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RENAULT: TARGETING ZERO EMISSIONS

► A COMPREHENSIVE RANGE OF ALL-ELECTRIC ZERO-EMISSION VEHICLES FROM 2011

Electric vehicles represent the clean-break solution that can put zero-emission mobility within everybody's reach. In line with the brand's Renault eco² environmental policy, Renault Z.E. electric vehicles are poised to be marketed on a large scale with a view to taking a decisive stand on the environmental front.

2011 will see Renault begin the marketing of affordable production electric vehicles. The Renault-Nissan Alliance is targeting to be the leader in the sale of mass market zero-emission vehicles.

The four electric concept cars on show in Frankfurt provide a preview of Renault's range of vehicles due to be released from 2011.

► TWIZY Z.E. Concept: 100% ELECTRIC, 100% PRACTICAL AND 100% INNOVATIVE

Twizy Z.E. Concept is an innovative response to the challenge of urban mobility. With its four-wheel chassis, Twizy Z.E. Concept offers the driver and passenger – seated one behind the other – an all-electric means of transport which produces no CO₂ emissions.

Twizy Z.E. Concept is compact, nimble and practical – everything you need in city traffic. The wraparound bodywork creates a safe, reassuring cocoon which offers first class protection for both the driver and the passenger.

Power comes from a 15kW electric motor which develops 70Nm of torque, making Twizy Z.E. Concept versatile and easy to drive. The acceleration performance of Twizy Z.E. Concept in urban and suburban traffic is comparable to that of a 125cc motorbike.

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► ZOE Z.E. Concept: ZERO EMISSIONS AND A PERFECTLY REASSURING RIDE

Zoe Z.E. Concept is evidence that an all-electric zero-emission vehicle can also boast smart, appealing looks. Zoe Z.E. Concept's special roof optimizes the management of the climate control system to ensure extended range, while the ambience inside the cabin can be customized. Over and above its traditional role, the climate control system breaks new ground thanks to its hydrating, 'detox' and active scent functions which combine to enhance the travelling experience. Zoe Z.E. Concept is a compact, versatile daily driver which represents a new way of experiencing mobility thanks to a choice of three battery-charging techniques.

► FLUENCE Z.E. Concept: AN ATTRACTIVE, SPACIOUS ELECTRIC FAMILY CAR

Fluence Z.E. Concept is a statement of Renault's intention to produce a range of zero-emission vehicles that meet the needs of all types of customer. Fluence Z.E. Concept is a genuine family car which demonstrates that attractive styling, comfort and space can go hand in hand with respect for the environment.

Fluence Z.E. Concept is an all-electric car with a range of 160km. The battery can be charged using one of three methods: a standard charge (between four and eight hours), a quick charge (20 minutes) or an immediate solution (three minutes) which takes the form of the exclusive 'Quickdrop' rapid battery exchange system.

Fluence Z.E. Concept previews the forthcoming electric version of Fluence, and represents a solution to zero-emission motoring in the world of tomorrow.

► KANGOO Z.E. Concept

Kangoo Z.E. Concept is based on Renault Kangoo and brings zero-emission mobility to the business road-user.

Kangoo Z.E. Concept is powered by a 70kW electric motor which delivers 226Nm of torque, in conjunction with a lithium-ion battery. Energy consumption is minimized thanks not only to the careful attention that has been paid to its overall design but also to energy optimization solutions, without the necessary high standard of comfort suffering in any way.

Kangoo Z.E. Concept's many information functions make it a particularly user-friendly, efficient and interactive vehicle.

► ENERGY MANAGEMENT: THREE BATTERY-CHARGING TECHNIQUES AND AN INTELLIGENT NAVIGATION SYSTEM

Three options when it comes to 'filling up' on energy:

- The standard charge: takes between four and eight hours, via a charging socket situated on the outside of the vehicle.
- The quick charge: in 20 minutes, using the same socket at specific charging points.
- The exclusive 'Quickdrop' system: three minutes at a rapid battery exchange station.

Range optimization is the greatest challenge for electric vehicles. This is why Renault is working hard to make the process as simple and efficient as possible by planning for all types of charging needs and methods.

▶ **RENAULT FLUENCE: FOR TRAVELLING IN STYLE**

This autumn will see Renault introduce FLUENCE, a four-door saloon which features elegant, flowing lines.

