



NSW 2019–20 Gas Networks Performance Report

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Abbreviations

Abbreviation	Term
The Act	The NSW <i>Gas Supply Act 1996</i>
The Department	Department of Planning, Industry and Environment
GJ	Gigajoule
kPa	Kilopascal: pressure units
KPI	Key performance indicator
LPG	Liquefied petroleum gas
MAOP	Maximum allowable operating pressure
MJ	Megajoule
PJ	Petajoule
The Regulation	The NSW Gas Supply (Safety and Network Management) Regulation 2013
SAOP	Safety and operating plan
SNG	Simulated natural gas
TJ	Terajoule
TLPG	Tempered liquefied petroleum gas
UAFG	Unaccounted for gas (difference between gas entering and leaving the system)

Gas units of measure

A joule is the international unit for measuring energy content.

1000 joules (J) = 1 kilojoule (kJ)

1000 kilojoules = 1 megajoule (MJ)

1000 megajoules = 1 gigajoule (GJ)

1000 gigajoules = 1 terajoule (TJ)

1000 terajoules = 1 petajoule (PJ)

Note: One standard cubic metre of natural gas is approximately 38 MJ. This figure can vary as it relates to the heating value of a particular sample of gas.

Acknowledgment of Country

The Department of Planning, Industry and Environment acknowledges the Traditional Owners and Custodians of the land on which we live and work and pays respect to Elders past, present and future.

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Summary

This *NSW 2019–20 Gas Networks Performance Report* on the operations of natural gas and liquefied petroleum gas (LPG) distribution networks in New South Wales has been prepared by the Division of Energy, Climate Change and Sustainability at the Department of Planning, Industry and Environment (the Department).

These networks are regulated under the *Gas Supply Act 1996* (the Act) and the Gas Supply (Safety and Network Management) Regulation 2013 (the Regulation). This report consolidates and comments on performance data and information provided by the NSW gas network operators.

Under the Regulation, network operators are required to prepare a safety and operating plan (SAOP), which is lodged with the Department. The SAOP governs the operations. The network operator is then audited annually by an independent auditor to assess performance against the SAOP. This process has proven effective in providing safe and reliable network operations.

Many factors influence network performance including network scale, age, construction materials and operating regimes. Comparisons in performance across networks and between jurisdictions must consider the factors that differentiate the networks and influence their performance.

Key performance indicators (KPIs) have been developed by the Department to monitor and analyse the performance of the network operators against network integrity, reliability and safety parameters.

Much of the data reported is presented on an annual basis to identify trends and trajectory of performance.

Natural gas networks

The NSW network operators have demonstrated and managed the assets consistently in the areas of network integrity, reliability and safety.

The Department acknowledges that the network operators are continually looking at ways to improve their performance, in accordance with the Regulation, and the Department is working with the network operators to achieve the best possible results. It must be noted, however, that some figures in this report differ from those presented in previous reports. This is the result of the network operators revising or improving the way in which information is recorded and collated.

High-pressure pipelines (unlicensed)

Jemena Gas Networks (NSW) Ltd, Evoenergy and Australian Gas Networks (Albury) operate high-pressure unlicensed pipelines (pressure greater than 1050 kPa) as part of their natural gas networks.

Liquefied petroleum gas (LPG) networks

Due to the size and complexity of LPG networks, comparison to the natural gas network is not appropriate. The analysis of LPG network information can be viewed in Appendix A.

Overall, it would appear that the LPG networks are maintaining the safety and integrity requirements. However, due to the nature of LPG networks being small in comparison to natural gas networks, any incidents would appear significant relative to total customer numbers and the size of the network.

Note: Given the significant differences between LPG and larger natural gas networks, the Department continues to consult with LPG network operators to improve the LPG reporting regimes while taking into account the unique characteristics of the LPG networks.

Key findings

The collective state-based KPIs indicate that assets are being maintained and operated within standards.

Summary of KPIs for the 2019–20 reporting period:

- The size of the NSW gas network has increased to 28,200 kilometres. This is an increase of approximately 300 kilometres.
- The number of consumers connected to natural gas in New South Wales has risen to over 1.5 million.
- The number of new consumers has continued to grow, with this reporting period recording the third consecutive annual result of over 39,685 new connections.
- The unaccounted for gas (UAFG) figure for New South Wales remains within the 2–3% range at 2.85%.
- Consumer hours loss of supply has increased with a number of networks being isolated due to bushfires affecting areas.
- The LPG networks have reported maintaining their asset length with a small growth of connections. The assets have also continued to indicate integrity with a low UAFG of 0.41%.

The results presented in this report indicate that the network operators continue to manage and grow their assets while maintaining the integrity of the existing and new assets.

The Department reviews all annual reports and continues to consult closely with the network operators in the ongoing evaluation of the reporting requirements. This supplements the Department's immediate and periodic reviews conducted on an ongoing basis.

Introduction

This report consolidates performance information and data provided by each of the gas distribution network operators for the 2019–20 financial year in accordance with the reporting requirements outlined in the [NSW Gas Networks Performance Reporting Guidelines 2017](#).

This report:

- presents the Department's interpretation and commentary on the information and data provided by the operators and compares overall performance
- identifies areas of achievement and opportunities for improvement for the NSW gas industry as a whole.

Report structure

This report summarises data provided by the distribution network operators in accordance with the annual reporting requirements prepared by the Department and has the following structure:

- Introduction
- Network asset information
- Network integrity and safety information. This chapter also presents KPIs, derived from the data provided
- Network reliability and consumer-related matters. This chapter also presents KPIs, derived from the data provided
- High-pressure (unlicensed) pipeline activities
- Appendix A – LPG networks in New South Wales and networks' performance data
- Appendix B – Natural gas industry within New South Wales
- Appendix C – Definitions.

Limitations of this report

There are currently eight gas network operators in New South Wales. Six of these operators reticulate natural gas, while the remaining two operate distribution systems that reticulate LPG. All eight gas network operators are regulated by the Department under the *NSW Gas Supply Act 1996* (the Act). Annual reporting is conducted in accordance with the requirements of Gas Supply (Safety and Network Management) Regulation 2013 (the Regulation).

The focus of this report relates primarily to the natural gas network. The LPG distribution network operators have the same reporting requirements as the natural gas network operators, however, the analysis of this data is detailed separately (see Appendix A) due to the small size and complexities of these networks. Licensed high-pressure transmission pipeline systems are not addressed in this report (please refer to the [NSW 2019–20 Licensed Pipelines Performance Report](#)).

The Department recognises the efforts made by the network operators on improving the quality of information, data and reporting provided. Where possible, the Department has identified in this report the limitations of the information and data provided.

Where the method of gathering data has changed, direct comparisons may not be an accurate way of assessing the performance of the asset or network operator. In cases such as these, some corresponding data has been removed from charts and tables.

There are many factors which influence network performance including size, age, construction materials and operating regimes. Therefore, consideration must be given to the factors which may influence the overall performance and the manner in which information is gathered and reported.

Network asset information

Annual reporting requirements

To assess the overall performance of the gas network, several factors must be considered including:

- network pipe length (less than 1050 kPa)¹, see Figure 1
- total quantity of gas entering the network
- quantity of gas delivered to custody transfer points
- new regions connected to gas supply networks.

These summary statistics are shown below in Table 1.

Network operators are required to report network details by district or groups of districts for network safety and reliability reasons. It is important that any trends occurring in a localised area are identified and reported, rather than being potentially diluted within aggregated data.

Key performance indicators

The KPIs adopted by the Department for monitoring accuracy of network information is:

- unaccounted for gas (UAFG).

Natural gas networks – asset information

In 2019–20 the length of the natural gas network increased by 301 kilometres, with a total length of 28,200 kilometres as shown in Figure 1. Gas delivered from the network in 2019–20 was approximately 108.5 PJ or about 2.89 billion standard cubic metres of gas to consumers in New South Wales.

Table 1. Natural gas networks in New South Wales: summary statistics

Reporting period	Network growth in NSW (km)	Gas entering the network (PJ)	Gas delivered (PJ)	Percentage unaccounted for gas (UAFG)
2015–16	352	112.4	109.6	2.32%
2016–17	354	99.2	96.7	2.45%
2017–18	393	101.8	99.7	2.05%
2018–19	-1,787*	105.4	102.5	2.77%
2019–20	301	108.5	105.4	2.85%

* This reduction is due to verification of existing assets and not from any decommissioning actions.

¹ Operating pressure classes are: (1) Pressure less than or equal to 1050 kPa and (2) Pressure greater than 1050 kPa.

