TRANSPOWER

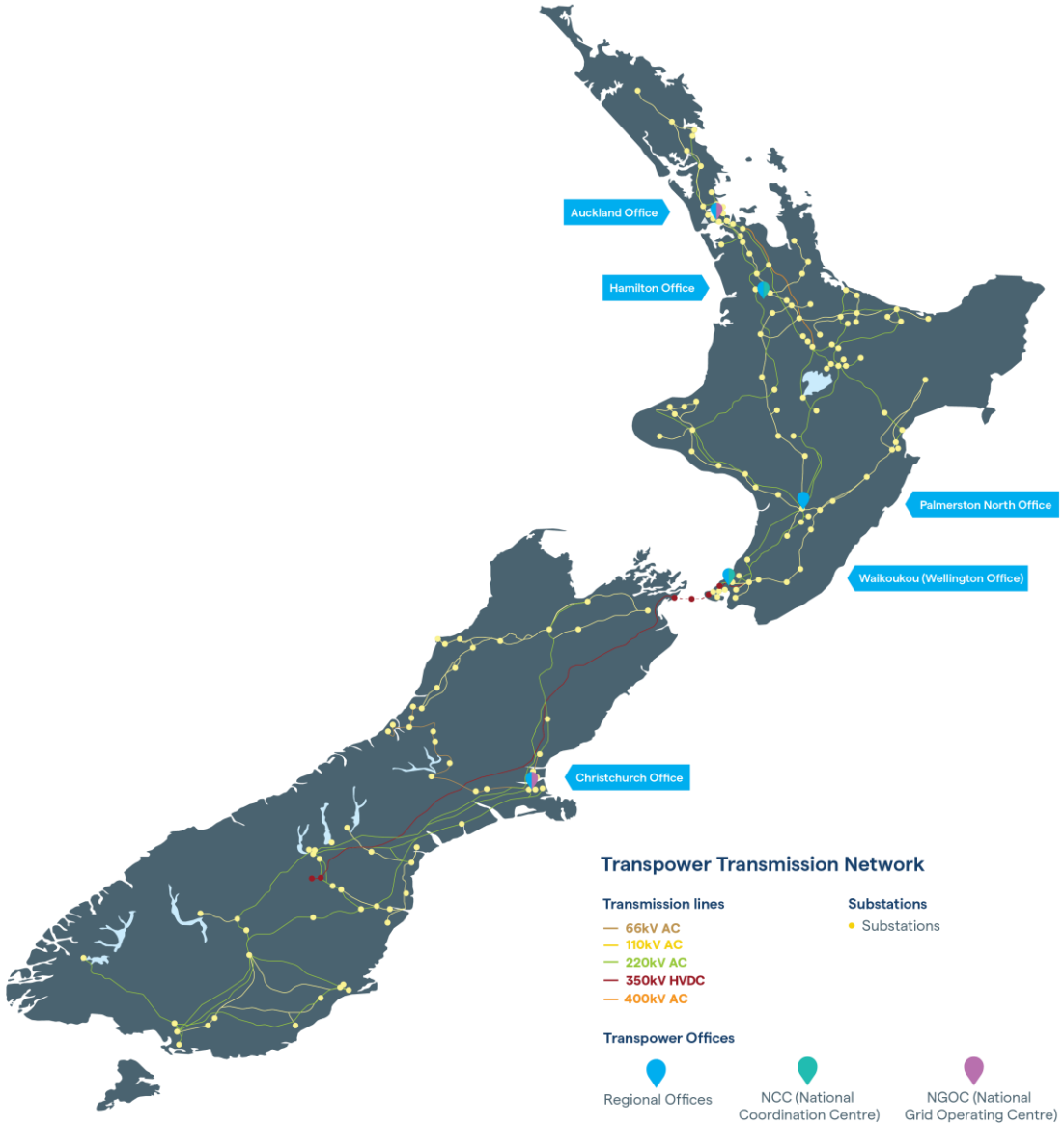
Sunrise: Driving towards a Greener Future

