

JAMES CHURCHILL

**Emissions Trading Schemes and Carbon Taxes:
Reinvestigating the Policy Tools New Zealand uses to
Address Climate Change**

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Abstract

In 2016 there is scientific consensus that the climate is changing and humans are responsible. If significant action to reduce global greenhouse gas emissions does not occur, the consequences of climate change may be catastrophic. This paper analyses the use of market based policy tools to reduce greenhouse gas emissions in New Zealand. In particular, it considers whether the New Zealand Emissions Trading Scheme should be replaced with a carbon tax. This is done by weighing the difficulties involved in implementing a carbon tax against the benefits that it could bring. Key difficulties discussed include the treatment of stockpiled emissions credits that exist within the New Emissions Trading Scheme and the changing treatment of agriculture and forestry. Potential benefits of a carbon tax include reduced administrative and transactional costs, revenue generation and insulation from vested interests. This paper concludes that the difficulties involved in implementing a carbon tax as New Zealand's main response to climate change are exceeded by the benefits.

Key words: carbon tax, emissions trading scheme, climate change.

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I Introduction

A Climate Change

Anthropogenic climate change poses a remarkable threat to the future of humanity. The most recent report by the International Panel on Climate Change stated that: ¹

...human influence on the climate system is clear, and recent anthropogenic emissions of greenhouse gases are the highest in history. Recent climate changes have had widespread impacts on human and natural systems.

Nine of the ten hottest years on record have occurred this century.² Recent studies into the melting of the Antarctic and Greenland ice sheets suggests that sea level rise may be a more significant threat than anticipated.³ The climate is changing and we need to be concerned. In 1992 the United Nations passed the International Framework Convention on Climate Change with the objective of preventing dangerous anthropogenic interference with the climate system. Whether this will be achieved is still in doubt.⁴ Ambitious action is required and there is no solution to climate change that does not involve law. Although New Zealand only creates a fraction of global emissions we have an opportunity to provide moral leadership on an issue of great importance.

B This Paper

This paper considers the market tools New Zealand can use to mitigate the effects of climate change. In particular, I will consider replacing the New Zealand Emissions Trading Scheme (NZETS), introduced by the Climate Change Response (Emissions Trading) Amendment Act 2008, with a carbon tax.⁵

In doing this I will first outline the differences and similarities that carbon taxes share with emissions trading schemes, as well as the international framework in which our domestic

¹ Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change “Climate Change 2014 Synthesis Report Summary for Policy Makers” (IPCC, 2014) at 2.

² NASA “Global Temperature” (August 23 2016) Nasa Global Climate Change <<http://climate.nasa.gov/vital-signs/global-temperature>>.

³ Oliver Milman “Climate guru James Hansen warns of much worse than expected sea level rise” *The Guardian* (Online ed, London, 22 March 2016).

⁴ United Nations Framework Convention on Climate Change (opened for signature 4 June 1992, entered into force on 21 March 1994), art 2.

⁵ Climate Change Response (Emissions Trading) Amendment Act 2008.

response to climate change occurs. I will then discuss some of the key challenges involved in transitioning from the NZETS to a carbon tax; such as the treatment of stockpiled emissions units and the treatment of agriculture and forestry. This will be compared to the challenges involved in repairing the NZETS in order to make it an effective tool for reducing emissions. I will then discuss some key advantages that a carbon tax could have over the NZETS. These include reduced administrative and transactional costs, fiscal neutrality and insulation from vested interests.

Several challenges are raised by the implementation of a carbon tax as New Zealand's main policy response to climate change. However, this paper argues that the difficulties faced in solving these challenges are outweighed by the advantages an effectively designed carbon tax could enjoy over the NZETS.

C Background to Carbon Taxes and Emissions Trading Schemes

Speaking for the British Royal Economic Society Sir Nicholas Stern described climate change as the “greatest market failure the world has seen.”⁶ Historically, the impact greenhouse gas emissions have on the environment has been treated as external to the cost of emissions intensive activities. Since the imposition of binding emissions reduction targets in the 1997 Kyoto Protocol, governments have experimented with many legal mechanisms for reducing emissions.⁷ These mechanisms take two forms: regulatory intervention, such as the setting of industry standards; and market intervention through the placing of a charge on greenhouse gas emissions.⁸ This paper is concerned with the latter mechanisms. By pricing emissions, the environmental damage they cause is able to be internalised within the cost of conducting emissions intensive activities.

Two policy instruments can be used to do this: emissions trading schemes and carbon taxes. Despite relying on different mechanisms, in an economy of certainty both policy's function to reduce emissions to an equilibrium position where the cost of further reductions is equal to the cost placed on the right to emit.⁹

⁶ Alison Benjamin “Stern: Climate Change a ‘market failure’” *The Guardian* (online ed, London, 29 November 2007).

⁷ Kyoto Protocol to the United Nations Framework Convention on Climate Change (opened for signature 16 March 1998, entered into force 16 February 2005) art 3(1).

⁸ Peter Wilson “The Economics of Emissions Trading” in Alastair Cameron (ed) *Climate Change Law and Policy in New Zealand* (LexisNexis, Wellington, 2011) 127 at 141.

⁹ Harry Clark “Some Basic Economics of Carbon Taxes” (October 2010) Social Science Research Network < http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1883954> at 2.

This is illustrated by the following graph. The horizontal axis shows the emissions produced in an economy and the vertical axis shows the price placed on those emissions. MDF is the marginal damage that accrues globally from emissions and MAC is the marginal abatement cost of emissions:

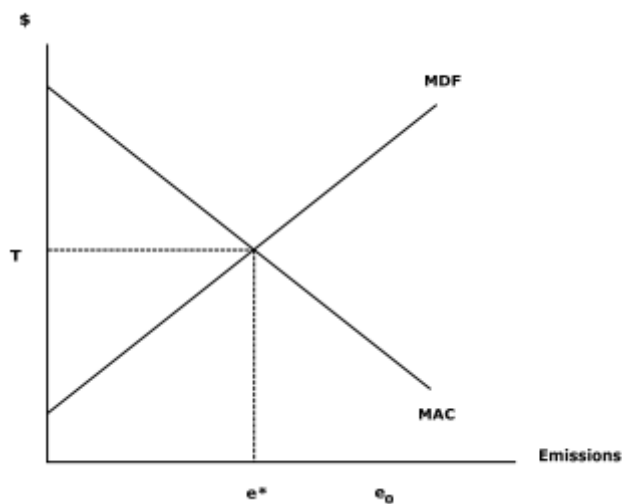


Figure One: Carbon taxes and an equivalent carbon quota.¹⁰

Carbon taxes achieve the equilibrium position by setting the price of a unit of emissions to \$T while emissions trading schemes achieve the same equilibrium position by capping emissions at e^* .

