

CARBON & OPERATIONAL COST REDUCTION REVIEW



UBCO

THE ELECTRIC REVOLUTION

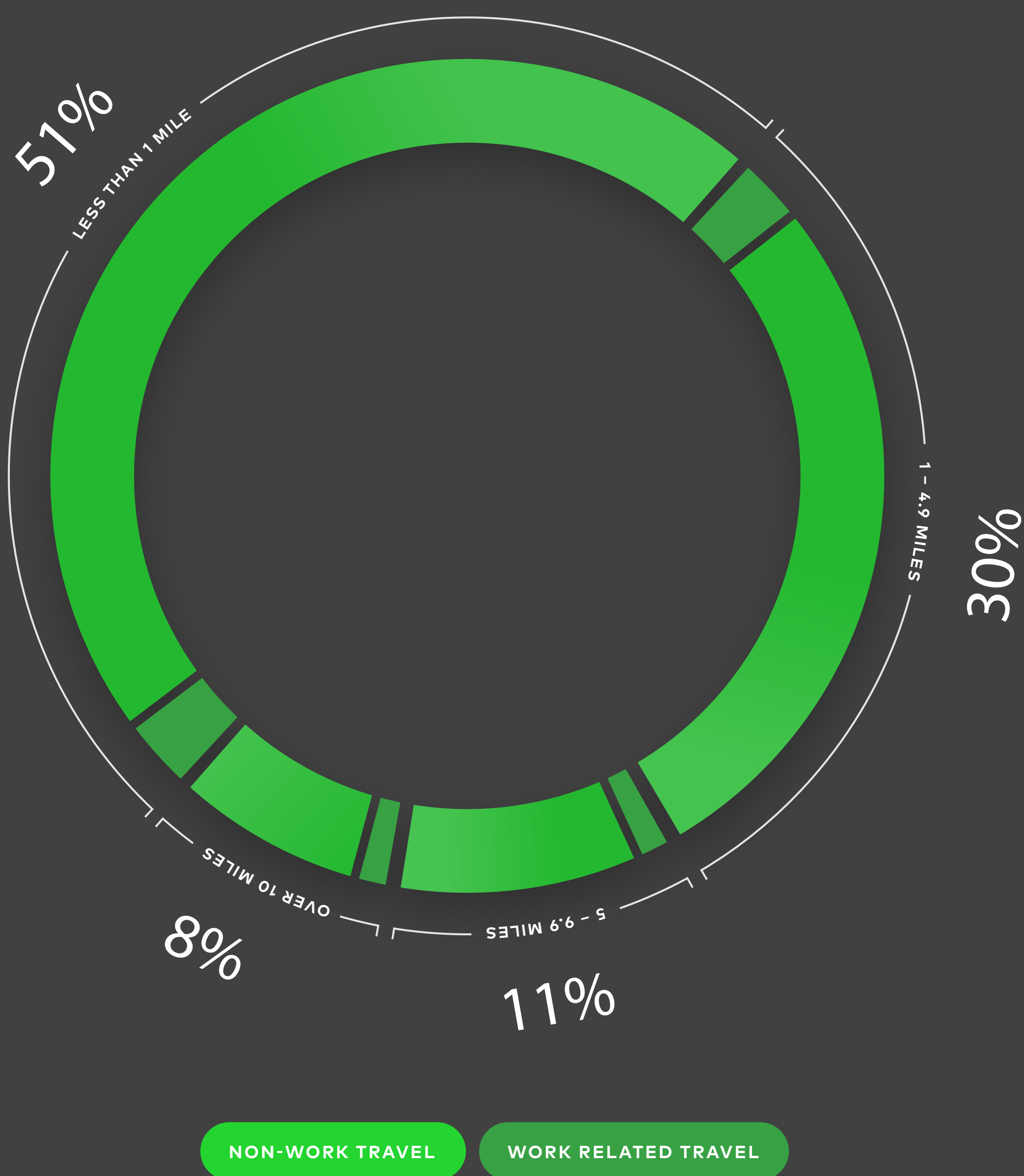
Currently, transport accounts for 24% of global carbon emissions. Globally, electric vehicles need to grow to over 75% of passenger vehicle sales by 2030.

This will help meet international climate goals that limit global warming to 1.5°C and prevent the worst climate change impact, according to Climate Action Tracker.