Renault Fluence was designed with the aim of standing out as the most attractive car of its class. Several features set it apart from rivals: beneath its strong, sporting exterior, Fluence features a comfortable cabin and a wealth of useful technological aids.

Fluence targets customers looking for a status-enhancing saloon and will be built on the existing assembly line at the Oyak-Renault plant in Bursa, Turkey, where the booted Megane II was previously produced.

▶ **POWERTRAIN RANGE: RENAULT IS PREPARING FOR THE MOBILITY OF TOMORROW AND IS TARGETING ZERO EMISSIONS**

Renault is pursuing its environmental programme, including the Renault eco² hallmark which reasserts the carmaker's determination to reduce the ecological footprint of its vehicles at every stage of their lifecycle (manufacture, on-road use and end-of-life). The objective is to market environmentally respectful vehicles which are affordable to the majority of motorists. Renault is targeting number one status regarding CO₂ emissions by 2015 and is focusing its efforts on two fronts:

- new technologies for its internal combustion engines and transmissions,
- an unprecedented commitment to electric motors.

▶ **NEW MEGANE RENAULT SPORT: CHIC AND SPORTY**

New Megane R.S. stands out in the Megane range through its sporty character which is expressed by both its looks and on-road performance credentials.

New Megane R.S. goes on sale this autumn, with a choice of two chassis:

- a Sport chassis for everyday driving enjoyment,
- a Cup chassis for even more exhilarating performance round a circuit.

New Megane R.S. is powered by a 2.0-litre turbocharged engine which boasts a power output of 250hp and a particularly broad useful rev band that can be enjoyed both on the road and on a race-track.

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A COMPREHENSIVE RANGE OF ALL-ELECTRIC ZERO-EMISSION VEHICLES FROM 2011

- Electric vehicles represent the clean-break solution that can put zero-emission mobility within everybody's reach. In line with the brand's Renault eco² environmental policy, Renault Z.E. electric vehicles are poised to be marketed on a large scale with a view to taking a decisive stand on the environmental front.
- This clean break already possesses significant political support around the world in the form of tax incentives based on CO₂ emission savings, as well as infrastructure development for electricity-based mobility.
- Renault will begin selling affordable mass-production electric vehicles in 2011.
- The Renault-Nissan Alliance is targeting number one status regarding the sale of mass-market zero-emission vehicles.

The four electric concept cars on show in Frankfurt provide a preview of Renault's range of electric vehicles which will be released from 2011. These four vehicles are designed to cater for different uses and customers.

- **Twizy Z.E. Concept:** the definitive city-car for busy people seeking an efficient and practical means of mobility.
- **Zoe Z.E. Concept:** a compact, versatile car aimed at motorists who use their vehicle for short journeys on a daily basis and who seek a comfortable, relaxing drive in a personalizable cabin.
- **Fluence Z.E. Concept:** an elegant saloon capable of transporting up to five people in total comfort.
- **Kangoo Z.E. Concept:** the forerunner of an electric van intended for fleet and business use.

In line with the values championed by the brand, Renault electric vehicles will offer customers a spacious interior, comfort, quality and safety. Renault also intends to give all Renault Z.E. electric vehicles a distinctive design signature.

For electric cars to succeed, drivers need to be able to charge their vehicles, so Renault's mission isn't restricted to just designing electric vehicles. At the same time as the Renault Z.E. models are rolled out, three distinct charging techniques will be introduced. To develop these solutions, Renault has entered into a long list of partnerships with governments, energy companies and other organisations, such as Better Place, for example, so that mass-market electric vehicles can become a reality.

THE ALLIANCE'S COMMITMENT TO ELECTRIC VEHICLES

The Renault-Nissan Alliance has set itself the objective of mass-marketing CO₂ emissions-free, non-polluting (particulates, NOx gases, etc.) vehicles.

The Alliance's commitment to the electric vehicle is founded on a single, underlying principle: unlike every other technology (internal combustion engines, hybrids), electric vehicles are genuine zero-emission vehicles regarding their use on the road. They also permit a reduction in oil-dependency.