In a real economy there is uncertainty in demand for emissions because of uncertainty in the demand for emissions intensive outputs.¹¹ A carbon tax controls the price of emissions and leaves the number uncertain, while an emissions trading controls the number of emissions and leaves the price uncertain. The question becomes which type of uncertainty is socially preferable.¹²

D International Framework

The Paris Agreement, created in November 2015, represents a change in the structure of international environmental treaties. While the Kyoto Protocol functioned through the

¹⁰ At 13.

¹¹ At 13.

¹² At 13.

imposition of binding emissions targets¹³ the Paris Agreement follows a bottom up and less strictly binding approach. The goal of the agreement is:¹⁴

Holding the increase in the global average temperature to well below 2 °C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5 °C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change;

Countries are allowed to choose how they contribute to this goal through the submissions of Intended Nationally Determined Contributions or INDCs. The obligation to submit INDCs is binding at international law¹⁵ and they will be subject to transparency and compliance reviews; the forms of which are yet to be established.¹⁶ The INDCs themselves, however, are not binding. They are simply a statement of a countries intentions and goals with regard to climate change.

In concluding a response to a 2015 Official Information Act request concerning background work done considering a carbon tax for New Zealand, the Treasury stated that:¹⁷

An ETS is well placed to deliver the specific quantities of abatement that New Zealand will probably have to meet under future international targets.

However:¹⁸

¹³ Art 3(1).

¹⁴ Paris Agreement to the United Nations Framework Convention on Climate Change (opened for signature 22 April 2016, not yet in force) art 2(a).

¹⁵ Art 4(2).

¹⁶ Art 13(1) and art 15(1).

¹⁷The Treasury “Emissions Trading versus Carbon Taxes: Refreshing Treasury’s View” (3 July 2014) at 7 (Obtained under Official Information Act 1982 Request to the Treasury).

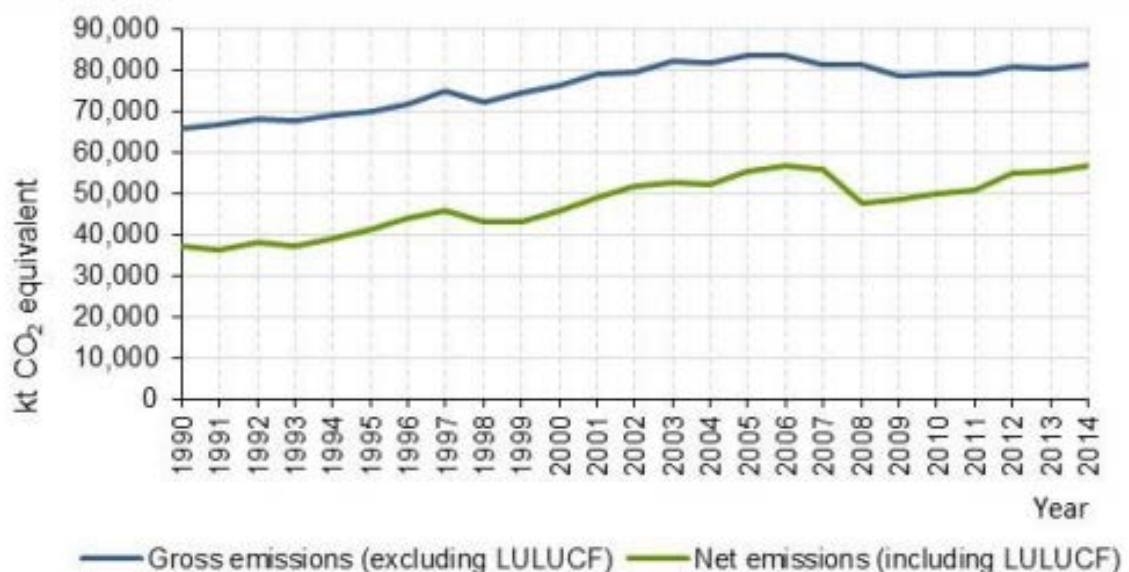
¹⁸ At 7.

This conclusion would need to be revisited if there was a significant change in the structure of international action on climate change, and binding quantitative emissions targets were no longer the norm.

The Paris Agreement represents the change alluded to here. Unlike the Kyoto Protocol, the Paris Agreement leaves room for a degree of uncertainty in the exact number of emissions that New Zealand outputs. The new international framework raises the need to reconsider if a carbon tax may be the superior policy option for responding to climate change.

II Administrative Challenges Posed by Transitioning to a Carbon Tax

Intrinsic to the introduction of a carbon tax is a major transition from one policy to another. While some complication is saved due to administrative cross-over between the NZETS and a carbon tax, the transition raises several key challenges. The first section of this paper will highlight this administrative cross-over and then discuss the changing treatment of stockpiled emissions units and the forestry and agricultural sectors. By suggesting solutions to the problems posed by transition to a carbon tax, I will demonstrate that any challenges that exist are not insurmountable. However, this paper proceeds on the basis that New Zealand needs a policy instrument capable of reducing domestic emissions. The NZETS has failed to do this, as illustrated by the graph below which shows an increase in emissions since the scheme came into effect in 2008. In order to contextualise the challenges involved in transitioning to a carbon tax it is therefore necessary to first consider the difficulties involved in fixing the NZETS.



*Figure Two: Gross and net changes in New Zealand's from 1990 to 2014 in measured in equivalent kilo-tonnes of carbon dioxide.*¹⁹

A Repairing the New Zealand Emissions Trading Scheme

The NZETS was introduced by the Labour Party in 2008 as an amendment to the Climate Change Response Act 2002 (CCRA).²⁰ However, the National Party was elected that same year and the NZETS has since been the subject of two significant amendments: first the Climate Change Response (Moderated Emissions Trading) Amendment Act 2009 and then the Climate Change Response (Emissions Trading and Other Matters) Amendment Act 2012.

Much of the weakness of the current NZETS comes from these amendments as the Government sought to limit the impact of the scheme in the wake of the global financial crisis. The weakening of the NZETS took many forms. Free allocations of emissions units to the industrial and agricultural sector was changed from being limited to a fixed pool defined at 90% of 2005 emission levels to being calculated with regard to current levels of emissions.²¹ The CCRA initially had these allocations being phased out linearly beginning in 2019, such that there are zero free allocations in 2030.²² The 2009 amendment changed this to a 1.3% annual reduction on the previous year's allocation, beginning in 2012.²³ This means only a 21% reduction in free allocations by 2030. The 2012 amendment further adjusted the method of calculating the decrease in free allocations, but the result is effectively the same.²⁴ The obligations of non-forestry emitters were changed such that they are allowed to surrender one emissions credit for every two units of emissions that they produce, effectively halving their liability and incentive to abate.²⁵ Finally, ministerial discretion conferred by s 60(1) of the CCRA was exercised in 2009 to delay the agricultural sectors' participation in the scheme until 2015, and then again in 2012 to delay their participation indefinitely.²⁶

¹⁹ Ministry for the Environment *New Zealand's Greenhouse Gas Inventory 1990-2014* (Ministry for the Environment, May 2016) at X.