While most of the statistics are based on the adoption of all types of electric vehicles, with electric passenger cars as the implied default, there is now research that more clearly reveals the role that smaller EVs like electric bikes and mopeds play in enabling more carbon-neutral transport.

According to a recent piece of research published by The Conversation, the world's 280 million existing electric bikes and mopeds are cutting demand for oil at a much steeper rate than electric cars.

Part of this is because a large proportion of trips are taken by car, for distances of less than 10km. In Australia, 44% of all short trips are by car, a statistic matched or exceeded by other wealthy developed countries; in the United States, 60% of all car trips cover less than 10km.



Summary of Travel Trends –
2017 National Household Travel Survey

While switching to an electric car is usually posed as the obvious solution, an e-bike or scooter can be a far better choice for short, everyday trips.

Two-wheeled forms of transport are cheaper to both buy, as well as run and maintain over their lifespan, particularly since they offer the opportunity to opt out of spending money on oil— a commodity whose price and global availability is becoming increasingly unpredictable.

As petrol prices increase and battery prices fall, the cheaper running costs of electric vehicles and even cheaper running costs of electric mopeds, bikes and scooters will keep eating away at the demand for oil.

Global oil demand is now projected to peak in 2028 at 105.7 million barrels per day – and then begin to fall, according to the International Energy Agency. Electric vehicles will play a role in cutting oil demand. But it may well be that electric micro-mobility cuts demand faster, given how fast these cheaper, more plentiful options are being taken up.

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We commissioned research by independent carbon-measurement specialists The Lever Room. The 2023 study compared the performance of different vehicles, across on- and off-road use cases, to the UBCO 2x2 under the same conditions.

COMPARATIVE CARBON MODEL, METHODOLOGY

The Lever Room team developed a comprehensive comparative carbon model for UBCO, assessing the 2x2 model against various alternatives in terms of both cost and operational carbon footprint over a distance of 50,000km/30,000 miles. Their analysis covered three distinct categories: general vehicles, quadbikes, and farm bikes. For quadbikes and farm bikes, they focused on the best-selling or most common models for a thorough comparison.

In the general vehicles category, the team examined the lowest-powered versions of the best-selling vehicles in each fuel and vehicle type, including diesel, petrol, hybrid, and electric (EV) cars, as well as petrol

mopeds. They selected these options as they were considered the most relevant for drawing meaningful comparisons to an UBCO on the road.

To gather data on fuel efficiency, they consulted various online sources, with a primary emphasis on real-world performance figures whenever available. Additionally, data on fuel and electricity prices were obtained from government sources in each respective location. The calculation of carbon emissions was conducted using published well-to-wheel factors* for each region under consideration. These factors covered all upstream as well as usage emissions, offering a holistic view of the carbon impact associated with each alternative.

