



NEW ZEALAND FARM FORESTRY ASSOCIATION

1 June 2015

Submission

- to -

climate.contribution@mfe.govt.nz Climate Change
Consultation Contribution
Ministry for the Environment
PO Box 10362 Wellington 6143

From: New Zealand Farm Forestry Association

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About the NZFFA

The NZFFA is a national organization of people who own small-scale forests (generally less than 1,000 hectares) and/or are interested in the many values of trees. Currently the NZFFA has about 1,900 members but it also acts on behalf of another 13,000 small-scale forest owners who pay, or will soon pay, the forestry commodity levy. It is estimated that over 40,000 New Zealand taxpayers have investments in these 14-15,000 entities (small forestry companies, partnerships and family forests) for which the NZFFA acts as advocate.

Submission on the Government's Climate Change Contribution Consultation document.

1. Summary

The essential message of this submission is that the NZFFA:

- Fully understands that it will be very hard to reduce New Zealand's GHG emissions in the key sectors of energy, transport and agriculture.
- Applauds the Government's initiative in establishing and helping fund the Global Research Alliance on Agricultural Greenhouse Gases.
- Believes - and is confident many others believe - that this research will be successful and contribute to a major reduction in our GHG emissions in the longer term.
- Believes that Government policies should project this confidence; and therefore that New Zealand should table a bold 'intended nationally determined contribution.'
- Proposes an achievable INDC of 20% below 1990 gross emissions by 2030.
- Recommends that pending the success of the Global Research Alliance project we meet our new emissions target through the large scale planting of new forests, particularly on erosion prone land, with private capital.
- Believes that such large scale planting will generate substantial co-benefits that will support Government's aims to improve the country's future sustainability, equity, social cohesion, resilience and economic growth.

2. Objectives for the 'intended nationally determined contribution'

Question 1(a) Do you agree with the above objectives for our contribution?

The NZFFA agrees with the Government's consultation document that three key objectives for the contribution should be:

- That it is seen as a fair and ambitious contribution – both by international and domestic audiences.
- That the costs and impacts on society be managed appropriately.
- That it must guide New Zealand over the long term in the global transition to a low emissions world.

The NZFFA would add a fourth objective:

- That it helps limit average global warming to less than 2°C.

Question 1(b) What is most important to you (the NZFFA)?

The NZFFA regards the fourth objective as the most important; and regards forestry as the most important tool available in the short term for achieving all of the above.

Increased planting of forests will not only help New Zealand meet its ‘intended contribution,’ it will generate economic and environmental benefits that will mitigate the costs and impacts of climate change in the short term and into the future. It is globally recognized that forests can contribute substantially to a reduction of *net* GHG emissions and that afforestation generates multiple co-benefits to society.

Increased forestry will reduce net GHG emissions

MPI has full details of the capacity of forests to sequester CO₂. They indicate that if a radiata pine forest was created by planting the same area each year for 10 years, it would sequester around 30 tonnes of CO₂ per hectare a year by the time the oldest trees were 14; and then maintain that rate until maturity. That suggests a new forest of a million ha could sequester 30 million tonnes a year - enough to reduce New Zealand’s present gross emissions of 81 million¹ tonnes a year to a net 51 million tonnes - for around 15 years. Indeed, we have nearly a million hectares of under-utilized and erosion prone land suitable for forestry; and new planting therefore has the capacity to *achieve an emissions target of 20% below 1990 gross emissions by 2030, if New Zealand chooses.*²

New forests creating a 30 year window of emissions control from now until 2045³ should give us more than enough time to:

- Prove the success of research into agricultural greenhouse gases, and substantially reduce *agricultural* emissions;
- Improve the economics and adoption of liquid biofuels, and reduce *industrial and energy* emissions;
- Implement ‘green building’ practices and reduce *embedded* emissions; and
- Switch to electric and biofueled vehicles and substantially reduce *transport* emissions.

All of these should enable the reduction in GHG emissions achieved through forestry to continue after the forests reached steady-state in 2045, when harvesting would begin.

