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The Climate Change Policies of the Green Party of Aotearoa New Zealand: An Eco-Socialist Analysis and Critical Evaluation

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Abstract
Accelerating climate change and the ineffectiveness of governmental policy responses have led many to hope that green parties will promote more effective policy measures. This article focuses on the Green Party of Aotearoa (GPA) which has maintained continuous parliamentary representation since 1996, receiving from 5.2 to 11% of the vote in national elections from 1999 to 2020. It has been a support partner in Labour-led governments following the 2017 and 2020 elections. Providing an account of how the GPA's climate change policies have developed and shifted since the foundation of the party in 1990, this article seeks to answer the following question: What are the strengths and weaknesses of the intellectual outlook and climate change policies of the GPA with respect to likely effectiveness in reducing carbon emissions and combatting climate change? The critical analysis required to answer this question operates on two levels: with respect to critical policy analysis, the focus is on the scale, scope, sequencing and pace of change; while at a more fundamental level, the article explores the extent to which the GPA's intellectual outlook and policy programme constitute an adequate response to the problems generated by neoliberalism, capitalism, class and the disproportionate influence of business over government. It concludes that although the GPA's climate change policies are better than those of the other parliamentary parties, these policies are problematic at both levels.

Keywords: Green Party; climate change; emissions trading; electric vehicles; neoliberalism; capitalism; eco-socialism.

Introduction

In response to the climate crisis, the world's rulers and policy elites have taken some measures, mostly market-based and largely ineffective, to counter rising global carbon emissions. Their rhetoric, taken at face value, promises much while the policy solutions they can agree upon deliver little. Little wonder that Greta Thunberg (2021) was so critical of the performance of the world's leaders at the COP26 Climate Summit in Glasgow in 2021: "Build back better. Blah, blah, blah. Green economy. Blah blah blah. Net zero by 2050. Blah, blah, blah. … This is all we hear from our so-called leaders. Words that sound great but so far have not led to action. Our hopes and ambitions drown in their empty promises." She eloquently sums up the key problem: "Thirty years of blah, blah, blah and where has that led us? We can still turn this around – it is entirely possible. It will take immediate, drastic annual emission reductions. But not if things go on like today. Our leaders' intentional lack of action is a betrayal toward all present and future generations" (Thunberg, 2021).This view is consistent with the assessment of the AR6 Working Group II (2022, p. 14): "The magnitude and rate of climate change and associated risks depend strongly on near-term mitigation and adaptation actions, and projected adverse impacts and related losses and damages escalate with every

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increment of global warming (*very high confidence*).'[1] These observations highlight the importance of focusing on scale, scope, sequencing and pace when critically analysing climate change policy-making.

Increasing public concern about the obvious ineffectiveness of official international and national governmental policy responses to climate change has led many to hope that green parties can introduce more effective policy measures to halt and reverse rising carbon emissions, especially in those countries where these parties are represented in national assemblies. The Green Party of Aotearoa New Zealand (GPA) is interesting in this regard because it operates in a comparatively favourable context due to New Zealand's mixed member proportional (MMP) electoral system, long-standing environmentalist and anti-war movements which have been sustained by high levels of popular support, and a union movement that has supported it along with the social democratic Labour Party. This article focuses on the intellectual outlook, political strategy and stated policy programme of the GPA. The central question it addresses is: What are the strengths and weaknesses of the intellectual outlook and climate change policies of the GPA with respect to likely effectiveness in reducing carbon emissions and combatting climate change? Accurately answering this question requires an account of how the GPA's climate change policies have developed and shifted since the foundation of the party in 1990.

The article is structured as follows. First, a condensed overview of the GPA's overall political programme is provided, in Section 1. An analysis of the GPA's climate change policies since 1999 follows in Section 2. The GPA's intellectual outlook and climate change policies are then critically analysed in Section 3, with a focus on neoliberalism and the ineffectiveness of market-based policy instruments (MBIs), capitalism, class and the disproportionate influence of business over government. This critical discussion acknowledges that "Māori have an intricate, holistic and interconnected relationship with the natural world and its resources, with a rich knowledge base – mātauranga Māori – developed over thousands of years and dating back to life in Polynesia and trans-Pacific migrations" (Harmsworth & Awatere, 2013, p. 274). The article concludes by underlining the positive contributions that the GPA has made to struggles for social and climate justice, while highlighting the need for more radical and effective policy formulation and action to prevent cumulative greenhouse gas concentrations reaching levels that will have catastrophic impacts on human societies and the Earth's natural systems.[2]

The Green's policy programme: Greening Third Way social democracy?

The central thrust of the GPA's policy programme is clear from the three main slogans of its 2014 election campaign: "For a Cleaner Environment; For a Fairer Society; For a Smarter Economy." The party retained these slogans for its 2017 election campaign, while the slogan for the 2020 election was simply: "Think Ahead. Act Now." An extensive review of the GPA's formal policies in areas such as economic policy, taxation, welfare, employment relations, education, housing and te Tiriti o Waitangi leads to the conclusion that the GPA's political programme is consistently and substantially left of Labour (this is discussed in more depth in Supplementary Note 5) – although how far left is open to interpretation and debate. For the period from 1990 to 2017, my assessment is that although some of the GPA's economic and social policies are broadly consistent with traditional social democratic Keynesianism, its overall policy programme is best categorised as a left and environmentally focused variant of Third Way social democracy, with which it is kindred both intellectually and politically (see Green Party, 2014a). Advocates of the Third Way consider

[1] This article is supported by supplementary notes which are used to keep the article within the required word limit while simultaneously providing greater depth of analysis. For a descriptive overview of the ecological crisis see Supplementary Note 1. This and the other notes are available at https://briansroper.blogspot.com/2023/02/the-climate-change-policies-of-green.html

[2] For a brief discussion of the reformist orientation of Green politics, see Supplementary Note 2. A brief description of New Zealand society, history and politics is provided for readers who are unfamiliar with New Zealand in Supplementary Note 3. A historical and sociological overview of green politics in New Zealand is provided in Supplementary Note 4.

that it charts a path beyond the First Way (social democratic Keynesianism) and the Second Way (neoliberalism). They consider it to be "the renewal of social democracy in contemporary conditions" (Giddens, 2001, p. 2). In reality, Third Way social democracy as an approach to policymaking retains the central features of the neoliberal policy regime but ameliorates some of its hasher features, which helps to further entrench and legitimate neoliberalism (Callinicos, 2001, pp. 1–14; Kelsey, 2002; Roper, 2005, ch. 10). The foundations and central pillars of the dominant neoliberal policy regime, such as the prioritisation of maintaining low inflation, fiscal surpluses and reducing government debt, are not explicitly or directly challenged but largely taken for granted as constituting the terrain of the GPA's politics and policymaking.

