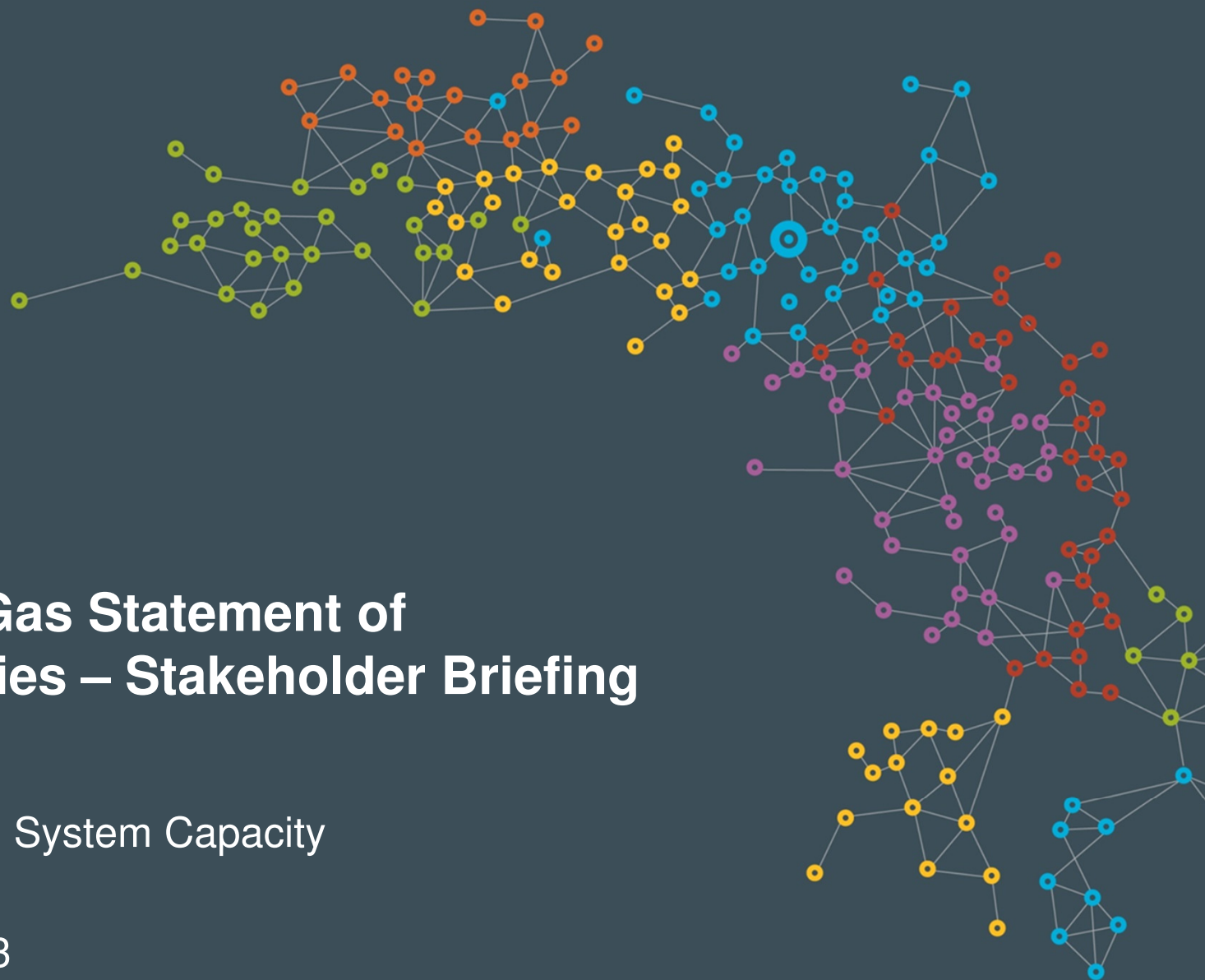




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2013 July Gas Statement of Opportunities – Stakeholder Briefing

Joachim Tan
Senior Analyst, System Capacity

7 October 2013

Agenda

- WA's Gas Market Characteristics
- Domestic Gas Demand Characteristics
- Domestic Gas Supply Characteristics
- Domestic Gas Demand Projections 2013 to 2022
- WA's LNG Markets
- Domestic Gas Supply Projections 2013 to 2022

Why are we here ?

The GSOO is a periodic statement the primary purpose of which is to include gas information and assessments relating to medium and long term natural gas supply and demand and natural transmission and storage capacity in the State.

IMO assigned GISP role in June 2012, GSOO published July 2013. **To promote the long term interests of consumers of natural gas in relation to:**

Supply

the security, reliability and availability of gas supply

Efficiency

efficient operation and use of natural gas services

Investment

the efficient investment in natural gas services in the State

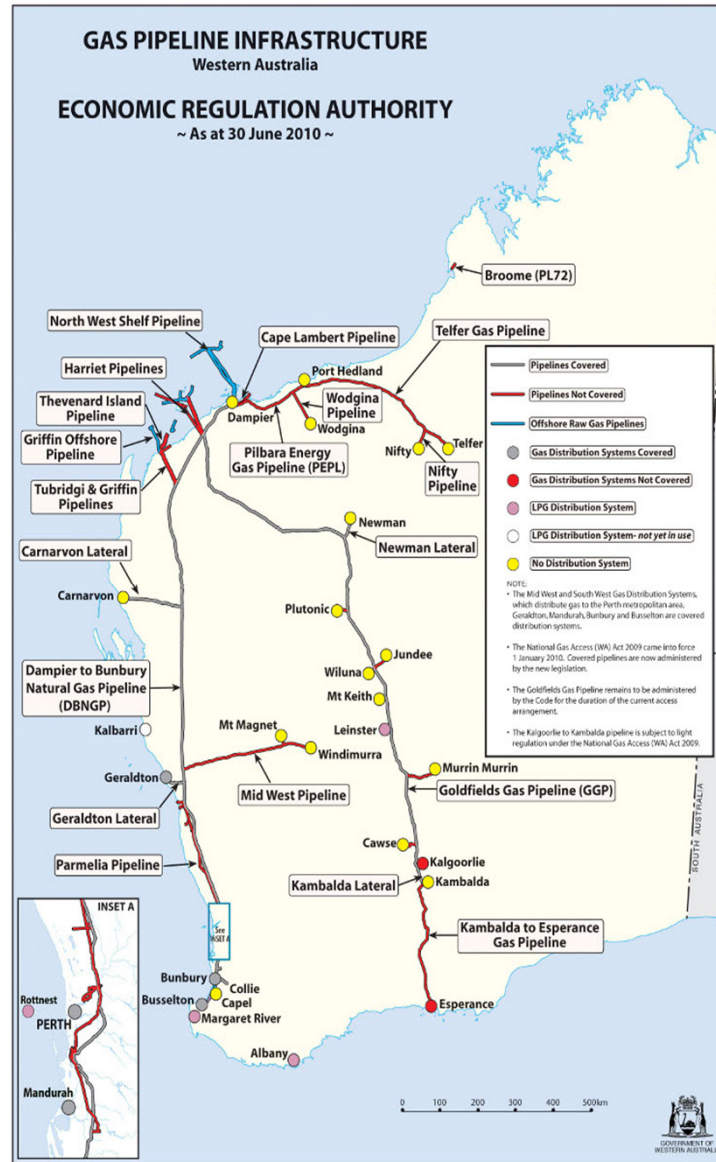
Competition

the facilitation of competition in the use of natural gas services

What do we forecast for the GSOO ?

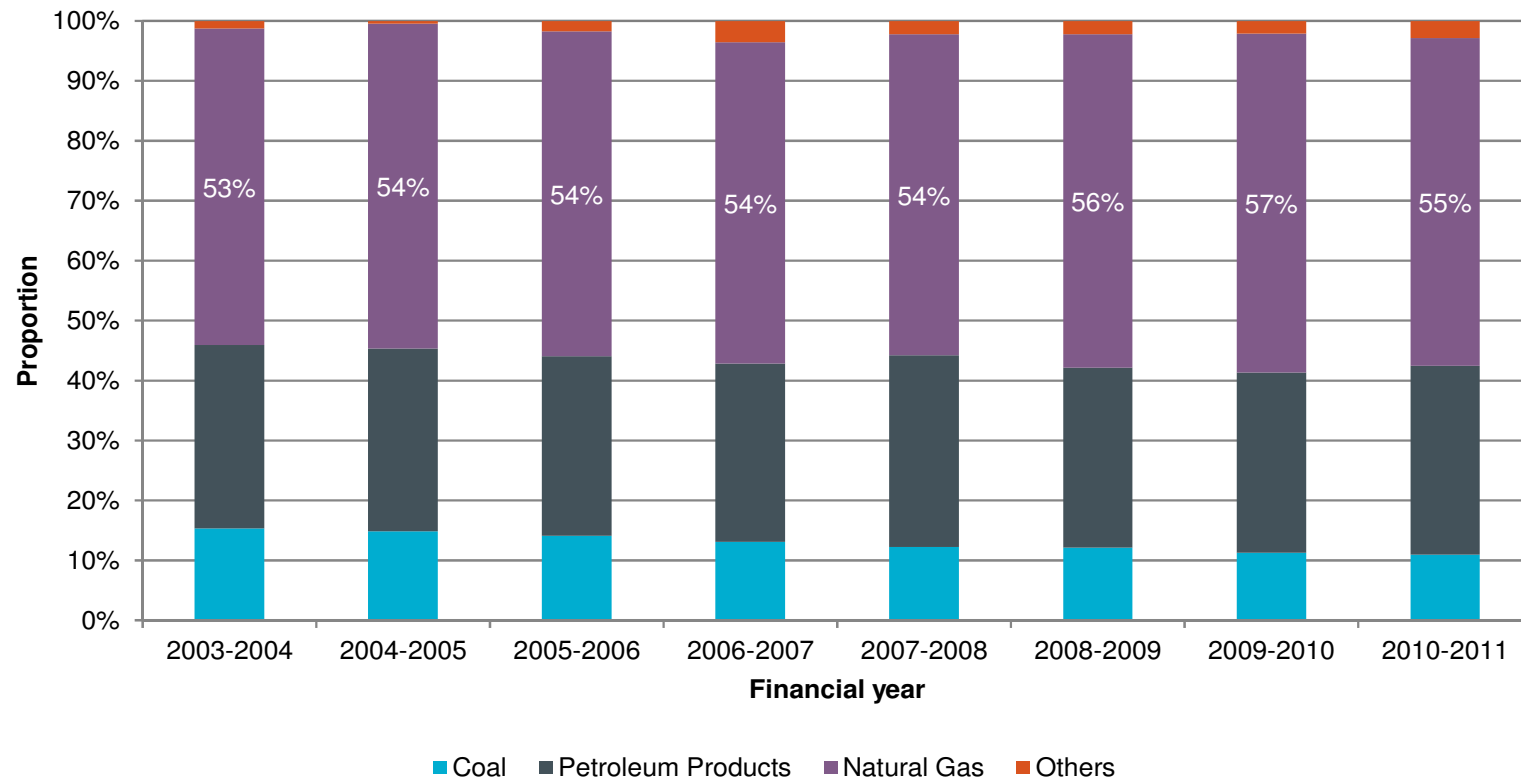
- Domestic Gas Demand (excluding oil and gas processing use, domestic demand **FID only**, reported in TJ/day)
- Total Gas Demand (Domestic Gas Demand – **FID only** that includes gas consumption relating to oil and gas processing by applying assumptions, reported in PJ/annum)
- Potential Gas Supply available to the domestic gas consuming market (reported in TJ/day)
- Gas Supply Processing Capacity (reported in TJ/day)
- Reserves (reported in number of years remaining)

