

# WEEKLY ELECTRICITY MARKET ANALYSIS



AUSTRALIAN ENERGY  
REGULATOR

12 February - 18 February 2012

## Summary

As has generally been the case since the beginning of the year, the highest prices this week occurred in Queensland. For the sixth consecutive week there were volatile market pricing outcomes in Queensland. The highest spot price for the week was \$360/MWh, and occurred in Queensland at 3.30 pm on Tuesday 14 February, closely followed by the lowest price for the week of -\$27/MWh at 4 pm. The spot price exceeded \$100/MWh on seven other occasions during the week in Queensland.

Despite the high prices in Queensland, Tasmania recorded the highest average price for the week at \$38/MWh. Spot prices have been over \$50/MWh every day during the minimum load period in the early hours of the morning.

## Spot market prices

Figure 1 sets out the volume weighted average (VWA) prices for the week 12 February to 18 February and the 11/12 financial year to date (YTD) across the NEM. It compares these prices with price outcomes from the previous week and year to date respectively.

**Figure 1: Volume weighted average spot price by region (\$/MWh)**

	Qld	NSW	VIC	SA	Tas
Average price for 12 Feb - 18 Feb 2012	30	26	26	27	38
% change from previous week*	6	-1	6	9	5
11/12 financial YTD	30	30	27	33	32
% change from 10/11 financial YTD **	-20	-41	-7	-31	1

\*The percentage change between last week's average spot price and the average price for the previous week. Calculated on VWA prices prior to rounding.

\*\*The percentage change between the average spot price for the current financial year and the average spot price for the previous financial year. Percentage changes are calculated on VWA prices prior to rounding.

Further information is provided in Appendix A when the spot price exceeds three times the weekly average and is above \$250/MWh or less than -\$100/MWh. Longer term market trends are attached in Appendix B<sup>1</sup>.

## Financial markets

Figures 2 to 9 show futures contract<sup>2</sup> prices traded on the Australian Securities Exchange (ASX) as at close of trade on Monday 20 February 2012. Figure 2 shows the base futures

<sup>1</sup> Monitoring the performance of the wholesale market is a key part of the AER's role and an overview of the market's performance in the long term is provided on the AER website. Long-term statistics can be found there on, amongst other things, demand, spot prices, contract prices and frequency control ancillary services prices.

To access this information go to

[www.aer.gov.au](http://www.aer.gov.au) -> Monitoring, reporting and enforcement -> Electricity market reports -> Long-term analysis.

<sup>2</sup> Futures contracts traded on the ASX are listed by d-cyphaTrade ([www.d-cyphatrade.com.au](http://www.d-cyphatrade.com.au)). A futures contract is typically for one MW of electrical energy per hour based on a fixed load profile. A base load profile is defined as the base load period from midnight to midnight Monday to Sunday over the duration of the contract quarter. A peak load profile is defined as the peak-period from 7 am to 10 pm Monday to Friday (excluding Public holidays) over the duration of the contract quarter.

contract prices for the next three calendar years, and the average over these three years. Also shown are percentage changes<sup>3</sup> from the previous week.

**Figure 2: Base calendar year futures contract prices (\$/MWh)**

	QLD		NSW		VIC		SA	
Calendar Year 2012	40	-2%	43	-1%	38	-2%	39	-9%
Calendar Year 2013	54	0%	59*	-1%	54	-1%	57	-1%
Calendar Year 2014	57	0%	61	-1%	56*	-1%	68	-2%
Three year average	50	-1%	54	-1%	49	-1%	55	-3%

Source: d-cyphaTrade [www.d-cyphatrade.com.au](http://www.d-cyphatrade.com.au)

\* denotes trades in the product.

Figure 3 shows the \$300 cap contract price for Q1 2012 and calendar year 2012 and the percentage change<sup>4</sup> from the previous week.

