

Hybrid cars are having a moment, even though they're dirtier than people think. What's behind their popularity?

June 20 2024, by Hussein Dia

Average real-world and WLTP emissions and fuel consumption (European Union cars)

Powertrain/fuel type ¹	Average CO ₂ emissions (grams/km)		Average fuel consumption (litres/100 km)		Gap (%)	
	Real-world	WLTP ²	Real-world	WLTP	Average	Km-weighted
Petrol	179.8	145.3	7.89	6.38	24%	20%
Diesel	181.0	153.2	6.88	5.82	18%	17%
Petrol and Diesel	180.3	148.8	7.44	6.13	21%	18%
Plug-in hybrid (petrol)	135.9	40.2	5.97	1.76	238%	251%
Plug-in hybrid (diesel)	153.3	37.2	5.83	1.41	312%	318%
Plugin-in hybrid (all)	139.4	39.6	5.94	1.69	252%	267%

European real world testing has shown plug-in hybrids run much more like fossil fuel vehicles than electric. WLTP refers to standardised laboratory testing.

Credit: [European Commission](#), [CC BY](#)

Just last year, [data suggested](#) that plug-in hybrid cars were on the way out in Australia. But they're back. [New data](#) shows plug-in hybrids and conventional hybrids combined have overtaken battery electric vehicle sales in the first quarter of 2024. The trend [continued](#) during April and May.

In the first quarter last year, hybrids accounted for 6.8% of all car sales. In the same period this year, their share has almost [doubled](#) to 13%. Similar [trends](#) have been reported in international markets.

This is concerning. Although hybrids are cleaner than traditional petrol and diesel cars, they still burn fossil fuels and produce [more emissions](#) than their manufacturers claim. They're [no match](#) for zero-emissions [battery](#) electric vehicles.

So why do consumers want hybrids? Let's find out.

What makes a hybrid?

Two types of [hybrid vehicles](#) are proving to be popular with consumers.

1. **Conventional hybrids:** These combine an [internal combustion engine](#) with an [electric motor](#) and battery. They use [regenerative braking](#) to convert energy created from braking into [electrical power](#) to recharge the battery. You cannot plug them in—the only way to get energy into the car is by filling them up with petrol or diesel. The advantage is that they drive further on a tank of petrol or diesel than a traditional car.
2. **Plug-in hybrids:** These vehicles also combine an internal combustion engine with a larger electric engine and a battery. The difference is you can charge their batteries directly using a power outlet. Plug-ins also use regenerative braking to recharge the battery. They can drive on battery power alone but the fuel engine kicks in when the battery level drops or if [more power](#) is required.

Both types of hybrid are [cleaner](#) than traditional internal combustion [counterparts](#). But they are not as clean as battery electric. They have been found to [run more often](#) on their petrol or diesel engines than their electric motors and [produce substantial emissions](#).

By contrast, battery electric vehicles run only on an electric motor and batteries. They produce zero emissions while driving, and can—if charged off your [solar](#) array or green power—be extremely [low-emissions](#) to charge. You never need to fill up at a petrol station. You can often charge them at home, or at public chargers.

Why are hybrids so popular right now?

It's not by chance. Hybrids are being [heavily promoted](#) by carmakers as a transitional step to cut emissions from transport. Notably, Toyota, the world's largest carmaker, is skeptical of battery electric vehicles and is instead [focusing on hybrids](#) until, it says, public chargers are widespread and electric cars are cheaper.

Plug-in hybrids are particularly popular in [Europe](#). In 2022, they made up two-thirds of sales in Greece and more than half in Belgium, Spain, Italy, and Finland. The average across the European Union was 44%.

Hybrids have also [become popular](#) for a number of other reasons.

For one, they are [cheaper](#) than battery electric. They're also [cheaper to run](#) than internal combustion vehicles.

But there are other factors at work. Hybrids reassure drivers worried about the range of electric cars. Drivers see the internal combustion engine as a backup. They also have [stronger](#) torque and acceleration than traditional cars.






