**In the matter of** The Resource Management Act 1991

And

**In the matter of** Lake Rotorua Nutrient Management **Proposed Plan Change 10** to the Bay of Plenty Regional Water and Land Plan

Statement of Evidence of **Colin William Maunder**

for

Timberlands Limited

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**Qualifications and experience**

1. My full name is Colin William Maunder.  I am the Forest Risk Manager for Timberlands Limited, which includes responsibility for environment, health and safety, fire, security and community relations.
2. My qualifications are BForSc and MSc. in Environmental Sciences, both from Canterbury University.  I have worked in the forest industry for nearly 30 years primarily in the Central North Island. While I am experienced in most aspects of plantation forest management for much of my career I have specifically worked in environmental realm.  This has included RMA matters, (FSC) certification and compliance.

**Scope of Evidence and Summary**

1. The scope of my evidence concerns how Timberlands, a forest licensee with approximately 2800 Ha of plantation forest in the catchment were involved in the development of Proposed Plan Change 10 I also address aspects of the policy design and how these affect Timberlands.
2. Although this is a Council Hearing, I have read the Code of Conduct for Expert Witnesses contained in the Practice Note issued by the Environment Court December 2014. I have complied with that Code when preparing my written statement of evidence and I agree to comply with it when I give any oral presentation.
3. My evidence addresses the following subjects:

* Timberlands context for interacting with Plan Change 10
* Collaborative Policy Development Process
* Policy Framework
* Use of Overseer
* Plan effectiveness and efficiency assessment

# **Timberlands role in the Lake Rotorua Catchment**

1. In the Lake Rotorua catchment Timberlands has a Crown Forestry Licence over approximately 2800 Ha and an 80Ha pine tree nursery on leased land which has both open grown and containerised nursery stock.

1. Timberlands support the purpose of the proposed Plan Change 10 to returning the TLI of Lake Rotorua to a sustainable 4.2 by using a rule structure to reduce N input to the Lake, provided those rules do not impede the future viability of variants on plantation forestry.

# **Collaborative policy development process**

1. Timberlands was involved in the Plan Change 10 development process as the forestry representative on the Stakeholder Advisory Group (StAG). At the first StAG meeting on November 2012 we clarified and cautioned that: forestry interests who lease or license land will be affected differently by the Plan from how land owners will; that forestry interests will vary depending on whether they are a large corporate or farm forestry; that foresters have a keen interest in assessing the merits of allocation and that foresters are strongly opposed to grand parenting as an allocation mechanism. Non-landowning forester’s interests, such as ours, are generally constrained to making sure the rules continue to allow us to be able to produce a valuable tree crop.
2. Intensive collaborative stakeholder processes, such as that used for Lake Rotorua, involve a substantial time commitment to attend meetings, to do any sector research, and to engage with forestryagencies and the forestry sector to get feedback on draft advice and other relevant matters. Foresters as an industry did not have the staffing capacity to be involved to the extent necessary, especially as there were multiple collaborative processes running at the time. Forestry was thus intermittently represented, which has been to the detriment of adequately expressing the forestry view, of Council/ other stakeholders’ understanding of the needs of forestry, and of the distinction between a forest crop owner and the underlying land owner with potentially different goals. We are also not clear whether forestry and forest land owners were adequately or proportionally represented in the StAG group, for which Council determined the representation and the appointment process.
3. The absence of knowledgeable advocacy for forestry has also meant that a very simplistic view of forestry regimes has been used[[1]](#footnote-1). StAG minutes record that large scale new forestry would need to address issues beyond the scope of Farm Scale Planning i.e. phasing, landscape, species, land/block aggregation. A single conventional short rotation softwood (radiata pine) model was used in Farm Scale Planning, which Council advises was “due to time and budget limits”. It is interesting that despite these limits Council was able to find considerable time and budget to finesse various livestock farming options. Our observation is that the whole process rapidly became farmer-centric and the policy results indicate a very high level of capture by pastoral farming needs.
4. By the June 2013 meeting, in the absence of any forestry input, the StAG decided to reduce the N allowance from forestry from 4kg/Ha to 3 kg/Ha. It is not clear how the forestry reference file was developed for Rule 11 or how a transition was made from Overseer 5.4 to Overseer 6.2 for forestry. For most other land uses this process tended to increase the N required for the activity to function. We can only conclude that because Council was using an allocation regime, and the distribution of N was looking very unfavourable for the continuation of some farming types, that a painless way for the N maths to be improved was by reducing the forestry share.
5. The StAG construction allocated one of the fifteen seats to all aspects of forest interests. Forest is the land use on 47% of the catchment[[2]](#footnote-2), with active production forestry being the land use on 22% of the catchment. The absence of views from forestry was noted in the April 2013 meeting, but it is not clear what effort was made to rectify this. By contrast considerable effort was made to re-engage other groups who were struggling with resourcing, such as Iwi farmers. However even if the one forestry representative was able to attend all meetings and continue to advance a forestry view, it’s quite possible that that one voice among thirty[[3]](#footnote-3) would still not have been heard. The minutes of November 2014 note that StAG is about compromise and negotiation…to make recommendations on rules and incentives. Such negotiation is difficult without representation. Adequate representation came up again in StAG July 2015 where the Farmer Collective members (LRPPC) emphasised *that “consensus” in StAG discussions does not mean a unanimous view, nor that any positions reached were agreed by people outside StAG. Rather, it was a considered view that evolved over 2.5 years of intensive debate:*

