Future currents

Electricity scenarios for New Zealand 2005–2050

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Parliamentary Commissioner
for the Environment

OPENING NIGHT
28 July 2005

Our pitch

1. Context
- *Why this study?*
- *What are scenarios?*

2. Content
- *The 2 scenarios*
- *2015…2030…2050*

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Why this report?

- PCE: Our role
- EEE: Spotlight on the electricity sector
- NZ's electricity system at a 'fork in the road'
- Need for more futures thinking

Looking back...

It's the one with a future

Electricity is one of the few energy resources that will last forever. As sure as rain falls, electricity flows.

Electricity is pollution free, it produces no fumes. No smoke. No waste. In the last ten or so years, we've seen amazing developments in electronics, and the number of electrical appliances available to us . . .

Crockpots, food processors, coffee makers, it seems that every week there's an exciting new electric appliance on television.

And most of us can remember when we didn't have that. Video recorders, in-home computers . . .

What next!

Few of us will ever really understand advanced electronics and silicon chip technology . . . But we all know we want more.

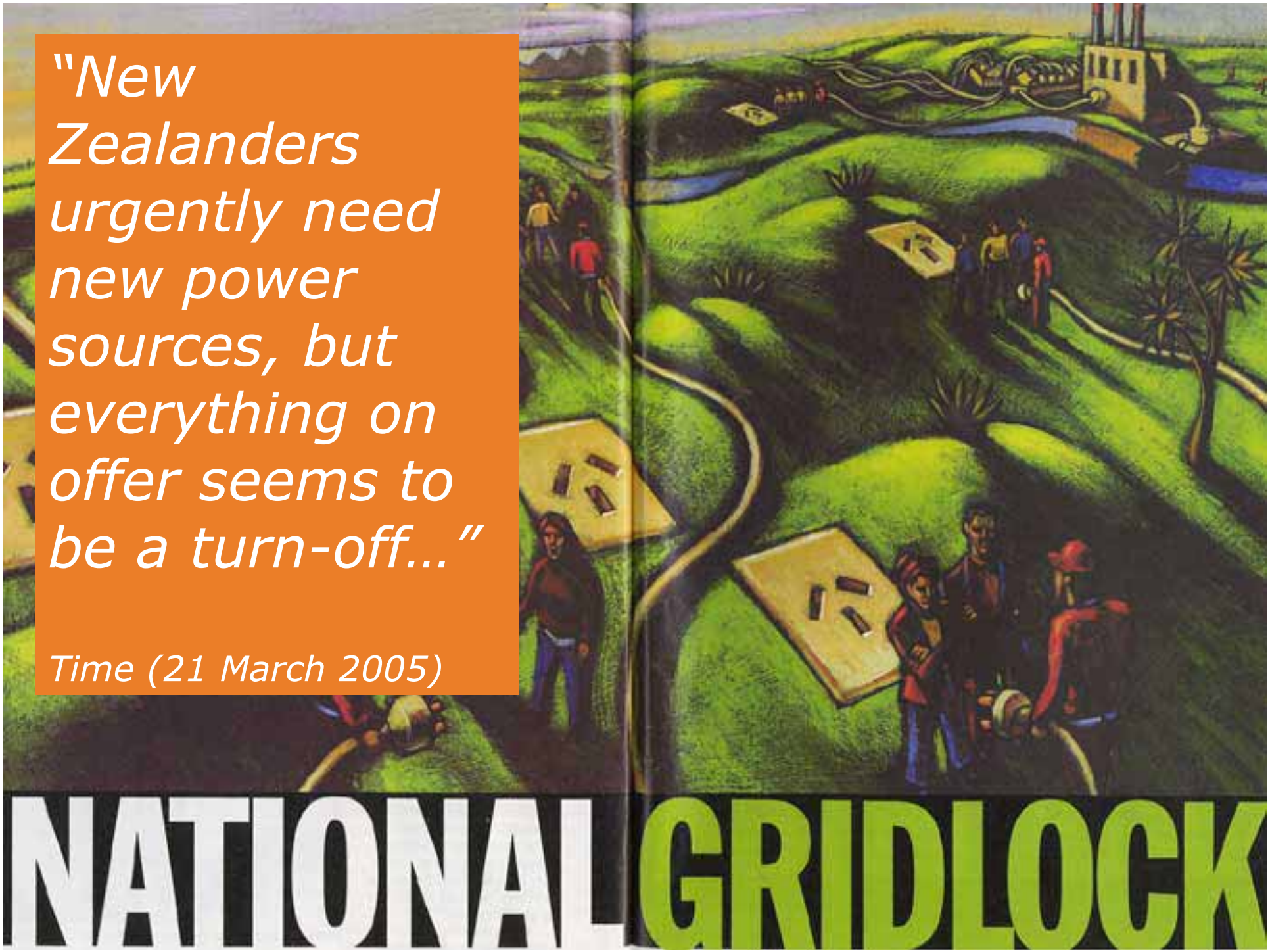
Electricity has made the speed, convenience and efficiency of modern life possible.