**Figure 3: \$300 cap contract prices (\$/MWh)**

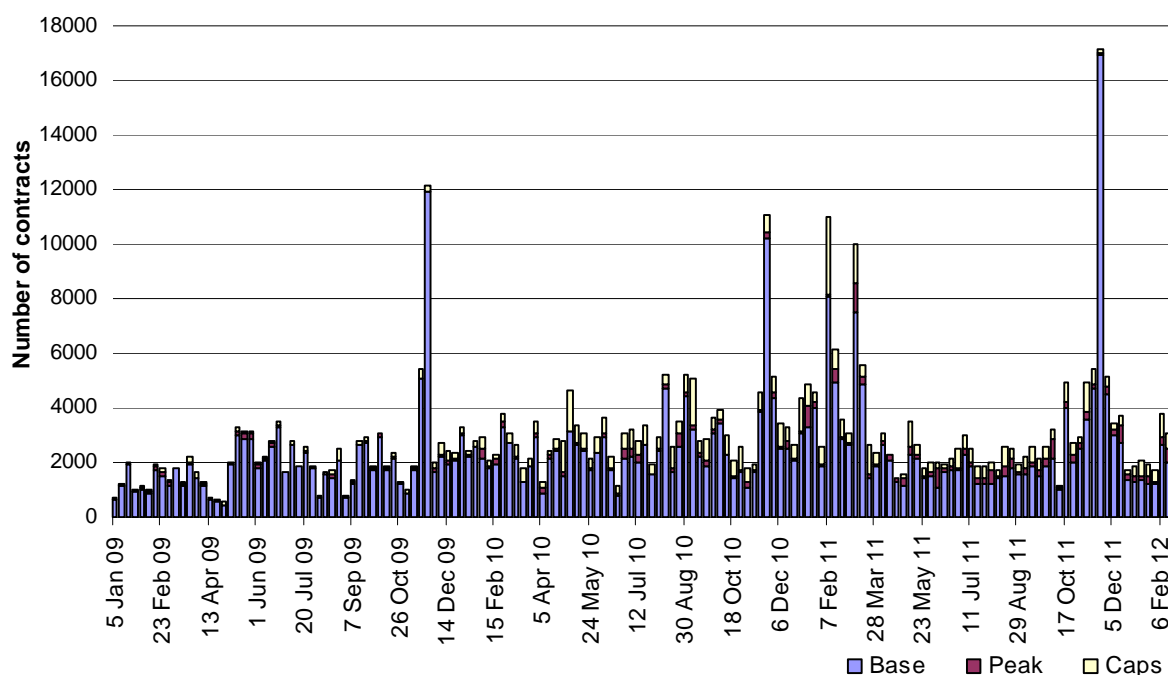
	QLD		NSW		VIC		SA	
Q1 2012 (% change)	5	-29%	3*	-44%	2*	-49%	7	-53%
2012 (% change)	4	-12%	5	-9%	2	-20%	5	-32%

Source: d-cyphaTrade [www.d-cyphatrade.com.au](http://www.d-cyphatrade.com.au)

\* denotes trades in the product.

Figure 4 shows the weekly trading volumes for base, peak and cap contracts. The date represents the end of the trading week.

**Figure 4: Number of exchange traded contracts per week**



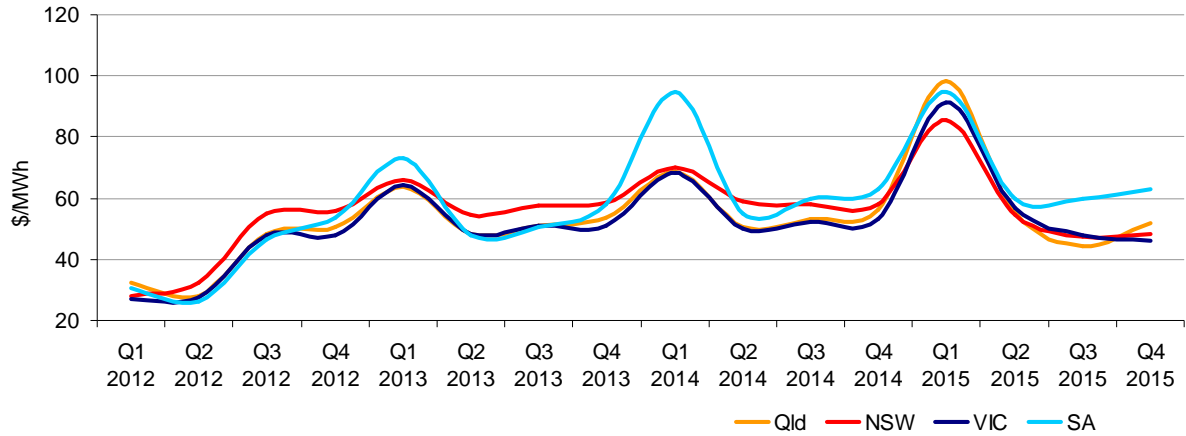
Source: d-cyphaTrade [www.d-cyphatrade.com.au](http://www.d-cyphatrade.com.au)

Figure 5 shows the prices for base contracts for each quarter for the next four financial years.

