

COVID-19 review

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Business Analytics

Strategy and Operations

Evoenergy

Representative longitudinal data

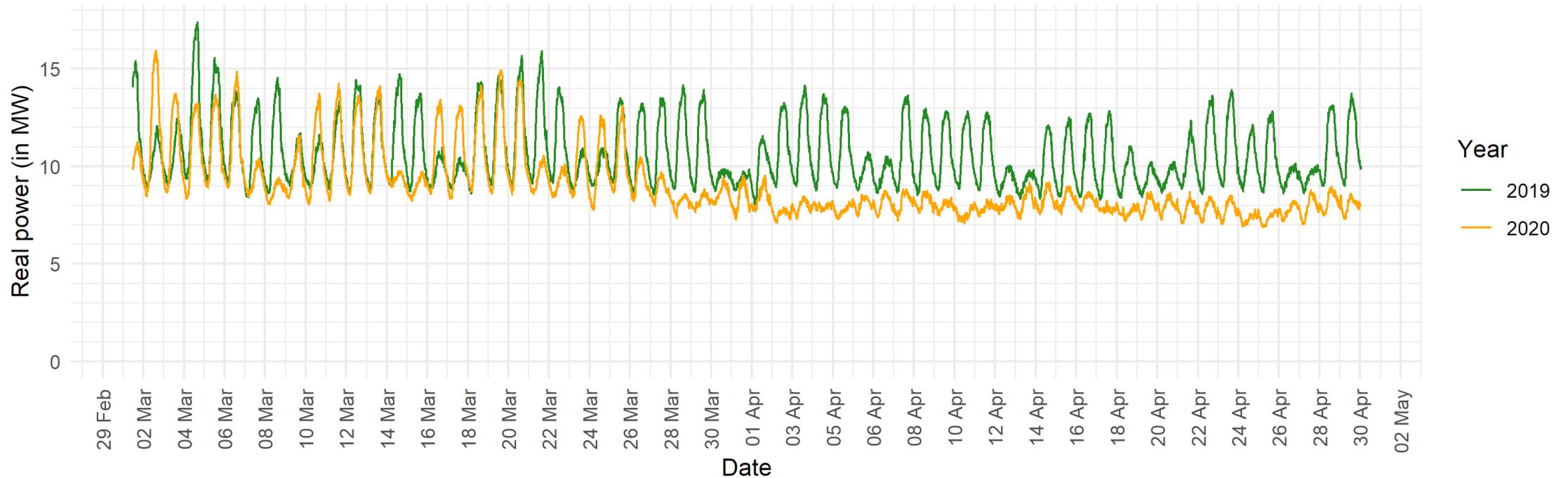
- Panel data: Load in kilowatts (real power) per 15 minute intervals from 68 representative 11 kV distribution feeders across the ACT for the months
 - *February, March, April, May 2019*
 - *February, March, April, May 2020*
- Automatic classification¹ of feeders into feeders supplying power to
 - *primarily residential customers ("residential-like feeders")*
 - *primarily small/large businesses ("business-like feeders")*

[1] Agglomerative hierarchical clustering with [weighted average linkage](#) of power profile data from March 2019.

An Evoenergy view on electricity demand

Feeders: ANU No 1,2,3,4,5

Dates: March and April 2019,2020



The ANU went into Level C lock-down on 26 March 2020, causing a *decrease in maximum demand of around 3 MW (or 25%)*, equivalent to an energy consumption reduction of around 12 MWh per hour (for comparison: typical small business consumption ~ 10-20 MWh p/a; typical "all-electric" household consumption ~ 8 MWh p/a).