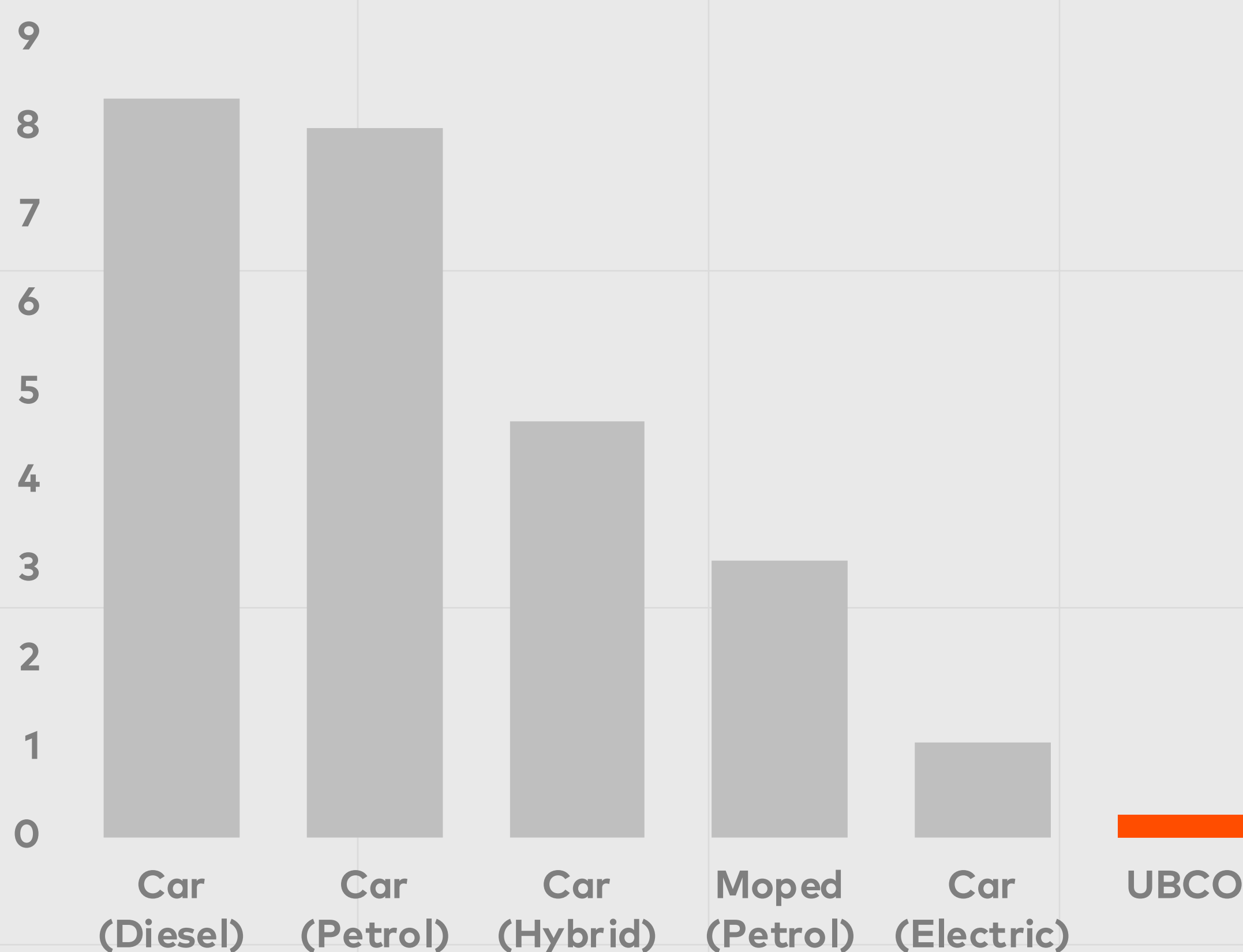
* A well-to-wheel analysis is a method for evaluating the energy consumption and greenhouse gas emissions of a vehicle or drivetrain throughout its entire life cycle. It's a non-standardised method that considers the energy flow from the production of fuel to the energy used at the vehicle's wheels.

UBCO BIKES ARE DESIGNED TO SIGNIFICANTLY REDUCE BOTH CARBON EMISSIONS AND OPERATIONAL FUEL COSTS

The savings in fuel costs, combined with the reduction in servicing costs as a result of fewer moving parts means that each vehicle will pay for itself in operational savings alone.

Whether it's an individual bike or fleet of 1,000 the reduction multiplier that UBCO delivers is compelling.

