



Identification of the Gaps affecting the uptake of bioenergy in NZ



www.bioenergy.org.nz

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28th February 2011



What is necessary to achieve this

NEW ZEALAND BIOENERGY STRATEGY

SEPTEMBER 2010



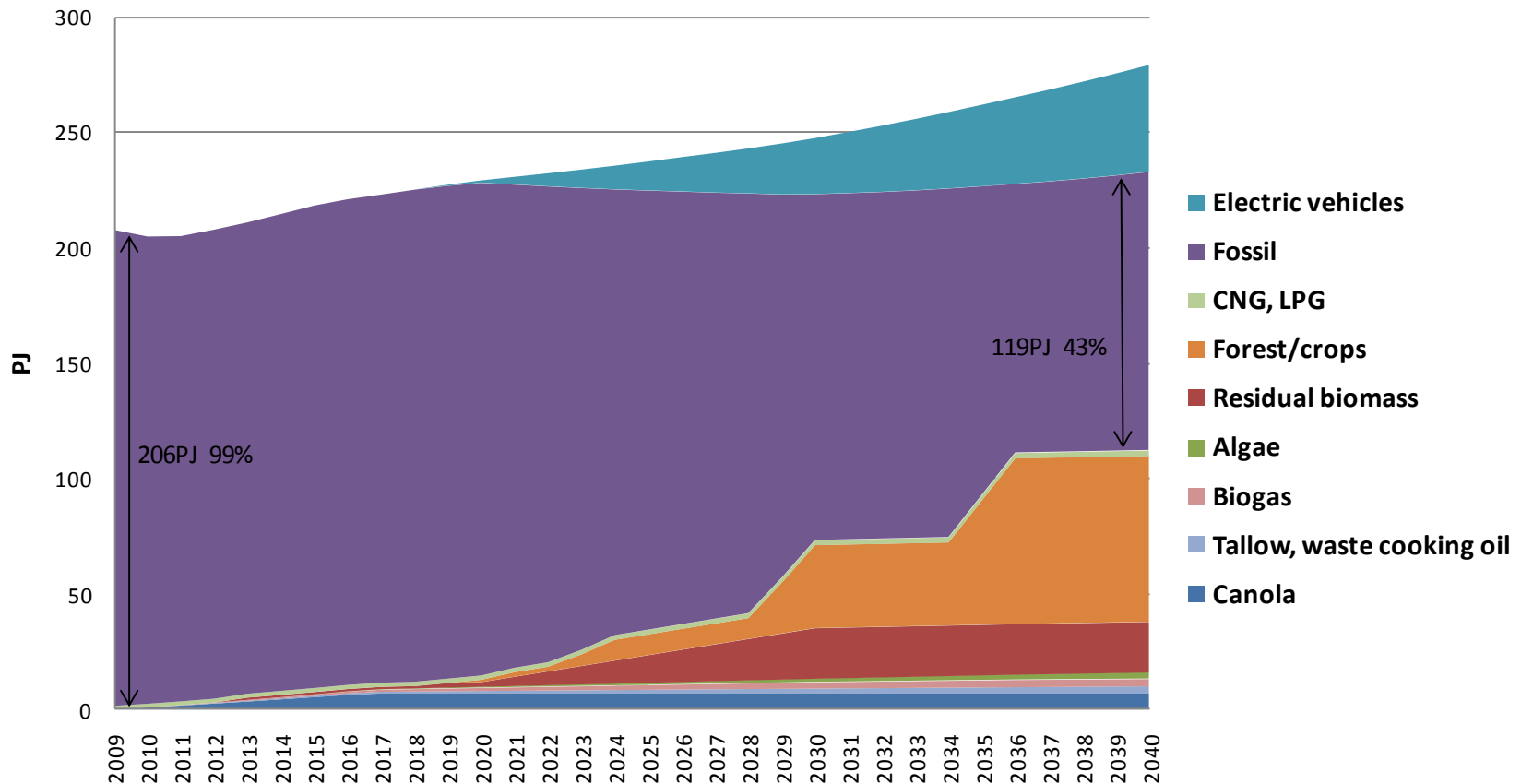
“Economic growth and employment built on New Zealand’s capability and expertise in forestry, wood processing and bioenergy production - leading to new business opportunities which by 2040 supply more than 25% of the country’s energy needs, including 30% of the country’s transport fuels”.