²⁰ Climate Change Response (Emissions Trading) Amendment Act 2008 and Climate Change Response Act 2002.

²¹ Climate Change Response (Moderated Emissions Trading) Amendment Act 2009, s 56.

²² Climate Change Response Act 2002, s 81.

²³ Climate Change Response (Moderated Emissions Trading) Act 2009, s 32.

²⁴ Climate Change Response (Emissions Trading and Other Matters) Amendment Act 2012, s 31.

²⁵ Climate Change Response (Emissions Trading and Other Matters) Amendment Act 2012, s 26.

²⁶ Section 60(1).

The weakened NZETS failed to reduce domestic emissions and has therefore failed as a policy instrument capable of addressing climate change. However, the public debate and Government enquiry that followed these amendments has elucidated a clear idea of how the NZETS can be repaired. In particular, the CCRA mandates a review of the effectiveness of the NZETS every five years.²⁷

The 2011 review considered how the scheme should evolve past 2012 in order to balance the short term costs of the scheme with providing long term direction. Its recommendations included:²⁸

- Progressively scaling up the two for one surrender obligations such that parties pay 50% in 2012, 67% in 2013, 83% in 2014 and 100% in 2015.
- Introducing agriculture into the scheme in 2015 but allowing them to benefit from two for one surrender obligations that phase out at the same rate as above.
- Increasing the \$25 price cap on emissions by \$5 per annum past 2013. This would ensure that the price of emissions reflects the markets price while allowing businesses to have some certainty that the price of emissions cannot grow past a certain point.

These recommendations were not implemented but they provide insight into how the scheme can be improved. A new review is underway and will provide further guidance with specific reference to the international law landscape the Paris Agreement provides. Still, a lot of work is required to untangle the NZETS such that it is capable of reducing emissions and addressing climate change. This needs to be kept in mind when considering the different set of problems that arise in replacing the scheme with a carbon tax.

B Administrative Cross-over between the NZETS and a Carbon Tax

Cross-over between the NZETS and a carbon tax alleviates some of the difficulties posed by overhauling New Zealand's climate policy. In 1997 the Treasury published a working paper titled *The Design of a Possible Low-Level Carbon Charge for New Zealand*. The main difficulties of administering a carbon tax were stated as follows:²⁹

- Determining the carbon content of products subject to the charge;
- Setting the point at which liability for a charge and eligibility for refunds or rebates arises;

²⁷ Section 160.

²⁸ Emissions Trading Scheme Review Panel 2011 *Doing New Zealand's Fair Share. Emissions Trading Scheme Review 2011: Final Report* (Ministry for the Environment, June 2011) at 85-89.

²⁹ New Zealand Treasury *The Design of a Possible Low-Level Carbon Charge for New Zealand* (The Treasury, Working Paper, April 1997) at 7.

- The handling of payments, refunds, and rebates; and
- Auditing and enforcement, with a focus on encouraging compliance and minimising compliance costs.

These mirror difficulties faced in implementing the NZETS. Determining the carbon content of products in order to calculate the degree of different firms' liability is a major administrative issue intrinsic to legislation that prices carbon. A balance must be struck between the superior accuracy of direct measurement and the convenience of estimation. The NZETS grappled with these issues and infrastructure was designed to ensure that correct practice was followed.

Transferring the administrative decisions and infrastructure developed within the NZETS to a carbon tax saves a great deal of difficulty. This also allows the mechanisms industries use to calculate their emissions to remain unaffected. Despite its failure to reduce domestic emissions, the NZETS established a framework that a carbon tax can take advantage of in order to avoid many of the difficulties discussed in the Government's 1997 working paper.

C Stockpiled Credits

While certain parts of the NZETS can be utilised within a carbon tax, other parts of the scheme are inconsistent with the tax. These inconsistencies raise some unique and interesting challenges. A major obstacle facing the introduction of a carbon tax is the existence of stockpiled New Zealand Units (NZUs) in the accounts of New Zealand and foreign firms. These credits are surrendered within the NZETS to account for a tonne of CO₂ equivalent emissions. In July 2015 an estimated 140 million NZUs were banked in private accounts.³⁰ This is equal to about five times the annual unit demand.³¹ In determining how these stockpiles should be treated, it is important to understand how they came to be.

The stockpiles of NZUs exist due to a combination of two factors: a collapse in the price of emissions credits on the international market and the NZETS's failure to limit the importation of foreign credits. Foreign 'Emissions Reductions Units' (ERUs) began to flood international markets in 2011. This was due to Kyoto setting emissions targets with reference to 1990 levels.³² The collapse of the Soviet Union in 1991 meant that Russia and Ukraine

³⁰ Ministry for the Environment *Improving alignment of the New Zealand Emissions Trading Scheme with New Zealand's provisional 2030 emissions reduction target* (The Treasury, Regulatory Impact Statement, March 23 2016) at 10.

³¹ At 10.

³² Art 3(4).

ended up with excess allocations of Kyoto units. These Kyoto units were banned from international trade but many were effectively laundered into tradable ERUs.³³ The price of these ERUs collapsed and the NZETS's lack of any limitation on the use of foreign credits within the domestic scheme meant that businesses chose to surrender these credits rather than domestic NZUs. Imported credits made up about 70% of the emissions units used in New Zealand between 2010-2014.³⁴

Due to lack of certainty concerning whether ERUs would be able to be surrendered in the NZETS past the end of the first commitment period under the Kyoto Protocol in 2014, they carried a cheaper price than NZUs in the domestic market. Large emitters were therefore incentivised to stockpile the NZUs that they were allocated under s 80 of the CCRA and instead purchase ERUs to satisfy their obligations.³⁵ This led to the large stockpiles of NZUs that exist today, as well as effectively allowing industrial emitters to profit from their emissions.

