

Eco-Driving Best Practice Guide

Eco-Friendly Driving

Eco-driving is a method of driving that saves fuel, electric vehicle (EV) battery charge, and materials by adopting eco-friendly driving behaviors. Eco-driving does not require drivers to make any major changes but to adopt a number of smooth and safe driving techniques. As a result, eco-driving can also lead to a reduction in the frequency of collisions and serious injuries.

- Approximately 4.6 metric tons of carbon dioxide are emitted each year from a typical passenger vehicle.
- Transportation is responsible for 25% of greenhouse gas emissions.
- There are currently four billion tires in landfills.
- EVs produce between 50% to 70% fewer greenhouse gases than conventional vehicles.
- Taking public transportation can reduce carbon dioxide emissions by up to 45%.



Avoid Aggressive Driving Behaviors

Harsh maneuvers — such as harsh acceleration, harsh braking, harsh cornering, and speeding — increase wear on your vehicle and are the biggest contributors to harmful greenhouse gases. In fact, harsh maneuvers can waste up to 30% more fuel or EV battery charge than eco-friendly driving. These aggressive driving behaviors are described as a sudden change in speed or direction that unnecessarily wastes fuel or battery charge while increasing your collision risk. Stay safe by adopting a safe-driving mindset that benefits your safety as well as the planet's health.



Acceleration

A sudden increase in speed is one of the biggest consumers of fuel and battery charge. This also wears out your tires and engine much quicker. Instead of applying maximum acceleration as soon as a traffic light turns green, increase your speed slowly, smoothly, and steadily.



Braking

Energy is lost every time you brake. Maintain a following distance of at least two to three seconds in ideal conditions, and scan the area around your vehicle so you can slow to avoid hazards without needing to brake suddenly. Additionally, hybrid and full EV drivers can maximize the amount of energy saved through regenerative braking by easing off the throttle and decelerating gradually.



Cornering

Fuel and battery charge are also wasted when constantly — and aggressively — changing your speed as you navigate curves. Reduce your speed to minimize the amount of energy lost when cornering. Use slow, smooth, and steady maneuvers to slow down well ahead of a curve, navigate the curve at a safe speed, and gently accelerate to an appropriate speed after the curve.



Speeding

Vehicle speed is the greatest determiner of eco-impact. At 75 mph / 120 km/h, a vehicle typically uses around 20% more fuel than it would at 60 mph / 95 km/h. Traveling too fast wastes fuel or battery charge. If safe and legal to do so, travel at a constant speed that minimizes your vehicle's energy consumption.

Focus on Safety and Savings

Eliminate Distractions

Distracted drivers are four times more likely to be involved in a collision. Distractions can take your attention away from the road, and they can increase the amount of waste due to vehicle parts wearing out faster or being damaged in a crash.

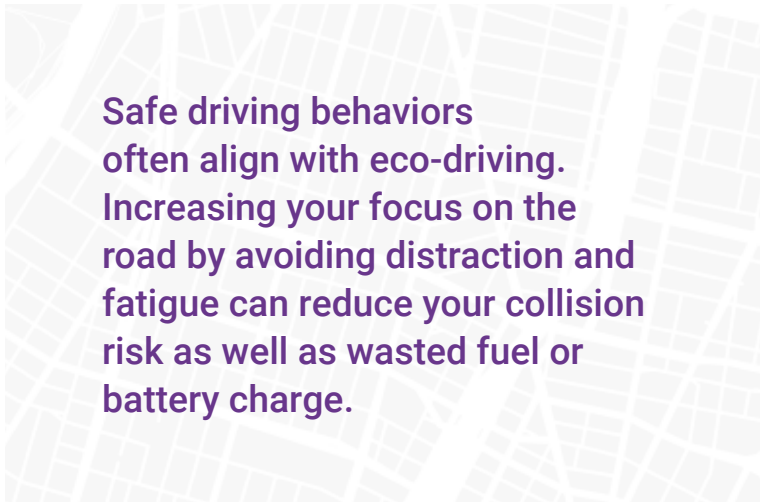
Contrary to popular belief, hands-free phone calls can be just as distracting and dangerous as handheld phone calls. Set auxiliary controls and secure your phone in a charging cradle before you drive. Avoid eating and drinking while driving. If you are angry or upset, consider taking a break to calm down. Only resume your drive when you can fully focus on the road.

