



# Impact of Covid-19 on the NZ Electricity Sector

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- What was the impact of Covid-19 lockdowns on electricity demand?
- What effect did this have on the electricity system?
- How did the electricity sector respond?
- How did the NZ impact and response compare to other countries?

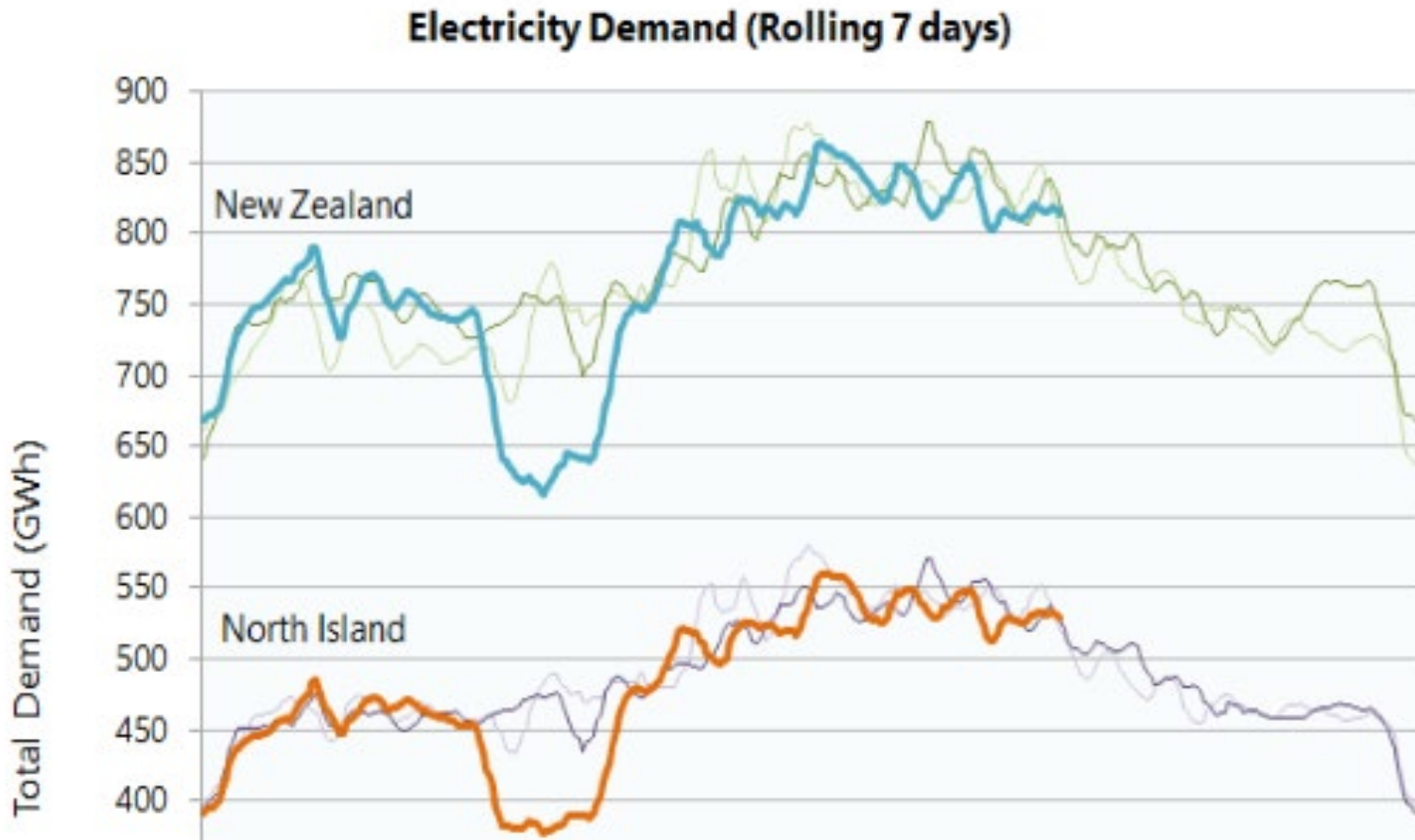
# LOCKDOWN – A focus on essential services

- With non-essential operations locked down, electricity supply was clearly identified as an essential service
- Critical for all participants in the electricity sector to maintain a reliable electricity supply.