Interestingly, the GPA's policies released prior to the 2020 election were further to the left than those released earlier in the party's history, perhaps best exemplified by its statements on economic, taxation, welfare, education and employment relations policy (see Supplementary Note 5). Policy highlights (Green Party, 2020a, 2020b, 2020c) include: making income under $10,000 tax-free; introducing a comprehensive capital gains tax and new wealth tax of 1% on individual wealth over $1 million; raising the top marginal income tax rate to 42% for income over $150,000; introducing a guaranteed minimum income; substantial increases to benefit rates; making tertiary education fees-free and re-establishing a universal student living allowance; and supporting "the right of working people and their unions to campaign for political, environmental, social and work-related industrial issues, including the right to strike in support of these" (Green Party, 2020c, p. 4). This has involved a move towards a more traditional left social democratic Keynesian programme. Consequently, it could be argued that the party has broken with Third Way social democracy. Whether or not this is the case will become apparent in the years to come.

Green Party climate change and related policies

This section begins by considering the GPA's shifting orientation towards the New Zealand Emissions Trading Scheme (NZ ETS), then broadens the focus to describe the party's other climate policies and overall climate change policy framework. It proceeds on the understanding that Aotearoa New Zealand has a unique profile with respect to greenhouse gas emissions (see Supplementary Note 6). Since entering parliament as an independent party in 1996, the GPA has advocated a comprehensive eco-tax on carbon emissions as its primary market-based policy mechanism for reducing emissions, in preference to emissions trading. But thus far, the GPA has had little success. The Fourth National Government signed the United Nations Framework Convention on Climate Change (FCCC) in 1992. Subsequently, in 1997, the Government established a modest target under the Kyoto Protocol (which operationalises the UNFCCC) to reduce emissions to 1990 levels on average between 2008 and 2012. The same Government considered a carbon tax from 1993–1994 but then adopted an approach centred around voluntary agreements between government and industry from 1995 to 1999. In 2002, the Fifth Labour Government passed the Climate Change Response Act which established an institutional and legal framework for New Zealand to ratify and meet its obligations under the Kyoto Protocol. It announced a climate change policy package that included "a carbon tax on energy, industrial and transport emissions, capped at $25 per tonne" (Bertram & Terry, 2010, p. 34). New Zealand's most powerful business lobby groups mounted vigorous and effective opposition to the proposed carbon tax (Bertram & Terry, 2010, pp. 48–50). The Fifth Labour Government dropped this policy in 2007 and instead carbon trading became the preferred policy option. Accordingly, it passed legislation establishing the NZ ETS in 2008.

In essence, carbon trading privatises and commodifies greenhouse gas emissions, with the typical unit in such schemes entitling a liable polluter to emit one tonne of emissions. To make this work, the government supplies units and establishes a market where participants can buy units via auction, including previously supplied units being sold by private traders as well as new units being issued by the government.

Obligated parties to the scheme must surrender units to the government equivalent to the quantity of emissions during a specified reporting period. According to neoclassical microeconomic theory, upon which all these schemes are based, this places a price on emissions and sends "price signals to producers, consumers and investors to encourage and enable them to reduce the greenhouse gas (GHG) emissions contributing to climate change" (Leining, 2022, p. 1). It does this by "raising the relative cost of higher-emissions goods and services" (Leining, 2022, p. 2).

Acting in accord with the wishes of business lobby groups, the Fifth National Government amended the legislation in 2009, 2012 and 2014. The overall effect of these amendments was to systematically weaken the NZ ETS, among other things deferring the entry of the agricultural sector indefinitely (Blakeley, 2016; Boston, 2015, pp. 488–490). In short, the Fifth National Government amended the NZ ETS legislation to make the scheme utterly ineffective, while stopping short of eliminating the legislation altogether so that it could claim to be doing something about climate change.

As Bertram and Terry (2010, p. 16) point out in an early critical assessment of the NZ ETS, as originally enacted in 2008, the scheme didn't impose a cap and "without such a binding constraint, talk of using 'the market mechanism' to decarbonize the economy is basically empty rhetoric". Furthermore, "New Zealand's carbon emissions from fuel use, industrial processes and pastoral agriculture will be virtually unchanged from what they would have been anyway" (Bertram & Terry, 2010, p. 17). If the scheme was implemented, big polluters would pay proportionately less than small polluters, and households would "pay roughly half the total charges resulting from the ETS, while being responsible for less than 20% of all emissions" (Bertram & Terry, 2010, p. 17). They conclude that the NZ ETS is neither effective nor fair and "therefore will not command legitimacy with the public in the longer run" (Bertram & Terry, 2010, p. 18).

In view of the obvious flaws with the NZ ETS , it is surprising that the GPA took so long to reject it as a viable policy response to rising carbon emissions. Between 2008 to 2011, the party became increasingly critical of the NZ ETS . The GPA's 2011 document *Climate Change Policy* states that "the National-led Government has turned the [ETS] into a massive subsidy scheme that incentivises big polluters instead of making polluters pay" (Green Party, 2011, p. 2). The GPA's position was that: "Our strong first preference is for a carbon charge, recycled into income tax reduction for all taxpayers, and into funding carbon abatement. However, there is currently little chance of this happening in New Zealand, so we will work to improve the [NZ ETS] put forward by successive governments" (Green Party, 2011, p. 8). From 2011 to 2014, the GPA shifted towards rejecting the NZ ETS. In its pre-election document *Climate Change Policy,* the GPA describes the scheme as "ineffective" and needing to be replaced by "an effective levy that provides a greater degree of certainty over the price on emissions, improved transparency, and far greater effectiveness in providing incentives for reduction of emissions" (Green Party, 2014a, p. 5). By the following year, the GPA was putting the point more bluntly: "To make a real difference to our greenhouse emissions, the Government can scrap the ineffective ETS and implement a revenue neutral carbon tax" (Green Party, 2015, p. 10).