<sup>3</sup> Calculated on prices prior to rounding.

<sup>4</sup> Calculated on prices prior to rounding.

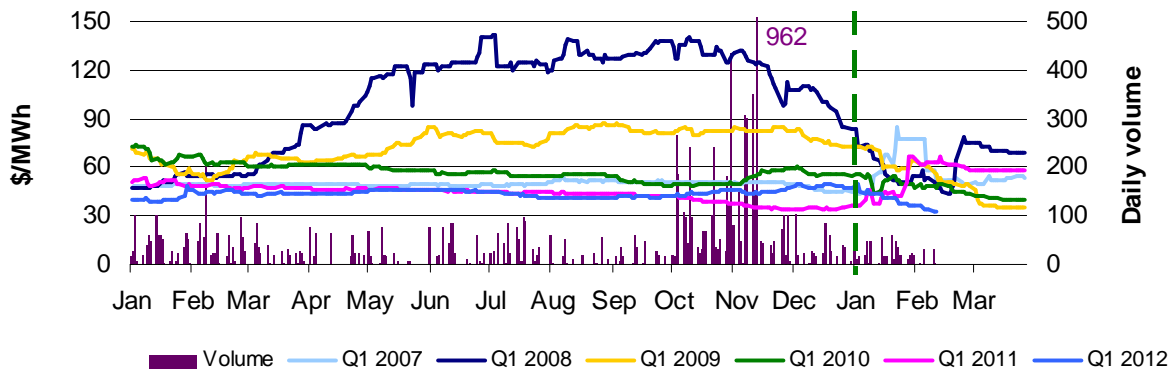
**Figure 5: Quarterly base future prices Q1 2012 – Q4 2015**



Source: d-cyphaTrade [www.d-cyphatrade.com.au](http://www.d-cyphatrade.com.au)

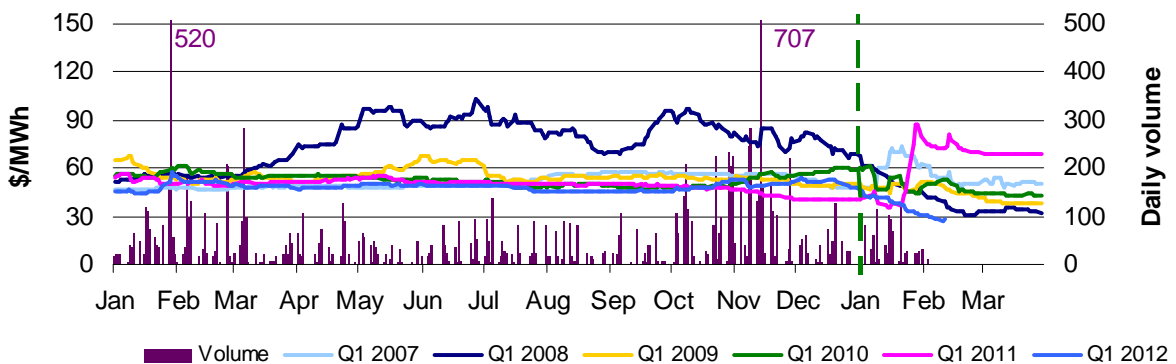
Figures 6-9 compare for each region the closing daily base contract prices for the first quarter of 2007, 2008, 2009, 2010, 2011 and 2012. Also shown is the daily volume of Q1 2012 base contracts traded. The vertical dashed line signifies the start of the Q1 period for which the contracts are being purchased. To understand the diagrams, the dark-blue line in figure 6 demonstrates that throughout the middle of 2007, the market had an expectation of very high spot prices in the first quarter of 2008.

