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SUBMISSION ON EMISSIONS REDUCTION PLAN

The NZ Federation of Motoring Clubs represents more than 130 member clubs catering for heritage or collector's vehicles including cars, trucks, military transport, tractors and motorcycles, plus hot rods and motor caravans. Our member clubs comprise more than 100,000 individuals.

As has been highlighted by Environment Minister James Shaw, so far carbon pricing schemes and other strategies have had minus zero impact on reducing New Zealand's emissions. If New Zealand is to join in effective contributions to the global campaign to curb the climate crisis it will require much more radical changes to our lifestyle than just parking up our fossil-fuelled vehicles and resorting to bicycles, buses and EVs. Indeed, there is research which indicates our public bus systems as currently operated may be generating significantly greater quantities of Co2 emissions per person/kilometre travelled than private vehicles. And the deliberate under investment in providing adequate roading networks and convenient parking facilities has had the adverse consequences of increasing both congestion, fuel wastage and the associated carbon pollution levels.

Despite the investment of hundreds of millions of dollars on cycleways and other infrastructure, and aggressive promotional campaigns to enforce a switch to cycling, walking and bus usage, the numbers of daily commuters using these alternatives have actually decreased by more than two thirds on the counts recorded in Christchurch traffic screenline surveys thirty years ago. Similar overall declines in bus patronage and cycling over the past fifty years have occurred in other urban areas and are nowhere near being offset by the mostly insignificant recent increases reported. So, just on the basis of the responses so far it is futile to expect projected reductions in the demand on transport networks will be achieved by people spontaneously swapping to walking, cycling and buses. And with an increasingly aging population both cycling and walking will have limited and declining practical application in the modern suburban city.

Retention of ICE vehicles and development of alternative liquid biofuels is essential so the existing fleet can gradually be converted to lower emissions while continuing to meet transport needs. Replacing the bulk of the current light vehicle fleet with EV's is not a practical or affordable option in the foreseeable future as there is already a demonstrated recurring shortage of sustainable generation capacity and no credible prospect of solar or windpower or pump hydro schemes closing the gap for some decades.

More Roads and Free Public Transport

Considerable increased investment in upgrading the condition and expanding the extent of the roading network should be a priority in order to reduce fuel wastage and unnecessary emissions caused by avoidable congestion and the impairments of vehicle performance resulting from poor road maintenance. Complementary huge investment to make public transport more efficient, more frequent, and universally free could make it a much more attractive alternative to private cars. Present services are not sufficiently frequent, fast, comfortable, convenient, or cost effective to provide a preferred alternative to individual transport.

Adjustments to GST, FBT and depreciation rates would be more effective in orchestrating beneficial changes of purchasing behaviour than "feebate" schemes which distort the pricing of vehicle choices and tax lower income vehicle owners in order to subsidise luxury rides for the rich. Present provisions are likely to force lower income vehicle owners to retain and repair their higher emission current transport when newer replacements become progressively less affordable as a consequence of the feebate scheme.

Congestion and distance pricing will have major adverse socio-economic impacts as they would increase and distort the costs inflicted on lower income community members who lack the extensive opportunities enjoyed by the rich to pass on or avoid them.

Instead of inflicting feebates on workers' votes to underwrite EVs for the wealthy, the still unspent ETS fund could be applied to implementing leasing schemes to make currently unaffordable battery-powered transport available to the lower paid. If successive Governments had invested in expanding our generation facilities instead of limiting supply in order to inflate the market price and extract billions of dollars in undeserved profits from power consumers, Fonterra and our schools would have switched from coal to electric heating years ago and there might already have been enough capacity available to power a larger fleet of EVs.

