

APPENDIX: Calculating Toyota RAV4, Ford Everest and Ford Ranger emissions targets and penalties

The Federal Chamber of Automotive Industries (FCAI) figures Mr Littleproud relied on were calculated before a range of changes were made to the proposed New Vehicle Efficiency Standard (NVES) scheme.

The FCAI calculations were based on the government’s preferred option in February 2024.

A [fact sheet](#) released in March outlined changes to the scheme following consultation. This included moving large four-wheel-drive (4WD) vehicles from the passenger vehicle (PV) class into the light commercial vehicle (LCV) class, which affected 4WD Ford Everest models but not the Toyota RAV4 (page 3).

The government also increased emissions targets for LCVs by 5.5 per cent in 2025 and 35.8 per cent in 2029, meaning fewer vehicles would incur a penalty under the scheme and the penalties for others would be reduced.

Finally, so-called breakpoints, that limit the extent to which heavy vehicles receive a more lenient target, were also increased, meaning penalties for heavier vehicles (including the Ford Everest) were further reduced.

AAP FactCheck calculated the emissions targets and penalties incurred by the RAV4, Ford Everest and Ranger models based on the updated rules included in the NVES Act 2024.

[The act](#) includes a formula to calculate the emissions targets for individual models (p17).

While there are annual “headline targets” for the PVs and LCVs, these are adjusted based on the weight of each vehicle model. In effect, this means each model has a bespoke target.

Headline limit			
Item	Column 1 Year	Column 2 Type 1 vehicles	Column 3 Type 2 vehicles
1	2025	141	210
2	2026	117	180
3	2027	92	150
4	2028	68	122
5	2029	58	110

The formula used to calculate a vehicle’s emissions target is:

$$HL + MAF (DM - RM)$$

HL: The headline limit for the vehicle class for the year, defined in clause 22.

MAF: The mass adjustment factor for the vehicle for the year, defined in clause 23 as 0.0663 for a PV in 2025 and 0.0324 for LCVs. This sets the degree to which a vehicle's weight affects its target. Vehicles that are heavier than average have a more lenient target, while lighter vehicles have a tougher target.

DM: The designated "mass in running order" (MIRO) for the vehicle, calculated by adding the vehicle's kerb weight, plus 75 to account for the weight of a 75kg passenger, minus 10 per cent of the weight of a full tank of fuel. The Department of Infrastructure, Transport, Regional Development, Communications and the Arts advises this can be calculated at 0.835kg per litre of diesel and 0.75kg/l of petrol.

The designated MIRO is also bound by upper and lower limits called "breakpoints" (clauses 25-26), meaning all vehicles lighter than 1500kg use 1500 as their designated mass (DM), while PVs heavier than 2200kg use 2200 and LCVs heavier than 2400kg use 2400 as their DM. This limits the extent to which a vehicle's target is adjusted by weight.

RM: The reference MIRO for the vehicle for the year, defined in clause 27 of the act as 1723 for a PV in 2025 and 2155 for an LCV. The [Explanatory Memorandum](#) accompanying the legislation states this is based on the average mass of vehicles sold in Australia (p24-25).

The RAV4 is classed as a PV under the legislation. Toyota's [latest RAV4 brochure](#) includes figures for the kerb weights of the different models.

As an example, the two-wheel drive (2WD) GX model has a kerb weight of 1650kg. To calculate the designated MIRO, 75kg is added to account for a passenger, and 4.125kg is deducted to account for 10 per cent of a 55-litre fuel tank, producing a designated MIRO number of 1720.875.

When included in the above formula, along with the figures outlined in the legislation, this produces the following equation to calculate the model's emissions target in 2025:

$$141 + 0.0663 (1720.875 - 1723) = 140.8591125$$

The government includes emissions figures for most vehicle models in its [Green Vehicle Guide](#).

This shows the 2WD GX produces 107g/km, meaning it is about 33g/km below its target in 2025 and receives about a \$3380 credit, as penalties are calculated at \$100 per gram.

The 4WD Everest models are classed as LCVs, while 2WD models are classed as PVs, each with different headline targets in the formula above.

All Ford Ranger models are classified as LCVs under the scheme.

Figures from the latest [Ford brochure](#) for the model show the weights for each model, which all exceed the "designated breakpoints" in the formula.