Raewyn Moss, EGM Customer & External Affairs

30 April 2025

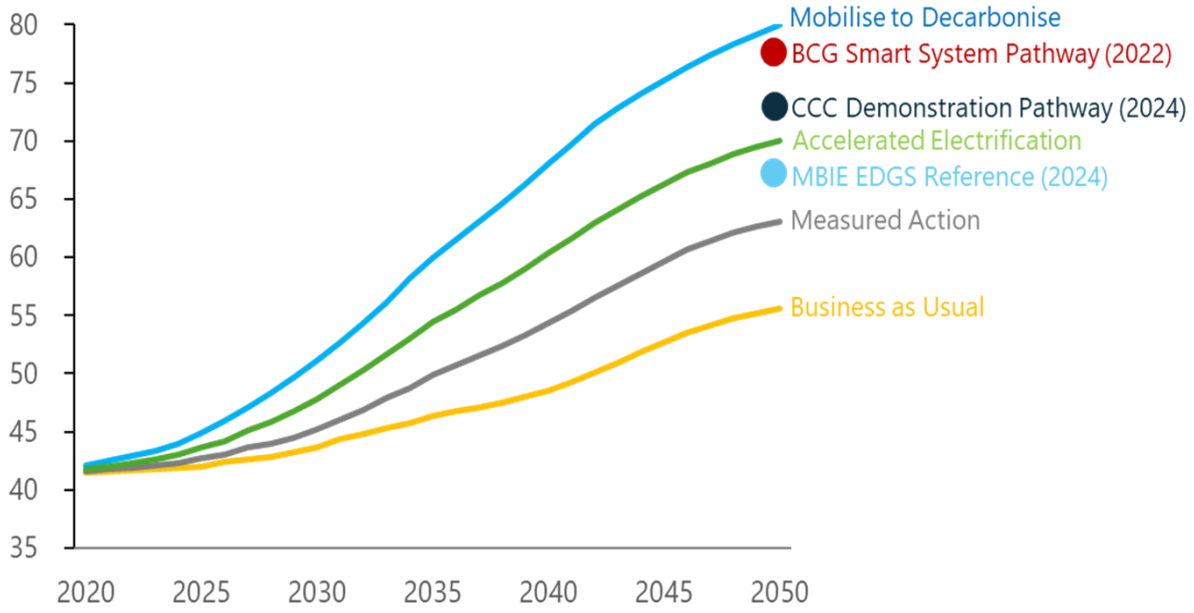
Who we are

- Owner and operator of New Zealand's national electricity transmission system
- We provide the infrastructure and market system that connects electricity generators to major electricity users and the distribution network
- Over $5 billion in assets positioned across some 30,000 properties
- 174 substations, 25,000 transmission towers and more than 11,000 kilometres of lines
- Operate the electricity market system in real time
- Offices in Wellington, Auckland, Hamilton and Christchurch
- Around 1000 staff



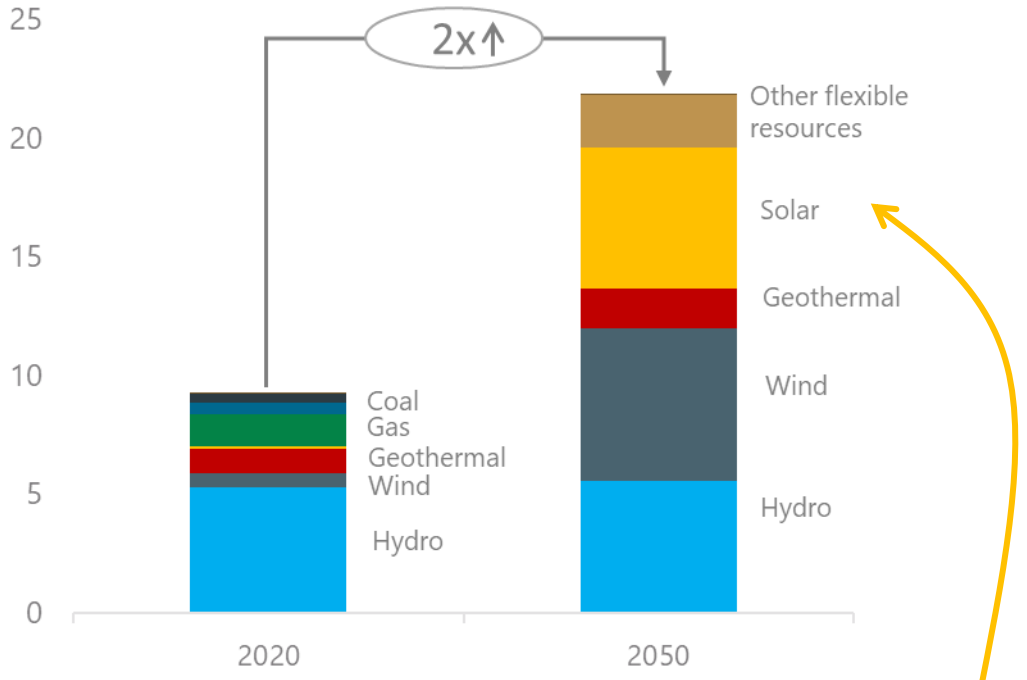
Electricity demand forecast to grow, supported by renewable energy buildout

Transpower and selected future electricity demand scenarios
(TWh)



Source: BCG, MBIE, CCC, Transpower. Last updated September 2024.

