Quarterly Energy Dynamics Q3 2021 Observations

Electricity Market & Power System Insights
Presented to WA Electricity Consultative Forum
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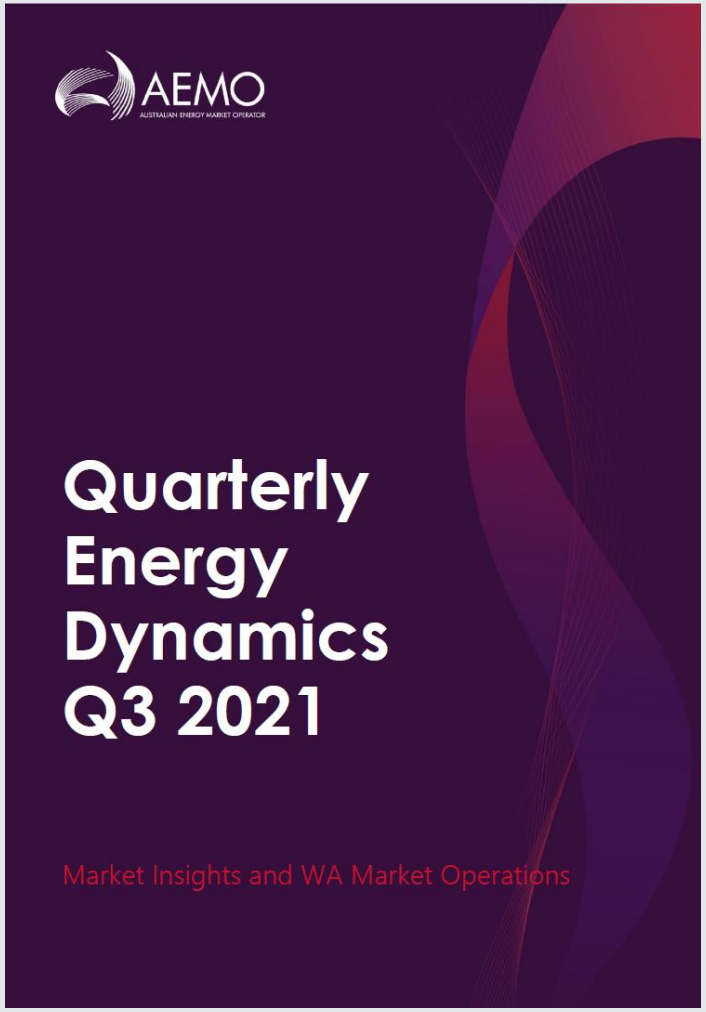
Executive Summary

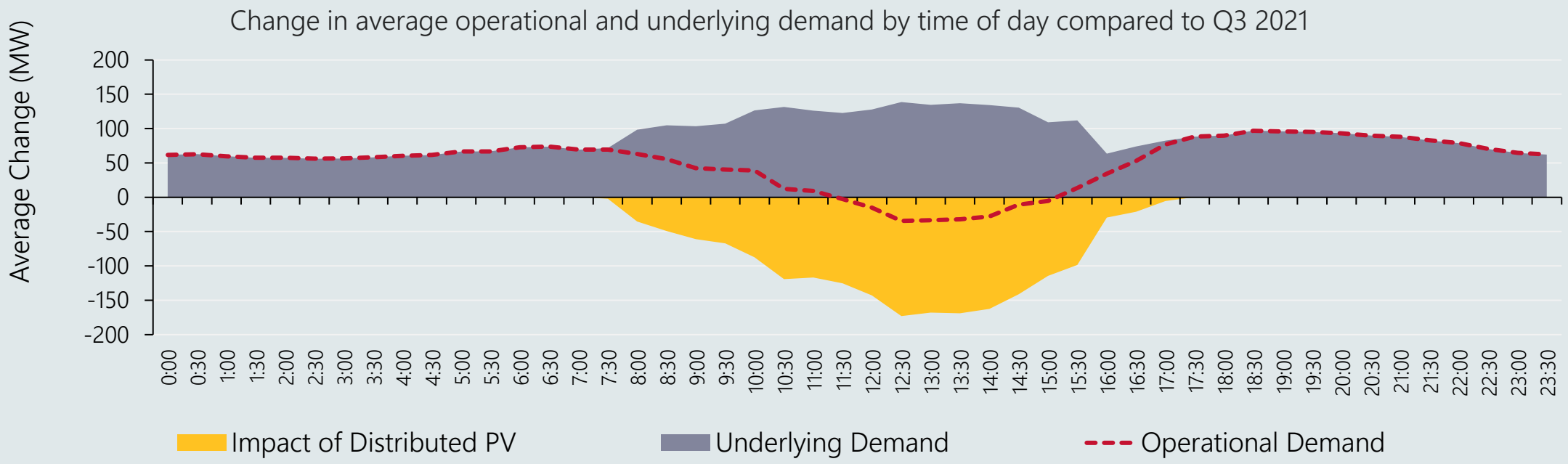
The Q3 2021 QED Report will be published around Friday, 22 October 2021.