However, many other parties hold NZUs legitimately. Foresters who opt into the NZETS are allocated NZUs pursuant to the CCRA.³⁶ Many then chose to bank these allocated units such that they can surrender them when they choose to deforest. Several Northern Iwi were also given NZUs as part of Waitangi Tribunal settlements.³⁷

1 Treatment of stockpiles in transitioning to a carbon tax

These NZUs are irreconcilable with a carbon tax and must either be spent or compensated for before transitioning. A balance needs to be struck between treating holders of NZUs fairly and not creating a large liability for Government and a large capital gain for firms that took advantage of cheap ERUs despite their evident lack of environmental integrity.

A simple solution would be for Government to compensate holders of NZUs according to either the equivalent price of emissions within the carbon tax or the price that NZUs are trading at when the transition to a carbon tax is announced. However, at the current \$17 price that NZUs are trading at, this would create a \$2 billion liability for the Government. Furthermore, firms who were allocated NZUs but instead surrendered ERUs, which were frequently purchased for less than \$1, would stand to make large capital gains. At the other

³³ Geoff Simmons and Paul Young *Climate Cheats* (The Morgan Foundation, April 2016) at 10.

³⁴ At 16.

³⁵ Climate Change Response Act 2002, s 80.

³⁶ Section 64.

³⁷ Joshua Williams "Lane Use for Pre-1990 Forestry: Who bears the cost of the New Zealand Emissions Trading Scheme?" (LLB (Hons) Dissertation, University of Otago, 2008) at 26.

extreme lies government appropriation. This is not feasible as there are property rights attached to NZUs and many are held by foreign investors.³⁸ This paper suggests a solution in the middle ground.

NZUs are allocated to firms under the CCRA with the expectation that they will largely be surrendered back to the Government to account for emissions. The purpose of free allocations is to subsidise firms such that they remain competitive with their foreign counterparts who are not charged for emissions. However, instead of surrendering allocated NZUs many firms chose to stockpile them and instead surrender the significantly cheaper ERUs. Their allocated NZUs were effectively substituted for ERUs. This needs to be taken account of in compensation. Instead of compensating firms with regard to the current price of emissions, the Government should instead compensate these firms with regard to the price they paid for their most recently surrendered credits, equal to the number that they have stockpiled.

For example, Company A has a stockpile of 2000 NZUs that were allocated to them under s 80 of the CCRA. The last 2000 emissions units they surrendered were ERUs, purchased for an average price of 20 cents. By reasoning that their stockpiled NZUs were substituted for ERUs purchased on international markets, I suggest that Company A is only entitled to \$400 worth of compensation.

This method of compensation means that firms who were opportunistic in stockpiling their allocated NZUs are only compensated according to the decreased burden that they faced under the NZETS. It would also reward firms who refused to use ERUs. Mobil New Zealand, for example, did not purchase any ERUs as they were guided by corporate policy that went beyond the restrictions prescribed by Government.³⁹

The CCRA allows for the transfer of emissions units according to regulations in the Climate Change (Unit Register) Regulations Act 2008.⁴⁰ The Regulatory Act requires that the details of the transferor and transferee are included in the application of transfer, along with the number and type of units being transferred.⁴¹ A detailed record of the transactions taking place within the New Zealand Emissions Unit Register (NZEUR) must therefore exist.

³⁸ Wilson, above n 8, at 147.

³⁹ Geoff Simmons and Paul Young *Who's the Real Cheat Here? Climate Cheats II: The Dozen Dirty Businesses* (The Morgan Foundation, August 2016) at 4.

⁴⁰ Climate Change Response Act 2002, s 18C(1).

⁴¹ Climate Change (Unit Register) Regulations 2008, s 7.

However, the NZEUR does not record the price paid for emissions units. It would therefore be necessary to estimate the prices parties paid with reference to market prices at the time the transactions occurred. The Ministry for the Environment has records of the price of NZUs and the price of other units can be found on Intercontinental Exchange.⁴²

2 *Method of compensation*

Compensation can be given either in cash or in the form of tax breaks upon the introduction of a carbon tax. For example, if Firm B has 1000 stockpiled NZUs and the average price they paid for the last 1000 credits they surrendered was \$7 they could either be given \$7000 cash or they could be exempted from paying their first \$7,000 of liability under the tax. If the tax is set at \$25 then their 1000 NZUs would absolve them of liability for the first 280 tonnes of CO₂ equivalent they emit after the tax is in force. A combination of these compensation methods can be used to balance reducing the transitional burden on the Government and to prevent businesses from being practically excluded from the carbon tax for long periods of time.

3 *Treatment of stockpiled NZUs held by foresters*

This compensation method will function differently for parties who have surrendered fewer credits than they have stockpiled. For example, foresters who opted into the NZETS are allocated NZUs under the CCRA on the basis of sunk carbon.⁴³ Many firms stockpiled these credits to use in the future to cover the burden of deforestation. These parties will not yet have faced surrender obligations under the CCRA, so their stockpiled NZUs have not been substituted. Two ways of compensating these parties can be considered.

First, compensation can be calculated with regard to the current price of emissions; either equal to the market price of NZUs or the price set by a carbon tax. This would pass over a capital gain to these parties but the gain would correspond to carbon sunk in their forests. If chose to deforest past the introduction of the tax they will face liability according to the price of emissions stated by the tax at that time. As this price is likely to be larger than the price by which they were compensated, they will have a constantly increasing incentive to let the forests remain permanently.

However, some parties may consider this unfair. When foresters opted into the NZETS it was on the basis that they would receive allocations of NZUs that could be held and used in

⁴² Simmons and Young, above at n 33, at 15.

⁴³ Section 189.

the future to satisfy the entirety their surrender obligations for deforestation. The previous method leaves a gap between what these foresters were given to sink carbon and what they must pay to release it again. They may argue that they should be compensated for their NZUs in a way that allows them to deforest free from liability. This could be done by giving foresters tax breaks equivalent to the number of NZUs that they hold. These tax breaks could then be held and used in the future when they choose to deforest. Unlike the flat tax break I suggested earlier, these would scale up with the price set by the carbon tax, such that they are always sufficient to cover the entirety of the party's liability associated with deforestation.

While both these approaches may work this paper favours the former. Allowing certain companies to hold tax breaks that increase in tandem with the carbon tax introduces unnecessary complexity to an already complicated administrative overhaul. It would also compromise the uniformity of the scheme as certain parties would face diminished obligation under the carbon tax due to their prior position under the NZETS. The gap between compensation for sunk carbon and liability for deforestation will be proportional to the increase in the price of emissions. This means that all parties face the same increasing incentive not to emit.

