



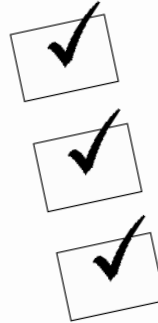
# ENERGY FOCUS

FY Review - 2008/2009\_

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## Australian Electricity Futures

EXCHANGE TRADED  
CASH SETTLED  
CFTC APPROVED



### THE YEAR IN REVIEW

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- > Price Action
- > Daily Settlement Price Enhancements
- > Hedge Accounting AASB 139

### COMING SOON

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- > Online Data Centre Enhancements
- > Futures Offsets for NEM Retailers
- > NSW Privatisation
- > US Treasury Secretary: force OTC onto exchange

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- > Popular hedging strategies
- > Implied Option Volatility vs. Historical

AUSTRALIAN ELECTRICITY  
THE ALTERNATIVE  
MARKET





**WELCOME TO THE 19<sup>TH</sup> EDITION OF ENERGY FOCUS**  
**FINANCIAL YEAR REVIEW 2008/2009**

The d-cypha SFE futures and options market proved to be "recession proof" during the year ending June 2009 trading a record number of contracts. Annual traded volume soared to over 300 million MWh representing an increase of 24% compared to the previous financial year.

The market traded approximately \$15.4 billion (face value) and open interest grew 11% on the year to reach 52,830 contracts COB June 2009.

Option trading volumes were particularly strong, trading 115 million MWh during the year (equivalent to 58% of annual underlying electricity demand). During January 2009 the d-cypha SFE electricity options market became the largest exchange traded power options market in the world (by Open Interest). During September 2008, options trading exceeded underlying electricity consumption by 32%. Option trading and hedging strategies included zero-cost-collars, call spreads, put spreads, condors and butterflies, indicating an increased utilisation of options trading strategies by market participants. Option trades dealt out as far as 3 1/2 years, to the 2012 contracts.

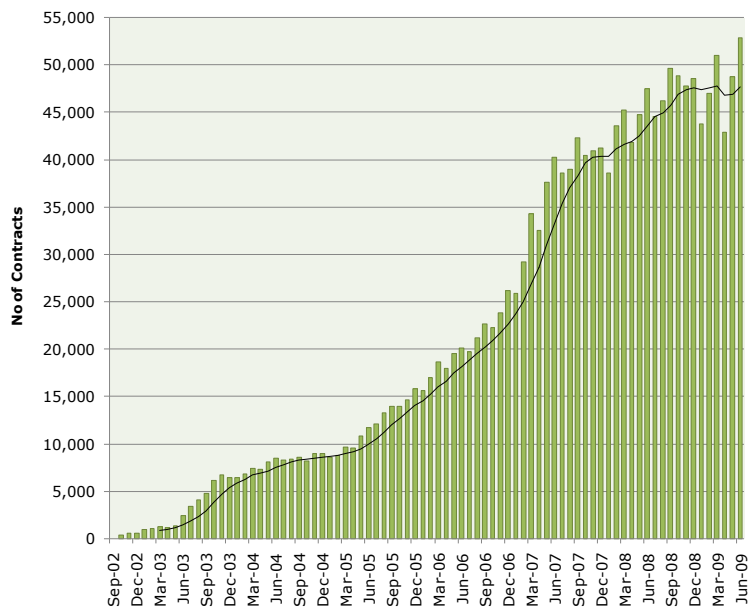
The base load contract volumes continued to dominate over peak load contract volumes, with base load representing approximately 99% of turnover.

4,060 Exchange for Physical (EFP) contracts or 380 separate transactions were registered, an increase of 460% on the previous year. Block Trading volume equalled 77,681 contracts or 56% of traded volume. Block Trades are off-market transactions involving Over the Counter (OTC) negotiated deals brought to SFE Clearing Corporation to be cleared as futures.

