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9(2)(h)	to maintain legal professional privilege
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15 September 2021

OC210442

Hon Michael Wood
Minister of Transport

SAFEGUARDING EQUITY IN THE DECARBONISATION OF LIGHT VEHICLES

Purpose

To advise on an approach for addressing the equity issues arising from policies to accelerate the decarbonisation of light vehicles.

Key points

- In 2019, the average low-income household spent 28 percent of their income on transport, while the average high-income household spent 8 percent. Without action this disparity is likely to worsen as efforts ramp up to decarbonise light vehicles because:
 - decarbonisation policies will increase motoring costs for those who do not move away from high emission vehicles, and lower costs for those who do
 - low-income New Zealanders face significant barriers in moving away from high-emitting vehicles due to affordability constraints, a lack of suitable low-emission vehicles, and limited or no access to alternative low-emission transport.
- For low-income New Zealanders, having to spend an even greater share of their income on transport will reduce the amount available for other essentials critical to wellbeing.
- As well, unless low income New Zealanders can access quality, safe, low emission vehicles, and/or convenient and affordable low emission alternatives, like public transport and car-share services, transport decarbonisation will stall.
- Consequently, if New Zealand is to achieve its target of having net zero carbon emissions by 2050 while providing a just transition, targeted policies are needed to address the equity issues.
- California's transport decarbonisation policies front-foot equity and there is merit in considering whether they could be applied in the New Zealand context. If they were applied there could be:
 - a Government low emission vehicle equity goal that Ministers direct agencies to give effect to
 - prioritised funding for equity through ear-marking at least a third of the transport revenue from the Emissions Trading Scheme for investment in initiatives to support low-income New Zealanders access low-emissions transport

- a focus on making low-emissions vehicles affordable for low-income New Zealanders through an equity-oriented vehicle scrap and replace scheme, and low-income top-up rebates in the Clean Car Discount
- resourcing for low-income communities to develop, or co-design, initiatives that establish and expand alternative low emission transport to meet their needs. This includes EV car and ride-share services, bike-share, innovative transit services, and support for public transport.
- These potential initiatives could be developed in line with the direction you have given us to develop a strong focus on equity across Budget 2022 transport emissions bids.

Recommendations

We recommend you:

- 1 **note** that there is a significant risk that policies to accelerate the switch to low emission vehicles, s 9(2)(f)(iv) will contribute to a decline in living standards for low-income New Zealanders
- 2 **note** that in comparison higher income groups who are more able to afford low-emission vehicles will reduce their motoring costs and potentially experience an improvement in living standards
- 3 **note** that based on California's equity approach specific policies that we could investigate are to:
 - have a Government low-emission vehicle equity goal that agencies are directed to work to, such as:

No New Zealander will be left behind in the decarbonisation of transport. All communities, both rural and urban, will have access to low emissions transport that meets their needs
 - ear-mark at least a third of the transport revenue from the Emissions Trading Scheme for equity initiatives
 - establish an equity-oriented vehicle scrap and replace scheme that offers people the choice of either:
 - income-tiered rebates and/or low-interest loans for vehicle purchase, financial support for home charging infrastructure, or a charging credit for people who are not able to charge at home OR
 - vouchers with the same, or higher, monetary value that can be used on alternative low emission transport
 - establish low-income rebate top-ups within the Clean Car Discount and reduce vehicle eligibility to those not more than 8-years old
 - establish a contestable fund, in the order of \$100 million over 4-years, to resource low-income communities to develop initiatives that meet their transport needs through the set-up and expansion of alternative low emission transport

4 **discuss** with officials the measures in recommendation 3 above that you would like investigated further, including as Budget 2022 bids.



Ewan Delany
Manager, Environment, Emissions and Adaptation

Hon Michael Wood
Minister of Transport

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- Minister's office to complete:**
- Approved
 - Declined
 - Seen by Minister
 - Not seen by Minister
 - Overtaken by events

Comments

Contacts

Name	Telephone	First contact
Gayelene Wright, Principal Adviser, Environment, Emissions and Adaptation	s 9(2)(a)	✓
Ewan Delany, Manager, Environment, Emissions and Adaptation	s 9(2)(a)	

PROACTIVELY RELEASED BY
 TE MANATU WAKA MINISTRY OF TRANSPORT

SAFEGUARDING EQUITY IN THE DECARBONISATION OF LIGHT VEHICLES

You asked for advice on equity initiatives in considering our advice on s 9(2)(f)(iv)

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

4 In response, this paper looks at the wider question of how the potential equity impacts of an accelerated shift to low-emission vehicles could be mitigated. This scope includes impacts that could arise during the 2020s, s 9(2)(f)(iv)

Unaffordability is the key reason the decarbonisation of light vehicles will cause equity issues

5 An accelerated shift to low-emission vehicles will likely cause equity issues primarily because they cost more to buy than ICE vehicles. In July 2021 the average price paid for a newly-imported 2013 Nissan Leaf was \$14,370, while the average 2013 Mitsubishi Outlander PHEV sold for \$25,737.

6 These sums are much higher than the average amount New Zealanders spend on used-vehicles. In 2019, the average amounts spent on used-petrol vehicles purchased via Trade Me ranged from \$7,529 for a station-wagon, \$8,388 for a hatchback and \$10,944 for a SUV¹.

7 The Clean Car Discount seeks to increase the affordability of low-emission vehicles. With its used-EV rebate of \$3,450, the price gap is significantly reduced for people whose vehicle needs can be met with a Nissan Leaf, and who are able to pay at least the average purchase price of a hatchback of \$8,388.

8 However, for people who require a larger vehicle a significant price gap remains. With the PHEV rebate of \$2,300, people who are able to pay the average used-SUV purchase price of \$10,944 need an additional \$12,493 to buy the average used 2013 Mitsubishi Outlander PHEV.

