

Energy Market Policy

This policy is designed to preserve the operational efficiency and integrity of Energy products for the wholesale market and provide a clear, consistent and consolidated interpretation of the operational management of Energy products.

Participants should continue to refer to the ASX 24 Operating Rules for further detail and to the extent of any inconsistency the ASX 24 Operating Rules prevail.

Energy Trading Policy¹

1. Operating Rules of the Australian Securities Exchange Limited (the Exchange)

The Exchange will manage the operation of the Energy Market subject to the ASX 24 Operating Rules.

Pre Negotiated Trading	ASX 24 Operating Rules Procedure	4401
Strategy (Strip) Trading	ASX 24 Operating Rules Procedure	4402
Exchange for Physical	ASX 24 Operating Rules Procedure	4800
Block Trades	ASX 24 Operating Rules Procedure	4820

2. Participant Registration of Block Trades

Please refer to ASX 24 Operating Rules Procedure 4820.

3. Procedures for Pre-negotiated Business

The procedure for transaction of pre-negotiated business in Energy products in the outright market is;

- Pre-negotiate business between counterparties
- Immediately release a Request for Quote (RFQ)
- Wait 30 seconds for market response
- Within a further 90 seconds bring pre-negotiated orders to market for execution

The procedure for transaction of pre-negotiated business in Energy products in the Custom Market is;

- Pre-negotiate business between counterparties
- Immediately release a Custom Market Request for Quote (CRFQ)
- Wait 30 seconds for market response
- Within a further 90 seconds bring pre-negotiated orders to market for execution

4. Participant Registration of Exchange For Physical (EFPs)

Participants are required to present to the Exchange EFPs for registration by 5.30pm. EFPs presented after 5.30pm will be processed on the next business day.

5. Participant Registration of Strip Trade Leg Prices - Energy

Upon execution of an electricity or gas strip, the Exchange will apply the algorithm outlined below to calculate the component futures prices². The Exchange will present the details of the strip with the associated leg prices to Participants via email for Participants record keeping. The Exchange will register the allocated price levels resulting from the Strip trade in the Clearing system (Genium Clearing).

¹ Where Trading is a defined term that encompasses Block Trades, Strategy (Strip) Trading and Exchange for Physical (EFP) trades.

² Final futures price allocations will be rounded to the nearest \$0.01/MWh.

Year-long Strips:

1. The previous official daily settlement prices (ODSPs) of the underlying futures contracts will be used as a starting point and adjusted by a Price Adjustment Factor³ to achieve an implied Strip price which approximates the price of the executed underlying futures contracts;
2. Price adjustments will be made via a consistent proportional price movement from ODSPs (rounded to \$0.01/MWh for electricity and \$0.01/GJ for Gas); with the exception that
3. The underlying futures contract with the longest dated expiry will be further adjusted up or down in increments of \$0.01/MWh for electricity and \$0.01/GJ for gas to the extent that such adjustment will achieve a more accurate implied Strip price as calculated to 4 decimal places (e.g. \$109.2995/MWh or \$3.6045/GJ).

The Participants, Over The Counter (OTC) brokers and market users are responsible for developing their own spreadsheets or other tools should they wish to replicate the futures prices as per the defined process.

6. Publication of Market Data resulting from Trading

Once Block Trade Orders are accepted, the Exchange will publish details of the contract, price and volume (e.g. Block Trade Reg d: BQZ1 50 Lots @ 30.05) of all Block Trades via the message facility within 2 hours of registration of the Block Trade with ASX TradeAccept. For Strip Trades registered by the Block Trade Facility the Exchange will only publish the quantity and price of the components legs.

The Exchange will publish EFP details in the following format (e.g. EFP Regd @ 09.55 50 BNH7 @ 47.50) via the ASX 24 Message Facility usually within 1 hour of the registration of the EFP deal with ASX TradeAccept.

The Exchange will publish Strip Trade details (exact details below) via the Exchange's website usually within 2 hours of the registration of the Strip Trades deal with ASX Clear (Futures).

- Trade Date
- Trade Time
- Strip Contract
- Strip Price
- Strip Contract Components
- Strip Component prices
- Strip Component Volume

7. Acceptable Construction of Energy EFPs

For further details on the Exchange's EFP Trading please refer to Operating Rules Procedure 4800.

With respect to EFP transactions in the Electricity and Gas contracts, where the OTC component of an EFP is within 10% of the size (e.g. MWhs / GJ) or value, the Exchange will accept the following construction in relation to Electricity and Gas EFPs:

- OTC Swaps, Caps and / or Options against Electricity and Gas Futures and / or Futures Options.

8. Available Trading Hours for Energy Trading

All Trades in Energy products may be registered during Open trading hours and for EFPs up to 1.5 hours after close of trading day as well as up to 1 hour and 5 minutes (including registration time) for Block Trades to clear in the same business day.

