium); Enagas (Spain); Austria Ferngas and OMV (Austria); Snam and Energia (Italy); Polish Oil and Gas Company (Poland); Transgas (Czech Republic); Centrica (UK).

[43] The gas sale negotiation committee.

[44] Norway Brief.

[45] D Claes, 'The process of Europeanisation'; EC Report, 82.

[46] D Claes, 'The process of Europeanisation'; International Energy Agency, 'IEA commends Norway's Energy Policy, stresses the country's key role in international energy security', 2001. For a copy of this press release see: http://www.iea.org/dbtw-wpd/textbase/press/pressdetail.asp?PRESS_REL_ID=50.

[47] Speech given by State Secretary Brit Skjelbred, Ministry of Petroleum and Energy – Norwegian Petroleum Policies, Oslo, 8 November 2001. For a copy of this speech see: http://odin.dep.no/oed/engelsk/aktuelt/p10002021/taler_politisk_ledelse/026031-090025/index-dok000-b-n-a.html.

[48] Norway Brief.

(c) The Netherlands and Gasunie

Almost all gas produced within the Netherlands, which accounts for a significant proportion of all marketed gas in Europe, is marketed through NV Nederlands Gasunie (***Gasunie***).[49] Gasunie's ownership, re-shuffled on 1 November 2004, resulted in the transportation and sales divisions of the business being made independent from each other. The Dutch State, having acquired a 100% ownership interest in Gasunie's gas transportation business after buying out Royal Dutch Shell and ExxonMobil Corp's interests for €2.78 billion, will take control on 1 January 2005, with the transaction to be fully implemented by mid 2005. Ownership of Gasunie's sales division, however, remains divided between the Dutch State, which owns 50%, and Royal Dutch Shell and ExxonMobil Corp, which each own 25%.[50]

3.4 Infrastructure

(a) Pipelines

As at 2001, there were 182,174 km of transmission pipelines and 1,189,327 km of distribution pipelines within the EU boundaries.[51] More than half of the gas for consumption in the EU crosses national borders.[52]

Third party access to pipelines is limited and varies across companies. According to the EC Report, 30% of total gas is carried under third party access arrangements including 100% in the UK and smaller volumes in Italy.[53]

(b) Storage facilities

There are 91 storage facilities across the EU, with a maximum working volume of 57,024 million m^3. They have a maximum withdrawal capacity of 1090 million m^3 per day.[54]

According to survey results presented in the EC Report, direct access to storage in Europe is not possible, with the exception of the UK and, to a lesser extent, Italy.[55]

---

[49] OXERA Study, 147

[50] Gasunie press release, 'Gasunie's trade and transport units to be unbundled', 1 November 2004. For a copy of this press release see: http://www.gasunie.nl/; Forbes, 'Shell, Exxon Mobil Sell Gas Pipelines', 1 November 2004. For a copy of this article see: http://www.forbes.com/home/feeds/ap/2004/11/01/ap1624594.html; Reuters, 'Netherlands takes control of gas', 1 November 2004. For a copy of this article see: http://www.reuters.co.uk/newsPackageArticle.jhtml?type=reutersEdgeNews&storyID=613153&section=finance.

[51] Eurogas Annual Report 2001.

[52] Eurogas Annual Report 2002, 6.

[53] EC Report, 45.

[54] Eurogas Annual Report 2001, 23.

[55] EC Report, 43-44.

3.5 Downstream

(a) Distribution companies

The number of distribution companies varies across countries. For example, in France, Gaz de France, a government-owned company, has a monopoly on the importation and distribution of gas.[56] In the Netherlands, approximately 33 distribution companies compete to supply gas to consumers.[57]

(b) Final consumers

In 2001, the EU had 72,652,000 residential customers and 2,835,000 non-residential customers.[58]

3.6 Industry signals

(a) Contract options

The EU gas industry is dominated by long-term contracts. It is estimated that at least 75% of gas is sold in the EU under long-term contracts.[59]

A 2001 Eurogas study commented that:

> Long-term take-or-pay contracts with integrated gas price indexation to oil are still the main source of EU gas supplies… Recent developments have seen the integration of spot-price trading into this long-term price mechanism.[60]

For example, Belgian demand is supplied with gas by means of long-term contracts secured by Distrigas with Norway, the Netherlands and Algeria. Any difference between the long-term contract supply and domestic demand is satisfied by means of sales or purchases on the Zeebrugge and Bacton (UK) spot markets. The percentage of gas supplied via the spot market fell from 19% to 8.9% between 2000 and 2001.[61]

(b) Determination of prices

According to the 2001 Eurogas Annual Report:

> Sales pricing of natural gas is most often based on competition with alternative fuels used for given applications, such as coal or heavy fuel oil in the case of power generation or heavy industrial use, or heating oil in the case of domestic heating. It may also be based on gas-to-gas competition in given markets. Gas prices to smaller commercial and household customers are defined in tariff systems which in most countries fall under regulation or official control.[62]

---

[56] Norway Brief; OXERA Study, 157.

