



CHAPTER 4. NEW SOUTH WALES FORECASTS

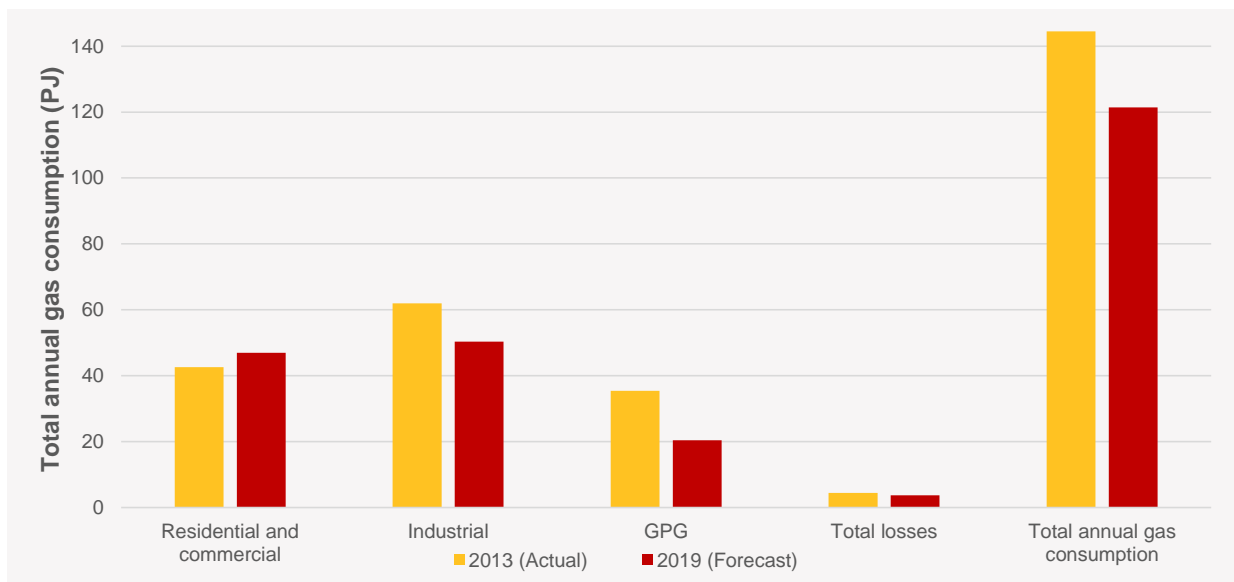
This chapter focuses on the medium scenario short-term forecast. A comparison of the high and low scenario short-term forecast is summarised in Table 24.

4.1 Key findings

Key short-term (2014-19) findings for New South Wales are:

- Total gas consumption is forecast to decrease at an average annual rate of 1.8%.
- Residential and commercial consumption is forecast to increase at an average annual rate of 1.4%, driven by new gas connections despite average use per connection continuing to decline.
- Industrial gas consumption is forecast to decrease at an average annual rate of 2.6%, driven by industrial closures.
- GPG consumption is forecast to decline at an average annual rate of 6.2%, driven by rising gas prices that reduce competitiveness of GPG plant in the NEM.

Figure 10 Comparison of 2013 (actual) and 2019 (forecast) annual gas consumption





4.2 Annual consumption

Historically, from 2010 to 2013, gas consumption declined from 147.0 PJ to 144.5 PJ. This average annual decline of 0.6% is mainly driven by closures of industrial customers.