Avoid Fatigue

Fatigue slows your reaction time and could cause you to waste fuel or EV battery charge. Fatigue is extremely dangerous because it is often difficult to identify. In fact, fatigue causes an average of 20% of all collisions and can be just as dangerous as drunk driving. Signs of fatigue include frequent blinking, yawning, fidgeting, and an inability to focus. Be sure to get between seven and nine hours of sleep each night so you do not develop sleep debt. Take regular breaks when traveling long distances – at least 15 minutes for every two hours of driving, or more frequently if you feel tired.

Improve your Health

Improving your overall health and wellness can help you eliminate distractions and avoid fatigued driving. Talk with your health care provider to establish a regular sleep cycle and appropriate exercise routine. Discuss any medications you are taking that might affect your ability to drive. Decrease stress and adjust your expectations to prioritize safe, eco-friendly driving. Never drive if you are intoxicated, fatigued, or distracted.



Safe driving behaviors often align with eco-driving. Increasing your focus on the road by avoiding distraction and fatigue can reduce your collision risk as well as wasted fuel or battery charge.

Vehicle Maintenance

Maintaining your vehicle can help reduce your collision risk, save money, and maximize fuel or EV battery usage.

Tires

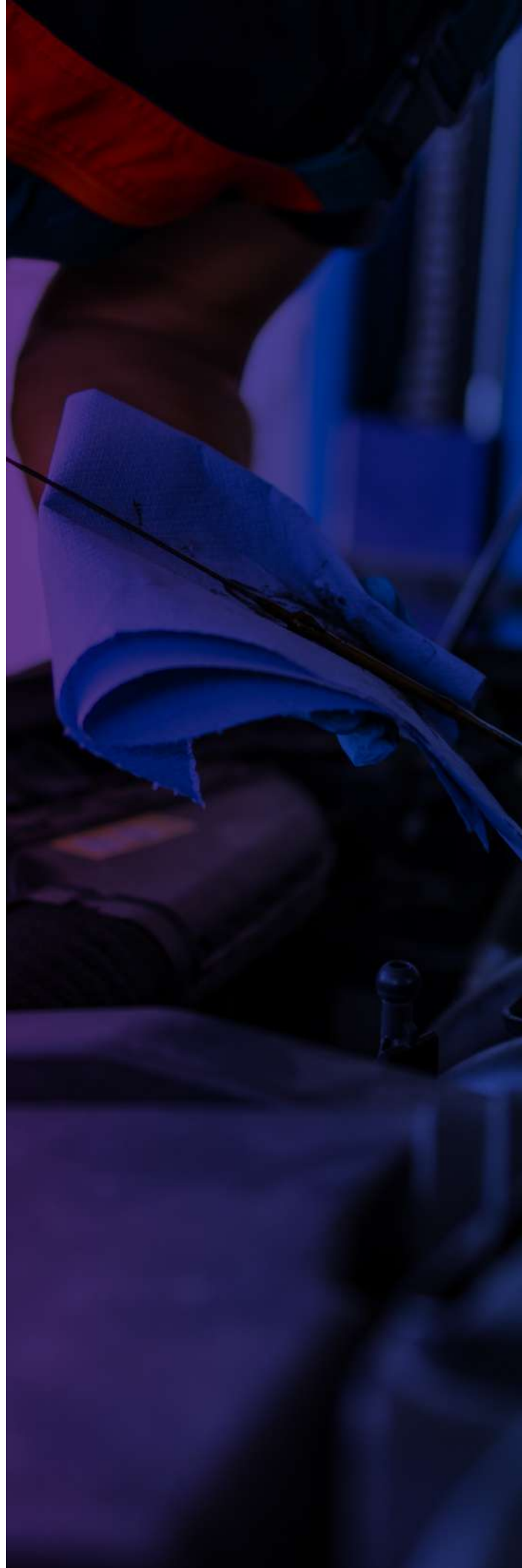
Correctly inflated tires will help your vehicle run more efficiently and will also extend the life of the tires. Disposing of old tires impacts the environment, so any efforts to decrease the number of tires discarded each year will help reduce your impact on the environment. Inspect your tires' pressure, wear, and tread on a regular basis.

Routine Maintenance

Servicing your vehicle regularly, according to the manufacturer's instructions, will help keep your vehicle running optimally and maintain its resale value. Regular maintenance will improve your vehicle's range while ensuring it is safe to drive.