¹ A comparison is made using 2019 data as this data set is the only one purchased to date by Manatū Waka.

- 9 Moreover, many New Zealanders are reliant on vehicles that are cheaper than the averages of \$7,529–\$10,944 for their mobility. Half of the used-vehicles purchased via TradeMe were bought for less than the average amounts.
- 10 The unaffordability of quality used low-emission vehicles is likely to worsen over the medium-term, as supply shortages cause prices to rise. Shortages are expected because:
- 10.1 of the preference for hybrids in the Japanese domestic market. In 2019, only 21,281 new EVs and 17,609 new PHEVs were sold in Japan, compared to 1,472,281 hybrids and 2,614,090 fossil fuel vehicles. Unless Japanese EV production rapidly increases, we will not be able to import enough used-EVs to meet domestic demand from existing supply sources
- 10.2 alternative supply from other right-hand drive countries could be restricted as demand for quality used-EVs in their respective domestic markets will be strong, and fewer may be sold internationally
- 10.3 the number of new EVs flowing through into the second-hand market will be constrained until upfront purchase price, lowered by the Clean Car Discount, reaches parity with ICE vehicles.

Low-income New Zealanders will be the most disadvantaged

- 11 As the underlying issue is affordability, low-income New Zealanders are likely to be the most disadvantaged by policies to accelerate the decarbonisation of light vehicles. In this paper low-income is defined as an annual income that qualifies for the Community Services Card. For a single person living alone, this is less than \$29,618. Appendix 2 lists the full set of income limits.
- 12 Alongside upfront affordability, low-income New Zealanders will face the following additional barriers to switching to low emission vehicles:
- **There is a very limited range of used-EVs to choose from.** For the year to date, 68 percent of used-EV imports are Nissan Leafs, 12 percent are Mitsubishi Outlanders and 6 percent are Toyota Plug-in Prius. This restricted choice of vehicles will not address the vehicle needs of all families. If New Zealand continues to rely on Japanese used EVs, the range will remain restricted for some time. Only a couple of additional EVs have been introduced to the Japanese domestic market (a Mazda EV and a successor to the Nissan Leaf).
 - **The Clean Car Discount mainly helps those with savings or access to affordable finance.** The Clean Car Discount is a rebate paid after vehicle purchase. This restricts its uptake to those who can access savings, or affordable finance.
 - **Cheaper used-EVs are less likely to meet daily travel needs because of battery degradation.** A Generation 1 Nissan Leaf can be bought for around \$8,000 or lower but will probably not achieve 50 kilometres on a single charge². Though more affordable these vehicles are less suitable for low-income New

² [Nissan Leaf Guide NZ \(samholford.github.io\)](https://samholford.github.io)

Zealanders living in car-dependent areas, and with long daily commutes. The problem of battery degradation compounds because the rate of degradation speeds up as the daily distance a vehicle is driven nears the range of its battery. It also increases as more fast-charging is done, which may be more likely for an EV with a restricted driving range. This problem will lessen over time as vehicle battery ranges in used-EVs improve, and technology that prolongs battery-life become common.

- **The cost of EV battery replacement is high.** Currently it costs \$10,529 to replace a 24 kwh Nissan Leaf battery with a 55 percent state of health with one with an 85 percent state of health³. Over an EV's lifetime, the cost of battery replacement is more than offset by fuel savings. Unfortunately, the person who buys a used-EV has fewer years of fuel savings to offset the cost of battery replacement. For low-income New Zealanders, this cost could contribute to financial hardship.
- **Access to charging.** The current EV charging network is adequate for today's light EV fleet. However, convenient, reliable and secure charging will not be available for all New Zealanders unless equity is prioritised. For example, people who do not have access to off-street parking, such as those living in large-scale apartment blocks, will have to rely on costlier and less convenient public charging.

The cost of not being able to switch to low emissions transport is high

- 13 The consequences of not being able to switch to a quality low-emission vehicle are significant. The Commission's modelling indicates that petrol and diesel prices could increase by up to 30 cents per litre in 2035 with the rising cost of carbon. Fuel costs will rise further with the introduction of biofuels.
- 14 Many low-income New Zealanders will be unable to avoid these cost increases as they are relatively less able to switch to alternative modes. A recent Ministry commissioned study of transport equity in Auckland⁴, found that relative to other groups more low-income people consider it essential to own a car because they:
- are more likely to work part-time or shifts that do not align well with public transport timetables
 - are more likely to live in places less well-served by high quality, frequent and direct public transport
 - work and other activities are not close enough to walk to and the cycling networks are not safe enough.
- 15 Overall, it is likely that a greater share of the income of low-income New Zealanders will be spent on motoring costs, reducing the amount available for other essentials critical to wellbeing. In 2019, low-income households spent on average 28 percent of their income on transport. This compares to 8 percent for high income households⁵.
- 16 High income households will be able to reduce their transport costs as they are more able to afford low-emission vehicles. The Commission's modelling estimates that, in

³ [HV Battery Swaps and Upgrades - EVs Enhanced](#)

⁴ Equity in Auckland's transport system, Ministry of Transport, November 2020

⁵ <https://www.transport.govt.nz/assets/Uploads/Transport-Indicators-1920-Inclusive-Access.xlsx>

2035, households that replace an ICE vehicle with an EV could save more than \$1,300 a year.