**Be kind**



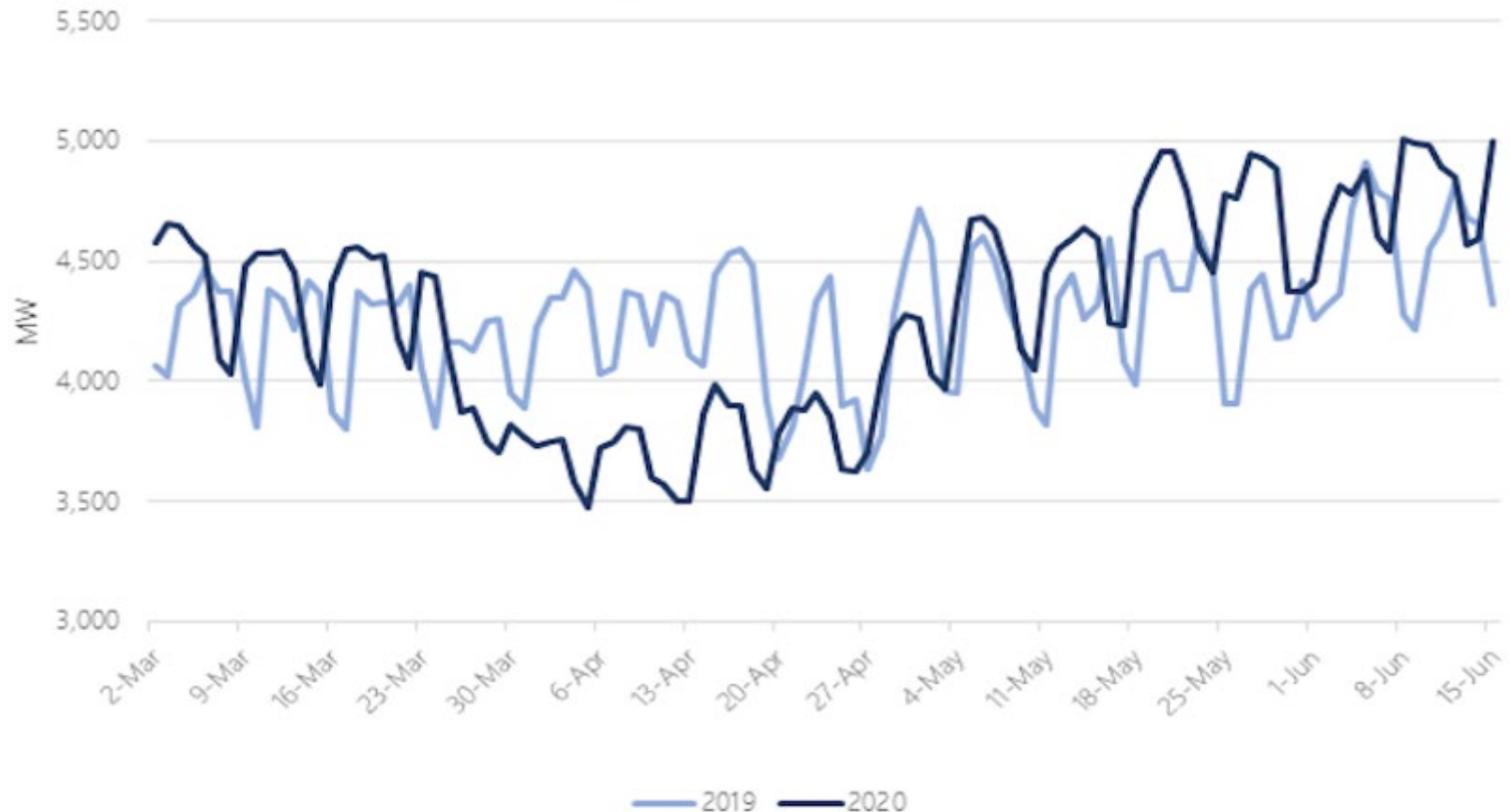
# Impact on the electricity system



- Electricity demand during the April lockdown
- <https://www.transpower.co.nz/system-operator/security-supply/market-indicators>

