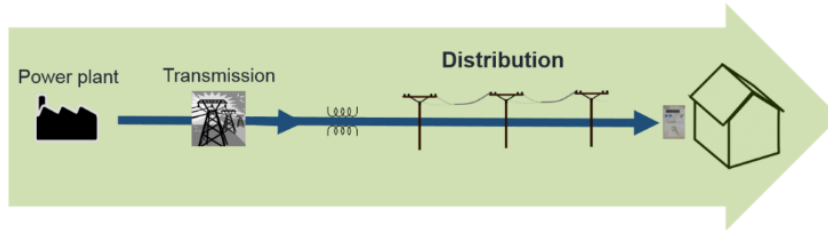




# Powerco submission – Technology change and the future of work

# New technology is changing the role of electricity distributors...

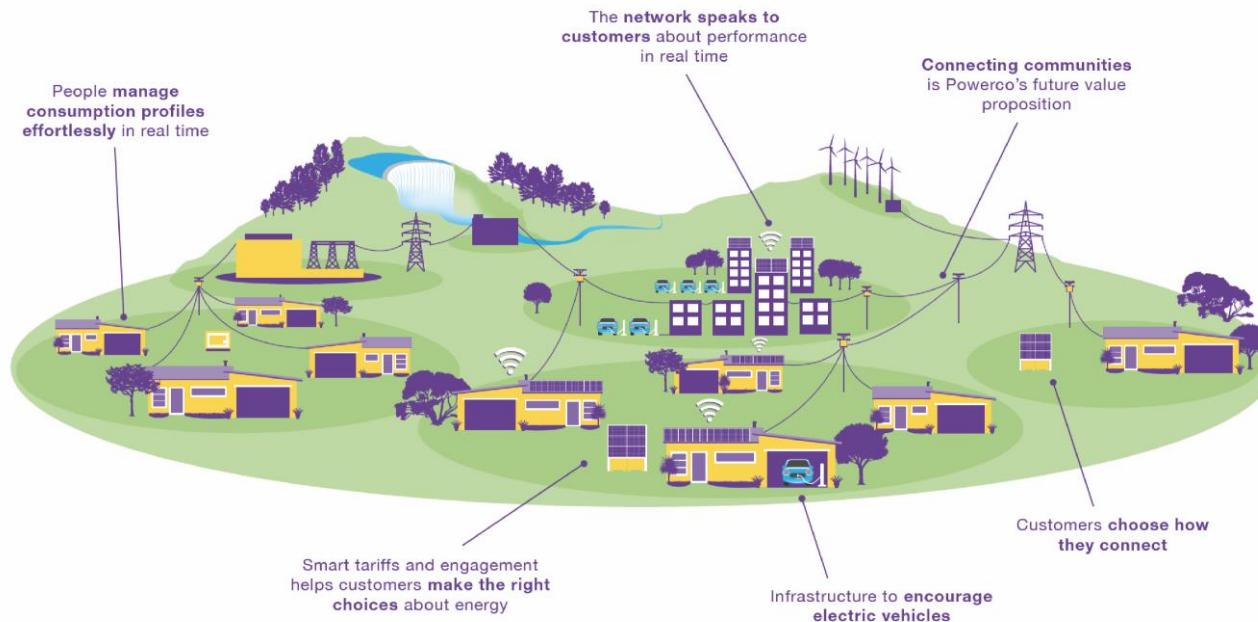
The traditional role for distributors is passive



