



CHAPTER 5. SOUTH AUSTRALIAN FORECASTS

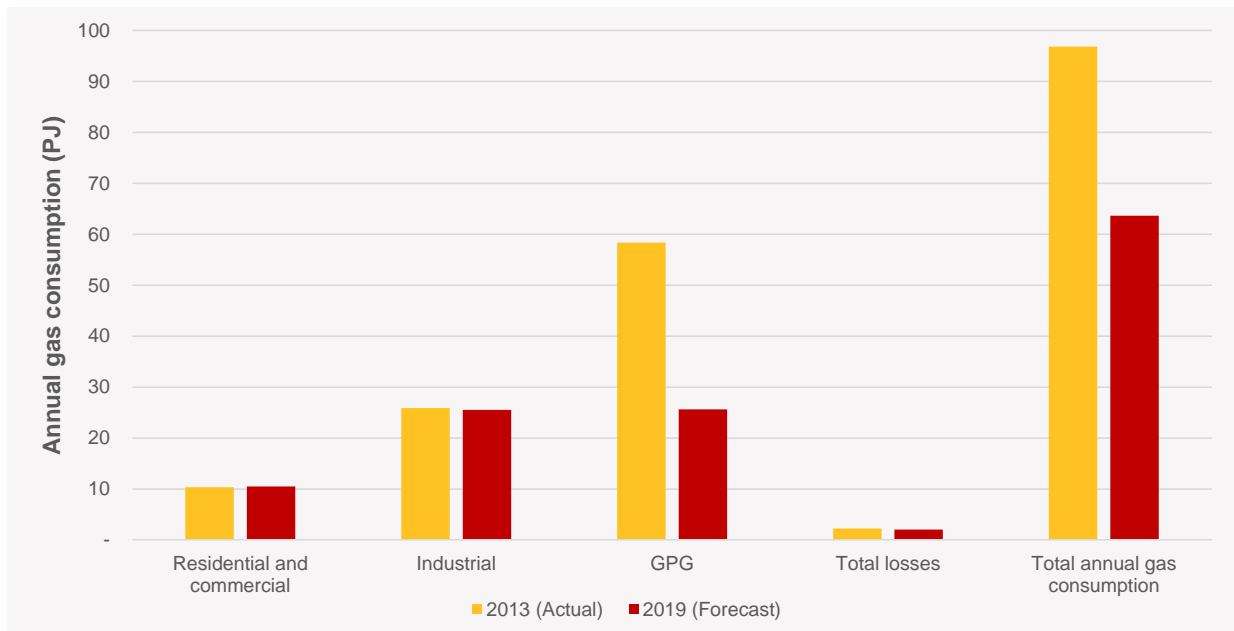
This chapter focuses on the medium scenario short-term forecast. A comparison of the high and low scenario short-term forecast is summarised in Table 32.

5.1 Key findings

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

- Total gas consumption is forecast to decrease at an average annual rate of 5.7%.
- Residential and commercial consumption is forecast to increase at an average annual rate of 0.5%, driven by new connections despite average use per connection continuing to decline.
- Industrial gas consumption is forecast to decrease at an average annual rate of less than 0.1%, driven by manufacturing closures, despite modest plant expansions.
- GPG is forecast to decrease at an average annual rate of 11.5%, driven by rising gas prices that reduce GPG competitiveness in the NEM.

Figure 14 Comparison of 2013 (actual) and 2019 (forecast) annual gas consumption





5.2 Annual consumption

Historically, from 2010 to 2013, gas consumption declined from 107.7 PJ to 96.8 PJ. This average annual decline of 3.5% is mainly driven by reduced GPG gas consumption.