Figure 1. NSW gas network length

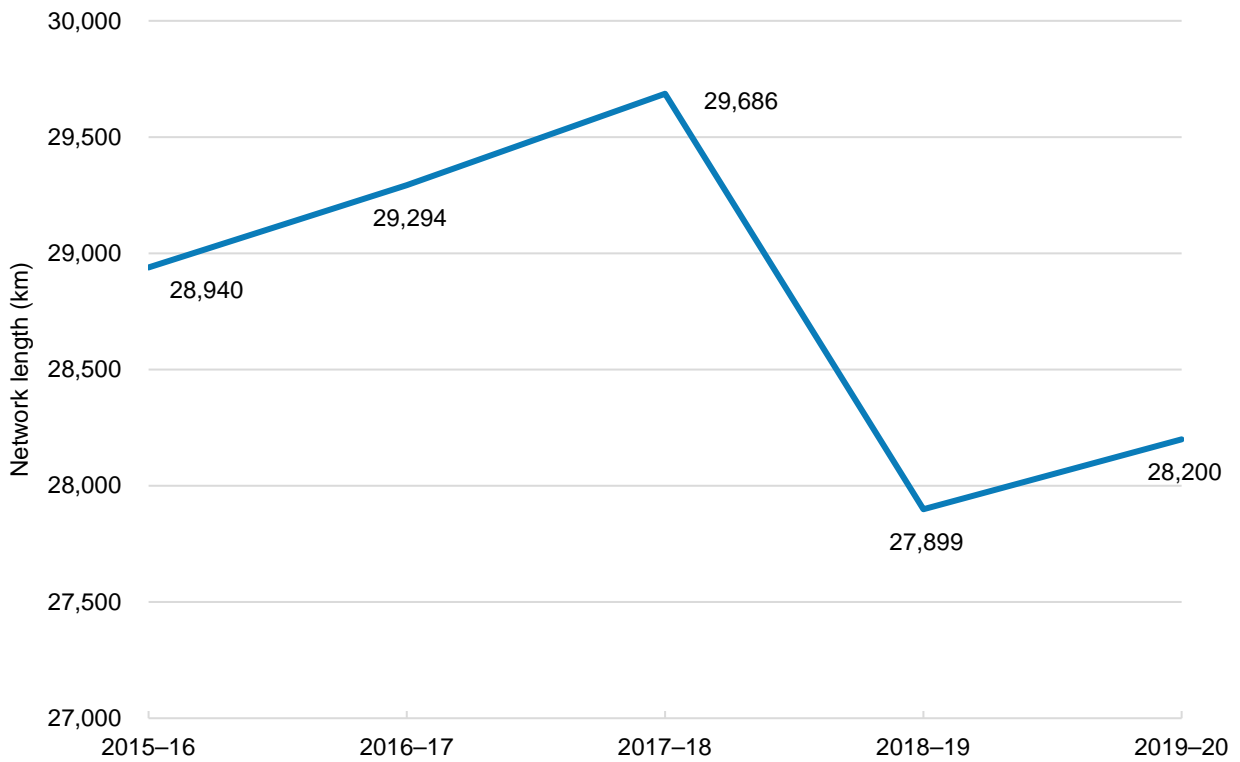
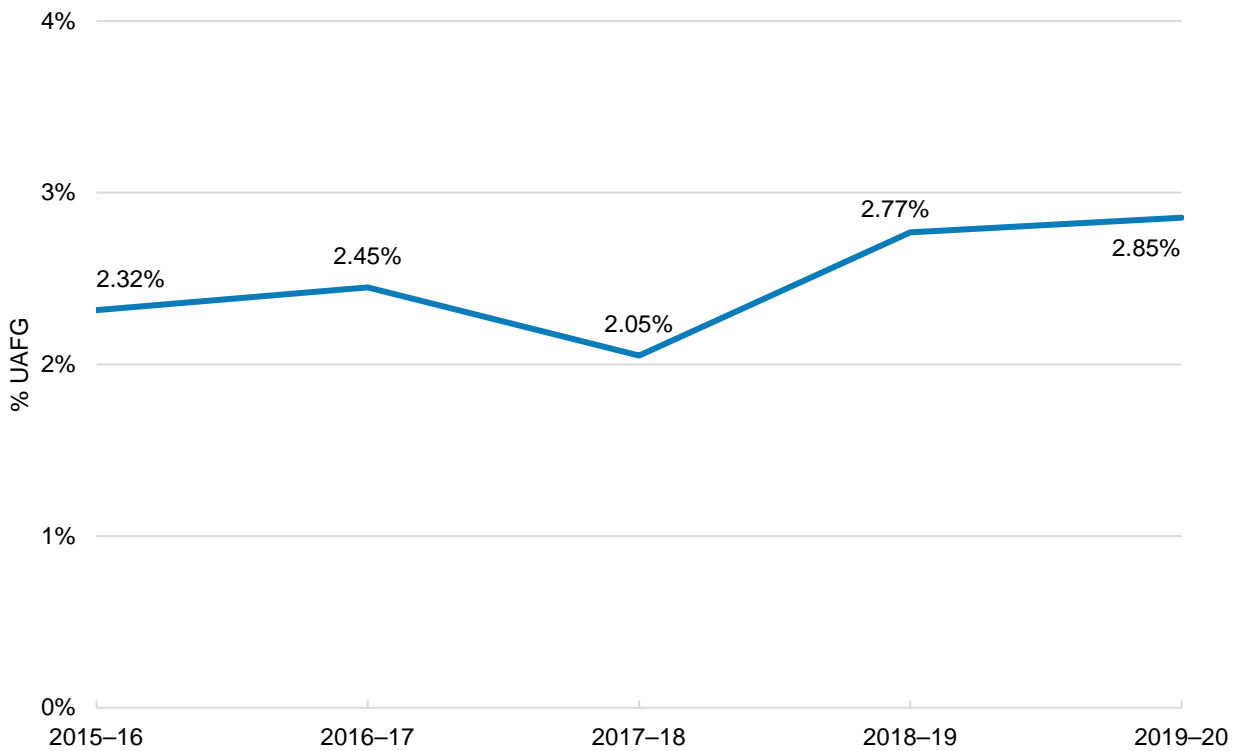


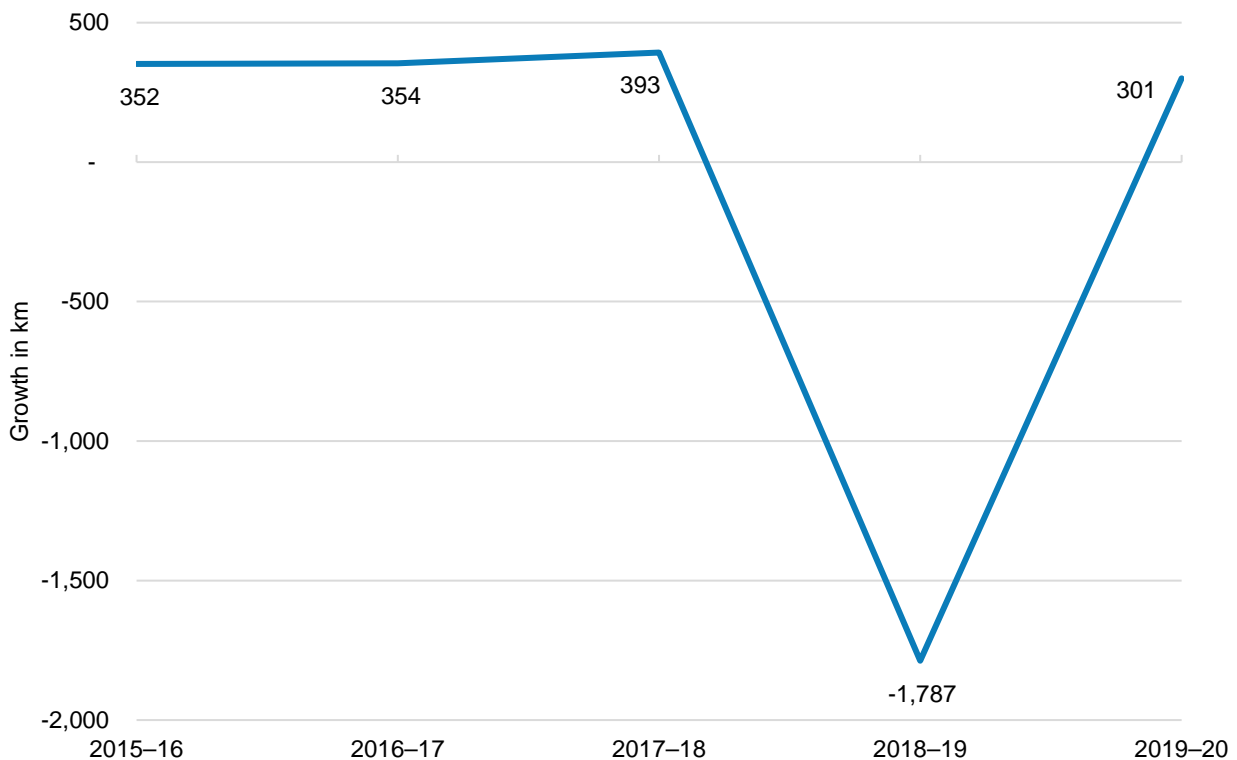
Figure 2. Percentage unaccounted for gas (UAFG) trend in New South Wales



The UAFG data (see Figure 2) is used as an indicator for the soundness of the network. It is calculated based on the amount of gas entering the network compared to the amount of gas being delivered to consumers. The UAFG of the 2019–20 period was 2.85% which is within metering error allowances of 2–3%.

The reported growth of gas network length in New South Wales (see Figure 3) declined in 2018–19 due to a major review of geospatial data accuracy as part of the implementation of a new geospatial system. The reduction in gas network length growth is not due to actual decommissioning of gas networks, rather improvements in the accuracy of geospatial data. The reported 2018–19 data is considered to have higher accuracy than previous reporting periods. The networks have increased by 301 kilometres during the 2019–20 period.

Figure 3. Gas network length growth



New regions

No new regions have been reticulated during the 2019–20 reporting period, therefore, consumer growth has been occurring within existing networks areas.

Conclusion

The total length of the gas networks in New South Wales continues to increase by at least 300 kilometres each reporting period. The overall length of the NSW gas networks is currently 28,200 kilometres.

The amount of UAFG has been reported at 2.85% of gas entering the system. This is a measure of how secure the gas network is, and is within metering error allowances.

Network integrity and safety information

Annual reporting requirements

This information measures the level of product loss through escapes and as a result of third-party activity. It provides an indication of how secure the gas network assets are and how activity around the assets affects performance. It also deals with the preventative measures associated with leak surveys, including:

- number of gas leaks reported to network operator by third parties, by pressure class
- kilometres of pipe subjected to leak surveys
- number of leaks found during leak surveys
- number of recorded mechanical damage incidents to gas networks, by type and source, and by pressure class and location
- number of emergency exercises or simulations conducted
- number of calls to a 'one-call' system (Dial Before You Dig) received about work near networks.

Key performance indicators

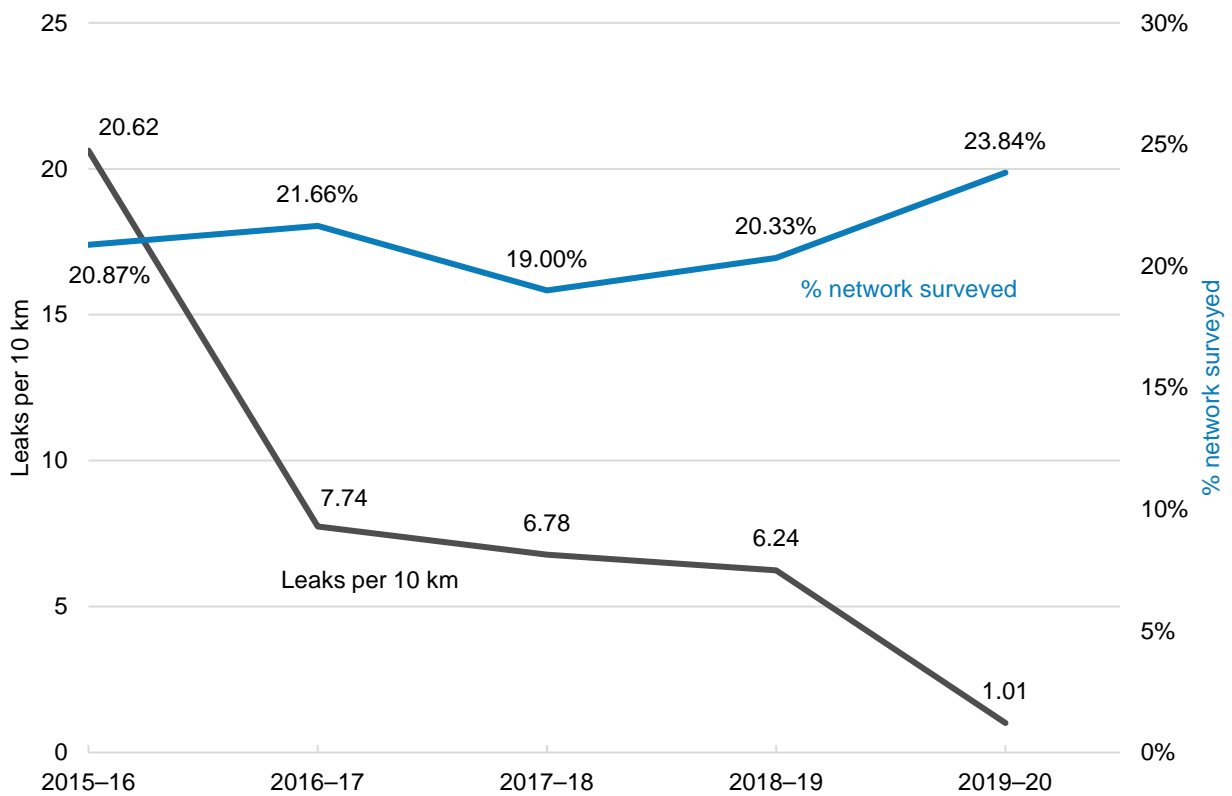
The key performance indicators adopted by the Department for monitoring network integrity and safety include:

- leak surveys as a percentage of total pipe length, see Table 2 and Figure 4
- leaks found per 10 kilometres of pipe surveyed, see Table 2 and Figure 4
- mechanical damage incidents per 10 kilometres of pipe, see Table 2 and Figure 5
- gas leaks per 10 kilometres of pipe reported by third parties, see Figure 6
- gas leaks per 1000 customers as reported by third parties, see Figure 6
- mechanical damage incidents per 1000 consumers, see Table 2
- number of emergency exercises, see Table 2.