Likewise, the implementation of blanket maximum CO2 limits on individual light ICE vehicle imports to reduce the number of highest emitting vehicles being added to the fleet are unlikely to achieve the intended and expected significant benefits. The discussion document presumes the highest emitting light vehicles are the larger luxury models with big V8 engines. But the world's worst polluting light car is probably the German Trabant with a 500cc motor which may not be caught by any limits on engine size. Banning the importation of vehicles that emit over a certain CO2 limit could mean the unfortunate loss of access to new Porsches, Aston Martins, Ferraris etc. plus most American muscle cars. But as such vehicles tend to cover only minimal mileages most years eliminating them from the fleet will have little effect on emissions but a disproportionate impact on enjoyment of living for many motoring enthusiasts.

For similar reasons scrappage schemes to remove high-emitting older cars will primarily increase the profits of vehicle manufacturers without doing as much as is predicted in the discussion document to reduce overall emissions. Of the total lifetime emissions generated by motor vehicles around a third are created by the manufacturing and disposal processes. Subsidising the premature destruction of still serviceable vehicles can have the effect of increasing emissions in a world where the primary objective should be reducing unnecessary industrial production and waste of natural resources. For the FoMC another concern is that scrappage schemes can lead to the destruction of vehicles of historical value or special interest and thus the loss of part of our motoring heritage, as this has happened in other countries with such programmes.

Safe Biofuel

While owners of heritage vehicles are reassured by the Government commitment to ensure liquid fuel options will remain available, in the interest of safety especially, it is essential compatible biofuels (specifically 'drop-in' synthetic fuels and e-fuels) are introduced before fossil fuels are phased out. The ethanol-based biofuels presently marketed in New Zealand cannot be used in a wide range of older vehicles without risking dangerous damage. Even a blend as low as 3 per cent ethanol can seriously corrode metal components and rubber parts in fuel systems. Denial of access to 100 per cent petrol will seriously impact on classics, pre-2005 Japanese vehicles, motorcycles, hot rods, lawn mowers and chainsaws as well as marine transport and propeller aircraft.

There are three key areas of concern with historic and classic vehicle fuel systems:

1. Corrosion of metal components
2. Elastomer compatibility - swelling, shrinking, and cracking of elastomers (seals and flexible pipes) and other unsuitable gasket materials
3. Air/fuel ratio enrichment

Effects on engine and fuel line components

When compared to conventional petrol the increased acidity, conductivity and inorganic chloride in ethanol blends causes corrosion and tarnishing of metal components. As the ethanol molecule is smaller

and more polar than the constituents of conventional petrol the ethanol diffuses into elastomer materials. When exposed to petrol/ethanol blends these materials will swell and soften, inducing a weakening of the elastomer structure. On drying out they can shrink and crack resulting in fuel leaks.

Air/fuel ratio enleanment

Ethanol contains approximately 35% oxygen by weight which causes fuel mixture enleanment when blended into petrol for use in older vehicles. For example, a 10% ethanol blend results in a mixture-lean effect equivalent to approximately 2.6%, which may be felt as a power loss, driveability issues (hesitations, flat spots, stalling), but also could contribute to slightly hotter running. Modern 3-way catalyst equipped vehicles do not require mixture adjustment to operate on E10 petrol because they are equipped with oxygen (lambda) sensors that detect lean operation and the engine management system automatically corrects the fuel mixture for optimum catalyst and vehicle operation.

Alternatives to Ethanol Essential

If heritage vehicle owners are to be denied access to suitable fossil fuels prior development and distribution of affordable second-generation biofuels will be necessary. In the absence of suitable replacements there will be an ongoing requirement for non-blended 95 octane petrol but the practicalities are likely to be difficult to resolve. When leaded petrol was phased out in New Zealand local petrol companies could have continued supplying a leaded option, as was done in the United Kingdom, but they refused. The consequence was multiple media reports of cars catching fire or suffering serious damage to engines and fuel lines as the industry struggled to develop a blend of the new fuel compatible with the New Zealand vehicle fleet.