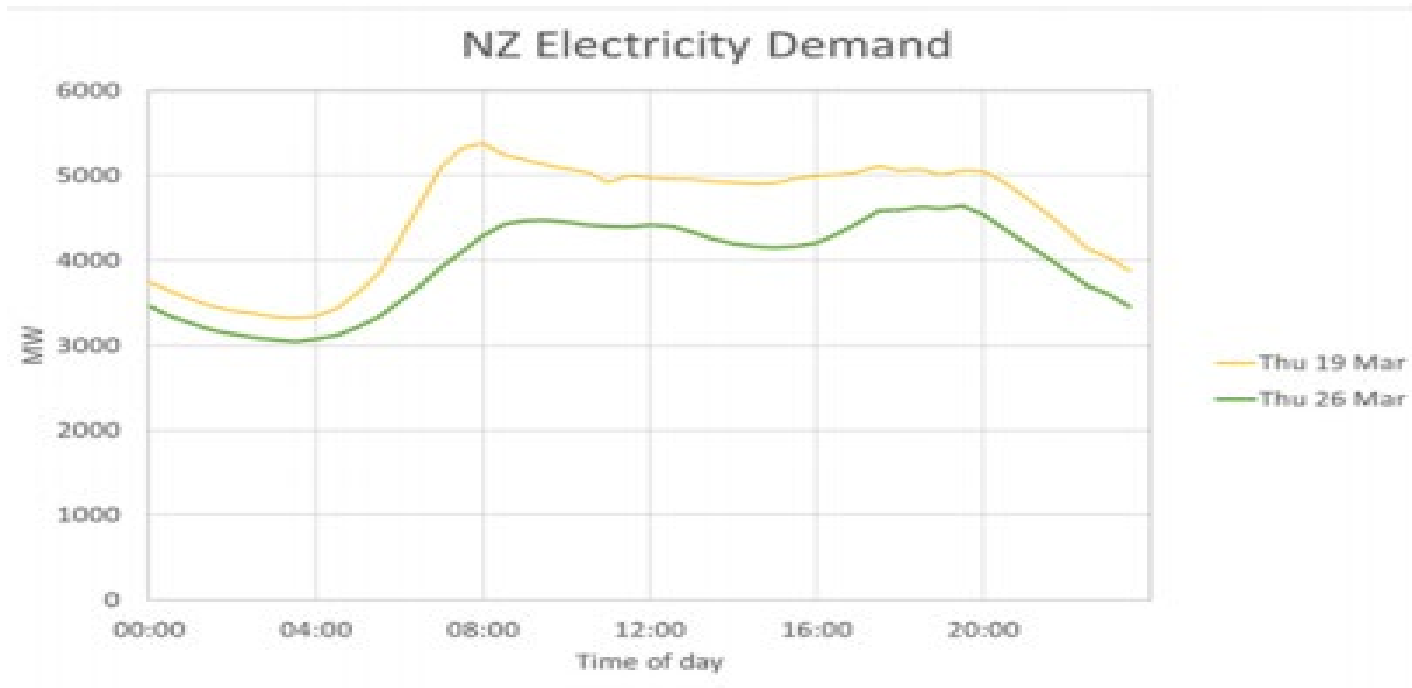
# Electricity demand levels and Covid response

