



**Submission on the
Emissions Trading Scheme:
Proposed Settings**

28 February 2020

This document contains the submissions of Citizens' Climate Lobby New Zealand on the proposed settings under the Climate Change Response (Emissions Trading Reform) Amendment Bill.

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INTRODUCTION

Citizens' Climate Lobby supports the Emissions Trading Scheme (NZETS) as an important component of New Zealand's response to the climate crisis, but we believe that on its own the NZETS is an inadequate mechanism and that it should be complimented by the adoption of a carbon fee and dividend to operate alongside the NZETS.

Table 1 below shows the distribution of carbon pricing schemes by mechanism and jurisdiction type.

Table 1: Carbon pricing schemes by mechanism and jurisdiction type

	<u>City / state / province / subnational region</u>	<u>Country</u>	<u>Supernational region</u>	<u>Total</u>
Carbon tax	9	24	-	33
Carbon fee and dividend	-	1	-	1
Emissions trading schemes	15	7	1	23
Total	24	32	1	57

Of the 32 country level carbon pricing schemes implemented or scheduled for implementation, only seven are emissions trading schemes, and of those countries, two also have carbon taxes (World Bank, 2019). Accordingly only five countries rely on emissions trading schemes as their sole form of carbon pricing: New Zealand (2008), Australia (2015), Kazakhstan (2013), Korea (2015) and China (2020). After 10 years the New Zealand scheme has failed to materially reduce New Zealand's emissions. Gross emissions in Australia, Korea and Kazakhstan have increased since their emissions trading schemes were adopted.¹ The Chinese scheme has not yet been implemented. Thus there is no evidence that a country level emissions trading scheme can deliver the required rate of emissions reductions. The conclusion is similar when looking at the subnational carbon pricing schemes (see Appendix A).

Part of the problem is that emissions trading schemes have proven incapable of sustaining carbon prices at the required level. The highest current carbon price under an emissions trading scheme is US\$27 per tonne CO₂-e under the EUETS. The NZETS carbon price is currently around US\$17 and the proposed NZ\$35 fixed price option equates to around US\$22.

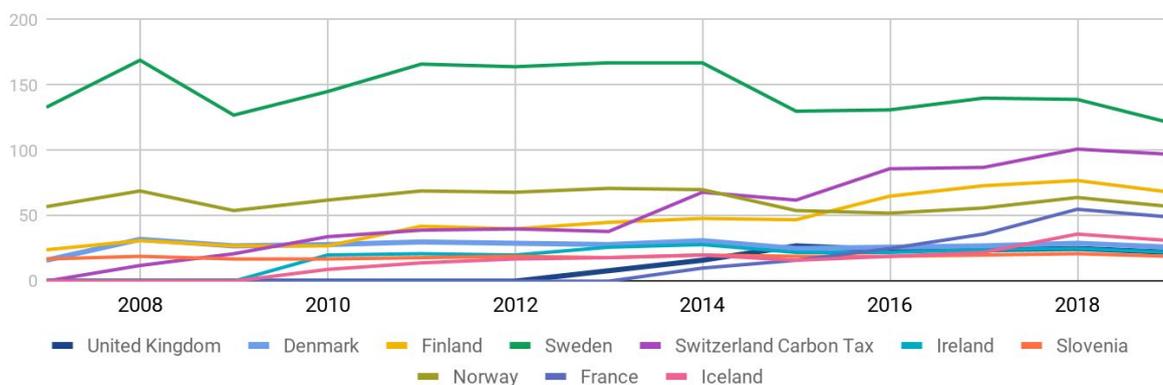
The carbon prices necessary to meet the Paris Agreement targets have been estimated for the World Bank at US\$40 to 80 by 2020 and US\$50 to 100 by 2030 (High-Level Commission on Carbon Prices, 2017). The IPCC has estimated the required carbon price level at US\$135 to 6,050 in 2030 (Rogelj et al, 2018).

¹ OECD emissions data to 2017 for Australia and 2016 for Korea. Climate Action Tracker data to 2017 for Kazakhstan.