Increased forestry will deliver co-benefits to society

For New Zealand, the co-benefits of increased forestry include:

- a) Improved water quality from reduction of sedimentation in waterways;
- b) Improved biodiversity and a reduced environmental footprint;
- c) Increased economic diversification and resilience;
- d) Regional development and jobs;
- e) Iwi land development consistent with cultural aspirations;
- f) Construction materials that are energy efficient and earthquake tolerant; and
- g) Bioenergy and energy security.

Scion is working on research that provides approximate indicative values to New Zealand of a) and b) above. The following table was presented by Dr. Richard Yao at the 2014 Forest Ecosystem Services forum at Te Papa, Wellington. It shows approximations, where possible, of market and non-market values for ecosystem services provided by

¹ New Zealand’s Greenhouse Gas Inventory 1990-2013, published by MfE April 2015

² 1990 gross emissions 67 mt CO₂ equivalent; 20% below 1990 levels = 54 mt CO₂ equivalent.

³ Planting 100,000 ha a year from 2017 to 2027 would result 175 million tonnes of sequestered CO₂ by 2030 and annual sequestration of 30 million tonnes a year until the trees were harvested from 2045.

planted forests. They were derived from published papers in international journals, commissioned reports and basic calculations; and being indicative, they should not be treated as absolute. They can however be used in discussions of ecosystem services where indicative values might help decision making.

Ecosystem service	Forest type	
	Planted	Natural
Wood and fibre	\$7.3 bn/yr	\$6 m/yr
Bioenergy	\$1 bn/yr	
Understorey cropping (e.g. Ginseng)	\$4/gram	
Carbon sequestration (\$4 /tonne of CO ₂)	\$100 m/yr	●
Avoided erosion (avoided sedimentation)	\$1,250 /ha/yr	●
Flood mitigation (avoided flood damage)	\$250 /ha/yr	●
Recreation	\$100 m/yr	\$3 m/yr
Conservation of endangered species	\$28 m/yr	●
Fresh water quality	●	●
Fresh water quantity	●	●
Air quality	●	●
Habitats	●	●
Aesthetics	●	●
Cultural heritage	●	●

Note that:

1. The values in the table indicate that a hectare of forest planted on unstable hill country might potentially save the country about \$1,500 every year from avoided sedimentation and flood damage. Right now, farming the same land returns around \$900 per ha gross (\$250 per ha net)⁴. On the face of it this is less than the environmental cost; and with increasing storm events the effective environmental subsidy to farmers will get worse. In the long term forestry is a smarter land use.
2. Many values have yet to be quantified but are also substantial. For example the Parliamentary Commissioner for the Environment in her November 2013 paper *“Water quality in New Zealand: Land use and nutrient pollution”* raised strident alarm bells about the rate of increase of nitrogen and phosphorus leaching into New Zealand lakes and waterways.
3. Government has tacitly recognized the co-benefits of afforestation by its recent reintroduction of the Afforestation Grant Scheme. However this is a modest initiative

⁴ Refer Beef and Lamb NZ sheep and beef farm survey, Class 4 North Island hill country: <http://www.beeflambnz.com/information/on-farm-data-and-industry-production/sheep-beef-farm-survey/nz>.

and the Government has yet to develop clear forestry development objectives, such as how much land needs afforestation and where it should take place.

Strategically-planted forests have proven a very cost-effective way to control both erosion and nutrient leaching. The NZFFA believes private investors would grow these forests if the Government encouraged measuring ecosystem services and helped to establish a wider programme of trading the benefits of these.

4. The consultation document acknowledges that biofuels have the potential to supply most of New Zealand's liquid fuel needs and substituted for fossil fuels, would directly improve New Zealand's emissions profile. The NZFFA applauds the Government's support for biofuel research. Although the current price of a barrel of oil is US \$65, in recent years it has approached US \$120. In 2011 C. Penniall and C. Williamson of the Chemical and Process Engineering Department University of Canterbury published a refereed paper in the NZ Journal of Forestry that showed that a barrel of oil could be produced from wood waste at a break-even price of US \$167 (which could be reduced with improved technology). In the event that the price of oil rose and stabilized at or near this level, New Zealand would be able to meet all of its domestic needs from biofuels. Brian Cox, CEO of the New Zealand Bioenergy Association suggests that biomass could potentially account for 100% of our liquid fuel needs, 100% of our heating needs and 73% of our electricity generation.