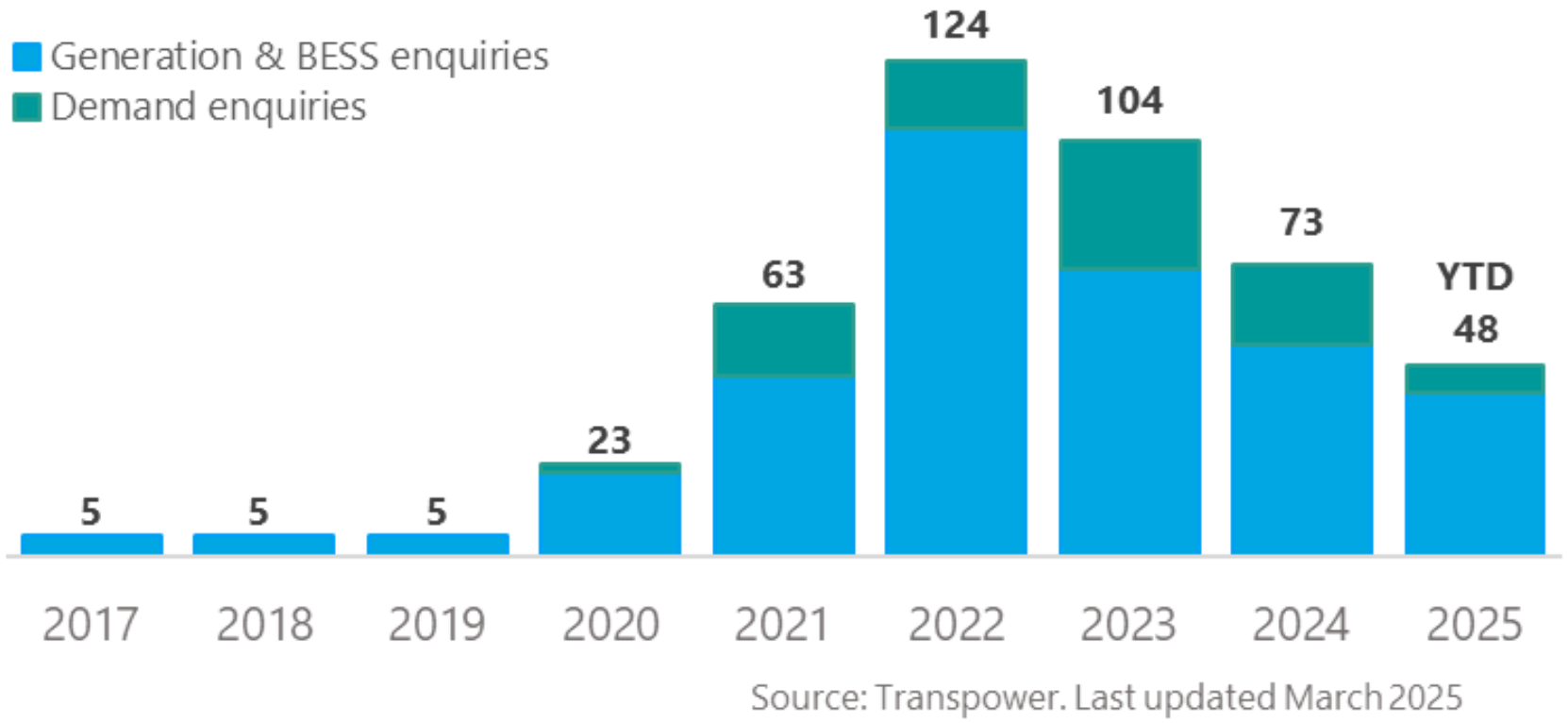
Electricity installed capacity by generation type
(GW, Accelerated Electrification)



~6 GW of distributed + utility scale PV solar

Source: Transpower

Generation and demand enquiries to Transpower have stabilised, but remain high



Source: Transpower. Last updated March 2025

Our Connection Pipeline – the numbers

Connection Pipeline – April 2025

(Generation and energy storage)

Total pipeline = 89 projects (16,089 MW)

2 Application stage

34 projects
(7,929 MW)

11	1	20	0	2
2,110 MW	280 MW	5,433 MW	116 MW	106 MW
		69%		

3 Investigation stage

39 projects
(6,050 MW)

8	1	29	0	1
1,538 MW	100 MW	4,222 MW	0 MW	190 MW
		70%		

1 Delivery stage

16 projects
(2,110 MW)

1	1	11	2	1
93 MW	100 MW	1,846 MW	16 MW	55 MW
		87%		

Where projects include more than one type of resource, they are categorised under their primary output. Thirty projects in the pipeline also include battery energy storage systems.

