

Unaccounted for Gas

1.1 Summary of key points

This attachment provides an overview of SP AusNet's proposed approach to the treatment of unaccounted for gas (UAfG). The key points are:

- The existing incentive mechanism has merit, but has not delivered symmetrical outcomes;
- The low pressure mains replacement program has not affected UAfG contrary to the ESC's position in the 2008 GAAR;
- External advice demonstrates that the level of losses associated with the low pressure system is limited and that the majority of UAfG is not attributable to any specific source;
- SP AusNet proposes to reset the UAfG benchmark to align with historical performance; and
- No forecast reduction of UAfG has been assumed, given the evidence that there is no clear link between capital works and UAfG outcomes.

1.2 Document Structure

This remainder of this attachment is structured as follows:

- Section 1.3 cites the applicable regulatory requirements.
- Section 1.4 provides an overview and critique of the current arrangements for treatment of UAfG.
- Section 1.5 explains and sets out the reasoning underpinning SP AusNet's proposed approach to the treatment of UAfG in its revised access arrangement.

1.3 Regulatory requirements and SP AusNet's compliance

SP AusNet's current access arrangement includes an incentive mechanism in relation to UAfG. As explained in further detail in section 1.4 below, this incentive mechanism encourages SP AusNet to reduce UAfG below a pre-determined benchmark. AEMO is responsible for the operational procedures that implement the UAfG benchmark in accordance with Rule 317 of the NGR.

The current UAfG benchmark is contained in Schedule 1 of the Victorian Gas Distribution System Code. Any change to the UAfG benchmark remains the responsibility of the ESC in accordance with the change procedures in Schedule 4 of the Victorian Gas Distribution System Code. Section 32 of the National Gas (Victoria) Act 2008 provides that the AER may request amendment to the Gas Distribution System Code.

In light of the above provisions, SP AusNet expects that the AER and the ESC would work together to ensure that any change to the UAfG benchmark in the incentive mechanism for the forthcoming access arrangement period would be given effect through an appropriate amendment to Schedule 1 of the Victorian Gas Distribution System Code.

1.4 Overview of current arrangements

UAfG refers to the difference between the measured quantity of gas entering the gas distribution system and the measured quantity of gas withdrawn by customers. UAfG can arise because of metering errors; theft; inaccuracy in the conversion from quantity of gas measured to energy (reflecting discrepancies in temperature, pressure, heating value, altitude or the gas compressibility factor); leakage and a number of other minor factors.

SP AusNet's Gas Distribution Network is subject to a UAfG incentive mechanism. This mechanism is designed to ensure that capital and operating expenditure decisions take

UAfG into account. As such, it is consistent with the Revenue and Pricing Principles in section 24(3) of the NGL, which states that:

“A service provider should be provided with effective incentives in order to promote economic efficiency with respect to reference services the service provider provides. The economic efficiency that should be promoted includes—

- (a) efficient investment in, or in connection with, a pipeline with which the service provider provides reference services; and*
- (b) the efficient provision of pipeline services; and*
- (c) the efficient use of the pipeline.”*

Retailers are exposed to a set percentage of losses for each customer class:

- If actual UAfG exceeds the benchmark, SP AusNet rebates retailers for the expenditure incurred in sourcing the additional gas for their customers; and
- If actual UAfG is less than the benchmark, the retailer will pay SP AusNet the value of gas that SP AusNet has saved.

The settlement process between retailers and distributors is performed in July/August after the calendar year for which reconciliation is to occur, although the process is liable to delay due to a number of factors.

The existing delays with the current wash-up process are related to the need for both SP AusNet and multiple retailers to agree on the recorded consumption, the tracking and use of multiple AEMO issued measurement data sets, filtering of duplicate data, the reconciliation of measurement data that straddles the end of the calendar year, and simply the volume of data requiring processing. Compounding the above issues is the fact that SP AusNet’s UAfG reconciliation procedure remains a largely manual task.

Reconciliation is conducted in accordance with the ‘Annual UAfG Reconciliation Procedure’. Allocation of consumption is performed such that Tariff D is categorised into either Class A or Class B, depending on annual consumption. All Tariff V consumption is categorized as Class B. Standard rules apply for the settlement of non-interval meter where a bill cycle is involved.