*• We need to acknowledge that we missed some things initially e.g. identifying equestrian activity as a more intensive land use which could have some concessionary rule.*

*• Nearly three years of StAG is a substantial period, we were on track and we don’t want another 11th hour delay from another group who claims it hasn’t been heard.*

*• We need reassurance that no group’s input is missing, we need to understand the concerns, compile those and circulate a summary/table.*

It’s difficult to understand or explain how a group casting around to make sure they had input from all groups still manages to miss that it hasn’t received appropriate input from 22% of productive catchment land use.

1. In Stag August 2015 The Lake Rotorua Primary ProducersCollective members noted that [from their point of view] *the StAG process was and remains valid. StAG has enabled a lot of information sharing and the expression of frank opinions. It is a working group, not a “representative” group - it can’t be expected to cover all community voices*. Foresters would beg to differ that they are merely “a community voice”.

### Effects of lack of understanding of forestry

1. It’s evident throughout the policy development process that forestry is poorly understood and its needs and effects were poorly characterised. Most assessment techniques used for the policy development have been designed or done for a farming context. In several instances there is a considerable disconnect between how the two land uses are described, yet comparisons are done as though they are being treated equivalently. Three areas that this is obvious are:
2. Relationship between land and crop. In most farming instances the land owner is integrally involved with the crop, either actively doing it or in a close alliance with someone who is (e.g. sharemilking). For forestry the land owner and the crop owner can be two completely different entities, with the landowner having a fairly passive relationship with the crop owner. This is relevant for the nitrogen rules as these are tied to land, not crop. The values of the land owner and crop owner could well be different. An example of this is the Telfer Young report discussed at Feb 2015 StAG meeting which did not look at costs to forested land: “*Forestry is not included in the analysis as the nutrient rule does not impact forestry because it’s a permitted activity*”. It’s true the rules do not affect the continuation of non-fertilised short rotation softwood regimes, but to dismiss the land use and land user aspirations for 22% of the catchment in this fashion points to a defective analysis.
3. Modelling of the N effect of the crop. Overseer is designed for pastoral land management comparisons. It models answers to the question - if the farmer were to do management regime X or management regime Y, what is the likely effect on the N leaving the property? It is not designed for plantation forestry. Timberlands are unable to use it to model the nursery operation either, as it is incompetent in that role. The rules do provide for use of alternatives to Overseer, in Rule LR R11. But there is no explanation or guidance for how inter-model correlation will work, to be able to be confident that N leaching modelling is accurately corresponding in both models. This is important, as Overseer’s representation of N leaching substantially changes from version to version. It is also important for forestry generally, as its allocation has been reduced from the “low leaching activity status set in Rule 11 of 10kgN/Ha, to 2.5kgN/Ha. Just for comparison this makes it lower than native forest which has been set at 3kgN/Ha.
4. Economic effect of various policy options. EBIT (earnings before interest and tax) has been used as the methodology to assess farming profitability. Foresters use IRR (internal rate of return). Scion will have used that methodology to identify forestry economics in any material provided to Council. This difference of baseline hasn’t been recognised in the economic assessment done by Parsons, Doole and Romera[[4]](#footnote-4): *The method for developing this model involved:*

*…4. Applying the modelling protocols to each farm system, using FARMAX\** [which uses EBIT] *and OVERSEER (version 6.1.2), to establish relationships between profit and nitrogen leaching.*

*5. Obtaining annualised forestry-profit information from SCION* [which uses IRR]

*6. Obtaining data on the financial costs and benefits of land-use change from Waikato Regional Council.* [Which did not correct for the difference between IRR and EBIT]

*7. Integrating this information on profit and nitrogen leaching for individual farm types into an economic model describing the whole catchment.*

1. IRR includes all production costs. Not so in EBIT, which doesn’t include the capital structure for land and infrastructure or improvements or shares. This assessment – a classic apples with oranges - will distort the relative value of these two land uses, and generally result in over-weighting the value of pastoral use. This means that comparative land use efficiency assessments will not be correct. At Stag July 2015 Parsons identified that *The analysis has expanded to cover impacts on land price, debt and equity. This is a novel area and the authors are constructing methods as we go.*  Why make up new methods? If they used IRR or NPV for pastoral land uses, it would enable a genuine comparison of different land use gross margin or profitability to be made.

