Ampere Labs

WEM Quarterly Market Review

Q2 2025

14 July 2025

Introduction

What is this report and where did all the data come from?

- This report presents an independent review of Wholesale Electricity Market (WEM) outcomes in Q2 2025 from a neutral perspective (*).
- The material in this report is intended to complement the data and insights published by AEMO and other WEM stakeholders.
- Please note that there is no proprietary data used in this report and all the information is derived from the following publicly available data sources:

Data Source	Link
AEMO WA market data	http://data.wa.aemo.com.au/
WEM market fees	https://aemo.com.au/-/media/files/about_aemo/energy_market_budget_and_fees/2023/wa-budget-and-fees-2023-24.pdf?la=en
LGC spot prices (Demand Manager)	https://www.demandmanager.com.au/certificate-prices/
Perth daily temperatures (Bureau of Meteorology)	http://www.bom.gov.au/climate/dwo/IDCJDW6111.latest.shtml

(*) Ampere Labs is an independent consultancy and is not affiliated with any WEM participants.

Highlights from Q2 2025 (1)

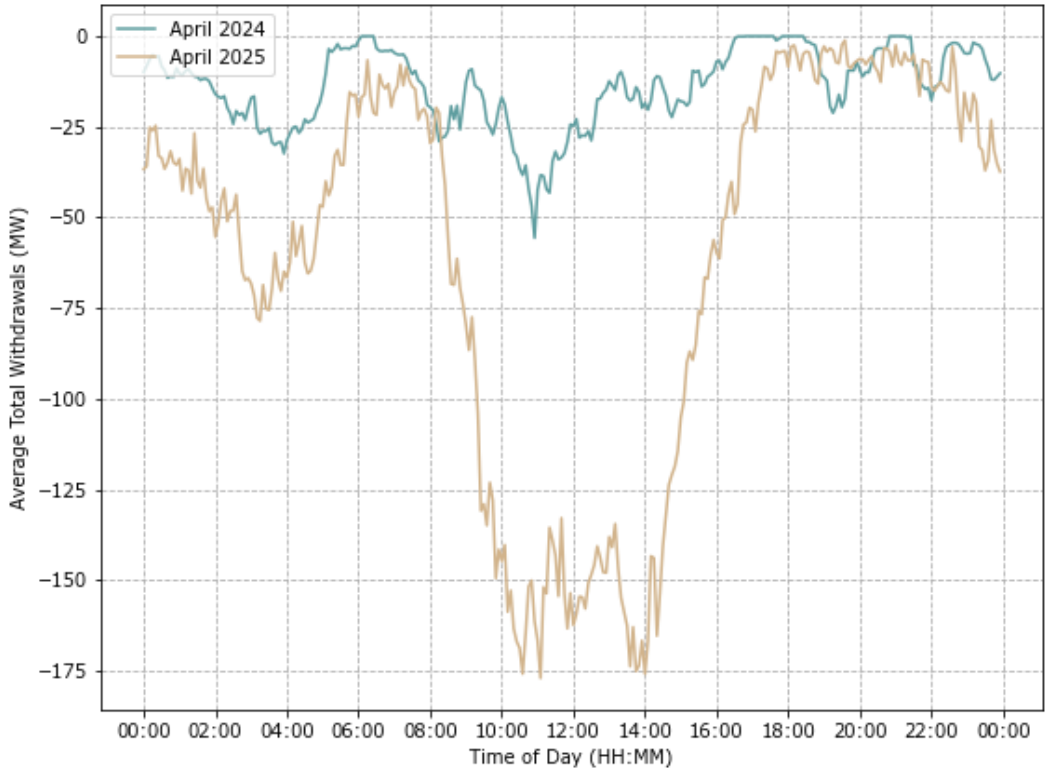
Large-scale battery charging stabilises Autumn shoulder minimum operational demand

- Minimum system (operational) demands in the Autumn shoulder season remained relatively flat from previous years:

Period	Minimum Demand (MW)
Q2 2023	900 MW
Q2 2024	861 MW
Q2 2025	870 MW

- This is despite >200 MW of additional DER being installed in the SWIS from 2024 to 2025, which would have been expected to drive minimum demands lower.
- However, there was a significant increase in large-scale battery energy storage system (BESS) charging during the middle of the day as shown on the figure to the right comparing total BESS charging between April 2024 and April 2025.
- This is further evidence to suggest that large-scale BESS is effectively mitigating the system security risks arising from low operational demand that was identified ~5 years ago. We will see if this remains true over the Spring shoulder season.

Large-Scale BESS Charging (April 2024 vs April 2025)



Highlights from Q2 2025 (2)

Average energy prices no longer dip below zero in the middle of the day

- Average daytime off-peak energy prices have remained relatively high in Q2 2025 when compared with Q2 2024:

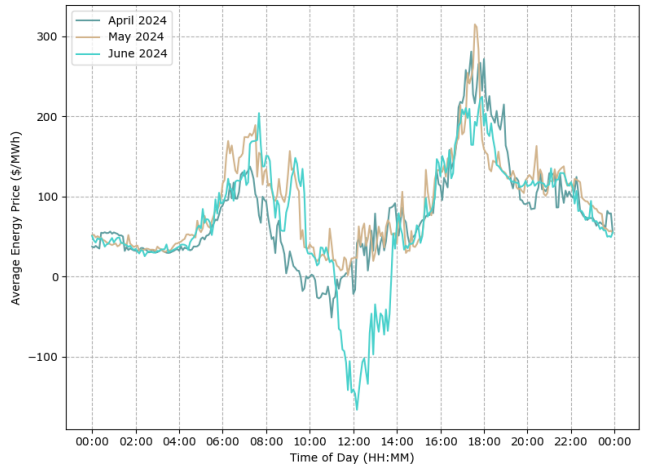
Month	Daytime Off-Peak (9am – 3pm) Energy Price ($/MWh)	
	2024	2025
April	$22.34	$55.71
May	$47.71	$64.09
June	-$4.76	$75.59

- This has also seen energy spot revenues rise for utility-scale solar when compared with Q2 2024:

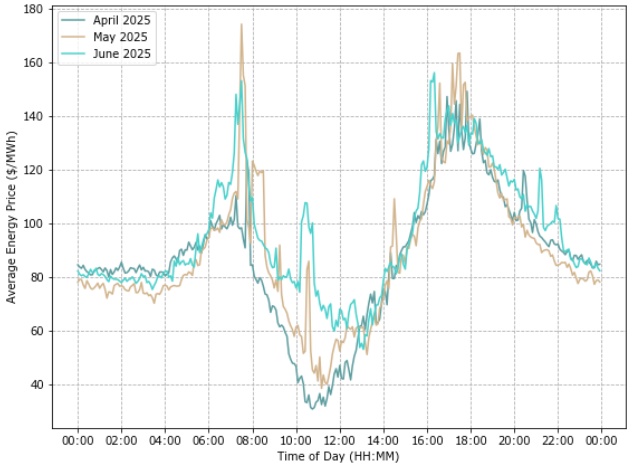
Facility	Q2 Energy Spot Revenue* ($)	
	2024	2025
GREENOUGH_RIVER_PV1	$1.275m	$1.358m
MERSOLAR_PV1	$2.533m	$2.940m
NORTHAM_SF_PV1	$0.146m	$0.148m

(*) Excludes LGCs

Average Energy Prices – Q2 2024



Average Energy Prices – Q2 2025



Highlights from Q2 2025 (3)

BESS energy price spreads have also shrunk, but BESS make up for it with increased FCESS share

Narrowing BESS energy price spreads

- With higher daytime prices, average BESS energy price spreads (the difference between the energy price when the BESS is charging and discharging) also appear to be narrowing.
- Note that KWINANA_ESR1 and KWINANA_ESR2 are part of a larger Synergy portfolio and are optimised for the profitability of the entire portfolio and not the individual assets. The persistent (and large) negative energy price spreads for KWINANA_ESR1 may be reflective of this broader trading strategy (although KWINANA_ESR1 is still profitable due to FCESS revenues).

Increasing BESS share of FCESS markets

- Despite narrowing energy price spreads, BESS are still able to remain profitable by trading on volatility and participating in FCESS markets.
- The market share of BESS in FCESS markets has been steadily increasing over the past year and BESS facilities are now providing the majority of services in all FCESS markets (except for Contingency Raise).
- KWINANA_ESR2 was accredited for FCESS in June 2025, and with new BESS facilities (COLLIE_BESS2, COLLIE_ESR3 and COLLIE_ESR4) entering later in the year, we expect this trend to continue.
- However, FCESS prices also fell sharply in June 2025 despite rising procurement volumes. We will see how this plays out in the next few months.

Average BESS Energy Price Spreads

Facility	Energy Price Spread ($/MWh)		
	Q4 2024	Q1 2025	Q2 2025
COLLIE_ESR1	$185.04	$35.34	$8.43
KWINANA_ESR1	-$47.42	-$551.30	-$109.74
KWINANA_ESR2	-$163.94*	$10.50	$10.93

(*) KWINANA_ESR2 was undertaking commissioning tests in Q4 2024

BESS Share of FCESS Markets

FCESS Market	BESS Market Share (%)		
	Q4 2024	Q1 2025	Q2 2025
Contingency Lower	33.44%	48.72%	59.71%
Contingency Raise	15.98%	23.39%	44.62%
Regulation Lower	66.63%	56.77%	78.87%
Regulation Raise	17.21%	48.72%	59.71%

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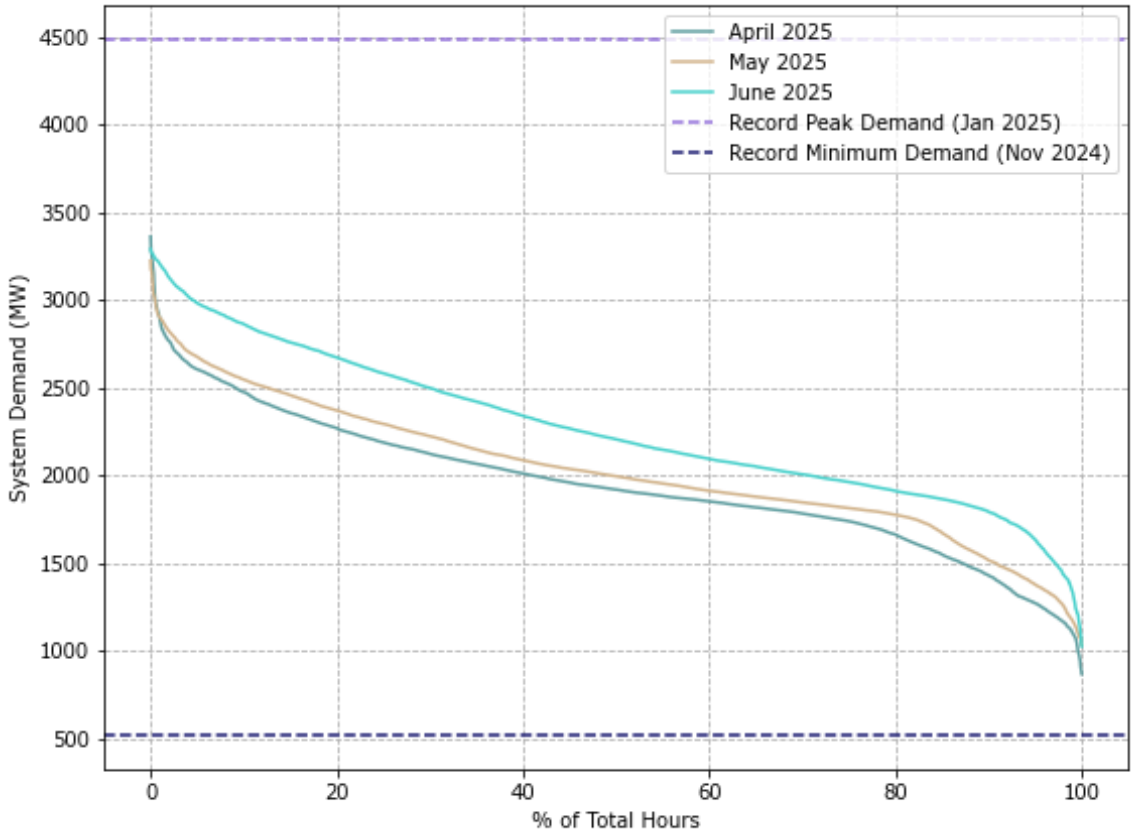
System

Aggregate system level outcomes

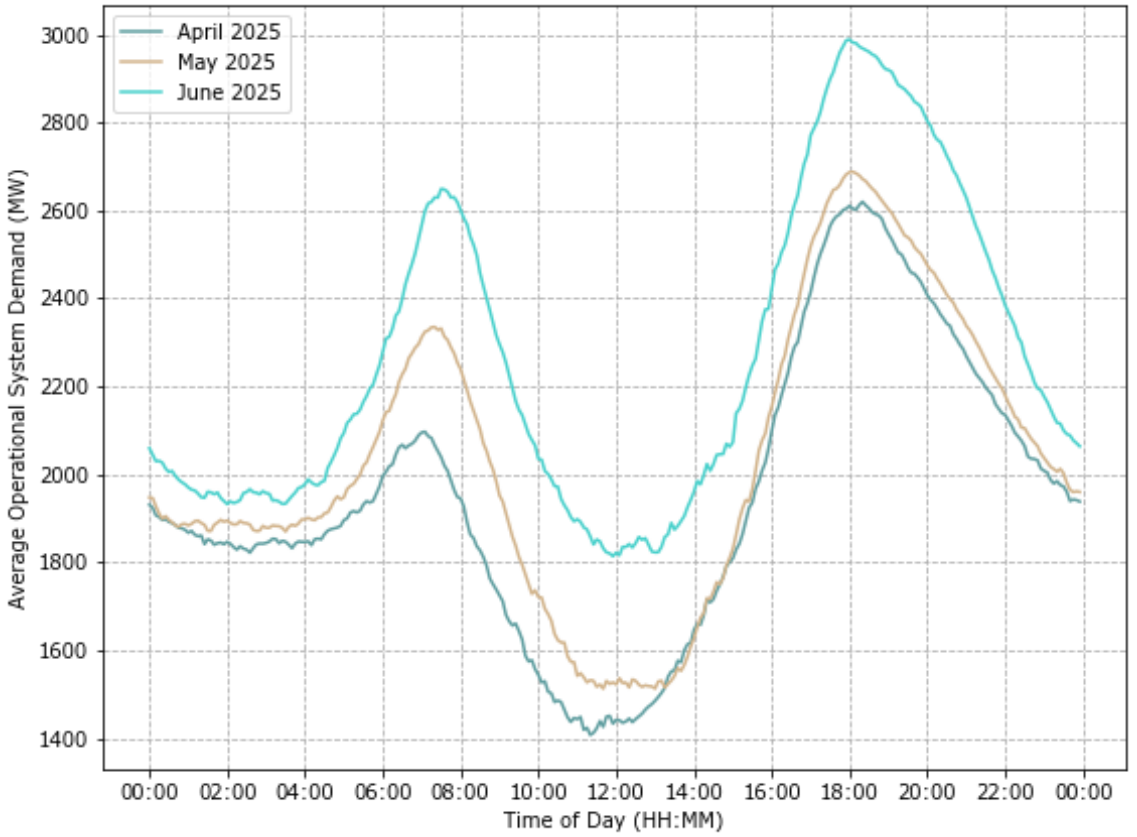
System Operational Demand

System operational demand duration curves and time-of-day averages

Demand Duration Curves



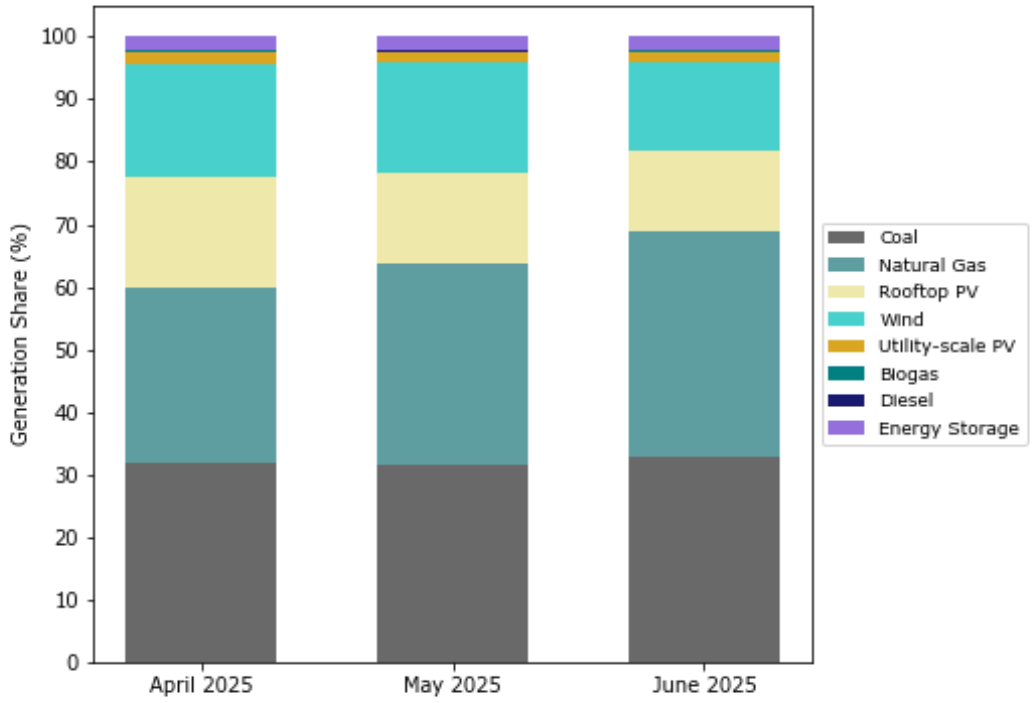
Average Time-of-Day Demand



Generation Mix

Categorised by fuel / technology type

Q2 2025 Generation Mix



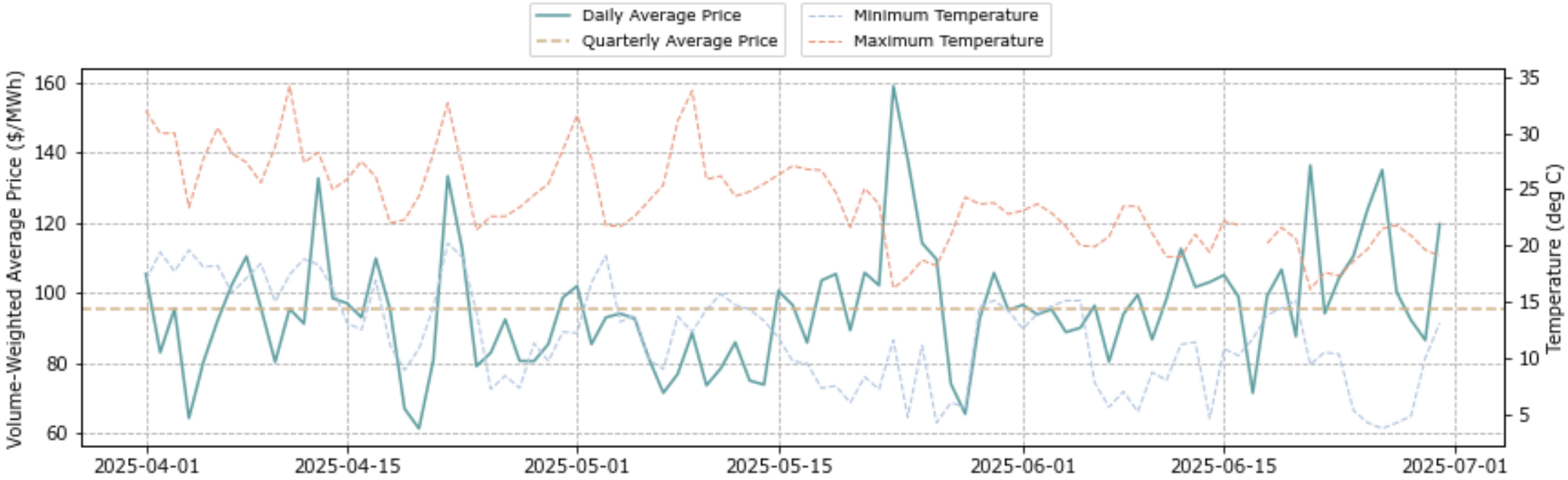
Generation Mix Breakdown

Category	Apr 2025	May 2025	Jun 2025
Coal	542 GWh (31.9%)	556 GWh (31.5%)	616 GWh (32.8%)
Natural Gas	475 GWh (27.9%)	570 GWh (32.2%)	675 GWh (36%)
Rooftop PV	301 GWh (17.7%)	258 GWh (14.6%)	246 GWh (13.1%)
Wind	307 GWh (18%)	309 GWh (17.5%)	267 GWh (14.2%)
Utility PV	33 GWh (1.9%)	28 GWh (1.6%)	26 GWh (1.4%)
Biogas	6 GWh (0.3%)	5 GWh (0.3%)	6 GWh (0.3%)
Diesel	2 GWh (0.1%)	1 GWh (0.1%)	0 GWh (0%)
Storage (*)	36 GWh (2.1%)	40 GWh (2.3%)	42 GWh (2.2%)
TOTAL	**1,702 GWh**	**1,767 GWh**	**1,878 GWh**

(*) Energy storage is only counted when discharging.

Energy Prices

Daily volume-weighted energy prices and daily min/max Perth temperatures (*)

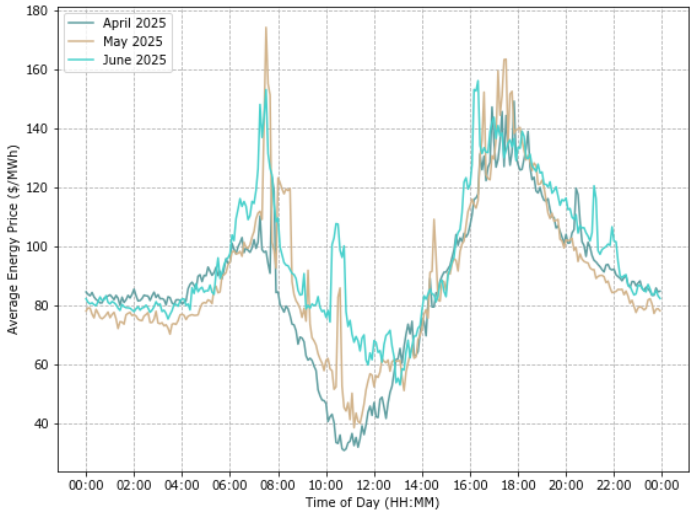


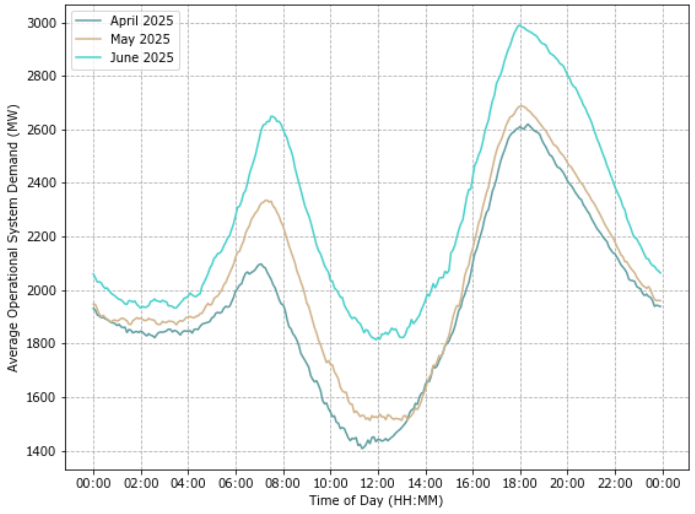
(*) Daily temperatures are based on BOM observations at the Perth Metro site.

