



COVID-19

Transitioning to the new normal?

COVID-19 Energy Market Insights series

2nd Edition – 120 days in

June 2020

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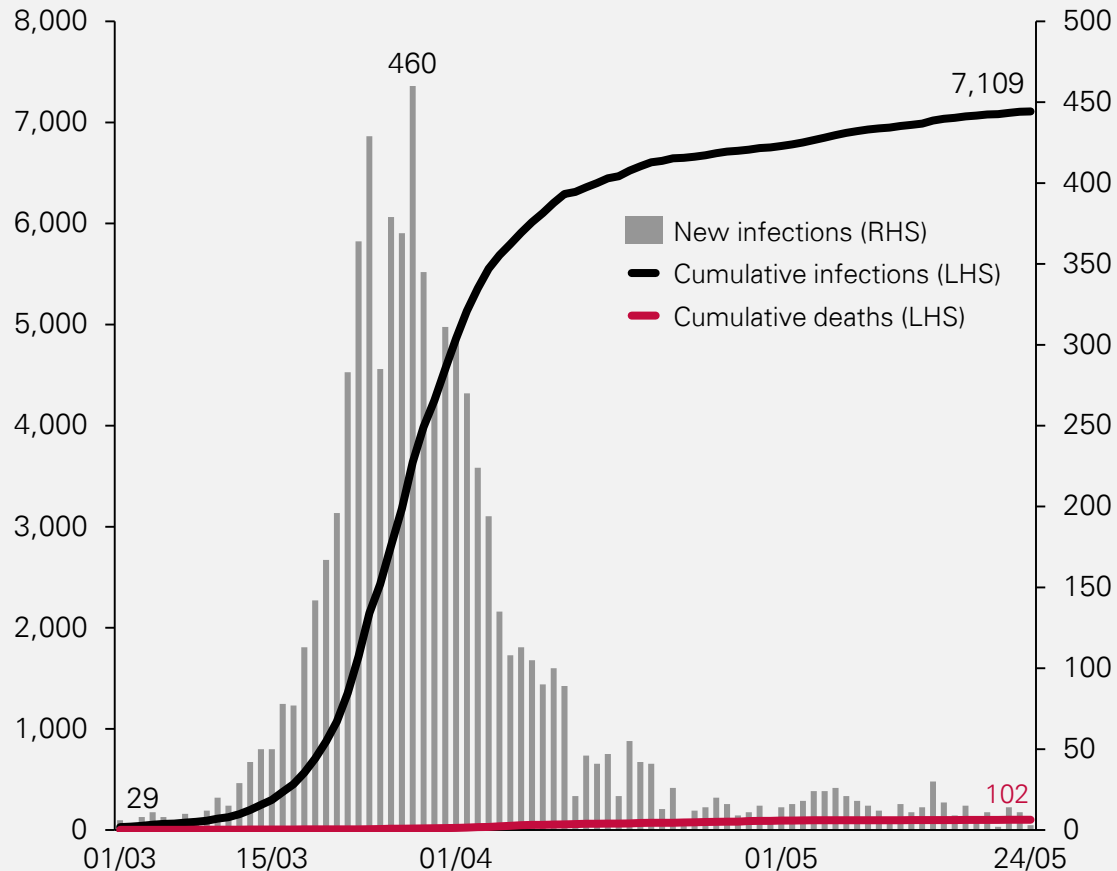


Confirmed COVID-19¹ infections in Australia

Number
01 Mar to 24 May 2020

As at 24 May 2020, **7,109 infections were confirmed** in Australia, **120 days since the 1st case** (dated 25 January), which has resulted in a total of **102 deaths (<1.0% fatality rate)**.

The highest daily number of infections was 460 on March 28, **and it has been decreasing most days since.**



Notes: (1) Also referred to, or known as coronavirus.
Sources: Department of Health, States and Territories (accessed 25 May 2020); KPMG analysis (2020)

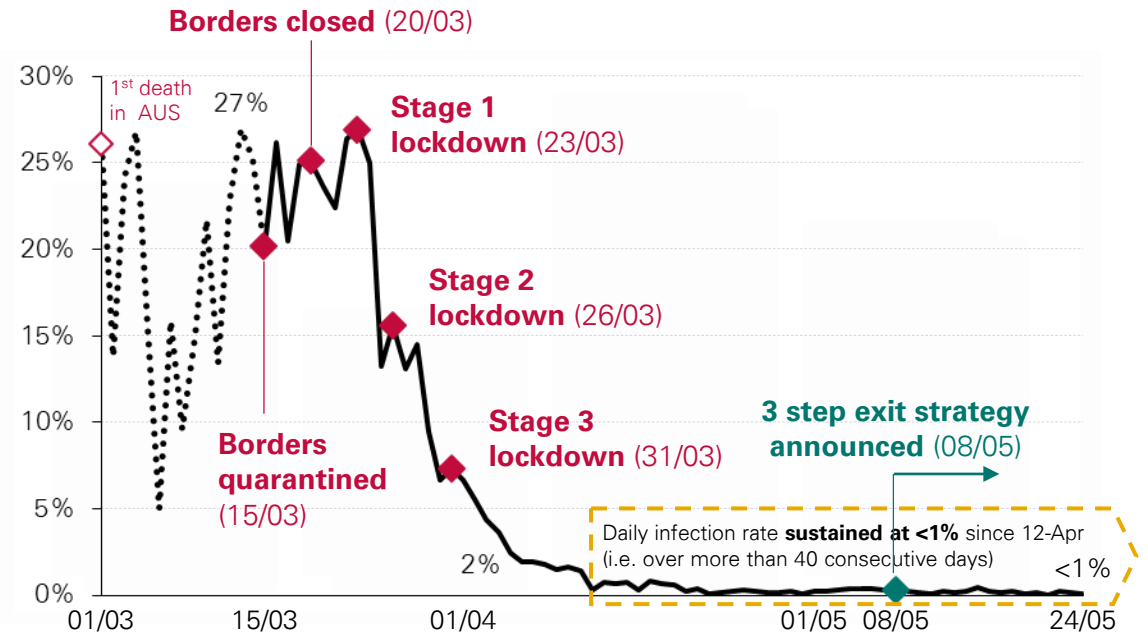
Snapshot of the COVID-19 pandemic in Australia

120 days since the first case, the curve is now flat, with daily infection rates sustained at <1%

Daily infection rate in Australia

Per cent
01 Mar to 24 May 2020

- Pre preventative measures
- Post preventative measures



Since mid-march, **the National Cabinet deployed a set of key preventative measures** such as quarantining, closing State borders, closing non-essential services and allowing only four reasonable reasons to be outside.

These **timely measures** appear to have **effectively and directly influenced the daily infection rate**, which peaked at 27% in early March, before **steadily decreasing to below 5%** at the start of April, and **now sitting at a low of less than 1%**.