At the flick of a switch.

It's the only one you need.

It's the one that does it all.

Electricorp advertisement
November 1988


"New Zealanders urgently need new power sources, but everything on offer seems to be a turn-off..."
Time (21 March 2005)
NATIONAL GRIDLOCK

Current context

- Community concerns and resistance
  - *Big hydro, coal power stations, national grid expansion…*
- Maui gas decline
- Rising energy prices
- Poor energy efficiency improvements

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Current context

- Energy providers dominate thinking & investment focus
- Global ‘mega’ issues: climate change, peak oil, energy security

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What are scenarios?

Scenarios are stories about the way the world might turn out tomorrow, stories that can help us recognise and adapt to changing aspects of our present environment.

– Peter Schwartz

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What are scenarios?

- A tool for thinking about, and preparing for, the future
- Promote dialogue and learning

- ***Not*** predictions or forecasts
- Can highlight possible choices and their implications

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Some things to ponder

- Generation and transmission investments cost two or three times as much as energy efficiency investments

- Roy Hemmingway (2005)

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Some things to ponder

	2003/04
• SOE Electricity profits	$400m
• Dividends to government	$150m
• EECA funding	$11m

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CONTENT: Future currents

- 2 scenarios

Fuelling the future

Sparking new designs

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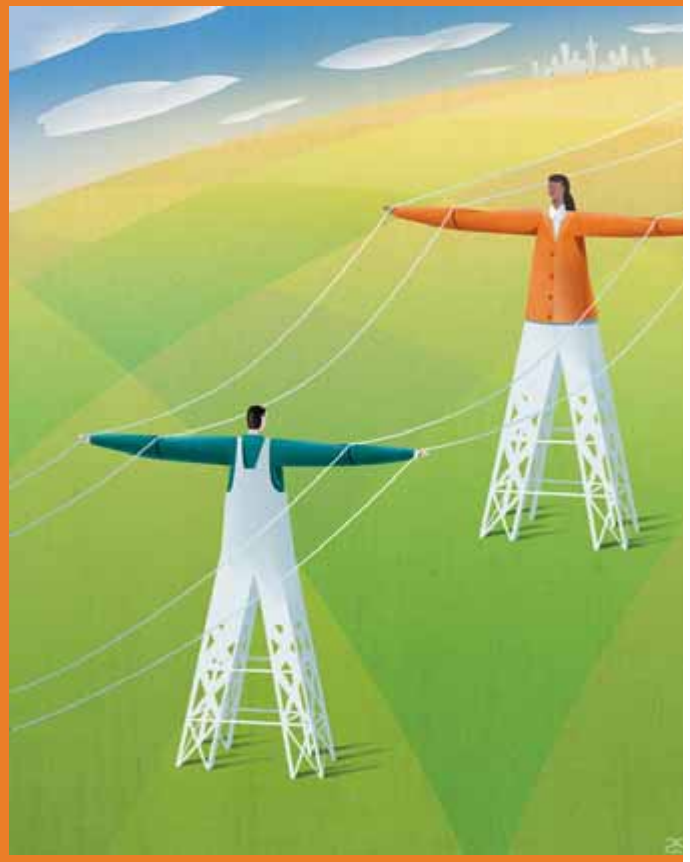
CONTENT: Future currents