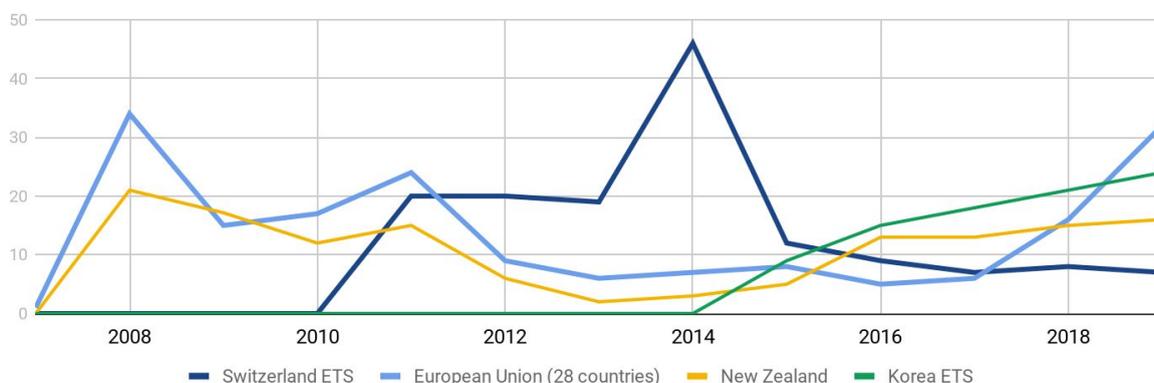
Carbon taxes have proven to be much more successful than emission trading schemes. 25 out of 32 country level carbon pricing schemes are carbon taxes or carbon fees. The highest carbon price under a carbon tax is in Sweden at US\$127. There are three carbon taxes with prices above US\$80 and three more carbon taxes have prices above \$US40. In total there are around nine carbon taxes with prices higher than the highest emissions trading scheme price (World Bank, 2019).

Even at the same carbon price, a carbon tax or carbon fee is more effective at reducing emissions than an emissions trading scheme because emission trading schemes produce volatile carbon prices which result in less effective price signals and hence a lesser impact on investment decisions and behaviour. Graph 1 shows the carbon prices under a selection of established country level carbon taxes. Graph 2 shows the known carbon prices under the established country level emissions trading schemes along with those of the EUETS.^{2 3}

Graph 1: Select OECD carbon tax rates (US\$ per tonne CO2-e)



Graph 2: Select OECD and EUETS carbon prices (US\$ per tonne CO2-e)



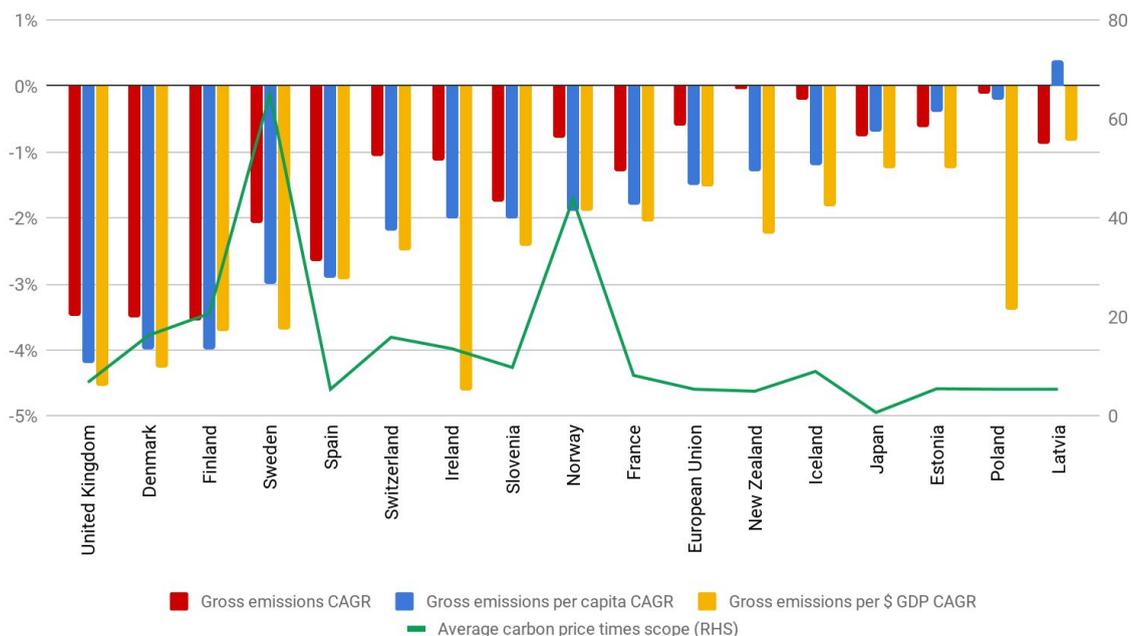
² The World Bank does not have carbon price information for the Australian, Kazakhstan or China emissions trading schemes.