NZ electricity demand in 2019 and 2020



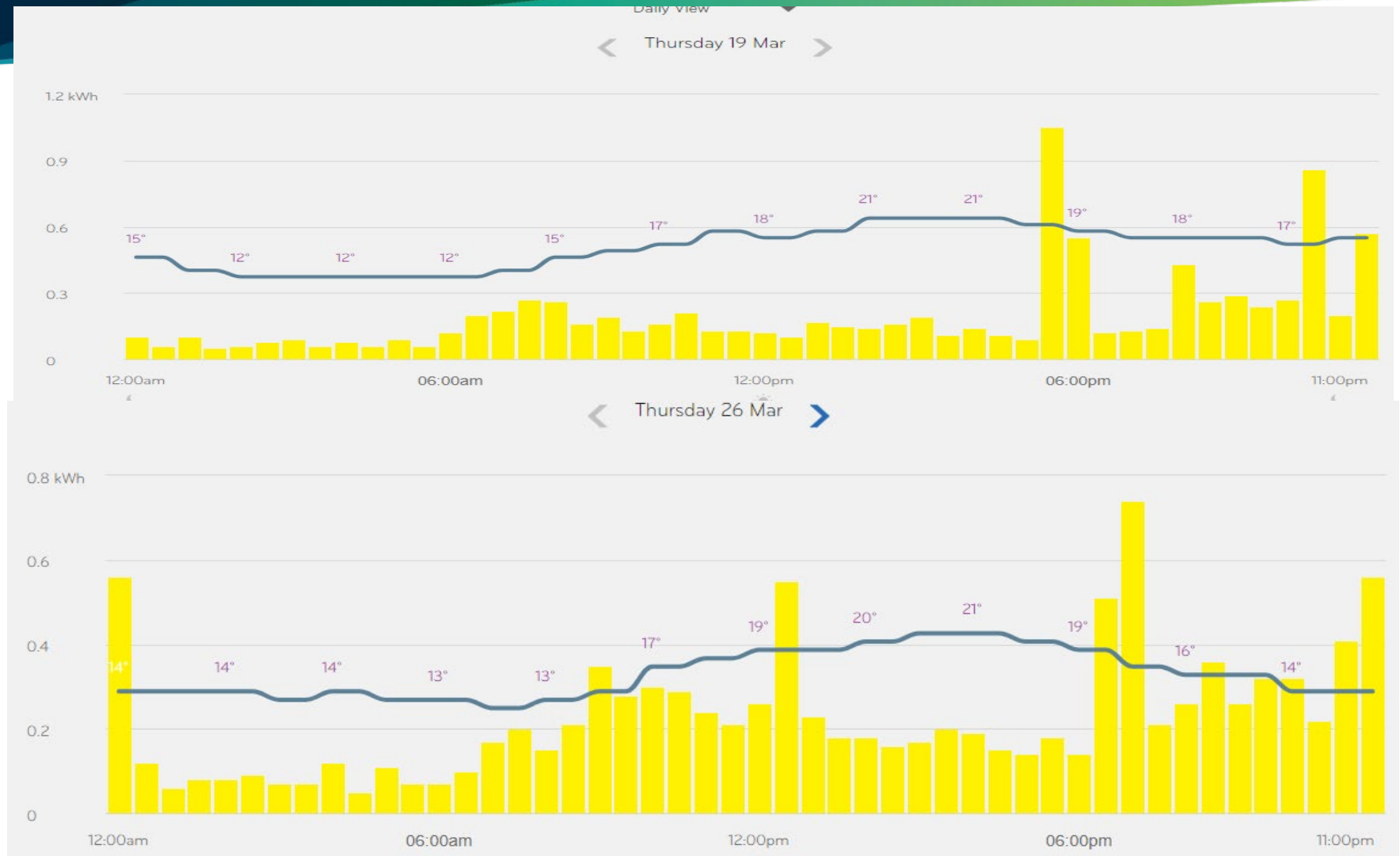
# Effects on the system during lockdown

- A change in the daily load profile: the first day of lockdown.