Average time-of-day clearing prices and quantities (1)

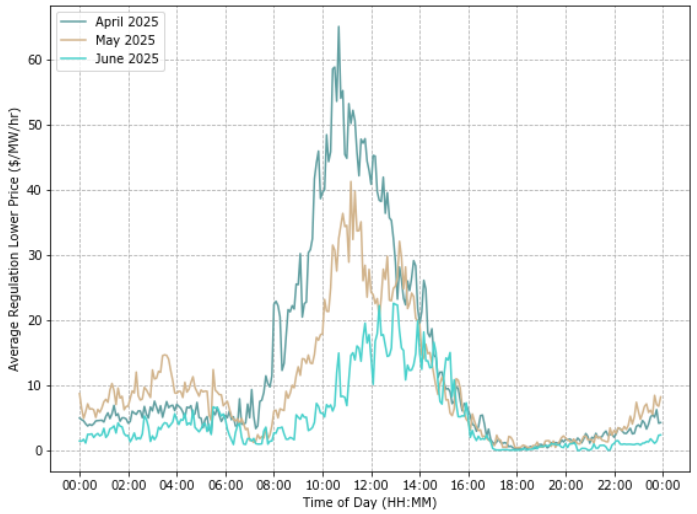
Energy, Regulation Lower and Regulation Raise ESS

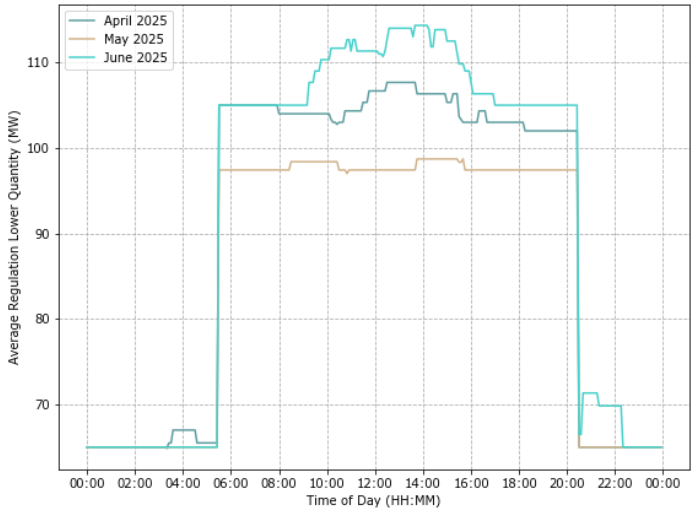
Energy



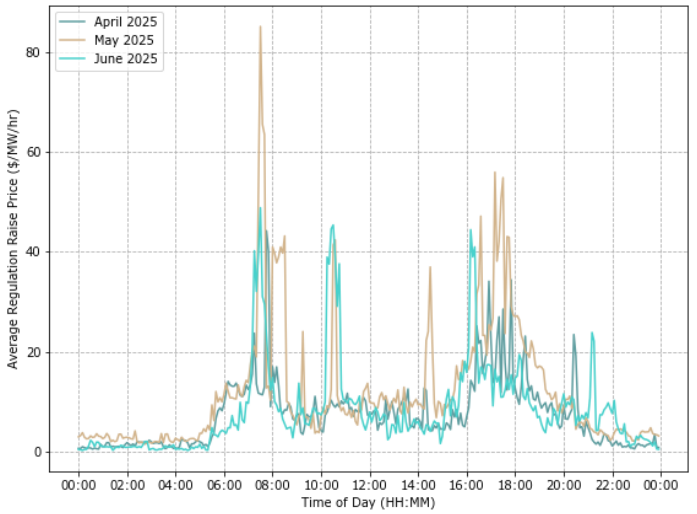


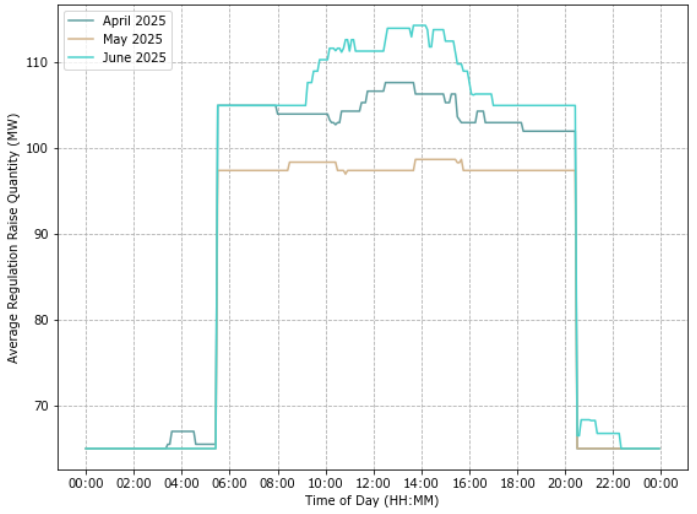
Regulation Lower (*)





Regulation Raise (*)



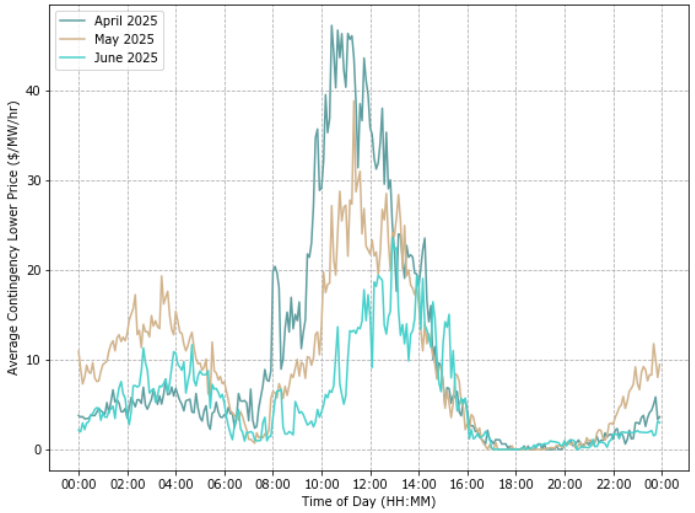


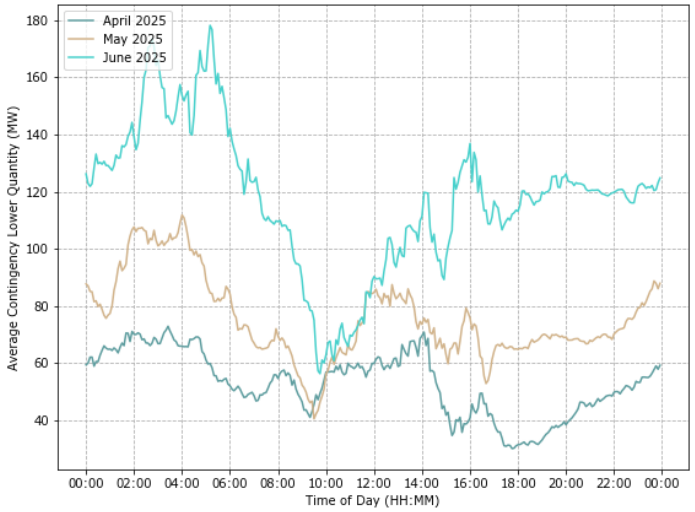
(*) Prices exclude FCESS Uplift Payments

Average time-of-day clearing prices and quantities (2)

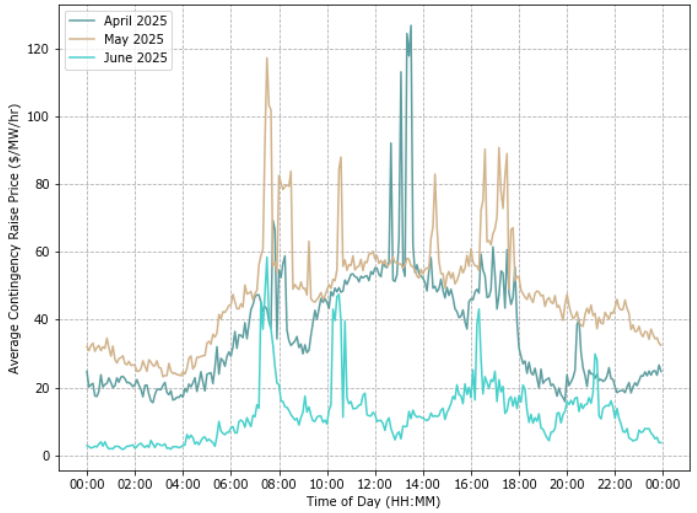
Contingency Lower, Contingency Raise and RoCoF Control ESS

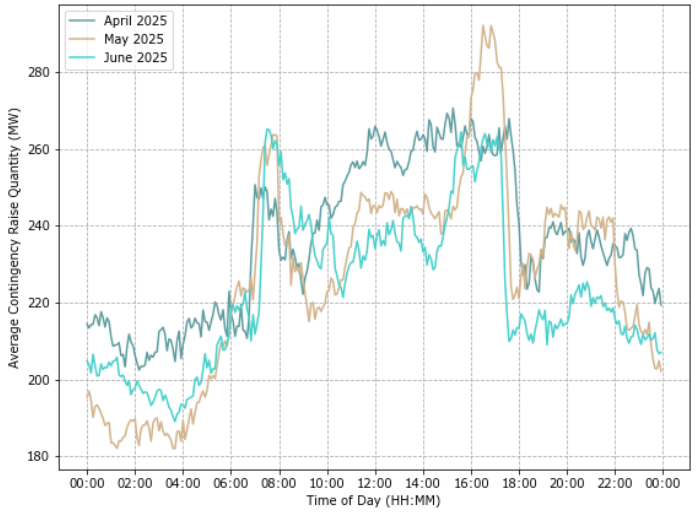
Contingency Lower (*)



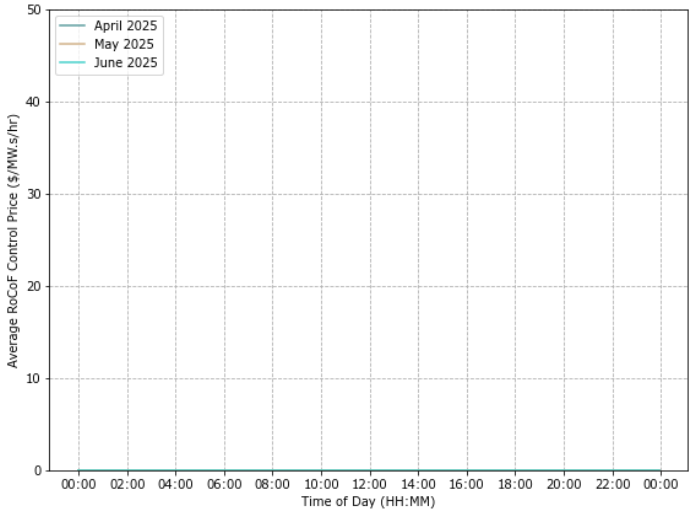


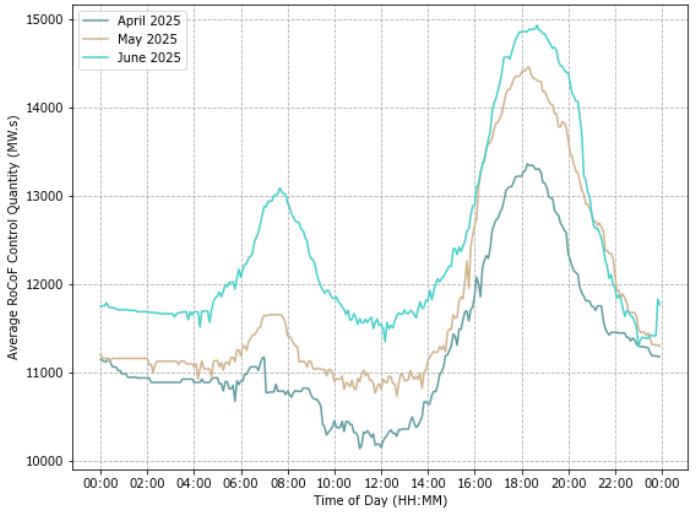
Contingency Raise (*)





RoCoF Control (*)



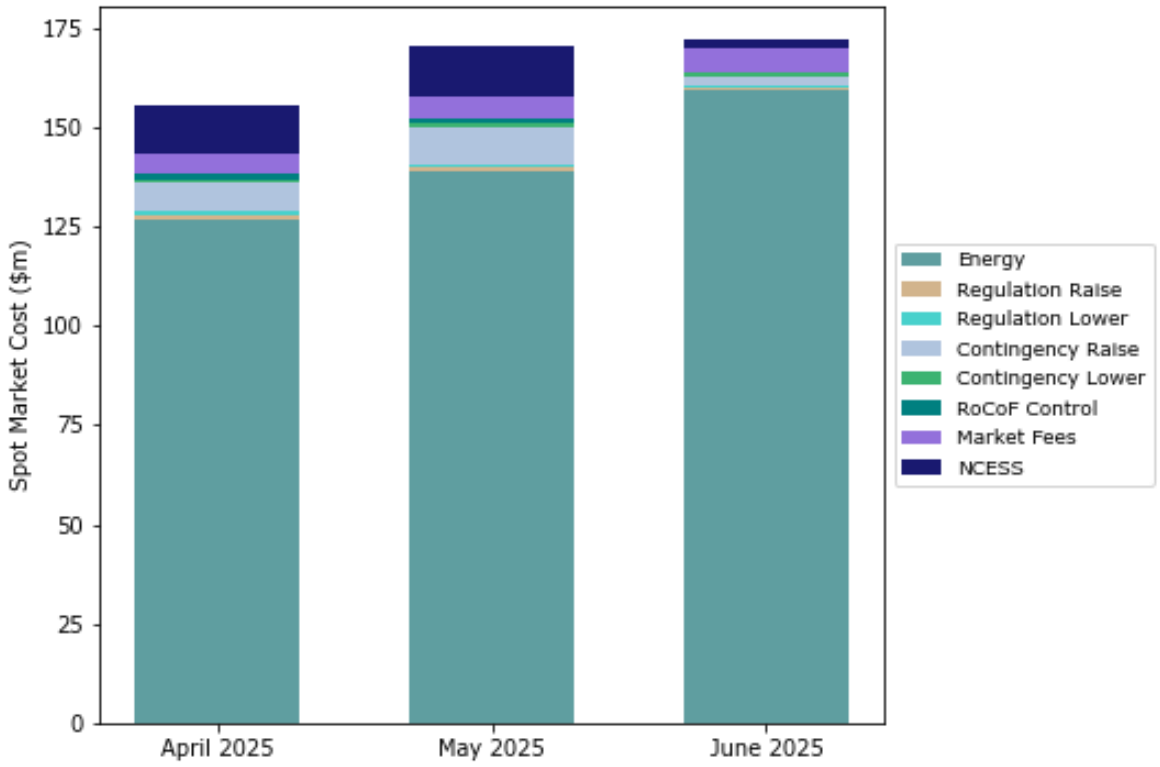


(*) Prices exclude FCESS Uplift Payments

WEM Total Spot Market Costs

Total mark-to-market cost of the WEM (excluding Reserve Capacity)

Q2 2025 Market Costs



Market Cost Breakdown ($m AUD)

Category	Apr 2025	May 2025	Jun 2025
Energy	$126.89m	$138.58m	$159.31m
Regulation Raise (*)	$0.77m	$1.29m	$0.76m
Regulation Lower (*)	$1.07m	$0.73m	$0.45m
Contingency Raise (*)	$7.33m	$9.26m	$2.16m
Contingency Lower (*)	$0.75m	$0.96m	$0.75m
RoCoF Control (**)	$1.39m	$1.48m	$0.45m
Market Fees	$4.93m	$5.3m	$5.73m
NCESS	$12.08m	$12.51m	$2.15m
TOTAL	**$155.21m**	**$170.1m**	**$171.77m**
$ / MWh	**$91.19**	**$96.27**	**$91.46**

(*) Includes estimated FCESS Uplift Payments
(**) Excludes Energy Uplift Payments (not publicly available)

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Facilities

Selected facility level outcomes

Facility-Level Metrics

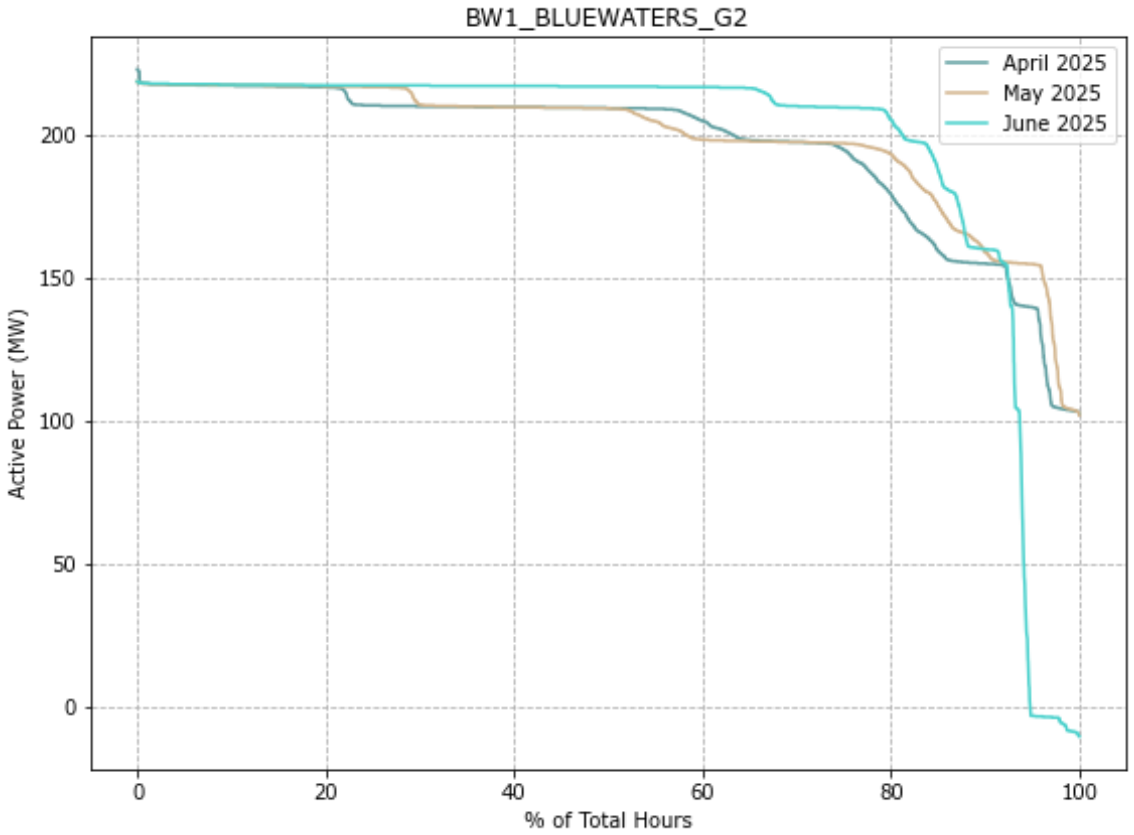
Definitions for the facility-level metrics reported in this section

Facility Metric	Description
Monthly Generation Duration Curve	Curve showing the proportion of time in a month that a facility is operating above a specific output.
Average Time of Day Output	Curve showing the mean output from a facility over a month at a 5-min resolution (with no adjustments for a facility being offline).
Facility Merchant Spot Revenue	The implied monthly revenue that a facility would have received from all energy and ESS markets if it were a merchant facility. Where a facility receives Large Generation Certificate (LGC), this revenue is estimated based on publicly available LGC spot prices published on Demand Manager.
Facility Capacity Factor	Daily average capacity factors based on the daily energy generated and the registered facility size. Note that for energy storage facilities, the net energy throughput is used.
Average Energy Capture Price	Daily average volume weighted energy price that the facility receives based on the following calculation: $$Average\ Energy\ Capture\ Price = \frac{\sum Energy\ Revenue}{\sum \lvert Energy\ Generated\ or\ Consumed \rvert}$$

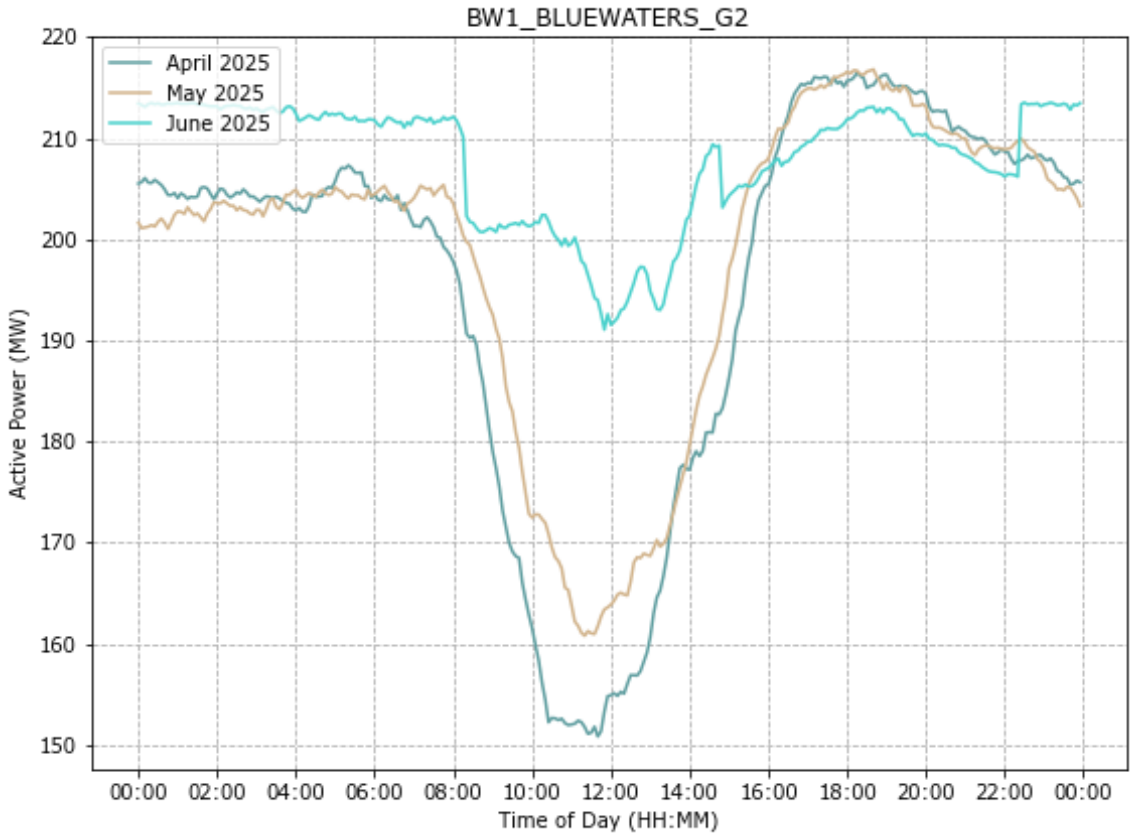
Bluewaters Power Station BW1-G2

Coal-fired Scheduled Facility, 217 MW, Summit Southern Cross Power

Generation Duration Curves



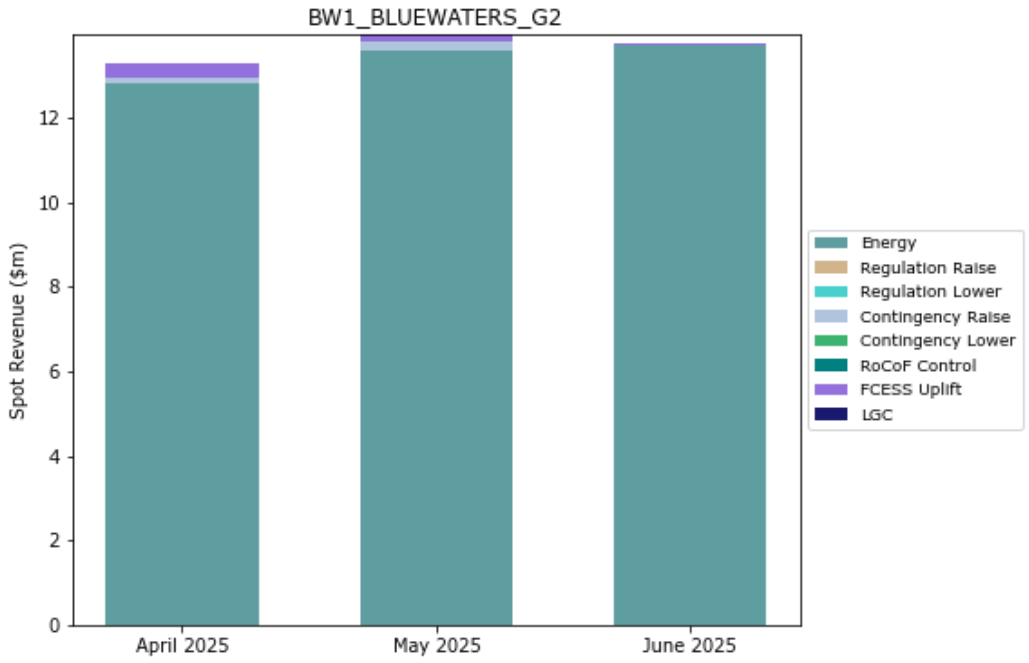
Average Time-of-Day Output



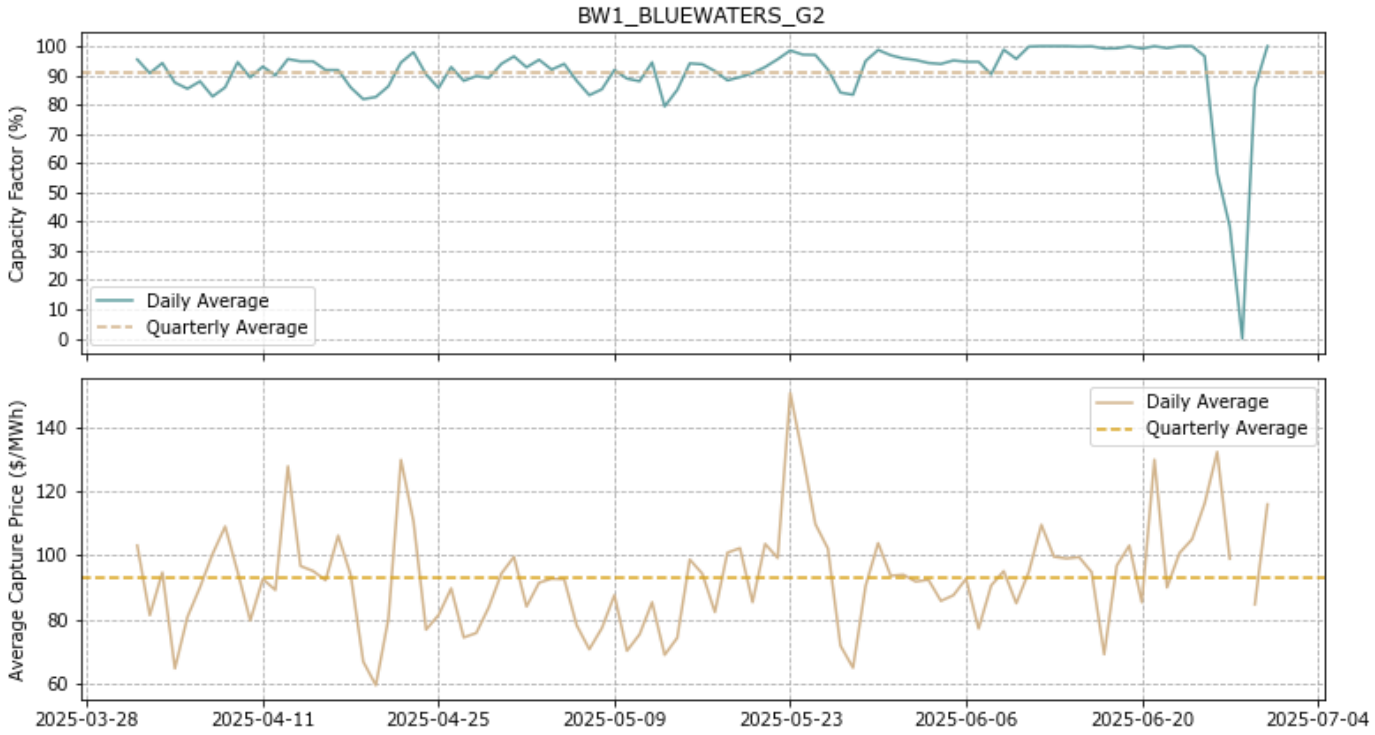
Bluewaters Power Station BW1-G2

Coal-fired Scheduled Facility, 217 MW, Summit Southern Cross Power

Facility Merchant Spot Revenue



Daily Capacity Factor and Average Energy Capture Price

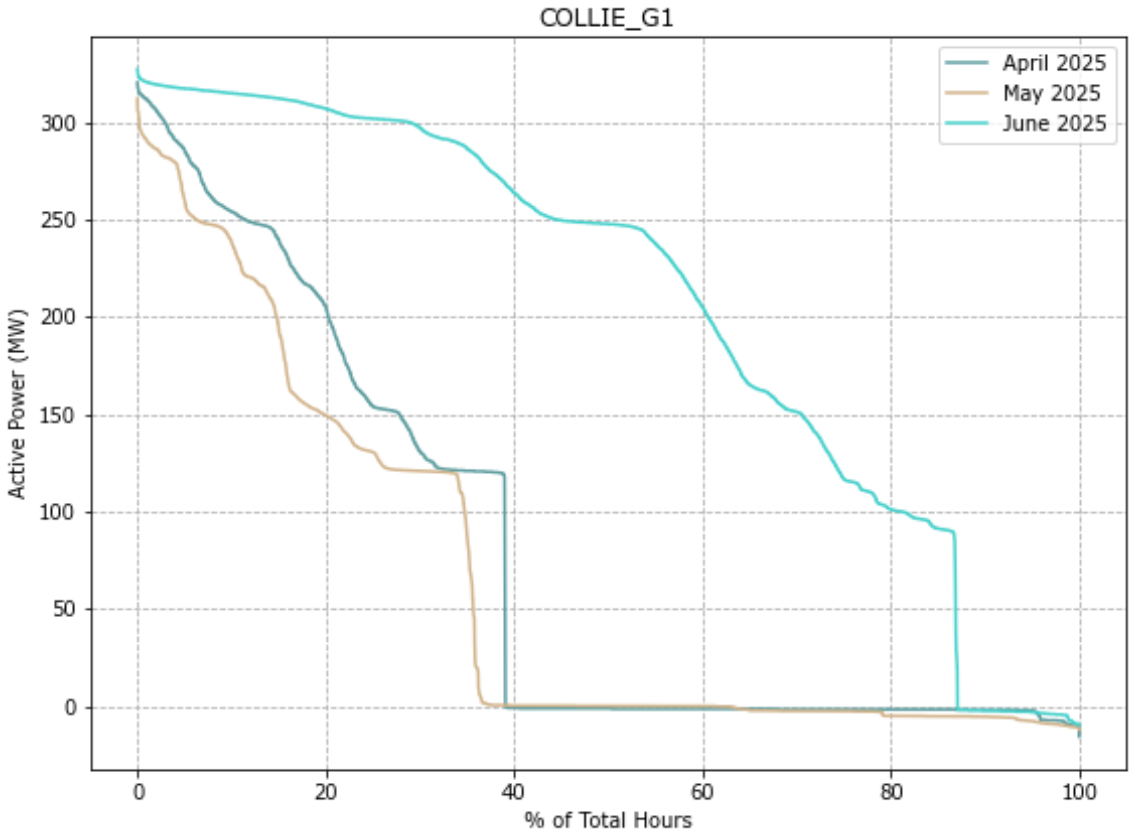


	Apr 2025	May 2025	Jun 2025
Energy Generated (GWh)	140.87	147.59	141.82
Total Spot Revenue ($m)	13.29	13.98	13.77
$ / MWh	**$94.32**	**$94.70**	**$97.08**

