# A **race has** begun.





NOVEMBER 2012



distant.



get ahead

in the green race

## Introduction

Earth's resources are finite.

Only the willfully delusional continue to disregard the impact that humankind is having on our planet.

The challenge sustainable living represents to all nations, regardless of their financial strength, has seen a corresponding increase in economic opportunities associated with meeting that challenge. These opportunities are necessarily local: Global collaboration is well intentioned but irrevocably linked to each nation's situation and aspirations.

In a country like New Zealand, where the environment plays such a huge part in our national character, our international prestige and the lifestyle we enjoy, we cannot wait for others to take the lead.

It is time for us to get ahead in the green race.

Unfortunately, we're slipping behind. In 2011, the Global Green Economy Index conducted a rigorous assessment of 27 of the world's leading economies. Of the Top 10 countries surveyed and ranked by performance, New Zealand was Number One.

However, the same index in 2012 shows New Zealand slipping to 6th. Similarly, the most recent Yale Environmental Index (2012) Environmental Performance ranked New Zealand at 14th. In 2006, we were ranked number one.

Over the last 24 months, Pure Advantage has dedicated significant resources towards understanding the rapidly growing global green economy and identifying the opportunities for New Zealand to foster sustainable economic growth and create skilled jobs, at the same time as conserving our natural resources and improving environmental performance, otherwise referred to as 'green growth.'

Today we release a major report: *Green Growth: Opportunities for New Zealand*, a macroeconomic review conducted by Vivid Economics in London in conjunction with the University of Auckland Business School. This report is the first of its kind in New Zealand, an exhaustive, objective economic argument for embracing green growth. It is not driven by environmental idealism or fear of climate change; it is an accumulation of impartial economic data.

It demonstrates that not only can New Zealand rescue itself from environmental decline, but that there is also significant economic benefit in doing so.

However what we need is leadership. Pure Advantage was formed in the belief the private sector has an important role to play in creating a greener, wealthier New Zealand.



# What is Pure Advantage?

Pure Advantage is a not-for-profit organisation formed in the belief that by embracing green growth, New Zealand can realise a greener, wealthier future. In coming to terms with the fact that economic growth and environmental sustainability are not necessarily mutually exclusive, we can arrest both our relative economic decline and our continued environmental degradation.



Over the past two years we've undertaken a research programme to identify the global green growth situation and help to identify New Zealand's best opportunities for green growth.

Our campaign has been charitably funded by our trustees so there are no corporate mandates or shadowy Government funding. Just successful Kiwis interested in seeing a lot more successful Kiwis.

Underpinning our goal has been the need for robust economic research showing the scale of the challenge and why all New Zealanders must reach for the exciting opportunities arising from green growth. *Green Growth: Opportunities for New Zealand* is the culmination of this pursuit.



# Inho is behind Pure Advantage?

The brainchild of Phillip Mills, Pure Advantage was formed by a group of successful New Zealanders who want a greener, wealthier future for New Zealand. Our trustees:

- Sir George Fistonich •
- Rob Fyfe
- Chris Liddell
- Phillip Mills
- Jeremy Moon
- Rob Morrison
- Sir Stephen Tindall
  - Geoff Ross
  - Justine Smyth
  - Mark Solomon
  - Joan Withers
- Our founding trustees also included the late Lloyd Morrison and Sir Paul Callaghan. The Pure Advantage secretariat is managed by Rob Morrison (Chairman), Duncan Stewart (Chief Executive) and Hannah Wills (Project Manager).

# How is Pure Advantage progressing green growth in New Zealand and what are the main outputs?



Pure Advantage strongly believes in the role that robust commercial imperatives will play in incentivizing private sector investment in green growth in New Zealand. Therefore our programme over the past two years has focused on doing the research and intellectual 'heavy lifting' in order to isolate New Zealand's best green growth opportunities. Now we are in a position to communicate these to New Zealand.