Paired solar & energy storage (BESS) is starting to emerge

In delivery:

- 9 solar projects
- 1 solar + BESS
- 2 BESS*

In investigation:

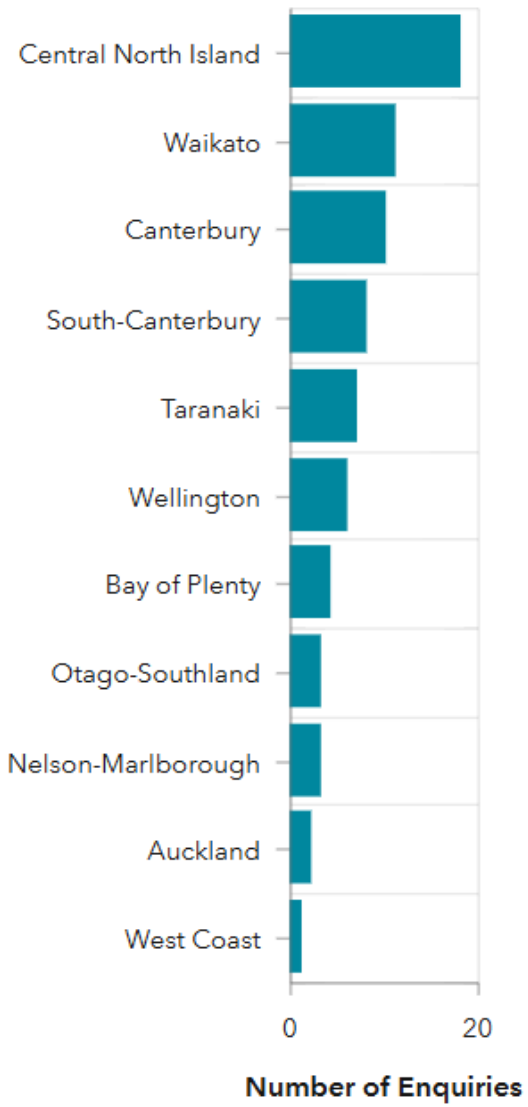
- 16 solar projects,
- 13 solar + BESS
- 2 BESS*

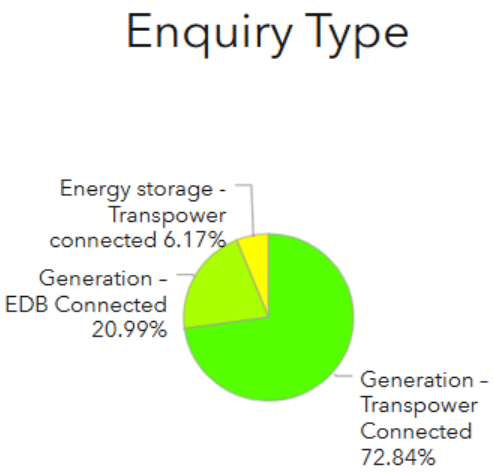
Awaiting investigation:

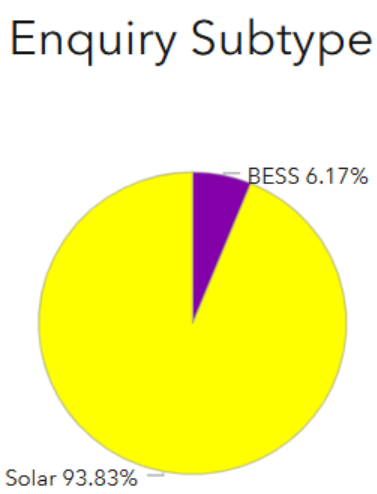
- 7 solar projects,
- 11 solar + BESS
- 1 solar + wind
- 2 BESS

