



Review of Unaccounted for Gas Benchmarks: Final Decision – Methodology

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Executive summary

The Commission's final decision on the methodology to calculate the UAFG benchmarks comprises the following elements:

1. The Commission will use the revealed cost approach with a multi-year average to calculate the UAFG benchmarks.
2. The Commission will use actual UAFG data that has been settled by distributors and retailers to calculate the UAFG benchmarks.
3. The Commission will not account for possible reductions in UAFG resulting from the distributors' mains replacement programs.
4. The Commission will not account for possible increases in UAFG caused by continued deterioration of the distribution networks.
5. The Commission will consider whether there are any efficiencies that can be achieved by the distributors, and may decide to adjust the forward UAFG benchmarks accordingly.
6. The Commission will retain separate UAFG benchmarks for class A and class B customers.

Unaccounted for Gas (UAFG) refers to the difference between the measured quantity of gas entering the gas distribution system from various supply points and the gas delivered to customers.

There is some uncertainty about the causes of UAFG and the extent to which each of the known causes contributes to UAFG levels. The known causes of UAFG can be divided into five categories:

- fugitive emissions
- metering errors
- heating value
- data quality
- theft.

In Victoria, UAFG is managed via a benchmark process. The Gas Distribution System Code (GDSC) sets out UAFG benchmarks for each Victorian gas distributor. The GDSC requires gas distributors to use reasonable endeavours to ensure that UAFG is less than their benchmark.

The retailers are required to purchase sufficient gas to cover customer consumption and actual UAFG. There is also an annual reconciliation between gas distributors and retailers based on whether actual UAFG is over or under the benchmark. If actual UAFG is greater than the benchmark, the gas distributor must compensate the retailers. If actual UAFG is less than the benchmark, the retailers must compensate the gas distributor.

The current UAFG benchmarks in the GDSC will expire on 31 December 2017. The Commission's review will set UAFG benchmarks for each distributor which should represent the economically efficient level of UAFG. The review will set the UAFG benchmarks for the 2018-22 five year regulatory period.

The Commission is undertaking the review of UAFG benchmarks in **two stages**. The first stage of the review involves consultation on the methodology to calculate the UAFG benchmarks. The second stage will involve consultation on the calculation of the UAFG benchmarks. This paper is the final decision on the first stage and details the Commission's chosen methodology.

The Commission considered three options for the methodology to calculate the benchmarks:

- Bottom up
- External comparisons
- Revealed cost

A **bottom up** approach estimates UAFG by utilising the engineering characteristics of the distribution network. Under this approach, each component which contributes to UAFG is identified and a comprehensive quantitative analysis of its contribution to UAFG is carried out. Due to the uncertainty surrounding the causes of UAFG, quantifying the contribution of each cause to total UAFG would not be sufficiently robust. The Commission will therefore not use a bottom up approach.

An **external comparison** involves comparing the UAFG performance of a distributor against the performance of another distributor with similar network characteristics. External comparisons aim to achieve best practice in network performance. However, they may not necessarily take into account the actual circumstances of each gas distribution network in Victoria. The Commission will therefore not use external comparisons.

The **revealed cost** approach uses the gas distributors' past UAFG performance as the base for determining the future UAFG benchmarks. As distributors have been subject to profit-maximising incentives in previous periods, their actual performance should reflect an efficient level of UAFG

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and therefore be a reliable indicator of an efficient benchmark. The majority of stakeholders agreed with the Commission's draft decision to use the revealed cost approach. The Commission will use this approach to calculate the UAFG benchmarks.

When using the revealed cost approach, there is a choice to use either data from the most recent year or a multi-year average of recent years. The Commission proposed these two options in its draft decision.

The **most recent year** approach uses the actual UAFG data from the most recent year that is available and applies this as the forward benchmarks. The advantage of using this approach to calculate the benchmarks is that, theoretically, it represents the best estimate of network conditions moving into the future. In practice, this approach is not robust because UAFG levels are subject to year on year variations due to the inherent uncertainty in the causes.

The **multi-year average** approach takes an average of the actual UAFG data across multiple years and applies this as the forward benchmarks. Using this approach minimises the effect of any variations in year-to-year UAFG levels and is therefore more likely to provide a better estimate of future UAFG levels. Stakeholders generally agreed with this approach.

The Commission will use the revealed cost approach with a multi-year average to calculate the UAFG benchmarks for the next regulatory period. The Commission will propose how many years of data to include in the multi-year average as part of its draft decision on the calculation of the UAFG benchmarks.

There are also six key issues associated with the calculation of UAFG benchmarks that are considered in this paper:

- Gas mains replacement
- Under delivery of gas mains replacement
- Adjusting for efficiencies
- Class A and class B benchmarks
- Settled or unsettled data
- Proposed amendment to the GDSC.

All three distributors have a **gas mains replacement** program to progressively reduce the leaks in their networks by replacing old pipes with new pipes. A majority of stakeholders agreed with the draft decision not to account for possible reductions in UAFG resulting from the distributors' mains replacement programs. They also agreed with the draft decision not to account for possible increases in UAFG caused by continued deterioration of the networks. The Commission has decided to retain its draft decisions on these issues. The Commission considers that any adjustments to UAFG benchmarks on the basis of these factors, without also accounting for possible variations related to the other known causes of UAFG, may bias the UAFG forecast.

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In the 2013 UAFG review, the Commission made a downward adjustment to the UAFG benchmarks because the three distributors had delivered a lower volume of gas mains replacement than approved by the Commission for the 2008-12 regulatory period. The Commission considered that if the distributors undertook the level of mains replacement they were funded for in the previous regulatory period, UAFG levels would be lower than the historical data. For this review, the distributors submitted that they expect to complete their approved kilometres of mains replacement for the 2013-17 regulatory period. As such, the Commission considers that **under delivery of gas mains replacement** is unlikely to be an issue for the 2017 UAFG review.

For revealed cost to be a reliable methodology, the distributors must be efficiently investing in minimising UAFG. To this end, the Commission will consider whether there are any **efficiencies** that can be achieved by distributors and may adjust the forward UAFG benchmarks accordingly. Stakeholders had varied views on the issue. Given the risk that distributors may not be acting efficiently in all cases, the Commission has decided to retain its draft decision on this issue.

There are currently separate UAFG benchmarks for **class A and class B** customers. Class A customers use more than 250 terajoules per annum and class B customers use less than 250 terajoules per annum. The Commission will retain separate UAFG benchmarks for class A and class B customers because it reduces the cross subsidies between the two classes of customers.

Unsettled UAFG data is data gathered by distributors that has not been agreed with each of the retailers. Settled UAFG data has been agreed with each of the retailers. The Commission proposed in its draft decision to only use **settled data**. Two stakeholders argued that the Commission should also use unsettled data on the basis that it reflects the most recent conditions of the network. The Commission has decided to only use settled data because the agreement of retailers ensures the data is reliable. There is no way to ensure the reliability of unsettled data before the distributors and retailers complete the settlement process.

Two stakeholders proposed that **clause 2.4(b) of the GDSC** should be either deleted or amended, on the basis that it does not satisfy its intended purpose as the timeline specified in the clause does not align with the Australian Energy Market Operator (AEMO) UAFG procedures. The clause requires distributors to provide AEMO with written notice by 30 April each year of the volume of gas they have withdrawn from the network for the preceding year. The Commission considers that the date in clause 2.4(b) of the GDSC should be amended rather than deleted. This paper invites comments on what would be a more appropriate date by which distributors must provide the required information to AEMO. The Commission will release a draft decision on the proposed amendment to clause 2.4(b) as part of its draft decision on the calculation of the UAFG benchmarks.

1. About the review

1.1. What is Unaccounted for Gas?

Unaccounted for Gas (UAFG) refers to the difference between the measured quantity of gas entering the gas distribution system from various supply points and the gas delivered to customers.

The causes of UAFG are discussed in section 2.

1.2. The UAFG process

In Victoria, UAFG is managed via a benchmark process. The Gas Distribution System Code (GDSC) sets out UAFG benchmarks, expressed as a percentage of the aggregate quantity of gas injected into the distribution system for each Victorian gas distributor – Australian Gas Networks (AGN, formerly Envestra), Multinet and AusNet Services (AusNet, formerly SP AusNet).¹

The UAFG benchmarks apply to class A and class B customers on the Declared Transmission System (DTS) and non-DTS networks. The DTS was previously known as the Principal Transmission System (PTS), and the non-DTS was previously known as the non-PTS. The GDSC, which currently uses the old terms PTS and non-PTS, will be updated by the Commission as part of this review to reflect the new terms DTS and non-DTS.

