WEM Reform Price Trends

Why Commercial & Industrial customers have seen changes to their electricity bills since Oct 2023

A collaboration between

Get Zero x Ampere Labs



Introduction

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Who is this for: This report has been produced with the South-West Interconnected System (SWIS) connected commercial and industrial electricity customer in mind, specifically those with direct or indirect wholesale exposure in the Wholesale Electricity Market (WEM).

The need for this: Since WEM Reform in Oct 2023 electricity charges have increased in complexity and there has generally been an increase in costs.

What this is and isn't: This is a high-level analysis that focuses on cost implications for typical WEM exposed customers. It does not address the entirety of the WEM and recent changes, nor does it consider individual arrangements such as Power Purchase Agreements and bilateral contracts.

Caveats:

- As at the time of writing (April 2024), WEM Reform has only been in place for ~6 months and not all data is available for this period. Trends are likely to continue to evolve as more data is made available, the full suite of seasons are experienced and participants in the market adjust to the new price signals.
- Publicly available data has been used in the production of this report however note that Essential System Services costs assume an amount of Distributed PV (DPV) injected to the grid as this is not a publicly available dataset.

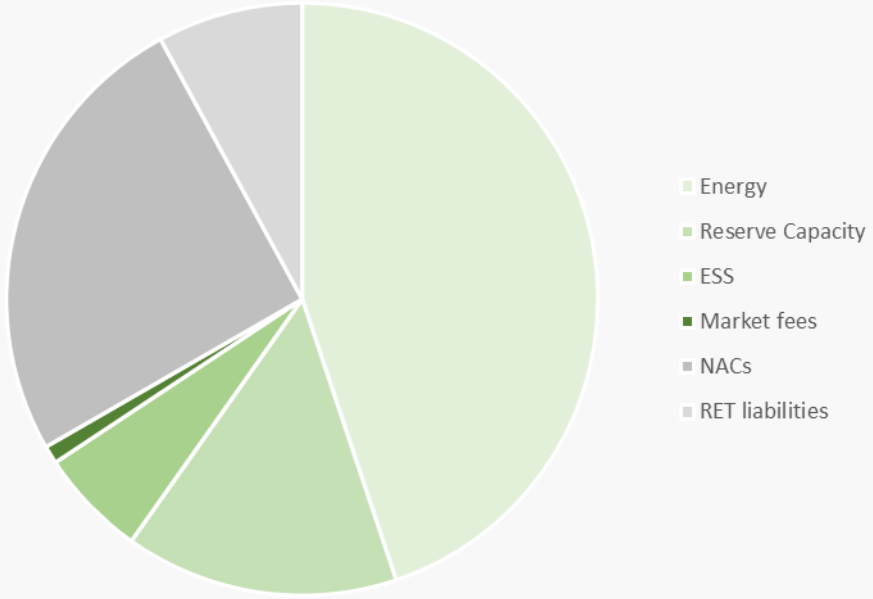
What is in a typical electricity bill?

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This report focuses on the WEM portion, however there are very real non-WEM costs too

WEM
- Energy
- Reserve Capacity
- Essential System Services (ESS)
- Market fees

Non-WEM
- Network Access Charges (NACs)
- Renewable Energy Target (RET) liabilities



Example bill breakdown

Out with the old, in with the new (1)

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Comparison of terms and average prices before and since WEM Reform

Pre-reform[1]		Post-reform[2]		
Term	**Price**	**Term**	**Price**	
Energy from the Balancing Market	$72/MWh	Energy from the Real-Time Market	$81/MWh	+13%
Ancillary Services	$2.9/MWh	Essential System Services[3]	$10/MWh	+250%
Market fees	$1.4/MWh	Market fees	$1.8/MWh	+29%
			Total	**+22%**

Notes:

1. *Pre-reform consists of 6 months of data, from 1 Oct 2022 to 31 Mar 2023*
2. *Post-reform consists of 6 months of data, from 1 Oct 2023 to 31 Mar 2024 (where available)*
3. *Only ESS prices that are relevant to customers (i.e. loads)*