Although well-to-wheel emissions of greenhouse gases (expressed as equivalent CO₂) can vary significantly depending on how the electricity they use is produced in the different countries where they are driven, electric vehicles still account for a smaller quantity of greenhouse gases than equivalent internal combustion vehicles

When the electricity is produced by nuclear or renewable sources (hydro-electric, wind-generated, photovoltaic), the well-to-wheel performance of an electric vehicle is indisputably superior. With the electricity generation methods currently used in Europe, the results are still compelling, since CO₂ emissions are halved compared to those produced by an internal combustion engine.

The well-to-wheel figure is further improved when the car is charged at night, which will be the most frequently used method. This allows customers to:

- profit from electricity when demand for energy is low at night time; such electricity often goes to waste because it is difficult to store.
- benefit from appreciable savings by profiting from the off-peak tariffs offered by energy companies; in France, for example, off-peak electricity costs 40 per cent less than at peak times during the day.
- use the cleanest forms of electricity (nuclear, hydro-electric, wind power), since thermal power plants are usually on standby at night.

Electric vehicles represent a **clean-break solution** that can put sustainable mobility within everybody's reach. In line with Renault's environmental stance as expressed by its Renault eco² hallmark, Renault Z.E. electric vehicles will be mass-produced to achieve substantial environmental savings.

In the 2008 edition of its World Energy Outlook, the International Energy Agency (IEA) explained that global energy demands, without the implementation of new policies, would rise on average by 1.6 per cent annually between 2006 and 2030, representing an overall increase of 45 per cent over the same period. This would lead to a corresponding rise in CO₂ emissions if oil and coal remained the primary sources of energy.

The report also analyses the different political options that could be used to tackle climate change after 2012, the date at which a new worldwide agreement is scheduled to come into force. This will be debated during the UN conference in Copenhagen at the end of 2009.

The Renault-Nissan Alliance will market a comprehensive range of high-quality, reliable and innovative electrical vehicles at affordable prices. Renault Z.E. electric vehicles will be particularly quiet-running and generate zero emissions during their use on the road. As such, they will mark an environmental clean-break which is within the budget of the majority of motorists.

SYNERGIES WITHIN THE ALLIANCE

A decade after the establishment of the Alliance, Renault and Nissan stepped up their cooperation in May 2009. They announced the creation of a team dedicated to speeding up and broadening the synergies that will enable both companies to improve their performance, and more particularly in the field of electric vehicles.

The electric vehicles produced by Renault and Nissan, for example, will be equipped with batteries developed by AESC, a NISSAN-NEC joint venture. The Alliance has pooled its expertise to strengthen synergies at every level and encourage the sharing of major electrical assemblies, such as the drive train and batteries. Renault and Nissan also share purchasing requirements and have standardized components to generate economies of scale with a view to making it possible to develop mass-market electric vehicles.

Renault and Nissan are working on shared components but will offer different ranges of electric vehicles. Each range will be sold separately, through separate dealer networks.

Furthermore, the Alliance is entering into partnerships with governments, local authorities and energy companies to drive forward the mass-distribution of electric vehicles worldwide. By the start of September 2009, the Alliance had already signed some thirty such agreements.

THE RENAULT RANGE

The four electric concept cars unveiled at Frankfurt are forerunners of the range of Renault Z.E. electric vehicles that will begin to appear on the market in less than two years' time.

From 2011, Renault will progressively roll out four electric vehicles, including two derivatives of internal-combustion vehicles. The first will be the electric version of Fluence which will initially be available in Israel and Europe. The second will be an electric version of Renault Kangoo Express, intended primarily for fleet and business use.

The range of electric vehicles will then expand to cover other segments, with two vehicles that will be designed from scratch as electric vehicles. Derived from the Twizy Z.E. Concept, the third vehicle will

target urban mobility. The fourth vehicle, which takes its inspiration from the Zoe Z.E. Concept, will go on sale at the beginning of 2012 and will be a multi-purpose daily driver for built-up areas.

These four vehicles will cover a range of uses and customers who will nonetheless all have one thing in common: they will be entering a new era of zero-emission mobility.

TWIZY Z.E. Concept

100% ELECTRIC, 100% PRACTICAL & 100% INNOVATIVE

Twizy Z.E. Concept is an innovative response to the challenge of urban mobility. With its four-wheel chassis, Twizy Z.E. Concept offers the driver and passenger – seated one behind the other – an all-electric means of transport which produces no CO₂ emissions.