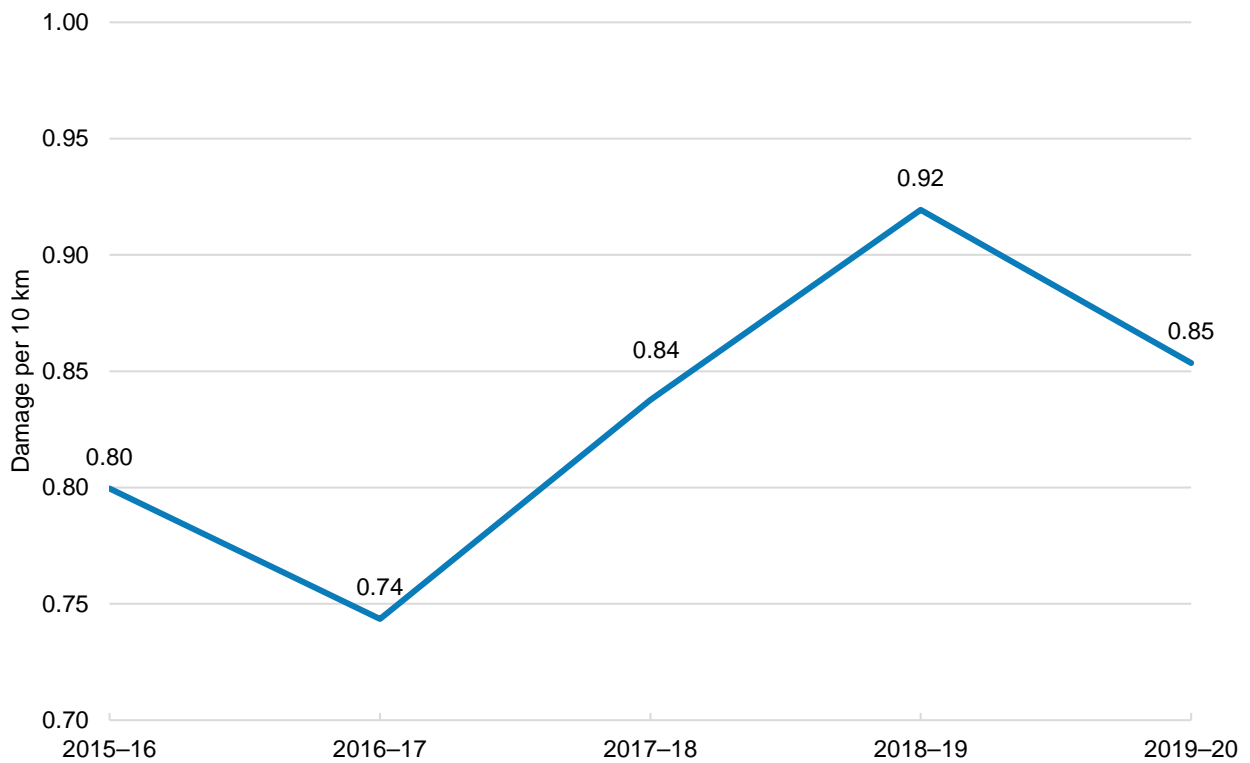
Table 2. Network integrity and safety for New South Wales

Reporting period	Percentage of network leak surveyed	Leaks found per 10 km	Mechanical damage per 10 km	Mechanical damage per 1000 consumers	Emergency exercises
2015–16	20.86%	20.62	0.80	1.69	4
2016–17	21.65%	7.74	0.74	1.54	5
2017–18	19.00%	6.78	0.84	1.70	4
2018–19	20.33%	6.24	0.92	1.72	1
2019–20	23.84%	1.01	0.85	1.55	4

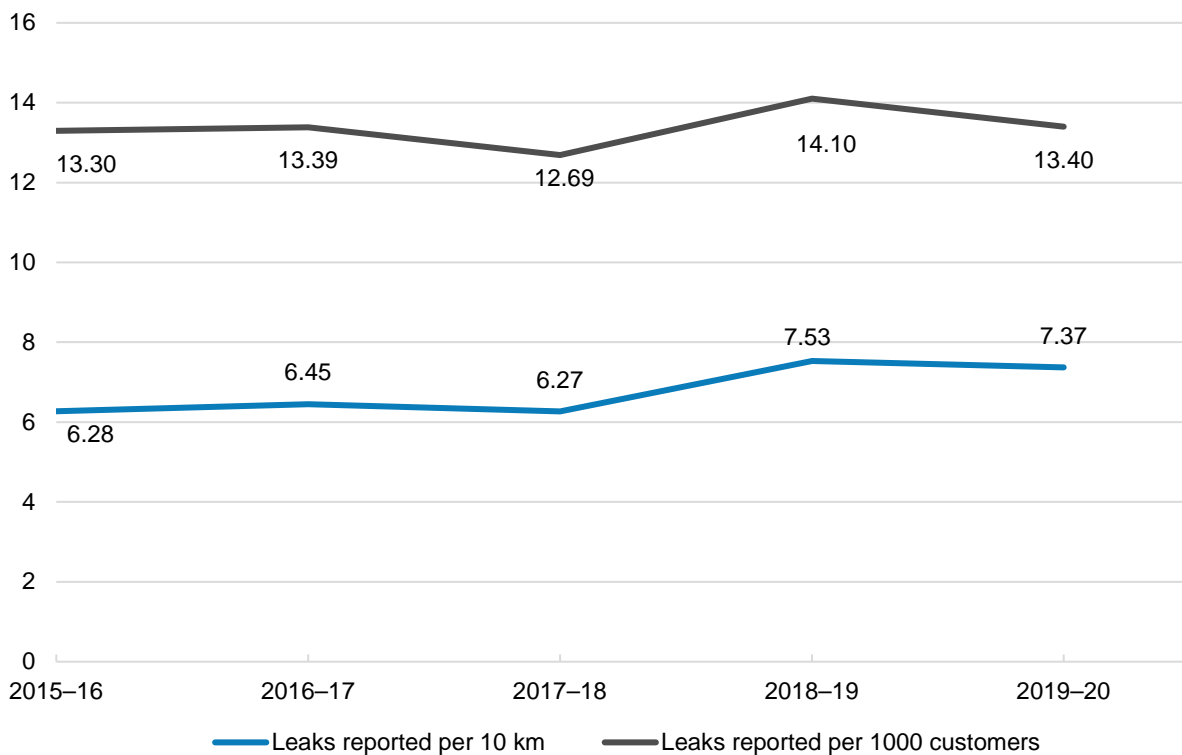
Figure 4. Gas network leak survey and reporting



Leak surveys are carried out on the gas networks in areas identified as high activity areas and to identify assets that require remediation works. The number of leaks per reporting period can vary widely depending on the assets that have been surveyed and possible resurvey of previously reviewed areas.

Figure 5. Reported mechanical damage per 10 kilometres on gas networks

Mechanical damage is an indicator of third-party activity that has resulted in physical contact with network assets. This indicator also allows the network operator to verify if the third party had contacted Dial Before You Dig before work occurred in the area of concern. The number of mechanical contact on gas network assets has remained high over the last three reporting periods.

Figure 6. Gas leaks reported by third parties

Reported gas leaks by third parties provides an indication of locations that have leaking assets and any areas that may require rectification works. The last two reporting periods have identified the highest number of reported third-party leaks compared to the previous reporting periods.

Natural gas – networks surveys

It is not a requirement for operators to survey their entire gas networks annually. Gas network operators should, however, survey 100% of their network within a span of five years. The total amount of the gas network that was surveyed in the 2019–20 period was reported at 23.84%.

Conclusion

The gas network operators have been working with third-party contractors to reduce impacts on their gas networks. The Act requires a proponent to contact Dial Before You Dig before excavation work can occur. The number of 'one-call' contacts made to network operators due to the legislative requirement has increased from approximately 70,000 to over 500,000 annually. The 2019–20 reporting period recorded over 500,000 'one-call' contacts.

The number of gas leaks reported per 10 kilometres and per 1000 customers has stayed high in the 2019–20 reporting period, which is reflected in the number of leaks reported in the period. Mechanical damage of gas networks has also reportedly increased, which correlates with the increasing activity of NSW construction and infrastructure projects.

Network reliability and consumer-related matters

Annual reporting requirements

This data indicates reliability of the gas networks and compliance with odorant levels. It also indicates the network operators' ability to respond to incidents within a specific time period. The consumer-related data is used to assist in the KPI analysis in relation to how many consumers are affected by these events. Measurements include:

- number of consumers connected to the network (total number), see Figure 7
- number of new consumers connected to the network (total number), see Figure 8
- loss of supply (duration, total unplanned consumer hours lost – five or more customers), see Table 3 and Figure 9
- loss of supply (number, total unplanned numbers of loss of supply instances – five or more customers), see Table 3 and Figure 9
- poor supply pressure (total number of instances)
- odorant levels not to specification (total number of instances), see Table 3
- number of incidents or emergencies responded to, see Table 3 and Figure 10
- incidents or emergency responses within 60 minutes of notification (total number), see Table 3 and Figure 11.