Our future?

- a \$3-5billion industry (transport fuel, wood energy, waste-to-energy)
- 25% energy needs sourced from bioenergy
- 30% of transport fuels from wood

The transport biofuel challenge

Transport Fuel Scenario



What's holding us back?

- We have the resources
- We understand the benefits
- We have identified the opportunities
- We have most of the skills and know-how

So what's holding us back?

Where do we focus our attention

- Extracting additional value from:
 - existing wood,
 - organic wastes, and
 - diversified land use
- Economic growth from new energy crops
 - Economic and employment value from under-utilised land
 - Increased value to land & forest owners
- Waste reduction - > value of energy + byproducts
 - Municipal
 - Clean integrated solutions for rural applications
 - Food processing

.....this is more than bioenergy

- Its not just about the energy
- Opportunities are multi-faceted and are being realised internationally already
- Our focus needs to be:
 - National and regional economic growth
 - Business growth and financial resilience
- Bioenergy is the means not the end point
 - As are biomaterials and biochemicals

My hypothesis

- We are technology focused and not focused on investors
 - Financial investment returns
 - Risk management
 - Business fit
 - Why should they invest now – too far away
- We haven't moved from our traditional thinking
- The industry needs to take ownership
 - Benefits accrue to resource owners and suppliers
 - Need to focus on selling the benefits to investors.

Thinking strategically

FOUNDATION BUILDING PHASE: to 2015

- Extend current initiatives
- Continue research, but directed also to crops and biodiesel, including feedstock supply chain
- Establish business case for liquid biofuels
- Secure Government and investor support

