“Investing in the grid – beyond the catch up ”

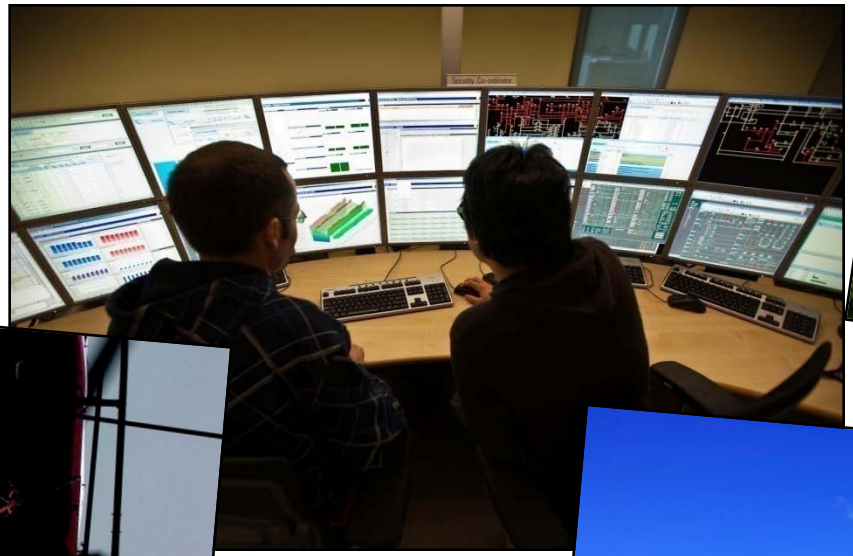
Patrick Strange
Chief Executive, Transpower New Zealand Ltd

TRANSPOWER

Transpower – what we do

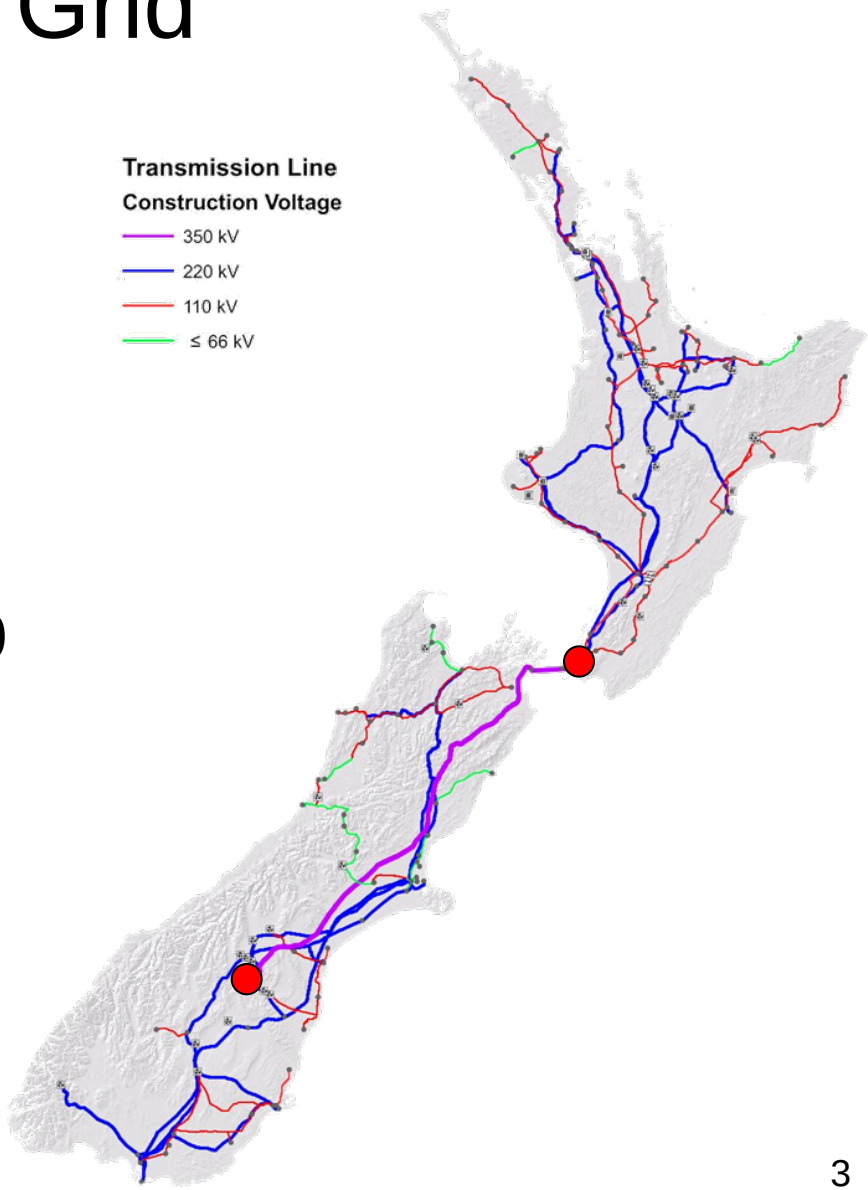
- Plan, build and maintain the national grid