³ Some of the volatility of carbon prices shown in Graph 1 and Graph 2 is due to currency fluctuations from the conversion to US dollars, although that effect is minor compared to the dramatic swings in the emission trading scheme carbon prices. Source: World Bank (2020).

The pattern is that carbon taxes tend to increase and then generally sustain their carbon prices; emissions trading schemes have highly volatile and often quite low carbon prices.

Graph 3 below shows the performance of the carbon pricing schemes of OECD countries (the most comparable economies) that were established in 2014 or earlier (to provide time to assess performance). The graph shows (for the period 2007 - 2017) the constant annual growth rate (CAGR) of gross emissions, gross emissions per capita, gross emissions per US dollar of GDP, and the average carbon price during the period times the scope of the scheme.⁴ New Zealand is the only country in this group to solely rely on an emissions trading scheme, the rest of the countries have carbon taxes. We have also included the EUETS for comparison.

Graph 3: Performance and average carbon price times scope from 2007 to 2017 of OECD countries with established schemes



It is clear that countries with carbon taxes and adequate carbon prices and scope have performed considerably better than New Zealand in terms of emissions reductions.

There are a number of other fundamental issues with emissions trading schemes which we believe make them inferior to carbon taxes in practice (as opposed to theory), which are detailed in Appendix B.

⁴ The average carbon price times scope is calculated by taking the average carbon price for each scheme for the period 2007 to 2017 and multiplying it by the percentage of the country's emissions covered by the scheme in 2019. Where more than one carbon pricing scheme applies in a country, both schemes are included in the calculation. Sources: OECD.Stat, World Bank.

CARBON FEE AND DIVIDEND ALONGSIDE THE NZETS

Despite its shortcomings, we believe that an emissions trading scheme is beneficial alongside a carbon tax or carbon fee because the emissions trading scheme can apply to emissions that the carbon tax or carbon fee is not applied to (such as emissions intensive trade exposed industries (EITE) and agriculture). A number of countries successfully operate carbon taxes or carbon fees alongside emissions trading schemes including Canada, Denmark, Finland, France, Iceland, Ireland, Sweden and Switzerland.

We believe that the carbon fee and dividend is superior to a carbon tax and is the simplest, fairest and most effective form of carbon pricing. For more information on the carbon fee and dividend see Appendix C.

While a carbon fee and dividend would significantly improve our prospects of meeting ambitious emissions targets, other policy measures will also be required including best practice regulation of the electricity, industry, buildings, transport and agricultural sectors.

Economic Efficiency

One objection that is sometimes raised to the suggestion of a carbon fee and dividend alongside the NZETS is the belief that for reasons of economic efficiency all emissions should have the same carbon price. The idea is that where abatement costs are lower than the carbon price, abatement should occur, and where abatement costs exceed the carbon price, there should be no abatement. If this principle were applied strictly then the carbon price would be limited to the maximum level that could be sustained for the most politically sensitive area of the economy. The result would be a carbon price that is too low to achieve the necessary emissions reductions, lost opportunities to make the necessary adjustments in an orderly fashion, and significantly increased economic costs due to the more serious effects of climate change that would result. Fortunately policymakers have foreseen this trap and have accepted that it is not always optimal to apply the same carbon price to all emissions. That is why there are free allocations in the NZETS.

