31 July 2003

The Chair
Commerce Committee
Parliament Buildings
**WELLINGTON**

Attn: Michelle Malyon
Clerk, Commerce Committee

Dear Madam

**INQUIRY INTO THE NEW ZEALAND ELECTRICITY INDUSTRY**

Thank you for the opportunity to provide a submission on the above Inquiry.

Members of both the New Zealand Forest Industries Council and the Forest Owners Association have been consulted in the preparation of this submission.

The authors of this submission, Mr Bruce Chapman, Chairman of the Environment and Energy Committee of the New Zealand Forest Industries Council and Mr Rob McLagan, CEO of the New Zealand Forest Owners Association would welcome the opportunity to appear before the committee.

Yours faithfully

Stephen Jacobi
**Chief Executive**
**NZ Forest Industries Council**

Rob McLagan
**Chief Executive**
**NZ Forest Owners Association**

# INQUIRY INTO THE NEW ZEALAND ELECTRICITY INDUSTRY

## SUBMISSION BY

## NEW ZEALAND FOREST INDUSTRIES COUNCIL
## AND
## NEW ZEALAND FOREST OWNERS ASSOCIATION

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## 1. Preamble

The New Zealand Forest Industries Council (NZFIC) is the pan-industry association of the NZ forest industry. Its members include New Zealand's largest forest industry companies and key sector associations. The mission of the Council is to enhance the industry's international competitiveness.

The Forest Owners' Association is a voluntary organisation representing the interests of commercial forest growers. The Association has 230 members whose forest holdings represent approximately 85% of New Zealand's commercial forest estate. The members include all the major forest corporates, the majority of medium sized forest companies, many forest syndicates, and a number of farm foresters.

The harvest of wood from our planted production forests is expected to increase from 20 to 36 million cubic metres over the next 15 years. At the same time, domestic processing of logs is projected to increase. The growth in log and processed product will not be absorbed by the relatively small domestic market; it must be channelled to export markets.

Energy is a significant cost for the manufacturing sector and some companies in the forest industry sector are amongst the largest users of electricity in the country. For them, as well as the smaller users, an adequate, reliable, and cost efficient supply of energy is a fundamental requirement to maintain commercial viability and continue to expand.

The relatively recent establishment of the energy market in New Zealand may mean that some short term instability could be expected, however the importance of the energy sector to the forest industry and its potential contribution to economy as a whole are such that the energy markets must work effectively and any issues of supply and price be addressed quickly and effectively. Thus the industry applauds the recent steps to address the operation of the energy market.

## 2. Intent of the submission

This submission addresses the general issues of supply of energy and does not attempt to address the specific items listed in the Terms of Reference for the inquiry. Individual member companies will respond to those items.

## 3. Impact on industry

One of New Zealand's few major competitive advantages has been its relatively low priced energy. This advantage must be protected if we are to remain internationally competitive and if the forest industry is to achieve its

potential in generating increased foreign exchange earnings and new jobs, particularly in the regions.

The forest industry has been hit very hard by the volatility and high prices resulting form the energy shortage of recent months. The huge increases in the cost of energy consumed, reaching 400% in some cases, come straight off the bottom line and for companies where the margins are already very slender, additional costs such as these have been the tipping point beyond which companies have elected not to trade. The resulting reductions in production and staff lay-offs have major impacts on domestic and overseas trade and on social and family structures.

## 4. The future

It is not only the current crisis which is of concern to the industry. By 2012 the forest industry's energy demand will increase by 250MW and by a further 300MW by 2025 if it is to meet its target of processing in New Zealand 50% of the country's increased harvest.

In the mix required to achieve adequate supplies of reasonable priced energy, the market should recognize and reward energy derived from renewable wood biomass. This is made even more important because of the inevitable upward pressure on energy prices consequent on New Zealand's decision to ratify the Kyoto Protocol.

## 5. The issues:

Three aspects of the energy sector in New Zealand give rise to serious concern to manufacturers:

- **Price:** Gas and Coal prices could double over the next five to ten years. Electricity prices are likely to rise by as much as 60%.

- **Price Volatility:** Excessive and unmanageable volatility threatens existing energy intensive operations and discourages new investment.

- **Security of Supply:** Justifiable concerns exist about whether the market will deliver adequate security of supply in its current form.

## 6. The Drivers

There are a number of inter-related drivers giving rise to these concerns.

- The demise of the Maui field and its replacement by multiple gas fields with extraction const at the wellhead about $2/GJ higher than Maui.

- The imposition of a carbon tax amounting to $1.30 / GJ of gas, in combination with the increase above will effectively double the wholesale price of gas over the next 5 – 10 years.

