



Electricity Pricing Event Reports

NOVEMBER 2015

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Sunday 01 November 2015 – High Energy price SA

Market Outcomes: South Australian Energy price reached \$1,820.80/MWh for trading interval (TI) ending 2230 hrs.

South Australian Frequency Control Ancillary Service (FCAS) price (sum of all services) reached \$106,399.97/MWh for the same TI. The prices for Fast Raise, Slow Raise, Delayed Raise, Regulation Raise and Fast Lower services reached Market Price Cap (\$13,800/MWh). The prices for Slow Lower, Delayed Lower and Regulation Lower services reached \$12,199.97/MWh, \$12,200/MWh and \$13,000/MWh respectively.

Energy and FCAS prices in other regions of the NEM were not affected.

Actual Lack of Reserve Level 2 (LOR2) condition had been declared for the South Australia region between 1900 hrs and 2255 hrs due to the planned outage of the Heywood – South East no.2 275 kV transmission line (Market Notices No. 50251 and 50268).

Detailed Analysis:

5-minute Energy price in South Australia reached \$2,173.93/MWh and \$10,759.20/MWh for Dispatch Intervals (DIs) ending 2200 hrs and 2220 hrs respectively.

For each 5-minute within the 2230 hrs TI, the FCAS prices in South Australia reached Market Price Cap (\$13,800/MWh) for Fast Raise, Slow Raise, Delayed Raise, Regulation Raise and Fast Lower services. For each 5-minute within the same TI, the FCAS price for Slow Lower, Delayed Lower and Regulation Lower services ranged between \$8,999.90/MWh and \$13,800/MWh.

The high Energy and FCAS prices can be attributed to insufficient FCAS services being available within South Australia following the islanding of South Australia from the rest of the NEM.

At 2151 hrs, the circuit breakers (CBs) at the South East end of the Heywood – South East no.1 275 kV transmission line tripped, resulting in the separation of South Australia region from the rest of the NEM (Market Notice No.50258). The Heywood – South East no.2 275 kV transmission line was on a planned outage between 0705 hrs on 29 October 2015 and 1730 hrs on 07 November 2015.

South Australia frequency dropped to 48.96 Hz following the separation. As a result, approximately 150 MW of load was interrupted due to under-frequency load shedding to restore the frequency back to 50 Hz. The demand in SA reduced from 1306 MW to 1149 MW between DIs ending 2155 hrs and 2200 hrs.

Wind generation in SA was low at 235 MW for TI ending 2230 hrs.

Following the separation, AEMO invoked the South Australia separation constraint sets SA_ESTN_ISLE, F-SA_ISLE, F-ESTN_ISLE and F-SA_ESTN_ISLE_REG from DI ending 2200 hrs. The SA_ESTN_ISLE constraint set limits the interconnector flow across the Heywood Interconnector to 0 MW in both directions and prevents transient instability across the VIC-NSW cutset for the loss of key transmission elements. The F-SA_ISLE constraint set manages Raise and Lower FCAS requirements for Fast, Slow and Delayed services within South Australia under island conditions. The F-ESTN_ISLE constraint set manages Raise and Lower FCAS requirements for Fast, Slow and Delayed



services for the rest of the NEM. The F-SA_ESTN_ISLE_REG constraint set manages the Raise and Lower FCAS requirements for Regulation services within SA and the rest of the NEM.

The separation resulted in increased requirements for all FCAS services within South Australia. A number of constraint equations within the F-SA_ISLE constraint set for Fast Raise, Slow Raise, Delayed Raise, Fast Lower and Delayed Lower FCAS requirements violated between 2200 hrs and 2235 hrs. These constraint equations violated due to insufficient availability of these services during this period. There was sufficient availability of Raise and Lower Regulation services during this period except for DI ending 2220 hrs.

