



# **Significant price variation report**

**Victorian gas wholesale market**

**Ancillary Payments  
30 November 2017**

29 January 2018

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AER Reference: 63442-D17/176345

#### Amendment Record

Version	Date	Pages
1 version for publication	29 January 2018	14

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# 1 Obligation

Ancillary payments in the Victorian Gas Market for Thursday 30 November 2017 reached \$265 929.

Rule 354(b) from Part 19 of the National Gas Rules (**NGR**) requires the AER to monitor the Victorian market to identify any significant price variations. Significant Price Variation reporting guidelines have been developed by the AER under Rule 355(2) - the [Victorian SPV guideline](#) which require the AER to report when:

- the trade weighted market price published by AEMO on a gas day is more than three times the average price for the previous 30 days and the trade weighted market price is equal to or greater than \$15/GJ
- the ancillary payment amount published by AEMO on a gas day is an amount payable or receivable which exceeds \$250 000.

Rule 354 (a) of the Gas Rules requires the AER to monitor the Victorian Gas Market more broadly with a view to ensuring trading activity is in accordance with Part 19.

In preparing this report the AER held meetings with AEMO and four participants in the Victorian Gas Market, as part of monitoring the compliance of trading activity and also the operation of the market on the day in accordance with the Gas Rules.

## 2 Summary

Ancillary payments just above the AER's reporting threshold occurred as a consequence of an unplanned outage at Longford,<sup>1</sup> requiring additional payments for higher priced gas supplied to offset the resulting supply shortfall.

Temperatures in Victoria led to high gas powered electricity generation (**GPG**) demand on the day, and also caused compressors supplying one of Longford's three processing plants to trip. The high demand around Sale and Longford supply shortfall, both in close proximity, led to a forecast localised drop in pressure in the region,<sup>2</sup> posing a threat to system security.

The Australian Energy Market Operator (**AEMO**) acted as expected under the Gas Rules in issuing a threat to system security notice advising that the Gippsland Withdrawal Zone was likely to be affected by a shortfall in gas supply from 3 pm to 10 pm. An ad-hoc schedule was applied at 3 pm due to insufficient time being available to co-ordinate a market response which could be incorporated into the 2 pm scheduling horizon.<sup>3</sup> There was no apparent interruption to gas supply and gas pressure remained above minimum levels. A notification was circulated after the 6 pm schedule advising that the threat to system security had ended at 8.20 pm.<sup>4</sup>

We consider that market participants rebid volumes down as required under the Gas Rules and as indicated under our [compliance guideline](#)<sup>5</sup> in response to reduced gas availability at Longford. Consultation with participants indicated they experienced difficulties in precisely reducing quantities given the fluidity and timing of information from producers and AEMO.

We will be monitoring bulletin board information reporting changes which commence later this year. These changes are in part aimed at ensuring timely, best estimate outage information is provided to the gas market and then updated. Noting these changes, we will continue to monitor to ensure participants do make best estimates of available gas supply injections when outages occur using best available information. We consider this may better inform participants re-bidding and make the rescheduling process more consistent and predictable.

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<sup>1</sup> Longford supplies the majority of gas in the Victorian market.

<sup>2</sup> The projected pressure change at the Sale City Gate was predicted to breach the minimum operating pressure of 4800 kPa around 6 pm as demand in the region exceeded local supply. The system was reassessed before the next scheduling horizon and the constraint applied to injections at Longford was updated. GPG, particularly near Longford, reduced significantly across the afternoon from 4 pm, leading to a gradual rise in pressure levels around Sale.

<sup>3</sup> Normally, AEMO schedules gas across the remainder of the day at specific time (adjusting for changes to system requirements as the day progresses (6am, 10am, 2pm, 6pm, 10pm)

<sup>4</sup> A Timeline of events and actions taken by AEMO can be found in the [DWGM Event - Intervention - 30 November 2017](#).

