

"Keeping it real" - fuel efficiency of New Zealand vehicles

Jayne Metcalfe, Emission Impossible Ltd



KiwiRail



Transport Knowledge
Conference 2019



The issue

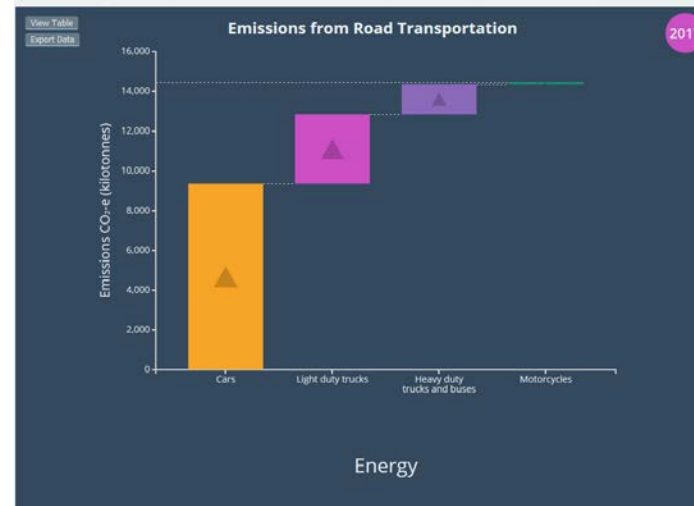
- We need to cut greenhouse gas emissions

But..

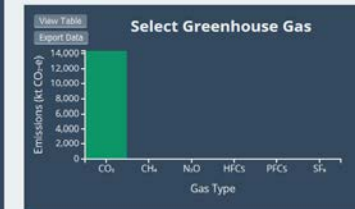
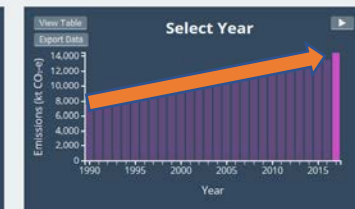
- Road transport emissions increasing

New Zealand's Interactive Emissions Tracker

Sectors/Totals > Energy > Fuel Combustion - Sectoral approach > Transport > Road Transportation

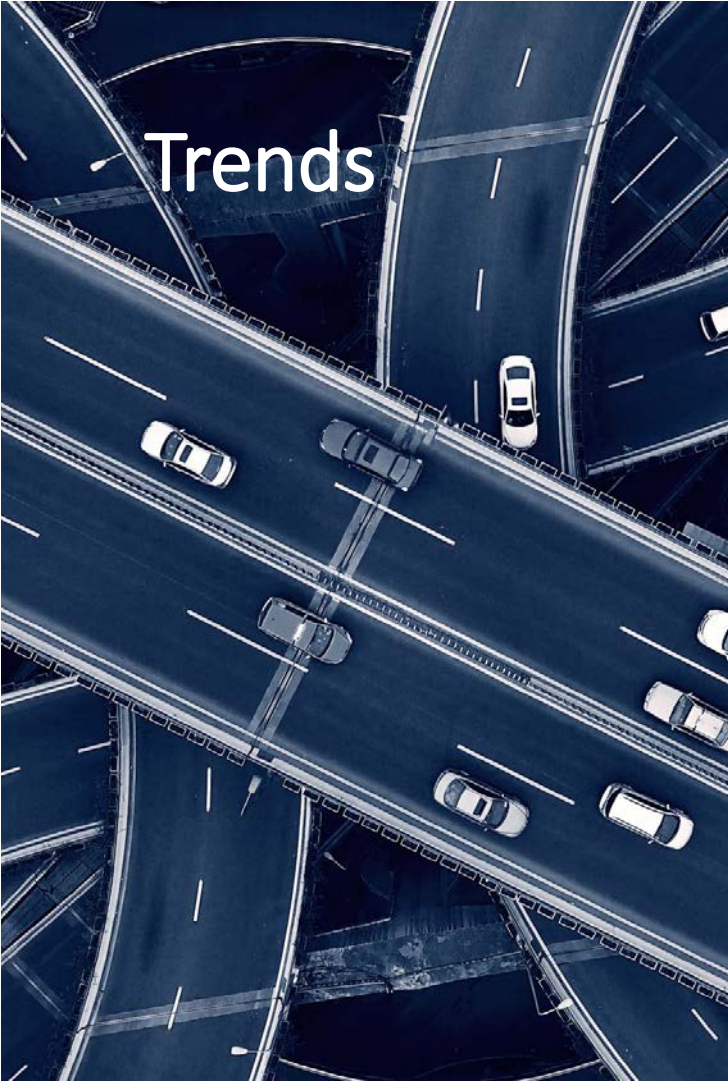


1990 to 2017
+93%



Source: MfE

emission:
Impossible^{td}



Trends

Between 2005 - 2017

- Vehicle kilometres travelled **increased** 20%
- CO₂ emissions from road transport **increased** 19%
- Average age of the light duty fleet **increased** from 12 to 14 years