For DIs ending 2200 hrs and 2220 hrs, generation from Northern PS Units 1 and 2 and Torrens Island Units B2 and B4 were limited by local FCAS requirement constraint equations within the F-SA_ISLE constraint set. The constraint equations limited the output from the generators to reduce the FCAS requirements within South Australia. Other generation within South Australia were limited by fast-start profiles (Hallett PS, Labroke 1 Unit) and ramp rates (Torrens Island Unit A4, Dry Creek GT3).

The target flow on Murraylink interconnector was limited to 75 MW towards South Australia for DI ending 2220 hrs. The flow was limited by the V::N_ESTN_HYSE_VD constraint equation, which prevents transient instability across the VIC-NSW cutset for the loss of a Hazelwood – South Morang 500 kV transmission line.

The Heywood – South East no.1 275 kV line was returned to service at 2226 hrs, thus re-connecting the South Australia region to the rest of the NEM. The SA_ESTN_ISLE, F-SA_ISLE, F-ESTN_ISLE and F-SA_ESTN_ISLE_REG constraint sets were revoked at 2235 hrs.

As the cause of the unplanned outage of Heywood – South East no.1 275 kV line was being investigated, AEMO invoked the constraint set I-VS_080 at 2235 hrs to reduce the likelihood of under-frequency load shedding in the event of another trip. The I-VS_080 constraint set limits interconnector flow across Heywood in the Victoria to South Australia direction to an upper transfer limit of 80 MW (Market Notice No.50267). The I-VS_080 constraint set was revoked at 2255 hrs and a constraint set I-VS_050 with a revised limit of 50 MW was applied based on the operational conditions at the time (Market Notice No.50269).

The interrupted load was restored from 2230 hrs and completed by 2337 hrs.

The energy price reduced to \$25.93/MWh for DI ending 2205 hrs when 53 MW of generation capacity was rebid from higher priced bands to Market Floor Price (-\$1000/MWh). 49 MW of non-scheduled generation came online in South Australia during the same DI.

The energy price reduced to \$54.99/MWh for DI ending 2225 hrs when up to 274 MW of generation capacity was rebid from higher priced bands to Market Floor Price (-\$1000/MWh).

The constraint set I-VS_050 was revoked at 1800 hrs on 05 November 2015 when Electranet advised AEMO of the cause of the trip and AEMO was satisfied that Electranet had taken sufficient corrective actions to remove the risk of a re-occurrence of the trip event (Market Notice 50340).

The high energy and FCAS prices were not forecast in pre-dispatch schedules since it was a result of an unplanned outage of the Heywood – South East no.1 275 kV line.



Wednesday 04 November 2015 – Negative Energy price QLD

Market Outcomes: Queensland had a negative energy spot price of $-\$164.75/\text{MWh}$ for trading interval (TI) ending 0600 hrs.

Frequency Control Ancillary Services (FCAS) prices in Queensland, and energy and FCAS prices for the other NEM regions were not affected by this event.

Detailed Analysis: 5-Minute dispatch price reduced to the Market Floor Price (MFP) of $-\$1,000/\text{MWh}$ for dispatch interval (DI) ending 0555 hrs. The negative price can be attributed to excess cheaper priced generation due to rebidding during period of low demand and constrained interconnector flow.

Queensland demand was 5,450 MW for TI ending 0600 hrs.

For DI ending 0555 hrs, CS Energy rebid a total of 440 MW of generation capacity from Gladstone PS from bands priced at the Market Price Cap (MPC) of $\$13,800/\text{MWh}$ to the MFP. The reason for the rebid, which was received at 0548 hrs, was “DISPATCH PRICE LOWER THAN 5MIN FORECAST”.

Target flow on the QNI interconnector was limited to 224 MW towards New South Wales by a ramping constraint equation #NSW1-QLD1_RAMP_I_F. This constraint equation limits the flow on the interconnector in preparation for the outage of the Armidale – Dumarsq 8E 330 kV transmission line. Target flow on the Terranora interconnector was limited to 149 MW towards New South Wales by constraint equation N_MBTE1_B to manage the outage of one of the Directlink cables.