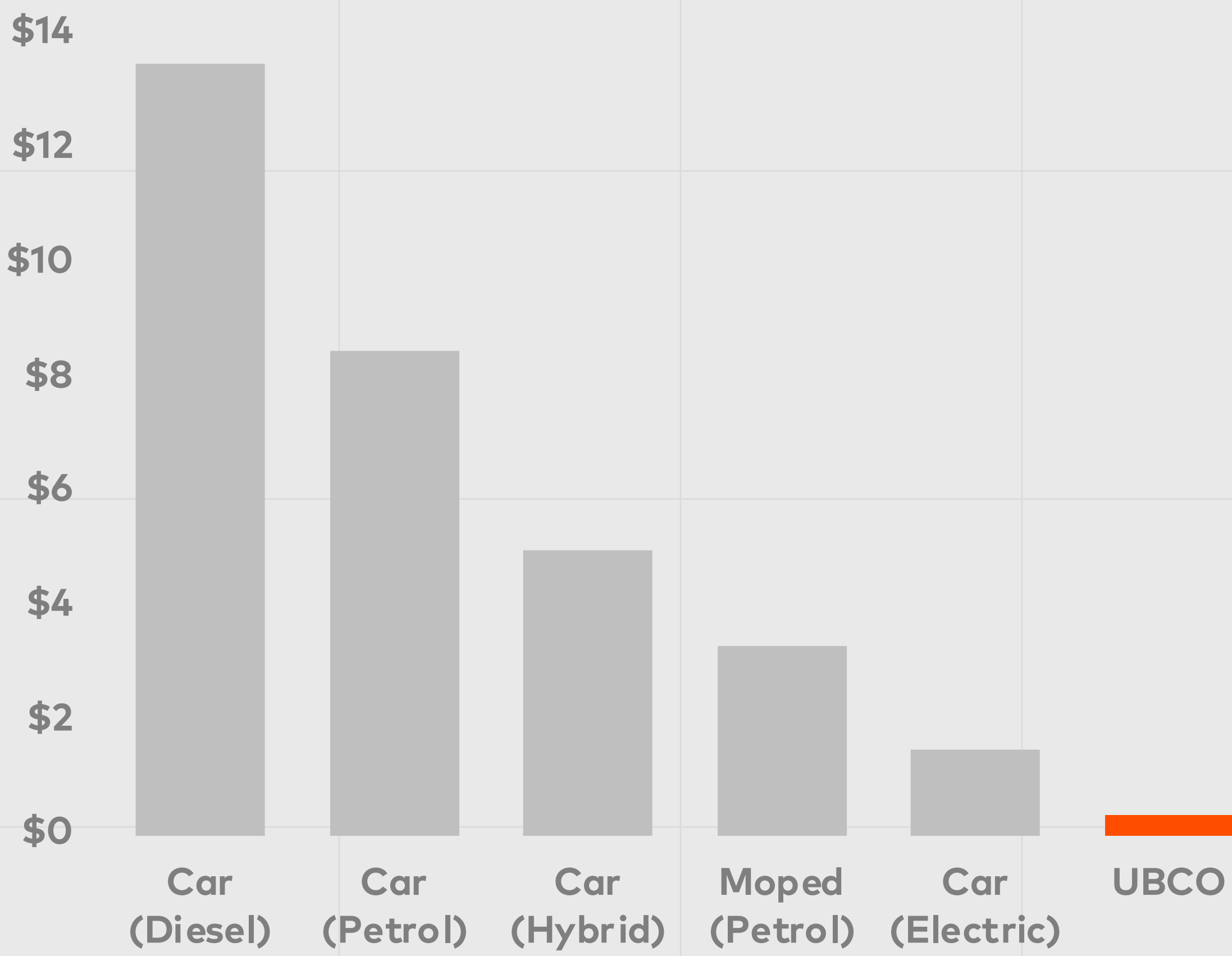
EMITTED tCO₂e OVER 5 YEARS / 50,000KM



**CARBON IMPACT
UP TO 97% REDUCTION IN TCO₂E**

(New Zealand data)

