

# Impact of the Kaikoura Earthquake on Power Infrastructure

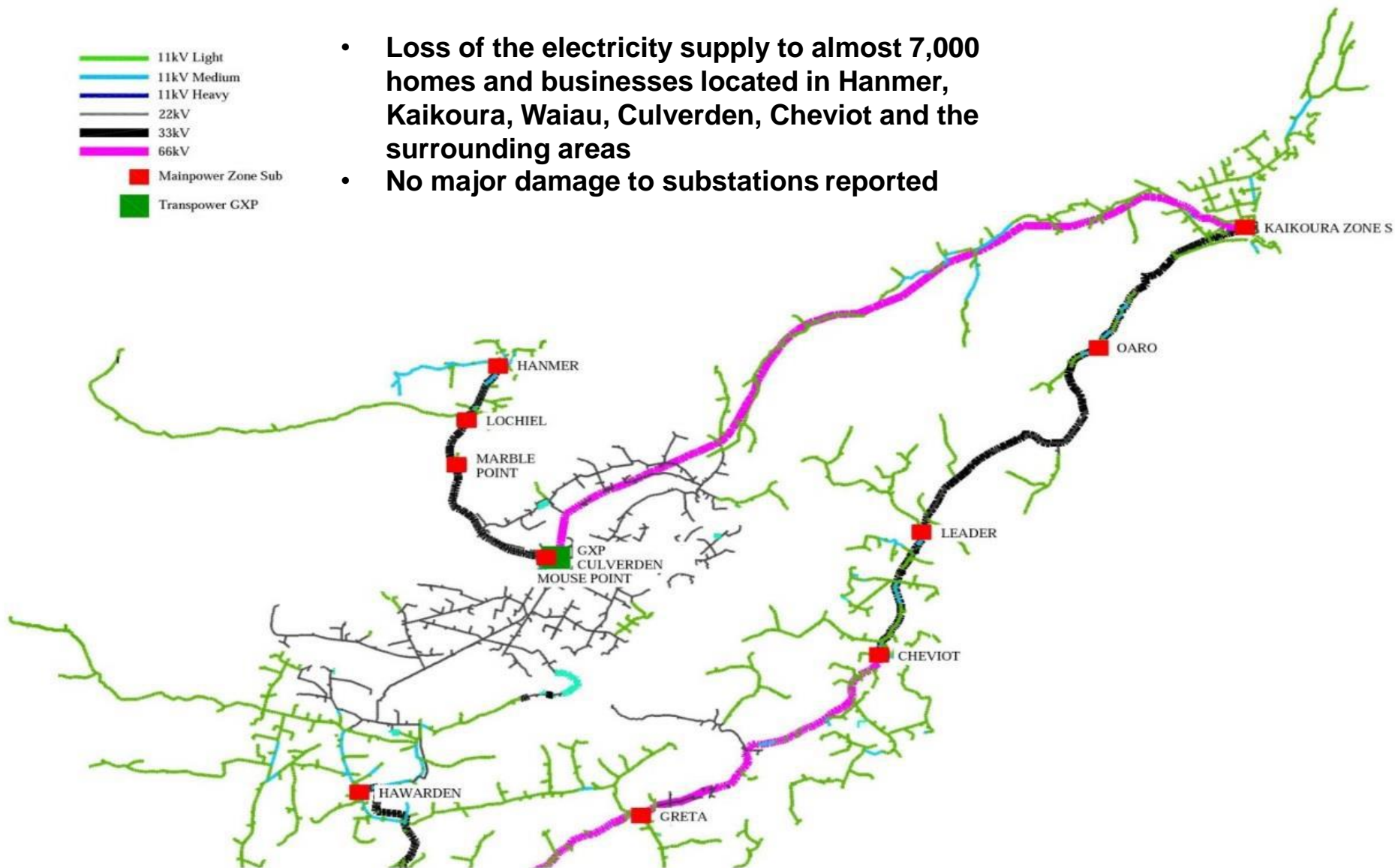
10<sup>th</sup> April 2017

Nirmal Nair

## Regional distribution network (MainPower):



- Loss of the electricity supply to almost 7,000 homes and businesses located in Hanmer, Kaikoura, Waiau, Culverden, Cheviot and the surrounding areas
- No major damage to substations reported



