



Toyota Australia EcoDriving Guide

TOYOTA

Introduction

Toyota Australia wants to ensure that our customers get to enjoy the best and most efficient motoring experience in their Toyota vehicles while also minimising their impact on the environment.

There are many reasons to reduce our fuel consumption when driving including:

- increasing pressures on the household budget due to rising oil and petrol prices, and
- the need to address climate change by reducing our emissions of greenhouse gases.

Toyota continues to provide technical solutions to these issues, through advances in fuel efficiency like the introduction of Hybrid Camry, which can reduce fuel consumption by 30% when compared to a conventional Camry.

However with 80% of the lifetime carbon emissions of a car coming from its ongoing use, we know that our customers can also contribute to reducing the costs and impacts of driving a vehicle, regardless of which Toyota they choose, by adopting EcoDriving.

What is EcoDriving?

EcoDriving is a better way of driving to reduce fuel consumption and is a simple and low cost initiative that can be adopted by all Toyota customers.

The 7 key principles of EcoDriving are:

- 1 Plan your trip in advance.
- 2 Remove unnecessary weight and resistance from your car.
- 3 Keep tyre pressures at recommended levels.
- 4 Accelerate and decelerate smoothly.
- 5 Drive in the highest possible gear and at constant speed.
- 6 Limit the use of your car air conditioning and other electrical equipment.
- 7 Keep your Toyota regularly serviced.

Implementing even a few of the EcoDriving tips below can lead to fuel (and time) savings when you travel.

EcoDriving Tips

There are a number of EcoDriving tips that can be implemented by anybody, regardless of which Toyota they drive, to help improve fuel consumption.



Plan your trip in advance

If you get lost and drive an additional 10 minutes to a destination you can use an extra third of a litre of fuel.¹

When planning a trip in your car, it makes sense to spend time EcoDrive planning to consider:

- Do I really need to take the car? – Maybe it's only a short trip to the shops and a walk or cycle maybe a better option.
- What does the traffic radio say? – Can I avoid road works, traffic congestion or 'Rush hour'?
- What is the best route? – If you know where you are going, then you get there faster and without any detours.
- Choosing freeways over city roads, where possible, so you can travel at a constant speed.

A little bit of planning can assist you get to your destination in the fastest, least stressful and most efficient way.



Make sure you unload unnecessary weight from your car

An unused Ski Box or cycle rack on your roof can add between 10% and 30% to fuel consumption.

This is because the amount of work your car engine does is directly related to the weight of your car and its aerodynamic efficiency.

An EcoDriver:

- Considers removing excess weight where possible.
- Removes things that decrease the aerodynamic efficiency of their car such as roof racks.

It doesn't take much effort to make sure your car carries as little load as necessary, which will reduce fuel consumption as well as improve handling and reduce wind noise.



3 Check your tyre pressure regularly

Studies show that for each 50kpa your tyre is below its recommended pressure, you can decrease fuel efficiency by between 2–4%.¹

This occurs because having lower tyre pressures increases the rolling resistance of your car and therefore its fuel use.

All tyres lose pressure over time and you may lose up to 25% of your tyre pressure before you notice a visual change.



An EcoDriver:

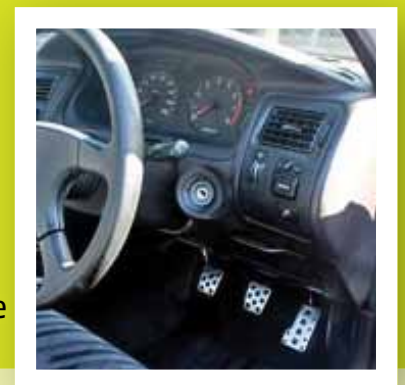
- Checks tyre pressures at least once a month when filling up at a petrol station.
- Keeps tyres inflated at the highest recommended pressure.

Correct tyre pressures will also improve the safety, handling and performance of your Toyota as well as reducing tyre wear.

4 Accelerate and decelerate smoothly

During acceleration the engine of a car is often at its least efficient as it operates through a range of gears and engine speeds while applying the brakes converts your inertia into wasted heat.