3 Treatment of stockpiles within NZETS

The presence of large stockpiles of NZUs clearly complicates the transition to a carbon tax. However, this needs to be considered in comparison to the complications the same stockpiles create within NZETS. This was discussed in a Regulatory Impact Statement published by the treasury in May 2016.⁴⁴ Stockpiled NZUs effectively represent emission reductions between 2008-2016. If New Zealand enters a period of new emissions targets between 2020-2030, then the difference between the number of stockpiled credits at the beginning of the period and at the end effectively functions as a reduction in our emissions budget. Consider that New Zealand has a hypothetical emissions budget of 10,000,000 units for the 2020-2030 period. If, at the beginning of the period, there are 2,000,000 stockpiled units held by New Zealand firms and there are 1,000,000 at the end, then 1/10th of the emissions units surrendered in that time came from a previous accounting period. Only 9,000,000 new credits can then be issued by the Government in order to stay within the 10,000,000 budget.

⁴⁴ Ministry for the Environment, above n 31.

The stockpiled credits therefore represent a deferred liability for the next accounting period and this must be addressed within the NZETS.

Three solutions were discussed in the 2016 Regulatory Impact Statement:⁴⁵

- (1) Vintaging carbon credits by implementing an amendment that forces the credits to expire before 2021.
- (2) Forcing government buy backs of the credits.
- (3) Removing the two for one surrender obligations on NZETS participants.

Of these three options the first two were considered ad-hoc in a way that would undermine investor confidence in the governance of the emission credits market.⁴⁶ Investors cannot be confident in the stability of the carbon market if there is the continuing possibility of government intervention.⁴⁷ They were also found to be insufficient to address the disparity between the Government's emissions targets and actual projected emissions.⁴⁸ The report estimated a 100-million emissions unit deficit if only these first two options were considered.⁴⁹ This disparity creates a risk of the Government being liable for anywhere between 3.75-7.5 billion dollars, depending on the price of emissions units on the international market.⁵⁰

The third option was favoured. Removing the two for one surrender obligations on emitters would result in increased demand prior to 2021, such that a significant portion of stockpiled units would be spent.⁵¹ It would also effectively double the incentive on businesses to reduce their emissions; thereby bringing projected emissions levels within the 2030 target.⁵² Introducing surrender obligations for agricultural emitters and reducing the free allocation of credits to emissions intensive and trade exposed activities were also mentioned as potential ways of aligning the NZETS with 2030 obligations.⁵³ However, these options are not currently being considered by the Government and are outside the scope of the current NZETS review.

⁴⁵ At 19.

⁴⁶ At 18.

⁴⁷ These options could, however, be used prior to the transition to a carbon tax in order to decrease the number of NZUs that need to be compensated for. As domestic emissions trading markets are inconsistent with the tax, undermining the integrity of these markets is not an issue.

⁴⁸ At 20.

⁴⁹ At 20.

⁵⁰ At 12.

⁵¹ At 20.

⁵² At 20.

⁵³ At 14.

4 Stockpiled NZUs conclusion

Stockpiled NZUs create difficulties within both the NZETS and in transition to a carbon tax. However, if these difficulties are approached with sufficient care and contextual understanding then a solution can be found that balances the interests of Government with the rights of parties who hold the stockpiles of NZUs. This paper further submits that not considering transitioning to a carbon tax due to problems created by the farcical administration of the NZETS is an approach irreconcilable with the urgent need to address climate change.

D Forestry

The treatment of forestry within the NZETS is immensely complicated and has serious implications for New Zealand's emissions reduction goals past 2020. Transitioning to a carbon tax can allow for clarification and restructuring of the way that New Zealand treats carbon sunk in its forests.

Geoff Bertram and Simon Terrys' book *Carbon Challenge* suggests that the NZETS's failure with regard to forestry comes from treating carbon sinks like income rather than credit.⁵⁴ Carbon sunk in post-1989 forests is effectively treated as increasing New Zealand's gross emissions budget. It is this treatment of forestry that allowed New Zealand to satisfy our obligations under the Kyoto Protocol despite no real reduction in domestic emissions.⁵⁵

However, as the Treasury put it in 2009: "in the long term the forestry sector is essentially a zero sum game."⁵⁶ Many of the forests that were planted post-1989 will soon be cut down; thereby releasing previously sunk carbon back into the atmosphere. While the Government has treated the sunk carbon as income that allows for increased emissions in other sectors, it is better understood as a liability contingent on presumed future deforestation. It is in this regard that sunk carbon has been treated like income not credit.

The implementation of a carbon tax would provide an opportunity to redesign the treatment of carbon sinks such that they are more in line with the practical and scientific reality. This paper argues that the best solution comes from a clear separation of the treatment of permanent and non-permanent foresters.

⁵⁴ Geoff Bertram and Simon Terry *The Carbon Challenge: Response, Responsibility and the Emissions Trading Scheme* (Wellington, Bridget Williams Books, 2010) at 151.

⁵⁵ Ministry for the Environment, above n 19, at XVII.

⁵⁶ New Zealand Treasury *Aide Memoir: Further Analysis on 2020 Targets* (The Treasury, July 28 2009).

The simplest way to treat non-permanent forests planted past the introduction of a carbon tax is to allow them to fall outside the tax's ambit. The carbon sunk in these forests is equalled by the carbon released in deforestation. Excluding non-permanent forests from the tax is the best way to recognise non-permanent forestry as a zero-sum game and prevent the deferring of liability to future generations. These parties are always able to convert to permanent forests in order to gain the benefit from sunk carbon, as discussed below.

Two options can be considered for the treatment of permanent forests under a carbon tax. First, parties who commit to permanent forests can be compensated for sunk carbon at a price equivalent to that set by the carbon tax. However, this requires the tax to be designed as a two-way system of debit and credit. This is akin to emissions trading schemes and introduces an unnecessary degree of complexity in implementation and administration.

The second option is to exclude permanent forests from the carbon tax and allow them to be compensated through international emissions trading markets. This is achieved by allowing parties who commit to permanent forests to convert sunk carbon into internationally tradable emissions units. By taking this approach the carbon tax is left to function purely as a tax and conversion to permanent forestry is still incentivised. If the Government wants to take advantage of carbon sunk in domestic, permanent forests they can develop a mechanism through which they can purchase these units and add them to the domestic carbon budget.

The second option should be preferred as it prevents the need for a carbon tax to be designed with two-way functionality. Much of the policy development around permanent forestry can be done by building on the already existing Permanent Forest Sink Initiative that is regulated according to s 67Y of the Forests Act 1949.⁵⁷ This initiative gives benefits to foresters who are prepared to enter into a 'Forest Sink Covenant' with the Crown for a minimum of 50 years.⁵⁸

E Agriculture

New Zealand's emissions profile is unique among developed countries, with 48 percent of emissions consisting of methane (CH₄) and nitrous oxide (N₂O) from the agriculture sector.⁵⁹ While this creates several challenges, it also means that any market tool capable of

⁵⁷ Forestry Act 1949, s 67Y.