The 5-minute price increased to $\$11.69/\text{MWh}$ for DI ending 0600 hrs when the demand increased by 143 MW and 105 MW of generation capacity was rebid from negative priced bands to bands priced at $\$93.02/\text{MWh}$.

The negative energy price was not forecast in pre-dispatch schedule as it was due to a rebid of generation capacity within the trading interval.

Thursday 29 October 2015 to Tuesday 10 November 2015 – High Energy and FCAS price SA

Market Outcomes:

Spot price in South Australia reached $\$2,261.59/\text{MWh}$ and $\$1,991.58/\text{MWh}$ for Trading Intervals (TIs) ending 1000 hrs on 03 November 2015 and 1500 hrs on 04 November 2015 respectively.

South Australian Frequency Control Ancillary Service (FCAS) price (sum of all services) was above $\$150/\text{MWh}$ for 549 intervals between TIs ending 0730 hrs on 29 October 2015 and 1800 hrs on 10 November 2015. The maximum sum of all FCAS service prices reached was $\$106,399.97/\text{MWh}$ for TI ending 2230 hrs on 01 November 2015. The FCAS price for Fast Raise, Slow Raise, Delayed Raise, Regulation Raise and Fast Lower services reached the Market Price Cap ($\$13,800/\text{MWh}$) for TI ending 2230 hrs on 01 November 2015. The prices for Slow Lower, Delayed Lower and Regulation Lower services were $\$12,199.97/\text{MWh}$, $\$12,200/\text{MWh}$ and $\$13,000/\text{MWh}$ respectively for the same trading interval.



Energy and FCAS prices in the other NEM regions were not affected.

At 0900 hrs on 02 November 2015, the rolling sum of Raise Regulation FCAS price for the South Australia region exceeded six times the cumulative price threshold (CPT) of \$207,000. As a result, an administered price cap (APC) of \$300/MWh was applied for all FCAS services in South Australia between Dispatch Intervals (DIs) ending 0905 hrs on 02 November 2015 and 0400 hrs on 09 November 2015 (Market Notices no. 50270 and no. 50446). APC was also applied during an earlier period between DIs ending 1615 hrs on 25 October 2015 and 0400 hrs on 27 October 2015 due to the rolling sum of Raise Regulation FCAS price exceeding six times the CPT.

Actual Lack of Reserve Level 2 (LOR2) conditions had been declared for the South Australia region for extended periods between 29 October 2015 and 10 November 2015 due to the planned outage of the South East – Heywood no.2 275 kV transmission line.

Further information is provided below.

Detailed Analysis:

The South East – Heywood no.2 275 kV transmission line was on a planned outage from 0705 hrs on 29 October 2015 to 1730 hrs on 10 November 2015. This outage increased the risk of electrical separation between South Australia and Victoria. The risk of separation created local regulation FCAS requirements for South Australia which had to be sourced from within the region. The FCAS regulation requirements were managed by invoking the constraint sets F-I-HYSE, F-S_LREG_0035 and F-S_RREG_0035 between DIs ending 0705 hrs on 29 October 2015 and 1740 hrs on 10 November 2015. The F-S_LREG_0035 and F-S_RREG_0035 constraint sets ensure sufficient Lower and Raise Regulation FCAS is available within South Australia immediately following a separation event so that AEMO can secure the power system within a period of 30 minutes (Market notice no. 50003).

The sum of all FCAS prices in South Australia reached \$12,832.85/MWh for trading interval ending 0700 hrs on 01 November 2015 – with major contributions from Raise and Lower Regulation prices (both at \$6,403.06/MWh). For DI ending 0635 hrs, AGL shifted 10 MW of Lower Regulation capacity from Torrens Island PS from bands priced at \$19.96/MWh to bands priced at \$13,773.83/MWh due to step changes in bids. For DI ending 0645 hrs, Alinta Energy rebid 20 MW each of Raise and Lower Regulation capacity from Northern PS from bands priced below \$1,526.35/MWh to bands priced at \$12,619.37/MWh.

