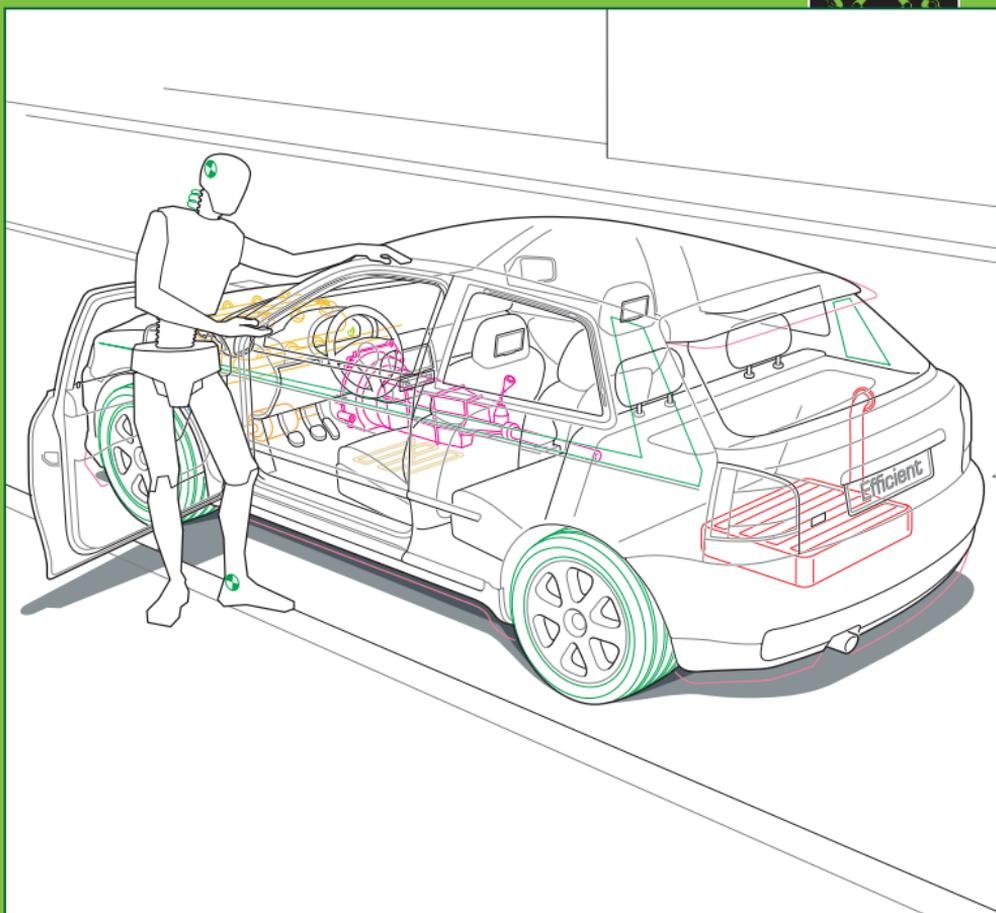


# 10 EASY STEPS TO CUT CAR EMISSIONS

By 2012 (not 2015)

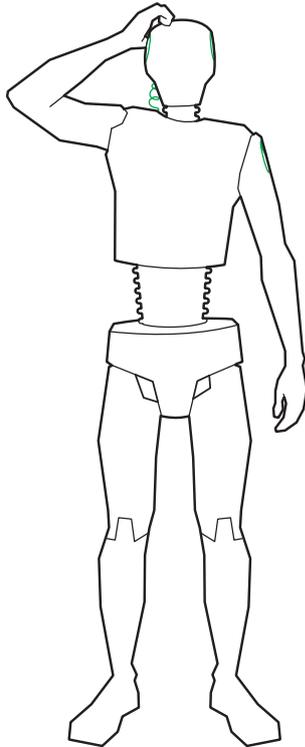
INCLUDES:  
How to counter  
lame excuses and  
procrastination  
from the CAR  
INDUSTRY  
KIT

## Climate Control Manual



# 10 EASY STEPS TO CUT CAR EMISSIONS

By 2012 (not 2015)



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## Introduction

In response to the proposed legislation on CO<sub>2</sub> emissions from cars, European car manufacturers have repeatedly claimed<sup>1</sup> that it will be expensive to meet the originally proposed target of 120g CO<sub>2</sub> per kilometer by 2012. Instead they are demanding legislation be put back to 2015, even though it has already been delayed from 2005.

