

Perspectives Series – Why a ‘least cost’ approach to net zero emissions is critical

4 June 2021

Purpose

1. This public note provides our analysis of a recent article from the Climate Change Commission (“the Commission”) entitled “*Why not the ‘least cost’ pathway to net zero?*”. In the article its Chair Dr Rod Carr argues that “New Zealanders deserve better than just the least cost pathway to a low emissions future.”
2. The article was published on 27 May 2021 and is included in Appendix One.¹

Summary of key points

- i. If the aim of the Commission is to reduce greenhouse gas emissions – as it should be – then an Emissions Trading Scheme (“ETS”) which puts a price on emissions is well-established as the most efficient and effective way to achieve this at least cost. Least cost simply means the less cost to community welfare.
- ii. Abandoning a least cost approach means higher than necessary costs for families and businesses, making the transition to lower emissions more expensive and painful than it needs to be.
- iii. The Commission considers that least cost abatement of emissions is not appropriate on the basis that society is complex with many different values and that it “often creates poor outcomes” such as excessive tree planting and distributional social impacts.
- iv. If the ETS is considered to be delivering undesirable outcomes then those problems should be specifically addressed through appropriate policy tools, rather than taken as justification for abandoning a least cost approach.
- v. Abandoning a least cost approach assumes that government can make better decisions than people themselves. However, government actions are not infallible and can also lead to undesirable and inefficient outcomes.

¹ The article can also be found at <https://www.climatecommission.govt.nz/news/insight-2/>

- vi. The ETS shouldn't be blamed for not supporting people impacted by the transition because that is not, never has been, and never should be its purpose. Other policy tools such as income support should be used for this goal.
- vii. Direct regulation beyond the ETS proposed by the Commission, such as bans on gas connections or internal combustion cars, are likely to have a far worse impact on disadvantaged communities by directly increasing their cost of living. None of these interventionist regulations will even mitigate equity costs.
- viii. The Commission is moving outside its remit by setting a goal of "transformation across all sectors". The goal should be lowering net emissions to avoid the worst impacts of climate change.
- ix. Adopting vague objectives such as "*our personal relationships, and relationships between our communities*" are very subjective and should be left to elected politicians rather than officials. It also means that officials will be unable to be held accountable for their delivery.

Background

- 3. During consultation on the Climate Change Commission's draft advice, we and many others² submitted that greater focus should be placed on achieving emissions goals at the lowest marginal cost of abatement, i.e. "least cost".³
- 4. The Commission's article argues against such an approach, saying:
 - "Society is complex. We weigh and value things differently, irrespective of their cost. And climate policy is complex – it interacts with many of the things we value in our lives."
 - and
 - "We care about risk and uncertainty. About the next generation. About how land and resources are used. And we care about our personal relationships, and relationships between our communities. You can't put a price on these things."
 - and
 - "We know that the least cost option often creates poor outcomes."
- 5. Our article will address these and other points raised by the Commission.

Critique

Focussing on the core public policy problem

- 6. Some focus and clarity is needed when considering the proper role of public policy in relation to emissions. It is worth recapping the basics: emissions are a public policy problem because the beneficiaries of goods and services that involve emissions do not directly face the social cost of emissions.

² Including Business New Zealand and the New Zealand Initiative.

³ Our submission can be found at <https://www.energyresources.org.nz/dmsdocument/171>

7. Without a carbon price, emissions are therefore an unpriced negative externality, and the goal of public policy (given voluntary arrangements cannot adequately resolve the issue) is simply to internalise the costs of emissions (climate change) so that a socially efficient level is produced (i.e. net zero).
8. The purpose of public policy analysis is to compare different institutional arrangements to find the best mix of legislative and regulatory settings, and market arrangements by assessing their relative strengths and weaknesses.