Between TIs ending 1030 hrs and 1400 hrs on 01 November 2015, the 30-min Raise and Lower Regulation FCAS prices ranged between \$2,081.61/MWh and \$4,990.69/MWh. Between DIs ending 1030 hrs and 1235 hrs, Alinta Energy rebid up to 10 MW of Raise and Lower Regulation capacity from Northern PS from bands priced below \$1,526.35/MWh to bands priced at \$6,614.89/MWh.

Between TIs ending 2200 hrs and 2300 hrs on 01 November 2015, the sum of all FCAS prices in South Australia were between \$18,604/MWh and \$106,399.97/MWh. The high FCAS prices during this period can be attributed to insufficient availability of Fast Raise, Slow Raise, Delayed Raise, Fast Lower and Delayed Lower services within South Australia following the islanding of South Australia from the rest of the NEM.

Between TIs ending 0100 hrs and 0900 hrs on 02 November 2015, the 30-min Raise and Lower Regulation FCAS prices ranged between \$9,982.07/MWh and \$9,985.06/MWh. During this period, bulk of Raise and Lower Regulation capacity available in South Australia was offered at price bands above \$300/MWh. 34 MW of Raise and Lower regulation capacity was offered below \$300/MWh. For



DI ending 0135 hrs, AGL shifted 40 MW each of Raise and Lower regulation capacity from Torrens Island B PS from bands priced below \$1.5/MWh to bands priced at \$13,773.83/MWh. For the same DI, AGL also withdrew 75 MW each of Raise and Lower regulation capacity from Torrens Island A PS. For DI ending 0205 hrs, AGL added 65 MW each of Raise and Lower Regulation capacity that was withdrawn earlier back into the band priced at \$13,773.83/MWh.

The prolonged high regulation prices and rebidding caused the rolling sum of Raise Regulation FCAS prices in the South Australia region to exceed six times the CPT, resulting in an Administered price period. An APC of \$300/MWh was applied for all FCAS services between DIs ending 0905 hrs on 02 November 2015 and 0400 hrs on 09 November 2015.

5-minute Energy price in South Australia reached \$13,330.87/MWh and \$13,330.77/MWh for DIs ending 1000 hrs on 03 November 2015 and 1440 hrs on 04 November 2015 respectively. Following the islanding of South Australia from Victoria on 01 November 2015, AEMO invoked constraint set I-VS_050 which limited the interconnector flow from Victoria to South Australia across the Heywood Interconnector to 50 MW. The high energy prices can be attributed to limited availability of cheaper priced generation within South Australia during a period of reduced interconnector support from Victoria.

During the high priced DIs, cheaper priced generation was available within South Australia but limited due to ramp rates (Torrens Island Units A1, A3, B1 and B2, Northern PS Unit 2), FCAS profiles (Northern PS Unit 111) or fast-start profiles (Ladbroke 2, Quarantine PS Unit 5).

The limited ramp rates of the units in Northern PS and Torrens Island A and B PS resulted in these units being unavailable for Raise Regulation services during both high priced DIs. As a result, the F_S+RREG_0035 constraint set violated for both DIs due to insufficient Raise Regulation services being available to meet the 35 MW requirement.

Wind generation was 565 MW and 267 MW for TIs ending 1000 hrs on 03 November 2015 and 1500 hrs on 04 November 2015.

The target flows towards South Australia on the Heywood interconnector were 54 MW and 74 MW for DIs ending 1000 hrs on 03 November 2015 and 1440 hrs on 04 November 2015 respectively. The target flows violated the 50 MW limit set by the constraint set I-VS_050.

The energy price reduced to \$45.99/MWh for DI ending 1005 hrs on 03 November 2015 and \$36.79/MWh for DI ending 1445 hrs on 04 November 2015 when up to 529 MW of generation capacity was rebid from higher priced bands to Market Floor Price (-\$1000/MWh).