- The absence of adequate regulation (whether by government or self regulation) of gas transmission on which to base long term gas supply contracts.

- Delays to the development of fields and pipelines due to the cumbersome and restrictive requirements of the Resource Management Act.

- Significant electricity transmission constraints in many regions.

- Significant existing dry year risk.

- Vertical integration and regionalisation of the electricity market (following the dry year in 2001), significantly reduced competition and increased price volatility through reduced availability and increased price of hedges and long term contracts.

- Electricity transmission policies relating to system security, in combination with a less than fully competitive regional market, contribute to excessive price volatility.

- Only 15% of consumers face the spot price and are therefore exposed to the volatility of electricity prices. These are the major "base load" consumers least able to respond to rapid price fluctuation by load shedding or shifting.

- Significant barriers to electricity demand management, demand side participation and embedded generation in the current electricity market, reduce or eliminate otherwise attractive energy management options to consumers.

- Long delays to the establishment of the Electricity Governance Board and reliance on the gas industry to develop a system of self regulation contribute to a lack of competition, create price issues and threaten security of supply.

## 7. The Electricity Commission

The direction signalled by the Government announcement of the Electricity Commission and the measures at its disposal will, if fully implemented, help in the quest for a less volatile and more secure electricity supply.

There are some residual concerns relating to the mechanism by which the so called dry year risk reserve (DYRR) will operate.

The media releases have indicated that the DYRR would only be brought into operation when a dry year was evident and would come on at a high price.

There is concern in some quarters that the DYRR, if brought in at too low a price, would reduce the realization of investment in this normally required base load generation (~150MW pa). We do not hold this view.

In our view the DYRR plant must not sit idle for many years waiting for a 1992, a 2001 or a 2003. The capital invested in this plant needs to be more effectively utilized – that is the generators need to run more than once every few years.

The DYRR should be triggered by a *variable* price rather than a *fixed* trigger price – (explained later).

Provided the market signals sustained prices above long run marginal cost of new generation of say 6 c/kWh, then the normal load growth generation should be built. As the DYRR prices would be well above this (~12-20 c/kWh) they should not interfere with normal investment decisions. The trigger price does not therefore need to be set at too high a level.

In additional to security and price, the rate of change in price is also a significant risk for large manufacturing plants. It is not possible to operate in a market where the price volatility is as great as it is currently. Recent experience demonstrates that electricity prices were more than 1000 times more volatile than any other price over the past 18 months.

Major wood processors have no choice but to be in the wholesale market. Irrespective of whether they are 50% or 100% hedged, they still have every incentive to drop load when the spot price is high. However large integrated mills cannot react to huge price changes every half hour. It can take up to 8 hours to shut down a paper machine and 12 hours to bring it back to full speed and stable production. Reacting to what might be a short term spike is a big gamble. Dampening of volatility in the spot market can be achieved by judicious Electricity Commission management of the dry year reserve capacity.

We consider that the variable price trigger to bring DYRR into operation should be short run marginal cost (SRMC) of each standby generator plus a small margin rather than a high set trigger point – e.g. 50 c/kWh. The 'small margin' is designed to provide flexibility to the EC to allow it to inject a little uncertainty on the DYRR offer price (s) where possible Generator gaming is suspected. (eg shadow pricing).

We believe that the levy applied on each unit of electricity sold in NZ should pay for:

- The capital cost (amortised) of new open cycle Gas turbines

- The capital cost (amortised) of older written down standby thermal plant

- The holding cost of fuel (particularly diesel and strip mining costs for standby coal)

- The EC overhead costs and funding for the necessary work streams to monitor and improve the market's operation.

The proposed changes to the role and relationships of the EC and Transpower in the planning and commissioning of transmission are supported.

The key area not addressed by the proposed electricity commission is fuel security. Our view is that this should not necessarily be the responsibility of the Electricity Commission, since fuel security extends to sources of energy other than electricity. Any power station is futile without a source of energy. Some form of strategic energy planning is required to ensure that; appropriate levels of petroleum exploration are undertaken, that appropriate levels of electricity and gas generation/production and transmission investment are undertaken; and that barriers to investment are addressed.

## 8. Recommendations

We do not suggest that Government return to the days of control over investment or pricing in the energy sector. The current and likely future state of the energy sector, suggest that Government has a larger and important residual role in the energy sector.

That role is to ensure that the market is competitive, informed and that there are no barriers to investment. This may require some regulation.