The Climate Change Commission identified focus areas to safeguard equity

- 17 The Commission's advice, *Ināia tonu nei: a low emissions future for Aotearoa*, reiterates the view that low-income households could bear disproportionately greater cost and fewer benefits from its recommended emissions budgets. To correct this, it recommends the Government:
- ensure that Iwi/Māori, and those in low-income and vulnerable groups are able to access electric mobility
 - support EV leasing, purchasing and sharing schemes to improve equitable access to electric mobility
 - enhance the roll out of EV charging infrastructure to ensure greater coverage, including at marae, multiple points of access, mandatory smart charging, and fast charging
 - with local government, provide more and better low-emissions transport options, and ensure urban development and transport systems are fully integrated.

California demonstrates how we could act on the equity focus areas identified by the Commission

- 18 It is up to the Government to decide how it will take action on the focus areas the Commission identified. In advising on possible policy action, we have analysed California's approach to accelerating the shift to low-carbon vehicles. This approach is instructive for New Zealand as California's policies are:
- viewed internationally as best practice because they embed a deliberate and front-footed approach to equity⁶
 - being implemented in the similar context of a transport system that is very reliant on private vehicle travel. Countries with denser patterns of urban development, higher levels of public transport, and safe and widespread cycling and walking infrastructure will arguably decarbonise with less equity risks.

Increasing equity is a legislated goal and California requires that policies be in place to achieve it

- 19 The foundation of California's equity approach is a legislated goal. In 2014, the California Legislature approved the Charge Ahead Initiative, which sets out the dual goals of advancing transportation electrification while ensuring all Californians benefit. The relevant legislative text states:
- It is the goal of the state to place in service at least one million zero-emission and near-zero-emission vehicles, including cars, trucks, and buses, by January 1, 2023, and to establish a self-sustaining zero-emission and near-zero-emission vehicle market in which zero-emission and near-zero-emission

⁶ Cleaner vehicles: Achieving a resilient technology transition OECD/ITF 2021

vehicles are a viable mainstream option for individual vehicle purchasers, businesses, and public fleets.

- It is the goal of the state to increase access for disadvantaged, low-income, and moderate-income communities and consumers to zero-emission and near-zero-emission vehicles and to increase the placement of those vehicles in those communities and with those consumers in order to enhance the air quality, lower greenhouse gases (GHGs), and promote overall benefits for those communities and consumers.

20 In 2015, California's equity goal was strengthened by mandating, via legislation, that the California Air Resources Board adopt programmes to benefit disadvantaged communities⁷.

Funding for equity is prioritised

21 Prioritised funding is another distinctive element of California's equity approach. California's legislation requires that at least 35 percent of the revenue from its state-level emissions trading scheme (ETS), be invested in initiatives to support disadvantaged and low-income communities reduce GHG emissions⁸. To date, California's ETS has generated around US\$5 billion, with the implied amount directed to equity being in the order of US\$1.75 billion.

22 California is also investing US\$800,000,000 from the Volkswagen Settlement⁹ over a 10-year period in: zero-emission vehicle charging infrastructure; public outreach on zero-emission vehicles; and equity-oriented projects, such as car-sharing programmes in lower-income and disadvantaged communities¹⁰.

23 As a result of its legislated goal and prioritised funding, California has a comprehensive programme of initiatives to address the obstacles low-income people face in accessing low-emission vehicles. This programme is summarised in Annex 1.

24 The European Union currently requires member states to invest all the revenue they receive from the EU ETS in climate-related projects. It has recently proposed a Social Climate Fund, which would direct 20 percent of the ETS revenue from transport and energy into initiatives that support vulnerable households most affected by, or at risk of, energy or mobility poverty. This will include initiatives to improve access to zero and low emission transport.

⁷ Clean Energy and Pollution Reduction Act of 2015 (Senate Bill 350, Chapter 547)

⁸ [California Cap and Trade | Center for Climate and Energy Solutions \(c2es.org\)](https://www.c2es.org/california-cap-and-trade/)





⁹ Volkswagen violated the United States's Clean Air Act by the sale of approximately 590,000 model year 2009 to 2016 diesel motor vehicles equipped with "defeat devices" designed to cheat on federal emissions tests.

¹⁰ Sub paragraph (k) [Today's Law As Amended \(ca.gov\)](https://www.ca.gov/)

Clean vehicles are made affordable for low-income Californians

- 25 The first part of its programme focuses on making quality cleaner vehicles affordable for low-income people. This is achieved primarily through Clean Cars 4 All, a vehicle scrap and replace programme, which:
- limits support to people with annual household incomes below 400 percent of the Federal Poverty Level. For a one-person household this is an annual income of below US\$51,040
 - provides rebates for the purchase of EVs, PHEVs and hybrids. Hybrids are important to ensuring there is a broad range of affordable vehicles available
 - has income-tiered rebates that are higher than those available through California's Clean Vehicle Rebate Program, which applies to the purchase or lease of new vehicles
 - allows its scheme's rebates to be combined with the Clean Vehicle Rebate's low-income top-up rebate of US\$2,500 for new EVs and US\$1,500 for new PHEVs
 - provides financial support for the installation of home-based charging infrastructure
 - gives people the choice to not replace their vehicles and instead receive up to \$7,500 to access alternative mobility options, like EV car-share services, public transport, and to purchase e-bikes and accessories.
- 26 The diagram below sets out the levels of support available (in US dollars). The amount of support depends on a person's income and the replacement vehicle. The quality of used EVs and PHEVs available to low-income households is safeguarded by restricting rebates to vehicles less than 8 years old.
- 27 The income levels are defined with reference to the Federal Poverty Level:
- Low income - an annual income below, or equal, to 225 percent of the Federal Poverty Level. For a one-person household, this is an annual income of US\$29,539 or below
 - Moderate income - an annual income between 226-300 percent of the Federal Poverty Level. For a one-person household, this is an annual income of US\$38,640 or below
 - Above moderate income - an annual household income below 400 percent of the Federal Poverty Level. For a one-person household, this is an annual income of US\$51,040 or below.