However, all manufacturers currently have the technology to increase the fuel efficiency of their cars and, indeed, most of them are making several models that fall under the 120g CO<sub>2</sub> per kilometre.

In recognition of the fact that transport is the only sector that has seen increases in CO<sub>2</sub> emissions in recent years<sup>2</sup>, Greenpeace is asking MEPs to agree strong legislation that will ensure that passenger cars play their role in the overall reduction of CO<sub>2</sub> emissions. Compared to other industries and sectors, the

car manufacturers have so far been given an easy ride in assisting the European Member States in meeting their environmental commitments. Greenpeace is asking that manufacturers be given a target of a fleet average of 120g/km by 2012, and that a long term target is set of 80g/km by 2020, in line with the EU's overall emissions targets. This will also ensure that progress is continual and measurable.

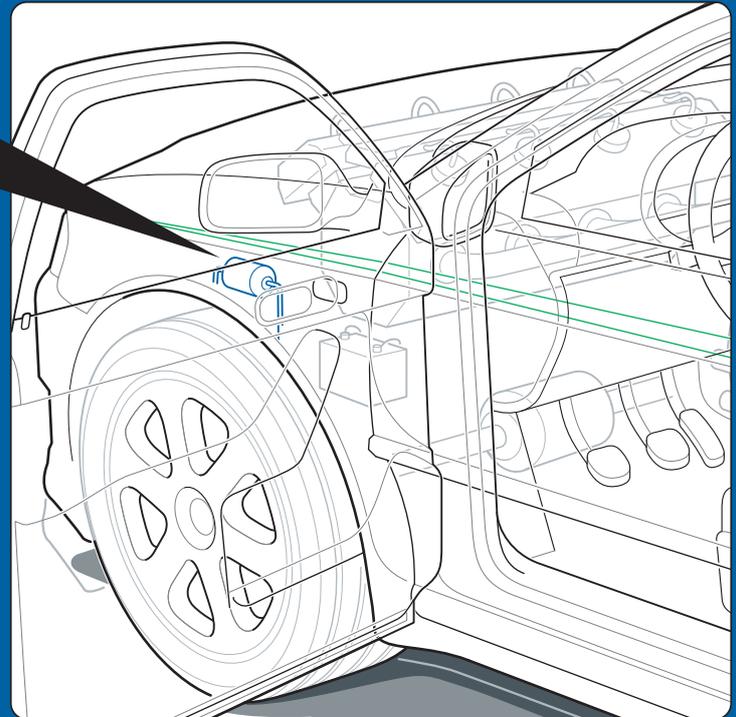
This document shows that it is possible to reduce CO<sub>2</sub> emissions, of individual cars and of the fleet as a whole, using existing technology. There is no need for the "phase in" that the industry is been calling for. If even some of the following measures are adopted into new models, it will be easy for manufacturers to meet the required fuel efficiency for their fleet well within the proposed legislative timeframe.

### Step One

**Stop-Start  
feature in  
every car  
yields 5%  
fuel reduction  
overall.**

Automatically shuts the engine down when the car has come to rest. It will restart automatically when the accelerator is depressed, meaning that the vehicle is not idling at traffic lights or in congestion.

