

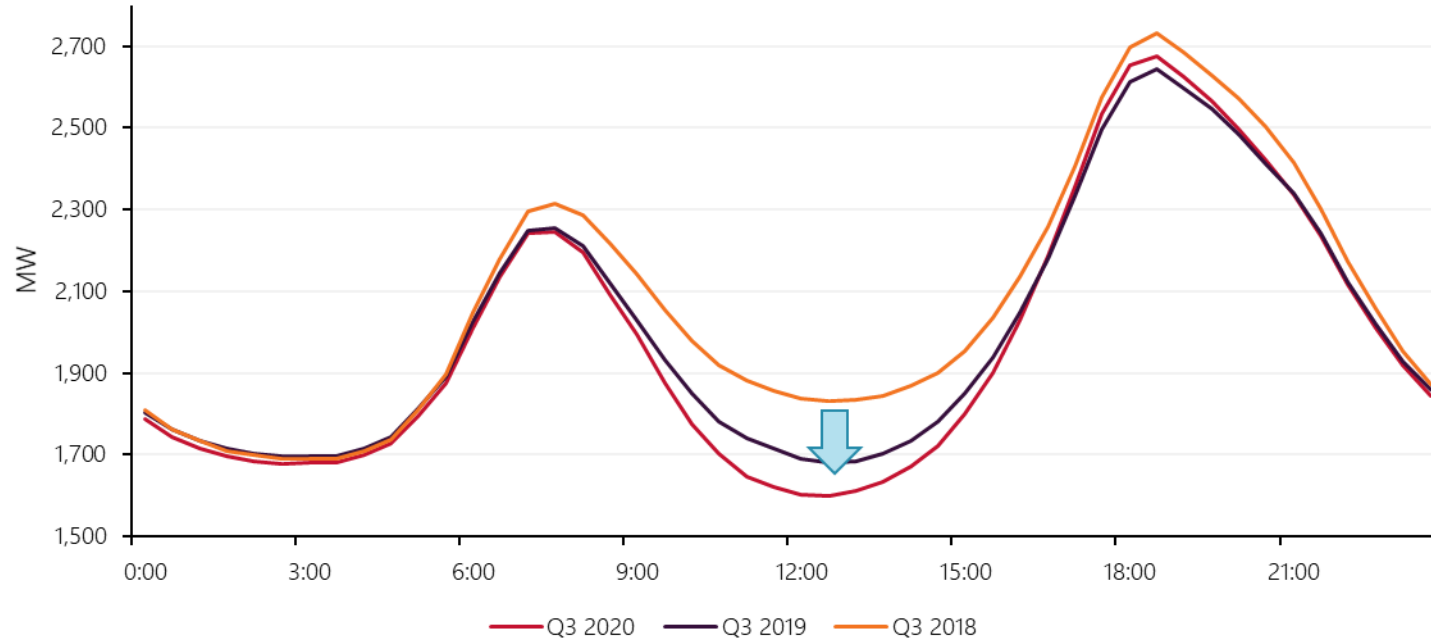
# Q3 2020 Quarterly Energy Dynamics Report

Presented to WA Electricity Consultative Forum  
By Rachel Tandy, Analyst Distributed Markets and Services