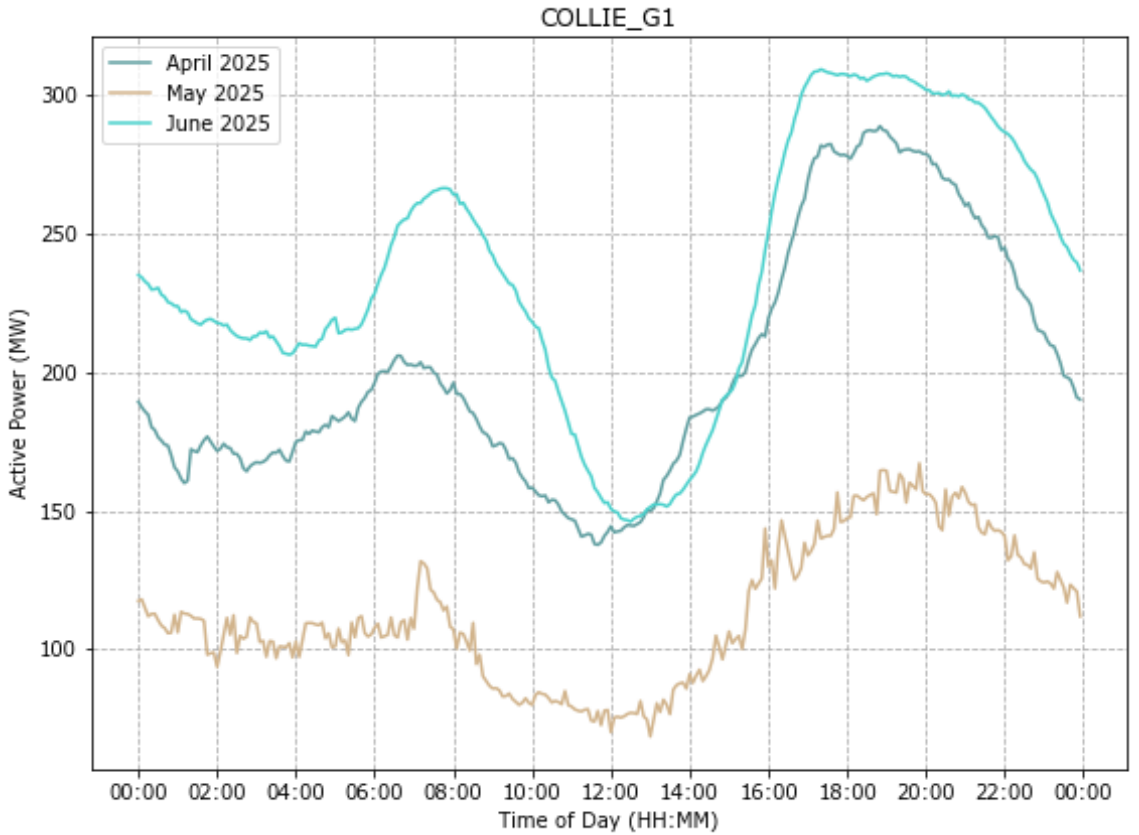
Collie Power Station G1

Coal-fired Scheduled Facility, 318.3 MW, Synergy

Generation Duration Curves



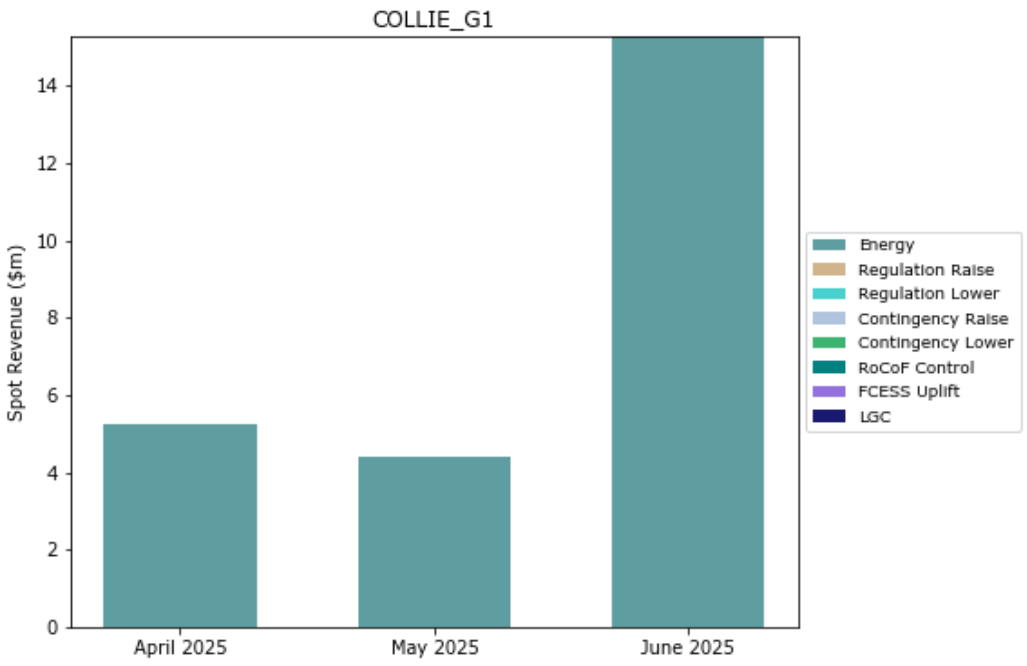
Average Time-of-Day Output



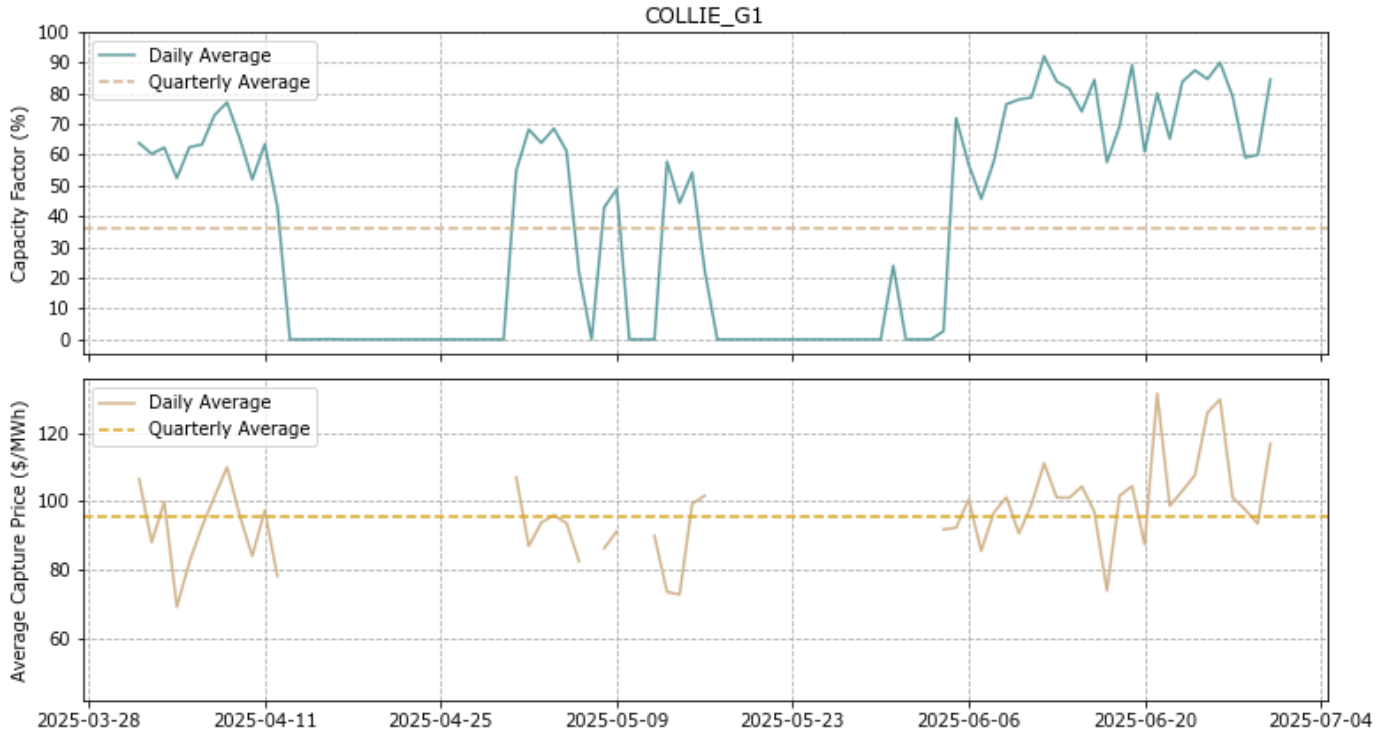
Collie Power Station G1

Coal-fired Scheduled Facility, 318.3 MW, Synergy

Facility Merchant Spot Revenue



Daily Capacity Factor and Average Energy Capture Price

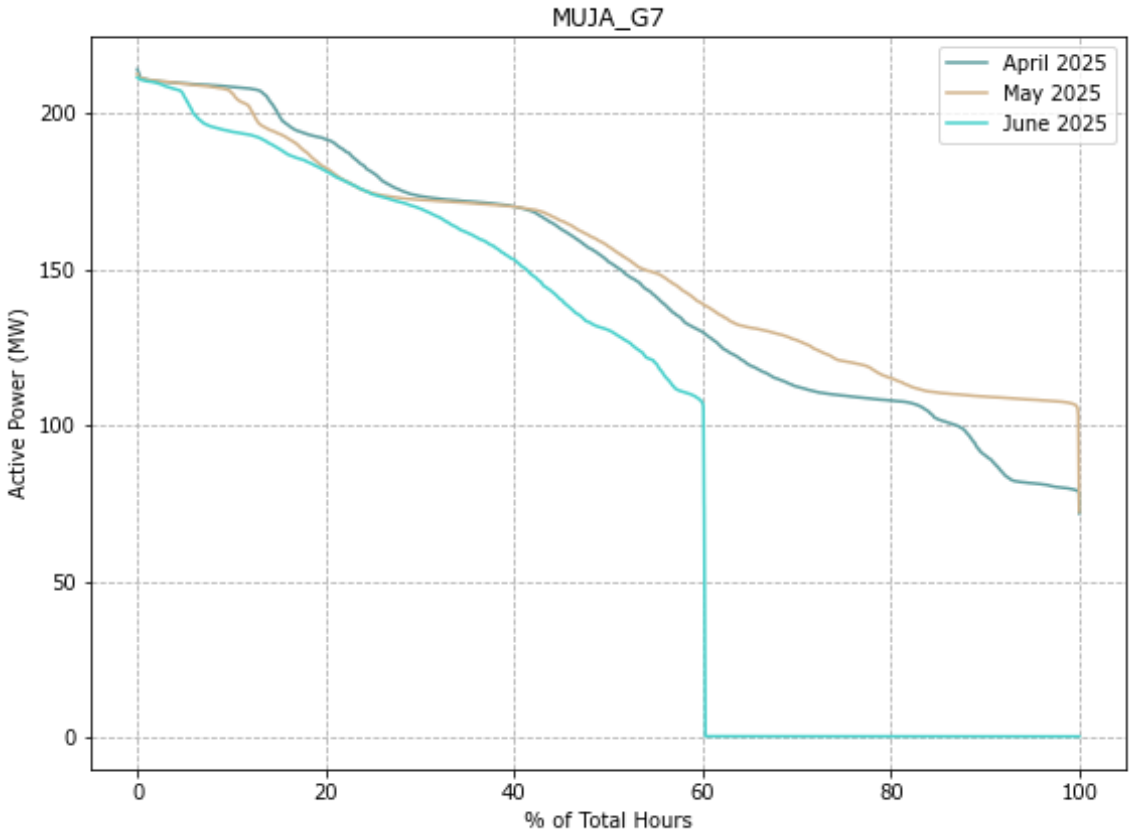


	Apr 2025	May 2025	Jun 2025
Energy Generated (GWh)	56.41	48.38	147.74
Total Spot Revenue ($m)	5.27	4.38	15.28
$ / MWh	**$93.42**	**$90.62**	**$103.43**

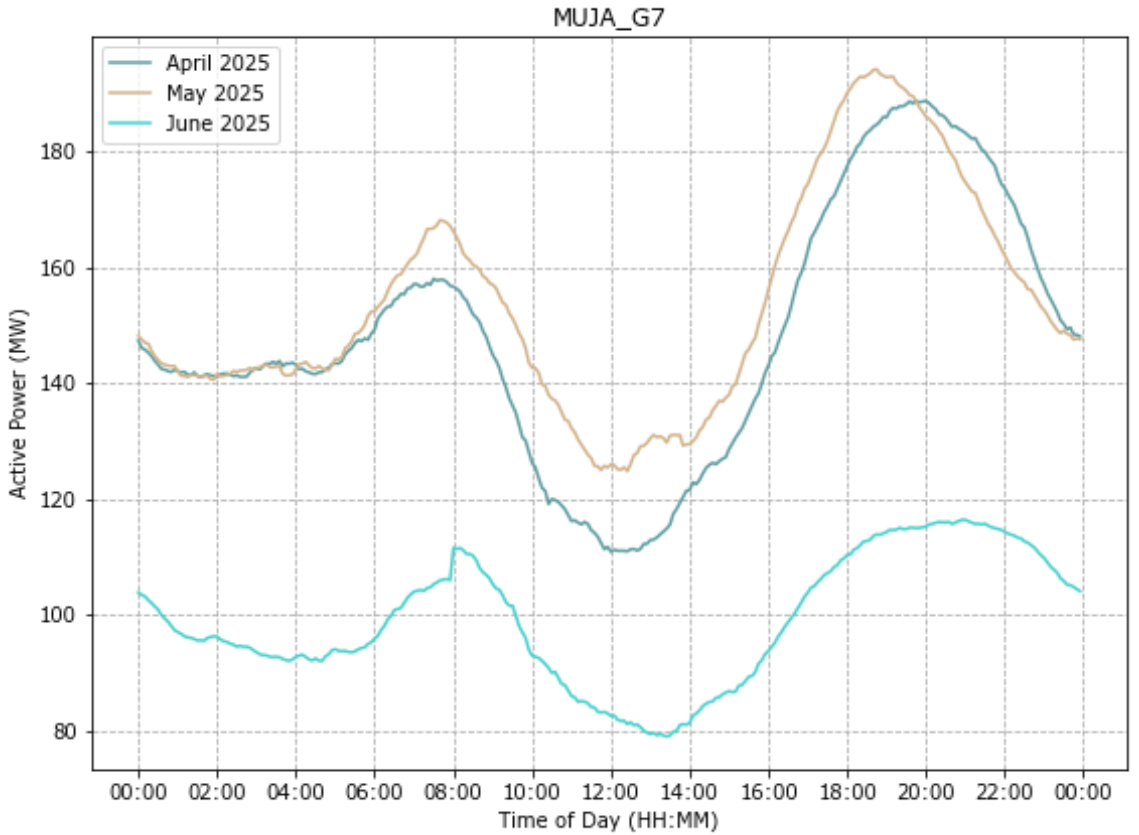
Muja Power Station G7

Coal-fired Scheduled Facility, 212.6 MW, Synergy

Generation Duration Curves



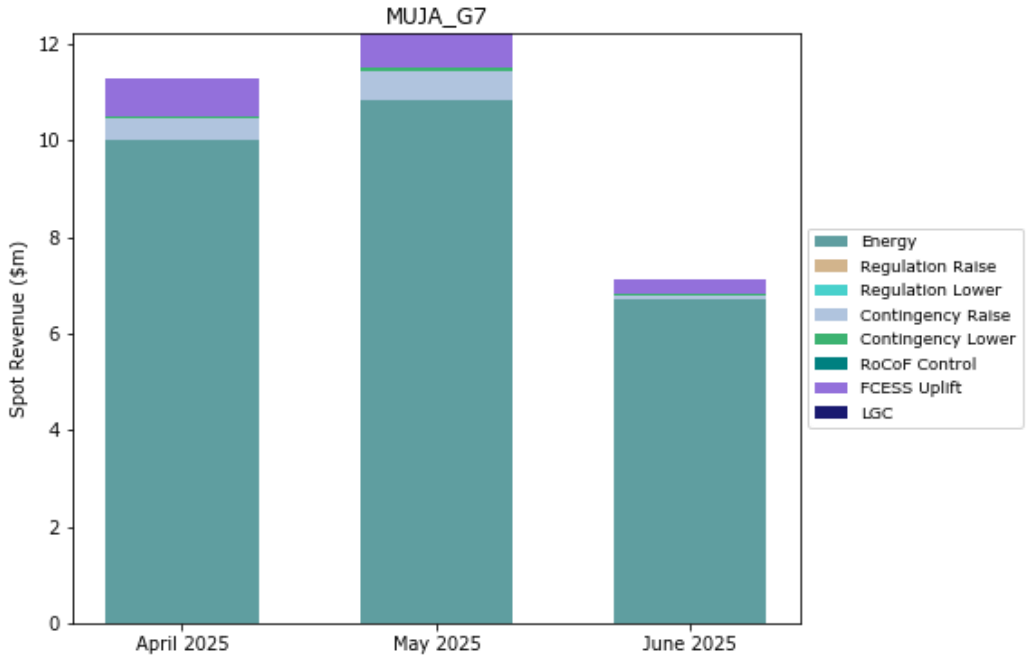
Average Time-of-Day Output



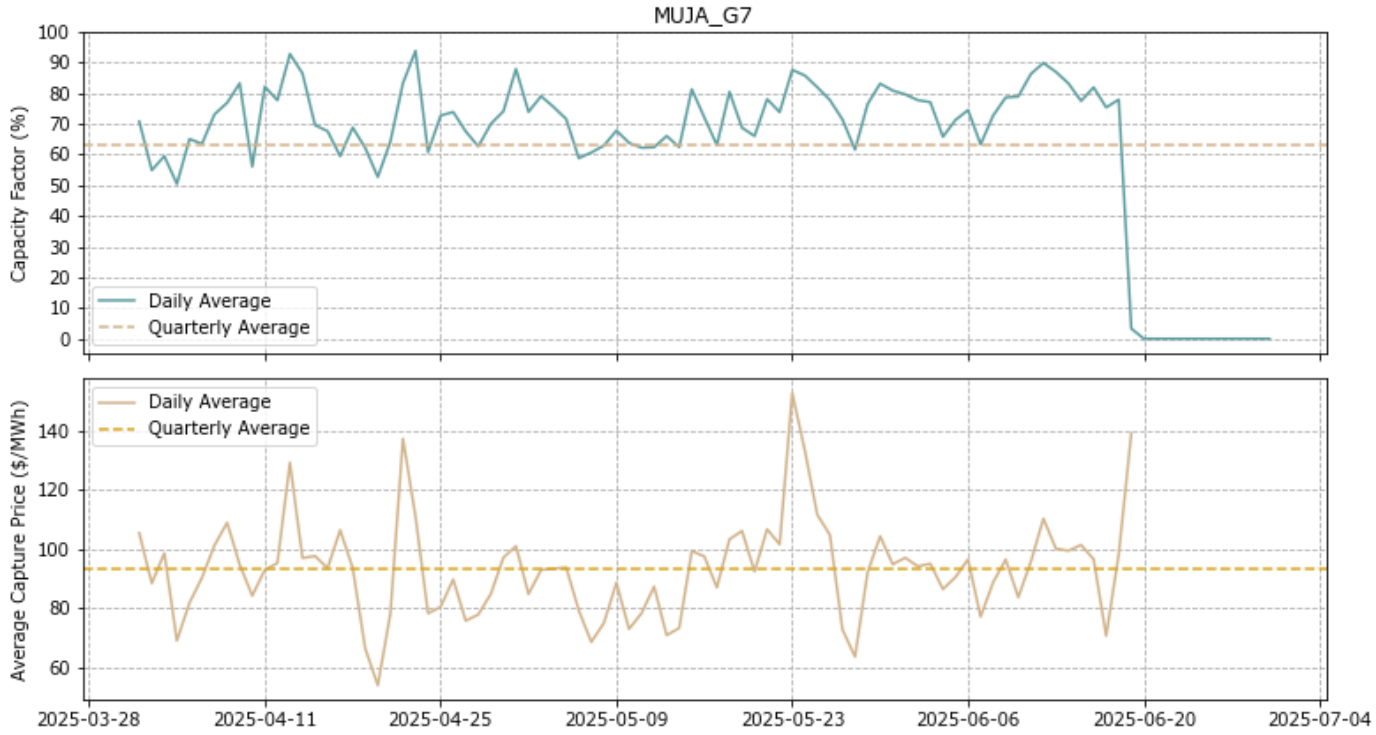
Muja Power Station G7

Coal-fired Scheduled Facility, 212.6 MW, Synergy

Facility Merchant Spot Revenue



Daily Capacity Factor and Average Energy Capture Price

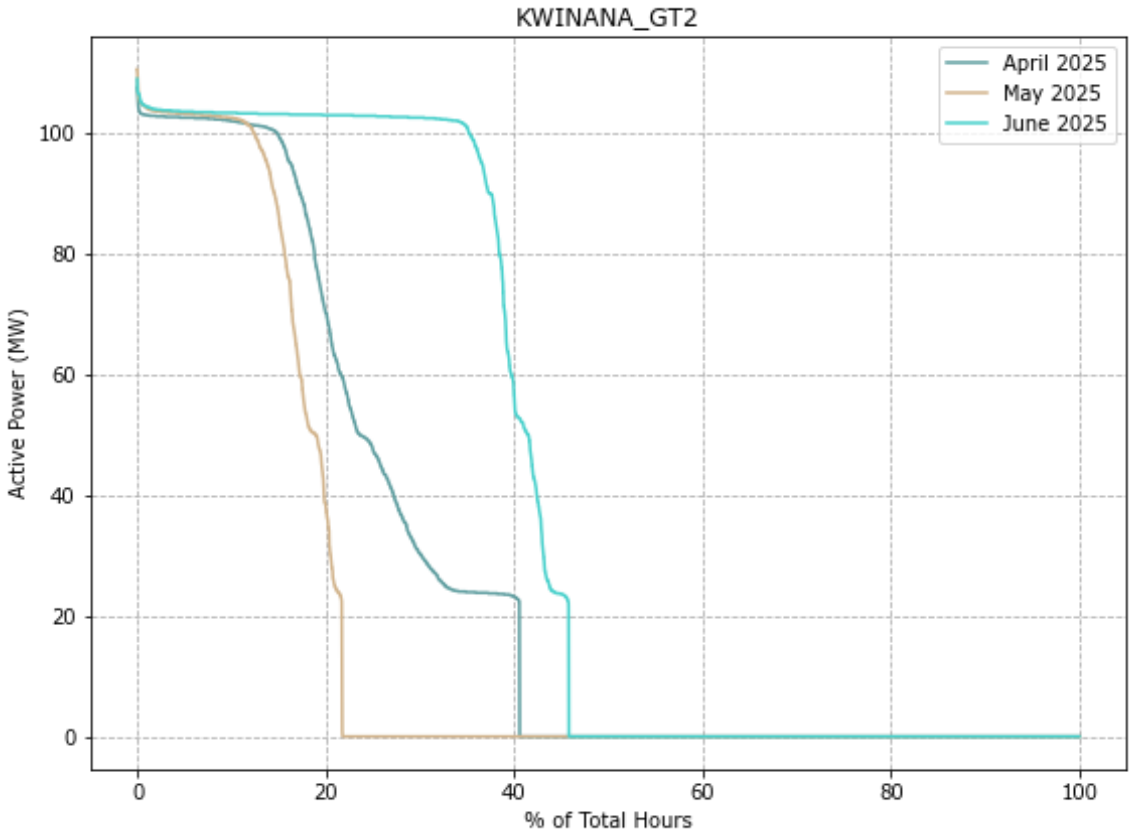


	Apr 2025	May 2025	Jun 2025
Energy Generated (GWh)	106.86	114.46	71.46
Total Spot Revenue ($m)	11.28	12.23	7.13
$ / MWh	**$105.56**	**$106.84**	**$99.71**