Source: EDSO for Smart Grids

- Build long-life assets
- Predictable flows of power
- Passive consumers

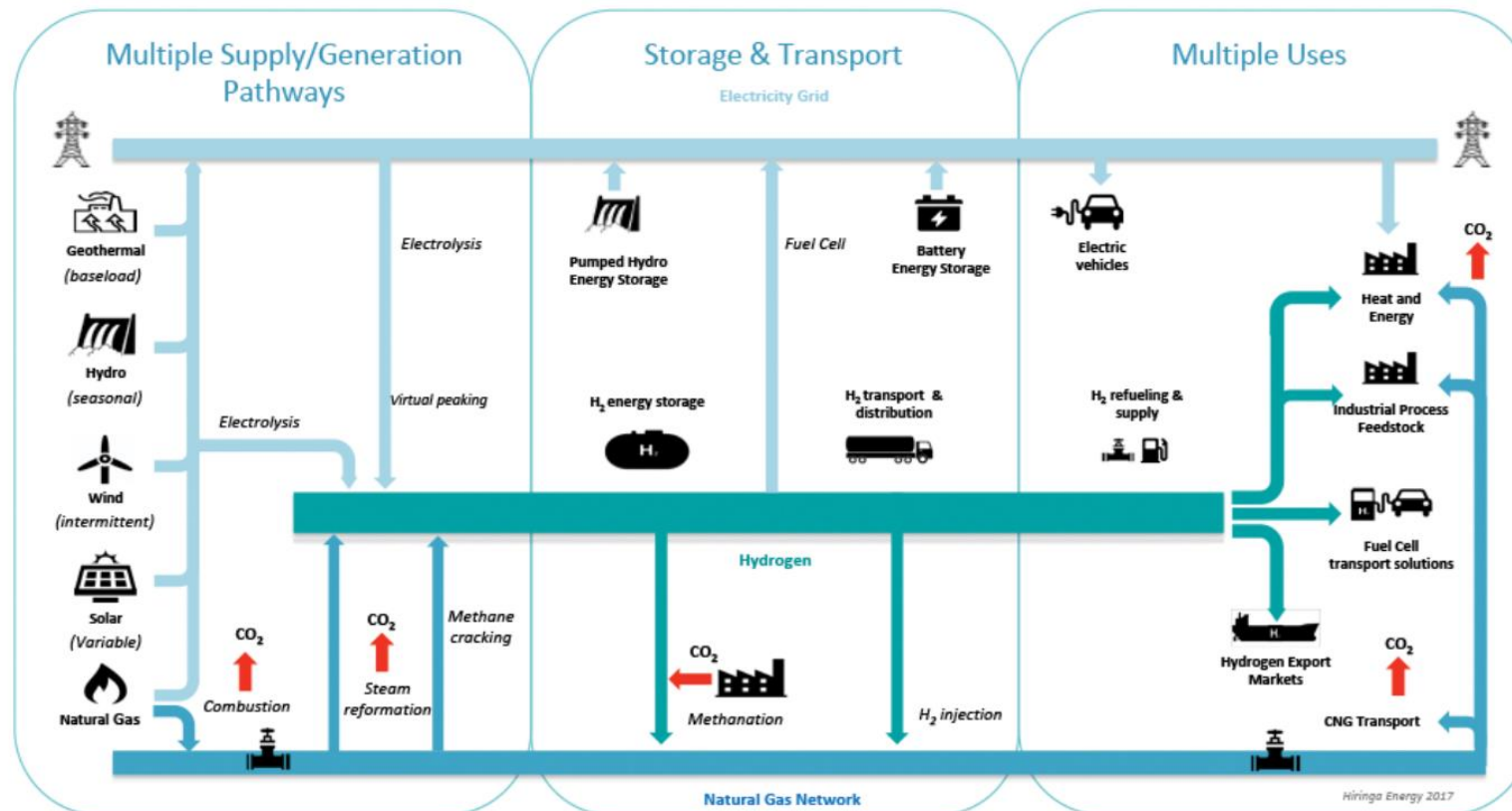
In the future, new technology (EV's/Batteries/home automation/solar) means the role of a distributor needs to evolve to meet changing demand



- Manage two way flows of power
- Enable end-users to participate in the market
- React to variable levels of generation, manage local storage via batteries
- Capture and use data

...and gas distribution too.

Decarbonising the economy could mean Hydrogen displacing natural gas

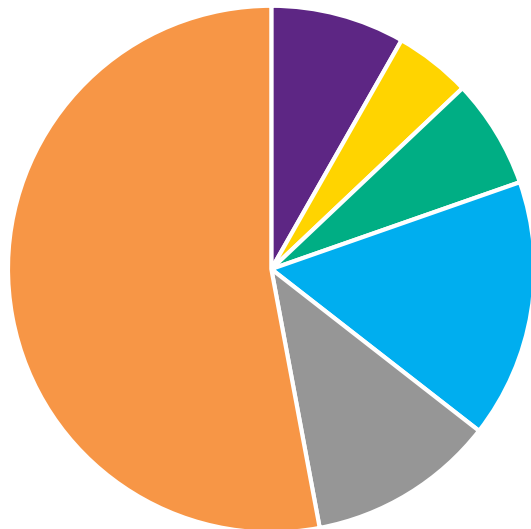


Hydrogen provides an “energy vector” connects the electrical and the molecular world, enabling penetration of renewable low-emissions energy to the whole energy system.