Key performance indicators

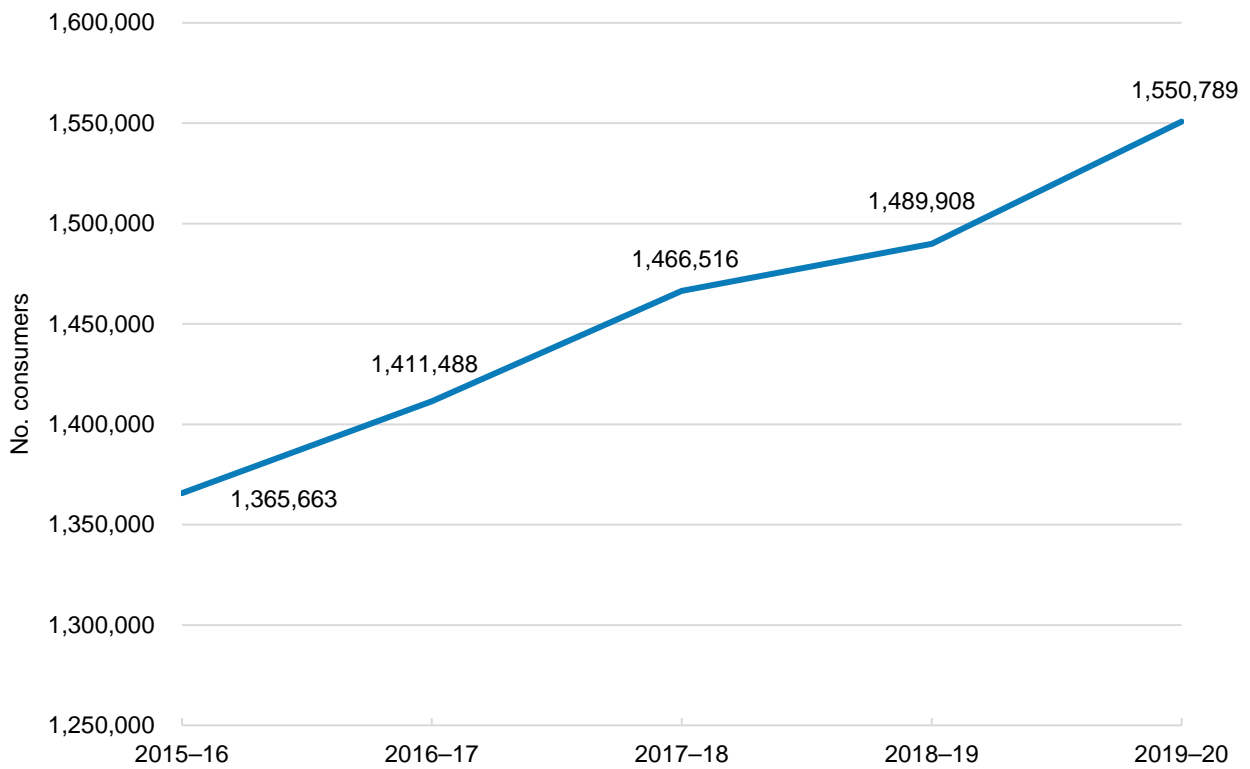
The KPIs adopted by the Department for monitoring network reliability and safety are:

- loss of supply (total unplanned consumer hours lost – five or more customers) per 1000 customers, see Table 3 and Figure 9
- percentage of calls responded to within 60 minutes, see Table 3 and Figure 11.

Table 3. Reliability and consumer-related measures

Reporting period	Unplanned consumer hours lost per 1000 consumers	Unplanned loss of supply incidents per 1000 km	Number of out of spec. gas or odorant levels reports	Number of incidents/emergencies per 1000 consumers	Percentage incidents/emergencies responded to within 60 minutes
2015–16	12.18	1.31	3	1.98	98.78%
2016–17	12.34	1.30	6	1.96	98.70%
2017–18	18.90	1.25	1	2.10	98.77%
2018–19	35.36	1.68	0	1.83	99.05%
2019–20	79.64	1.56	0	1.59	99.07%

Figure 7. Active gas connection trend



Active gas connections represent the number of gas supply points actively consuming gas during the reporting period. This information is used in KPI calculations.

Figure 8. New customer connection trend

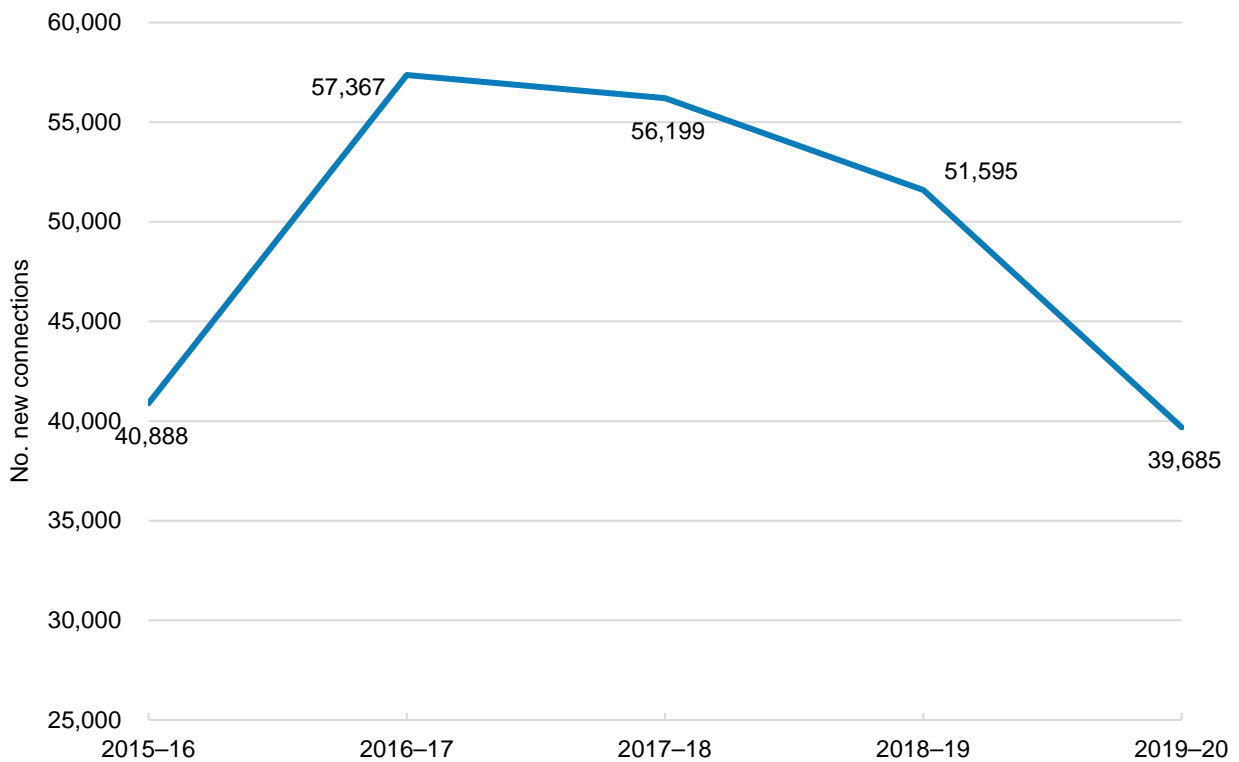


Figure 9. Consumers off supply trend

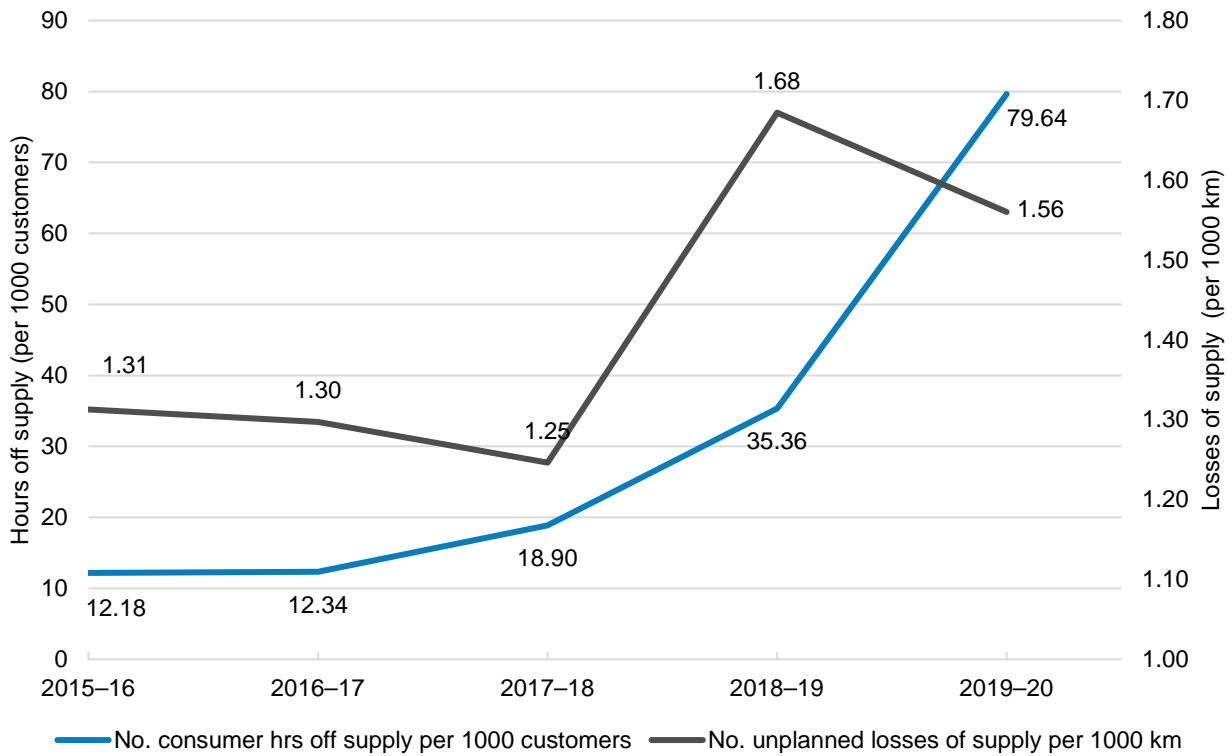


Figure 9 indicates how often the gas network has lost supply and the time required to re-establish supply to a consumer.

In the 2019–20 reporting period there were several major loss of supply events due to bushfires affecting some areas that led to the increase in the total number of hours consumers were without supply. The shutdown was for safety requirements and the recommissioning of the assets does require extra time.