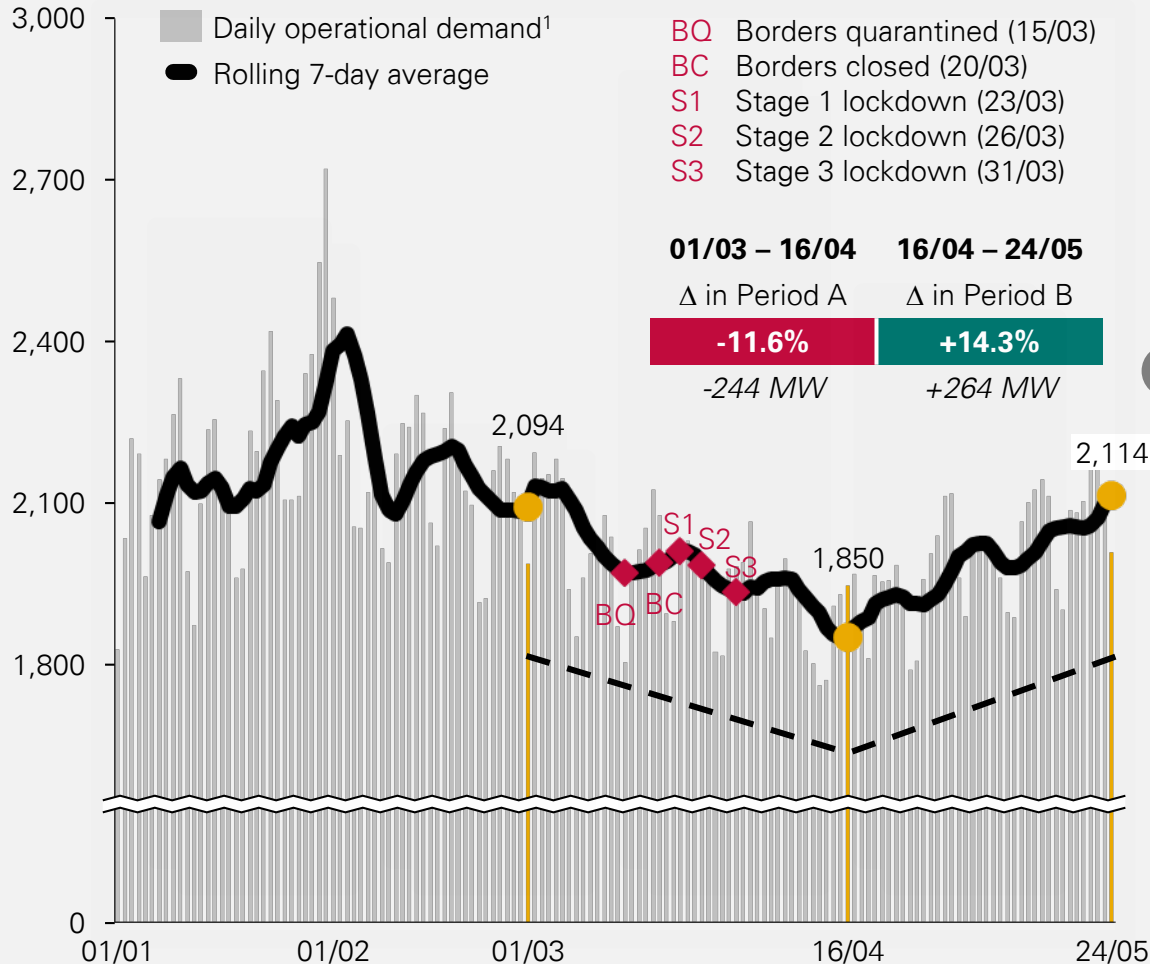
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Daily operational demand¹ across the NEM²

MW

01 Jan to 24 May 2020

Since 01 Mar, rolling 7-day avg. **operational demand displayed a "V" shape curve, first decreasing** by 244 MW (or 11.6%) to 16/04 **before reviving** by 264 MW (or 14.3%) to 24/05.



Notes: (1) Measured on the transmission network and adjusted for rooftop solar production; (2) National Electricity Demand, which covers the NSW (including ACT), VIC, QLD, SA and TAS states.

Sources: NEOpint – AEMO database (accessed Apr 2020); KPMG analysis

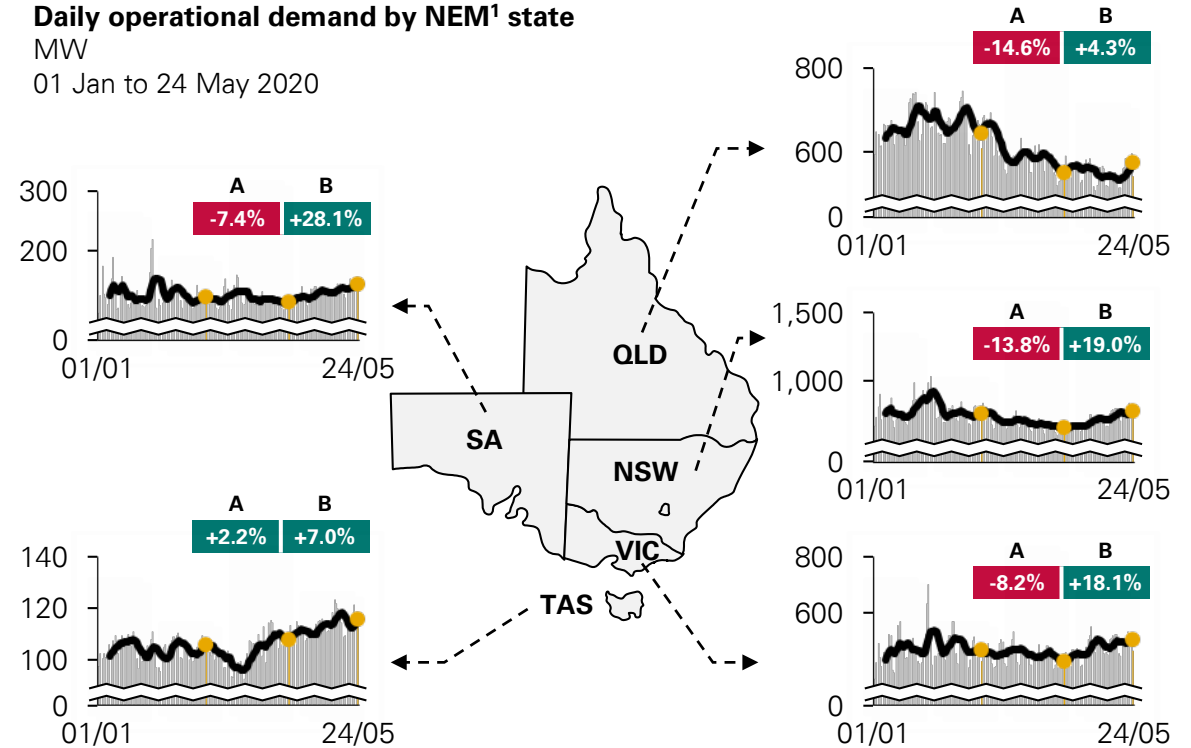
Trends in operational electricity demand