[57] OXERA Study, 149, 151.

[58] Eurogas Annual Report 2001.

[59] PLATTS, 'Continental gas market braced for stormy new year'. See: http://www.platts.com.

[60] European Union of the Natural Gas Industry, 'Oil-Gas Price Linkage in the European Union' (November 2001), 2. For a copy of this report see: http://www.eurogas.org; S Andersen, 'European integration and the changing paradigm of energy policy'.

[61] The Belgium Commission for Electricity and Gas Regulation, *Annual Report 2001*, 14.

[62] Eurogas Annual Report 2001, 6.

(c) Trading hubs

There are two key trading hubs in Europe: the National Balancing Point (***NBP***) in the UK and Zeebrugge in Belgium.[63] There are plans to form two further hubs, one on the border of Germany and the Netherlands and the other on the border of Austria and Slovakia. Both of these locations are characterised by significant storage capacity and multiple pipeline connections.[64] Spot trading by approximately 12 companies is already occurring at the German/Dutch border, although volumes are small so far.[65]

4. UK gas industry

4.1 Background

In the UK, the largest national natural gas market in Europe, gas accounts for approximately 39% of total primary energy consumption.[66] In 2001 total gas consumption was 4031 PJs, residential and commercial heating accounting for approximately 42% for this, while industrial uses accounted for 20%.[67] In 2002, total gas production constituted 4317 PJs and approximately 50 companies were involved in this gas production although only four companies, including BP, ExxonMobil, Shell and Centrica, accounted for more than half of the UK's total output.[68]

4.2 Supply and demand

The supply and production of gas were unbundled from transport in 1997 when transport became the domain of Transco and the supply and production role became the responsibility of Centrica. Prior to the restructuring of the gas industry in 1986, gas was sold between British Gas and producers and consumers under long and medium term bilateral contracts. Physical balance between supply and demand after the industry's restructure was achieved by market participants under the Network Code. This, in turn, has led to gas trading in the pipeline system and through spot markets at entry terminals.

4.3 Spot markets

Spot markets at entry terminals have developed in the UK as a result of four factors:

- producers being forced to market their gas to independent gas suppliers competing on the contract market with British Gas due to the limitations placed on British Gas' ability to enter into long terms contracts from new reserves;

[63] William Powell, 'Gas liberalization in Europe: an empty promise?' *Global Energy Business Jan/Feb 2002*. For a copy of this article see: http://www.analyticalg.com/published/gasliberalisation.pdf.

[64] Ibid.

[65] Energy Information Administration, *Germany Country Analysis Brief*. For a copy of this brief see: http://www.eia.doe.gov/emeu/cabs/germany.html.

[66] ABARE 2003 Report, 27.

[67] Ibid.

[68] Ibid.

- British Gas being ordered by Ofgas, the British gas regulator, to release gas to competitors in 1991 and from 1992 to 1995. Approximately 186 PJs of gas was made available to competing suppliers through sale in spot markets;
- surplus gas existing as a result of independent suppliers committing themselves to 'take or pay' contracts from North Sea producers without finding customers for the produced gas. The surplus gas was put on the spot market for resale; and
- the existence of a demand loss of 0.24 PJs a day because of the delay in the commissioning of three powers stations. The surplus gas was, again, resold on the spot market.[69]

4.4 On-system trading

A spot market in a central location was introduced by Transco as a result of the growth of spot trading and the new pipeline operating rules. The spot market operates via on-system trading. Pricing for delivery is at the 'national balancing point' (***NBP***), a notional point in the pipeline system where Transco balances its high pressure system. There are 80 traders on the NBP and volumes are increasing to 20 PJs per month.[70] On-system trading has become 'increasingly robust and liquid as the liberalisation of the gas market continues.'[71]

5. Eastern Australian Gas Industry[72]

5.1 Background

In the year ending 30 June 2001, total consumption of natural gas in Eastern Australia was 603 PJs.[73] In 2001-02, there were just under three million customers of natural gas in Eastern Australia.[74] In 2001, Australia's consumption of natural gas increased at an annual rate of 3.6% compared to an average annual world growth rate of 2.1%.[75]

5.2 Industry participants

The marketing chain for gas in Australia involves four key phases: production, transmission, distribution and retail. Since the Hilmer Report in 1993 and the progressive structural reform and privatisation that followed that report, these sectors are generally either separately owned and/or operated or 'ring-fenced'.[76]

---

[69] Ibid, 28.

[70] Ibid.

[71] Ibid.

[72] The 'Eastern Australian' gas market comprises NSW, Victoria, Queensland, South Australia, ACT and Tasmania. As Tasmania's participation in the gas market is a recent phenomenon, the figures presented in this document do not cover Tasmania.**]**

[73] AGA Gas Statistics Australia 2002.

[74] NIEIR – Energy Working Party Conference, Melbourne, July 2004.

[75] AGA Gas Statistics Australia 2001, 15.