Class A customers use more than 250 terajoules per annum and are typically serviced by the high pressure network. Class B customers use less than 250 terajoules per annum and are typically serviced by high, medium and low pressure networks.

A non-DTS network is a transmission pipeline in Victoria that does not form part of the DTS. AGN has non-DTS networks in Bairnsdale and Paynesville. Multinet's non-DTS networks are in the South Gippsland towns which include Korumburra, Leongatha, Inverloch and Wonthaggi. AusNet has non-DTS networks in Ararat, Stawell and Horsham.

The GDSC requires gas distributors to use reasonable endeavours to ensure that UAFG is less than their benchmark. The Australian Energy Market Operator (AEMO) administers an annual reconciliation between gas distributors and retailers based on whether actual UAFG is over or under the benchmark.²

¹ Schedule 1, Part C of the Gas Distribution System Code (GDSC), Version 11.0.

² The UAFG requirements are specified in clause 2.4 of the GDSC.

Under the Victorian UAFG model, retailers are required to purchase sufficient gas to cover customer consumption and actual UAFG. If actual UAFG is greater than the benchmark, the relevant gas distributor is required to compensate the retailers for the UAFG in excess of the benchmark. Where actual UAFG is lower than the benchmark, the retailers make reconciliation payments to the relevant gas distributor. The specific calculation is outlined in Schedule 1, Part C of the GDSC.

The UAFG requirements in the GDSC are intended to incentivise the gas distributors to take steps to minimise the level of UAFG. As a result, the UAFG benchmarks affect the three gas distributors, as well as the cost of gas supply to retailers and, ultimately, Victorian households and businesses.

The GDSC contains UAFG benchmarks for the years 2013 to 2017. Therefore, the current UAFG benchmarks in the GDSC will expire on 31 December 2017. This review will set the UAFG benchmarks for the years 2018 to 2022.

The UAFG benchmarks are required by the *National Gas Rules 2008*.³ Under Part 19 of the *National Gas Rules 2008*, AEMO has established procedures for reconciling UAFG.⁴ The UAFG benchmarks in the GDSC are adopted by AEMO in its procedures.

1.3. The Commission's approach to the review

The Commission is undertaking the review of UAFG benchmarks in two stages.

The first stage of the review, which includes the draft decision that was published on 22 May 2017 and this final decision, involves consultation on the methodology to calculate the UAFG benchmarks. It includes an analysis of possible methodologies to calculate the UAFG benchmarks, and other key issues.

The draft decision invited written submissions from regulated businesses and other interested stakeholders by 16 June 2017. As part of the consultation, Commission staff held a forum on 9 June 2017 for stakeholders to informally discuss and provide initial comments on the draft decision. The Commission received six submissions in response to the draft decision – from

³ Rule 235(8) of the *National Gas Rules 2008* requires the assignment of a UAFG benchmark in accordance with a declared metering requirement. A Ministerial Order dated 27 June 2013 declared Part C1 of Schedule 1 of the GDSC as a declared metering requirement for the purposes of rule 235(8) of the *National Gas Rules 2008* (Victoria Government Gazette No. S 242, 28 June 2013).

⁴ Wholesale Market Distribution UAFG Procedures (Victoria), Version 3.0.

AEMO⁵, AGL Energy (AGL)⁶, AGN⁷, AusNet⁸, Multinet Gas (Multinet)^{9 10} and Red Energy/Lumo Energy (Red/Lumo)¹¹. The submissions, which are published on the Commission's website, have informed the development of this final decision on the methodology to calculate the UAFG benchmarks.

The Commission engaged Zincara Pty Ltd – a consultant with extensive experience in the gas industry – to prepare a report which identifies, develops and evaluates options for a methodology to calculate UAFG benchmarks. The report from Zincara, which is published on the Commission's website, has also informed the Commission's final decision.¹²

The second stage of the review will involve consultation on the calculation of the UAFG benchmarks. It will set UAFG benchmarks for the years 2018-2022 based on the Commission's final decision on the methodology including key issues that are considered as part of the review. The Commission expects to publish a draft decision in September 2017 and a final decision in December 2017. Following its final decision, the Commission will amend the GDSC to give effect to the new UAFG benchmarks.

Stakeholder comments

AGN commented that the Commission's two stage approach to setting the UAFG benchmarks for the 2018 to 2022 regulatory period reflects good industry practice. It stated that the two stage approach will make, and has made to date, for a more focused discussion of the key issues.¹³

⁵ AEMO, June 2017.

⁶ AGL, June 2017.

⁷ AGN, June 2017.

⁸ AusNet, June 2017.

⁹ The Commission received two submissions from Multinet. The first submission, dated 19 April 2017, was made prior to the Commission's draft decision. The second submission, dated 16 June 2017, was made in response to the Commission's draft decision. Both submissions from Multinet are published on the Commission's website.

¹⁰ Multinet, April 2017 (including report prepared for Multinet by Asset Integrity Australasia); Multinet, June 2017.

¹¹ Red/Lumo, June 2017.

¹² Review of Unaccounted for Gas Benchmarks – Methodology, Prepared for Essential Services Commission by Zincara Pty Ltd, July 2017.

¹³ AGN, June 2017, p. 4.

About the review

Multinet requested that the Commission bring forward the milestones and timeframes for the review, and finalise the review as soon as possible so that the new UAFG benchmarks can be set well before 1 January 2018.¹⁴

AEMO submitted that the UAFG review should be finalised by 27 December 2017 to allow at least two business days lead time before the effective date of the new benchmarks.¹⁵

Commission response

The Commission agrees with AGN that a two stage approach to the review of UAFG benchmarks will result in a more focused discussion of the key issues for both the methodology and calculation stages of the review.

In relation to the timelines for the review, the Commission expects to finalise the new UAFG benchmarks prior to 27 December 2017, consistent with the request from AEMO.

1.4. Structure of this paper

The remaining sections of this final decision are as follows:

Section 2 analyses the known causes and contributors to UAFG while also providing some Victorian context to these issues.

Section 3 covers the broad options for a UAFG methodology including bottom up, external comparisons and the revealed cost approach. It discusses the advantages and disadvantages of each option, and concludes with the Commission's methodology to calculate the UAFG benchmarks.

Section 4 examines a number of key issues relating to the review of UAFG benchmarks – gas mains replacement, under delivery of gas mains replacement, adjusting for efficiencies, class A and class B benchmarks, settled or unsettled data, and a proposed amendment to the GDSC.

Section 5 contains the Commission's final decision on the methodology to calculate the UAFG benchmarks for the years 2018 to 2022.

Section 6 outlines the consultation process for the review of UAFG benchmarks, including the next steps following this final decision.

¹⁴ Multinet, April 2017, pp. 1-2.

¹⁵ AEMO, June 2017.

2. Causes of UAFG

There is some uncertainty about the causes of UAFG and the extent to which each of the known causes contributes to UAFG levels. Information provided to the Commission indicates there are approximately 17 components that contribute to UAFG.¹⁶ These components can be divided into five categories:

- fugitive emissions
- metering errors
- heating value
- data quality
- theft.

The extent to which distributors have control over these causes varies for each cause. For example, fugitive emissions are largely within the control of distributors through their mains replacement programs. In contrast, heating value is entirely outside the control of distributors because they do not source the gas that is supplied into their networks.

Even in the case of a new gas distribution network, there will be some amount of UAFG because it is impossible to entirely mitigate all UAFG. Also, although new technology and improved business practices can reduce UAFG levels, continued expansion of the networks may increase the absolute level of system-wide UAFG.

It is also possible that a one-off event – such as leaving a gas valve open between networks – could contribute to UAFG levels.

2.1. Fugitive emissions

Fugitive emissions refers to gas that is lost into the atmosphere from each distributor's network due to leakage. The level of fugitive emissions is to a considerable extent within the control of the distributors given that they are responsible for maintaining the quality of their distribution networks. Leaks are usually caused by defects, material failure and third party damage.

Distributors have a degree of control over the level of fugitive emissions in their network through their mains replacement programs. All Victorian gas distributors have programs to progressively replace the low pressure cast iron and unprotected steel pipes that are susceptible to deterioration

¹⁶ Zincara report, July 2017, p. 9.

over time, and are the main cause of leaks in the distribution system. The old pipes are being replaced with new polyethylene and protected steel pipes that have much lower leakage. The new pipes allow the networks to distribute gas using high pressure instead of low and medium pressure.