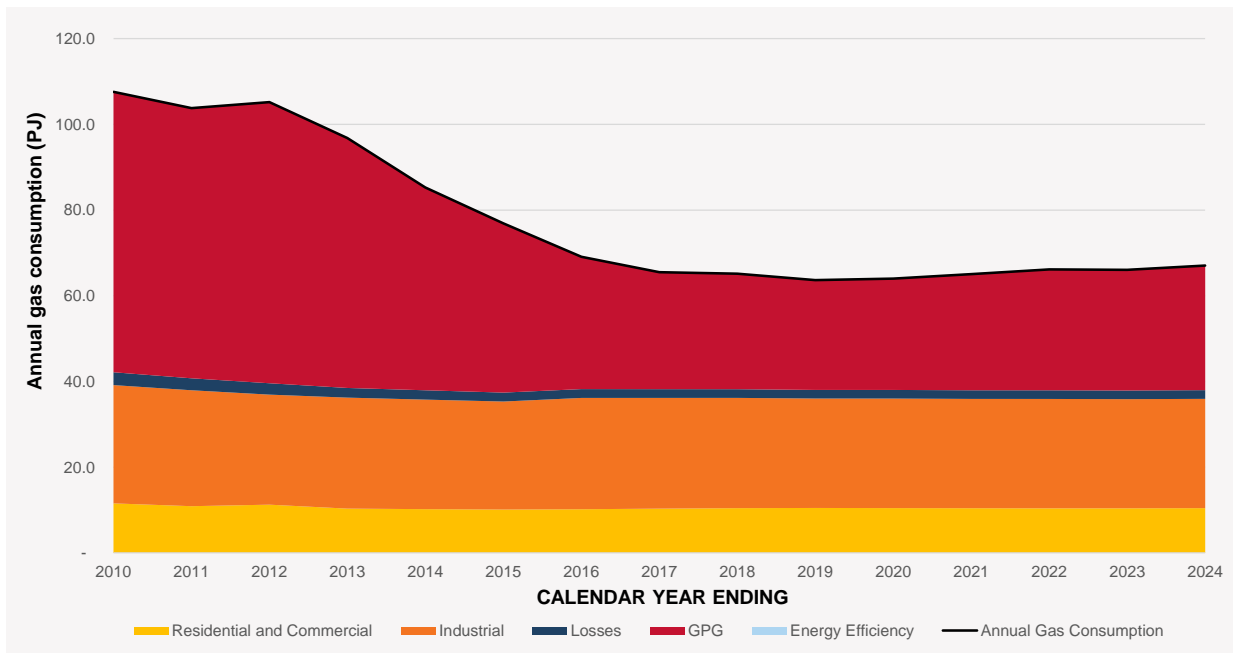
Annual consumption includes total losses from transmission and distribution networks. Refer to Appendix A for further details.

Table 27 presents the annual consumption trends and drivers over the short, medium, and long term.

Table 27 Total annual gas consumption over the short, medium, and long term

Timeframe	Forecast (PJ)	Average annual growth	Drivers
Short term (2014-19)	85.2 to 63.7	5.7% decrease	Reduced GPG consumption in the NEM due to rising gas prices.
Medium term (2019-24)	63.7 to 67.0	1.0% increase	Increased GPG consumption due to the modelled retirement of existing coal-fired power stations, making GPG more competitive in the NEM.
Long term (2024-34)	67.0 to 82.5	2.1% increase	Increased GPG due to retirement of existing coal-fired power stations and modelled new GPG plants in 2030. Increase in residential and commercial consumption also contributes.

Figure 15 Annual consumption forecast segments for South Australia





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

The high, medium, and low short-term forecasts decline at average annual rates of 5.6%, 5.7%, and 8.6% respectively. The reversed order between the high and medium scenarios is primarily driven by competing scenario drivers for GPG consumption. Key differentiating factors are outlined in the individual component forecast sections.

