



Australian Electricity Market Overview

Energy Derivatives
Financial Year 2023

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ASX Australian Futures Market – Financial Year 2023 Highlights

Volumes were 616% of underlying power consumption

Average Daily Volume of 4.19TWh / 1,912 contracts

Over \$122 billion in Face Value traded

1,060 TWh traded

Growth of the ASX Australian Electricity Futures Market

Listed since 2002

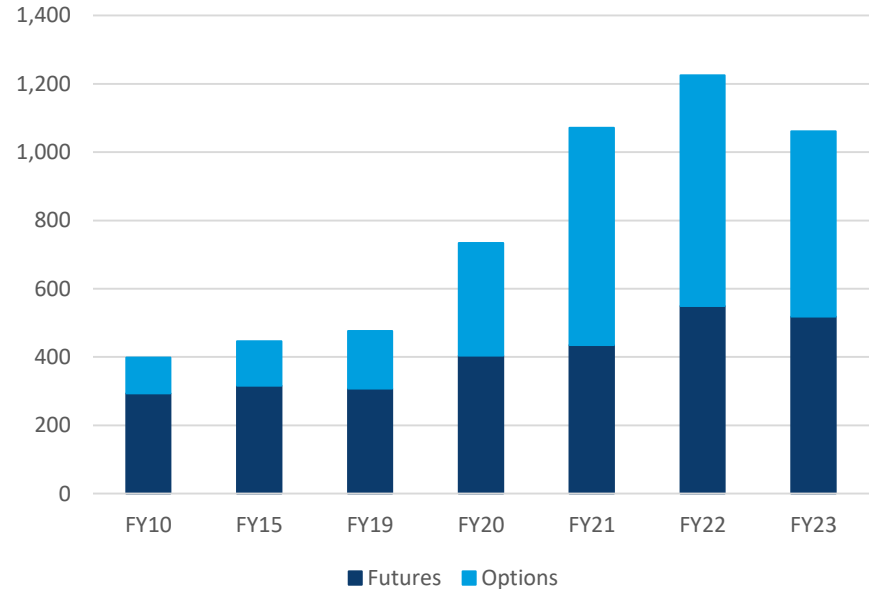
Key Features

- **Large Options market** – used to manage exposure to price movements in the wholesale electricity market.
- **Unique \$300 Cap contract** – unique product that is priced like a strip of many options and is used to manage exposure to spikes in the spot electricity market price.
- **Energy markets are changing** – the shift to renewable generation is driving change in market behaviour.

Key Benefits

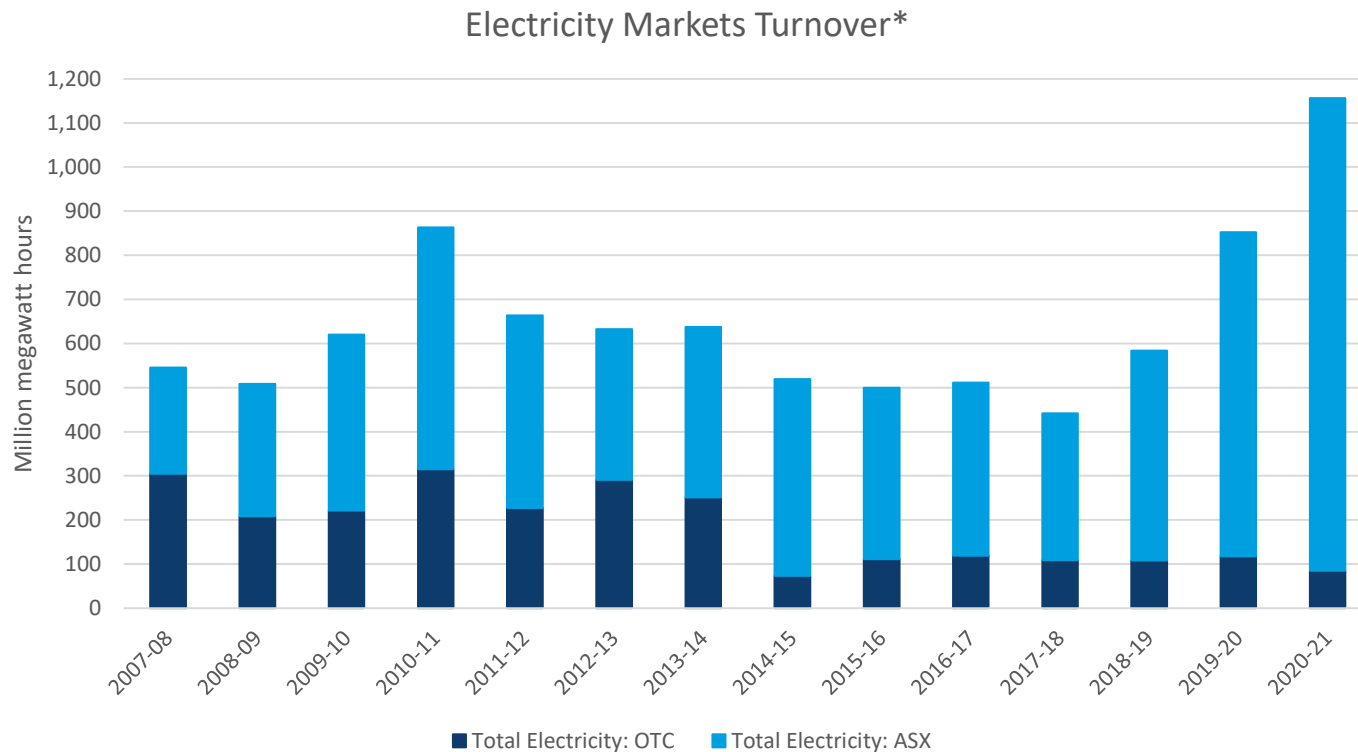
- **Price transparency and liquidity** – one of the most liquid electricity markets in Asia Pacific (with market makers).
- **Unique Alpha** – trading Australian electricity derivatives that are AUD denominated and uncorrelated to other financial markets.
- **Centrally cleared contracts** – reducing settlement and counterparty credit risk.