Labour leader Jacinda Ardern, in her speech launching Labour's campaign for the 2017 election, called climate change "my generation's nuclear-free moment" (Ardern, 2017). As is clear from Labour's campaign documents and speeches for the 2017 and 2020 elections, as well as from the Government's climate change policymaking, Labour's climate change policies are clearly framed to be operative within the context of the prevailing neoliberal policy regime and so give priority to MBIs over direct state intervention and investment. The NZ ETS had never been effective, yet in 2017 Labour claimed that "the architecture of the ETS is still intact and it can be readily restored to being fully effective." If 'restored', the ETS could "put a price on carbon that drives behaviour change away from carbon-polluting goods and services towards low or zero-carbon options" (New Zealand Labour Party, 2017, p. 5). Accordingly, the Sixth Labour Government made the NZ ETS its main policy instrument to counter rising carbon emissions. No

mention was made of the fact that, in the absence of a more adequate public transportation system, the demand for "transport fuel tends to fall into the 'necessity' category for many people, and therefore displays a notoriously low elasticity of demand. This implies that if a policymaker wishes to limit transport fuel demand with price-based mechanisms, such as fuel taxes, the price increases will have to be quite large to have a significant impact on demand" (Samuelson, 2008, p. 70).

Green Co-leader James Shaw was appointed Minister for Climate Change and tasked with comprehensively 'restoring' the NZ ETS to make it 'fully effective'. After extensive policy development work led by the Ministry for the Environment (MfE), including a public submission process, the Climate Change Response (Emissions Trading Reform) Amendment Act (ETRA) was passed in June 2020 to amend the 2002 Climate Change Response Act. This amendment was designed to make the NZ ETS more effective in key respects. It "enacted substantial changes to unit supply, price management, industrial free allocation, forestry accounting, pricing of biogenic emissions from agriculture and coordination of future decisions on key settings" (Leining, 2022, p. 4). More specifically, it announced limits on unit supply to set a cap on total emissions by participants in accord with five-yearly emissions budgets, started quarterly auctions of New Zealand Units (NZUs), set minimum and maximum prices for NZUs, stopped the fixed price option whereby NZUs could be purchased for $25–$35 per tonne for immediate surrender, set phased reductions in free industrial allocations for emissions-intensive trade-exposed sectors, and tightened the rules governing the role played by forestry within the ETS. "As of February 2022, the system applies unit obligations to about 52% of Aotearoa's gross emissions" (Leining, 2022, p. 4).

So far agriculture has been exempted from unit obligations. However, the Climate Change Response (Emissions Trading Reform) Amendment Act 202 "provided for the pricing of biogenic emissions to begin under the NZ ETS no later than 1 January 2025" (Leining, 2022, p. 11). In the interim, the Government formed He Waka Eke Noa – Primary Sector Climate Action Partnership, giving agri-business lobby groups an opportunity to development an alternative pricing scheme for agricultural emissions that would operate alongside the NZ ETS . The aim was "to design a practical and cost-effective system for reducing emissions at the farm level by 2025" (He Waka Eke Noa, 2020, p. 1). The inclusion of agriculture in the NZ ETS is thus a fall-back position in which case agricultural emissions are included from 2025 with an initial free allocation of 95% and a 1% annual reduction of the free allocation thereafter.

As I will argue in more detail below, there are many problems with emissions trading schemes and little convincing evidence that they are effective in reducing carbon emissions. For example, there is mounting evidence that the world's most developed emissions trading scheme, the European Union ETS, is not working effectively to reduce emissions (Vlachou & Pantelias, 2017a, 2017b). This is widely recognised within the GPA and, as noted above, the GPA is critical of Labour's promotion of the NZ ETS as the best possible policy instrument to curtail rising emissions. James Shaw cannot voice this criticism as the Minister for Climate Change, however, because he is bound by the rules of the Cabinet Manual and the Confidence and Supply Agreement between the governing Labour Party and the GPA, which states: "The Green Party agrees that any Green Party Minister … is bound by collective responsibility in relation to their respective portfolios. When Ministers speak about issues within their portfolio responsibilities, they will speak for the Government, representing the Government's position in relation to those responsibilities" (New Zealand Labour Party and Green Party of Aotearoa New Zealand, 2017 p. 5). In short, this commits Shaw to implementing Labour's policy of restoring the NZ ETS .

Labour's commitment to using the NZ ETS as the primary policy mechanism for reducing emissions has generated tensions within the GPA. The GPA's cooperation agreement with Labour following the 2020 election has been controversial; with many party members arguing that the party should have formed a left-wing opposition to the Labour Government. As Godfrey (2022) observes, this agreement has worked well in some areas, but "in the policy area that cuts right to the Greens' identity –

climate change – it is a disaster with the Minister of Climate Change, James Shaw, defending and enacting the government's line. Not the Green party's line. This means balancing regressive farming interests with progressive environmental interests." Megan Brady-Clark, who left the party in protest, argues that "by ostensibly handing over responsibility without the resourcing commitment or power behind the ministerial portfolios and areas of co-operation Labour has managed to silence the Greens on some issues where the Greens should be most clearly and loudly critical of the government" (Hall, 2022). The former party co-leader, Russel Norman, is highly critical of Shaw's performance as Minister for Climate Change. He considers that:

> …the nationally-determined contribution to reduce carbon emissions Shaw took to the COP 26 climate conference in Glasgow in October [is] "a farce".
>
> "It's just a sham. Almost all of it is being met by these offshore carbon credits, so it's obviously farcical. You can't say you're serious about climate change and then pay other people somewhere else in the world to cut emissions…
>
> "Agri-business is by far the biggest polluter of climate in New Zealand and the government has completely shied away from confronting agri-business about its emissions, or [driving] any change there. So, until the government is willing to tackle agri-business, they don't have a credible climate change policy. …
>
> "The issue for the Greens in the government is that they have no power. Labour didn't need them. The Greens aren't in Cabinet. So that makes it pretty difficult to achieve any kind of policy goals, in terms of climate and biodiversity." (Hall, 2022)

As Hall (2022) observes, former GPA MP Catherine Delahunty:

> …echoes these sentiments, saying Shaw's climate position is 'just not leadership'.
>
> "It's so weak. You'd expect that from Labour. But this is the Green Party," she said.
>
> "His position around agriculture is terrible ... and buying overseas offsets – that's not changing anything. It's incredibly disappointing. I think they've become, whether it's conscious or unconscious, risk-averse. That happened last term and that's continuing." (Hall, 2022)