Key trends and insights in WA:

- Record minimum demand driven by increased distributed PV output
- Record renewable generation
- Increased occurrence of negative prices
- A decrease in gas consumption for electricity generation, due to displacement of GPG by increased coal and wind generation



Operational Demand

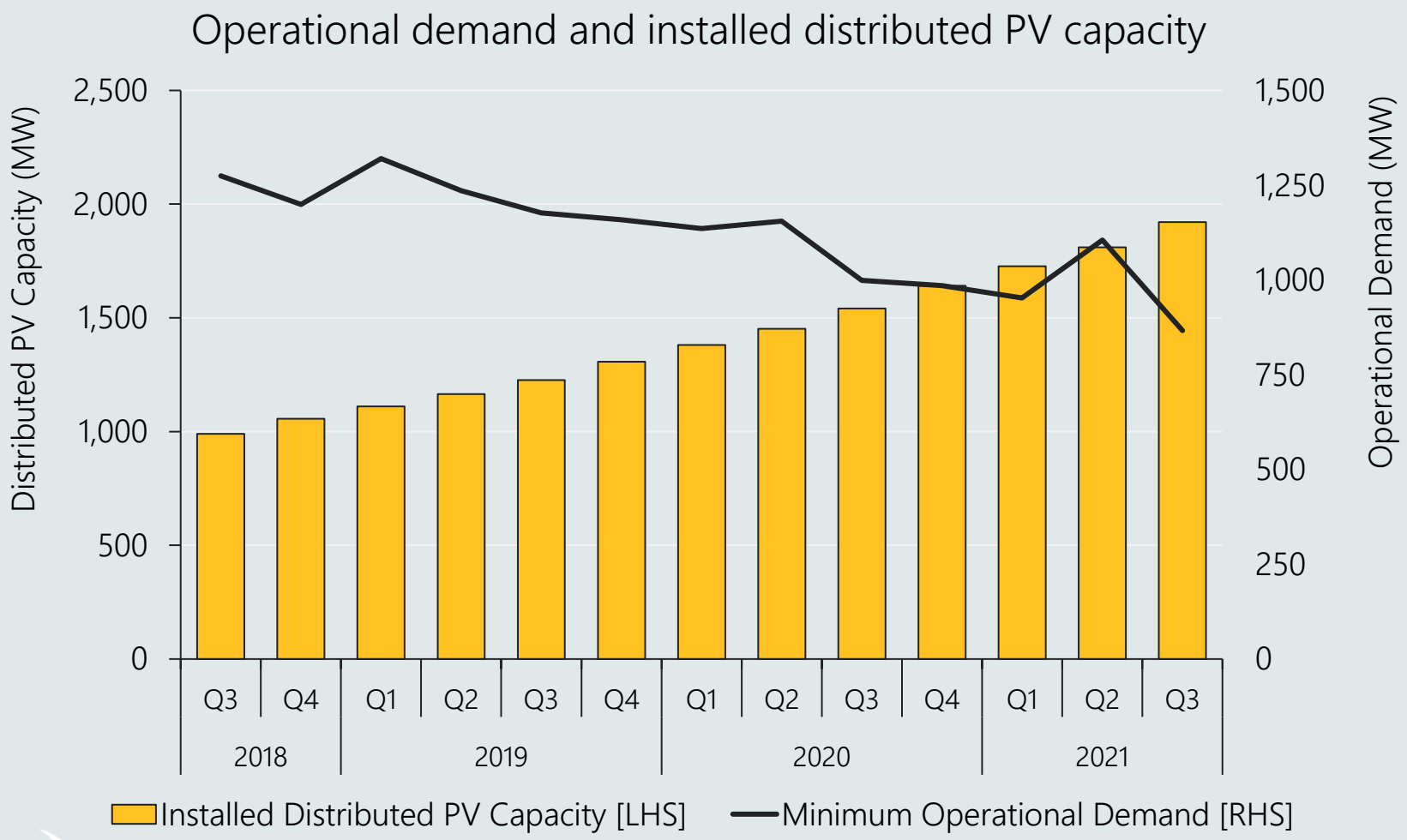


Q3 2021 operational demand increased by an average of 49 MW (2.5%) compared to Q3 2020.

Continued trend of lower daytime demand and higher evening peak and overnight demand.