Twizy Z.E. Concept is compact, nimble and practical – everything you need in city traffic. The wraparound bodywork creates a safe, reassuring cocoon which offers first class protection for both the driver and the passenger.

Power comes from a 15kW electric motor which develops 70Nm of torque, making it versatile and easy to drive. The acceleration performance of Twizy Z.E. Concept in urban and suburban traffic is comparable to that of a 125cc motorbike.

A VEHICLE FOR BUSY CITY-DWELLERS...

Twizy Z.E. Concept is an all-electric vehicle aimed primarily at busy city dwellers who need to pick their way through the urban jungle. Every day, they juggle work commitments with a busy social life, so efficiency, speed and simplicity are key.

The ultra-compact dimensions of Twizy Z.E. Concept (2.30m in length, and just 1.13m wide) ensure that it is nimble enough for urban use. The four-wheel arrangement, open bodywork and a seat format which puts the driver and passenger behind one another express Twizy Z.E. Concept's distinctive character.

...LOOKING FOR A PRACTICAL AND SAFE MEANS OF TRANSPORT

For its occupants, Twizy Z.E. Concept represents a highly practical solution to the problem of urban mobility. With a turning circle of just three metres and a footprint barely larger than that of a scooter, Twizy Z.E. Concept is easy to park in town. At the wheel, easy, agile handling ensures that it rarely gets stuck in traffic, while the four wheels and low centre of gravity provide excellent stability.

Inside, the priority has been to make Twizy Z.E. Concept easy to drive. Data is easy for the driver to take in, with displays located at eye level at the base of the windscreen, and grouped in honeycomb-

shape clusters which are easy to differentiate. For the passenger, getting into the rear seat is simple: the seatback is attached to the roof of the vehicle, allowing the lower part of the seat to pivot. The rear seat can even be adjusted to suit the passenger's height: the seat cushion can be turned over to become a booster cushion and afford a child better visibility. When the cushion is used as a booster in this way, it frees up a load volume of 10 litres, as a complement to the initial 50 litres, and in complement to the 3 litres provided by the cubbies on either side of the steering wheel.

Twizy Z.E. Concept provides optimum levels of safety. The bodywork doesn't just protect the occupants from poor weather; it is also far more visible in traffic to other road users and effectively constitutes a safety cell. A deformable structure protects occupants in the event of a frontal impact while lateral reinforcement bars provide protection in the case of an impact from the side. The retention systems include a four-point harness for the front seat and a three-point seatbelt at the rear, plus a driver airbag and two lateral airbags.

A NEW ERA OF ALL-ELECTRIC MOBILITY

With its futuristic, pearlescent white bodywork, Twizy Z.E. Concept clearly belongs to a new era of urban mobility. As opposed to a conventional car, the body colour wheel fairings are not spherical but octagonal, and cover the tyres entirely. Along with the pearlescent white and blue hub caps, they form a pleasing, harmonious design in which the wheels can no longer be seen rotating. Instead, the only visible movement is that of the hub caps, so Twizy Z.E. Concept appears to glide gracefully and silently, along the road.

In keeping with this fresh approach to mobility, Twizy Z.E. Concept offers its occupants a new, simple and reassuring environment. The front and rear ends of Twizy Z.E. Concept are equipped with a luminous matrix display, the honeycomb-shaped diodes of which allow the driver to interrelate with his or her immediate surroundings. In addition to serving as headlights and rear lights, these diodes can also produce 'smileys' which change expression as a function of the message the driver wishes to communicate.

Inside, the cabin is brightly lit thanks to the bodywork's extensive glazed surface. The blue and white colour scheme creates a soothing atmosphere which isolates the passengers from the stress of urban activity. Optimizing the vehicle's range is simple and worry-free, with a poetic touch: remaining range is depicted by a lotus flower on the dashboard, with petals that close progressively as the range decreases.

Twizy Z.E. Concept is powered by a 15kW (20hp) electric motor. This develops 70Nm of torque, and combines comfort with responsive performance at all engine speeds. Twizy Z.E. Concept can accelerate at a similar rate to a 125cc bike, and pulls away briskly from standstill. With a top speed of 75kph, Twizy Z.E. Concept will also be in its element in suburban traffic.