*In relation to security of supply Government should*;

- Establish a strategic energy planning function within central government
- Ensure residual Maui gas is extracted
- Continue to promote exploration and development of petroleum resources
- Regulate gas transmission to ensure open access
- Reduce RMA barriers to development
- Acknowledge the value of coal as a short term supply necessity

*In relation to pricing and competition, Government should*;

- Require Transpower to pro-actively remove transmission constraints

- Reduce market rule barriers and actively encourage embedded generation, demand side participation and demand management
- Regulate vertical integration and/or mandate certain hedge volumes
- Return loss and constraint rental to source regions
- Accelerate the establishment of the Electricity Governance Board
- Widen criteria for access to Negotiated Greenhouse Agreements for both new and existing investment

## 9. WPS Summary Paper - Energy:

In December 2002 a number of papers were prepared as part of the Government / Industry Wood Processing Strategy by the Energy Working Group. The summary paper is appended to this submission as it describes, succinctly and clearly, the issues of concern to the industry.

**Wood Processing Strategy**

# Energy Issues for the Wood Processing Sector In New Zealand

**A Report Prepared for the Wood Processing Strategy Steering Group**

**December 2002**

Ewan Gebbie
Energy Efficiency and Conservation Authority

Bruce Chapman
Carter Holt Harvey Limited

Project Co - Chairs

## FOREWORD

The reports in this document were prepared for the Wood Processing Strategy Steering Group under the guidance of a joint public / private sector reference group.

The need for the project arose from the recognition that energy is no less a vital component of infrastructure for the Wood Processing Industry than transport and skilled labour. It therefore set out to review:

- The supply and demand for energy in the new wood processing regions
- The effects of energy market structures on the development of the sector
- Likely changes in energy costs
- Opportunities for the development of Bioenergy in the sector.

The conclusions are set out in the summary report.

It is possible to view the identified issues surrounding supply, price and market structure with considerable concern. The authors note however, that neither the supply gap nor some level of price rise is unexpected. To some extent these are features of all markets. The structure of energy markets can also be expected to be somewhat unstable given its relatively recent development.

Nevertheless these areas may all become significant barriers to investment. The combination of issues and their inter-relationships, occurring over the same time period as we hope to encourage a significantly increased level of investment in wood processing, warrants close attention by government.

Many of the issues identified are already being worked upon within Government. The summary report simply notes where priority or urgency should be afforded particular issues and makes a relatively small number of recommendations to both industry and government, where additional solutions are necessary to achieve the objectives of the Wood Processing Strategy.

The report also identifies the key role that Bioenergy can play for both the sector and the economy in the future, and makes recommendations to industry and government as to the means by which this potential may be realised.

A key conclusion is that government retains an important role in the energy sector. The importance of the energy sector to both the Wood Processing Strategy and the economy as a whole is such that Government must ensure that energy markets are working effectively and that residual issues are

addressed quickly. Government agencies such as Transpower also have an ongoing and pro-active role to ensure that both the supply side of the market, and future investors in demand, are adequately informed.

The co-chairs of the project would like to acknowledge the valuable contribution to the reports by both officials and industry representatives.

Ewan Gebbie
**Co - Chair**
**Energy Efficiency and Conservation Authority**

Bruce Chapman
**Co-Chair**
**Carter Holt Harvey**

**Wood Processing Strategy – Energy Issues**

***Summary Report***

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**Report**

**To**

**Wood Processing Strategy Steering Group**

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**By**

**Joint Energy Working Group**

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21 November 2002

**Wood Processing Strategy – Energy Issues Summary Report**

## 1. Introduction

The purpose of this report is to evaluate energy issues facing the wood processing industry over the next decade. The report is based on the work from four separate reports commissioned by Forest Industries Council and EECA

The background reports are:

- "Wood Processing Strategy: Future Energy Supply and Demand", by East Harbour Management Services
- "Wood Processing Strategy: Energy Market Structure Issues in NZ", by Russell Longuet, Carter Holt Harvey
- "Drivers of Woody Bioenergy in NZ", by East Harbour Management Services
- "Gas Price Increase and Carbon Charge Effects on Heat and Electricity Costs", by East Harbour Management Services

This summary report has been prepared following consideration of all four reports. Copies of the reports are available on the EECA web-site. The summary picks up the principal issues and also makes recommendations for both Government and the forest and wood processing industry.