<sup>5</sup> AER, Compliance bulletin No. 4: Submitting best estimate of injection bids and withdrawal bids in the Victorian Declared Wholesale Gas Market, July 2011, pp. 7–8

### 3 Background

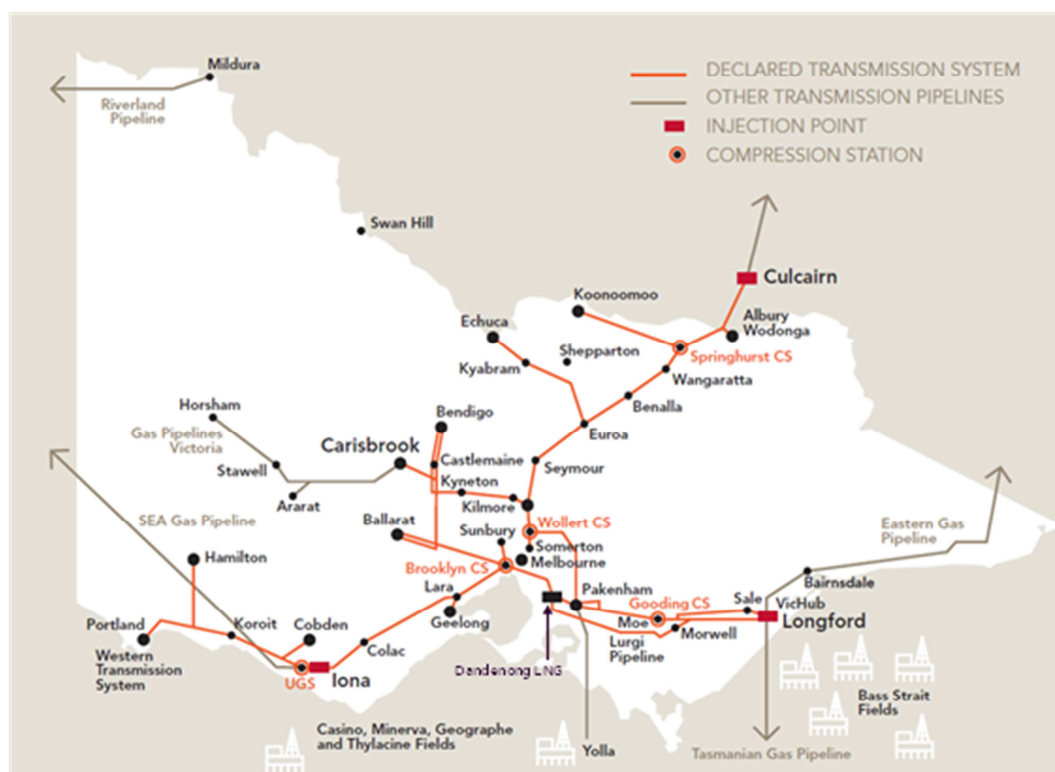
The Victorian declared transmission system (**DTS**) consists of a number of injection points which source gas from the Longford, Lang Lang (Bass Gas) and Otway production points and the Iona and Dandenong LNG storage facilities. These injection points are illustrated in Figure 1.

The figure also shows the wider network of transmission pipelines which support the transportation of gas across Victoria.

The Victorian wholesale gas market facilitates the scheduling of injections and withdrawals to transport gas across the DTS. The Victorian market also allows market participants to buy and sell gas daily at a market price.<sup>6</sup>

Scheduling in the Victorian market occurs on an ex ante basis, revised over five scheduling horizons across the gas day. These revisions occur at 6 am, 10 am, 2 pm, 6 pm and 10 pm.<sup>7</sup> Further information about the Victorian market is available in our [user guide to the AER gas weekly report](#).

**Figure 1 – The Victorian Gas Market**



Source: AEMO, Guide to the Victorian Wholesale gas market.

<sup>6</sup> Retailer market participants to varying degrees are exposed to the market price: if they have as much gas scheduled for injection as withdrawal, they are largely unexposed; if they have a strong withdrawal position then they are more exposed to buy gas at higher market prices.

<sup>7</sup> Participants are required to submit any adjustments one hour prior to the beginning of each horizon for the information to be included in the upcoming schedules.

## 4 Analysis

This section provides an overview of the events surrounding the Longford outage and resulting ancillary payments. A key source of information for this section was AEMO's Intervention Report.<sup>8</sup>

High temperatures on the day drove high electricity demand across Victoria, and in particular, high demand from gas powered generators (**GPG**). The hot weather also caused an unplanned outage at one of the Longford gas plants.

The fall in gas supply from Longford and high GPG demand meant gas supply was insufficient to meet demand, creating falls in pipeline pressures which compromised the operation of the Victorian DTS.<sup>9</sup>

Due to the timing of communications between AEMO and Esso about the ability of Longford to supply gas, AEMO was required to intervene in the market to increase supply and maintain system pressures.