	2006/07	2007/08	2008/09
Futures, Caps & Options contracts traded*	115,189	112,599	139,628
Avg Daily Volume*	454 contracts 956,695 MWh	445 contracts 951,746 MWh	550 contracts 1,184,361 MWh
% of underlying electricity consumption	125%	123%	152%
Total Traded MWh (Approx)	243 million	241 million	300 million
Face Value Traded (Approx)*	\$11.9 billion	\$12.9 billion	\$15.4 billion
Open interest (COB end June)	40,272 contracts	47,496 contracts	52,830 contracts
Face Value of Open Interest (COB end June)*	\$7.76 billion	\$5.9 billion	\$6.8 billion

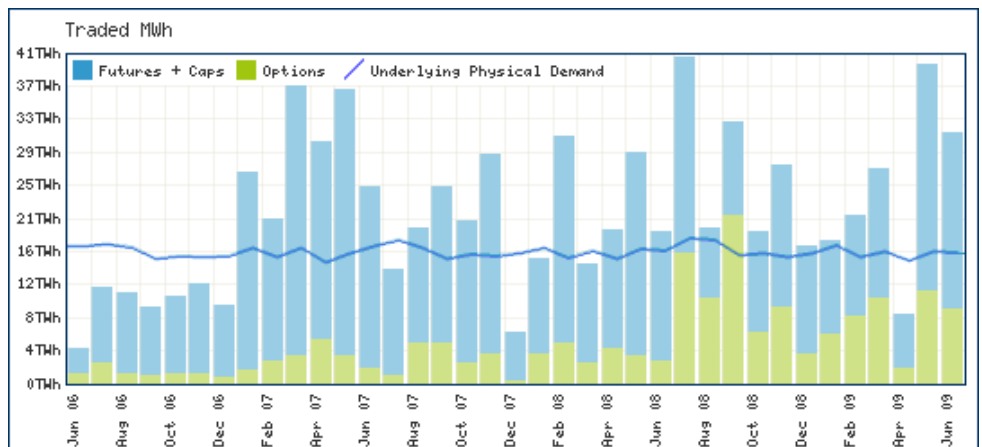
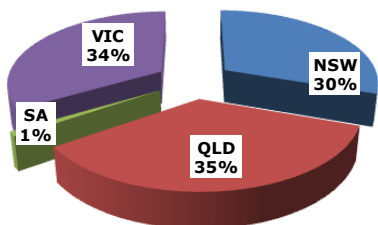
\*Contract traded volume is quoted on a 1 MW calendar quarter-equivalent basis. Face value of options is calculated at strike.

**Figure 1: Monthly Open Interest**



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**Total Traded Volume in MWh by State, FY0809**



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**PRICE ACTION IN 2010 FUTURES FINANCIAL YEAR - 2008/2009**

As illustrated by the National Power Index 2010 (average 2010 futures price across QLD, NSW, VIC and SA) the 2008/2009 year witnessed an early rally, followed by a prolonged sell off. After a brief dip during July 2008, 2010 futures prices rallied to reach the year's highs during Q1 2009. This rally was driven by expectations of a July 2010 introduction of the Emissions Trading Scheme (ETS) and the prospect of aggressive generator pool bidding and hot temperatures in SA driving future air-conditioning demand. From February, 2010 futures prices sold off as the likelihood of a 2010 ETS introduction diminished. In May, the Federal Government announced that the ETS price cap would be reduced and the introduction of the scheme deferred to July 2011. This announcement added momentum to the price downtrend in 2010 (and longer dated) futures prices and most long term contracts finished on their lows for the year.

During FY 2008/2009, Calendar 2010 price ranges included:

NSW – high \$58.59 (1/07/08), low \$44.52 (10/06/09), close \$44.68. The 08/09 high was \$13.09 lower than the previous financial years high, the low was \$0.01 higher and the close was \$5.03 lower.

VIC – high \$58.69 (2/02/09), low \$46.73 (10/06/09), close \$47.73. The 08/09 high was \$3.96 lower than the previous financial years high, the low was \$4.88 higher and the close was \$2.82 lower.

QLD – high \$54.73 (1/12/08), low \$41.16 (9/06/09), close \$42.24. The 08/09 high was \$6.90 lower than the previous financial years high, the low was \$2.37 higher and the close was \$8.52 lower.

