

DWGM EVENT – INTERVENTION REPORT – 30 NOVEMBER 2017

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IMPORTANT NOTICE

Purpose

AEMO has prepared this report pursuant to rule 351 of the National Gas Rules using information available as at 5 December 2017, unless otherwise specified.

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1 Introduction

The Australian Energy Market Operator (AEMO) issued a notice of a threat to system security in the Victorian Declared Wholesale Gas Market (DWGM) for gas day 30 November 2017 during an unplanned outage of the Longford production plant.

Clause 351(1)(b) of the National Gas Rules (NGR) requires that AEMO investigate and prepare a report following an event which is or may be a threat to system security. Clause 351 also requires that AEMO assess and advise on:

- the adequacy of the provisions of the NGR relevant to the event or events;
- the appropriateness of actions taken by AEMO in relation to the event or events; and
- the costs incurred by AEMO and Registered participants as a consequence of responding to the event or events.

This report addresses each of these requirements and is published in accordance with clause 351(2) of the NGR.

2 Background

On 30 November 2017, Longford experienced a plant equipment issue that led to a supply shortfall resulting in AEMO notifying the market of a subsequent threat to system security in the Gippsland withdrawal zone. Injections into the DWGM began reducing at 10:40 am (all times are AEST/Market Time). A recovery in the injection rate was observed at 11:50 am, before it reduced again at 12:50 pm (a detailed chronology is provided in Appendix A – Chronology).

At 1:49 pm AEMO was advised by a Market Participant that their Longford gas supply was being reduced. AEMO called Esso Gas Marketing (Esso) to enquire about the report of a constraint and advised Esso that a constraint could still be applied for the 2:00 pm schedule if Esso provided a constraint in the next few minutes. At 1:55 pm, Esso advised AEMO of a facility constraint of 350 TJ for the gas day.

The constraint of 350 TJ represented a reduction in Longford injections of 185 TJ from the 2:00 pm scheduled quantity of 535 TJ. Due to the timing of the constraint advice, there was insufficient time to process and publish an updated 2:00 pm schedule. Subsequently AEMO re-evaluated system conditions and the demand forecast, including high gas powered generation demand, to evaluate the materiality of the supply shortfall.

AEMO observed the following key factors on 30 November:

- Beginning-of-Day (BoD) line-pack was on target at ~420 TJ for the 6:00 am schedule;
- The forecast temperatures on the day were high with a maximum of 34.8°C in Melbourne;
- The system demand forecast remained steady throughout the day at approximately 300 TJ and Gas Powered Generation (GPG) increased by 14 TJ to 205 TJ from the BoD forecast to the ad hoc schedule;
- A Lack of Reserve Level 2 (LOR2) condition was forecasted for the Victorian region of the National Electricity Market (NEM) and AEMO NEM Real Time Operations had activated and dispatched the Reliability and Emergency Reserve Trader (RERT) for Victoria to increase electricity generation reserves. The impact of this being that high levels of GPG were expected.

Hydraulic modelling indicated that Sale City Gate (Sale CG) would breach its minimum operating pressure of 4,800 kPa at 6:00 pm, and would not recover until 10:00 pm. AEMO determined there was a threat to system security in the Gippsland withdrawal zone and that issuing an ad hoc operating schedule was required.

At 2:56 pm on 30 November 2017, AEMO issued a system wide notice to notify the market of a threat to system security, impacting on the Gippsland withdrawal zone, and of the intention to publish an ad hoc operating schedule. The reasons for the notification of the threat and the response were as follows:

- Scheduled level of gas supply injections being incapable of meeting forecast gas demand;
- A supply and demand imbalance existing such that the projected pressure at Sale CG may breach the minimum operating pressure of 4,800 kPa; and
- There being insufficient time for the market to coordinate a response to the threat and that an ad hoc operating schedule was required.

The action undertaken by AEMO to alleviate this threat was to schedule gas injections from other injection sources in the Declared Transmission System (DTS). AEMO determined that applying the constraint at Longford in an ad hoc schedule was sufficient to avert the threat. The ad hoc schedule increased injections and reduced controllable withdrawals.