9. Daily Settlement Price determination process for Energy Futures

9.1. Victorian Wholesale Gas and Renewable Energy Certificates

The determination of the Daily Settlement Prices will comply with all of the below procedures:

³ Price Adjustment Factors used for preliminary calculation purposes will be expressed as a % rounded to 4 decimal places (e.g. a Price Adjustment Factor of -0.1554%). See Examples for more details.

- Daily Settlement Price (DSP) will not be generated at levels less competitive than outright orders at market close
- DSP will be generated from last traded price (including strip leg prices if applicable) where more competitive than orders at market close
- If last traded price is outside closing bid / ask spread DSP will be the extreme of the bid / ask spread closest to the last traded price
- In absence of trades or valid orders DSP will be prior settlement price
- On Listing Date, in the absence of trades or valid orders, the DSP will be equal to the DSP of the nearest same calendar month contract
- Block Trade prices will not be used for DSP determination

9.2. Australian Electricity, New Zealand Electricity, Wallumbilla Gas and New Zealand Gas

The determination of the Daily Settlement Prices will comply with all of the below procedures:

Australian Electricity:

- A Preliminary DSP (PDSP) will be generated as follows:
 - A Settlement Trade Window is defined, which is the last **2 minutes** prior to the close of trading
 - A Settlement Order Window is defined, which is the last **10 seconds** prior to the close of trading
 - A “**valid**” order for settlement price determination is defined as an order that is maintained through the Settlement Order Window period – i.e., price and volume of the order remain unmodified.
 - For all subsequent settlement price determination steps below, only **valid** orders will be considered
 - DSP will not be generated at levels less competitive than **valid** outright orders at market close
 - If any trades occur within the Settlement Trade Window, a Trade Volume Weighted Average Price (Trade VWAP) will be calculated based on those trades (including strip leg trades)
 - An Order Volume Weighted Average Price (Order VWAP) will be calculated based on any remaining **valid** closing orders that are more competitive than the Trade VWAP determined in the above step
 - If a Trade VWAP has been calculated (i.e. trades occurred during the Settlement Trade Window) then PDSP is calculated as follows:
 - $$\text{PDSP} = \frac{(\text{Trade VWAP} \times \text{Trade Volume} + \text{Order VWAP} \times \text{Order Volume})}{(\text{Trade Volume} + \text{Valid Order volume})}$$
 - Note that if no Order VWAP was calculated (due to no more competitive valid closing orders), then Order VWAP & Order Volume are ‘zero’ in the above calculation. I.e. PDSP = Trade VWAP
 - If no Trade VWAP is calculated (i.e. there were no trades during the Settlement Trade Window), then PDSP is generated from last traded price (including strip leg prices), where more competitive than **valid** orders at market close
 - If last traded price is outside closing valid bid/ask order spread the PDSP will be the extreme of the valid bid/ask order spread closest to the last traded price

New Zealand Electricity, Wallumbilla Gas and New Zealand Gas:

- DSP will not be generated at levels less competitive than outright orders at market close
- A Preliminary DSP (PDSP) will be generated from last traded price (including strip leg prices) where more competitive than orders at market close
- If last traded price is outside closing bid/ask spread the PDSP will be the extreme of the bid/ask spread closest to the last traded price

FOR ALL AUSTRALIA AND NEW ZEALAND PRODUCTS:

- In the absence of trades or valid closing orders PDSP will be the prior settlement price
- On Listing Date, in the absence of trades of valid orders:
 - the PDSP of quarterly futures will be equal to the DSP of the nearest same calendar quarter contract. o the PDSP of monthly futures will be determined by:

- i. Calculating the face value of the Final Cash Settlement Price of the previous same calendar month as a percentage of the face value of the Final Cash Settlement Price of the most recently expired same calendar quarter; and
 - ii. Multiplying this percentage by the face value of the DSP of the current relevant quarterly futures and dividing by the MWh of the monthly future, to determine the monthly future PDSP.
- Block Trade prices and Exchange for Physical prices will not be used for PDSP or DSP determination
 - DSP will be generated using PDSP, outright orders and implied pricing of inter-related products in accordance with the following procedures:

Step 1. Determine PDSP of Monthly futures

Determine PDSP of monthly futures in accordance with section 9.1 above.

Step 2. Determine PDSP of Quarterly futures

Determine PDSP of quarterly futures in accordance with section 9.1 above.

- if all 3 component monthly futures covering a quarter are bid or offered and collectively form a more competitive implied quarterly futures bid or offer than the outright quarterly futures bid or offer then the quarterly futures bid or offer will be deemed to be the implied bid or offer (limited to an outright bid or offer of the quarterly future)