\$ SPEND (THOUSAND) OVER 5 YEARS / 50,000KM



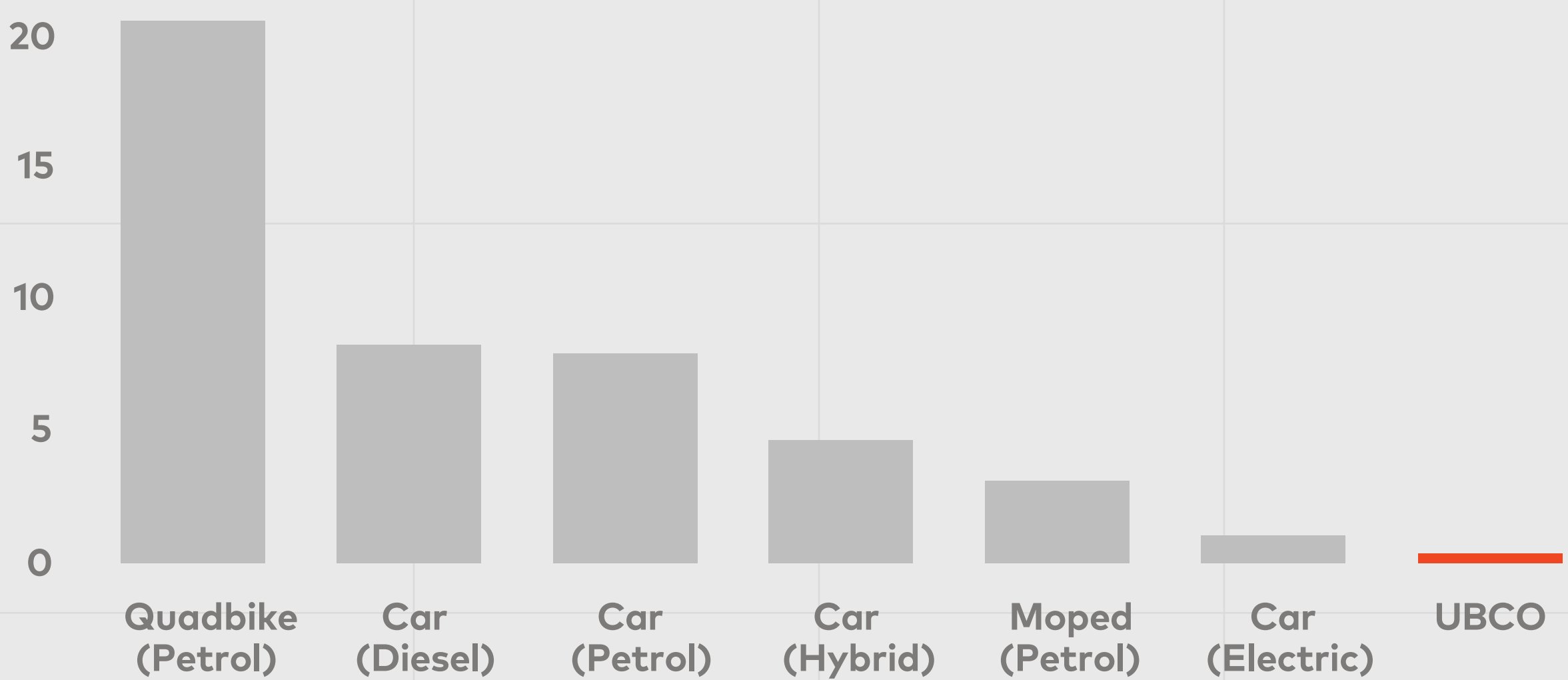
**COST IMPACT
UP TO 97% REDUCTION IN OPERATIONAL FUEL COSTS**

(New Zealand data)

ICE QUAD BIKE COMPARISON

From a safety perspective quad bikes are considered more dangerous than 2 wheeled bikes. In addition, the carbon emissions profile and fuel costs of ICE quad bikes are confronting.