Gas was scheduled in price merit order, and no LNG was scheduled in the ad hoc operating schedule. LNG remained available for use later in the gas day if conditions deteriorated further. The notice stated that the threat to system security was expected to start at 3:00 pm, 30 November 2017 and end at 10:00 pm, 30 November 2017.

A subsequent system wide notice was issued at 8:20 pm on 30 November 2017 to notify the market that the threat to system security had ended following the DTS being restored to normal operations and the risk of localised supply shortfall in the Gippsland withdrawal zone was no longer present.

3 Appropriateness of actions taken by AEMO

AEMO's objectives during this event were to:

- Operate in accordance with the NGR and the Wholesale Market Procedures;
- Limit the risk of involuntary curtailment to customers including GPG;
- Alleviate the threat to system security and return the DTS to normal operating conditions.

3.1 Ad hoc Operating Schedule

In response to the threat to system security on 30 November, AEMO issued an ad hoc operating schedule including injections that were above the 2:00 pm schedule market price of \$6.44/GJ. The outcome of AEMO placing a constraint at Longford, at the request of the facility operator, was that additional injections were scheduled in the ad hoc schedule. These additional injections were out-of-merit-order as they were scheduled above the market price (the pricing schedule is not re-issued for an ad hoc schedule). Controllable withdrawals were also partially reduced as a result of the scheduling process, and are considered to be 'lost opportunity' for the affected Market Participants.

Table 1 provides a summary of the out-of-merit-order injections and the reduction in controllable withdrawals for 30 November as a result of the ad hoc operating schedule.

Table 1 Outcomes of 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

The out-of-merit-order injection quantities were only required from 3:00 pm until the standard 6:00 pm scheduling time when normal scheduling processes resumed. Market Participant re-bidding and the Longford injection constraint were incorporated into the 6:00 pm pricing schedule. The DTS was restored to normal operations at 8:20 pm when there was no longer a risk of a localised supply shortfall in the Gippsland withdrawal zone.

AEMO is not aware of any interruptions to gas supply on the day. All gas pressures in the DTS remained above contractually agreed minimum levels.

4 Costs of event

4.1 Total Ancillary Payments and Uplift Payments

The market impact resulting from the threat to system security is in the form of Ancillary Payments (AP) and corresponding uplift payments.

The table below lists these payments by type for 30 November 2017.

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

The results can be summarised as follows:

- Uplift payments were categorised as approximately 90% surprise uplift, 10% common uplift, and less than 1% congestion uplift. The categories are applied as follows:
 - Congestion uplift is allocated to Market Participants where their daily profiled demand forecasts and scheduled controllable withdrawal quantities exceed their AMIQ (profiled uplift hedge);
 - Surprise uplift is allocated to Market Participants who were deemed to have worsened the constraint at reschedules. For example, this can occur when participants under-inject or over-withdraw in the preceding schedule (for positive APs);
 - Common uplift is any remaining uplift that cannot be allocated as congestion or surprise uplift, and is applied across Market Participants in proportion to their actual withdrawal quantities over a gas day.

5 Adequacy of Part 19 of the NGR

In respect of this event, AEMO has assessed the application and adequacy of NGR provisions relating to market notices.

5.1 Market notices

NGR 341(1) requires that when AEMO identifies a potential threat to system security, it must notify registered participants as soon as practicable – including details of the nature and location of the potential threat, and AEMO's estimate about whether intervention will be required.

In this case, AEMO issued a market notice on 30 November 2017 when out-of-merit-order injections were scheduled at various CPPs due to the threat to system security, and when the threat had subsided.

AEMO finds that these NGR provisions are adequate, and were applied correctly in this case.

6 Conclusion

AEMO issued a notice notifying the market of a threat to system security for gas day 30 November 2017, due to an unplanned outage of the Longford production plant and there being insufficient time for a market response to alleviate the potential threat of breaching the minimum pressure at Sale CG.

On this gas day, AEMO scheduled out-of-merit-order injections through an ad hoc schedule. This resulted in approximately \$265,929 of ancillary and uplift payments.