The high FCAS prices for 01 November 2015 were not forecast in the pre-dispatch schedules since it was a result of rebidding and unplanned outage of the South East – Heywood no.2 275 kV transmission line. The high FCAS prices on 02 November 2015 were forecast in pre-dispatch schedules.

The high energy prices on 03 November 2015 and 04 November 2015 were not forecast in Pre-dispatch schedules due to the lower forecast demand and high wind generation forecasts in the Pre-dispatch runs.



Wednesday 11 November 2015 – High Energy and FCAS price SA

Market Outcomes: South Australian spot price reached \$2,388.72/MWh for trading interval (TI) ending 1330 hrs.

South Australian FCAS prices and energy and FCAS prices for the other NEM regions were not affected by this event.

Detailed Analysis: 5-Minute dispatch price reached \$13,481.81/MWh in South Australia for dispatch interval (DI) ending 1330 hrs. The high price can be attributed to low wind generation in South Australia and limited interconnector flow into South Australia.

The South Australian demand was 1,462 MW for TI ending 1330 hrs. During the high priced TI, wind generation in South Australia was 167 MW.

South Australian generation capacity was offered at less than \$591/MWh or above \$10,759/MWh resulting in a steep supply curve. For DI ending 1330 hrs, cheaper priced generation was available but limited due to FCAS profiles (Northern PS unit 1 and Pelican Point PS) or required more than one DI to synchronise (Dry Creek GT unit 3).

For the high priced interval, generation offers at \$13,481.81/MWh had to be cleared from Hallett PS to meet the demand for the high priced DI. Northern PS unit 2 which generally offers capacity up to 273 MW was unavailable.

During the affected DI, the target flow on the Heywood interconnector was constrained down to 21 MW by an outage constraint equation $V::S_SETB_SETB$. This constraint equation manages the transient stability on a South East to Tailem Bend 275 kV line for the trip of the parallel line. The target flow on the Murraylink interconnector was also limited to 30.46 MW towards Victoria by an outage constraint equation $V>SMLBAHO4$. This constraint equation manages post-contingent overload on Buronga to Redcliffs 220 kV line during planned outage of the Waubra-Horsham 220 kV line.

The 5-minute price reduced to \$64.99/MWh in the subsequent DI to the high priced interval when the demand was reduced by approximately 145.5 MW. Approximately 120.16 MW of non-scheduled generation came online and 95 MW of generation capacity was shifted or rebid from higher price bands to bands priced at or below \$94.99/MWh which also contributed to reducing the dispatch price.

The latest pre-dispatch schedule forecast the 30-minute spot price for TI ending 1330 hrs to be \$590.20/MWh, as the forecast demand was approximately 46 MW lower than the pre-dispatch schedule.

Thursday 12 November 2015 – High Energy price SA

Market Outcomes: South Australian spot price reached \$2,291.49/MWh for trading interval (TI) ending 0900 hrs.

South Australian FCAS prices and energy and FCAS prices for the other NEM regions were not affected by this event.



Detailed Analysis: 5-Minute dispatch price in South Australia reached \$13,481.81/MWh for dispatch interval (DI) ending 0855 hrs. The high price can be attributed to a tight supply curve during a period of low wind generation and limited interconnector flow into South Australia.

The South Australian demand was 1,468 MW for TI ending 0900 hrs. Wind generation was low at 142 MW for the same TI.

At 0844 hrs, an unplanned outage of the Horsham – Redcliffs 220 kV transmission line occurred due to a circuit breaker trip caused by lightning (Market Notice 50497). The line outage triggered the Murraylink runback scheme to operate, thus reducing flow across the Murraylink interconnector to 0 MW. Following the unplanned outage, AEMO invoked constraint set I-ML_ZERO to limit the target flow across Murraylink to 0 MW in both directions.

