
Distributed energy development: history, policies and prospects

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Energy Efficiency and Conservation Authority (EECA)

New Zealand

Agenda

- **Introducing EECA**
- **New Zealand energy context**
 - Geographic influences
 - Government strategic drivers
- **Distributed Generation in NZ**
 - NZ Status
 - Barriers
 - Government support
 - Case studies
 - Future opportunities



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APEC economies











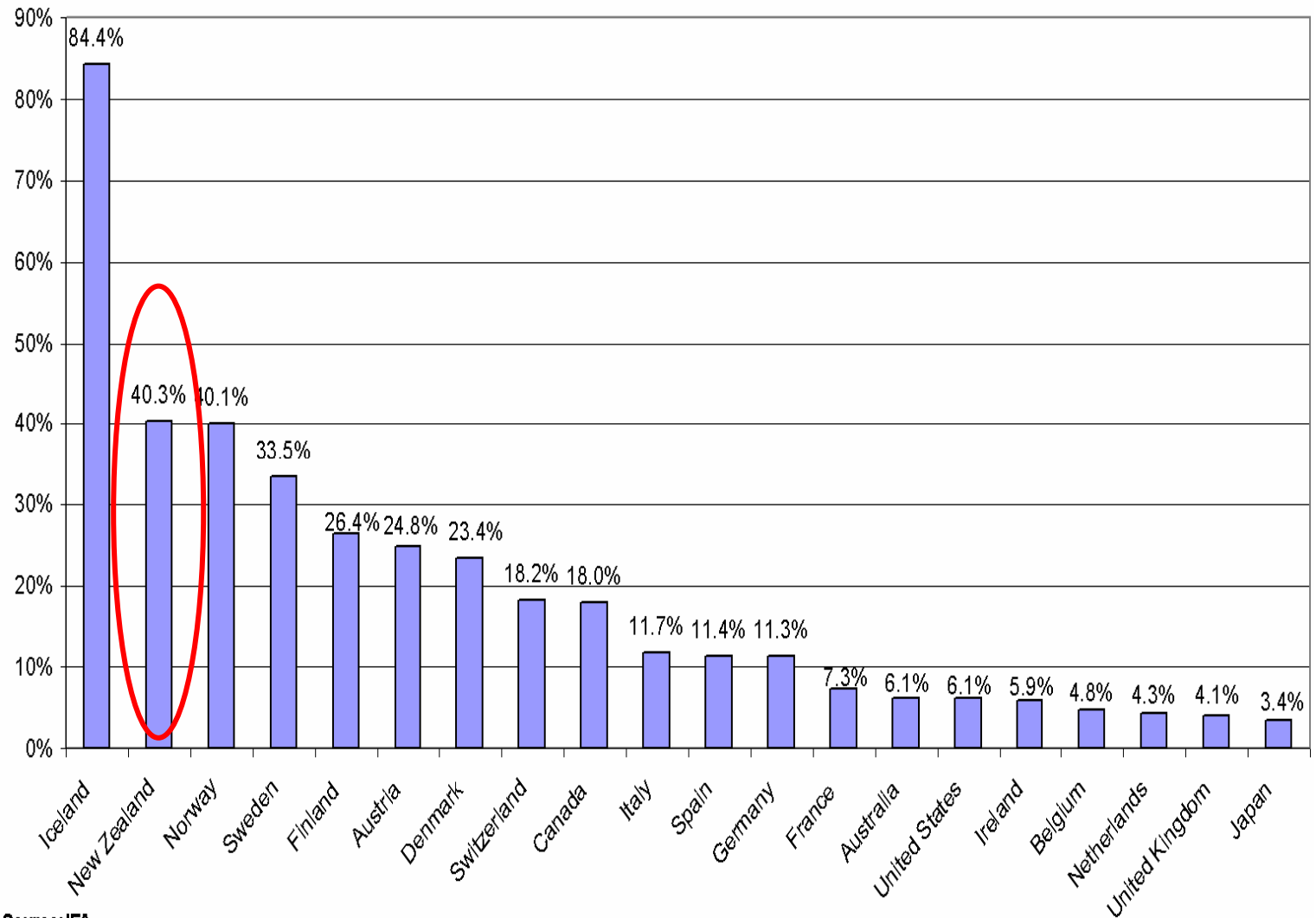
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Significant renewable energy resources