# **Policy Framework**

1. Council explained that because the nitrogen reductions needed from rural land and pastoral inputs are well beyond what voluntary adoption of good practice can deliver, new rules are required.  It identifies that change in practice on rural land must reduce nitrogen exports by 270T.
2. Plan Change 10 policy design choices appears to have rapidly narrowed to allocation as the mechanism, and an allocation regime based on grandparenting. Very little attention was paid to assessing the alternative, of a fee regime. Even though risks using an allocation regime were identified, these were never considered thoroughly or in aggregate. Key risks identified were: risks if allocation must respond to a change in a cap (as a result of changes in scientific understanding on Lake processes); and risks that allocation behaviour will be driven to preserving individual or sectors’ position, especially regarding trading rather than toward reducing pollution. It appears that the aggregate effect of these risks which include: imperfect information, imprecise information, sticky markets, significant wealth transfer or gaming, was not tested against the likely functionality of an allocation system. It is Timberlands view that such an analysis would have shown allocation as policy regime to be so seriously flawed as to be ruled out.
3. The section 32[[5]](#footnote-5) report for Rule 11 and the 2009[[6]](#footnote-6) Efficiency and effectiveness review of Rule 11 both identified that the “hold the line” approach used for Rule 11 was only meant to be a stop-gap measure until a fairer regime was developed. Sector averaging is not a fairer regime. Forestry’s preference was that if an allocation regime was to be used, that it be based on natural capital. It is clear that there was considerable unease in StAG and in the wider community that sector averaging was being investigated as the preferred method. Stag Sept 2015 minutes note: *Natural Capital allocation was discussed in depth and there was support from many attendees as the best long-term solution.*
4. There are broader “NZ Inc” and environmental benefits of natural capital N allocation. It does not reward polluters and it does not penalise conservative land use behaviour, thus it does not add insult to injury for owners of undeveloped land. Using the incentives fund it would have been possible to create a transition pathway from the existing non-sustainable land uses to ones that use a natural capital approach, but the Plan Change does not do this. The impacts of using sector averaging have only been partially identified in the section 32 and 42A reports. Neither report adequately quantifies or addresses the potential level of their economic impacts.
5. The Rule 11 benchmark was used as the Plan Change 10 benchmark. Forestry was originally beneath a level of interest or concern to Council (at less than 10kg/Ha) and therefore appears it may not have been characterised. Overseer is not design for assessing forestry and as of 6/3/17 there was still no technical advice produced by Overseer to assist in making such an assessment. The nitrate loss of forestry, representing nothing more than atmospheric nitrogen transport, now has such a constraint that it would not be able to be used for even other variants on forestry. Any such other land uses would potentially leach a greater amount of nitrogen. Given the accuracy of Overseer outputs, the amount allocated to forestry now is substantially less than the margin of error. By contrast, high leaching land uses who did not follow the rule 11 benchmarking process have been given a retrospectively assessed benchmark of over 100kgN/Ha. Rule 11 required:

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| --- | --- |
| **Land Use Activity** | **Nutrient Benchmark Level** |
| Changed from dry stock to dairying, or pastoral grazing to horticulture; change commenced between 1 July 2001 and 30 June 2004. | Average nutrient loss from property between 1 July 2004 and 30 June 2005.  Nutrient benchmark information required by the sooner of **31 December 2005**, or when property is sold. |
| Changed from forestry to dairying or pastoral grazing, or forestry to another land use; change commenced between 1 July 2001 and 1 January 2003. |
| Changed from forestry to dairying or pastoral grazing, or forestry to another land use; change commenced between 1 January 2003 and 30 June 2004. | Appropriate nutrient benchmark will be set by BOPRC in conjunction with the landowner and an independent nutrient management adviser, to allow a fair and reasonable production level relative to the property characteristics and land use. |
| All other land uses | Average nutrient loss from property between 1 July 2001 and 30 June 2004. Nutrient benchmark information required by 31 December 2005, or when property is sold, whichever is the sooner |

1. At the September 2015 StAG meeting the forestry representative noted that the environmental costs of forestry are incorporated into its business costs as a matter of course (e.g. sediment control). They also noted that although farmers may consider the sector allocation to be a hybrid regime, the forestry sector sees it as a form of grand-parenting which creates opportunity costs to forest owners and cross-subsidies to pastoral farmers. This contrasts with the pastoral view that there would be “windfall gains” to forestry owners under natural capital i.e. the location and distribution of windfall gains is not a simple matter of fact, it very much depends on your present land use.

At the October 2015 StAG meeting foresters summarised their concerns and position. They advised that sector averaging provides forested land with no latitude for other uses. Locking forestry in at <3kgN/ha/yr would make it not possible to use fertiliser. Forestry economic efficiency is high, but some N fertilisation would improve its economic efficiency further. Tree crops also need to be considered. Hazelnuts may be <10kgN/ha/yr, but probably not 3. i.e. forestry N loss will increase but still be much lower than pastoral uses, so be wary of locking out options. This puts ongoing or expansion of forestry investment at risk, because any land user presently not in forestry will see that a change to forestry land use becomes a lock into forestry land use. There are a number of reasons that forests are a desirable land use; nitrogen and carbon profiles are among them. Collectively we need to retain flexibility around land use that reflects its potential for use; to provide for as yet unforeseen land uses or risks as yet unknown. And to avoid behaviour that would shun the lowest emission – and thus most environmentally desirable - land use. This points to a natural capital based allocation to avoid loss of optionality.