**Stop Start Engines:** Yields an average of 5% fuel reduction<sup>9</sup>



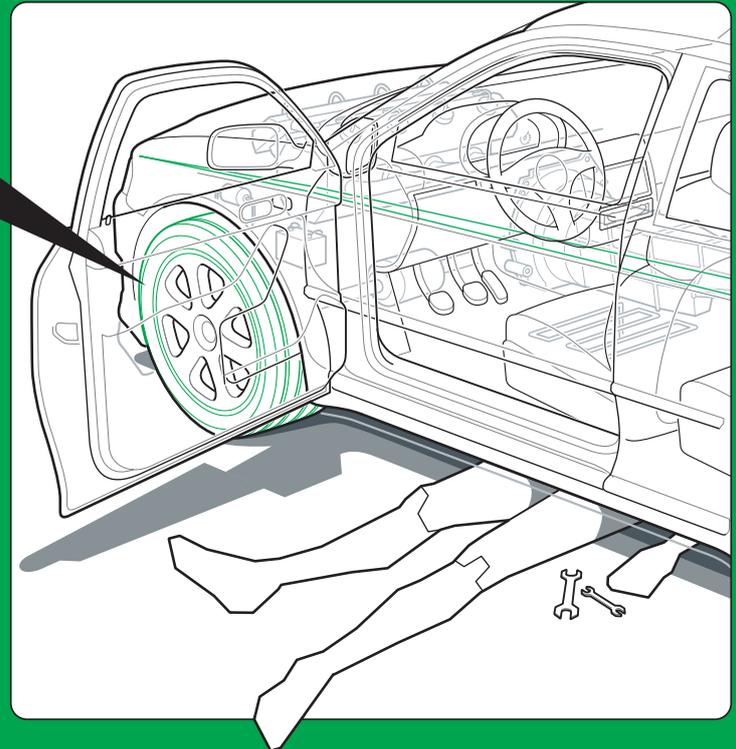
## 10 EASY STEPS TO CUT CAR EMISSIONS

### Step Two

**Low rolling resistance  
tyres yields  
2.5% to 5%  
fuel reduction.**

Designed to improve fuel efficiency by reducing the amount of energy wasted as heat as the tyre rolls. They are available for all models of car, and they can be specified without any changes in the design cycle.

**Low Rolling Resistance Tyres:** Yields 2.5-5% efficiency<sup>4</sup>

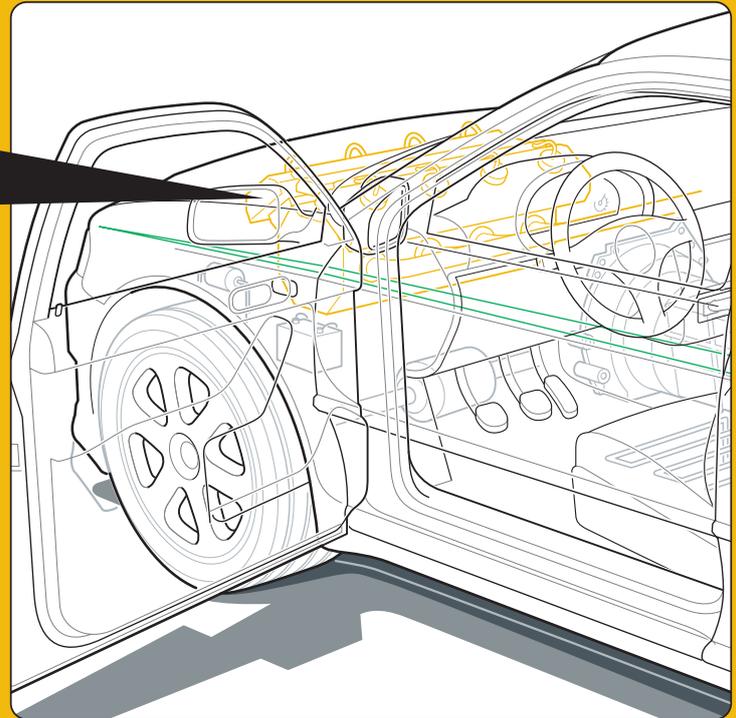


## Step Three

**Scrapping the two largest engines for each volume model approximately 10% to 12% fuel reduction.**

By simply removing the two largest engine sizes for each volume model, manufacturers will be able to improve their fleet average emissions significantly.

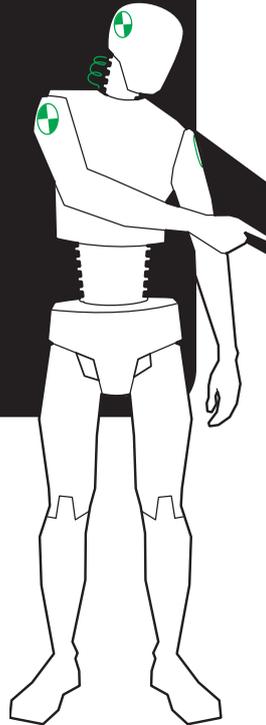
**Ceasing Production of the 2 Largest Engine Sizes for Each Model:** Can yield up to 12% efficiency<sup>6</sup>