The economic case for the Emissions Trading Scheme

9. Although this may seem too obvious to warrant saying, reducing net emissions should be the core role and focus of emissions policy. As readers will know, we strongly consider that the ETS, with its cap on total emissions, is the best tool to achieve this.⁴
10. If the ETS is the most efficient tool at reducing net emissions, it should be the default mechanism except where there are residual market failures (such as imperfect information) or significant undesirable consequences that warrant further policy.
11. Fundamentally, a least cost approach means the least loss of community welfare. In economic terms, a cost is simply a negative benefit which includes all the undesirable effects of an action (including opportunity cost).
12. Least cost emissions abatement through the ETS can be supported by policies that address other unpriced externalities. But these are exceptions that need to be justified by additional net benefit assessments. In a policy process it should almost always be assumed the least cost option is the best option unless it can be shown not to be.

Responding to specific points raised by the Commission

13. The article states:

“Pursuing the cheapest path fails to consider impacts on individuals, communities, workers, businesses, families, and the principles of Te Tiriti o Waitangi.”

and

“We care about risk and uncertainty. About the next generation. About how land and resources are used. And we care about our personal relationships, and relationships between our communities. You can’t put a price on these things.”
14. Criticising a path of least cost abatement by saying “the cheapest path fails to consider impacts” on other valuable things appears to conflate low price with low quality, as if lowest cost means ‘cheap and nasty’. But “least cost” just means *least*

⁴ This is also the view of economist William Nordhaus who won the Nobel Memorial Prize in Economic Sciences in 2018 for his work demonstrating that carbon pricing is the most efficient tool for reducing emissions. Nordhaus found that carbon pricing:

- a. sends signals to consumers about which goods and services are more carbon-intensive;
- b. sends signals to producers about which activities are most carbon-intensive (such as coal burning) and which are less carbon-intensive (like solar or wind);
- c. sends signals to propel innovation to find new, affordable alternatives and;
- d. is the best means to convey these signals within well-functioning markets.

*cost to community welfare*⁵, and the emissions objective, which is crystal clear, should be achieved in line with this and the Commission should not seek other objectives.

15. If these values and other non-market values quoted in para 13 are deemed to be either not delivered or compromised by a focus on least cost abatement, then arrangements to resolve those issues must be considered on their individual merits.
16. Just because *some* outcomes from using the ETS are seen as undesirable (although this is in itself a normative view⁶) this is neither an adequate nor compelling reason for the general and widespread use of other regulatory interventions to prevent gross emissions at source through direct regulation.
17. Direct regulatory interventions force higher costs (a point which the Commission seems to accept, as evinced by trying to defend such an approach). But it is far from certain why the Commission thinks this greater loss of community wellbeing (created by regulations) is 'worth it'. We say this because it is unclear how policies such as direct bans on gas connections do anything to actually resolve or avoid the alleged issues that using the ETS is alleged to cause.
18. For example, it is highly doubtful how interventions and bans do anything to "consider impact on individuals, communities, workers, businesses, families, and the principles of Te Tiriti o Waitangi", values the Commission says is important. Indeed, we would go so far as to say that none of the Commission's regulatory proposals have any way of mitigating equity impacts. Put bluntly, banning a poor household from accessing a petrol vehicle does nothing to compensate them or mitigate that cost. The equity effects of the Commission's policies will be worse than simply relying on the ETS and then redistributing the money raised by it (and more if deemed necessary) to help households manage the cost of the transition.
19. To say it is desirable to regulate emissions abatement at marginal costs potentially hundreds of dollars higher than the ETS price means the Commission considers there are hundreds of dollars of benefits that are being overlooked by consumers currently. But this view fundamentally overlooks the concept of Utility Function, whereby price includes the wide ranging and subjective preferences of consumers. A key assumption in this is that firms and consumers cannot or do not account for this when making decisions and that government can make better decisions.
20. To say that we "can't put a price" on "risk and uncertainty" is frankly alarming from a sound economic and public policy perspective. Individuals and firms put a price on choices and decisions every day and these are ultimately expressed through the revealed preference of individual action. Even in the longer term, risk is factored into decisions and indeed the existence of a functioning insurance market is a clear demonstration of this. Public policy regularly puts prices on things even as sacred as a human life. For example. NZTA values a human life

⁵ Welfare in economics is a general concept that essentially refers to how well people are doing.

⁶ Normative judgements are subjective opinions deeming certain outcomes as desirable and others as undesirable.

around \$4.7 million dollars and this helps inform trade-offs relating to road safety.⁷

21. The Commission writes that:

“We know that the least cost option often creates poor outcomes.”