The disparity in pipeline technologies, age and condition, operating pressures, maintenance levels and ground conditions makes it difficult to accurately estimate the extent to which fugitive emissions contribute to UAFG.

2.2. Metering errors

The two types of meters that contribute to metering errors are customer meters and custody transfer meters (CTM).

A customer is billed for their gas usage using the measured volume of gas passing through the customer meter at their premises. The volume of gas is then converted to energy by multiplying the volume by the heating value, and for large customers by the pressure and temperature of the gas supplied to the customer.

In Victoria, the GDSC specifies the maximum allowable error limit for meters. Part B of Schedule 1 of the GDSC states that the maximum allowable variance in quantity from the agreed true quantity for a gas meter shall be:

- a) not more than two per cent in favour of the distributor
- b) not more than three per cent in favour of the customer.

In addition, there is a further allowance of plus or minus one per cent for equipment used by large customers to correct their volume measurement to standard conditions. Given that large customers consume substantial amounts of gas, there can be a significant impact on overall UAFG if these customers have not been metered accurately.

A CTM is a meter that measures the volume of gas injected into the distribution system. There are approximately 150 CTMs in the Victorian gas distribution system, and each CTM generally has an accuracy of at least plus or minus one per cent.

Metering errors on both input and output from the distribution system are a significant contributor to UAFG, however the extent of the contribution is difficult to quantify with any level of accuracy.

In general, metering error is somewhat within the control of distributors. Higher quality meters could be used to mitigate some of the metering errors, but this may not be economical.

2.3. Heating value

The heating value of gas is used to convert the measured volume of gas consumption to energy units for the purposes of billing customers. The level of UAFG is calculated using energy instead of volume because customers are billed for the amount of energy they have consumed and retailers pay for the amount of energy that has been supplied by the gas producers. However, gas can only be measured in volume and it is converted to energy by using the heating value.

The heating value is related to the quality of gas delivered into the network. There are multiple sources of gas supply across Victoria and each gas source may not have the same quality and heating value. For simplicity, a uniform state-wide heating value is used to calculate the energy consumption of customers. This leads to some uncertainty around the true heating value of gas in Victoria.

The majority of gas supplied to the Victorian gas market comes from the Gippsland area, which includes the Longford gas plant and the Lang Lang gas plant. A small and declining amount of gas is also supplied from the Port Campbell area, which includes the Otway and Minerva gas plants and the Casino development.

In the 2013 UAFG review, the distributors argued that the multiple gas sources had adversely affected the quality of gas entering their networks. Although AEMO agreed in principle with the distributors' argument, it noted that the margin of error for heating value measurement is plus or minus 0.7 per cent.¹⁷ For this reason, it is not definitive that the heating value for each distributor is adversely affected by the multiple gas sources.

The quality of gas supplied to the distribution system is outside the control of distributors as they do not source the gas being transported through their networks. Nevertheless, the uncertainty associated with heating value is a contributor to UAFG.

2.4. Data quality

The quality of data received and collected by distributors is subject to some administrative and timing errors with customer meters that cannot be read remotely. As all meters cannot be read at the same time, gas demand at any point in time has errors due to meter reading lag. Data quality is therefore a contributing factor in UAFG.

¹⁷ Essential Services Commission 2013, Gas Distribution System Code – Review of Unaccounted for Gas Benchmarks – Draft Decision, March, p. 19.

The gas injected into the network is measured using CTMs which can be read remotely. Similar technology is also used for large customer installations. When UAFG is calculated using the data from different types of meters, the issue of time lag contributes to the UAFG error.

In addition, residential and small industrial and commercial customers do not have any equipment to compensate for temperature and pressure when measuring gas consumption. The calculation of the gas volume deems all of these meters to have the same temperature and pressure when the gas volumes are measured, but in reality temperature and pressure vary across the network.

2.5. Theft

Theft can occur where gas is unlawfully removed from the distribution network, such as where a customer meter is bypassed. The theft of gas is a factor that contributes to UAFG, although the extent of its contribution is difficult to quantitatively assess.

2.6. Conclusion

Draft decision

This section has examined the main causes of UAFG and outlines the many sources of uncertainty associated with UAFG. These sources of uncertainty are relevant to the options for a UAFG methodology and the key issues relating to the review of UAFG benchmarks, which are discussed in subsequent sections of this paper.

Most causes are at least somewhat within the control of distributors. However it may not be cost effective for distributors to address all of these causes in an attempt to minimise UAFG. Fugitive emissions are the cause of UAFG that distributors have the most control over, through their mains replacement programs.

Stakeholder comments

Multinet submitted that the key factors contributing to UAFG include fugitive emissions (network leaks), billing correction factors (pressure and temperature), CTM uncertainty, metering errors, heating value error, billing and accounting errors, and theft.¹⁸

¹⁸ Multinet, April 2017, p. 7.

Multinet also stated that it is well accepted that actual UAFG is difficult to break into component parts due to the inherent uncertainty (compared to electricity) of metering a compressible fluid and the lack of data associated with determining physical unmetered losses.¹⁹

Multinet engaged Asset Integrity Australasia (AIA) to assess the contributory elements of Multinet's UAFG for 2015. Multinet submitted that AIA's analysis is representative of all years of the current access arrangement period.²⁰

The AIA report grouped the contributory elements of Multinet's UAFG into three categories – fugitive emissions, measurement based UAFG and unknown causes. According to AIA, the largest contributor to Multinet's fugitive emissions is leakage from the low pressure network, while temperature compensation is the key driver of Multinet's measurement based UAFG.²¹ AIA also classified the sources of Multinet's UAFG into those which are within Multinet's control and those which are not.²²

AGN commented that there are many components that contribute to the uncertainty of UAFG and these differ between each distribution network. It also supported the Commission's view that it may not be cost effective for distributors to address all of the causes of UAFG in an attempt to minimise UAFG.²³

AusNet indicated that there is substantial uncertainty regarding the degree to which individual factors drive UAFG, and the extent to which these factors are within the control of networks.²⁴

Commission response

The Commission considers that the stakeholder comments are consistent with its positions in the draft decision. In particular, they reinforce the Commission's view that there is some uncertainty about the causes of UAFG and the extent to which each of the known causes contributes to UAFG levels. Further, the extent to which distributors have control over the causes of UAFG varies for each cause.

¹⁹ Ibid.

²⁰ Ibid.

²¹ Ibid.

²² AIA report prepared for Multinet, pp. 13-14.

²³ AGN, June 2017, p. 3.

²⁴ AusNet, June 2017, p. 1.

3. Options for UAFG methodology

Draft decision

Section 8A of the *Essential Services Commission Act 2001* (Vic) (ESC Act) requires the Commission, in seeking to promote the long term interests of Victorian consumers, to have regard to efficiency in the gas industry and incentives for long term investment. Further, the GDSC requires that distributors use reasonable endeavours to ensure that their quantity of UAFG is below their UAFG benchmark. Therefore, the Commission must set efficient benchmarks and distributors must use reasonable endeavours to meet their benchmark.

The UAFG benchmark regime exists to incentivise the gas distributors to efficiently minimise UAFG levels. The distributors are rewarded for reducing UAFG levels below the benchmarks set by the Commission. On the other hand, they are penalised for UAFG levels above the benchmarks.

The regime relies on basic profit-maximising principles and incentivises the distributors to efficiently invest in reducing UAFG if the benefits of doing so exceed the costs.

The level of the UAFG benchmarks does not actually influence incentives as the marginal incentives for distributors are constant for any given level of UAFG. Regardless of the level at which the UAFG benchmarks are set, the distributors will be rewarded or penalised for any reduction or increase in UAFG at the same rate. It is the existence of a benchmark that underpins the incentive for distributors to efficiently invest in minimising UAFG.

Despite this, higher UAFG levels may not be indicative of underperformance by a distributor. As outlined in section 2, there are exogenous factors beyond the distributors' control which partly determine the level of UAFG. The distributors' actions to minimise UAFG levels are focused on the known causes of UAFG that are within their control.

Further, UAFG is not the main incentive driving distributors' investment decisions. The distributors' primary obligations relate to safety and reliability. These factors largely drive business decisions on, for example, mains replacement programs and maintenance expenditure. Such activities potentially reduce UAFG levels, which is a benefit to the distributors in terms of revenue. The UAFG benchmarks are a marginal incentive on top of safety and reliability considerations which are taken into account when the distributors make investment decisions and plan maintenance, but it is only one factor.