This, for many drivers, is enough to offset their [disadvantages](#), which include a higher [purchase price](#) than traditional cars. For plug-in hybrids, there's another consideration—the large battery often means there's less [boot space](#), often resulting in no spare tire. And then there's the emissions.

Hybrids are not much cleaner

Hybrids—especially plug-ins—have been found to [produce more emissions and cost more to run](#) than their manufacturers claim.

Recent [real-world tests](#) on a [sample of 123,740](#) plug-ins in Europe showed their carbon dioxide emissions were on average 3.5 times higher than the laboratory values reported by manufacturers. Why? Because in practice, plug-ins weren't being charged and driven in electric mode as frequently as expected.

In the lab, average emissions for plug-ins was about 40 grams per kilometer. When experts tested new plug-in hybrids, they found average real-world emissions were vastly higher—139 grams per kilometer. That means they're only 23% lower than petrol and diesel cars, which emit an average of 180 grams per km.

Vehicle	Make	Model	Year	Category	CO ₂	Fuel Consumption	Variance
	Subaru	Forester	2023	Medium SUV	152g (grey) 172g (yellow)	6.7L (grey) 7.4L (yellow)	+10%
	Toyota	Camry	2023	Medium Car	96g (grey) 107g (yellow)	4.2L (grey) 4.5L (yellow)	+8%
	Toyota	Corolla	2023	Small Car	97g (grey) 99g (yellow)	4.2L (grey) 4.2L (yellow)	+0%
	Toyota	RAV4	2022	Medium SUV	107g (grey) 111g (yellow)	4.7L (grey) 4.8L (yellow)	+2%
	Toyota	Yaris Cross	2021	Small SUV	86g (grey) 98g (yellow)	3.8L (grey) 4.3L (yellow)	+12%

These are the early results from Australia’s real-world emissions and fuel consumption testing of hybrids. Grey shows laboratory (WTLP) results, yellow shows real world results. Credit: [Australian Automobile Association](#), [CC BY](#)

These test results also show large differences in [average fuel consumption](#). The yearly cost of fueling plug-ins was nearly double what manufacturers claimed, costing European plug-in drivers on average A\$960 more a year on fuel.

In reality, this means plug-in hybrids are not being driven as electric cars—they're largely driven as fossil-fuel burning vehicles.

What does this mean for Australian drivers?

Hybrids came under the spotlight in 2022, when the Greens and independent senator David Pocock [jointly opposed](#) the federal government's [Electric Car Discount Bill](#)—because it included plug-in hybrids in the list of vehicles exempt from fringe benefits tax.

They argued that plug-ins are effectively a fossil fuel technology that should not be subsidized. Labor [eventually agreed](#) to end the subsidies for [plug-in hybrids](#) beginning in April next year.

Labor [also committed](#) \$14 million to fund a local real-world fuel testing program for 200 models.

The testing began in the second half of 2023. Initial tests of five [hybrid](#) models have revealed [similar trends](#) to Europe, though not as extreme. Fuel consumption of these models is up to 12% higher than [laboratory tests](#).

The road ahead

Are hybrids a waste of time and resources? Not necessarily. Many drivers are skeptical of battery [electric vehicles](#), find them too expensive, or are worried about being caught away from a charger. For these drivers, hybrids may make sense.

But we cannot spend too long on these transition vehicles. Electrifying our [vehicle](#) fleet alongside boosts to public transport, cycling and working from home can help rapidly cut emissions from transport—a sector whose emissions are steadily [growing](#).

By 2030, the International Energy Agency [forecasts](#) that the cost of most electric cars will be comparable to their petrol counterparts due to falling prices. Top [Chinese brands](#) such as BYD are already approaching this.

As we approach price parity and charging infrastructure becomes more common, it's likely more and more drivers will feel comfortable leaving fossil fuels behind for good.

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