The energy available onboard Twizy Z.E. Concept serves just one purpose – mobility. The open chassis calls for neither heating nor climate control, both of which consume a significant amount of energy. This, coupled with the vehicle's low weight (it tips the scales at just 420kg, complete with batteries), contributes directly to Twizy Z.E. Concept's range which can reach 100km.

The lithium-ion batteries for Twizy Z.E. Concept are located beneath the two seats. They are charged by means of an extendible cable located behind the Renault logo at the front. This cable can be plugged into a 220V 10A or 16A domestic socket, and will fully charge the batteries in just three and a half hours.

Twizy Z.E. Concept is the forerunner of one of the all-electric mobility solutions that Renault will introduce from 2011.

TECHNICAL DATA

| MOTOR | |
|-------------------------------|--|
| Type | Electric |
| Transmission type | Direct drive with reducer and forward/reverse inverter |
| Maximum power EEC (kW / hp) | 15 / 20 |
| Maximum torque EEC (Nm) | 70 |
| BATTERY | |
| Type | Lithium-ion |
| Range | 100km |
| DIMENSIONS | |
| Rims (inches) | 13 |
| Length (mm) | 2,303 |
| Width (mm) | 1,132 |
| Height (mm) | 1,476 |
| Wheelbase (mm) | 1,695 |
| Front / rear track (mm) | 944 / 944 |
| Front / rear overhang (mm) | 304 / 304 |
| Unladen weight (kg) | 420 |
| Tyres | 135/80 R13 |
| PERFORMANCE | |
| Aerodynamic performance (CdA) | 0.63 |
| Top speed (kph) | 75 |

ZOE Z.E. Concept

ZERO EMISSIONS AND A PERFECTLY REASSURING RIDE

Zoe Z.E. Concept is evidence that an all-electric zero-emission vehicle can also boast smart, appealing looks. Zoe Z.E. Concept features technology aimed at extending its range and enhancing the travelling comfort of all occupants.

Zoe Z.E. Concept is a compact, versatile daily driver which represents a new way of experiencing mobility.

AN ECONOMICAL AND ECOLOGICAL SOLUTION

Zoe Z.E. Concept targets motorists who own more than one car and who are looking for a compact, versatile vehicle capable of meeting their varied day-to-day needs, such as the school or work run, or shopping trips.

Zoe Z.E. Concept is an all-electric, zero-emission vehicle which reconciles motoring with the environmental aspirations of customers looking for a vehicle with the best possible ecological footprint.

SLEEK STYLING

Zoe Z.E. Concept invites its occupants to enjoy familiar pleasures.

Using cutting-edge electric-vehicle technology, Zoe Z.E. Concept is proof that a zero-emission vehicle can also possess a dynamic, edgy, attractive design which immediately points to driving enjoyment.

Aerodynamics have a significant influence on the performance of a zero-emission vehicle and, in the case of the Zoe Z.E. Concept project, the overriding concerns regarding design were elegance and efficiency.

Zoe Z.E. Concept is just 4.10m long and is powered by a 70kW electric motor which develops 226Nm of torque. It is easy to imagine the vehicle making its way silently through traffic in built-up areas. The large 21-inch wheels and large body panels are reassuring touches that give the four occupants complete peace of mind when travelling out of town.

At the rear, a retractable spoiler deploys at speeds in excess of 90kph to make a further contribution to Zoe Z.E. Concept's aerodynamic efficiency. This LED-equipped spoiler also serves as a brake light, as does the integrated light in the shark's fin-type aerial on the roof.

The exterior design of Zoe Z.E. Concept incorporates technologies aimed at reasserting its 'zero-emission' credentials:

- The roof has been designed as an intelligent protective membrane that insulates the occupants from heat and cold, as well as optimizing climate control performance by recovering energy via its honeycomb photovoltaic cells.
- At front and rear, a shield of polyurethane gel protects the lights which feature energy-efficient electroluminescent diodes that emit a blue-tinted light. This second skin protects vulnerable components from small knocks in town, while underlining this electric concept car's hi-tech feel.
- The air intakes situated either side of the car channel airflow to cool the batteries. The air is extracted through two large rear channels through which it is possible to glimpse the streamlined suspension arms.
- Rearward vision is handled by two small, profiled, energy-efficient cameras which transmit images to the interior rear view mirror, giving the driver perfect visibility without blind spots.
- The front features scissor doors, while rear access is through butterfly-style doors. The clever and original design of the rear doors means they also double up as openings for the boot, allowing carrying space to be accessed from the side, from the pavement, for example.