- Operate the system in real time

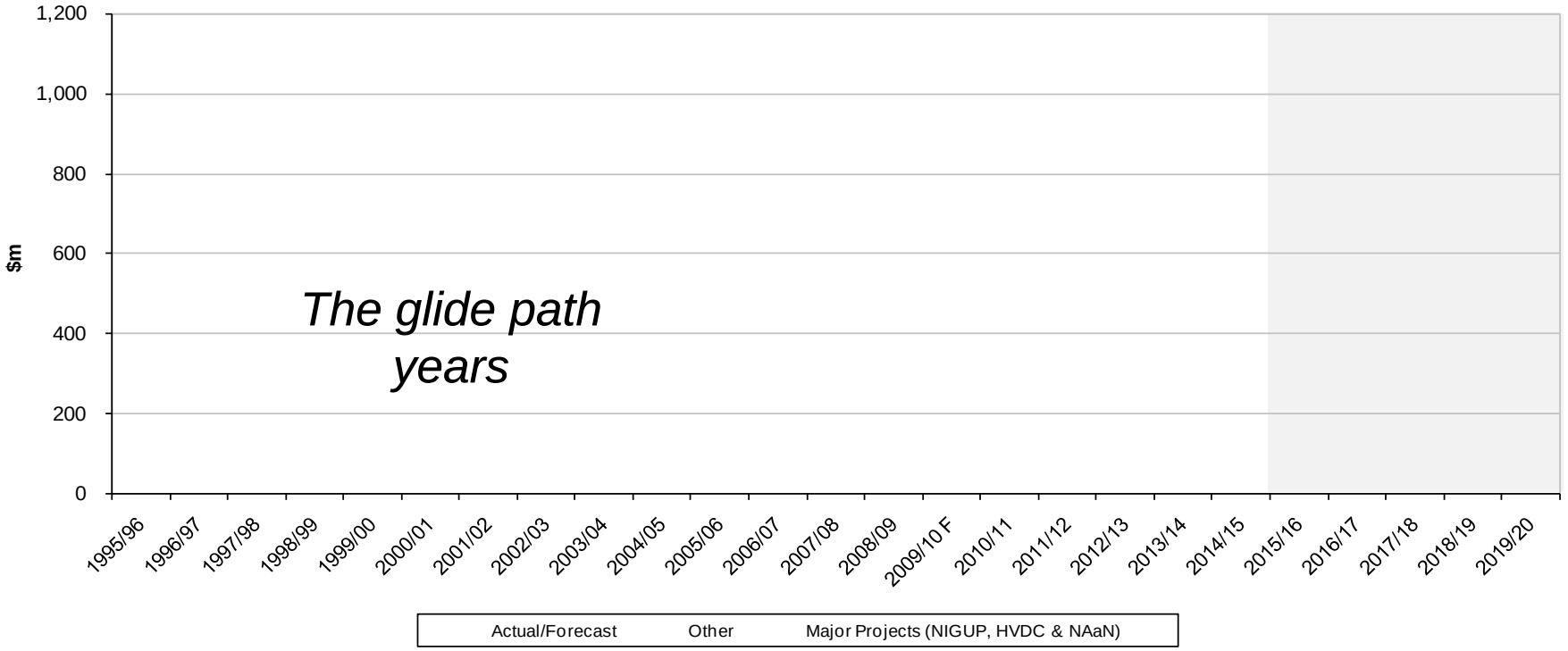


The National Grid

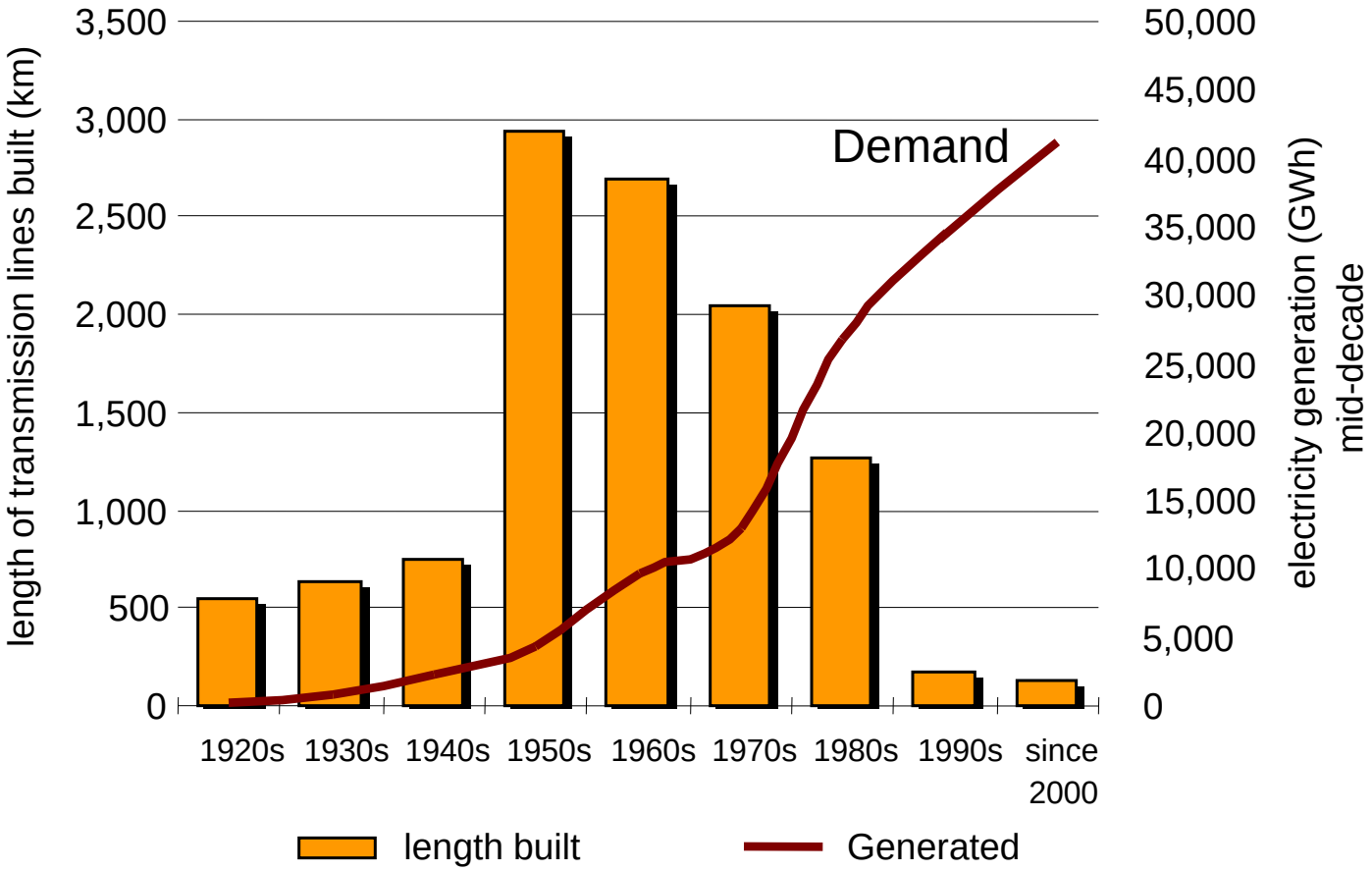
- 11,800km of high voltage lines, 181 sub/switching stations
- 41,000 towers and poles
- 1,000 power transformers; 2,300 circuit breakers etc
- Assets are located in all 85 Regional, District and City Councils

