

DWGM EVENT – SCHEDULING OUTCOMES – GAS DAY 29 OCTOBER 2012

PREPARED BY: Market Operations and Performance

DOCUMENT REF: DWGM ER 12/003

DATE: 12 April 2013

FINAL

Contents

1	Summary.....	3
2	Event Details.....	3
2.1	Event Chronology.....	3
2.2	Cause.....	4
3	Market Impact.....	5
4	Assessment of the Event.....	6
5	Further Actions.....	6
	Appendix 1 - Glossary.....	8
	Appendix 2 – SDPCs at BassGas for gas day 29 October 2012.....	9
	Appendix 3 – Detailed analysis.....	11

1 Summary

On Monday 29 October 2012, BassGas (OE Resources) requested that AEMO apply a supply and demand point constraint (SDPC) which changed the 0500 hrs quantity for the 28 October gas day. AEMO incorrectly revised the 6 AM schedule for gas day 29 October after applying the SDPC.

AEMO has investigated event and does not consider the breach to be an unintended scheduling result because the estimated financial effect on Market Participants is below financial thresholds¹ in the National Gas Rules (NGR). However, AEMO concludes this event constitutes non-compliance with the Wholesale Market Gas Scheduling Procedures (Victoria). AEMO has additionally determined the breach is not material.

This report has been prepared under section 91BN of the National Gas Law (NGL) in relation to breaches of the Wholesale Market Procedures. The report describes the breach and the reasons for AEMO's decision that the breach is not material.

2 Event Details

At 0537 hrs on Monday 29 October 2012, a fax was received from BassGas (OE Resources) which requested that AEMO apply an SDPC for the 28 October gas day. The SDPC included a constraint of 0 GJ/hour to be applied for the last hour at 0500 hrs.

The SDPC's hourly constraint quantities were incorrectly applied for the 29 October gas day and a revised 6 AM schedule was published. As a result of the SDPC, BassGas scheduled injections were reduced from 40,000 GJ to 31,242 GJ and the revised 6 AM ex ante price was increased to \$4.1369/GJ from the initial price of \$3.5023/GJ. Other injection points were scheduled more to balance demand.

Note – All references to time in the report refer to Australian Eastern Standard Time.

2.1 Event Chronology

On 29 October 2012:

- At 0416 hrs, BassGas advised AEMO that its gas plant had tripped and would be restored in one hour.
- At 0508 hrs, AEMO published the 6 AM pricing and operating schedules. Injections at BassGas had been scheduled (as per Origin Energy's bid and without an SDPC) at 40,000 GJ for gas day 29 October (i.e. at 1,667 GJ/hr for all hours).
- At 0529 hrs, AEMO requested confirmation of 40,000 GJ for gas day 29 October from BassGas.
- At 0537 hrs, BassGas submitted (via fax) an SDPC for gas day 28 October which had zero flow for the hours 0600, 0700 and 0500. The reason for the constraint was noted as being due to "LLGP tripped at 0454 hrs".
- At 0547 hrs, AEMO revised the 6 AM pricing and operating schedules for gas day 29 October using the (incorrect) SDPC submitted for gas day 28 October. Injections at BassGas were rescheduled at 31,242 GJ for the day (as per SDPC refer to Appendix A).
- At 0550 hrs, BassGas confirmed scheduled injections for gas day 29 October for a total daily quantity of 40,000 GJ (i.e. as per the initial 6 AM schedule).

¹ Refer rule 217(4) of the NGR.