The remainder of this section focuses on the GPA's other climate policies from 2014 to 2017, followed by an outline of the GPA's climate change policies while being a support partner in the Sixth Labour Government. The GPA's most recent climate policy framework is uncompromised by its earlier commitment to the NZ ETS and consequently is more coherent and convincing than that outlined in 2011. In 2015, the GPA's key target was to reduce emissions by 40% of 1990 levels by 2030, encompassing a 35% cut in gross emissions with new forestry planting sequestering the remainder, and to achieve a 100% reduction of net emissions by 2050 (Green Party, 2015, p. 4). This is more ambitious than the national targets for New Zealand's contribution under the Paris Agreement which are an 11% reduction in net emissions by 2030 and a 50% reduction by 2050 (Ministry for the Environment, 2017, pp. 17–20). Three "economy-wide measures" were proposed to form the core of the policy framework required to achieve these targets: a "Climate Change Commission to assess the government's progress on meeting targets", an eco-tax on greenhouse gas emissions, and a Green Investment Bank (Green Party, 2015, p. 4). The Climate Change Commission would, among other things, set "the ongoing price of carbon" and recommend "complementary measures for greenhouse gas emissions reduction in order to meet our targets" (Green Party, 2015, p. 4). The carbon tax would be "revenue neutral" with the revenue raised being recycled "back to households and businesses in the form of tax credits" (Green Party, 2015, p. 10). This is also considered necessary to offset the potentially negative financial impact of the tax on low- and middle-income households. The Green Investment Bank would operate on a "government owned, for-profit basis" and

"would partner with the private sector to fund new projects [such as] new renewable energy plants, solar panel installations, energy efficiency retrofits, the development and production of significant volumes of biofuels, and clean technology projects – all helping to reduce greenhouse gas emissions" (Green Party, 2015, p. 12).

These headline policies would be supported by a wide range of policies in related areas including agriculture, industry, forestry, electricity generation, transportation and waste management. It is claimed that market-based eco-taxes will be combined with extensive state intervention in these areas.

> Regulation, direct government investment, public education and a comprehensive set of sectoral policies will deliver reduced emissions, with a price on emissions acting as an incentive. Direct investment by government (such as reforestation on state land or public transport), regulation, support for research and development and public education are often more direct and powerful ways to reduce emissions than relying on price mechanisms alone. (Green Party, 2014b, p. 4)

The raft of proposed sectoral policies includes: phasing out electricity generation that uses natural gas; installing solar panels in state schools and subsidising household solar panel installation; substantially increasing government investment in public transportation, rail freight and coastal shipping; discouraging thermal coal use in manufacturing; using regulation, improved recycling, and public investment in the capture of methane and establishment of bio-digesters at landfill sites to reduce waste emissions; phasing in the carbon tax for agriculture over a five-year transition period and encouraging a shift in pastoral production toward lower-intensity organic farming with lower livestock levels; and providing various government subsidies and tax incentives to encourage tree planting in order to more than offset the large-scale harvesting of forests scheduled between 2017 and 2030.

The GPA released a new climate change policy framework just prior to the 2017 election: *Climate Protection Plan – For a Better Future* (Green Party, 2017). Central to the plan is a Zero Carbon Act requiring "all future governments to reduce emissions to net-zero by 2050", the establishment of a Climate Change Commission for the purpose outlined above, replacing the NZ ETS with a Kiwi Climate Fund generated by the introduction of eco-taxes on emissions, substantially increasing funding for afforestation, light rail, and the development of environmentally sustainable agricultural practices.

A brief description of the Sixth Labour Government's climate change policies highlights some policy wins for the GPA, but also flags areas where the GPA has had limited influence. Influenced by the UK's Climate Change Act 2008, the Government passed the Climate Change Response (Zero Carbon) Amendment Act in 2019 (see Supplementary Note 7 on the UK Act). The Paris Agreement requires signatory countries to establish successive national climate action plans known as nationally determined contributions (NDCs) and submit them to the UNFCCC secretariat. The Act sets the NDC target to reduce net accounting emissions of all greenhouse gases (except biogenic methane) to zero by 2050. Emissions of biogenic methane are to be reduced to 24–47% below 2017 levels by 2050, including to 10% below 2017 levels by 2030. The Government established the Climate Change Commission to monitor and report on "the Government's progress towards meeting the 2050 target, and on progress against emissions budgets and reduction plans" (Climate Change Commission, 2022a). The Commission provides what are, in effect, emission budget briefings for the government to consider and implement. This is necessary because the Act requires the government to develop five-year emission budgets and reduction plans (Climate Change Commission, 2022b, pp. 46–50).

The Government's other climate changes policies include imposing charges ('Clean Car' fees) on petrol-powered vehicles to provide Clean Car rebates to purchasers of electric vehicles (EVs), declaring a climate emergency in December 2020, implementing a One Billion Trees planting programme for the

decade from 2018 to 2028, banning new offshore oil and gas exploration, aiming to achieve a carbon-neutral public sector by 2025, upgrading railway infrastructure, increasing public investment in cycleways and walkways, improving recycling programmes and waste management, and establishing a Green Investment Finance Fund. In the 2022 Budget, the Government announced a $2.9 billion climate change package of measures for the period of the first emissions reduction plan from 2022 to 2025. This spending is to come from the Climate Emergency Response Fund (CERF) established in 2021 as the repository for funds generated by the sale of NZ ETS emissions units. Labour Party supporters point to this as proof that the NZ ETS is fit for purpose.

There are, however, several problems with this means of funding climate change policies and measures. First, the NZ ETS is both a politically insecure and socio-economically regressive form of revenue collection. A future National Government is likely to reduce the costs for business of the ETS, diminishing the revenue it generates. As the NZ ETS requires businesses and local government to purchase units, these extra costs are likely to be passed on to households through increased prices, waste charges and so forth. In effect, it will function like a consumption tax in terms of its regressive impacts on socio-economic inequality, with low- and middle-income households paying more of the costs of the NZ ETS relative to income than high-income earners (MfE, 2019, pp.65–67). The Government's first emissions reduction plan pays lip service to developing an Equitable Transition Strategy while, in reality, ensuring that the Government's transition strategy is inequitable because, among other things, it lacks progressive adjustment according to income of eco-fees, charges and rebates (MfE, 2022, p. 67).