WA Gas Market Characteristics



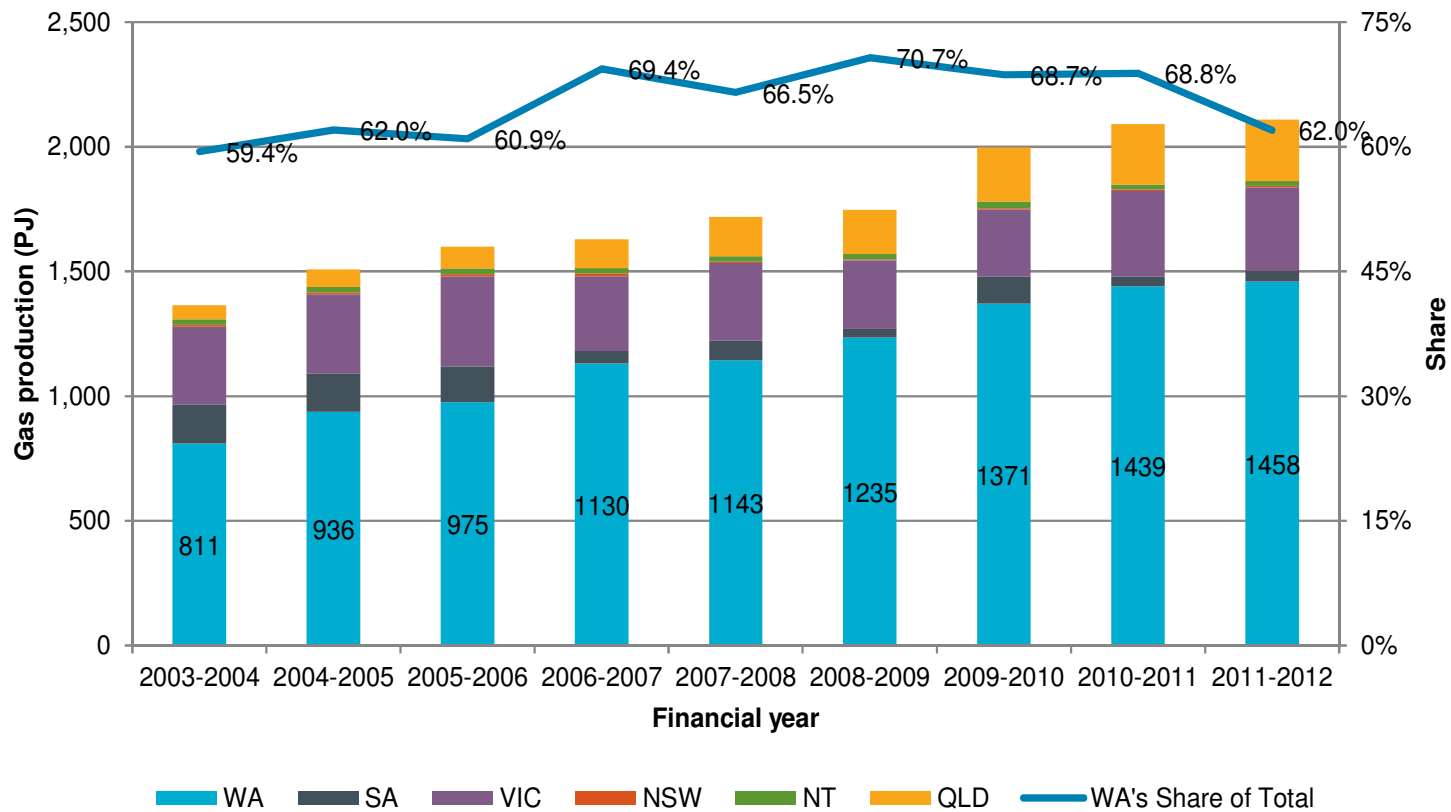
Source: ERA (2010)

Western Australia's Consumption of Energy by Fuel Source, 2003-2004 to 2010-2011



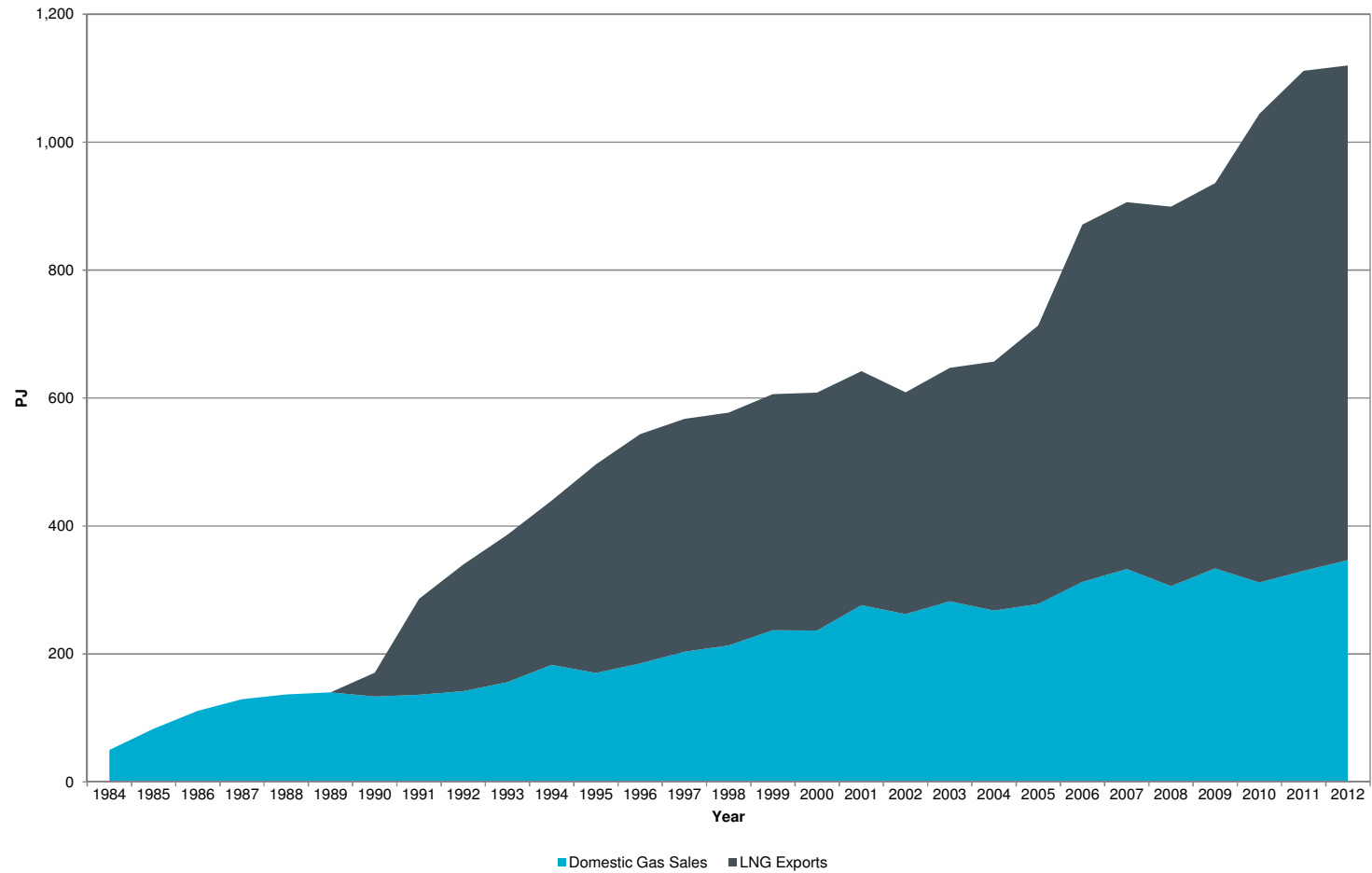
Source: BREE (2012), Australian Energy Statistics Update 2012, Table C

Australia's Gas Market (Domestic Gas and LNG) 2003-2004 to 2010-2012



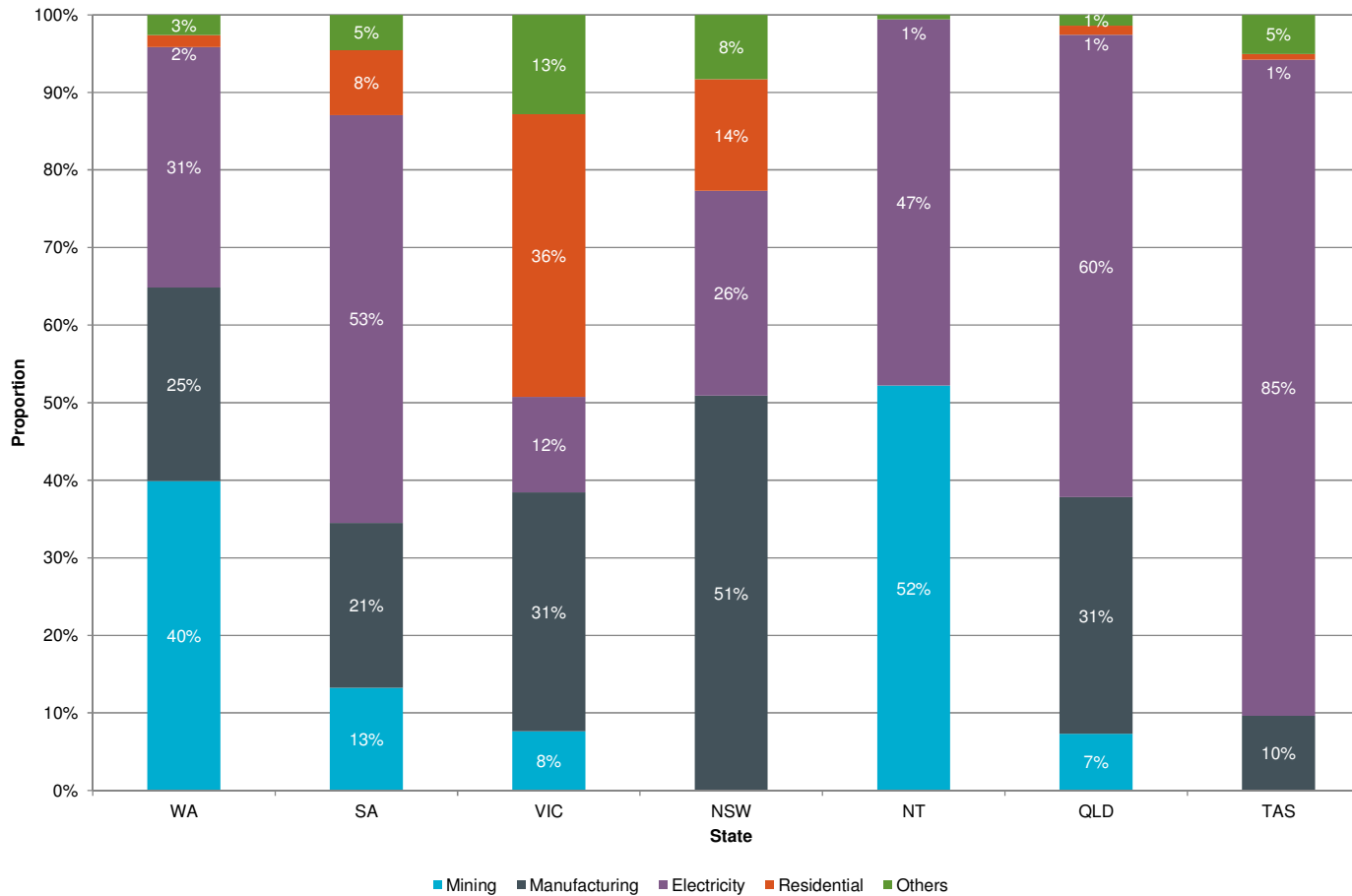
Source: BREE (2012-2013), Energy in Australia, Table 21, Australia's gas production, by state.