Moreover, the same economic efficiency argument could be raised against non-carbon price regulations relevant to emissions that differ between industries. For example efficiency standards for vehicles cannot be compared to efficiency standards for electrical appliances. The abatement costs necessary to meet those two sets of regulations are unlikely to be the same but that is not a reason against having such regulations.

When the costs of failing to address climate change and the various political constraints are taken into account, the most economically efficient policy is the one that promotes the changes that need to occur to keep global temperature rises below 1.5 degrees while being politically

achievable and sustainable. As Joseph Schumpeter once said, at its core economic policy is about three things: politics, politics, and politics.

Effect on overall cap

Another argument that has been raised against having a carbon tax or a carbon fee alongside the NZETS is that if the NZETS has a cap on total emissions, then a carbon tax or carbon fee will not reduce overall emissions, it will simply reduce emissions in the area the tax or fee is applied to, and emissions elsewhere in the economy will adjust to negate those reductions (Leining, 2017). The same argument could be raised against any climate related policy that coexists with the NZETS. The problem is well illustrated in the European Union. For example, the United Kingdom has unilaterally implemented a number of climate policies including a carbon price floor that is applied to EUETS emissions in the UK. Although the UK carbon price floor is credited with emissions reductions in the UK, it has not reduced overall EU emissions because the effect of the policy has been to reduce demand for EUETS units, causing their price to fall, which in turn reduced abatement in other EU countries. But is that a problem with the unilateral policies implemented by the UK, or is it a problem with the design of the EUETS? A well designed carbon pricing scheme should not discourage individual countries, industries, companies or people from voluntarily reducing their emissions beyond the marginal abatement cost imposed by the scheme and nor should it negate the benefit of other climate policies. In addition, the argument breaks down if there is a price ceiling (because an emissions trading scheme cannot have both a price ceiling and a cap) or if international units are required to meet emissions targets (which seems likely under the proposed NZETS settings). Rather than being a reason not to adopt a carbon tax or a carbon fee, the emissions trading scheme should be designed to avoid this problem. In New Zealand that could be achieved by removing emissions covered by the carbon fee and dividend from the NZETS.

The example of fuel taxes

The viability of a carbon fee and dividend in New Zealand is well illustrated by the example of the national and regional fuel taxes that are currently applied to transport fuels. The current petrol rates of 74 cent per litre for national fuel tax and 10 cent per litre for regional fuel tax equate to a carbon price of \$345 per tonne CO₂-e. Compare that to the proposed NZ\$35 fixed price option under the NZETS which equates to just 8 cents per litre on petrol and 10 cents for diesel. A carbon fee of \$200 per tonne CO₂-e (the same as Sweden's carbon tax) applied just to petrol and diesel in New Zealand would increase petrol prices by 47 cents and diesel prices by 54 cents but each New Zealander would receive an annual dividend more than \$700 and most people would be financially better off after paying increased fuel costs. Emissions reductions from road transport are proportional to the increase in fuel prices and so this policy would deliver much more substantial emissions reductions in the transport sector than the NZETS will deliver. Thus, at a minimum the

carbon fee and dividend could be thought of as an extension of the current fuel tax arrangement, but one that would be politically popular because most people would be better off. We believe that the carbon fee should be applied to some other emissions as well, indeed all non-EITE fossil fuel emissions should be covered at a minimum.

The problem of offsets

With current technology the only viable method of removing carbon dioxide from the air is afforestation, and a forestry sink only captures carbon for a limited number of years after which the forest must be permanently maintained. Offsets into trees are good where it is not otherwise practicable to reduce emissions but we do not believe that offsets should be allowed for non-EITE fossil fuel emissions.

Storing carbon in trees is inferior to cutting gross emissions because: (i) a future disease,⁵ widespread forest fires, or a change in government policy could cause the carbon to be released; (ii) a high carbon credit price would lead to land speculation and a land price boom even if few trees are planted;⁶ (iii) we can get all the trees we need at a lower carbon price than is needed to stop climate change; (iv) permanent exotic forests to store avoidable emissions are not a good land use, particularly in terms of their effects on biodiversity; and (v) many countries are unable to reach net zero emissions using trees and so New Zealand would be taking the easy option rather than following best practice on climate policy. We believe that tree planting should at least in part be considered as dealing with past emissions including those from historical deforestation.