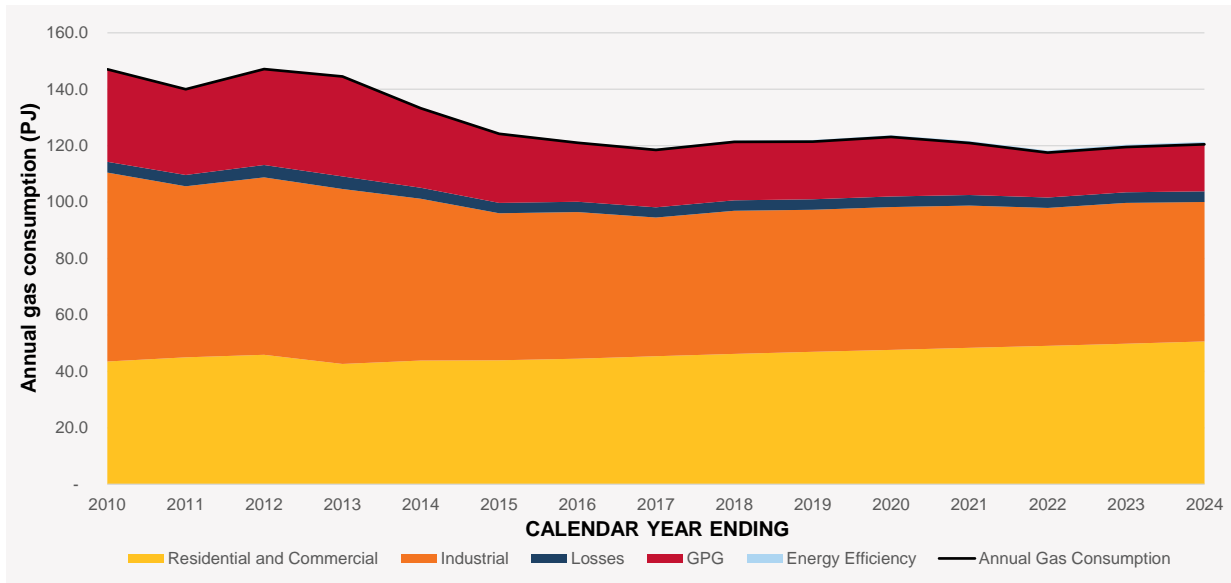
Annual consumption includes total losses from transmission and distribution networks. Refer to Appendix A for further details.

Table 19 presents the annual consumption trends and drivers over the short, medium, and long term.

Table 19 Total annual gas consumption over the short, medium, and long term

Timeframe	Forecast (PJ)	Average annual growth	Drivers
Short term (2014-19)	133.2 to 121.4	1.8% decrease	Decline in industrial consumption linked to the closure of several large industrial consumers, including the Caltex Kurnell ¹⁸ refinery and Alcoa Yennora ¹⁹ rolling mills. Decline in GPG consumption corresponds with increasing gas prices, and the modelled entry of new renewable wind generation in the NEM.
Medium term (2019-24)	121.4 to 120.4	0.2% decrease	Decline in GPG consumption reflecting the modelled retirement of existing GPG plants.
Long term (2024-34)	120.4 to 133.3	1.0% increase	Increase in GPG and residential and commercial consumption.

Figure 11 Annual consumption forecast segments for New South Wales



¹⁸ Source: <http://www.caltex.com.au/CommunityAndEnvironment/KurnellSiteConversion/Pages/Home.aspx>. Accessed: 13 November 2014.

¹⁹ Source: <http://www.getsydney.com.au/business-and-employment-in-sydney/item/3010-alcoa-to-close-yennora-aluminum-mill-and-point-henry-smelter>. Accessed: 13 November 2014.



Differences between high, medium, and low scenario short-term forecasts, 2014-19

In the short term, the high, medium and low scenario forecasts decline at annual average rates of 0.8%, 1.8%, and 3.8% respectively. Key differentiating factors are outlined in the individual component forecast sections below.