AN INTERIOR DESIGNED TO PROFIT FULLY FROM THE SILENT RIDE

The form of the front seat cushions resembles that of an asymmetric pebble, while the seatbacks are attached to the roof. At the rear, the seats can be folded flat with a view to obtaining additional carrying capacity.

The **dashboard** contributes to the interior's uncluttered feel. It is covered with an intelligent, mineral-like membrane and the lightest of touches calls up a range of touchscreen controls. The wide TFT (Thin Film Transistor) screen is housed in a glass bubble. This is the central information point for Zoe Z.E. Concept and serves to display navigation data, the charge indicator and remaining range, as well as a pallet of coloured mood lighting options which enable the interior ambiance to be customized. This mood lighting can also be selected automatically via a sensor in the seat which will tone the lighting to match the colours of the driver's clothes.

Information is presented by an avatar that appears on the TFT screen, creating a link between the driver and the technology thanks to short messages. The avatar can be personalized (male, female, downloadable from the internet), and provides information about traffic conditions, the route and remaining range. It can also indicate the nearest charging points. This way of humanizing the technology makes it more accessible and creates a relationship with the driver to ensure that journeys are as pleasant as possible.

The hands-free keycard can be personalized, too, by fixing a chip to an object of the customer's choosing to enable automatic door locking and ignition.

Finally, **the climate control system** does much more than simply adjusts the temperature. It also enhances the travelling experience thanks to an innovative triple-function system:

- **Hydrating function.** In contrast to conventional climate control systems, which can tend to dry out the air, small dashboard-mounted vaporizers spray an exclusive active substance to rehydrate the skin and exude a sensation of wellbeing.
- **'Detox' function.** A toxicity sensor monitors air quality and shuts off the airvents if required. Then, in addition to extracting harmful substances, the cabin filters deliver others which benefit the skin.
- **Active scent function.** An electric system exhales essential oils suited to the mood of the moment: something mellow for a relaxing drive home, perhaps, or the need to stimulate concentration when driving at night.

This triple-function system has been developed in association with Biotherm®, the skin biology brand of L'Oréal's Luxury Products Division.

After a journey in Zoe Z.E. Concept, occupants will feel more relaxed, just like after a spa treatment.

THREE BATTERY-CHARGING TECHNIQUES

The driver has three options when it comes to 'filling up' on energy:

- **A standard charge:** takes between four and eight hours, via a charging socket situated on the outside of the vehicle.
- **A quick charge:** in 20 minutes, using the same socket at specific charging points.
- **The exclusive 'Quickdrop' system:** three minutes at a rapid battery exchange station.

TECHNICAL DATA

| MOTOR | |
|---|---|
| Type | Electric |
| Transmission type | Direct drive with forward/reverse inverters |
| Maximum power EEC (kW/hp) | 70/95 |
| Maximum torque EEC (Nm) | 225 |
| BATTERY | |
| Type | Lithium-ion |
| Range | 160km |
| STEERING AND BRAKES | |
| Power steering | Electric variable rate power steering |
| Parking brake | Electric |
| DIMENSIONS | |
| Rims (inches) | 21 |
| Length (mm) | 4,100 |
| Width (mm) | 1,840 |
| Height (mm) | 1,516 |
| Wheelbase (mm) | 2,605 |
| Front/rear track (mm) | 1,626/1,626 |
| Front/rear overhang (mm) | 747/719 |
| Unladen weight (kg) | 1,400 |
| Tyres | 185/55 R21 |
| Boot volume (dm ³ VDA)... ...with 4/3/2 occupants | Between 150 and 500... ...150/325/500 |
| PERFORMANCE | |
| Aerodynamic performance (CdA) | 0.25 |
| Top speed (kph) | 140 |