Australian Electricity (TWh)*



Growth of the ASX Australian Electricity Futures Market

OTC volume vs. ASX traded volume



Introduction to the National Electricity Market (NEM)

Wholesale Electricity Pool Price

- NEM interconnects five regional markets - NSW, QLD, VIC, SA and TAS.
- Australian Energy Market Operator (AEMO) is the wholesale electricity market operator.
- AEMO publishes the wholesale electricity pool price for each region.
- AEMO spot price varies from $-\$1,000/\text{MWh}$ to $+\$15,500/\text{MWh}$ (FY23).
- ASX Electricity Futures are listed for the NSW, QLD, VIC and SA regions.
- ASX Electricity Futures are cash settled against the wholesale electricity pool price average for the region.
- ASX Electricity Futures do not involve physical delivery of electricity.



ASX Energy Product Suite

Commodity	Product Type
1. Australian Electricity	<ul style="list-style-type: none">• Base Load Month Futures (EN, EQ, ES, EV)• Base Load Quarter Futures (BN, BQ, BS, BV)• Peak Load Quarter Futures (PN, PQ, PS, PV)• Base Load Quarter \$300 Cap Futures (GN, GQ, GS, GV)• Base Load Strip Options (CY/FY) (HN, HQ, HS, HV)• Base Load Quarter Average Rate Options (BN, BQ, BS, BV)
2. Australian Natural Gas	<ul style="list-style-type: none">• Victorian Natural Gas Quarter Futures (GX)• Victorian Natural Gas Strip Futures (GY)
3. New Zealand Electricity	<ul style="list-style-type: none">• Base Load Month Futures (ED, EH)• Base Load Quarter Futures (EA, EE)• Peak Load Quarter Futures (EC, EG)• Base Load Strip Options (CY/FY) (EB, EF)• Base Load Quarter Average Rate Options (EB, EF)

Summary of ASX Australian Electricity Futures

Underlying Commodity	Electrical energy bought and sold in a region of the wholesale electricity market operated by AEMO (NSW, QLD, VIC, SA)
Contract Period	Calendar quarters - March (H), June (M), September (U), December (Z). Calendar month contracts are also available.
Settlement Price	Arithmetic average of the NEM final base/peak load spot prices during the contract period, rounded to 2 decimal places. Provisional Settlement Price will be declared on the first Business Day after expiry and confirmed on the third Business Day after expiry.
Trading Hours	10:00am - 4:00pm (AEST) Block Trades may be agreed at any time except during the pre-open period (9:45am-10:00am on Exchange business days)
Base Load Contract Unit	1 Megawatt of electrical energy per hour during the base load profile (00:00 hours Monday to 24:00 hours Sunday (AEST)) bought and sold in a region over the contract period. The size (in Megawatt hours) of each Contract will vary depending on the number of days and base load hours within the contract period.
Peak Load Contract Unit	1 Megawatt of electrical energy per hour during the peak load profile (07:00 - 22:00 hours (AEST) Monday to Friday, excluding public holidays) bought and sold in a region over the contract period. The size (in Megawatt hours) of each Contract will vary depending on the number of days and peak load hours within the contract period.

