

GAS SUPPLY GUARANTEE

EXERCISE 'SILVER'

EXERCISE DATE: 7 NOVEMBER 2019

1. Exercise Scenario

1.1 Scenario

On the morning of **Thursday, 7 November 2019**, AEMO determines, based on the [7 Day Pre-Dispatch report¹](#), that a gas supply shortfall is forecast for Monday 11 November 2019.

1.1.1 Operational Conditions for next 7 days from 7 November

AEMO has created the scenario using gas supply and NEM availability / demand conditions that could exist in South East Australia in March 2020.

For the purpose of this exercise, the date of the expected gas shortfall is **11 November 2019**. The scenario uses high NEM demand conditions that can occur during March combined with forecast gas supply, including planned outages. All other information is provided for background only.

Table 1: Forecast daily maximum temperatures leading into the day:

Date	7/11/19	8/11/19	9/11/19 ²	10/11/19 ²	11/11/19 ²	12/11/19	13/11/19
QLD ¹	32	31	32	34	38	37	33
NSW	30	31	30	35	38	35	32
VIC	31	30	36	40	42	28	28
SA	38	37	40	43	43	26	26
TAS	28	27	30	35	34	25	25

¹ High level of humidity throughout this period.

² Limited wind generation forecast

For this exercise, there are several coal fired plants unavailable due to forced outages (e.g. tube leaks, transformers, etc) that have been bid as unavailable into the NEM pre-dispatch as of 07:30 this morning (7 November). These include:

- NSW: Bayswater Unit 1 (630 MW) and Liddell Unit 2 (450 MW) – Total 1,080 MW
- VIC: Yallourn Unit 1 (350 MW) and 3 (360 MW) and Loy Yang A Unit 4 (520 MW) – Total of 1,230 MW

These coal fired plant outages are forecast to increase the amount of gas powered generation (GPG), and gas supply to support this.

Table 2: The demand forecast for 11 November is forecast to be:

	Date	QLD	NSW	VIC	SA	TAS
Maximum Demand (MW)	11/11/19	9,509	13,601	10,248	3,069	1,251

¹ See <http://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Emergency-Management/Gas-Supply-Guarantee>

Table 3: This has resulted in the following Forecast LOR conditions for the next 7 days:

Date	7/11/19	8/11/19	9/11/19	10/11/19	11/11/19	12/11/19	13/11/19
QLD	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NSW	N/A	N/A	N/A	N/A	Forecast LOR1	N/A	N/A
VIC	N/A	N/A	N/A	Forecast LOR1	Forecast LOR2 ¹	N/A	N/A
SA	N/A ²	N/A ²	Forecast LOR1	Forecast LOR1	Forecast LOR1	N/A	N/A
TAS	N/A	N/A	N/A	N/A	N/A	N/A	N/A

1. As at 7 November 2019 AEMO has not yet estimated the latest time at which it would need to intervene through an AEMO intervention event.

2. Reserves just under the LOR1 level.

1.1.2 Operational Data Reports in 7 Day Pre-Dispatch

Table 4: NEM 7 day pre-dispatch report results from D-1 and current day D following event.

I	GPG MARKET SUMMARY	DATETIME	GPG FUEL FORECAST TJ (D-1 run)	GPG FUEL FORECAST TJ (current day) ¹
D	GPG MARKET_SUMMARY	7/11/2019	302	643
D	GPG MARKET_SUMMARY	8/11/2019	308	690
D	GPG MARKET_SUMMARY	9/11/2019	428	940
D	GPG MARKET_SUMMARY	10/11/2019	571	964
D	GPG MARKET_SUMMARY	11/11/2019	629	1090
D	GPG MARKET_SUMMARY	12/11/2019	514	735
D	GPG MARKET_SUMMARY	13/11/2019	N/A	415

Note: 1. Gas powered generation increase demand during period to replace coal units mixed with other generation as per the exercise.

This report also includes the NEM solution constraints that were applied in running the 7 day pre-dispatch. They have not been modelled for this exercise scenario. The 7 day pre-dispatch reports can be found on [AEMO's website](#).