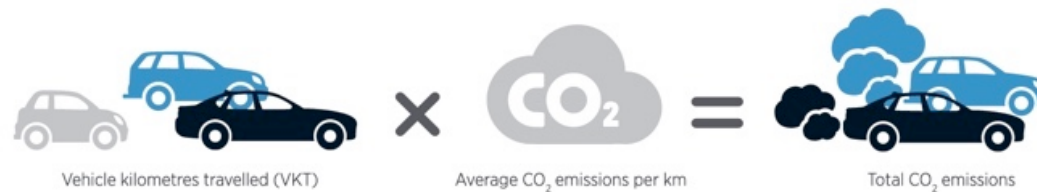


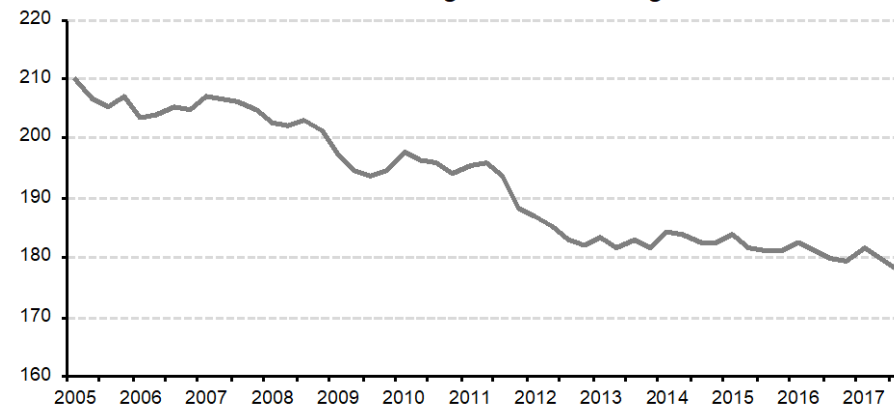
Illustration: Auckland Council

nds

Average *official* CO₂ emissions
per km of registered vehicles
decreased 13% (light duty)



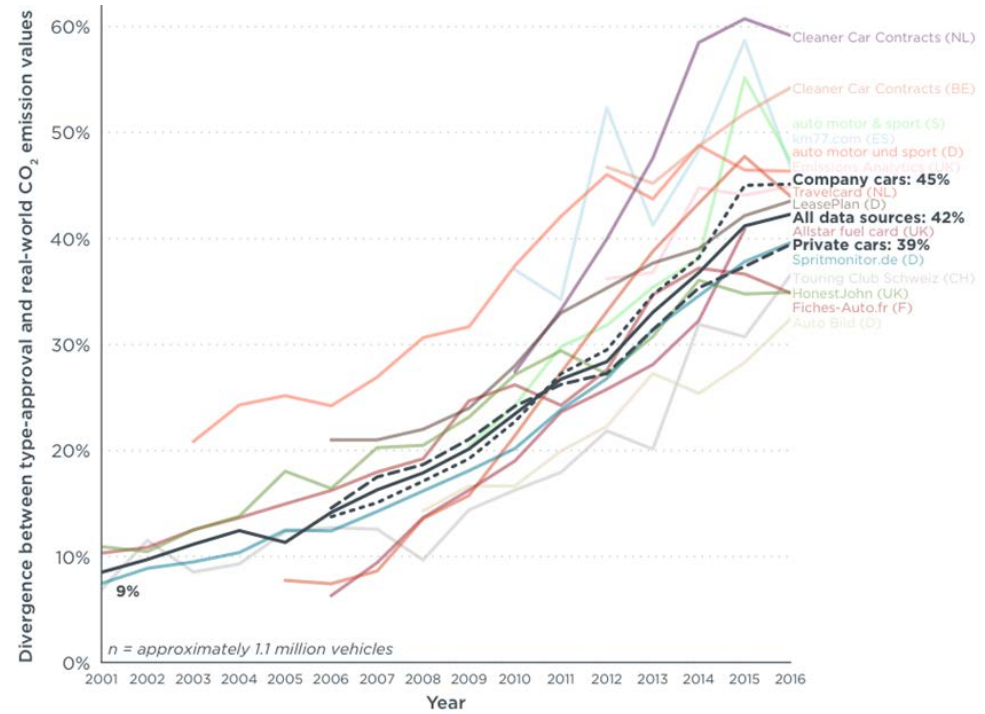
CO₂ emissions of light vehicles registered