Despite increased distributed PV capacity, July 2021 saw a 4% decrease in distributed PV output compared to last year, caused by high cloud cover.

New Minimum Demand Record



A new minimum operational demand record of 866 MW was set on Sunday, 5 September 2021 at 1230 hrs (10% lower than previous record).

During the minimum demand interval, distributed PV was estimated to have met 62% of the underlying demand.

Increasing installed distributed PV capacity is driving the falling minimum demand in the WEM.

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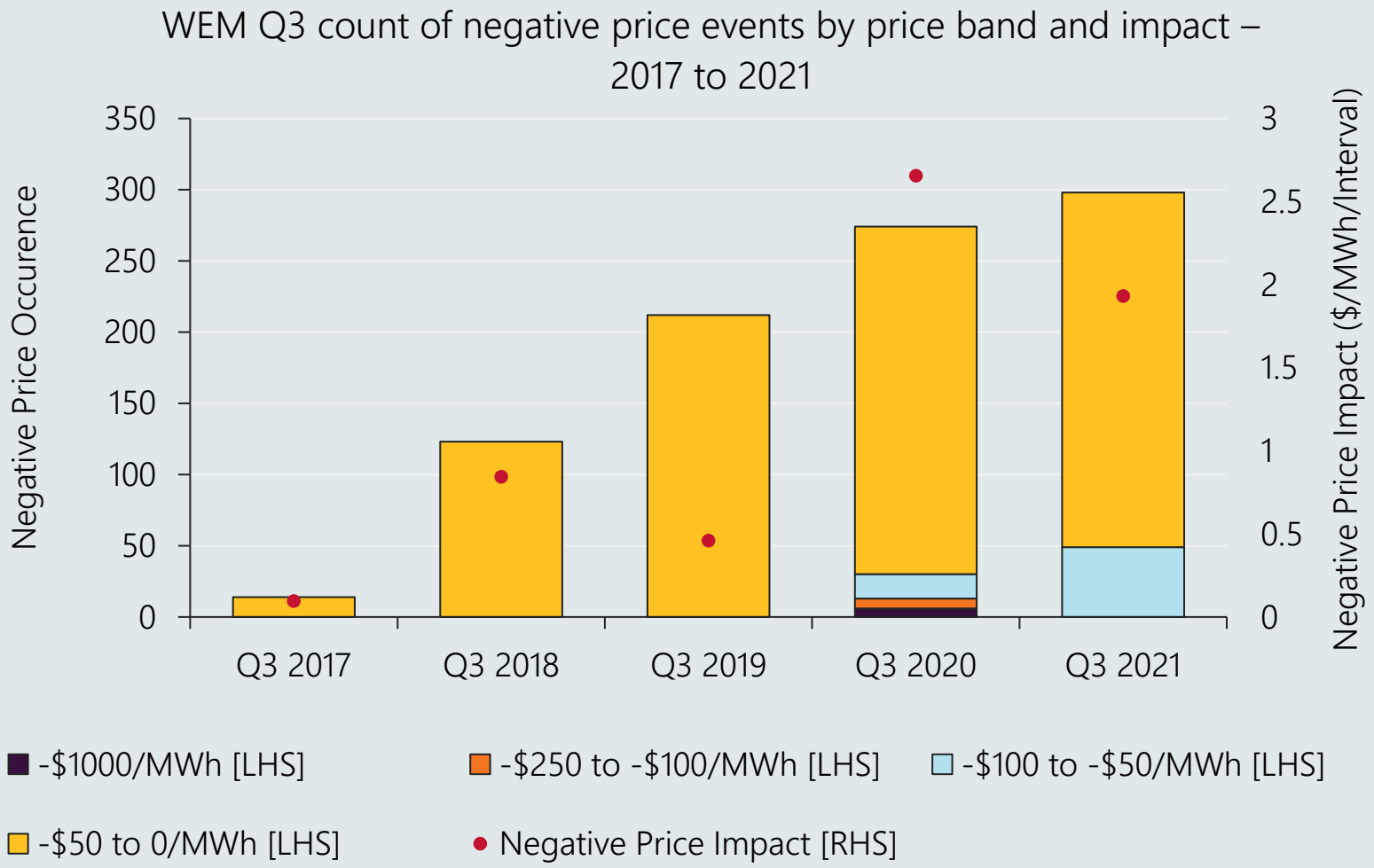
Balancing Market and Negative Prices