Stakeholder comments

Multinet made two arguments relating to its risk exposure under the UAFG incentive scheme.

First, Multinet submitted that the UAFG benchmarks must be set appropriately such that its risk under the scheme is symmetrical and does not result in ongoing underperformance against the benchmarks, which would lead to Multinet having to make reconciliation payments to retailers.²⁵

Second, Multinet argued that it should not be exposed to the volatility of the wholesale gas spot market in calculating reconciliation payments made under the scheme. Multinet commented that the intent of the scheme is to incentivise distributors to minimise the volume of UAFG, and that payments should therefore be calculated based on a pre-determined dollar value per gigajoule that ensures Multinet is not exposed to changes in the wholesale gas market spot price over which it has no control. It stated that relying on the wholesale gas market spot price grossly distorts the incentive properties of the UAFG arrangements by introducing price risk that is beyond Multinet's reasonable control. Multinet argued that, as a result of this price risk, it could be materially penalised or rewarded on a basis that is not consistent with its performance.²⁶

In its second submission, Multinet submitted that a pre-determined UAFG benchmark price for the 2018-2022 regulatory period should be included in the GDSC. Alternatively, Multinet proposed that the Commission should amend the GDSC to direct AEMO to determine the annual price of gas for the UAFG reconciliation process in a way that minimises price risk for distributors. As a further alternative, Multinet claimed that there should be no reconciliation payment obligation on distributors relating to price. It indicated that distributors are not in a position to hedge against the wholesale gas market spot price, and this should be left to retailers who manage this price risk on a daily basis as part of their normal business.²⁷

Multinet also stated that, in setting the new UAFG benchmarks, the Commission must meet both its statutory objectives in the ESC Act and the Revenue and Pricing Principles (RPPs) in section 24(2) of the *National Gas Law*.²⁸ The RPPs state that:

A service provider should be provided with a reasonable opportunity to recover at least the efficient costs the service provider incurs in –
(a) providing reference services; and

²⁵ Multinet, April 2017, p. 3.

²⁶ Ibid, p. 13.

²⁷ Multinet, June 2017, pp. 3-4.

²⁸ Ibid, pp. 1-2.

(b) *complying with a regulatory obligation or requirement or making a regulatory payment.*

Commission response

As stated in the draft decision, section 8A of the ESC Act requires the Commission, in seeking to promote the long term interests of Victorian consumers, to have regard to efficiency in the gas industry and incentives for long term investment. To meet its statutory objectives, the Commission will set efficient UAFG benchmarks to incentivise the distributors to efficiently invest in reducing UAFG if the benefits of doing so exceed the costs. The Commission considers there is no inconsistency between its statutory objectives in the ESC Act and the RPPs in the *National Gas Law*.

The Commission disagrees with Multinet's view in relation to price risk. The price of gas determined by AEMO for the purposes of the UAFG reconciliation process applies equally to distributors and retailers. Such an approach ensures there is a level playing field in the treatment of rewards and penalties that flow from the distributors' performance against the benchmarks. This is despite the fact that UAFG levels are at least somewhat within the control of distributors – but not at all within the control of retailers.

Further, AEMO's use of actual spot and contract prices and quantities to determine the annual gas price for reconciliation purposes is likely to be more accurate than a projected price that is determined – either by the Commission or AEMO – prior to the commencement of each new regulatory period. The Commission notes that neither retailers nor distributors can hedge against the UAFG reconciliation price that is determined by AEMO.

3.1. Bottom up

Draft decision

A bottom up approach uses the engineering characteristics of the distribution network to estimate UAFG. Under this approach, each component which contributes to UAFG is identified and a comprehensive quantitative analysis of its contribution to UAFG is then carried out.

A bottom up approach relies on analysis of UAFG data in order to allocate a portion of total UAFG to each specific cause of UAFG. Given the uncertainty of both the causes and how much each cause contributes to UAFG levels, a bottom up approach would result in the use of technical assumptions that are unlikely to be sufficiently robust. For the above reasons, the use of a bottom up approach is not practical.

Stakeholder comments

Multinet stated that it is well accepted that actual UAFG is difficult to break into component parts because of the inherent uncertainty of metering a compressible fluid and the lack of data associated with determining physical unmetered losses. Multinet engaged AIA to assess the contributory elements of its UAFG for 2015, and AIA found that 35.4 per cent of Multinet's UAFG could not be directly attributed to any individual cause of UAFG.²⁹

Commission response

The Commission agrees with Multinet that it is difficult to measure the individual causes of UAFG. The Commission continues to consider that it is not practical to use a bottom up approach to calculate UAFG benchmarks.

3.2. External comparisons

Draft decision

The use of external comparisons is essentially a benchmarking exercise that takes a top down view of UAFG for each distribution network, and aims to achieve best practice in the management of UAFG. Under this approach, a benchmark is used to compare the UAFG performance of a distributor over time against the UAFG performance of other distributors (either in Victoria or other jurisdictions) with similar characteristics.

When using external comparisons, it is important to recognise that UAFG performance can be affected by a number of factors such as:

- condition and age of the network
- length and type of material in the network
- characteristics of the customer base
- gas throughput of the network
- number of sources of gas supply into the network
- capital expenditure on mains replacement and meter upgrades
- operating expenditure on maintenance of the network.

It is also important to recognise that the availability and quality of relevant data will have a direct impact on the ability to measure the impact that each of the factors listed above has on the UAFG performance of the distributor.

²⁹ Multinet, April 2017, p. 7.

Although external comparisons allow for competition by comparison and thereby provide the distributors with an incentive to improve UAFG performance, they would not necessarily take into account the specific circumstances of each gas distribution network in Victoria. There are a number of factors that cause UAFG, and these factors can affect each distribution network differently. The infrastructure of each distributor is different and network characteristics such as size, age, condition, operating environment and geographical considerations will impact UAFG performance.

Further, external comparisons based on technical assumptions could potentially expose a distributor with an older network that has leaky pipes to the threat of systematic under-recovery of revenue.

Stakeholder comments

The Commission did not receive any comments from stakeholders on external comparisons.

3.3. Revealed cost

Draft decision

The revealed cost approach uses the gas distributors' past UAFG performance as the base for determining the future UAFG benchmarks. The rationale is that as the distributors were subject to a profit-maximising incentive structure in previous periods, their actual performance should reflect an efficient level of UAFG and should be an accurate indicator of an efficient benchmark.

Revealed cost has the major advantage of taking into account the actual circumstances of distributors, even when the individual drivers of UAFG are not known with the required level of precision or where the drivers are out of the control of the distributors. For example, data quality and theft are mostly out of the distributors' control. In historical data, the amount to which these causes contribute to UAFG is difficult to quantify. Under revealed cost, the unknown contribution of data quality and theft is included in an efficient benchmark as historical data accounts for these causes. Under other methodologies, it would be much more difficult to accurately incorporate these factors.

The incentive structure may become unreliable if the distributors believe that benchmarks for future periods will be based on past performance. If the distributors invest less than optimal in the current period, UAFG levels should rise and distributors should underperform their benchmark. If this data is then used to set forward UAFG benchmarks on the assumption that distributors have been efficiently investing in UAFG reduction, the forward benchmarks will be set at these higher levels. The distributors will then receive benefits in subsequent review periods from prolonged under-investment in efficient measures to reduce UAFG.

To mitigate this risk, the Commission will require each distributor to provide a detailed explanation of how it has sought to efficiently reduce UAFG levels during the 2013-2017 regulatory period. This will provide the Commission with confidence that distributors have been efficiently investing in measures to reduce UAFG, and that the data submitted by the distributors reflects efficient levels of UAFG. This issue is discussed further in section 4.3.

If the Commission uses the revealed cost approach, there is a choice to use either the data from the most recent year or a multi-year average of recent years. There are advantages and disadvantages to both approaches.

Stakeholder comments

AGN, AusNet and Red/Lumo supported the revealed cost approach to calculate the UAFG benchmarks.³⁰ AGN stated this is consistent with the approach used by the Commission for previous regulatory periods, and as such is a well understood and transparent approach.³¹

Multinet submitted that the Commission should use the same approach that it used to calculate the 2013-17 UAFG benchmarks – that is, a three year average based on Multinet’s actual UAFG.³²

AGL accepted that the revealed cost methodology is a pragmatic approach to the calculation of UAFG benchmarks given the varied causes of UAFG, many of which are not within the control of the distributors.³³

Commission response

A majority of stakeholders supported the Commission’s proposal to use the revealed cost approach to calculate the UAFG benchmarks. The Commission considers that Multinet’s comment implicitly supports the revealed cost approach given that the Commission used this methodology to calculate the 2013-17 UAFG benchmarks.