Changes in real power 2020 relative to 2019

Estimate percentage change (and variability in the estimate) in real power

1. per 15 minute interval during an average day, and
2. per weekday during an average week

$$\% \text{change} = \frac{P_{2020} - P_{2019}}{P_{2019}}$$

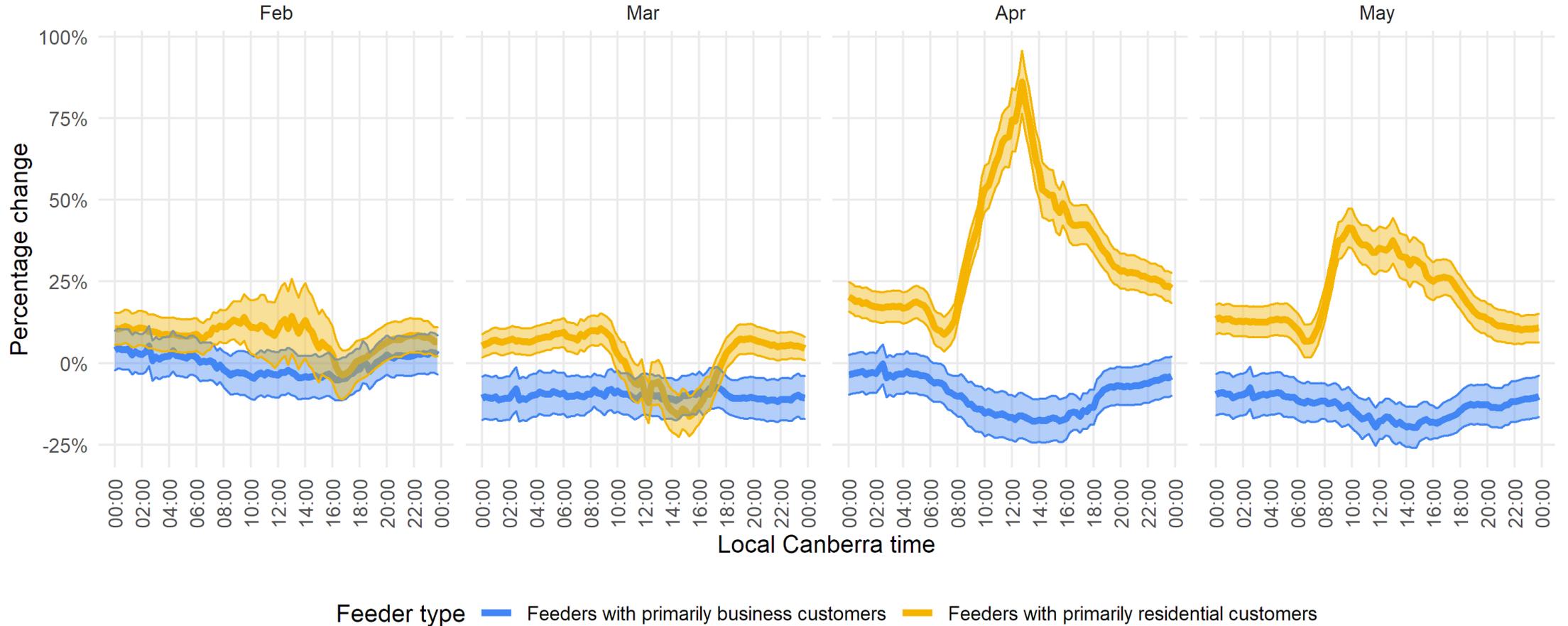
Then

- a *negative change indicates a decrease*
- a *positive change indicates an increase*

in demand in 2020 relative to 2019.