Out with the old, in with the new (2)

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Comparison of total costs before and since WEM Reform

Pre-reform[1]		Post-reform[2]	
Term	**Cost**	**Term**	**Cost**
Energy from the Balancing Market	$542m	Energy from the Real-Time Market	$904m
Ancillary Services	~$29m	Essential System Services	$208m
Market fees	$19m	Market fees	$32m
Total	**$590m**	**Total**	**$1,144m**

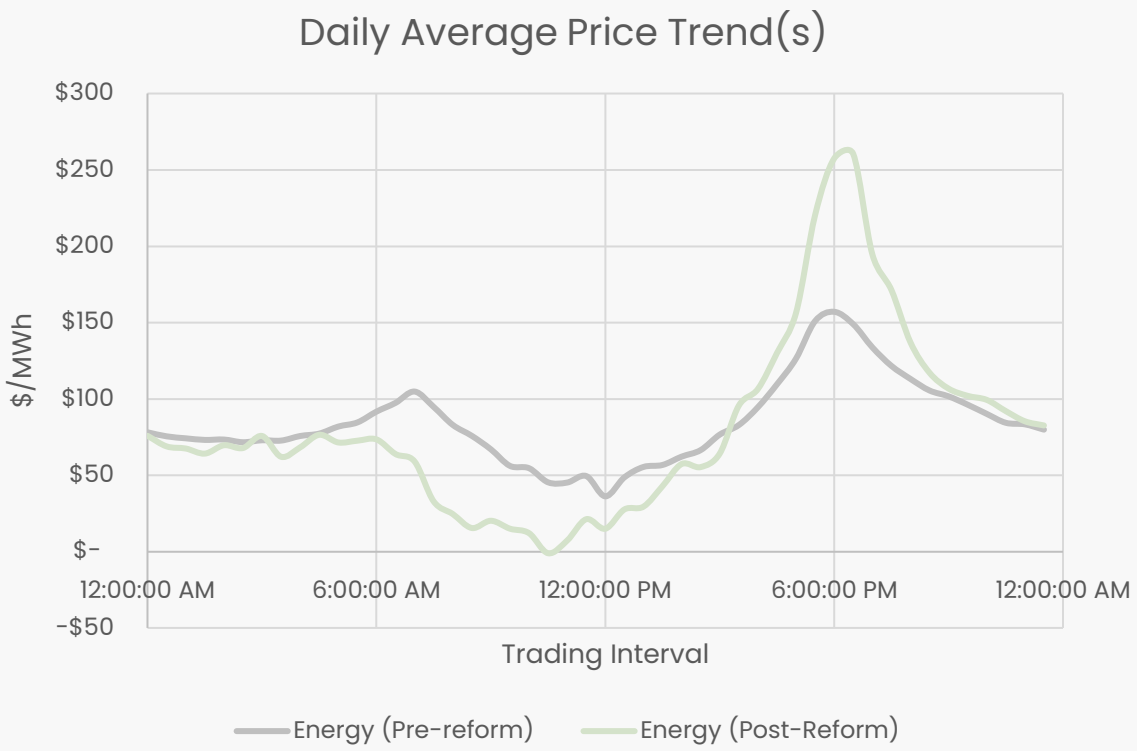
1. *Pre-reform consists of 6 months of data, from 1 Oct 2022 to 31 Mar 2023, with a total energy throughput of 6.77 TWh*
2. *Post-reform consists of 6 months of data, from 1 Oct 2023 to 31 Mar 2024 (where available), with a total energy throughput of 8.96 TWh*

Energy

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Energy prices are exhibiting higher spreads between daytime minimums and evening peaks

- Along with the change in average energy price, the daily average energy price trend has changed significantly during the daytime and evening
- Minimum and peak energy price periods are similar in timing however the spread (between min and max) has increased over 200%
- The average price during the evening peak period of 4-8PM has increased around 150%
- Costs are likely to increase further if the proposed Energy Offer Price Ceiling of $1500/MWh is implemented, this is compared to the current value of $738/MWh

