

### THE ENVIRONMENT AT THE CORE OF RENAULT'S STRATEGY

As part of the Renault Commitment 2009 plan, Renault has set itself the ambitious environmental goal of reducing greenhouse gas emissions founded on three major objectives:

- To be one the world's three most carbon-efficient carmakers
- To have a line-up of biofuel-compatible vehicles
- To develop a range of alternative technologies.

Renault began acting on its CO<sub>2</sub> pledge in 2007 by bringing to market models that can run on biofuels (E85 ethanol and B30biodiesel) or powered by downsized powerplants (100hp 1.2-litre TCE petrol engine and New Laguna's 110hp, 1.5-litre dCi diesel unit). It pursued its efforts with the introduction in spring 2007 of the Renault eco<sup>2</sup> appellation which it applies to its most environmentally friendly vehicles. In November 2007 Renault entered Logan Renault eco<sup>2</sup> Concept in the Michelin-organised Challenge Bibendum, demonstrating that a car can be both ecological and economical, while maintaining high standards on both the performance and driveability fronts.

Renault has continued its strategy, announcing in January 2008 that the Renault-Nissan Alliance is to seal a deal with Project Better Place to develop an electric vehicle (EV). The partnership paves the way for the EV to break into the Israeli market as part of an effort to achieve significant reductions in pollutant emissions (e.g. particulates, NOx) and CO<sub>2</sub>. The agreement exemplifies the group's ambitious environmental policy and spells the arrival of EVs on a mass market by 2011.

Other projects have further strengthened the lifecycle management commitment that Renault undertook many years ago and which forms an integral part of the Renault eco<sup>2</sup> appellation. In February 2008, it created the Renault Environment Business Unit to facilitate the domestic and international deployment of action in recycling and new areas of environmental protection. We also announced our plans to sign a contract creating a joint-venture company with SITA, a subsidiary of Suez Environnement. The joint-venture, the first of its kind in the world, aims to accelerate the incorporation of end-of-life vehicle (ELV) recycling into operations.

### **REDUCING CO<sub>2</sub> EMISSIONS**

As part of Renault Commitment 2009, Renault embarked on its drive to make substantial reductions in its vehicles' CO<sub>2</sub> emissions to help curb the greenhouse gas effect.

# In May 2007 Renault demonstrated its commitment by introducing the Renault eco<sup>2</sup> appellation for its ecological, economical vehicles.

**Renault eco**<sup>2</sup> is just one aspect of Renault's efforts over the last ten years to reduce the environmental impact of its business throughout every stage of a vehicle's lifecyle (manufacturing, use, and end of life). Renault is currently working on extending the eco<sup>2</sup> appellation across its entire line-up.

For a vehicle to be labelled Renault eco<sup>2</sup>, it must meet three sets of requirements:

- It should be manufactured in a production plant that has secured ISO 14001 certification. The independent International Standards Organisation (ISO) certifies that a facility complies with standard 14001 when it achieves ongoing improvements in reducing the impact of its activities on the environment. It includes, for example, water and energy consumption, visual and sound impact, and harmful emissions and wastewater discharges. In seven years, Renault has, for example, cut water consumption at its Sandouville plant in France three-fold. By 2008 40 manufacturing facilities, accounting for over 90% of Renault's activity worldwide were ISO-14001-certified. The group's other site in Russia is currently undergoing certification.
- <u>Its CO<sub>2</sub> emissions should not exceed 140g/km or it must be E85 ethanol or B30 biodiesel compatible</u>.
  Vehicles labelled Renault eco<sup>2</sup> emit low levels of CO<sub>2</sub>, the main culprit in global warming, either because they run on a biofuel, or because they are below the 140g/km threshold (equivalent to fuel consumption 5.3 litres/100km for diesels and 5.9 litres/100km for petrol engines). Such environmental performance has been made possible by the use of optimised technology (e.g. downsized engines and more efficient aerodynamics, etc.).
- <u>At least 5% of the plastics it contains must be sourced from recycling.</u> Renault eco<sup>2</sup> end-of-life vehicles are designed to be 95% reusable by weight (i.e. recycling and energy recovery). Renault eco<sup>2</sup> vehicles also contain more than 5% of recycled plastic. Clio III already contains nearly 10% (20kg) and New Twingo 9% (15kg). Recycled plastic levels will gradually increase in the future line-up.

### Renault offers a duel biofuel deal - ethanol and biodiesel - for its vehicles in Europe

Renault considers biofuels an efficient solution for controlling  $CO_2$  emissions. Economically efficient because they are derived from plant matter, a diverse, renewable energy source. And economically efficient because engine development costs are limited, which translates into affordable vehicle prices. What's more, because they can be produced from local resources, countries can reduce outside energy dependence while reducing  $CO_2$  emissions over vehicle lifecycles (for example, ethanol could cut emissions by up to 40% in France).