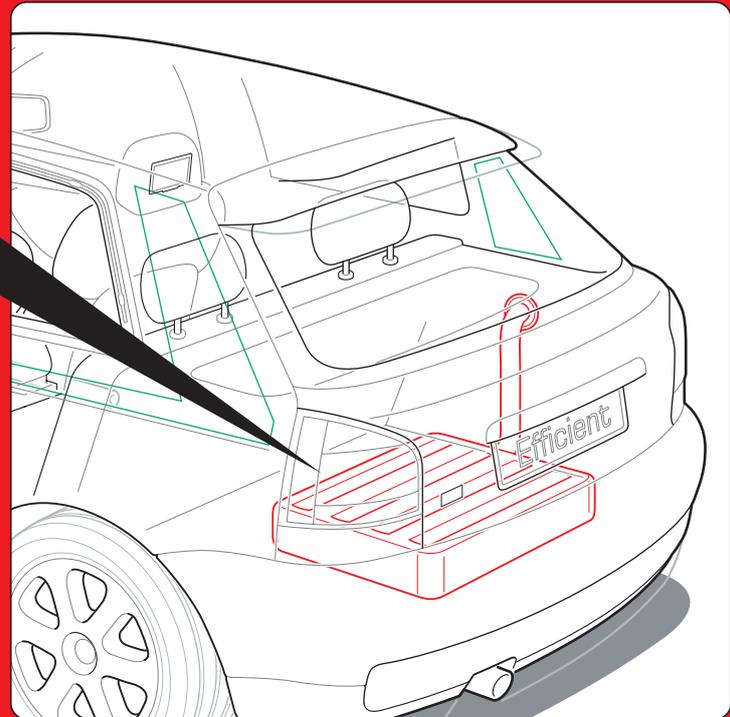
## Step Four

**Smaller capacity fuel tanks (gasoline or diesel) yields 2% to 3% fuel reduction.**

There is a weight reduction associated with the use of smaller fuel tanks. However, the main benefit from this measure is psychological. It has been shown that having to refill more frequently gives people greater awareness of their fuel consumption.



**Smaller Capacity Fuel Tanks:** Yields up to 3% Fuel Efficiency<sup>6</sup>

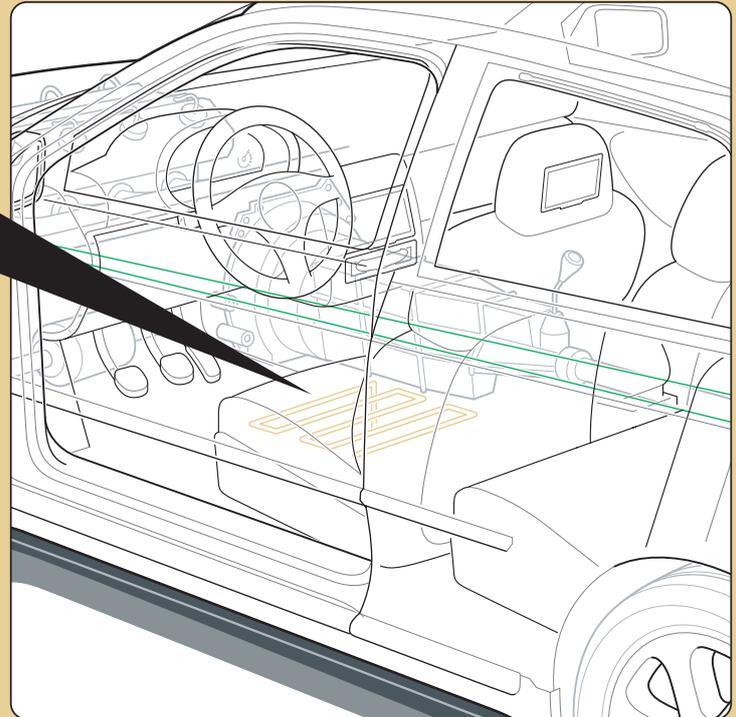


## Step Five

**10% weight reduction by minimizing/eliminating convenience features yields 4.9% fuel reduction.**

Any feature that is not there for safety or the running of the car is a convenience feature. Manufacturers have traditionally added more and more of these in order to command a higher price for “luxury models”. If even some of these features were removed again, a great saving can be made.

