



NEW THINKING.

Cleantech In New Zealand

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New Zealand has a growing cleantech sector

- Sustainability and climate change action as vital to this country's future and our place in the world
- Sound legacy in the adoption and development of clean technologies
- Developing a range of clean technologies and climate change solutions – energy, transport, agriculture and within industry
- Key to success is partnerships for technology transfer and collaboration and market access for NZ cleantech firms.



Supportive government policies and programs

- Government commitment to increase renewable electricity generation and reduce NZ's GHG emissions
- An emissions trading scheme as its core price-based measure for reducing greenhouse gas emissions and achieving broader sustainability objectives at least cost to the economy
- Support mechanisms include electric car exemption from road user charges and biofuels tax relief
- A world leader in agricultural emissions reduction science



World-class research and development

- 250 companies and organizations that are researching, developing and commercialising clean technologies, 60 of these companies are potentially world class
- Historically a pioneer in a number of clean technology areas including geothermal energy and the use of cleaner burning fuels for transport
- Research capability within Crown Research Institutes and universities – examples Scion [forestry biomass] and IRL [hydrogen, distributed energy]
- Sound legacy in environmental and bio-based [agrarian] research
- Meridian Energy – leading NZ cleantech investor



Abundant renewable energy resources

- Renewable energy accounted for 70% of New Zealand's total annual primary energy supply; 55% of that from hydro power
- Well established forestry with short rotation cropping that is ideal for biomass production
- High wind speed, turbulence and consistency
- Variable wind generation can be balanced by hydro and geothermal
- With 17,200km coastline, NZ is positioned in some of the world's biggest and wildest oceans and exposed to a constant westerly airstream
- Large, high temperature geothermal resource with high heat flows at shallow depth



Key areas of opportunity

- Biomass to renewable transport fuels, chemicals and materials
- Renewable energy technologies and projects [wind, biomass, geothermal and marine, small scale distributed]
- Energy and resource efficiency within industry – innovations within food production and processing
- Transportation technologies – legacy of innovation
- Sustainable agriculture
- Environmental and Waste [Resource utilisation]



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Some Outstanding New Zealand Cleantech Companies



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Wellington Drive



Cavotec MoorMaster





Flotech



Whispertech





Windflow





Carbonscape





Lanzatech





Global Olivine



Solray

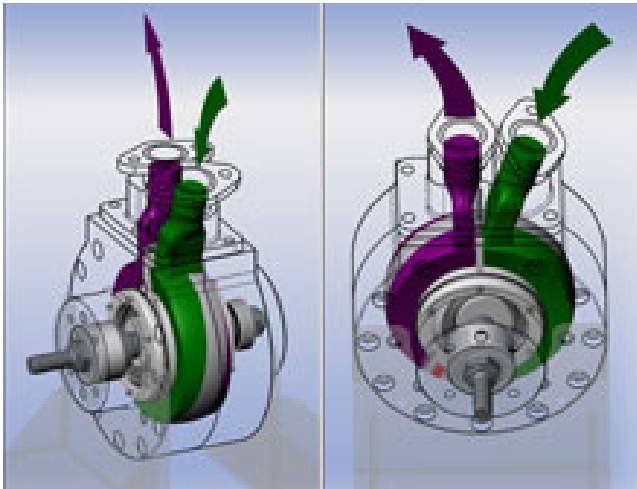


Emech Control





Swashpump





Inductive Power Transfer





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Challenges

Issues to be addressed



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Challenges

- Poor Commercialisation and management skills
- Disconnectedness
- Lack of Capital
- Modest support mechanisms
- Silo behaviour
- Vested Interests
- Lack of vision and long term economic goals



Role of NZTE

- Promoting NZ clean technology solutions
- Applying solutions to industry to help grow sustainable profits
- Attracting investment [FDI and ODI]
- Attracting international companies/projects to NZ
- Collaborating with international cleantech agencies on projects
- Creating a Clean Economy vision
- Articulating a national cleantech value proposition and strategy



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Clean Economy

A vision and framework of thinking



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Clean Economy 2025

The clean economy is an economic vision for New Zealand that recognises the global reality of a world that is resource constrained and carbon restraining.

The clean economy is one of wealth creation based on five foundations ***clean energy, clean transport, clean industry, clean agriculture*** and ***clean environment*** and values that are important to New Zealanders namely quality of life, quality of environment and social equity.