Figure 16 High, medium, low comparison

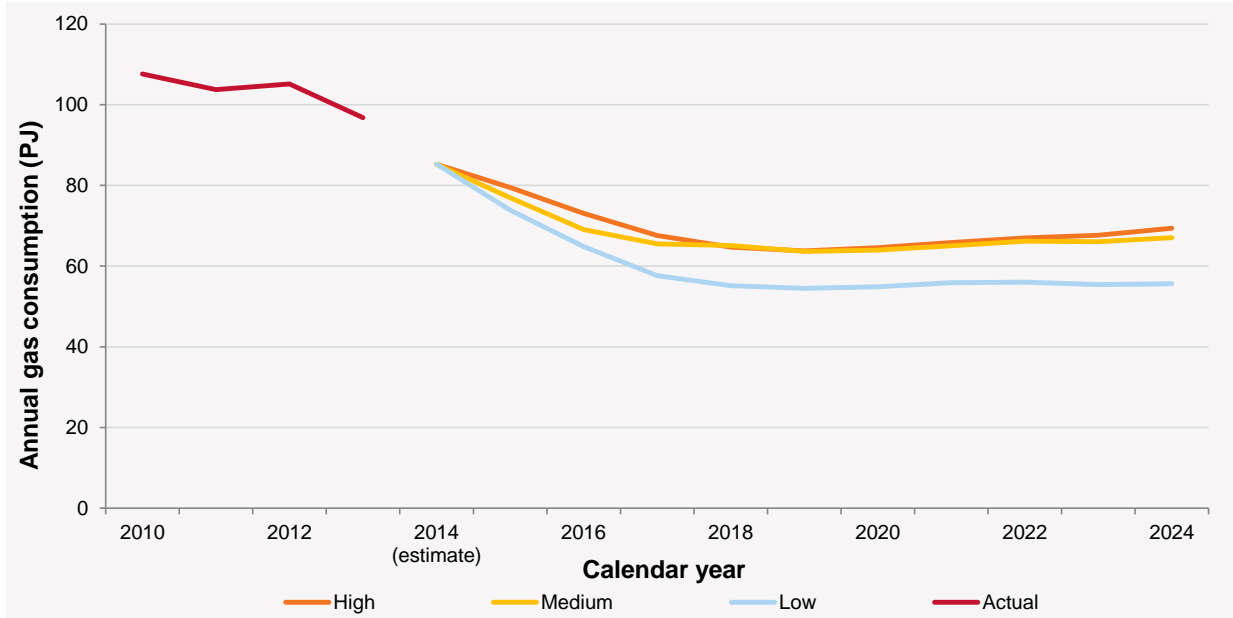


Table 28 Annual gas consumption for South Australia (PJ)

	Actual	High	Medium	Low
2014 estimate	85.2			
2015		79.5	76.9	73.9
2016		73.1	69.1	64.8
2017		67.6	65.5	57.6
2018		64.7	65.1	55.2
2019		63.7	63.7	54.5
2020		64.6	64.0	54.9
2021		65.8	65.1	55.9
2022		67.0	66.2	56.0
2023		67.7	66.0	55.4
2024		69.4	67.0	55.6



5.2.1 Residential and commercial consumption (Tariff V)

Historically, from 2010 to 2013, residential and commercial consumption decreased from 11.6 PJ to 10.3 PJ. This average annual decrease of 3.7% is primarily due to weather; the 2013 winter was very warm (15% below the 10-year average heating degree days) and 2010 was colder than average. On a weather-corrected basis, the average annual decrease becomes 0.4%. This decrease is due to declining average use per connection, attributable largely to rising gas prices and federal energy efficiency savings.

Table 29 demonstrates the residential and commercial consumption trends and drivers over the short, medium, and long term.

Table 29 Residential and commercial consumption over the short, medium, and long term

Timeframe	Forecast (PJ)	Average annual growth	Drivers
Short term (2014-19)	10.2 to 10.5	0.5% increase	Growth in customer connections, outpacing a decline in average use per customer. This decline is due to a combination of increasing gas price and federal energy efficiency savings.
Medium term (2019-24)	10.5 to 10.46	0.1% decrease	Faster decline in average use per customer becomes the dominant driver, as forecast gas prices rise. Increased savings from federal energy efficiency programs also contributes to declining average usage.
Long term (2024-34)	10.5 to 11.1	0.6% increase	Growth in customer connections, outpacing the decline in average use per customer.

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

5.2.2 Industrial consumption (Tariff D)

Historically, from 2010 to 2013, industrial consumption decreased from 27.6 PJ to 25.9 PJ. This average annual decrease of 2.1% was mainly driven by reduced production by large industrial customers due to economic conditions such as increasing competition.

Table 30 demonstrates the industrial consumption drivers over the short, medium, and long term.

Table 30 Industrial consumption over the short, medium, and long term

Timeframe	Forecast (PJ)	Average annual growth	Drivers
Short term (2014-19)	25.6 to 25.5	<0.1% decrease	Driven by closure of manufacturing plant, despite modest industrial plant expansion.
Medium term (2019-24)	25.53 to 25.50	<0.1% decrease	Small-to-medium industrial load customers reducing their consumption due to higher gas prices. This is offset by some increases in plant inefficiencies.
Long term (2024-34)	25.5 to 25.3	<0.1% decrease	Continued decline in gas consumption from the small to medium industrial customers due to gas price increases as well as plant efficiency improvements in the large industrial customers.