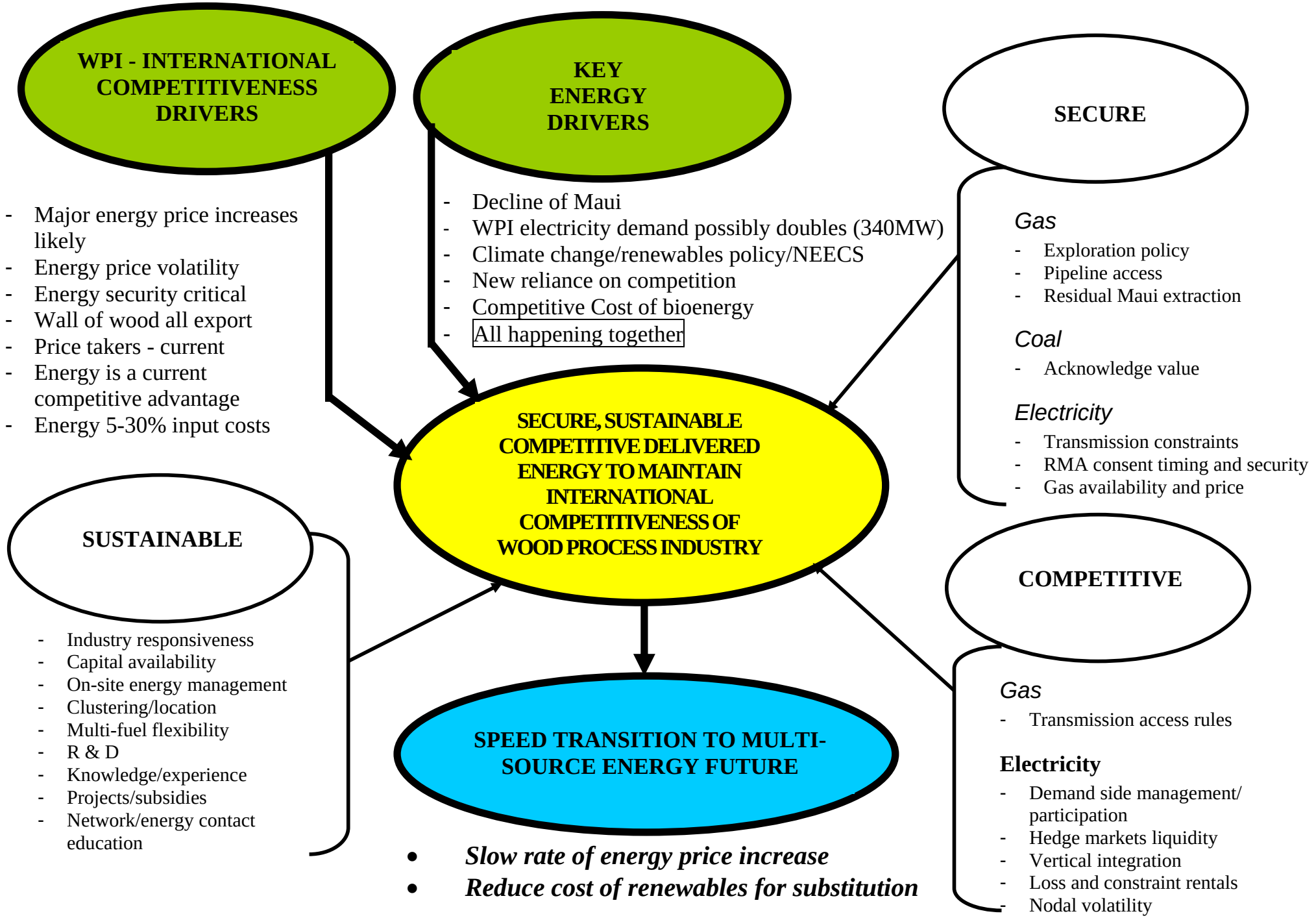
## 2. Executive Summary

The issues facing the wood processing industry are summarised in the following chart. Each issue is addressed in the subsequent discussion.

It should be noted that a number of issues are already being addressed and the recommendations are for continued support of these actions. It should also be noted that where a party is not mentioned it should be regarded that both the Forest Industries Council and EECA agree. In those cases where a party is specifically mentioned, that party is the sole holder of that view.

With a few notable exceptions the recommendations do not suggest any significant policy change, but in general relate to the timing and priority of current initiatives being undertaken, or which should be undertaken, by both government and the wood processing industry. These improvements cover:

- removal of current barriers
- improved efficiency
- provision of assistance to address issues
- faster establishment of commercial mechanisms, and
- faster establishment of appropriate market rules.