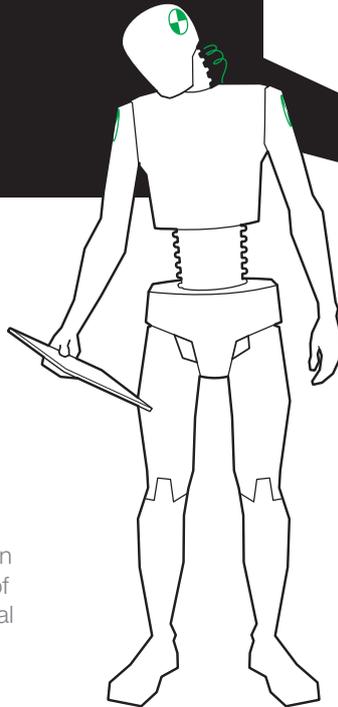
Eliminating Convenience Features: Yields 4.9% fuel efficiency<sup>7</sup>



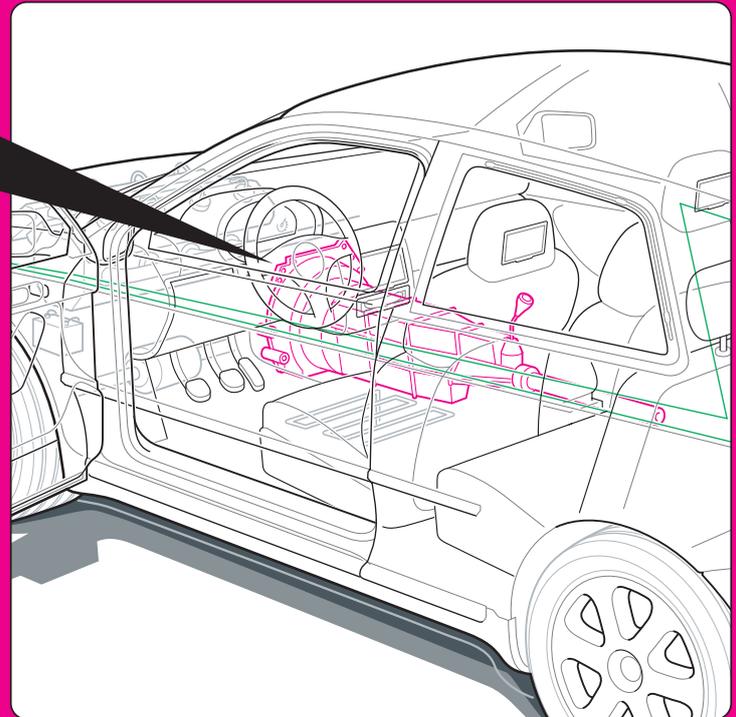
## Step Six

# Optimizing gear box can yield 9.3% fuel reduction.

Currently, most gear boxes are standard across a range of models. More frequently we are seeing gear boxes that have been optimised for the power output of each car. Installing more individual gear ratios can have significant fuel savings.



**Optimizing the Gear Box:** Yields up 9.3% fuel savings<sup>9</sup>

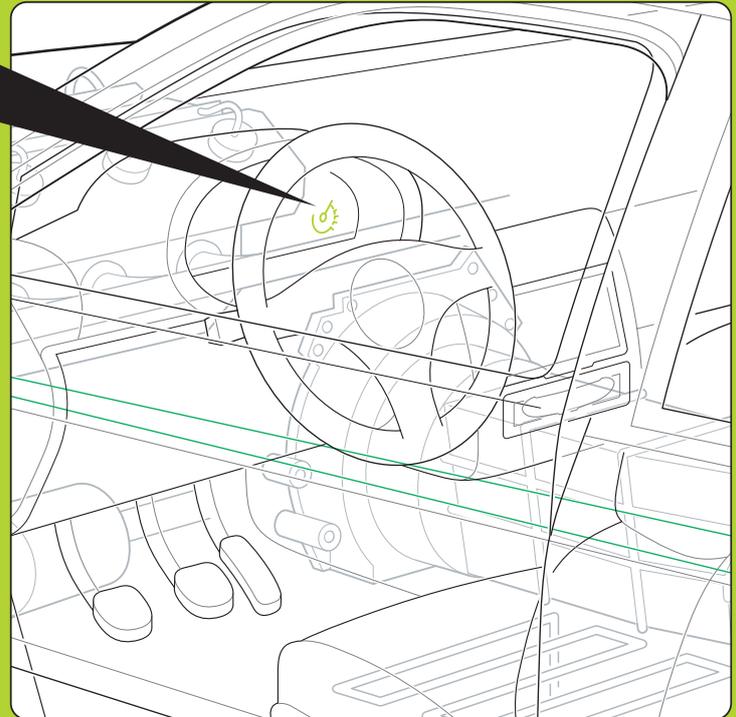


### Step Seven

**Gear shift indicator yields 8.5% fuel reduction.**

This is a simple light or signal on the dashboard that reminds the driver when he should change up a gear. This has been demonstrated to have a marked effect on the behaviour of the driver, and means that more often than not he changes gear at lower engine revolutions.