Our first piece of research — New Zealand's Position in the Green Race, released in June 2012 — focused on highlighting New Zealand's current dire economic and environmental performance. In doing so, it also sought to look to positive overseas examples of countries embracing green growth to get ahead economically and environmentally. New Zealand's

Position in the Green Race focused attention on how, when given the right policy incentives, the private sector has a large and very important role to play in driving green growth. What's ultimately needed is long-term bi partisan commitment to green growth policy. This gives long-term certainty to industry.

Expanding upon earlier work, *Green Growth: Opportunities* for New Zealand has been designed to bring more specificity and economic rigor to our earlier work. Having identified the significant economic opportunities available to New Zealand in New Zealand's Position in the Green Race, the macroeconomic research has identified the green growth opportunities that align with New Zealand's competitive and comparative advantages.



# What is the Pure Advantage Macroeconomic Review and why does it matter?

Pure Advantage commissioned internationally respected economists, Vivid Economics in London and the University of Auckland Business School to undertake a macroeconomic review of New Zealand. It identifies opportunities to enhance New Zealand's economic prosperity while raising environmental quality that might otherwise be missed through lack of action, leadership or understanding. We asked that three core elements be addressed the report:

1) Produce an analytical framework for assessing and communicating the basic tenets of the green economy, including a set of metrics for assessing New Zealand's 'green growth' performance and a high level review of existing evidence on the overall scale of global green growth opportunities;

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- 2) Prepare a sectoral assessment of New Zealand's current green growth competitiveness by assessing the greenness and competitiveness of the New Zealand economy;
- 3) Examine the scale of future green growth opportunities for New Zealand by looking at the future growth potential of key sectors and their future significance to the New Zealand economy. Note that this will not include projections of the likely strategies of New Zealand's competitors in these sectors.

We didn't ask that the report look at detailed policy objectives or to develop commercial strategy. That is the next layer of detail, which is only possible to achieve once industry is prepared to examine the opportunities.

This report is significant because it is the first of its kind for New Zealand – a robust attempt to marry the key economic advantages New Zealand enjoys with areas of our environmental performance that need improvement. It shows that we can have the best of both worlds – but it takes leadership by our big businesses and politicians, significant investment and policy change to speed up the process. It's also important because other nations are doing the same thing at a time when New Zealand seems to be ignoring the market signals. Many countries are gearing up to take advantage of the opportunities global green growth provides, and at the same time addressing their environmental deficiencies.

### THE PURE ADVANTAGE MACROECONOMIC REVIEW







# What are the main features of the Macroeconomic Report?

The Report investigates the possible opportunities for New Zealand that could arise from a global shift to green growth, and identifies 21 valuable, feasible actions that New Zealand could take to help realise these opportunities.

The report focuses on six important sectors across the trade-focused and domestic economy. The analysis reveals green growth opportunities in each sector that have both 'direct' environmental benefits as well as important 'cobenefits' such as higher productivity, lower energy bills and fewer health risks. While performance across sectors is diverse, a common theme is the potential for enhancing environmental outcomes while achieving other benefits. For example, improving the energy efficiency of New Zealand homes would reduce health risks for the young, infirm and elderly.

# Main features

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For New Zealand to be successful internationally, we need to be successful domestically. This won't happen by chance. Our clean, green brand gives us a competitive head start – but our brand will only get us so far. We need to walk the talk. The better we are at walking in New Zealand, the greater our chance of running internationally.

#### 1. Holistic measurement

A green economy requires a system of measurement, which attributes value to both natural and economic capital. There are a number of 'green growth' definitions and the similarities between them are strong. This Report follows these sources and adopts a definition of a green growth as 'growth that maintains or improves wellbeing while staying within ecological constraints'. This definition does not mean that green growth initiatives have to raise shortrun economic growth to be desirable. Some initiatives act over the longer term to maintain the stocks of important natural capital that humans depend on for survival, so that increases in living standards can continue into the future.