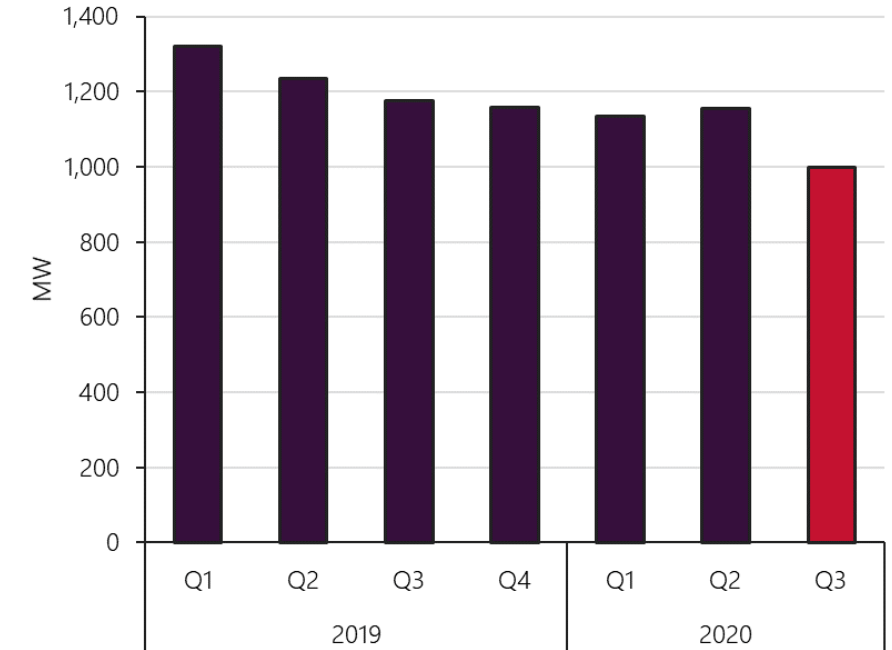
25 November 2020

# Reducing Operational Demand with a new all-time record low

Q3 hourly average operational demand by year



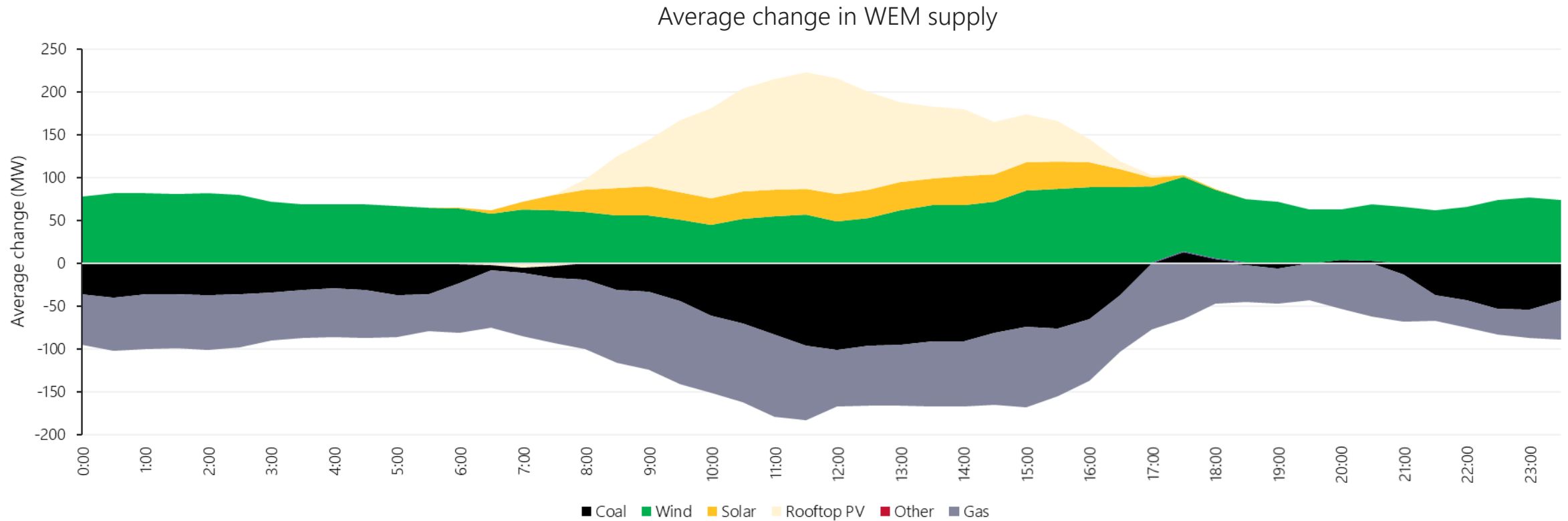
Minimum operational demand



## Summary

- A Increasing distributed PV generation drove lower demands during the middle of the day
- This contributed to:
  - B
    - average demand reducing by 1.1% between Q3 2019 and Q3 2020; and,
    - a new all-time record low operational demand of 999 MW at 1200hrs on Sunday, 13 September.