<https://www.transpower.co.nz/sites/files/bulk-upload/documents/Lockdowndemand%20changes.pdf>

# Effects on the system during lockdown



# Effects on the system during lockdown

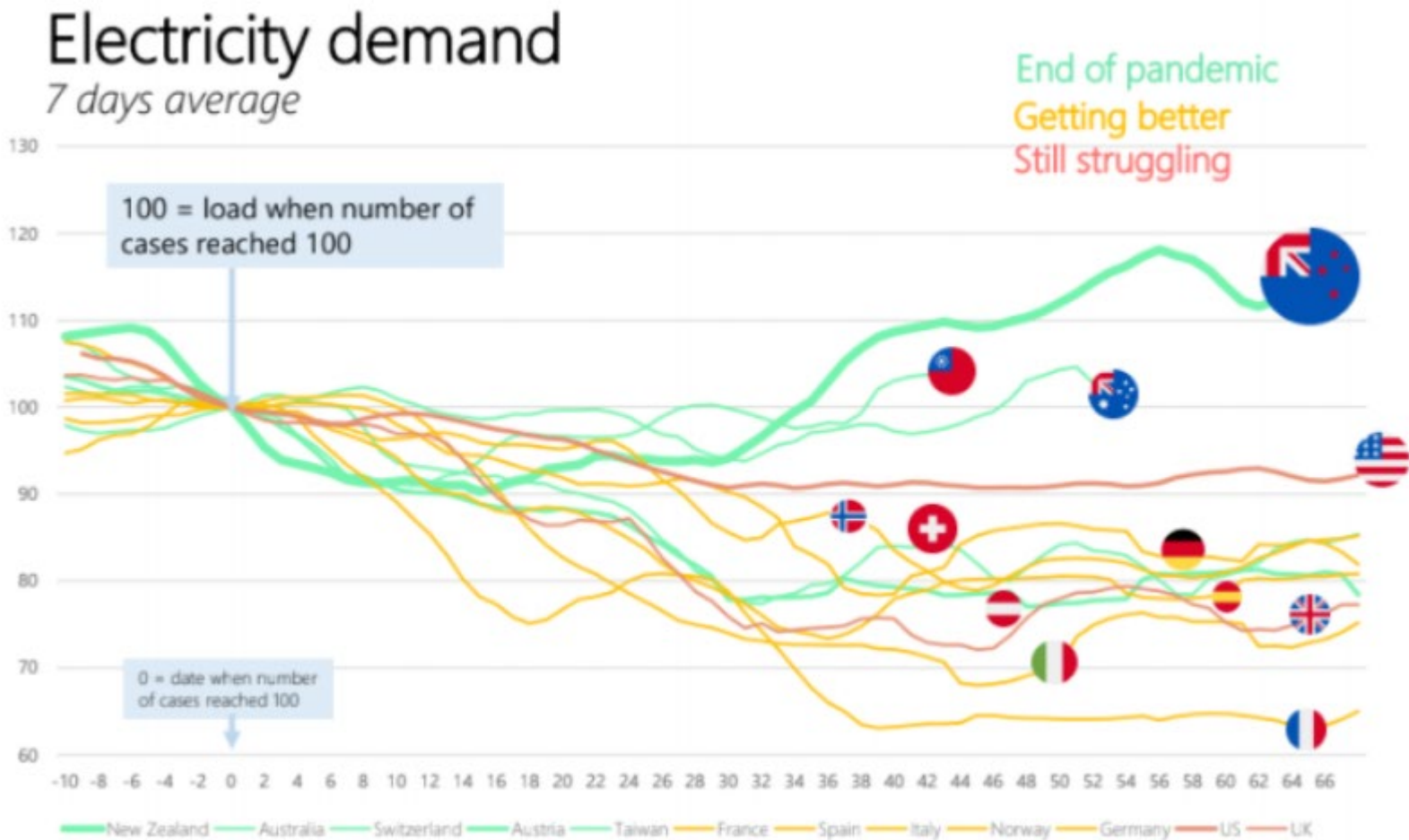
- Industrial load reduced – factories reducing operation or shutting down.
- Reduced air-con in commercial and retail buildings
- Changes in human behaviour reduces and shifts morning peak.
- A midday peak on week-days – more like a Sunday
- Required a change to load forecasting and scheduling of generation.
- “Everyday is like Christmas Day” (Transpower Operator)