-  geothermal
-  solar
-  marine
-  hydro
-  biomass
-  wind

NZ – 40% renewable



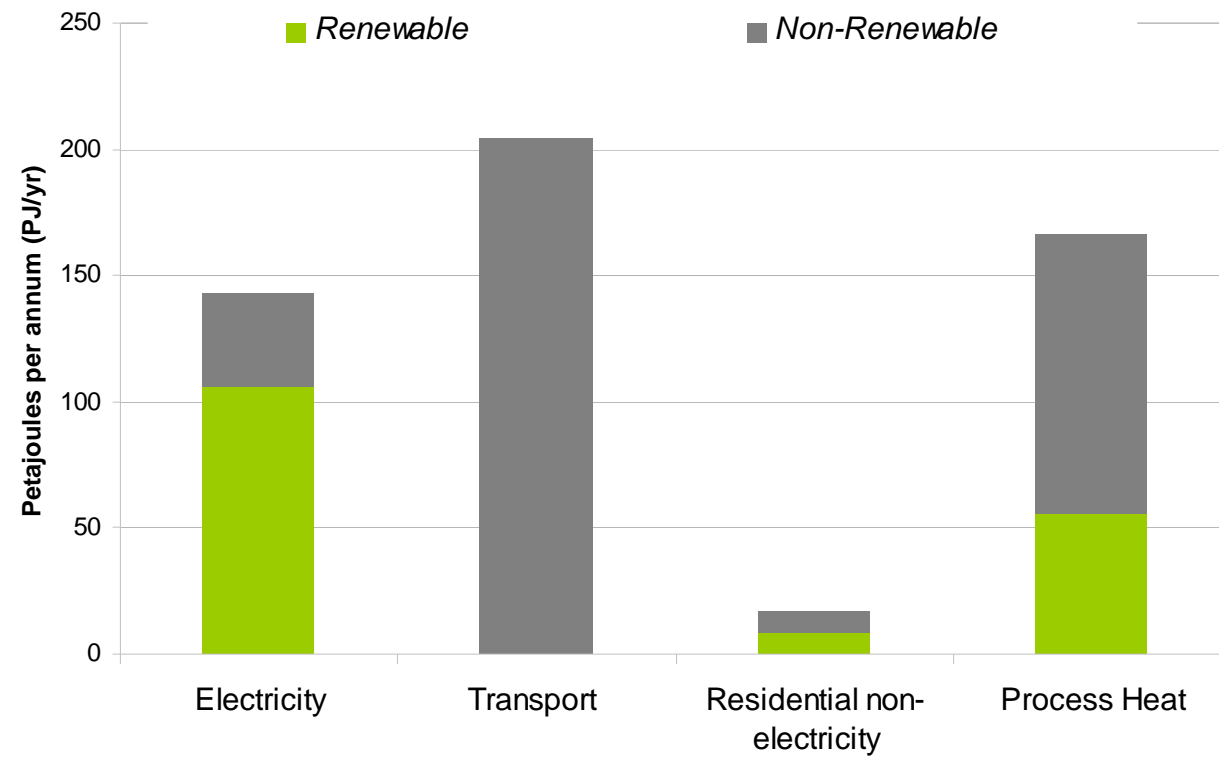
Source: IEA



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Renewable / fossil fuel mix

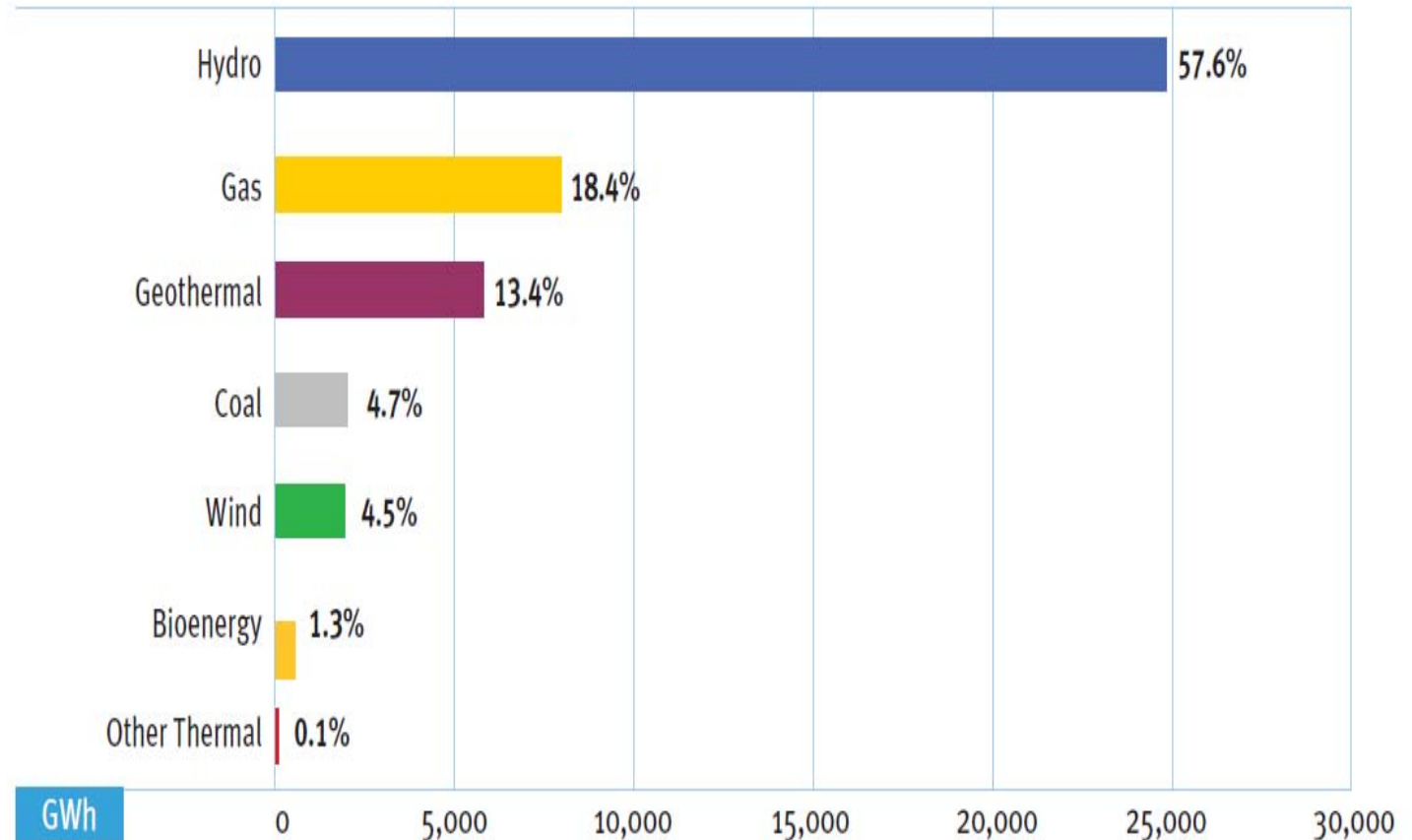
New Zealand Consumer Energy (PJ)





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New Zealand's electricity portfolio