# Coal and gas generation offset by renewable generation compared to Q3 2019



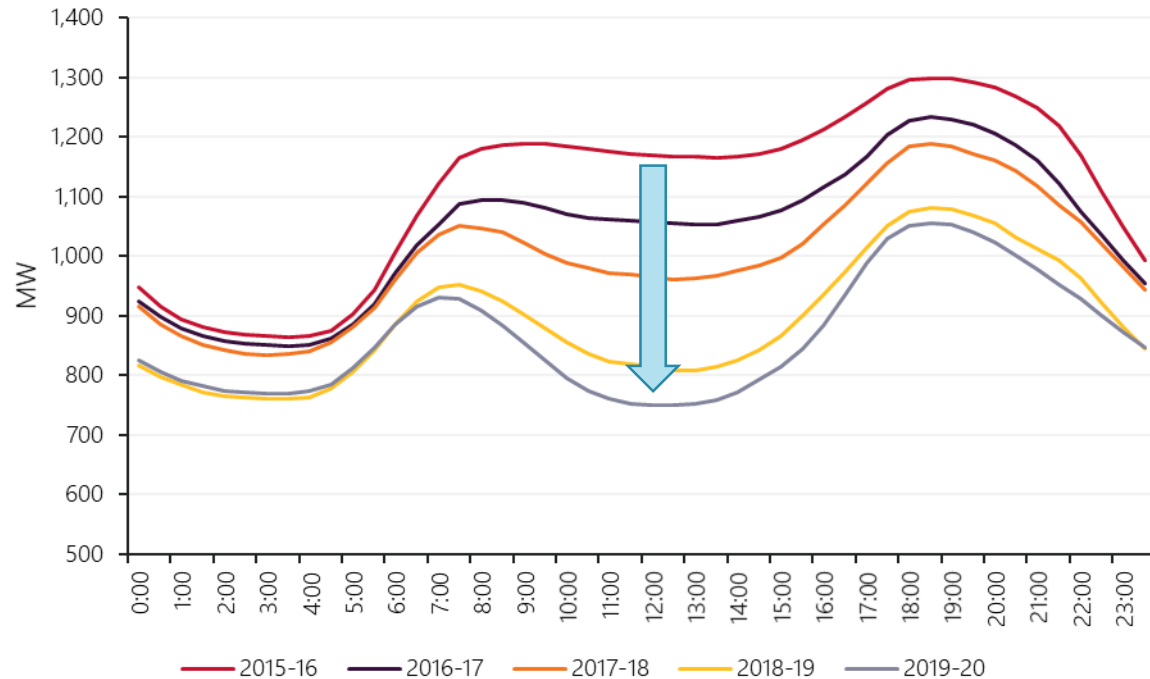
'Other' category includes distillate and landfill gas