Total Gas Production, 1984 – 2012



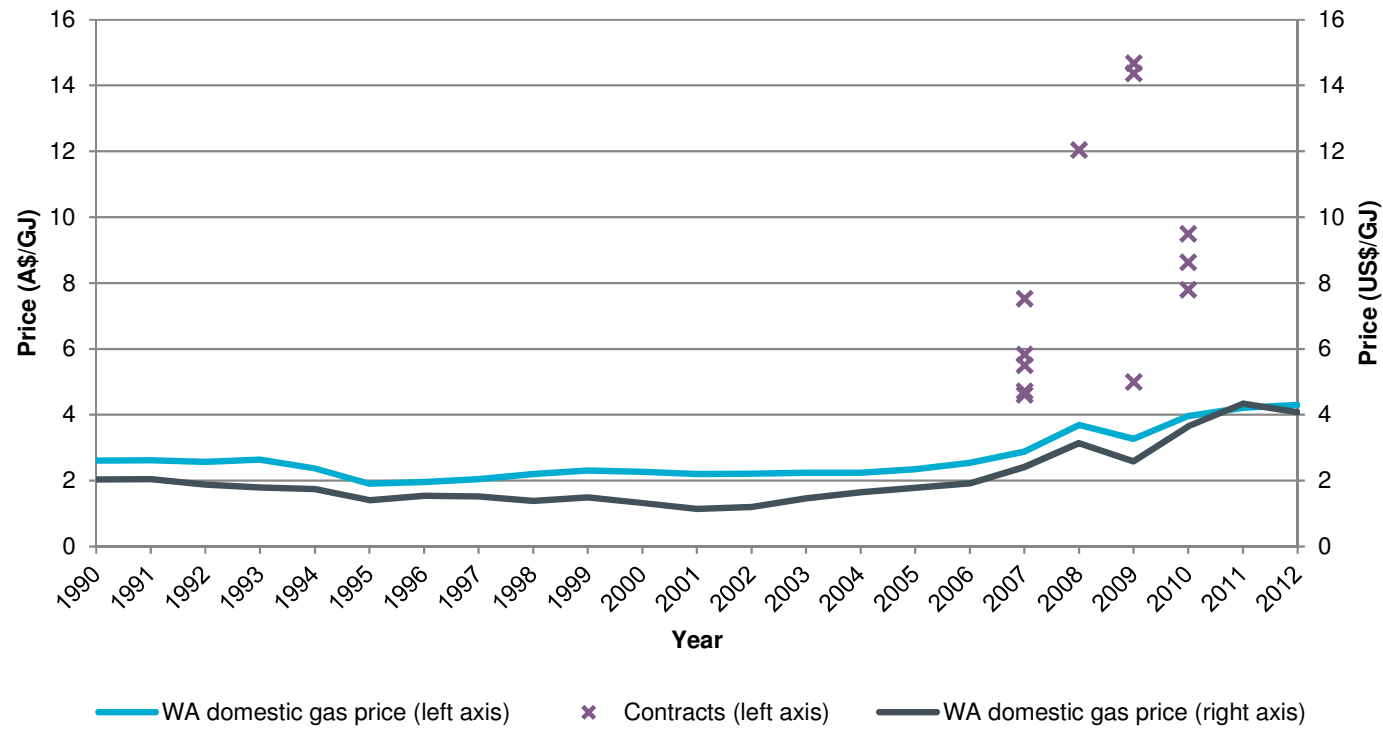
Source: BREE (2012), Australian Energy Statistics Update 2012, Table C

Gas Demand, Australian States 2010-11



Source: BREE (2012), Australian Energy Statistics Update 2012, Table F

Western Australian Average Natural Gas Prices, 1990 – 2012



Source: DMP (2011) and DMP (2013d).

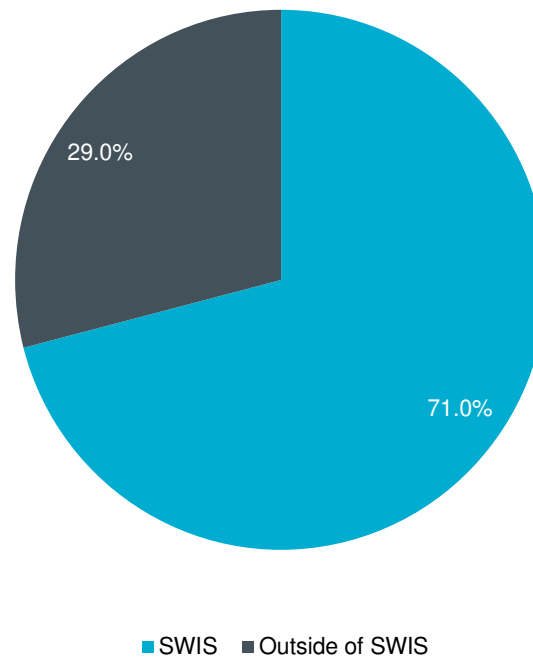
Domestic Gas Demand Characteristics

Annual domestic gas consumption growth, 1984-2011

	1984-1990	1991-2000	2001-2010	2007-2012
Annual compounded growth	15.71%	5.84%	1.24%	0.69%

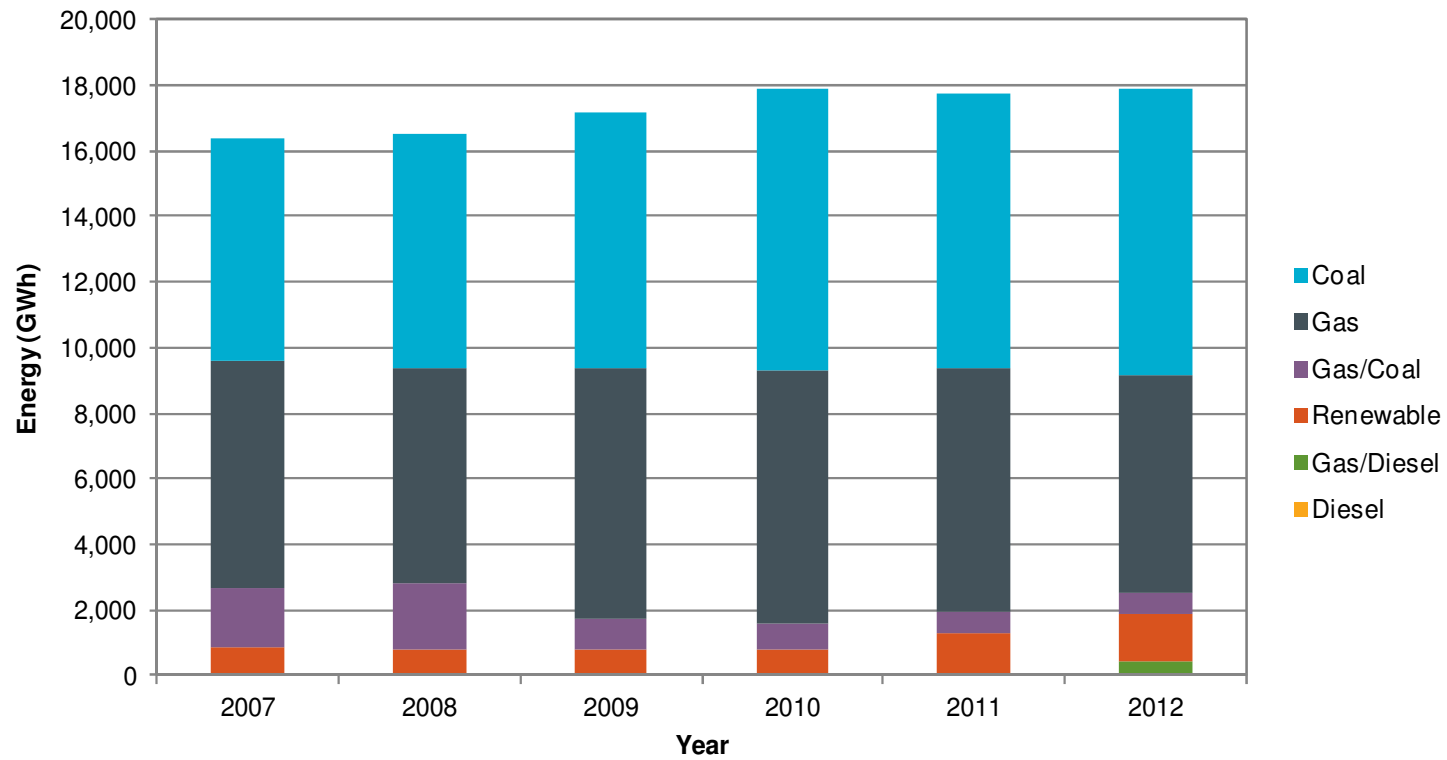
Source: DMP (1983-2012), calculated using domestic gas sales, 1983-2011.

Estimated Proportions of Gas Demand in WA (PJ), 2011



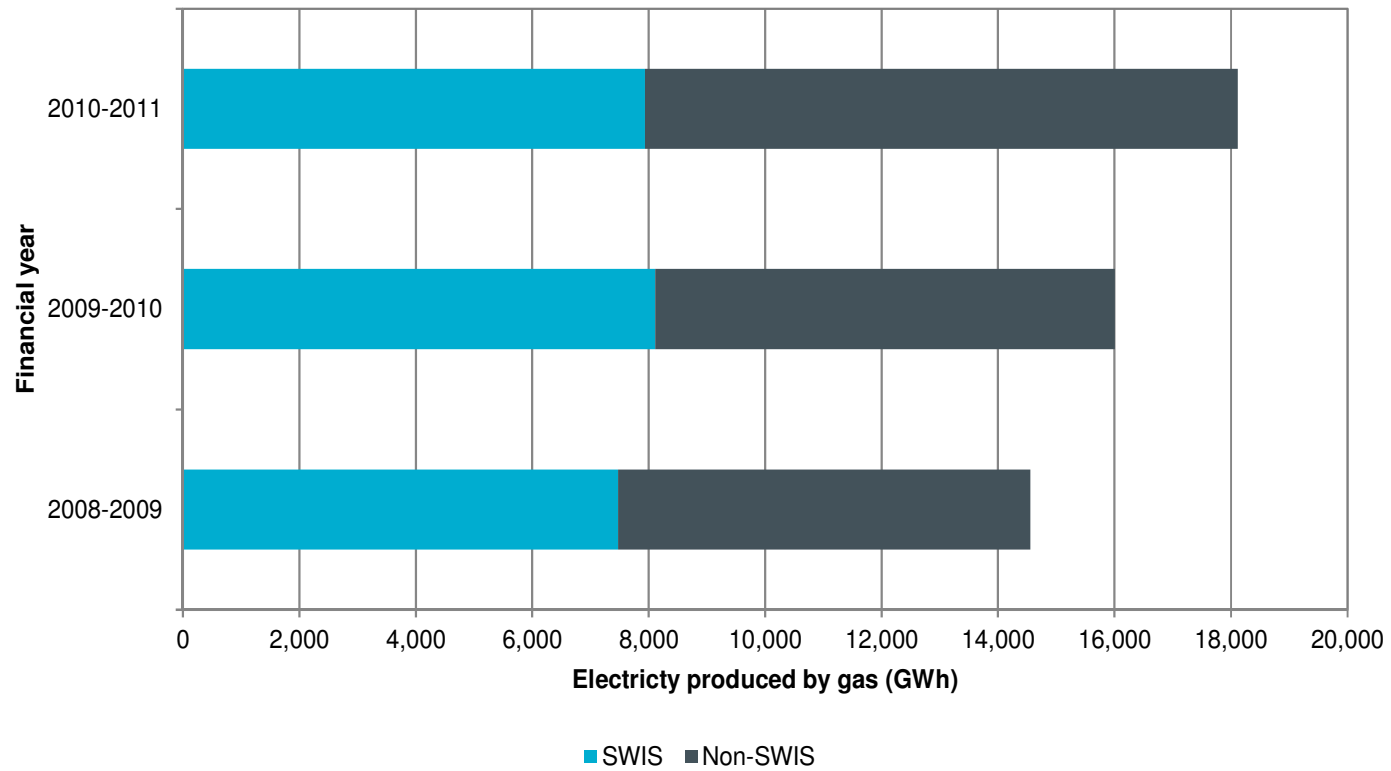
Source: SKM-MMA (2011).