1. Foresters further pointed out that the restrictions on forestry directly benefit other sectors and mask the need for all landowners to deal with their nutrient discharge signature. All-in average or natural capital allocation systems do not represent a “windfall”, rather they demonstrate market recognition of new market values. Further economic signals that foresters were concerned about are the emphasis on prior investment. This removes economic transparency and makes it difficult to assess those who have made long term investment versus those who have carried out recent major intensification. For the latter, why should public policy socialise speculative business behaviour?

### A charge regime for Lake Rotorua

1. Council dismissed using some form of a pollution fee system out of hand, without investigating: what it might be set at e.g. it could be progressive; how transitions in level of charge could drive behaviour (e.g. punitive at very high N losses per ha levels, none at low levels); how to divorce it from political interference (using a formula approach e.g. like rent reviews on leasehold land); or how it could be used to drive behaviour in the right direction, and how to tune it to meet targets.
2. Despite Councils view that it is locked into allocating because it has to reach a fixed Tonne reduction, in fact Lake Rotorua issues could lend themselves to a charge approach. This would put a regime in place that would set a trend in the desired direction and measure progress, rather than setting a fixed target based on inaccurate data now. The first phase would drive the obvious improvements to practice, and the charge process would keep that moving along.  To make targeted/useful/ meaningful changes requires better information - matching activities to effects, identifying costs and values across industry groups using a standard methodology, and getting better attribution information.
3. In assessing any approach Council had to use RPS WL 5B. Using this test identifies that allocating on the basis of land use activities via sector averaging comprehensively fails.

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| **RPS Policy WL 5B** principles and considerations | **sector average allocation** |
| (a) Equity/Fairness, including intergenerational equity; | **X** |
| (b) Extent of the immediate impact – *on water quality?* | **X** |
| (c) Public and private benefits and costs; | **X** |
| (d) Iwi land ownership and its status including any Crown obligation; | **X** |
| (e) Cultural values; | **X** |
| (f) Resource use efficiency; | **X** |
| (g) Existing land use; | 🗸 |
| (h) Existing on farm capital investment; and | 🗸 |
| (i) Ease of transfer of the allocation. | **X** |

1. The Plan Change 10 process assessed the possible policies against 13 parameters. Nine from the RPS and a further four developed by the Lake Rotorua Primary Producers Collective, a sub-group of StAG. This had the effect of significantly overweighting WL 5B(h) It interpreted “intergenerational equity” as meaning future generations should not bear the costs of no or insufficient action now. A possibly more valid interpretation of intergenerational equity would be that future generations’ land use choices should not be constrained to land use choices of today.
2. Various policy options were assessed in the Section 42A report. Several were ruled out without proper explanation or supporting evidence.
3. Adding an objective and policy *providing for flexibility of …Forestry* was considered*.*  Under the sector averaging allocation regime this land use has a very low emission profile which the sector average allocation regime would mean it was constrained to that use alone. The report explanation for rejecting it says it would “*provide a policy that with a focus on a person/s, rather than a land use activity as required by the RMA*”. It is hard to follow this reasoning. Forestry is a land use activity. The existing policy provides for other land use activities to have flexibility. Sector averaging means that overall flexibility in the catchment is lost, because sector averaging locks land use into historic land use. Including this option would require reallocation of load, and the quantum of reallocation would be unpalatable for high-leaching pastoral activity. But that is insufficient reason to rule it out if the nett benefit of the option to the catchment is greater.
4. Council also considered a restricted discretionary activity status allowing plantation forestry to change to other uses, in accordance with land use capability. This approximates a natural capital approach. The report identifies that if the 2943ha of plantation forest on LUC class 1-4 were allocated 54.6 kgN/ ha/year[[7]](#footnote-7), that would require 153 tonnes of nitrogen, which is greater than the 140tN/year on-farm reduction presently required by the rules. If an allocation was to the drystock NDA of 25.6kgN/ ha/year, that would reallocate 68T of nitrogen, or 49% of the current target for on farm reductions. The report describes the effect of such reallocation, but does not explain why this should not happen. It leaves hanging what the effect of the present regime has been to various land users, by allocating the lion’s share to land uses that in the last 25 or so years have had high nitrogen emissions. The winners and losers of the proposed policy become clearer.
5. The report does not consider any scenarios where the standard short rotation softwood regimes is replaced by any other horticultural or forestry regime. These could be long rotation hardwood, trees as a host for high value other crops such as truffles or mushrooms, fruit or nut trees or vines, or any form of intensive horticulture or cropping on classes 1-4. The assessment is an entirely pastoral farming-centric approach to allocation.
6. A further option considered and ruled out was reallocation of nitrogen to forestry. Council advises that allocating more nitrogen to forestry will reduce allocations to the pastoral sector can’t be done because: *This will alter the Integrated Framework, which was developed based on “extensive community engagement”.* Timberlands contends that the Integrated Framework was mainly developed by a sub-group of StAG - the Lake Rotorua Primary Producers who presented it to StAG, who accepted it. The StAG membership was already skewed towards pastoral interests. It was further skewed by professionals[[8]](#footnote-8) supporting the pastoral representatives of StAG actively participating in StAG meetings and who heavily assisted in the development of the Integrated Framework.
7. The present nitrogen distribution entirely weights towards current land use, not appropriate land use. Council advises that re-weighting N would result in increased economic impacts “within the sector” and it supports the continuation of high-leaching activities albeit on a sinking lid basis. Timberlands believes that Council’s observations about the change in weighting of economic impacts on some land uses does not identify a compelling argument for that approach. This policy regime has multi-million dollar negative economic impacts on some groups.
8. Proposed Plan Change 10 enables the pastoral farming community to provide for their economic and social well-being but constrains other land users from doing the same. Land used for pastoral agriculture, identified as the most significant source of nitrogen leaching, is provided with an allocation of nitrogen at the same or greater levels per hectare than it had over the period 2001 to 2004, from which to start a reduction process. Thus those activities which create significant nitrogen externalities can choose to continue to avoid paying for those externalities by either continuing their activity or by choosing to have those pollution credits bought out. Those land users who may want to modify presently extremely low leaching activities to become very low leaching activities lose the opportunity to do so, and must contribute to the compensation to be paid to retire N out of the system. The Plan Change deprives land users who have not contributed to the adverse effects of the right to alter their land use. Substantial tangible economic benefits are provided to high-leaching land uses and costs and constraints are imposed on low leaching land users.
9. Providing for the social and economic well-being of one sector at the expense of another is not consistent with the purpose of the Act. It does not support sustainable management of natural and physical resources and it will not lead to efficient land use.