In the 2008 GAAR, the ESC set a declining UAfG benchmark to reflect an assumed 200GJ reduction in lost gas resulting from each km of low pressure mains replaced. The ESC assumed that if the Low Pressure Mains Replacement (LPMR) program was completed as funded, then the expected financial outcome of the incentive mechanism would be zero. However, as explained below, the ESC’s assumptions have not proved to be correct.

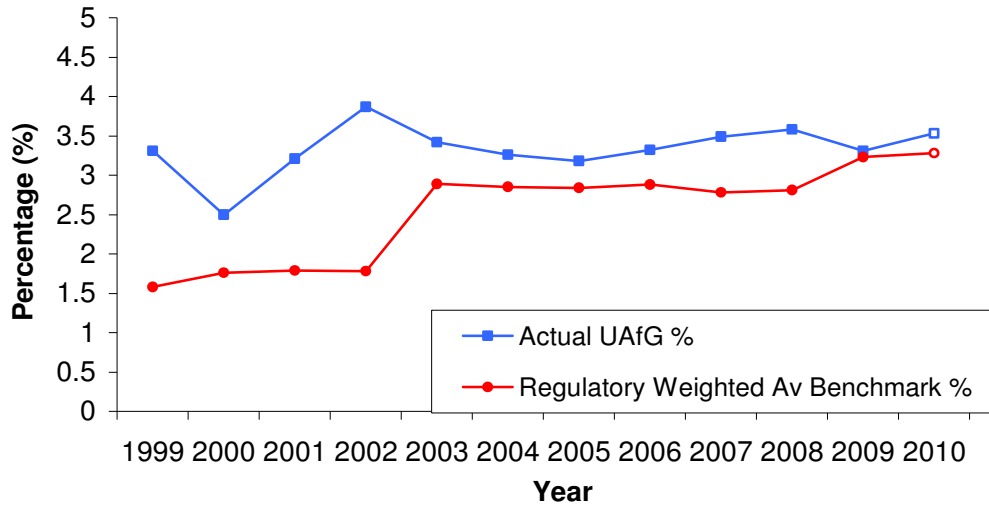
In addition, SP AusNet’s analysis shows that if the implied relationship of leak rate per km is assumed to be true, replacing the entire low pressure network would only achieve a UAfG saving of \$1 million¹ per annum compared to a capital cost of \$275 million². This analysis illustrates that the current incentive mechanism cannot drive the LPMR program, instead, its focus must remain the safety of the network.

As shown in Figure 1-1 below, SP AusNet remains in a net loss position on its UAfG payments. SP AusNet has been unable to achieve a below benchmark result in any year and therefore has not received any payment from retailers. Although SP AusNet has implemented significant LPMR over the period this has not resulted in improved UAfG outcomes (2008 being a clear example).

¹ Calculation of \$1.092million based on a reduction of 200GJ/km, renewal of 1400km of low pressure at an average spot/transport cost of \$3.90/GJ, based on data and dollars from 2010.

² Calculation of \$187.6million based on remaining low pressure length in 2010 of 1,400km at an average replacement cost of \$134kper km.