## Summary

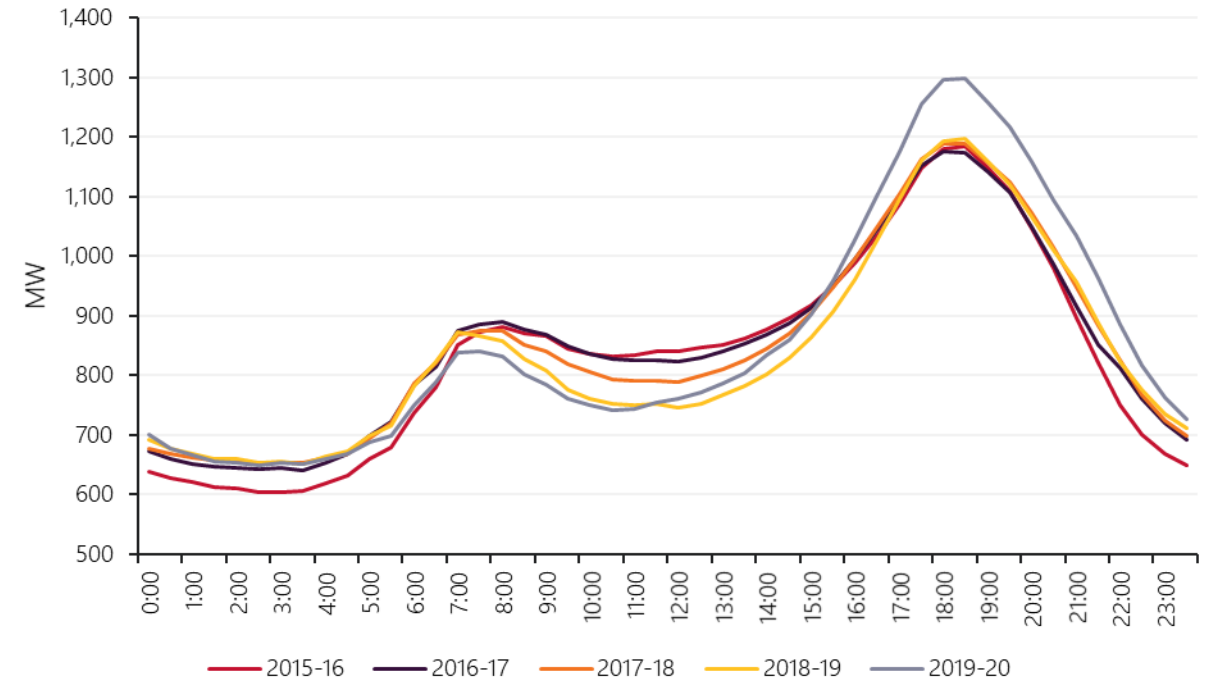
- A Generation from coal and GPG decreased in Q3 2020 compared to Q3 2019.
- B Rooftop PV generation increased due to increasing levels of installed capacity.
- C Utility scale wind and solar generation increased due to the connection and commissioning of new Facilities.

# The role of coal and gas generation is changing due to increases in renewable generation

Average coal generation per day, 2015-16 to 2019-20 Capacity Year



Average gas generation per day, 2015-16 to 2019-20 Capacity Year



## Summary

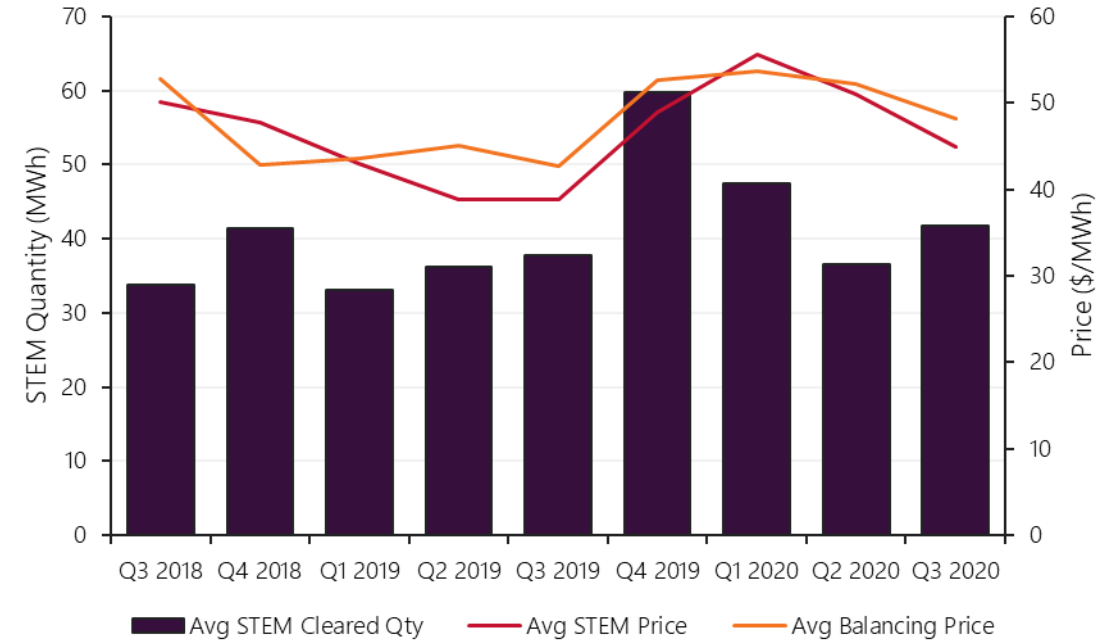
- A Coal generation has reduced by 248 MW on average since 2015-16, occurring more throughout the middle of the day.
- B Average gas generation has remained relatively stable since 2015-16, although has reduced slightly during morning peaks and increased during evening peaks.
- C GPG has been less affected than coal, as it is frequently online to increase generation for evening peak demand.