- Renewable generation reaches 77% in 2011
- More diverse range of renewables

New Zealand's Government goals

Develop renewable energy resources

Develop petroleum and mineral fuel resources

Embrace new energy technologies

Diverse resource development

Best practice in environmental management for energy projects

Reduce energy-related greenhouse gas emissions

Environmental responsibility

Warm, dry, energy efficient homes

An energy efficient transport system

Enhance business competitiveness through energy efficiency

Better consumer information to inform energy choices

Efficient use of energy

Competitive energy markets

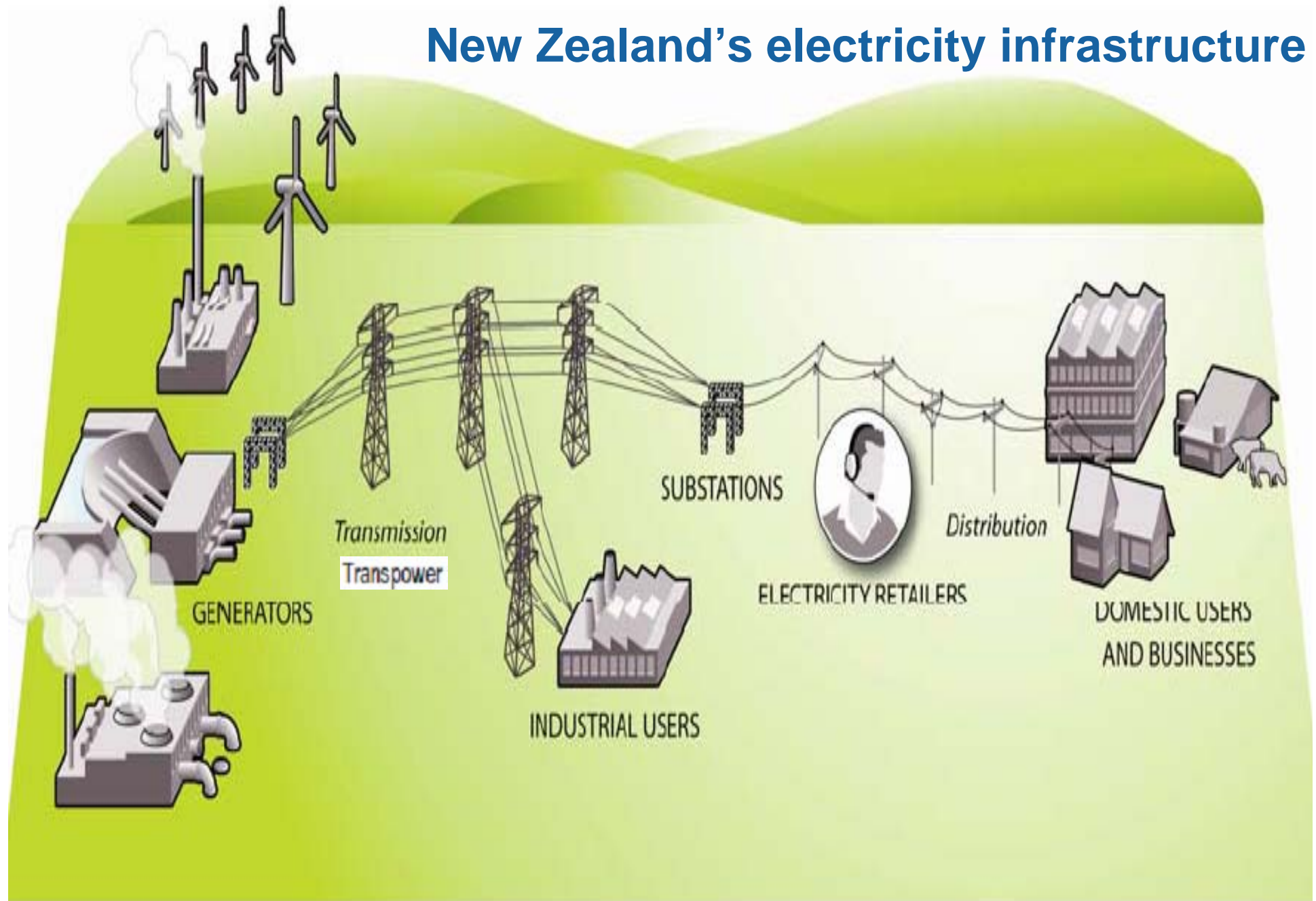