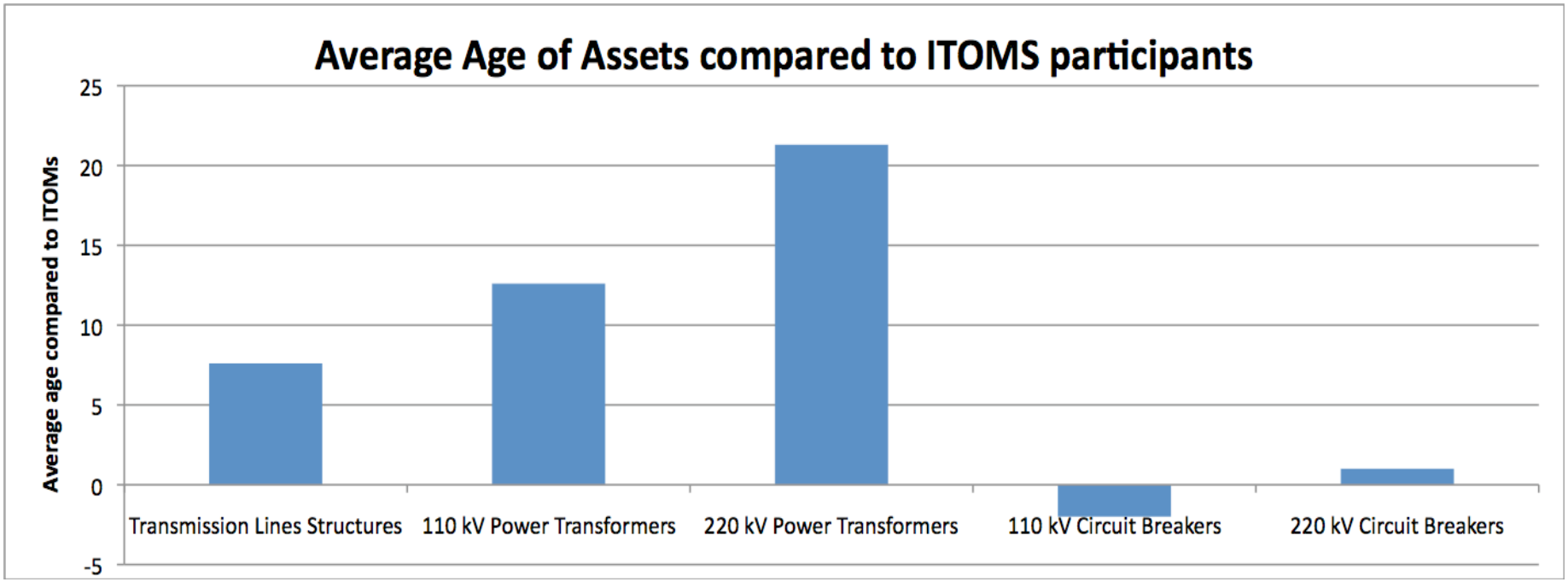


Transpower capex



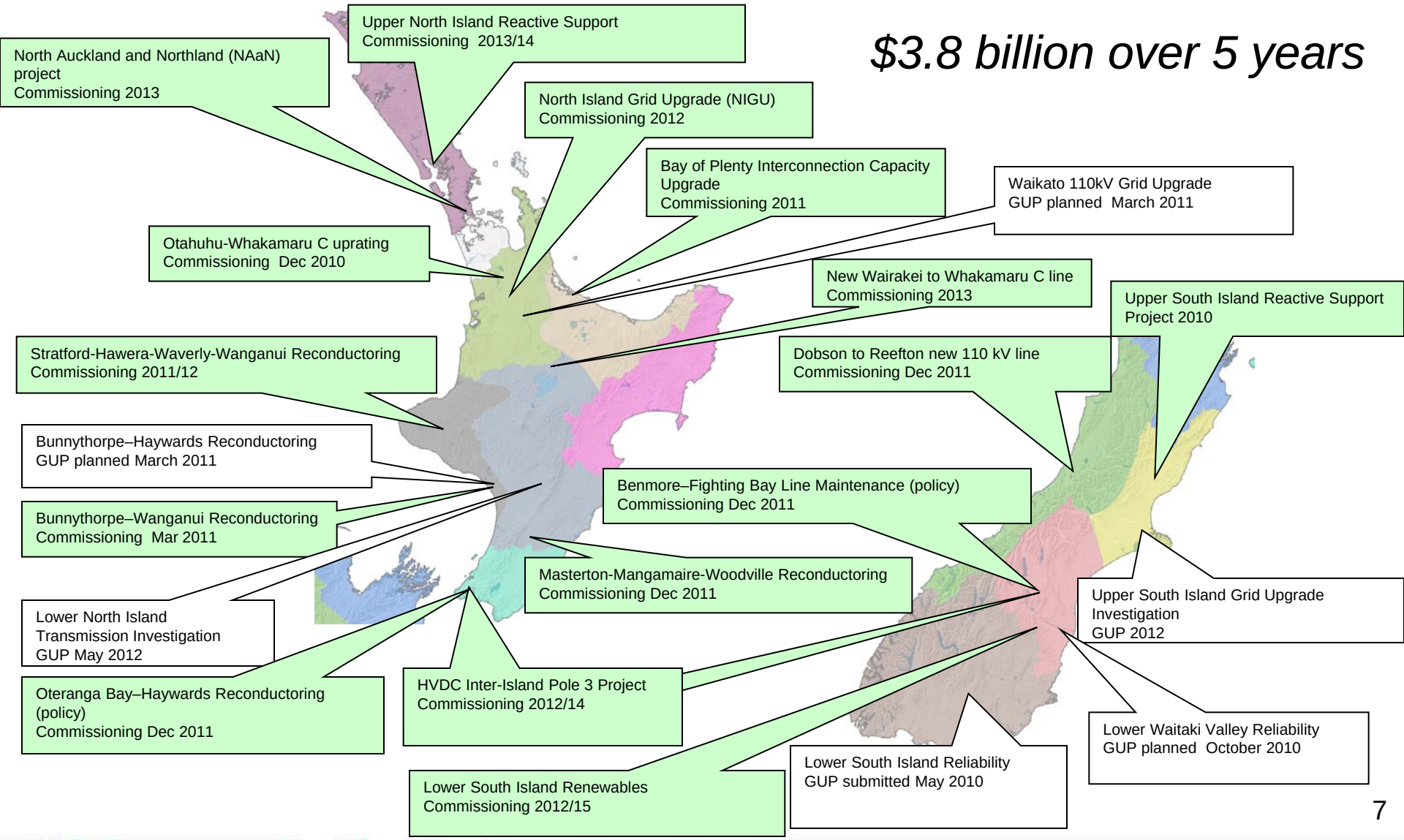
But demand is increasing…




Average Age of Assets compared to ITOMS participants
Average age compared to ITOMs
25
20
15
10
5
0
-5
Transmission Lines Structures
110 kV Power Transformers
220 kV Power Transformers
110 kV Circuit Breakers
220 kV Circuit Breakers

Reinforcement

$3.8 billion over 5 years



Beyond the catch up

- Can we deliver?
- Was distributed generation ever around the corner?
- Will the smart grid transform transmission?
- The way forward

Can we deliver?

- The damage done by the glide path was not to the asset – it was to the company

Refurbishment, Replacement & Expansion ($m)

	2000	07/8	08/9	09/10	forecast 10/11
Maintenance	97	128	138	141	154
Renovation, replacement	63 (est)	81	101	167	200
Part F (expansion)	03 (est)	153	190	319	462