Strong signs of recovery in electricity demand as winter looms and restrictions start easing

Daily operational demand by NEM¹ state

MW

01 Jan to 24 May 2020



Following the downward trend in electricity demand to 16/04 (the reference point from our last series), **all NEM states experienced upward trends in electricity demand**, but faced **different demand recovery curves, both in magnitude and timing**:

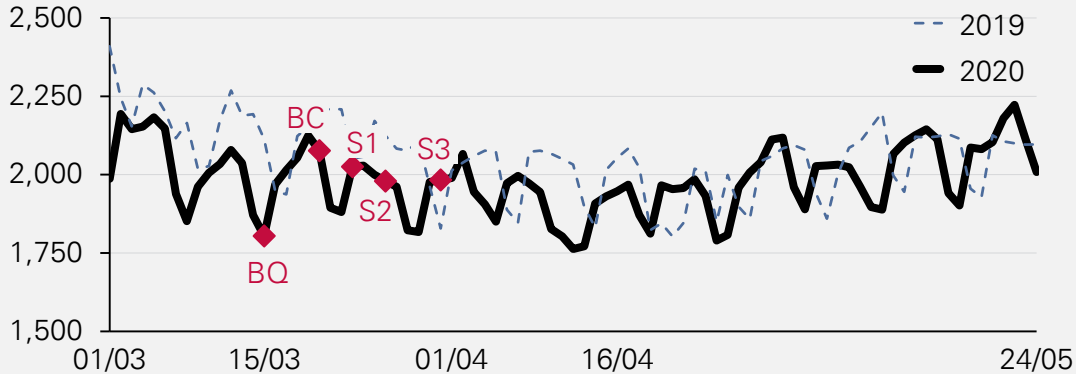
- Most states faced a **sustained revival in demand**, with **SA experiencing the highest (+28.1%)**, followed by NSW (+19.0%), VIC (+18.1%) and TAS (+7.0%)
- QLD's recovery curve was less pronounced (4.3%) and later (~3rd week of May)**

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2020 daily operational demand compared to 2019 across the NEM

MW
01 Mar to 24 May 2020

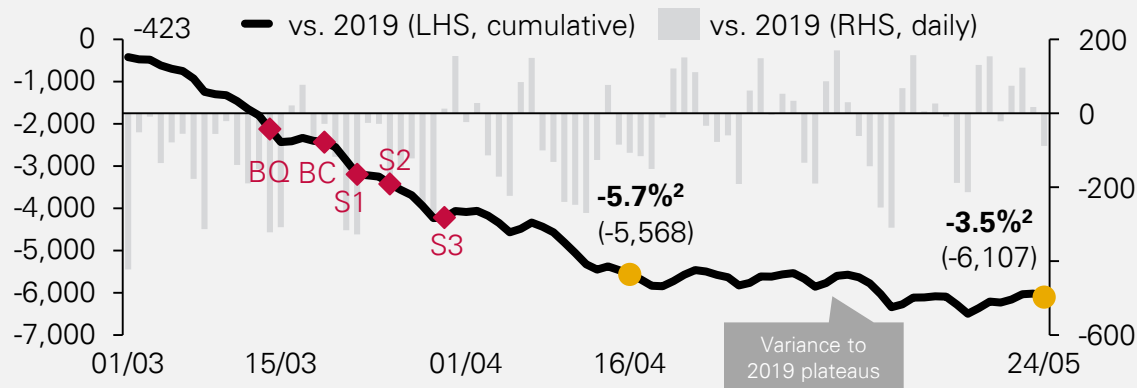
For the vast majority of the period 01 Mar to 16 Apr, **daily demand for 2020 was below 2019 levels**, before **recovering at or a faster pace** to 24 May...



Difference between 2020 operational demand and 2019 levels

MW (daily and cumulative¹), Per cent (change from previous period)
01 Mar to 24 May 2020

...bridging the gap of **5.6 GW (or 5.7%) on a cumulative basis**, now sitting at **3.5% (6.1 GW)** over the period to 24 May.



Notes: (1) Calculated by adding daily differences in operational demand over the period; (2) Calculated as cumulative difference, divided by 2019 demand over nominated period.

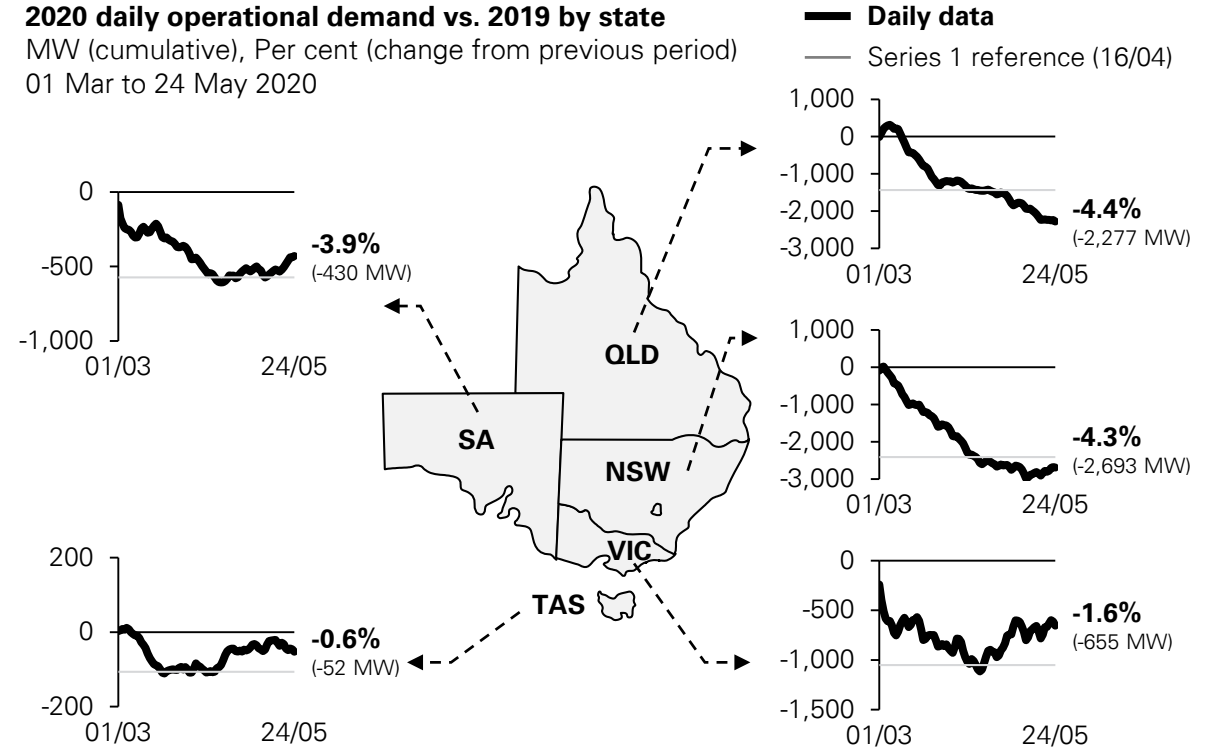
Sources: NEOpnt – AEMO database (accessed Apr 2020); KPMG analysis