Source: Ministry of Transport

nds

The gap between real world
and type-approved fuel
consumption is growing
internationally



Source: ICCT

emission:
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Research question:
are we buying vehicles
which will improve
New Zealand's
greenhouse gas
emissions?





Research project for AA Research Foundation

Review real world fuel consumption
databases and resources:

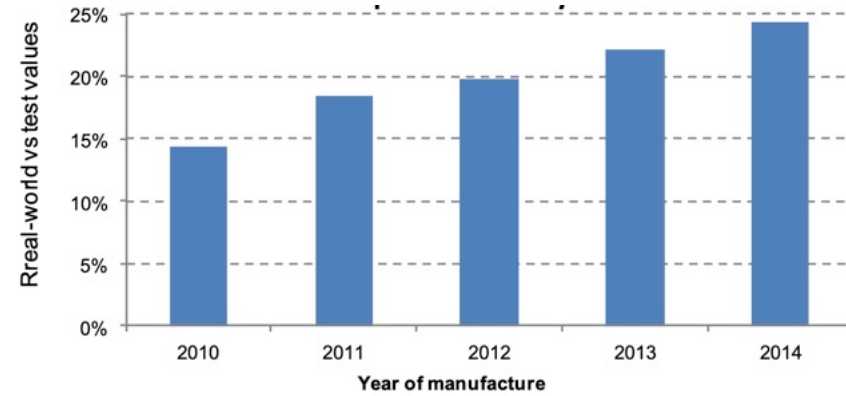
- New Zealand
- International

Identify knowledge gaps and implications

Recommend options to fill knowledge gaps

data

MoT analysis confirmed that the gap between real world and type-approved fuel consumption is growing in New Zealand