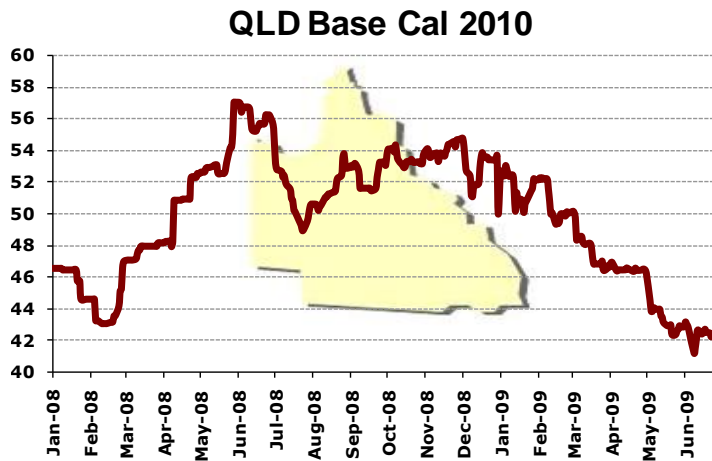
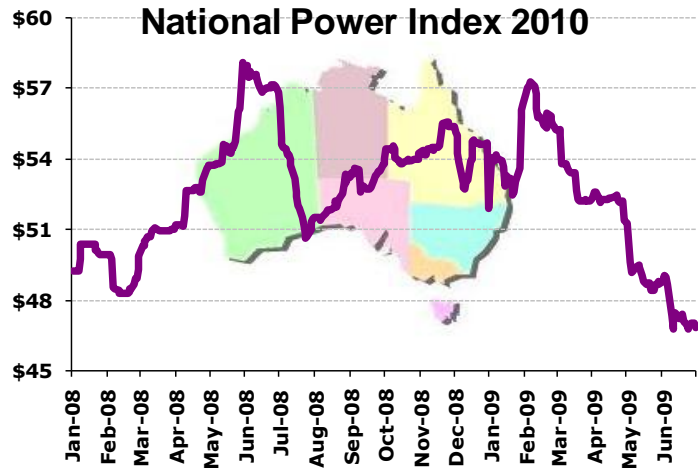
SA – high \$64.85 (16/02/09), low \$53.76 (19/06/09), close \$53.76. The 08/09 high was \$1.29 lower than the previous financial years high, the low was \$12.66 higher and the close was \$10.61 lower.

Options implied price volatility (2010 at-the-money) daily settlement levels during the year ranged between:

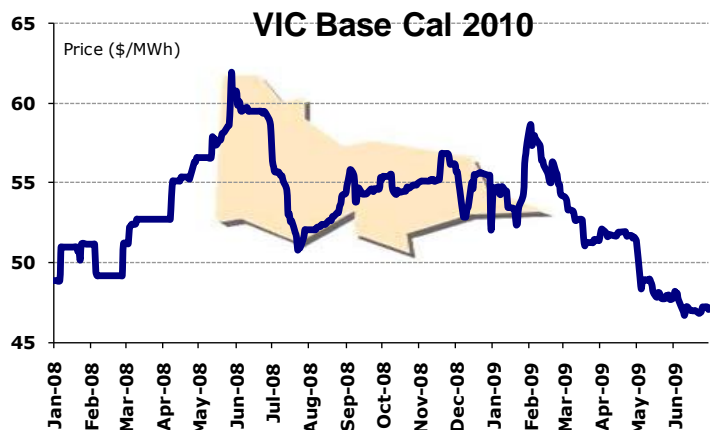
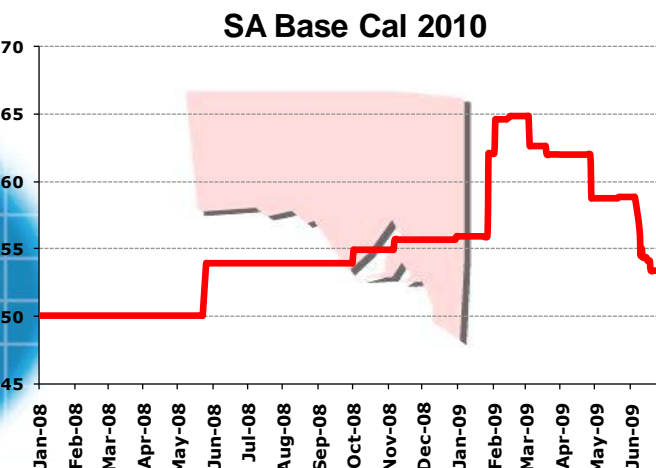
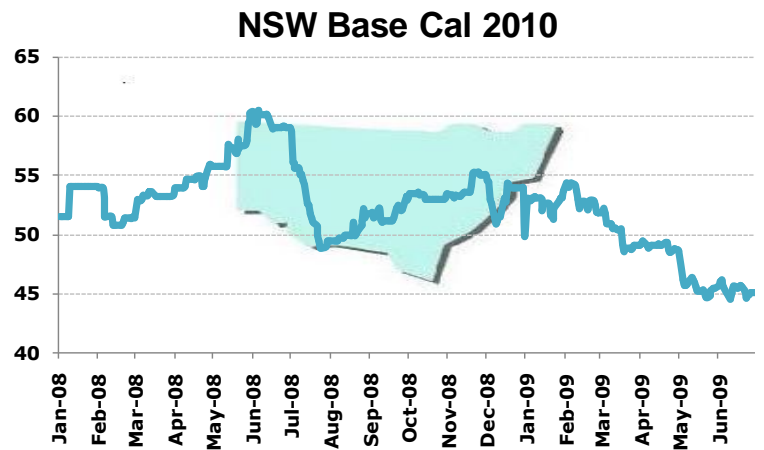
NSW – high 25.35% (Oct 08), low 10.38% (Jul 08)