Energy Generation by Fuel Type (SWIS), 2007 – 2012



Source: IMO

Gas Demand for Electricity Generation in WA (GWh), 2008-2009 to 2010-2011



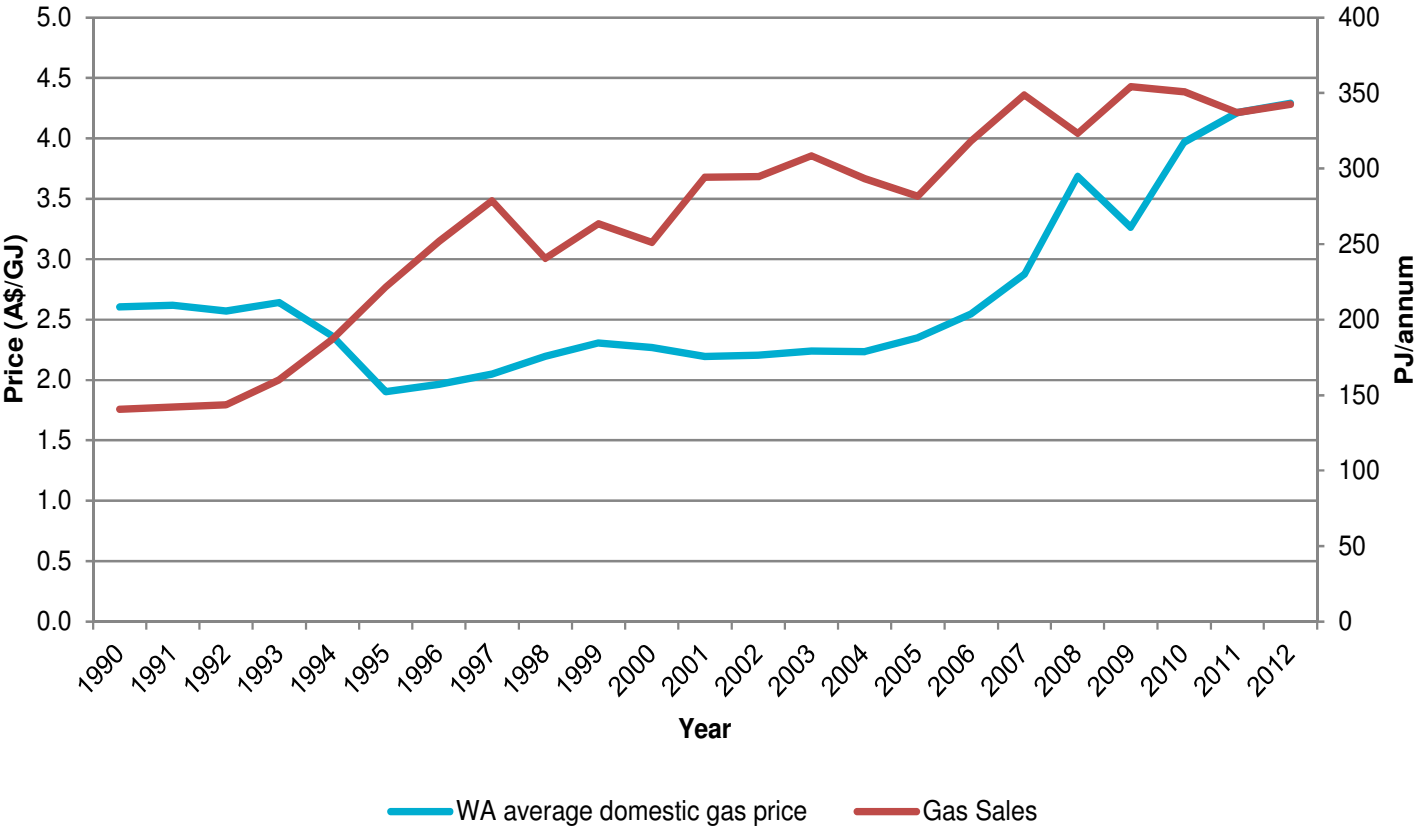
Source: DMP (2012), Average domestic gas prices and domestic gas sales (by volume).

Estimated Market Shares of Major Domestic Demand (excluding LNG industry)

Gas Purchaser/Consumer	Estimated Market Share
Alcoa	~25%
BHP Billiton and its JVs	~15%
Verve Energy	~20%
Yara Pilbara (formerly Burrup Fertilisers)	~10%
Alinta Energy	~13%
Newcrest Mining	~1 to 5%
Rio Tinto and its JVs	Unreported
Wesfarmers (including subsidiaries)	~1 to 5%
Total	~90%

Source: Allen Consulting (2009) and EISC (2010)

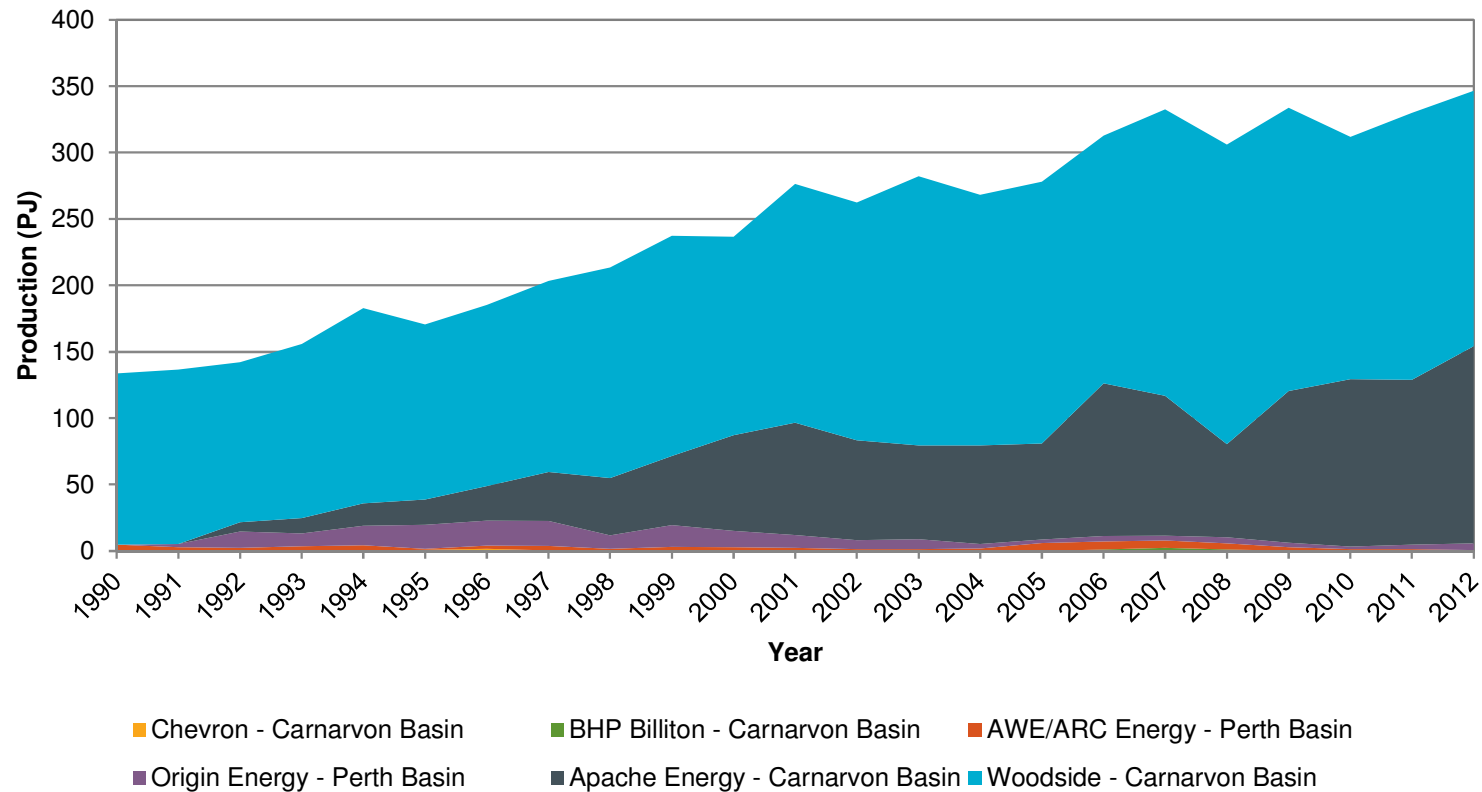
Comparison of Domestic Gas Demand against Average Domestic Gas Prices, 1990 – 2012



Source: DMP (2012), Average domestic gas prices and domestic gas sales (by volume)

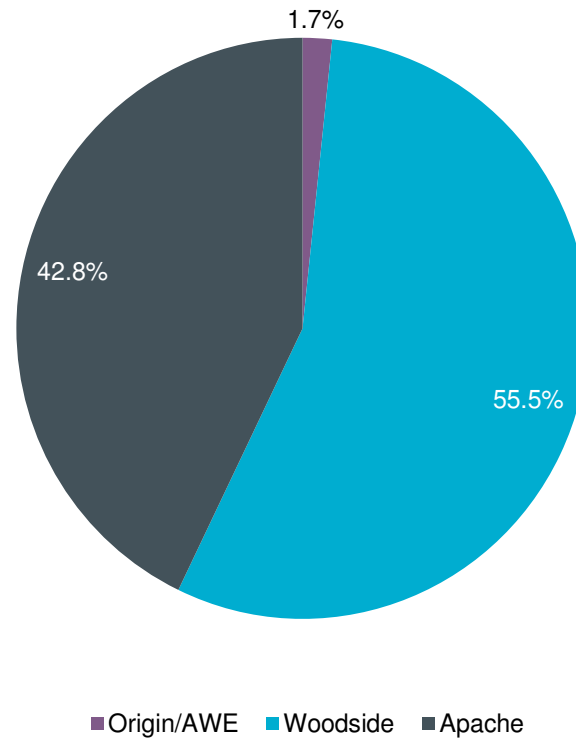
Domestic Gas Supply Characteristics

Western Australia Domestic Gas Sales by Operator, 1990 – 2012



Source: APPEA Quarterly Production Data (1990-2012).