Figure 10. Reported gas incidents per 1000 consumers

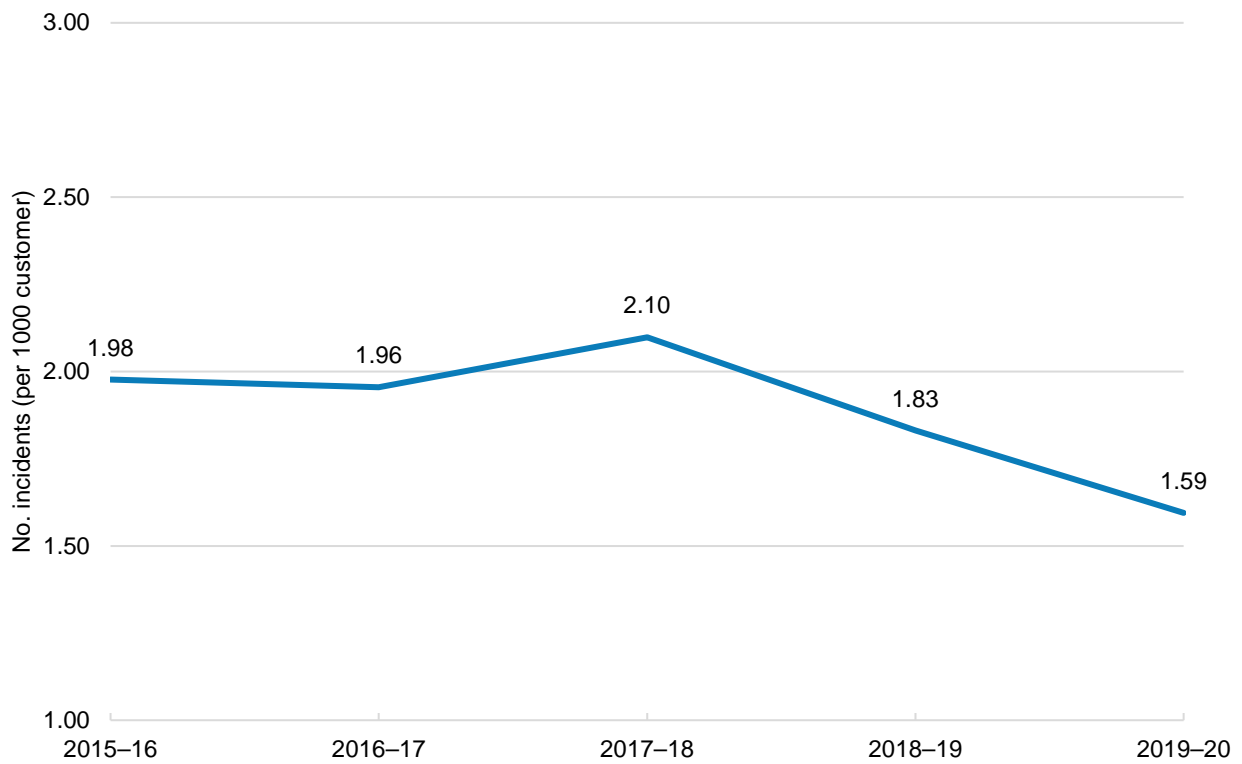
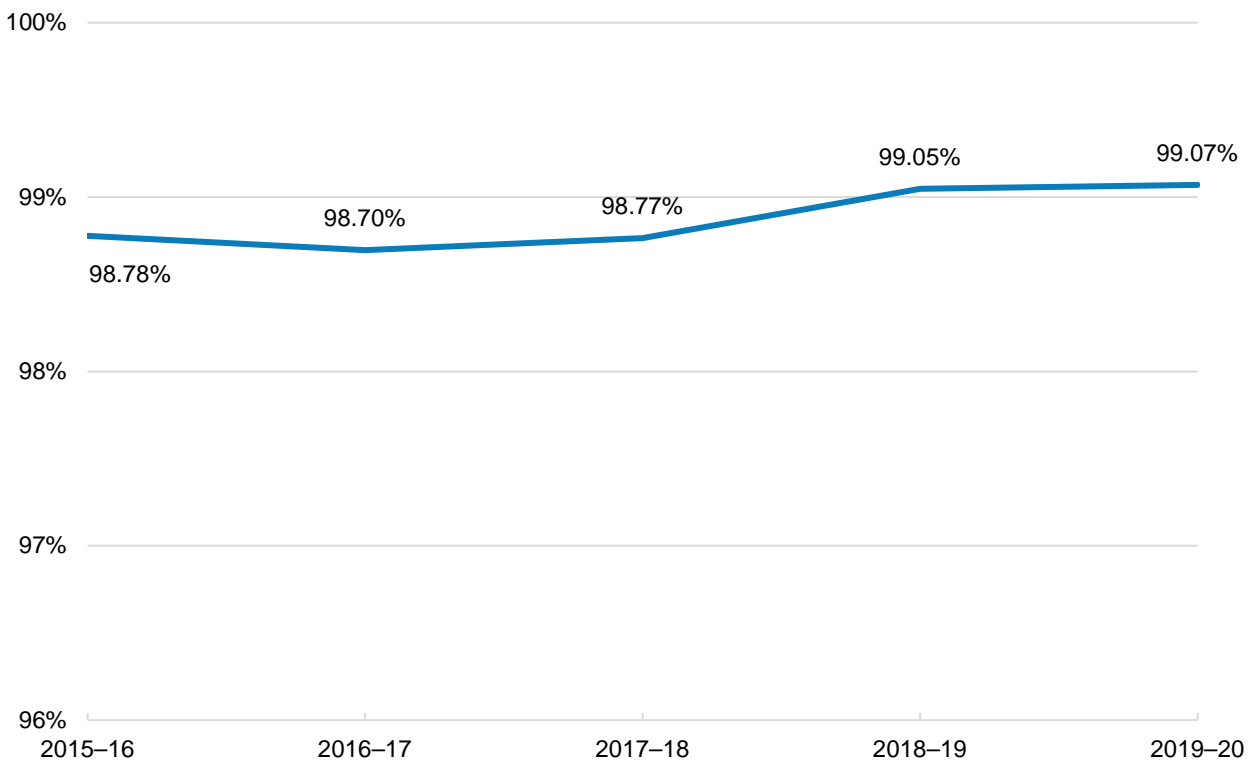


Figure 10 illustrates the trend of the number of incidents per every 1000 consumers.

Figure 11. Percentage emergency responses within a 60-minute timeframe



Incident response data (Figure 11) provides an indication of the ability of gas network personnel to respond to an incident within an hour.

Conclusion

The number of consumers connected to gas networks has increased to over 1.5 million.

The number of hours of loss of gas supply has increased in the 2019–20 reporting period and was affected due to the bushfire response actions.

The response times to emergencies and incidents remain healthy, with over 99% of incidents being responded to within 60 minutes in the 2019–20 reporting period.

High-pressure (unlicensed) pipeline activities

General

Jemena (Sydney), Jemena (Coastal), Evoenergy, and Australian Gas Networks (Albury) operate high-pressure pipelines (greater than 1050 kPa) as part of their network activities. Network operators are required to review matters such as pressure, location, land use, security and risk assessments on a periodic basis as defined under Australian Standard AS 2885: *Pipelines—Gas and Liquid Petroleum*.

The Department's annual reporting requirements request the following information:

- accidents, escapes and ignitions
- integrity assessment and monitoring
- operational performance.

New South Wales has approximately 179 kilometres of mains operating in the network that are running at pressures above 1050 kPa. These distribution mains contain a larger amount of energy and are important feeders to the distribution network. This is why they require a more in-depth review of operation and safety aspects to protect the public, personnel and environment.

Accidents, escapes and ignitions

The following issues are reported in Table 4:

- incidents
- loss of containment (LOC)
- ignitions
- injuries involving the pipeline
- damage involving the pipeline.

Table 4. Accidents, escapes and ignitions

Reporting period	Incidents	Loss of containment	Ignitions	Injuries	Damage
2015–16	2	0	0	0	0
2016–17	3	0	0	0	0
2017–18	0	1	0	0	0
2018–19	0	0	0	0	0
2019–20	8	0	0	0	0

Integrity assessment and monitoring

The following issues are reported in Table 5:

- integrity assessment
- pipeline patrols
- supervised activity around the pipeline
- field inspections
- cathodic protection (CP) and coating defects.

Table 5. Integrity assessment and monitoring

Reporting period	Supervised activities per km	Percentage activities that contacted operator by Dial Before You Dig	Defects requiring repair per 1000 km	Percentage CP units operating correctly	Percentage pipeline covered by CP systems
2015–16	42.27	97.25%	0	95%	100%
2016–17	36.07	98.11%	0	100%	100%
2017–18	26.90	96.60%	0	100%	100%
2018–19	1.68	61.36%	0	95%	100%
2019–20	2.85	85.32%	0	90%	100%

Operational performance

The following issues are reported in Table 6:

- loss of operation
- details of any unplanned or abnormal incidents that could have a long-term effect on the safety of the pipeline.

Table 6. Operational performance

Reporting period	Hours pipeline not operational	Number of 'unplanned' incidents per km
2015–16	0	0
2016–17	0	0
2017–18	0	0
2018–19	0	0
2019–20	0	0

Conclusion

Where activity was present in close vicinity to high-pressure gas assets, 85.32% of all activities were reported through the Dial Before You Dig system prior to works commencing. The reduction in Dial Before You Dig notifications prior to works commencing compared to previous reporting periods is an indication that the pipeline operators are being notified of activities through alternative procedures such as direct contact with contractors and proponents or based on pipeline patrols.

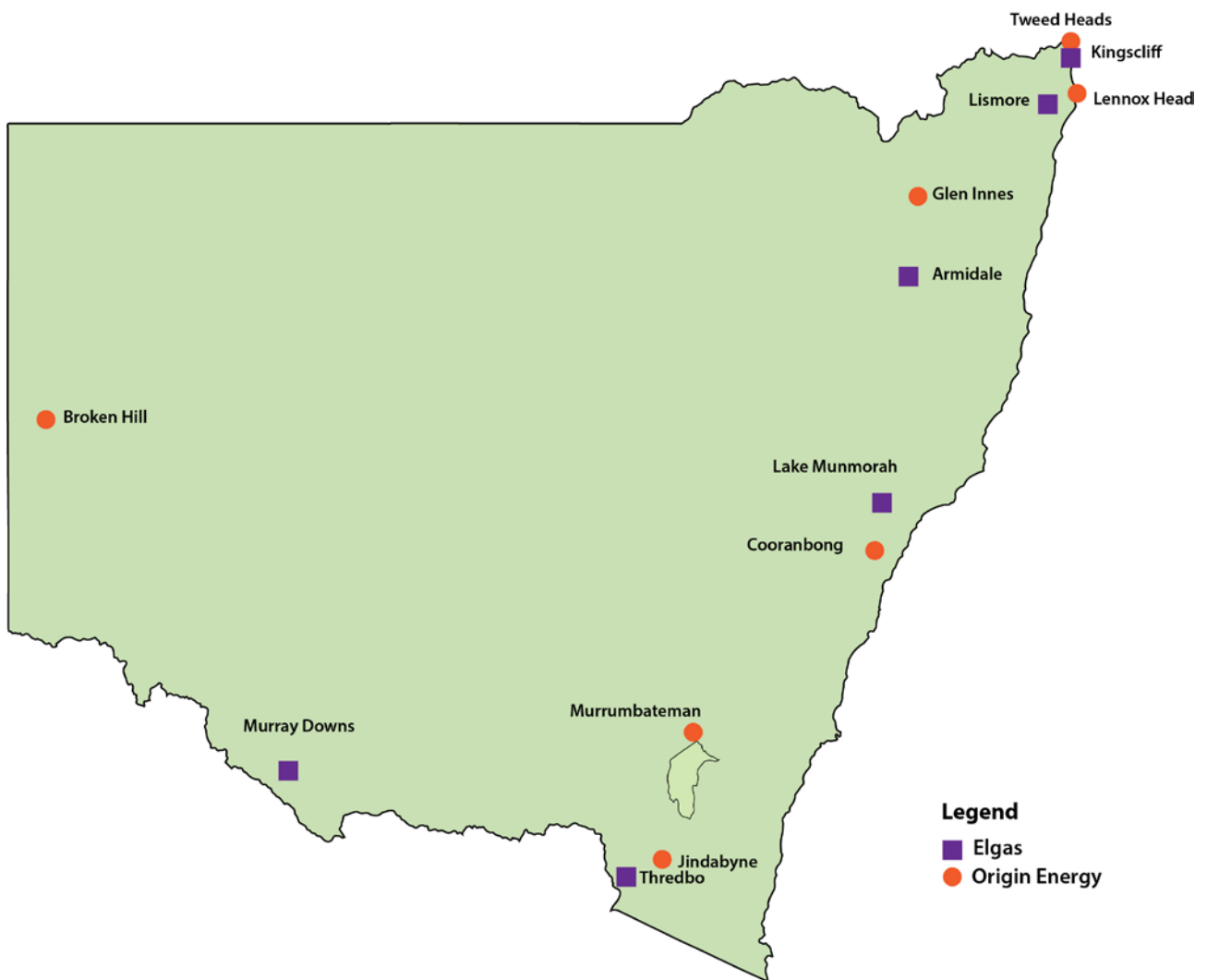
Appendix A. LPG networks in New South Wales and networks’ performance data