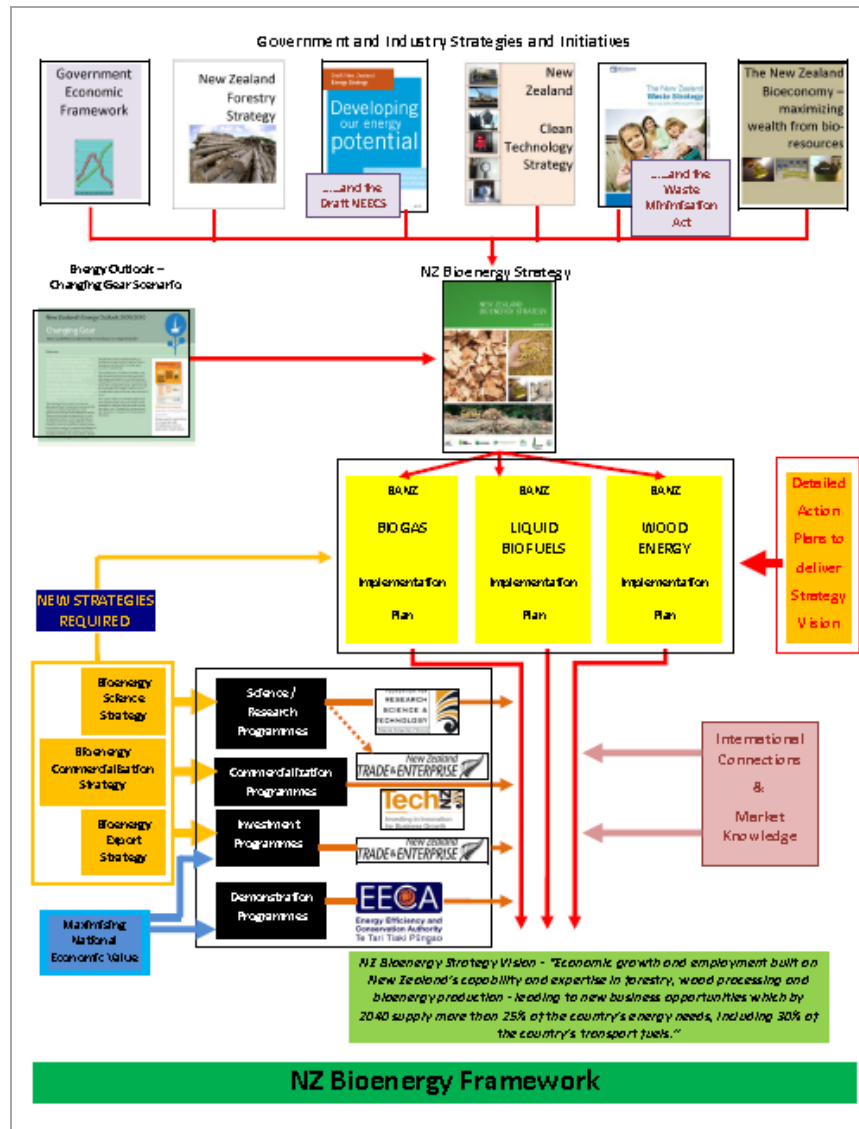
DEVELOPMENT PHASE: 2015 to 2020

- Extensive planting of fuel crops and new energy forests
- First liquid bio-fuel plants committed
- Attract investors

EXPANSION PHASE: 2020 to 2040

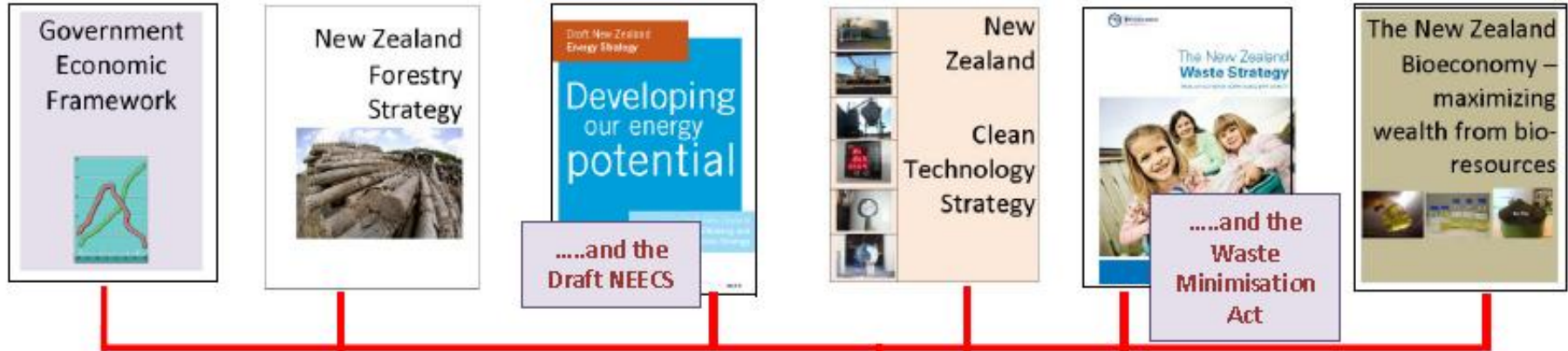
- Progressive:
 - Fuel crop harvest increases
 - Introduction of regionally located liquid biofuel production plants
 - Reduction in CO₂ emissions

Bioenergy Framework



Integration with other initiatives

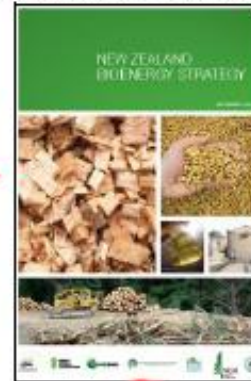
Government and Industry Strategies and Initiatives