South Australian generation capacity was offered at less than \$591/MWh or above \$10,759/MWh resulting in a steep supply curve. Between DIs ending 0850 hrs and 0855 hrs, GDF Suez and AGL withdrew a total of 52 MW of generation capacity from Dry Creek GT Unit 1 and Torrens Island A Unit 3. Northern PS unit 2 which generally offers capacity up to 273 MW was unavailable. Cheaper priced generation was available but limited due to ramp rates (Hallett PS, Northern PS Unit 1, Torrens Island A unit 4 and Torrens Island B unit 2) or required more than one DI to synchronise (Dry Creek GT units 2 and 3).

Generation offers at \$13,481.81/MWh had to be cleared from Hallett PS to meet the demand for the high priced DI.

The target flow towards South Australia on the Heywood interconnector was at 139 MW, which violated the limit of 108 MW set by the outage constraint equation $V::S_SETB_SETB$. This constraint equation prevents transient instability across the VIC-SA cutset during the outage of a South East – Tailem Bend 275 kV transmission line. The target flow also violated the $V^{^}S_SETB_SETB$ constraint equation which manages voltage stability across the VIC-SA cutset during the outage of a South East – Tailem Bend 275 kV transmission line.

The 5-minute price reduced to \$36.75/MWh in the subsequent DI to the high priced interval when demand reduced by approximately 142 MW. The demand reduction includes 121 MW of non-scheduled generation coming online during the subsequent DI. 134 MW of generation capacity was rebid from higher price bands to Market Floor Price (-\$1000/MWh) which also contributed to reducing the dispatch price.

Murraylink interconnector was returned to service at 0943 hrs and constraint set I-ML_ZERO revoked from DI ending 0950 hrs.

The high 30-minute spot price for South Australia was not forecast in the pre-dispatch schedules, as it was a result of an unplanned outage of Murraylink that resulted in limited interconnector flow into South Australia.

Thursday 19 November 2015 – High Energy price NSW, QLD

Market Outcomes: New South Wales spot price reached \$2,504.34/MWh and \$763.44/MWh for trading intervals (TIs) ending 1630 and 1700 hrs respectively. Queensland spot price reached \$2,333.76/MWh for TI ending 1630 hrs.

Energy and FCAS prices for the other NEM regions were not affected by this event.



Counter price flows caused negative residues of approximately \$784,000 to accumulate on the New South Wales to Victoria directional interconnector between TIs ending 1630 hrs and 1730 hrs. AEMO managed negative residues from 1655 hrs to 1830 hrs (Market Notices 50625 and 50633).

Actual Lack of Reserve Level 1 (LOR1) condition had been declared for the New South Wales region from 1619 hrs to 1730 hrs (Market Notices 50605 and 50628).

Detailed Analysis: 5-Minute dispatch price in New South Wales was between \$1,690.43/MWh and the Market Price Cap (MPC) of \$13,800/MWh for three dispatch intervals (DIs) between DIs ending 1630 hrs and 1650 hrs. 5-Minute dispatch price in Queensland reached \$12,899.89/MWh for DI ending 1630 hrs. The high prices in both regions can be attributed to high demand due to high temperatures, and flow on the VIC-NSW interconnector was constrained towards Victoria to manage a planned outage.

The New South Wales demand reached a peak of 11,861 MW for TI ending 1700 hrs while the demand in Queensland was 7,582 MW for TI ending 1630 hrs. The maximum temperature in Sydney and Brisbane were above 34°C on the day.

Target flow on the VIC-NSW interconnector was constrained up to 620 MW towards Victoria during the high priced DIs by the outage constraint equation $N \gg N\text{-DTKV_E}$. This constraint equation prevents post-contingent overload of the Canberra – Yass no.9 330 kV line during the planned outage of the Dapto – Kangaroo Valley no.18 330 kV line. This constraint equation also constrained down cheaper priced generation in the southern area of New South Wales.

Due to the counter-priced flow on the VIC-NSW interconnector, the negative residue management (NRM) constraint equation NRM_NSW1_VIC1 was activated from DI ending 1700 hrs. The NRM constraint equation reduced the interconnector flow towards Victoria from 455 MW to 0 MW between DIs ending 1700 hrs and 1755 hrs.