## Regional distribution network (MainPower):

- **Lean on Pole due to liquefaction**



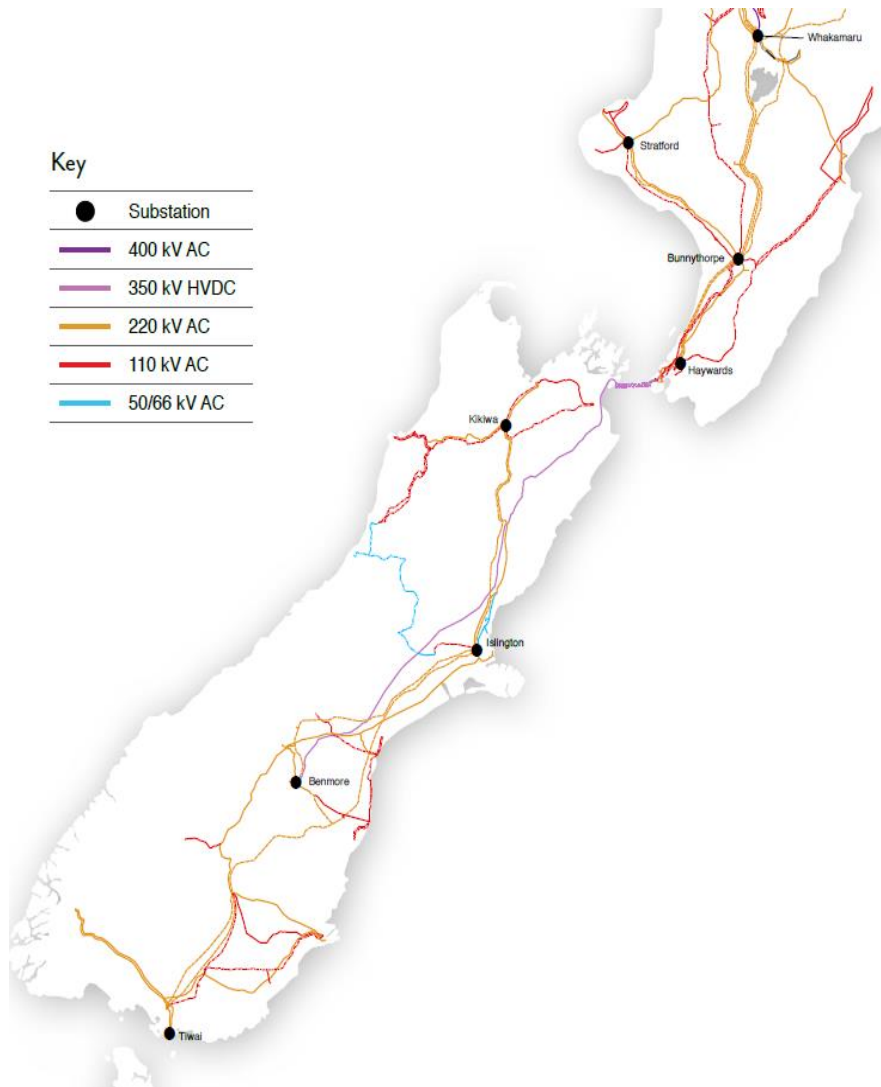
## **National grid (Transpower)**

- **A number of feeder trippings**
- **Loss of Kaikoura supply**
- **A tower on HVDC line in Marlborough**