WPI - INTERNATIONAL COMPETITIVENESS DRIVERS
KEY ENERGY DRIVERS
SECURE
- Major energy price increases likely
- Energy price volatility
- Energy security critical
- Wall of wood all export
- Price takers - current
- Energy is a current competitive advantage
- Energy 5-30% input costs
- Decline of Maui
- WPI electricity demand possibly doubles (340MW)
- Climate change/renewables policy/NEECS
- New reliance on competition
- Competitive Cost of bioenergy
- All happening together
Gas
- Exploration policy
- Pipeline access
- Residual Maui extraction
Coal
- Acknowledge value
Electricity
- Transmission constraints
- RMA consent timing and security
- Gas availability and price
SECURE, SUSTAINABLE COMPETITIVE DELIVERED ENERGY TO MAINTAIN INTERNATIONAL COMPETITIVENESS OF WOOD PROCESS INDUSTRY
SUSTAINABLE
- Industry responsiveness
- Capital availability
- On-site energy management
- Clustering/location
- Multi-fuel flexibility
- R & D
- Knowledge/experience
- Projects/subsidies
- Network/energy contact education
COMPETITIVE
Gas
- Transmission access rules
Electricity
- Demand side management/ participation
- Hedge markets liquidity
- Vertical integration
- Loss and constraint rentals
- Nodal volatility
SPEED TRANSITION TO MULTI-SOURCE ENERGY FUTURE
• Slow rate of energy price increase
• Reduce cost of renewables for substitution

### The Role of Government

The issues identified should not be taken to suggest that the market model is fatally flawed, nor that government should revert to direct investment and control in the energy sector. Nevertheless, the recommendations suggest that the combination of supply and structural issues will provide a serious test for what is still an immature market. Over the next five years, Government will continue to have an important, if different role in the energy sector, if it is to ensure the achievement of its objectives for the sector.

## 3. Wood Processing International Competitiveness Drivers

### Wall of Wood for Export

New Zealand's harvest of wood is expected to increase to 30 million from 20 million before 2007. Whether processed or unprocessed, almost all of this production will need to be sold in export markets.

### Price Takers

The Pacific rim markets for wood products are intensely competitive. Most products exported from NZ are commodities, with prices determined by the lowest cost supplier. Over capacity means that inventory fluctuations can lead to price volatility. Margins are generally small, and New Zealand producers are price takers with no ability to pass on cost increases. Most segments of the industry currently struggle to earn their cost of capital and significant cost increases of any type will reduce the prospect of further investment.

### Energy is a Current Competitive Advantage

Energy costs are low by developed country standards (similar to Australia). This advantage is important, given our relative disadvantage in terms of fibre and labour cost and distance to markets.

### Energy Represents a Significant Proportion of Input Costs

Energy represents between 5% and 30% of input costs. Margins and price volatility are such that even at the 5% end, the magnitude of likely energy price increases will discourage investment in new wood processing plant.

### Volatility and Security of Supply are Critical

The ability to manage for energy price volatility and to access secure supply is critical to the viability of existing wood processing operations and to the encouragement of new investment.

## 4. Energy Drivers

### Decline of Maui

The Maui gas field is expected to decline between 2005 – 2010 with the earlier period appearing more probable. Gas supply from Maui has provided substantial support to nationwide hydro electricity generation both in flexibility of meeting electricity demand, and generation in the event of dry years.

There are no known NZ gas fields as big as Maui to replace supply. There are however a number of smaller gas fields that have been discovered, or are expected to be found, in gas prone areas in a number of parts of the country. Development of the smaller fields and cleanup so that the gas specification for reticulation is met will be costly and the price of gas is expected to increase. Smaller distributed gas fields provide an opportunity for local gas utilisation.

Increased gas prices will provide opportunities for increased development and substitution of renewable energy but will adversely affect the prospects for new investment and re-investment in the wood processing industry.

### Wood Processing Demand

Currently 65% of wood harvested is being processed within NZ. Wood yield will increase from 20 million to 36 million $m^3$ over the next 15 years. The Wood Processing Strategy has set a target of $3 billion in new investment to ensure that a significant proportion of the increased volume is processed onshore. Demand generally continues to increase at around 2% per year, requiring about 140 MW of additional electricity generation capacity each year.

### Climate Change/NEECS/Renewables Policies

The Government Climate Change Carbon charge will increase wood processing costs where gas, oil and coal is used as a primary energy source. It will have a lesser effect on processors using renewable energy where renewables are the primary energy source. This will result in significant energy substitution but at a cost to those wood processors using non-renewable energy.

The Climate Change policies envisage the use of a 'Projects' mechanism and 'Negotiated Greenhouse Agreements'. The significance of these instruments to the promotion of new investment has yet to be determined, but they could provide much needed assistance to enhance the use of bio-fuels and meet the policy objectives for wood processing.

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The NEECS work programmes will provide some assistance to the wood processing industry for research and policy development related to achievement of a 20% energy demand reduction.

Programmes arising from the Government Renewable Energy Target will provide some assistance to reduction in the cost of renewable energy.

**Competitive Cost of Bioenergy for Heat**

In many situations bioenergy is a cost effective energy source for heat for wood processors. As gas price increases and Climate Change policies are introduced the relative economics of bioenergy for heat will improve.