The IPCC has calculated that limiting global warming to less than 1.5°C will require significant removals of carbon dioxide in addition to substantial cuts in gross emissions (IPCC 2018). This removal 'over and above' rather than 'instead of' gross emissions reductions is the proper role of forestry removals.

Applying a carbon fee and dividend to non-EITE fossil fuel emissions and removing those emissions from the NZETS would significantly improve the situation with offsets.

Could similar outcomes be achieved within the NZETS?

A carbon price floor for the NZETS would be a good improvement but it would not replace the need for a carbon fee and dividend. There is no evidence that a carbon price floor can sustain the carbon price levels necessary to address climate change. The only country level carbon price floor,

⁵ Ash dieback disease is expected to kill 95% of the ash trees in the UK.

⁶ At \$35 per tonne CO₂-e a landowner could earn around \$910 per hectare per annum from land that is currently worth around \$4,000 per hectare but landowners do not need to plant the trees for the carbon credit potential to be reflected in their land prices. The economic and societal effects of a carbon credit driven boom in agricultural land prices would become a political constraint on the carbon price under the current design of the NZETS.

which is in the UK, has never exceeded US\$27 per tonne CO₂-e. As part of an emissions trading scheme, a carbon price floor does not offer the simplicity and popular support that a carbon tax or carbon fee can achieve. To replicate the accurate price signals and low price volatility of a carbon tax or carbon fee the NZETS would also require a price ceiling and for the price to be managed in a narrow band, making it effectively an unnecessarily complex version of a carbon tax.

It would also be possible to use some NZETS revenue to pay a dividend. That would actually be a good improvement for the NZETS to improve its fairness and popularity, but it would not be at the level a carbon fee and dividend could achieve since under the NZETS significant amounts of revenue go to forestry landowners and potentially overseas if international credits are allowed into the scheme once again. Also, revenue is lost from the NZETS due to speculation, arbitrage, errors and perhaps fraud.

To replicate the proposed carbon fee and dividend, the NZETS would also need to disallow non-EITE fossil fuel emitters from using forestry credits. A carbon fee and dividend would be a better choice than an emissions trading scheme that has been contorted to replicate its benefits.

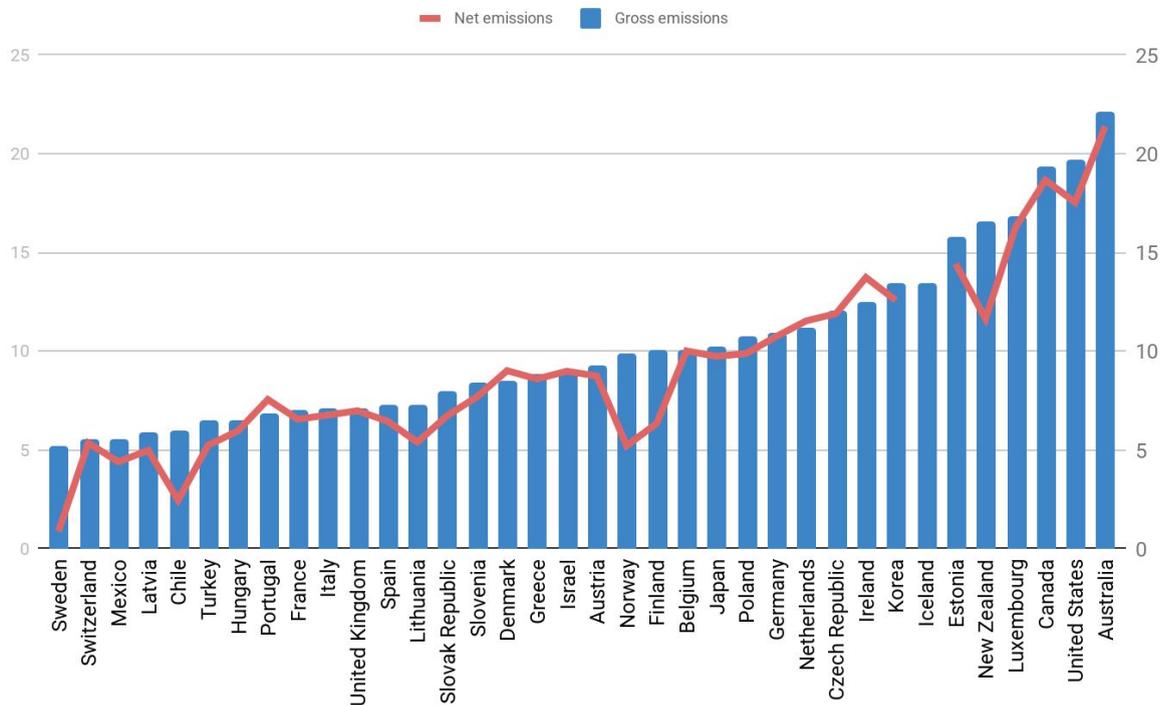
The NZETS with the improvements that the Government has proposed, and with the possible addition of a dividend of its own, will be a good compliment to a carbon fee and dividend and the two schemes have separate roles to play. As mentioned, this dual carbon pricing scheme approach, with a carbon tax or carbon fee alongside an emissions trading scheme, is successfully used in a number of countries.

