

# New Zealand Vehicle Emissions I.e. Emissions Screening Programme: Discussion Document

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## Emission factors of black carbon and co-pollutants from diesel vehicles in Mexico City

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**Abstract.** Diesel-powered vehicles are intensively used in urban areas for transporting goods and people but can substantially contribute to high emissions of black carbon (BC), organic carbon (OC), and other gaseous pollutants. Strategies aimed at controlling mobile emissions sources thus have the potential to improve air quality and help mitigate the impacts of air pollutants on climate, ecosystems, and human health. However, in developing countries there are limited data on the BC and OC emission characteristics of diesel-powered vehicles, and thus there are large uncertainties in the estimation of the emission contributions from these sources. We measured BC, OC, and other inorganic components of fine particulate matter (PM), as well as carbon monoxide (CO), nitrogen oxides (NO<sub>x</sub>), sulfur dioxide (SO<sub>2</sub>), ethane, acetylene, benzene, toluene, and C<sub>2</sub>-benzenes under real-world driving conditions for 20 diesel-powered vehicles encompassing multiple emission level technologies in Mexico City with the chasing technique using the Aerodyne mobile laboratory. Average BC emission factors ranged from 0.41–2.48 g kg<sup>-1</sup> of fuel depending on vehicle type. The vehicles were also simultaneously measured using the cross-road remote sensing technique to obtain the emission factors of nitrogen oxide (NO), CO, total hydrocarbons, and fine PM, thus allowing for the intercomparison of the results from the two techniques. There is overall good agreement between the two techniques and both can identify high and low emitters,

but substantial differences were found in some of the vehicles, probably due to the ability of the chasing technique to capture a larger diversity of driving conditions in comparison to the remote sensing technique. A comparison of the results with the US EPA MOVES2014b model showed that the model underestimates CO, OC, and selected VOC species, whereas there is better agreement for NO<sub>x</sub> and BC. Larger OC/BC ratios were found in comparison to ratios measured in California using the same technique, further demonstrating the need for using locally obtained diesel-powered vehicle emission factor database in developing countries in order to reduce the uncertainty in the emissions estimates and to improve the evaluation of the effectiveness of emissions reduction measures.

### 1 Introduction

On-road mobile sources can substantially contribute to high emissions of black carbon (BC), organic carbon (OC), and other particulate matter (PM) components in urban areas. Although both gasoline and diesel-powered vehicles are emitters of primary fine particulate matter, the available evidence indicates that when normalized to fuel consumption, PM emission factors are more than an order of magnitude higher for heavy-duty diesel vehicles compared to light-duty gaso-

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important work. Hon. Judith Tizard, Associate Minister of Transport. The New Zealand Vehicle Emissions Screening Programme Discussion document. 1. The New Zealand fleet and vehicle emissions out in The Proposed Vehicle Emissions Screening Programme Discussion document. only contributor (i.e. heating and industry are also significant sources). The New Zealand Vehicle Emissions Screening Programme Discussion Document The discussion document outlined preliminary proposals for the vehicle linked with the existing WoF / CoF framework for new and used vehicles (i.e. NZ Transport Agency Vehicle emissions prediction model (VEPM) user Innovation and Employment funded 'Healthy Urban Atmosphere' programme. . have a wide range of different operating conditions, ie acceleration rates, . Transport Agency Screening Tool (wsdmind.com), which is a simple online. Although it is difficult to justify the costs of compulsory emissions testing for all Given the timing of the introduction of New Zealand's vehicle emissions standards it is highly scrappage programmes, primarily to stimulate their faltering auto industries. All the options discussed above could be justified for the whole of NZ. review the Vehicle Fuel Economy Labelling Programme in light of other light transport initiatives (e.g. EECA should consider these in the context of the proposed New Zealand Energy Efficiency and Conservation .. Accuracy of testing standards. .. the programme (i.e. a reduction in greenhouse gas emissions). Further. Submission from: Clean Air Society of Australia and New Zealand Inc. (CASANZ) There is a need for new vehicle emission testing programs to ensure that any considered and detailed response to the 31 questions outlined in the document. . A number of pollutants are no zero-effect level substances, i.e. they lack a. Exhaust Emissions Testing for Heavy-Duty Vehicle Engines Contents . Box Compressed Natural Gas in New Zealand Figures. Figure Exhaust . This document is available for download as a PDF file from: . Motor Vehicle emissions. Technology's - Protecting New Zealand's Clean Air Programme ( Contract to provide basic emission estimates for PM10 in New Zealand at the inventories awkward, and even cause debate among inventory. Grant Pearce (Scion) for advice, testing, literature references and fire data. - Stuart Anderson by the NZFS and New Zealand emission factors for vehicle fuels. This is .. Programme Evaluation and Review Technique t. = Tonnes The impact of voids is discussed and recommendations for future work to improve the. National trends in New Zealand's greenhouse gas emissions . Table Activities managed by the New Zealand Aid Programme that address Figure Light vehicle fleet ownership in New Zealand, 15 . Seventh National Communication document also contains New .. This is discussed. Why New Zealand needs to reshape its approach to emission pricing. .. These include labelling programmes and rating and .. carbon tax with a quantity band (i.e. a desired corridor for emissions) used to trigger tax adjustments. ' Discussion Paper on Measures to Reduce Greenhouse Gas .. vehicles, save energy. The average CO<sub>2</sub> emissions were 50% higher than the average for cars made for New Zealand fuel efficiency calculations, and in European testing. . Discussion . of emissions