**Reliance on Competition**

The energy market has been restructured so that it is market driven with a complexity of participants and a proliferation of new rules and ways of doing business. These new concepts and procedures force wood processors (both large and small) to reassess the way they think about and interact with energy market participants. Both suppliers and consumers are still learning to operate in the new market and there is some reluctance to invest until aspects of the market rules become more certain.

**The significance of the these key drivers to investment in wood processing, is that all of these factors are inter-related and occur together over the same 10 year period that the wall of wood comes on stream.**

## 5. Policy Objectives

The general objectives of Government and the wood processing industry are to ensure a secure, sustainable and competitive delivered supply of energy that will maintain the international competitiveness of the wood processing industry.

## 6. Supply Security

### 6.1 Gas

#### Exploration Policy

Between 2004 and 2007 it is expected that there will be a shortfall in gas supply for electricity generation in dry years. While new fields are being discovered and significant gas resources are known to exist, considerable additional effort and cost is required to bring this gas into production.

*It is recommended that government continue to actively promote oil and gas exploration in New Zealand and steps being taken to open pipeline access be speeded up*.

#### Residual Maui Extraction

It is likely that residual Maui gas could be extracted at lower cost than the development of alternative fields but that this may be discouraged by the owners' pricing (Maui contract) and development of alternative gas fields.

*It is recommended that government act to ensure that the extraction of residual Maui gas, which can be taken at lower cost than gas from other fields, is encouraged.*

*The wood processing industry recommends that Government consider the removal of the Energy Resources Levy, particularly on residual Maui gas to facilitate this extraction.*

### 6.2 Coal

#### Acknowledging the Value of Coal

Coal is available to New Zealand in large quantities suitable for conversion to electricity and providing supply security to bioenergy (as well as combustion strategy) for heat production. Coal can be a backup to cover non-supply of biomass or can be blended to increase heat values. The perceived environmental issues associated with its use discourage its development, however in the short to medium term its use particularly within existing plant will continue to be necessary to meet security of supply objectives. Clean coal

technologies can ensure achievement of appropriate resource consent conditions.

*It is recommended that government acknowledge the role that coal may play in meeting security of supply objectives over the short to medium term and actively encourage the development of multi-fuel generation and process heat facilities able to utilise coal where necessary.*

## 6.3 Electricity

### Transmission Constraints

The energy supply report identifies a number of regions in which transmission will limit supply, and potentially constrain investment in wood processing, particularly Northland, Waikato, Bay of Plenty and East Coast, where significant volumes of wood will come on-stream over the next five years.

*It is recommended that Transpower give priority to reducing transmission constraints in those regions where supply may be limited to energy intensive wood processing investment and adopt a pro-active role in the identification and resolution of these constraints.*

### RMA Consent Timing and Security

Obtaining consents for the development, generation and transmission of energy can take 3 to 5 years or even longer. The Maui gas field will expire within the next 3 to 5 years. Maintaining security of supply may require that consents for replacement energy sources are not unduly held up.

The current review of the RMA as it affects renewable energy projects has not included wider issues arising from the legislation and practice. These need to be addressed with urgency.

*The wood processing industry recommends that government evaluate options to streamline RMA consent processes for infrastructure, renewable and gas related energy development.*

## 6.4 Renewables

### Funding Resources

Renewables will be the ultimate source of an increasing proportion of both process heat and electricity. Government has targeted a 30 PJ per year increase

as a matter of policy. At present the cost of renewables for electricity production is too high for many businesses to use and remain competitive. The cost of co-generation of electricity from bioenergy remains prohibitive in most situations. The relative economics of renewable energy will improve as the gas price increases and a carbon charge is introduced. However the transition to renewables will be long and gradual if left to business-as-usual. On a business-as-usual basis it is unlikely that the appropriate amount of knowledge and experience will have been achieved for renewable energy to make a substantial contribution to substitute for post Maui gas.

The wood processing industry is concerned that there may be slippage in achievement of the 30PJ target unless adequate funding and/or effective commercial mechanisms are provided.

*The wood processing industry recommends that Government provide the funding adequate to achieve the renewable energy targets and commercial mechanisms necessary to develop a sound renewable energy base and achieve at least the 30PJ target. In particular funding incentives need to be assured to reduce the capital cost of renewable energy investments.*

## 6.5 NEECS/Demand Reduction

### Funding Resources

The Government's NEECS Strategy identifies the fact that there are significant opportunities to meeting supply security objectives by reducing demand by up to 20%. (In the wood processing industry this will principally be with the smaller less resourced wood processors.) This is also a major "foundation" policy for both climate change and energy efficiency targets. The mechanisms by which this policy can be achieved are not well known or understood throughout industry and as elsewhere identified, there are significant structural and resourcing barriers to the achievement of this objective.