VIC – high 26.92% (Oct 08), low 15% (Jul 08)

QLD – high 25.85% (Aug 08), low 15.73% (Jul 08)



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## CHANGES TO DAILY SETTLEMENT PRICE PROCEDURES

Enhancements were made to the Daily Settlement Price (DSP) procedures which came into effect 8 June 2009. These enhancements improve the quality of DSPs particularly in the longer dated part of the futures curve and align individual quarter DSPs with the relevant calendar-year option DSPs.

- > The DSP determination process for futures strip products will incorporate prices implied from underlying quarterly futures products where more competitive.
- > The DSP determination process for quarterly futures products will incorporate prices implied from the relevant futures strip product where more competitive.

The latest version of the SFE Operational Policies (Version 4.3) is available at [www.d-cyphaTrade.com.au](http://www.d-cyphaTrade.com.au).

## HEDGE ACCOUNTING – AASB 139

Counterparty credit default risk can significantly reduce the value of Over-the-Counter (OTC) financial instruments. **Energy trading companies risk overstating the value of their OTC financial instruments** if they report valuations of those instruments (issued by sub-A-rated counterparties) at the “risk free” rate. ASIC has highlighted “financial instrument disclosure” as an area of focus for the FY 2009 reporting period.<sup>1</sup>

Financial instrument credit risk in the Australian electricity market is being impacted by the credit worthiness of financial hedge counterparties, forward market volatility and the impact of the global credit crisis on the availability of refinancing for issuers of OTC electricity financial instruments. In addition, the potential privatisation of the NSW energy trading businesses and the potential introduction of an Emissions Trading Scheme in 2011 will also impact counterparty credit default risks in OTC financial instruments.

**Excerpt from hedge accounting standard AASB 139 AG71:** “...The objective of determining fair value for a financial instrument that is traded in an active market is to arrive at the price at which a transaction would occur at the reporting date in that instrument (i.e. without modifying or repackaging the instrument) in the most advantageous active market to which the entity has immediate access. **However, the entity adjusts the price in the more advantageous market to reflect any differences in counterparty credit risk between instruments traded in that market and the one being valued....**” The d-cypha SFE Electricity Futures Market is an active, centrally cleared financial market which provides transparent electricity derivative pricing out to 4 years ahead. Ratings agencies provide historical corporate composite default rates (by counterparty rating and term) and debt recovery rates. Using these factors, the fair value (inclusive of credit risk) of an OTC financial instrument issued by a sub-A-rated counterparty can be derived using the relevant futures price discounted for the credit risk value.

## ONLINE DATA CENTRE FOR NEW SFE ENERGY PRODUCTS

d-cyphaTrade will introduce new data packages for the latest Sydney Futures Exchange (SFE) energy products; Thermal Coal Futures & Options - 7 July 2009; NZ Electricity Futures & Options - 14 July 2009 and Victorian Gas Futures - 21 July 2009.

### NEW DATA CENTRE PRODUCT FEATURES:

- > 15 minute delayed market data for futures & options prices.
- > Custom and Message Board updates filtered exclusively for energy products. Available online and via email alerts.
- > Central data source containing a comprehensive set of energy futures market data available in downloadable CSV file format.
- > Daily Settlement and Open Interest Files (available for 10 working days) available via email format.
- > Historical Futures & Options data (including price and open interest figures) by period or region for any given period of time.
- > Charting function, which allows users to view movements in price and volume over time for a particular contract.

For further information on the new Data Centre products please contact the d-cyphaTrade Team on 1800 330 101 or go to [www.d-cyphaTrade.com.au](http://www.d-cyphaTrade.com.au).

<sup>1</sup> 09-115MR ASIC review of 30 June 2009 financial reports, Friday 26 June 2009.



## WEBSITE DATA CENTRE ENHANCEMENTS

To further enhance the d-cyphaTrade Australian electricity helpline/information service a new online "chat" facility is available. Whilst online, you can be connected to a d-cyphaTrade consultant and receive instant responses to any questions or queries.