AEMO declared a threat to system security and intervened in the market by issuing an ad-hoc injection schedule, instructing more expensive gas to be supplied from sources outside of Longford.<sup>10</sup>

The cost of AEMO's intervention resulted in ancillary payments made to participants who provided supporting injections of gas supply at higher cost.

These issues are discussed in more detail in the sections below.

### 4.1 Gas powered generation requirements

Temperatures on 30 November reached mid-30 degrees Celsius around Melbourne, driving high electricity demand<sup>11</sup>, with gas generation using around 280 TJ of gas across the state. A baseload coal generation unit outage in the state put further demand on gas generation to supply electricity.<sup>12</sup>

Figure 2 shows hourly gas generation levels across the 30 November gas day and indicates the level of generation utilising gas supplied through the DTS. The figure illustrates the steady demand for gas generation rising throughout the day and declining in the early evening. The reduction in generation from the Jeeralang power station, which is in close proximity to areas of falling pressure, was noticeable from 5 pm.

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<sup>8</sup> AEMO's report is available here: <https://www.aemo.com.au/Gas/Declared-Wholesale-Gas-Market-DWGM/Market-notices>

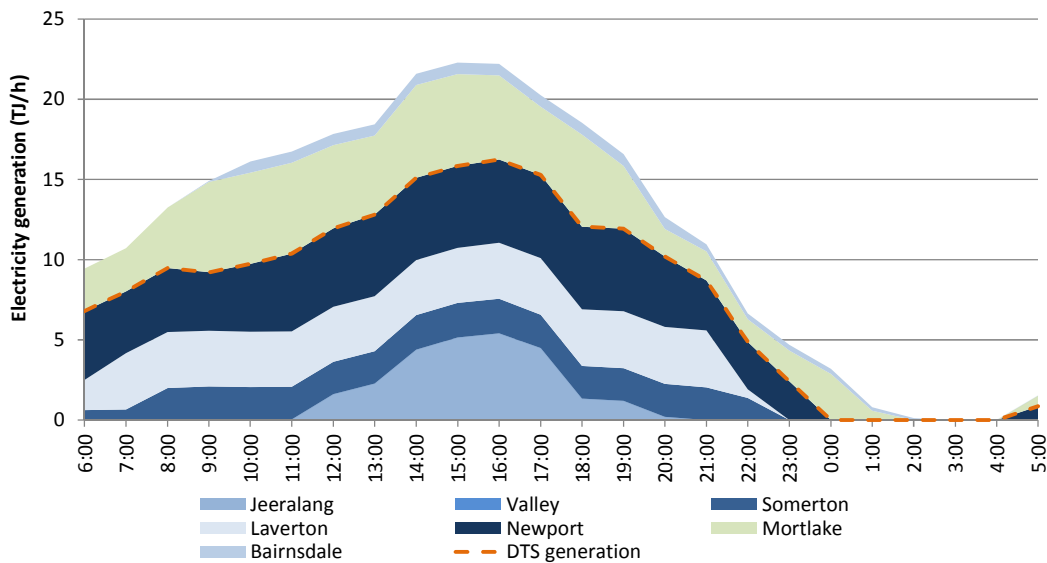
<sup>9</sup> AEMO actively monitors the pressure in the network to make sure line pack remains within certain boundaries.

<sup>10</sup> Normally, AEMO schedules gas across the remainder of the day at specific time, adjusting for changes to system requirements as the day progresses (6 am, 10 am, 2 pm, 6 pm, and 10 pm). As a schedule had already been published at 2 pm, the next update would have to wait until 6 pm to fix the problem with a market response.

<sup>11</sup> In the electricity market, an AEMO intervention report noted a Lack of Reserve Level 2 (LOR2) condition was forecast for the Victorian region of the National Electricity Market (NEM). AEMO NEM Real Time Operations activated and dispatched the Reliability and Emergency Reserve Trader (RERT) for Victoria to increase electricity generation reserves, with high GPG levels expected across the day.

<sup>12</sup> Coal generation was offline at the Loy Yang A power station unit 1.