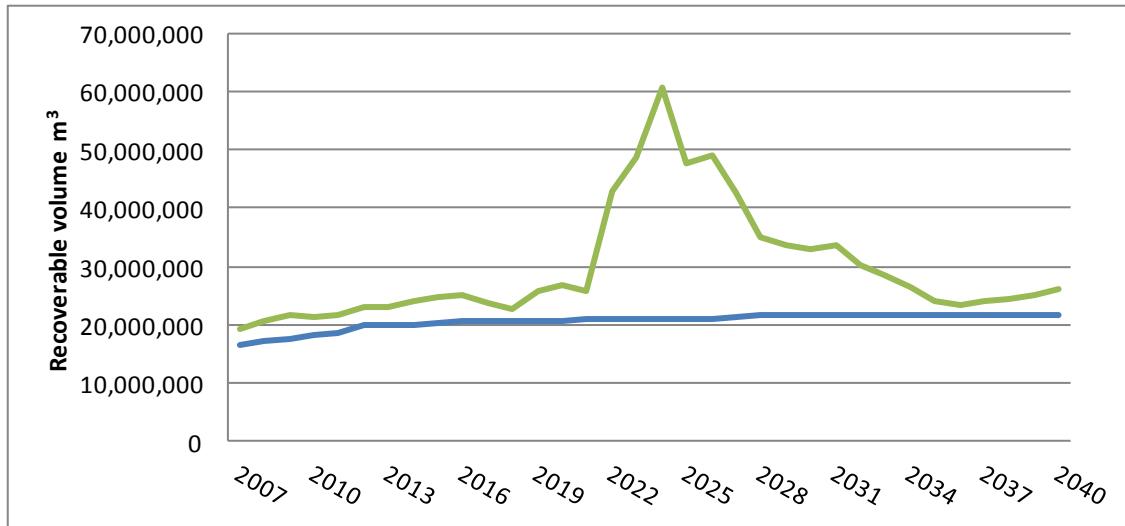
Increased forestry will stabilize wood supply

NZFFA research suggests that over 40,000 people (represented by 14,600 entities) own plantation forests around New Zealand either directly, or as shareholders in partnerships, trusts and companies. Individually these entities own forests that are generally smaller than 1,000 ha.

Most of these small forests were planted and grown in an uncoordinated manner, and the likelihood is that they will be harvested in the same way. This would raise serious problems. If all growers managed to cut their trees at maturity the national timber harvest would follow the profile shown in the graph below, risking fierce competition for access to markets and infrastructure. Sequestered CO₂ would plummet, log prices would fall, forest owners competing for markets would lose considerable potential profit, the Government would forego the associated income tax, the owners would not replant, no-one would invest in new forests and society would forego the ecosystem benefits that such new forests might have provided.

With effort this harvest profile could be smoothed into a sustainable yield, and the problems avoided. What is needed is for the industry and Government to work together to ensure that small-scale forests are cut in an orderly manner from about 2022 to 2035, and for there to be a major increase in the rate of new planting now and for the next decade to fill the supply gap that would follow.

The New Zealand national timber harvest out to 2040 in m³ p.a. if small-scale forest owning entities cut their crops at a rotation of about 30 years, and new planting remained at present levels.



Total recoverable volume (green). Large-scale owners harvest at their intended rotations (blue), while small-scale owners harvest at age 30.

The large forest owners already have a stable log supply, but stabilizing the supply from the small forest growers is critical to achieving long term value. A higher stable log supply (i.e. including the small growers) would encourage investment in processing which, coincident with the Trans Pacific Partnership free trade agreement, should lead to greater exports of processed wood products. As well as improving New Zealand’s export returns, the increased processing would create regional employment and make available greater volumes of wood waste. This supply would feed bio-materials and biofuels development, which would further improve the balance of trade and our climate change response.