Comparison of 2020 operational electricity demand to 2019

The cumulative difference to 2019 appears to flatten or even reduce, now sitting at ~-4%

2020 daily operational demand vs. 2019 by state

MW (cumulative), Per cent (change from previous period)
01 Mar to 24 May 2020



Since the last series (period to 16/04), the **cumulative difference compared to 2019 levels** over the 12 week period across States appears to have:

- **Reduced** in VIC (-1.6%, 0.7 GW), SA (-3.9%, 0.4 GW) and TAS (-0.6%, 52 MW)
- **Flattened** in NSW (-4.3%, 2.7 GW)
- **Further grown** in QLD, now sitting at 4.4% or 2.3 GW

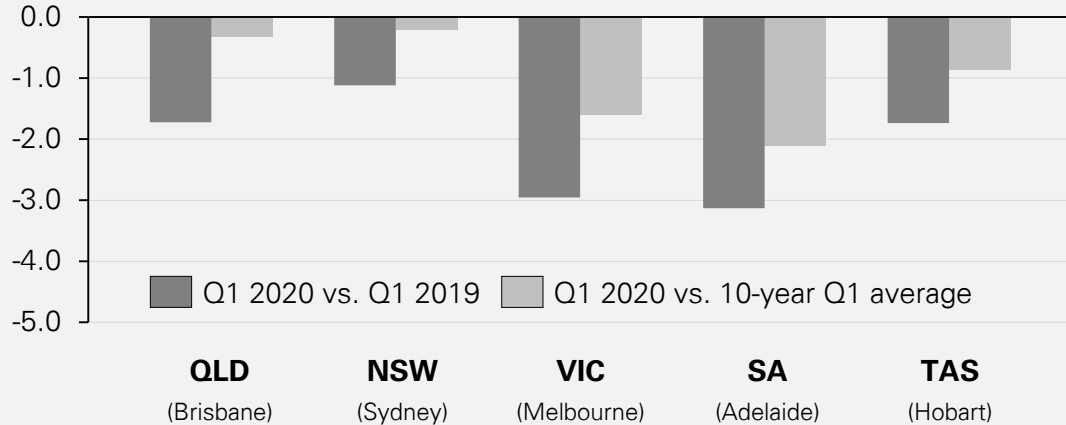
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Average maximum temperature variance by capital city

Degrees Celsius (°C)

Q1 2020 vs. Q1 2019, 10 year Q1 average

Mild Q1 weather across all capital cities, both vs. 2019 and 10-year average

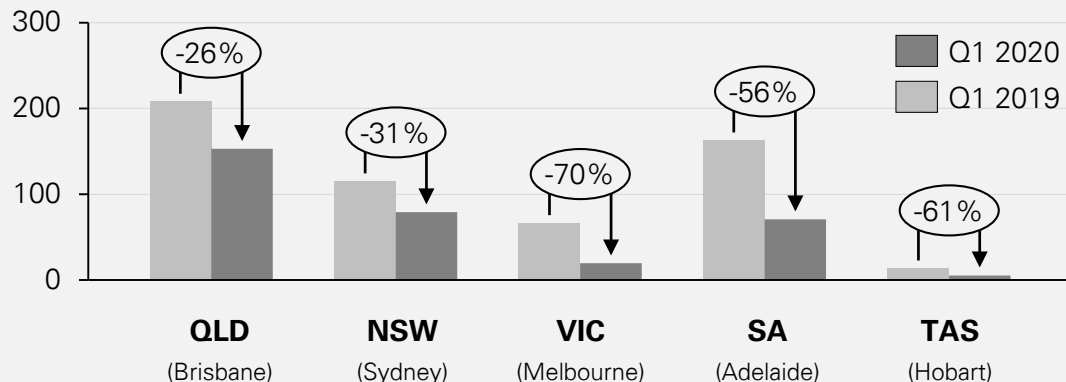


Change in cooling degree days (CDDs¹) across capital city

Degrees Celsius (°C)

Q1 2020, Q1 2019

Reduced cooling needs (and therefore demand) across all states



Notes: (1) Measurement used as an indicator of outside temperature levels above what is considered a comfortable temperature. CDD value is calculated as max (0, temperature - 24).

Sources: AEMO, Quarterly Energy Dynamics (Q1 2020 release); KPMG analysis (2020)

Key demand drivers | Weather patterns

Mild weather and reduced daytime cooling needs also drove down electricity demand...