A ticker has been added to the home page which now reports all trades including on-screen trades, Block Trades and EFP's.

d-cyphaTrade released the Phoneview to enable on-the-go monitoring of key market data pages on the d-cyphaTrade website. If you're a remote device user please go to [dcp.com.au](http://dcp.com.au) and start browsing.

For instant updates on relevant key market information people can follow d-cyphaTrade on Twitter at [www.twitter.com/dcypha](http://www.twitter.com/dcypha).

The subscription based Data Centre now includes an improved Flash Charting section showing both price and volume analysis and includes a new zoom function. Additionally, options (by individual strike or all strikes) are able to be charted by settlement volatility, price and volume. This data can also be downloaded as a CSV file.

## FUTURES OFFSETS FOR NEM RETAILERS

The Australian Energy Markets Commission (AEMC) has been conducting a Market Review into the role of hedging arrangements in the existing National Electricity Market (NEM) prudential framework. This Market Review is investigating ways of integrating NEM retailer's futures hedges into the existing NEM (physical market) prudential regime. As a result, the AEMC may decide to recommend National Electricity Rules to introduce Futures Offset arrangements (FOAs). Historically, FOAs could have achieved significantly reduced operating costs for NEM retailers, by reducing inefficient levels of bank guarantee commitments which retailers must lodge with NEMMCO.

During Q2 2008, FOAs could have reduced a \$1.9 billion (approx) prudential guarantee funding burden on NSW electricity retailers (if they had held futures hedges) by 76% to \$0.5 billion (approx). FOAs would have reduced SA Q2 2009 guarantee commitments for SA electricity retailers from approximately \$320.76/MWh to \$50.05/MWh (an 84% funding saving).

If the NSW government privatises its electricity retail businesses the incoming business owners will be forced to immediately source bank guarantees from the private banking sector, as NSW T-corp support to NEMMCO is withdrawn. FOAs could substantially reduce that burden and associated costs.

The introduction of FOAs is also likely to support a significant increase in short term futures hedging and financial market liquidity and create an EFP market driven by retailers seeking additional futures positions to achieve large cost savings on their NEMMCO guarantee requirements. The AEMC Final Report to the Ministerial Council of Energy is due in February 2010.

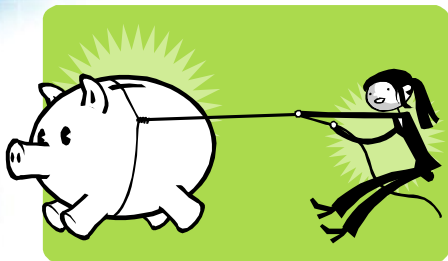
## PRIVATISATION OF NSW ENERGY BUSINESSES

The proposed privatisation of the NSW state-owned electricity retailers and generators is likely to result in trading activity moving from the OTC market to the centrally cleared futures market. The exit of [implicit] tax-payer funded credit support from the NSW OTC electricity derivative market will leave the new business owners exposed to private counterparty OTC default risk unless their hedging is done via the exchange traded futures market.

If the NSW government sells the retailer merchant trading books prior to selling the generators, NSW government may be exposed to new private sector owners defaulting on the legacy OTC financial product commitments assigned to them. The SFE's EFP mechanism allows legacy OTC contracts to be *exchanged* for centrally cleared futures and options positions, prior to selling the NSW trading books. This would eliminate the ongoing OTC credit default risk to NSW. Inheriting large NSW futures positions would substantially reduce ongoing NEMMCO credit support costs to new private owners of NSW retail businesses, if the AEMC implements FOAs.

## US TREASURY: SHIFT OTC DEALS TO CLEARING HOUSE

In a May 2009 letter to the US Senate, US Treasury Secretary Tim Geithner called for all standardised Over-the-Counter (OTC) derivatives to be moved onto regulated exchanges and central counterparty clearers (CCPs) in order to better regulate and reduce systemic default risks in OTC markets. Geithner cited the need to work with authorities outside the US to promote complementary measures in other jurisdictions. The Department of Treasury letter is available at <http://www.financialstability.gov/docs/OTCletter.pdf>