### Specifics of the Plan Change 10 existing rule framework

1. Advice from Council’s planner managing Plan Change 10 is that the intention for controls on plantation forest land use by PC10 is that any forest must remain as forest, through Rule LR R2. The definition of plantation forestry does not restrict the plant species, so a change of tree species will not need resource consent. Council’s planner also advises that there is no research showing that an increase in inputs (such as fertiliser application) increases the forestry loss of about 2.5kgN per hectare. No trade is therefore required for fertiliser application to trees or change plant species.
2. The Plan Change does not appear to have contemplated for transition to land uses that are not farming animals and are not plantation forestry. No pathway for such activities is evident. These would include orchard, horticulture or nursery operations.
3. The Plan Change does provide for present uses that are not readily accommodated in the Overseer framework. Timberlands has an 80Ha pine tree nursery, for which it will be using rule LR R11 “the use of land for farming activities on properties/farming enterprises that cannot be modelled by Overseer” to characterise nitrogen losses. It is not clear how the use of an alternative model will integrate with Overseer estimations for other land uses or whether the level of accuracy can be the same as Overseer outputs.

# **Use of the Overseer model**

1. “Overseer” is the key model for determining nitrogen outputs per farm, which are required for the allocation process to work. It is not fit for this purpose for several reasons. Firstly because the model design is comparative rather than absolute, thus it was never designed to generate absolute numbers. Secondly because it is dealing with the natural world, in which N flows will never realistically be able to be characterised to be precise, accurate and absolute numbers, as there are a huge number of variables involved. Any model that is describing processes in the natural world should be representing the result as a number within a confidence interval or range. “Overseer” should be no exception. Thirdly its ownership by the agricultural sector, with a trademark making its interior workings unavailable for scrutiny, makes in inappropriate to be used in trade-offs between agriculture and other land uses, as no one outside this sector can audit it. The lack of independent scrutiny makes it improper to use it in the public sphere for contestable funds, or for making decisions that will change land values by millions of dollars. Fourthly known within-model issues and known operator issues means that the model lacks repeatability.