- Painting a picture
- Using characters
- Urban and rural NZ
- Technical report available



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Thinking about electricity

- **energy services** – what people want (warmth, light etc)
- **electricity** – one form of energy that can provide these services

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Both scenarios

- Global context
- NZ population size
- NZ values
- Potential energy resources
- Growing demand for *energy services* (2% per year)

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Differences

Meeting demand for electricity	What's the aim?	Meeting demand for energy services
'Balance'	Environmental concerns	'Smart design'
Low cost electricity	Prices	Low cost energy services
Low	Intervention for energy efficiency	High

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Differences

Economic capital	Investment priority	Human capital
Mostly energy supply	Research funding	Energy efficiency and supply
Large, established	Technologies	Much more innovative
Based around grid	New infrastructure	More distributed

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2005-2015

Fuelling the future

Electricity use

↑ 21%

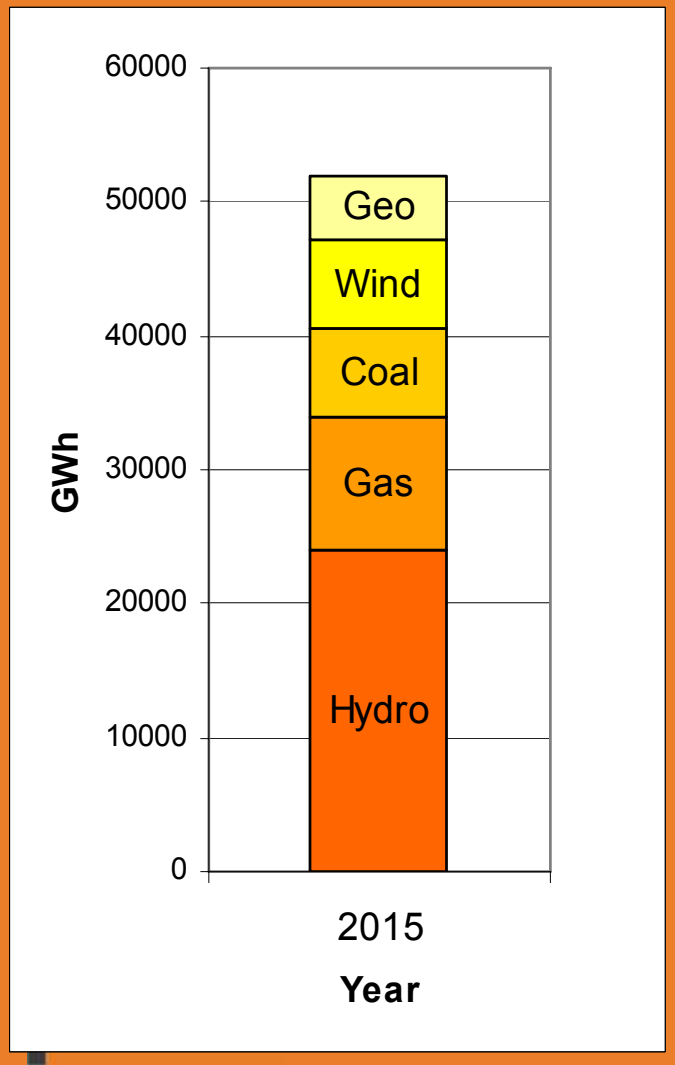
Sparking new designs

Electricity use

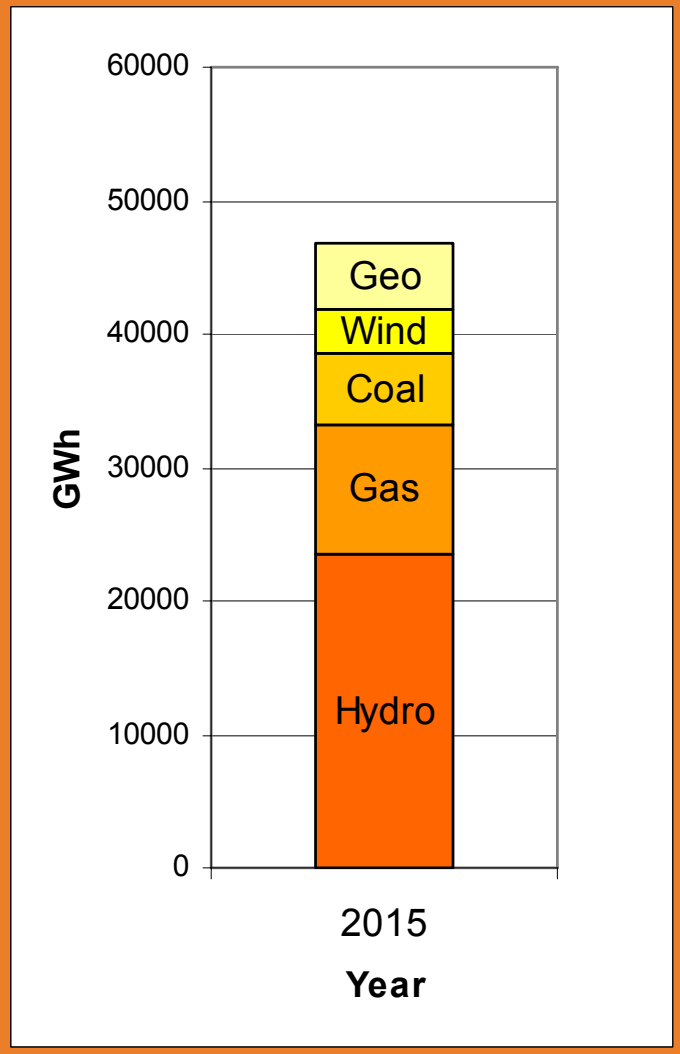