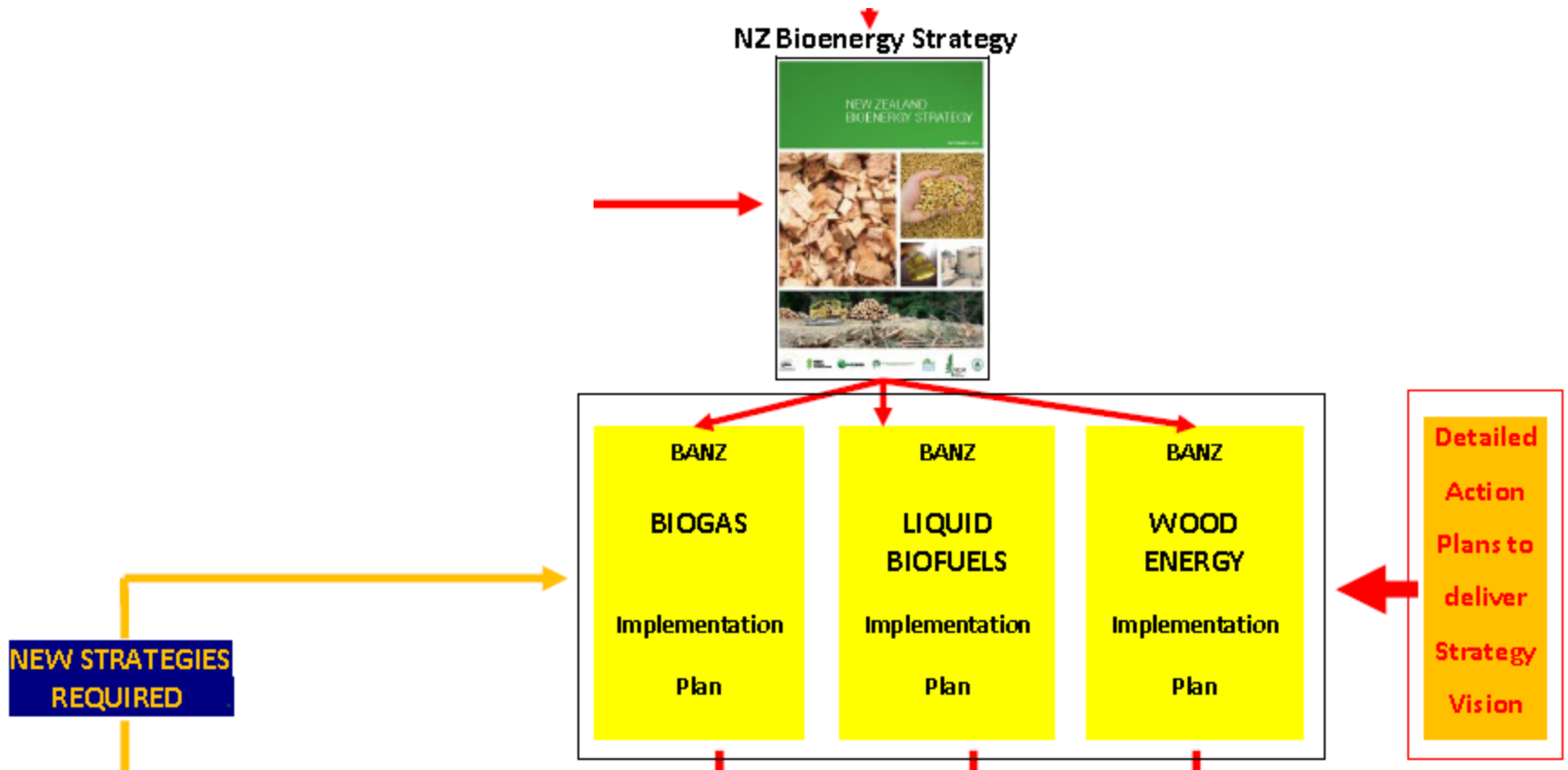
Energy Outlook – Changing Gear Scenario



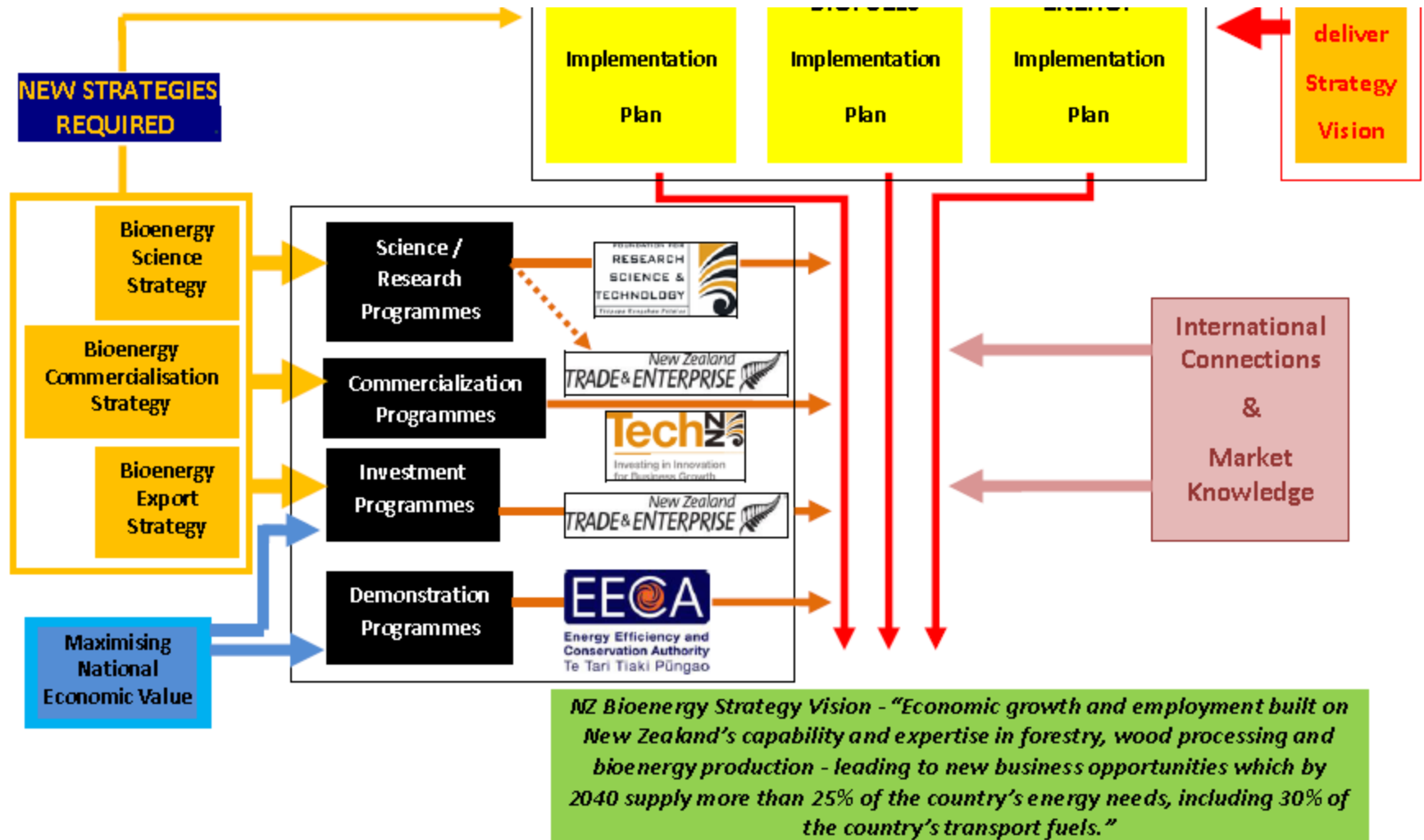
NZ Bioenergy Strategy



Focusing across the sector



Coordination across government