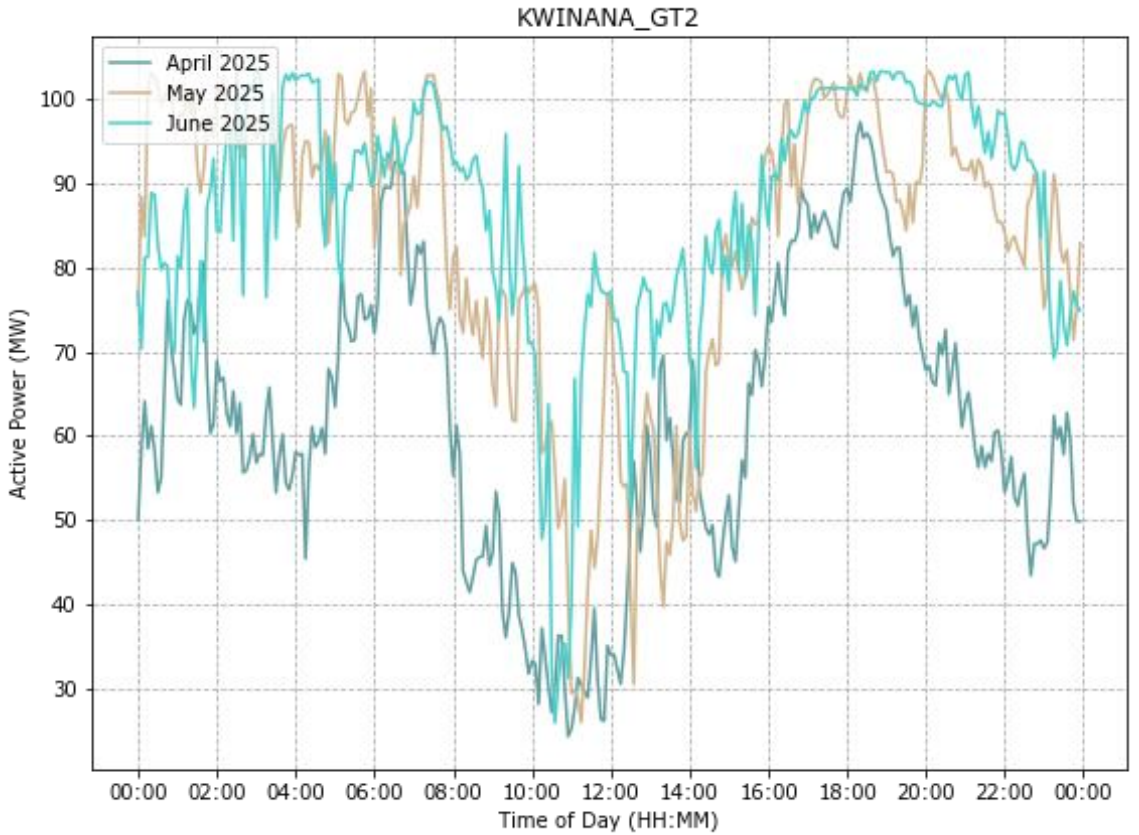
Kwinana Power Station GT2

Gas-fired Scheduled Facility, 103.94 MW, Synergy

Generation Duration Curves



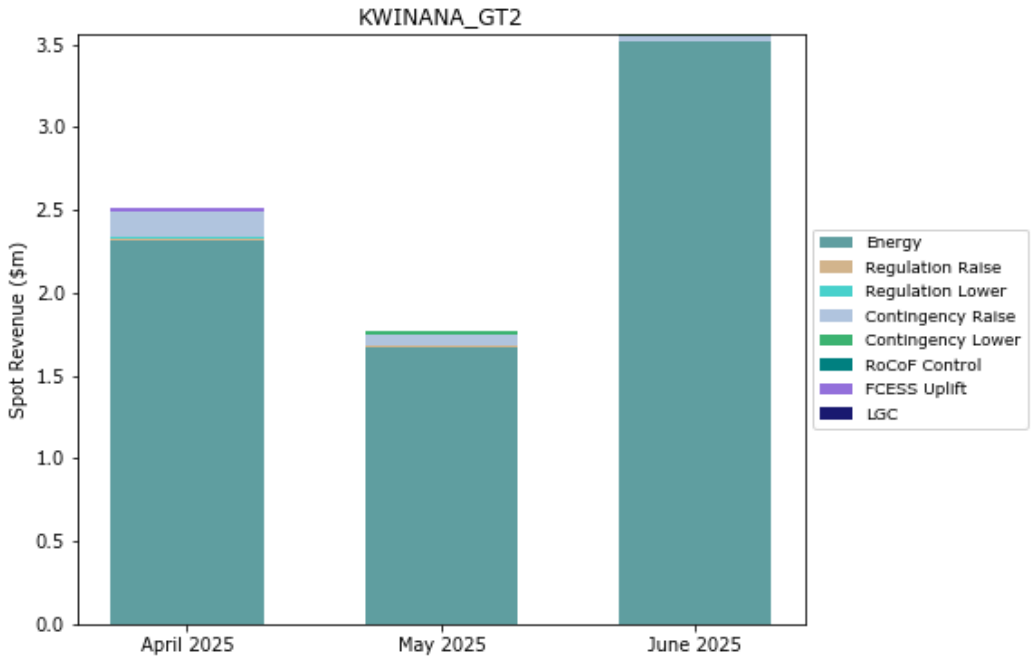
Average Time-of-Day Output



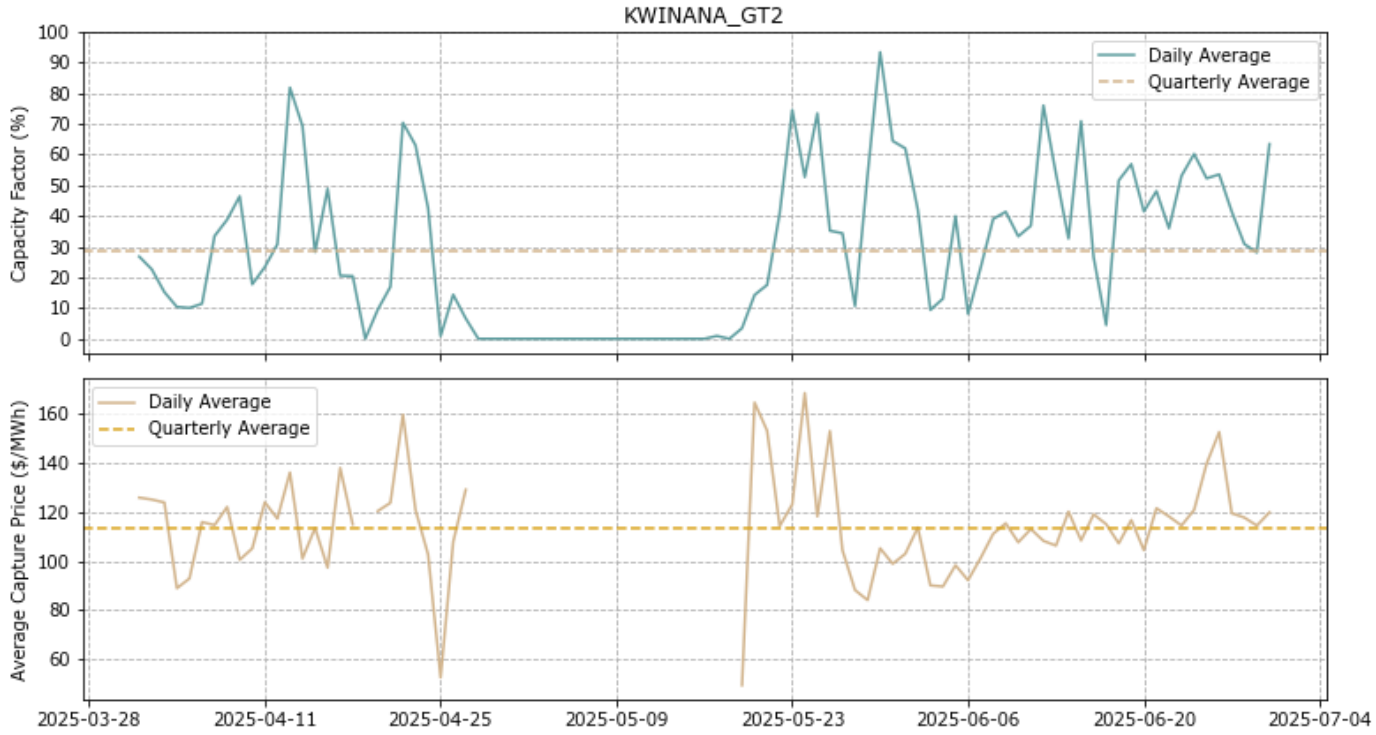
Kwinana Power Station GT2

Gas-fired Scheduled Facility, 103.94 MW, Synergy

Facility Merchant Spot Revenue



Daily Capacity Factor and Average Energy Capture Price

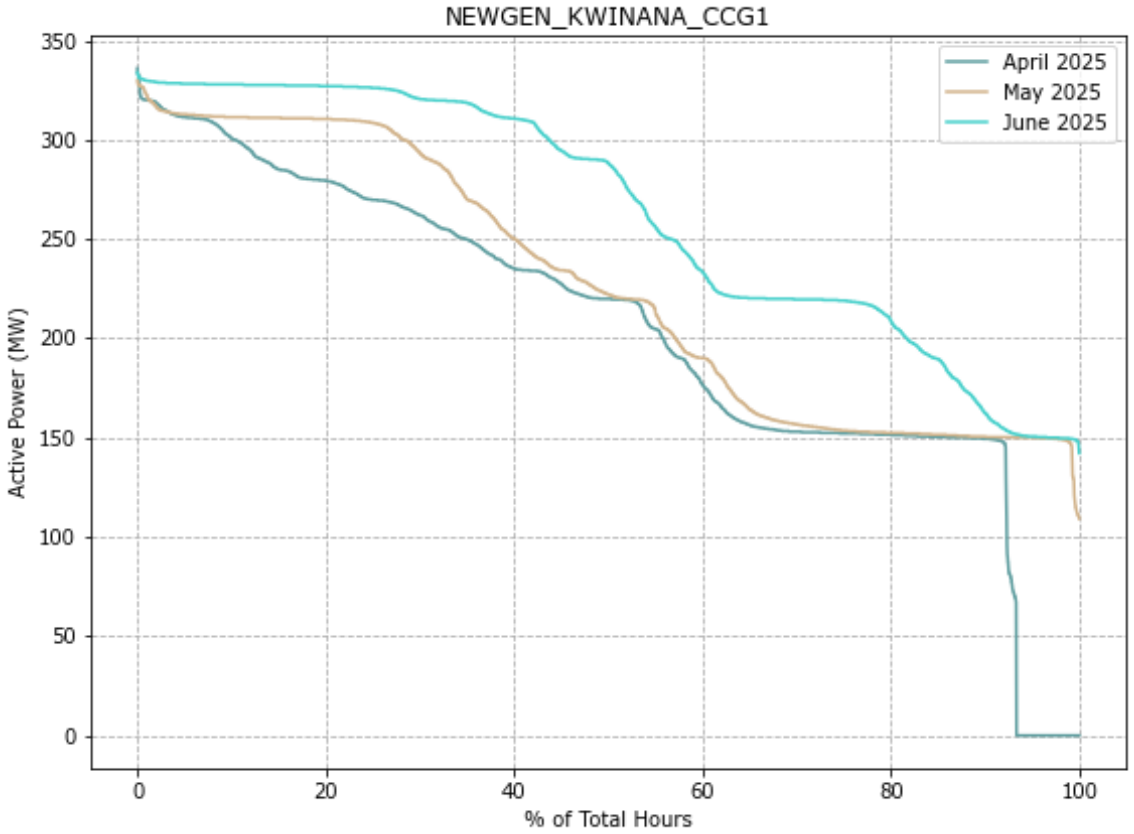


	Apr 2025	May 2025	Jun 2025
Energy Generated (GWh)	19.46	14.19	30.65
Total Spot Revenue ($m)	2.51	1.77	3.56
$ / MWh	**$128.80**	**$124.61**	**$116.21**

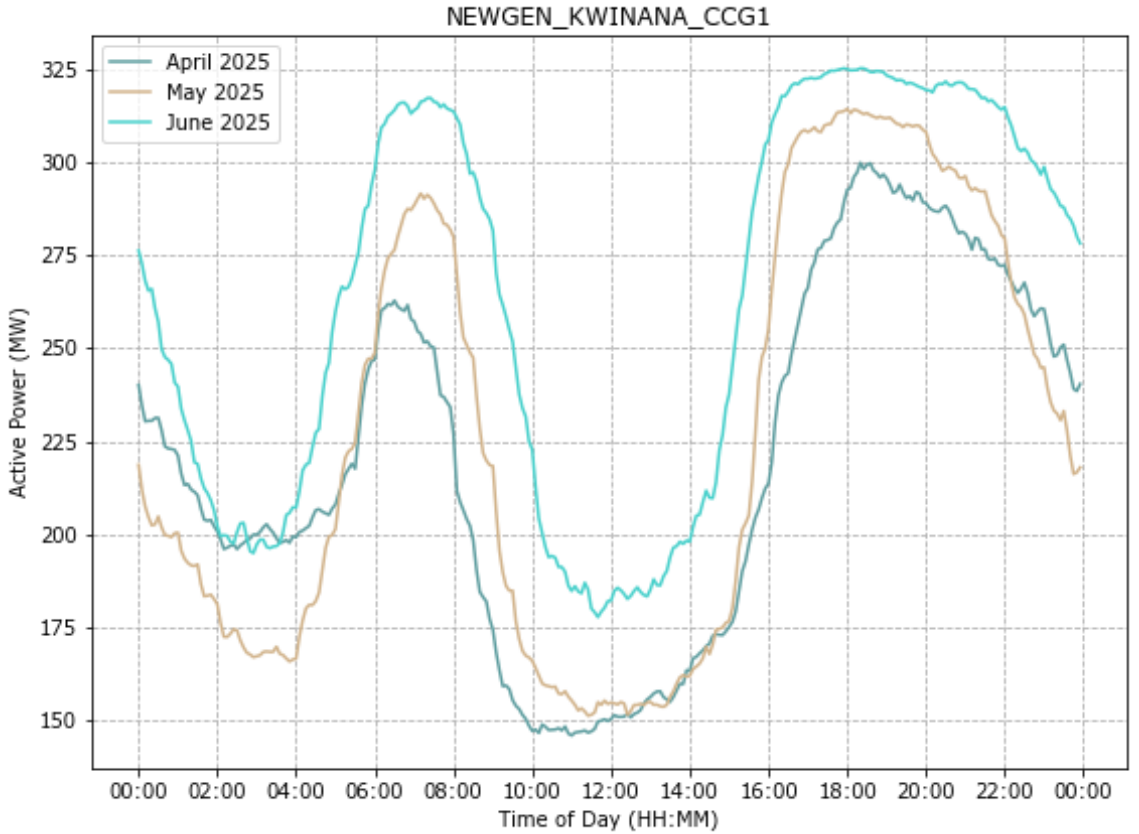
Newgen Kwinana Power Station

Gas-fired Scheduled Facility, 334.8 MW, Summit Southern Cross Power

Generation Duration Curves



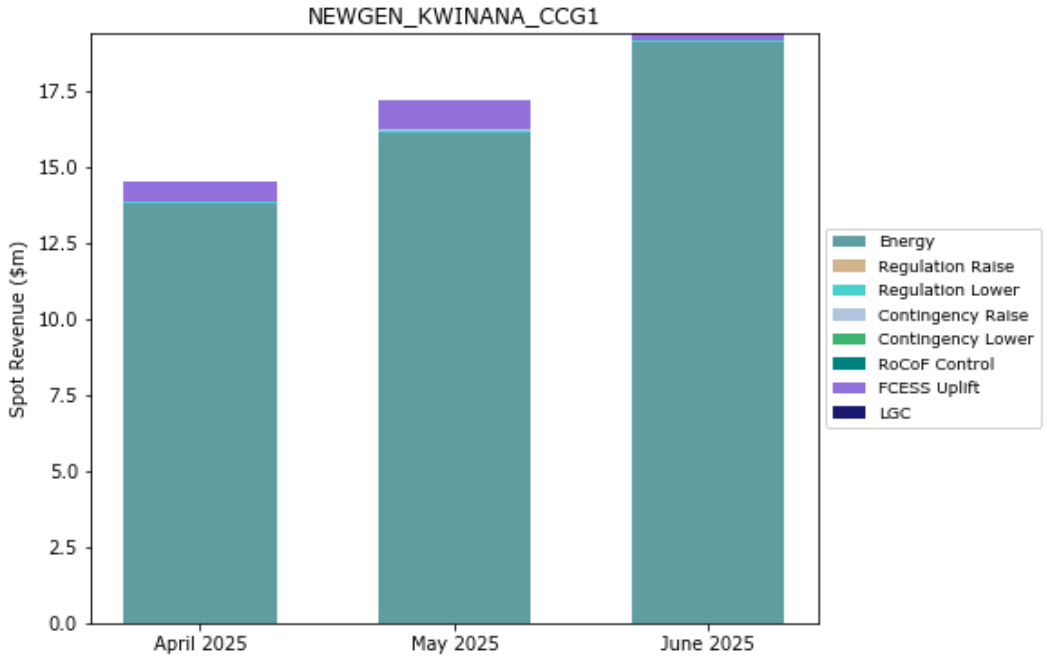
Average Time-of-Day Output



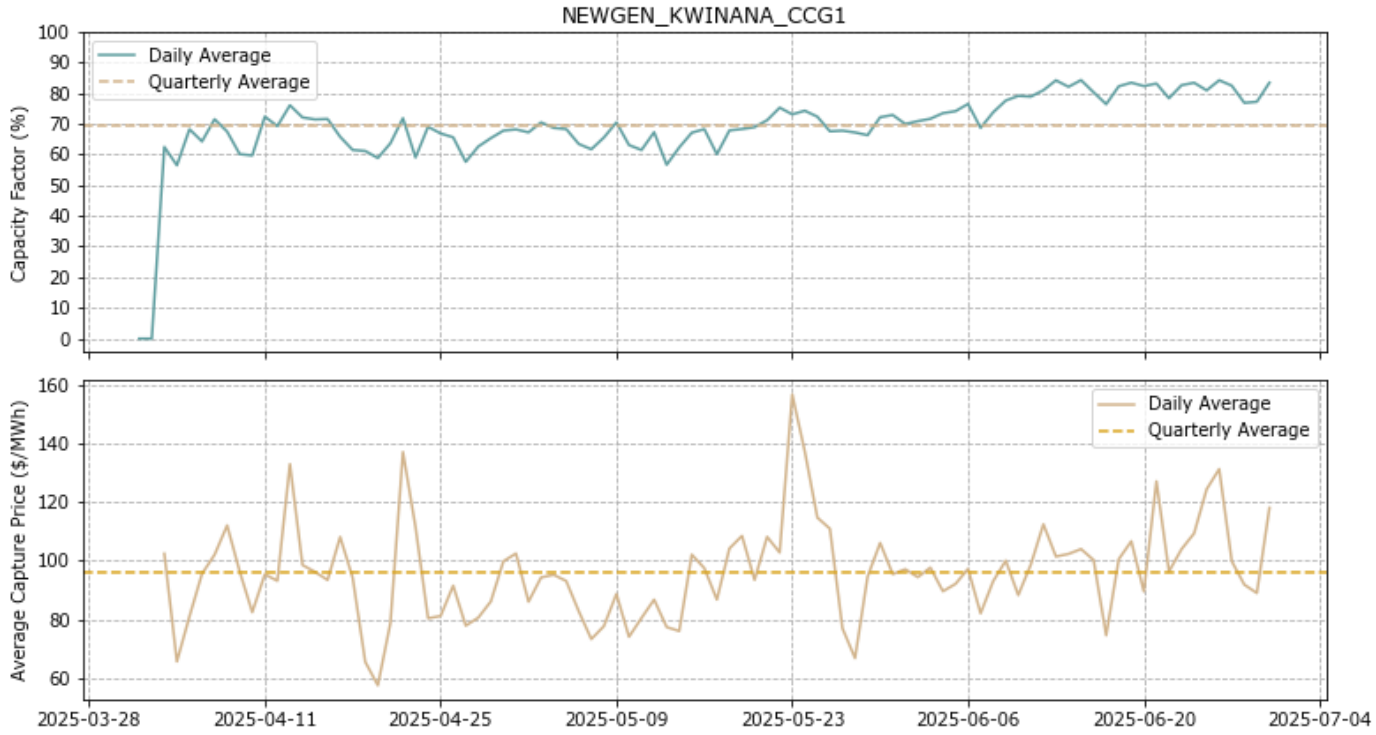
Newgen Kwinana Power Station

Gas-fired Scheduled Facility, 334.8 MW, Summit Southern Cross Power

Facility Merchant Spot Revenue



Daily Capacity Factor and Average Energy Capture Price

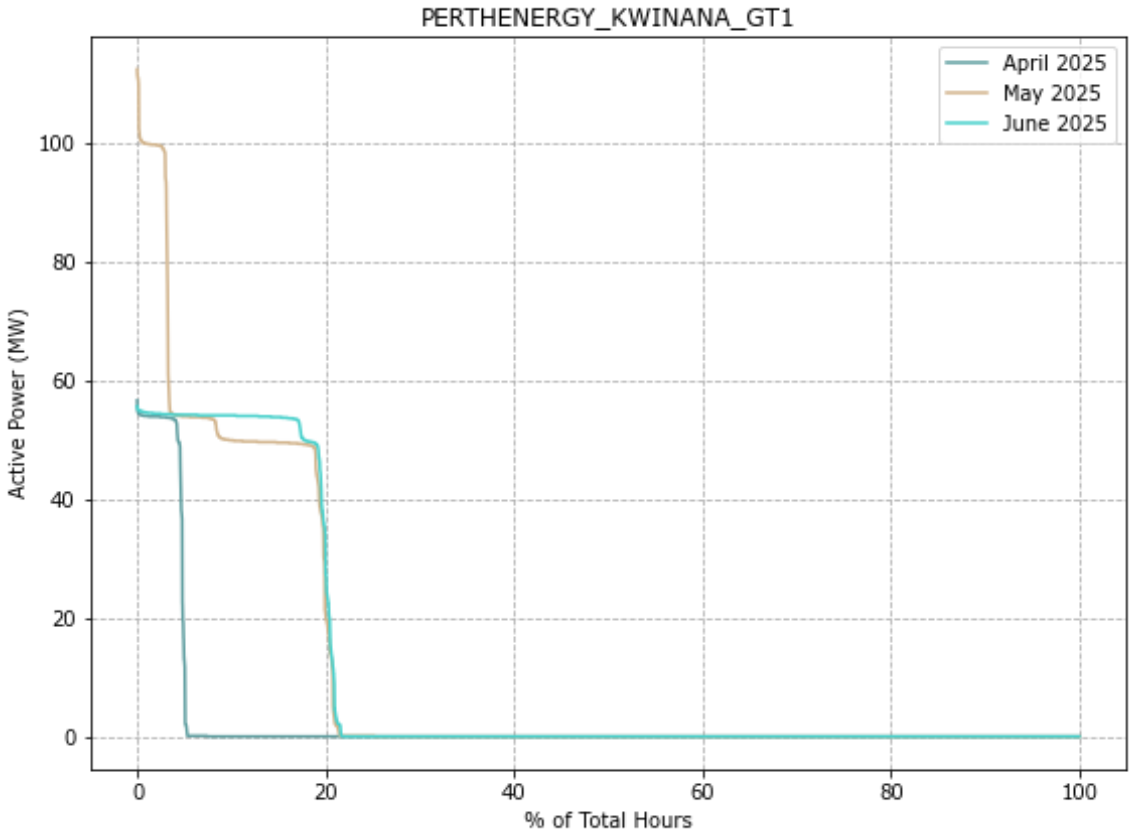


	Apr 2025	May 2025	Jun 2025
Energy Generated (GWh)	147.71	168.24	189.74
Total Spot Revenue ($m)	14.52	17.22	19.42
$ / MWh	**$98.33**	**$102.38**	**$102.37**