Summary of ASX Australian Electricity Cap Futures Market

Underlying Commodity	Electrical energy bought and sold in a region of the wholesale electricity market operated by AEMO (NSW, QLD, VIC, SA)
Contract Period	Calendar quarters - March (H), June (M), September (U), December (Z).
Settlement Price	Cumulative amount (in dollars) of each spot price exceedance of a \$300 spot price during the contract period, divided by the number of settlement periods in the contract period.
Trading Hours	10:00am - 4:00pm (AEST) Block Trades made agreed at any time except during the pre-open period (9:45am-10:00am on Exchange business days)

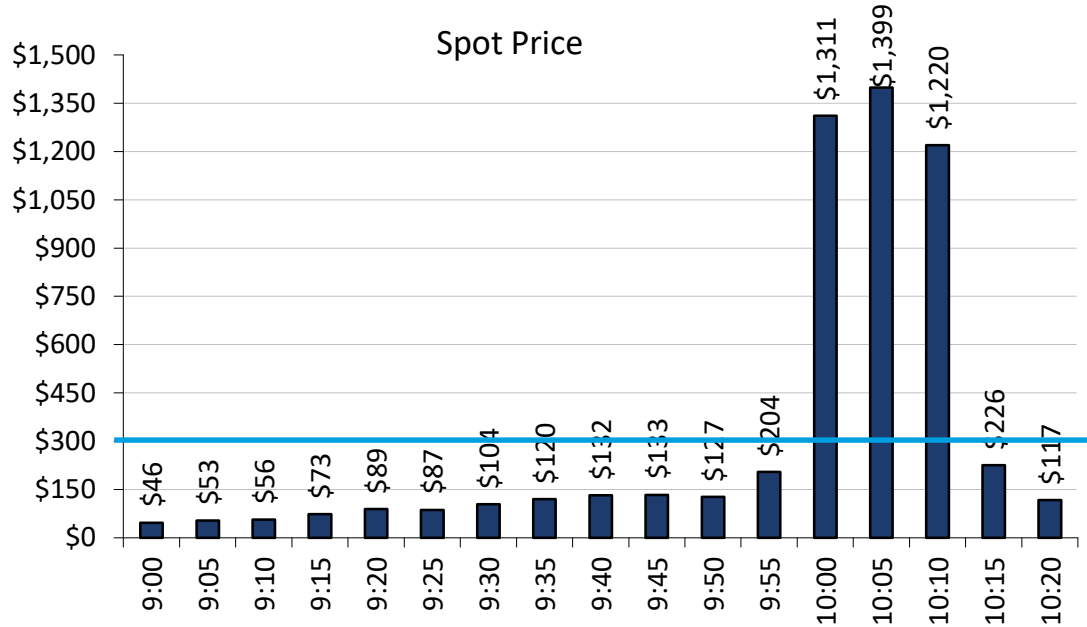
ASX Electricity Cap Futures Contract

What is a Cap payout?

- Australian Electricity Base Load Cap Futures are priced like a strip of many options with a strike price of \$300.
- In this example there are 3 periods that exceed \$300 during the contract period.

Time	Price (\$)	Exceedance (\$)
10:00	1,311.24	1,011
10:05	1,398.65	1,099
10:10	1,220.09	920

Aggregate exceedance price =	\$3,030
Total settlement periods in the quarter =	25,920
Final Cash Settle Price in \$/MWh =	\$0.12



ASX Australian Electricity Options

	Quarter Asian Options	Year Strip Options
Option style	European	American
Expiry date	3rd business day after end of underlying quarter	6 weeks prior to the commencement of the underlying strip of futures
Underlying delivery	Base Load quarter future contract	4 consecutive Base Load quarter futures contracts comprising the calendar or financial year e.g. Q1 2023, Q2 2023, Q3 2023 & Q4 2023
Regions available	NSW, VIC, SA, QLD	NSW, VIC, SA, QLD
Exercise type	Cash Settled	Automatic, with ability for buyer to manually abandon or exercise.
Quotation	AUD \$/MWh e.g. \$1.34/MWh	AUD \$/MWh e.g. \$1.34/MWh
Minimum Tick increment	\$0.01/MWh	\$0.01/MWh
Tick Value (per \$0.01/MWh increment)	\$0.01/MWh x Hours in the Quarter	Either \$87.60 (for an underlying year which is not a leap year); or \$87.84 (for an underlying year which is a leap year)