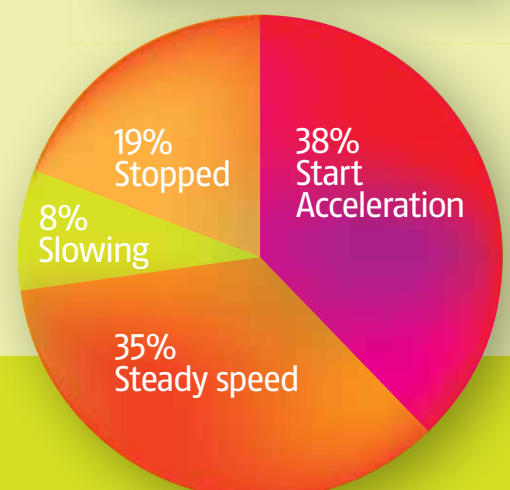
When driving in built up areas, almost 50% of the fuel consumption of a car is spent in accelerating and slowing down and often drivers accelerate quickly to a higher than necessary speed only to have to brake again soon after.²



An EcoDriver:

- Accelerates smoothly and safely.
- Shifts up through the gears at the appropriate time.
- 'Coasts' when possible, using inertia and slowing the car by removing 'acceleration' instead of braking.

Smooth and safe acceleration and deceleration will make sure you conserve fuel as well as reducing wear and tear on brakes and other elements of your car.

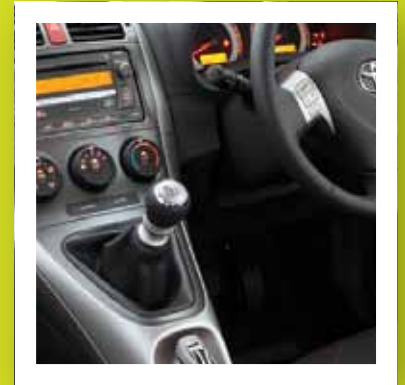


5 Drive in a high gear and at low rpm at constant speed

When at a speed of 50km/h, a typical car only needs about 5% of the power of its engine to maintain its momentum. The remaining amount of power is only needed for acceleration or driving at higher speeds.

Similarly, because part of the energy generated by the engine is lost through friction losses that increase with engine speeds, the highest possible gear is the most efficient one.

Studies show that the difference in fuel use between 3rd and 5th gear at a given speed can be as high as 24%.³



An EcoDriver:

- Anticipates the traffic flow.
- Drives in a smooth manner.
- Uses Cruise Control safely where available.
- Avoids unnecessary and inefficient acceleration and deceleration.
- Uses the highest possible gear.

A smooth driving experience can be one of the biggest contributors in reducing your fuel consumption.

6 Limit the use of Air Conditioning

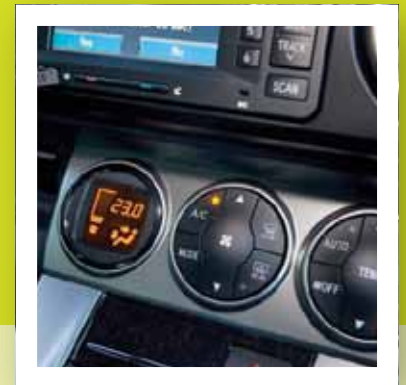
Tests have shown that use of a car air conditioner (A/C) even at external temperatures of 25°C can increase fuel consumption by as much as 14%, rising by as much as 38% when the external temperature is 35°C. ⁴

Rolling down your windows does not offer a solution either, as the increase in air resistance will more than offset any potential savings in not using the air conditioner.

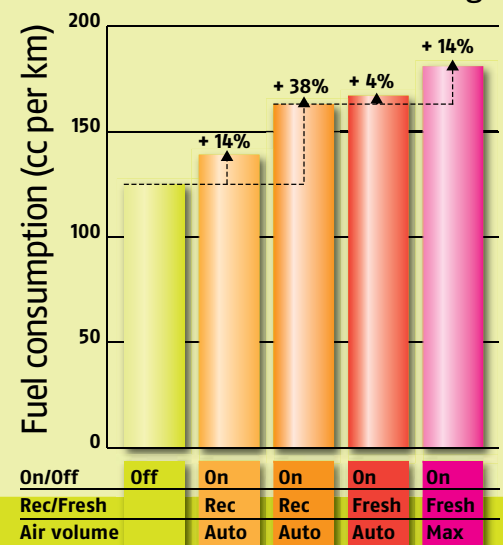
An EcoDriver:

- Avoids using the car air conditioner, by using the fan only and set to 'Fresh Air' when possible.
- Avoids using other electrical equipment such as rear window demisters or heated seats, when not required.
- Improves the efficiency of the air conditioning by setting it to Recirculate (REC) when the A/C is on to maximise the cooling potential.
- Avoids the lowest possible A/C setting as this drives the A/C unit continuously. Instead always select a slightly higher temperature setting.
- Minimises the heat loading on the car by parking in the shade or using window shades.