5.2.3 Gas-powered generation

Historically, from 2010 to 2013, GPG gas consumption decreased from 65.4 PJ to 58.3 PJ. This average annual decrease of 3.8% was driven by increased rooftop PV uptake, and commissioning of new wind farms which have reduced the dispatch of GPG plant in the NEM.

Table 31 demonstrates the GPG gas consumption trends and drivers.

Table 31 GPG consumption over the short, medium, and long term

Timeframe	Forecast (PJ)	Average annual growth	Drivers
Short term (2014-19)	47.3 to 25.6	11.5% decrease	Rising forecast gas prices which reduces the competitiveness of GPG plant in the NEM. This includes the withdrawal of a Torrens island GPG plant from 2017.
Medium term (2019-24)	25.6 to 29.1	2.5% increase	Increased GPG gas consumption due to electricity consumption growth in Victoria and modelled retirement of coal-fired power stations.
Long term (2024-34)	29.1 to 43.8	4.2% increase	Modelled retirement of existing coal-fired power stations, and modelled new GPG plant in 2030. ²⁶

²⁶ Available at <http://www.aemo.com.au/Electricity/Planning/National-Transmission-Network-Development-Plan>. To be published mid-December 2014.



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

Table 32 High, medium and low drivers for South Australia (PJ)

Forecast component	Scenario	Forecast (PJ)	Average annual growth	Key drivers
Residential and commercial	Medium	10.2 to 10.5	0.5% increase	Growth in new connections, outpacing a decline in average use per connection due to combination of price increase and federal energy efficiency savings.
	High	10.2 to 10.9	1.2% increase	Lower gas prices, a higher rate of new connections (due to higher population growth) and no additional federal energy efficiency savings beyond current programs.
	Low	10.2 to 9.8	0.8% decrease	Higher gas prices causing faster decline in average use per customer, fewer new customers (due to lower population growth) and more federal energy efficiency savings.
Industrial	Medium	25.6 to 25.5	<0.1% decrease	Driven by closures of manufacturing plant, despite modest plant expansion.
	High	25.6 to 27.2	1.3% increase	More optimistic operating forecasts due to favourable economic conditions, higher GDP growth and higher commodity prices, lower gas prices and lower exchange rates, and modest plant growth.
	Low	25.6 to 22.3	2.7% decrease	Reduced production forecast due to less favourable economic conditions, such as lower GDP growth and commodity prices, and higher gas prices and higher exchange rates.
Gas-powered generation	Medium	47.3 to 25.6	11.5% decrease	Rising forecast gas prices reduces the competitiveness of GPG plant in the NEM. This decrease is offset by modelled coal-fired power station retirements.
	High	47.3 to 23.5	13.0% decrease	Higher electricity consumption, which results in less retirement of existing coal-fired power stations and additional renewable generation. This results in a faster decrease in GPG gas consumption compared to the medium scenario.
	Low	47.3 to 20.6	15.3% decrease	Higher gas prices and lower electricity consumption, offset by additional retirement of coal-fired power stations, results in a decrease in the market share of GPG plant. This leads to a faster decrease in GPG gas consumption than in the medium scenario.



5.3 Summer MD

Historically, MD in South Australia was driven by GPG demand. The 2013 summer MD was 401.6 TJ on 7 January 2013.

Despite the 2013 MD occurring in winter, MD is forecast to occur in summer in the NGFR forecasts, primarily due to reduced GPG demand in winter. The 2013 winter MD was 425.0 TJ on 18 June 2013.

Winter MD forecasts and growth rates are published in the 2014 NGFR datasheets.²⁷

Table 33 presents the summer MD drivers over the short, medium, and long term.