## Changing roles and new challenges means new skills are needed...

### Existing Staff numbers



■ Engineers      ■ Analysts  
■ NOC            ■ Support  
■ IT                ■ Field Service

As well as the need to retain the traditional engineering and planning skills we need more:

- Data scientists - to make sense of the data.
- Social scientists - to understand what our customers need or will respond to
- Digital and IT skills - to provide the digital tools for our customers to interact with the network

Just as important are the human skills:

- Critical thinking
- Dealing with risk
- Adaptable to change
- Innovation
- Continuous learning

## ...but we have existing challenges finding the right skills.

We agree with points raised in the issues paper around:

- **Over investment in University** – focus on simply getting any degree but not on critical thinking skills or future employment prospects.
- **Erosion of traditional training pathways** – apprenticeships and trades less valued as high paying career pathways.
- **Limited R&D and innovation spend** - less opportunity to keep talented graduates in New Zealand.

### **Powerco Example:**

Switchgear equipment has to be maintained to meet operational and safety requirements. The cheaper option would normally be to refurbish these units but a lack of available trained staff means we are paying more to maintain these assets. Replacement with new, but often less reliable equipment, is becoming necessary and drives up cost.

## The shortage of skills is increasing the costs of managing our assets.

### **Powerco Example:**

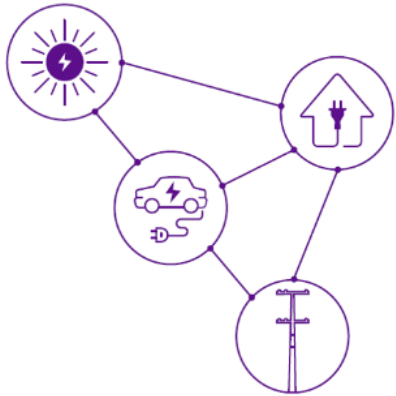
The cost of and time to analyse faults is increasing because technicians don't have the background knowledge to perform the assessments efficiently. Response time to diagnose and repair is magnified in times of critical faults. The teams on critical response just "don't know" the equipment they are responding to. The staff that *do* have the capability do exist – they are just low in number and retiring.

### **Industry Example:**

Transpower has indicated in its proposal for the next regulatory control period (2020-2025) reduction in forecast spend of \$58m capex and \$28m opex, primarily due to expected capacity constraints in the service provider workforce.

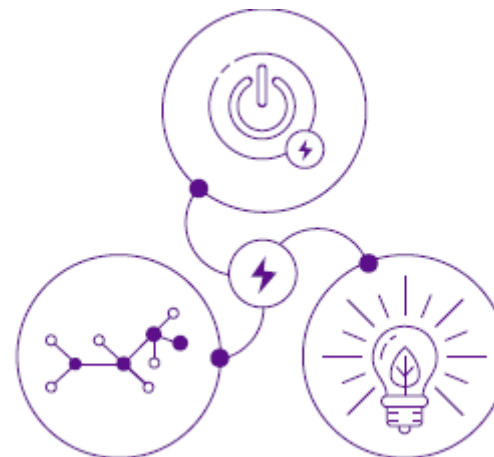
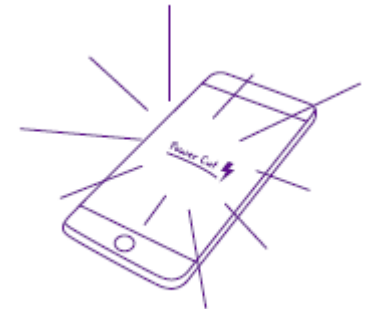
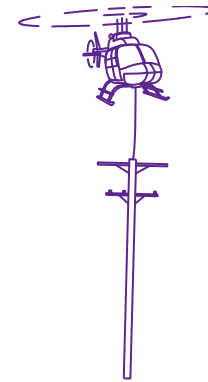
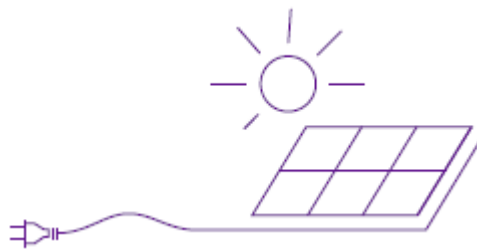
Pg 25 [https://comcom.govt.nz/\\_data/assets/pdf\\_file/0032/107978/Transpowers-RCP3-proposal-23-November-2018.PDF](https://comcom.govt.nz/_data/assets/pdf_file/0032/107978/Transpowers-RCP3-proposal-23-November-2018.PDF)

# Overall we see an exciting future as technology provides more opportunities...



We need to make the **right investments now** to get the **gains in the future**:

- alignment of training with industry need
- regulatory frameworks that encourage R&D
- support for re-training





**The End**

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