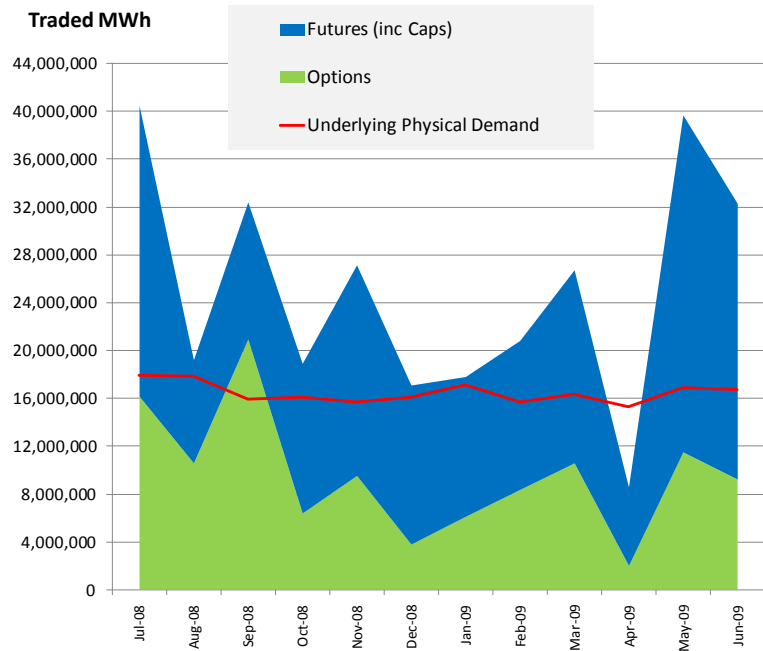
**Options trading equivalent to 58%  
annual power consumption**

**AUSTRALIAN ELECTRICITY OPTIONS MARKET NOW ONE OF THE LARGEST IN THE WORLD**

In January 2009 the d-cypha SFE Electricity Options market was the world's largest exchange traded electricity options market (by MWh of open interest). During the FY08/09 year, options trading was equivalent to 58% of annual underlying physical consumption. Options trading during Q3 2008 set numerous records including trading 20.8 million MWh during September, equal to 32% more than underlying physical electricity consumption that month. A single day trading record was set on 4 September 2008 of over 4.2 million MWh or 485 calendar year option contracts.

The following chart illustrates the significant size of exchange traded electricity options volumes during FY08/09.

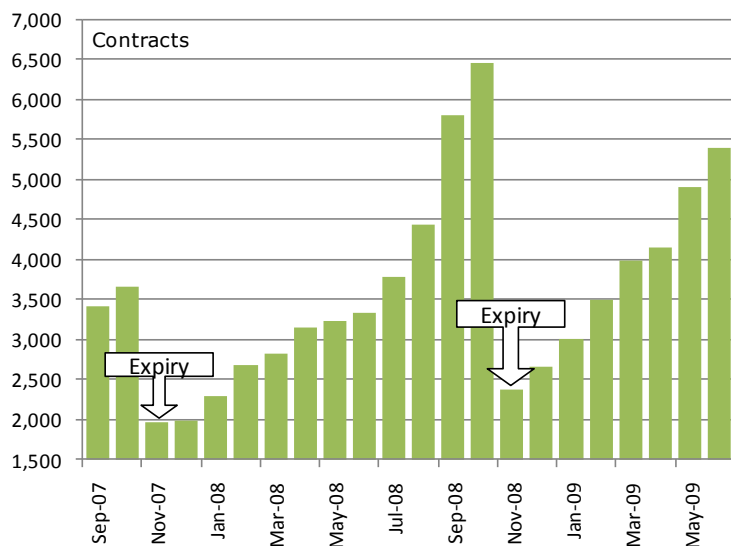
**Figure 2: Underlying NEM System Demand vs. d-cypha SFE Electricity Futures & Options volume**



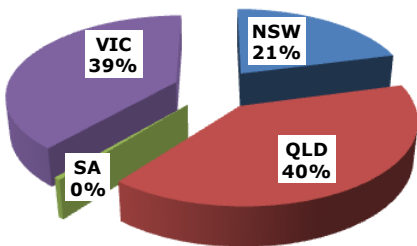
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Options Open Interest increased from 3,330 options contracts (COB 30/06/08) to set a new record of 6,463 contracts with a face value of \$3 billion (COB 30/10/08), covering 56.6 million MWh. The chart below shows the rapid increase in Open Interest of options contracts since the November 2007 expiry. Since the November 2008 option expiry, options open interest has climbed rapidly from 2,383 contracts to close at 5,403 contracts as at 30 June 2009.