#### Exporting and investing in green assets and technology

New Zealand could benefit from global green growth in two main ways: by exporting to nations investing in green goods and services; and by importing both new technologies and ideas to build capability and create efficiencies at home. While the focus is often on the first of these opportunity sets, opportunities in the second set are also extremely important for national wellbeing. Importing technology and ideas helps enhance New Zealand's existing domestic economy, for example in non-traded sectors such as commercial and residential building efficiency. It can also have spillover benefits for exports if they protect or enhance New Zealand's reputation as a nation with high standards of overall environmental quality (that is, New Zealand's goods and services.



(WBCSD 2010; Hawksworth 2010)

#### 3. Global economic opportunities

The economic opportunities from a global shift to green growth are potentially very large: In 2009, an Innovas report commissioned by the UK Government estimated the global low carbon and environmental goods and services market to be worth \$6tper annum. PWC's estimates for the World Business Council for Sustainable Development suggest the 'broad order of magnitude' of annual sustainability-related investment opportunities in natural resource sectors in 2050, estimating opportunities in food and agriculture and forestry of \$1.2t per year and \$200b per year, respectively.

#### 4. Export opportunities

Not all large global opportunities in the green economy translate into large export opportunities for New Zealand. Export opportunities for New Zealand from global green growth are most likely where expanding demand as a result of ambitious national environmental policy or other changes matches an area in which New Zealand has comparative advantage. This report looks into the sectoral detail of projections for the future global green economy to identify where export opportunities for New Zealand might lie. It identifies opportunities for New Zealand by comparing the key technologies likely to be part of the future green economy with New Zealand's trade patterns and innovative ability. No country can specialise in everything, and New Zealand is no exception, so only some of the opportunities for New Zealand.

# 5. Green growth opportunities

The potential green growth export opportunities for New Zealand include sustainable agricultural products and services, geothermal energy, biotechnology, and forestry including second-generation biofuels. In the domestic economy, opportunities include improvements in building, transport, energy efficiency and electricity grid technology.

#### 6. Realising the opportunities

Realising these opportunities will generally require action from both industry and government, however there can be early steps that businesses and industries can take unilaterally. As many New Zealand businesses are adept at surveying global and local markets for opportunities, it is unlikely to be simply a lack of awareness of opportunities that holds New Zealand back from capitalising on global green growth.



The opportunities have all been judged to be valuable and feasible, however some should be implemented earlier, either because they have a larger expected impact or a longer time between implementation and results.

Given different impacts and lead times it has been useful to provide an indication of the highest priority opportunities. The detailed calculations necessary to estimate the expected net benefits for each of these opportunities and create a quantitative ranking are beyond the scope of this report. However, preliminary expert judgment of the opportunities against the criteria of potential impact and lead times suggests that the following specific actions may be among the highest priority: improving water allocation, considering government-industry smart grid demonstration projects, improving the average share of R&D in GDP, improving the energy efficiency of land transport and enhancing the quality of national environmental accounts.





framework opportunities sector-specific opportunities

The Report identifies 21 key opportunities for New Zealand across two broad domains; five opportunities to improve the 'frameworks' on which sound green growth strategies rest, and 16 sectorspecific opportunities. The opportunities cover both exportoriented and domestic opportunities for New Zealand from a shift to global green growth.

### Innovation

#### Opportunity:

Build on recent reviews of innovation in New Zealand by setting a pathway to achieve the OECD average share of R&D in GDP and setting out the government's vision and policies for green innovation.

#### Actions:

As part of the government's forthcoming innovation plan, include a plan for meeting Recommendation 18 of the Powering Innovation review on raising public R&D as a proportion of the OECD average within ten years, and using this public spending to leverage a significant increase in private sector R&D. Green innovation could be a focus of any overall plan.

#### Rationale:

A great deal has been written about innovation in New Zealand over the past decade, and two recent reviews (OECD 2007; Raine, Teicher, and Reilly 2011) provide an understanding of the strengths and weaknesses of current policy and a range of detailed recommendations for improving performance. The government's plan to develop a 'unified, crossgovernment innovation plan based on the OECD's model of innovation policy' (Ministry of Science and Innovation 2012) is a positive step and the plan could draw on the recommendations from these recent reviews.