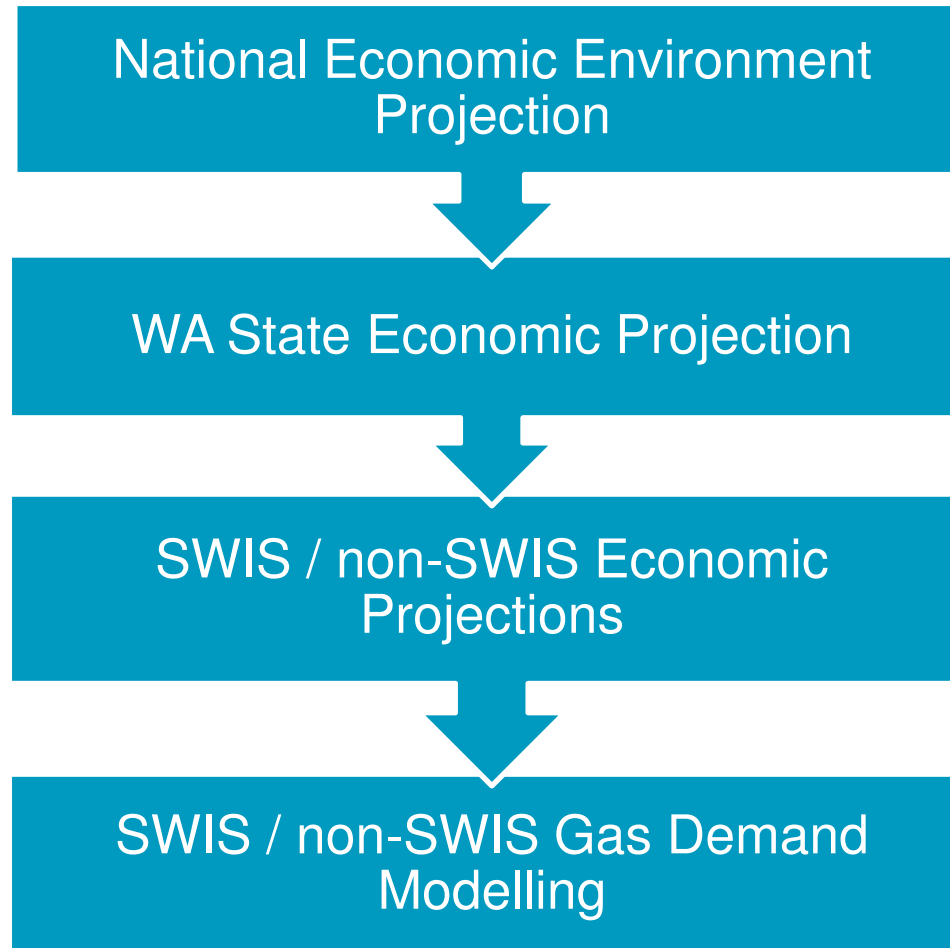
Proportion of Domestic Gas Sales (by Operator), 2012



Source: APPEA 2012 Quarterly Production data, <http://appea.com.au/oil-a-gas-in-australia/statistics.html>