Figure1-1: SP AusNet (PTS) UAfG



Source: SP AusNet

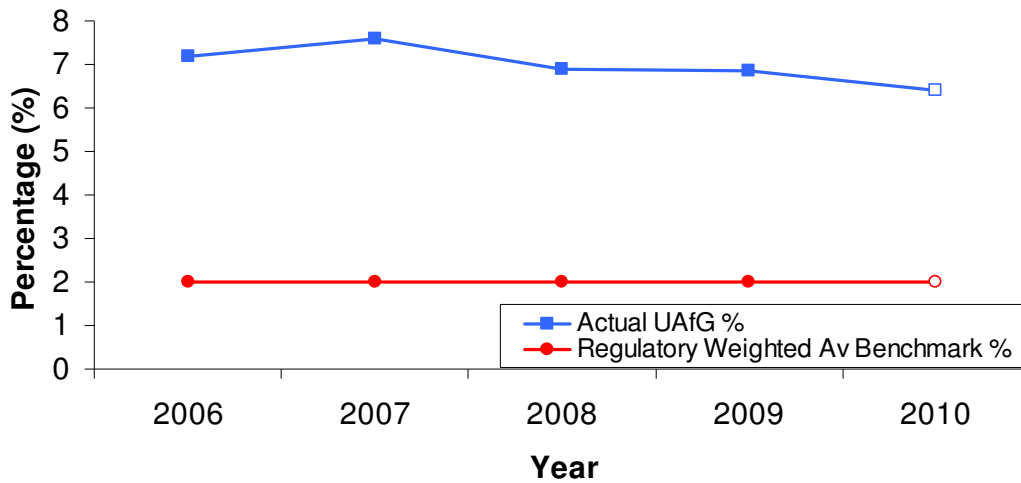
SP AusNet was also disadvantaged in the 2008 GAAR due to the implementation of a benchmark level of losses in the Non-Principal Transmission System (Non-PTS)³ networks in line with the other DBs.

Whereas the Non-PTS networks operated by Multinet and Envestra are predominately new towns, with low leakage rates associated with modern, recently constructed polyethylene networks, SP AusNet's Non-PTS assets comprise the old 'town gas' networks of Ararat, Stawell and Horsham. Although sections of these towns have been more recently reticulated, significant parts of these networks are old low pressure cast iron mains, with high leakage rates.

Much of these networks previously carried 'town gas' prior to being connected to natural gas supply from the coastal pipeline. It was at this stage that the amount of reticulation increased and newer assets were added to the existing older networks. SP AusNet's actual UAfG during the current access arrangement period supports the concerns raised by SP AusNet in the 2008 GAAR as demonstrated in Figure 1-2 below.

³ Non PTS network is a transmission system not operated by AEMO.

Figure 1-2: SP AusNet (Non-PTS) UAfG



Source: SP AusNet

Table 1-1 below sets out the weighted average benchmarks and performance attained during the 2010 year as submitted for reconciliation with the applicable retailers.

Table 1-1: 2010 SP AusNet UAfG benchmarks and performance

| Network Supplied by | Regulatory Weighed Average Benchmark % | Actual % | Internal KPI |
|---------------------|--|----------|--------------|
| PTS | 3.27 | 3.53 | 3.43% |
| Non-PTS | 2.00 | 6.40 | - |

Source: SP AusNet

1.5 Proposed arrangements for forthcoming period

In accordance with rule 72(1)(l), this section explains SP AusNet’s rationale for the proposed UAfG incentive mechanism for the forthcoming access arrangement period.

SP AusNet proposes to maintain the current structure of UAfG arrangements. Although the current incentive arrangement does not drive mains replacement, it does provide an important focus on maintaining downward pressure on UAfG in making operating and capital expenditure decisions. The mechanism is therefore consistent with the Revenue and Pricing Principles section 24(3) of the NGL, as required by rule 98(3). SP AusNet therefore continues to support the UAfG incentive arrangements providing that the benchmark is set appropriately. As already noted, the current benchmark has proven to be unrealistically low, particularly for the Non – PTS network.

SP AusNet proposes that benchmarks be set to reflect the most recent observed levels (2010) to ensure, as far as practicable, the outcomes of this incentive arrangement are symmetrical in nature. In addition, SP AusNet proposes the benchmarks be kept flat and include no downwards adjustment for the LPMR program, for the reasons set out below. SP AusNet’s proposed benchmarks are set out in Table 1-2 below.