Step 3. Determine preliminary PDSPs of each Half-Year⁴

1. Calculate the PDSP of each Half-Year using the MWh weighted average price of the PDSPs of the two underlying quarterly PDSPs covering each Half-Year;
2. Adjust Half-Year PDSPs equally (on a face value-weighted basis) to collectively equate on a \$/MWh basis to any more competitive outright orders in related Financial Year strips (limited to more competitive implied Half-Year bids or offers derived from outright orders in the two underlying quarterly futures). If the implied bid or offer of one Half-Year constrains an equal face value-weighted price adjustment from occurring in that Half-Year:
 - i. the PDSP of that Half-Year will be the implied Half-Year order creating the constraint; and
 - ii. the PDSP of the other Half-Year will be adjusted (limited to a more competitive implied Half Year bid or offer derived from outright orders in the two underlying quarterly futures) such that the face value of the two combined Half-Year PDSPs equates to the face value of the target Financial Year strip order.
3. Further adjust Half-Year PDSPs equally (on a face value-weighted basis) to collectively equate on a \$/MWh basis to any more competitive outright orders in related Calendar Year strips (limited to more competitive implied Half Year bids or offers derived from outright orders in the two underlying quarterly futures). If the implied bid or offer of one Half-Year constrains an equal face value-weighted price adjustment from occurring in that Half-Year:
 - i. the PDSP of that Half-Year will be the implied Half-Year order creating the constraint; and
 - ii. the PDSP of the other Half-Year will be adjusted (limited to a more competitive implied Half Year bid or offer derived from outright orders in the two underlying quarterly futures) such that the face value of the two combined Half-Year PDSPs equates to the face value of the target Calendar Year strip order.

Step 4. DSP of FY strips and CY strips⁵

Calculate the combined hourly weighted average price of the two relevant Half-Year PDSPs to determine the DSP of each Financial Year strip and Calendar Year strip (limited to outright orders in Calendar Year strips or Financial Year strips).

⁴ This step is not applicable to Wallumbilla and New Zealand Gas as strips are not available

⁵ This step is not applicable to Wallumbilla and New Zealand Gas as strips are not available

Step 5. DSP of Quarterly futures

Adjust each of the two relevant quarterly PDSPs equally (on a face value-weighted basis) to meet any net change in PDSP face value of the relevant Half-Year PDSP. That is any difference in Half-Year face value (comparing the PDSP in Step 3.1 to the final PDSP in Step 3.3).

If an outright order in one of the quarterly futures constrains an equal face value-weighted price adjustment from occurring across both quarterly futures:

- i. the DSP of that quarterly future will be the outright order in the quarterly future creating the constraint; and
- ii. the DSP of the other quarterly future will be its adjusted PDSP (limited to a more competitive outright order in that quarterly future) required to equate the face value of the combined two quarterly futures DSPs to the face value of the final Half-Year PDSP (as calculated in Step 3.3).

Step 6. DSP of Monthly futures

- The DSP of a monthly future is the monthly future PDSP (calculated in Step 1), if one or more preceding months in the relevant quarter have expired.
- The DSP of a monthly future is calculated as follows, if all other monthly futures within the relevant quarter are listed:
- Adjust each of the three relevant monthly PDSPs equally (on a face value-weighted basis) to meet any face value change between the quarterly future PDSP (Step 2) and the quarterly future DSP (Step 5). If an outright order in one or more relevant monthly futures constrains an equal face value-weighted price adjustment from occurring across all three monthly futures:
 - i. the DSP and PDSP of constrained monthly future(s) will be the outright order(s) in the monthly future(s) creating the constraint(s); and
 - ii. the PDSPs of unconstrained monthly future(s) will be further adjusted on an equal face value weighted basis (limited to more competitive outright monthly orders) until the face value of the combined three monthly future DSP and/or PDSPs equates to the face value of the relevant quarterly future DSP.
 - iii. The DSP of each monthly future will be the final adjusted PDSP.

10. Daily Settlement Price determination process for Electricity Options

The Daily Settlement Price (DSP) for Electricity Options will be determined in accordance with Steps 1 – 3 below.

In general, ASX will consider market data observed during the Trading Day in the form of trades, Valid Bid/Offer Pairs and orders at market close. Trade data will have precedence over Valid Bid/Offer Pair data. Block Trades will be included in the DSP determination if accepted by ASX prior to market close.

For the purpose of this Energy Market Policy, a Valid Bid/Offer Pair means a concurrent bid and offer in a strike which is present for a minimum duration of 10 seconds and has a bid/offer spread of no more than 20 cents.

Step 1: The DSP will be the last traded price, where more competitive than orders at market close. If a more competitive bid or offer exists at market close, this will be the DSP for this strike.

Step 2: Where no trades have occurred in a strike, the DSP will be generated from the mid-point of the last Valid Bid/Offer Pair (subject to smoothing within the Bid/Offer range - step 3 below). However, if a more competitive bid or offer exists at market close, this will be the DSP for this strike.

Step 3: Where a particular strike has no trade or Valid Bid/Offer Pair, the DSP will be generated using the previous Trading Day's implied volatility and market data in other strikes using the Black76 Option pricing model and a smoothing algorithm.

11. Trade Cancellations

Participants should refer to the ASX 24 Operating Rules 3200 and 3210 (and the associated Procedures) to understand how on-market trade cancellations occur. Participants should note that each trade that results from contingent orders



i.e. spread orders is assessed on an individual basis. Therefore, it is possible that one leg of an executed contingent order may be cancelled while other legs stand.

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