↑ 10%

2005-2015

Fuelling the future



Sparking new designs



2005-2015

Fuelling the future

CO_2 emissions

↑ 155%

since 1990

Sparking new designs

CO_2 emissions

↑ 120%

since 1990

2015-2030

Fuelling the future

Electricity use

↑ 60%

since 2005

↑ 32% since 2015

Sparking new designs

Electricity use

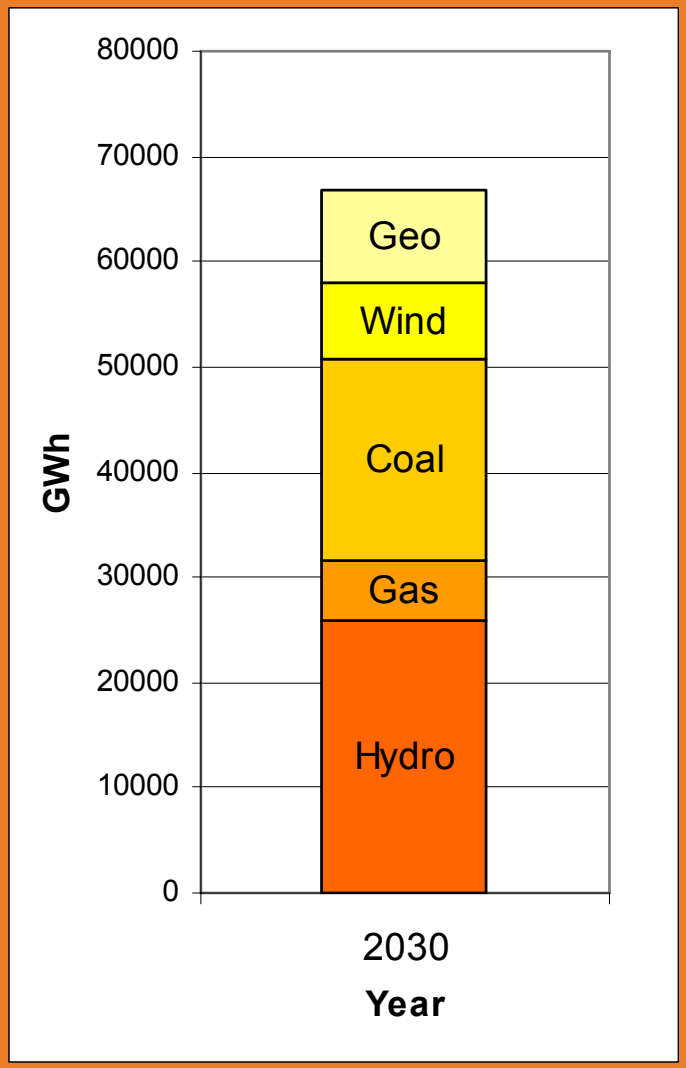
↑ 13%

since 2005

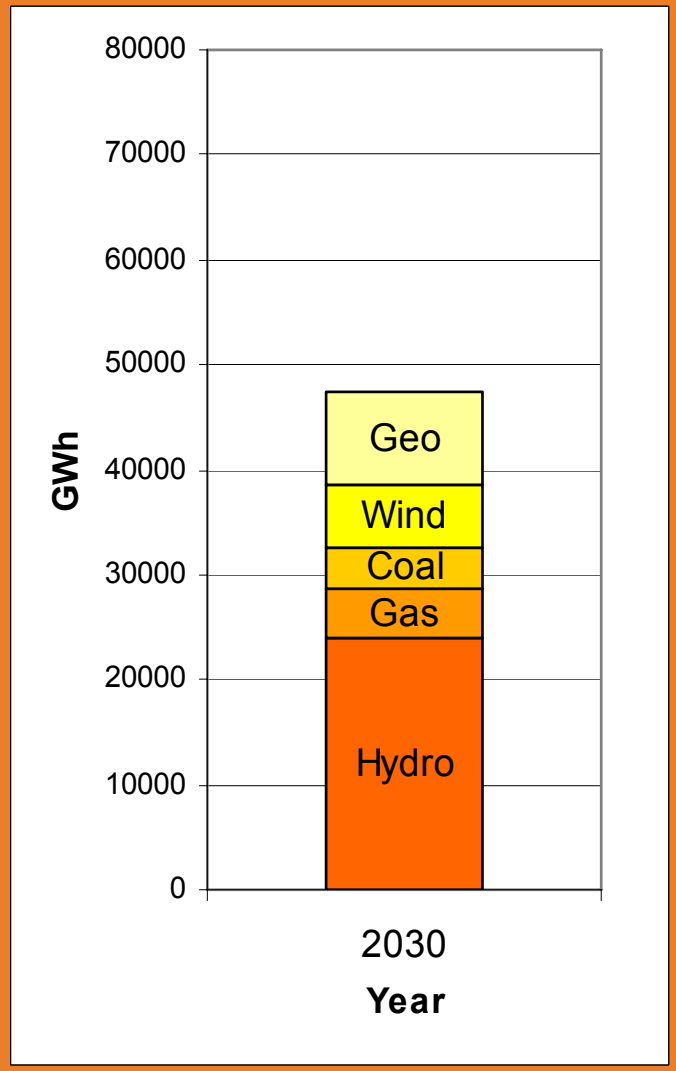
↑ 2% since 2015

2015-2030

Fuelling the future



Sparking new designs



2015-2030

Fuelling the future

CO_2 emissions

↑ 300%

since 1990

↑ 125% since 2005

Sparking new designs

CO_2 emissions

↑ 10%

since 1990

↓ 35% since 2005