**Figure 6: Queensland Q1 2007, 2008, 2009, 2010, 2011 and 2012**



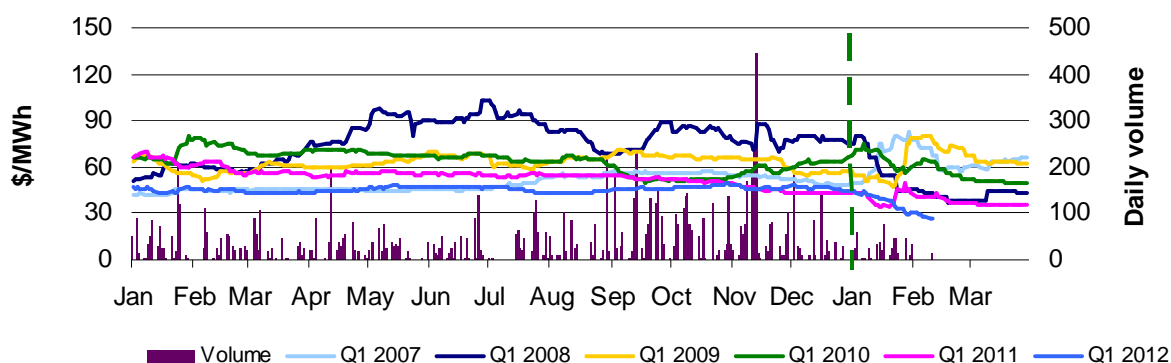
Source: d-cyphaTrade [www.d-cyphatrade.com.au](http://www.d-cyphatrade.com.au)

**Figure 7: New South Wales Q1 2007, 2008, 2009, 2010, 2011 and 2012**



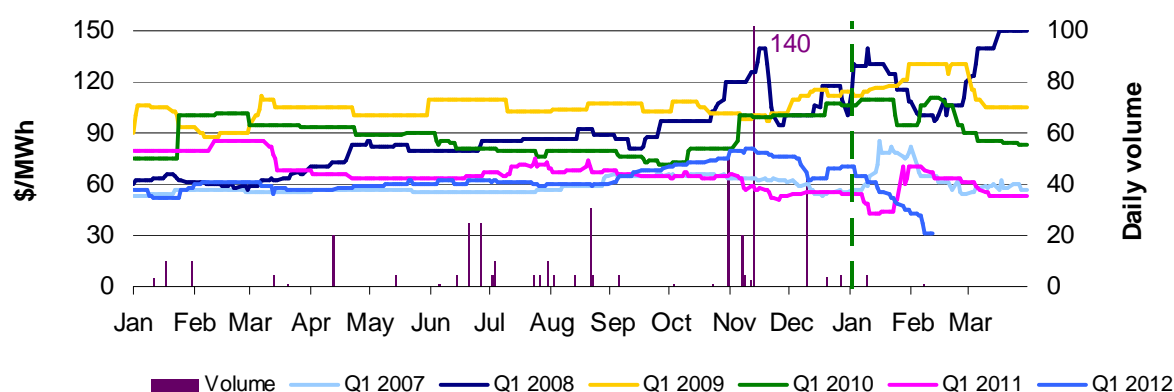
Source: d-cyphaTrade [www.d-cyphatrade.com.au](http://www.d-cyphatrade.com.au)

**Figure 8: Victoria Q1 2007, 2008, 2009, 2010, 2011 and 2012**



Source: d-cyphaTrade [www.d-cyphatrade.com.au](http://www.d-cyphatrade.com.au)

**Figure 9: South Australia Q1 2007, 2008, 2009, 2010, 2011 and 2012**



Source: d-cyphaTrade [www.d-cyphatrade.com.au](http://www.d-cyphatrade.com.au)

\*The daily volume scale for South Australia is smaller than for other regions to reflect the lower liquidity in the market in South Australia.

### Spot market forecasting variations

The AER is required under the National Electricity Rules to determine whether there is a significant variation between the forecast spot price published by the Australian Energy Market Operator (AEMO) and the actual spot price and, if there is a variation, state why the AER considers the significant price variation occurred. It is not unusual for there to be significant variations as demand forecasts vary and as participants react to changing market conditions. There were 45 trading intervals throughout the week where actual prices varied significantly from forecasts<sup>5</sup>. This compares to the weekly average in 2010 of 57 counts and the average in 2009 of 103. Reasons for these variances are summarised in Figure 10<sup>6</sup>.