The average Balancing Price for Q3 2021 was $48.69/MWh, slightly up from Q3 2020 ($0.55/MWh).

The frequency of negative price events increased; however, negative prices were less extreme.

There were no price floor events despite lower minimum demand.



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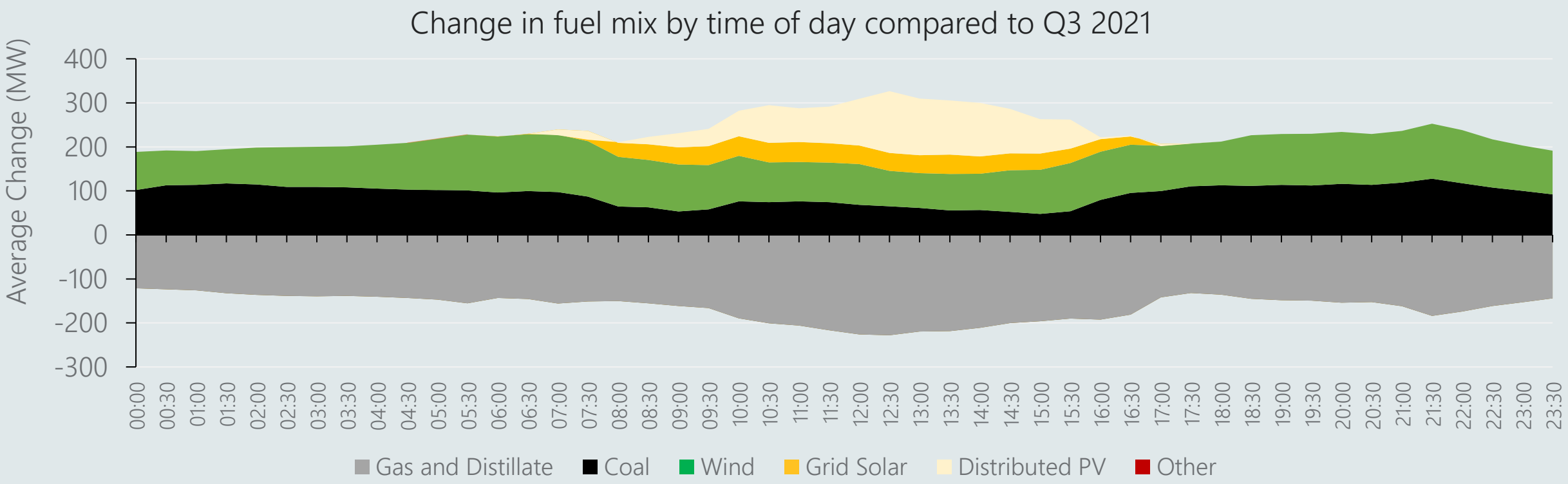
Electricity Generation