**Figure 3: Options Open Interest**



**Options Volume in Traded MWh by State, FY0809**



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## IMPLIED VOLATILITY OBSERVATIONS

Options implied price volatility (2010 at-the-money) daily settlement levels during the year ranged between:

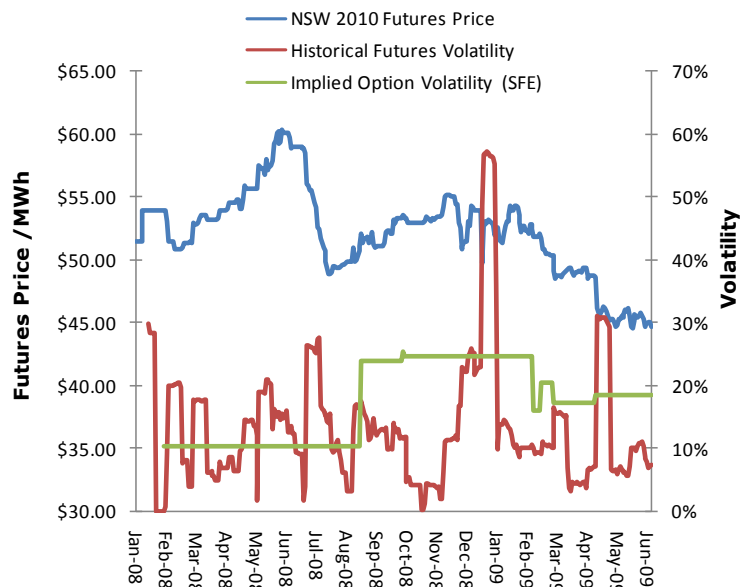
- > NSW – high 25.35% (Oct 08), low 10.38% (Jul 08)
- > VIC – high 26.92% (Oct 08), low 15% (Jul 08)
- > QLD – high 25.85% (Aug 08), low 15.73% (July 08)

The following analysis shows the history of option settlement implied volatility and historical underlying futures volatility (rolling 10 day sample) for NSW 2010 options. The d-cyphaTrade online Data Centre has extensive option trade and settlement price information. For further details visit [www.d-cyphatrade.com.au](http://www.d-cyphatrade.com.au)

**Figure 4: Historical NSW and VIC Futures Volatility vs. Implied Option Volatility**

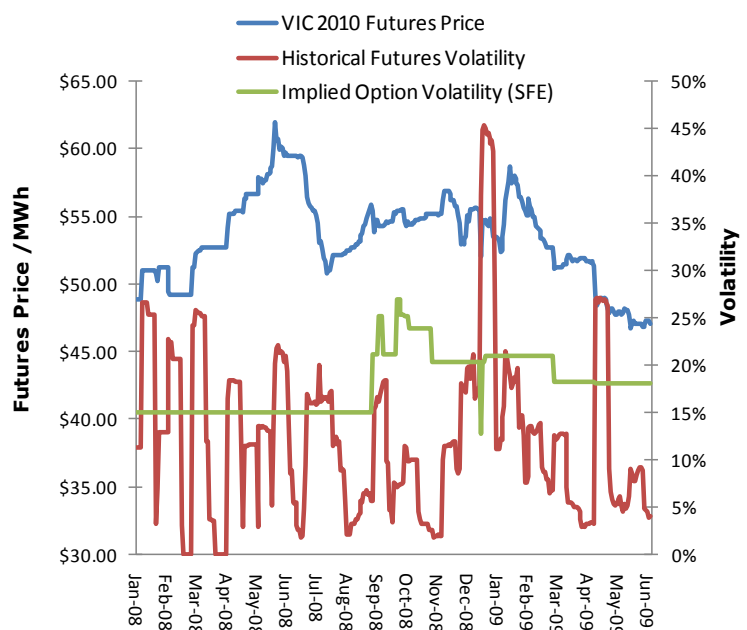
OPTION ONLY Statistics	2006/07	2007/08	2008/09
Option contracts traded*	12,213	18,066	52,508
% Base vs. Peak Options	99% base 1% peak	99.5% base 0.5% peak	99.8% base 0.2% peak
Option Avg Daily Volume*	48 Contract 105,696 MWh	71 Contracts 155,966 MWh	207 Contracts 452,335 MWh
Option % of underlying electricity consumption	14%	20%	58%
Option Total Traded MWh (Approx)	26.6 million	39.5 million	114.9 million
Option Face Value Traded (Approx)*	\$1.3 billion	\$2.1 billion	\$6.4 billion
Option Open interest* (COB end June)	10,204 contracts	13,080 contracts	21,642 contracts
Face Value of Option Open Interest (COB end June)*	\$1.06 billion	\$1.4 billion	\$2.8 billion
*Contract traded volume is quoted on a 1 MW calendar quarter-equivalent basis. Face value of options is calculated at strike.			