Clean Economy 2025

**A \$150billion high value low carbon export economy
by 2025**

Development, commercialisation and deployment of clean technologies* and smart thinking to transform existing sectors and create dynamic new ones

*Clean technologies or cleantech are products and services that improve performance, productivity or efficiency while reducing costs, raw materials, energy consumption and waste streams

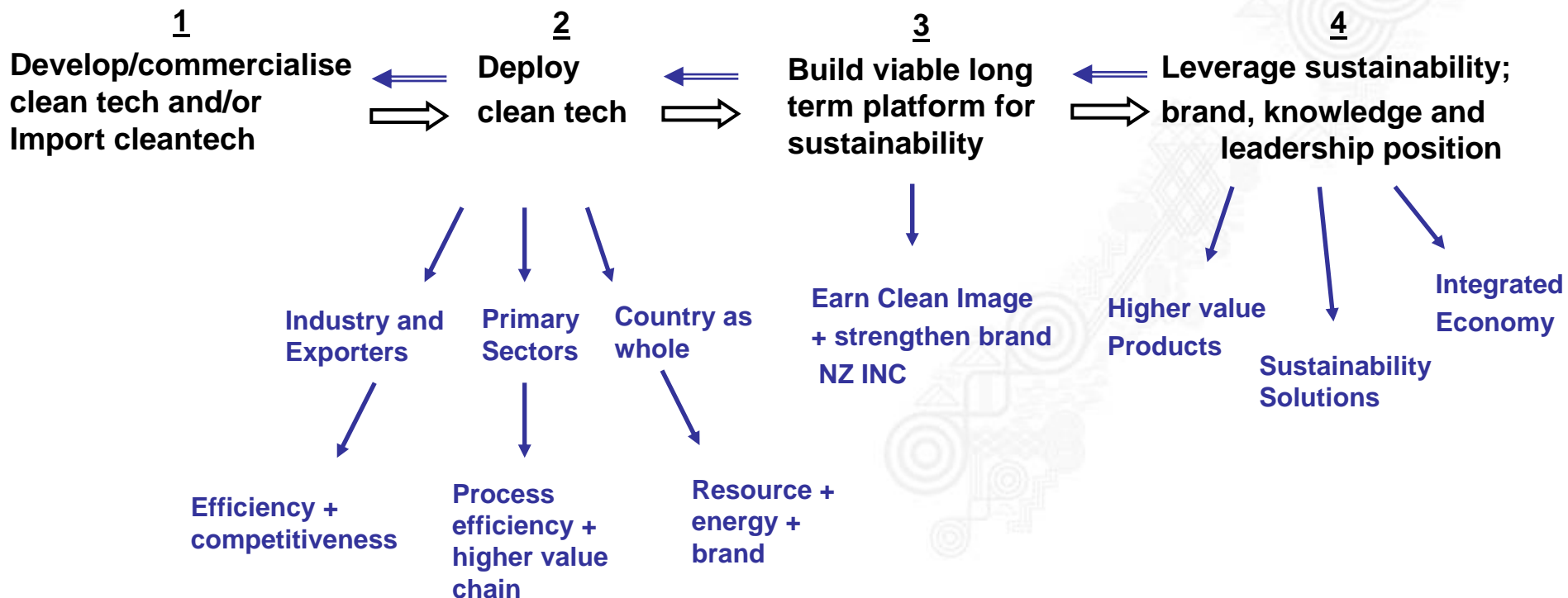


Strategic Imperatives

- Energy Security and Independence
- Continued market access and competitiveness
- Maintenance and Strengthening NZ Inc brand
- Exploiting cleantech window of opportunity
- [\$7 trillion global investment in clean energy by 2030]
- New Industry development
- Proactive response to climate change



Cleantech and Sustainability



Sustainability = Enduring Productivity



Aspiration



Example: The greenest transport fuel on Earth

Conversion of forestry [and in the future algal] biomass to renewable transport fuels and chemicals

Leveraging biomass production and existing industrial infrastructure and breakthrough thermo chemical processing technology



\$25 - 30 Billion industry by 2025



100% pure biomass



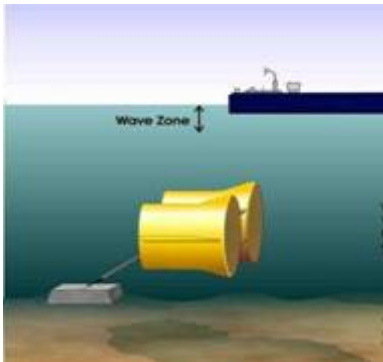
Example: The cleanest energy on Earth

Abundance of renewable energy resources [wind, hydro, geothermal, solar, biomass and marine.