Secondly, the spending is spread out over four years with the annual funding levels being inadequate given the need to front-load measures to reduce emissions. For example, CERF initiatives for 2023/24 total $783.03 million and for 2024/25 total $734.72 million (The Treasury, 2022a, pp. 157–163; The Treasury, 2022b). Total core crown expenditure is forecast to be $131.1 billion in 2024 and $134.1 million in 2025 (The Treasury, 2022b, Table 2.1, p. 22). Hence government spending on CERF initiatives amounts to 0.55–0.60% of total government spending in these years. It is worth noting that this Government has struggled to ensure that promised funding for new initiatives (such as mental health and housing) is subsequently spent due to implementation problems, so some of this funding may remain unspent, especially if there is a change of government.

Third, for the first emissions budget period (2022 to 2025), the bulk of new government expenditure is on the decarbonisation of process heat in manufacturing ($653 million), a scrap-and-replace trial scheme aimed at helping 2500 low-income households to access EVs ($569 million), active and public transport ($375 million), "development and uptake of high impact agricultural mitigation technologies" ($339), native afforestation ($145 million), increasing carbon sequestration ($111 million), and reducing waste emissions ($103 million) (The Treasury, 2022a, pp. 37–40). In view of the urgent need to rapidly expand electric-powered public transport networks in New Zealand's major cities, especially light rail, trams, ferries and buses, the $375 million allocated for the first plan period is a small fraction of what is required. Much the same can be said of investment in other areas.

Fourth, environmentalist critics are also concerned about the large amount directed to EVs relative to active and public transport, e-bikes, eco-housing, native afforestation and public investment in renewable energy generation. The so-called Clean Car fees are substantial and can add up to $2875 to the cost of an imported used vehicle. Since low-income and lower-middle-income earners are unlikely to be able to afford an EV, this funding model is regressive. If one adopts an intersectional perspective, in effect members of the blue-collar working class and/or Māori and/or Pasifika are subsidising the purchase of EVs by relatively affluent Pākehā and tauiwi. The details of the scrap-and-replace trial scheme were not available at the time of writing, but it is possible that the application process may be off-putting for blue-collar working-class applicants. Conspicuous by its absence in the Government's first emissions reduction plan and *Budget 2022*

is recognition of the fact that the lifetime carbon footprint of an EV is somewhere from 50–60% of an equivalent petrol-fuelled vehicle when factoring in manufacturing and disposal (Smith, 2019, pp. 156–160). Manufacturing of EVs relies heavily on the production of plastics and other petroleum-based synthetic materials which is "rapidly becoming the largest factor in the growth of demand for oil" (Hanieh, 2021, p. 50). In addition to this, converting the national light vehicle fleet to EVs will maintain a transportation system based on cars, trucks and buses, and so require continuing carbon-intensive road networks and discourage use of public transportation. As Smith (2019, p. 159) observes, "If the bulk of CO_2 emissions from cars are produced before the car leaves the show-room then, obviously, *the best way to suppress vehicle emissions is to produce as few cars as we need and make them last as long as possible* [italics in the original]." Furthermore, "the entire auto industry – electric or gas-powered – is completely unsustainable. We don't need an auto industry that produces tens of millions of cars a year. The solution to minimizing pollution is to redesign the entire transportation system on the basis of rational social needs, not individual vehicles, not individual corporate profit, to minimize resource consumption instead of maximizing it" (Smith, 2019, p. 160).

At first glance, it appears that the Government has formulated and implemented a comprehensive policy framework to counter rising emissions, including policies that the GPA can claim credit for. Although there is no space here for a comprehensive critical evaluation of the Government's policies, it is worth noting that in September 2021, the Climate Action Tracker (2021, p. 1), which is maintained by reputable climate science and policy institutes, rated New Zealand's climate change policies and action as highly insufficient: "…when compared to modelled domestic pathways. The 'highly insufficient' rating indicates that New Zealand's policies and action in 2030 are not at all consistent with the Paris Agreement's 1.5°C temperature limit. If all countries were to follow New Zealand's approach, warming could reach over 3°C and up to 4°C."

Somewhat ironically, and in contrast to its social justice policies, the GPA has struggled to develop a high-profile climate change policy framework that is substantially to the left of Labour's. In part this is because Labour has adopted some of the GPA's climate change policies, especially the Climate Change Response (Zero Carbon) Act and the establishment of the Climate Change Commission, but also because the GPA supports Government policy on EVs and has chosen to work with, rather than comprehensively oppose, the NZ ETS . For example, in its *Climate Change Policy* document released for the 2020 election, the GPA urges the Government to "improve the Emissions Trading Scheme (ETS) to ensure this drives a reduction in emissions, while urgently working towards the replacement of the ETS with an effective emissions levy" (Green Party, 2020d, p. 7). Since there is no criticism of the NZ ETS in this document, it is entirely unclear why the Government should be urgently working towards replacing it with a comprehensive emissions levy. The document does, however, call for "a clear strategy, action plan and carbon budget for a rapid transition to a net-zero greenhouse gas emissions economy, in line with keeping the average global temperature rise below 1.5 degrees Celsius" (Green Party, 2020d, p. 3).

An accurate depiction of the GPA's overall climate change policy framework requires an extensive reading of its policies in related areas such as agriculture, conservation, energy, environmental protection, forestry, housing, mining and transport (see Supplementary Note 8 for elaboration). As can be expected, the GPA advocates changes in these areas that are more radical than Labour's. The main political problem for the GPA is that these extensive and detailed policies have not been translated into a comprehensive and convincing critique of the Sixth Labour Government's performance with respect to environmental and climate policymaking.

Problems with the Green's climate change policy framework: Neoliberalism, capitalism, class, and the state

Although a detailed examination of the current Labour-led Government's climate change policies is beyond the scope of this article, it is important to acknowledge the positive achievements of the Greens during the terms of this Government while also highlighting some potential drawbacks.

Greening neoliberalism?

None of the GPA's official policy statements on economic management, taxation, health, housing, education, welfare, industrial relations and climate change explicitly mention neoliberalism or the scholarly and activist critique of neoliberalism. Openly contesting neoliberalism is not considered politically feasible, even though most party members and some MPs are privately critical of it. Consequently, the party's policy documents generally adopt the technocratic tone of a government department or policy ministry and fail to provide a clear and systematic critique of neoliberalism. James Shaw, in his speech delivered to the Green Party AGM immediately following his election as co-leader in 2015, denies that New Zealand's prevailing policy regime can be depicted as neoliberal despite the substantial body of literature that describes and critically analyses the rapid and comprehensive implementation of neoliberalism from 1984 to 1999, and the retention of the central features of this policy regime by the Fifth Labour Government from 1999 to 2008 (Boston, 1999; Kelsey, 1997, 2015; O'Brien, 2008; Perry, 2019; Rashbrooke, 2013; Roper, 2005). As this literature shows, the neoliberal policy regime has, among other things, dramatically increased socio-economic inequality; entrenched mass unemployment; engineered an historic decline in union membership, organisational strength and bargaining power; and substantially increased poverty. Neoliberalism also involves the "co-construction of markets and nature" in which "neoliberal perspectives only allow us to connect nature and economy in one way, as a question of price determined by market competition. … Nature is positioned as something out there we have the right to take and use as we see fit, as long as we are willing to pay for it" (Birch, 2019, p. 25, 19).