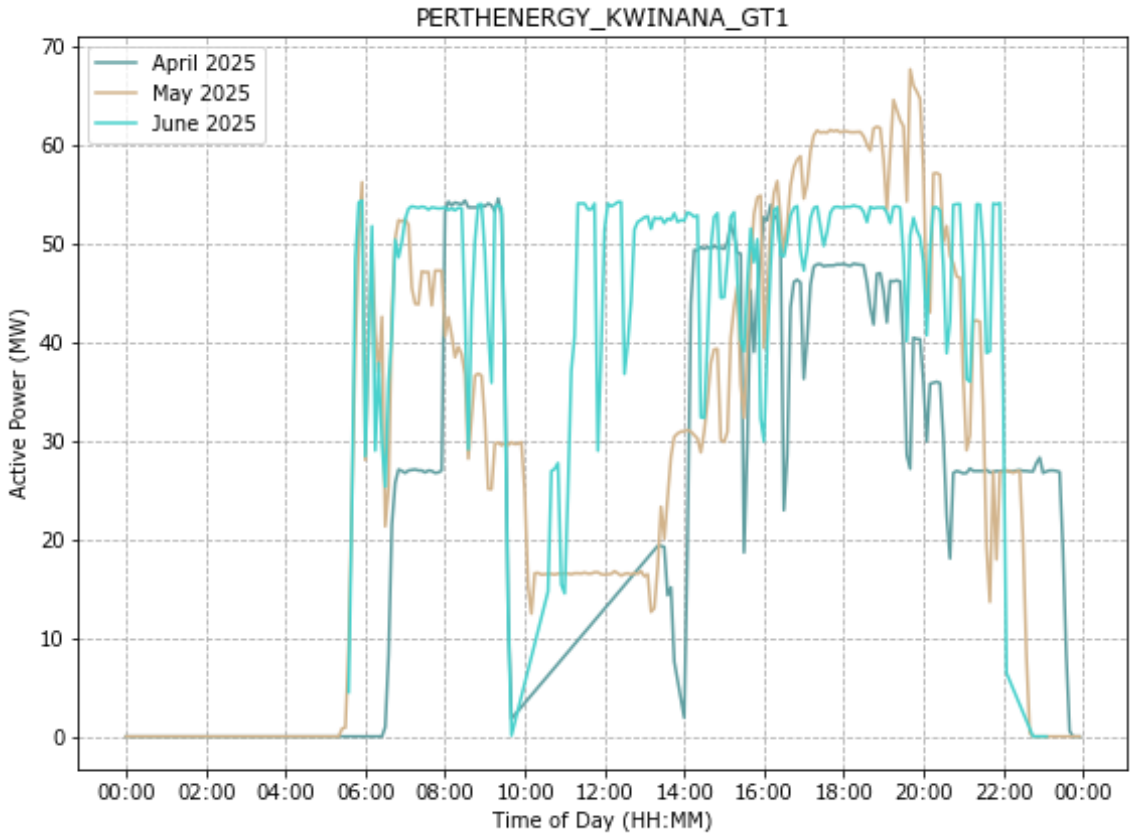
Kwinana Swift Power Station

Gas-fired Scheduled Facility, 109 MW, AGL (Perth Energy)

Generation Duration Curves



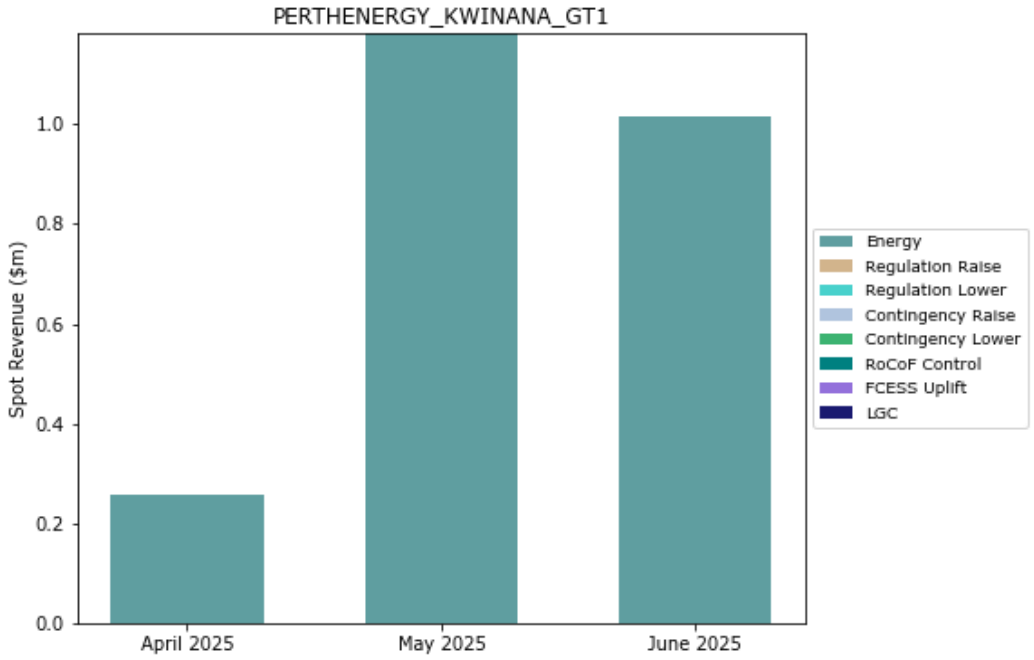
Average Time-of-Day Output



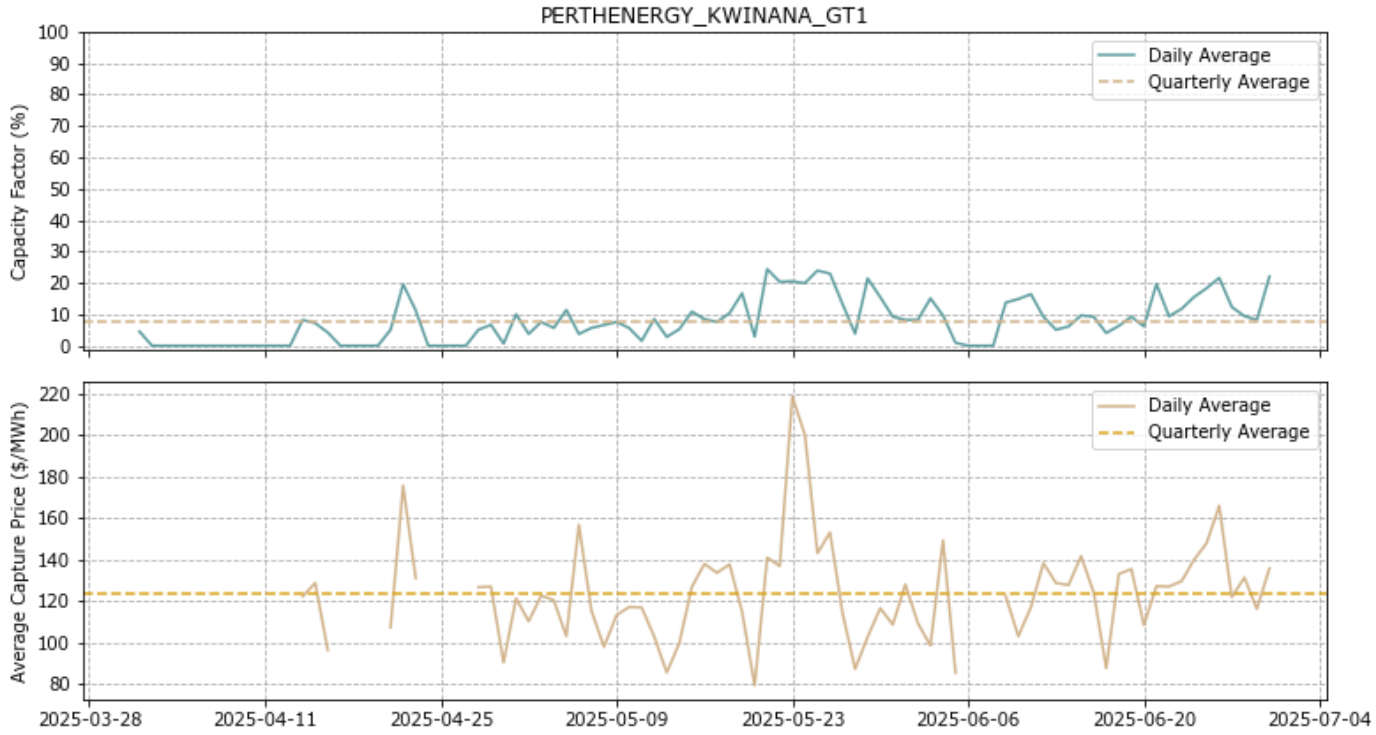
Kwinana Swift Power Station

Gas-fired Scheduled Facility, 109 MW, AGL (Perth Energy)

Facility Merchant Spot Revenue



Daily Capacity Factor and Average Energy Capture Price

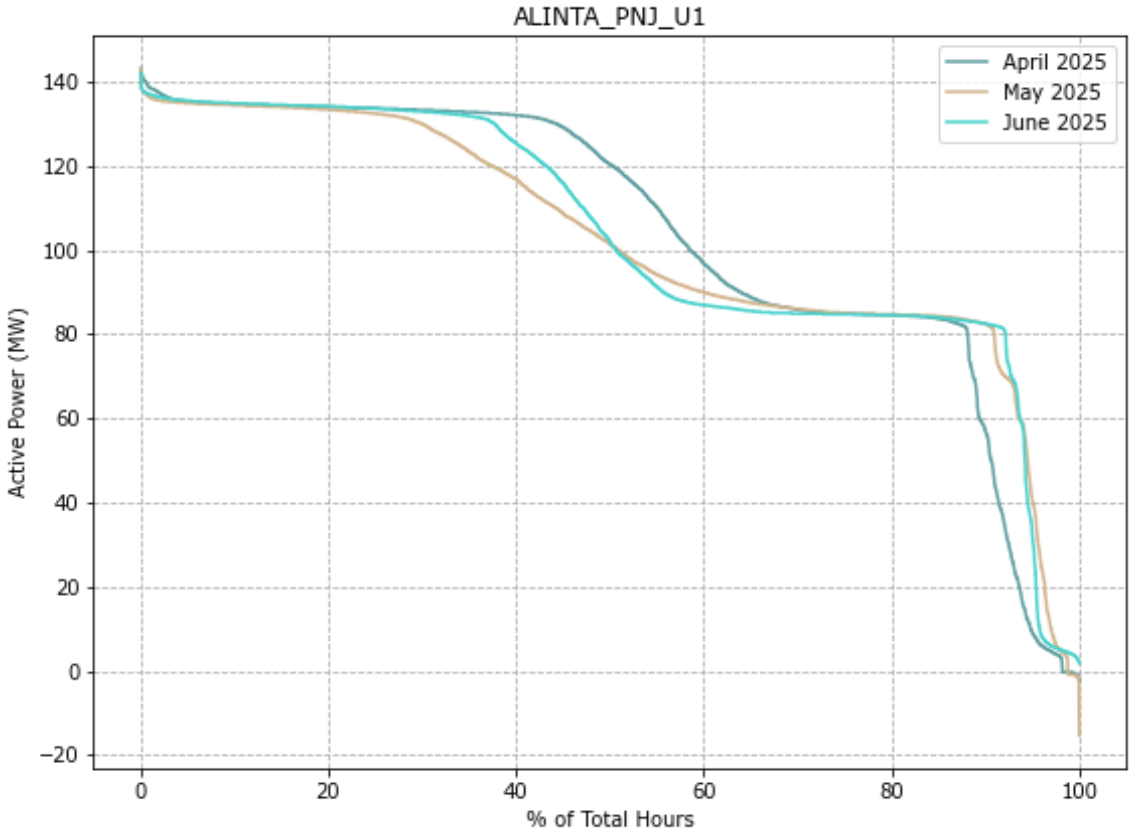


	Apr 2025	May 2025	Jun 2025
Energy Generated (GWh)	1.89	8.82	7.85
Total Spot Revenue ($m)	0.26	1.18	1.01
$ / MWh	**$135.78**	**$134.10**	**$129.29**

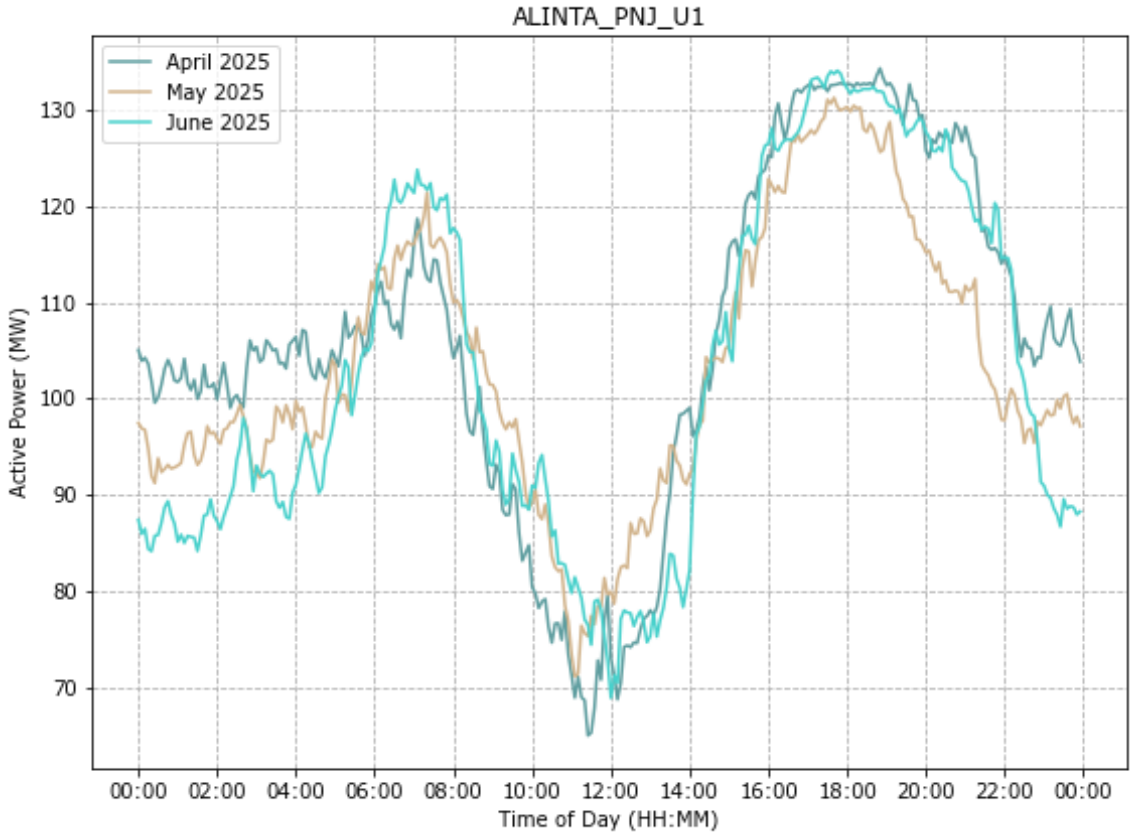
Pinjarra Power Station U1

Gas-fired Scheduled Facility, 143 MW, Alinta Energy

Generation Duration Curves



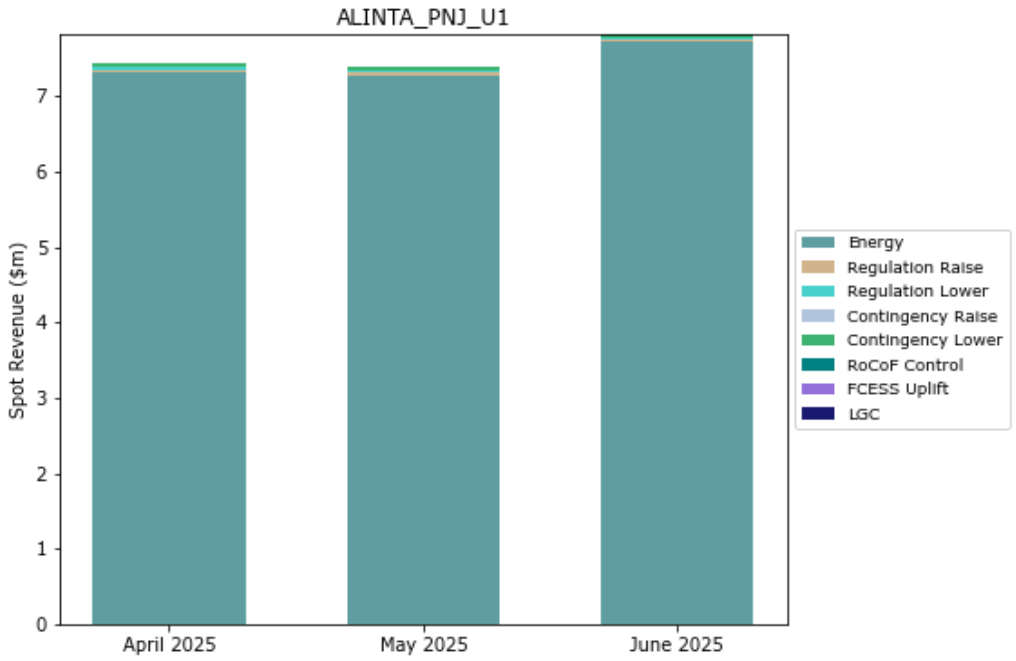
Average Time-of-Day Output



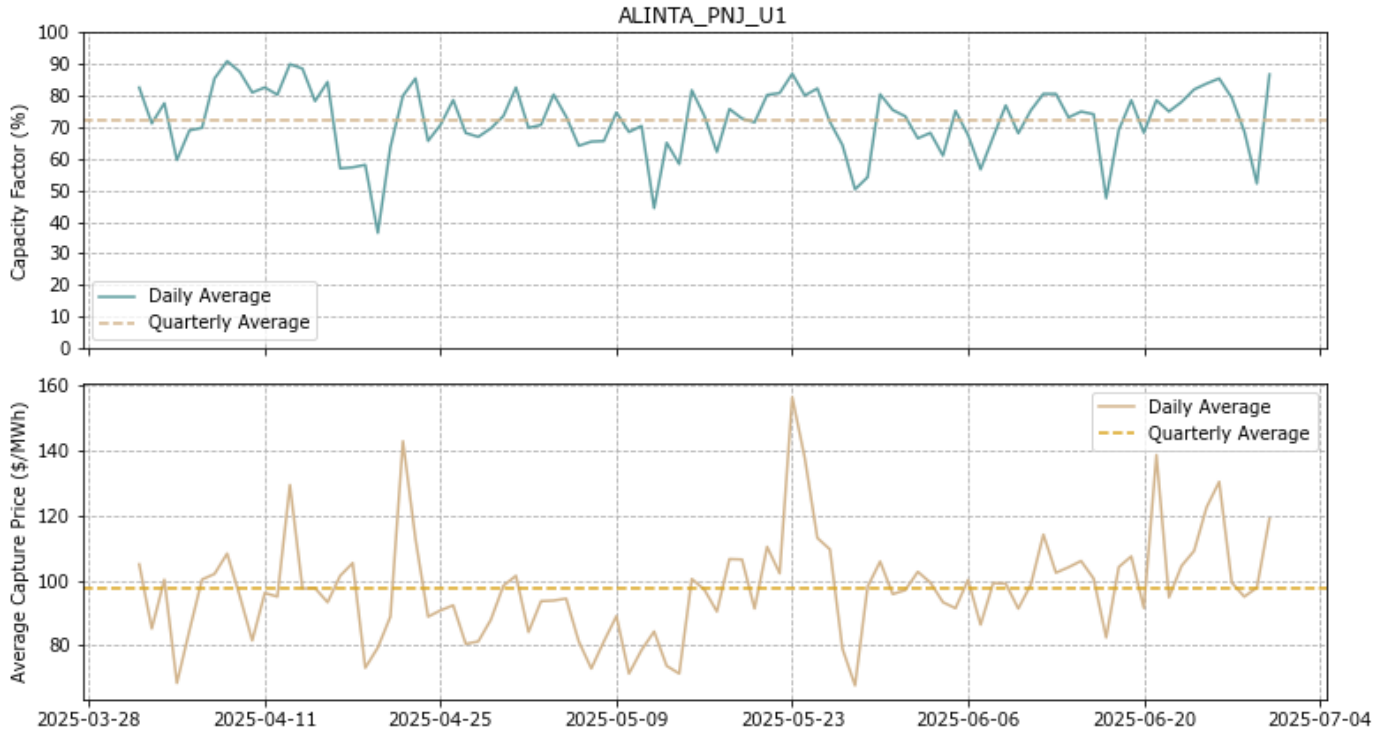
Pinjarra Power Station U1

Gas-fired Scheduled Facility, 143 MW, Alinta Energy

Facility Merchant Spot Revenue



Daily Capacity Factor and Average Energy Capture Price

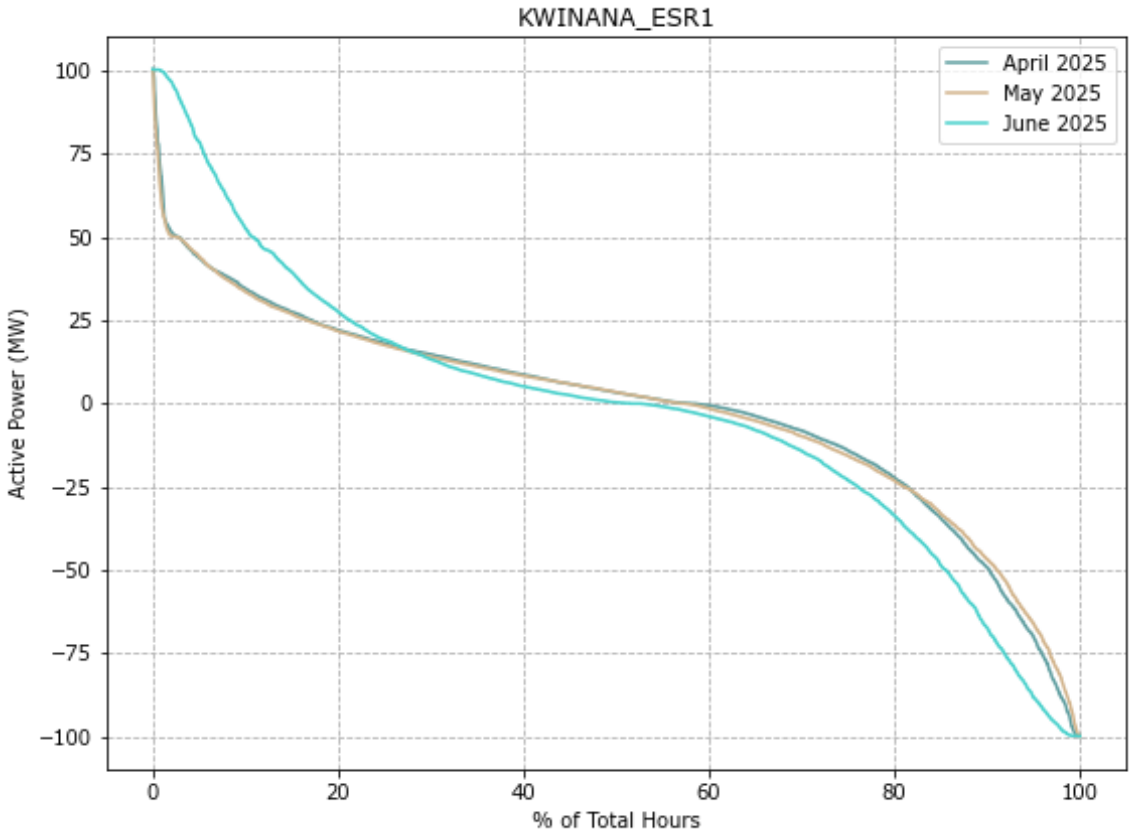


	Apr 2025	May 2025	Jun 2025
Energy Generated (GWh)	75.67	75.26	74.37
Total Spot Revenue ($m)	7.45	7.40	7.83
$ / MWh	**$98.48**	**$98.27**	**$105.26**