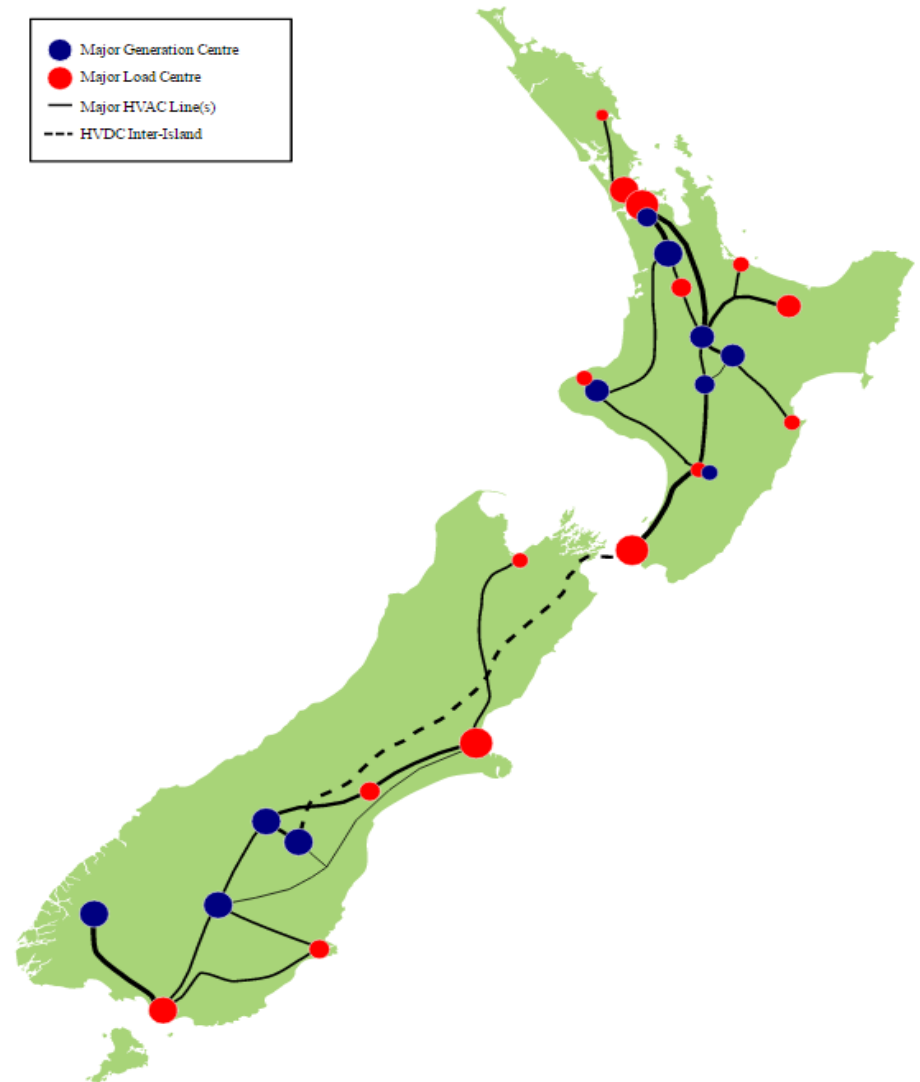
# Transpower National Grid

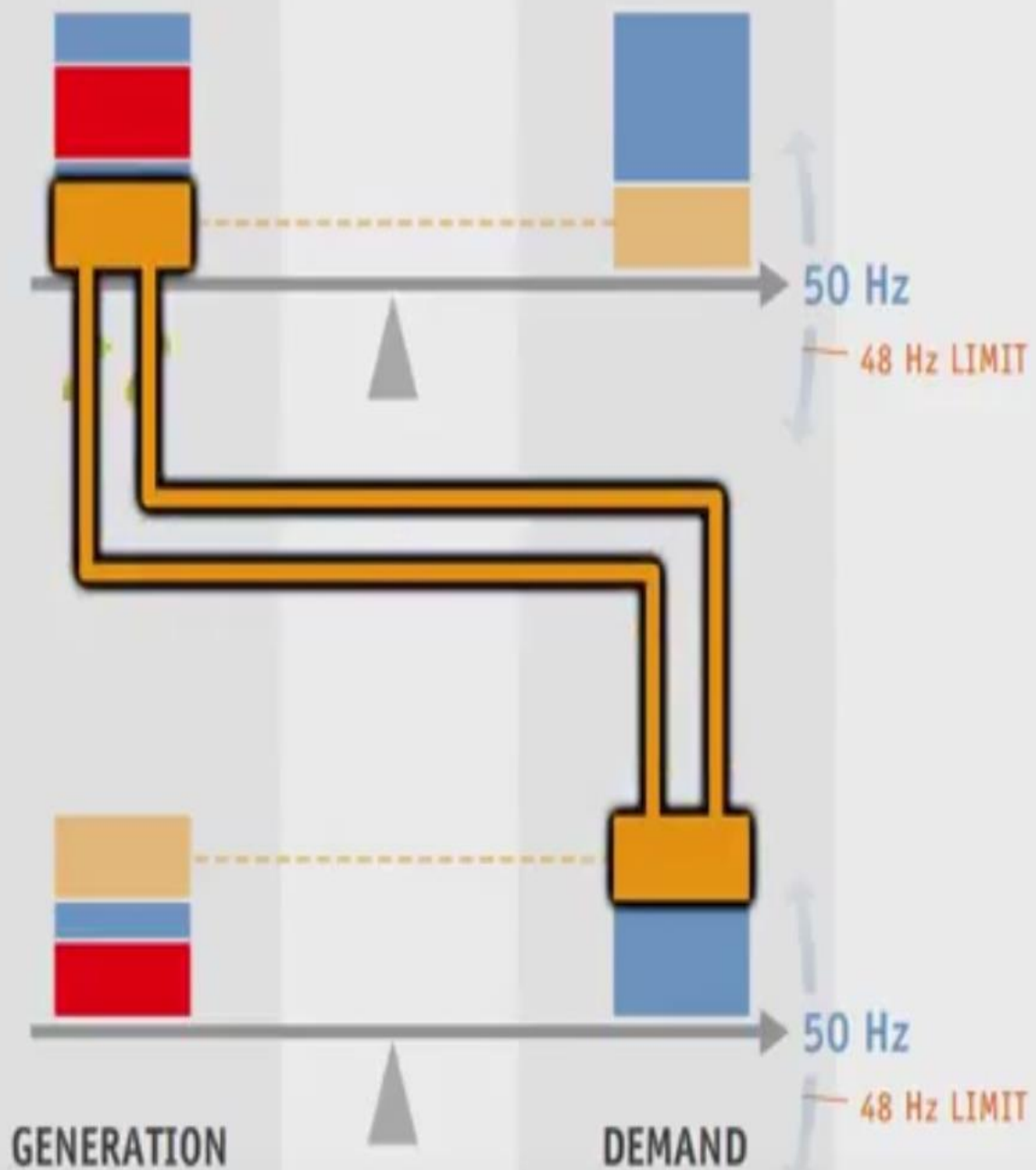