The 5-minute price reduced to below \$340/MWh after DI ending 1700 hrs with a reduction in demand, rebidding of generation capacity from higher to lower priced bands, and reduction in interconnector flow towards Victoria.

The high 30-minute spot prices were not forecast in the pre-dispatch schedules. In pre-dispatch, more flow towards New South Wales was available on the VIC-NSW interconnector as the outage constraint equation that sets the limit is determined from subregional demand forecast.

Friday 20 November 2015 – High Energy price NSW, QLD

Market Outcomes: New South Wales spot price reached \$2,552.20/MWh and \$2,484.74/MWh for trading intervals (TIs) ending 1530 and 1600 hrs respectively. Queensland spot price reached \$2,432.89/MWh and \$2,387.01/MWh for trading intervals (TIs) ending 1530 and 1600 hrs respectively.

Energy and FCAS prices for the other NEM regions were not affected by this event.

Counter price flows caused negative residues of approximately \$422,490 to accumulate on the New South Wales to Victoria directional interconnector between TIs ending 1430 hrs and 1530 hrs. AEMO managed negative residues from 1510 hrs to 1630 hrs (Market Notices 50652 and 50657).



Actual Lack of Reserve Level 1 (LOR1) condition had been declared for the New South Wales region from 1300 hrs to 1710 hrs (Market Notices 50649 and 50658). Actual Lack of Reserve Level 2 (LOR2) condition had also been declared for the New South Wales region from 1530 hrs to 1600 hrs (Market Notices 50654 and 50655).

Detailed Analysis: 5-Minute dispatch price in New South Wales reached the Market Price Cap (MPC) of \$13,800/MWh for DIs ending 1530 hrs and 1550 hrs respectively. 5-Minute dispatch price in Queensland reached \$13,292.80/MWh and \$13,356.40/MWh for DIs ending 1530 hrs and 1550 hrs respectively. The high prices in both regions can be attributed to high demand due to high temperatures, and flow on the VIC-NSW interconnector was constrained towards Victoria to manage a planned outage.

The New South Wales demand was at its yearly peak of 12,802 MW for TI ending 1600 hrs while Queensland reached a peak of 7,588 MW for TI ending 1700 hrs. The maximum temperature was 42.8°C in Sydney and 32.8°C in Brisbane on the day.

With the increasing evening demand in NSW, the N>>N-DTKV_E constraint equation within the N-DTKV_18_15M constraint set began to bind from DI ending 1355 hrs. This constraint equation prevents post-contingent overload of the Canberra – Yass no.9 330 kV line during the planned outage of the Dapto – Kangaroo Valley no.18 330 kV line. This constraint equation also constrained down cheaper priced generation in the southern area of New South Wales.

In New South Wales, between DIs ending 1505 hrs and 1520 hrs, 90MW of generation capacity was withdrawn, which was previously offered at bands priced at less than \$26/MWh. For DI ending 1535 hrs, 657MW of generation capacity from Colongra GT was withdrawn with the reason “AVOID UNECONOMIC START”.

Due to the counter-priced flow on the VIC-NSW interconnector, the negative residue management (NRM) constraint equation NRM_NSW1_VIC1 was activated from DI ending 1515 hrs. The NRM constraint equation violated for DIs ending 1525 hrs and 1530 hrs, and reduced the interconnector flow towards Victoria from 320 MW to 0 MW between DIs ending 1515 hrs and 1540 hrs.

The New South Wales and Queensland 5-minute price reduced to below \$56/MWh for DI ending 1555 hrs after a reduction in demand and in interconnector flow towards Victoria.

The high 30-minute spot prices were not forecast in the pre-dispatch schedules. In pre-dispatch, the forecast demand was lower and more flow towards New South Wales was available on the VIC-NSW interconnector as the outage constraint equation that sets the limit is determined from subregional demand forecast.