Figure 12 Comparison of high, medium, low scenario forecasts, including LNG

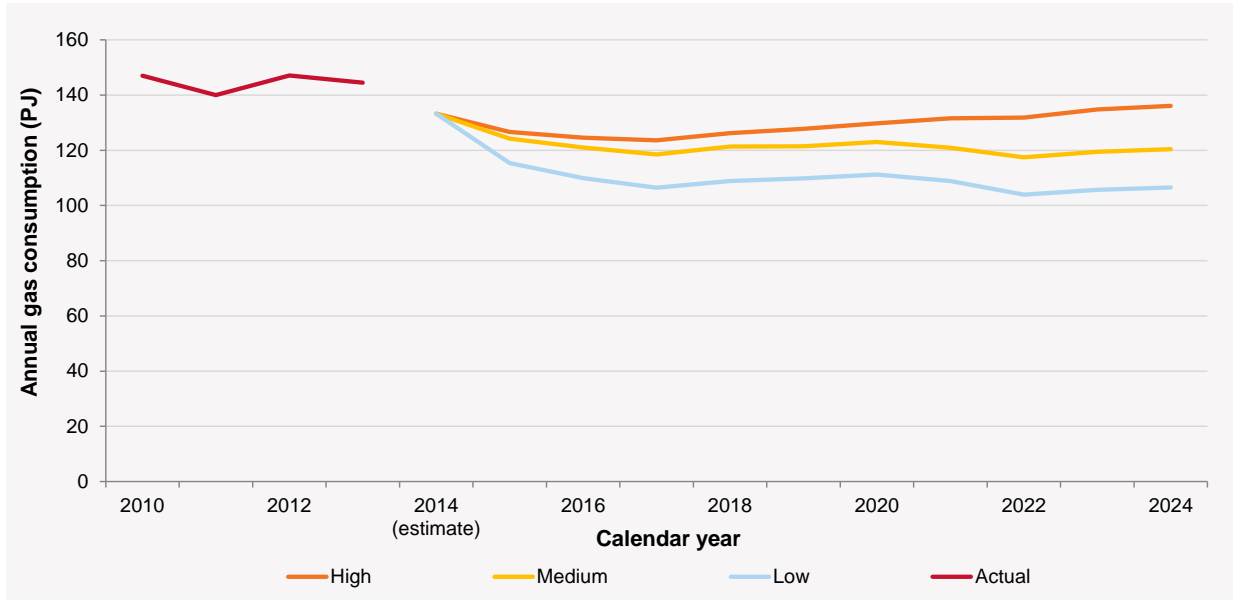


Table 20 Annual gas consumption for New South Wales (PJ)

	Actual	High	Medium	Low
2014 estimated	133.2			
2015		126.6	124.2	115.4
2016		124.5	121.0	109.9
2017		123.6	118.5	106.5
2018		126.2	121.3	108.8
2019		127.8	121.4	109.8
2020		129.8	123.0	111.3
2021		131.6	120.9	108.9
2022		131.9	117.5	103.9
2023		134.8	119.5	105.7
2024		136.1	120.4	106.5

4.2.1 Residential and commercial consumption (Tariff V)

Historically, from 2010 to 2013, New South Wales residential and commercial consumption decreased from 43.5 PJ to 42.6 PJ. This average annual decrease of 0.7% was due to weather where the 2013 winter was very warm. On a weather-corrected basis²⁰, residential and commercial consumption increased at an annual average of 1.1%. This reflects an increase in connections to the gas network. Average use per connection declined over the period, linked to rising retail gas prices and savings from federal energy efficiency programs.

Table 21 demonstrates the residential and commercial consumption trends and drivers.

²⁰ Weather correction methodology published in NGFR methodology paper.



Table 21 Residential and commercial consumption over the short, medium, and long term

Timeframe	Forecast (PJ)	Average annual growth	Drivers
Short term (2014-19)	43.8 to 46.9	1.4% increase	Growth in connections to the gas network due to new housing growth outpacing the decline in average use per connection. This is a result of increasing gas prices, increased savings from federal energy efficiency programs, and an expected warmer trend, which is significant as gas consumption is sensitive to annual weather patterns.
Medium term (2019-24)	46.9 to 50.6	1.5% increase	
Long term (2024-34)	50.6 to 57.2	1.2% increase	

Refer to Appendix B for further details on savings from federal energy efficiency programs.

4.2.2 Industrial consumption (Tariff D)

Historically, from 2010 to 2013, industrial consumption decreased from 66.9 PJ to 62.0 PJ. This average annual decrease of 2.5% is mainly driven by closures of Shell Australia’s Clyde Refinery²¹ in 2012, and Viridian’s glass plant at Ingleburn in 2013.²² Table 22 demonstrates the industrial consumption trends and drivers.

Table 22 Industrial consumption over the short, medium, and long term

Timeframe	Forecast (PJ)	Average annual growth	Drivers
Short term (2014-19)	57.3 to 50.3	2.6% decrease	Industrial closures including Caltex Kurnell ²³ refinery and Alcoa Yennora ²⁴ rolling mills. Increasing gas prices are forecast to reduce gas consumption by small-to-medium industrial customers.
Medium term (2019-24)	50.3 to 49.4	0.4% decrease	
Long term (2024-34)	49.4 to 47.4	0.4% decrease	

4.2.3 Gas-powered generation

Historically, from 2010 to 2013, GPG gas consumption increased from 32.8 PJ to 35.4 PJ; an average annual increase of 2.6%. Table 23 demonstrates the trend and drivers in GPG gas consumption.