Reliable electricity supply

Oil security and transport

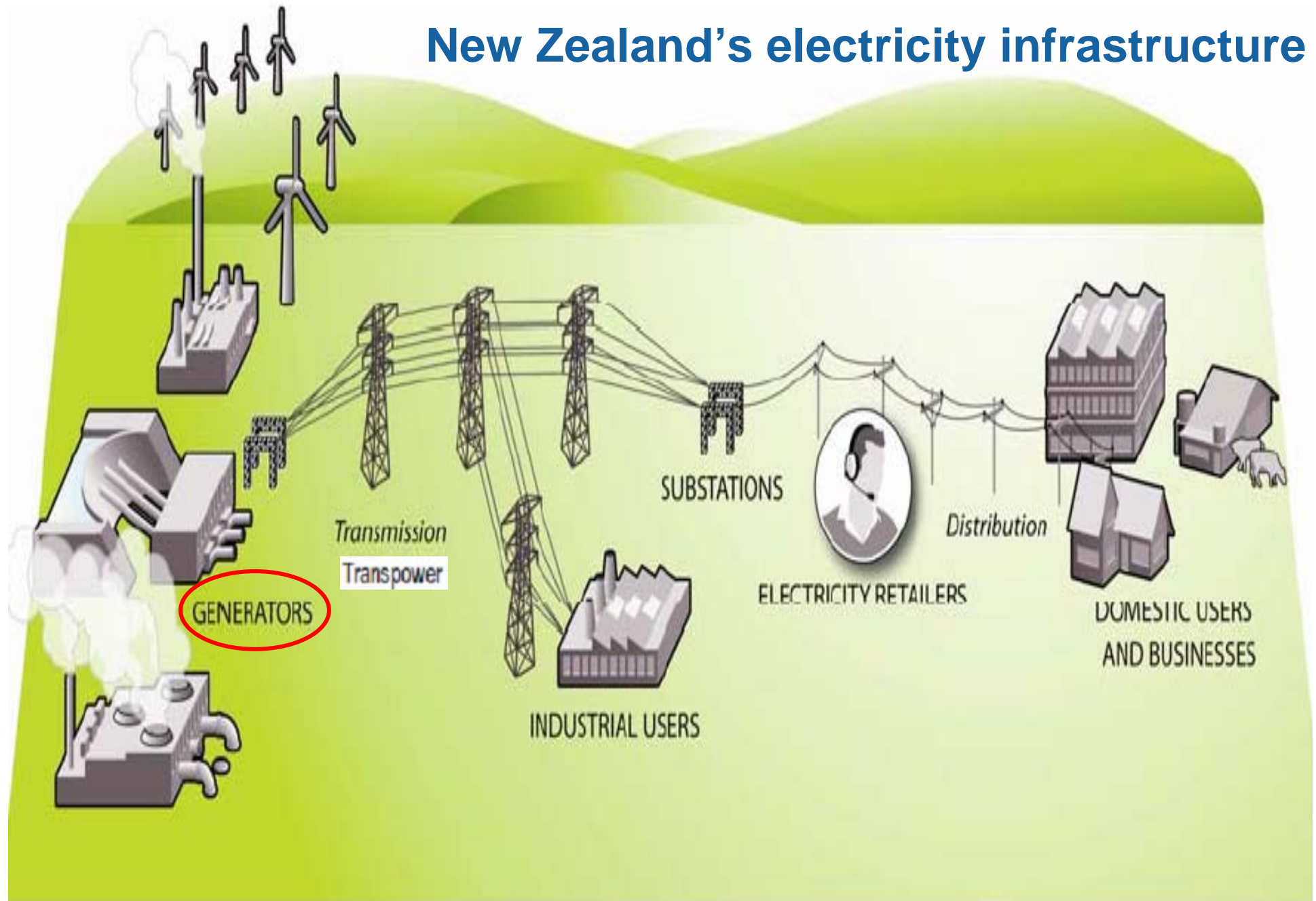
Secure and affordable energy

**Make the
most of our
energy potential**

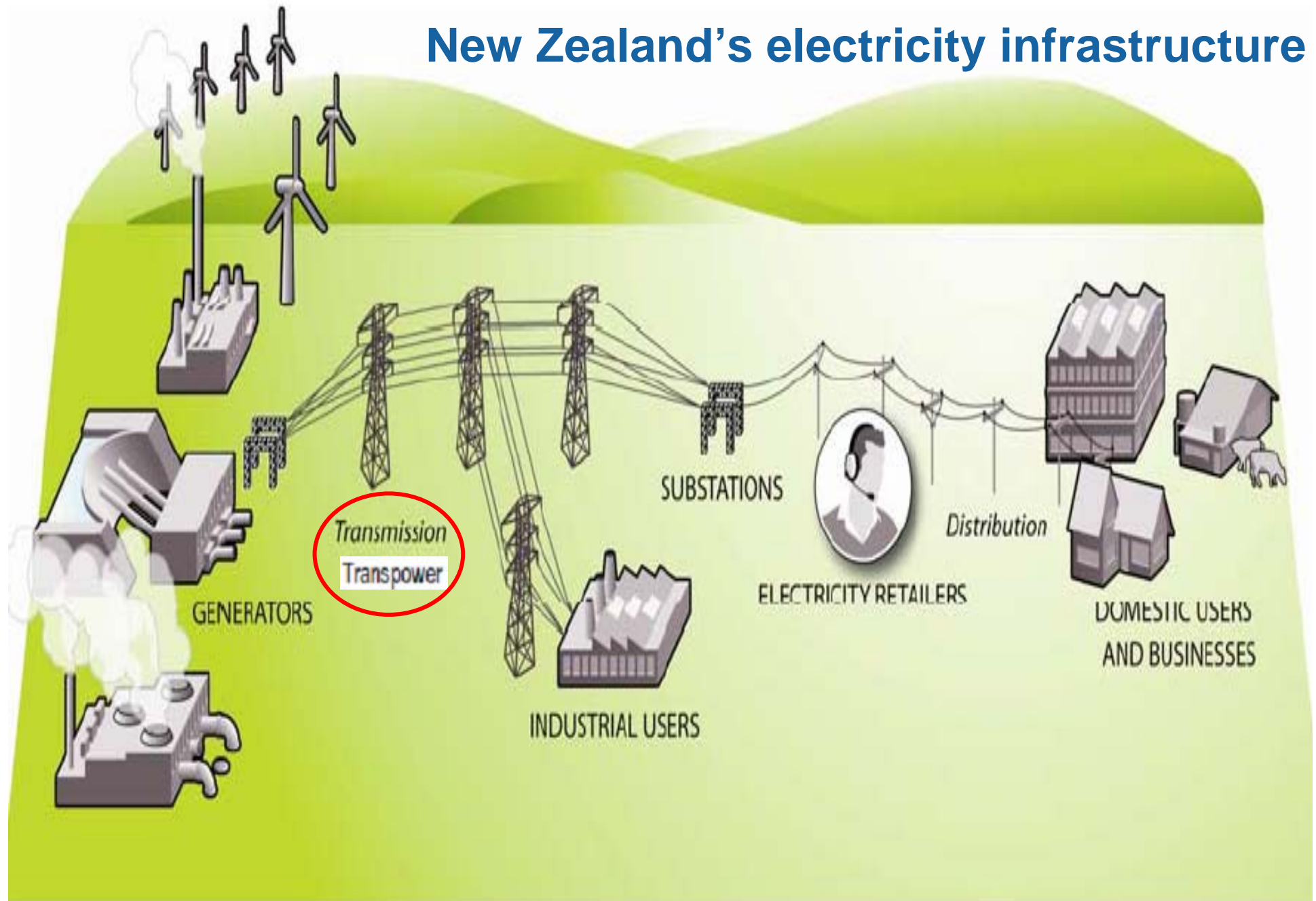
New Zealand's electricity infrastructure



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New Zealand's electricity infrastructure