Table 1-2: Proposed SP AusNet UAFG benchmarks

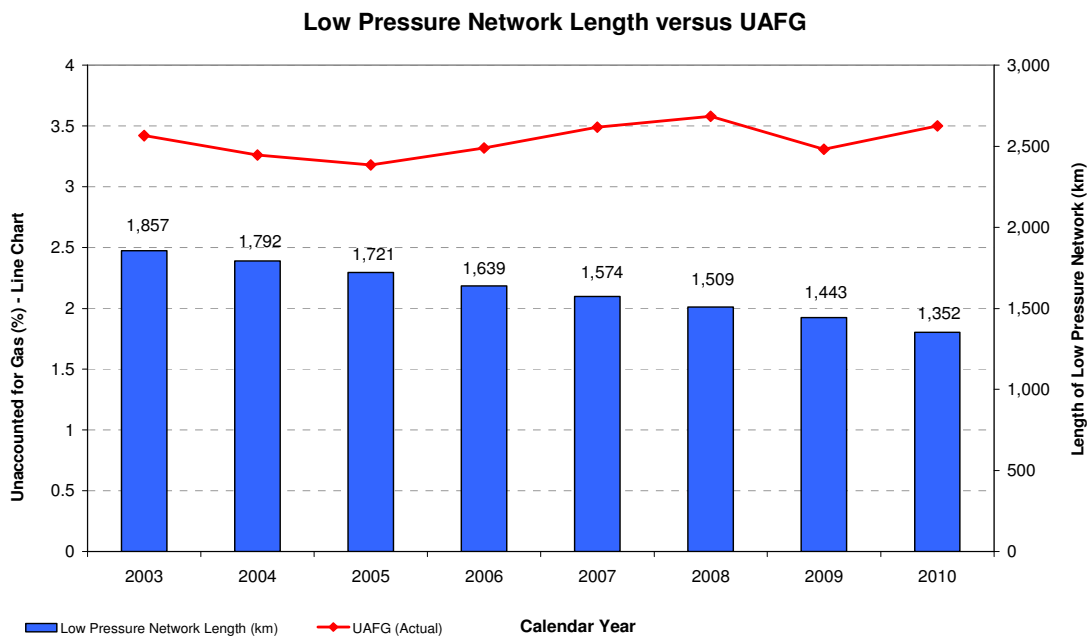
| Network Supplied by | Regulatory Benchmark Class A | Regulatory Benchmark Class B | Regulatory Weighed Average Benchmark % |
|---------------------|------------------------------|------------------------------|--|
| PTS | 0.3 | 5.4 | 3.53 |
| Non-PTS | 6.4 ⁴ | 6.4 | 6.4 |

Source: SP AusNet

1.5.1 Rationale for Flat Benchmark

The LPMR and MPMR programs are justified on a safety and operational risk mitigation basis, not in terms of reducing UAFG (only a proportion of which is from fugitive emissions). The lack of correlation between mains replacement and UAFG is set out below in Figure 1-3 and clearly identifies that although intuitively mains replacement should have a discernible impact on UAFG, in reality, the relationship is unclear. The rationale for this lack of relationship is set out later in this chapter.

Figure1-3: Comparison of LPMR activities and UAFG results



Correlation: -0.47413 R2: 0.22480

Source: SP AusNet

The Figure 1-3, above, suggests that there is a negative relationship between UAFG and mains renewal, i.e. a decrease in network length is resulting in increased UAFG. This is counterintuitive, but can be explained by numerous other influences, such as weather impacts and/or deterioration rates of the overall network assets, that outweigh the effect of the mains renewal program.

⁴ While no Class A users exist in the SP AusNet Non-PTS network a benchmark has been included for completeness.

SP AusNet commissioned a detailed study by Asset Integrity Australia (AIA)⁵ to determine the contributors to UAfG and assist SP AusNet to address the consistent financial penalties realised under the current UAfG framework. This study is attached as Appendix 10A.

A key finding is that:

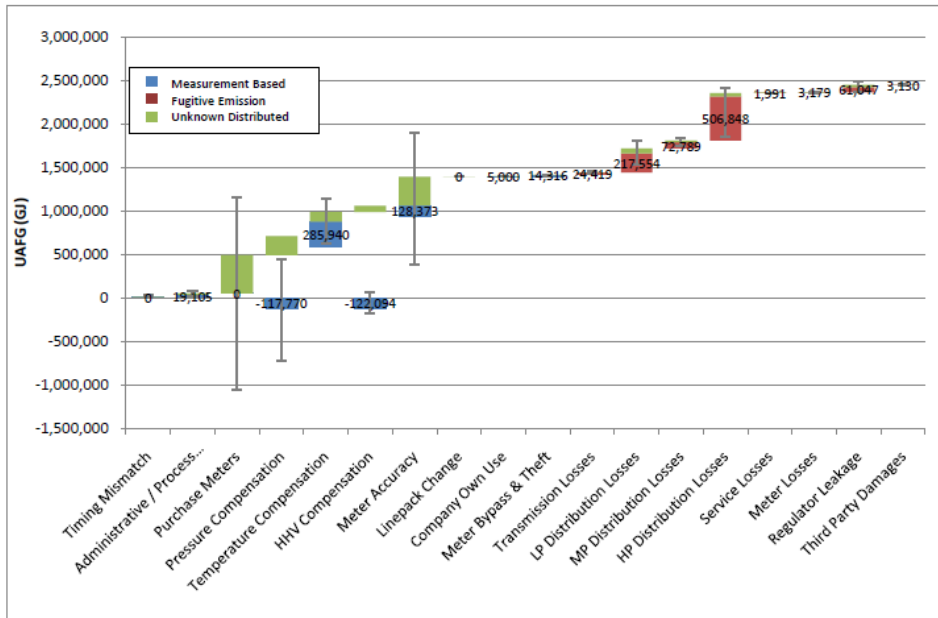
“The estimation of UAfG to each category results in 54% of actual UAfG not attributed to any category. This emphasizes the uncertainty associated with UAfG.”

Noting that fugitive emissions are often incorrectly referred to as UAfG (as UAfG also includes measurement based errors) the report grouped the components into two sub categories:

1. Measurement Based UAfG
2. Fugitive Emissions

Each component of UAfG, together with its uncertainty (represented by error bars) is shown in Figure 1-4 below. Additionally the unknown quantity of UAfG has been distributed over all categories of UAfG (displayed as green) with those categories accounting for a larger uncertainty been proportioned more of the unknown component.

Figure 1-4: AIA researched UAfG components and uncertainty



The key categories that the report identified as areas that could effectively reduce UAfG are:

Purchase Meters (CTMs) Metering Accuracy

Uncertainty is 1.5 to 3% of throughput. Small errors on large throughput can have a large impact on UAfG. For example a systemic 1.5% error in CTM readings would contribute up to 45% of UAfG.

⁵ Asset Integrity Australia was known as GTL Business International. Dr Bob Fisher is managing Director of Asset Integrity Australia. Bob has over 30 years’ experience in the gas industry and was involved extensively with Transco UK in the 1990’s in developing economic models in UAfG reduction. GASCOR engaged GTL in the mid 1990’s to perform a review into UAfG. GTL also played a major role in establishing the first regulator reset period and UAfG benchmark. Multinet Gas engaged GTL to perform a similar review into UAfG.

Large Tariff D Customer Uncertainty

As with CTM accuracy, uncertainty in large Tariff D customers can have a large effect on total UAfG.

Temperature Compensation

Temperature assumption for basic meter customers introduces an error that is estimated to increase UAfG and is more pronounced for customers on high pressure networks. The addition of customers to high pressure networks is increasing UAfG slowly on an annual basis.

Classification of Class A Meters

Movement of customers between the classifications can have a significant impact on UAfG both positive and negative to SP AusNet. As such greater clarification of the definition of Class A is required in order to establish rules for initial classification and any subsequent classification movement due to changes in consumption.

As already noted, the LPMR program was not identified by AIA as a key factor in determining the UAfG. On the contrary, AIA noted that the contribution to UAfG from the LP network is relatively small, and less than that for other parts of the network.

As such it would be unreasonable to set a declining benchmark in the next regulatory period based on the false assumption that mains replacement programs actively reduce UAfG. Instead, a flat benchmark based on the latest historical figure would be appropriate.

1.5.2 Rationale for Business Specific Benchmarks

SP AusNet supports independent UAfG benchmarks for each distributor. This is appropriate for the Victorian market as each distribution business is unique; with varying mains lengths, ages, material compositions, geographical operating conditions, customer base and natural gas fed from sources of differing heating value. All of these factors contribute to different levels of UAfG.