Drury substation

$15m, in 7 months

First NIGUP tower

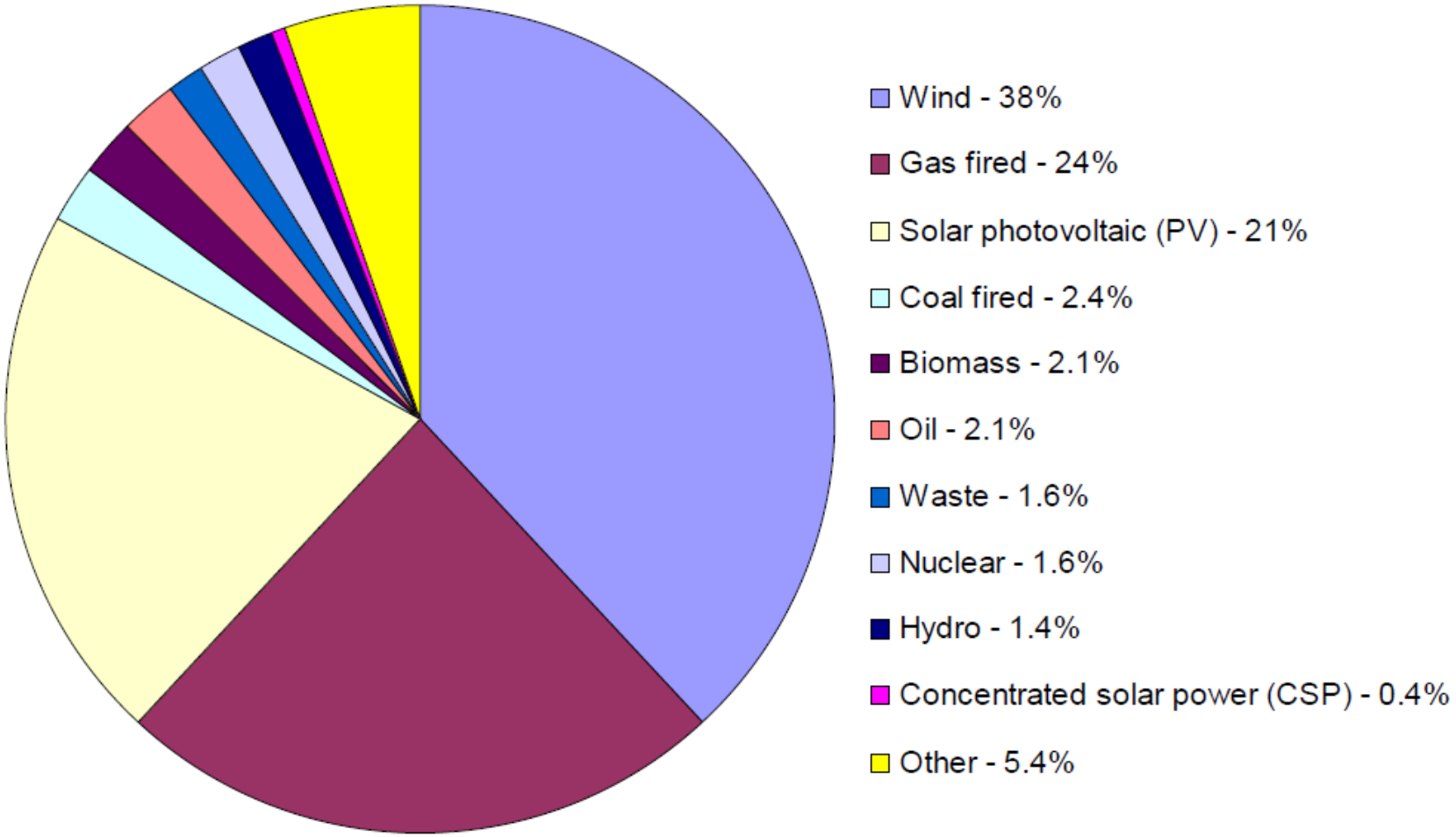
Can we deliver?

- The damage done by the glide path was not to the asset – it was to the company
- The engineering and technical capability atrophied – there was little development for the future

Was distributed generation ever just round the corner?