Following this event, AEMO has assessed the application and adequacy of associated NGR provisions, and finds that these provisions were applied correctly.

Please direct any feedback or questions regarding this report to GasMarket.Monitoring@aemo.com.au.

Appendix A – Chronology

Time (AEST)	Event/Action	Details
06:50	ESSO calls AEMO	ESSO state that Longford Gas Plant 1 injections are being backed off due to high pipeline pressures (6320 kPa) and request that AEMO take action to reduce them if possible.
10:40	AEMO observation	Longford injections start to decline from its scheduled rate of 21 TJ/h.
11:42	AEMO calls ESSO	AEMO advised by ESSO that a number of compressors have tripped at one of the gas plants due to high temperatures. They are expected to be restarted shortly.
11:50	AEMO observation	Longford plant injections start recovering and increase from a rate of 10 TJ/h.
12:40	AEMO observation	Longford plant injections start decreasing again after reaching a rate of 25 TJ/h.
12:51	AEMO calls ESSO	Longford is continuing to experience issues. Currently trying to restart compressors.
13:16	AEMO approves schedule	AEMO approves and publishes 2:00 pm pricing and operating schedules.
13:49	Market Participant calls AEMO	Participant informs AEMO that their supply is being reduced at Longford and that they will be deviating as it is after cut-off time and they cannot re-bid.
13:50	AEMO calls ESSO	AEMO called ESSO to request a constraint in light of participant nominations being reduced. Left message requesting a call back.
13:51	ESSO calls AEMO	AEMO requested a constraint from ESSO for Longford and highlight to them that there are only a few minutes remaining in which to process a new schedule. ESSO will call back shortly with a final number.
13:56	ESSO calls AEMO	ESSO advise AEMO of a daily constraint of 350TJ for gas day 30 November.
14:00	AEMO unable to re-approve a schedule	AEMO unable to produce and approve valid and feasible schedules which include the Longford constraint prior to the 14:00 publish time.
14:20	AEMO models the DTS	AEMO modelling indicates that Sale City Gate on Longford-Melbourne Pipeline will breach minimum operating pressures during the 6:00 pm hour if no action is taken. Reschedule at next standard time of 6:00 pm will not avert the threat. Ad hoc schedule likely to be required at 3:00 pm, but further modelling needed to identify appropriate action required to resolve threat.
14:30	ESSO calls AEMO	Constraint at Longford discussed and AEMO outlines that a threat to system security event is a likely outcome.
14:45	AEMO models the DTS	AEMO modelling determines that the application of the 350 TJ constraint at Longford will induce sufficient response from other injection and withdrawal points. Supply from the Dandenong LNG facility can be preserved for use later in the gas day if the situation deteriorates further.
14:54	ESSO calls AEMO	ESSO called to update AEMO of likely changes in participant nominations and discuss the potential to increase deliveries to Victoria.
14:57	AEMO publishes market notice	Notice sent to market - AEMO is issuing an ad hoc schedule in response to a threat to system security in the Gippsland withdrawal zone.
14:57	AEMO approves schedule	Ad hoc operating schedule published with new instructions to take effect from 3:00 pm.
14:57	AEMO notifies facility operators	Facilities called to advise them of ad hoc schedule publication.
15:08	AEMO calls Victorian Government	Briefed the Department of Environment, Land, Water and Planning
16:30	AEMO notifies market	Industry conference held to discuss the threat to system security and the actions taken by AEMO.
16:40	ESSO calls AEMO	Longford constraint revised to 353 TJ for gas day 30 November.
17:00	AEMO observation	AEMO reassesses the threat prior to running 6:00 pm current day schedule. Longford pressures are still low at 5080 kPa and GPG demand is high at 16 TJ/h. The system is still in an abnormal state of operation. Decision made to end the threat once GPG demand starts reducing and Longford pressures start recovering. AEMO not required to take any further action at this stage.
20:15	AEMO observation	Longford injections have recovered to 17 TJ/h and pipeline pressure is now 5500 kPa and rising. GPG demand has decreased to 9TJ/h.

Time (AEST)	Event/Action	Details
20:20	AEMO publishes market notice	Notice sent to market - threat has ended