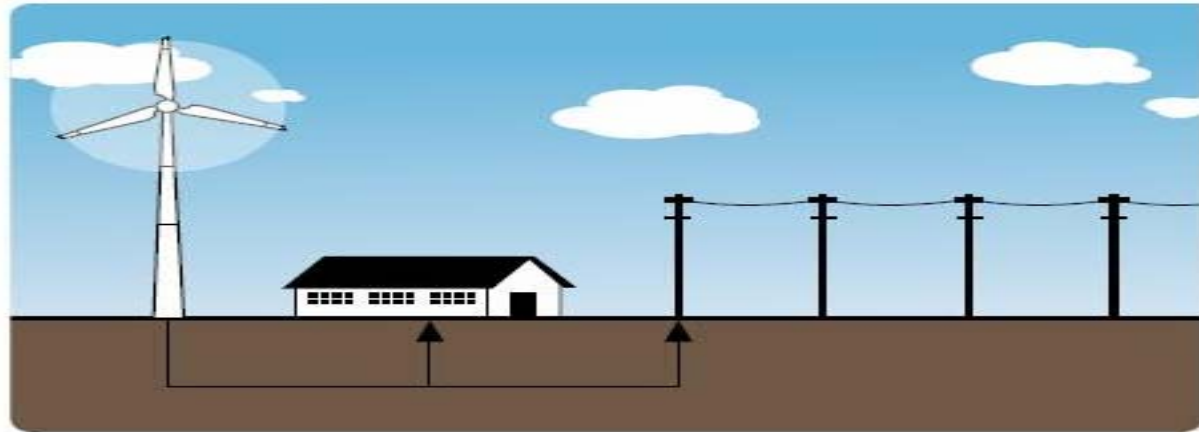




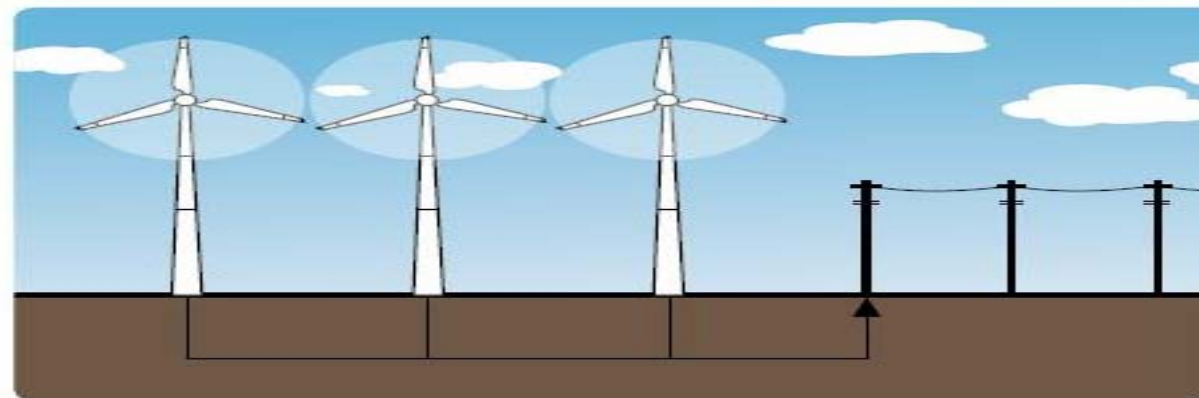
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Distributed generation