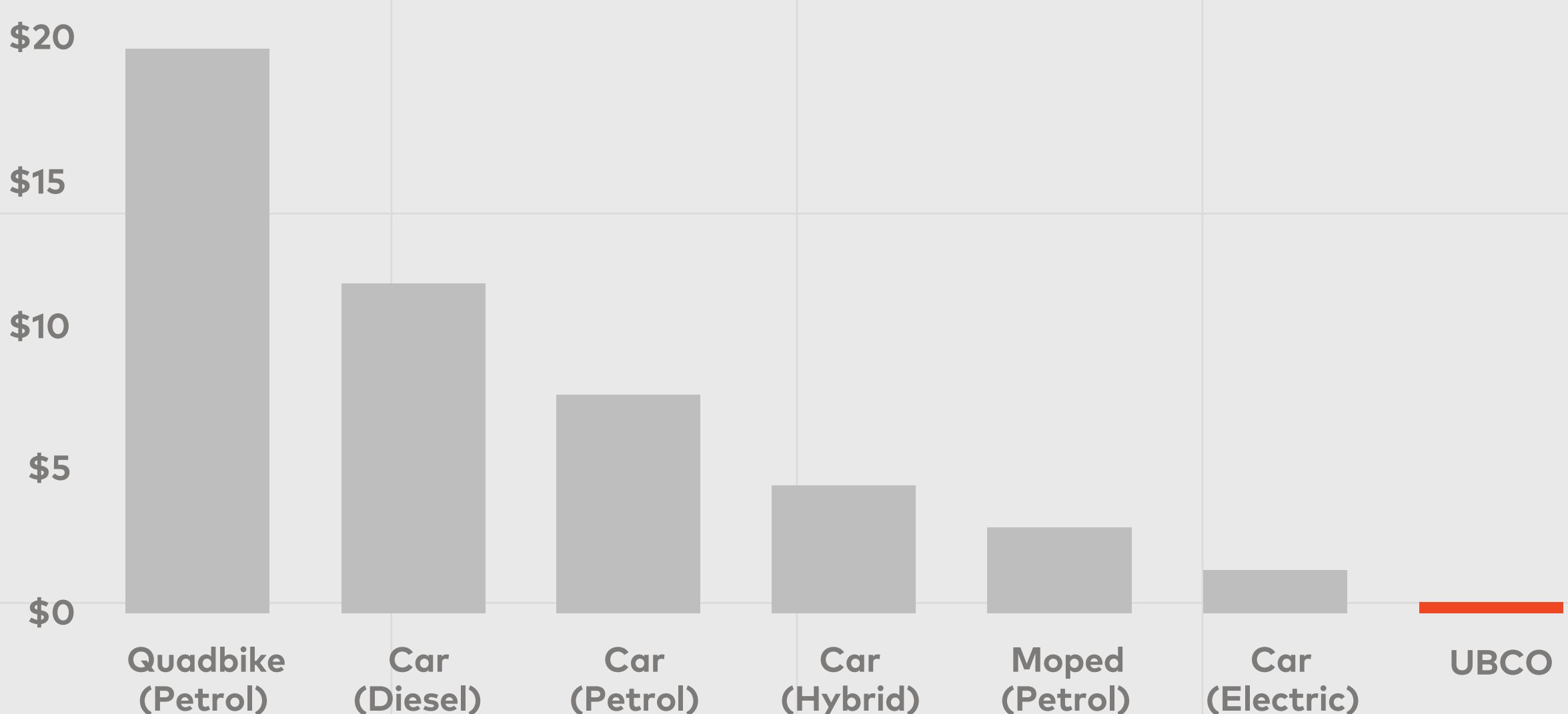
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