22. Elaboration on this ‘poor outcome’ is that:

“At the moment, with policy settings in Aotearoa, the cheapest option would be for us to continue planting our land with pine trees. This would capture carbon rather than reducing gross emissions – and it would mean that future generations would have their land locked under pine trees indefinitely.”

23. A specific concern about allegedly excessive tree planting is not a reason to abandon least cost abatement as a core goal.⁸ If undesirable consequences are alleged to arise, this must be clearly demonstrated and then resolved with specific and targeted public policy interventions. In a nutshell, those who think land can be put to better use than the owner’s preferred use should buy the land at an untainted market value. That is the customary civil process for resolving land use. The point needs to be made that this would *not* be an externality situation – carbon is being priced, that is why pine trees are being planted. The situation is simply the ever-present one of different preferences.

24. Identifying one undesirable potential consequence is inadequate grounds to abandon least cost abatement in favour of wide-ranging regulation and direct intervention across the economy. These interventions wilfully over-ride the preferences of rightful landowners and other people, which can create its own set of perverse outcomes. We do not need to throw the baby out with the bathwater.

25. Planting trees may be a low-cost abatement option for many landowners, but only until it is not. New Zealand does not have unlimited marginal land and there are competing uses, so as the best land for pines is used up the supply of suitable land declines which pushes up the land and carbon price. This makes other abatement opportunities more attractive/competitive.⁹

26. Even if there are some undesirable land use outcomes at the margin these can be controlled with government or council policy around land use or government purchase of the land with compensation. Outcomes judged as undesirable by the Commission are by no means *carte blanche* justification for widespread intervention.

27. A sound tool to avoid the overplanting of trees or the need for specific government land policy (assuming this is warranted) would be to enable offshore mitigation through high-quality international units, so as to provide likely lower cost abatement options than afforestation. The Climate Change Response Act

⁷ <https://www.stuff.co.nz/national/politics/110753822/is-a-life-worth-47-million>

⁸ There is an aspect of technocratic elitism here, whereby the Commission which does not bear the cost seeks to override the will of the owners of land who do bear the cost. If the individuals and/or firms think that planting land with pine is the least cost, why should the Commission *insist* that its preferences to the contrary should prevail, should there be compensation paid to those whose preferences are over-ridden? In choosing a particular action, actors are revealing that it is least cost (i.e. best value) for the counterparties to a given transaction.

⁹ Also, foregoing afforestation will mean expensive abatement must be pursued now, even though it is almost certain that in the future there will be lower cost abatement opportunities (such as through technological developments).

2002 has a strong presumption against the use of international units, and we consider this should change.¹⁰

28. Providing for these units would allow lowest cost abatement to be achieved via offshore purchases where this is efficient (i.e. cheaper than emissions abatement in the firm, adoption of technology or tree planting). It is only global net emissions which matter to the climate – which country emissions or offsets happen is not ultimately important.
29. The Commission also notes:

“While the NZ ETS plays an integral role in our transition to a low emissions economy, putting a price on greenhouse gas emissions does not represent the actual cost of our emissions to society. Emissions pricing won’t provide support to people hit hardest by the direct or indirect impacts of climate change, and it won’t ensure transformation across all sectors.”
30. We shall address this in parts:
 - a. Fundamentally, if putting a price on emissions genuinely “does not represent the actual cost of our emissions to society” then the solution, in the first instance, is to see the price of carbon rise to reflect the social cost. If the ETS needs strengthening, then this should be the priority before rushing to a range of other interventions.
 - b. The Commission’s article asserts that “Emissions pricing won’t provide support to people hit hardest by the direct or indirect impacts of climate change”. However:
 - Providing direct support to people impacted by climate change has never been a purpose of the ETS and there are more effective policy tools to achieve this.
 - If the ETS has distributional consequences that are deemed undesirable, then the state’s role in redistribution can be exercised through welfare or tax policy.¹¹
 - There is no reason to believe that interventionist and regulated approaches (such as banning gas connections) will do any better at ‘providing support’. Indeed, because those regulated interventions have higher abatement costs, it is likely the least well-off people will suffer as they have limited resources to absorb the shock of higher costs and reduced choices.¹²

¹⁰ Section 5Z in Part 1B of the Climate Change Response Act states:

(1) Emissions budgets must be met, as far as possible, through domestic emissions reductions and domestic removals.