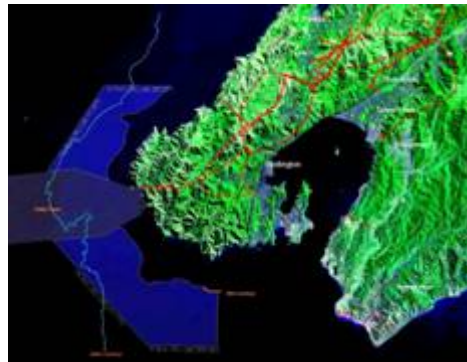
- Internationalise our capability [e.g. MRP/Meridian]
- Stake our claim – smaller scale distributed energy

Marine Energy Project – Cook Strait ~ 7 – 12 GW

Attract High Value Industries



\$15 - 20 Billion industry by 2025



100% clean energy





Example: The healthiest food on Earth

Fast-track pastoral transformation to biological farming and phenotypic crops

[Healthy soil → Healthy forage → Healthy animals → Healthy population]

Capture value through supply chain innovation – from carbon credits to product differentiation – Food cap International



\$15 - 20 Billion industry by 2025



100% healthy





Example: The smartest cleantech on Earth

250 companies and organisations developing and commercialising cleantech products and services

Low cost, pragmatic solutions that are energy and resource efficient
[smart materials and products]

Leveraging our problem solving DNA



\$5 - 15 Billion industry by 2025



100% smart





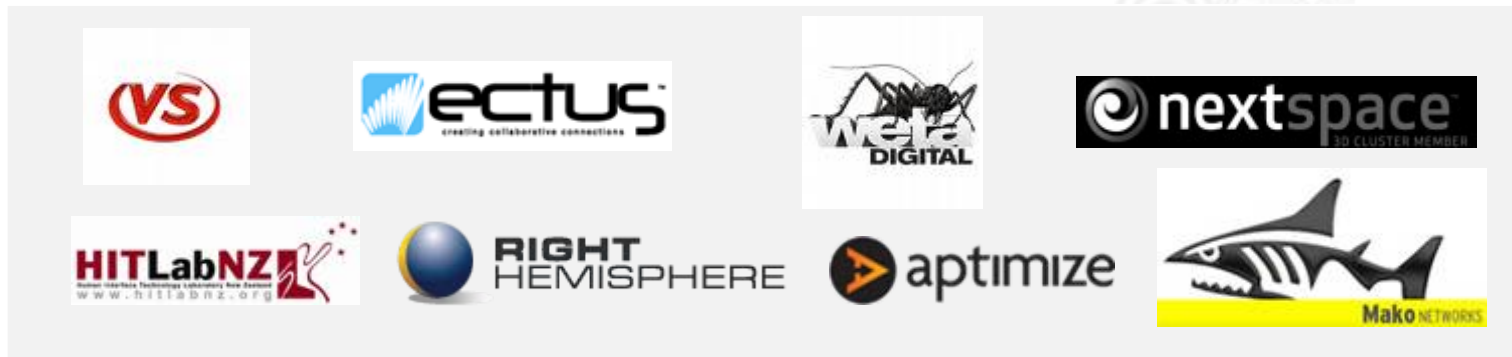
Example: The best connectivity on Earth

Greatest Strategic weakness – disconnected [more so than distance to market]

High speed broadband but as importantly connectivity tools]

Leveraging our creative DNA,

Attract migrant skills and talent to NZ



\$? Billion industry by 2025

100% connected



Example: The cleanest environment on Earth

Trouble in Paradise – brand under threat

Need to deal to contemporary and legacy issues Investment in our brand – air, water and soil quality

Develop bioremediation and environmental capability

Solutions for China [Environmental Cooperation Agreement]



\$? Billion industry by 2025



100% authentic





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Working Together

Some ideas for UK/NZ collaboration



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How we can work together

- Research and Commercial Collaboration
- Areas of complimentary interest – Marine Energy
- Best Practice and Benchmarking – Carbon Trust
- Demonstration Projects – City to City
- Multi-level Partnership
- New Partnership Models



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Thank You



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