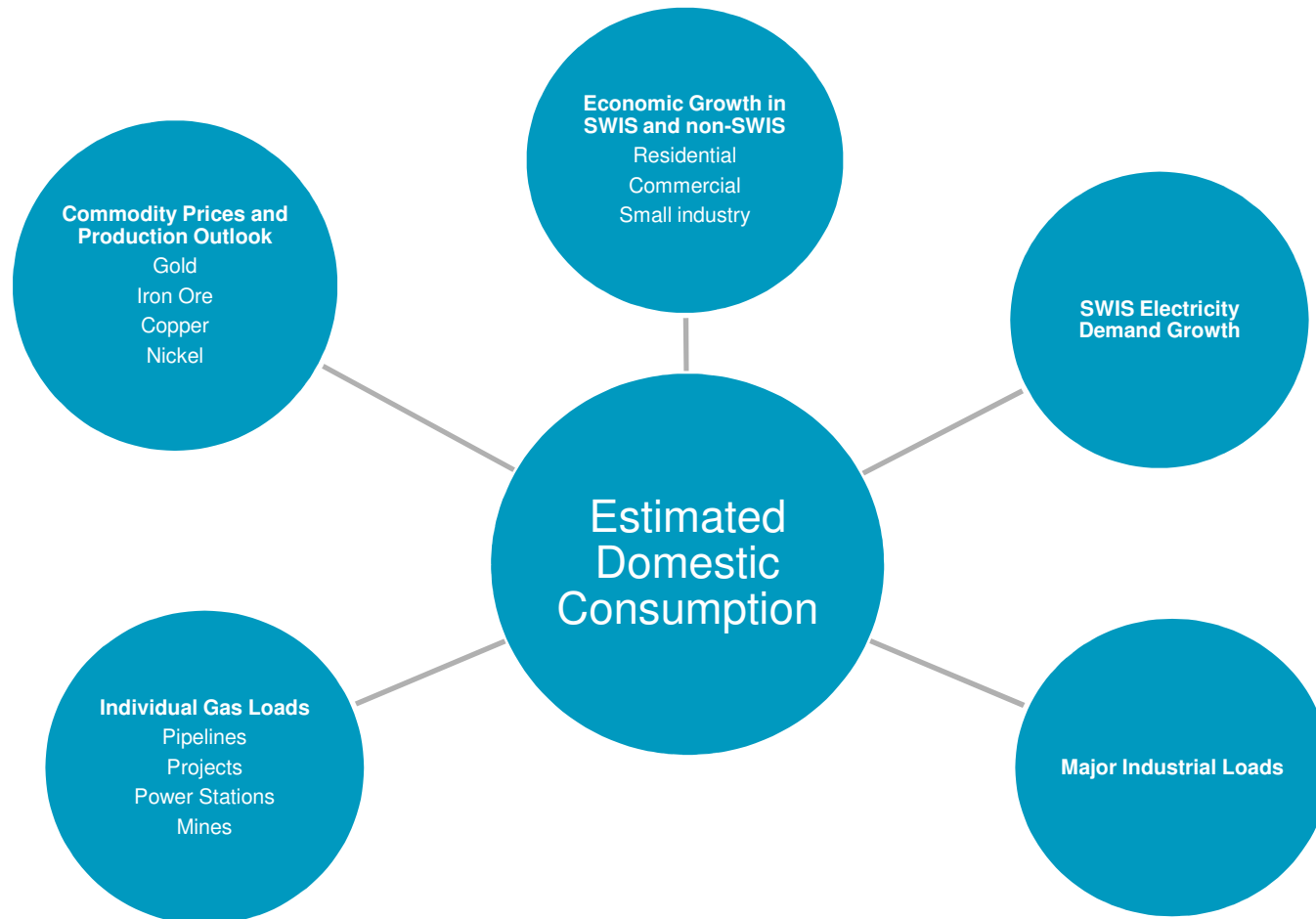
Gas Demand Projections

NIEIR's Gas Forecasting Methodology



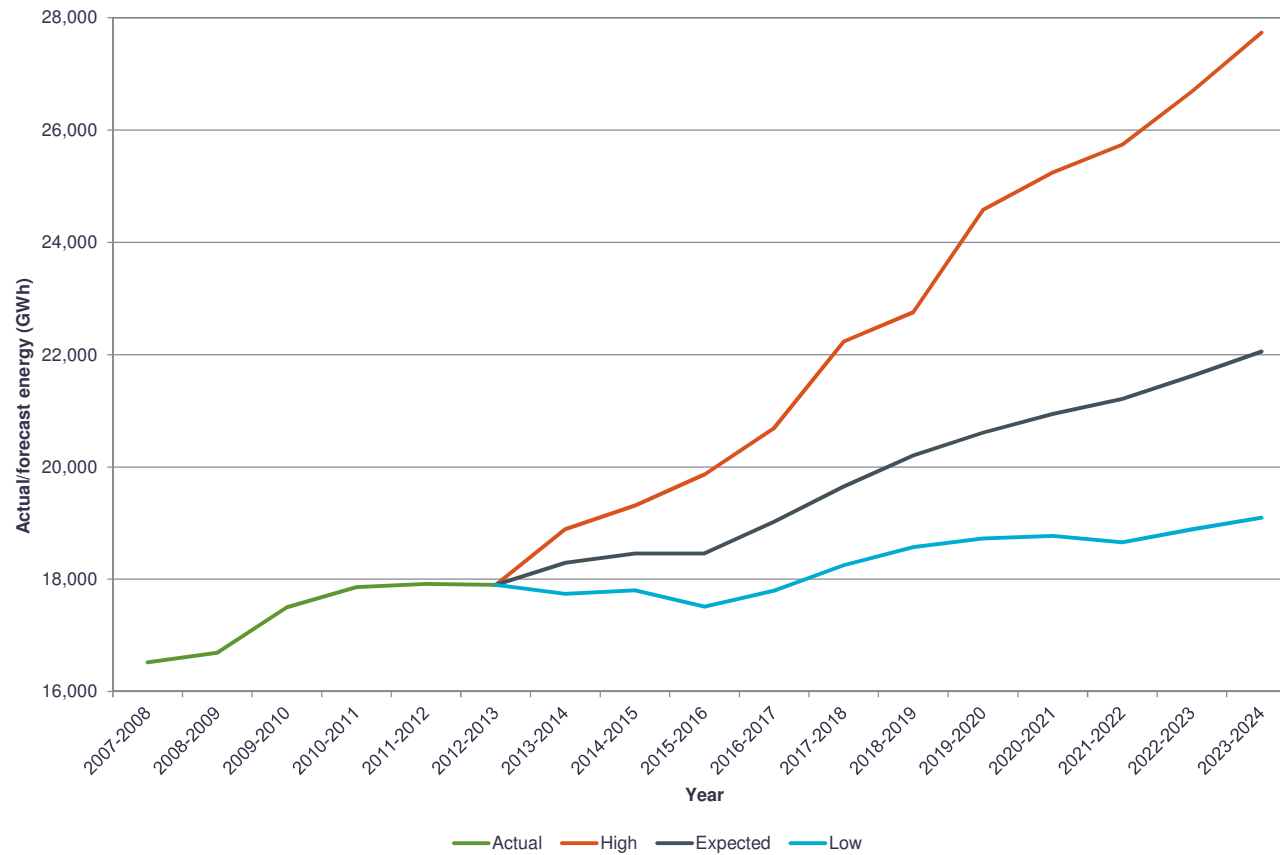
Source: IMO's GSOO

Gas Demand Projection Methodology



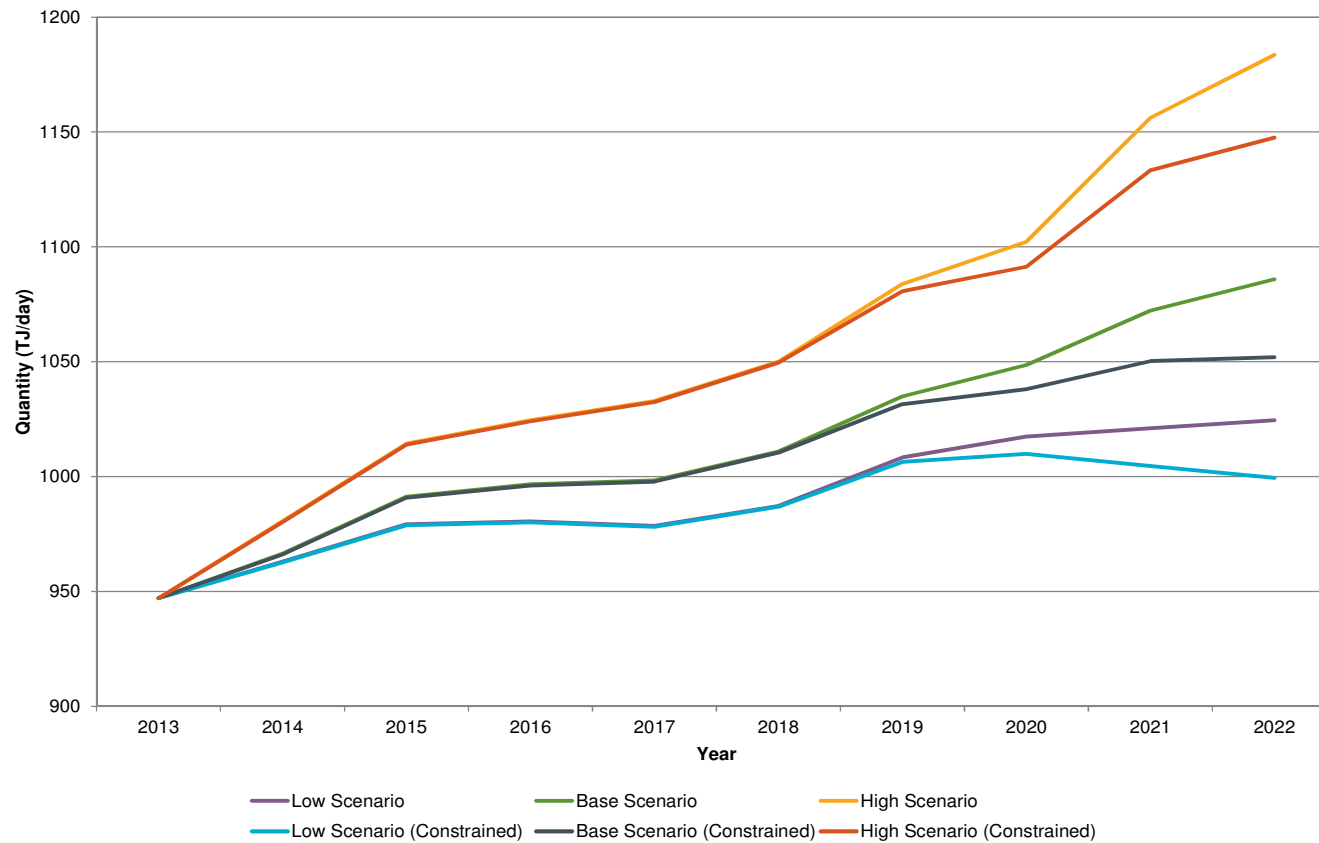
Source: IMO's GSOO

SWIS Electricity Energy Forecasts 2007-2008 to 2023-2024



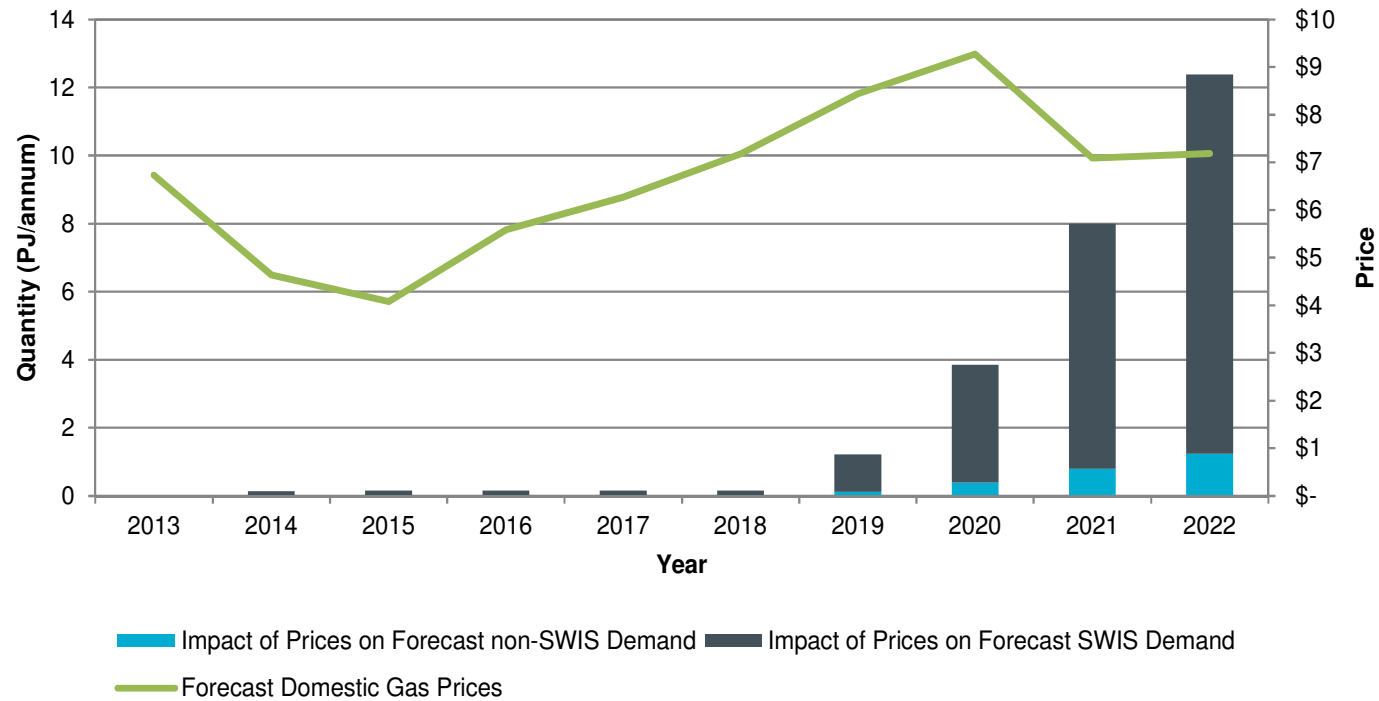
Source: NIEIR Forecasts 2013-2022

Comparison of Forecasts of Constrained Gas Demand against other Demand Forecasts, 2014 – 2023



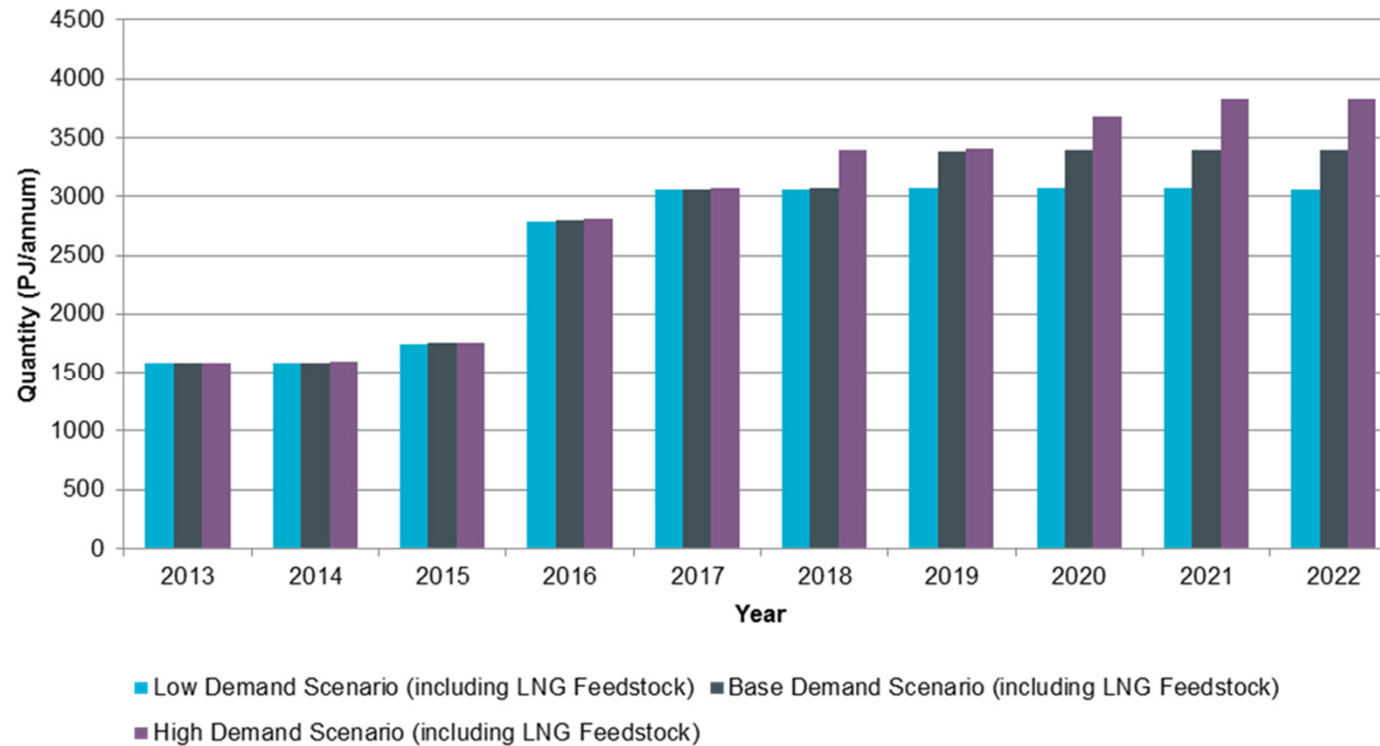
Source: NIEIR Forecasts 2013-2022

Demand suppression due to Forecast Prices on SWIS and non-SWIS Demand 2013 – 2022



Source: NIEIR Forecasts 2013-2022

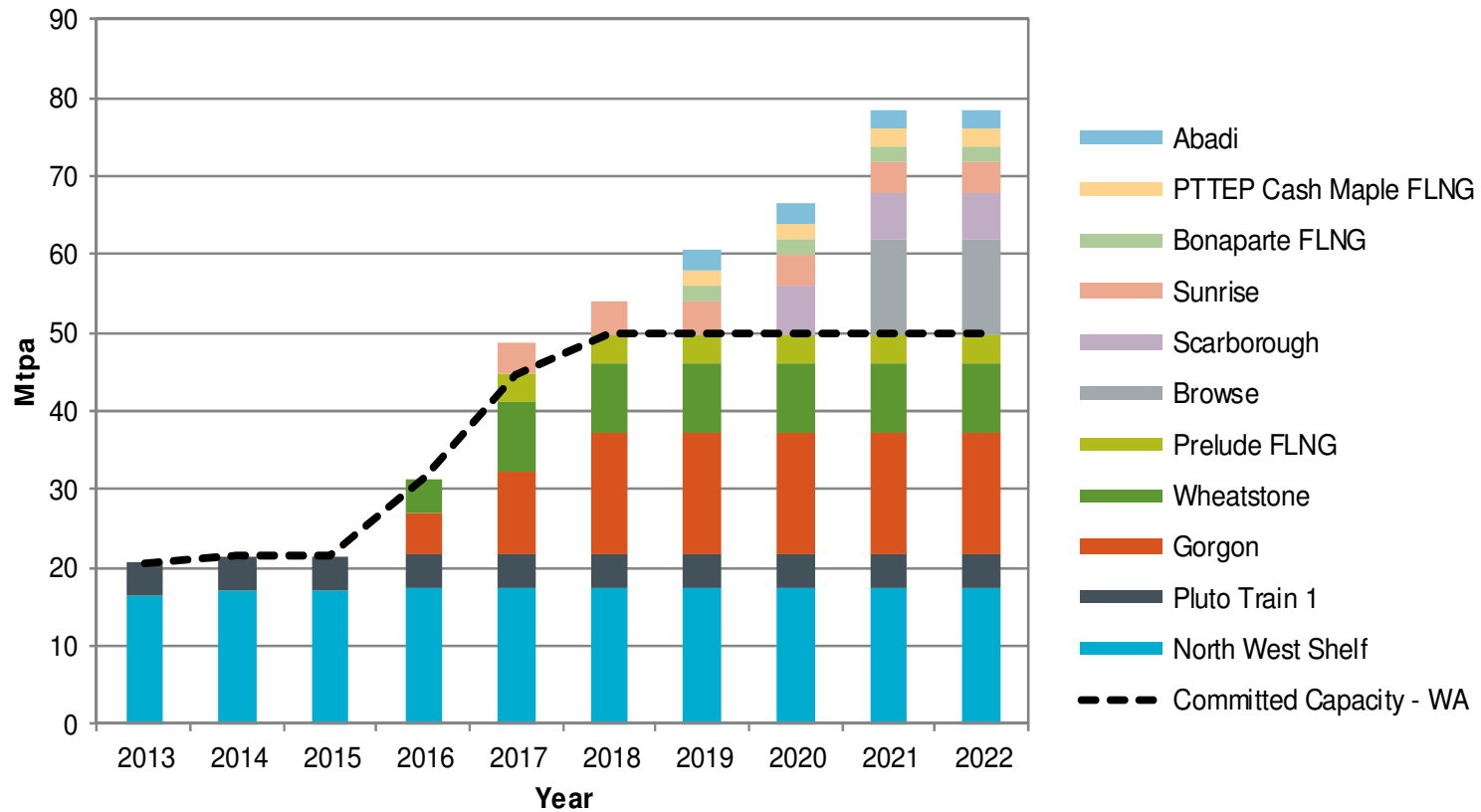
Forecasted Total Gas Demand (Domestic and LNG), 2013-2022