⁵⁸ Ministry for Primary Industries *Guide to the Permanent Forest Sink Initiative* (Ministry for Primary Industries, February 2015) at 9.

⁵⁹ Catherine Leining and Suzi Kerr *Lessons Learned from the New Zealand Emissions Trading Scheme* (Motu Economic Public Policy Report, Working Paper 16-06, April 2016), at 11.

meaningfully reducing domestic emissions must include agriculture. Agricultural emissions have been indefinitely excluded from the NZETS through the use of ministerial discretion under the CCRA.⁶⁰

Transitioning to a carbon tax provides an opportunity to unravel the treatment of the agricultural sector in a way that balances the environmental damage done by their emissions with the need to protect one of New Zealand's major industries. As stated in a 2005 government review of climate change policy:⁶¹

The absence of a price signal at the farm level means that farmers have no incentive to implement mitigation measures that come at a net cost to their operation even if the cost is small.

In order to analyse how agriculture should fit into a carbon tax it is important to consider the justifications for their exclusion and the challenges posed by their introduction.

1 Abatement opportunities

A key argument against pricing agricultural emissions is that farmers lack any way to economically reduce their emissions. While this may have been true in the past, it is now in conflict with modern science. In June 2007 the Sustainability Council published a report entitled *A Convenient Untruth* which synthesised peer-reviewed research on the potential abatement of New Zealand's agricultural emissions.⁶² The report cites 'nitrification inhibitors' as the most favourable abatement method but lists several other techniques that could be used. In summary the report states that:⁶³

Agriculture has the potential to substantially reduce the nation's greenhouse gas emissions. At a profit, the sector could meet its share of New Zealand's emission reduction target under the Kyoto Protocol.

⁶⁰ S 60(1).

⁶¹ Ministry for the Environment *Review of Climate Change Policies* (Ministry for the Environment, 2 November 2005) At 339.

⁶² Simon Terry *A Convenient Untruth: Towards a Lighter Agricultural Footprint* (Sustainability Council of New Zealand, June 2007).

⁶³ At i.

The government has since commissioned two reports by ICF International into the cost of abating agricultural emissions. While these reports have faced criticism, they do make it clear that there are abatement options available in the agricultural sector. *Carbon Challenge* interprets the figures given in the second report to show that:⁶⁴

Agriculture holds 73% of the abate potential across the economy that costs less than \$30/tonne to implement by 2010, and 77% of the options have a negative cost (i.e. are profitable).

The same point was made in the 2011 review of the NZETS which favoured agriculture's introduction into the scheme in 2015.⁶⁵

In the Panel's view, agriculture does have abatement opportunities. On the evidence presented such opportunities include forestry, nitrification inhibitors, and 'good practice' farm management techniques that increase productivity. All of these options are available now and others will be available in the medium to long term as a result of the efforts going into research today.

The argument that the agricultural sector needs be excluded from having to pay for its emissions on the basis a lack of abatement technology has passed its expiry date.

2 Tools for recording on farm greenhouse gas emissions

According to a 2016 report by the New Zealand Royal Society the major obstacle in pricing agricultural emissions is actually the lack of "appropriate tools to report [greenhouse gas] emissions on New Zealand farms that have sufficient credibility with industry, farmers and regulators and do not require costly additional data collection."⁶⁶ There is consensus in the agricultural sector that the point of obligation of any price on emissions needs to be at the

⁶⁴Bertram and Terry, above n 54, at 144.

⁶⁵Emissions Trading Review Panel 2011, above n 28, at 48.

⁶⁶The Royal Society of New Zealand *Transition to a low-carbon economy for New Zealand* (The Royal Society of New Zealand, April 2016) at 147.

individual farm level in order to spur innovation.⁶⁷ Developing a method for efficiently calculating emissions on each of New Zealand's many farms is a significant challenge.

This problem needs to be resolved regardless of whether the NZETS is maintained or if a carbon tax is introduced. Government investment may be required to find an adequate solution. This is an area where the revenue generated by a carbon tax could be invested. Regardless, it is not a sufficiently significant barrier to prevent the inclusion of agriculture within domestic climate change policy.

The Royal Society also highlight the benefits of this technology in enabling New Zealand agriculturalists to demonstrate the low emissions intensity of their outputs relative to key competitors in international markets.⁶⁸ This addresses the issue discussed in *Carbon Challenge* of sophisticated competitors to New Zealand's agricultural exporters becoming more adept at highlighting points of difference relating to climate change performance.⁶⁹

3 *Treatment of agriculture under a carbon tax*

In order to account for the time it may take farmers to innovate and implement the technology required to reduce their emissions, it is sensible to allow the agricultural sector a transitional period under a carbon tax. It is Green Party policy that agricultural emissions are to be initially charged a reduced rate of \$12.50 per tonne of emitted CO₂ equivalent emissions, compared to \$25 for other emitters.⁷⁰ This can then scale up such that the agricultural sector faces the same burden as other sectors within in a set timeframe.

This is the best way to balance the economic position of farmers with the need to reduce agricultural emissions. If New Zealand is to ever meaningfully reduce of emissions, then the agricultural sector needs an incentive to change. In the long term, it is better that agriculture is introduced earlier sooner than later. This allows for a smoother transition period and will prevent sudden exposure to a much larger price of emissions in the future. As Federated Farmers president Tom Lambie said in 2003, in reference to the Government's use of Supplementary Minimum Prices in the 1980s:⁷¹

⁶⁷ At 147.

⁶⁸ At 131.

⁶⁹ Bertram and Terry, above n 54, at 78.

⁷⁰ New Zealand Green Party *Yes we can! A plan for significantly reducing greenhouse gas emissions* (New Zealand Green Party, Discussion Paper, September 2015) at 20.

⁷¹ Bertram and Terry, above n 54, at 213.

New Zealand farmers reject any return to Government support as it undermines competitiveness and distorts market signals. New Zealand farmers have captured the benefit of being more in charge of their own destiny and less at the mercy of government price/subsidy fixing.

III Benefits of a Carbon Tax once Implemented

Despite administrative cross-over between the NZETS and a carbon tax, transitioning between the two policies comes with some difficulty. This is particularly apparent when considering the treatment of stockpiled emissions units. Further difficulties arise in adjusting the treatment of forestry and agriculture, but the transition to a carbon tax also provides an opportunity to remedy the failings of the NZETS in these areas. Implementing a carbon tax may be more difficult than implementing the changes to the NZETS suggested by Government reports, but I have illustrated that these difficulties are not insurmountable. The second part of this paper will discuss how the advantages that come with implementing a carbon tax can outweigh the difficulties involved in transition. In order to show this, I will compare the administrative and transaction costs connected to the NZETS and a carbon tax as well as discussing the superior ability of a carbon tax to generate revenue and insulate itself from vested interests.