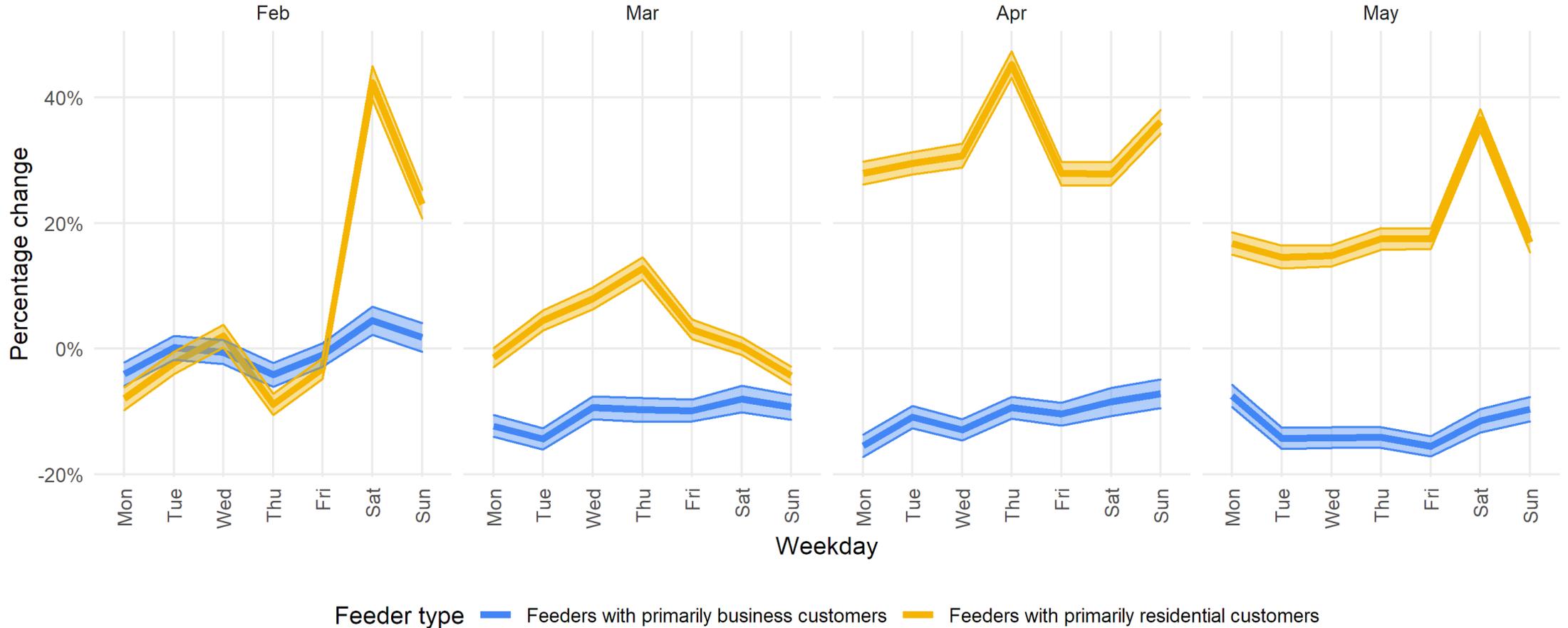
Demand change per average HH:MM

Change in average real power per HH:MM 2020 relative to 2019 for the indicated month