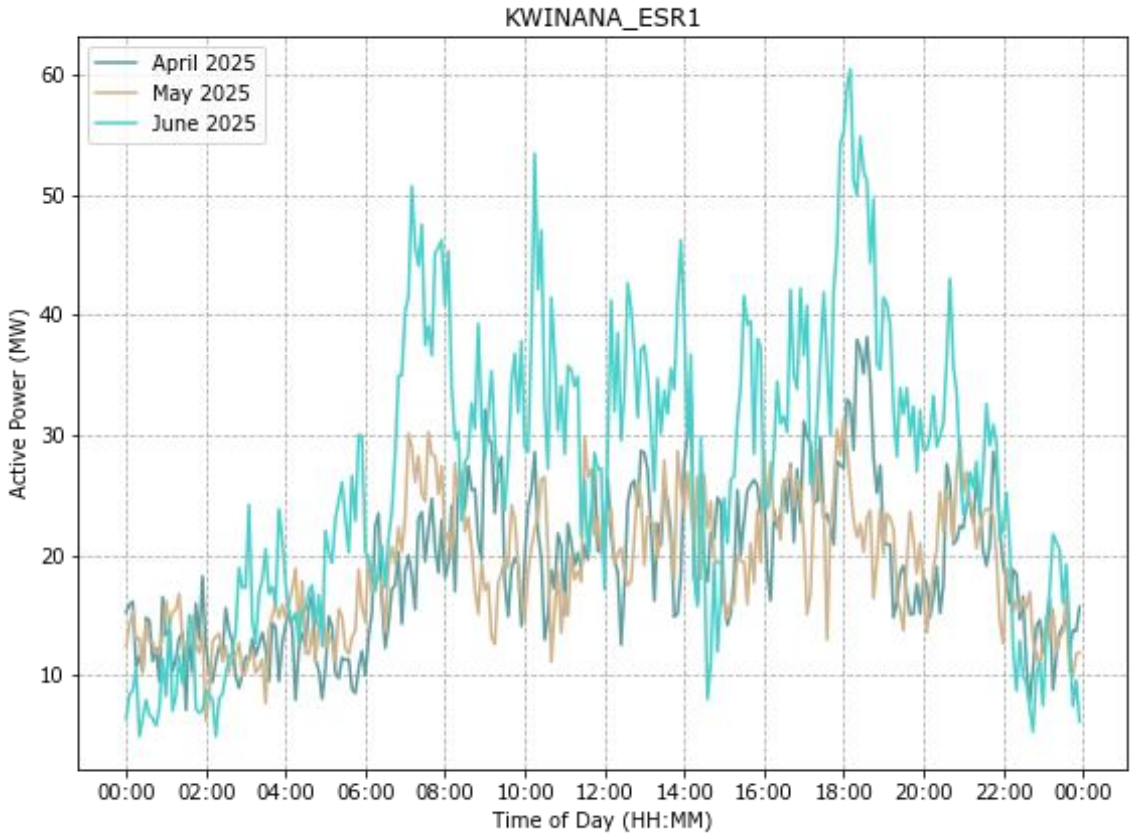
Kwinana BESS 1

Energy Storage Scheduled Facility, 100 MW, Synergy

Generation Duration Curves



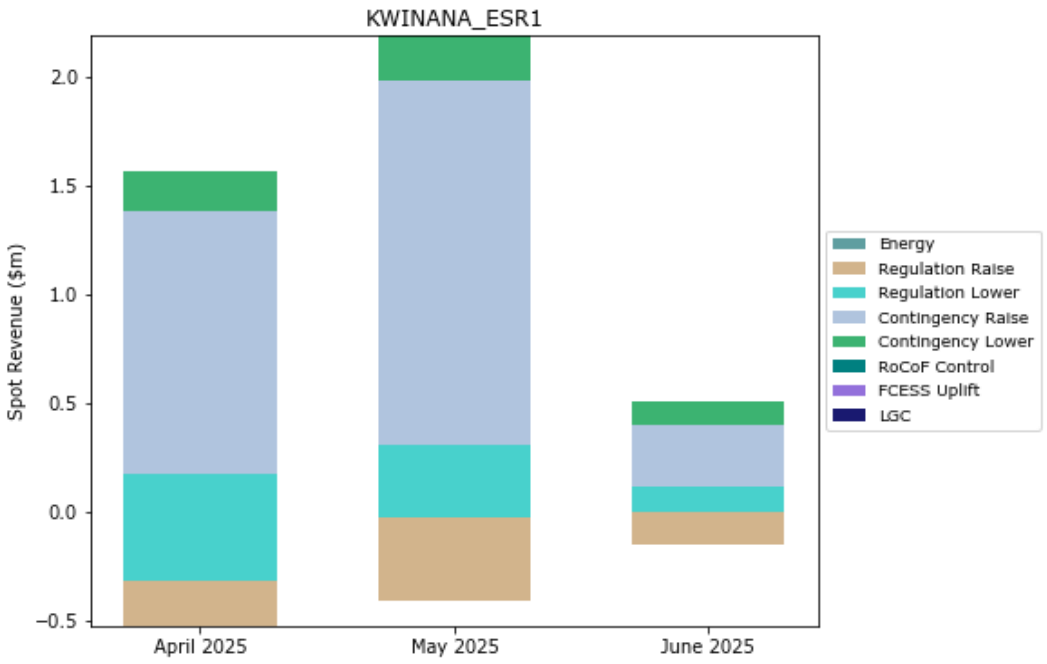
Average Time-of-Day Output



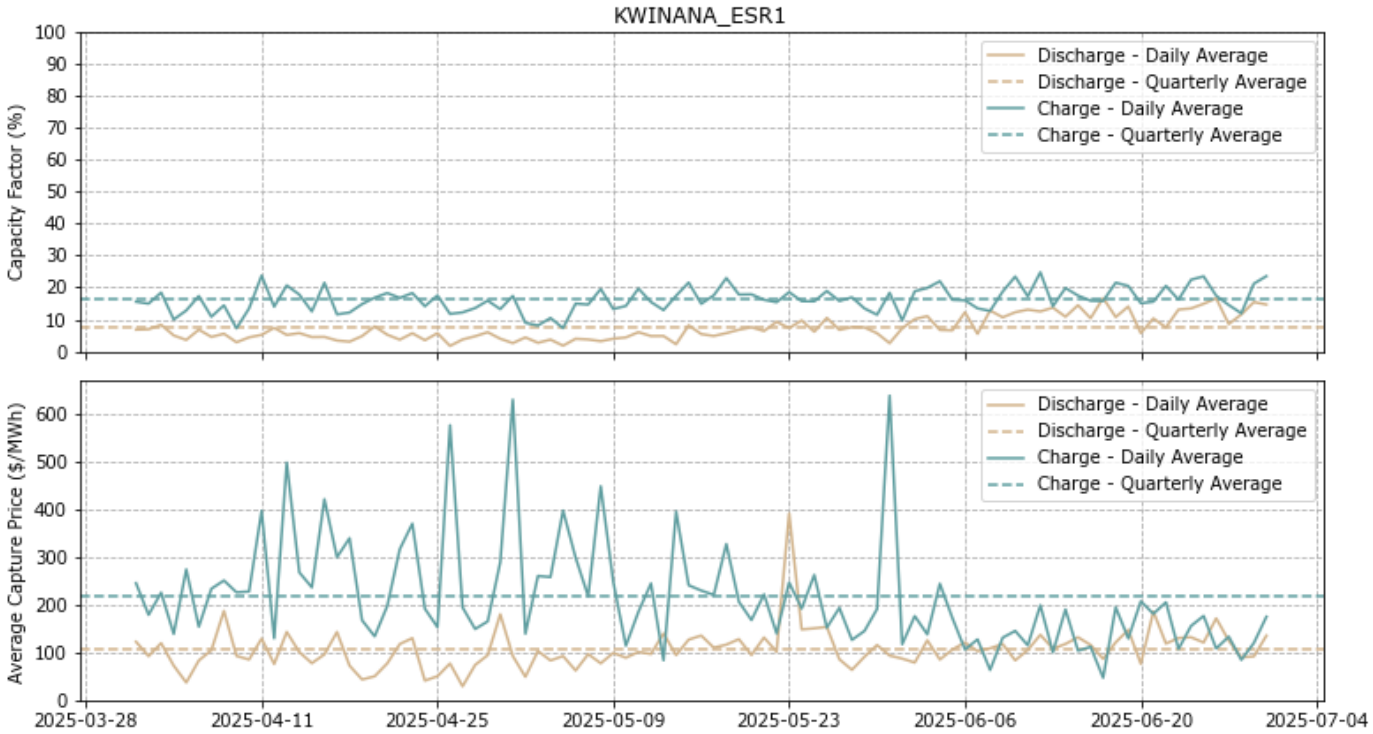
Kwinana BESS 1

Energy Storage Scheduled Facility, 100 MW, Synergy

Facility Merchant Spot Revenue



Daily Capacity Factor and Average Energy Capture Price

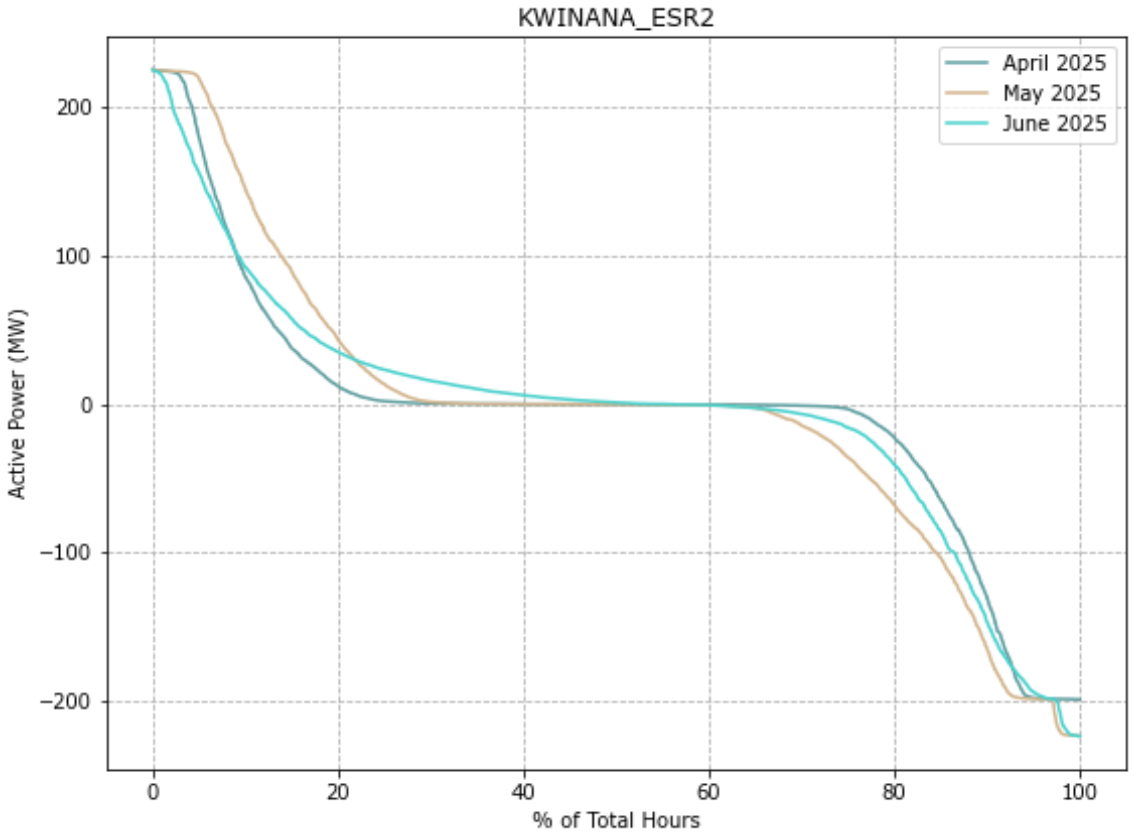


	Apr 2025	May 2025	Jun 2025
Total Spot Revenue ($m)	1.57	2.19	0.51

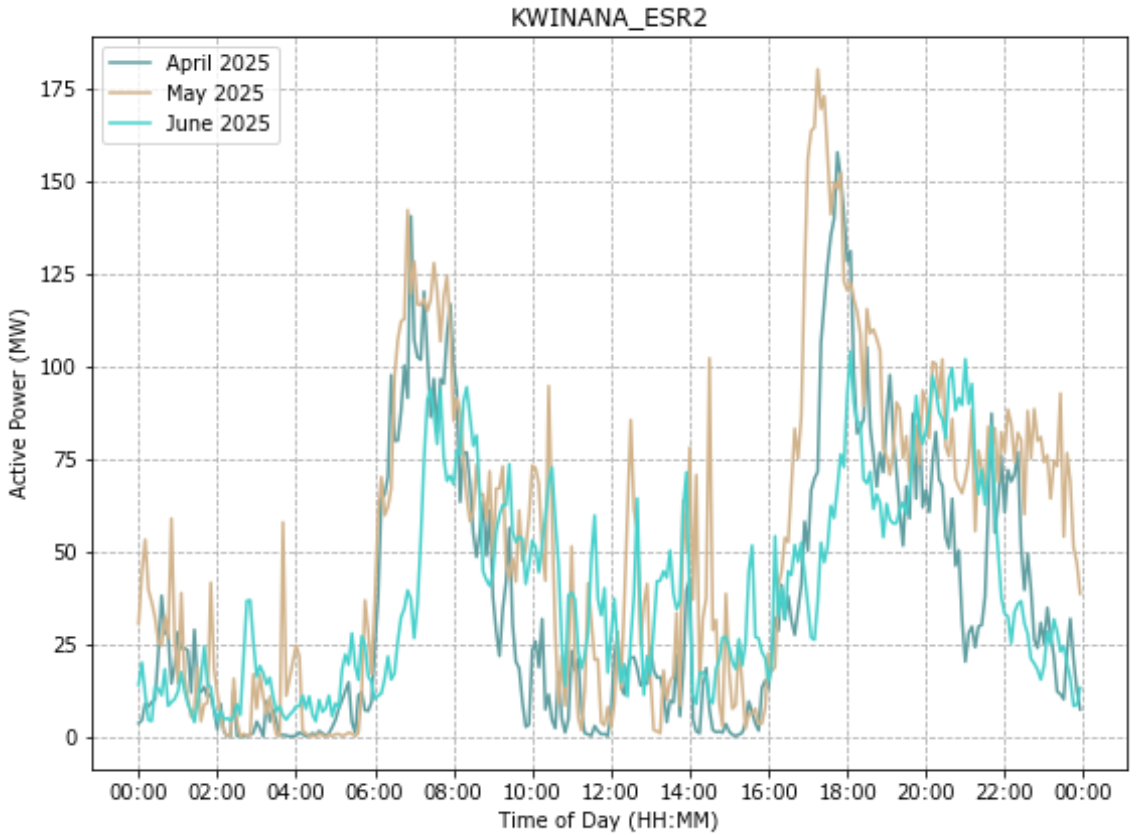
Kwinana BESS 2

Energy Storage Scheduled Facility, 225 MW, Synergy

Generation Duration Curves



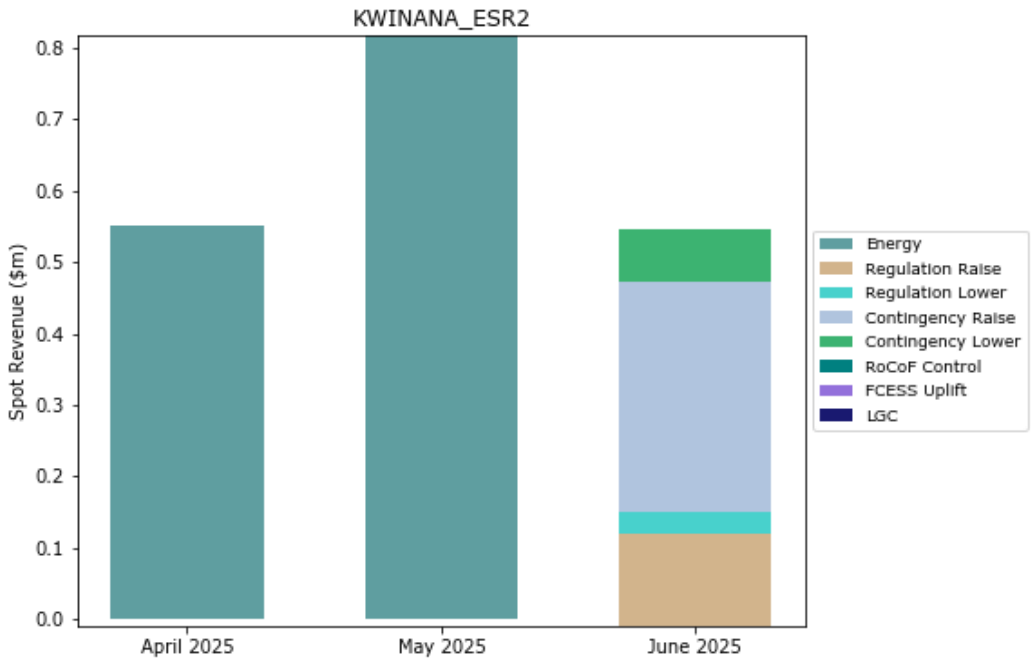
Average Time-of-Day Output



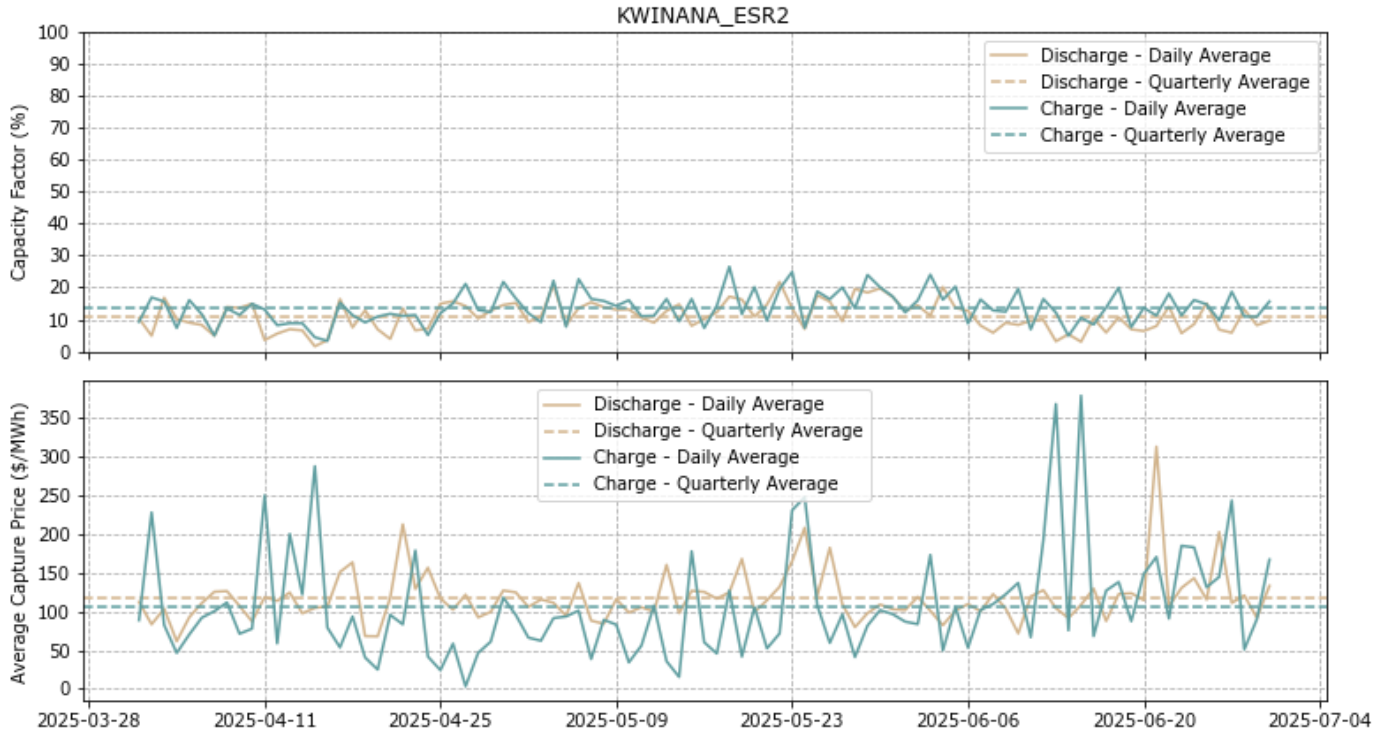
Kwinana BESS 2

Energy Storage Scheduled Facility, 225 MW, Synergy

Facility Merchant Spot Revenue



Daily Capacity Factor and Average Energy Capture Price

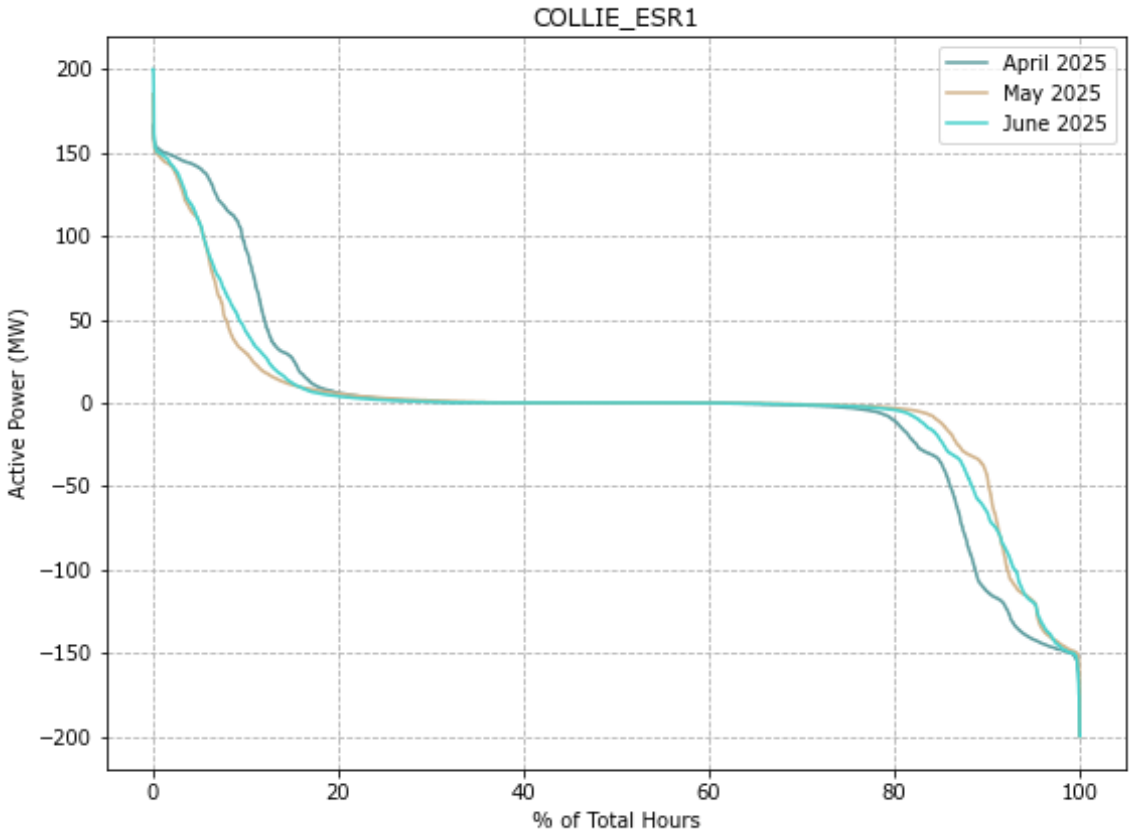


	Apr 2025	May 2025	Jun 2025
Total Spot Revenue ($m)	0.55	0.82	0.55

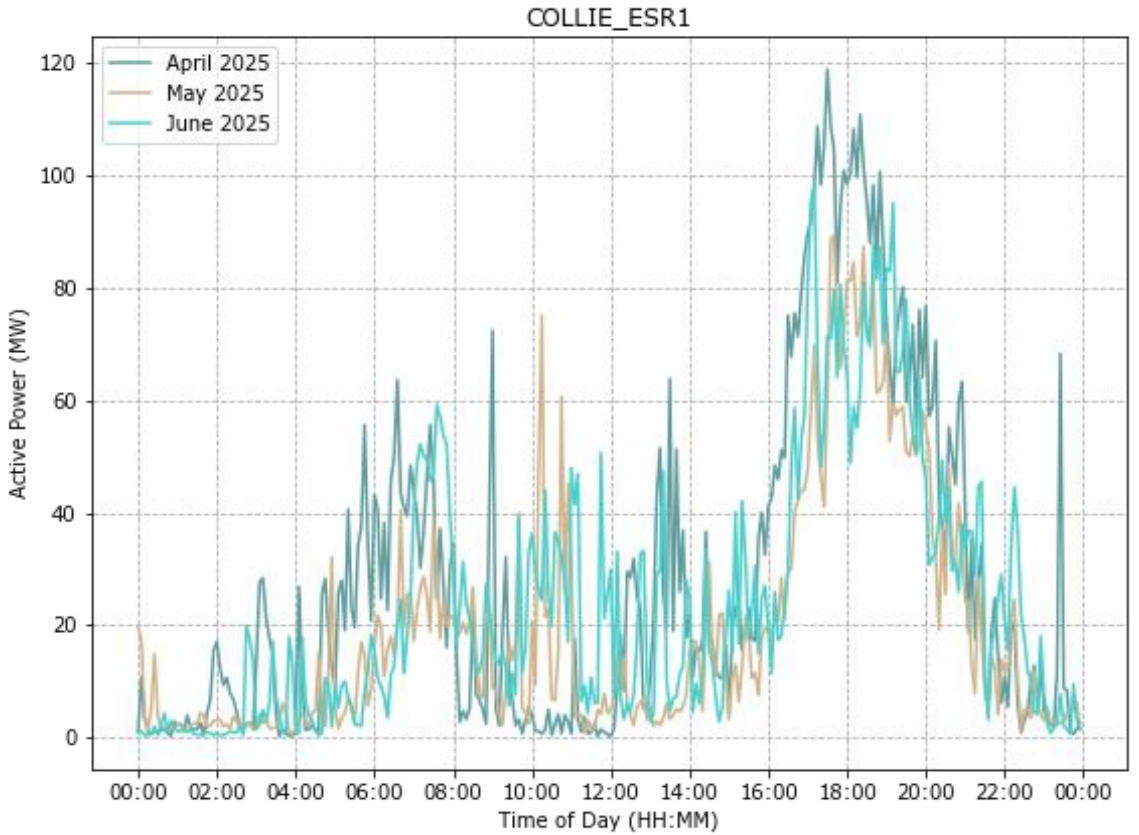
Collie BESS 1