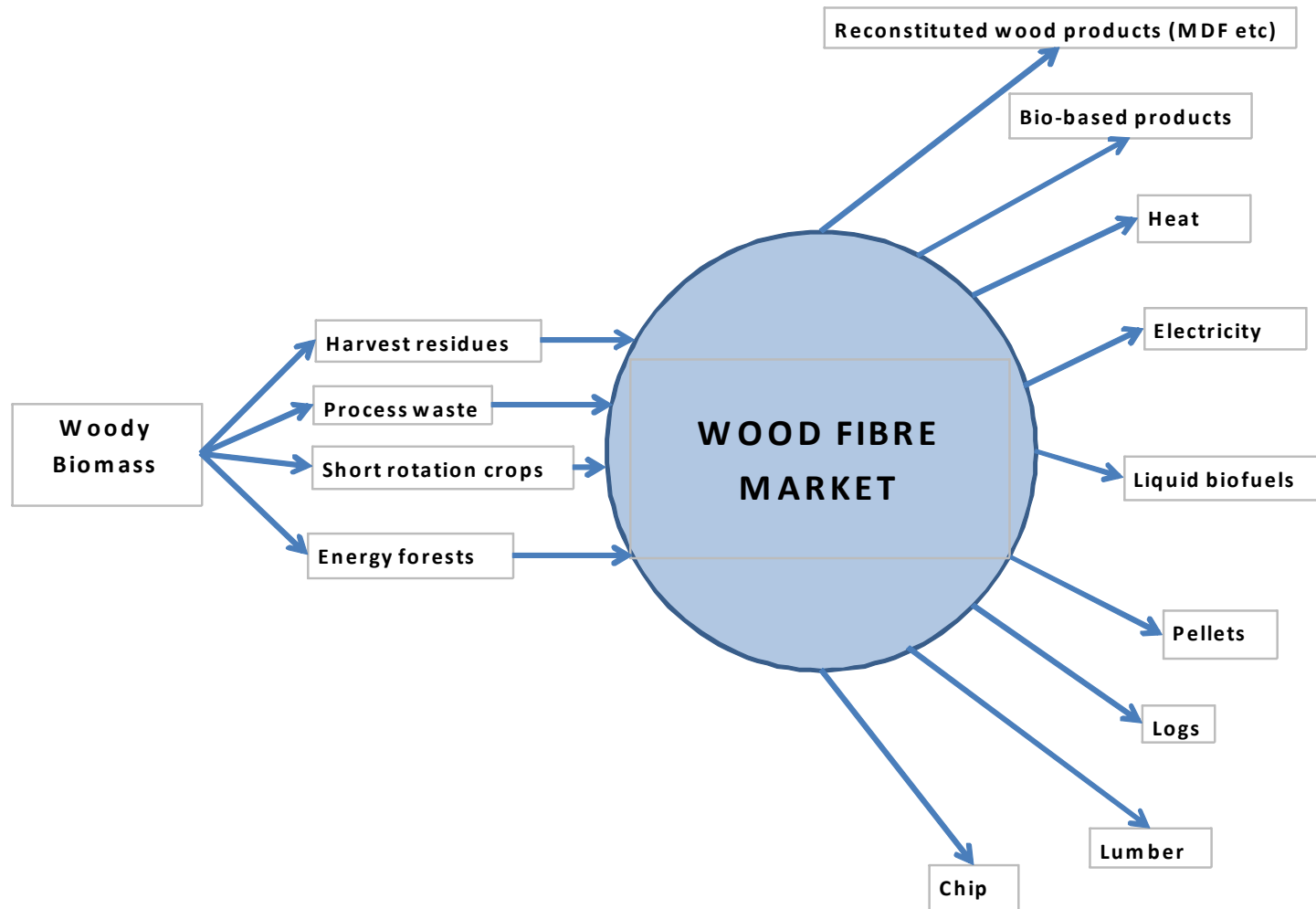
Feedstock

- Expansion of wood fuel for heat:
 - Forest harvest and processing residues
 - SRC and LRC
- Solid & liquid residues
 - municipal, dairy waste, food processing residues
- Liquid biofuels
 - biodiesel – used cooking oil, animal fats, canola, forest residues
 - bioethanol – whey, black liquor, forest residues
 - Export of biofuel production capability/skills
- Utilising organic waste
- Introduction of new feedstocks
 - grasses