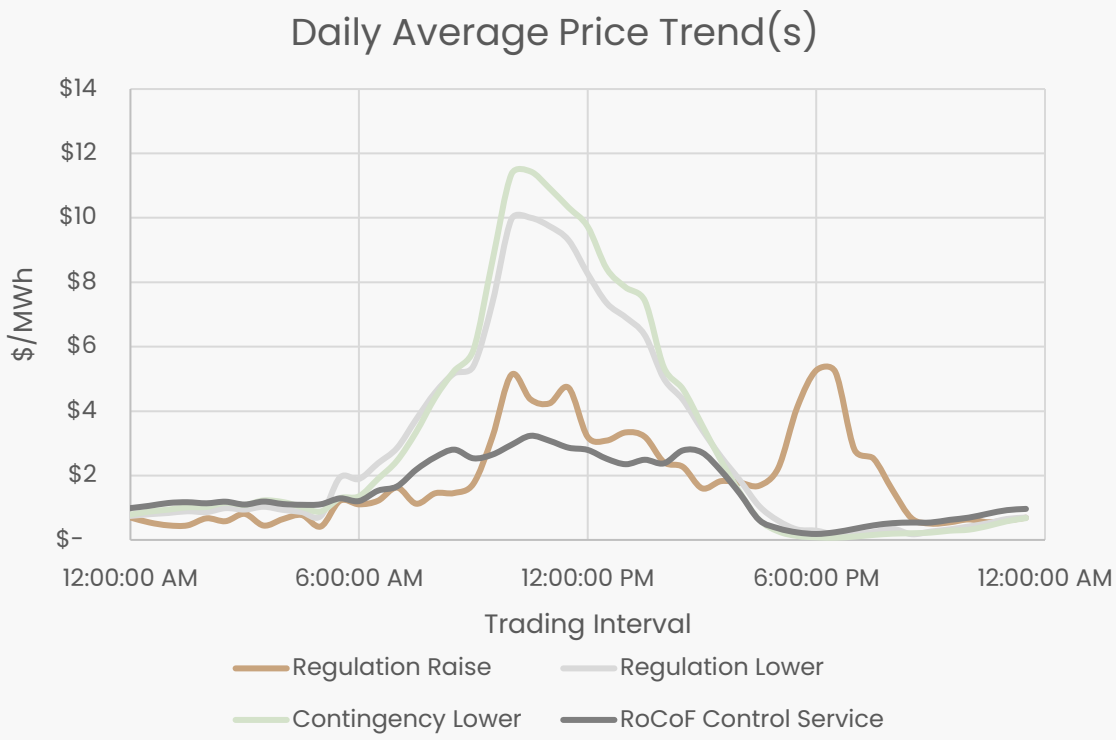


Frequency Co-Optimised ESS (FCESS)

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A brief overview of the FCESS arrangements and price trends

- Regulation Raise & Lower
  - Addresses **minor** deviations between supply and demand
  - Provided by generators
- Contingency Raise & Lower
  - Addresses **significant** deviations between supply and demand
  - Provided by generators and loads
- RoCoF Control Service (RCS)
  - Slows the Rate of Change of Frequency (RoCoF) to a safe limit
  - Provided by thermal generators, such as coal-fired or gas-fired generating units



Notes:

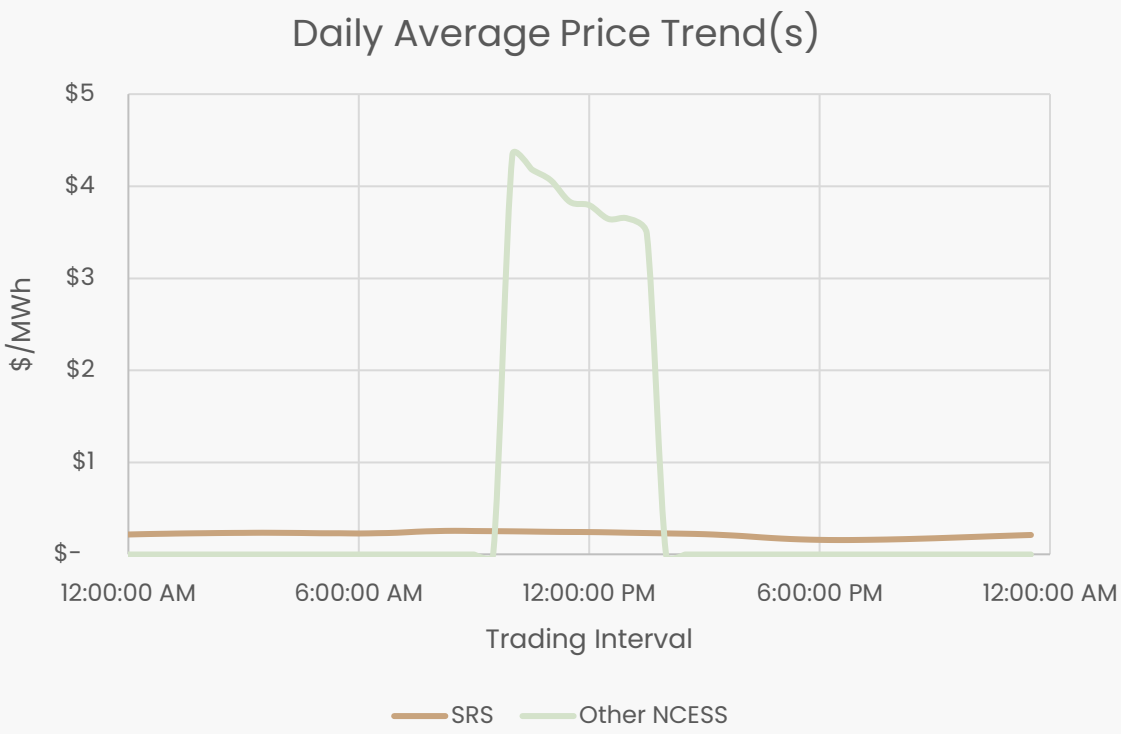
1. *The prices indicated are $/MWh as this is how FCESS costs are recovered from customers*
2. *Contingency Raise excluded as costs are typically borne by generators, not loads*
3. *RCS costs are shared between generators and loads, only the loads pricing is considered here*

Non Co-Optimised ESS (NCESS)

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A brief overview of the NCESS arrangements and price trends

- System Restart Service (SRS)
  - Provides a way to re-energise the grid, should a blackout occur
- Other non-market services required by AEMO, such as a Minimum Demand Service to manage excess Solar PV around midday
  - NCESS can also be triggered by Western Power, but these are cost recovered off-market
- Costs are expected to increase from Oct 2024 due to additional NCESS contracts procured by AEMO, namely for Peak Demand Service and Minimum Demand Service



Notes:

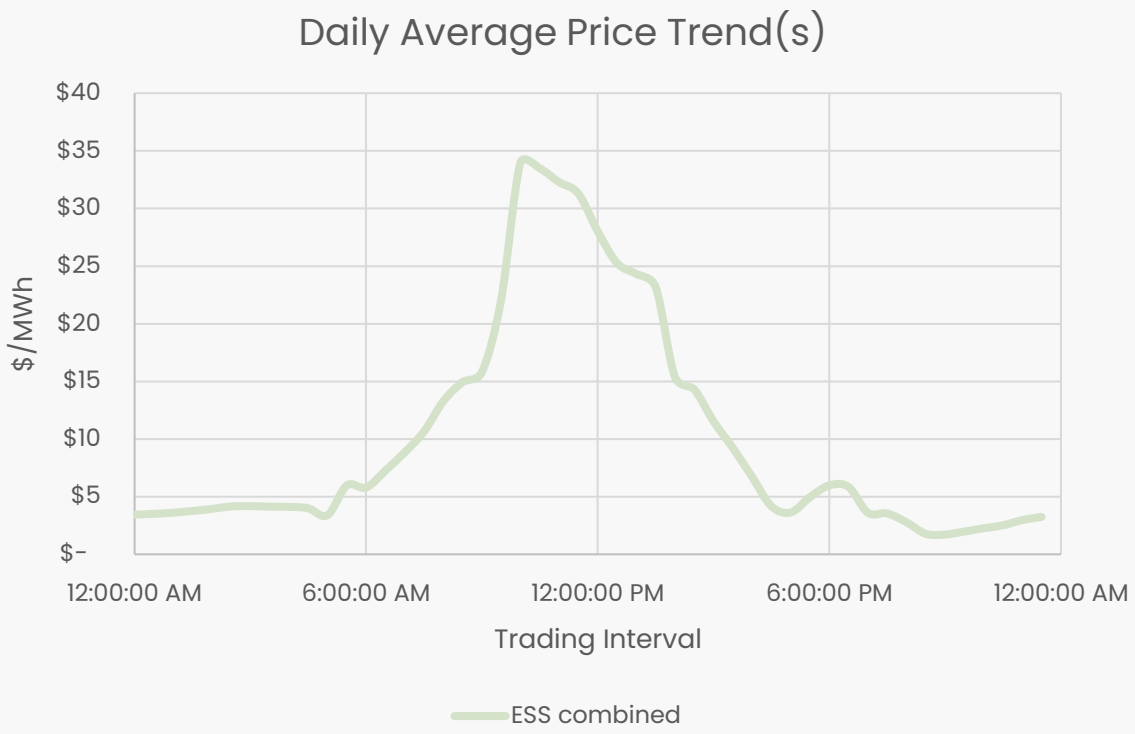
1. *The prices indicated are $/MWh as this is how NCESS costs are recovered from customers*

Combined ESS

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Combined ESS prices show clear daytime peaks and lower prices in the evenings and overnight

- FCESS and NCESS combine to ESS, which demonstrate a clear daily average price trend
- Unlike energy, peak ESS price periods are during the middle of the day with approximately 2/3rds of ESS costs incurred between 8AM-4PM
- ESS charges are more complex than energy and make real-time management more challenging. This is largely due to (i) cost recovery in $/MWh and (ii) material FCESS Uplift Payments which are provided after the fact



Notes:

1. *A reminder, only the ESS relevant to loads are considered here*

Market fees

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Market fees have increased 29% since FY23 and are expected to increase further in future

- These fees are a flat rate applied to grid consumption
- While not aligned with WEM Reform timings, there has been an increase in market fees since the last FY
- FY25 figures have not been finalised, however projection for the AEMO WEM Fee portion is $2.57/MWh

	FY23	FY24	
Fee	**Price**	**Price**	
AEMO WEM	$1.16/MWh	$1.53/MWh	
ERA Regulator	$0.17/MWh	$0.21/MWh	
Coordinator	$0.07/MWh	$0.08/MWh	
Total	**$1.40/MWh**	**$1.81/MWh**	**+29%**

Notes:

1. *Periods are FY, not pre and post reform*
2. *Only 2 decimal places shown for clarity*

Reserve Capacity

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Reserve Capacity prices have increased by at least 12% and are expected to increase further in future

- Price increases aren't necessarily due to WEM Reform, just coincidental timing with AEMO predicting reduced capacity excess in coming years
- The Supplementary Reserve Capacity program, which assists in managing Hot Season peak demands, adds additional cost to the total Reserve Capacity costs. However, costs aren't included here as they aren't fully known at this stage
- Costs are expected to increase an additional ~25% from Oct 2024 due to the increasing RCP

	Pre-reform	Post-reform	
Term	**Price**	**Price**	
RCP[1]	$115,000/MW	$119,000/MW	
TDL uplift[2]	1.2	1.3	
Total	**$138,000/MW**	**$155,000/MW**	**+12%**

Notes:

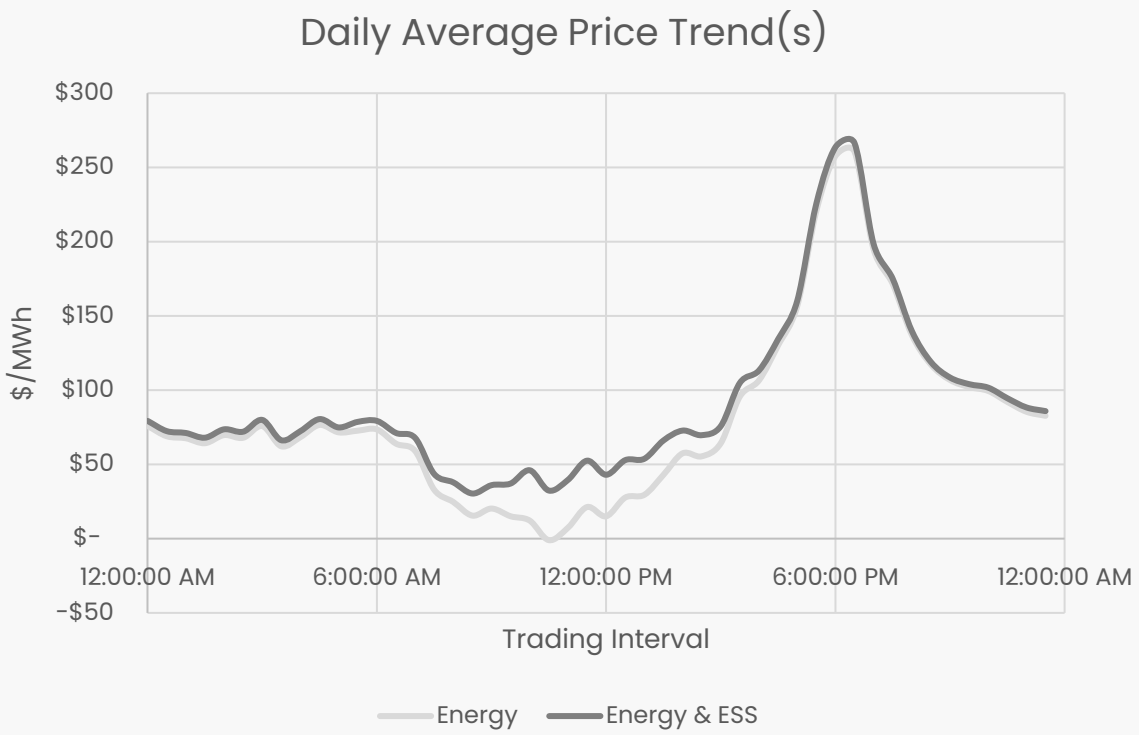
1. *Transitional Reserve Capacity Price (RCP) used as it closer reflects what customers pay*
2. *Temperature Dependant Load (TDL)*

Learnings to date

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In short, costs have mostly increased but there are opportunities for flexible and willing customers to mitigate this and possibly even benefit

- Cost increases will likely add value to business cases for behind-the-meter activities such as generation, storage, load shifting and energy efficiency
- **Energy:** The increased spread of energy prices further incentivises daily optimisation such as evening peak curtailment and load shifting to lower daytime prices, even after accounting for the ESS uplift during the middle of the day
- **ESS:** The trend of increased ESS prices during the day reduces the customer benefit from negative prices, which may improve business cases for behind-the-meter generation, particularly Solar PV[2]
- **Reserve Capacity:** Managing Individual Reserve Capacity Requirement (IRCR) has increased in value and this trend is likely to continue in coming years



Notes:

1. *Chart highlights the uplift of ESS prices, particularly during daytime*
2. *There is a level of irony here, as the uptake of behind-the-meter solar PV is a factor in increasing ESS costs*

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x

Ampere Labs

Want more information, or looking to mitigate these cost increases?

Feel free to reach out:

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