BUDGET SENSITIVE

Vehicles must be less than 8 years old	 Hybrid 20 MPG+	 Hybrid 35 MPG+	 PHEV	 EV
Low income				
Clean Cars 4 All – vehicle scrapped and replaced	\$6,500	\$7,000	\$9,500	\$9,500 +\$2,000 for home charging
Clean Vehicle Rebate low-income top-up (if new vehicle)	-	-	+\$1,500	+\$2,500
Moderate income				
Clean Cars 4 All – vehicle scrapped and replaced	-	\$5,000	\$7,500	\$7,500 +\$2,000 for home charging
Clean Vehicle Rebate low-income top-up (if new vehicle)	-	-	+\$1,500	+\$2,500
Above moderate income				
Clean Cars For 4 – vehicle scrapped and replaced	-	-	\$5,500	\$5,500 +\$2,000 for home charging
Clean Vehicle Rebate low-income top-up (if new vehicle)	-	-	+\$1,500	+\$2,500

- 28 If a low-income Californian scraps their old vehicle and replaces it:
- with a PHEV or an EV they receive \$9,500
 - if the vehicle is an EV, up to \$2,000 is also provided for a charging unit
 - if the vehicle is a new PHEV or EV, \$1,500 or \$2,500 is added, respectively, from the Clean Vehicle Rebate (see paragraphs 33–34), giving a total rebate of \$11,000 for a PHEV or \$12,000 for an EV.
- 29 To appreciate the size of these incentives, the recommended retail price of a new Nissan Leaf in the United States is US\$31,670. In contrast, a used low-mileage, 3-year-old Nissan Leaf sells for between US\$12,000–\$15,000. With the incentives, a low-income Californian would need to contribute US\$19,670 to buy a new vehicle, or between US\$2,500–\$5,500 to buy a quality used-EV. Both options are feasible as the money the consumer saves from driving on electricity rather than fossil fuel could help cover any financing repayments.
- 30 To overcome barriers to vehicle financing, the Clean Vehicle Assistance Program also provides grants and low-interest loans to low-income Californians at the point of purchase.
- 31 Clean Cars 4 All has been successful in supporting low-income people access clean vehicles. To date 89% of programme participants have household incomes that fall into the lowest low-income bracket ($\leq 225\%$ of the federal poverty level), and 89% also reside in disadvantaged communities.
- 32 The average vehicle retired is about 22 years old with an estimated fuel economy of 21.5 miles per gallon (about 10.9 litres per kilometre). The average replacement vehicle has a fuel economy of 80 miles per gallon equivalent (about 2.94 litres per kilometre).

The Clean Vehicle Rebate for the purchase or lease of new vehicles has a low-income top-up rebate

- 33 Equity is also embedded in the Clean Vehicle Rebate that offers up to \$7,000 for the purchase or lease of new PHEVs, EVs, and fuel cell electric vehicles. This scheme started in 2010 with rebates of US\$1,500–\$5,000 to increase the affordability of new PHEVs, EVs, and fuel cell electric vehicles.
- 34 Subsequent equity evaluations found that the rebates were largely captured by higher-income Californians. To address this inequity, the following income cap and income-tiered rebate have applied since 2016:
- People with a gross annual individual income greater than US\$150,000 are ineligible for a rebate.
 - An additional income-tiered rebate of up to US\$2,500 is paid for lower-income people with an annual household income below 300 percent of the Federal Poverty Level.
- 35 A further evaluation found that these two changes improved the effectiveness of the Clean Vehicle Rebate in enhancing access for lower-income Californians and incentivising a higher level of clean vehicle adoption.

Alternatives to private vehicle travel are encouraged through community designed projects

- 36 The second part of California's equity programme focuses on increasing the range of low-emission alternatives to private vehicle ownership. Annex 1 includes a number of community driven and designed initiatives that are increasing the supply and subsidising the use of low-emission alternatives. These include EV carsharing, bike-sharing, e-scooter sharing, innovative transit services, and public transport.
- 37 Community driven and co-designed initiatives have proven to be key in lifting equity because they better enable:
- resources to be targeted to people who face the most barriers in shifting to low emissions transport
 - alternative low emissions services, like EV car sharing or vehicle pooling, to develop and succeed for low-income households and communities, including those in rural areas. These services succeed because they are designed around the transport needs of households and they have community buy-in and support.
- 38 To enable a community-centred approach, funding is made available for community transport needs assessments, capacity and capability building, and technical assistance.

Our recommended equity approach

- 39 In our view, there is merit in considering whether California's equity approach could be applied in the New Zealand context.

A Government goal would embed equity in low emission vehicle policy

40 The first consideration is whether to have an equity goal for the transition to low emission vehicles. In our view this would be desirable as it would ensure equity is embedded in the policies and investments that are put in place to achieve a decarbonised light vehicle fleet.

41 If you are interested in a goal, you could consider discussing the following one with your colleagues and with the Clean Vehicle Leadership Group:

No New Zealander will be left behind in the decarbonisation of transport. All communities, both rural and urban, will have access to low emissions transport that meets their mobility needs.

42 Once there is an agreement on a goal, it would then be reflected in the priorities and work programmes of government transport and energy agencies and potentially the social agencies. This would involve discussing with:

- the Minister of Energy and Resources how the focus of the Energy Efficiency Conservation Authority's work on low emissions transport could be changed to contribute to achieving the agreed equity goal
- the Minister of Social Development, the Minister for Pacific Peoples and the Minister for Māori Development as to the opportunities for a cross-government approach to achieving the equity goal
- Waka Kotahi how its operational policy work and investment decisions would change to give effect to the equity goal
- Manatū Waka the equity initiatives that should be progressed for Ministers' consideration.