1.1.3 Operational Data from Gas Bulletin Board BEFORE event

Gas operational conditions leading into day:

- Longford Gas Plant is currently undertaking maintenance and capacity is reduced to 540 TJ/d.
- All other gas production and storage facilities are available including Dandenong LNG, Iona Underground Storage, Newcastle Gas Storage, Moomba Gas Plant, etc.
- There are no gas transmission pipeline constraints.

Table 5: This is the Gas Bulletin Board production and storage capacity prior to the event.

Production/Storage Injections	7/11/19	8/11/19	9/11/19	10/11/19	11/11/19	12/11/19
Longford	540	540	540	540	540	540
BassGas	40	40	40	40	40	40
Iona UGS	440	440	440	440	440	440
Otway Gas Plant	106	106	106	106	106	106
Moomba	240	240	240	240	240	240
Moomba Storage	45	45	45	45	45	45
Camden	10	10	10	10	10	10
NGS	120	120	120	120	120	120
Dandenong LNG	90	90	90	90	90	90
Queensland	1757	1757	1757	1757	1757	1757
Total	3178	3178	3178	3178	3178	3178

Table 6: This is the Gas Bulletin Board production and storage flows prior to the event.

Production/Storage Injections	7/11/19	8/11/19	9/11/19	10/11/19	11/11/19	12/11/19
Longford	540	540	540	540	540	540
BassGas	40	40	40	40	40	40
Iona UGS	117.2	115.76	173.12	171.84	171.84	171.84
Otway Gas Plant	106	106	106	106	106	106
Moomba	240	240	240	240	240	240
Moomba Storage	0	0	0	0	0	0
Camden	10	10	10	10	10	10

NGS	0	0	0	0	0	0
Dandenong LNG	0	0	0	0	0	0
Queensland	1757	1757	1757	1757	1757	1757
Total	2810	2808	2866	2864	2864	2864

Table 7: Assumed production and storage capacity utilisation for each facility prior to the event.

Production/Storage Injections	7/11/19	8/11/19	9/11/19	10/11/19	11/11/19	12/11/19
Longford	100%	100%	100%	100%	100%	100%
BassGas	100%	100%	100%	100%	100%	100%
Iona UGS	0%	0%	0%	0%	0%	0%
Otway Gas Plant	100%	100%	100%	100%	100%	100%
Moomba	100%	100%	100%	100%	100%	100%
Moomba Storage	0%	0%	0%	0%	0%	0%
Camden	100%	100%	100%	100%	100%	100%
NGS	0%	0%	0%	0%	0%	0%
Dandenong LNG	0%	0%	0%	0%	0%	0%
Queensland	100%	100%	100%	100%	100%	100%

Table 8: This is the Gas Bulletin Board pipeline flow information prior to the event.

Date	7/11/19	8/11/19	9/11/19	10/11/19	11/11/19	12/11/19
DTS - LMP Import	400.0	400.0	400.0	400.0	400.0	400.0
DTS - SWP Import	0.0	0.0	0.0	0.0	0.0	0.0
DTS - VNI Export	51.2	69.8	74.9	28.1	30.1	38.6
TGP - TAS	10.4	10.4	19.26	25	30.4	22.7
EGP - To Sydney	169.6	169.6	160.7	155.0	149.6	157.3
MSP - To Sydney	21.5	4.0	8.8	107.1	111.5	95.3

Date	7/11/19	8/11/19	9/11/19	10/11/19	11/11/19	12/11/19
SEAGAS - To Adelaide	197.6	216.96	274	274	274	274
MAP - to Adelaide	49	54.24	101.3	107.3	143.6	19.6
SWQP - To QLD	214.1	226.8	174.9	70.6	29.9	170.1

Note: Negative values represent flows in the opposite direction, i.e. SWQP – To Moomba negative value represents a flow to Queensland.

Table 9: Pipeline nameplate rating as published on Gas Bulletin Board prior to the event.