(2) However, offshore mitigation may be used if there has been a significant change of circumstance—
(a) that affects the considerations on which the relevant emissions budget was based; and
(b) that affects the ability to meet the relevant emissions budget domestically.

¹¹ One idea is that revenue from ETS auctions could be used directly to provide tax relief or income support so that households and businesses are not directly worse off because of carbon prices.

Additionally, the government may wish to focus its skills and educational policies at ensuring retraining opportunities are available for affected workers.

¹² The Commission steps outside the realms of reasonable policy when it skips ahead of traditional tools such as distributional policy and instead prefers a generally interventionist approach of bans and direct regulations. This approach is akin to using a sledgehammer to crack a nut.

- c. The idea of ensuring “transformation across all sectors” is confusing and outside the Commission’s remit. The goal should be to reduce net emissions to socially efficient levels (deemed as net zero in the legislation passed by Parliament).
- d. Whether sectors are ‘transformed’ (whatever that means) in the process is in fact irrelevant, especially when considering there are technologies that could allow sectors to continue to look quite similar on the surface. For example, this could include the use of zero emissions gas in pipelines and methane inhibitors that reduce emissions from livestock. Transformation need not be the goal, and to use this language imposes a normative social and political agenda that is far outside the proper remit of officials.

The need to humbly consider the risk of government failure

- 31. It is true that markets do not always deliver optimal outcomes (hence a legitimate role for government in certain circumstances), but it critically important to recognise the same is true of government. To suggest that government intervention is appropriate in the absence of credible cost-benefit analysis implies a belief that government failure does not occur, or at least that government is less prone to error than markets. Because in reality both market failure and government failure can occur, then a proper assessment of alternative approaches must be undertaken.
- 32. In saying that lowest cost abatement is not appropriate, the Commission means that a certain ‘premium’ or extra cost is worth paying to achieve other objectives. But this is not simply an exercise of choosing the higher spec model of a new television, where the marginal costs and benefits are clear and certain. What is proposed is to prefer policies that have *unknown costs and risks* and which, upon implementation, may interact in ways that create their own set of perverse outcomes and unintended consequences. The value proposition of direct regulation is therefore extremely opaque, and great caution should be exercised when considering this.
- 33. In addition to the direct costs, transaction costs and opportunity costs of resources spent on compliance, it is crucial to consider the risks of government failure, which can occur because of:
 - a. political failure: legislation responds to interest groups at the expense of the general public;
 - b. bureaucratic failure: government agencies may seek to advance their own interests (e.g. expanding budgets and influence) rather than addressing the original problem that warranted intervention in the first place;
 - c. judicial failure: slow, costly and uncertain legal processes can arise from new regulations;
 - d. regulatory capture: regulatory agencies can end up captured by stakeholders in the regulated industry; and
 - e. regulatory creep: where additional costly regulations are needed to manage unintended consequences of the original policy).

A broad set of objectives muddies the waters of accountability

34. Accountability requires clear and coherent performance indicators. Adopting intangible and subjective priorities such as “our personal relationships, and relationships between our communities” mean that officials will be unable to be held accountable for their delivery. If the goal is shifted away from emission reductions to include a range of other factors, it will be exceedingly difficult to judge whether policy is achieving its goals which makes accountability difficult, if not impossible.

The proposed focus crosses the threshold into the political realm of significant value judgements

35. Seeking to shift the focus away from low cost abatement to “sector transformation” and a myriad of other objectives strays into the realm of significant normative value judgements.
36. Such value judgements are, and should remain, the domain of our elected representatives and not unelected officials. The Climate Change Commission must be particularly careful entering this realm as its advice cannot be simply dismissed in the way that departmental policy advice can be rejected by Ministers. The Commission operates differently as Parliament has outlined clear statutory procedures for how the political executive must consider it and respond. There is somewhat of a presumption in favour of the Commission’s advice given that the Government must actively explain why it is not adopting its recommendations.