Prioritise funding to tackle the equity challenges

43 The second step is to provide adequate and prioritised funding for equity policies. Based on California's approach, we recommend requiring at least a third of the transport revenue from the ETS to be invested in initiatives to support disadvantaged and low-income communities switch to low emission vehicles.

44 The Government has already agreed to hypothecate the revenue from the ETS for the implementation of the forthcoming Emissions Reduction Plan. However, there is a strong rationale to go further and prioritise a share of this revenue for equity initiatives. A priority share would recognise and compensate low-income households for the regressive effect of carbon pricing.

45 Targeting equity initiatives in transport is also justified as annual fuel sales currently yield \$700 million in ETS revenue.

46 If you wanted to progress this proposal, it would be desirable to discuss it with the Ministers of Climate Change and Finance.

Making low-emission vehicles affordable for low-income New Zealanders

- 47 We also recommend a focus on making low-emission vehicles affordable for low-income New Zealanders.
- 48 Unfortunately, when we were developing the Clean Car Discount we were not aware of the steps California has taken to embed equity within its vehicle CO2 mitigation policies. In light of this knowledge, we recommend considering an equity-oriented vehicle scrap and replace programme, and the addition of a low-income top-up rebate in the Clean Car Discount.

An equity-oriented vehicle scrap and replace programme

- 49 The key features of a vehicle scrap and replace programme could be as follows:
- Eligibility would be limited to people with annual household incomes below set amounts. These amounts could be the Community Services Card's income limits (see Appendix 2).
 - Redeemable financial vouchers would be given for the purchase of EVs, PHEVs and conventional hybrids. These vehicles would include all those for sale in New Zealand. However, vehicles would need to be less than 8-years old, have a minimum level of battery life, and have a safety-rating of at least 3-stars.
 - The financial value of the vouchers would be set formulaically based on the replacement vehicle's CO2 emissions and would be higher than the Clean Car Discount's rebates. We could aim to achieve 75% of the retail price of a 7-year old Nissan Leaf. Currently this would result in a voucher of around \$12,000.
 - If the replacement vehicle is an EV or a PHEV, a voucher would be available for the installation of home charging. Where people can show that they cannot charge at home, a charging credit could be available.
 - Participants would have the choice to not replace their scrapped vehicles and instead receive low-emission mobility vouchers. These vouchers could be used on public transport and other low-emission services like, car-share and bike-share schemes. They could also be used for the purchase of e-bikes and accessories. The financial value of these vouchers could be higher than the amount given for the purchase of EVs to encourage mode shift.
- 50 We would need to investigate whether eligibility for the Community Services Card is the best way to define low-income. We would also look at whether the Card is a workable way for people to demonstrate their eligibility to participate in the vehicle scrappage scheme.
- 51 A key risk with vouchers with a high financial value is that they are open to profiteering. It would be difficult to stop people buying an EV with a voucher and then selling it to realise the cash-value. This risk could be reduced by providing a lower value voucher in combination with a low-interest loan.
- 52 Past cost-benefit analyses of vehicle scrappage schemes have shown that scheme costs are likely to be higher than the benefits gained. To encourage people to scrap

their vehicles, the scheme's financial incentives have to be higher than the economic value the owners would realise from vehicle sale. This results in the level of financial incentives paid out being higher than the value of the benefits gained.

- 53 Yet, the inequities that will result from an accelerated shift to low-emissions vehicles create a different context for the vehicle scrappage scheme. The range of potential benefits increase to include the avoidance of high motoring costs and the potential loss of motorised mobility that may be critical to accessing employment, education, health and other social services.
- 54 However, these potential benefits may not be able to be monetised in a cost-benefit analysis.

A low-income rebate top-up in the Clean Car Discount

- 55 As not all low-income New Zealanders will have a vehicle to scrap, there is also the potential for the Clean Car Discount to have low-income rebate top-ups. These top-ups could be available to people with annual household incomes below the Community Services Card's income limits.
- 56 The rebate top-ups could be \$3,500 for an EV, \$2,500 for a PHEV and \$1,500 for a conventional hybrid. These top-ups would result in maximum rebates of:
- \$6,950 for a used EV and \$12,125 for a new one
 - \$4,800 for a used PHEV and \$8,250 for a new one
 - \$3,220 for a used hybrid and \$5,790 for a new one¹¹.
- 57 We estimate that these maximum rebates could cost \$54 million–\$126 million per year. This is based on an analysis of vehicle purchases over 2015–2018 that indicated that, on average, around 36,000 low-income households purchase vehicles each year.
- 58 To limit the number of EVs with significantly degraded batteries entering the fleet, it would be desirable to restrict eligible vehicles to those less than 8 years-old and with a minimum level of battery health. This change is also desirable for the existing Clean Car Discount. Such a change could be made at any point via a Cabinet decision.
- 59 The rebate top-ups and their associated administration would be funded from Crown revenue. This would ensure the Clean Car Discount's fee revenue is used solely for the subsidisation of low-emitting vehicles and not the subsidisation of low-income vehicle purchasers.
- 60 Before progressing this initiative, we would need further assurance that the Japanese used-vehicle auctions are competitive, and/or that there is another source of quality low-emissions vehicles. There is anecdotal evidence that sellers at Japanese vehicle auctions have captured the full-value of the Clean Car Discount's rebates in their sale prices. If true, this could reflect the market power of the Japanese sellers. Alternatively, it could be the result of the expected spike in New Zealand EV demand following the introduction of the Discount, which would have increased auction prices.

¹¹ These rebates are calculated for a 2020 Toyota Yaris GX 1.5P HV ECVT FWD HB/5D/5S which has per kilometre emissions of 84 grams of CO₂.