Source: NIEIR Forecasts 2013-2022

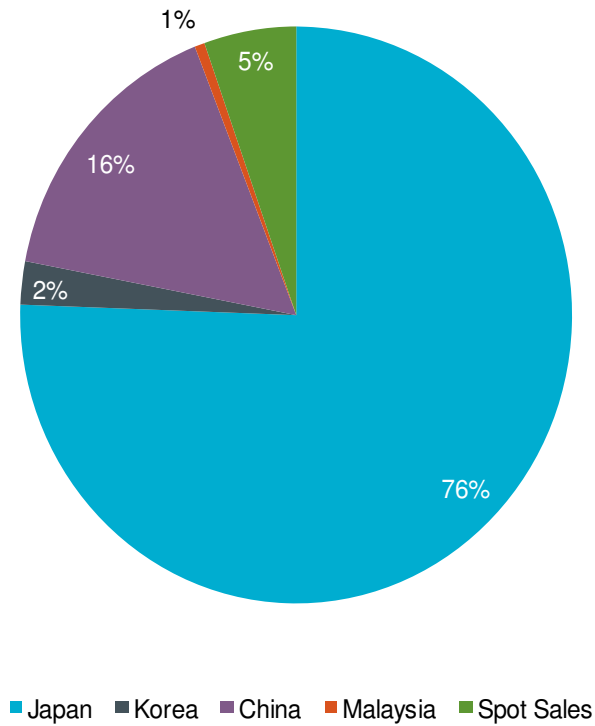
LNG Markets

Committed and Speculative LNG Capacity in WA, 2013 – 2022



Source: DSD, BREE (2013) and public announcements

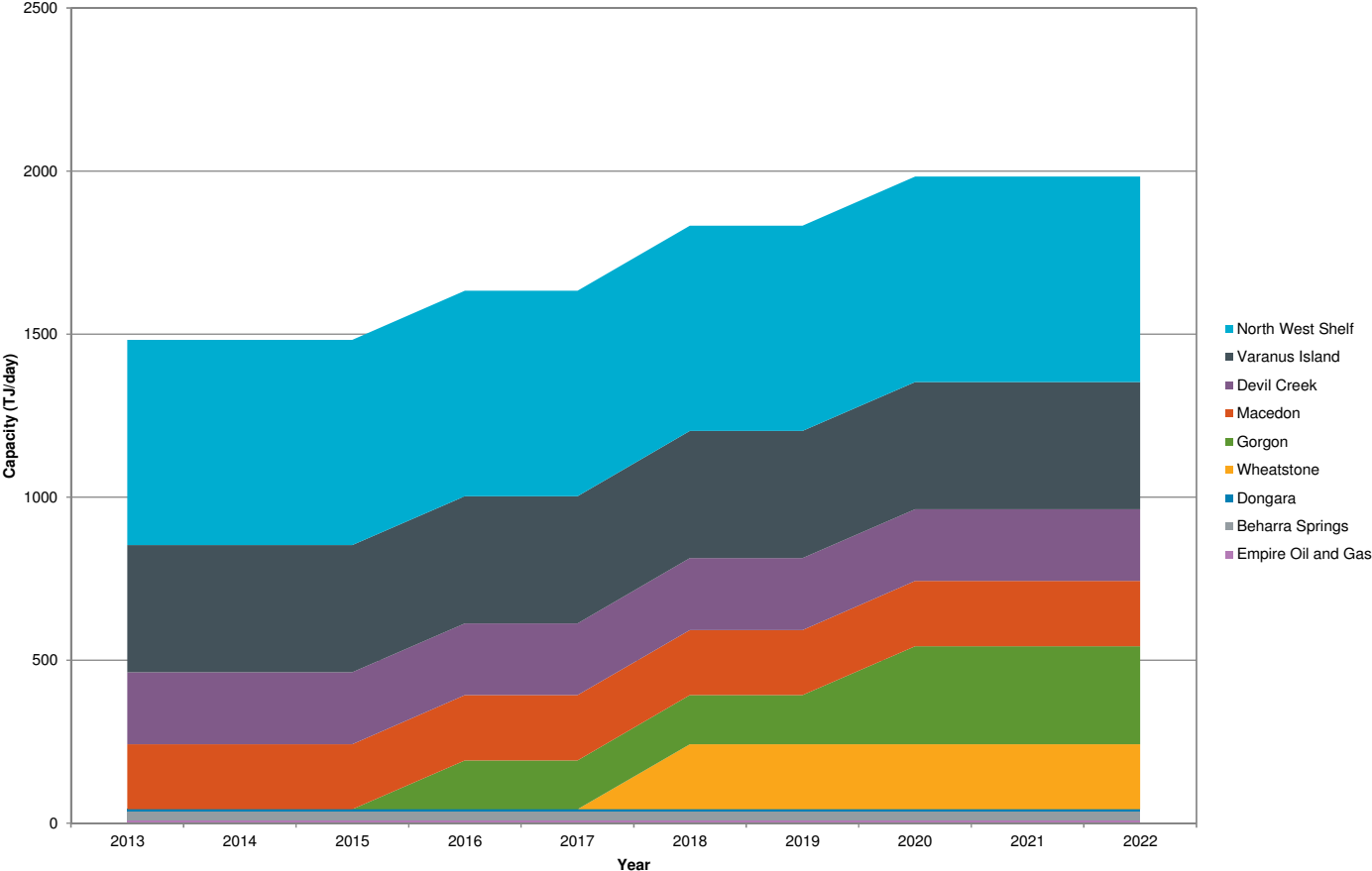
Estimates of WA LNG Exports by Country, 2012