# Energy efficiency

#### Opportunity:

Investigate further implementation of the IEA's priority energy efficiency policies to improve New Zealand's overall performance in energy efficiency.

#### Rationale:

Well designed energy efficiency policies achieve low-cost emissions reductions, deliver financial savings and improve energy security. In a review of each IEA member country's performance, the IEA noted that, despite the strength in New Zealand's performance there were several areas for improvement, particularly in buildings, transport and crosssectoral policies to support private sector investment in energy efficiency.

### 2:

### Actions:

Review each of the IEA's 25 recommended energy efficiency policies which New Zealand has not yet implemented, prioritising the IEA's recommended cross-sectoral measures to support private sector investment. More specific opportunities in the areas of transport and buildings are discussed below.

# Support the clean green brand

#### Opportunity:

Investigate the value of an update of research on the economic value of New Zealand's clean, green brand and how this brand could be used to improve New Zealand export performance, particularly in Asia.

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Actions:

A government or non-government organisation should conduct or commission a short scoping study investigating the case for updating the Ministry for the Environment's 2001 work on the value of New Zealand's clean green image, and on opportunities for leveraging the brand further in growing markets such as Asia. The full update of the 2001 study would be conditional on the scoping study finding that an update would be valuable.

#### Rationale:

There is near-universal recognition that New Zealand's clean, green brand is valuable, however the last detailed attempt to estimate the value of the brand is now more than a decade old. Given the importance of this brand to New Zealand it would seem worth updating this research and investigating how brand value has changed over time. Research could also illuminate whether there are cost-effective opportunities for leveraging this brand further, particularly in fast-growing Asian markets.

#### Opportunity:

Business and government leaders can play a proactive international role in defending New Zealand's clean green brand and improving performance and policies where there is a mismatch between perceptions and reality.

#### Actions:

Within the set of welfare-improving environmental policies, prioritise policy improvements in areas where the gap between actual policy and that expected by key international stakeholders is large and commercially important. An example might be the overall level of New Zealand's 2020 emissions reduction targets.

#### Rationale:

New Zealand's clean green image may be important for service and merchandise experts. In some cases, international perceptions may be less favourable than actual performance, for example, New Zealand's emissions on a per capita basis are high when measured gross and lower on a net basis. In other cases, perceptions of under-performance could be accurate and damage the brand.

#### Opportunity:

Learn more about New Zealand's potential opportunities from global green growth by applying methods used by World Bank researchers.

#### Actions:

A government or non-government organisation could conduct or commission an analysis of New Zealand's green growth opportunities and the policy implications of these results.

#### Rationale:

Some of New Zealand's strongest potential capabilities in green products are likely to be in products which use technologies and skills similar to those associated with products in which New Zealand is internationally competitive. In a recent World Bank research paper, Dutz and Sharma estimate the share of 'green' and 'close to green' exports by region, identifying 'close to green' exports by looking at the similarity or 'proximity' between products. Similar analysis for New Zealand could provide detailed insights on how New Zealand's comparative advantage in green products could evolve, and could inform detailed policy recommendations.

# 5:

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### Electricity

#### Opportunity:

Investigate the installation of smart grid and demandresponse technology in New Zealand which could improve the efficiency of the power generation system, the integration of distributed generation and intermittent renewables, and the overall system reliability.

#### Rationale:

Smart grids open up the possibility for further managing increased renewable energy generation and the increased uptake of electric vehicles (EVs), making New Zealand a world leader in low-carbon transport and electricity generation.

#### Actions:

Industry and government to design a roadmap on the installation of a smart grid in New Zealand, drawing on the IEA's technology roadmap for smart grids and its nearterm actions for business and government. In particular, consider government-industry demonstration projects such as the 'Smart Grid, Smart City' project in Australia, which would gather information about the benefits and costs of smart grid technologies in a New Zealand context.