The wood processing industry is concerned that there may be slippage in achievement of the NEECS programme unless adequate funding and the correct incentives are provided.

*The wood processing industry recommends that government fund the NEECS work programme more effectively to increase the visibility of the target and reduce the structural barriers to its implementation.*

## 7. Competition

### 7.1 Gas

**Transmission Access Rules**

Movement from a primarily single to multiple gas field supply using privately owned pipelines creates issues for both gas specifications and open access. The gas industry has been charged with the development of a light handed regulatory regime to deal with this situation by the end of 2004. The requirement for the development of new gas fired generation requires that this issue be addressed sooner.

*The Wood Processing Industry recommends that the government intervene to speed up the development of the gas market transmission rules and provide a regulatory structure which will ensure that there are no gas related barriers to new generation.*

### 7.2 Electricity

**Demand side Management/Participation**

The existing electricity market rules provide a disincentive for demand side participation/management mechanisms which means that existing electricity capacity is not used efficiently, supply crises may be unnecessarily created, and that price volatility is greater than necessary.

*It is recommended that government assist to establish a rule structure to ensure that a larger number of consumers have a wider range of opportunities to manage their demand, in response to clear and timely price signals*.

*Price Volatility*

Some volatility in price is a normal feature of competitive markets. Clear price signals tell suppliers and consumers how to manage supply and demand efficiently, and investors, where and when to invest in new transmissions and generation capacity. Large consumers usually manage the risk associated with price fluctuations by hedging a proportion of their total demand.

It is the view of the Wood Processing industry and other industrial consumers in New Zealand, both that the volatility in the New Zealand electricity market is excessive, and that there is insufficient availability of hedges to cover even

normal price fluctuations. The inability to manage this risk is a significant barrier to future investment in energy intensive forms of wood processing.

Both the underlying causes of this volatility (which include the role of Transpower in alleviating constraints, regionalisation and vertical integration of the industry) and the inability to obtain hedges, need to be addressed. The specific issues are addressed below.

**Hedge Markets Liquidity**

The provision of a liquid hedge market (price, volume and location) is critical to the viable operation of energy intensive businesses that cannot be shut down and started up at short notice. Regionalisation and vertical integration of the industry has enabled generators to manage risk without the need to offer sufficient volume in hedges, particularly at key nodes, leaving a higher level of risk and a higher price/risk premium with large consumers.

*The wood processing industry recommends that government mandate an adequate volume of hedges by blind auction or a similar mechanism, as a means of ensuring large energy consumers are able to compete equally with electricity retailers and can achieve adequate long term price stability.*

**Vertical Integration**

The dry year crisis that occurred in the winter of 2001 encouraged the regional and vertical integration of generators and suppliers, thus removing a key element of competitive supply.

*The wood processing industry recommends that government re-separate generation and retailing by regulation.*

*If this recommendation is considered impracticable, it is even more important that the preceding recommendation, encouraging hedge liquidity is implemented.*

**Loss and Constraint Rentals**

Price signals attributable to loss and constraint rentals are very much higher than necessary to encourage demand side management in the short term and distributed generation in the long term, lead to excessive price volatility, subsidise consumers in unconstrained regions, and increase price uncertainty for wood processors.

The provision of transmission (location) hedges is also a vital component in the mix of effective risk management tools. FTRs as currently promoted are not seen by the industry as being adequate to achieve this.

*It is recommended that government require return of rentals to the regions from which they originally came. The time delay will ensure that the nodal price signals continue to be received, but the cost effect will be reduced.*

**Nodal Competition**

The use and priority of system security by Transpower creates regions with supply monopolies. There has been no incentive on Transpower to minimise modelled constraints or propose optimal solutions.

*It is recommended that government and Transpower give urgency to the implementation of Parts F and C of the Rule Book.*

**Establishment of EGB/Rules**

Delays over the development of market rules have created uncertainty and create the perception of a supplier-dominated sector. There is a need to establish a fair balance between supply and demand side participants.

*It is recommended that government give urgency to the establishment of an Electricity Governance Board and ensure that it is run by independents with the executive ability to arbitrate rather than mediate.*

*Structures are necessary to ensure that small / medium sized industrial users have a voice and that large generators do not dominate. Proposals for change should be able to come from any party and consideration of rules should be on the basis of fairness between supply and demand.*

**Embedded Energy Issues**

With the demise of the dominance and flexibility provided by Maui energy will become more distributed. This will increase complexity but encourage embedded energy eg geothermal, bioenergy, and access to nearby gas fields.