Shaw's failure to provide an overt and effective critique of the neoliberal policy regime has been widely criticised both within the party and by the wider left outside of it. Although Shaw's GPA co-leaders, Metiria Turei (2009–2017) and Marama Davidson (2017–), have been persuasively critical of the negative effects of the neoliberal policy regime, neither have been explicitly critical of neoliberalism (see Supplementary Note 9). With respect to party policymaking, it means that neoliberalism defines the terrain and the parameters of policy development and advocacy. As with Third Way social democracy, even though the GPA advocates many policies that could be broadly categorised as in some sense Keynesian, it has come to accept the central pillars of the prevailing neoliberal policy regime, as demonstrated most clearly by its 2017 co-release with Labour of what are in essence neoliberal *Budget Responsibility Rules* (Dann, 2017).

The GPA's failure to provide an explicit systematic critique of neoliberalism has had the effect of ideologically legitimating and entrenching neoliberalism. Although New Zealand governments since 1984 have occasionally used explicitly neoliberal concepts in their political discourse, this discourse is generally not overtly neoliberal and legitimates the status quo by making the neoliberal character of the prevailing policy regime invisible in mainstream political discourse. Consequently, the Greens' failure to explicitly criticise neoliberalism makes it harder for others on the left to argue for alternatives to neoliberalism, because it contributes to, rather than challenges, the entrenchment of the neoliberal policy regime as the taken-for-granted and only partially publicly visible intellectual, institutional, regulatory and legislative framework for economic management, policymaking, political discourse, parliamentary debate, media reporting and commentary.

The absence of an intellectually robust critique of neoliberalism also weakens specific policies, such as those pertaining to taxation and climate change. (For more detail on the GPA's taxation policies, see Supplementary Note 10). The climate change policies of the GPA, when viewed as a whole, constitute an incoherent combination of neoliberal and Keynesian policy measures. The acceptance of and preparedness

to work with the NZ ETS in the wake of the Fifth Labour Government's abandonment of its initial plan to introduce a carbon tax in 2006, highlights the problems with a kind of 'political realism' that assumes narrow limits on the possible and fails accurately to identify the weaknesses of neoliberal market-based policy responses. As noted above, the party now rejects the ineffective and inequitable NZ ETS and instead advocates eco-taxes. But it remains committed to market-based policy instruments because "pricing mechanisms will seek to ensure that polluting sectors will, within a short time, pay for the environmental and societal costs of their emissions, with no free riders" (Green Party, 2017, p. 1).

Although the kind of eco-taxes being proposed may be more effective in reducing emissions than carbon trading, there are likely to be numerous problems that arise in the formulation, implementation, monitoring and management of them, for reasons outlined in the relevant literature (see, for example, Birch, 2019, pp. 23–26; Bowen & Rydge, 2011, pp. 72–76; Carter, 2007, pp. 332–341). As Carter (2007, p. 336) convincingly argues, these problems include: business lobbying making it difficult to set a carbon tax "sufficiently high to offer a real incentive to firms to reduce pollution and hence to maximise the potential efficiency of the tax"; the regulator needing to gather "detailed technical information, which may be only obtainable from the polluter or technically very difficult to assess"; and finally, market solutions require policing since "it is unlikely that all polluters will be honest citizens", and this can prove difficult and costly. Citing a UK study on the impacts of eco-taxes on energy, water, waste management and transport costs, Giddens (2009, p. 153) observed that "if nothing else changed in these areas, environmental taxes would have a significant adverse impact upon poorer households." Noting that "fuel poverty in Britain reflects the peculiarly inadequate thermal characteristics of the country's housing stock", strikingly similar to the situation that prevails in New Zealand, new carbon taxes may lead to even greater fuel poverty (Giddens, 2009, p. 153). Such an effect would be larger in New Zealand than Britain due to several decades of under-investment in railways, trams, ferries and coastal shipping, which has resulted in a patchy and poor public transportation network. Taxes on petrol are already comparatively high by international standards, and the high cost of fuel is a major source of hardship for low-income households, especially those with children. For these and other reasons, there may be strong political opposition to the introduction of carbon taxes, not only by business lobby groups but also by those on low and middle incomes concerned about the impact of such taxes on their cost of living (Bertram & Terry, 2010, p. 17).

Above all, the GPA's preparedness to advocate market-based policy responses to rising carbon emissions, shifting from advocating eco-taxes to qualified support for carbon trading and then back to advocating eco-taxes, rests on a fundamental failure to recognise the extent to which neoliberalism is both a major policy driver of rising emissions and a deeply entrenched obstacle to an environmentally focused Keynesian policy programme. As Carter (2007, p. 339) observes, "Support for [MBIs] from the neo-liberal right is rather half-hearted and even disingenuous; their support for MBIs is driven primarily by a dislike of regulations rather than enthusiasm for improving environmental protection." Although eco-taxes of some form are still likely to be necessary, these should wherever possible target the profits, carbon assets and capital gains of major emitters, thereby providing powerful and direct incentives for these firms to invest in the development and introduction of new renewable energy sources, technologies and production systems to reduce their emissions. But the scale of government expenditure required for more effective measures to reduce carbon emissions is such that eco-taxes are unlikely to generate more than a relatively small percentage of the required revenue.

If the GPA unambiguously rejected neoliberalism, it could then advocate an environmentally focused Keynesian policy programme, funded by progressive taxation, involving, among other things: large-scale extensive state investment in wind, solar, tidal, wave and hydro renewable energy production; energy efficient and low-emitting public transportation systems; the development of a new eco-housing stock and the retrofitting of thermal insulation and solar panels; reforestation and afforestation; and new waste

management and recycling systems to reduce waste emissions. (There are good reasons to prioritise state intervention and investment over MBIs. For elaboration see Supplementary Note 11.) In contrast to neoliberalism, eco-socialists advocate a green Keynesian political and policy programme that would use progressive taxation to fund large-scale, comprehensive and rapid state investment in areas such as renewable energy generation, active and public transportation, eco-housing, native afforestation and habitat restoration. It would also require extensive state regulation, intervention and public environmental education.