No standard definition

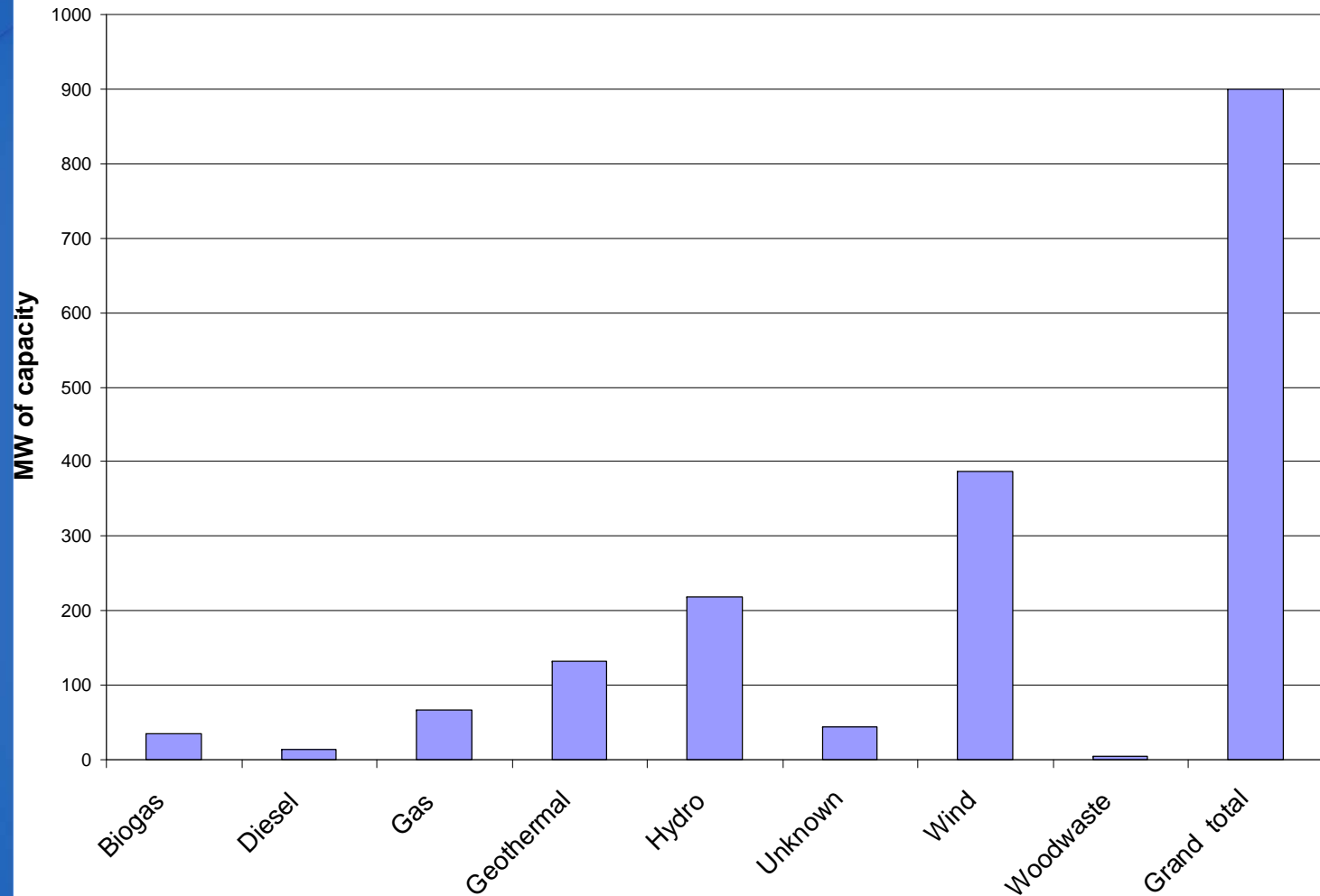


Generation is on the customers side of the meter and used onsite first. Surplus is exported to the network.



All generation is exported to the network and sold to a retailer, another user or the market.

Current status of distributed generation



- 900 MW of installed DG capacity
- ~ 9% of total installed capacity
- 86% of DG is renewable
- 50% is less than 20 MW

Barriers to distributed renewable electricity generation

- Upfront capital financial / cost barriers
- Lack of accurate and impartial information and data
- Obtaining resource/building consent
- Electricity buyback arrangements are complicated and costly for grid connected generators - there is no obligation for a retailer to purchase electricity
- Un-priced externalities including carbon and air pollution from thermal fuel generation

Government support

Improving the regulatory environment : National Policy
Statement requires consideration of distributed generation