Source: IMO Estimates

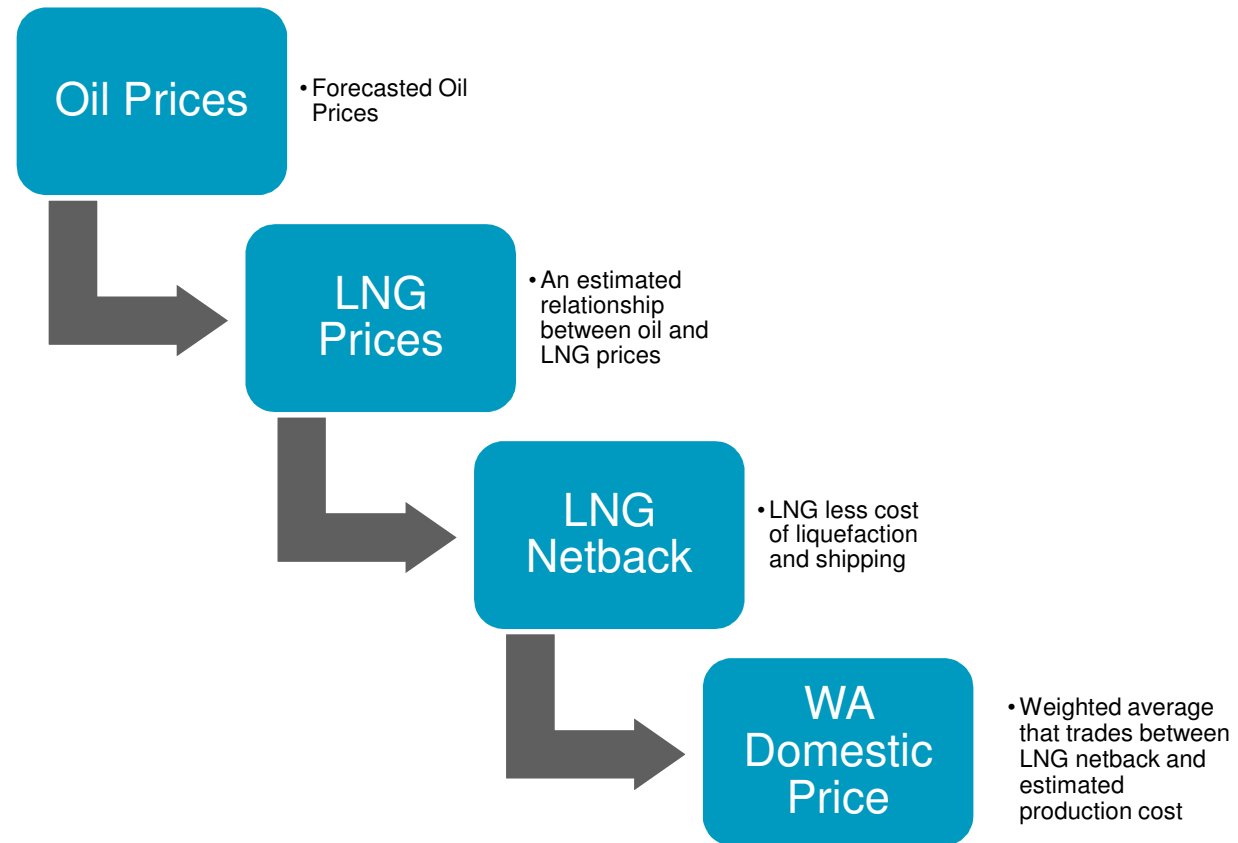
Gas Supply Projections

Estimated Gas Processing Capacity of the WA Domestic Gas Market, 2013 – 2022

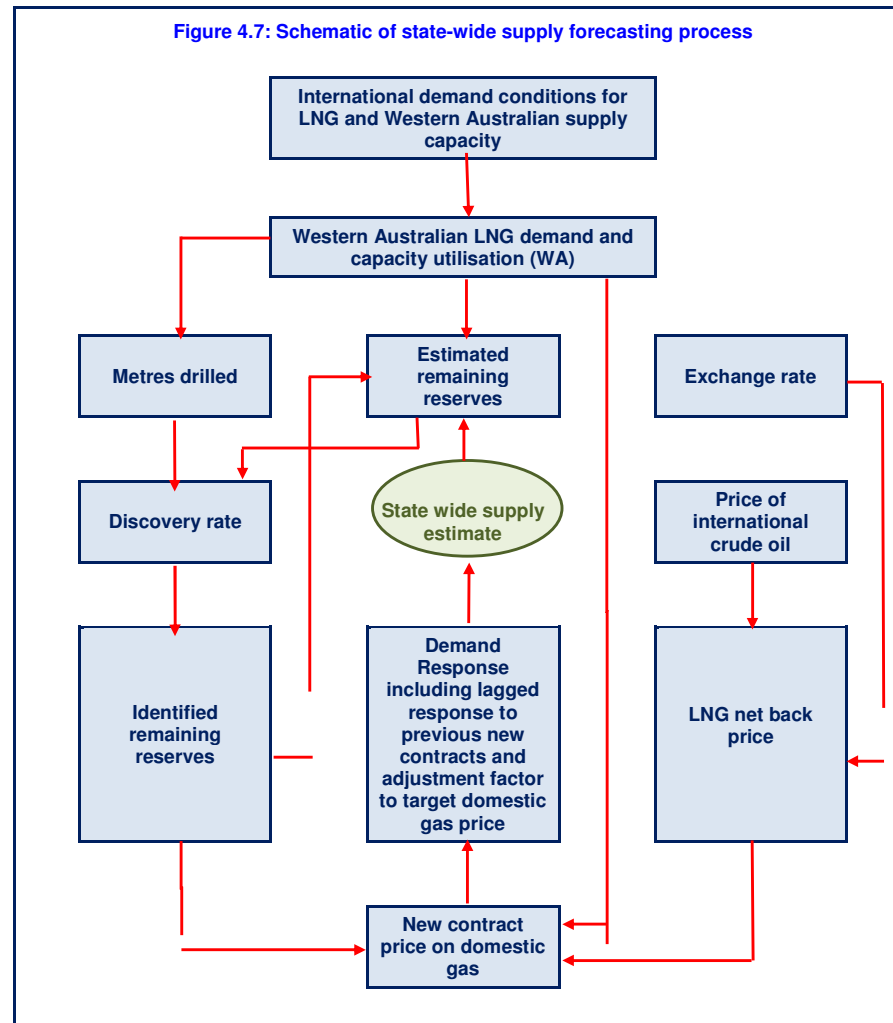


Source: IMO and respective corporate websites

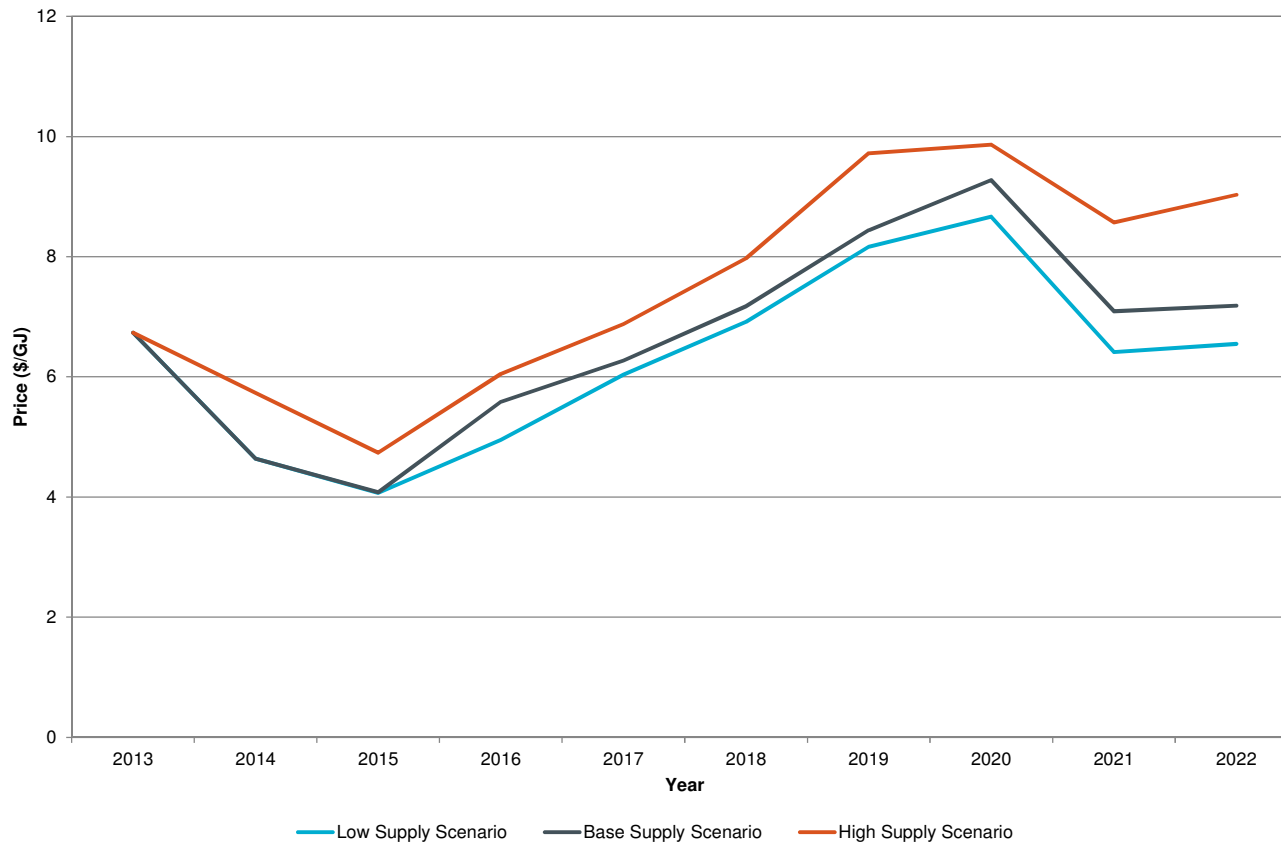
Gas Supply Price Modelling



Gas Supply Modelling

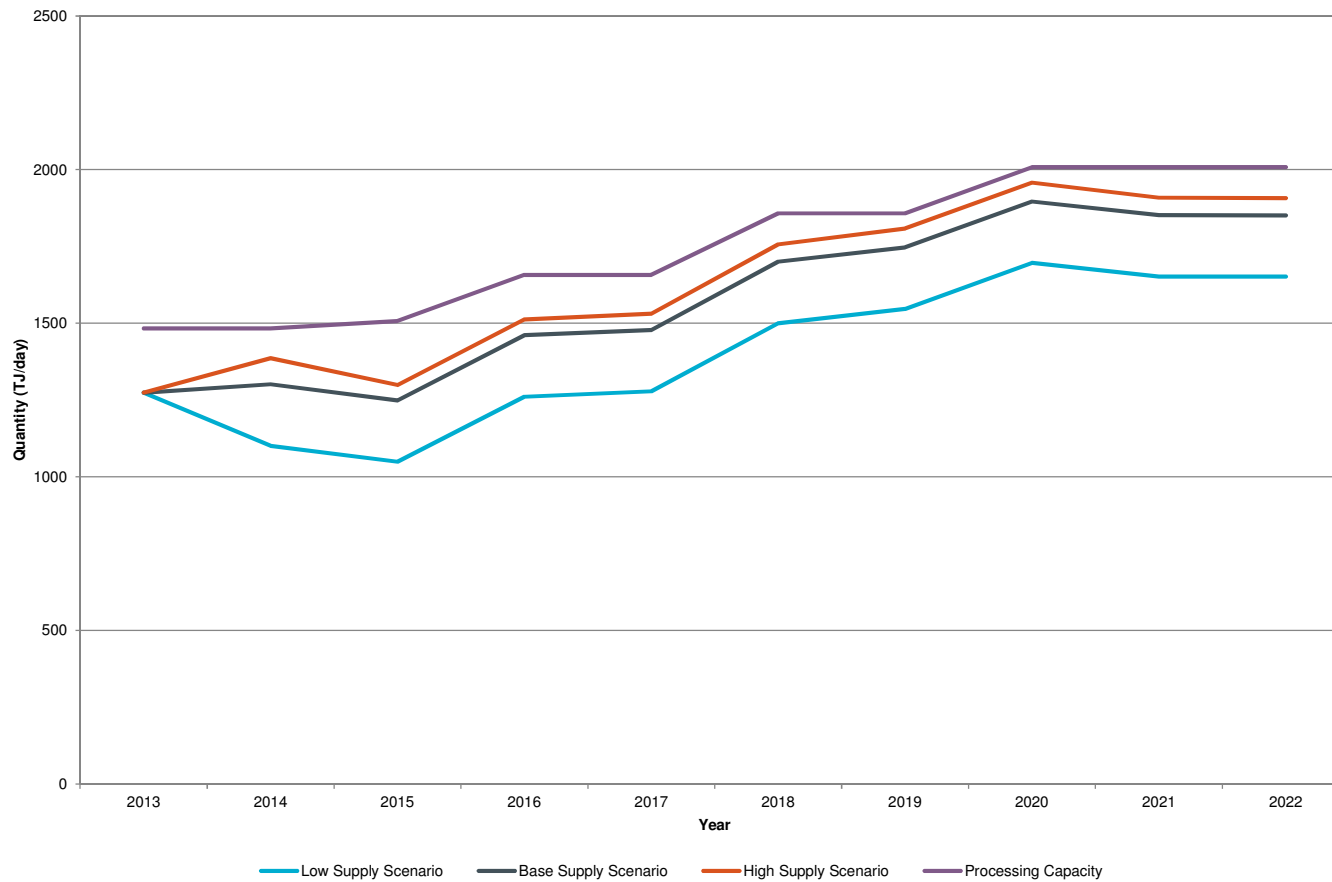


Forecast Gas Prices for Domestic Market, 2013 – 2022



Source: NIEIR's Forecasts 2013-2022.

Potential Domestic Supply Forecasts, 2013 – 2022



Source: NIEIR's Forecasts 2013-2022.

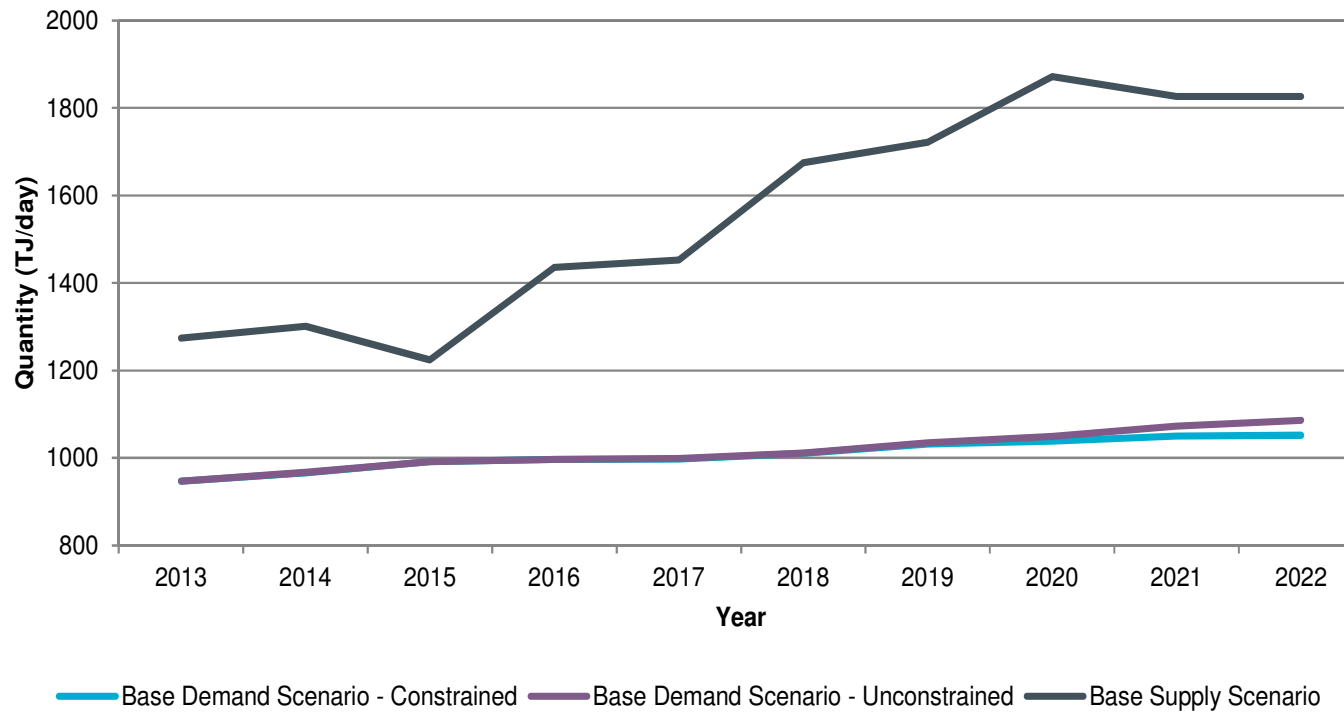
Estimated Remaining Years based on Production for Western Australia, 2012 and 2022

Reserves	McKelvey's Economic and Sub-Economic Reserves + EIA (2013) Shale Reserves (PJ)	2011-2012 Production (PJ)	Remaining Years beyond 2012 (based on 2012 production)	Forecasted 2022 Total Gas Demand (PJ)	Remaining Years beyond 2022 (based on 2022 Forecasts)
	443,080*	1,458	304	3,395	131

Source: IMO Estimates.

Gas Supply and Demand Assessment

Comparison of Forecast Base Demand and Base Supply Scenarios, 2013 – 2022



Source: NIEIR's Forecasts 2013-2022.

What next ?

- Canvassing views/improvements from stakeholders for 2nd GSOO
- Revising of GDP/GSP forecasts for the 2014-2023 – underway
- IMO requesting gas flow data from pipeline companies and GBB for modelling early October
- 1st pass forecasts early November – checked/reviewed
- Publication of GSOO – 31 December 2013

Questions ?

imo

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