The environmental destructiveness of capitalism

In a revealing interview in the *New Zealand Listener*, the Greens co-leader from 2006 to 2015, Russel Norman (2012), states: "Capitalism was 'humanised' between the 1930s and 1950s and the next challenge is to green it." Here and elsewhere, Norman makes it clear that he is not an anti-capitalist but a reformist. "I support a market economy with an important role for the state. I am not radically different from an old-style social democrat." In another interview, Norman states: "If you look at the Greens, or at least our policies, they are pro-market… My view, and the Green Party policy, is that markets are a really good solution to the big challenges we're facing in sustainability, so that's why we're very pro the use of market forces … You just need to get the prices right, get the incentives right" (Rutherford, 2014, p. 1). This reflects the reformist orientation of the GPA as a whole: "The Green Party envisions an Aotearoa New Zealand in which businesses are locally celebrated, nationally valued and internationally renowned for their economically successful, environmentally sustainable, and socially responsible practices" (Green Party, 2013, p. 1). As this shows, the assumption underpinning all of the Greens' policies is that "a renewed spirit of collaboration between the government, business and civil society" is both possible and desirable (Green Party, 2014a, p. 2).

The GPA's current co-leader, James Shaw, explicitly outlines his commitment to Green reformism rather than anti-capitalism:

> The reality of politics in the wake of the global financial crisis is that there is no longer a struggle between capitalism and socialism. What we have now is a hybrid model that takes some of the good but most of the bad elements of both systems. We have an economy where profits are privatised but the risks – and the social and environmental costs – of that profit are socialised. Paid for by the state. By the people. It's an economy based on rational irresponsibility. It encourages people and companies to extract as much short-term wealth as they can, from the environment or from their workers, regardless of the damage they cause, because they don't have to pay for it. Everyone else does. Now and for many generations. There's no name for this system that we now live under. It's not capitalism or neoliberalism. And it's not conservatism. (Shaw, 2015)

This line of thinking is obviously intellectually superficial and confused, displaying an astonishing ignorance of economic, social and political theory. Shaw also appears to be unfamiliar with the political economy and eco-socialist literature that provides compelling analyses of the underlying economic, socio-political and historical causes of rising carbon emissions and climate change (see, for example, Angus, 2016; Bellamy Foster, 2000, 2009; Bellamy Foster & Burkett, 2017; Bellamy Foster et al., 2010; Burkett, 1999, 2006; Lowy, 2015; Malm, 2016; Neale, 2008; Williams, 2010).

In response to these sorts of statements by GPA politicians, eco-socialists argue that it is vitally important to be crystal clear about why capitalism is highly destructive to the natural environment and environmentally unsustainable in the long-term. First, the history of capitalism from the sixteenth century to the present shows that it has an unprecedented drive and capacity for economic growth. Since the sixteenth century, capitalism has expanded from its origins in England and the Netherlands to encompass

the globe. Marx considers capitalism to be "an unstoppable, accelerating treadmill that constantly increases the scale of throughput of energy and raw materials as part of its quest for profit and accumulation, thereby pressing on the earth's absorptive capacity" (Bellamy Foster, 2009, p. 48). This is exemplified by unsustainable agricultural practices and techniques of industrial production that generate negative environmental effects such as greenhouse gas emissions, pollution of waterways, and the exhaustion and erosion of soils. Second, capitalism undermines "the human and natural conditions on which its economic advancement ultimately rests"; for example, by accelerating use of non-renewable resources such as coal and oil, and the increasing loss of biodiversity (Bellamy Foster, 2009, p. 48). Third, capitalism privatises the benefits of economic production through the appropriation of profits and the accumulation of wealth by the small minority that owns and/or controls the means of production, and the socialisation and externalisation of the environmental costs that are borne to varying degrees by everyone else. Fourth, this means "the logic of capital accumulation creates a rift in the metabolism between society and nature, severing basic processes of natural reproduction. This raises the issue of ecological sustainability – not simply in relation to the scale of the economy, but also, and even more importantly, in the form and intensity of the interaction between nature and society under capitalism" (Bellamy Foster, 2009, p. 49). Finally, fixed stocks of coal, oil and gas are vastly more profitable than free-flows of renewable energy. Profit-driven corporations will therefore favour investment in the former in preference to the latter, unless compelled to do so by government regulation.

For these reasons, together with those discussed below, eco-socialists consider that the project of 'greening capitalism' is likely to fail. They are sceptical as to whether governments will abandon neoliberalism and adopt green Keynesianism unless forced to do so by a global mass climate justice movement and/or after a tipping point obviously has been reached, by which time it may be too late to avoid catastrophic climate change inducing the collapse of advanced capitalist civilisation. From this perspective, capitalism needs to be replaced by an environmentally sustainable, democratic, egalitarian and libertarian socialist society that restores the sovereignty of Indigenous peoples (see, for example, Baer, 2020).

The key transformational agent enabling this would be a revolutionary eco-socialist movement informed and shaped by the knowledge and practices of Indigenous peoples, such as mātauranga Māori. As Mutu (2022, p. 40) points out, "Observations, experiences and knowledge accumulated over more than fifty generations embedded a deep, location-specific understanding of how to maintain the delicate balance between humans and our relations who are the other elements of the natural world." In particular, mātauranga Māori encompasses concepts of kaitiakitanga (guardianship of the natural environment), whakapapa (which "places Māori in an environmental context with all other flora and fauna and natural resources as part of a hierarchical genetic assemblage with identifiable and established bonds"), mana whenua ("having authority or control over the management of natural resources"), ki uta ki tai ("a whole-of-landscape approach, understanding and managing interconnected resources and ecosystems from the mountains to the sea", taonga tuku iho ("intergenerational protection of highly valued taonga, passed on from one generation to the next, in a caring and respectful manner"), te ao tūroa ("intergenerational concept of resource sustainability"), mauri ("an internal energy or life force derived from whakapapa, an essence or element sustaining all forms of life"), ritenga ("the area of customs, protocols and laws that regulate actions and behaviour related to the physical environment and people"), and wairua ("the spiritual dimension") (Harmsworth & Awatere, 2013, p. 274). These values, concepts, rules, practices and customs are continually systematically undermined by capitalism and so must form a foundational element of a collective journey beyond capitalism to flourish within an ecologically sustainable society.