### NSW 2010 Historical Futures Volatility v.s. Implied Option Volatility



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### VIC 2010 Historical Futures Volatility v.s. Implied Option Volatility





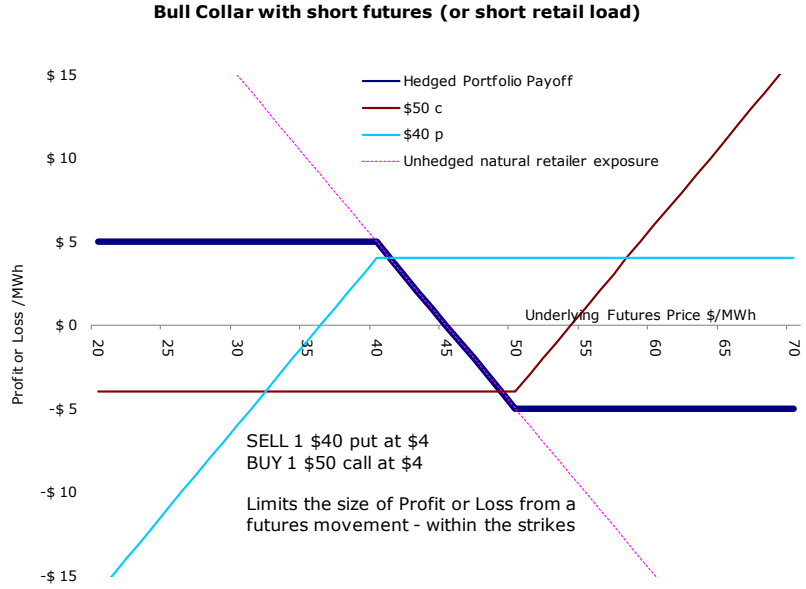
## POPULAR OPTIONS TRADING STRATEGIES

Option call-spreads dominated electricity trading strategies during FY08/09, with high volumes trading via \$10/MWh-wide out of the money call-spreads across 2009 and 2010 contracts. Option collar strategies were also very popular. The accompanying graph illustrates an electricity retailer's use of a "zero-cost option collar" to limit the price risk to its natural short position from a forward market move. Buying a call option and selling a put option limits the retailer's price risk to within the option strike prices.

**Table 1: At-the-Money Straddle price settlements as at 30/06/09**

(\$/MWh)	NSW	VIC	QLD	SA
<b>2010</b>	4.11	4.22	3.31	2.76
<b>2011</b>	3.39	8.87	7.25	4.89
<b>2012</b>	5.44	14.38	14.67	6.42

**Figure 5: Option Payoff (expiry) Diagram**

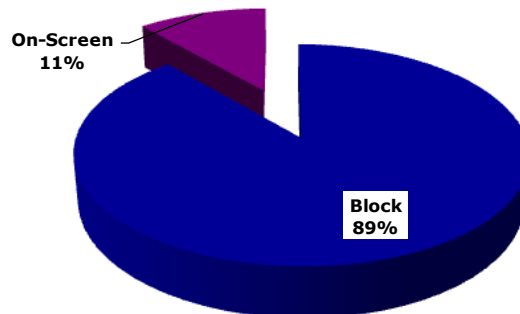


Butterfly and Condor strategies also traded during the year, out as far as the 2012 contracts.

## OPTION BLOCK TRADES VERSUS ONSCREEN TRADES

The most popular type of option trading mechanism was the Block Trade facility, whereby energy companies, hedge funds and banks negotiate deals OTC-style (most commonly using broker intermediation). After negotiation, the clients' SFE Participants (broker) submits the deal for registration by the SFE Clearing Corporation. Approximately 89% of all option traded volume during FY08/09 was Block Traded.

**Figure 6: Trading Mechanism comparison for Option Trades**



## ELECTRICITY OPTIONS TRADING WORKSHOPS

d-cyphaTrade runs both in-house and general electricity options trading workshops for market professionals. The workshops and teleconferences cover option contract specifications, hedging strategies for utility companies, volatility trading and risk management techniques specific to the Australian Electricity options market. The workshop presenter is Dean Price, d-cyphaTrade's General Manager, previously an options market maker for 8 years in the SFE's open outcry options pits. For more details about this and other training workshops please visit [www.d-cyphatrade.com.au](http://www.d-cyphatrade.com.au).