

Transmission System Operations Update



*Keeping the lights on
24 hours a day, 7 days a week*

SYSTEM OPERATOR



Road Map



- What is an HVDC link and why do I care?
- How the new HVDC upgrade could change the world as we know it
- This is not your parents' transmission grid





What is HVDC anyway?



ONCE UPON A TIME...





New Zealand wins...

2nd HVDC circuit in the world to use mercury arc valve technology

Longest HVDC transmission in the world

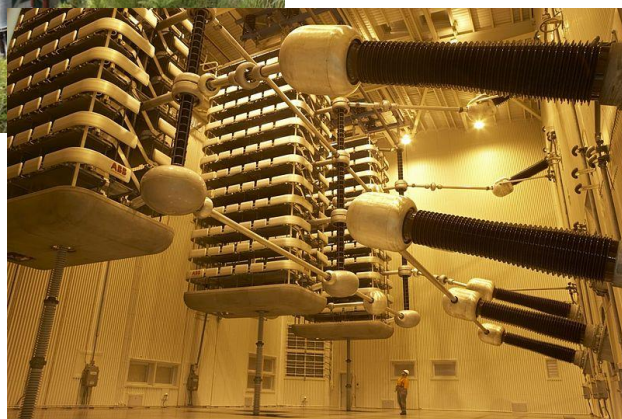
Largest undersea power cables

Highest power rating on an HVDC link



If ONE is good...

...two bigger ones
are better.



Pole 2 joined the Transpower
family in 1991.





Pole 1 departed this life on 1 August 2012, after 47 years of faithful service...

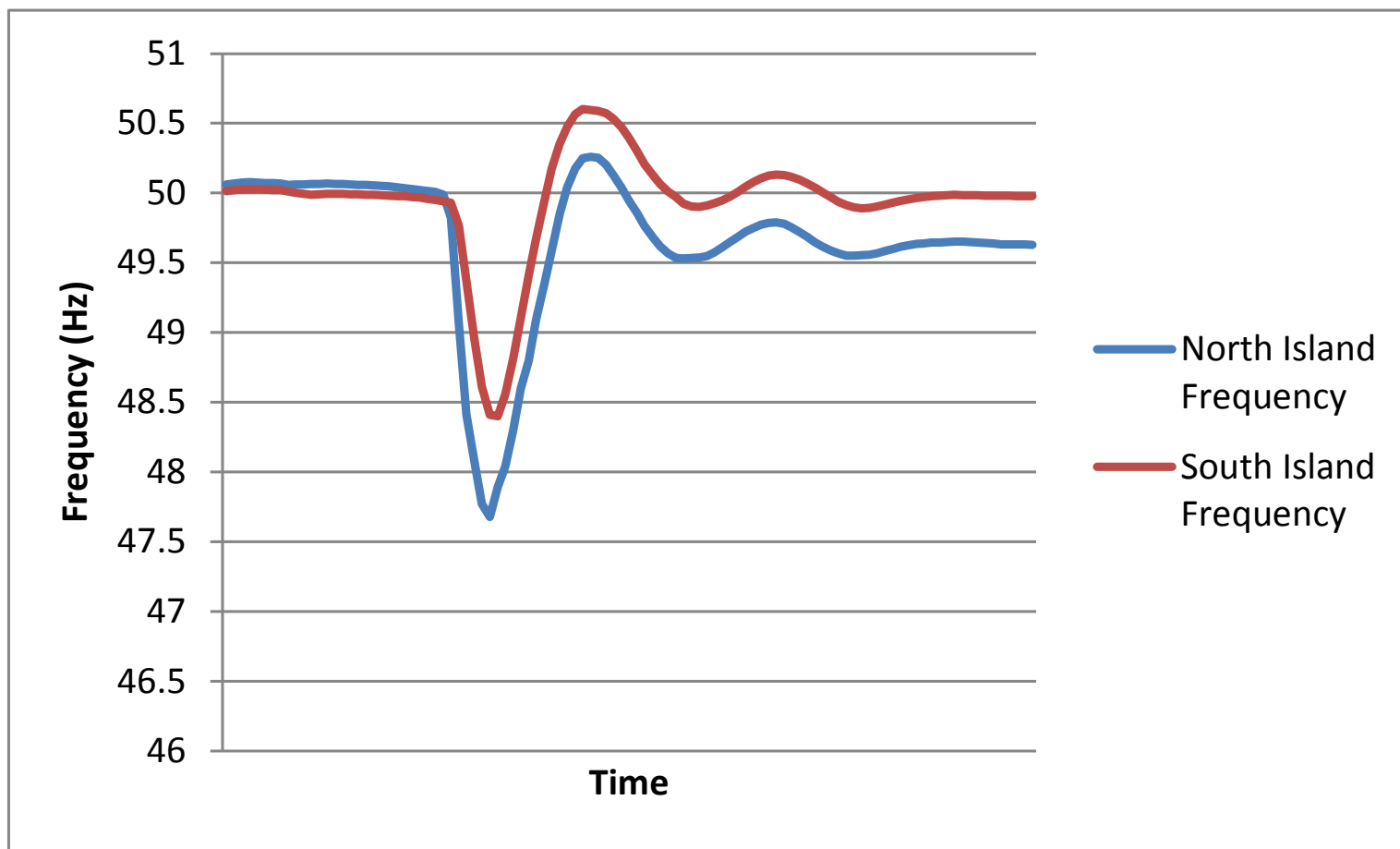
...and Pole 3 was born.