Realising new feedstocks potential

- Revenue to feedstock producers
 - SRC provide quick returns (flatish land)
 - LRF only feedstock from hill country
- Feedstocks can be multi-use
 - Use may change over time
 - Revenue resilience
- Use of clean technology for processing waste
 - Revenue from biogas may reduce cost of waste removal
- Increased revenue from quality feedstocks
- Feedstocks often by-products
- Fuels crops (SRC, SRF and LRF)
 - understanding the economics and resource differences,

Changing our thinking about wood



Investors

- Failing to engage with local investors
 - Forest owners
 - Land owners
- Attracting international investors
 - Our resource
 - Ease of doing business
- Sector is focused on technology and not revenue for investors
- Focus is on “you should” rather than \$\$\$\$
- Little appreciation of investor risk

Business capacity

- Support for existing SME players
- SME often lack capacity
 - Technology
 - Managerial
 - Financially
- Do we need to encourage new players
 - or improve existing players
- Encourage existing corporate players to grow
- Value of initiatives to business
- Improving business financial resilience

Industry Capacity

- Staff with often limited experience and knowledge
- Being SME – struggle to secure funding from private and public sources
- Access to International experience and knowledge is limited
- Working in fledgling markets – need assistance
- Need tools and guides to develop understanding
- Need clear and accessible support networks