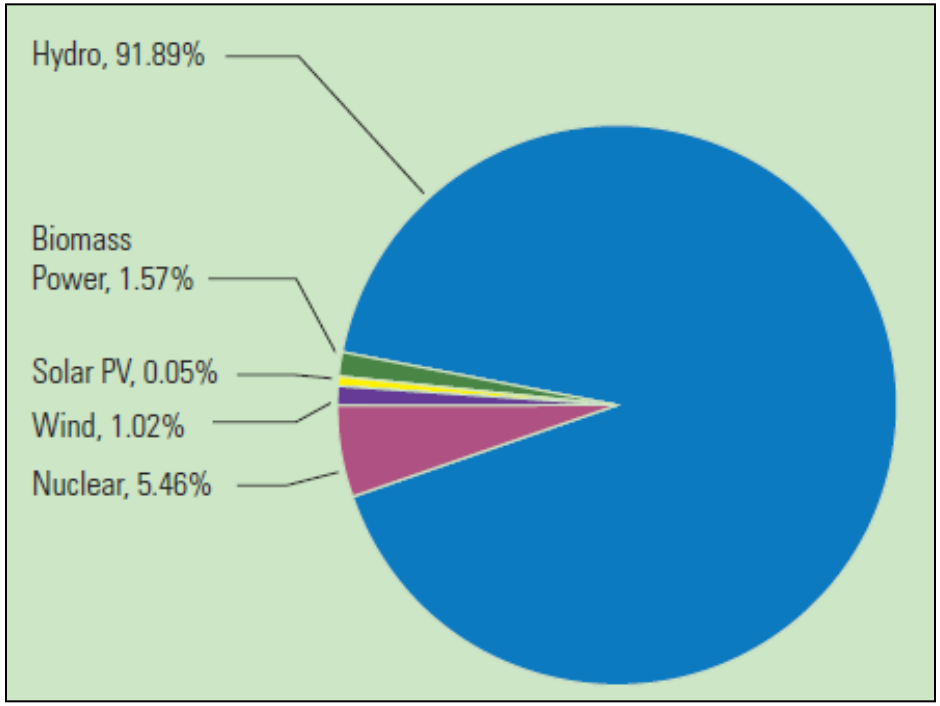
- Over 70% of our existing generation is low marginal cost/ very long life generation
- Of the balance, the oldest (Huntly thermal, 7%) is close to Auckland anyway – and essential to support the South Island in dry years
- Even with high distributed generation take-up, the grid was always needed for a long time!

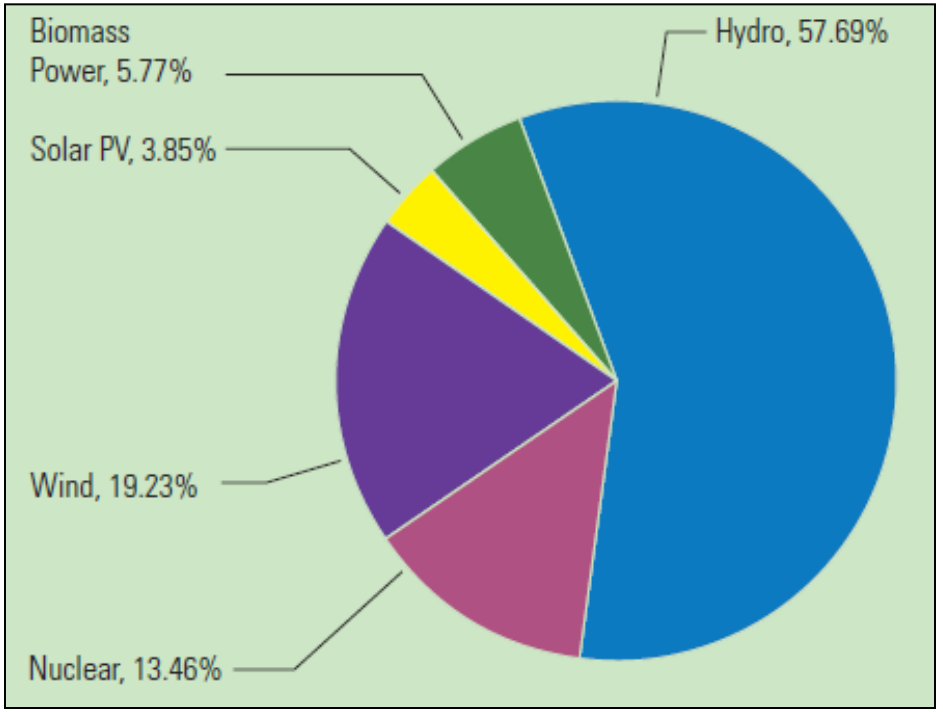
New power installations in the EU for 2009