Importance of Heritage Motoring

While the full extent of the heritage motoring community in New Zealand is still to be assessed, surveys by the Federation of British Historic Vehicle Clubs ascertained that there are 1.5 Million registered heritage vehicles owned by 683,967 enthusiasts in the United Kingdom. And their activities make a \$14 Billion contribution to the UK economy each year plus providing jobs for 34,000 people. However, the average vehicular kilometres travelled annually by individual heritage vehicles is less than 2000kms, which equates to all registered historic vehicles accounting for less than 0.2% of the total distances driven on UK roads each year, so therefore making only minimal contributions to total emissions.

On a proportionate per-capita basis the New Zealand heritage motoring community is much larger and more vibrant than in the UK. Based on comparisons of club memberships it can be reliably extrapolated that New Zealand heritage and recreational motoring is contributing several billion dollars annually to the New Zealand economy. cursory surveys indicate just our affiliated members own more than \$6 Billion worth of heritage vehicles which would become progressively valueless if access to fossil fuels or acceptable alternatives is curbed. This would be a disproportionate loss just to achieve infinitesimal reductions in emissions.

Average households in New Zealand consume around 25kwh of power per day, which adds up to approximately 8,000 to 9,000 kwh per annum. The power consumption of an average EV is around 15kwh/100km. Assuming average vehicle kilometres travelled of 20,000 per year, they will use around 3,000 kwh per annum. So, homeowners converting from ICE to EV will increase their domestic power consumption by approximately 33 per cent.

According to Statistics New Zealand's last Energy Use Survey, in the eight years between 2010 and 2018 industrial sector electricity consumption effectively tripled from 7500 Million Kilowatt Hours to more than 20,000 Million. And this preceded the commitments to replace coal-fired heating in all schools and Fonterra's processing plants. Instigated by the then Minister David Parker, the report "NZ Energy Strategy to 2050" forecast a need for another 3900MW of generation to meet growth demands. But of the new

generation projects listed in the report more than 1000MW are dependent on geothermal or gas, both of which have now been ruled out as energy sources by the Climate Change Commission.

On the basis of our preliminary research, it would seem the generation capacity available in the immediate to medium term will be insufficient to satisfy the increasing demands of industry let alone a growing electric vehicle fleet. As the global manufacture of EVs is also likely to be limited in the foreseeable future permitting wider use of compatible biofuels by heritage vehicles and other users may offer a more sensible means of reducing the overall emissions of the much larger existing fleet.

Access to alternative liquid fuels and ongoing use of ICE vehicles would seem to be essential to avoid costly or even unaffordable investment in upgrading electricity generation. It will also provide essential alternatives for the increasing numbers of urban residents impacted by regulatory changes which are denying them access to either on-site or kerbside parking and the required facilities to recharge EV batteries.

Maintaining Supplies

While FoMC members largely support reducing emissions and carbon pollution we submit the inherent social value of maintaining our heritage fleet is greater than any benefits likely to result from restricting or ending the use of fossil fuels or compatible alternatives. But changing to acceptable alternatives could be restricted by the realities of availability, distribution, and the predictable impacts on pricing as the composition of the New Zealand light vehicle fleet evolves. If for example, it is needed to drive an historic vehicle for 300kms, but the fuel tank capacity provides a maximum range of 250kms, it will be necessary to refuel part-way through the journey. Therefore, if a hypothetical strategy was introduced to make compatible fuels available for use in historic vehicles, there would need to be outlets all over New Zealand to permit their unrestricted use.

But any expectation energy retailers would be prepared to provide a special blend at all service stations for a sector of the motoring public, which would probably represent less than one per cent of the total number of vehicles on the road, is unrealistic. Demand would be low in the winter and limited even in the summer. So commercially, for the needs of the historic vehicle fleet to be met at any meaningful level of availability will require the supply of compatible advanced biofuels which can also be used by other sectors of the transport fleet.

Yours sincerely



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Representing the responsible special interest and heritage motoring enthusiast