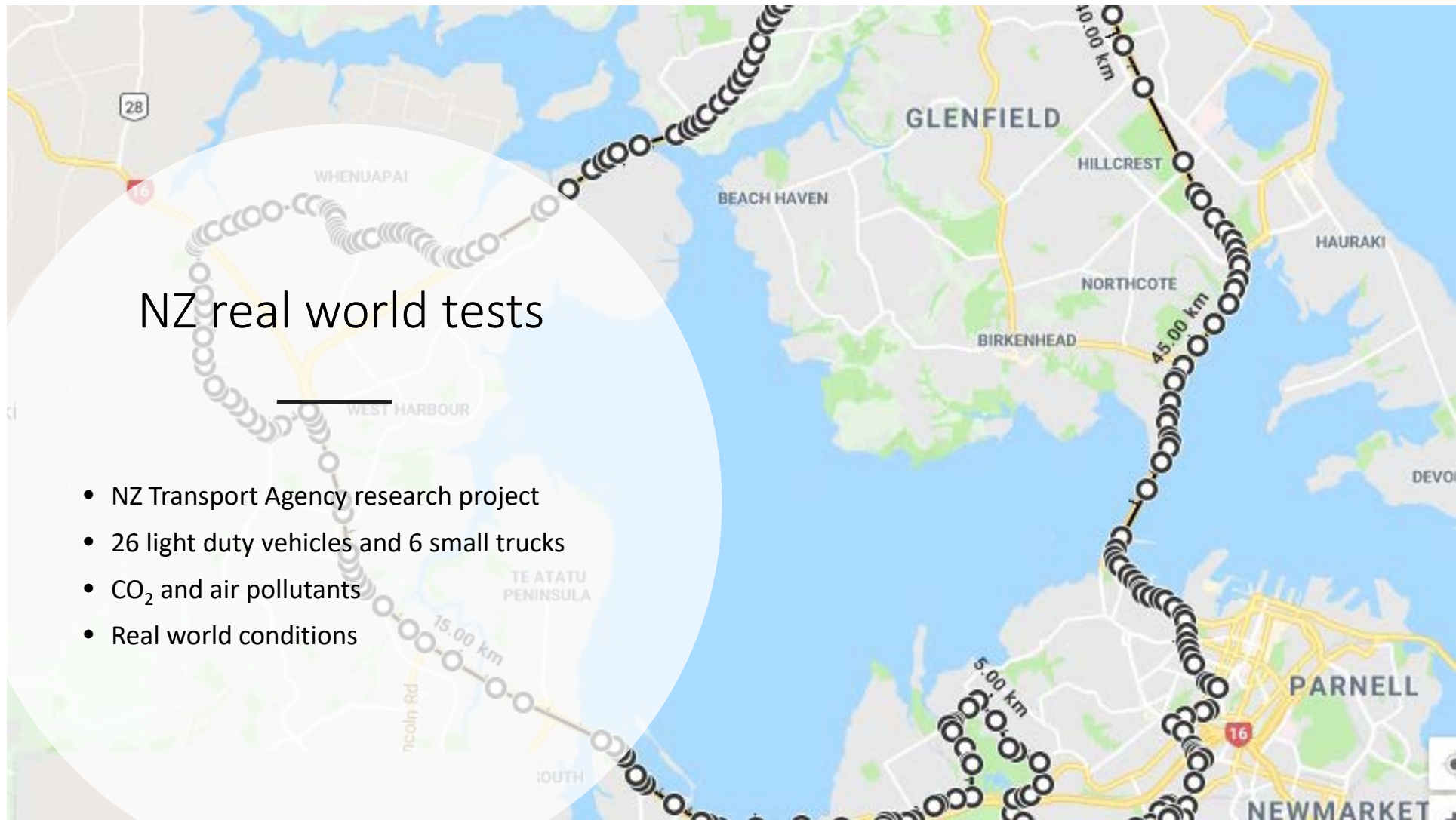


Source: MoT

emission:
Impossible Ltd

NZ real world tests

- NZ Transport Agency research project
- 26 light duty vehicles and 6 small trucks
- CO₂ and air pollutants
- Real world conditions



NZ real world tests

- Results consistent with international tests
- Real world fuel consumption between 9% lower and 40% higher than official figures



NZ resources

Based on official fuel consumption figures

- Fuelsaver
- RightCar
- CarJam

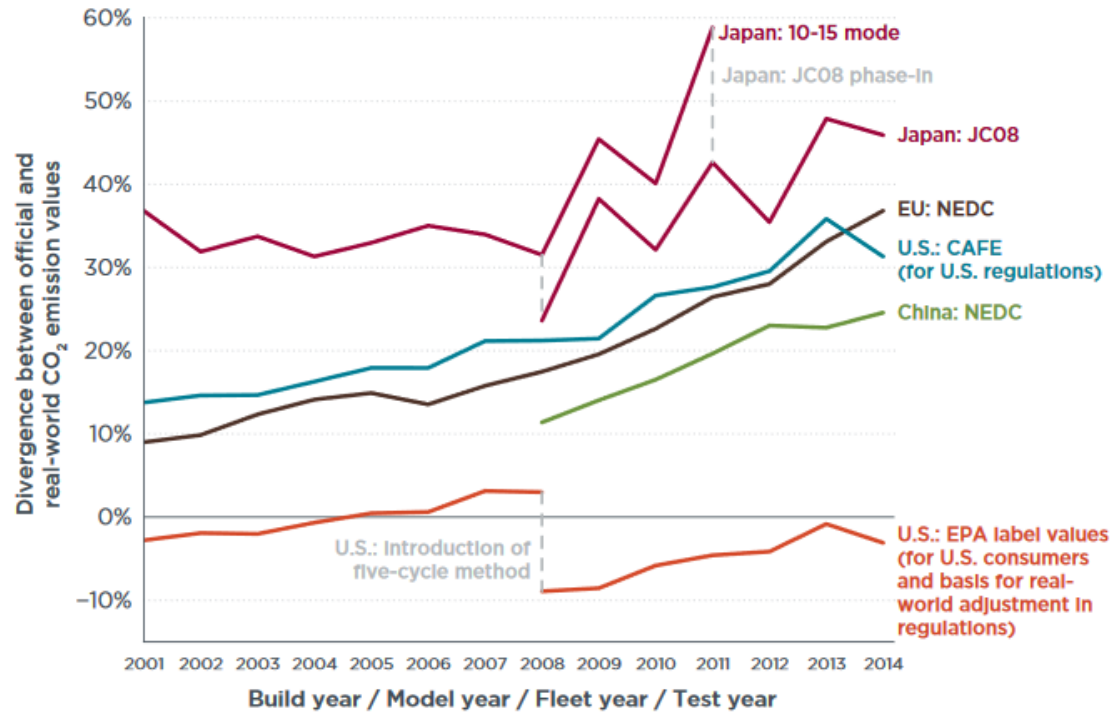


The image shows the CarJam website interface for a 2004 Toyota Vitz. It includes a search bar, a list of vehicle details (Year, Make, Model, Colour, Body Style, Station Wagon, NCFP, etc.), and a photo of the vehicle. The website also features a 'Get CarJam Report' button.