The NZFFA estimates that the net increase in stocked production forest needed over the next ten years to stabilize the wood supply of the small growers and create a new, higher level for processing is 20-30,000 ha p.a. As noted earlier, at least a million hectares of reverting farmland and erodible hill country is suitable for planting, but the expected returns – using current costs and prices – do not attract investors.

Encouraging new planting – without subsidies

The NZFFA would like the Government to recognize not only forestry’s direct contribution to the reduction of national GHG emissions but also its wider impact on economic activity. We believe that at little cost to the Government, new afforestation can be encouraged through:

- a) Holding a national planning workshop on forestry development. The contributions of many agencies might be better coordinated and deliver more value to the sector if there was closer liaison amongst MPI, MFE, Scion, NZFFA, NZ Forest Owners’ Association, NZ Forest Industries’ Contractors Association, Forest Growers’ Levy Trust, Wood Processors’ Association and the NZ Institute of Forestry. This could assist with (b) below:
- b) Developing a New Zealand Forest Policy. This would provide coherence and direction for industry and stimulate changes to a number of other critical policy

settings, as explained in detail in *Woodco's Strategic Action Plan 2013* [www.woodco.org.nz]. Part of this policy could include (c) below:

- c) Encouraging the wider measurement and trading of ecosystem services (carbon sequestration and nitrogen run-off are two good examples). If the value of more of the co-benefits to society were tradable, private investment in new forests could be substantial.

The NZFFA is encouraged by the consultation document which says on page 11:

"Rules that provide the right incentives to maximize carbon sinks and smooth out the fluctuations of planting and harvesting cycles will be critical...."

3. A fair contribution for New Zealand

The NZFFA supports an emissions target of at least 20% under 1990 levels by 2030 with reduced conditions in the knowledge that globally, even the current targets will not limit average warming to 2°C; and that many countries are questioning New Zealand's effort and policy settings. As noted earlier, we have the capacity to achieve a target of 20% below 1990 levels for more than 15 years through increased forestry alone. At our present rate of emissions – a 21% increase over 1990 - we are clearly not doing our fair share.

We also believe that New Zealand's contribution should match the commitments of countries that have similar per capita wealth. The European Union represents a group of countries that come into this category; it has already set its vision for a new agreement and this should help shape our 'intended nationally determined contribution'.

Question 2. What do you think the nature of New Zealand's emissions and economy means for the level of target that we set?

The NZFFA accepts that New Zealand's largely agricultural economy makes it difficult for us to reduce gross emissions. We applaud the Government's initiative in establishing and helping fund the Global Research Alliance on Agricultural Greenhouse Gases.

We recognize also that the land and climate that drive our agricultural economy and create the problem, also offer us the solution. Expanding forestry on marginal land will absorb carbon dioxide and allow us to buy the time needed to succeed with this research.

Given that we have the ability to substantially offset our CO₂ emissions over the next 30 years, the NZFFA believes that New Zealand should have a bold 'intended nationally determined contribution'. We should back away from that target only if our agricultural research fails to deliver. Right now we are a long way from that decision point.

The NZFFA does not support the use of international offsets for domestic emissions if the effect is to:

- a) Meet the wording of international climate change agreements without making a serious effort to make real cuts in net emissions; or
- b) Undermine the value of NZUs and the proper functioning of our Emissions Trading Scheme.

4. How the target contribution will affect New Zealanders

The consultation document looked at only one side of the equation in trying to estimate the cost to the economy (and households) of making a meaningful contribution to mitigating climate change.

As you are aware, the New Climate Economy Report released in 2014 by a team of internationally renowned economists led by Lord Nicholas Stern, found that countries could improve their economic performance while cutting emissions. The Chair of the Bank of America, the head of the OECD, the World Bank, the Vice Chair of Deutsche Bank and many others endorsed this finding. The NZFFA also endorses it.