Conclusion

37. Ultimately a loose policy focus will make both current and future generations worse off by promoting unnecessarily higher cost options.
38. If emitters can reduce emissions along the government’s ETS pathway to net zero by 2050 for around \$50 a tonne, what is the case for insisting instead that the price should be a multiple of \$50 a tonne in some specific situations? There should be a strong presumption against forcing additional costs on the community. The burden of proof should be on those wanting to do so. Similarly, what the Commission means by ‘fair and reasonable’ is not necessarily what those whose property is affected see as fair and reasonable.
39. It is the role of Parliament and the Government, not that of the Commission, to address residual issues or undesirable outcomes through specific policy measures. The Commission should simply focus on reducing net emissions.
40. The proposed approach abandons the well-established analytical rigour of environmental economics and seeks to replace it with what amounts to little more than ‘vibe economics’, focusing not on efficiency but on intangible and subjective priorities without adequate concern for cost.
41. It must be incumbent on those intending to discard traditional economic thinking to put forward an analytical framework that is better. This has not occurred - instead we observe the discarding of economic frameworks that have served society well with nothing constructively offered to replace it.

Appendix: Climate Change Commission's article

Insight: Why not the 'least cost' pathway to net zero?

Our Chair Dr Rod Carr shares why New Zealanders deserve better than just the least cost pathway to a low emissions future.

New Zealanders deserve better than just the least cost pathway to a low emissions future. Much of the debate around climate action over the past thirty years has centered on how to get to net zero in a way that incurs minimal costs – but when the Zero Carbon Act passed, Aotearoa showed we want to move beyond this.

While cost matters, it is only one of the things we need to care about – and it is not the only factor that drives our choices. We need to care holistically about the approach Aotearoa will take to transition to a low emissions future, ensuring that the Government takes what is important to New Zealanders into account when setting policy.

Society is complex. We weigh and value things differently, irrespective of their cost. And climate policy is complex – it interacts with many of the things we value in our lives.

We care about risk and uncertainty. About the next generation. About how land and resources are used. And we care about our personal relationships, and relationships between our communities. You can't put a price on these things.

When the Commission carries out its work, we are required to give advice on the direction of climate policy in Aotearoa and consider a range of factors – of which cost is only one.

Pursuing the cheapest path fails to consider impacts on individuals, communities, workers, businesses, families, and the principles of Te Tiriti o Waitangi.

We know that the least cost option often creates poor outcomes. Not everything we individually and collectively value can have a cost placed on it.

And if you discount certain things from your 'least cost' pathway, they could turn out to be enormously valuable – like biodiversity in the environment, or the rights of future generations that we have a responsibility to care for.

At the moment, with policy settings in Aotearoa, the cheapest option would be for us to continue planting our land with pine trees. This would capture carbon rather than reducing gross emissions – and it would mean that future generations would have their land locked under pine trees indefinitely. We would have missed the opportunity to open up other pathways to a low emissions future. Our advice focuses on removing emissions at source, rather than trying to plant our way out of the problem.

Achieving our targets will require a diverse range of policies and actions across many sectors. During our consultation, some questioned why the New Zealand Emissions Trading Scheme (NZ ETS) alone won't meet our emissions reduction goals – but no single instrument, market, or regulation is enough on its own.

While the NZ ETS plays an integral role in our transition to a low emissions economy, putting a price on greenhouse gas emissions does not represent the actual cost of our emissions to society. Emissions pricing won't provide support to people hit hardest by the direct or indirect impacts of climate change, and it won't ensure transformation across all sectors.

Our draft advice set out to show there are a number of pathways to achieve net zero for long lived gas emissions by 2050 – and looks at how we can enable a transition that is fair and equitable, rather than simply focusing on the cheapest cost.

It's not just about future generations – action on climate change has been delayed for so long that this impacts us today. We cannot assume that this is a 'next generation only' problem – this is an 'our and now' problem, and one where cost is one consideration – not the only one.

If we take responsibility for our emissions now – looking at what actions are needed across society as a whole and at what is valued most by our people – we can provide ourselves, our children and our children's children with better opportunities to manage our future world.