



Benefits of Eco-driving

Part 2b / Exercise 15

Eco-driving offers numerous benefits: It does not only save fuel and costs, but also improves road safety as well as the quality of the local and global environment.

Moreover, Eco-driving provides direct benefits to the drivers and the passengers: namely more comfort and a relaxed atmosphere. All those benefits can be realised at equal or less travel time. Globally, Eco-driving means small changes for the driver and high impacts on improving fuel economy and reducing emissions.

→ *Benefits for myself*

Eco-driving saves costs

According to a big study by Fiat (which included 5,700 drivers in five countries), Eco-driving saves an average of 15 % of fuel costs.¹



Considering the average mileage of cars of 12,285 km/year², the average specific consumption of cars of 7.3 litre/100 km and average fuel costs of 1.43 Euro per litre of petrol³, this reduction corresponds with **annual savings of 192.5 Euro** for the individual driver.

Eco-driving reduces not only **fuel costs**, but also **costs for maintenance and costs for repairing cars** after accidents. Eco-drivers cause less wear and tear on car parts (tyres, brakes and engine) and are less prone to accidents.

Eco-driving suits to modern engines

In the past decades, engine technology and performances of cars have improved rapidly and the correct way of driving with modern cars (after 1990) differs considerably from the way of driving as taught in driving schools in past decades. However, most drivers who got their driving licence decades ago have not adapted their driving style.

For example, in the 1960s and 1970s, most transmissions offered just three or four gears and it was taught in driving schools to shift to a higher gear around 3,000 rpm. Today's transmissions offer five or six gears and allow reduced engine speeds. Modern engines are generally designed to run efficiently at low speeds. The optimum efficiency point is around 1,750 revolutions per minute (rpm).

¹ Eco-driving Uncovered. The benefits and challenges of eco-driving. Source: Fiat (2010)

² Energy Efficient Indicators in Europe. Source: www.odyssee-indicators.org

³ Fuel prices. Source: Europe's Energy Portal (2011) (All data for the EU-27, December 2011)



Hence, **Eco-driving** represents a driving culture which **suits to modern engines and makes the best use of advanced vehicle technologies**. It is an energy efficient style of driving motorised vehicles, particularly cars, at lower engine speeds.

Eco-driving protects vehicle facilities

Contrary to the belief of some drivers, Eco-driving is not bad for the engine. On the contrary, driving with high revolutions has negative consequences on maintenance. Following the **Eco-driving** tips **leads to a longer life-span of the engine, brakes and tyres**. An Australian study found out that Eco-driving reduced the number of gear changes and brake applications by 29% and 41% respectively.¹

The safer driving behaviour comes from an anticipating driving style, meaning less accelerating and braking, less speeding and overtaking, and a general less stressful and aggressive driving style.

Eco-driving reduces stress levels and leads to greater safety

Eco-driving means more relaxed driving and thus has benefits for drivers' health and improves driver satisfaction. A smooth use of the accelerator, steering, transmission and brakes means not only efficient driving, but is also **more comfort for the driver and passengers**.

Erratic driving may cause stress levels to rise which can affect concentration and make drivers tired and/or aggressive. Furthermore some passengers feel uncomfortable when the driver drives at high speeds or does a lot of overtaking – actions which an Eco-driver will avoid in many circumstances. Hence, Eco-driving results in happier, healthier and more responsible drivers.

Eco-driving leads to greater road safety

Moreover, Eco-driving **increases traffic safety**. According to a study which investigated Eco-driving trainings for the Hamburg Water Company, costs for car accidents have decreased by 40% following Eco-driving trainings.² This is mostly due to Eco-drivers keeping a greater distance from the car ahead.

Eco-driving causes no time loss

All the benefits mentioned can be realised at equal or less travel time. Experience shows that Eco-drivers do not take longer to reach their destination, but are often even faster. This is mostly due to accelerating traffic flow and thus avoiding stops.

¹ Driving green saves fuel and environment. Source: Monash University (2010)

² Drive and save with security. Drive safely, economically and environmentally friendly. Source: Vierboom, Carl/Härten, Ingo (2003)



→ *Benefits for the society*

Eco-driving is environmentally and climate friendly



Across the globe, temperatures are rising and experts claim that the environment is under threat by toxic emissions caused by man-made Carbon Dioxide (CO₂). Exhaust gases from motorised vehicles are one of the biggest contributors to the problem. In the past decades, vehicle manufacturers have made significant progress in improving engine technology and performances. However, most drivers have not adapted their individual driving style. On average, for every litre of petrol used in a motor vehicle, 2.2 kilograms of Carbon Dioxide is released from the exhaust.¹

One way to reduce emissions is by **driving in a more environmentally friendly manner** and by improving fuel consumption so that less fuel is used to travel the same distance. Consequently, measures to improve car driving behaviour have the potential for considerable **fuel savings** and consequently **reduced CO₂-emissions** from traffic.

The impact on the local environment – toxic exhaust gases and particulates – when using internal-combustion engines depends on the amount of fuel used. Eco-driving **reduces local air pollution** by reducing fuel consumption.

Hence, **if Eco-driving becomes the norm** rather than the exception, it has the potential to **significantly reduce emissions from road transport**.

Eco-driving reduces noise

Driving styles have a high impact on the noise that is generated. Using low engine speeds and avoiding unnecessary high acceleration and vehicle speed values achieve a significant reduction of the propulsion noise of a vehicle. A car travelling with 4,000 revolutions per minute (rpm) produces the same amount of noise as 32 vehicles travelling at the same speed with only 2,000 rpm (see figure below).

Noise of cars



Source: ECOWILL/www.ecodrive.org

Thus, Eco-driving considerably reduces one of the main problems of car traffic in urban areas.

¹ Guidelines for National Greenhouse Gas Inventories. Source: IPCC (2006)