There are a number of liquefied petroleum gas (LPG) distribution systems supplying gas to consumers within New South Wales. LPG is transported to these sites by road or directly from LPG storage facilities and is therefore favoured for small standalone distribution systems.

LPG may be reticulated in several forms, such as tempered liquefied petroleum gas (TLPG), simulated natural gas (SNG), butane or as direct LPG. The significance of this, however, is that gas appliances must be approved for use with the particular type of gas being reticulated within a network.

There were two licensed distributors of LPG in New South Wales (Elgas and Origin Energy) who reported to the Department for the 2019–20 period. The locations of these networks are illustrated in Figure 12 below. These networks are briefly described below and network data provided by the operators is presented in this section.

Figure 12. Location of LPG networks in New South Wales



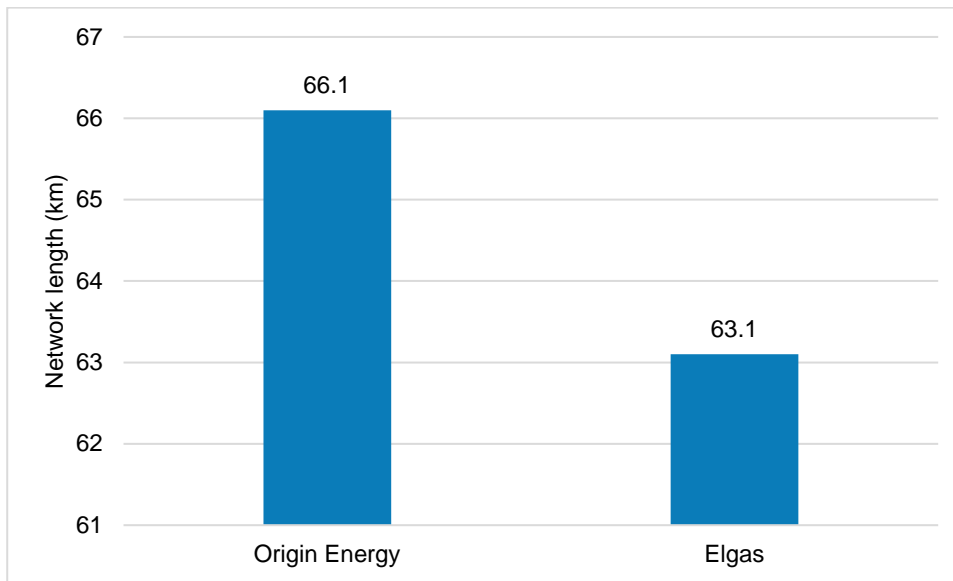
Origin Energy LPG Ltd

Origin Energy has distribution districts in Glen Innes, Broken Hill, Tweed Heads (Banora Point), Jindabyne, Cooranbong, Lennox Head and Murrumbateman.

Elgas Reticulation Ltd

Elgas has six LPG distribution networks which are in Lismore, Thredbo, Armidale, Kingscliff, Lake Munmorah and Murray Downs.

Figure 13. Relative sizes of LPG networks (kilometres)



LPG networks – asset information

NSW LPG distribution networks delivered approximately 145 TJ of gas through 129 kilometres of distribution pipework in the 2019–20 period (Table 7). The LPG networks have remained fairly constant over the reporting period.

Table 7. Consumption information for LPG networks

Reporting period	Quantity gas entering network (TJ)	Quantity gas delivered (TJ)	Percentage unaccounted for gas (UAFG)
2015–16	140	140	0.59%
2016–17	157	157	0.19%
2017–18	118	118	0.01%
2018–19	172	171	0.61%
2019–20	145	144	0.41%

Figure 14. Percentage unaccounted for gas (UAFG) in LPG networks

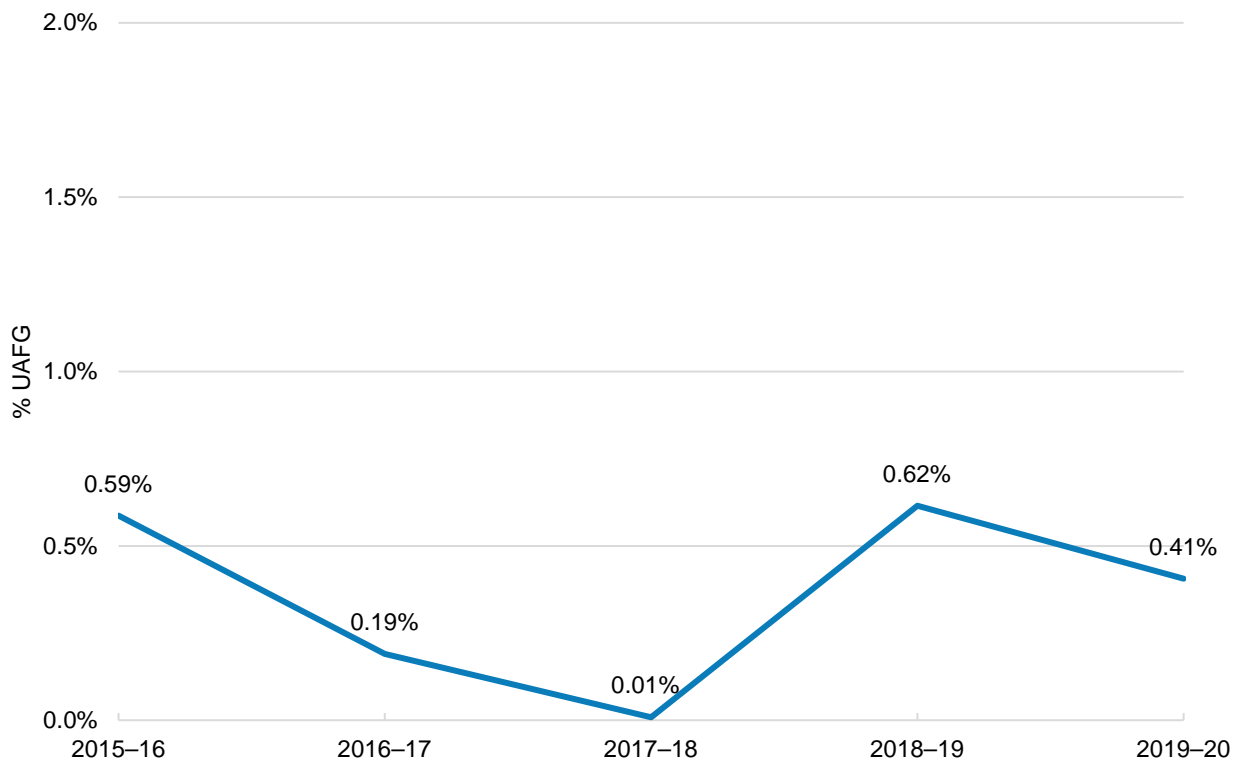


Figure 15. LPG network length in New South Wales

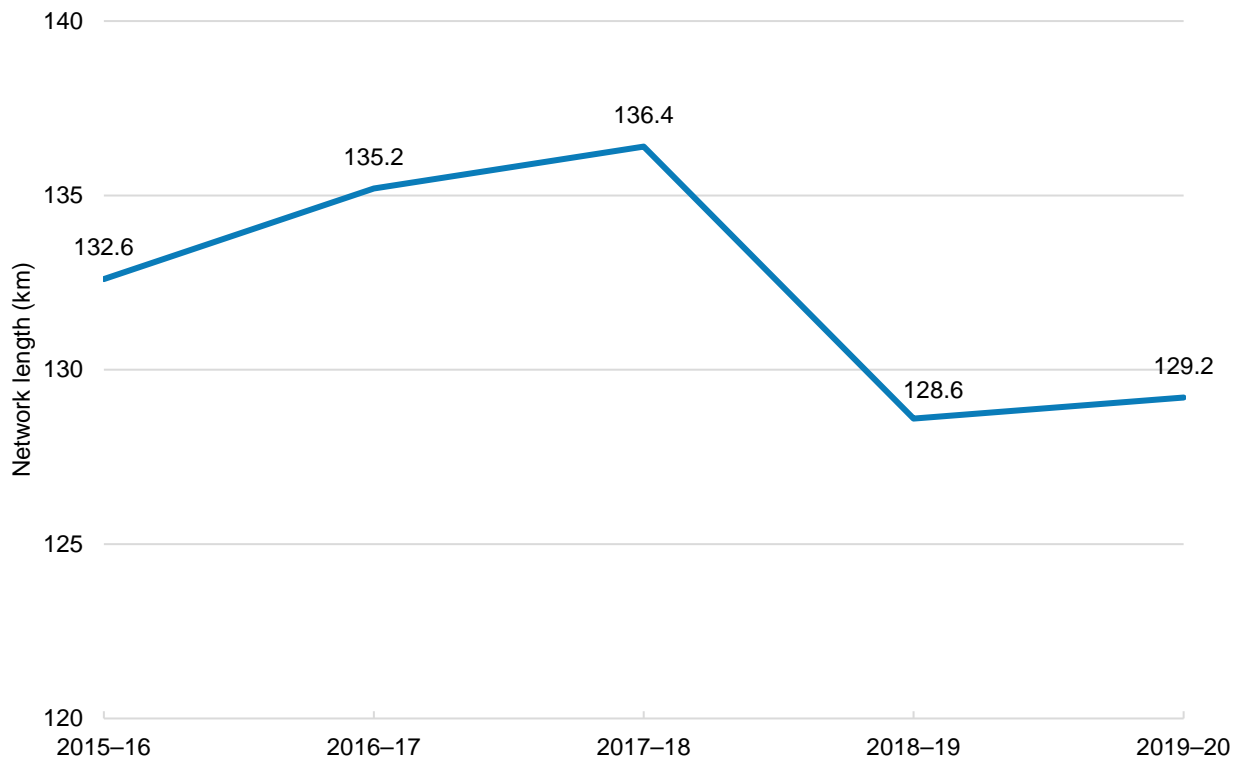


Table 8. Consumer connection information for LPG networks

Reporting period	New consumers connected to the network	Total consumers connected to the network
2015–16	242	2229
2016–17	67	2246
2017–18	56	2266
2018–19	26	2317
2019–20	113	2231