#### Opportunity:

Complement New Zealand's innovation policy with a framework for low-carbon energy innovation based on the IEA's best practice framework.

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#### Actions:

Industry and government to review the national energy innovation system to assess consistency with the IEA's best practice framework for energy innovation.

#### Rationale:

While geothermal technology appears to have broadly adequate funding and support, other technologies in which New Zealand may develop a comparative advantage, such as wave energy, may need a considered R&D and innovation strategy.

## Buildings

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#### Opportunity:

Improve energy efficiency in both new and existing residential and commercial buildings.

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#### Actions:

Drawing on a wealth of best practice material from overseas, government might evaluate measures for improving the energy efficiency of the current and new building stock. The review could cover financing mechanisms for reducing the barriers to residential energy efficiency retrofits, and the costs and benefits of national energy saving schemes such as those in the UK and California and the scheme currently being investigated by the Australian Government.

#### Rationale:

There are considerable financial, health and wellbeing benefits from improving the energy efficiency of New Zealand's existing and future building stock. Barriers to realising these improvements depend on the building type (residential or commercial) and tenure type (owner-occupied or rented).

### Transport

#### Opportunity:

Improve energy efficiency and security by implementing cost-effective mandatory light vehicle CO2 emissions standards.

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#### Actions:

Introduce mandatory light vehicle emissions standards for new vehicles with a goal of matching or exceeding any Australian standard, should one be introduced. Investigate efficient mechanisms for improving the emissions performance of imported used vehicles which make up a large share of vehicle imports.

#### Rationale:

New Zealand is one of the few developed countries without mandatory vehicle emissions standards, and analysis from organisations such as the IEA demonstrates that feasible improvements in emissions provide consumers with net financial benefits while reducing transport emissions. Australia is currently consulting on the introduction of a mandatory standard and, given the history of common energy performance standards across the two countries, this is an opportunity for New Zealand to reflect the level of ambition in Australia.



#### Projected market share of light vehicle purchases

#### Opportunity:

Make sure New Zealand is prepared for an eventual increase in the deployment of electric vehicles.

### 10:

#### Actions:

Electricity suppliers, business, government and consumer organisations could prepare for increasing EV penetration, including codes and standards for charging, metering arrangements, integration with smart grids, recharging infrastructure, and so on, drawing on the nearterm actions for EVs in the IEA's technology roadmap.

#### Rationale:

Given New Zealand's low emissions intensity of electricity, EVs could eventually play an important part in reducing emissions from transport. The costs for vehicles would be expected to fall as deployment of the technology increases globally, and New Zealand can prepare to take advantage of this by ensuring that the grid and other systems necessary for smooth adoption of EVs are in place as the technology matures.

#### Opportunity:

Increase public transport investment and usage and facilitate switching to more active transport modes such as walking and cycling.

### 11:

#### Actions:

Implement the recommendations to improve public transport outlined by the New Zealand Transport Agency in 2008. These include land use changes; direct and efficient pricing; infrastructure investment; and educational campaigns to encourage behavioural changes.

#### Rationale:

New Zealand land transport relies heavily on the private car, —much more so than nearly every other OECD country. The result is an inefficient and emissions-intensive transport system in which commuters are vulnerable to increases in real oil prices.

#### Opportunity:

Consider developing large-scale second-generation biofuel production in New Zealand.

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#### Rationale:

Large-scale second-generation biofuel production could, if successful and cost-effective, improve greenhouse gas emissions while reducing oil imports and improving New Zealand's energy security.

#### Actions:

Industry and government to continue assessing the expected net benefits of developing large-scale secondgeneration biofuels in New Zealand, and develop a strategy for large production if net benefits are expected. This strategy could include support for R&D; pilot plants, commercialisation of the technology; and large-scale afforestation.