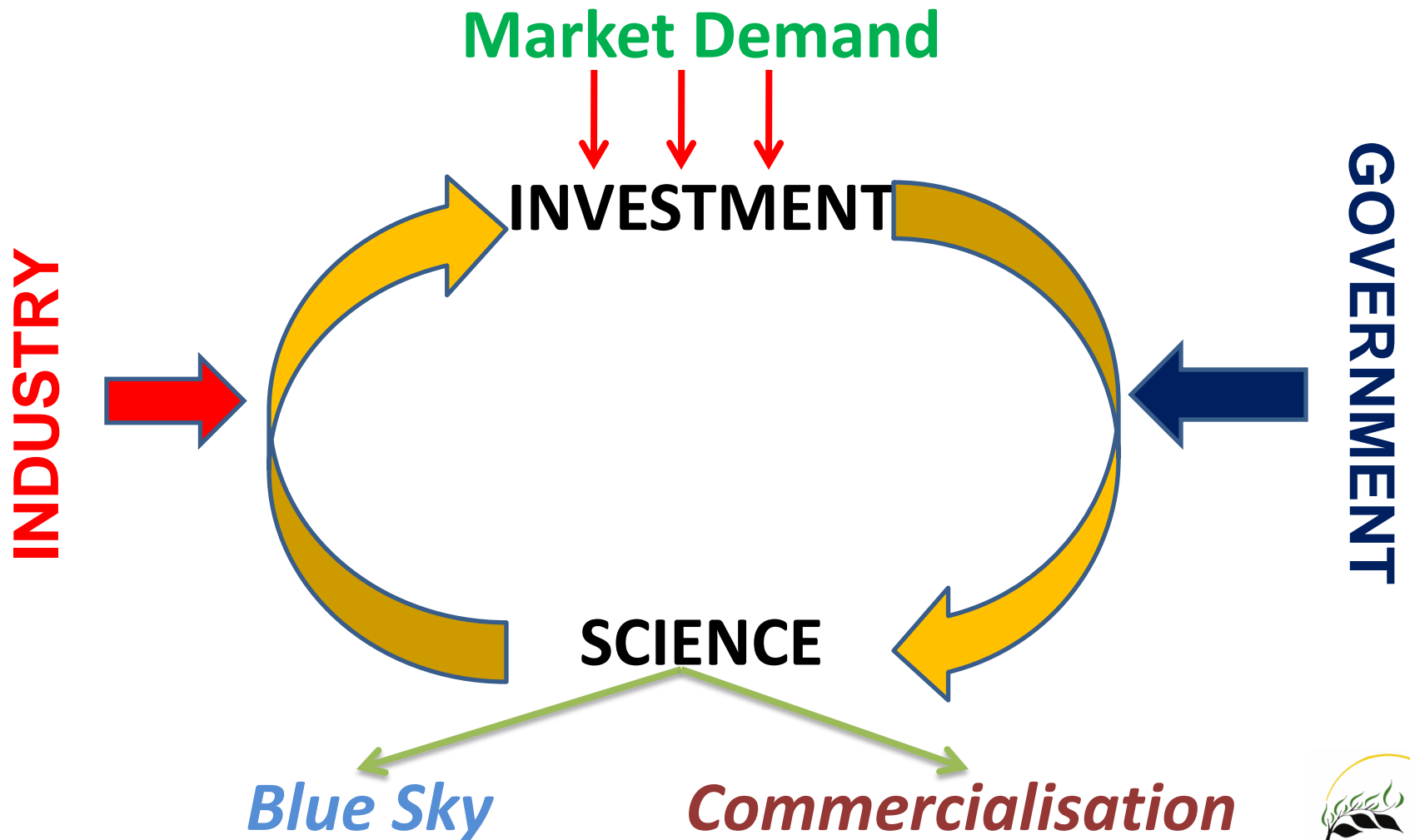
Research

- No alignment of research and industry needs.
- Scope to improve industry-research communication and understanding.
- Market/Industry needs-analysis to provide direction to research.
- Need to focus on today with an eye on tomorrow.
- A Research Action Plan to ensure co-ordination?
- Research needs are too vague

Integration of science and investment

- Science is a key part of the Strategy success
- Strategic investment in future blue sky research directions is essential
- Priority for research and development should be on activities in the Foundation Building Phase
- Research focus on:
 - products, methods and technologies
 - Innovation and application
 - Economics and financial returns to investors
- Make sure we are all part of the same plan
- Opportunities for international partnerships

Fitting it all together



Information transfer

- Relationships
 - lack of communication between parties involved in the development, regulation, funding of bioenergy activities
- Case Studies
 - lack of information available with a ‘how to’ focus.
- Lack of co-ordinated activity to stimulate uptake.
- Information doesn’t get to where its really needed
 - commercial, industrial and residential users.
 - poor transfer of international learnings

Information Gaps

- Need to promote Case Studies
- Need to 'educate' Councils on what is possible – learn from others
- Establish comprehensive generic resources to develop understanding.
- Need to understand the scale of the opportunity
- Need to share learnings and knowledge at the macro and micro level

Economics

- No R&D on economic drivers
- What is the financial returns to an investor
- Lack of understanding of investment risk
- Misalignment of funding/incentives for businesses, research, users and industry needs
- Lack of understanding of the wider market drivers and opportunities.
- Lack of understanding of the market - funding is mis-targeted, eg algae.
- Small scale is often uneconomic – need financial incentives to develop

Economic Gaps

- Focus of funds is on ‘blue sky’ opportunities rather than commercialisation and capacity building.
 - If today’s market cannot be firmly established, there is no tomorrow for ‘blue sky’.
- Industry Association
 - acting in isolation, little or no funding to do so.
- Key players can’t see beyond their usual focus
 - there’s more than a log in a tree – how can we demonstrate this value?
 - There is value in waste
- We are failing to appeal to NZ investors

Leadership

- Government is in survival mode - Industry must step up
- The Strategy is the first step in 'pulling' like minded parties together, giving them a voice, potentially co-ordinating their activities
- Need for Policy Leadership and direction check – need to demonstrate value to Government
- Need for leadership to be based on economic rationality and not just enthusiasm
- Need for all to work in sync on priorities.

Policy/Regulation

- Need to demonstrate value of government aspirational leadership now.
- Need to establish and cost real regulatory barriers
- Integration of policies
 - climate change, waste, energy security, economy, environment, forestry and jobs.
 - make links more visible
- Opportunities at the Local Government Level are going unrealized.

Policy/Regulation

- What can Government assist with?
 - Incentives for use.
 - policies that drive research to meet industries needs..
- Regulation
 - Air emission
 - ETS
 - Fuel standards
- Need policies to reward innovation and facilitate investment

Do we have the right partners?

Strategy Partners



Delivery Agencies



Closing the Gaps, delivering Results – How?

Bioenergy Strategy Project Partners

plus

Government Delivery Agencies