# Balancing and STEM Prices have increased compared to Q3 2019

Average Balancing Prices by time of day



Average Balancing Price, STEM Price, and STEM cleared quantity

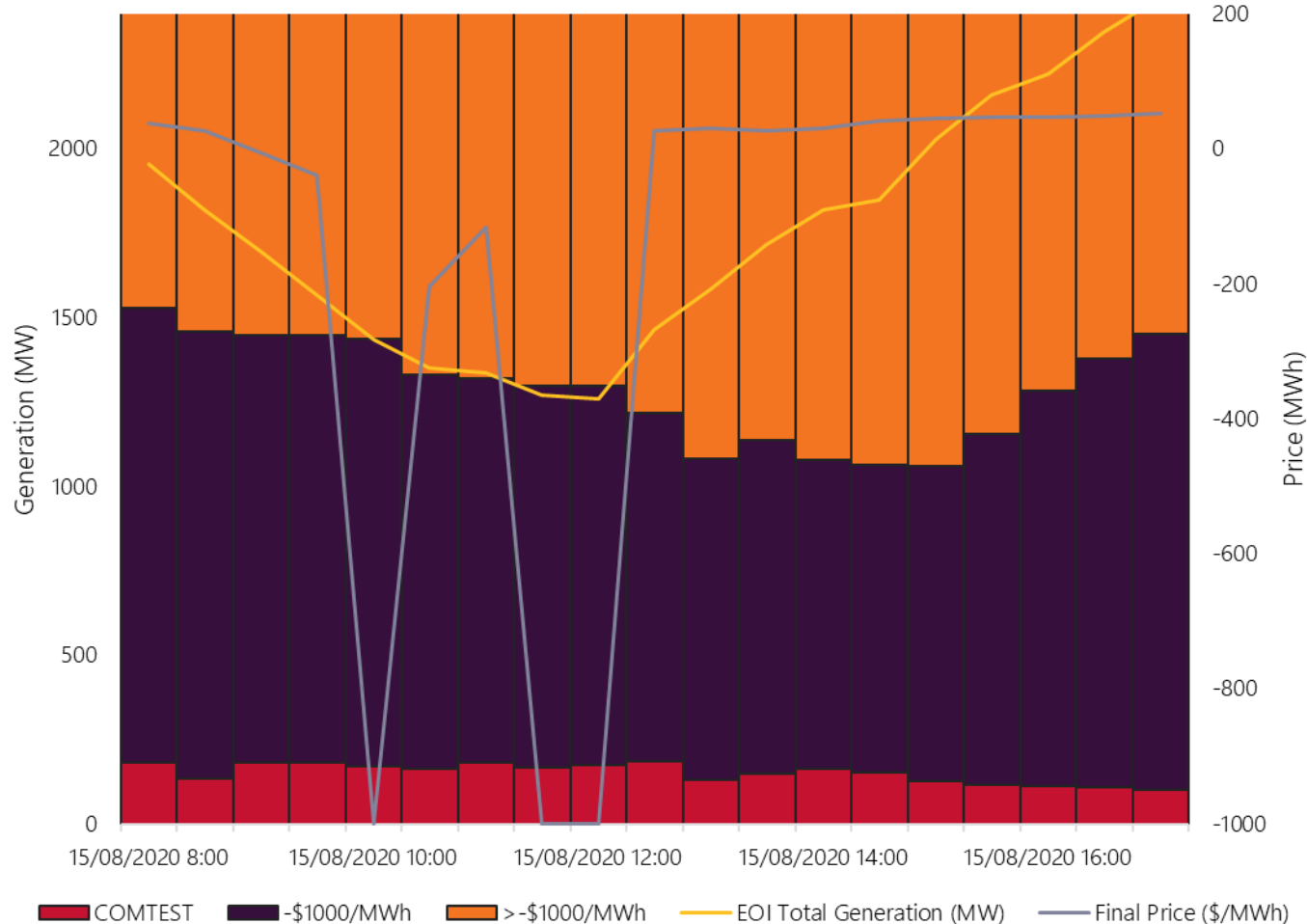


## Summary

- A Balancing Prices have increased by \$6/MWh compared to Q3 2019, despite similar levels of operational demand. This increase is driven by increases in morning and evening peak Balancing Prices, while midday Balancing Prices have decreased.
- B On average, STEM Prices have increased by \$6/MWh with quantity traded increased by 4 MWh compared to Q3 2019.