Transportation Nameplate Capacity	7/11/19	8/11/19	9/11/19	10/11/19	11/11/19	12/11/19
DTS - LMP Import	1080	1080	1080	1080	1080	1080
DTS - SWP Import	198	198	198	198	198	198
DTS - SWP Export	145	145	145	145	145	145
DTS - VNI Import	150	150	150	150	150	150
DTS - VNI Export	223	223	223	223	223	223
TGP - To TAS	100	100	100	100	100	100
EGP - to NSW	351	351	351	351	351	351
MSP - To NSW	314	314	314	314	314	314
SEAGAS - To SA	314	314	314	314	314	314
MAP - To SA	241	241	241	241	241	241
SWQP - To Moomba	384	384	384	384	384	384
SWQP - To QLD	340	340	340	340	340	340

Note: Facility nameplate ratings represent maximum capacity under *ideal* operational conditions.

Table 10: Gas transmission pipeline utilisation prior to the event.

Transportation Capacity Utilisation	7/11/19	8/11/19	9/11/19	10/11/19	11/11/19	12/11/19
DTS - LMP	37.0%	37.0%	37.0%	37.0%	37.0%	37.0%
DTS - SWP	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
DTS - VNI	22.9%	31.3%	33.6%	12.6%	13.5%	17.3%
TGP - To TAS	10.4%	10.4%	19.3%	25.0%	30.4%	22.7%
EGP - to NSW	48.3%	48.3%	45.8%	44.2%	42.6%	44.8%
MSP - To NSW	6.9%	1.3%	2.8%	34.1%	35.5%	30.3%
SEAGAS - To SA	62.9%	69.1%	87.3%	87.3%	87.3%	87.3%
MAP - To SA	20.5%	22.5%	42.0%	44.5%	59.6%	8.1%
SWQP	44.0%	47.3%	33.8%	6.7%	4.5%	32.6%

1.2 Potential Operational Data from Gas Bulletin Board AFTER event

The following post event world assumes:

- Participant will use all gas supply options (excluding LNG from Dandenong and Newcastle) from the South East Australia before using Queensland gas.
- Participants can purchase or activate existing contractual arrangements to facilitate 213 TJ of flows on the SWQP from Queensland to Moomba within a day of the event.
- Flow rates are assumed to be achievable for the purpose of the exercise. The assessment conference would confirm and ensure Gas Bulletin Board updated if a different flow rate was required during an event.
- No Gas Fired Generators are assumed to be using alternate fuels (fuel oil or diesel).
- LNG is assumed to be bid into the DWGM at Dandenong during the period.
- To simplify the model Iona UGS and Moomba Storage are not withdrawing during the period.

Table 11: This is the Gas Bulletin Board production and storage capacity prior to the event.

Production/Storage Injections	7/11/19	8/11/19	9/11/19	10/11/19	11/11/19	12/11/19
Longford	540	540	540	540	540	540
BassGas	40	40	40	40	40	40
Iona UGS	440	440	440	440	440	440
Otway Gas Plant	106	106	106	106	106	106
Moomba	240	240	240	240	240	240
Moomba Storage	45	45	45	45	45	45
Camden	10	10	10	10	10	10
NGS	120	120	120	120	120	120
Dandenong LNG	90	90	90	90	90	90
Queensland	1757	1757	1757	1757	1757	1757
Total	3388	3388	3388	3388	3388	3388

Note: There is no change in capacity.

Table 12: This is the Gas Bulletin Board production and storage flows prior to the event.

Production/Storage Injections	7/11/19	8/11/19	9/11/19	10/11/19	11/11/19	12/11/19
Longford	540	540	540	540	540	540
BassGas	40	40	40	40	40	40
Iona UGS	440	440	440	440	440	440

Otway Gas Plant	106	106	106	106	106	106
Moomba	240	240	240	240	240	240
Moomba Storage	0	0	0	0	0	0
Camden	10	10	10	10	10	10
NGS	0	0	0	0	32	0
Dandenong LNG	60	0	81	81	90	0
Queensland	1757	1757	1757	1757	1757	1757
Total	3193	3133	3214	3214	3255	3133

Notes:

1. LNG may be required if increased GPG caused a response to system security or market participants bid the gas into the market. Demand reduction or additional supply from LNG storage at Dandenong or Newcastle is required to ensure gas supply on 11 November 2019.