How Pole 3 changes life as we know it...



North Island vs. South Island System Frequency



National Reserves Market

NOW:

$$\text{NI FIR} = a$$

$$\text{NI SIR} = b$$

$$\text{SI FIR} = x$$

$$\text{SI SIR} = y$$





As we move into
the future...

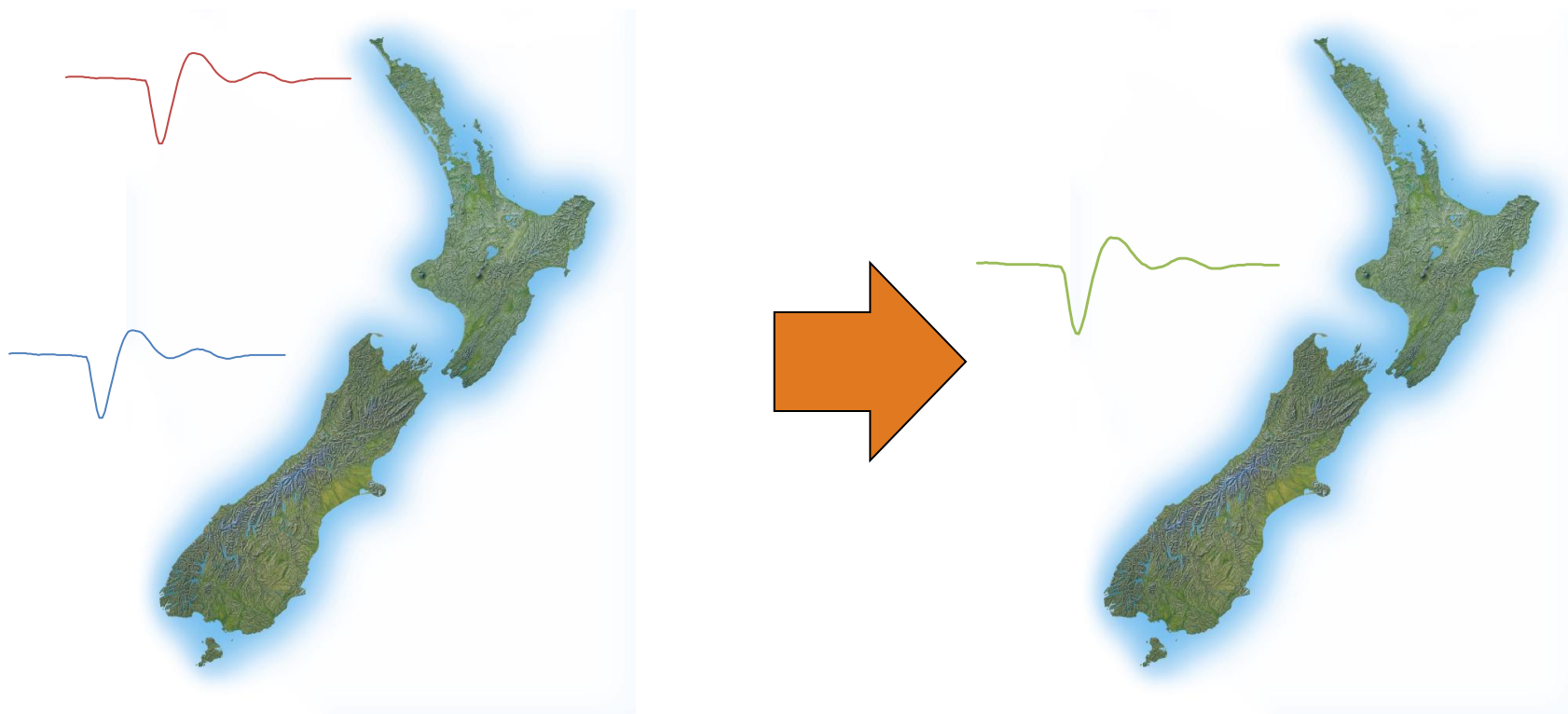


NZ FIR = x