# Two Balancing Price floor events during Q3 2020

Generation bands during the 15 August 2020 price floor event



## Summary

### Saturday 15 August 2020

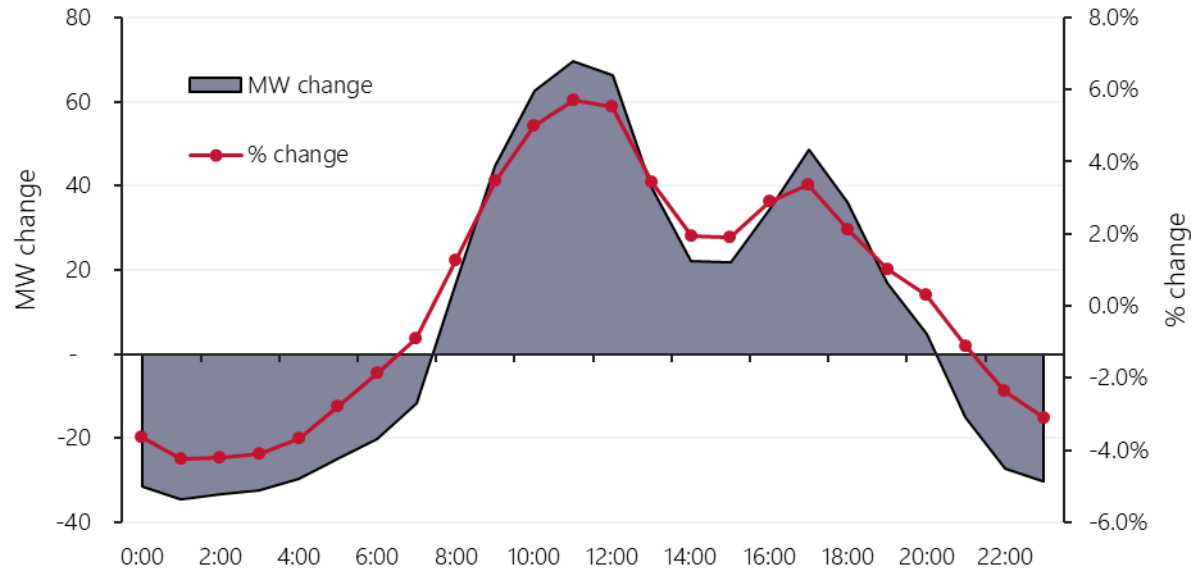
- Approximately 170 MW of new Facilities carrying out commissioning, which **must** be priced at **A**  $-\$1000/\text{MWh}$ .
- Low demand ( $\sim 1,272$  MW) due to mild weekend temperatures ( $\sim 22^\circ\text{C}$ ) and high generation from distributed PV ( $\sim 1,018$  MW)