[76] Ibid, 49.

(a) Producers

The following companies are currently producing gas, or will be producing gas in the near future,[77] in Eastern Australia, sometimes in joint ventures with one another:[78]

(i) Esso Australia Pty Ltd (joint venture in Victoria);

(ii) BHP Billiton (2 joint venture in Victoria);

(iii) OMV Australia;

(iv) Woodside;

(v) Origin Energy Resources Ltd;

(vi) Santos;

(vii) Novus;

(viii) Oil Company of Australia; and

(ix) Energy Equity Corporation.

Gas supply from 'newly contracted' gas reserves is expected to account for only 37% of total consumption in the eastern markets in 2010, increasing to 45% by 2019-20.[79]

The capacity of the suppliers in Eastern Australia to keep pace with growing demand for gas over the next twenty years could result in changes to the shape and nature of the gas markets in that region. It has been suggested that:

> unless significant infrastructure investment is undertaken to bring gas supplies from Australia's north (from Papua New Guinea or the Timor Sea) or from the North West Shelf via a transcontinental pipeline then the balance between supply and demand will deteriorate quickly as current natural gas resources are depleted in the face of strongly growing demand.[80]

Competition in the Eastern Australian gas market could be affected by such an increase in supply.

(b) Distributors

There are 16 companies distributing gas to customers in Eastern Australia: six in NSW, four in each of Victoria and Queensland and one in each of South Australia and the ACT.[81]

(c) Retailers

There are 44 companies selling gas to customers in Eastern Australia: 22 in NSW, 12 in Victoria, five in Queensland, four in South Australia and one in the ACT.[82]

---

[77] Excludes coal seam methane.

[78] AGA Gas Statistics Australia 2001, 27-30.

[79] ABARE 2003 Report, 33.

[80] Ibid, 34.

[81] Ibid, 39.

There are five major gas retailers in Australia including AGL, TXU, Origin Energy, Alinta and Energex.[83]

5.3 Infrastructure

(a) Pipelines

The total Eastern Australian pipeline network in use in 2001-2 comprised of 12,039 kms of transmission pipelines and 60,676 kms of reticulation pipelines.[84]

The National Third Party Access Code for Natural Gas Pipeline Systems, which all Australian States and Territories have implemented or agreed to implement, provides for regulated third party access to transmission pipelines.

(b) Storage facilities

ABARE notes that 'Australia currently has limited storage options amounting to approximately 6 per cent of annual gas consumption.'[85] Eastern Australia's maximum working volume of storage is approximately 1,260 million m^3.[86]

There are four gas storage sites in Australia, three of which are in Eastern Australia, as follows:[87]

- a site in the Cooper/Eromanga Basin at Moomba in South Australia, owned and operated by Santos;
- a site in the Surat Basin at Newstead in Queensland, held by Oil Company of Australia; and
- a site in the Western Underground Gas Storage (***WUGS***) at Iona in the Otway basin in Victoria, held by TXU.

It is understood that WUGS is the only storage facility in respect of which there is provision for third party access.

5.4 Spot market

There is a wholesale gas spot market in Victoria which has been operating since 1999.[88] It operates primarily for the purposes of ensuring energy balance in the Victorian transmission network and provides parties with the ability to buy or sell gas. Otherwise, and for the most part, gas tends to be sold in Eastern Australia under long term contracts. Transparent spot markets, proving additional benefits above the costs of establishing and operating the market require many participants.[89] ABARE notes that:

[82] Ibid.

[83] Ibid, 35.

[84] NIEIR – Energy Working Party Conference, Melbourne, July 2004.

[85] ABARE 2003 Report, 45.

[86] Estimated based on VENCorp reports.

[87] AGA Gas Statistics Australia 2001, 30.

[88] Ibid, 78.

[89] ABARE 2003 Report, p 35.

with only three to five major suppliers and a demand side that is likely to comprise at most thirty participants there is little likelihood that an active transparent spot market could emerge in Australia in the short term.[90]

6. Conclusion

The above comparison of the US, EU and Eastern Australian gas industries clearly demonstrates that the Eastern Australian gas industry is substantially less mature and less liquid than the US and EU gas industries. Although the Eastern Australian gas industry has some common characteristics with the EU gas industry (for example a predominance of long term contracts), the significant discrepancies between the volume of gas produced, the number of suppliers and consumers and the amount of infrastructure clearly differentiate the industries. As is evidenced by the statistics provided above in respect of the overall consumption and consumption by industrial customers, both the US and EU industries are characterised by a deep pool of large end-users. This is easily distinguished from the Australian market, where existing and potential producers must compete for a relatively shallow pool of customers. It is clear from these figures that a greenfield project in Australia faces different challenges to those in either the US or Europe. Further, it is clear that in any discussion of the benefits of separate marketing by production joint ventures, the experience in the US and Europe can only be of limited assistance, as the characteristics of those markets are vastly different from those that exist in Australia.

[90] Ibid.