| | | | | |
|--|--|-----------|--|--|
| | TOYOTA VITZ Hatchback IMPORT Includes 44 model variants | 1999-2005 | Not rated | Fuel economy ★★★★★ \$1,710 / year |
| | TOYOTA VITZ Hatchback IMPORT Includes 3 model variants | 2010-2013 | UCSR safety ★★★★★ Marginal score | Fuel economy ★★★★★ No information available |
| | TOYOTA VITZ Hatchback IMPORT Includes 13 model variants | 2000-2015 | UCSR safety ★★★★★ Poor score | Fuel economy ★★★★★ No information available for best variant |

International data

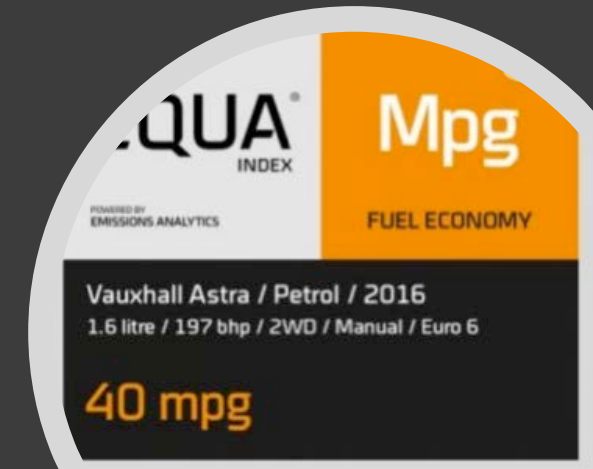
- Divergence (gap) has increased over time in all regions
- US 'label values' show that it is feasible to provide real world estimates



Source: ICCT

International resources

- Websites and apps
- Provide official and real-world fuel consumption
- Consumer/self reported fuel consumption – examples:
 - Honest John (UK)
 - Spiritmonitor.de (Germany)
 - MyMPG (US)
 - E-Nenpi.com (Japan)
- From tests:
 - EQUA (UK)



E-Nenpi.com

| The names are listed under the specified conditions. | | | | |
|--|--|---|-------------------------|--|
| No | Model name | Photo | Actual fuel consumption | WLTC mode fuel consumption JC08 mode fuel consumption 10.15 mode fuel consumption |
| 1 | Toyota Starlet 1300cc (EP82) MT FF 4th generation |  | 19.94 km / L | - - 18.4 ~ 19.2Km / L |
| 2 | Toyota Pixis Joy 660cc (LA250A) CVT FF Turbo |  | 19.83 km / L | - 24.8 ~ 27.0Km / L - |
| 3 | Toyota Vitz 1300cc (SCP 13) CVT FF U idle stop others |  | 18.10 km / L | - - 23.0 ~ 25.5Km / L |