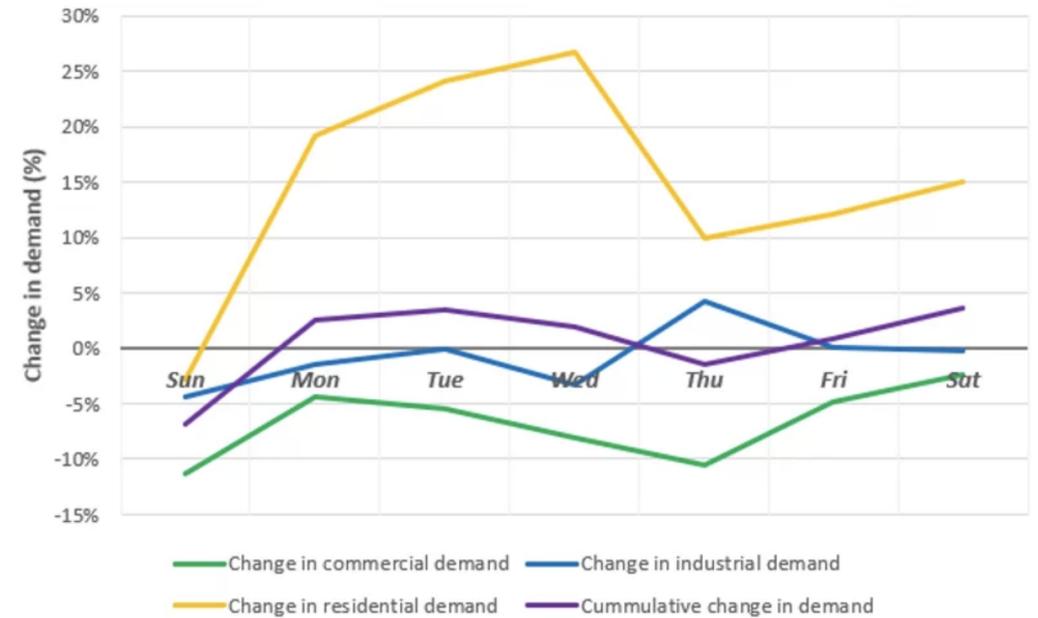
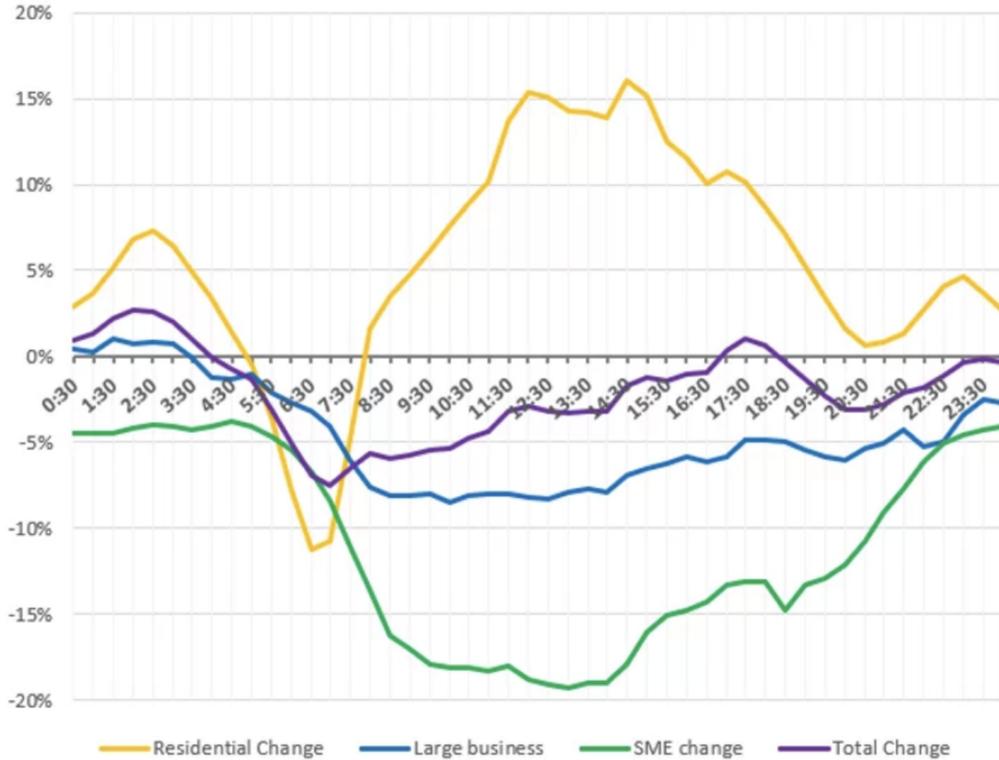


Demand change per average weekday

Change in average real power per HH:MM 2020 relative to 2019 for the indicated month



Changes in electricity demand in Victoria March 2020



Source: [Energy Networks Australia: Commercial down v residential up: COVID-19's electricity impact](#)

Summary

- Changes in load profiles recorded during the COVID lock-down period are similar (in trend) to those reported by Energy Networks Australia:
 1. *increase in mid-day energy consumption in residential demand*, with an average increase in residential demand of around 19% for March to May,
 2. *average decrease in business demand* of around -11% for March to May
- Effect size: Global changes are of a similar order of magnitude as typical year-to-year changes due to changes in network structure, environmental conditions, major projects and organic growth.
- Recorded changes in feeder load profiles are *well within continuous rating safety margins*.