Energy Storage Scheduled Facility, 200 MW, Neoen

Generation Duration Curves



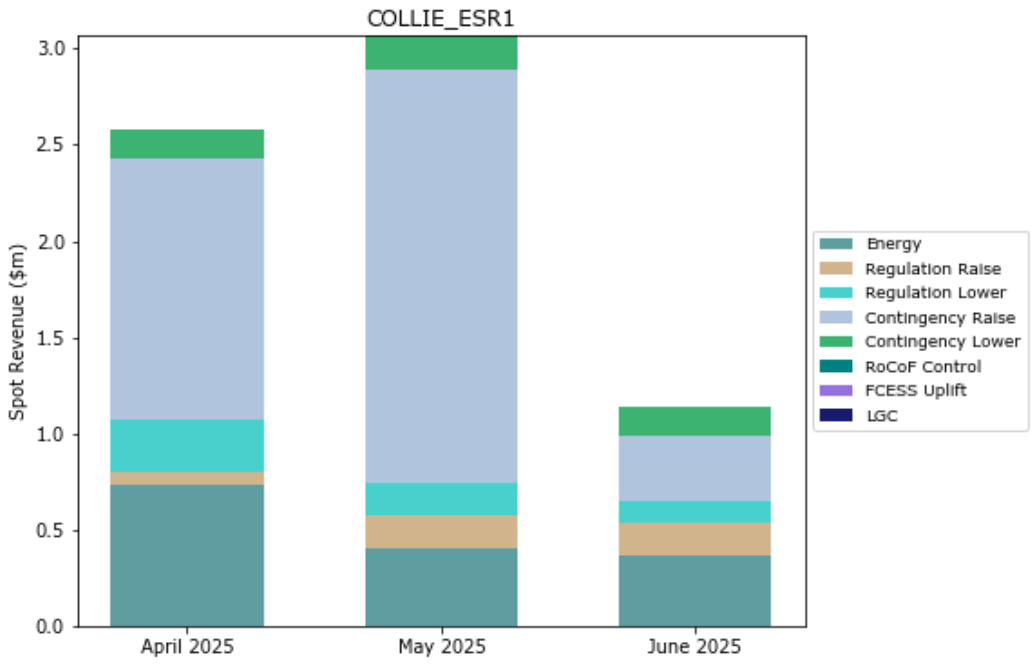
Average Time-of-Day Output



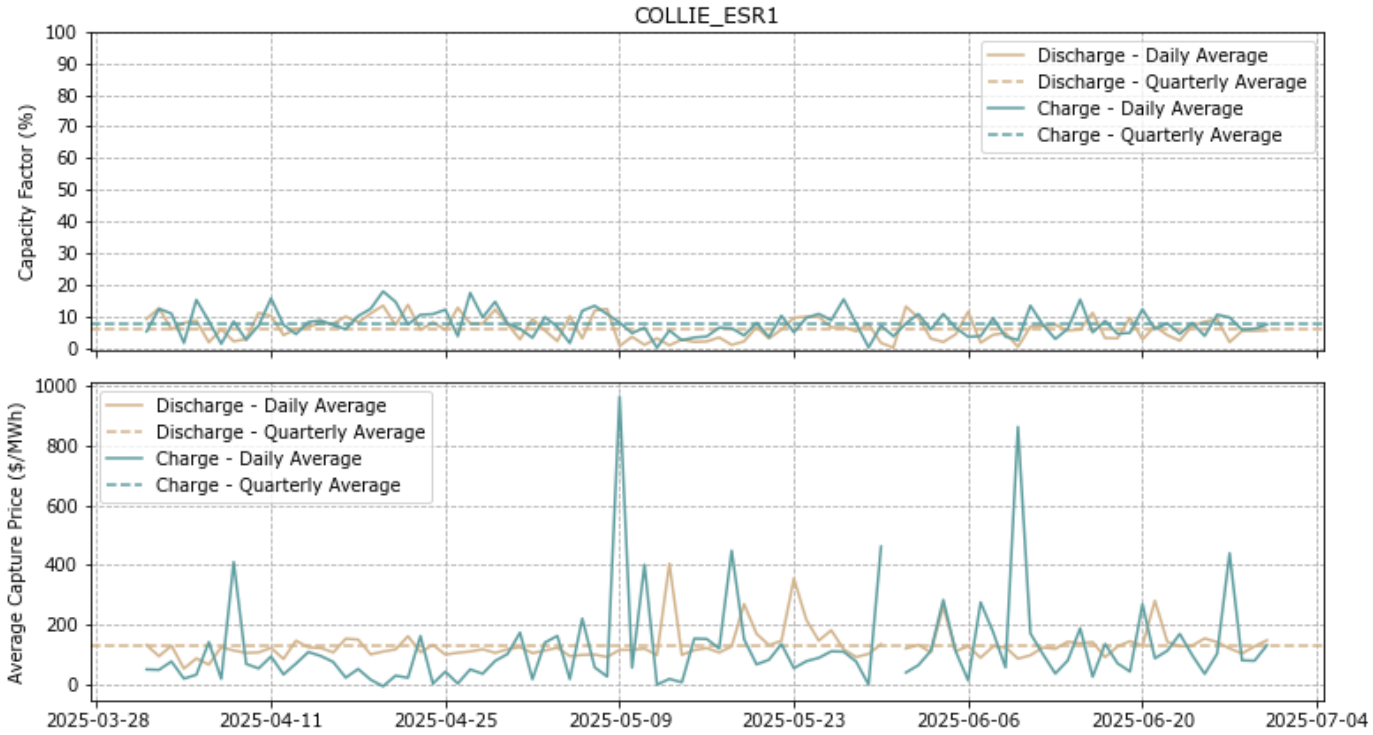
Collie BESS 1

Energy Storage Scheduled Facility, 200 MW, Neoen

Facility Merchant Spot Revenue



Daily Capacity Factor and Average Energy Capture Price

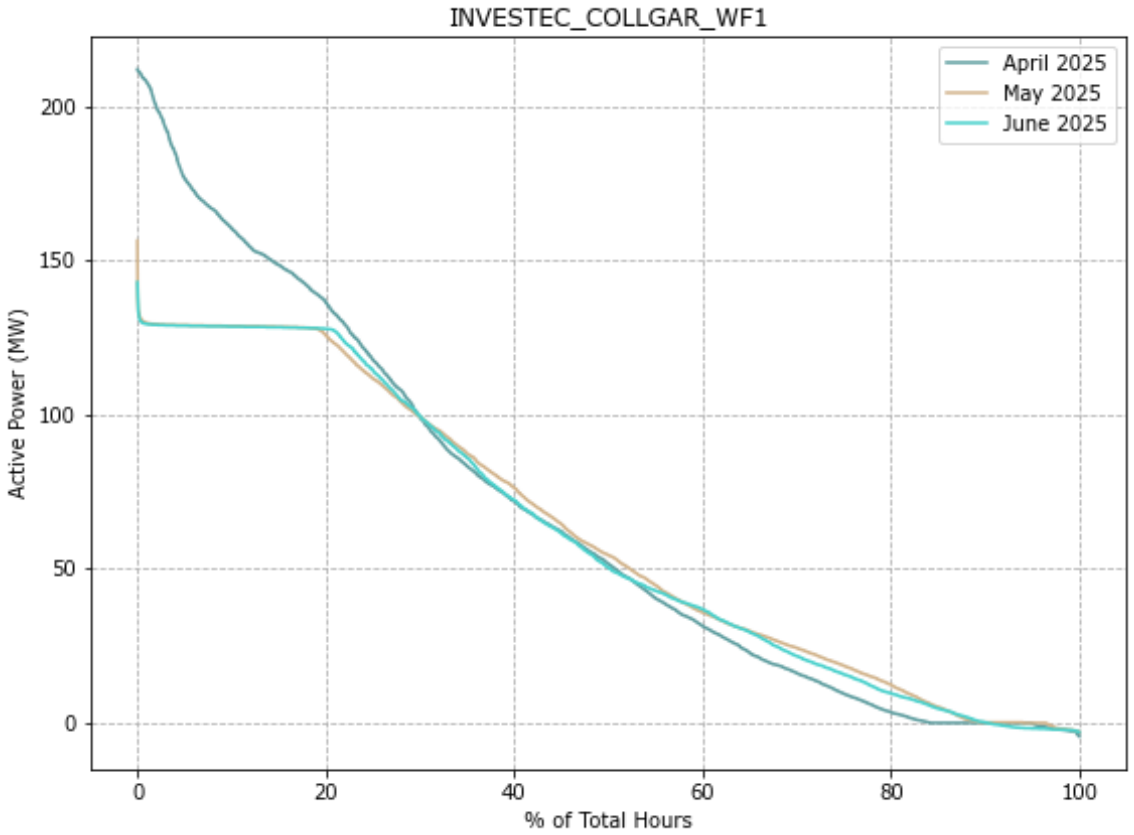


	Apr 2025	May 2025	Jun 2025
Total Spot Revenue ($m)	2.58	3.07	1.14

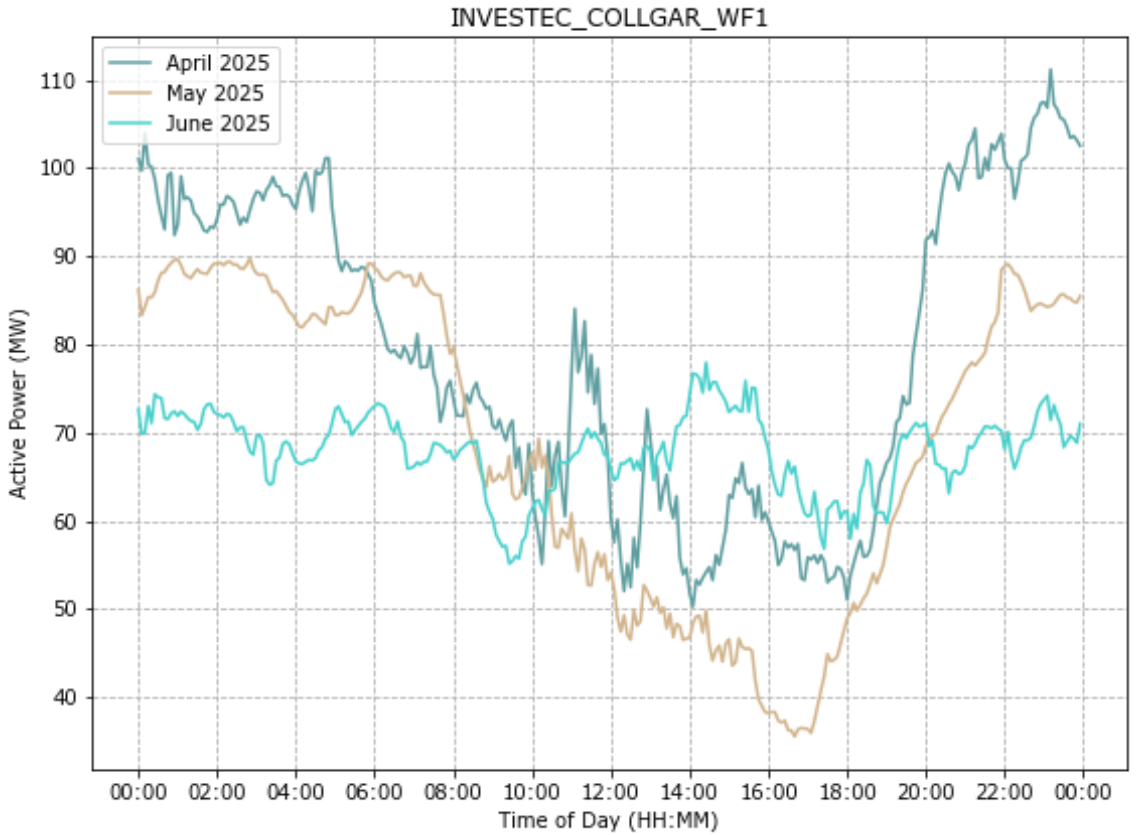
Collgar Wind Farm

Wind Semi-Scheduled Facility, 218.5 MW, Collgar Renewables

Generation Duration Curves



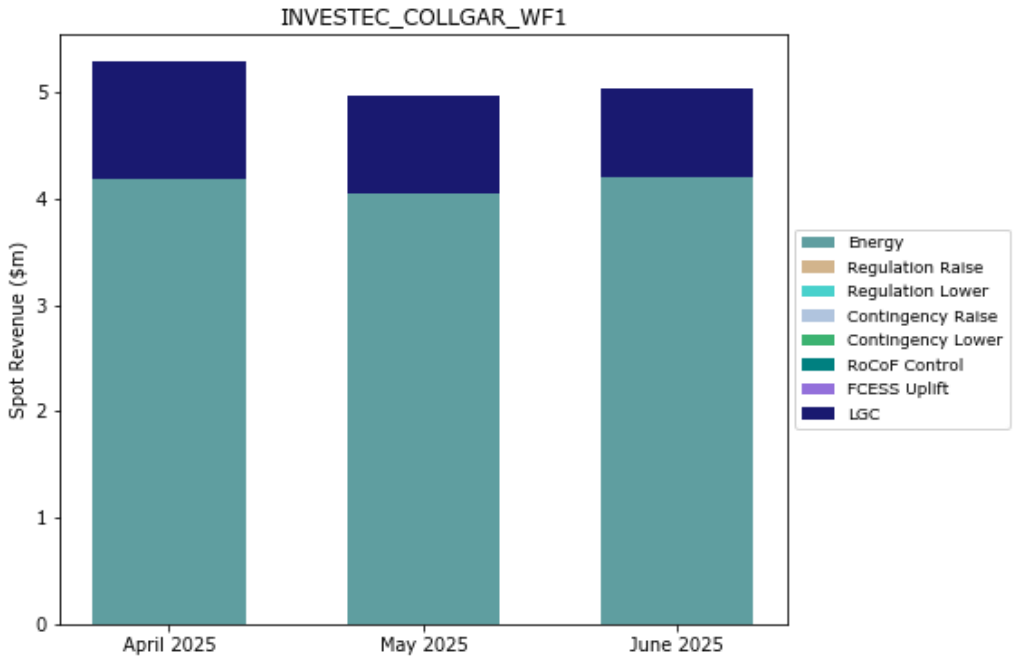
Average Time-of-Day Output



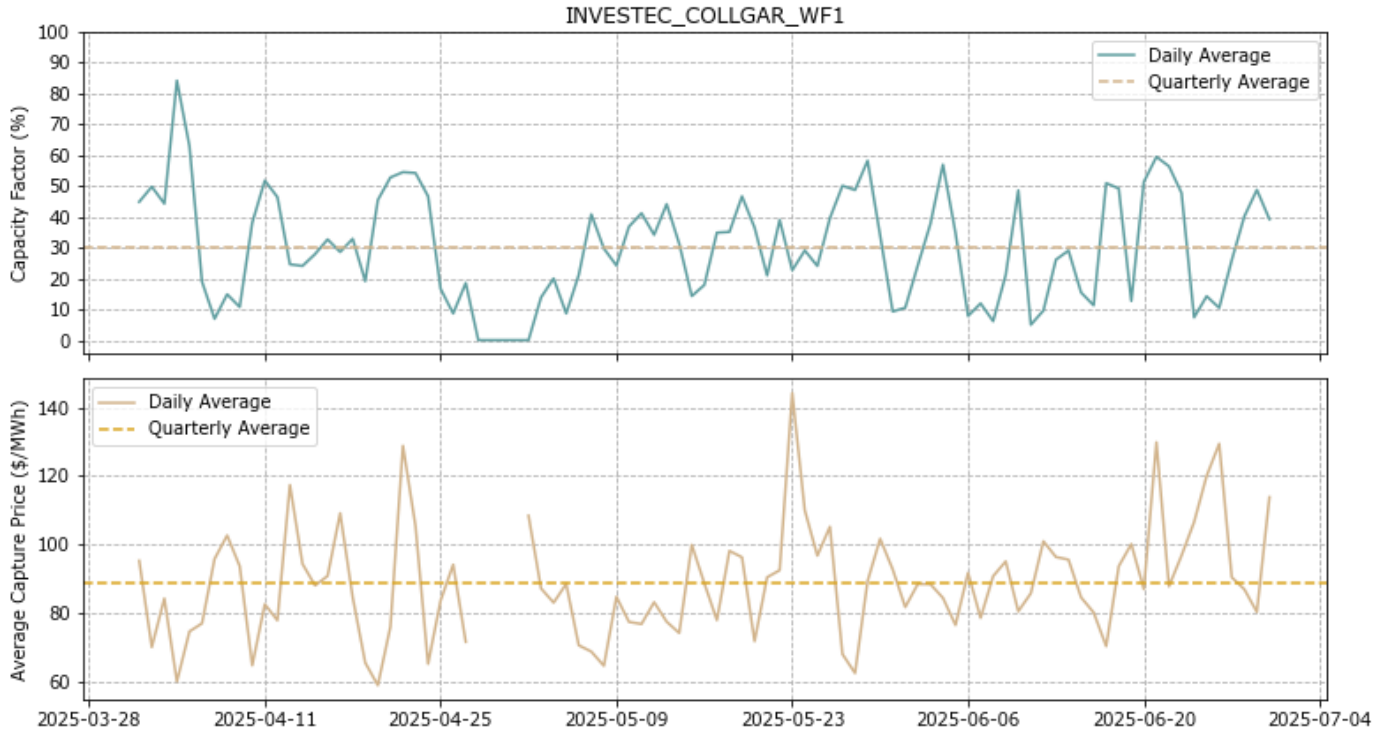
Collgar Wind Farm

Wind Semi-Scheduled Facility, 218.5 MW, Collgar Renewables

Facility Merchant Spot Revenue



Daily Capacity Factor and Average Energy Capture Price

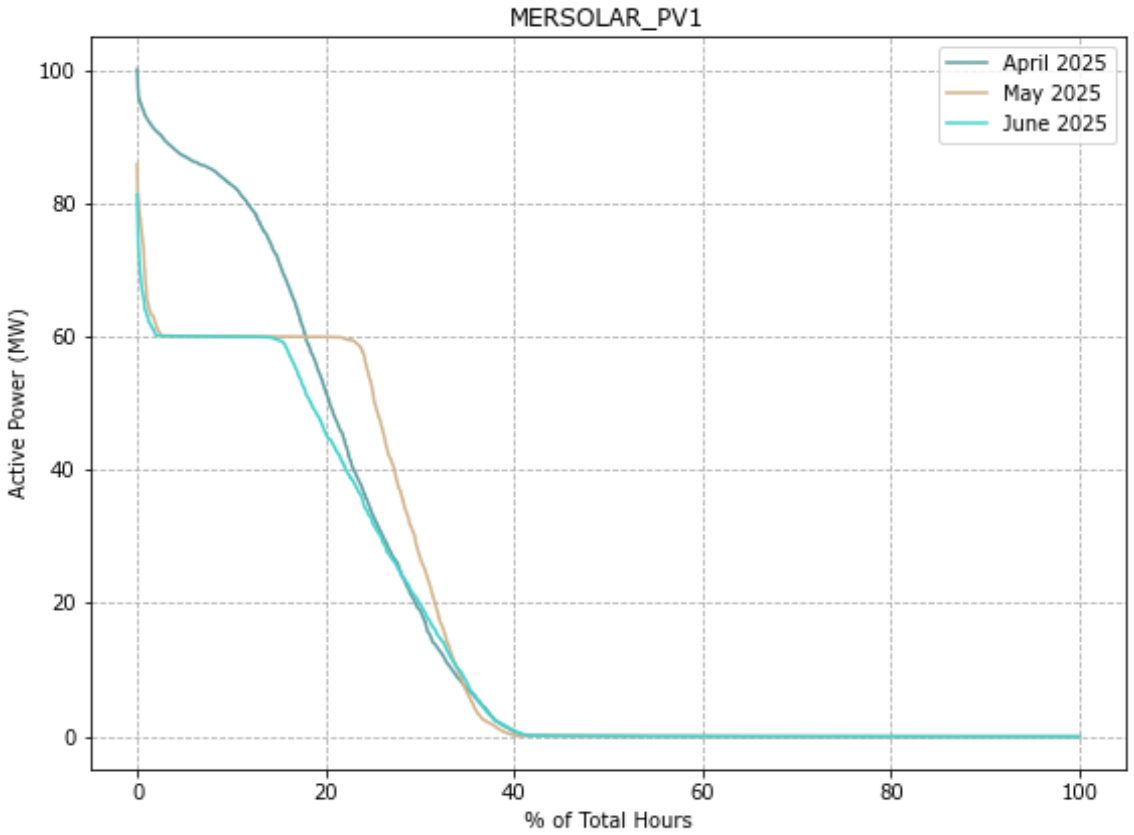


	Apr 2025	May 2025	Jun 2025
Energy Generated (GWh)	50.35	47.51	45.60
Total Spot Revenue ($m)	5.28	4.96	5.03
$ / MWh	**$104.95**	**$104.37**	**$110.25**