# What happened after lockdown? An international comparison



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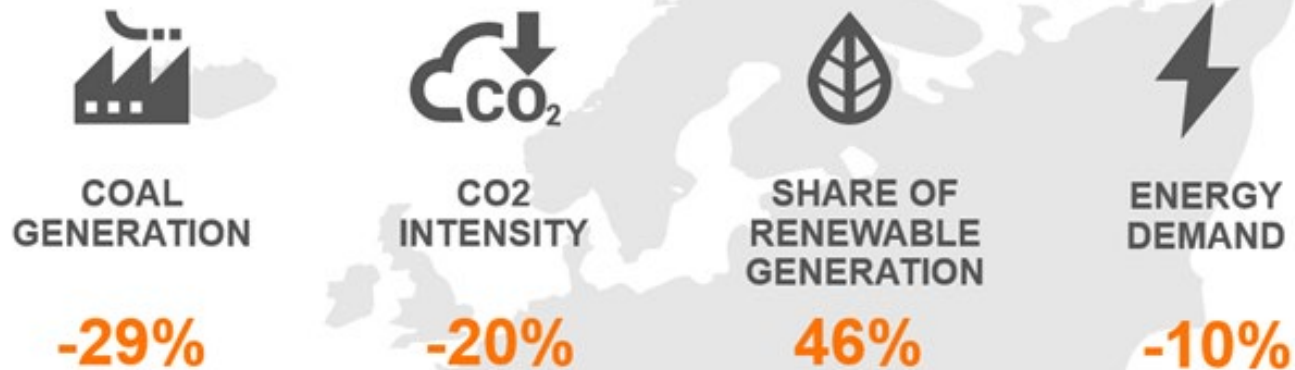


GLOBAL ELECTRICITY DEMAND VS COVID-19 IMPACT (GRAPHIC: MERCURY)

Source: [Thespinoff.co.nz/12/07/2020](https://thespinoff.co.nz/12/07/2020)

# And some good news....

## COVID-19 IMPACT ON THE EUROPEAN ELECTRICITY MARKET



Figures for the period 10 March to 10 April 2020 compared to 10 March to 10 April 2019.  
Source: Wärtsilä Energy Transition Lab