The Government's consultation document argued that global carbon prices needed to be in the range of \$60-\$200 per tonne by 2030 if there was going to be sufficient global action to limit warming to 2°C. However this is highly speculative, because a properly functioning carbon market would drive carbon prices down with time, as the global economy decarbonized.

The NZFFA notes that when the New Zealand ETS was first introduced the trading price of an NZU was about \$20, but is now down to less than \$6 because of Government interventions. We would welcome a rise in the price of NZUs. If the price rose to \$15 and investors were confident that it would remain stable, then an afforestation target of 20-30,000 ha p.a. with all of the co-benefits we have described would be easily achieved.

A new planting rate of 100,000 ha a year (which has been achieved in the past) might require the incentive of a higher carbon price, and/or trading in other ecosystem benefits as noted earlier.

We understand that when they first committed to the ETS, New Zealand's large industrial emitters (energy and oil companies) internally accounted for their carbon obligations to the Government at the official purchase price of NZUs, i.e. \$25. These obligations were passed on to consumers through petrol and electricity charges, and household expenses did not blow out. A strong economy, as suggested in the New Climate Economy Report, will help protect households in the future should carbon prices go higher than \$25.

Consistent with our preference for a higher carbon price, the NZFFA welcomes the Government's decision to stop accepting cheap carbon credits from overseas sources.

Question 3. What level of cost is appropriate for New Zealand to reduce its greenhouse gas emissions?

It is appropriate for New Zealand to reduce its greenhouse gas emissions if it is done in concert with a majority of other countries with whom we trade. Within that framework we need to pull our weight and be 'fast followers'.

However question 3 is misleading. On page 15 of the consultation document the Government recognizes and describes - but does not attempt to quantify - the economic benefits of reducing GHG emissions. New Zealanders will be impacted by the *net effect* of the costs and benefits, not simply by the costs. To offer just half the information and then ask for a decision is at best misleading as without figures for the benefits one cannot fairly answer the question. Even the use of the word 'cost' is emotive in that what the

models actually show is the economy delivering lesser future benefits. Differences in future benefits generated by economic models are ‘costs’ only in an academic sense.

Question 4. Of various opportunities for New Zealand to reduce its emissions, which do you think are the most likely to occur, or be most important for New Zealand?

The NZFFA has confined its comments to the opportunities that are available within the forestry sector. We believe that encouraging forestry is one of the most important and cost effective ways the Government can mobilize private capital to help New Zealand address its target in the short term, giving time for other sectors to seek and perfect technological solutions for their GHG emissions. Increased forest sinks also have implications over and above GHG emissions. As the consultation document notes on page 15,

“Reducing greenhouse gas emissions and increasing forest sinks can lead to improved health, environmental and social well-being, and improved erosion control and water quality.”

Question 5. How should New Zealand take into account the future uncertainties of technologies and costs when setting its target?

The NZFFA acknowledges that the Global Research Alliance on Agricultural Greenhouse Gases may not come up with a solution for our agricultural emissions. However we have to believe that in time, it will deliver significant improvements and we fully endorse the Government’s continuing support.

Accepting this present uncertainty the NZFFA believes that there is a cost-effective way of helping New Zealand meet a bold ‘intended nationally determined contribution’ in the short to medium term. Increased forest sinks will absorb CO₂ and buy time for the research to be successfully concluded, while offering wider economic and environmental benefits. We believe technological solutions to the problems of New Zealand’s agricultural economy will appear well before we run out of marginal land for forestry.

We also encourage the Government to continually monitor and improve the effectiveness of the ETS. In 2009 the Parliamentary Commissioner for the Environment said the Government’s Bill to amend the ETS Act would reduce its effectiveness by almost removing the price signal altogether. It turned out that she was absolutely right. Her other major recommendations were to plead for greater transparency and accountability of the scheme through regular reporting and reassessment.

We respectfully ask that the Government fully consider the Commissioner’s advice, as well as this submission.