A Administrative Costs

The NZETS is an immensely complicated piece of legislation that requires the maintenance of the NZEUR in order to record the holdings and transfers of emissions units.⁷² This leads to increased administrative costs for Government, as well as increased transactional costs for private parties participating in the scheme. This paper argues that a well-designed carbon tax can reduce costs both of these costs.

The NZETS is jointly administered by the Ministry for the Environment, Ministry for Primary Industries and the Environmental Protection Agency. According to the projected budget of the Ministry for the Environment they will spend “a total of nearly \$19 million for administering the NZETS including the impairment of debt.”⁷³ Of this about \$7 million will be spent on the “implementation and operation of the New Zealand Emissions Trading

⁷² Climate Change Response Act 2002, s 18.

⁷³The Treasury *Vote Environment: The Estimates of Appropriations 2016/17* (The Treasury, B5 Vol 3, 26 May 2016) at 36.

Scheme and maintenance of a register to enable the holding and transfer of climate change units.”⁷⁴ Similar data from the Ministry for Primary Industries and the Environmental Agency budgets \$9.5 million⁷⁵ and \$6.4 million respectively.⁷⁶ In discussing the administration of the NZETS a 2016 review stated that:⁷⁷

The three agencies have clearly identified roles, although MPI and the EPA perform similar functions for different sectors. There are overlaps in some functions provided by MPI and the EPA (for example, contact centre support) and forestry participants are required to interact with both MPI and the EPA.

Discussions of the tri-agency approach were outside the scope of this review but it is likely that this inflates the costs involved in administering the NZETS.

While the costs involved in calculating levels of emissions will cross over to a carbon tax, there are some clear administrative advantages. The ongoing maintenance and administration of the NZEUR is not required by a carbon tax and the responsibility of ensuring compliance can be handled by New Zealand Inland Revenue rather than several different ministries. It is reasonable to suggest that these two factors alone will result in a reduced administrative burden for the Government if they transition to an effectively designed carbon tax.

B Transactional Costs

Private parties frequently face transactional costs when engaging with the NZETS. In discussing the NZETS in a 2015 speech Sir Geoffrey Palmer stated that:⁷⁸

Advising participants in this market is a legally fraught undertaking. And I am not here dealing with the Act’s lack of bite in reducing greenhouse gas emissions. I am talking

⁷⁴ At 37.

⁷⁵ The Treasury *Vote Primary Industries and Food Safety: The Estimations of Appropriations 2016/17* (The Treasury, B5, Vol 9, 26 May 2016) at 82.

⁷⁶ Environmental Protection Agency *Statement of performance expectations 2015-2016* (Environmental Protection Agency, 16 June 2016) at 17.

⁷⁷ Ministry for the Environment *The New Zealand Emissions Trading Scheme Evaluation 2016* (Ministry for the Environment, February 2016) at 12.

⁷⁸ Geoffrey Palmer “New Zealand’s Defective Law on Climate Change” (lecture hosted by The New Zealand Centre for Public Law and 350 Aotearoa, Wellington, 16 February 2015).

about the words, fishhooks and traps contained in the 481 pages of the statute. The complexity of the institutional arrangements, the powers of the Minister, the Chief Executive, the Registrar, the Inventory Agency and the wide powers to direct under section 8A fill me with dread as a lawyer.

This complexity increases the burden on parties who engage with the NZETS as they must pay lawyers to traverse the legislative maze in order to uncover their obligations. Small, rural parties (i.e. a land owner in Gisborne who wishes to cut down a small section of forest) may struggle to find adequate legal expertise in their area. Their transactional costs will thereby be increased as they have to engage law firms in major centres.

Industrial emitters also require detailed advice on the extent to which they have rights to free allocations of NZUs. Complex applications for free allocations are required pursuant to the CCRA.⁷⁹ Their level of entitlement is then defined by a complicated and seemingly ephemeral equation.⁸⁰ Industrial emitters benefit greatly from free allocations of NZUs but it is still unfortunate that they face large transactional costs in order to obtain them. If these costs are minimised industrial firms may be able to put more money towards investing in emissions reductions.

This paper argues that replacing the NZETS with a carbon tax is likely to reduce transactional costs for small and large firms that currently engage with the scheme. While parties will still need to keep detailed accounts of their emissions, they will not require the same degree of legal advice. If the carbon tax is well designed and unambiguous legal advice may not be required as the tax burden will simply be equal to the number of tonnes of CO₂ emitted, multiplied by the level of the charge.

C Revenue Generation

A significant benefit carbon taxes enjoy over emissions trading schemes that do not auction credits, is the ability to generate revenue. This revenue can be redistributed across the economy and make room for reduction of less socially beneficial taxes. It is Green Party policy that any carbon tax they introduced would be revenue neutral.⁸¹ This requirement can be built into the legislation. In British Columbia, where a carbon tax has been in place since

⁷⁹ Sections 86-86F.

⁸⁰ Climate Change Response Act 2002 s 81.

⁸¹ New Zealand Green Party “Green Party launches major climate protection plan” (press release, 1 June 2014).

2008, the Carbon Tax Act requires the responsible minister to create a carbon tax plan to “forecast that the carbon tax will be revenue neutral in relation to each fiscal year of the carbon tax plan.”⁸²

The Green Party suggest that the revenue from a carbon tax may be used to pay for “a \$2000 income tax-free band and a one percent company tax cut.”⁸³ This effectively insulates New Zealand households from any higher cost of living associated with the tax. In British Columbia the revenue generated by the tax has allowed them to enjoy Canada’s lowest provincial corporate tax rate.⁸⁴ There, the policy is supported by 61% of the public; quite significant for a tax.⁸⁵

This ability to generate revenue is in stark contrast to the NZETS. The Ministry for the Environment projects that it will spend \$225 million on the allocation of NZUs to the economy in 2016/17.⁸⁶

This paper suggests that the most effective use of the revenue generated by a carbon tax is to engender public support. Evidence from British Columbia suggests that this is possible. The importance of having public support for the policy tool New Zealand uses to address climate change cannot be understated. A carbon tax that is supported by the public is less likely to be manipulated in changing political and economic climates, and is therefore more likely to be effective in delivering real reductions in emissions.