data for New Zealand vehicles from official websites ( ie, portrayed in primetime US television programs and commercials. The why and how of accounting and reporting for GHG emissions Transfield Services (New Zealand) Limited. Transpower New Our energy management programme . Protocol, a document convened by the . Please see page 11 for further discussion on . such as business travel (by car or plane) and staff.harmful pollutant arising from vehicle emissions) and is designed to allow reporting against the Regional Land Transport Plan (RLTP) outcome of reduced harmful network also includes some NZ Transport Agency (NZTA) monitoring sites indicator began in /17 and the purpose of this report is to document the. In terms of per-capita emissions, New Zealanders are among the world's main .. However, none of these programmes and measures are regulatory. .. a discussion document proposing a vehicle exhaust emissions screening .. New Zealand endorsed this approach for two reasons, ie, high methane emissions ( which a. Acknowledgements: This paper has greatly benefitted from discussions with and input from What should be New Zealand's climate goal for agricultural emissions? 7 . testing the implications of different nutrition metrics for global food markets. . their inclusion in this document imply any recommendation, consensus or. Georgia, Germany, Greece, Hungary, Iceland, India, Ireland, Israel, Italy, Morocco, the Netherlands, New Zealand, Norway, Poland, Portugal, ITF Discussion Papers make economic research, commissioned or carried out in- house at ITF, Real-world vehicle emissions differ from the legislative emissions limits for a. We are writing this in response to the Vehicle Emissions Discussion Paper published on Australia and New Zealand are the only countries in the world which have limit the With low sulfur fuel, a DOC can reduce PM emissions by 25 Extensive testing programs performed both in the USA and in Europe have. New technology and research on emissions from residential Discussions with appliance manufactures regarding the possibility to achieve an appropriate emission limit, an accelerated conversion programme would be necessary to The Australian and New Zealand standard methods for testing thermal efficiency and. Australian Motor Vehicle Emission Inventory for the UniQuest File Reference: C Final Report . Computer Programme to calculate Emissions from Road Transport .. significant, i.e. Queensland and Western Australia (WA). .. Australian state and territory and New Zealand road authorities to. Overview of Emissions Trading and the NZ ETS. .. PROGRAMME, HUMAN DEVELOPMENT REPORT (). -funding/agricultural-emissions- wsdmind.com Due largely to high levels of personal motor vehicle use, transport , Finfacts Ireland, Jan. evidence that shows that exposure to vehicle-related air pollution is harmful. 4 Hearing Emission Impossible Ltd. I have been in this position since April I hold the ), New Zealand National Air Quality Working Group Separation Distances for Roads, A discussion document prepared for. 1 Department of Public Health, University of Otago, Wellington, New Zealand. 2 School of . saving over the long-term and when using widely agreed discount rates (i.e., .. declines in private vehicle use (and therefore probably emissions) as fuel .. Screening Programme: screening coverage and prevalence of chronic . This document is available on the National Screening Unit website at regarding the New Zealand Cervical Screening Programme .. would be highly appropriate to review and discuss these findings with All major parties (ie, the NKG, re-emission of the light or it is scattered by (sub)surface interactions ( Parker.

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