61 We are monitoring the prices of used-EVs to gauge the extent to which this is occurring and will provide further updates on this issue.

Resource low-income communities to establish and expand low emission transport to meet their needs

62 The draft Emissions Reduction Plan's transport chapter includes community driven and designed initiatives across two focus areas: (1) reducing reliance on cars, and (2) rapidly adopting EVs. The benefits of reducing transport decarbonisation related disadvantage is endorsed by the Californian experience.

63 These initiatives will provide autonomy for low-income communities to determine how their mobility needs can be met through low-emission transport. Communities could include marae/hapū/iwi, church groups, community housing residents, and unions supporting employee initiatives at the local level.

64 In developing their initiatives, communities could choose to partner with community-based or focused organisations, transport service providers, and electricity businesses.

65 We envisage having a contestable fund to facilitate and resource the potential initiatives. To be funded, initiatives would have to:

- be based on a community transport needs assessment to ensure that project outcomes are community focused and the project has community buy-in and support
- achieve an emissions reduction through a reduction in vehicle kilometres travelled through the use of alternative low-emission modes, rather than solely from a shift away from high emitting vehicles
- where possible, be a multimodal solution that results in an increase in supply and use of low-emission transport other than motor vehicles.

66 To help overcome the cost, capability and time barriers communities will face in developing their proposals, grants would be available for community transport needs assessments, capacity and capability building, and technical assistance.

67 We would develop the budget bid for Budget 2022 to include a contestable fund and seek Cabinet approval for the fund's purpose and its other design features. As with California's equivalent projects, we expect many of the initiatives to be innovative. Government administration of the fund will need to be responsive to the community context within which the projects are developed and delivered. This includes:

- having reporting requirements that provide oversight of the use of public funds without losing the support of the specific community and being scaled appropriately to reflect the funding involved
- facilitating community-owned assets, such as a fleet of EVs, controlled by a local community-based organisation.

- allowing sufficient time for applications appreciating that longer timeframes will be involved, for example, for community engagement and needs assessment.

68 The following are two examples of initiatives that the fund could seek to facilitate:

- The Ōtautahi Community Housing Trust's (ŌCHT) trial of e-bikes and EVs in the new housing development in Sydenham, Ōtautahi. ŌCHT has supplied two Nissan Leafs and five e-bikes in a two-year pilot to see how shared, low carbon transport can work for a social housing community. The vehicles will be available to any ŌCHT tenant but are likely to be used mainly by the people in the new community. The e-bikes can be used for free while the cars' maintenance, management and replacement costs will be met by a nominal fee
- The Ākina Foundation's social EV leasing scheme pilot in South Auckland that is being delivered by the Manukau Urban Māori Authority. The pilot is leasing 20 EVs to low-income families.

Risks

69 The key risks with our proposed approach are:

- 69.1 the Vehicle Scrap and Replace proposal and the low-income rebate top-ups would continue to entrench dependency on single-occupancy vehicles. This is counter to the direction in the draft Emissions Reduction Plan to reduce vehicle kilometres travelled. However, as outlined in paragraph 14 many low-income New Zealanders are less able than others to switch to alternative modes
- 69.2 tailored community-driven equity initiatives are likely to cost significantly more than other measures because they will require more administrative effort and have additional costs like capability building. However, we suspect the cost of this risk will be lower than the alternative of low-income communities being locked-out of low emission transport
- 69.3 many community equity initiatives, like EV car-share and bike-share, are likely to lock-in the need for ongoing subsidies and administration. To provide for this the equity initiatives will require a certain and long-term funding source.
- 69.4 New Zealand may not be able to access sufficient volumes of used EVs and PHEVs to meet demand during the 2020s. This will lower the emission reductions we will be able to achieve. The size of the foregone reduction can be reduced to some extent by incentivising the uptake of used-hybrids. Although these vehicles are not zero emissions, they are more affordable and guarantee some reduction in vehicle emissions.

Next steps

70 To progress a package of equity measures, we welcome a discussion on the initiatives you would like investigated, and incorporated into your Budget 2022 package.

- 71 Each initiative would require significant policy work, including engagement with key stakeholders. Core issues that will need resolution include:
- 71.1 the scale of each initiative and the extent of its reach, including:
- the extent of transport need that the contestable fund for low-income communities would seek to address. For instance, the fund could be open to applications from all low-income communities across New Zealand, or it could be targeted to specific urban or rural centres
 - whether limiting eligibility for the vehicle scrappage scheme and low-income rebate top-ups within the Clean Car Discount to low-income people with the Community Service Card is appropriate, or whether eligibility should be wider
 - whether an equity-based scrappage scheme would operate throughout New Zealand, or whether it would first be trialled in some, or all, of the five main centres
 - the level of the low-income rebate top-ups within the Clean Car Discount and whether they could be added to the scrappage scheme's vouchers
- 71.2 based on the scale and reach of the initiatives, an estimation of the quantum of funding required. The potential long-term funding implications would also need to be considered
- 71.3 the public sector agency, or agencies, that would administer each of the initiatives and the local government and other parties that might be involved
- 71.4 how the initiatives will be designed to work with and complement the other equity proposals in the Emissions Reduction Plan, to avoid unnecessary and costly duplication.
- 72 If you would like to progress an equity-oriented vehicle scrappage scheme, alongside the above issues, we would initiate discussions with the vehicle industry and other parties that could be linked to, or contribute to, vouchers.
- 73 To progress a contestable fund and low-income rebate top-ups we would develop bids for Budget 2022, and would seek your input on the level of detail on them to be included in the final Emissions Reduction Plan. We would also prepare Cabinet papers on the design of the fund and the rebate top-ups. The paper for the fund would seek decisions on the fund's purpose, eligibility criteria, assessment process, monitoring and reporting requirements and the agency that would administer the fund.