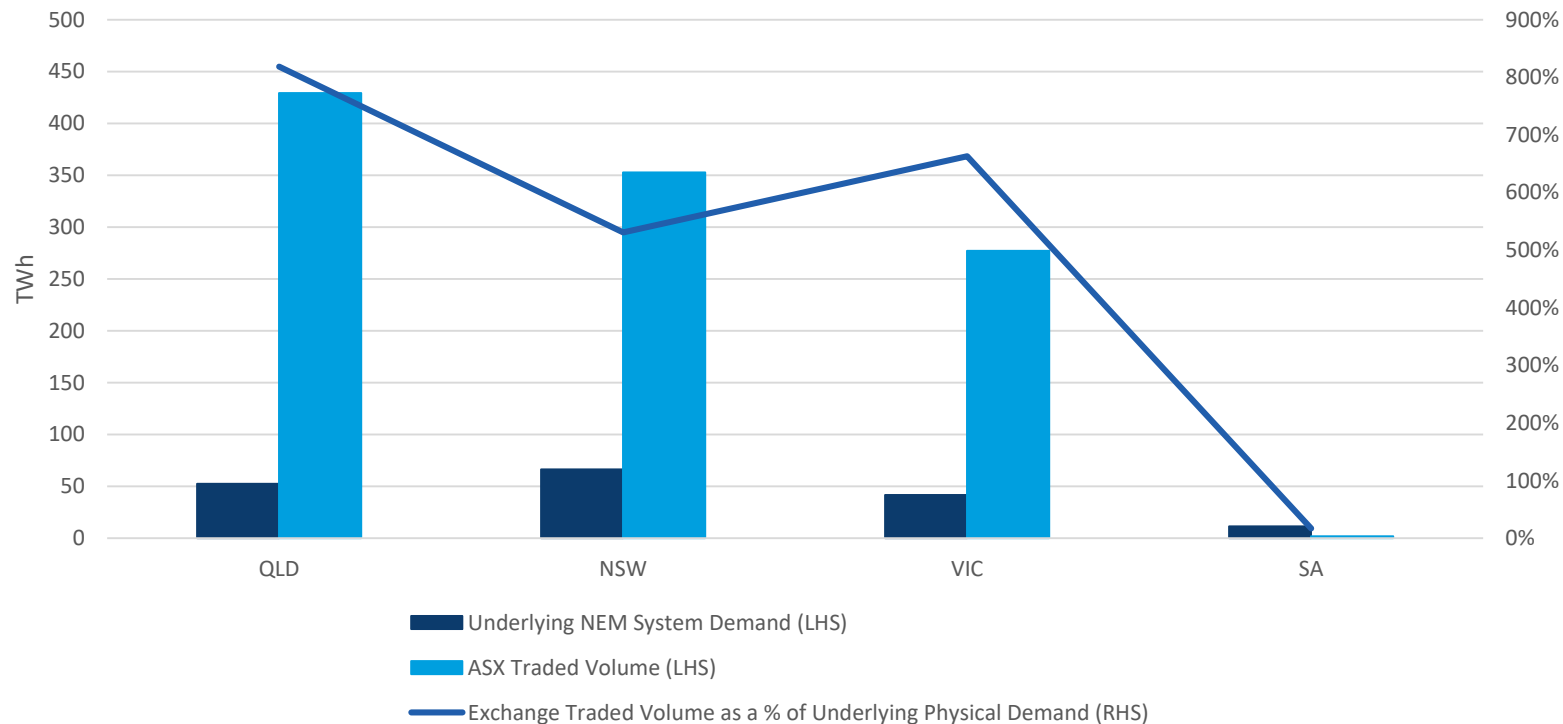
NSW Base Load Electricity Futures Price History (1 year rolling)

NSW Base Load FY Settlement Price (Spot +1 rolling)



Liquidity by Region - ASX traded volume compared to physical market

FY 2023



ASX Energy Data Subscription

ASX offers an energy data subscription service which contains:

- Historical futures and options settlement prices and volumes
- Full trade log history
- Daily Settlement Price, Open Interest and Trade log files

To view sample files please go to https://www.asxenergy.com.au/products/data_centre/daily-files.

Subscriptions for Australian energy data begin at A\$4,395+gst. Subscriptions for New Zealand energy data begin at \$1,995+gst.

Please click here to start your free 30 day trial period <https://www.asxenergy.com.au/subscribe>.

Some useful ASX and industry links

- Free intraday prices (20 min delayed): https://www.asxenergy.com.au/futures_au
- Free daily trade log: <https://www.asxenergy.com.au/trades>
- Free daily Block Trade publication and alerts: <https://www.asxenergy.com.au/custom>
- Weekly Market Wrap newsletter: https://www.asxenergy.com.au/newsroom/market_wrap
- Introductory videos on Australian Electricity: <https://www2.asx.com.au/markets/trade-our-derivatives-market/overview/energy-derivatives>
- Australian Energy Regulator “State of the Energy Market Report”:
<https://www.aer.gov.au/publications/state-of-the-energy-market-reports>
- Australian Financial Markets Association annual report: <https://afma.com.au/annual-report>
- AEMO Data Dashboard - <http://aemo.com.au/Electricity/National-Electricity-Market-NEM/Data-dashboard>
- 7-day forecast of the “Scheduled Reserve”: - <http://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Data-dashboard#7-day-outlook>
- Free government weather service: <http://www.bom.gov.au/australia/majorcities.shtml>

ASX Commodities Business
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