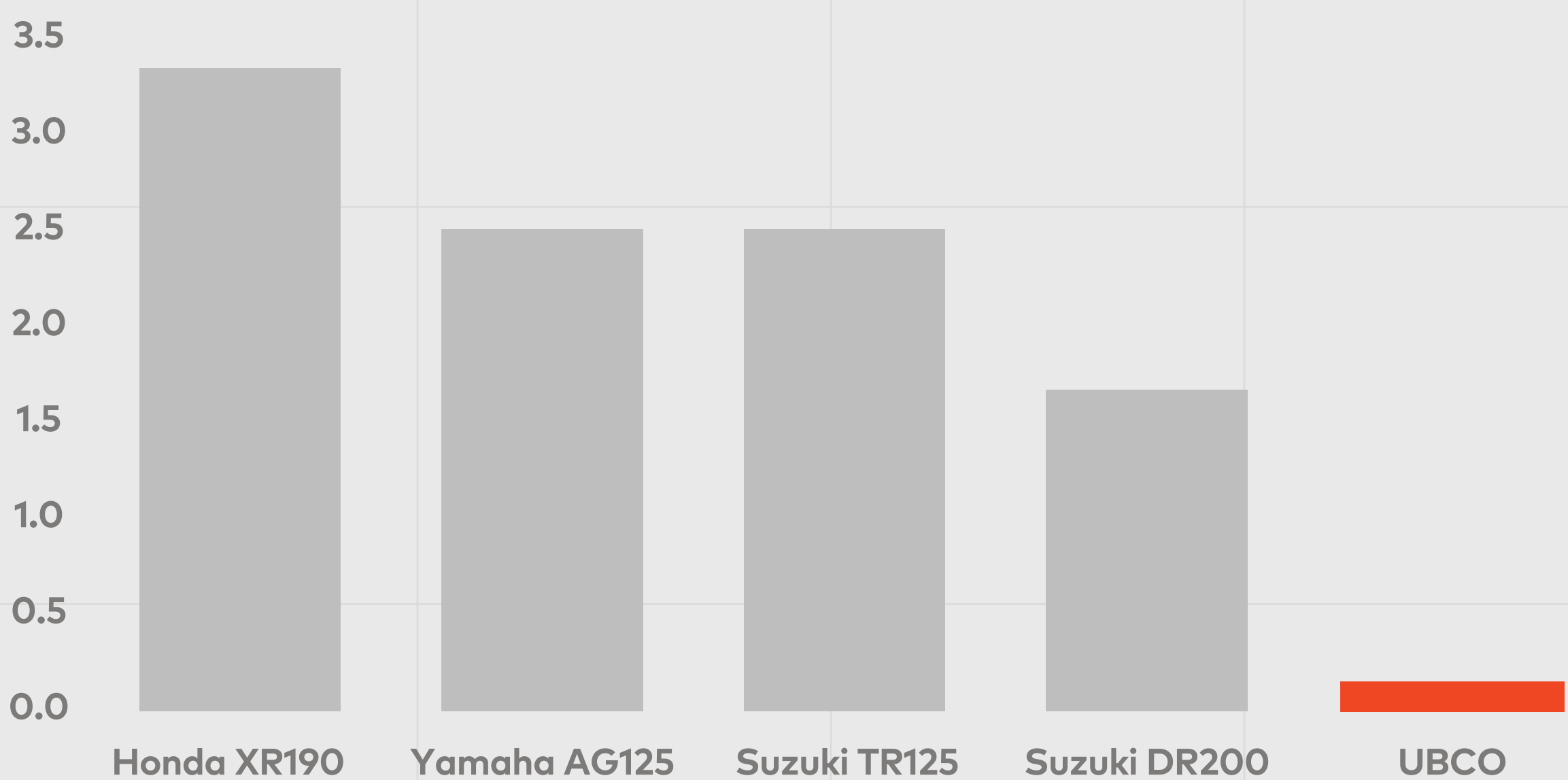
COST IMPACT UP TO 98% REDUCTION IN OPERATIONAL FUEL COSTS