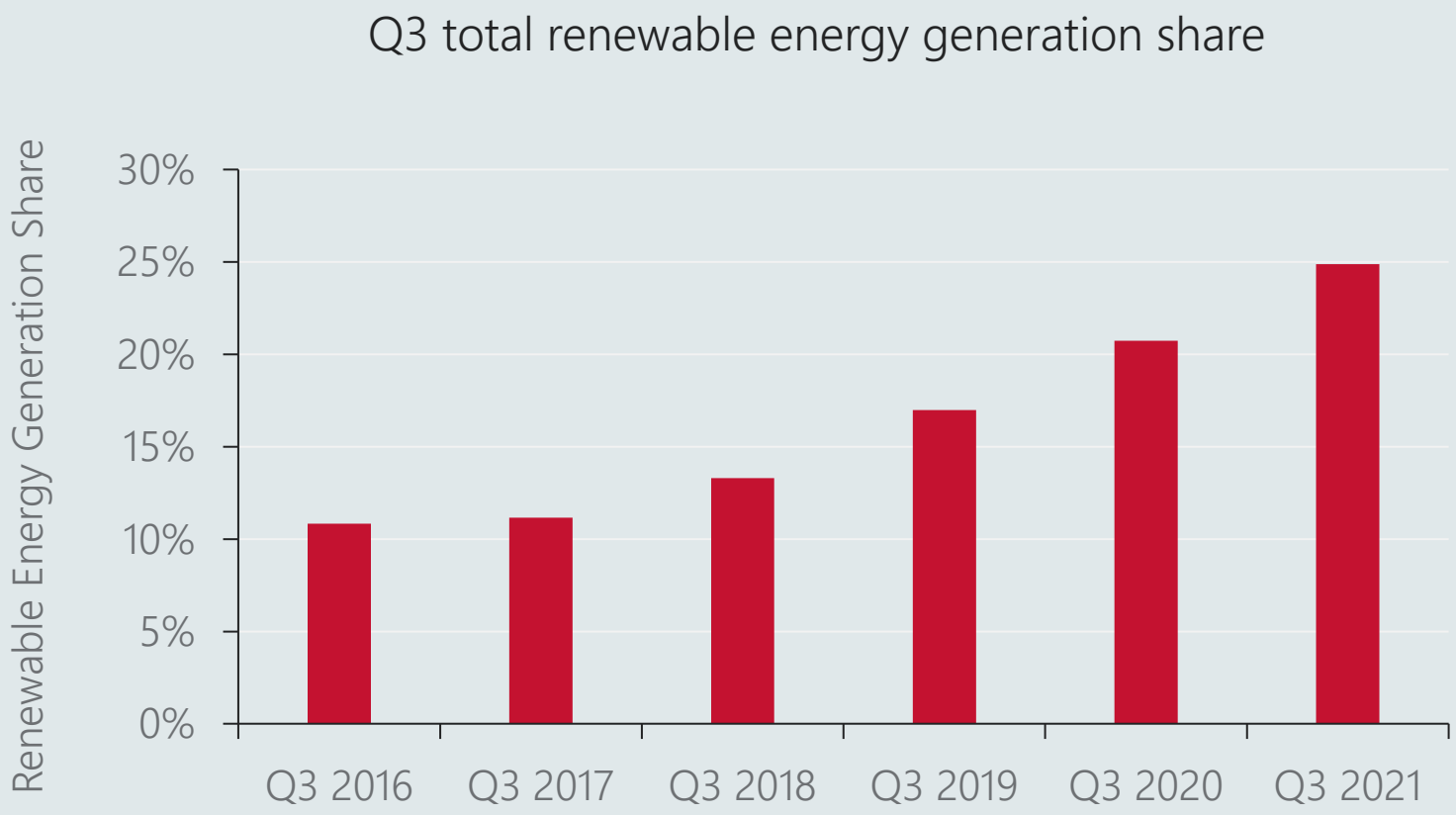


Increased wind (+36%), grid solar (+89%) and distributed PV generation (+13%) was due to increased capacity from new/upgraded facilities and higher level of installed distributed PV.

Increased coal generation (+11%) was due to increased availability (+7%)

Gas and distillate generation was displaced (-20%) by lower cost generators