- At 0609 hrs, AEMO re-requested confirmation of BassGas injections for gas day 29 October as per revised 6 AM schedule for a total daily quantity of 31,492 GJ (N.B. this is with the incorrect SDPC applied).
- At 0625 hrs, BassGas submitted (via fax) an SDPC for gas day 29 October which had maximum hourly quantities for a total daily quantity of 37,902 GJ (refer to Appendix A). The reason for the constraint was noted as being due to “Delayed restart of LLGP”.
- At 0644 hrs, BassGas confirmed scheduled injections for gas day 29 October for a total daily quantity of 38,000 GJ.
- At 0720 hrs, BassGas submitted (via fax) an SDPC for gas day 29 October which had maximum hourly quantities for a total daily quantity of 31,642 GJ (refer to Appendix A for details). The reason for the constraint was noted as being due to “Yolla Y4 well shut in for wireline program”.
- At 0909 hrs, AEMO published the 10 AM pricing and operating schedules for gas day 29 October which used the hourly quantities in the SDPC submitted at 0720 hrs for the remaining hours of gas day. Injections at BassGas were scheduled at 31,022 GJ for the day (refer to Appendix A).
- At 0940 hrs, AEMO requested confirmation of 31,022 GJ for gas day 29 October from BassGas.
- At 0957 hrs, BassGas confirmed scheduled injections for gas day 29 October for a total daily quantity of 31,022 GJ (as per the 10 AM schedule).
- At 1311 hrs, AEMO published the 2 PM pricing and operating schedules for gas day 29 October using the same SDPC that applied at the 10 AM schedules. Injections at BassGas were scheduled at 31,022 GJ for the day.
- At 1605 hrs, BassGas submitted (via fax) an SDPC for gas day 29 October which had hourly quantities for a total daily quantity of 28,512 GJ (refer to Appendix A for details of MHQ). The reason for the constraint was noted as being due to “Yolla Y4 well remains shut in for wireline program”.
- At 1719 hrs, AEMO published the 6 PM pricing and operating schedules for gas day 29 October which used the hourly quantities in the SDPC submitted at 1605 hrs for the remaining hours of gas day. Injections at BassGas were scheduled at 28,102 GJ for the day.
- At 2109 hrs, AEMO published the 10 PM pricing and operating schedules for gas day 29 October using the SDPC submitted at 1605 hrs. Injections at BassGas were scheduled at 28,102 GJ for the day.

The final actual injections at BassGas over the day were 27,843 GJ, a deviation of -259 GJ from the scheduled injection of 28,102 GJ.

2.2 Cause

The primary cause of the event was human error. AEMO staff misread a fax and incorrectly applied an SDPC intended for gas day 28 October 2012 to the 6 AM schedule for gas day 29 October 2012.

Factors which contributed to the error occurring are:

- BassGas requested an SDPC for gas day 28 October at 0537 hrs after AEMO had already requested confirmation of the 6 AM schedule quantity for 29 October gas day.

- Physical issues at the BassGas plant which lead to multiple confirmations and SDPC requests with various quantities, on the 28 October gas day leading into the 29 October gas day.

3 Market Impact

The market was impacted in three ways – scheduled imbalances, deviations and prices. Less BassGas supply was scheduled at the 6 AM scheduling horizon than were thought to be achievable for gas day 29 October and as a result:

- Published ex ante prices were higher for the 6 AM, 6 PM and 10 PM scheduling horizons compared to what they would have been had the SDPC not been applied.
- Shippers faced greater imbalance payments as a result of the higher published ex ante prices (i.e. net injectors would be better off and net withdrawers worse off).
- Deviation payments for the 10 PM scheduling interval on 28 October and the 2 PM and 6 PM scheduling intervals on 29 October would be determined based on the higher published ex ante prices.

There was no material impact on the operation of the Declared Transmission System (DTS) as a result of the event.

The error resulted in the combined changes to imbalance, deviation and linepack payments for eight participants being less than they would have been had the error not occurred. The maximum individual net impacts were an under payment of \$20,541 and an undercharge of \$16,413. The total net under payments was \$43,891.

Appendix 3 provides AEMO's detailed analysis of the financial impact.

4 Assessment of the Event

In its assessment of the event AEMO has considered whether there has been a breach of the Gas Scheduling Procedures and, if so, whether the outcome is an unintended scheduling result,

As indicated in Table 1, AEMO has determined that the scheduling outcome did not comply with the Gas Scheduling Procedures but does not meet the financial thresholds criteria for unintended scheduling results.

AEMO is required to report the breach of the Wholesale Market Procedures, which includes the Gas Scheduling Procedures, under s 91BN of the NGL.