1. There are a further set of factors that should instil caution in using this model’s outputs. Overseer has not been validated to the characteristics of different soil types. Its accuracy for the soils of Lake Rotorua is still unknown. It can’t represent physical mitigations that avoid N loss, which severely limits its value for assessing N output reduction techniques. It assumes best practice is occurring for a range of on farm behaviours, which is often not the case, thus it underestimates N leaching. It can’t represent non-pastoral land uses with any accuracy. Overseer is not designed to model forestry and does not model forestry well.
2. Further modifications to the way the model has been used in the Lake Rotorua catchment seriously compound the problems that are innate to the model design and function.
3. Council initially used version 5.4 of Overseer to developing the allocation limits and sector range performance requirements. Subsequent version changes to Overseer changed the numbers that it spat out for various farming operations, which meant that Council’s 5.4 dataset was no longer appropriate. This change in the output between versions is a clear indication that Overseer results should not be used to characterise absolute numbers. Council decided to cross reference the outcomes of version 5.4 to version 6.2.0. In order to do that they created what they called “reference files”. These attempt to describe a basic farming operation in a way that allows for correlation between Overseer versions. Unfortunately Overseer is not amenable to such correlation, as its processes and outputs are not linear relationships. Council’s attempt to create linear relationships have an additive effect on the inaccuracy already present in its characterisation of on-farm practice and its capcity to accurately describe the physical progress on N through soils and groundwater. Council then used Overseer modelling to pull previously unengaged farm enterprises into the benchmarking exercise by back-casting to 2004. The per property numbers now fit the overall profile required for an allocation policy, but their relationship to actual land use performance in the Rule 11 benchmark period is tenuous.
4. To summarise. An opaque pastoral-industry-owned model, designed to be comparative but being used as absolute, with bolt-on modifications inconsistent with its structural design, is proposed to be used to allocate millions of dollars, and to make millions of dollars of change to land use values.
5. BOPRC concluded[[9]](#footnote-9) that Overseer was appropriate to use with regulatory effect in the Rotorua catchment. Timberlands finds this reasoning unconvincing. Overseer is a work in progress that will only ever be able to provide an estimate of N loss. The output estimate changes with each version change, which points to changes in the algorithms used by Overseer. There is within-version user variance, because those inputting data have to make a number of assumptions. No information is provided on the confidence interval or the standard deviation[[10]](#footnote-10) on any figure that Overseer produces.
6. Overseer outputs cannot provide regulatory certainty on numbers of kilograms of nitrogen loss. This lack of certainty means it cannot be used for allocation purposes.
7. BOPRC’s Overseer advisor told Stag in May 2015 that the issue of results that *change is not necessarily OVERSEER®, it is often the science that is changing.* This misses the point. It doesn’t matter if input constants change (changes in the science) or algorithm changes (how Overseer represents the pathways). Either type of change means that the number it provides of the total N available to allocate is in a state of flux. Allocation requires certainty. This model and an allocation regime are incompatible.
8. Arguments that other councils have used Overseer are irrelevant. Arguments pointing to responsible governance and use, such as “model owners are committed to continuous improvement and training”, or that “they reference it to codes of practice” are irrelevant. It fundamentally is incapable of doing the job its being asked to do.

# **Plan effectiveness and efficiency assessment against criteria**

1. Our final section asks the same questions as those asked in the Council’s planning evidence.

**Is the Plan based on a robust platform of science?**

1. Timberlands notes that science analysis relies very heavily on the model “Overseer” to characterise individual property N emissions. This does not describe the grave limitations of the Overseer model to precisely or accurately model N stocks and flows. The science supporting the use of this model is still developing. Monitoring of real soils, real vegetation and real N flows has not been done for many of the soils in the Rotorua catchment, thus modelling is yet to be validated and is still unsupported by appropriate science. This has led to inappropriate policy choices at macro and micro level.

**Is it a result of credible and reasonable choices between options – both at a macro and micro level?**

1. We contend that Council’s macro level choices for the policy framework and for the process used to develop that policy framework into rules for the Rotorua lakes were not credible or reasonable.
2. Council very early on chose Cap, Allocate and Trade because they had to meet a particular numeric goal. Having made that choice, immense effort was put into trying to accurately ascribe N loss on a per property basis. To be able to accurately allocate portions of any allocation to various parties demands accurate measurement of the portfolio of pollution contributions. However the model used (Overseer) can’t generate repeatable assessments of nitrogen exports on an individual property basis. These significant limitations on accuracy coupled with doubts about its construct and assumptions (in part because the model owners will not allow independent scrutiny) make it an inappropriate platform for making multi-million dollar allocation decisions. Policy must match the tools available to implement it. An inability to provide the data necessary for the policy regime to function means the allocation policy lacks the tools to implement it.
3. It appears that at no point did Council step back and identify that they had taken on an impossible task, and it would be better to rethink the policy approach. If the tools available can only provide a coarse analysis of the pollution portfolio, the policy must be designed to respond to a coarse quality of data. Policy that requires accurate and detailed data cannot work with tools that can only provide a rough indication. It appears that the effect that the tool inaccuracy had was to invert that policy design matching process. The tools were adapted to try to match the policy that has been set. This created an impossible implementation challenge.
4. Much more consideration should have gone into whether the policy could be framed around an allocation regime. The other two main policy options, regulation and polluter pays[[11]](#footnote-11), were discarded with no proper analysis [sec 32 pg 125-126]. The decision at a macro level to use allocation without ensuring the tools to implement it were available, was thus not credible or reasonable.
5. Council compounded its poor macro policy choice with a process choice that had a poor match to the policy. Allocation drives rivalry for resource. Council decided to use a collaborative stakeholder process for a resource (N allocation) worth millions of dollars. Council selected the small group of people who would drive this collaborative effort. These people had varying levels of interest in the allocation distribution. Some only cared about the ends, not the means. Some had significant experience in similar processes in other parts of the country and national-level resources available to them. They knew the rules of the game. Others were coming in cold, with poor levels of resourcing. The steps Council took to manage the risks inherent in this uneven capacity to represent various sectors are not clear.
6. Developing the Lake Rotorua allocation regime was thus subject to a rivalrous collaborative process. This first discarded a number of land owners, due to the current land use on their land. It then allowed the devolution of the micro aspects of the allocation regime to the group creating the most pollution, which appears to have been further devolved to industry representatives. The potential for or management of regulatory capture was not evident in Council’s process.
7. Council did not seriously assess the merits of a Polluter Pays regime. It fixed on allocation and then tried to fit tools to that policy regime. In discarding the polluter pays approach Council missed the opportunity to consider two adaptive management capabilities of Polluter Pays: fees can be changed to change incentives and thus pollution reduction trajectory; and the time period over which the change needs to be made does give time to make some adaptations. The fee is to manage an externality, thus will go at least part way to internalising costs that have previously been socialised. An appropriately set charge regime would drive pollution reduction behaviour. Much has been made of the cost imposition that the allocation process will have on high-emitting land uses, and how it might make them uneconomic. If the only way they remain economic is by transferring the cost of their pollution onto other parties, this is unsustainable and uneconomic for the country at large.
8. New Zealand operates a close-to free market system with a low level of subsidies. An effect of this is that at times various enterprises become uneconomic. This is how land use choices have worked for the last 100 years or so. This Plan Change would lock land use into its current form, purely because that **is** its current form. This runs counter to the normal functioning of markets in New Zealand and would prevent flexible responses to changing circumstances. At the Stag June 2015 meeting Dr Nicky Smith[[12]](#footnote-12) identified some considerations and cautions of locking into a policy regime that would freeze land use to current patterns. Firstly that the relatively long time horizon for this policy (>15years) i.e. a number of other factors affecting enterprise profitability might change. Secondly that the model assumes structural relationships and relative agricultural prices will continue to grow at a relatively higher rate than forestry. This may not be so. Thirdly there is potential for other low N land use and N mitigation options will emerge, and the model doesn’t contemplate those or how to fit them in.