Feasibility Funding

- 30 projects funded (\$447,000) between 2008-2010
- “Kick-start” development of small-scale renewables
- Facilitated projects that were close to being commercially viable
- Addressed information barriers
- Facilitated and test the DG market
- Demonstrate potential niches for economic, or close-to-economic distributed generation projects in New Zealand
- Improved understanding of barriers to distributed generation



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Weld Cone Wind Farm

- 0.75 MW capacity - supplies 350 to 400 homes
- Connects to local network – high transmission losses
- Uses second-hand, imported wind turbines refurbished before being put back to use

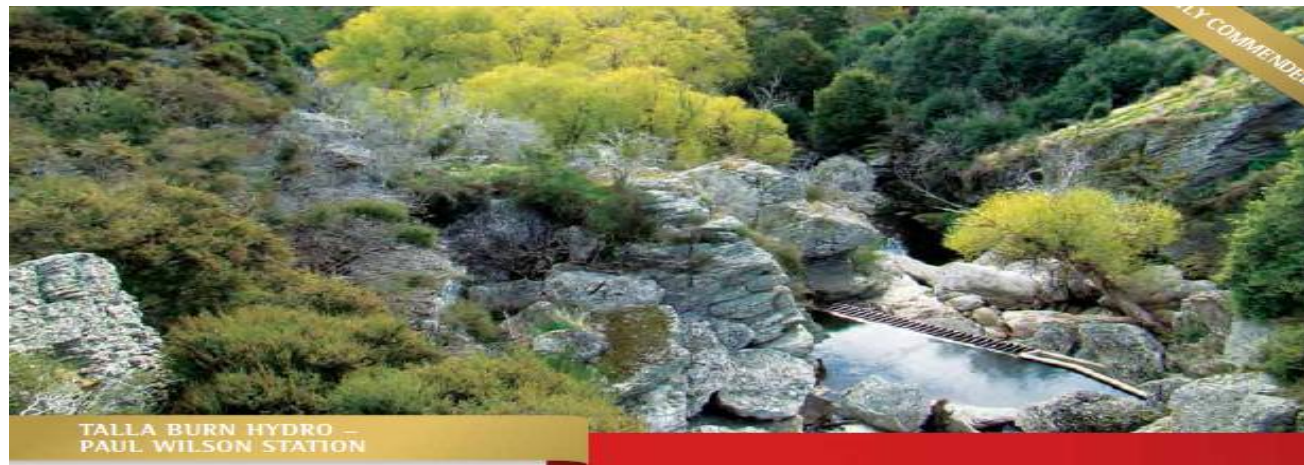




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Talla Burn Hydro

- 2 MW on a remote high country station farm
- Generates 13GWh oer year, powering 1,000 homes
- Connected to the local retailer via 21km transmission line.
- Local developers



Future opportunities