A comfortable driving experience can still be easily achieved without having to rely only on the air conditioning.



Changes to fuel consumption with air conditioner settings



7 Service your Toyota regularly:

A car that is not serviced regularly, even a Toyota, can have much poorer performance as its fluids dry out, wear and tear is not taken care of and its various oil and lubricants age and degrade.

An EcoDriver:

- Follows the recommended service interval, and
- Uses a Toyota approved Service provider.

Driving a regularly serviced car gives you the best confidence, performance and safety and will assist in terms of ongoing good fuel consumption.





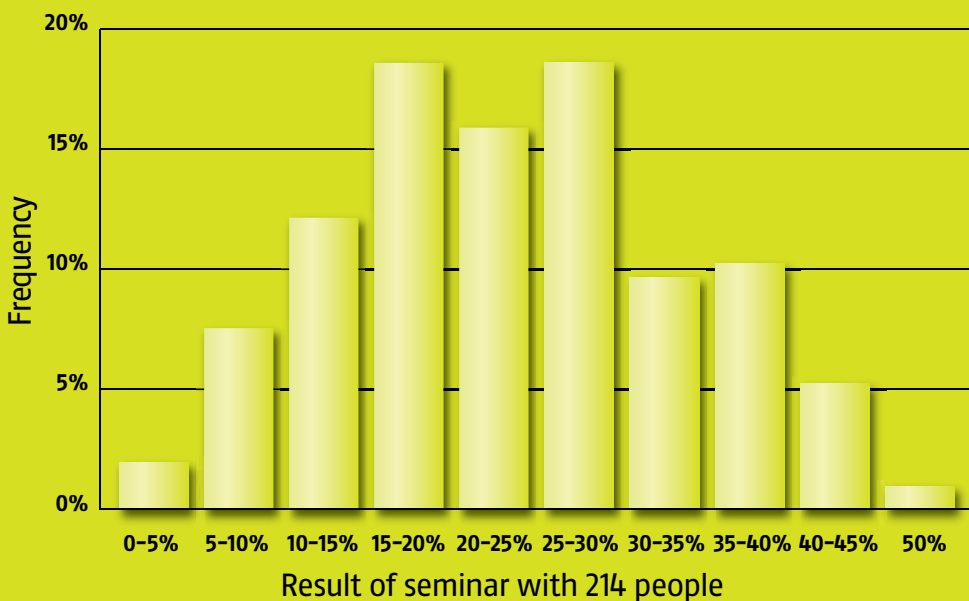
EcoDriving benefits

EcoDriving has been tested by many organisations in recent years and has shown reductions in fuel consumption.

A Toyota study undertaken in Japan amongst Toyota employees found that fuel savings of up to 20% were achieved by most participants in the study.⁵

Similarly, EcoDriving trials with commercial companies in Europe found that a company wide long term fuel reduction of up to 6% was possible through voluntary adoption of EcoDriving.

EcoDriving improvement rate of fuel efficiency



Extra benefits

These studies also showed reduced maintenance costs as well as a reduced accident rate of up to 25% because EcoDriving involves:³