Renewable Generation Record



25% of total underlying demand in Q3 2021 was met by renewable generation, up by 4% from last year.

An instantaneous renewable generation record was set on 7 September at 1210hrs, with renewables supplying 70% of underlying demand.

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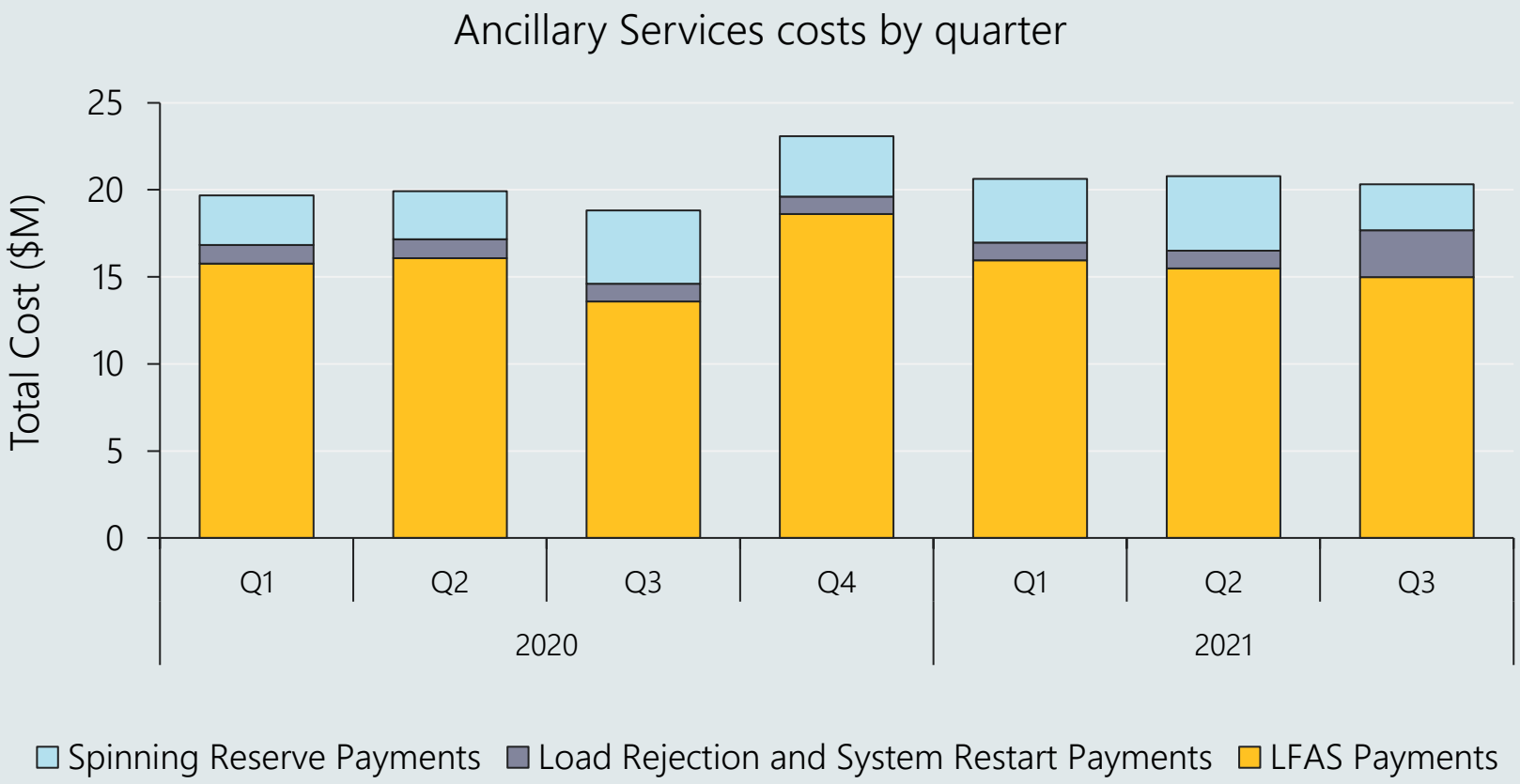
Ancillary Services Costs