NZ SIR = y

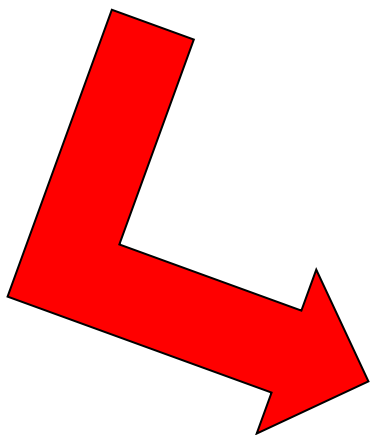


National Frequency Keeping Market





This is NOT
your parents'
power grid



What we need from **YOU**



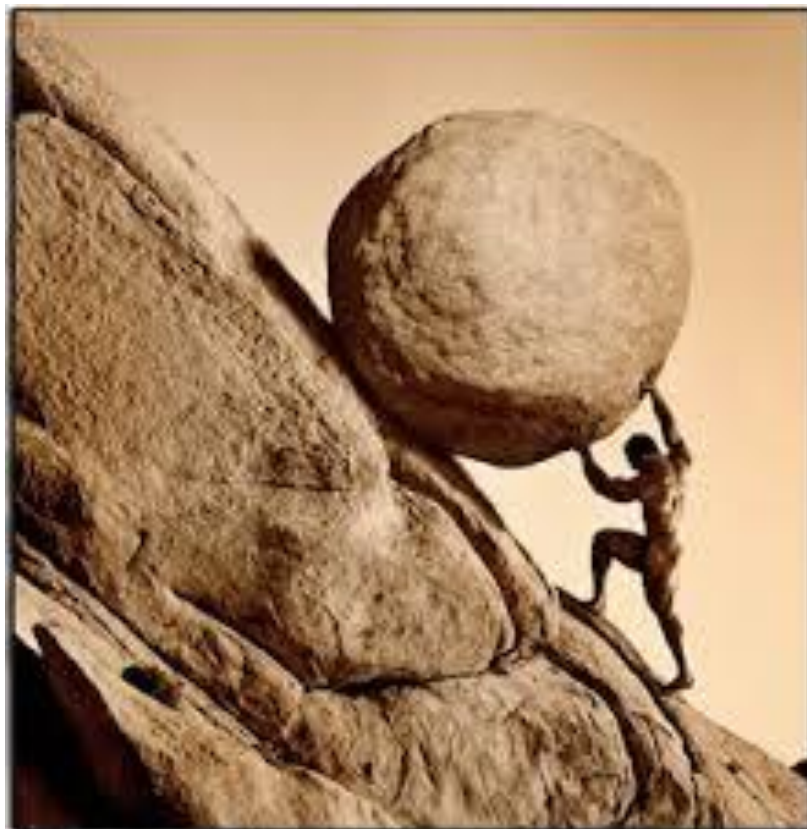


Need to demonstrate new technologies



INERTIA:

Not just for Isaac
Newton



Questions?