**How well are the series of compromises to reach a workable solution elucidated?**

1. Compromises were made, but many of these are not well identified thus mechanisms to manage them well are not evident. Compromises made were:
2. Starting with Rule 11, instead of zero basing. The Rule 11 section 32 report and 5 year review both identified that zero basing should have occurred. The absence of zero basing is not recorded as a compromise, and nor are the effects of this compromise on various land owners explored. This compromise immediately directed the policy choices to using the existing land use as a base and thus to grandparenting. The massive constraint this puts on dynamic use of land and capital are not elucidated.
3. Using a model that was deeply flawed for the task of N allocation at an enterprise level. Most effort went into justifying its use rather than elucidating the compromises required.
4. Allowing the solution to be developed by the group with the most to gain. This compromise or the risks involved was not identified or elucidated.
5. Ignoring best and highest use for land in favour of securing the enduring rights of those presently creating the most pollution. The full costs of this outcome are not elucidated.
6. The Plan Change 10 Section 32 report evaluates the scale of impact of new provisions, but only in the context of beyond **what is already in effect as a result of Rule 11**. For forested land the effect of the Plan Change 10 N limits considerably reduces what was already a low level of emissions\* allowed in Rule 11.
7. The compromises required to sustain the activity of one sector raises the question of whether those who have been subsidised produce a product of such value, that this subsidy is worthwhile. Annex A which compares the economic and environmental indicators for a representative forest and dairy farm in the Central North Island suggests otherwise. Is the value of what they produce so great for the economy that someone else should pay for the externalities of that cost of production? And is the opportunity cost caused by preventing other people doing other things sufficiently defrayed, that such a subsidy is worth it? Timberlands contention is that this compromise has not been accurately identified or scrutinised (refer the discussion on IRR and EBIT at para 31), and that it is so big as to be untenable.

**How does it provide clear signals of adaptive management - how does it identify and manage the risks associated with any future changes (that may or may not arise).**