Source: EESA member bulletin 30 July 2010

China's low carbon generation capacity, 2005 and 2020 (targets)

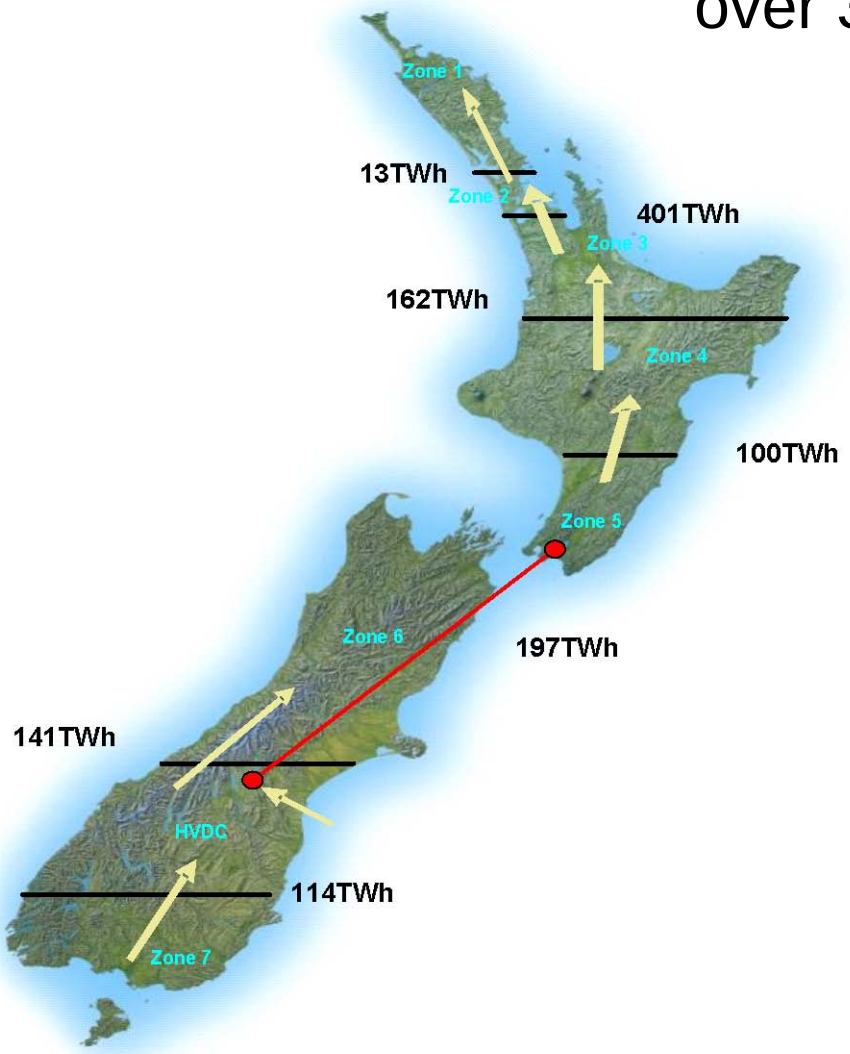




Source: IETA GHG Market Report 2010

Sustainable - total energy transfers

over 30 years



Zone x to y (TWh)	2011	2020	2030	2040
2 to 1	1.4	0.4	-0.3	-0.3
3 to 2	9.0	12.0	14.0	17.0
4 to 3	3.0	5.0	6.0	8.0
5 to 4	1.0	2.4	4.0	6.0
HVDC to 6	5.0	5.4	4.3	4.0
HVDC to NI	4.0	5.6	7.4	9.0
7 to HVDC	1.2	3.5	4.4	5.5

Smart Grid?

- Will it transform transmission (the new glide path)?
- Demand side response can defer peak growth
- Interruptible load has a higher return for transmission

The way forward

Building a Transpower fit to operate tomorrow’s grid

- Capability and resource
- Technology platforms
- Corridors and rights
- Culture