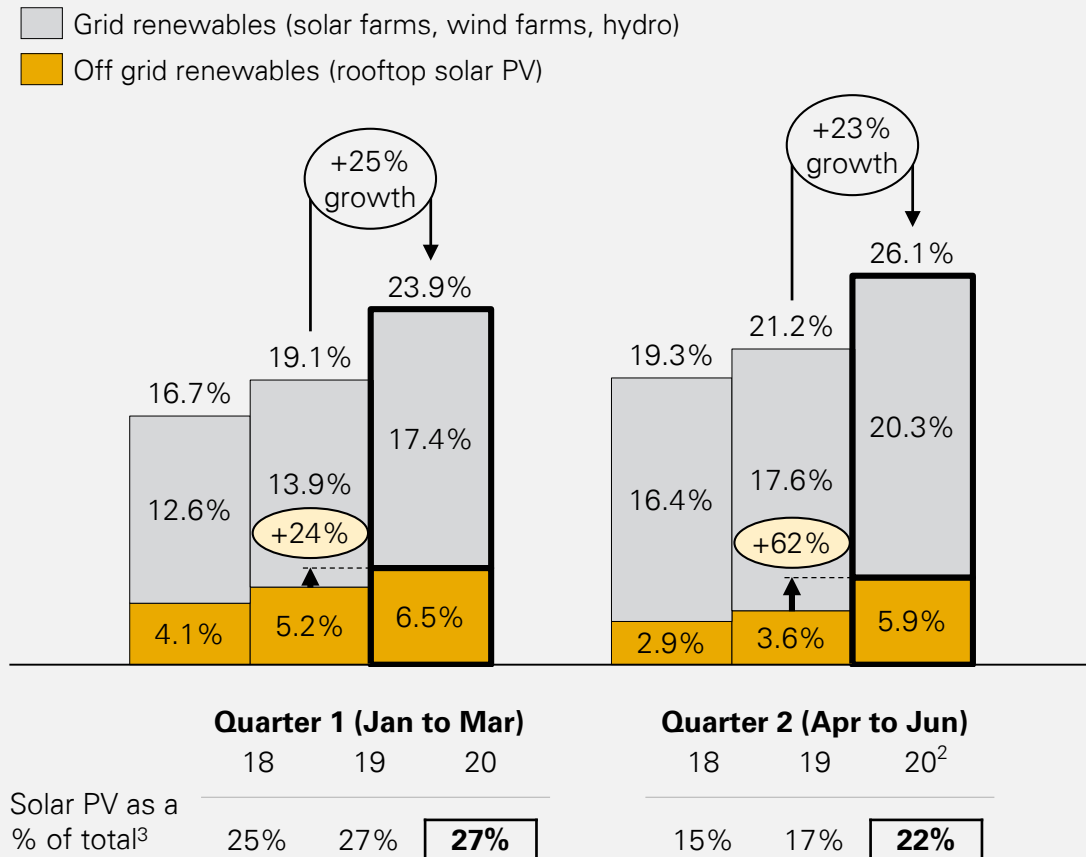
In its latest Quarterly Energy Dynamics (QED) report, AEMO's analysis and key observations on the weather patterns found that over the first quarter of 2020:

- Weather was mild across all east coast cities**, with average maximum temperatures well below:
 - the record high levels of Q1 2019, ranging from ~1.0°C in Sydney, ~1.5°C in Brisbane and Hobart, to ~3.0°C in Melbourne and Adelaide
 - the 10-year average, ranging from <0.5°C in Sydney and Brisbane, ~1.5°C in Melbourne and Hobart, to ~2.0°C in Adelaide
- Cooling needs (in particular during daytime) also reduced across all cities:**
 - most evident in Melbourne, Hobart and Adelaide, with lower requirements by 70%, 61% and 56% respectively
 - as well as ~25-30% reduction across Sydney and Brisbane
- While temperatures were relatively mild throughout the quarter, extreme heat days were still present in January**, in that:
 - Sydney had record high temperatures on 4 January with temperatures at Penrith reaching 48.9°C
 - There was a heatwave across the east coast at the end of January, with Adelaide reaching a maximum temperature of 43.9°C on 30 January...
 - ...while Melbourne reached 43.6°C on 31 January
- Q1 2020 was a comparatively wet quarter** compared to the record dry conditions of 2019, with above average rainfall in January and February

Total renewables¹ generation penetration across the NEM

Per cent (of total electricity generation in GWh)
2018-2020 (Q1 to Q4)

Over the Q1 and Q2 (so far) in 2020, **the penetration of renewable generation has (further) accelerated by ~25% compared to 2019**. In particular, growth in off-grid renewables (**rooftop solar PV**) **outpaced overall renewables (by ~3x), making up 22% of total renewable generation** in the latest quarter



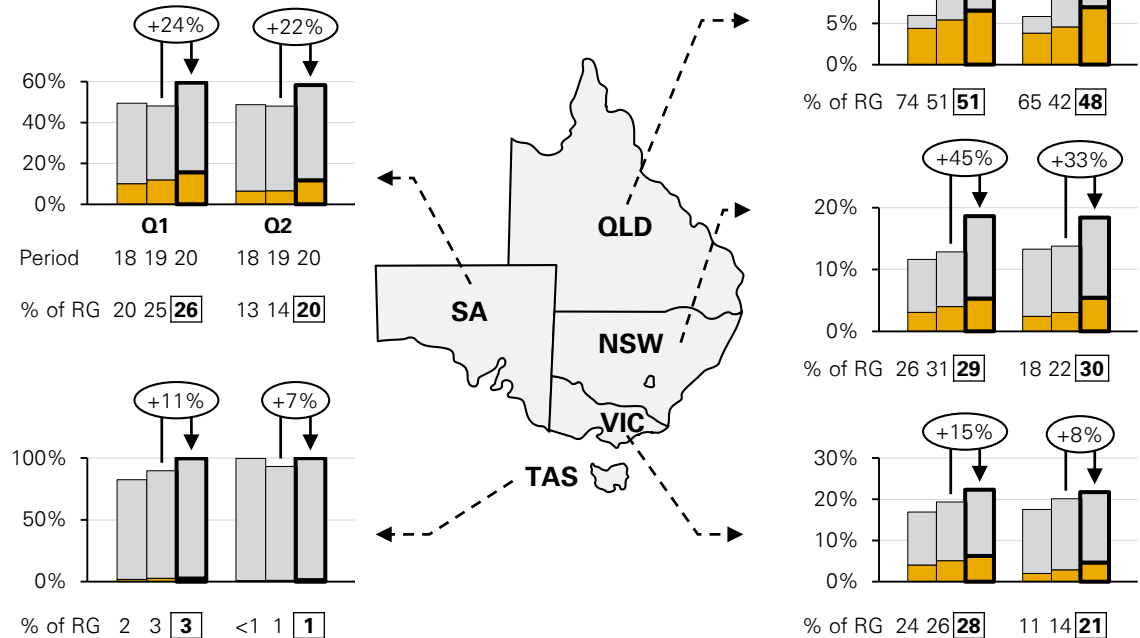
Notes: (1) Includes both grid-scale (solar farms, wind farms, hydro, biomass and battery storage) and off-grid (rooftop solar PV); (2) To 24 May 2020; (3) Rooftop solar PV as a % of total renewable generation.
Sources: OpenNEM Insights (accessed 25 May 2020); KPMG analysis (2020)

Key demand drivers | Renewables and rooftop solar PV penetration

...along with rising rooftop solar PV penetration, lifting households' self sufficiency in energy

Total renewables¹ generation (RG) penetration by state

Per cent (of total generation in GWh)
2018-2020 (Q1 to Q4)



Over Q1 & Q2 2020, when compared to 2019 levels, penetration of renewables across all NEM states rose by ~10-45%, largely led by off-grid renewables:

- 6 to 8% increase in rooftop solar contribution to renewables in Q2 (except TAS)
- Modest Q1 growth (+1-2%) in VIC, SA, TAS vs. to NSW (-2%) and QLD (same)
- Notably, QLD's renewable growth (20-35%) was led by grid-scale solar and wind farms (almost 2x) coming online, driven by improving economics