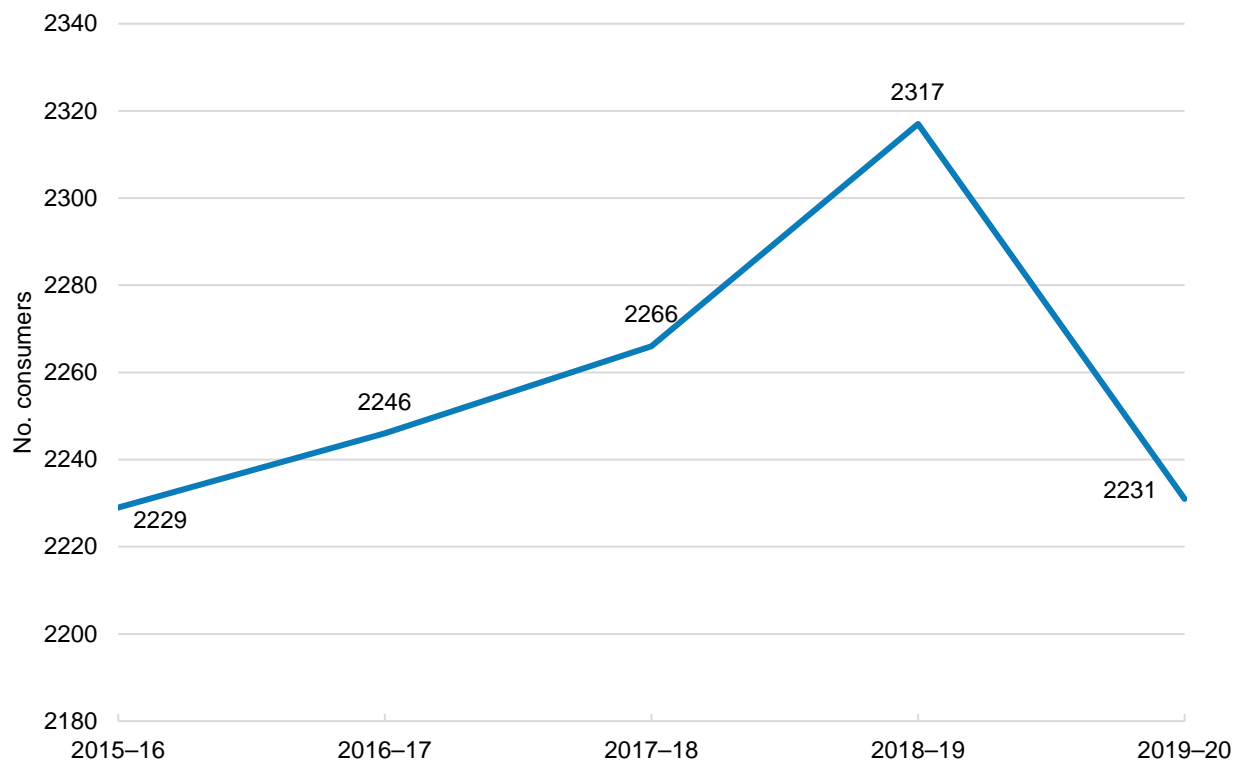
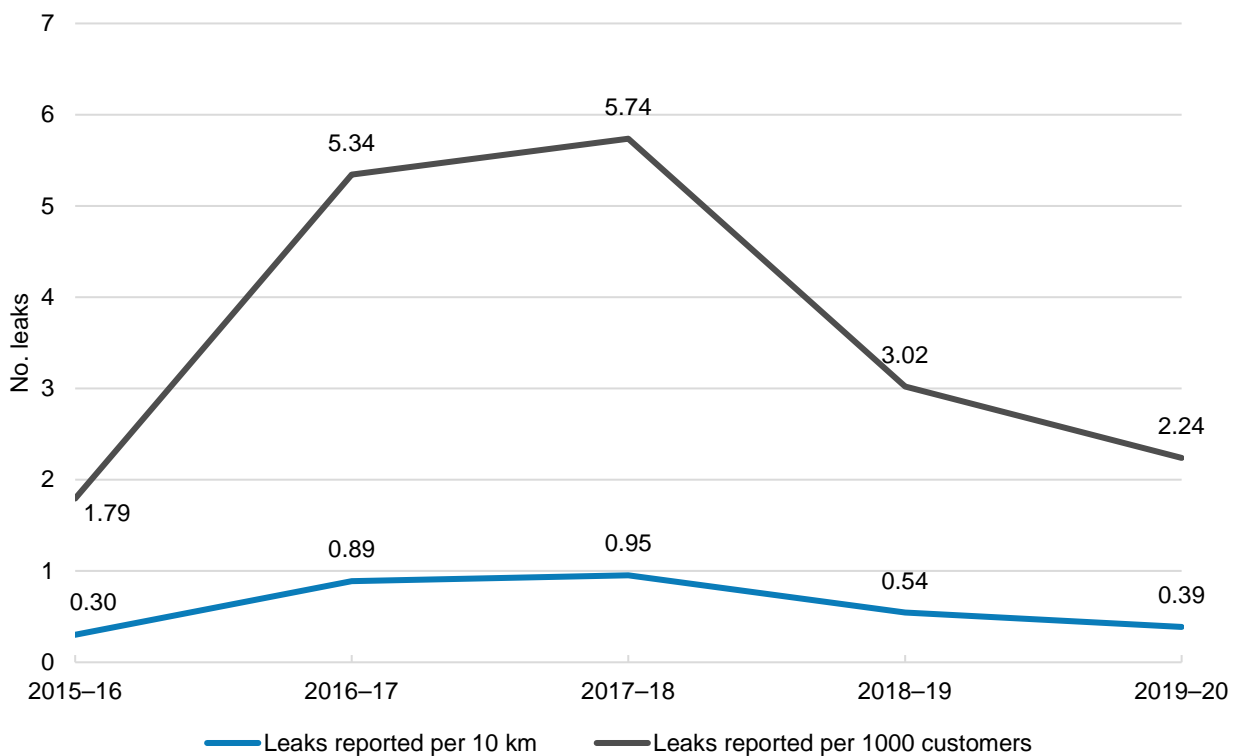
Figure 16. NSW LPG network consumer trend

Table 9. Network integrity and safety information LPG networks

Reporting period	Leaks per 10 km reported by third parties	Leaks per 1000 customers reported by third parties	Percentage of network subject to leak surveys	Leaks found per 10 km of pipe surveyed	Mechanical damage incidents per 10 km by third party	Emergency exercises conducted
2015–16	0.30	1.79	25.95%	1.48	0.00	2
2016–17	0.89	5.34	35.58%	1.04	0.30	3
2017–18	0.95	5.74	46.11%	1.43	0.07	5
2018–19	0.54	3.02	42.07%	0.00	0.00	6
2019–20	0.39	2.24	54.75%	0.00	0.00	3

Figure 17. Reported leaks by third parties in LPG networks

Conclusion

The LPG networks across New South Wales supply a total of approximately 2231 consumers through 129 kilometres of LPG network length. The information contained in this report suggests that the LPG network operators continue to operate their networks in a safe manner and that asset integrity is being maintained.

Due to the relatively small LPG network size compared to other networks such as natural gas networks, small fluctuations in the LPG network reporting figures can have a significant impact on KPIs. This is the main reason for recording and reporting on the LPG network data in a separate category to other gas networks.

Appendix B. Natural gas industry in New South Wales

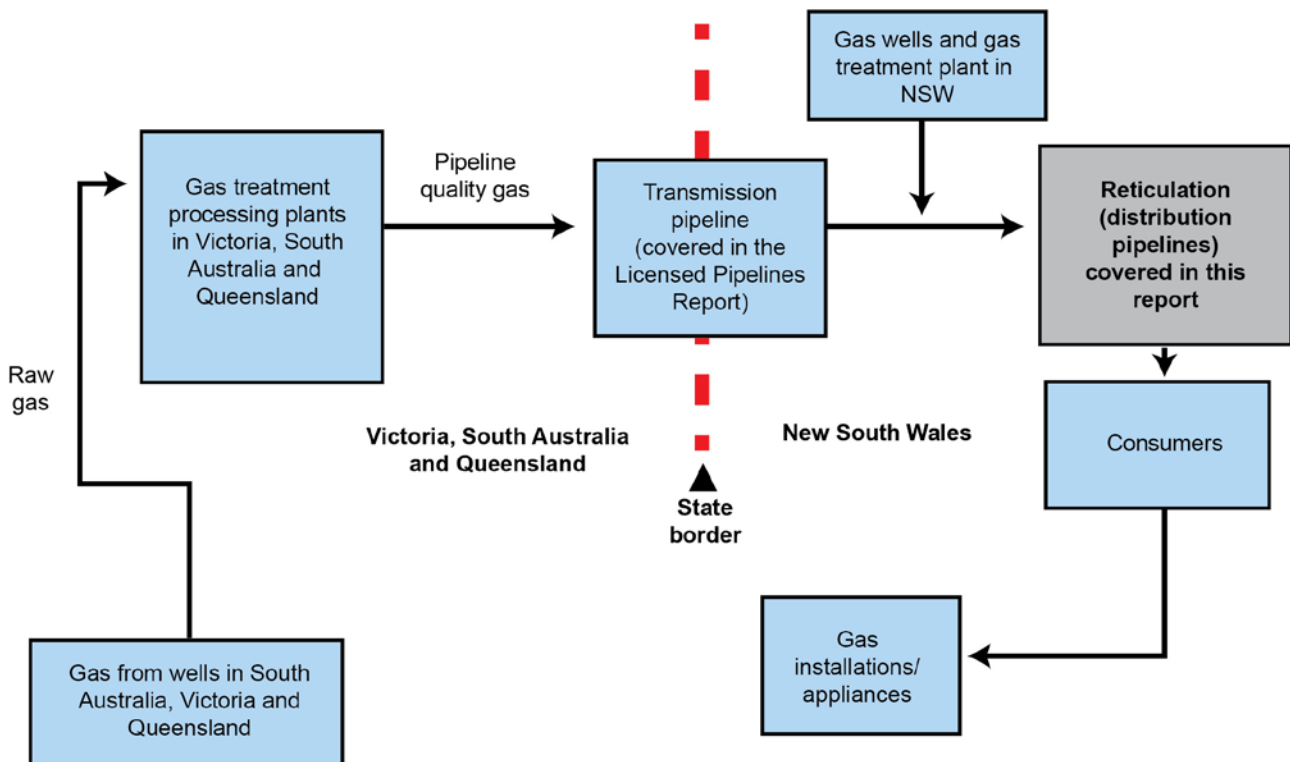
The gas distribution industry in New South Wales consists of authorised reticulators of natural gas and licensed distributors of LPG. The NSW gas transmission system and NSW gas retailers are not addressed in this report.