D Influence of Vested Interests

A key reason that New Zealand’s climate policy has failed to effectively reduce emissions is the interest group asymmetry that arises in climate change issues. This asymmetry is well described in *Climate Change Law and Policy in New Zealand*:⁸⁷

The costs of mitigation tend to be concentrated rather than dispersed. Moreover, they fall mainly on powerful vested interests, most notably the fossil fuel industry – and in

⁸² Carbon Tax Act SBC 2008 c 40, s 3(2)(c).

⁸³ New Zealand Green Party, above n 81.

⁸⁴ P.F. “British Columbia’s Carbon Tax: The evidence mounts” *The Economist* (online ed, Vancouver, 31 July 2014).

⁸⁵ The Environics Institute for Survey Research *Canadian Public opinion about climate change* (The Environics Institute and David Suzuki Foundation, November 11 2014) at 6.

⁸⁶ *The Treasury Vote Environment: The Estimates of Appropriations 2016/17* (The Treasury, B5 Vol 3, 26 May 2016) at 2.

⁸⁷ Jonathan Boston “The nature of the Problem and the Implications for New Zealand” in Alastair Cameron (ed) *Climate Change Law and Policy in New Zealand* (LexisNexis, Wellington, 2011) 87 at 95.

New Zealand the agricultural sector. By contrast, the potential beneficiaries include not merely the citizens of the country where mitigation policies are being implemented, but also the citizens of other countries and those who are yet unborn. These dispersed beneficiaries, not surprisingly, tend to be poorly organised and thus less effective in their political advocacy.

Any effective climate policy needs to be insulated from this asymmetry. This is an area in which the NZETS has failed both in its development and administration.

Alister Barry's 2015 documentary *Hot Air* demonstrates the way in which businesses groups; notably the Business Round Table, Federated Farmers and the Greenhouse Policy Commission; were able to manipulate public opinion of climate change and delay the introduction of carbon pricing policy.⁸⁸ Subsequent amendments to the CCRA have been designed largely to favour industry at the expense of real reductions in emissions.

The sections of the CCRA dealing with the allocation of emissions units are pertinent examples of this. Sections 161A-161D were introduced by the Climate Change Response (Moderated Emissions Trading) Amendment Act 2009.⁸⁹ These sections define which activities are eligible for free allocations of NZUs pursuant to the Act.⁹⁰ Section 161A(3)(a) allows the Responsible Minister to recommend regulations making industrial activities eligible for allocations of emissions units if the Minister is satisfied that the activity is moderately or highly emissions intensive as well as being trade exposed.⁹¹ The wide definition of trade exposed is a key weakness within CCRA. Section 161C(1)(c) states that an activity is trade exposed unless, in the Minister's opinion:⁹²

- (i) there is no international trade of the output of the activity across oceans; or
- (ii) it is not economically viable to import or export the output of the activity

The use of a negative discretionary burden, where activities are assumed to be trade exposed unless the Minister determines that they are not, provides a wide avenue for industries to lobby Government to ensure they fit within the definition and qualify for valuable allocations of NZUs. It also prevents transparency as industries can simply be assumed to

⁸⁸ *Hot Air* (Directed by Alister Barry and Abi King-Jones, Alister Barry, 2015).

⁸⁹ Climate Change Response (Moderated Emissions Trading) Amendment Act 2009, s 56.

⁹⁰ Climate Change Response Act 2002, ss 80 and 86.

⁹¹ Section 161A(3)(a).

⁹² Section 161C(1)(c).

be trade exposed without detailed consideration. This is a good example of how the CCRA provides avenues for powerful industries to lobby Government to ensure discretion is exercised in their favour.

Another example of how the CCRA has been amended to benefit industry is found in s 161C(4) of the Act.⁹³ This section allows the Responsible Minister to increase the allocation of NZUs given to industrial actors to account for the increased price of electricity resultant from the NZETS. While New Zealand households face slightly increased electricity costs, compensation is available to industrial emitters for any added electricity burden they face. It is clear who the legislation has been designed to benefit.

As a 2009 New York Times article put it “Cap and trade... is almost perfectly designed for the buying and selling of political support through the granting of valuable emissions permits to favour specific industry.”⁹⁴

A carbon tax that applies equally to all emitters has a natural degree of insulation from the influence of vested interests. The 1997 Treasury report *The Design of a Possible Low-Level Carbon Charge for New Zealand* stated that a “uniform approach provides fewer opportunities for lobbying or strategic behaviour than a non-uniform approach.”⁹⁵ The same point is made by Harry Clark in *Some Basics of Carbon Taxes*:⁹⁶

... setting carbon taxes offers lower potential for special interest groups in market economies to make claims for special treatment in terms of free or generous quota allocations under an ETS that would not occur with a tax.

Strategic behaviour has been effective in stymying New Zealand’s response to climate change. A carbon taxes uniform application and lack of free allocations to industry greatly reduces the ability of organised corporate interests to lobby the Government to ensure climate policy is administered in their favour.⁹⁷ This helps address the power imbalance

⁹³ Section 161C(4).

⁹⁴ John Broder “From a Theory to a Consensus on Emissions” *The New York Times* (online ed, New York, 16 May 2009).

⁹⁵New Zealand Treasury, above n 29, at 14.

⁹⁶Clark, above n 9, at 14.

⁹⁷ As discussed previously, agriculture would be allowed a period of reduced liability. The phasing out of this transition period will need to be clearly defined within the legislation to prevent interference from agricultural sector lobbyists.

between those who face costs due to the mitigation of climate change and the incredibly wide class of people who benefit.

IV Conclusion

There are some challenges that lie in the path of a smooth transition from the NZETS to a carbon tax. Most notable of these is the need to address the large stockpiles of NZUs that have accrued due to the administrative failings of the current policy. Further challenges are raised in adjusting the treatment of forestry and agricultural to a carbon tax, but the transition would also provide an opportunity to remedy the failings of the NZETS in this area.

Once implemented, a carbon tax could enjoy several advantages over the NZETS. These include reduced transactional and administrative costs, the generation of revenue that can be used to engender public support and the ability to insulate itself from interest group asymmetry. This paper submits that the difficulties that arise in implementing a carbon tax are outweighed by these benefits.

While the evidence for anthropogenic climate change has become increasingly startling New Zealand's actions to mitigate its effects have stagnated. The time has come to consider whether or not our empathy extends beyond our borders and our decade. There is no easy way to prevent dangerous climate change from occurring and if we do not act soon it may be too late. As Hamlet said in his most famous soliloquy:⁹⁸

*To be or not to be-that is the question
Whether tis nobler in the mind to suffer
the slings and arrows of outrageous fortune,
Or to take arms against a sea of trouble.*

If a carbon tax is the best policy tool for arming ourselves against climate change then it demands serious consideration.

⁹⁸ William Shakespeare *Hamlet* (Penguin Books, London, 1980) at 60.

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