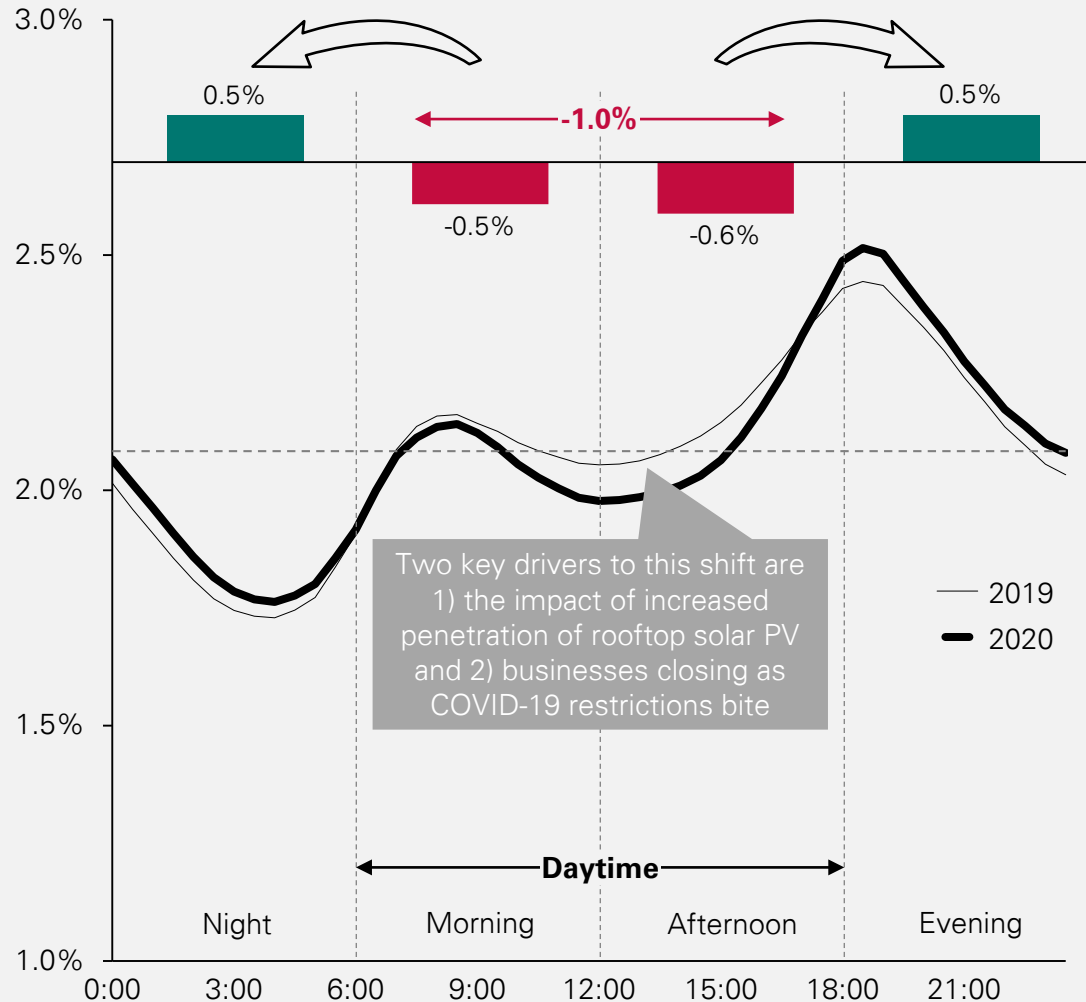
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Operational demand curve¹ daily profile within the NEM

Per cent (based on 30min block interval)

2020 vs. 2019 over 12 week period (01 Mar to 23 May)

Over a cumulative 12 week period, **1.0% (or c. 15 mins) of demand has shifted away from daytime** (06:00 to 18:00) to evening / night, when compared to 2019



Two key drivers to this shift are 1) the impact of increased penetration of rooftop solar PV and 2) businesses closing as COVID-19 restrictions bite

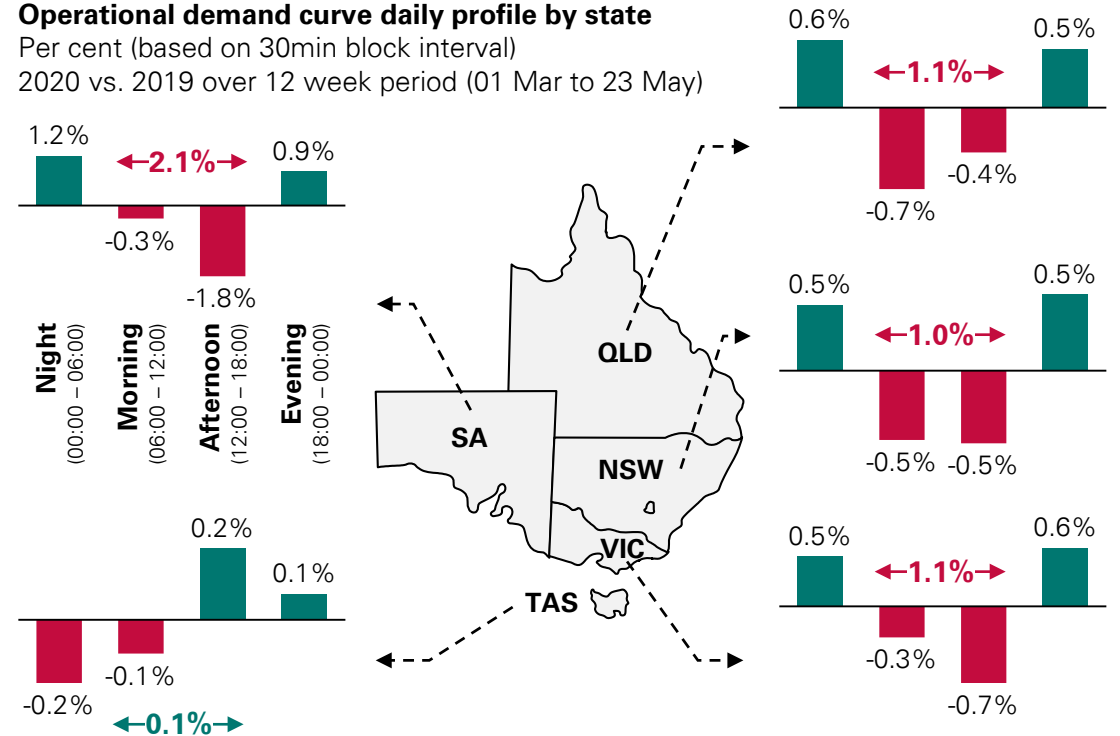
Demand curve | Time of day analysis

Grid demand down during the day as businesses close, coupled with more self-consumption

Operational demand curve daily profile by state

Per cent (based on 30min block interval)

2020 vs. 2019 over 12 week period (01 Mar to 23 May)



Comparing the reference 12 week period to 2019 levels, **all NEM states (except TAS) experienced shifts in their daily demand curve profiles, where:**

- **SA experienced the largest shift (2.1%) away from daytime** (mostly afternoon)
- **NSW, VIC and QLD experienced similar (~1%) shift away from daytime to even 0.5% of evening / night time, but transitions vary across daytime blocks** (NSW = equal split, VIC = mostly from afternoon, SA = mostly from morning)
- Demand curve in **TAS experienced modest shifts** across the day

Notes: (1) Measured based on demand patterns over 30min block intervals for particular weeks, e.g. Block 00:00 to 00:30 % is calculated as weekly demand over the 30min, divided by total weekly demand.