³⁰ AGN, June 2017, p. 2; AusNet, June 2017, pp. 2-3; Red/Lumo, June 2017, pp. 1-2.

³¹ AGN, June 2017, p. 2.

³² Multinet, April 2017, p. 11; Multinet, June 2017, p. 1.

³³ AGL, June 2017, p. 1.

3.3.1. Most recent year

Draft decision

The advantage of using the most recent year of UAFG data to calculate the benchmarks is that, assuming no variations in data, the most recent data represents the best estimate of efficient UAFG going forward. In practice, this approach is not robust because UAFG levels are subject to variations due to the inherent uncertainty in the causes.

A risk in using the most recent year of UAFG data is that if that year was influenced by factors beyond the distributors' control which caused actual UAFG levels to be higher or lower than normal, the benchmarks could be set at inappropriate levels. The use of a multi-year average addresses this risk.

Stakeholder comments

AusNet submitted that it would be more appropriate to use the most recent year of data instead of a multi-year average if a sustained trend emerged in the UAFG data, and particularly if there is uncertainty as to whether the trend is likely to continue. AusNet stated that, in these circumstances, a multi-year average is likely to understate or overstate the estimate of UAFG in the next regulatory period.³⁴

Commission response

The Commission considers that there is more merit in using a multi-year average than the most recent year of UAFG data to calculate UAFG benchmarks. Accounting for the variations in year-to-year UAFG data outweighs the benefits of using the most recent year of data. This is because year-to-year variations in UAFG levels have been observed across the network whereas the changing characteristics of the network over time are much less clear. The Commission also notes that a multi-year average still incorporates the most recent year of data.

³⁴ AusNet, June 2017, pp. 2-3.

3.3.2. Multi-year average

Draft decision

Under a multi-year average approach, the effect of any variations in year-to-year UAFG levels are minimised as an average of actual UAFG levels across years is used. For this reason, there is a greater likelihood that a multi-year average will provide a better estimate of future UAFG levels.

There is a question of how many years of data to include in a multi-year average. When using a shorter period, the data is more recent and therefore more likely to reflect the distributors' current circumstances. If the period used is extended, the effects of year-to-year variations are reduced. However, the relevance of the data diminishes as the period used is extended because older data may not reflect the current circumstances faced by the distributors.

When selecting the number of years of UAFG data to include in a multi-year average, it is important to consider whether there are any structural breaks in the data. Structural breaks, such as a change in gas supply (which affects heating values), can distort the UAFG data and should be avoided where possible.

Stakeholder comments

AGN and Red/Lumo supported the revealed cost approach with a multi-year average to calculate the UAFG benchmarks.³⁵

AGN submitted that the Commission should review each distributor's UAFG data and consider each distributor's particular circumstances when selecting the number of years of data to include in the multi-year average.³⁶

Multinet stated that the Commission should use a three year average of the most recently available and validated (unsettled) data.³⁷

AusNet submitted that a multi-year average is appropriate if the UAFG data appears to have no trend and is either stable or exhibits 'random walk' characteristics. AusNet argued, however, that if this is not the case and instead a sustained trend has emerged in the data, there are more appropriate methods to calculate the UAFG benchmarks than a multi-year average. These methods include:

³⁵ AGN, June 2017, p. 2; Red/Lumo, June 2017, pp. 1-2.

³⁶ AGN, June 2017, p. 2.

³⁷ Multinet, April 2017, p. 11; Multinet, June 2017, p. 1.

- a multi-year average with an adjustment to account for the historical trend
- adopting the most recent year, particularly if there is uncertainty as to whether the trend is likely to continue.³⁸

Commission response

A majority of stakeholders supported the revealed cost approach with a multi-year average to calculate the UAFG benchmarks.

In relation to AusNet's argument, the Commission considers that it would be difficult to establish whether a 'sustained trend' will continue over time as the drivers of the trend – namely the causes of UAFG – are uncertain. The uncertainty surrounding the causes of UAFG, and their specific impact on UAFG levels, means that assessing whether a 'sustained trend' is likely to continue is problematic. Therefore, the Commission considers it prudent not to adjust a multi-year average for a 'sustained trend'.

3.4. The Commission's UAFG methodology

A bottom up approach in theory is reasonable provided there is accurate data on which to base the UAFG calculation. In practice, however, this approach is not practical because there is uncertainty about the causes of UAFG and the extent to which each of the known causes contributes to UAFG levels.

The use of external comparisons would allow for competition by comparison and thereby incentivise the distributors to improve UAFG performance. However, they would not necessarily take into consideration the actual circumstances of distributors and may therefore result in unachievable or inefficient UAFG benchmarks.

A major advantage of the revealed cost approach is that it is based on the actual circumstances the distributors are experiencing, even where the extent to which causes contribute to UAFG is unknown or where causes are outside the distributors' control. On this basis, the Commission considers that the revealed cost approach would result in the most reliable and efficient UAFG benchmarks.

In comparison to using the most recent year of UAFG data to calculate the benchmarks, a multi-year average will minimise the effect of possible variations in year-to-year UAFG levels and is therefore likely to be a better metric for more efficient UAFG benchmarks.

³⁸ AusNet, June 2017, p. 2-3.

Stakeholders generally agreed with the Commission that the most appropriate methodology to calculate the UAFG benchmarks is the revealed cost approach with a multi-year average.

For the reasons specified above, the Commission has decided to retain the draft decision and use the revealed cost approach with a multi-year average to calculate the UAFG benchmarks for the next regulatory period.

In both the 2008 and 2013 UAFG reviews, the Commission used the revealed cost approach and a multi-year average of three years to determine UAFG benchmarks.

The Commission will consider how many years of data to include in the multi-year average as part of its draft decision on the calculation of the UAFG benchmarks. The stakeholders will then have an opportunity to comment on this proposal during the consultation.

4. Key issues

The following key issues are associated with the calculation of UAFG benchmarks. The key issues in sections 4.1 to 4.4 were considered in the Commission's draft decision. The new key issues in sections 4.5 and 4.6 have been included in response to stakeholder comments.

4.1. Gas mains replacement

Draft decision

All three distributors have a mains replacement program to reduce the leaks in their low pressure networks and to a lesser extent in their medium pressure networks. The low pressure networks generally consist of old cast iron and unprotected steel mains, and the deterioration of these pipes is the main cause of leaks.

The main drivers for the replacement of the low pressure network are safety and capacity issues, rather than reducing UAFG. Despite this, leaks from the distribution network are a contributor to UAFG. AGN and AusNet are expected to complete their mains replacement program in the mid-2020s, and Multinet in the mid-2030s.

During the 2008 UAFG review, the Commission considered that leakage from low pressure pipes was a significant cause of UAFG and that – all other things being equal – the distributors' mains replacement programs would result in UAFG for class B customers trending downwards as leakage is reduced. On this basis, the Commission applied an annual leakage rate reduction of 200 GJ per kilometre to each distributor's approved kilometres of low pressure mains renewal, to adjust for the estimated reduction in UAFG levels for class B customers.

The three distributors accepted the existence of a relationship between low pressure mains replacement and reduced UAFG, although there was disagreement with the Commission about the leakage rate reduction that should be applied. At the time, the distributors proposed a leakage rate reduction of 100 GJ per kilometre of low pressure mains replaced.

During the 2013 UAFG review, the Commission considered there was significant uncertainty about the causes of UAFG, and that the correlation between the distributors' mains replacement programs and reduced UAFG levels was likely to be low. The Commission's view was supported by UAFG data submitted by the distributors which showed increasing levels of UAFG, despite the distributors' mains replacement programs.

On this basis, the Commission did not apply a downward trend to the forward UAFG benchmarks for class B customers over the 2013-17 regulatory period. The Commission stated that accounting

Key issues

for increased mains replacement without also calculating the countervailing effects could potentially bias the forecast.