Renault is one of the few carmakers to come up with a dual biofuel offering for its European customers. Since June 2007, it has marketed a 105hp Mégane 1.6 16V – saloon and hatchback – that can run on E85 ethanol. It is Renault's first ethanol offering in Europe. The move comes after Brazil, where it has marketed Clio and Mégane that run on E100 since 2004. In 2008, biofuel versions of Clio III, Twingo, and New Kangoo will come to market.

All our petrol engines are today compatible with fuels that comply with the current European fuel EN228 legislation – i.e. fuels which contain up to 5% ethanol (E5). All petrol engines powering vehicles manufactured as of mid-2008 will be compatible with E10 blends (10% ethanol inclusion).

Meanwhile, Renault has been working on second-generation biofuels since March 2006 as part of the Alliance for Synthetic Fuels in Europe (ASFE), together with DaimlerChrysler, Volkswagen, Royal Dutch Shell and Sasol Chevron. One of the ASFE's prime aims is to develop processes for recovering energy from timber- and plant-waste products that do not compete with food crops.

# Renault entered Logan Renault eco<sup>2</sup> Concept for the 2007 Challenge Bibendum in Shanghai. It returned record-low emissions.

The outstanding success of Logan Renault  $eco^2$  Concept on the Challenge Bibendum was Renault's way of stating that there is such a thing as a car that is both ecological and economical and which is capable of delivering performance and driveability.

Technical enhancements and its driver's carbon-conscious gear-changes enabled Logan Renault eco<sup>2</sup> Concept to cover the 172.2km of the Challenge Bibendum route on only 4.69 litres of diesel fuel. That performance translates into average fuel consumption of just 2.72 litres/100km (CO<sub>2</sub> emissions of 71g/km)!

When Logan Renault  $eco^2$  Concept underwent its NEDC homologation on a combined driving cycle, it registered CO<sub>2</sub> emissions of 97g/km (fuel consumption of 3.8 litres/100km. It surpassed that showing on the Challenge Bibendum because the driver enjoyed the help of a gearshift indicator, which helped him to drive 'carbon-consciously'. This novel indicator shows the right timing for gearshifts in order to control fuel consumption.

Renault hopes to support its customers in their efforts to protect the environment by gradually introducing the gearshift indicator into its vehicle line-up.

### Renault commits to the all-electric vehicle – the zero emission solution.

Renault is at work on several solutions designed to reduce  $CO_2$  emissions in the short to medium term. It has taken one decisive step by adopting all-electric technology.

A partnership between the Renault-Nissan Alliance and Project Better Place in Israel has, for the first time ever, brought together all the required conditions for marketing electrical vehicles (EVs) on an industrial scale. The Israeli government is offering tax incentives to customers, Renault will supply the EVs, and Project Better Place will build a network of charging facilities across the country. EVs will market from 2011.

The partnership is Renault's opportunity to prepare for the large-scale marketing of all-electric vehicles, on which every function and feature will be operated by electricity only. It will achieve its objective of zero emissions while offering a vehicle that performs on a par with one powered by 1.6-litre petrol engine. Renault's EVs will be fitted with lithium ion batteries, which yield a longer range and life.

#### **ELV MANAGEMENT**

# Renault has continued its headway in end-of-life vehicle management through a joint-venture with recycling and re-use experts.

Since 1995, aware of the environmental stakes and its responsibilities as a carmaker, Renault has pursued an ambitious international environmental policy which takes a vehicle's entire lifecycle into account, from design to end-of-life management.

In February 2008, Renault broke new ground when it created the Renault Environment Business Unit. Its mission is to foster domestic and international projects and partnerships to promote the recycling of end-of-life vehicles (ELVs) and develop new environment-related services.

Renault recently announced a plan to create Re-Source Industries Holding, an equally owned jointventure company, with SITA, a subsidiary of Suez Environnement. The aim is to step up the deployment of ELV recycling practices in France with all those involved in that area of business. To bolster its business development, Re-Source Industries Holding is considering the takeover of Indra Investissement SAS, a company that has been shredding and recycling automobiles for 20 years.

Carmaker Renault and major waste management company SITA, together with Indra, with its dismantling network and shredding plant, boast new, complementary competencies to ensure the success of the joint-venture project. The resulting synergies will play a part in accelerating the incorporation of ELV practices into operations in more ecological, economical conditions.

#### Renault, an acknowledged leader in recycled plastics

For over ten years Renault has been designing vehicles so that, at the end of their lives, they may be easily dismantled and recycled. Renault has thus made a major contribution to the emergence of the first high-tech plastic recycling pathways. Its engineers have worked closely with waste treatment professionals and the company's suppliers. Cars bearing the Renault eco<sup>2</sup> badge contain at least 5% recycled plastic. New Laguna, marketed in 2007, holds the record with 17% of recycled plastic – in other words, more than 100 components environmentally designed with Renault suppliers.

High-resolution photographs relating to environmental issues can be downloaded from www.media.renault.com > Picture Library > Innovations > Environment.