Sources: NEOpnt – AEMO database (accessed 25 May 2020); KPMG analysis

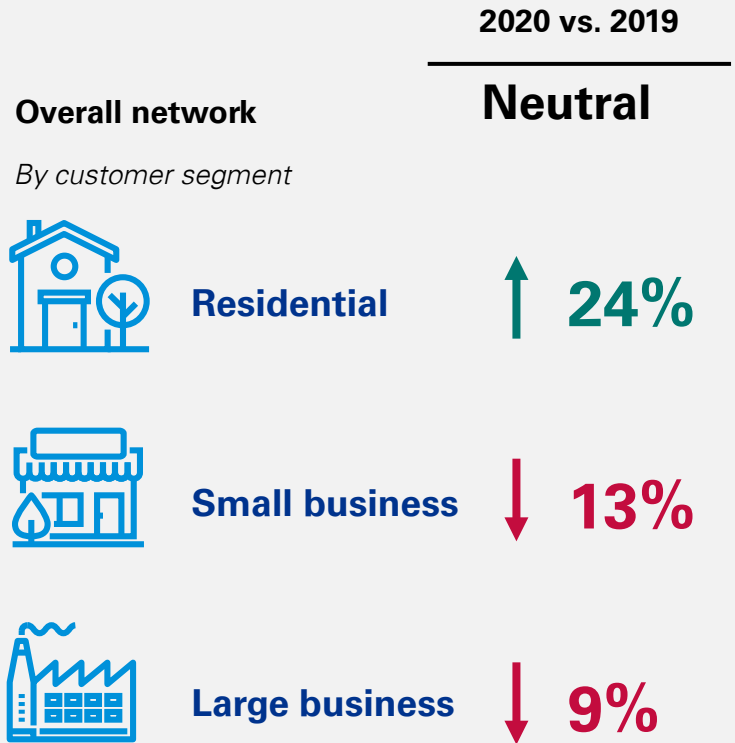
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Electricity consumption¹ change for a distributor in VIC

Per cent

2020 vs. 2019 (9 week period commencing 23 Mar to 18 May)

The cumulative change in overall consumption over the 9 week period is fairly neutral. However, different trends in electricity consumption levels across customer segments, with residential up by 24% from more people working from home, while businesses down (13% small and 9% large) as they temporarily close.



Notes: (1) Measured using data captured from smart meters.
Sources: Social media releases (2020); Company websites (accessed May 2020)

Trend in electricity consumption mix

Overall consumption neutral, but mix changing, residential up 24%, businesses down 9-13%



Electricity consumption is a key indicator of economic and social activity.
As expected, residential consumption is up while businesses are using less energy.

These figures **reflect the impact of lock-down measures** which are **seeing people work from and cook at home in large numbers.**



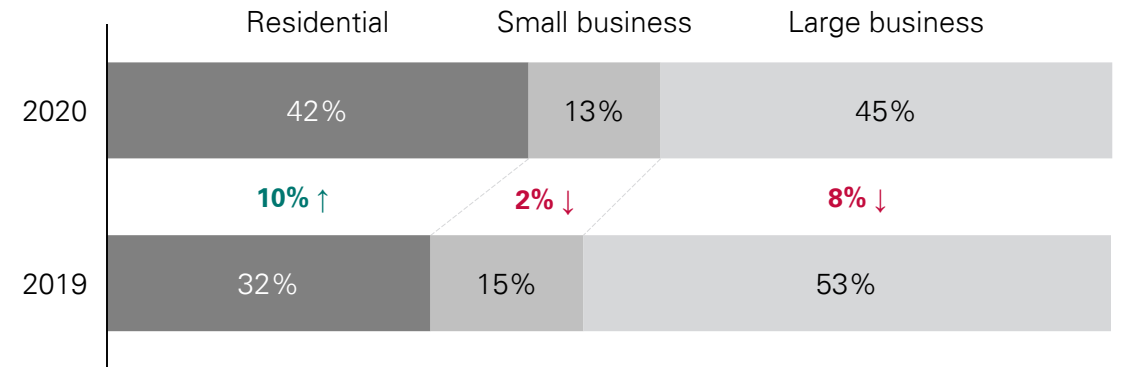
Senior Corporate Affairs and Public Policy Executive
Energy distributor in VIC

Electricity consumption mix

Per cent (of total, based on total consumption level)

2020 vs. 2019 (9 week period commencing 23 Mar to 18 May)

Indicative



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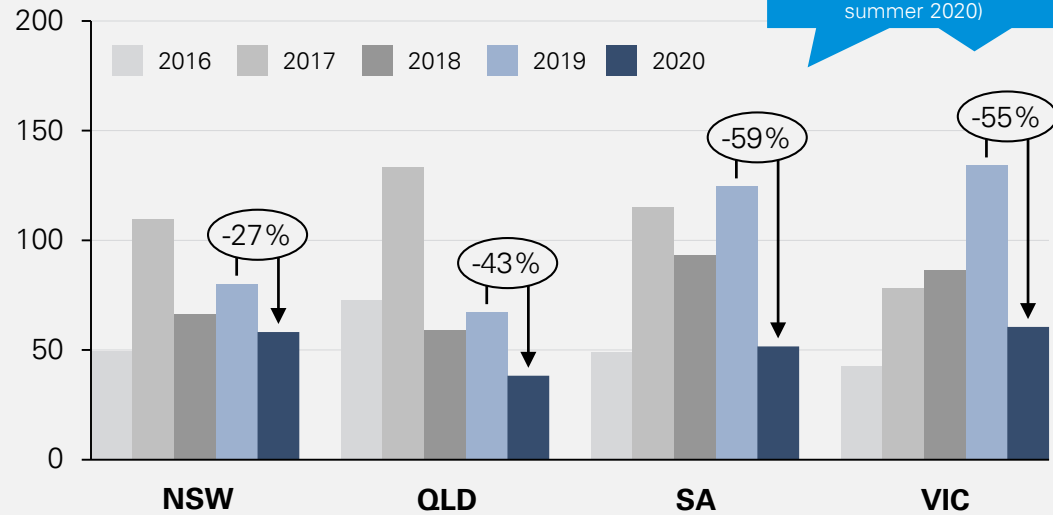