At this stage, for the 2017 UAFG review, the Commission continues to consider that accounting for possible reductions in UAFG resulting from the distributors' mains replacement programs, without also accounting for possible variations related to the other known causes of UAFG, may bias the forecast for UAFG. For the same reason, the Commission does not propose to account for the possibility of any increased leakage caused by continued deterioration of the distribution networks which may outweigh the reduced leakage from mains replacement. There are many factors causing UAFG which pull in opposite directions, and collectively they affect the levels of UAFG in a distribution network.

As discussed in section 2, there is some uncertainty about the causes of UAFG, as well as the extent to which each of the known causes contributes to the total UAFG for each distribution network. The Commission notes that studies of each distribution network indicate there are many components that contribute to UAFG, which makes the task of analysing the causes of UAFG considerably complex. The studies have also found that the contribution of each component to the total UAFG differs between distribution networks. Further, these studies have been unable to attribute substantial amounts of UAFG to any specific component.

Stakeholder comments

Multinet disagreed with the Commission's proposals not to account for possible reductions in UAFG resulting from the distributors' mains replacement programs and possible increases in UAFG caused by continued deterioration of the distribution networks. Multinet argued that making adjustments to the UAFG benchmarks for these factors is consistent with good regulatory practice and is symmetrical in nature, in that it considers both improvements and decrements to the benchmarks. However, Multinet also submitted that it did not object to setting aside all adjustments to the benchmarks (including efficiencies) on the basis that they are not material.³⁹

AGN supported the Commission's proposal not to adjust UAFG benchmarks as a result of each distributor's mains replacement program. AGN stated that the objective of its mains replacement program is to improve safety, with the additional benefit of improving supply reliability to gas consumers. AGN commented that the trend UAFG on its network has been unresponsive to the

³⁹ Multinet, June 2017, p. 3.

mains replacement program over the 2010 to 2015 period, suggesting that factors other than leakage are key influences in the level of UAFG in the AGN network.⁴⁰

AGN did not oppose the Commission's proposal not to account for possible increases in UAFG caused by the ongoing deterioration of the distribution network. AGN supported the Commission's view that there are many components that contribute to the uncertainty of UAFG and these differ between each distribution network. It also submitted that the setting of any adjustments to UAFG is potentially problematic and already captured through the revealed cost approach with a multi-year average in any event.⁴¹

AusNet supported the Commission's proposal not to account for possible reductions in UAFG resulting from the distributors' mains replacement programs. AusNet argued there is no clear evidence to suggest that mains replacement activities can improve UAFG performance, and that mains replacement programs are justified on a safety and operational risk basis – not by the extent to which they might reduce UAFG. AusNet stated that although intuitively mains replacement should have a discernible impact on UAFG, in reality the relationship is unclear.⁴²

AusNet also supported the Commission's proposal not to account for possible increases in UAFG due to asset deterioration, on the basis that it is consistent with not accounting for possible UAFG reductions due to mains replacement.⁴³

Red/Lumo supported the Commission's draft decision to disregard both possible reductions in UAFG resulting from the distributors' mains replacement programs and possible increases in UAFG caused by continued deterioration of the distribution networks.⁴⁴

Commission response

With the exception of Multinet, stakeholders supported the Commission's proposal not to account for both possible reductions in UAFG resulting from the distributors' mains replacement programs and possible increases in UAFG caused by continued deterioration of the distribution networks.

The Commission disagrees with Multinet's view that making adjustments to the UAFG benchmarks for the above factors is consistent with good regulatory practice and is symmetrical. The

⁴⁰ AGN, June 2017, pp. 2-3.

⁴¹ Ibid, p. 3.

⁴² AusNet, June 2017, p. 3.

⁴³ Ibid, p. 4.

⁴⁴ Red/Lumo, June 2017, p. 2.

Key issues

Commission considers that such an argument would only be valid if, consistent with a bottom up approach, each component which contributes to UAFG could be identified and then quantified when setting the UAFG benchmarks. However, as discussed in section 3.1, a bottom up approach is not practical.

The Commission's conclusion is supported by AIA's assessment of the causes of UAFG for the Multinet network – notably that 35.4 per cent of Multinet's UAFG in 2015 was not directly attributable to any individual cause of UAFG. As stated in the draft decision, and supported by AusNet, there are many factors causing UAFG which pull in opposite directions, and collectively they affect the levels of UAFG in a distribution network.

On this basis, the Commission considers that accounting for possible reductions in UAFG resulting from the distributors' mains replacement programs, without also accounting for possible variations related to the other known causes of UAFG, may bias the forecast for UAFG. For the same reason, the Commission will not account for the possibility of any increased leakage caused by continued deterioration of the distribution networks which may outweigh the reduced leakage from mains replacement.

4.2. Under delivery of gas mains replacement

Draft decision

For the purposes of the 2013 review of UAFG benchmarks, the three distributors delivered a lower volume of mains replacement than approved by the Commission for the 2008-12 regulatory period. Multinet replaced less than half of the kilometres of pipes previously approved by the Commission, while Envestra (now Australian Gas Networks) replaced just over 60 per cent. SP AusNet (now AusNet Services) completed most, but not all, of its mains replacement program.

As part of the 2013 UAFG review, the Commission found that lower mains replacement had resulted in a windfall gain to the distributors. Given how the regulatory framework operates, consumers had paid gas prices reflective of the higher volumes of mains replacement approved in the previous regulatory period, not the actual volumes completed. Although underspending resulted in a lower capital base, and therefore lower projected returns on capital and depreciation allowances for future periods, the distributors retained the return on, and had the use of the return of, capital for the increment of approved expenditure not spent in 2008-12.

Accordingly, the Commission decided to make a downward adjustment to the forecast base UAFG benchmarks. The Commission considered that if the distributors undertook the level of mains replacement that they were funded for in the previous regulatory period, UAFG levels would be lower than the historical data.

Key issues

The Commission considers that underspending on gas mains replacement is unlikely to be an issue for the 2017 review of UAFG benchmarks because the scope for the distributors to underspend on mains replacement is now limited.

For the 2013-17 access arrangement period, the Australian Energy Regulator (AER) used the historical volumes delivered by the distributors over 2008-12 in approving the capital expenditure for each distributor's mains replacement program. The AER also put in place a mechanism which allowed a distributor to seek an additional allowance for expenditure on the mains replacement program during the current access arrangement period (via a cost pass through application) if the distributor could justify the additional expenditure and demonstrate that it could complete the work by the end of 2017.

All three distributors sought, and were granted approval by the AER for, additional capital expenditure to extend their mains replacement programs during 2013-17. The distributors have indicated that they will complete their mains replacement consistent with the allowance approved by the AER for the current access arrangement period.

Stakeholder comments

AGN and AusNet submitted that they are on track to deliver the volume of gas mains replacement approved by the AER during the 2013-17 access arrangement period – 696 kilometres for AGN and 500 kilometres for AusNet.⁴⁵

Multinet commented that it expects to replace 527 kilometres of low pressure mains with high pressure mains over the 2013-17 access arrangement period, which is more than double the AER's original forecast. Multinet indicated that its proposed increased volumes of mains replacement ensure that it remains on track to complete its mains replacement program by 2033.⁴⁶

AGL noted that in previous regulatory periods the gas distributors failed to complete works that would have reduced their controllable UAFG.⁴⁷

Commission response

Based on feedback provided by stakeholders at the forum on 9 June 2017, the Commission has decided to now refer to this issue as under delivery of, rather than underspending on, gas mains replacement. The reason for the change in terminology is that the Commission is interested in the

⁴⁵ AGN, June 2017, p. 2; AusNet, June 2017, p. 3.

⁴⁶ Multinet, April 2017, p. 9.

⁴⁷ AGL, June 2017, p. 1.

Key issues

volume of mains replacement that is delivered by the distributors (and its relationship with lower UAFG levels), rather than the cost of the distributors' capital expenditure on mains replacement.

The Commission notes that the three distributors are currently on track to deliver the kilometres of gas mains replacement that have been approved by the AER for the 2013-17 access arrangement period. The Commission continues to consider that under delivery of gas mains replacement by distributors is unlikely to be an issue for the 2017 UAFG review because the scope for this to occur is limited.

4.3. Adjusting for efficiencies

Draft decision

As per the 2013 review of UAFG benchmarks, the Commission may consider whether there are any efficiencies that can be achieved by the distributors. The revealed cost methodology relies on the assumption that the distributors are efficiently minimising UAFG. Hence, the Commission will require distributors to provide a detailed explanation of how they have sought to efficiently reduce UAFG levels during the 2013-17 regulatory period. If the Commission believes there are efficiencies still to be gained by distributors, the Commission may decide to adjust the forward UAFG benchmarks accordingly.