Natural gas networks

The natural gas supply chain, shown in Figure 18, consists of four main discrete entities:

- gas production (covered in New South Wales by the Resources and Geoscience Division of the Department of Planning, Industry and Environment at 30 June 2019; and from April 2020 transferred to the Division of Mining, Exploration and Geoscience in the Department of Regional NSW)
- transmission system (covered in the annual [NSW Licensed Pipelines Performance Reports](#))
- distribution networks (covered in this report)
- retailers (regulated by the Australian Energy Regulator).

Figure 18. The NSW natural gas supply chain



New South Wales receives gas from several regions in Queensland, and from South Australia via Moomba which is piped through a transmission pipeline from Moomba to Sydney. Gas is also supplied from the Queensland region into New South Wales at Tweed Heads.

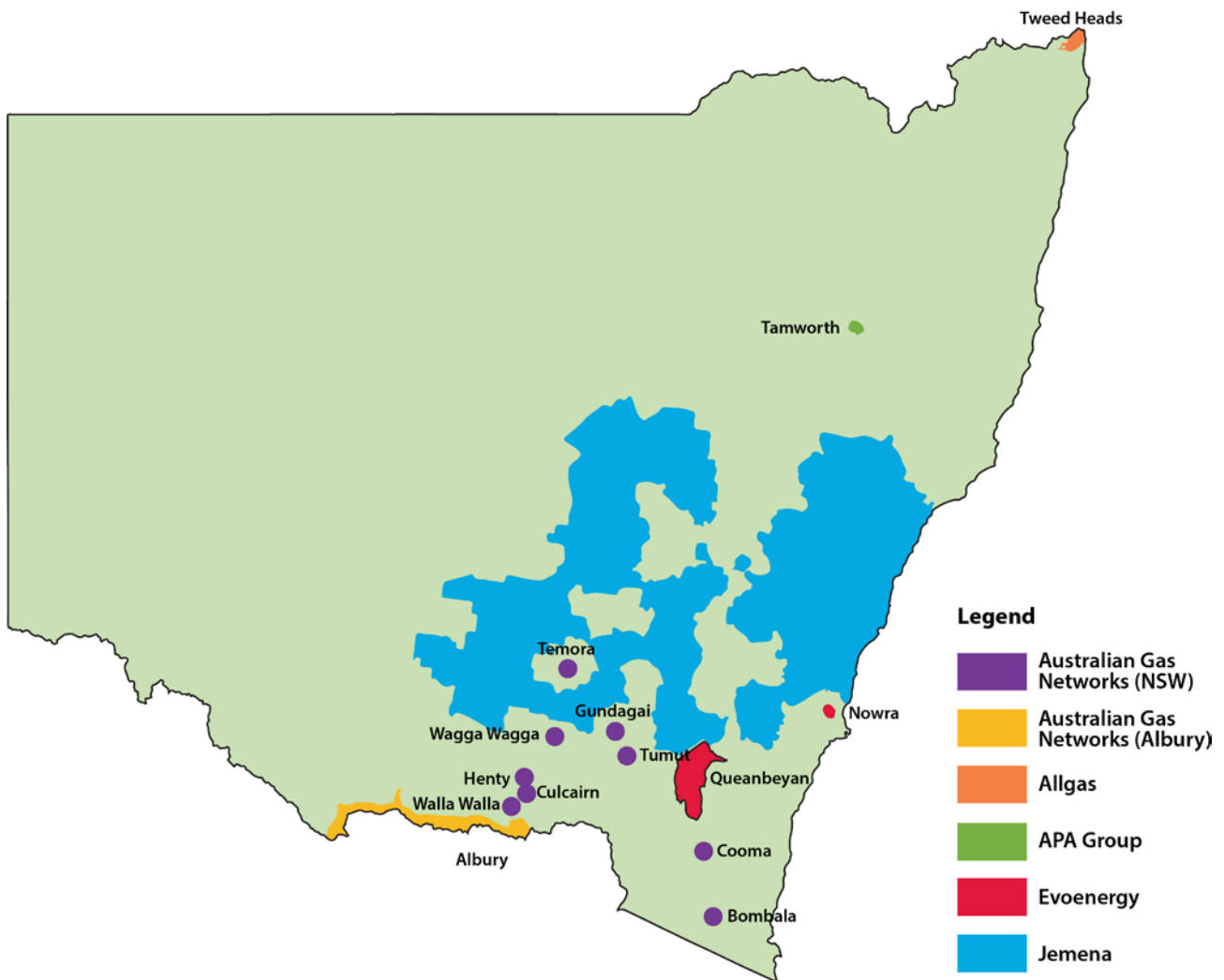
Two other sources of natural gas are transported to New South Wales from Victoria, via the Eastern Gas Pipeline along the east coast from Victoria to New South Wales; and the Victoria to Culcairn pipeline that interconnects between Culcairn in New South Wales and the Victorian border. The Camden region in New South Wales is also another gas source.

A gas storage facility is also located at Hexham. The facility has a storage capacity of 1.5 PJ of gas. This facility enhances the gas supply in the greater Newcastle region.

The scope of this report is limited to the distribution networks. The natural gas distribution network in New South Wales is the conduit for the reticulation of natural gas and supply to consumers in the State. The greater NSW network is divided into smaller distribution networks and operated by authorised operators.

There were six authorised natural gas network operators in New South Wales during the reporting period. The locations of these networks are illustrated in Figure 19. The networks are briefly described below.

Figure 19. Location of natural gas networks in New South Wales



Jemena Gas Networks (NSW) Ltd

The principal reticulator of natural gas in New South Wales is Jemena Gas Networks (operated for and on behalf of Jemena Gas Networks by Jemena Asset Management). The Jemena Gas Networks in New South Wales is divided into five large natural gas distribution networks:

- Jemena Sydney North
- Jemena Sydney West
- Jemena Sydney South
- Jemena Country
- Jemena Coastal.

The area bounded by Palm Beach and Hornsby to the north of Sydney, Sutherland Shire, and south of Bankstown and west to Lithgow is serviced by Jemena Sydney North, Jemena Sydney South and Jemena Sydney West networks respectively. This network area is large and complex in comparison to regional networks. The Jemena Coastal Network broadly services the Hunter, Newcastle, Central Coast and Illawarra regions; and the Jemena Country Network services a large

area in central New South Wales including the Southern Highlands, Central Tablelands, Central West, Riverina and South-West Slopes regions.

Jemena Gas Networks also owns natural gas transmission assets in New South Wales.

Evoenergy Distribution (Former ActewAGL)

The Evoenergy gas distribution network is also operated by Jemena Asset Management (on behalf of the Evoenergy Distribution Partnership). The Evoenergy Distribution Partnership comprises Jemena ATA Pty Ltd and the Australian Capital Territory (ACT) Government–owned ACTEW Corporation. Evoenergy has two networks in New South Wales: one located at Queanbeyan–Bungendore and another at Nowra. Evoenergy also has a substantial network in the ACT region.

Australian Gas Networks Ltd

Australian Gas Networks Ltd holds two Natural Gas Reticulator Authorisations in New South Wales, one for The Australian Gas Networks (Albury) Ltd and one for Australian Gas Networks (NSW) Pty Ltd.

The Australian Gas Networks (Albury) Ltd network supplies Albury, Thurgoona, Lavington, Jindera, Howlong, Moama, Tocumwal, Finley, Barooga, Mulwala and Corowa areas.

The Australian Gas Networks (NSW) Pty Ltd network supplies Bombala, Cooma, Culcairn, Gundagai, Henty, Tamara, Tumut, Wagga Wagga and Walla Walla areas.

APA Group

APA Group operates two gas distribution systems in New South Wales: The Central Ranges Pipeline Pty Ltd (APA Group) and APT Allgas Energy Pty Ltd.

The Central Ranges Pipeline Pty Ltd services the gas network in the Tamworth distribution district area.

The APT Allgas Energy Pty Ltd (Allgas) is also owned by APA Group. Allgas has one distribution district in New South Wales, which includes the local government area of Tweed Heads and has significant Queensland gas operations.

Appendix C. Definitions

These definitions are included in or derived from the [NSW Gas Networks Reporting guidelines 2017](#).

Cathodic protection (CP) – the pipeline may be protected from corrosion (including stray currents) by a CP system. Should the CP system not fully protect the pipeline, the pipeline may suffer corrosion which can become a contributing factor to an LOC.

Coating defects – the coating is an important part of the pipeline to help prevent corrosion occurring. If the coating is badly damaged this will affect the performance of the CP in operating correctly.

Details of any unplanned or abnormal incidents that could have a long-term effect on the safety of the pipeline – the pipeline is designed to operate within certain parameters which includes pressure and temperature. Operating the pipeline outside of these conditions can affect the long-term life of the pipeline.

Field inspections – periodically the pipeline and easement will be inspected to ensure that any existing known pipeline defects have not re-occurred, or existing defects progressed.

Ignitions – when the LOC event also ignites. Ignitions are the most hazardous event which can occur on a pressure pipeline. This data allows for clear understanding of how often LOC events ignite.

Incident – any third-party activity where contact is made with the pipeline, whether or not the pipeline suffers a loss of containment or damage. Identification of incidents that occur after the operator became aware of the activity provides an indication on the effectiveness of the operator's management measures.

Injuries or property damage involving the pipeline – when a person is injured, or property is damaged, and the pipeline has played a part in the incident occurring. This provides an indication of the consequence of any hazardous event.

Injuries or property damage involving the pipeline – when a person is injured, or property is damaged and the pipeline or the pipeline's easement area has played a part in the incident occurring. This provides an indication of the consequence of any hazardous event.

Integrity assessment – AS 2885 requires three primary reviews with respect to pipeline integrity to be conducted at intervals not exceeding five years:

- review of maximum allowable operating pressure (MAOP)
- review of location class
- review of risk assessment.

Loss of containment (LOC) – uncontrolled escape of any substance from the pipeline. The number of LOC events is the prime indicator of the effectiveness of the operator's safety management system.

Loss of operations – when the pipeline, or part thereof, becomes non-operational due to circumstances that are unplanned.

Pipeline patrols – personnel monitor the pipeline easement to maintain the condition and safety of the pipeline by preventing uncontrolled or unauthorised activity.

Supervised activity around the pipeline – third party construction work is regularly performed near the vicinity of the pipeline that requires monitoring to make sure the pipeline is not damaged during such occasions. Third-party damage is the most common cause of pipeline LOC events.

Unaccounted for gas (UAFG) – is calculated based on the amount of gas entering the network compared to the amount of gas being delivered to consumers.