2030-2050

Fuelling the future

Electricity use

↑ 137%

since 2005

↑ 48% since 2030

Sparking new designs

Electricity use

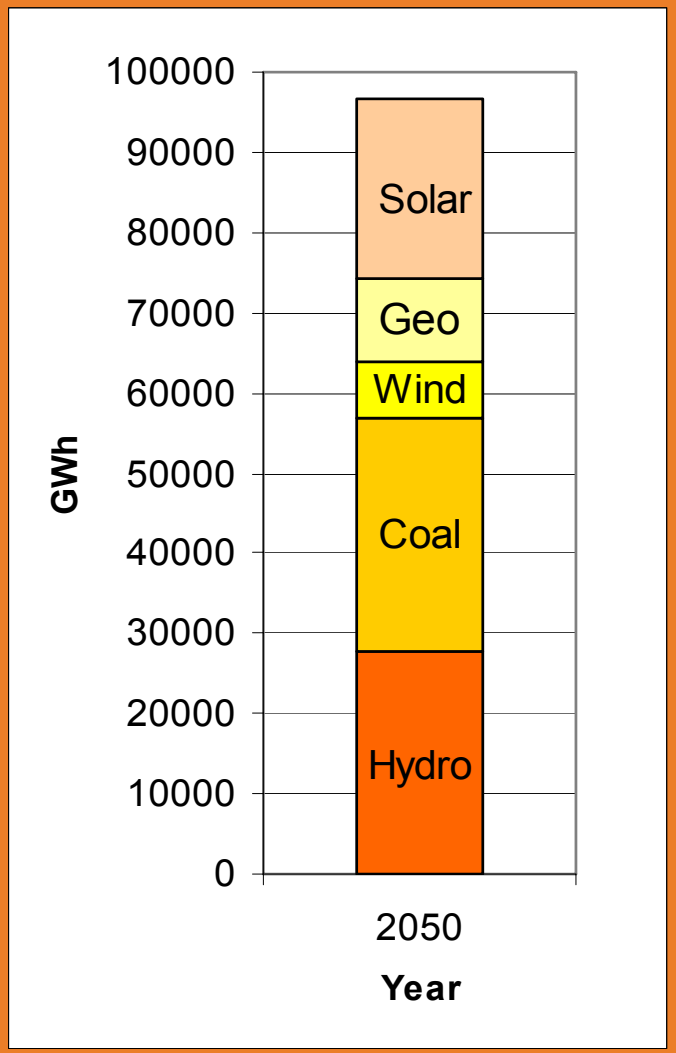
↑ 13%

since 2005

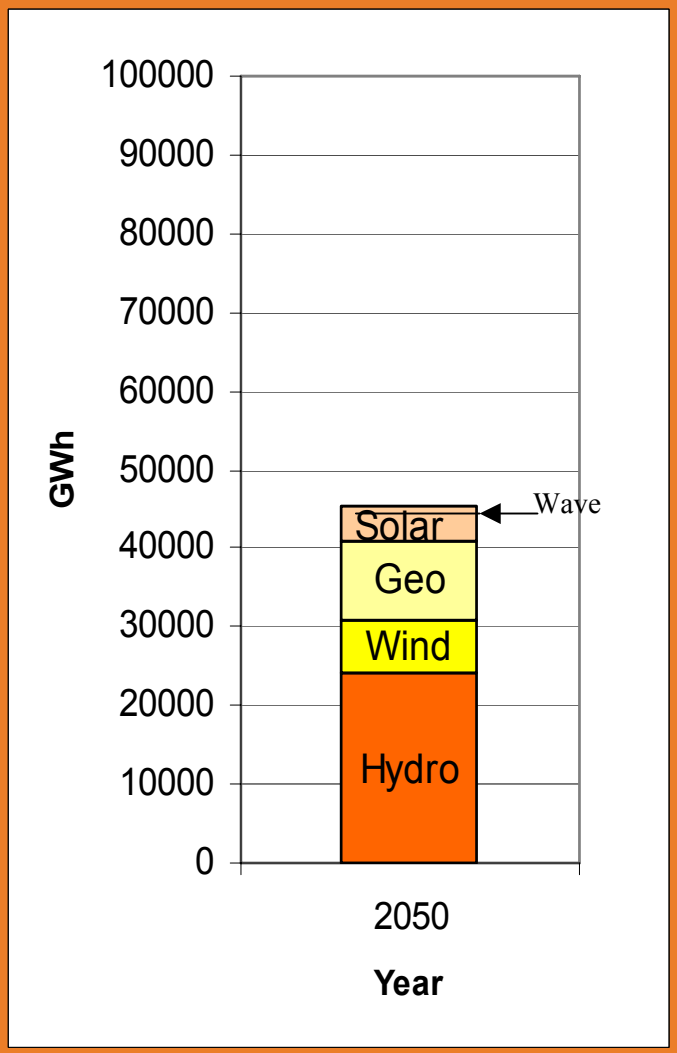
NO CHANGE SINCE 2030

2030-2050

Fuelling the future



Sparking new designs



2030-2050

Fuelling the future

CO_2 emissions

↑ 520%

since 1990

Some carbon sequestration

Sparking new designs

CO_2 emissions

↓ to zero

No emissions

Wrapping up

- Major challenges and choices
- What are the opportunities?
- Need for ‘joined up’, long-term thinking
- Is it now time to spark some major changes and realise opportunities?