Distributed electricity generation will arise from the distributed energy sources and provide a range of benefits, including minimising transmission losses, improving regional competition, reducing price volatility, utilising co-generation opportunities, and often minimising the environmental impacts of new large

single site generation. Current distribution and transmission pricing methodologies create significant barriers to embedded electricity distribution.

*It is recommended that a working group representing potential distributed electricity generators (ie not current large generators) be established to ensure that barriers to embedded electricity generation are addressed.*

## 8. Sustainability

*Industry Responsiveness*

There is a need to improve individual company awareness of all aspects of energy. The smaller companies do not have specialist energy managers and many have limited knowledge of their energy use and supply. Even larger companies may not be fully conversant with the energy market, the opportunities available, or constraints/threats facing them.

Wood processors have a number of opportunities for improving their energy costs once they become better aware of how they use energy.

*It is recommended that the wood processing industry and EECA work together to provide industry participants with handbooks and good practice guides highlighting typical energy use scenarios and the tools for measurement and decision making.*

### Capital Availability

The wood processing industry is capital intensive and generally seeking to upgrade or expand processing plant. Investment in energy equipment has to be justified against investment in this processing equipment. With scarce funds it may be financially expedient to continue to incur high operating expenses rather than become over capitalised. Similarly it may be financially better to incur the cost of dumping wood waste rather than increase capital expenditure. Gas and coal fired heat plant has a lower capital cost than bioenergy plant but higher fuel costs.

***It is recommended that handbooks and guidelines be provided to wood processors providing information and methodologies for evaluating typical capital investment decisions in energy equipment, particularly for bioenergy.***

## On Site Energy Management

On-site energy management may provide for many wood processors some of the best investment opportunities available to them.

*It is recommended that research be undertaken into typical energy efficiency improvement opportunities and that these be prepared as case studies to be made available to wood processors. Investigations into benchmarking of energy use would provide guidelines for improvement.*

## Clustering/Location

When new wood processing sites are sought consideration should be given to their location adjacent to other energy users or suppliers. This can provide synergies and economies of scale. Location near energy sources such as gas and geothermal fields, forests, hydro or wind electricity generation sites, should also be considered.

## Multi-Fuel Flexibility

To provide security and flexibility of energy supply wood processors should make allowance for multi-fuel use. Examples are coal and biomass, or gas and biomass.

## Research and Development

Current information on the economics of bioenergy is poorly researched and is indicative only. There is a need to research the economics of each component of the value chain to assist potential investors. The Bioenergy Association is establishing a priority listing of research and information requirements for the bioenergy sector.

*It is recommended that support be given to the Bioenergy Association to establish and maintain a priority listing of research and information requirements with particular emphasis on the economics of all parts of the value chain.*

## Knowledge and Experience

There is a wealth of knowledge already in the NZ wood processing industry on energy and this needs to be tapped and shared for the industry, particularly to the smaller companies who usually find it difficult to fund their own investigations. There is also information from overseas experience, especially with bioenergy, that needs to be shared within NZ. This includes the IEA Bioenergy information programmes that access international experience that is generally transferable to NZ.

The bioenergy technologies are generally well proven and readily available from sound NZ based suppliers. It is the lack of knowledge and experience of application that is the greatest impediment to increased uptake of bioenergy.

***It is recommended that in order to encourage transfer of domestic and international experience of bioenergy to NZ practice, support be provided to use the information programmes being developed by the Bioenergy Association.***

**Projects/Subsidies**

The Climate Change Policy could provide opportunities through the Projects programme to assist bioenergy projects where additionality will indicate the value of financial support.

*It is recommended that the wood processing industry establish a working group to assist the Climate Change Group establish criteria for Project funding.*

**Network/Energy Contract Education**

Many small/medium sized wood processors need to gain a better understanding of energy and network contracts. There is a necessity for seminars and information material to be made available to them.

*It is recommended that the Forest Industries Engineers Association convene regional seminars on energy and network connection contracts.*

## 9. Wood Processing Energy Objectives

The reports contributing to this summary, collectively support the conclusions that a combination of factors are likely to lead to significant increase in energy costs and that these are of sufficient magnitude to threaten the objectives of the Wood Processing Strategy. It is also clear that over the longer term the wood itself will provide an environmentally sustainable opportunity to meet New Zealand's energy needs.

As New Zealand moves to the multi-fuel energy future two things are required to achieve the objective of the Wood Processing Strategy:

- slow the rate of energy price increase, and
- reduce the cost of renewables for substitution.

The recommendations of this report will assist in the achievement of these objectives. ****