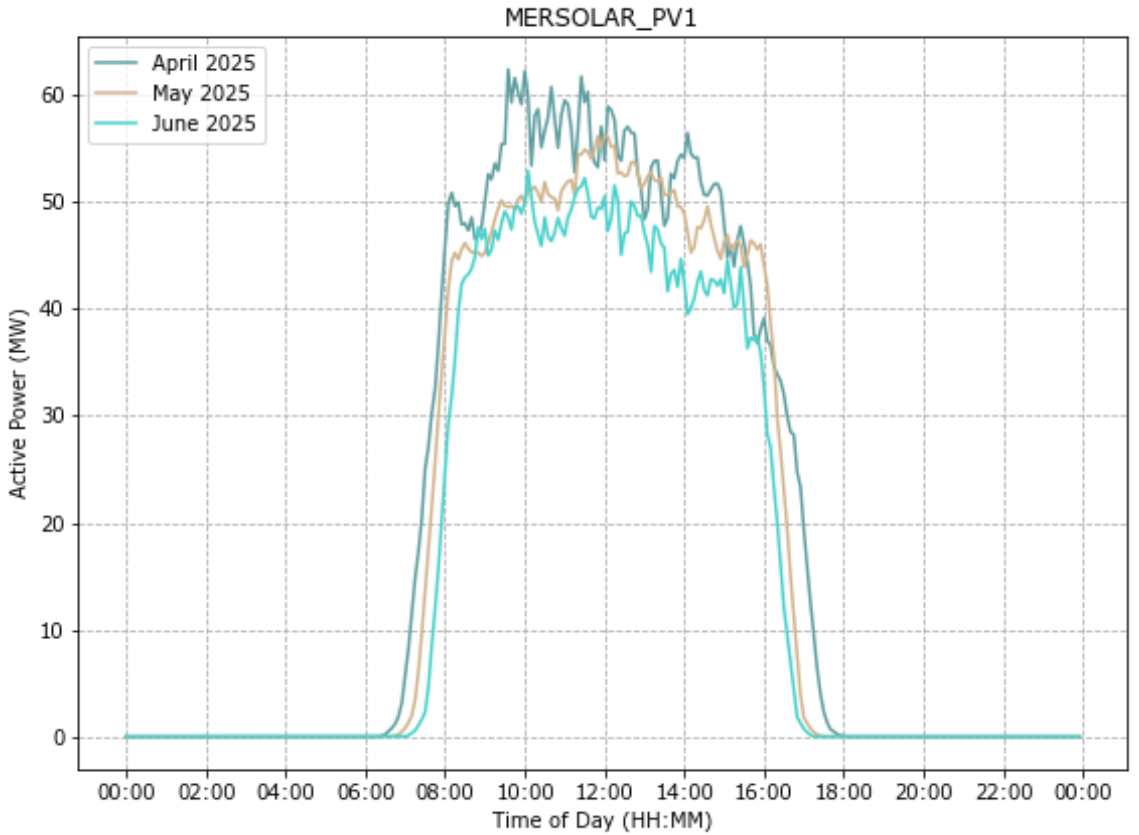
Merredin Solar Farm

Solar PV Semi-Scheduled Facility, 100 MW, SUN Energy

Generation Duration Curves



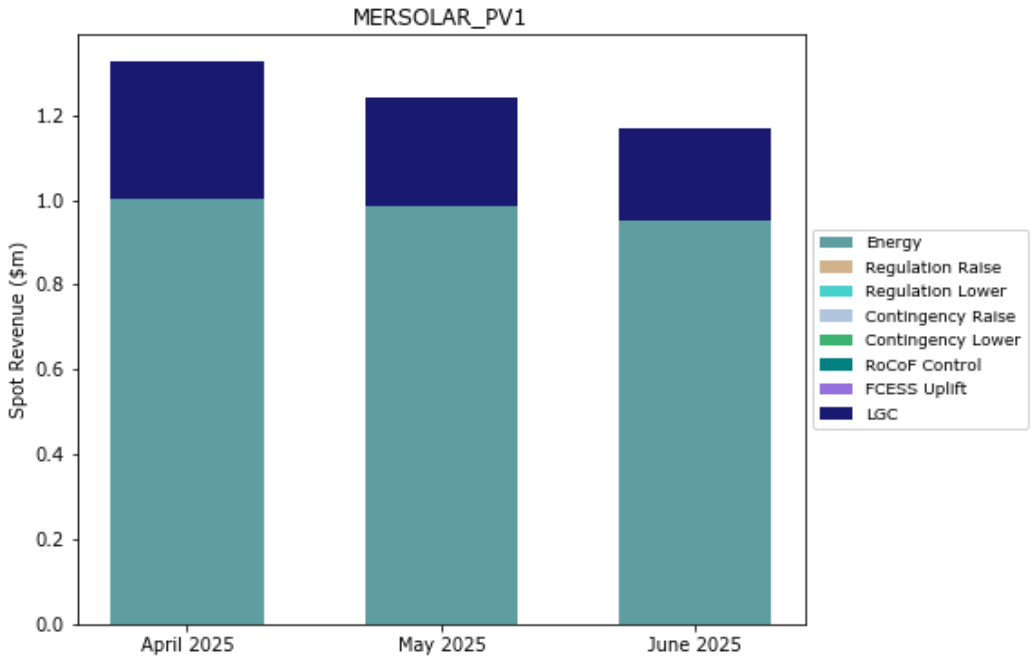
Average Time-of-Day Output



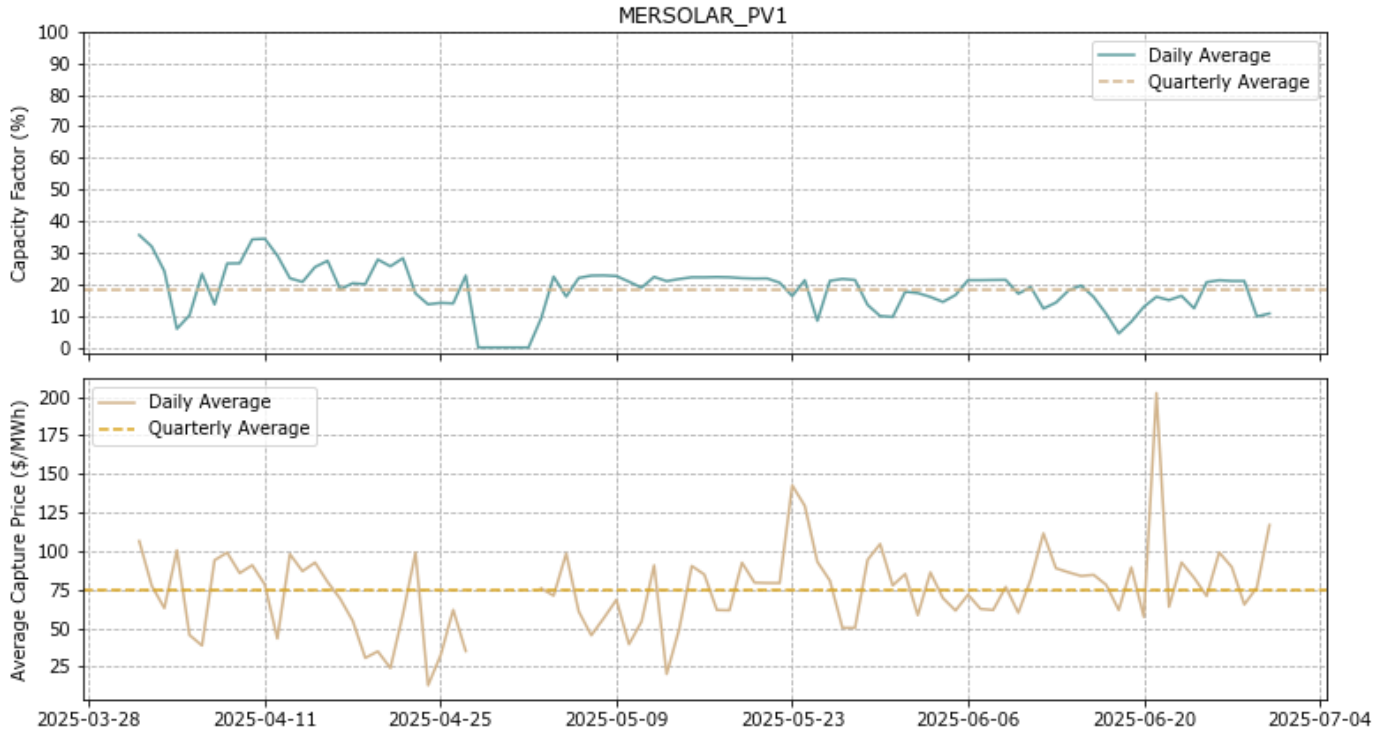
Merredin Solar Farm

Solar PV Semi-Scheduled Facility, 100 MW, SUN Energy

Facility Merchant Spot Revenue



Daily Capacity Factor and Average Energy Capture Price

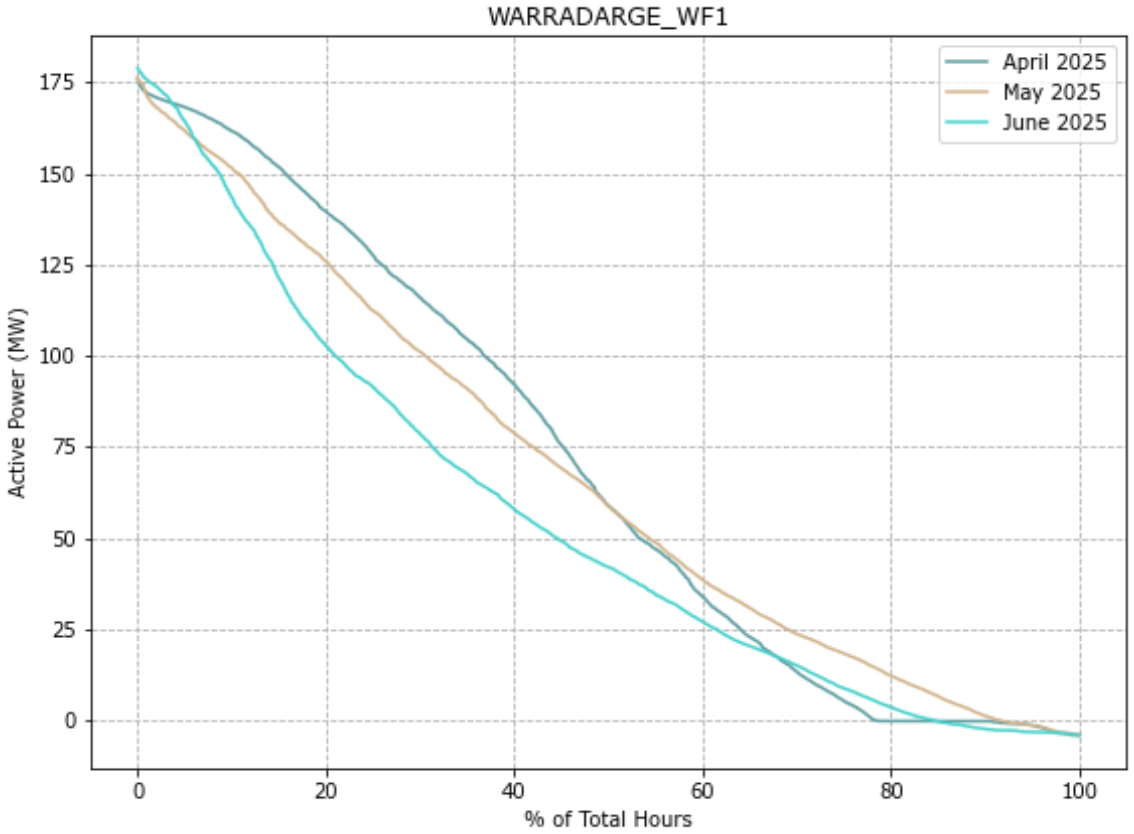


	Apr 2025	May 2025	Jun 2025
Energy Generated (GWh)	14.72	13.47	11.62
Total Spot Revenue ($m)	1.32	1.24	1.17
$ / MWh	**$89.98**	**$92.20**	**$100.53**

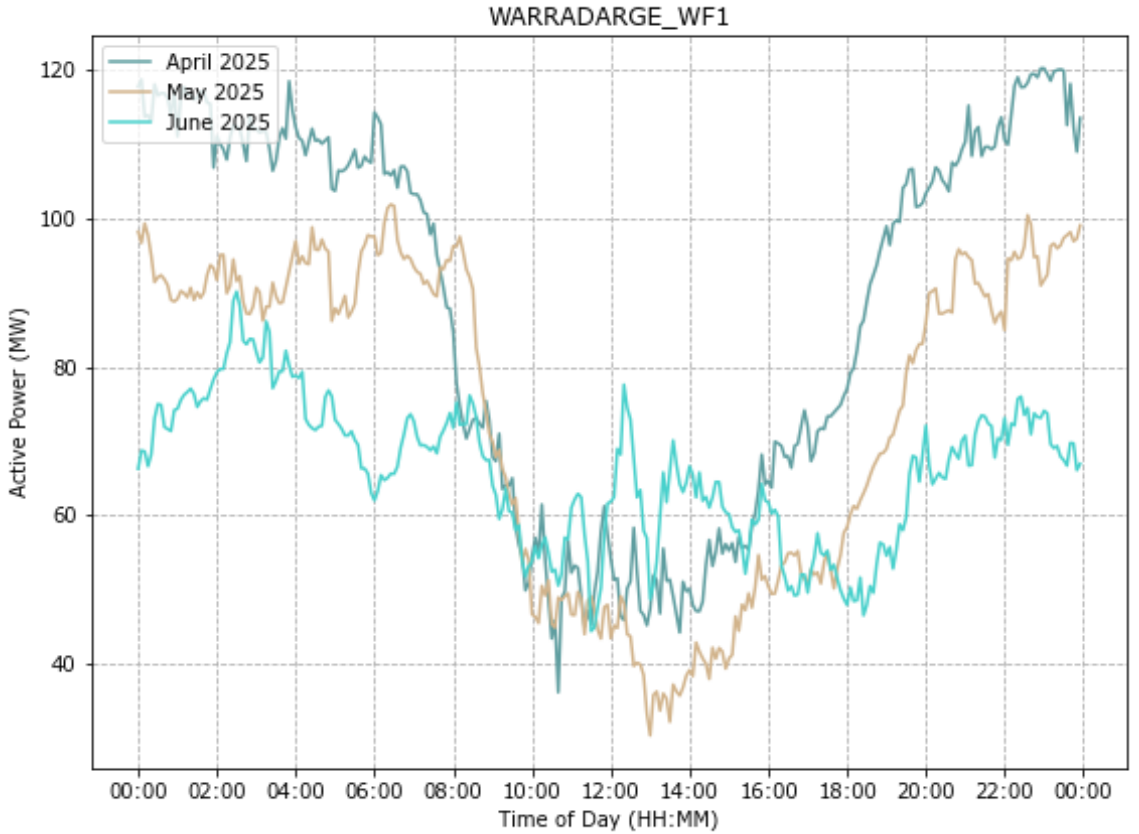
Warradarge Wind Farm

Wind Semi-Scheduled Facility, 180 MW, Bright Energy Investments

Generation Duration Curves



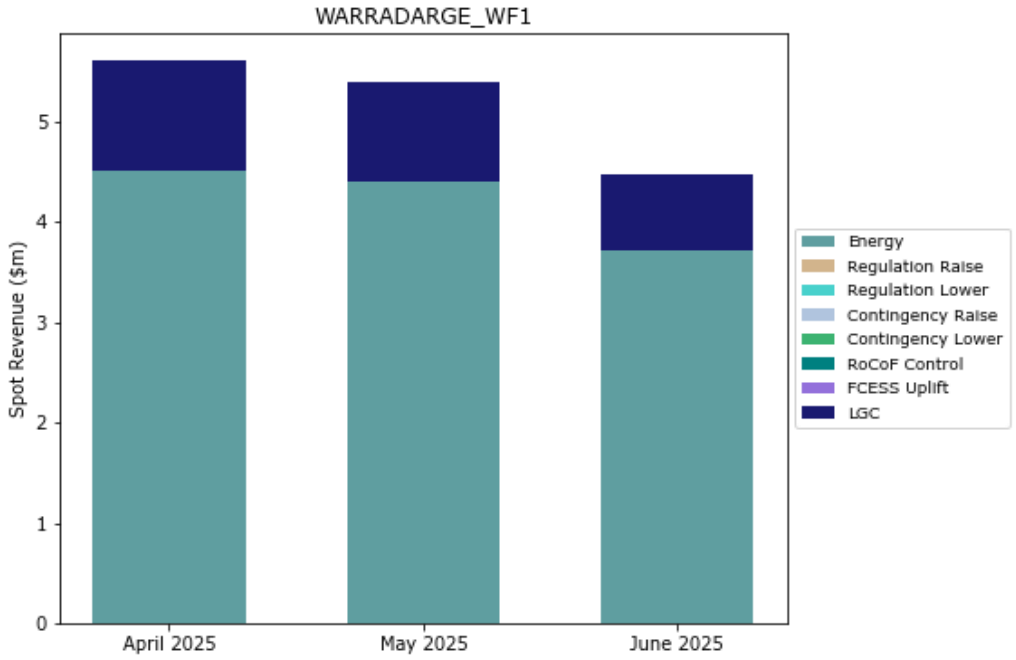
Average Time-of-Day Output



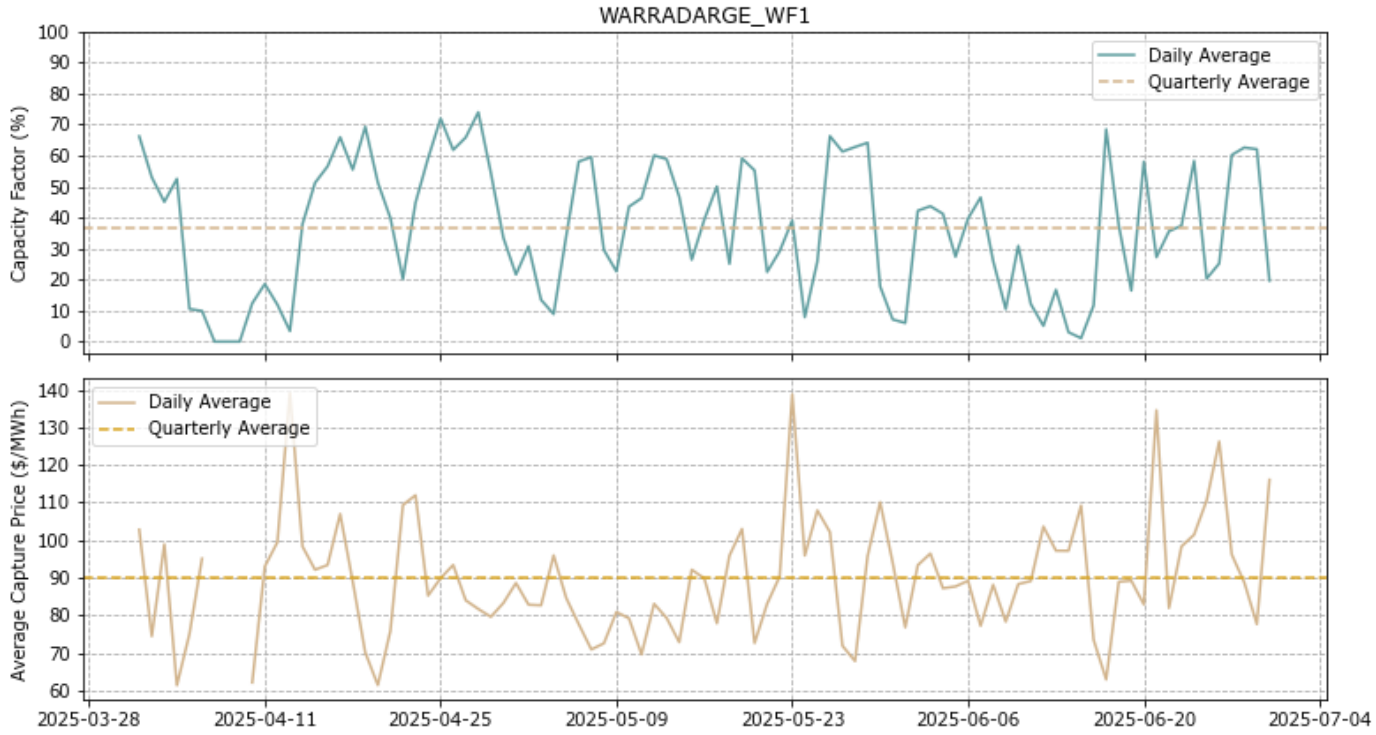
Warradarge Wind Farm

Wind Semi-Scheduled Facility, 180 MW, Bright Energy Investments

Facility Merchant Spot Revenue



Daily Capacity Factor and Average Energy Capture Price

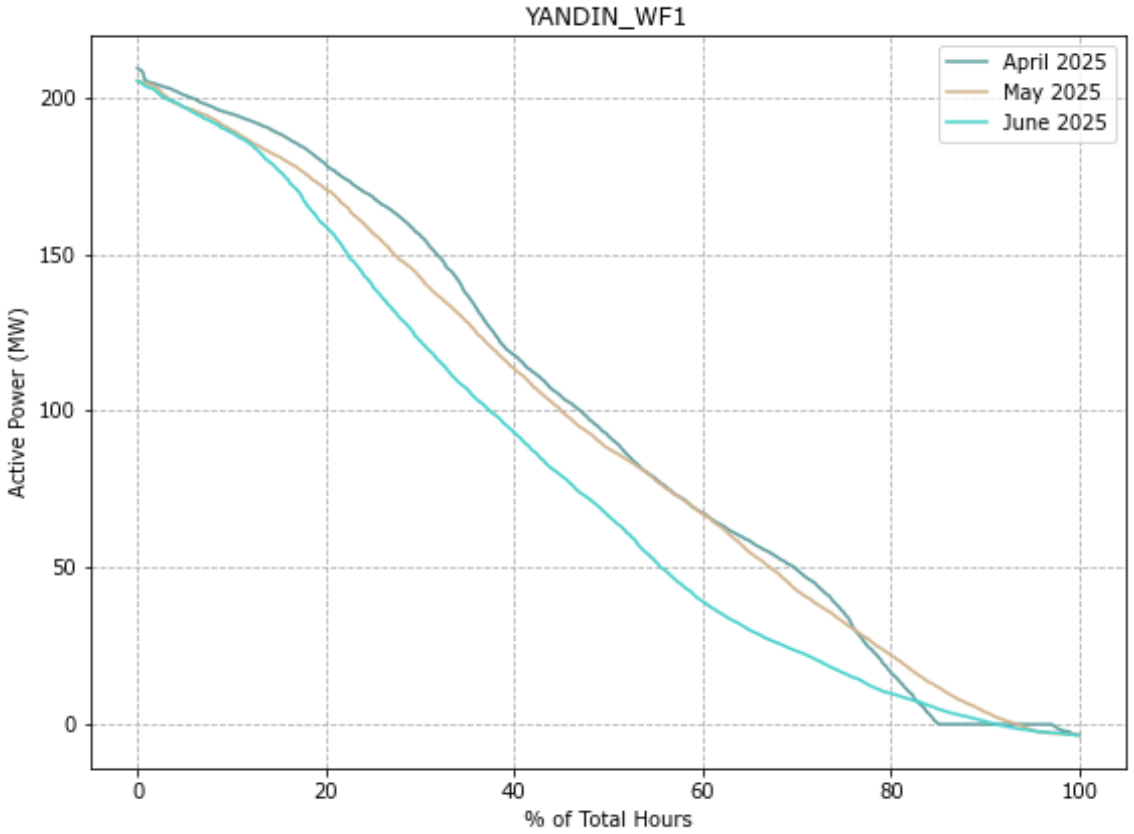


	Apr 2025	May 2025	Jun 2025
Energy Generated (GWh)	51.70	51.55	41.17
Total Spot Revenue ($m)	5.60	5.39	4.47
$ / MWh	**$108.29**	**$104.48**	**$108.50**

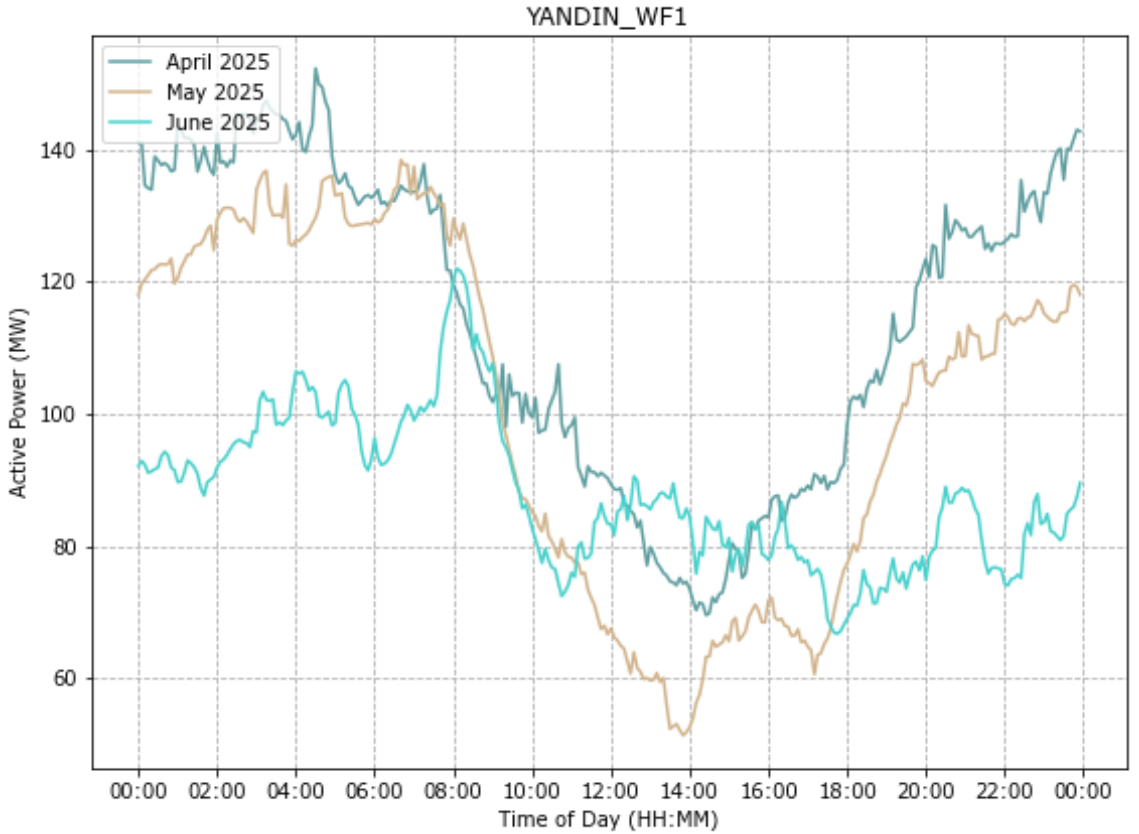
Yandin Wind Farm

Wind Semi-Scheduled Facility, 214.2 MW, Alinta Energy

Generation Duration Curves



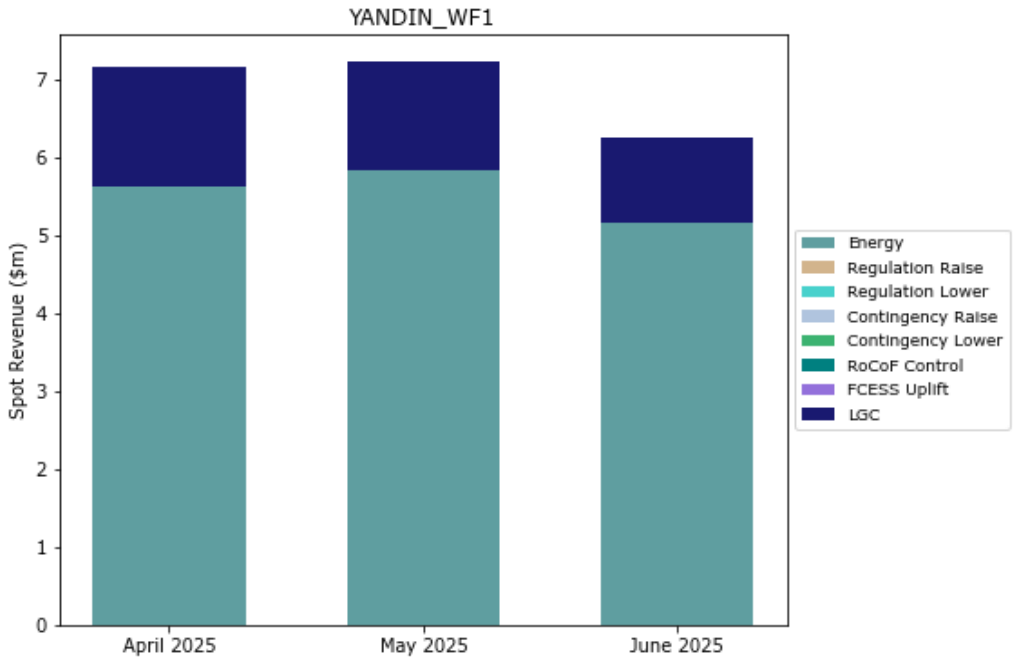
Average Time-of-Day Output



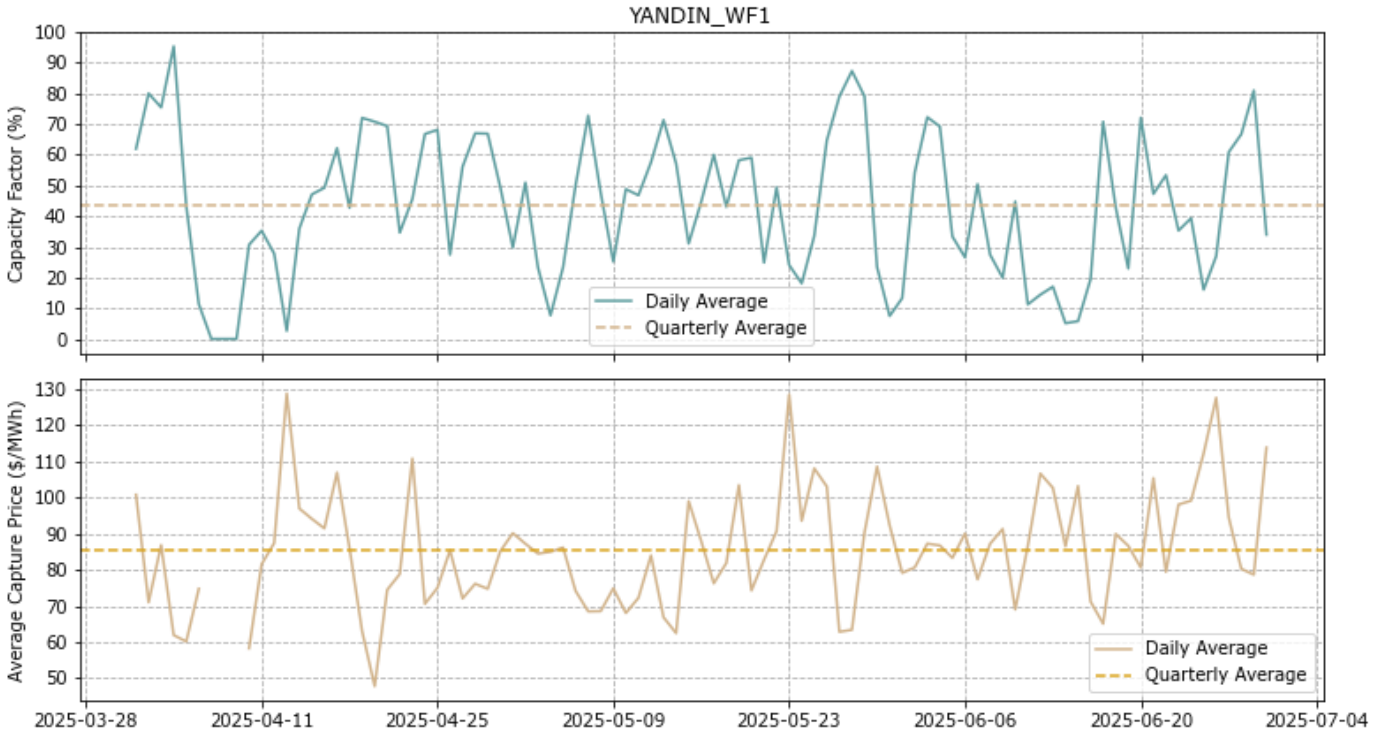
Yandin Wind Farm

Wind Semi-Scheduled Facility, 214.2 MW, Alinta Energy

Facility Merchant Spot Revenue



Daily Capacity Factor and Average Energy Capture Price



	Apr 2025	May 2025	Jun 2025
Energy Generated (GWh)	71.74	71.96	59.35
Total Spot Revenue ($m)	7.15	7.22	6.24
$ / MWh	**$99.73**	**$100.29**	**$105.13**

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wem@amperelabs.com.au

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