EMISSIONS BUDGET

In our view New Zealand should be targeting reductions in gross emissions as well as or instead of reductions in net emissions. Graph 4 below shows emissions per capita by sector for OECD countries in 2017. The bar shows gross emissions and the line shows net emissions. Land use, land use change and forestry (LULUCF) is the difference between gross emissions and net emissions. For most countries the LULUCF component is small whereas for some countries (like New Zealand with lots of forestry land and a sparse population) LULUCF is significant.⁷ It is tempting to consider forestry removals as an easier alternative to the significant gross emissions reductions that most countries will need to make to meet their Paris Agreement commitments. But as discussed above, forestry removals are inferior to reductions in gross emissions and New Zealand's experience has been that the forestry industry does not always behave as policymakers would wish because it is driven by forestry market forces. New Zealand should face up to its gross emissions as other countries must do if global warming is to be limited to 1.5°C.

⁷ Note the LULUCF data for Iceland has been omitted from Graph 4 to maintain the scale.

Graph 4: OECD greenhouse gas emissions (tonnes CO2-e) per capita 2017



The IPCC has warned that keeping global warming below 1.5°C will require anthropogenic CO2 emissions reductions of 45% below 2010 levels by 2030. New Zealand should strive to achieve that objective without substantial reliance on trees.

We believe that the 2021 - 2030 emissions budget should target a 45% reduction in gross CO2 emissions⁸ from 2010 levels by 2030 and also separately track emissions of biogenic methane in accordance with the targets in the Zero Carbon Act. New Zealand’s Paris Agreement NDC could also be updated to reflect those targets.

Achieving gross emissions reductions of that scale is going to require a more effective carbon pricing policy for fossil fuels than the NZETS can deliver. The advantage of carbon fee and dividend is that, although significant adjustments can be achieved, most people are better off as a result.

PRICE FLOOR

Citizens’ Climate Lobby New Zealand supports a price floor for the NZETS. As mentioned above, emissions trading schemes have a tendency to produce low carbon prices. Carbon price floors have been beneficial in the United Kingdom, California and Quebec. In those schemes, the carbon

⁸ And other greenhouse gases excluding biogenic methane.

price has generally tracked the price floor meaning that the price floor has effectively acted as a carbon tax .

A price floor is not a substitute for a carbon fee and dividend, however, because such a 'hybrid' scheme will continue to suffer from the other weaknesses of emissions trading schemes explained in Appendix B.

The price floor should be higher than \$20 and instead of remaining static, it should increase over time so that the NZETS carbon price can approach the levels required to meet our Paris Agreement targets.

FIXED PRICE OPTION

Citizens' Climate Lobby New Zealand supports an increase in the fixed price option but believes that it should be higher than \$35 and continue to increase over time.