Table 1 Assessment of the event

ASSESSMENT CRITERIA	ASSESSMENT
Gas Scheduling Procedures clause 3.8 Supply and Demand Point Constraints AEMO will set SDPC parameters at an injection or withdrawal meter according to information supplied by Producers, Interconnected pipeline service providers and storage providers...	By applying a SDPC to limit BassGas injections, AEMO did so without information provided by BassGas.
NGR r217 Unintended scheduling results (1) If scheduling instructions issued as part of an operating schedule produce one or more of the following results: (f)... is not issued in accordance with the gas scheduling procedures, then that result will be an unintended scheduling result unless... (4) ... its estimated financial impact ² for an individual Market Participant is less than \$22,268 or for all Market Participants is less than \$55,670.	While the scheduling outcome meets the criteria for unintended scheduling results when assessed against rule 217(1), it does not meet the criteria for unintended scheduling results when assessed against rule 217(4). The maximum individual net impacts were an under payment of \$20,541 and the total net under payment was \$43,891. Consequently AEMO does not consider this breach to be an unintended scheduling result.
NGL s91BN(2) If AEMO suspects a breach of the Wholesale Market Procedures, it must make a decision as to whether the breach is a material breach.	AEMO has determined that, because the estimated financial impacts of the breach do not meet the financial thresholds for an unintended scheduling result, the breach of the Wholesale Gas Market Procedures is not material.

5 Further Actions

Following this incident, AEMO:

- has provided additional operator training to clarify AEMO's policies and procedures as a corrective measure, and
- has liaised with BassGas to provide a better understanding around plant constraints and AEMO requirements on SDPC requests (i.e. AEMO will reschedule after a scheduling horizon has commenced on the basis of a threat to system security requiring an ad-hoc

² The financial thresholds specific here have been adjusted to reflect the change in the Consumer Price Index in accordance with rule 217(5).

schedule. Furthermore, submitting an SDPC which also changes the hourly quantity of an hour already commenced cannot be applied for that hour).

Appendix 1 - Glossary

ABBREVIATION	TERM
GJ, GJ/hr	Giga joules, gigajoules per hour
NGL	National Gas Law
NGR	National Gas Rules
SDPC	Supply and demand point constraint

Appendix 2 – SDPCs at BassGas for gas day 29 October 2012

Table 2 BassGas SDPCs submitted and used in schedules for gas day 29 October 2012

Hourly interval	SDPC for revised 6am schedules (run at 5:47am)	SDPC submitted by BassGas at 0625 hrs	SDPC submitted by BassGas at 0720 hrs	SDPC for the 10 am and 2pm schedules	SDPC submitted by BassGas at 1605 hrs	SDPC for the 6pm and 10pm schedules
6:00	0	0	0	0	0	0
7:00	0	1250	1040	0	1040	0
8:00	1250	1666	1040	1250	1040	1250
9:00	1250	1666	1040	1250	1040	1250
10:00	1666	1666	1040	1040	1040	1040
11:00	1666	1666	1040	1040	1040	1040
12:00	1666	1666	1040	1040	1040	1040
13:00	1666	1666	1040	1040	1040	1040
14:00	1666	1666	1040	1040	1040	1040
15:00	1666	1666	1040	1040	1040	1040
16:00	1666	1666	1040	1040	1040	1040
17:00	1666	1666	1250	1250	1040	1250
18:00	1666	1666	1666	1666	1040	1040
19:00	1666	1666	1666	1666	1040	1040
20:00	1666	1666	1666	1666	1040	1040
21:00	1666	1666	1666	1666	1040	1040
22:00	1250	1666	1666	1666	1250	1250
23:00	1250	1666	1666	1666	1666	1666
0:00	1250	1666	1666	1666	1666	1666
1:00	1250	1666	1666	1666	1666	1666
2:00	1250	1666	1666	1666	1666	1666
3:00	1250	1666	1666	1666	1666	1666
4:00	1250	1666	1666	1666	1666	1666
5:00	0	1666	1666	1666	1666	1666
<i>Daily total</i>	<i>31242</i>	<i>37902</i>	<i>31642</i>	<i>31022</i>	<i>28512</i>	<i>28102</i>