Annex 1 – California’s Clean Transportation Programs

All dollar amounts are in US dollars

Initiatives to make low emission vehicles affordable and to speed up the removal of high emitting vehicles	
<p>Clean Cars 4 All¹² - provides incentives for low-income Californians to retire their old vehicles and either purchase new or used low emission vehicles, or receive vouchers for alternative transport.</p> <p>Used vehicles purchased must be less than 8-years old.</p>	<p>An older vehicle can be replaced with either:</p> <ul style="list-style-type: none"> • a conventional hybrid, PHEV or EV, with a voucher of up to \$9,500 and an optional home charger of \$2,000. If the vehicle is new, the income top-up rebates of up to \$2,500 from the Clean Vehicle Rebate program are added OR • an alternative mobility option that allows applicants to obtain a \$1,700 voucher for an electric bike or a \$5,800 voucher for public transport, car-sharing or other mobility service. <p>The programme has been enhanced through its partner GRID Alternatives¹³ that installs no-cost rooftop, community, and multi-family solar electric systems for low-income households and affordable housing providers. This has further lowered motoring costs for low-income Californians.</p> <p>\$112 million has been allocated to this programme.</p>
<p>Clean Vehicle Rebate Program – provides rebates to purchase, or lease, new eligible zero-emission vehicles</p>	<p>Rebates are available to Californian residents that meet income requirements and purchase or lease an eligible vehicle. People first purchase a vehicle and then apply for a rebate.</p> <p>Rebate amounts are increased for lower-income applicants. Californians with household incomes less than, or equal to, 400 percent of the Federal Poverty Level are eligible for an increased amount on top of the standard Clean Vehicle Rebate. This is \$2,500 for an EV, and \$1,500 for a PHEV. These top-ups result in total rebates of:</p> <ul style="list-style-type: none"> • \$7,000 for fuel cell electric vehicles

¹² [Clean Cars 4 All | California Air Resources Board](#)

¹³ [Bay Area | GRID Alternatives](#)

	<ul style="list-style-type: none"> • \$4,500 for battery-electric vehicles • \$3,500 for plug-in hybrid vehicles. <p>33% of the funding for the program has been distributed to applicants in low-income communities¹⁴.</p> <p>To ensure that only quality and well priced vehicles attract rebates there are eligibility criteria for vehicles. For example a vehicle must have:</p> <ul style="list-style-type: none"> • an electric range of at least 30-miles (48 kilometres) • a base Manufacturer Suggested Retail Price (MSRP) of \$60,000 or less. <p>Vehicle models over two years old are not eligible. Examples of ineligible vehicles include the:</p> <ul style="list-style-type: none"> • Audi A3 e-tron • BMW i8 • Honda Accord Plug-in • Hyundai Ioniq PHEV • Kia Niro Plug-in Hybrid. <p>No single entity is eligible to receive more than one rebate either via direct purchase and/or lease except for rental, public, and car share fleets.</p>
<p>Clean Vehicle Assistance Program¹⁵ - provides grants and low-interest loans to purchase, or lease, new and used clean vehicles</p>	<p>Grants and low-interest loans are provided to low-to-middle-income earners at the point of vehicle purchase. This includes loans to low-income people with poor credit histories.</p> <p>Grants of \$2,500 are available for conventional hybrids, while PHEVS and EVs attract \$5,000. The program also offers two charging grant options to homeowners and renters of either a:</p> <ul style="list-style-type: none"> • home charging station installed up to \$2,000 value, or • \$1,000 prepaid charge card, valid at a public charging station, and a portable charger.

¹⁴ Clean Mobility Equity: A Playbook pg 87

¹⁵ - [Clean Vehicle Assistance Program \(cleanvehiclegrants.org\)](http://cleanvehiclegrants.org)

	<p>The option of the prepaid charge card is important to equity as it recognises that people in rented accommodation often do not have the ability to make use of the home charging installation grant.</p> <p>Applicants are required to complete online financing and advanced technology training.</p> <p>\$33.9 million has been allocated to this programme.</p>
<p>Access Clean California¹⁶</p>	<p>This programme provides a centralised, website platform for low-income Californians to navigate and access the many complementary incentive programs under one simplified application. It avoids people having to learn about each incentive program and complete multiple, time intensive applications across different platforms.</p> <p>This initiative has been allocated \$5 million.</p>
<p>Community driven and designed projects to increase access to low emissions transport</p>	
<p>Sustainable Transportation Equity Project¹⁷ - grants funding to support planning and capacity-building efforts in communities in order to prepare those communities to implement clean transportation and land-use projects</p>	<p>This initiative takes a more holistic approach that is focused on reducing vehicle miles travelled and sustainable land use, as opposed to solely pollution and emission reduction.</p> <p>This project funds two types of grants:</p> <ul style="list-style-type: none"> • planning and capacity building grants to fund the identification of residents' mobility needs in disadvantaged and low-income communities • implementation grants to fund community-driven and co-designed projects in disadvantaged communities to address their mobility needs. <p>To receive implementation grants a community mobility needs assessment is required.</p>

¹⁶ [Home | Access Clean California](#)

¹⁷ [Sustainable Transportation Equity Project \(STEP\) | California Air Resources Board](#)