Table 23 GPG gas consumption over the short, medium, and long term

Timeframe	Forecast (PJ)	Average annual growth	Drivers
Short term (2014-19)	28.2 to 20.4	6.2% decrease	Rising forecast gas prices reducing the competitiveness of GPG plant in the NEM.
Medium term (2019-24)	20.4 to 16.6	4.1% decrease	Rising forecast gas prices, combined with the modelled retirement of some GPG plants.
Long term (2024-34)	16.6 to 24.7	4.0% increase	Long-term growth in electricity consumption.

²¹ Source: <http://www.abc.net.au/news/2012-06-07/shell-to-close-clyde-oil-refinery/4058560>. Accessed: 13 November 2014.

²² Source: <http://www.dailytelegraph.com.au/newslocal/macarthur/viridian-glass-factory-closure-at-ingleburn-to-cost-150-jobs/story-fngr8h70-1226602604827>. Accessed: 13 November 2014.

²³ Source: <http://www.caltex.com.au/CommunityAndEnvironment/KurnellSiteConversion/Pages/Home.aspx>. Accessed: 13 November 2014

²⁴ Source: <http://www.getsydney.com.au/business-and-employment-in-sydney/item/3010-alcoa-to-close-yennora-aluminum-mill-and-point-henry-smelter>. Accessed: 13 November 2014.



4.2.4 Summary of high, medium, and low scenario trends and drivers in the short-term (2014-19)

Table 24 High, medium, and low drivers for New South Wales (PJ)

Forecast component	Scenario	Forecast (PJ)	Average annual growth	Key drivers
Residential and commercial	Medium	43.8 to 46.9	1.4% increase	Growth in new connections, outpacing reductions in average use per connection.
	High	43.8 to 48.2	1.9% increase	Lower retail gas prices, a higher rate of new connections (due to higher population growth) and no additional federal energy efficiency savings beyond current programs.
	Low	43.8 to 44.6	0.4% increase	Higher retail gas prices, fewer new customers (due to lower population growth) and more federal energy efficiency savings.
Industrial	Medium	57.3 to 50.3	2.6% decrease	Industrial closures including the Caltex Kurnell refinery and Alcoa Yennora rolling mills in 2014.
	High	57.3 to 55.4	0.7% decrease	More optimistic operating forecasts due to favourable economic conditions such as higher GDP growth and higher commodity prices, lower gas prices and lower exchange rates.
	Low	57.3 to 43.5	5.4% decrease	Reduced production forecasts due to less favourable economic conditions, lower GDP growth, lower commodity prices, higher gas prices and higher exchange rates. AEMO adopted a probabilistic approach to reflect the reduced production or closure of aluminium smelters in response to less favourable economic conditions.
Gas-powered generation	Medium	28.2 to 20.4	6.2% decrease	Rising forecast gas prices reducing the competitiveness of GPG plant in the NEM.
	High	28.2 to 20.2	6.4% decrease	Higher electricity consumption and lower gas prices resulting in higher GPG gas consumption.
	Low	28.2 to 18.3	8.3% decrease	Reduced electricity consumption and higher gas prices resulting in lower GPG gas consumption.



4.3 Winter MD

MD in New South Wales occurs in winter and is primarily driven by residential and commercial demand. The 2013 winter MD was 579.7 TJ on 20 August 2013. Summer MD forecasts and growth rates are published in the 2014 NGFR datasheets.²⁵

Table 25 presents the drivers for the summer MD over the short, medium, and long term.