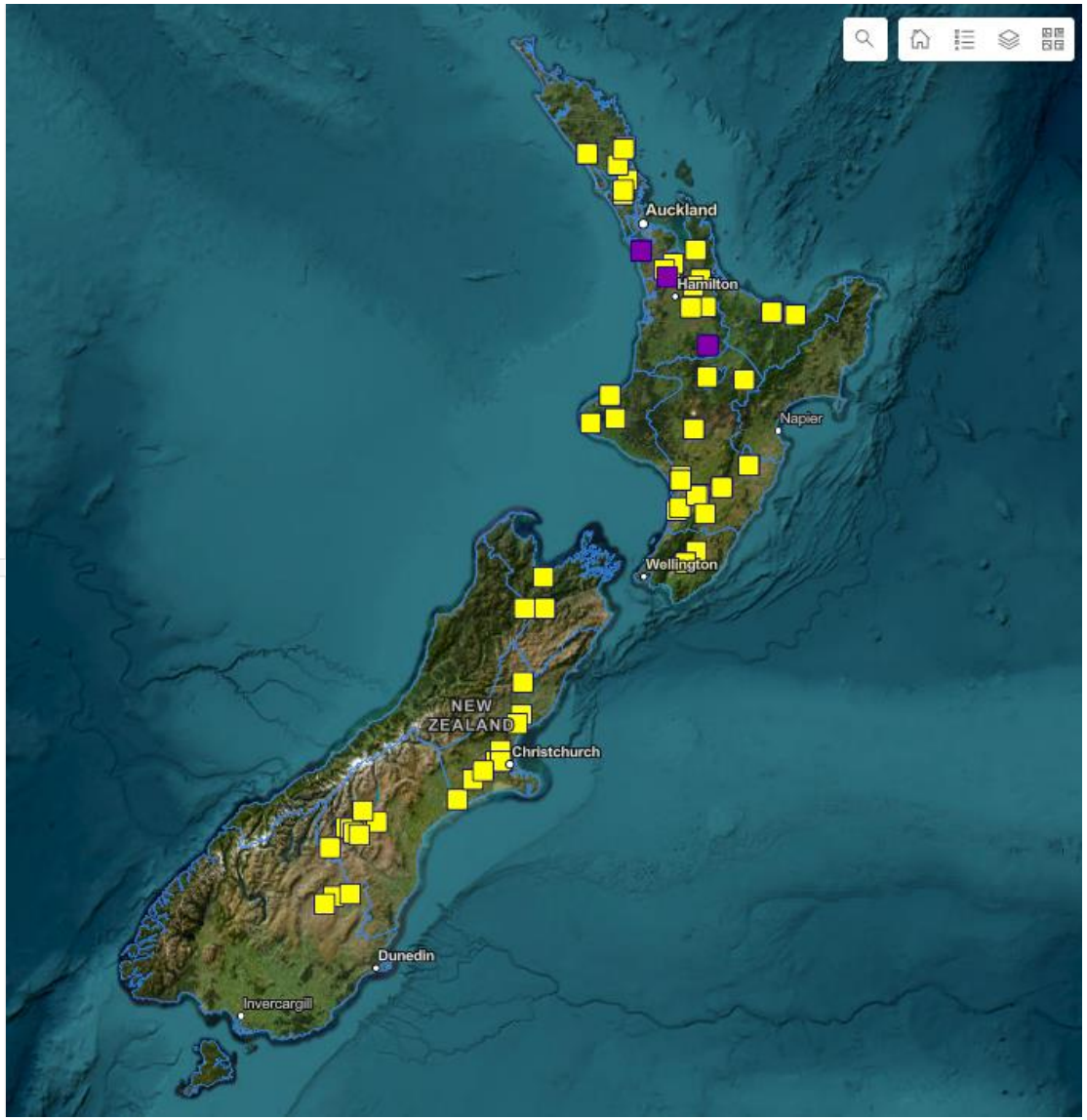
*some projects previously solar + BESS have changed to BESS only

Our Connection Pipeline – where are they









Challenges and opportunities in connecting solar

- We have opportunity to learn from others such as Australia:
  - Subsidies drove very fast uptake of residential solar - uptake well ahead of batteries being economic
  - Intermittent supply:
    - alternative supply at night/winter – less sun/when its cloudy
    - variability can make it difficult to maintain consistent and reliable supply
  - Leads to challenges in keeping the grid balanced & stable
  - Can cause voltage issues on grid

Challenges and opportunities in connecting solar

What can we do in New Zealand:

- Installing solar using right technical standards – grid forming inverters etc
- Add batteries – store energy to use at peak/when it's not sunny and encourage electricity to be time shifted
- Opportunity to consider connecting at a common location (shared connection) if there are multiple solar farms close by
- Solar farms and BESS near Transpower's assets need to be planned carefully to not create safety risks or compromise the operation, maintenance, upgrade and development of the grid

Questions