### Saturday 12 September 2020

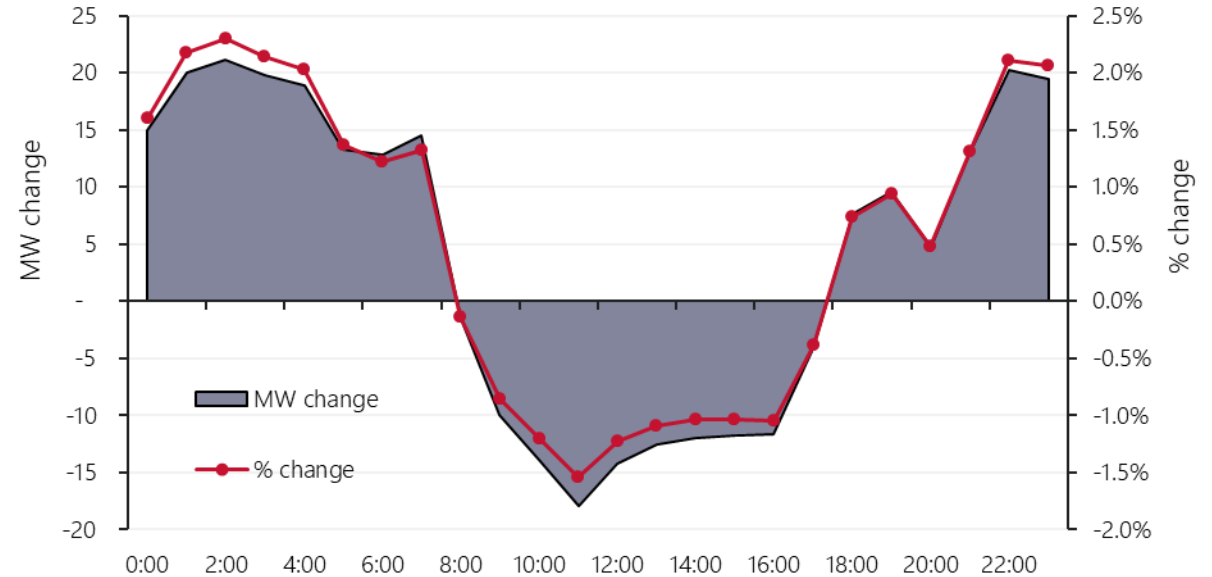
- Operational demand reached a record low during five Trading Intervals, with a minimum of 1,037 MW. **B**
- Due to power system security requirements, commissioning activities had been cancelled over this weekend.

# Continuing impact of COVID-19 is minimal

Change in average small user underlying consumption, Q3 2019 vs Q3 2020



Change in average large user underlying consumption, Q3 2019 vs Q3 2020



## Summary

A

Small changes in overall demand patterns compared to Q3 2019 driven by temperature patterns; overall consumption increased by 1.2% during the day and decreased by 0.6% overnight.

Continued working from home arrangements may have contributed to a increase in small user consumption and decrease in large user consumption during working hours.

B

- Consumption by small users increased by 2-6% between 08:00 and 19:00 and decreased by 2-4% between 22:00 and 06:00, largely driven by temperature changes, with increased energy usage for heating during the day and less overnight.
- Consumption by large users decreased by 0.5-1.5% between 09:00 and 18:00 and increased by 0.5%-2.% between 18:00 and 08:00 ours.

# Questions and Feedback

Market Operations

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