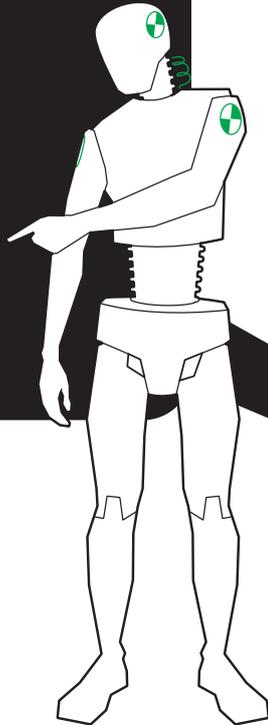
**Gear Shift Indicator:** Yields 8.5% lower fuel consumption<sup>9</sup>



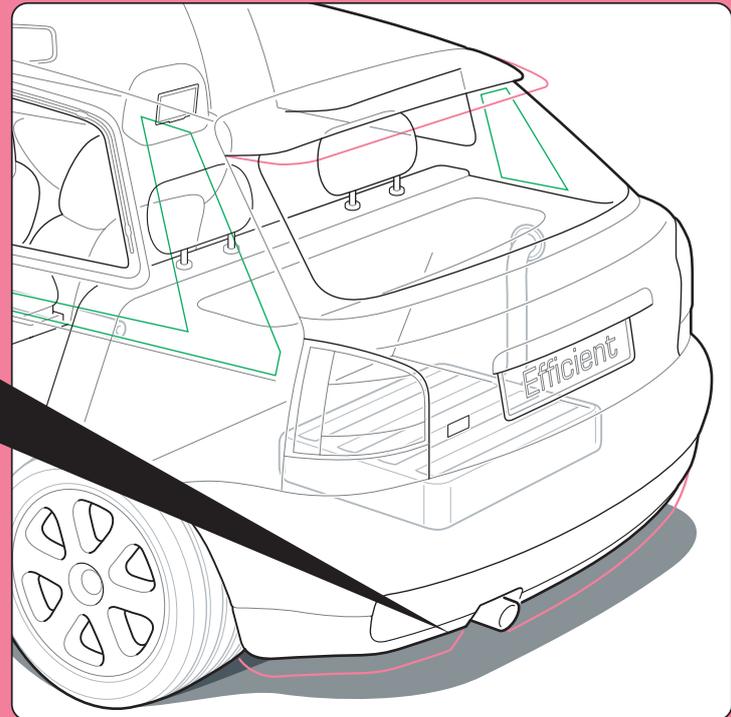
## Step Eight

# Improving aerodynamics with smooth under flow and lower body yields 1.8% fuel reduction.

Ensuring that there is smooth flow under the body and lowering the car as little as 15mm can improve the aerodynamics of the car greatly. Cars with better aerodynamics have lower air resistance, and hence use much less fuel.