# Response of key sector participants: Electricity Generators

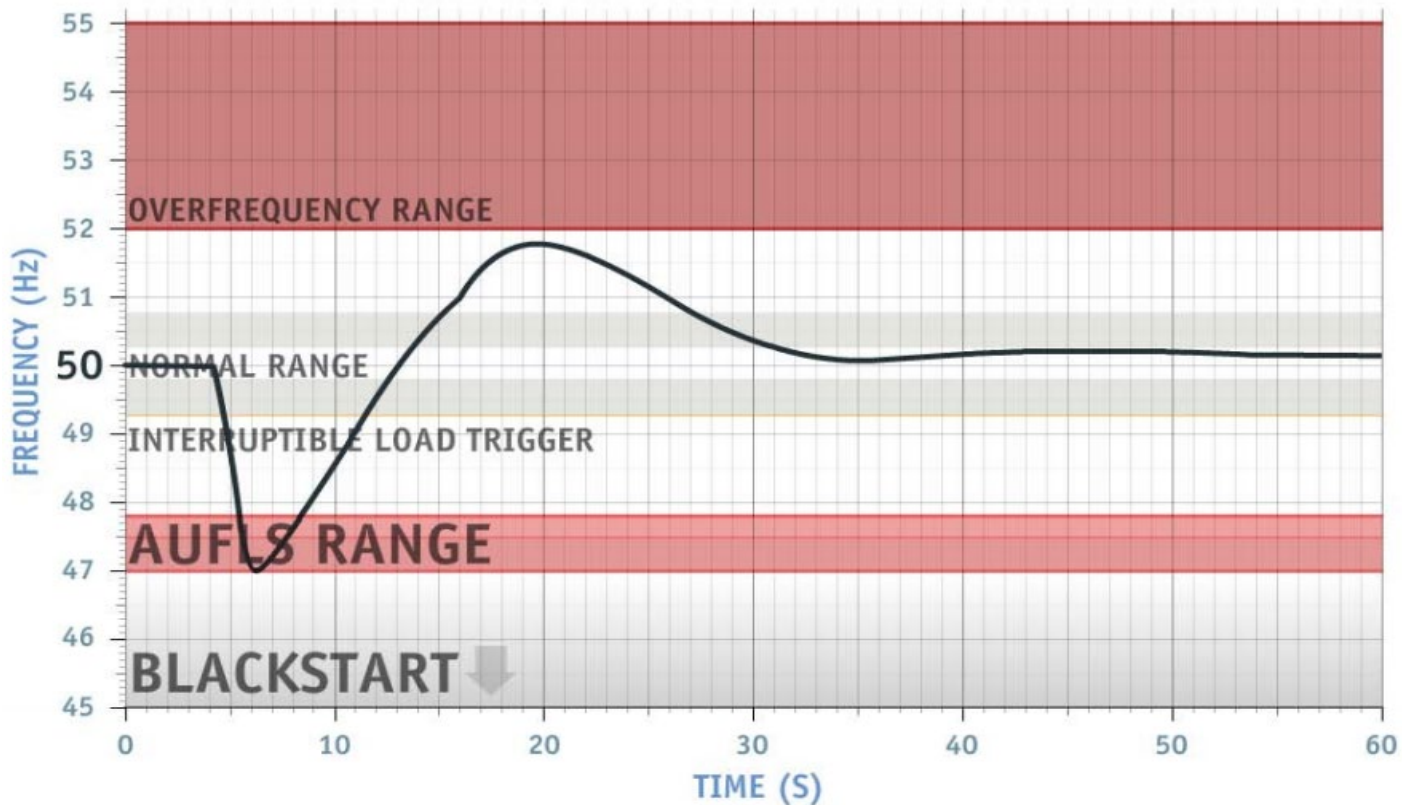
- Faced with reduced revenue due to reduced demand
- Reduced income due to lower prices on the spot market (possibly off-set by longer-term hedge contracts)
- “With lower electricity usage, has come lower electricity prices, down by around 20% since lockdown began.” (RNZ, 2 April 2020)

# Response of key sector participants: Transpower – the National Grid

- 24 March 2020: reviewed load forecasts. Predicted loads would follow a 'Sunday' load trend
- 9 April 2020: Very low electricity demand – 10% lower than lowest loads recorded in recent years.
- Results in high network voltages overnight (23:00 – 07:00). Requires switching out some transmission lines while still maintaining required grid security. Possibility of system Over-Frequency

# Response of key sector participants: Transpower – the National Grid

- Adjustment of AUFLS scheme to allow for lower system load.



# Response of key sector participants: Lines companies

- Required to maintain essential service operations – faults, emergencies, essential safety and network reliability work
- Staff and contractors working from home
- Deferral of all non-essential work on the network
- Cancel planned power outages unless required for essential safety or reliability work
- Organising network operators in to teams ('bubbles')
- Splitting staff across multiple sites
- Implementing strict hygiene practices

# Response of key sector participants: Electricity Retailers

- No disconnection of service due to non-payment
- Support for payment arrangements for customers struggling to pay
- Promotion of energy savings tips
- Support for business customers impacted by Covid shutdown
- Deferral payment of some fixed line charges

# Response of key sector participants: Consumer issues

- Decline in economic activity leading to increase in levels of electricity-related debt
- Consumers under financial stress and requiring flexible payment options
- Some customers e.g. Small businesses possibly opting for disconnection to reduce electricity-related costs
- “Lockdown: Expect your power bills to increase” (Stuff headline, 1st April 2020)