Body

Regularly check your vehicle's body for loose or damaged panels. Damaged panels can increase air resistance, which can increase fuel consumption. If you notice damage, fix it right away to help you stay safe.



Trip Planning

Planning your journey is an important part of eco-driving. Choose routes that allow you to maximize your fuel or EV battery efficiency while keeping you safe from hazards. Use up-to-date maps to plan your route, bearing in mind that the most direct route is not always the best. Keep these best practices in mind to reduce your carbon footprint:

- Avoid city roads where there are more intersections, traffic lights, and traffic, meaning you are likely to be stopping and starting repeatedly.
- Plan your drive around peak traffic times to avoid delays, if possible.
- Aim to travel on highways where possible so it is easier to maintain a constant speed.
- Remember that in conventional vehicles, fuel efficiency is maximized between 50 mph / 80 km/h and 60 mph / 95 km/h. EVs are extremely efficient and impact the environment much less than conventional vehicles, but their energy efficiency can be affected by aerodynamic drag at higher speeds. Because of wind resistance, traveling below 40 mph / 65 km/h can extend your range.
- Consider where you will park when you arrive at your destination so you are not driving around searching for a space and wasting fuel or battery charge.



Additional Tips for Eco-Driving

Weight and Wind Drag

Fuel and battery charge can also be wasted when the weight and wind drag are increased on your vehicle. The following can affect your vehicle's performance:

- Additional parts on the outside of your vehicle, such as a roof rack, increase air resistance and can increase fuel consumption. Consider removing these, if possible.
- Driving with the window open at higher speeds. To improve range, open windows at lower speeds and use air conditioning at highway speeds.
- Carrying more weight. Make sure your vehicle is only carrying what it needs to.

Idling

Idling (keeping the engine running when you are stopped) increases fuel consumption, can reduce the life of the exhaust system, and generates unnecessary greenhouse gas emissions. Avoid idling if you know you are going to be stopped for more than 30 seconds – except in traffic.

Auxiliary Controls

Auxiliary controls – such as audio and climate controls – can waste power and fuel, especially in EVs. Limit their use by rolling down the windows when traveling at speeds under 30 mph / 50 km/h. When traveling above 30 mph / 50 km/h, use air vents or minimal air conditioning instead to reduce air resistance. Also consider using seat heaters in cold weather instead of trying to heat the entire cabin.

Consider Your Trips

Determine whether each journey is essential and if the following are possible:

- A video conference in place of a face-to-face meeting.
- Carpooling with friends or colleagues.
- Alternative modes of transport for journeys shorter than 3 miles / 5 kilometres. Vehicles are least fuel efficient and most polluting at the start of trips and on short trips.

Electric Vehicles

Switching from a conventional vehicle to an EV greatly reduces harmful greenhouse gas emissions. It can reduce your carbon footprint by up to two tons of carbon dioxide per year. A hybrid vehicle can save you up to 0.77 tons of carbon dioxide per year.

Here are some quick tips to reduce your impact on the environment and maximize range while staying safe:

Charging

Charge your vehicle overnight to avoid peak energy demand. This may allow you to avoid higher energy costs and will give your battery plenty of time to recharge.

Auxiliary Controls

It takes a large amount of energy to heat or cool the cab of your vehicle, so roll down the windows or use vents or seat heaters to maintain comfort while driving.

Regenerative Braking

Minimize the amount of energy lost when coming to a stop by taking advantage of regenerative braking. Ease off the accelerator early to allow your battery to recapture some of the energy that is normally lost when coming to a stop.



Efficient Speeds

Choose routes that allow you to drive at a constant, energy-efficient speed for your vehicle. To reduce energy wasted from wind drag, keep your speed below 40 mph / 65 km/h, if safe and legal to do so. Avoid hazardous areas and frequent stops, if possible, to minimize energy lost by frequently changing speeds.

Parking

If possible, park in enclosed or under covered areas away from extreme heat or cold. Your vehicle's thermal management system is always on to keep the battery at a stable temperature. If you do not have access to covered or enclosed parking, try to park in direct sunlight when the weather is cold and in the shade when it is hot, if it is safe and legal to do so.

Maintenance

Maintain your vehicle according to the manufacturer's guidelines. This can extend your vehicle's life and increase performance while ensuring it is roadworthy, keeping you and others safe while minimizing your carbon footprint.