**Figure 2 – Gas usage by Victorian power stations on 30 November 2017**



Source: NEM Generation data converted to TJ using ACIL Tasman plant heating capacity rates (GJ/MWh)

## 4.2 Longford unplanned outage

On 30 November 2017, an unplanned outage at the Longford production facility resulted in supply reducing below expected levels from 10.40 am. Esso, the operator of Longford, advised AEMO that high temperatures had caused a number of compressors to trip at one of the facility's processing plants. The compressors were expected to be restarted shortly afterwards, and a recovery in the supply injection rate was observed at 11.50 am before reducing again at 12.50 pm.<sup>13</sup>

Esso subsequently provided updated information to AEMO at 1.55 pm, advising of a constrained daily capacity to supply 350 TJ. This was a 185 TJ reduction from the 535 TJ scheduled supply specified in the 2 pm schedule. At 4.40 pm, Esso confirmed daily supply injections from Longford of 353 TJ. Longford supply injections remained constrained and did not recover until 8.15 pm.

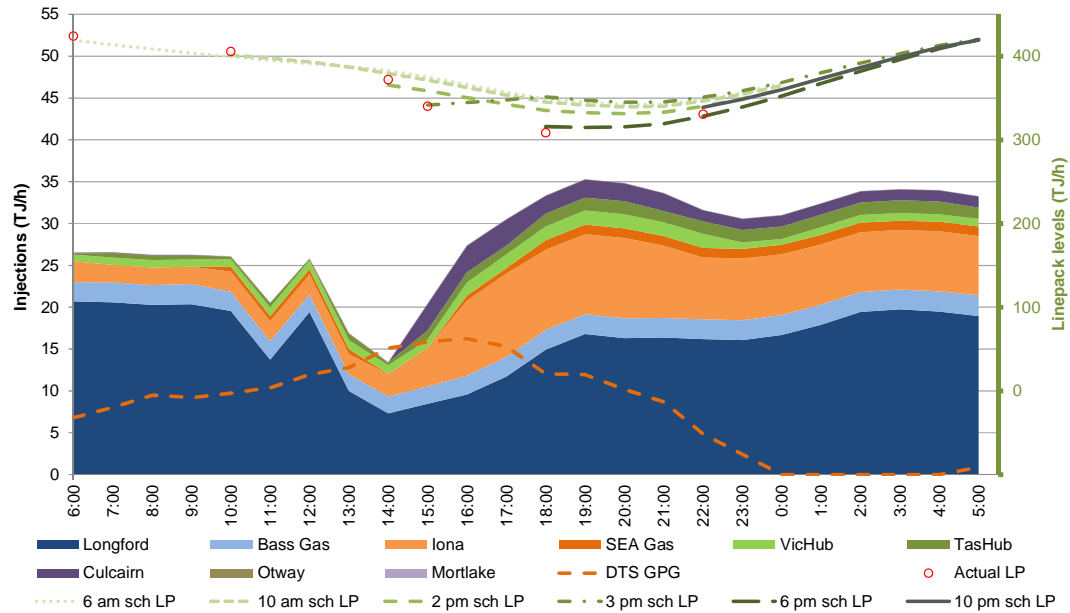
Longford supplies a significant amount of gas to the Victorian DTS. Figure 3 below illustrates the level of Longford supply and the reduced hourly injection quantities noted above. It also shows the gradual ramp up of injections later in the day and the level of gas consumption by Victorian GPG. Scheduled and actual line pack (LP) levels are displayed against the secondary axis on the right, demonstrating the continued drop below forecast quantities as injections fell below scheduled levels.<sup>14</sup>

<sup>13</sup> AEMO, *DWGM Event – Intervention – 30 November 2017*, p. 4.

<sup>14</sup> Line pack refers to the amount of gas stored within the pipelines throughout transmission system. This is replenished by gas injected into the DTS as demand across the network depletes the level of line pack in the system.



**Figure 3 – Gas injections into the Victorian transmission network**



Source: AEMO line pack and actual injections data. GPG calculated using methodology in Figure 2.

### 4.3 Ad-hoc schedule and market impacts

AEMO analysis based on forecast system demand and high gas generation requirements indicated there would be insufficient supply to maintain secure system pressure at Sale, near Longford.<sup>15</sup> By 2 pm, AEMO deduced there would be insufficient time for a market response to prevent a breach of minimum operating pressures at 6 pm.<sup>16</sup> As a result, a threat to system security notice was issued advising participants of the situation, and an “ad-hoc” schedule was applied from 3 pm. The ad-hoc scheduling requirements raised supply by increasing injections and reducing withdrawals across a number of facilities as per Table 1. The notice advised that the threat was expected to end at 10 pm.<sup>17</sup>

The additional gas supply provided by the facilities listed in Table 1 were more expensive compared to the scheduled Longford supply, leading to out-of-merit order supply injections.