PRICE CEILING TRIGGER AND COST CONTAINMENT RESERVE

Citizens' Climate Lobby New Zealand recognises the potential for volatile movement of the carbon price under an emissions trading scheme including the potential for extreme movements due to unforeseen market forces unrelated to climate policy. Fear amongst policy setters of sudden carbon price spikes is one of the probable reasons that emissions trading schemes have generally been set up to produce low carbon prices. Having a price ceiling trigger and a cost containment reserve mitigates this risk, increases certainty for market participants, and provides policy makers with the confidence to set more ambitious targets. The price ceiling should be higher than \$50 and increase over time.

CONCLUSION

Very few countries have chosen to rely exclusively on an emissions trading scheme for pricing carbon. Despite the economic theory, the real world evidence to date is that emissions trading schemes are not very effective. Our climate policy decisions should be based on country level evidence of schemes that actually work.

Carbon taxes have proven to be much more effective than emissions trading schemes. Carbon prices under OECD carbon taxes have generally been maintained. Carbon prices under emissions trading schemes have not been maintained. There is no evidence that the political and economic causes of the poor relative performance of emissions trading schemes have gone away or can be fixed.

The carbon fee and dividend is fairer and more effective than a carbon tax. We can adopt a carbon fee and dividend to work alongside the ETS as other countries have done. New Zealand can have

best practice carbon pricing, the best of both worlds: with stringent carbon pricing (from the carbon fee) and breadth of scope (from the ETS), to ensure that we have effective carbon pricing in the future.

New Zealand has wasted more than 10 years with an inadequate carbon pricing scheme while some other countries have made good progress in reducing emissions. Are we to give the NZETS another 10 years hoping that this time it will be different? If its deficiencies prove to be inherent and permanent (which we believe they are) then New Zealand will have wasted 20 years while other countries are taking serious action. At the very least the carbon fee and dividend would provide some insurance against that outcome.

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APPENDIX A - SUBNATIONAL CARBON PRICING SCHEMES

We have looked at the subnational and supernational carbon pricing schemes that have been operational since at least 2014. Information on those schemes is presented in Table 2 below. Interestingly, the highest carbon price is achieved by the only carbon tax in the group. The Alberta carbon price is set by the provincial government. The Californian and Quebec schemes both have price controls and in both cases the carbon price has followed the price floor meaning the schemes have essentially operated as carbon taxes. The other subnational emissions trading schemes all have low very low carbon prices.

Table 2: Subnational and supernational carbon pricing schemes from 2014 or earlier

<u>Scheme</u>	<u>Type</u>	<u>Year</u>	<u>Carbon price (\$ per tonne CO₂-e)</u>	<u>Note</u>
British Columbia carbon tax	Carbon tax	2008	26	
EU ETS	ETS	2005	25	Market stability reserve
Alberta CCIR	Baseline and credit	2007	22	Carbon price set by govt
California ETS	ETS	2012	16	Price floor
Quebec Cap and Trade	ETS	2013	16	Price floor
Beijing pilot ETS	ETS	2013	11	
Tokyo Cap and Trade	ETS	2010	6	
Saitama ETS	ETS	2011	6	
RGGI	ETS	2009	5	
Shanghai pilot ETS	ETS	2013	4	
Hubei pilot ETS	ETS	2014	4	
Guangdong ETS	ETS	2013	3	
Tianjin ETS	ETS	2013	2	
Shenzhen pilot ETS	ETS	2013	1	
Chongqing pilot ETS	ETS	2014	1	

Thus the subnational experience also shows us that direct carbon pricing methods such as carbon taxes can sustain significantly higher carbon prices than has been possible with emissions trading schemes.

APPENDIX B - DISADVANTAGES OF EMISSIONS TRADING SCHEMES

Emissions trading schemes suffer from a number of disadvantages that explain their poor relative performance when compared to direct carbon pricing schemes. These disadvantages include:

- (a) Low carbon price - as explained on page 4, carbon taxes have proven better at sustaining high carbon prices than emissions trading schemes. Potential reasons for the lower carbon price under emissions trading schemes are (i) the cap being set too high as insurance against an unexpected and damaging carbon price spike due to the potential for volatility and (ii) lower levels of political support for emissions trading schemes making high carbon prices less politically sustainable under an emissions trading scheme (discussed in more detail below).
- (b) Inferior pricing signal - The volatile market determined carbon price produced by emissions trading schemes, clearly evident in Graph 7, is an inferior price signal compared with the predetermined carbon price offered by a carbon tax or a carbon fee and dividend. Emissions trading schemes struggle to incentivise investments in low emissions technology and technological innovation because investment decisions are based on future prices and costs, and clear price signals are required. Instead, volatile carbon prices impose a cost on the economy due to the inability accurately to factor the carbon price into future planning. Although a hybrid ETS can reduce carbon price volatility, it can still suffer from the other disadvantages. By way of contrast, the OECD carbon taxes shown in Graph 1 have all sustained their carbon prices well.
- (c) Complexity - whereas direct carbon pricing is conceptually quite simple, emissions trading schemes are necessarily complicated because they need to create and maintain a market for carbon units, often involving multiple types of unit, and provide a mechanism for participants to earn credits for removals. Significant sums of money can be involved and so the risks of unfairness, fraud, market manipulation and error⁹ need to be managed. The scheme is further complicated if international trading is allowed.
- (d) Low political support - the complexity of the NZETS means that the New Zealand public does not understand what it is and how it works and therefore the scheme does not enjoy widespread popular support and is vulnerable to being

⁹ For an example of an error see <https://i.stuff.co.nz/environment/119089844/polluters-making-windfall-gains-from-scheme-to-reduce-emissions?rm=a>

undermined. This can be contrasted with carbon taxes and the carbon fee and dividend. For example, the Swedish carbon tax enjoys political popularity despite a very high carbon price in part because it has replaced other taxes (Ackva & Hoppe, 2018).

- (e) Arbitrage - factors such as different unit types and prices allow participants to profit by arbitrage.
- (f) Speculation - as a trading market, professional traders, speculators and brokers are able to extract profit at the expense of other participants and the public.
- (g) Fraud - for an interesting discussion of fraud in the context of an emissions trading scheme see World Bank (2012) at page 27.
- (h) Offsets - as discussed above, forestry offsets should not be allowed for non-EITE fossil fuel emissions.
- (i) No incentive for individual action - an emissions trading scheme where the carbon price is market determined in relation to a cap provides no incentive for individuals, companies or industries to lower their emissions voluntarily since any emissions savings achieved will decrease the carbon price and hence be negated by increased emissions by others.

APPENDIX C - THE CARBON FEE AND DIVIDEND EXPLAINED

The carbon fee and dividend is a simple, fair and effective policy. A carbon fee is imposed on fossil fuels at source: at the well, the mine, or the port. The amount of the fee per tonne of emissions increases every year. All of the revenue gained from the fee (after costs) is returned to the population pro-rata as a monthly dividend by direct payment (children receive 50% of the adult entitlement up to two children per household).

The carbon fee would be applied to fossil fuels but recipients of free allocations under the ETS (including EITE and potentially agriculture) would be exempt to prevent carbon leakage. Those emissions would continue to be dealt with under the NZETS. The carbon fee places a direct price on emissions as a carbon tax does, and so is an effective form of carbon pricing.

Most people are better off financially because the amount of the dividend is greater than the increased costs they face as a result of the carbon fee. The carbon fee and dividend is progressive, and people on lower and middle incomes are relatively better off. Other carbon pricing schemes that do not have a dividend (such as carbon taxes and the NZETS) are regressive, with people on lower incomes being disproportionately affected because they spend a greater share of the income on the cost of emissions.

The carbon fee and dividend is good for the economy, particularly in reducing New Zealand's reliance on international credits by allowing New Zealand to sustain political support for high carbon prices to drive domestic abatement.

The carbon fee and dividend is a politically neutral solution that is revenue neutral. It is a simple, low cost carbon pricing scheme that is easily communicated and the public can understand and support.

Canada has adopted the carbon fee and dividend alongside an emissions trading scheme as the federal backstop carbon pricing scheme.

In the United States 3500+ economists, 27 Nobel laureates, all 4 former Fed Chairs, and 15 former Chairs of the Council of Economic Advisers have released a statement to unite behind carbon dividends as the bipartisan climate solution (Climate Leadership Council, 2019).

For more information on the carbon fee and dividend see our website at <https://citizensclimatelobby.nz>.