For example, in its 2013 decision, the Commission applied a downward trend to the non-PTS benchmarks of SP AusNet (now AusNet Services) to account for expected efficiency improvements based on historical performance.

Stakeholder comments

AusNet did not support adjusting the forward UAFG benchmarks to reflect potential efficiencies if these efficiencies cannot be clearly established and robustly quantified. It noted that the draft decision does not explicitly identify the source of potential efficiencies. AusNet commented that, to make efficiency adjustments, the Commission must first quantify a causal link between initiatives the distributor can undertake (e.g. asset replacement programs) and UAFG. AusNet argued this has proved to be problematic in the past due to the inherent uncertainty in the causes of UAFG and the degree to which distributors can reduce it.⁴⁸

AusNet submitted that the Commission should not pre-empt efficiencies due to distributor-initiated programs of work on the basis that it would produce a benchmark that systematically penalises distributors. It stated that the expected efficiency improvements for which the Commission applied

⁴⁸ AusNet, June 2017, pp. 4-5.

a downward adjustment to AusNet's non-PTS benchmarks during the 2013 UAFG review did not eventuate during the 2013-17 regulatory period, and that UAFG for that network has increased since 2011 despite AusNet's reasonable endeavours to reduce UAFG. AusNet claimed this example highlights the danger of reflecting possible efficiencies into benchmarks when it is not clear distributors are able to achieve such efficiencies.⁴⁹

AusNet also submitted that the revealed cost approach provides sufficiently strong incentives to distributors to drive UAFG improvements where they are able to do so.⁵⁰

AGN commented that it would like to understand further the basis on which the Commission may make efficiency adjustments to the forward UAFG benchmarks. AGN proposed to work collaboratively with the Commission to understand what the adjustment to future UAFG benchmarks would be, if the Commission elects to apply an adjustment in light of AGN's expected completion of its mains replacement program.⁵¹

Multinet submitted that the forward UAFG benchmarks should be adjusted for all efficiencies, including possible reductions in UAFG resulting from the distributors' mains replacement programs and possible increases in UAFG caused by continued deterioration of the distribution networks. Multinet argued that such an approach is consistent with good regulatory practice and is symmetrical in nature, in that it considers both improvements and decrements to the benchmarks. However, Multinet also submitted that it did not object to setting aside all adjustments to the benchmarks (including efficiencies) on the basis that they are not material.⁵²

Red/Lumo supported the Commission's proposal to consider whether there are any efficiencies that can be achieved by the distributors in the 2018-2022 regulatory period, and to adjust the UAFG benchmarks accordingly. Red/Lumo stated that distributors may have an incentive to artificially inflate their actual UAFG levels during the 2013-2017 regulatory period, and especially in the later years of that period.⁵³

Commission response

As stated in the draft decision, the revealed cost approach assumes that the distributors are efficiently minimising UAFG because they are subject to a profit-maximising incentive structure.

⁴⁹ Ibid.

⁵⁰ Ibid.

⁵¹ AGN, June 2017, p. 3.

⁵² Multinet, June 2017, p. 3.

⁵³ Red/Lumo, June 2017, pp. 2-3.

Key issues

There is nevertheless a risk that distributors may not be acting efficiently in all cases. Therefore, the Commission will retain the discretion to adjust the forward UAFG benchmarks for efficiencies in appropriate circumstances.

The Commission considers that the forward UAFG benchmarks should only be adjusted for an expected efficiency if the efficiency can be identified and its impact on UAFG levels can be quantified. The process to be adopted by the Commission will depend on the type of efficiency and the circumstances of the particular case.

In relation to the source of potential efficiencies, the Commission will carefully consider the detailed explanations from distributors on how they have efficiently sought to reduce UAFG levels during the current regulatory period, as well as the distributors' strategies for how they will seek efficiencies to minimise UAFG levels during the next regulatory period. By way of example, the potential efficiencies may arise from the distributors' investment or operational activities relating to the management of UAFG.

In relation to AusNet's comment about the efficiency adjustment that was applied to its non-PTS benchmarks in the 2013 UAFG review, the Commission considers that AusNet has not presented any evidence to suggest that the expected efficiency improvements did not eventuate during the 2013-17 regulatory period. The statement that UAFG for AusNet's non-PTS network has increased since 2011 does not establish that the efficiency adjustment was incorrectly applied by the Commission. Given the uncertainty regarding the degree to which individual factors drive UAFG – which AusNet acknowledges in its submission – the increase in UAFG for the particular network may have been due to reasons other than an inability by AusNet to achieve the expected efficiencies.

The Commission notes that it has responded to Multinet's position on adjusting for efficiencies in section 4.1.

4.4. Class A and class B benchmarks

Draft decision

In both the 2008 and 2013 reviews of UAFG benchmarks, the Commission applied separate benchmarks for class A and class B customers. The Commission acknowledged that a single UAFG benchmark may be appropriate in principle given that injections of gas for class A and class B customers are not measured separately. However, the Commission also accepted that class A customers are serviced by high pressure mains that have very low leakage rates compared to the high, medium and low pressure mains – and associated equipment – which service class B customers.

Key issues

The rationale for setting separate UAFG benchmarks for these two customer classes is that it is more reflective of actual field conditions. Class A customers are large customers with sophisticated equipment for measuring their gas consumption. The meters for these customers have a high degree of accuracy. Further, these customers are serviced by field equipment that measures the pressure and temperature of the gas volume and corrects the measured volume to the standard pressure and temperature conditions for billing purposes. This means that all class A customers are billed under the same conditions. Given there is no such correction for class B customers, the metering errors for class B customers exceed those for class A customers.

In addition, the class A customers are supplied from the distributors' high pressure mains which experience lower rates of leakage than the low and medium pressure mains which supply most of the class B customers.

Therefore, having separate UAFG benchmarks for class A and class B customers reduces any cross subsidy in UAFG costs between these two classes of customers, and results in a UAFG allocation that is more cost reflective.

For the current review of UAFG benchmarks, the Commission considers that it is unreasonable to set the UAFG benchmark for class A customers at the same level as for class B customers. On this basis, the Commission proposes to retain the current two benchmark approach to UAFG.

Stakeholder comments

AGN, AusNet and Red/Lumo supported the Commission's proposal to retain separate UAFG benchmarks for class A and class B customers.⁵⁴

Commission response

The stakeholders either supported or did not comment on the Commission's proposal to retain separate UAFG benchmarks for class A and class B customers. On this basis, the Commission continues to consider that it is unreasonable to set the UAFG benchmark for class A customers at the same level as for class B customers. The Commission will therefore retain the current two benchmark approach to UAFG for the 2018-22 regulatory period.

⁵⁴ AGN, June 2017, p. 3; AusNet, June 2017, p. 5; Red/Lumo, June 2017, p. 3.

4.5. Settled or unsettled data

There are two types of historical UAFG data that can potentially be used to calculate the forward UAFG benchmarks. Unsettled UAFG data refers to the data which is gathered by the distributors but has not been agreed with each of the retailers. Settled UAFG data refers to the data that has been gathered by the distributors and has then been agreed with each of the retailers. After the UAFG data has been settled between a distributor and retailers, AEMO determines the reconciliation amounts that are to be paid by the relevant parties.

In its draft decision, the Commission indicated that it would use settled UAFG data to calculate the UAFG benchmarks for the years 2018-2022. In response to the draft decision, two stakeholders proposed that the Commission should also use UAFG data which has not been settled between distributors and retailers.

Stakeholder comments

Multinet submitted that the Commission should use the most recent available data – whether settled or not – on the basis that it is the best and most accurate information available. Multinet stated that its experience in settling UAFG data is that it can take up to seven months for final settlement and for all parties to agree. It argued that the settlement process is slow and there is no material difference between the settled and unsettled data.⁵⁵

Multinet also claimed that if the Commission only uses settled data, this incentivises retailers to delay the settlement process so that Multinet has lower UAFG benchmarks for the 2018-22 regulatory period, and Multinet is thereby penalised. It also stated that there are no obligations on the retailers to respond in a timely manner. Multinet also commented that the negotiations between distributors and retailers do not change the overall settlement amount, but that the amount is merely redistributed among retailers.⁵⁶

AGN submitted that unsettled data should be used to calculate the UAFG benchmarks because it reflects the most recent conditions for the network. AGN stated that, based on its past experience, the total UAFG data does not change during the settlement process. It commented that the negotiations with retailers focus on the amount of UAFG allocated to each retailer, rather than the total amount of UAFG which is relevant for setting UAFG benchmarks going forward.⁵⁷

⁵⁵ Multinet, June 2017, pp. 1-2.