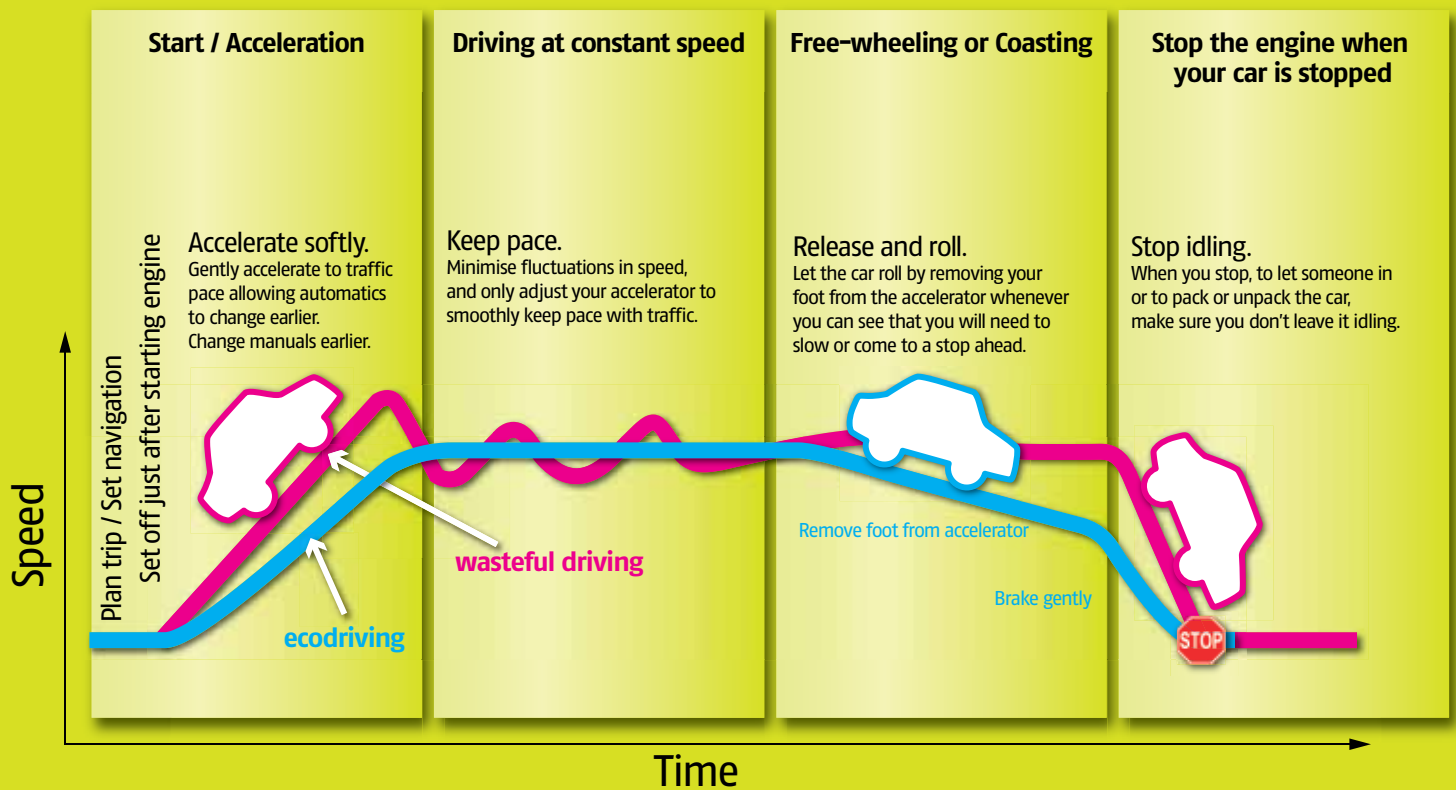
- An anticipating driving style.
- Maintaining a steady speed.
- Less speeding.
- Less overtaking.
- Less stress / aggressiveness.

EcoDriving Summary

Toyota believes that it is possible to make a significant contribution towards improving your fuel consumption and road safety through the adoption of EcoDriving.

EcoDriving flowchart

EcoDriving and keeping alert of the traffic environment will save you fuel and is safer.



DATA SOURCES

1. Value calculated on car of 2.0L displacement, automatic transmission, fuel efficiency of 11.7 km/L (survey conducted by Japan Automobile Manufacturers Association Inc.)
2. Adapted from "Smart Drive" for 2006 by the Energy Conservation Centre Japan.
3. ECOWILL study at www.ecodrive.org - the golden rules of ecodriving.
4. Laboratory test conducted by The Energy Conservation Centre, Japan, using a 2.5L minivan.
5. EcoDriving seminars held in nine facilities by The Energy Conservation Centre, Japan, 2006.