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#### Low-carbon energy investment in US\$t





### Agriculture

#### Opportunity:

Improve the allocation of water in New Zealand to ensure that it goes to its most valuable uses, taking the needs of the environment into account, and improve water quality and resource efficiency by increasing the efficiency of fertiliser use.

#### Actions:

Build on and implement recommendations of recent policy reviews in New Zealand; enable transferability and pricing of water; facilitate and expand programmes to increase the efficiency of water use; invest in appropriate infrastructure for water transfer and storage; design cooperative programmes and incentives or land owners and managers to develop farming methods that economise on fertiliser use; and contribute to improved nutrient management that is compatible with community preferences.

#### Opportunity:

Develop information technology and communication systems to help farmers economise on inputs.

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research institutes, universities and technology firms.

### 14:

Actions: Build on existing initiatives by bringing together farmers, industry groups and research providers, namely crown

#### Rationale:

New Zealand has abundant water but experiences local areas of shortage and consequent environmental damage. Fertiliser use in New Zealand agriculture appears to be particularly intensive, with documented adverse impacts on water quality in some areas.

#### Rationale:

Adopting a green growth framework would result in more sustainable and efficient agricultural production, moving New Zealand up the value chain. New Zealand has a history of being a world leader in pastoral agriculture. With precision agriculture, automated information systems and machine-tomachine communications, there is an opportunity to develop products for the domestic market and export.

#### Opportunity:

Continue to improve emissions per yield from livestock and dairy cattle.

New Zealand has a strong programme of R&D in reducing emissions from agriculture, and future innovations and their deployment will be important in maintaining or improving New Zealand's relative performance in agricultural emissions.

#### Actions:

Continue support for research into reducing greenhouse gas emissions from agriculture and the commercialisation of associated technologies and practices. In particular, consider prioritising low-carbon agriculture when increasing public R&D expenditure (opportunity 1).

#### Rationale:

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### Fisheries

#### Opportunity:

Develop the full economic potential of fisheries in the Exclusive Economic Zone (EEZ) within the context of sustainable harvest levels.

Rationale:

New Zealand has a world-leading fisheries management regime. Economic growth will follow from sustainable utilisation of stocks.

#### Actions:

Explore aspects of the quota management system, including quota holdings, and public policy as it relates to the sector, to see if any limit the long-term economic potential of stocks in the EEZ.

#### Opportunity:

Realise opportunities from a sustainable expansion of the aquaculture industry.

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#### Actions:

Improve the efficiency of aquaculture regulations in ways that are consistent with growth while giving due attention to community concerns. Foster cooperative relationships

#### Rationale:

The opportunity for economic growth in aquaculture may be considerable. Development over the years has been sporadic and controversial.

between industry and research providers.

#### Opportunity:

Develop advanced information systems for harvesting and processing wild stocks and reducing adverse impacts on the marine environment.

#### Rationale:

Fishing has an opportunity to innovate using precision harvesting and processing methods.

### Actions:

Continue and enhance cooperative research programmes involving seafood industry groups, research providers, and technology firms.

#### Opportunity:

Reduce unit costs and greenhouse gas emissions by improving fuel efficiency in fishing.

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#### Actions:

Improve coordination between industry groups, crown research institutes and universities with the aim of advancing innovation to raise value added in fishing.

#### Rationale:

The fishing industry will require a combination of measures to add value to the harvest and reduce input costs. The use of smart technology to optimise fuel consumption and information systems to optimise harvest effort with respect to stocks are examples of how the industry can reduce both its energy footprint and costs.



### Tourism

#### Opportunity:

Identify public investments in New Zealand's natural capital, including New Zealand's biodiversity, which supports sustainable private sector tourist investment.

#### Rationale:

Tourism is an important contributor to New Zealand's income. Primary attractions are the environmental and cultural assets. The environmental goods are public goods and so belong to and are managed by the state.