⁵⁶ Ibid, pp. 2-3.

⁵⁷ AGN, June 2017, p. 2.

Key issues

AGN also argued that using older, settled data may result in unachievable or irrelevant UAFG benchmarks, which would work against the incentive properties of the UAFG benchmark regime.⁵⁸

Commission response

Given that reliable data is required to set efficient UAFG benchmarks, the Commission considers that only settled UAFG data should be used to calculate the new benchmarks. The Commission agrees that there is some merit in using the most recent UAFG data to calculate the forward UAFG benchmarks as it may reflect the most recent conditions of the distribution networks. However, the UAFG data does not reflect the most recent conditions of the networks if it is not reliable.

The use of unsettled data would mean that retailers are unable to comment on whether it reliably represents UAFG levels. Given that retailers are directly affected by the UAFG benchmarks, the Commission considers this would not represent a transparent or prudent approach to the calculation of UAFG benchmarks. The robustness of the UAFG benchmark regime must be supported by the use of reliable UAFG data which has been accepted by all relevant parties. The Commission notes that there is no way to check the reliability of unsettled data before the distributors and retailers complete the settlement process. As such, the settlement process provides an important degree of scrutiny.

Although Multinet and AGN indicated that historically there has been either little or no difference between settled and unsettled data, this may not always be the case and it is possible that material differences may arise. There are risks in using unsettled data that may be unreliable – similar to relying on financial accounts that have not been independently audited as true and correct.

In relation to Multinet's argument that retailers have an incentive to delay the settlement process if the Commission only uses settled data, the Commission considers that businesses would take into account a range of factors during the settlement process and these factors can pull incentives in opposite directions. The UAFG framework ensures that rewards and penalties which flow from the distributors' performance against the benchmarks are treated equally. If a distributor underperforms its benchmark by a certain percentage, retailers are entitled to receive reconciliation payments from the distributor. If a distributor outperforms its benchmark by the same percentage, the distributor is entitled to receive reconciliation payments of an equal amount from retailers.

The Commission notes that whenever businesses are entitled to receive reconciliation payments, they have an incentive to expedite the settlement process in order to receive the payments more quickly due to the time value of money.

⁵⁸ Ibid.

4.6. Proposed amendment to the GDSC

Two stakeholders proposed that clause 2.4(b) of the GDSC should be either deleted or amended. This is a new issue that was not considered in the Commission's draft decision.

Clause 2.4(b) of the GDSC provides that a distributor must give written notice to AEMO by 30 April each year of the volume of gas withdrawn by the distributor for a customer.

Stakeholder comments

Multinet submitted that clause 2.4(b) of the GDSC should be deleted because AEMO is not in a position to provide CTM and hourly metered customer data until around June each year for the preceding year. Multinet stated that distributors and retailers then agree the data and AEMO is provided with the agreed, settled data for invoicing. Alternatively, if the clause must remain, Multinet proposed that it should be amended to refer to 30 April of the following year.⁵⁹

AGN requested that clause 2.4(b) of the GDSC be deleted because AEMO is not in a position to provide injections, net system load and pricing data to distributors until 118 business days after the end of December. AGN indicated that the process is detailed in AEMO's Wholesale Market Distribution UAFG Procedures (Victoria) and typically equates to the end of June each year. AGN stated that once distributors receive this data from AEMO, they need to reconcile it and basic metered customer data with the retailers. Although AGN's preference is to delete the clause, as an alternative it proposed that the clause could be amended to refer to the AEMO UAFG procedures, to avoid duplication of requirements and further potential misalignment in the future.⁶⁰

Commission response

The Commission acknowledges that the timeline specified in clause 2.4(b) of the GDSC no longer satisfies its intended purpose because it does not align with the process detailed in AEMO's Wholesale Market Distribution UAFG Procedures (Victoria). In particular, the date of 30 April is earlier than the period ending 118 business days after the end of December – which is the earliest date that AEMO can provide injections, net system load and pricing data to distributors.

⁵⁹ Multinet, June 2017, p. 4.

⁶⁰ AGN, June 2017, pp. 3-4.

The Commission notes that the date of 30 April was inserted into the GDSC prior to the introduction of full retail competition in 2002. At that time, it was possible for the distributors to provide the required information to AEMO by 30 April because there were only host retailers.⁶¹

The Commission does not agree with Multinet and AGN that clause 2.4(b) should be deleted. This clause imposes an important regulatory requirement for the UAFG process, so the Commission needs to be confident that distributors will provide the required information to AEMO in compliance with their obligations. The Commission therefore considers that the date in clause 2.4(b) should be amended.

To this end, the Commission invites comments from regulated businesses and other interested stakeholders on what would be a more appropriate date by which distributors must give the required information to AEMO. The comments should be included in the submissions from stakeholders on the calculation of the new UAFG benchmarks. The Commission will consider the stakeholder comments and release a draft decision on the proposed amendment to clause 2.4(b) of the GDSC as part of its draft decision on the calculation of the new UAFG benchmarks.

⁶¹ Host retailers, also known as tier 1 retailers, are required to offer to supply gas to all customers in their local area.

5. Final decision on UAFG methodology

The Commission's final decision on the methodology to calculate the UAFG benchmarks comprises the following elements:

1. The Commission will use the revealed cost approach with a multi-year average to calculate the UAFG benchmarks.
2. The Commission will use actual UAFG data that has been settled by distributors and retailers to calculate the UAFG benchmarks.
3. The Commission will not account for possible reductions in UAFG resulting from the distributors' mains replacement programs.
4. The Commission will not account for possible increases in UAFG caused by continued deterioration of the distribution networks.
5. The Commission will consider whether there are any efficiencies that can be achieved by the distributors, and may decide to adjust the forward UAFG benchmarks accordingly.
6. The Commission will retain separate UAFG benchmarks for class A and class B customers.

6. Consultation

6.1. Submissions

This final decision concludes the Commission's consultation on the methodology to calculate the UAFG benchmarks for the years 2018-2022.

The Commission now invites submissions from regulated businesses and other interested stakeholders on the calculation of the new UAFG benchmarks. The submissions may also comment on the proposed amendment to clause 2.4(b) of the GDSC that is discussed in section 4.6.

The Commission requires the submissions from gas distributors on the calculation of the UAFG benchmarks to include:

- actual UAFG data that has been settled as part of the reconciliation process that is administered by AEMO
- a detailed assessment of the causes of UAFG to support their respective UAFG benchmark proposals
- a detailed explanation of how they have efficiently sought to reduce UAFG levels during the 2013-2017 regulatory period
- a comprehensive strategy for how they will seek efficiencies to minimise UAFG levels during the 2018-2022 regulatory period.

Submissions should be made by 5pm on 11 August 2017 in either of the following forms, noting our preference that submissions are made in electronic form:

By email: energy.submissions@esc.vic.gov.au

By post: Essential Services Commission
Level 37, 2 Lonsdale Street
Melbourne VIC 3000

The Commission's general approach is that submissions will be published on our website, except for any information that is commercially sensitive or confidential. Submissions should clearly identify which information is sensitive or confidential.

For any questions regarding this consultation, please contact us on (03) 9032 1300. The Commission's approach to consultation is set out in our *Charter of Consultation and Regulatory Practice* (2012).

6.2. Next steps

During the second half of 2017, the Commission will consult with regulated businesses and other interested stakeholders on the calculation of the UAFG benchmarks for the years 2018-2022. As part of this consultation, the Commission expects to publish a draft decision in September 2017 and a final decision in December 2017. Following its final decision, the Commission will amend the GDSC to give effect to the new UAFG benchmarks.

Abbreviations

AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
AGL	AGL Energy
AGN	Australian Gas Networks
AIA	Asset Integrity Australasia
AusNet	AusNet Services
Commission	Essential Services Commission
CTM	Custody Transfer Meter
DTS	Declared Transmission System
GDSC	Gas Distribution System Code
Lumo	Lumo Energy
Multinet	Multinet Gas
Non-DTS	Non-Declared Transmission System
Non-PTS	Non-Principal Transmission System
PTS	Principal Transmission System
Red	Red Energy
UAFG	Unaccounted for Gas