Weighted average prices across major NEM states

\$ per MWh

2016-20 (year to date Jan to May)

Compared to 2019, **27-55% price declines** across states, achieving the **lowest levels since 2016** (noting QLD ~50% of 2015)



Extreme conditions when system 'Lack of Reserve' (capacity) (LOR2) warnings were called on 24-25th Jan 2019 (not repeated over summer 2020)



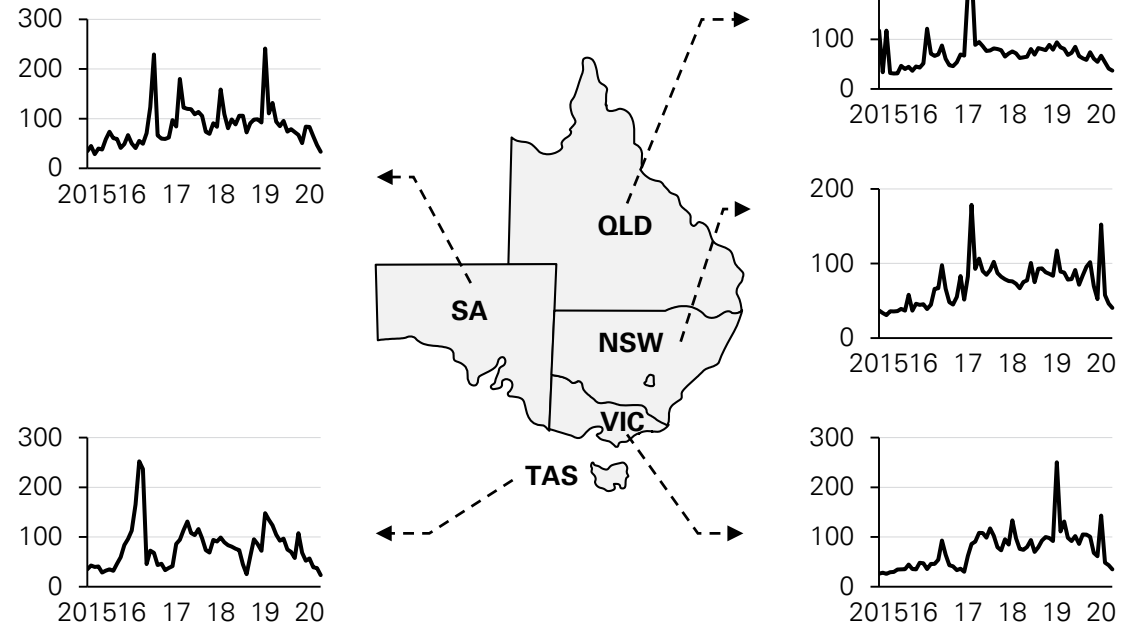
Trend in wholesale electricity prices

The start of 2020 saw NEM wholesale electricity prices reach lowest levels since 2016

Monthly average¹ 30-min wholesale electricity prices

\$ per MWh

Jan 2015 to Apr 2020



Fuel costs (coal and gas) down to 2016 levels

(from lower demand/bids, with more production from cheaper inputs)

1

Higher plant availability and lower market bids

(deferred maintenance, baseload capacity up + competitive bids)

2

AEMO and UBS attribute these to **four key drivers**

Reduced operational grid demand

(from more rooftop solar PV, mild weather, business shut down)

2

More renewable capacity coming online

(from 1.9GW of increased wind / solar capacity in last 6 months)

2

Notes: (1) Simple average across 30-min pricing blocks over the monthly period.
Sources: AEMO – Quarterly Energy Dynamics (Q1 2020 release); UBS – An electric shock to wholesale prices (May 2020); OpenNEM Insights (accessed 25 May 2020); KPMG analysis (2020)

Lower demand from mild weather, additional renewable capacity, COVID-19, lower fuel costs and higher plant availability are **driving wholesale electricity price declines** across all NEM states, now sitting at ~\$40-60 per MWh with:

- SA and VIC facing the sharpest decline (~55-60%), followed by NSW (~30%)
- Over YTD 2020, QLD's average wholesale prices have been lowest (~\$40 per MWh), followed by SA (~\$ per 50MWh) and NSW / VIC (~\$60 per MWh)

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Energy retailers and generators have not escaped the disruption caused by COVID-19...

Five developments that are most likely to impact energy retailers:

- 1 Operational electricity demand down (3.5% vs. 2019)** over a 12 week period (01 Mar to 24 May) as COVID-19 restrictions bite, coupled with temperate weather and (even) more rooftop solar PV
- 2 Penetration of renewable generation keeps accelerating**, growing by ~25% over Q1 and Q2 of 2020, where off-grid renewables (rooftop solar PV) outpaced overall renewables (by ~3x), making up 22% of total renewable generation in Q2 (vs. 17% in 2019)
- 3 Not only is the demand curve shifting down, but it is spreading across the day** (e.g. 1% away from daytime (06:00 to 18:00) as businesses close and solar PVs lift energy self-sufficiency)
- 4 Electricity consumption mix across customer segments is shifting** (residential up 24% from flexible working arrangements, and businesses down c. 9-13% with economy in a period of flux)
- 5 Wholesale electricity prices reached lowest levels (\$40-60 per MWh) since 2016** as a result of cool weather, additional renewable capacity, COVID-19, lower fuel costs and higher plant availability

Notes: (1) Covers distributed energy resources such as rooftop solar PV, battery storage, electric vehicles.

Implications and potential response for energy retailers

...resulting in key implications for energy retailers, who need to act now and rise to the challenge

Key immediate and medium term implications

- **Revenue headwinds** from lower electricity demand and record low prices
- **Suppressing working capital** from a large consumption mix shifting to residential customers, who are facing heightened financial hardship
- **Customer experience will remain a priority, but customer lifecycle journeys are adapting** to these unprecedented circumstances (e.g. increased call traffic on complaints, bills, hardships and a need for more targeted and proactive communication)
- **One customer wallet, multiple channels** where engaged households seek value across their whole discretionary spend categories, coupled with preference for a 'one stop' shop, enabled by omni-channel convenience

Strategic responses

- 1. Embed proactive credit management** to support customers in hardship by adapting contact centre operations / offering tailored payment plans
- 2. Focus on and protect the bottom line** to balance short and long term economics and value by focusing on / maximising customer lifetime value
- 3. Diversify and digitalise the product suite** to lift customer stickiness by accelerating behind-the-meter¹ roll out, bundled with smart home solutions, and non-electricity offerings (e.g. telco, broadband, insurance, pay TV, etc.)



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