<sup>15</sup> AEMO, *DWGM Event – Intervention – 30 November 2017*, p. 4.

<sup>16</sup> AEMO, *DWGM Event – Intervention – 30 November 2017*, p. 5.

<sup>17</sup> AEMO, *DWGM Event – Intervention – 30 November 2017*, p. 5.

**Table 1 – Change to injections and withdrawals in the ad-hoc schedule**

Ad hoc operating schedule	Culcairn	Iona UGS	SEA Gas	TasHub	VicHub
Out-of-merit-order injections (TJ)	47	103	5	10	9
Reduction in controllable withdrawals (TJ)	2	27	2	0	2

Source: AEMO<sup>18</sup>

The ad-hoc schedule lasted from 3 – 6 pm with normal market operation and participant bidding resuming from the 6 pm scheduling horizon. At 4.40 pm, AEMO informed the market of the continuing supply constraints at Longford, allowing participants enough time to re-bid gas offers and provide a market response for the 6 pm schedule. The market response supplied gas from sources outside Longford, which is detailed in Figure 3.

While re-bidding did occur, it had a minimal effect on prices. The reduced amount of low priced gas available at Longford was largely offset by participants reducing the price of gas offers at Iona. Table 2 below shows the gas prices across the day and the weighted average imbalance price used to calculate market settlements.

**Table 2 – Prices across the gas day**

	6 am	10 am	2 pm	6 pm	10 pm	Imbalance price (weighted average)
Price (\$/GJ)	6.888	6.799	6.44	9.50	6.45	7.00

Source: AEMO Victorian gas market data

The market cost resulted from ancillary payments that were generated across the market as gas was scheduled out-of-merit-order in the ad-hoc schedule.

Ancillary payments are made to market participants when they are given a scheduling instruction by AEMO to inject or withdraw different gas quantities than they were originally scheduled. The appendix explains the different kinds of uplift payments and other related information.

Total ancillary payments across the market for the gas day totalled \$265,929.<sup>19</sup> The allocation of this amount between uplift payment types is outlined in Table 3 below.

<sup>18</sup> AEMO, *DWGM Event – Intervention – 30 November 2017*, p. 6.

<sup>19</sup> At the time of the ad hoc schedule, ancillary payments totalled \$402,062.37. The ancillary payment clawback mechanism resulted in the total payments reducing due to lower priced gas being available for the later schedules. In this instance, the majority of the costs were recouped by surprise uplift associated with participants deviating from their scheduled quantities, having no opportunity to adjust their bids for the 2 pm schedule.

**Table 3 – Ancillary payment breakdown for the 30 November gas day<sup>20</sup>**

Gas Day	Ancillary Payments	Congestion Uplift Payments	Surprise Uplift Payments	Common Uplift Payments
30 November 2017	\$265,929	\$623	\$238,702	\$26,604

Source: AEMO<sup>21</sup>

A notice was issued to notify the market of the end to the threat to system security at 8.20 pm. System operations returned to normal by 8.20 pm when there was no longer a risk of a localised supply shortfall in the Gippsland withdrawal zone. Pressures did not fall below minimum operating levels.

<sup>20</sup> Congestion uplift is allocated to participants with demand exceeding their profiled uplift hedge, surprise uplift applies when participants are deemed to have worsened the constraint conditions in previous schedules, and common uplift covers the remaining ancillary costs. Further detail on the types of uplift is provided in the Appendix.

<sup>21</sup> AEMO, *DWGM Event – Intervention – 30 November 2017*, p. 6.

## 5 Findings and follow up actions

### Threat to system security and ad-hoc schedule

We consider AEMO acted appropriately in declaring a threat to system security. AEMO acted under difficult time constraints to address the fall in system pressures.

We consider AEMO acted appropriately in issuing an ad-hoc schedule and minimised the cost to market participants with timely updates about reduced supply capacity from Longford.

### Bulletin Board reforms

Gas producers and pipeline operators have obligations to publish information on the East Coast Gas Bulletin Board which are in addition to requirements to provide information to AEMO for the purpose of operating the Gas Markets under Part 19 and 20 of the NGR.