## Key

●	Substation
—	400 kV AC
—	350 kV HVDC
—	220 kV AC
—	110 kV AC
—	50/66 kV AC



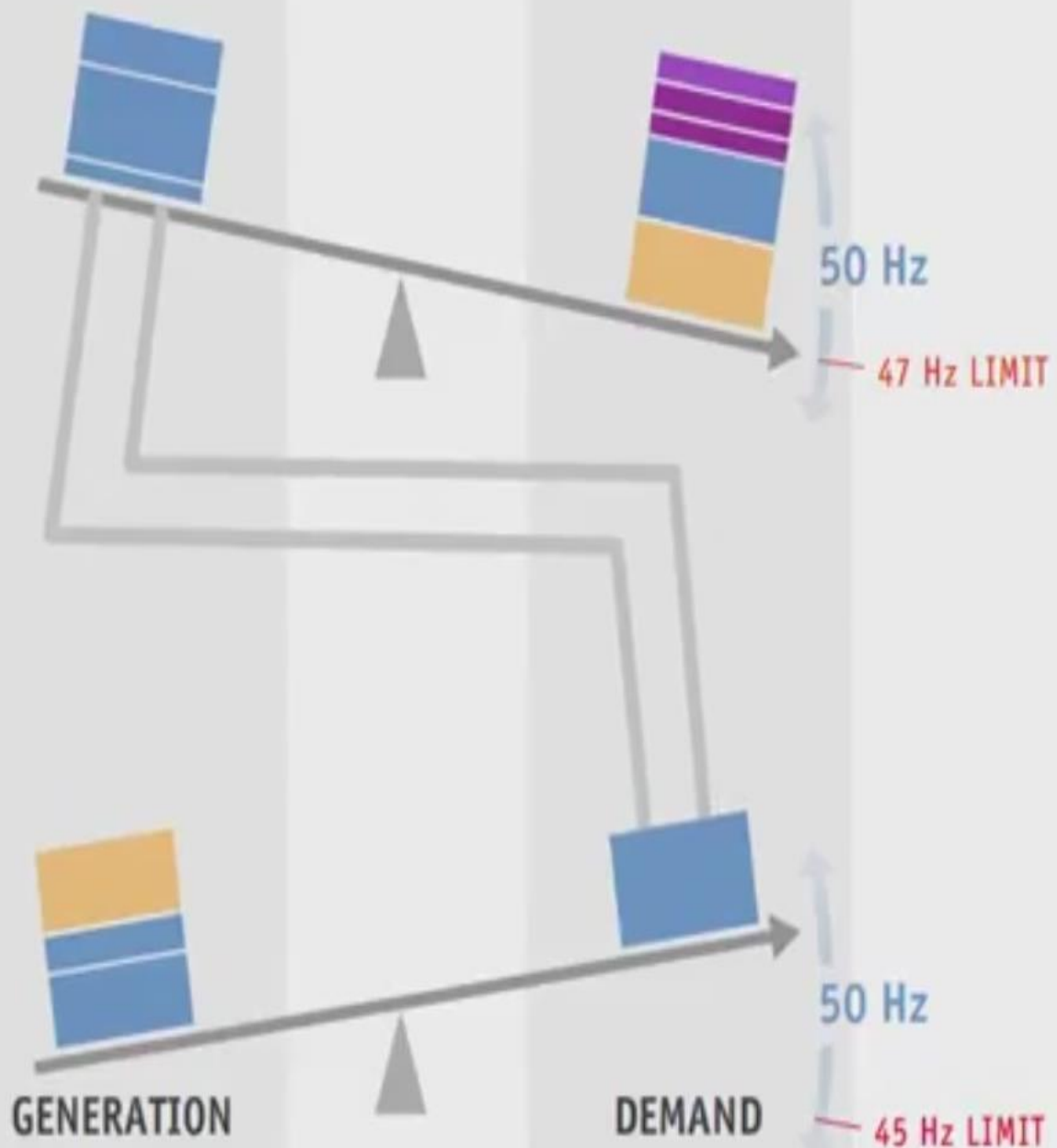
●	Major Generation Centre
●	Major Load Centre
—	Major HVAC Line(s)
- - -	HVDC Inter-Island