#### Actions:

Government to work with industry to develop a register of the assets that are or could become important to tourism and their condition and performance, and identify how these compare to New Zealand's rival tourist destinations. A review could also identify assets suitable for environmentally sustainable tourist development which lack supporting infrastructure, and consult on its provision.

### Forestry

#### Opportunity:

Create a smart, productive sustainable forestry sector and realise its potential.

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#### Actions:

Industry and government to develop a roadmap for the development of a forestry-sector-led bio-economy. The roadmap could include proposals to develop a forestry cluster which encourages industry cooperation and promotes innovation along the lines of that in Finland.

#### Rationale:

One of the key challenges the New Zealand forestry industry faces is to increase investment in processing to yield higher value products. Lack of investment in recent years means that an increasing proportion of the harvest is being shipped directly as unprocessed, low-value logs. Technological developments have the potential to enhance the industry from one of traditional wood products to one with a range of supplementary liquid and solid biofuels, bio-plastics and bio-chemicals. Demand for these products is likely to increase and New Zealand might take advantage of these opportunities.

#### Value of total forestry exports in US\$b, 2009/2011



do we prioritise these opportunities ?

We've been working on a formula for green growth for nearly two years. During that time, we've looked at a lot of options for transforming New Zealand's future and we've shortlisted what we believe are the biggest opportunities to come out of our earlier research as well as the macroeconomic report – these are our "advantages" in the green race. The Advantages were chosen based on some important criteria:

- Their ability to deliver the 'double dividend' of economic growth and improve New Zealand's environmental performance.
- They are not dependent on immediate government support and/or policy change for success. While we envision government policy eventually becoming part of New Zealand's green growth solution, we've chosen initiatives that can be started without government support. In the longer term we will need bi partisan political support in order to accelerate progress.
- They are not being successfully or sufficiently addressed by other agencies or entities.

- They are not interdependent on the success of other green growth initiatives.
- They are consistent with global green economy trends and New Zealand's unique economic and environmental profile.
- All are bold, and practically implementable having met a 'reality check' test.
- All have focused commercial benefits to those bold enough to take the lead, but diffuse environmental benefits that all Kiwis can enjoy.

These opportunities will work as the engines that will deliver New Zealand a clean green future while at the same time making our nation more prosperous, less dependent on foreign energy, healthier and we think a lot happier too. They directly leverage the things we already do very well as a nation but also directly address the issues at which we don't do so well.









# 1. Home Advantage:

If every New Zealand home was upgraded to be more energy and thermally efficient, this would provide a significant economic boost, provide semi-skilled employment, local manufacturing opportunities and material health benefits. Let alone more than \$800m in energy savings.

#### Household energy use



## 2. Geothermal Advantage:

New Zealand's world-leading geothermal design and build expertise means that a super-charged industry wide export strategy will get us ahead in an international market that's set to be worth \$40b by 2020. We're perfectly placed to capture the boom: many of New Zealand's Pacific neighbours in the Ring of Fire are looking to exploit their geothermal opportunities in the face of international climate change and economic pressures. Being a world-leader in geothermal energy will help us to further enhance our clean and green international image.



### 3. Agricultural Advantage:

Agriculture is worth \$30b per annum to the New Zealand economy, generates 25% of our export revenue and it's where we have our biggest trade advantage. The future of farming will belong to those nations who own and adopt water efficient, energy efficient, low-carbon and low resource intensity input technologies and practices. New Zealand is performing well now, and with an integrated strategy to ramp up investment and commercialisation of sustainable and efficient agricultural R&D, we'll make sure we stay ahead. We'll also be able to more efficiently use our water and land resources while becoming an export leader by helping other countries to become more sustainable farmers. Most importantly, it'll help New Zealand preserve the pure natural environment we cherish.