The AEMC's program to improve the bulletin board reporting includes new obligations on producers to publish a short term capacity supply outlook, noting material intra-day changes to capacity.<sup>22</sup> We consider this important to assist in quickly informing participants of supply outages uniformly via the public bulletin board. This may help in ensuring an efficient market response to supply outages, such as those which occurred on the 30 November.

We consider that a timely posting of facility's operational status on the public bulletin board would improve transparency overall and would be consistent with reducing any perceptions or actual issues with information asymmetry.

We will work closely with facility owners to ensure they provide timely updates to the bulletin board and more generally meet compliance obligations which come into effect on the 30 September 2018.<sup>23</sup>

### Bidding by participants

A number of participants acknowledged it can be difficult to know how to re-bid gas supply in response to facility constraints, given uncertainties about de-scheduling.

We have published a [compliance guideline](#) which lists principles about how participants may respond to supply demand point constraints. Specifically, section 2.2.3 provides guidance to make best estimates of withdrawal and injection bids.<sup>24</sup>

We consider that market participants rebid volumes down as required under the Gas Rules in response to reduced gas availability at Longford. Consultation with

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<sup>22</sup> AEMC, National gas amendment (improvements to Natural Gas Bulletin Board) Rule 2017 No. 3, Rule 178.

<sup>23</sup> AEMC, Information sheet: Improvements to Natural Gas Bulletin Board, September 2017, p. 3.

<sup>24</sup> AER, Compliance bulletin No. 4: Submitting best estimate of injection bids and withdrawal bids in the Victorian Declared Wholesale Gas Market, July 2011, pp. 7–8

participants indicated however that they experienced difficulties in precisely reducing quantities given the fluidity and timing of information from producers and AEMO.

We will be monitoring bulletin board information reporting changes which commence later this year. These changes are in part aimed at ensuring timely, best estimate outage information is provided to the gas market and then updated. Noting these changes, we will continue to monitor to ensure participants do make best estimates of available gas when outages occur using best available information. If this occurs, outcomes in the rescheduling process should become more consistent and predictable.

## Appendix – Ancillary and uplift payments

Rule 239 of the NGR provides that any market participant who is given a scheduling instruction by AEMO to inject or withdraw more gas than they were scheduled is entitled to receive an ancillary payment.<sup>25</sup>

Ancillary payments are funded by uplift payments. AEMO has published the [Wholesale Market Uplift Payment Procedures](#) which set out, amongst other things, how ancillary payments are allocated between uplift payments.

Rule 240 (2)(a) of the NGR requires AEMO, when making the procedures, to apply the principle of allocating uplift payments so far as practicable to the cause. The procedures note uplift payments are ‘therefore allocated to those Registered Participants whose actions generated the relevant ancillary payments’. The procedures also explain the three kinds of uplift payments; congestion, surprise, and common.

**Congestion uplift payments** will be to a market participant where the total withdrawals of gas by that market participant in a scheduling interval exceed its authorised maximum interval quantity (**AMIQ**) in that scheduling interval.<sup>26</sup>

**Surprise uplift payments** will be allocated to any market participant which does not inject or withdraw gas in a gas day in accordance with that market participant's operating scheduled injections or operating scheduled withdrawals (as applicable) in the previous schedule or its demand forecasts or operating scheduled controllable withdrawals increase or decrease between the previous and the current schedules. If the aggregate amount of uplift payments allocated by AEMO as congestion uplift payments and surprise uplift payments in respect of a gas day do not fully fund the total ancillary payments payable in respect of that gas day, the unfunded portion of such ancillary payments is allocated by AEMO as **common uplift payments**.

**Common uplift payments** arise in the following circumstances:

- a) where AEMO overrides the total demand forecasts from all Market Participants by increasing the demand forecasts for scheduling, but the actual uncontrollable demand is less. As a result, the additional withdrawals cannot be attributed to specific Market Participants' forecasting errors and must therefore be categorised by AEMO as common uplift payments to be shared by all Market Participants;
- b) where the terms and conditions of the service envelope agreement of the relevant declared transmission system service provider limits the amount of uplift payments that would otherwise be payable by that declared transmission system service provider as a result of failing to meet its agreed capacity requirements;
- c) or where uplift payments are payable but there is no basis for categorising these uplift payments as surprise or congestion uplift payments.

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<sup>25</sup> This rule is subject to sub rules 4, 5, and 6.

<sup>26</sup> The procedures also set out when congestion uplift can be allocated to a declared transmission system service provider. See page 6 of the procedures.