**Figure 10: Reasons for variations between forecast and actual prices**

	Availability	Demand	Network	Combination
% of total above forecast	9	41	13	6
% of total below forecast	28	0	0	3

<sup>5</sup> A trading interval is counted as having a variation if the actual price differs significantly from the forecast price either four or 12 hours ahead.

<sup>6</sup> The table summarises (as a percentage) the number of times when the actual price differs significantly from the forecast price four or 12 hours ahead and the major reason for that variation. The reasons are classified as availability (which means that there is a change in the total quantity or price offered for generation), demand forecast inaccuracy, changes to network capability or as a combination of factors (when there is not one dominant reason). An instance where both four and 12 hour ahead forecasts differ significantly from the actual price will be counted as two variations.

## Demand and bidding patterns

The AER reviews demand, network limitations and generator bidding as part of its market monitoring to better understand the drivers behind price variations. Figure 11 shows the weekly change in total available capacity at various price levels during peak periods<sup>7</sup>. For example, in Queensland 2 MW less capacity was offered at prices under \$20/MWh this week compared to the previous week. Also included is the change in average demand during peak periods, for comparison.

**Figure 11: Changes in available generation and average demand compared to the previous week during peak periods**

MW	<\$20/MWh	Between \$20 and \$50/MWh	Total availability	Change in average demand
QLD	-2	141	201	-317
NSW	83	90	-41	183
VIC	151	-137	224	637
SA	121	225	350	294
TAS	38	-145	49	-20
<b>TOTAL</b>	<b>391</b>	<b>174</b>	<b>783</b>	<b>777</b>

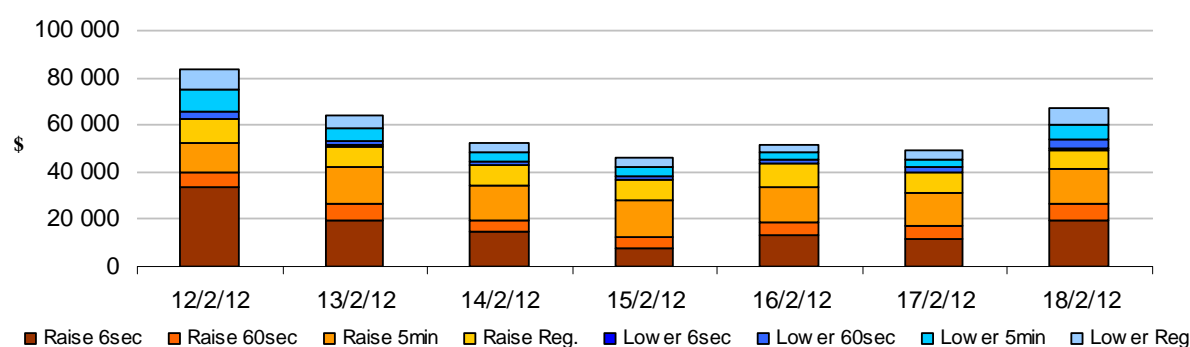
## Ancillary services market

The total cost of frequency control ancillary services (FCAS) on the mainland for the week was \$293 000 or less than one per cent of energy turnover on the mainland.

The total cost of FCAS in Tasmania for the week was \$122 000 or just under two per cent of energy turnover in Tasmania.

Figure 12 shows the daily breakdown of cost for each FCAS for the NEM.

**Figure 12: Daily frequency control ancillary service cost**



## Australian Energy Regulator February 2012

<sup>7</sup> A peak period is defined as between 7 am and 10 pm on weekdays.

## Detailed Market Analysis



12 February – 18 February 2012

**Queensland:**

There was one occasion where the spot price in Queensland was greater than three times the Queensland weekly average price of \$30/MWh and above \$250/MWh.

**Tuesday, 14 February**

<b>3:30 PM</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	360.16	26.76	26.43
Demand (MW)	7449	7517	7283
Available capacity (MW)	11 452	11 673	11 733

Conditions at the time saw capacity around 220 MW below that forecast four hours ahead.

From 1.35 pm, a constraint managing the loading on the Calvale to Stanwell 275 kV line for the loss of the Calvale to Wurdong 275 kV line bound. The constraint equation affects the majority of Queensland generators.