Table 13: Assumed production and storage capacity utilisation for each facility prior to the event.

Production/Storage Injections	7/11/19	8/11/19	9/11/19	10/11/19	11/11/19	12/11/19
Longford	100%	100%	100%	100%	100%	100%
BassGas	100%	100%	100%	100%	100%	100%
Iona UGS	100%	100%	100%	100%	100%	100%
Otway Gas Plant	100%	100%	100%	100%	100%	100%
Moomba	100%	100%	100%	100%	100%	100%
Moomba Storage	0%	0%	0%	0%	0%	0%
Camden	100%	100%	100%	100%	100%	100%
NGS	0%	0%	0%	0%	27%	0%
Dandenong LNG	67%	0%	90%	90%	100%	0%
Queensland	100%	100%	100%	100%	100%	100%

Table 15: This is the Gas Bulletin Board information after the event.

Date	7/11/19	8/11/19	9/11/19	10/11/19	11/11/19	12/11/19
DTS - LMP Import	400	400	400	400	400	400

Date	7/11/19	8/11/19	9/11/19	10/11/19	11/11/19	12/11/19
DTS - SWP Import	0	198	198	198	155	0
DTS - VNI Import	69	-9	0	0	46	55
TGP - TAS	11	11	22	29	35	26
EGP - To NSW	169	169	158	151	145	154
MSP - To NSW	314	208	275	245	314	289
SEAGAS - To SA	212	269	196	269	314	314
MAP - to SA	53	23	49	1	139	2
SWQP - To Moomba	127	-9	84	6	213	52

Table 16: Pipeline nameplate rating as published on Gas Bulletin Board remains unchanged during event.

Transportation Nameplate Capacity	7/11/19	8/11/19	9/11/19	10/11/19	11/11/19	12/11/19
DTS - LMP Import	1080	1080	1080	1080	1080	1080
DTS - SWP Import	198	198	198	198	198	198
DTS - SWP Export	145	145	145	145	145	145
DTS - VNI Import	150	150	150	150	150	150
DTS - VNI Export	223	223	223	223	223	223
TGP - To TAS	100	100	100	100	100	100
EGP - to NSW	351	351	351	351	351	351
MSP - To NSW	314	314	314	314	314	314
SEAGAS - To SA	314	314	314	314	314	314

MAP - To SA	241	241	241	241	241	241
SWQP - To Moomba	384	384	384	384	384	384
SWQP - To QLD	340	340	340	340	340	340

Note: Facility nameplate ratings represent maximum capacity under *ideal* operational conditions.

Table 17: Gas transmission pipeline utilisation following the event.

Transportation Capacity Utilisation	7/11/19	8/11/19	9/11/19	10/11/19	11/11/19	12/11/19
DTS - LMP	37.0%	37.0%	37.0%	37.0%	37.0%	37.0%
DTS - SWP	0.0%	100.0%	100.0%	100.0%	78.4%	0.0%
DTS - VNI	45.7%	3.9%	0.2%	0.2%	30.7%	36.5%
TGP - To TAS	11.5%	11.5%	22.1%	29.0%	35.5%	26.2%
EGP - to NSW	48.0%	48.0%	45.0%	43.0%	41.2%	43.8%
MSP - To NSW	100.0%	66.2%	87.7%	78.1%	100.0%	92.1%
SEAGAS - To SA	67.6%	85.7%	62.4%	85.7%	100.0%	100.0%
MAP - To SA	22.0%	9.5%	20.3%	0.4%	57.6%	1.0%
SWQP	37.4%	2.4%	24.8%	1.9%	62.6%	15.1%