Notes:

- The 10 AM schedule uses the latest SDPC for from 1000 hrs to 0600 hrs and assumes that the 0600 to 0900 scheduled hourly quantities are historically correct (i.e. the schedules have been followed). Hence, the SDPC that applied from 0600 to 0900 hrs cannot be overridden and is shaded in the table above to highlight the difference between what was submitted by BassGas and what was used in the scheduling process.
- The 2 PM schedule used the same SDPC as applied at 10 AM.
- The 6 PM schedule used the hourly quantities from the revised SDPC submitted by BassGas at 1605 hrs for the remaining hours of the gas day.
- The 10 PM schedule used the same SDPC as applied at 6 PM.

- SDPCs used in scheduling are published in the public report, *INT111 Supply and Demand Point Constraint (SDPC)* which is available on the participant MIBB and on the AEMO website.

Appendix 3 – Detailed analysis

Approach

For the purpose of the analysis in this appendix, AEMO simulated scheduling results based on:

- only changing SDPCs at BassGas;
- not applying the incorrect SDPC at the 6 AM scheduling horizon (this results in a BassGas schedule of 40,000 GJ); and
- not applying any SDPC at BassGas for subsequent scheduling horizons.

The rationale for the last bullet point was that Origin Energy's rebid for the 10 AM horizon was for a daily quantity of 31,642 GJ which did not change through the day. This rebid restricted the BassGas scheduled amounts more than the revised SDPC's based on hourly quantities in the SDPCs submitted by BassGas during the day.

The expected changes to price and settlement outcomes are discussed below.

Changes to gas prices

Table 3 shows the published and simulated gas price for each schedule. The gas price for the simulated schedules are lower due to the zero priced BassGas injections being scheduled. Rebids during the day also impacted scheduled quantities and prices.

Table 3 Market prices

Schedule	6am	10am	2pm	6pm	10pm
Published	\$4.1369	\$4.3300	\$4.3300	\$4.3405	\$4.1369
Simulated	\$3.5023	\$4.3300	\$4.3300	\$4.1405	\$3.5269
Change	-\$0.6346	\$0.0000	\$0.0000	-\$0.2000	-\$0.6100

Changes to deviation quantities and payments

MPs' deviation quantities would have been impacted for the 10 PM scheduling interval on 28 October as a result of the change of the 6 AM market price (-\$0.6346/GJ). The total deviation payments would have changed by -\$2,824.

No change to injection and (controllable) withdrawal deviation quantities would be expected as it was assumed that MPs would not deviate from their scheduled injections and withdrawals by more than the published deviation quantities in each scheduling interval. The only exception was for BassGas for the 6 AM scheduling interval since the simulated 6 AM schedule was based on what BassGas confirmed for the day (i.e. 40,000 GJ equates to 6,668 GJ for the interval) compared to the published schedule (i.e. 31,242 GJ equates to 2,500 GJ for the interval). Hence, an over delivery of approximately 947 GJ compared to the published schedule became an under delivery.

Table 4 Expected changes to deviation quantities and payments for gas day 29 October 2012

Schedule	6am	10am	2pm	6pm	10pm
Published deviation quantities and payments					
Deviation withdrawal (GJ)	4483	1400	-1467	-9116	761
Deviation injections (GJ)	3634	-4118	-2181	-3185	-7858
Net deviation quantity (GJ)	849	5518	714	-5931	8619
Deviation Gas price (\$/GJ)	\$4.3300	\$4.3300	\$4.3405	\$4.1369	\$4.5188

Schedule	6am	10am	2pm	6pm	10pm
Deviation payments (\$)	\$3,676	\$23,891	\$3,098	-\$24,536	\$38,948
Daily deviation payments (\$)	\$45,079				
Simulated deviation quantities and payments					
Deviation withdrawal (GJ)	4483	1400	-1467	-9116	761
Deviation injections (GJ)	-539	-4118	-2181	-3185	-7858
Net deviation quantity (GJ)	5022	5518	714	-5931	8619
Deviation Gas price (\$/GJ)	\$4.3300	\$4.3300	\$4.1405	\$3.5269	\$4.5188
Deviation payments (\$)	\$21,746	\$23,891	\$2,956	-\$20,918	\$38,948
Daily deviation payments (\$)	\$66,624				
Changes to deviation quantities and payments (simulated less published)					
Net deviation quantity (GJ)	4173	0	0	0	0
Deviation Gas price (\$/GJ)	\$0.0000	\$0.0000	-\$0.2000	-\$0.6100	\$0.0000
Deviation payments (\$)	\$18,070	-\$0	-\$143	\$3,618	\$0
Daily deviation payments (\$)	\$21,545				