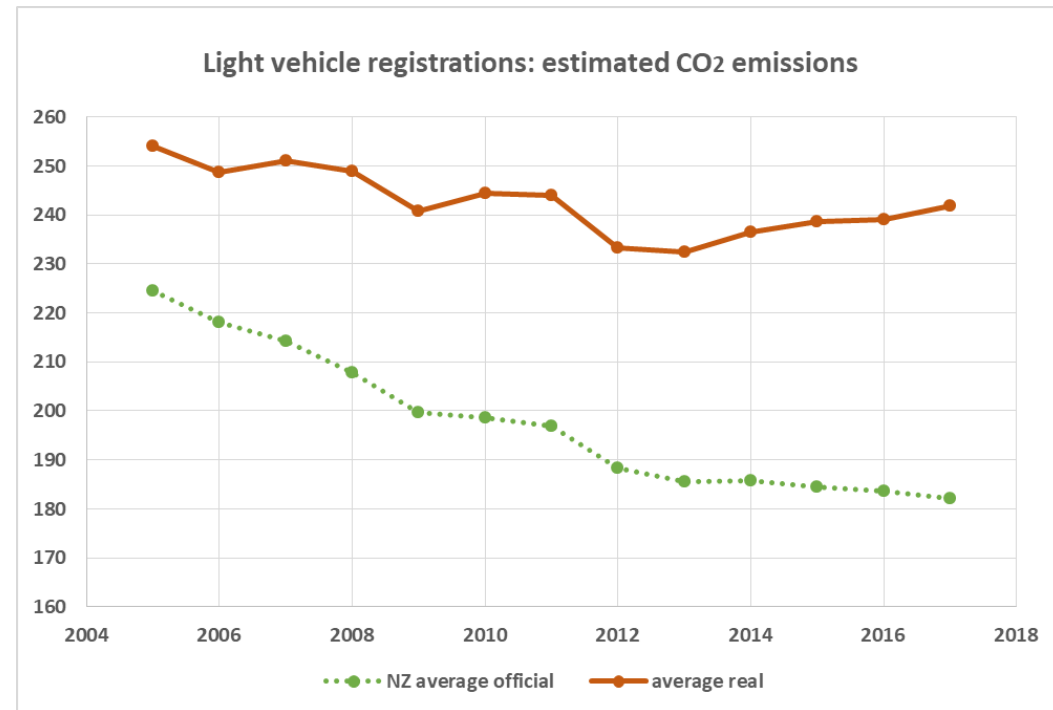
emission:
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Implications



Applications

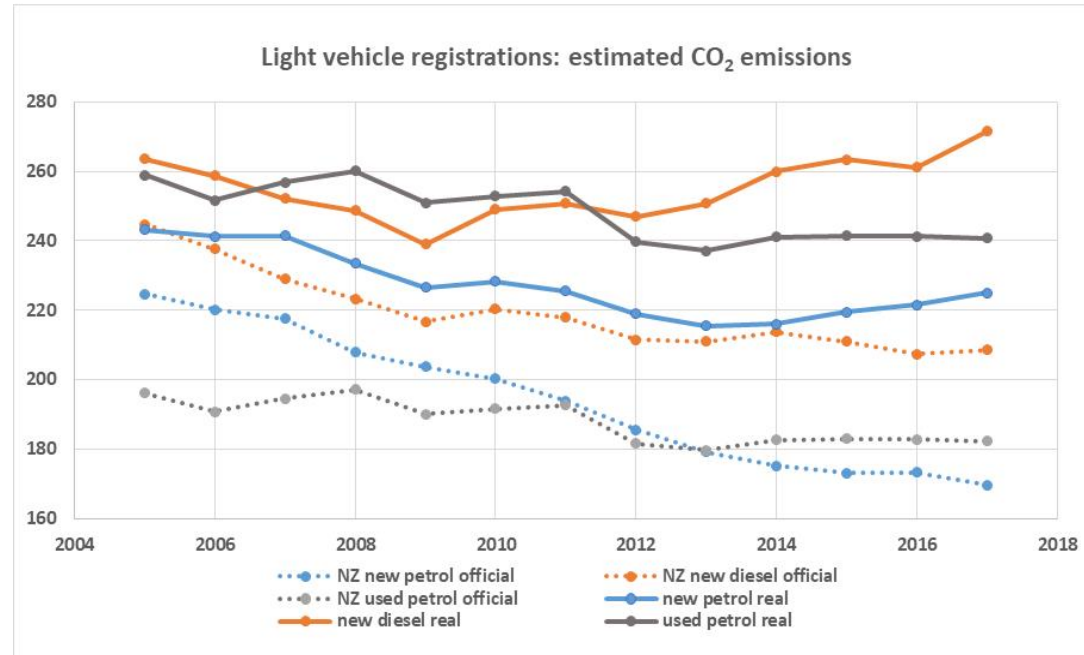
Preliminary estimate of real world trends based on available data...



Source: Emission Impossible Ltd

Applications

Suggests real world fuel efficiency may actually be getting worse



Source: Emission Impossible Ltd

Conclusions



Official figures are the only fuel consumption data readily available for NZ consumers



Official fuel consumption figures are misleading



Average real-world fuel consumption of vehicles entering NZ may be getting worse?



Source: Fuelly.com

Recommendation

Develop a resource to provide data for currently available vehicles in New Zealand, including:

- Official fuel consumption (currently available)
- Real world fuel consumption estimates from international databases
- New Zealand real world fuel consumption estimates based on data provided by New Zealand motorists

Final word



Improved understanding of real world fuel consumption would:

- help kiwi motorists to make better purchasing decisions and
- give policy makers more accurate information