Table 33 Summer MD over the short, medium, and long term

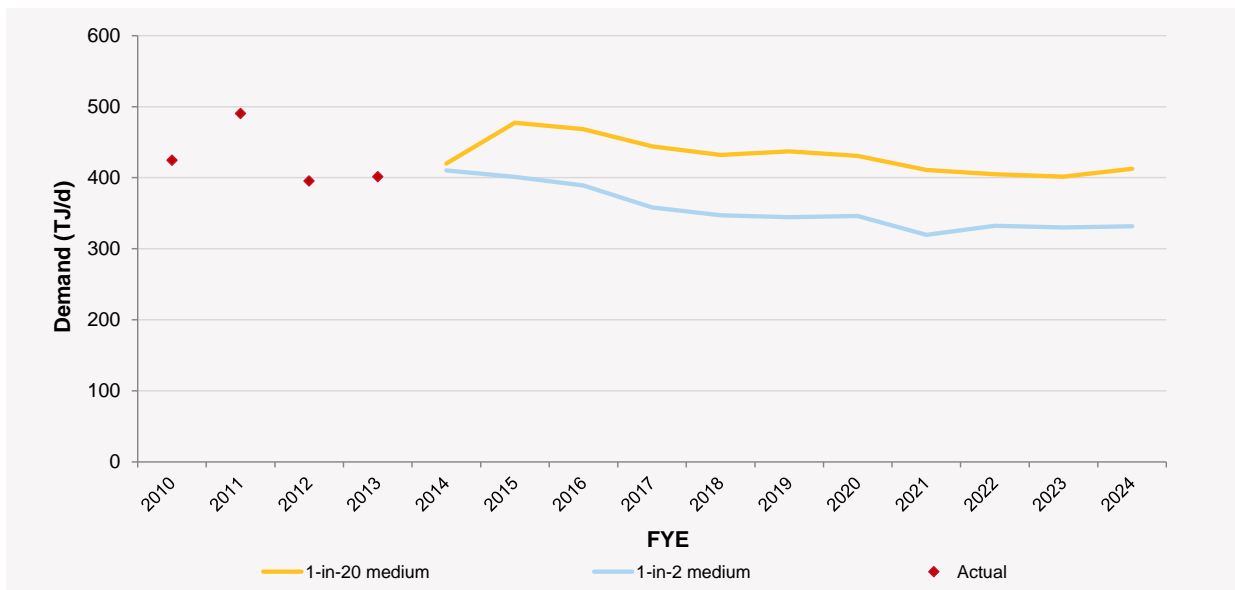
Timeframe	Forecast (TJ/d)	Average annual growth	Drivers
Short term (2014-19)	420.0 to 437.2	0.8% increase	Increasing reliance on GPG during times of electricity peak.
Medium term (2019-24)	437.2 to 412.5	1.2% decrease	Decline in electricity MD.
Long term (2024-34)	412.5 to 463.8	1.2% increase	Modelled retirements of existing brown coal, and new GPG plant are added to meet demand growth.

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

The high and medium short-term forecasts increase at annual average rates of 0.7% and 0.8% respectively. The low short-term forecast decreases at an annual average rate of 2.3%. The reversed order across the high and medium scenarios is primarily driven by competing drivers affecting GPG behaviour in the NEM. In particular:

- In the high scenario, higher electricity consumption leads to reduced coal-fired power station retirement and more investment in renewable generation. This reduces South Australia’s reliance on GPG plants during periods of high electricity demand, and results in a slower increase in GPG summer MD than in the medium scenario.
- In the low scenario, while electricity consumption is lower, it is not sufficiently low to drive more coal-fired power station retirement than the medium scenario. Instead, the combination of higher gas prices and lower electricity MD result in declining GPG summer MD.

Figure 17 Summer 1-in-2 and 1-in-20 year event MD forecasts for South Australia



²⁷ Available at <http://aemo.com.au/Gas/Planning/Forecasting/National-Gas-Forecasting-Report>. To be published 17 December 2014



Table 34 Summer 1-in-2 and 1-in-20 year event MD for South Australia (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	401.6						
2014		410.1	420.0	410.1	420.0	410.1	420.0
2015		415.1	485.9	401.0	477.3	377.5	476.7
2016		408.5	478.3	388.9	468.3	358.6	458.2
2017		389.0	468.6	358.1	444.1	308.3	426.0
2018		336.4	421.5	347.2	431.9	293.9	376.9
2019		345.1	435.9	344.5	437.2	296.6	374.8
2020		351.3	416.4	346.0	430.8	291.1	353.5
2021		338.6	398.9	319.6	410.8	277.1	350.2
2022		338.3	399.5	332.4	405.0	273.5	344.1
2023		343.5	413.9	329.9	401.6	257.1	345.5
2024		349.0	426.8	331.6	412.5	254.1	347.2