Table 25 Summer MD, 1-in-20 forecast

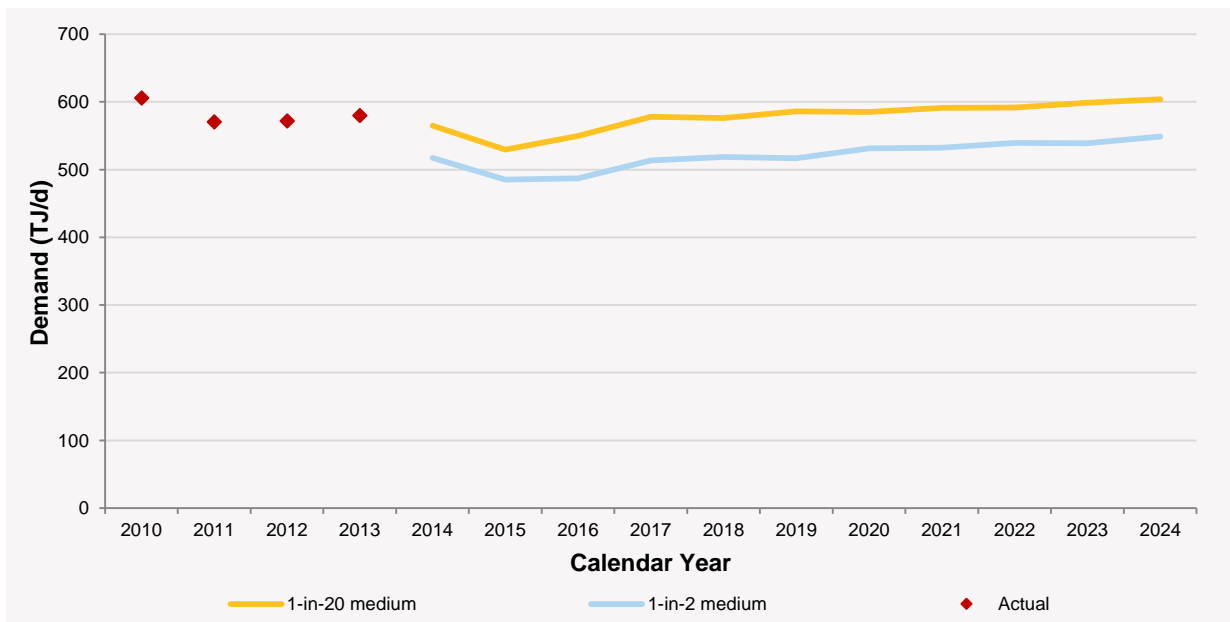
Timeframe	Forecast (TJ/d)	Average annual growth	Drivers
Short term (2014-19)	565.0 to 585.9	0.7% increase	Increase in GPG MD due to higher reliance on GPG plants in the NEM as NSW electricity winter MD grows during this period.
Medium term (2019-24)	585.9 to 603.9	0.6% increase	
Long term (2024-34)	603.9 to 668.7	1.0% increase	

Differences between high, medium, and low scenario short-term forecasts, 2014-19

The high and medium short-term forecasts increase by annual average rates of 0.8% and 0.7% respectively, while the low short-term forecast decreases by an annual average rate of 0.1%. Key drivers behind the differences from the medium scenario are:

- In the high scenario, faster growth in electricity MD results in greater reliance on GPG plant in the NEM. This is in conjunction with a more optimistic industrial forecasts in response to favourable economic conditions.
- In the low scenario, GPG MD is increasing, but at a slower rate due to reduced reliance on GPG plant in the NEM. This growth is offset by reduced industrial production in response to less favourable economic conditions, and gas and commodity price assumptions.

Figure 13 Winter 1-in-2 and 1-in-20 year event MD forecasts for New South Wales



²⁵ Available at <http://aemo.com.au/Gas/Planning/Forecasting/National-Gas-Forecasting-Report>. To be published 17 December 2014



Table 26 Winter 1-in-2 and 1-in-20 year event MD for New South Wales (TJ/d)

	Actual	High		Medium		Low	
		1-in-2	1-in-20	1-in-2	1-in-20	1-in-2	1-in-20
2013	579.7						
2014		517.3	565.0	517.3	565.0	517.3	565.0
2015		498.9	543.6	485.0	529.6	452.4	495.0
2016		515.8	565.7	487.2	549.8	439.9	475.4
2017		525.2	580.2	513.6	577.9	466.2	518.0
2018		526.9	587.7	518.8	576.2	489.1	553.5
2019		528.0	587.0	516.9	585.9	503.0	562.9
2020		554.9	606.3	531.2	585.1	530.0	585.4
2021		565.2	619.9	532.3	591.0	519.5	574.7
2022		582.1	625.4	539.3	591.7	508.6	578.2
2023		584.5	639.4	539.1	598.8	514.9	582.3
2024		591.1	643.4	548.6	603.9	520.5	586.4