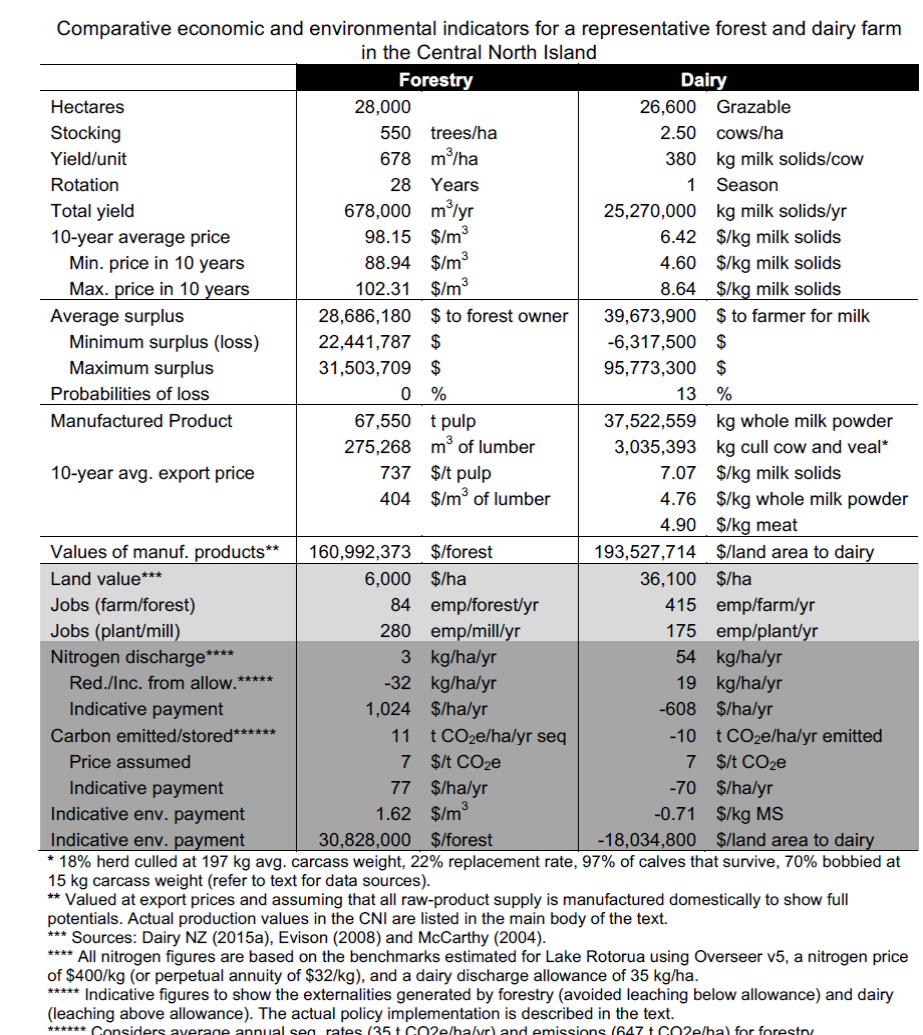
1. Allocation is not a suitable policy regime in conditions where considerable measurement uncertainty for the substance being allocated (N) exists. The tool used for this allocating policy cannot accurately characterise N discharge and thus cannot be successfully used in an allocation regime. Attempting to cross-reference between versions of an unsuitable model does not constitute adequate or appropriate adaptive management. The risks posed by changing the amount of N that must be removed from the lake, or the portioning of N to each land user are large and live. Information will change due to better scientific understanding of the soil and nitrate processes and better modelling tools. Allocation and adaptive management to account for these changes are incompatible. Allocation of all N using a deeply flawed modelling process sets in place a rigid regime that creates enormously valuable property rights. The wealth transfer that this process sets in train is one whereby a very small proportion of land use in the catchment acquires a tradeable resource worth millions of dollars, the apportionment of which prevents other land users from exercising their ability to flexibly use their land at all.

## Conclusion

1. Timberlands believes the process Council used to arrive at a sector averaging allocation regime demonstrated governance capture and should thus be void for reasons of natural justice, lack of consistency with the purpose of the RMA and lack of appropriate interpretation of RPS policy WL 5B.
2. Timberlands believes that a policy framework that requires allocation but lacks the allocation tools to make these multi-million dollar allocations in a way that is fair, credible or defensible is in appropriate and should be discarded.
3. Timberlands believes that the model “Overseer” is being used well beyond its zone of competence and its use should be restricted to that of a non-regulatory decision support tool.
4. Timberlands believes that Council should replace the Plan Change 10 policy regime with one that uses polluter pays principles and practices.
5. Should Council persevere with an allocation regime, Timberlands believes the only fair way to do so is to revise the regime so it is based on natural capital, using a combination of Land Use Capability and soil leakiness. Any such regime must also zero-base rather than start from Rule 11 benchmarks.

### Annex A Economic and environmental indicators for a representative forest and dairy farm in the Central North Island.

Supplied by W Parker, Scion.



1. April 2013 StAG meeting - Scion advised that more sophisticated forestry options should be considered, including different species, silviculture regimes and financing structures. [↑](#footnote-ref-1)
2. Section 32 report Page 119 [↑](#footnote-ref-2)
3. Although there was 15 voting members of StAG, there were a large number of farming industry representatives at the StAG meetings, fully participating in all discussions. Their only constraint was that they could not vote. [↑](#footnote-ref-3)
4. On-Farm effects of diverse allocation mechanisms in the Lake Rotorua catchment Aug 2015 Parsons, Doole, Romera [↑](#footnote-ref-4)
5. section 3.15.8 of the section 32 report on Rule 11, also at Annex A [↑](#footnote-ref-5)
6. <http://www.rotorualakes.co.nz/vdb/document/162> [↑](#footnote-ref-6)
7. the lower NDA range boundary for dairy/upper range boundary for drystock [↑](#footnote-ref-7)
8. Federated Farmers and Dairy NZ [↑](#footnote-ref-8)
9. <http://www.rotorualakes.co.nz/vdb/document/694> [↑](#footnote-ref-9)
10. <http://www.crc.govt.nz/publications/Consent%20Notifications/HearingEvidenceWalterCClark.pdf> para 41 to 42 [↑](#footnote-ref-10)
11. <https://en.wikipedia.org/wiki/Steering_tax> [↑](#footnote-ref-11)
12. District modelling done by Market Economics [↑](#footnote-ref-12)