Changes to imbalance quantities and payments on gas day 29 October 2012

Table 5 shows the published and expected total market imbalance quantities and payments. The largest changes would occur in the 6 AM and 10 AM schedules. In total, the market would have been undercharged by \$8,351 in daily imbalance payments.

Table 5 Expected changes to imbalance quantities and payments

Schedule	6am	10am	2pm	6pm	10pm
Published imbalance quantities and payments					
Imbalance withdrawal (GJ)	528989	9232	523	93	1122
Imbalance injections (GJ)	527493	23160	683	-515	-5066
Net imbalance quantity (GJ)	1496	-13928	-160	608	6189
Gas price (\$/GJ)	\$4.1369	\$4.3300	\$4.3300	\$4.3405	\$4.1369
Imbalance payments (\$)	\$6,190	-\$60,310	-\$691	\$2,641	\$25,602
Daily imbalance payments (\$)	-\$26,567				
Simulated imbalance quantities and payments					
Imbalance withdrawal (GJ)	539303	-502	723	93	1566
Imbalance injections (GJ)	533251	15369	804	-673	-5943
Net imbalance quantity (GJ)	6052	-15871	-81	766	7509
Gas price (\$/GJ)	\$3.5023	\$4.3300	\$4.3300	\$4.1405	\$3.5269
Imbalance payments (\$)	\$21,195	-\$68,720	-\$350	\$3,173	\$26,485

Schedule	6am	10am	2pm	6pm	10pm
Daily imbalance payments (\$)	-\$18,217				
	Changes to imbalance quantities and payments (simulated less published)				
Net Imbalance quantity (GJ)	4555	-1942	79	158	1321
Gas price (\$/GJ)	-\$0.6346	\$0.0000	\$0.0000	-\$0.2000	-\$0.6100
Imbalance payments (\$)	\$15,005	-\$8,410	\$341	\$532	\$883
Daily imbalance payments (\$)	\$8,351				

Changes to linepack account

The daily amount added to the linepack account is the negative of the sum of total daily imbalance and deviation payments and is apportioned to each MP in accordance with their share of the total adjusted net quantity of gas withdrawn for the relevant gas day.

Table 6 shows the expected linepack account would have increased by -\$27,072 which would need to be funded by all MPs withdrawing gas on that day.

Table 6 Linepack account

	28 October 2012	29 October 2012	Total
Change to total imbalance payments	\$0	\$8,351	\$8,351
Change to total deviation payments	-\$2,824	\$21,545	\$18,721
Change to linepack account	\$2,824	-\$29,896	-\$27,072

Financial impacts

Some registered participants are related companies and have chosen to trade in the market using different company IDs. Companies registered under the same ABN were grouped and net financial impacts were determined.

The estimated negative financial impact (under-payments to MP) is calculated by summing changes to imbalance payments, deviation payments and linepack account allocations for any individual MP (i.e. grouped by a common ABN) who is worse off and then aggregating these to calculate the total net negative financial impact for all MPs.

The estimated financial impact on market participants (MP) is set out in Table 7 which shows that:

- no MP was better off (under-charged) by more than \$16,413;
- no MP was worse off (under-paid) by more than \$20,541; and
- the total net negative financial impact for (total under-payments to) all MPs was less than \$43,891.

Table 7: Summary of financial effect on Market Participants

	28 & 29 October 2012
Number of MP under-charged	7
Maximum under-charged amount	\$16,413
Number of MP under-paid	8
Maximum under-paid amount	\$20,541
Total net negative financial impact*	\$43,891