Total Ancillary Service costs were down $0.5M (2.2%) compared to Q2 2021.

Q3 2021 had the highest quantities of Backup LFAS ever enabled, average of +/-41MW over 2.6% of all intervals in the quarter.



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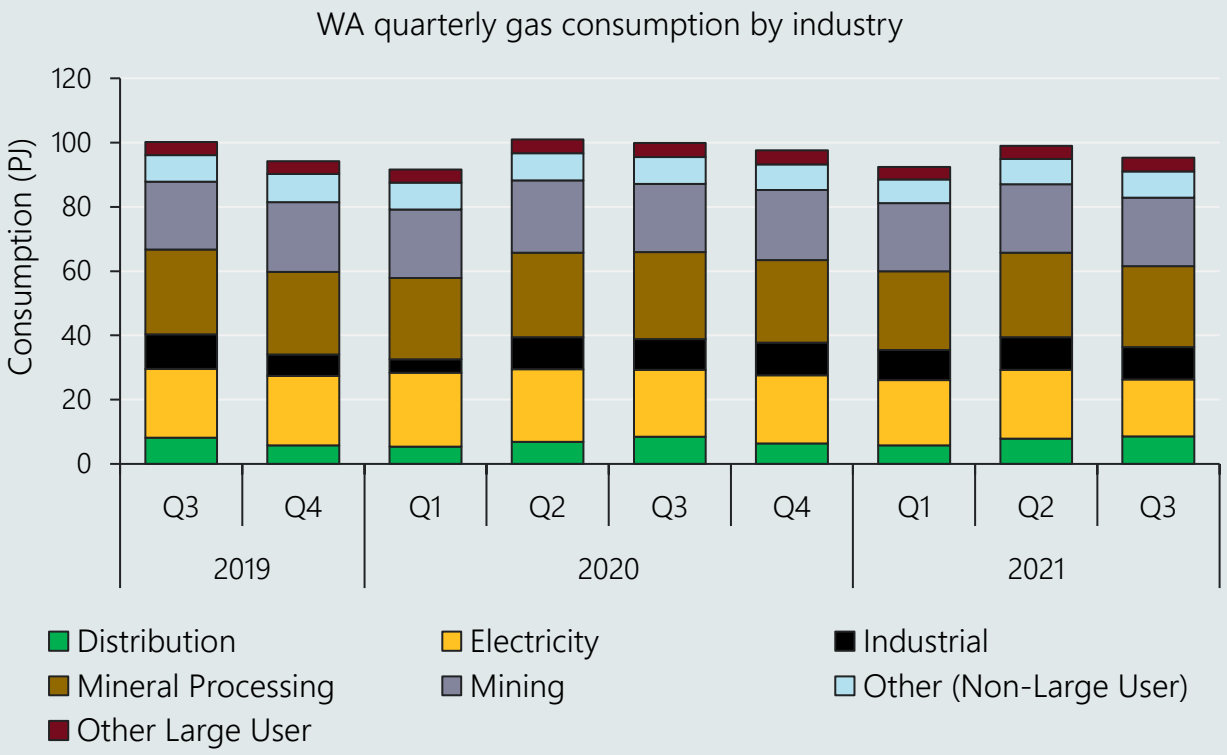
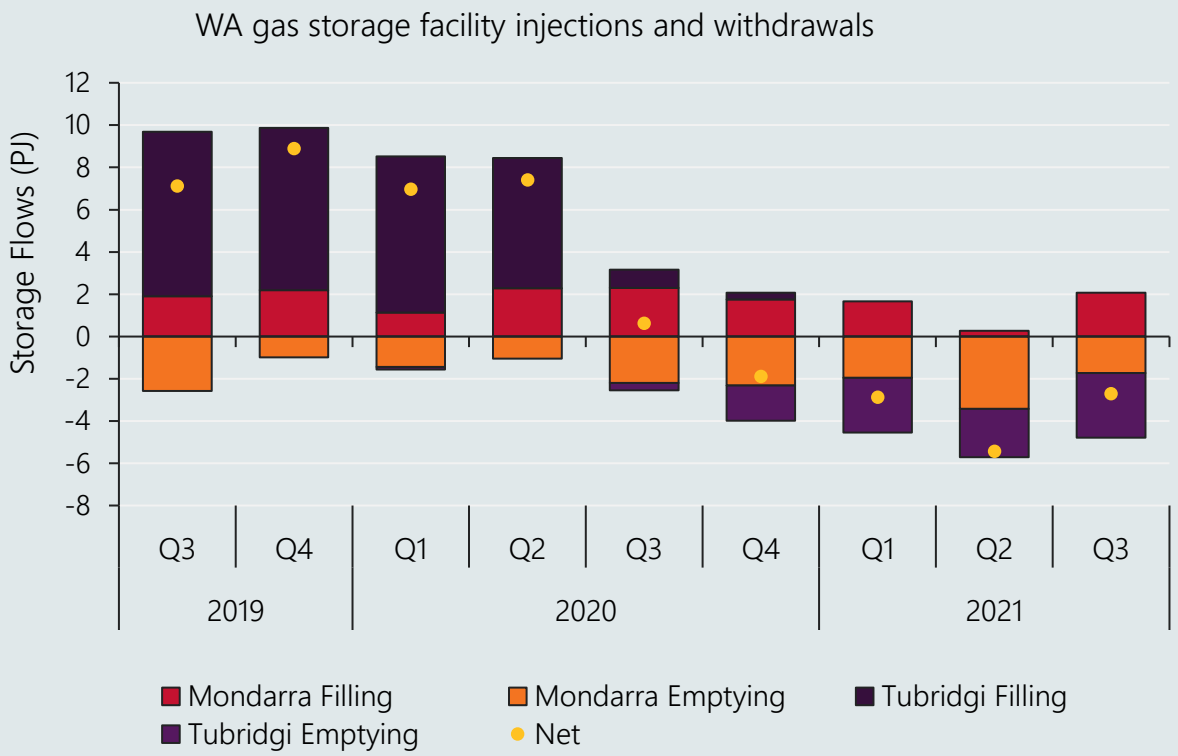
GBB (WA) Insights





Gas consumption decreases by 4.6% from Q3 2020, primarily attributed to:

- Decreased gas consumption for electricity generation (-15%)
- Decreased consumption by mineral processing (-7%)

The behaviour of Storage Facilities changed from net import to net export has been maintained from Q3 2020. However, net injection into the pipeline was down by 50% from Q2 2021.