(New Zealand data)

FARM MOTORBIKE COMPARISON

Comparing to the most common motorbikes found on New Zealand farms there are significant operational savings. This does not take in to account the ongoing servicing costs which are significantly higher for ICE bikes, particularly in rough farm conditions.

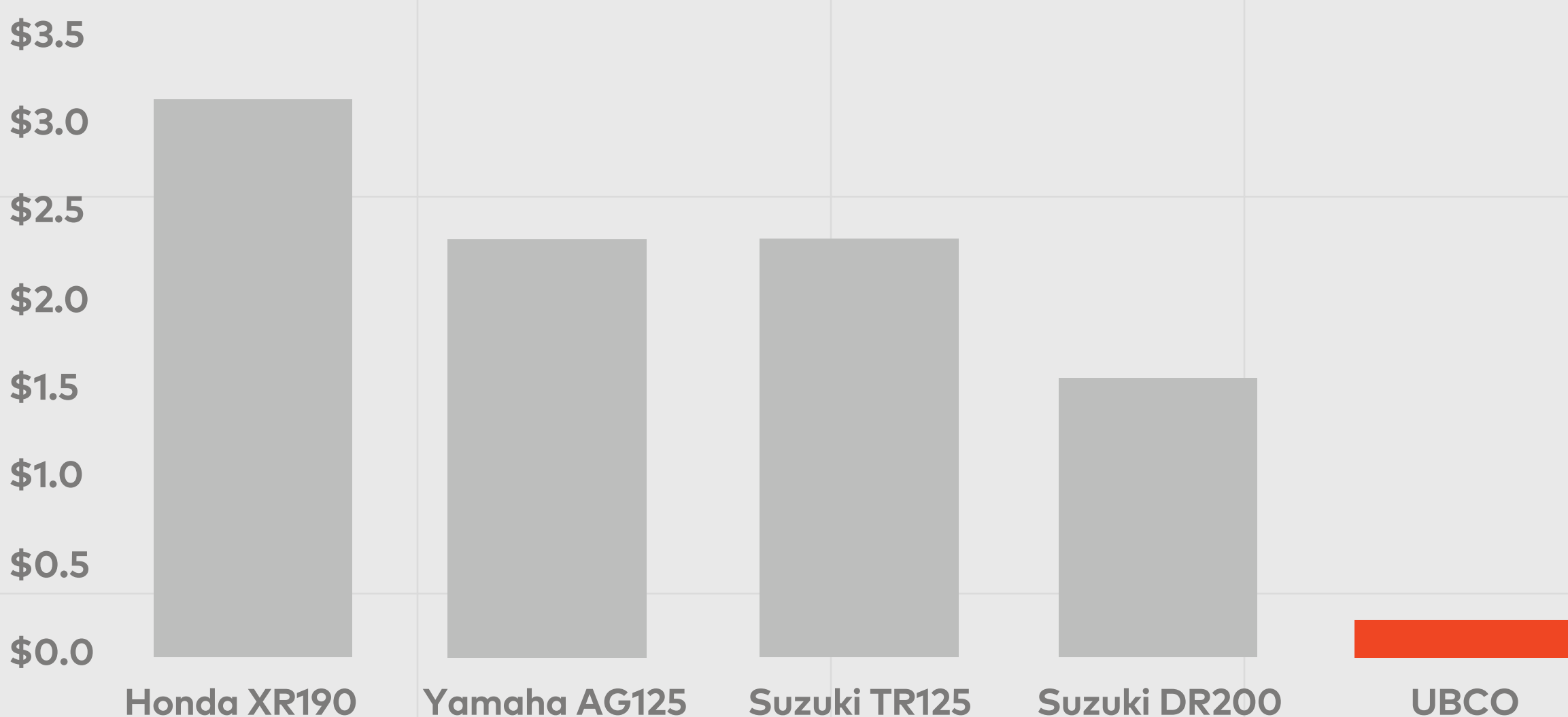
EMITTED tCO₂e OVER 1 YEAR/10,000KM



CARBON IMPACT UP TO 95% REDUCTION IN tCO₂e

(New Zealand data)

FUEL/ENERGY \$SPEND (THOUSAND) OVER 1 YEAR/10,000KM



COST IMPACT UP TO 93% REDUCTION IN OPERATIONAL FUEL COSTS

(New Zealand data)

OPERATIONAL FUEL COST COMPARISON

VEHICLE	L/KWH PER 100KM	LITRES/ KWH	\$	VS UBCO
Quadbike (Petrol)	15.00	7500	\$19725	98%
Car (Mazda CS-3, Diesel)	5.30	2650	\$7720	95%
Car (Petrol, Suzuki Swift)	5.80	2900	\$7627	95%
Honda XR190	4.00	2000	\$5260	93%
Car (Toyota Prius, Hybrid)	3.40	1700	\$4471	92%
Yamaha AG125	3.00	1500	\$3945	91%
Suzuki TF 125	3.00	1500	\$3945	91%
Moped (General, Petrol)	2.27	1137	\$2989	88%
Suzuki DR200	2.00	1000	\$2630	86%
Car (MG ZS, Electric)	16.20	8100	\$1498	76%
UBCO 3.1kw	3.875	1938	\$358	-

NOTES & ASSUMPTIONS

- City driving has been assumed for all cars.
- Small Hatchbacks have been selected where possible, using NZ best seller data to identify the closest match.
- Diesel running costs includes RUC.
- No other running costs have been included outside of Fuel & Power.
- Quadbike fuel economy is due to operating conditions and does not offer a like for like comparison against other forms of transport listed.
- Due to selected farm motorbike range being primarily aimed at the offroad market, manufacturer fuel economy stats not widely available.
- Petrol (\$2.926) & Diesel (\$2.22) prices based on MBIE average as correct at 01/09/23.
- Electricity price based on 18.49 c/kWh.
- Battery range per full charge based on 80km tested under farm conditions.

ICE EQUIVALENT MOTORBIKE (NZD)

Comparing UBCO annual operational fuel costs with an ICE equivalent bike over time (based on 10,000kms per annum)

OWNERSHIP YEARS	ICE MOTORBIKE	UBCO 2X2	OPERATIONAL FUEL COST SAVINGS
1	\$236.70	\$21.49	\$215.21
3	\$710.10	\$64.48	\$645.62
5	\$1,183.50	\$107.47	\$1,076.03
10	\$2,367.00	\$214.95	\$2,152.05

HONDA XR190 MOTORBIKE (NZD)

Comparing UBCO annual operational fuel costs with Honda XR190 over time (based on 10,000kms per annum)

OWNERSHIP YEARS	ICE MOTORBIKE	UBCO 2X2	OPERATIONAL FUEL COST SAVINGS
1	\$315.60	\$21.49	\$294.11
3	\$946.80	\$64.48	\$882.32
5	\$1,578.00	\$107.47	\$1,470.53
10	\$3,156.00	\$214.95	\$2,941.05

JOIN THE MOVEMENT

By choosing an UBCO electric motorbike, you're not just making a personal choice; you're contributing to a global shift towards sustainable transportation. Let's work together to create a cleaner, healthier planet.