#### Average number of peak cows milked per labour unit



## 4. Waste-to-energy Advantage:

By developing critical waste-to-energy infrastructure, biomass thermal plants and other locally sourced energy alternatives, New Zealand will make massive efficiency gains. By embracing sustainable and efficient industrial processes, we'll be able to use our potential waste-to-energy advantage to get ahead both environmentally and economically. Increasing energy independence will reduce our carbon emissions, avoid waste to landfills, and limit the exposure of toxicity to the environment. We'll also be able to avoid oil and coal path dependency, provide skilled employment and create high value exportable IP and manufactured products.

#### Projected additional investment each year in low-carbon power



# 5. Biofuel Advantage:

New Zealand can build upon its natural forestry advantage to create real and sustainable energy security. New Zealand's annual bill for imported oil is \$5.3b. By bringing key industry players together and utilising our huge forestry stocks, we can set the building blocks for a drop-in domestically produced biofuel. It will be the first step towards energy independence and a stable liquid energy supply, decreasing the shocks associated with a volatile and expensive international oil market. By leading the way, New Zealand will create technology and expertise that's exportable and contributes towards a highly skilled employment sector. It's also one of the fastest ways to reduce our carbon emissions while also creating high-value exports in bio-products and engineered timber.

#### Global potential for products from forest biomass







## 6. Smart Grid Advantage:

By implementing demand response and communication technologies throughout the grid, we'll be able to make the most of our renewable energy resources and lay the foundations for electric vehicles and other smart energy technologies. The potential savings are huge: by acting now, we'll save \$3.6b by 2030. The first step is a nationwide industry-wide demand response strategy to build our domestic energy savings as well as create a highly skilled tech industry. In addition, by making the most efficient use of our renewable energy sources, we'll benefit from reduced carbon emissions.

# 7. Biodiversity Advantage:

Our cherished biodiversity is an international environmental advantage. It not only underpins our clean green credentials but also supports our \$20b tourism industry. What we need is an integrated nationwide biodiversity strategy that delivers more revenue and resources to our marine and terrestrial conservation efforts. The long term environmental benefits are clear, but by implementing a nationwide multi-stakeholder strategy, we can also become a hub for international conservation education, pharmaceutical R&D and eco-tourism, all based around conserving our marine and terrestrial biodiversity.



Tourism & Travel competitiveness score

(Vivid Economics based on WEF Tourism and Travel Competitiveness Index 2011)



# How do we activate these Advantages?

Many people will look at these initiatives and ask; 'if the commercial imperatives are so clear, why hasn't private industry already embraced these initiatives?' Our research has shown that there are three key barriers that inhibit progression:

- A lack of industry coordination or a need for previously unassociated industries to work together;
- 2. An absence of cohesive long term green growth policy from central government.
- 3. The need for robust and detailed business case analysis to clearly define the commercial incentives.

While we can't change the absence of policy imperatives from central government, we have selected our Advantages to make sure that they focus on industry coordination and in the creation of robust commercial business plans.

Each initiative will form around a cluster whereby individuals from the private sector, associations and other stakeholder groups will work towards developing a sectoral strategy to create a high value green growth industry. We call these individuals our 'corporate leaders', and they will be the first to realise the commercial benefits of our Advantages in the Green Race.

The clusters vary in complexity – some are relatively straightforward to undertake, while others require considerable scoping, consultation, problem solving, detailed commercial strategy and assessment. In all cases we are simply asking our corporate leaders to commit to leading an attempt to develop a detailed green growth business case, not necessarily implement it. Based on the macroeconomic research, we believe that each detailed business case, once prepared, will provide justification to proceed.

Corporate Leaders will also formulate detailed governmental policy directives specific to each opportunity.

# When?

Now

We are building our corporate leader clusters right now and expect to announce the first groups in the next few months.

How do I get involved?

Visit us at www.pureadvantage.org and get in touch.



There is an international 'green race' being run.

Every country in the world is taking part. It is as inevitable as it is unstoppable. And New Zealand is well placed.

What we do next will dictate whether we continue to be on the pace - or be left behind.

> PURE ADVANTAGE



www.pureadvantage.org

This is printed in New Zealand using environmentally friendly inks and paper made from recycled material.



SOAR