**Improved Aerodynamics:** Yields on average 1.8% fuel efficiency<sup>10</sup>

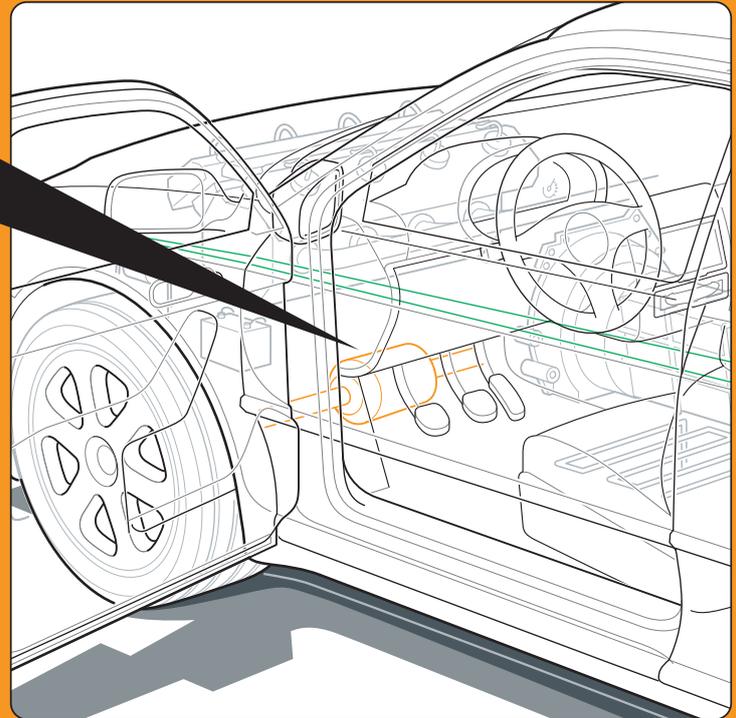


### Step Nine

**Electric steering rather than hydraulic cuts fuel use by 3% (4g).**

Most cars come with power steering, partly for safety, but also for better handling. Recent improvements in electro-hydraulic and electric steering have meant that they now match electric steering for performance, but it is significantly lighter, helping to improve fuel efficiency.

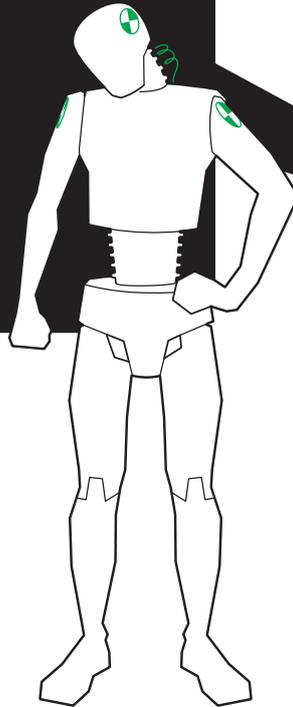
**Switching Hydraulic Steering to Electric:**  
Yields up to 3% Fuel Efficiency<sup>11</sup>



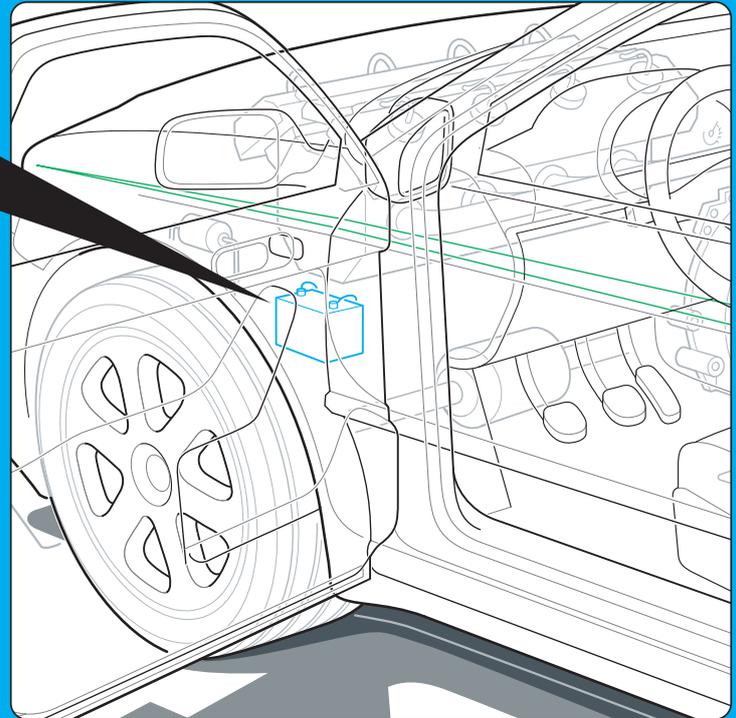
## Step Ten

**Warm start  
by using  
latent-heat  
storage  
yields  
8.1% fuel  
reduction.**

At start up, energy is required to heat up the system and the catalytic converter. Prior to reaching optimum temperature, fuel consumption is relatively high. Latent heat storage in the battery collects “waste” heat energy which can then help to warm a cold car.



**Latent Heat Storage:** Yields up to 8.1% fuel economy<sup>12</sup>



# GREENPEACE

Greenpeace is an independent global campaigning organisation that acts to change attitudes and behaviour, to protect and conserve the environment and to promote peace.

Please note that the fuel savings here are given for each individual measure. If all of the measures were implemented, significant savings would be achieved, but it would not be correct to assume that we could simply add together the savings given to come up with an overall efficiency figure.

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