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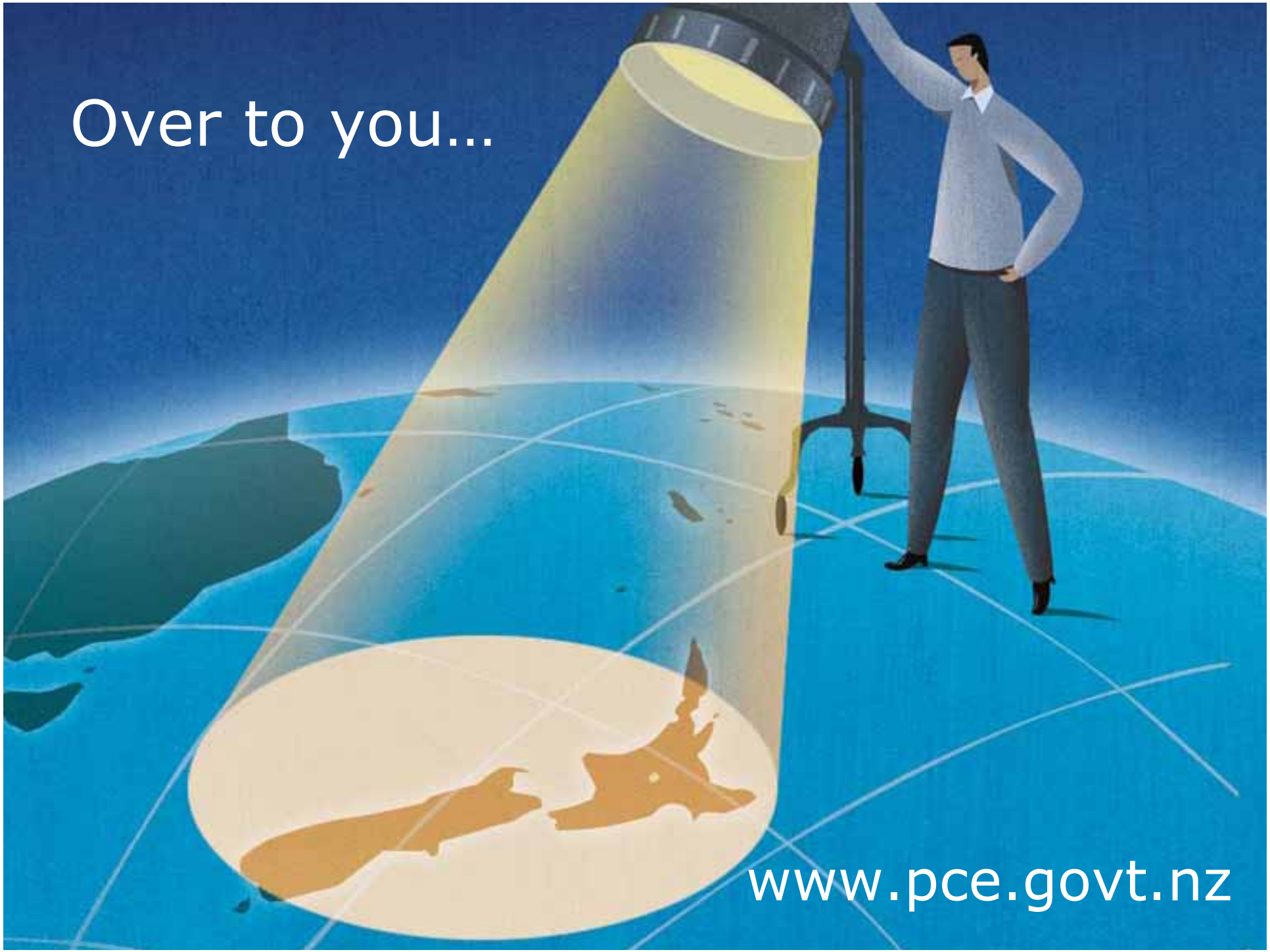
Over to you…
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