	<p>Examples of eligible uses of these grants include infrastructure, zero-emission vehicles and other mobility options, land use and pricing innovations, community engagement activities, staff time for operating services.</p> <p>\$19.5 million was available in fiscal year 2019/20.</p>
<p>Clean Mobility Options Voucher Pilot Program¹⁸</p>	<p>This program funds zero-emission car-sharing, carpooling, vanpooling, bike-sharing, scooter-sharing, innovative transit services and ride-on demand services. A mix of projects are funded across rural and tribal communities, and in urban and suburban areas.</p> <p>Eligible recipients are those in disadvantaged communities, low-income tribal lands, and affordable housing facilities. Applicants need to demonstrate that the clean mobility projects proposed are community-driven and based on direct engagement with community residents. Mobility service providers are not able to be lead applicants and can only join a community-led application as a sub-applicant.</p> <p>The program funds both mobility needs assessments and the implementation of projects.</p> <p>This pilot has been allocated \$21.15 million for fiscal 2019/20.</p>
<p>Carsharing and mobility hubs at affordable housing pilot¹⁹</p>	<p>This pilot is developing mobility hubs at three affordable housing sites. Depending on the specific needs of residents, the hubs will prioritise a selection of EV car-sharing, bike-sharing, e-scooter sharing and transit passes to serve approximately 6,000 low-income residents.</p> <p>This pilot has been allocated \$2.25 million for fiscal 2019/20.</p>
<p>Our Community CarShare Pilot Project²⁰</p>	<p>This pilot started as an EV car-sharing service serving seven affordable housing sites within disadvantaged and low-income areas in the Sacramento region. The scope of the project was</p>

¹⁸ [Clean Mobility Options](#)

¹⁹ [EV Car Sharing and Mobility Hubs in Affordable Housing Pilot | TransForm \(transformca.org\)](#)

²⁰ [Microsoft Word - Our Community Car Share Case Study - Final February 2020 \(sharedusemobilitycenter.org\)](#)

	<p>expanded, following feedback from residents to provide alternative \$100 a month visa cards programmed for use on public transit, ride-hailing or bike-share.</p> <p>It is funded through partnerships between affordable housing organisations, transportation service providers, a local utility company and local, regional and state governments.</p> <p>This project has been allocated \$24 million.</p>
<p>Ecosystem of Shared Mobility in the San Joaquin Valley²¹</p>	<p>This project consists of three shared mobility services in rural communities:</p> <ul style="list-style-type: none"> • the VAMOS mobility app that is a travel planner and payment enabler. It covers all available modes, including car-share, bike-share, scooter-share, rideshare, public transit, ride-hailing eg taxi, uber, walking and cycling and private vehicle travel provided as rideshare • Miocar²², which is EV car-sharing, located in affordable housing complexes in eight rural communities • Volunteers on the Go, which is a volunteer ridesharing service. Reservations are made via VAMOS. <p>This program has funding of \$3.8 million.</p>
<p>Green Raiteros²³</p>	<p>This is a community-owned electric ridesharing programme. Volunteer drivers use the program’s EVs or their own vehicles to drive fellow residents to access medical appointments or other services in exchange for a small fee. This program serves predominantly low-income Latino residents many of whom are farmworkers in a rural region.</p> <p>Green Raiteros was developed by community residents and the assets (vehicles and operations office) are owned and controlled by a local community based organisation. After being in operation for 2-years it received a State government grant of \$150,000.</p>

²¹ [Ecosystems of Shared Mobility in the San Joaquin Valley \(sjvpartnership.org\)](http://sjvpartnership.org)

²² [Miocar – The San Joaquin Valley's Carshare](#)

²³ [MOD Learning Center: The Story of Green Raiteros: A Shared & Electric Lifeline for California Farmworkers, 2020 \(sharedusemobilitycenter.org\)](#)

<p>Agricultural Workers Vanpool Project²⁴ (part of CalVans)</p>	<p>Sponsored by California Vanpool Authority, a public transit agency, CalVans supplies qualified drivers with late model vans to drive themselves and others to work or school. CalVans pays for the fuel, maintenance, repairs, and insurance. Consumers pay for their rides.</p> <p>In 2019, this project provided funding to purchase and retrofit 154 new 15-passenger vans with hybrid technology. The vans are used to transport agricultural workers to and from their work sites. The funding was a \$4.7 million state government grant, coupled with a co-payment of \$1.5 million from Calvans.</p>
<p>Clean Mobility in Schools Pilot Project²⁵</p>	<p>This pilot supports a range of strategies to reduce emissions and vehicle miles travelled in disadvantaged communities, including through zero-emission vehicles, active transport, and public transport passes, plus outreach and education to familiarise the community with emerging clean technologies.</p> <p>The project also enables school districts to have electrical upgrades and infrastructure support, which are particularly important to disadvantaged communities where infrastructure is especially degraded.</p> <p>This project has been allocated \$24 million over four years (until 2023).</p>
<p>BlueLA²⁶ - An Electric car sharing service</p>	<p>BlueLA is operated by Blink Charging, an EV charging infrastructure provider. The all-electric car-sharing service began in 2018 through a State grant to pilot electric vehicle car-sharing in low-income communities of Los Angeles.</p>

²⁴ [Home - CalVans](#)

²⁵ [Clean Mobility in Schools Pilot Project — California Climate Investments](#)

²⁶ [Blink Mobility : Los Angeles, CA Electric Car Sharing Service \(bluea.com\)](#)

Appendix 2 – The Community Services Card’s Income limits

Yearly income (before tax) is less than

Single - living with others	\$27,909
Single - living alone	\$29,618
Married, civil union or de facto couple - no children	\$44,290
NZ Superannuation single, sharing accommodation	\$29,677
NZ Superannuation single, living alone	\$31,568
NZ Superannuation married, civil union or de facto relationship - no children	\$47,378
Family of 2	\$54,098
Family of 3	\$66,589
Family of 4	\$76,822
Family of 5	\$86,873
Family of 6	\$97,937

For families of more than 6, the limit goes up another \$9,926 for each extra person

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