HVDC BIPOLE



50 Hz

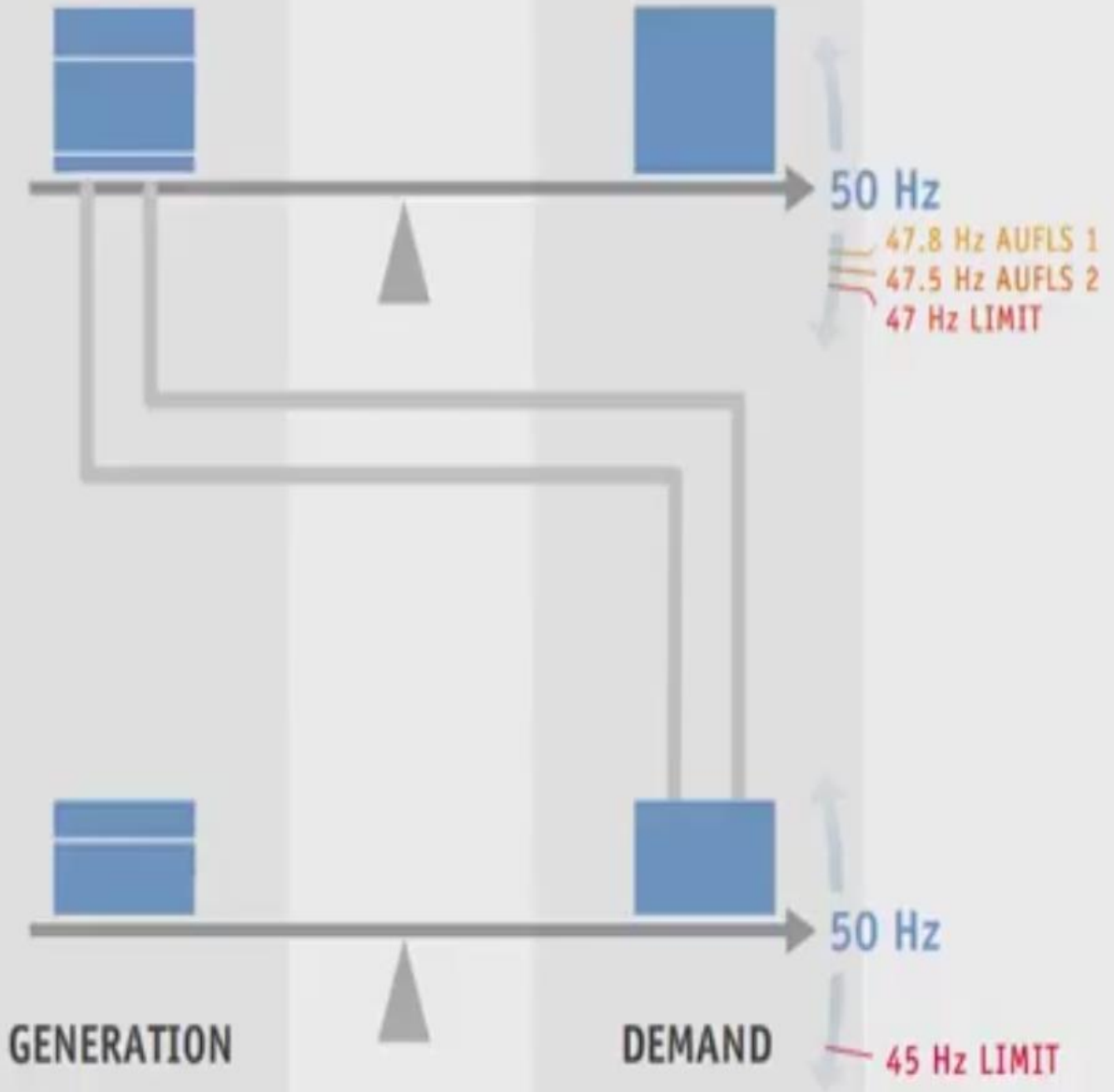
47 Hz LIMIT

50 Hz

45 Hz LIMIT

GENERATION

DEMAND





## **Conclusion**

**Mainpower:** Lost supply to almost 7000 home and businesses in the Kaikoura region. Power restored to Township within one day.

**Transpower:** Minor, except for the Kaikoura supply and HVDC tower in Marlborough.

## References

- MainPower Asset Management Plan
- Transpower HVDC lines video
- Transpower Annual report