This constraint caused the export limit on the QNI interconnector to reduce from around 200 MW into Queensland at 1.25 pm to over 600 MW into New South Wales during the high priced trading interval. The export limit at times was forcing flow counter-price into New South Wales. From 3.25 pm to 3.45 pm, AEMO invoked constraints to manage the accumulation of negative settlement residues from Queensland to New South Wales. \$214 000 of negative residues accrued between 2 pm and 3.30 pm.

At 2.48 pm, AGL Hydro rebid 96 MW of capacity priced at zero at its Yabulu Power Station into price bands above \$12 700/MWh. The reason given was “14:45A unfcast network constraint :: qld 855 871”.

At 2.54 pm, Origin Energy reduced the amount of capacity priced at \$500/MWh or less at its Mt Stuart Power Station by 260 MW. The reason given was “1445A avoid uneconomic dispatch sl”.

At 3.17 pm, effective from 3.25 pm, CS Energy rebid 550 MW of capacity priced below \$50/MWh at its Gladstone Power Station into price bands above \$10 900/MWh. The reason given was “1520A g/stone intraconnector constraint manage 855\_871 sl”.

The 5-minute dispatch price reached \$1294/MWh at 3.25 pm after the Gladstone rebid, as low priced generation was either limited by its ramp up rate of change or was ramped down causing other higher priced generation to be dispatched. In response to the high price, around 460 MW of capacity was rebid into price bands close to the floor for the following trading interval, leading to the dispatch price falling to -\$462/MWh at 3.40 pm before returning to normal levels, with subsequent rebids seeing much of this low priced capacity returned to higher bands.

There was no other significant rebidding.

# Detailed NEM Price and Demand Trends

for Weekly Market Analysis  
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**Table 1: Financial year to date spot market volume weighted average price**

Financial year	QLD	NSW	VIC	SA	TAS
2011-12 (\$/MWh) YTD	30	30	27	33	32
2010-11 (\$/MWh) YTD	37	51	29	49	31
Change*	-20%	-41%	-7%	-31%	1%
2010-11 (\$/MWh)	34	43	29	42	31

**Table 2: NEM turnover**

Financial year	NEM Turnover** (\$, billion)	Energy (TWh)
2011-12 (YTD)	\$3.754	127
2010-11	\$7.445	204
2009-10	\$9.643	206

**Table 3: Recent monthly and quarterly spot market volume weighted average price and turnover**

Volume weighted average (\$/MWh)	QLD	NSW	VIC	SA	TAS	Turnover (\$, billion)
Oct-11	28	29	24	43	33	0.421
Nov-11	35	40	27	32	31	0.512
Dec-11	26	26	23	25	26	0.369
Jan-12	35	26	25	28	39	0.447
Feb-12 (MTD)	29	26	26	27	36	0.247
Q1 2012	32	26	26	28	38	0.764
Q1 2011	95	139	53	128	27	2.846
Change*	-66%	-81%	-52%	-78%	40%	-73.16%

**Table 4: ASX energy futures contract prices at end of 20 February 2012**

	QLD		NSW		VIC		SA	
	Base	Peak	Base	Peak	Base	Peak	Base	Peak
Q1 2012								
Price on 13 Feb (\$/MWh)	35	50	30	38	30	41	42	77
Price on 20 Feb (\$/MWh)	33	43	28	34	27	35	31	44
Open interest on 20 Feb	1259	316	2469	615	2151	304	293	5
Traded in the last week (MW)	67	25	74	100	14	21	1	0
Traded since 1 Jan 11 (MW)	11513	444	13785	1672	10396	1329	499	5
Settled price for Q1 11(\$/MWh)	57	96	68	118	35	51	53	93

**Table 5: Changes to availability of low priced generation capacity offered to the market**

Comparison:	QLD	NSW	VIC	SA	TAS	NEM
December 11 with December 10						
MW Priced <\$20/MWh	-767	-1462	-931	-239	-401	-3799
MW Priced \$20 to \$50/MWh	65	971	767	134	164	2100
January 12 with January 11						
MW Priced <\$20/MWh	77	609	76	-291	-211	259
MW Priced \$20 to \$50/MWh	168	131	226	57	-8	574
February 12 with February 11 (MTD)						
MW Priced <\$20/MWh	-41	-469	-277	-266	145	-908
MW Priced \$20 to \$50/MWh	409	375	162	56	-365	637

\*Note: These percentage changes are calculated on VWA prices prior to rounding

\*\* Estimated value