Eco-socialists must be open to humbly and appreciatively learning from the knowledge and practices of Indigenous peoples, while respectfully arguing for the importance of understanding the central

role played by capitalism and capitalist classes in generating the major crises confronting humankind in the twenty-first century. An exemplar of the kind of intellectual work required is the brilliant argument for a "Māori Marx" by Barber (2019). Drawing on Marx's critical analysis of capitalist agriculture in nineteenth century England and a corpus of concepts drawn from te ao Māori, Barber (2019, p. 68) observes:

> The industrial rhythms of capitalist agriculture sever and supplant those of the metabolism of people living in intimate, umbilical connection with the earth. Whereas Papatūānuku [Earth Mother] is formerly the means of reproduction of life on the planet, once dominated by capital this function is devalued, and her ability to do so lessens as she is impoverished by increasingly frenetic exploitation. Capitalist agriculture produces a rift by demanding more from the earth than it is able to give.

Understanding whakapapa as "a field of interrelation and co-constitution [involving] a sociality between and amongst ourselves and the world", and as a powerful tool to explain new phenomena, Barber (2019, p. 69) argues that unsustainable capitalist exploitation of nature and people creates a reproductive sense in which "Papatūānuku, as dominated by capital, is proletarian" (see also Foster, 2019, p. 10). Harnessing the concepts outlined in the preceding paragraph, which are an expression of the "collective powers of the earth", "we might begin to fulfil our responsibilities to Papatūānuku and to each other by negating the ruinous exploitation of her (and us) by capital" (Barber, 2019, p. 70).

Intellectual complexities and challenges abound, especially because eco-socialists have much to learn from the knowledge, experience and values of Māori and other Indigenous peoples, but also need to push back against the anti-Marxist arguments and themes of post-structuralist and post-colonial authors (Callinicos, 1989). This influence has often led to a downplaying or disappearing of capitalism as a cause of environmental and social devastation, while enjoining neoliberalism's rejection of radical intellectual perspectives committed to overthrowing the capitalist status quo (see, for example, Smith, 2012; Chibber, 2013).

Class and the state: The limits of green reformism

An emphasis on the potential universalism of green politics is a major theme in the thinking and politics of the GPA that has been retained from the Values Party. The potentially catastrophic consequences of unlimited demographic and economic growth, accelerating non-renewable resource use, and environmental degradation threatens the well-being of humanity. GPA members think that this imbues the ecological ideas and policies of the Greens with universal appeal since everyone "regardless of colour, gender, class, nationality, religious belief, and so on" have a "common interest in uniting together with people of *all* classes and *all* political allegiances to counter this mutually shared threat" (Dobson, 2000, p. 21; see also, Dann, 1999, pp. 325–326). The problem is that with respect to strategic political thinking, this universalism is profoundly disabling – militating against analytically clear identification of potential allies and real enemies. For example, the Interim Climate Change Committee, appointed by Minister for Climate Change James Shaw in April 2018, was chaired by a corporate lobbyist and had no environmental NGO or union representation. Described by New Zealand's most influential non-agricultural business association, BusinessNZ, as "balanced", its composition reflects the absence of an accurate class analysis of the socio-political forces on either side of environmental conflict, and a lack of recognition of the disproportionate influence business generally exerts over government policymaking.

Related to this, the GPA doesn't fully appreciate the extent to which real reforms that would benefit workers, women, Māori, Pasifika, LGBTI people, the disabled, elderly and students are generally achieved through mass struggles, involving strikes, occupations, rallies and protests outside of the parliamentary process. This is because real power in capitalist society does not, for the most part, lie in

elected governmental assemblies; rather, it is heavily concentrated in the network of economic and political organisations of the capitalist class. Within the state apparatus itself, power is heavily concentrated in cabinet and its key advisory bodies – central banks, Treasuries and other similar financial ministries. Furthermore, capitalism generates massive inequalities in the distribution of income and wealth, which means that capitalists can generally, but not always, exert more influence over the formation of policy by governments than environmentalists, trade unions or progressive social movements can (Lindblom, 1977; Roper, 2005, pp. 88–90; Roper, 2006, pp. 165–167; Roper, 2013, pp. 236–239). The state in capitalist society is constrained by its financial dependence on revenue from the taxation of incomes generated in the process of capital accumulation. Because state power is dependent on capital accumulation, every government in a capitalist society must promote conditions conducive to the continuation of capital accumulation. These domestic constraints have been compounded by the growing internationalisation of the economic system. In short, the particular kind of state that exists in New Zealand, a specifically liberal democratic state, is inextricably linked and fundamentally committed to maintaining capitalism. Therefore, it is receptive to business lobbying and will not implement environmental reform that is fundamentally contrary to capitalist interests.

Finally, participation in the parliamentary system itself, together with the financial and material benefits that this provides, also shapes the intellectual and political development of the GPA and acts to distance the parliamentary leadership from active involvement in social movements, political protests and campaigns, and trade union struggles outside the parliamentary system. This is not, however, to deny the vitally important work of hundreds of GPA activists in numerous campaigns. There are sound reasons to argue, as I did prior to the 2017 general election, that those on the left should vote for the Greens (Roper, 2017). (For a fuller discussion of the points made in this section, see Supplementary Notes 12–13).

Conclusion

The GPA's overall climate change policy framework combines market-based policy responses, especially eco-taxes, with Keynesian policies involving a substantial shift in state investment, intervention and regulation to create the infrastructure necessary for a low-carbon-emitting economy. In a nutshell, it's an approach based on the assumption that 'It's all good'. In other words, that the climate emergency is so serious that anything is better than nothing, that blue-green neoliberal responses are to be supported alongside red-green state intervention. The main problem with this approach is that neoliberal responses, exemplified by the view that emissions trading plus EVs will do the lion's share of the work in reducing emissions, are fundamentally flawed and part of the problem. Such responses delay rather than facilitate the comprehensive green Keynesian approach to reducing emissions that is required to achieve rapid and large declines in emissions. Scale, scope, sequencing and pace of change are all crucially important. Furthermore, if there is to be a genuinely just transition to a low-emissions economy and society, then progressive taxation reform must precede, not follow, the introduction of eco-taxes such as petrol taxes, non-EV vehicle taxes and waste levies which are socio-economically regressive in their negative distributional impacts on low- and middle-income households.

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For a longer thematically organised bibliography, see Supplementary Note 15.