FLUENCE Z.E. Concept

AN ATTRACTIVE, SPACIOUS ELECTRIC FAMILY CAR

- **Fluence Z.E. Concept is a statement of Renault's intention to produce a range of zero-emission vehicles that meet the needs of all types of customer. Fluence Z.E. Concept is a genuine family car which demonstrates that attractive styling, comfort and space can go hand in hand with respect for the environment.**
- **Fluence Z.E. Concept is an all-electric car with a range of 160km. The battery can be charged using one of three methods: a standard charge (between four and eight hours), a quick charge (20 minutes) or an immediate solution (three minutes) in the form of the exclusive 'Quickdrop' rapid battery exchange system.**
- **Fluence Z.E. Concept previews the forthcoming electric version of Fluence, and represents a solution to zero-emission motoring in the world of tomorrow.**

A FAMILY FATHER LOOKING FOR AN ECOLOGICAL FAMILY CAR

You don't have to be young, rich, single, trendy and living in the city to drive an electric car. Renault has proved as much with Fluence Z.E. Concept, a car aimed squarely at the single-car family father who would use the car every day to go to the office, but who would also want to take his wife and children to the country at the weekend. Therefore, the car needs to serve to an extent as a status symbol, but it must also provide enough interior space to function as a comfortable family car. The owner is environmentally aware, but wants to maintain his or her lifestyle and habits, too, without feeling guilty for it.

Fluence Z.E. Concept meets this need. This status-enhancing, ecological family car claims a range of 160km, while its battery can be charged on one of three ways, including the ultra-fast battery exchange option which takes less than three minutes. Fluence Z.E. Concept also allows the driver to make urban, country and motorway journeys with total peace of mind.

ELECTRIC MOBILITY WITH A PASSION

The styling cues of Fluence Z.E. Concept combine the design language of motoring pleasure with the visual signature of Renault's range of electric vehicles.

Fluence Z.E. Concept possesses dynamic lines, highlighted by a fluid character line which sweeps from the headlights to the rear shoulders. It is 4,820mm long, has a wide track of 1,672 mm, is well-proportioned and exudes status-enhancing, elegant looks.

Its identity as an electric vehicle is expressed through the graphic treatment of the cooling ducts, the fins of which are reminiscent of heat transfer surfaces, and this theme is echoed in different ways in

the design of the headlights and motor cover. The photovoltaic cells located on the panoramic roof, dashboard and rear parcel shelf form a geometric grid pattern which has been carried over to the grille and seat upholstery.

Fluence Z.E. Concept also clearly belongs to Renault's 'family' of electric vehicles thanks to:

- its Atmosphere Blue body colour,
- the specific luminous blue signature which features in the curved lower part of the body sides,
- the use of LEDs at the front and rear,
- the design of its headlights,
- the recess behind the logo on the bonnet.

The headlights convey the same impression of softness suggested by the vehicle's overall lines and colour. They are a high-tech feature, too: beneath the 'eyelids' formed by the indicators, the beams of the main headlights are precise and piercing, with the light focused into a single beam by means of a system of prisms.

The vehicle's status-enhancing credentials are further emphasised by the employment of chrome trimming for the belt-line and grille, as well as by its impressive 21-inch wheels. Blue polycarbonate hubcaps seem to slot into the aluminium wheels to create a spiral form which channels the airflow and improves aerodynamic performance.

LUXURY, HARMONY AND... ENERGY EFFICIENCY

Fluence Z.E. Concept's warmly welcoming and refined interior is based on a combination of flowing forms, the use of soft, supple materials and a mottled ambience. Passengers are comfortably seated in four enveloping seats robed in light leather upholstery. The feet rest on a light blue translucent gel mat, while the brake and accelerator pedals, too, are covered in gel for a greater sense of comfort. When the doors open, the courtesy lighting recalls the luminous blue signature of Renault's electric vehicle range.

The technology used for the dashboard is sophisticated and intuitive. A TFT (Thin Film Transistor) touchscreen displays multimedia information and essential journey-related information such as the navigation function and the location of the nearest 'Quickdrop' station. The display also provides data specific to electric vehicles, such as range optimization information, for example.

The centre console incorporates two floating armrests and forms a fluid, rearward-flowing arc. At the front, the integrated central front armrest includes the stop/start button, the air-conditioning and volume controls, as well as the new touchscreen Samsung Jet phone. This phone comes with a hands-free function, and also enables occupants to listen to music or enjoy a film on the screens which have been built into the front seatbacks. The central rear armrest incorporates the climate

control and volume controls, plus another Samsung Jet telephone and two remote controls for the two screens.

Significant care has also gone into the design of the door panels: the door handles echo the rounded form of the centre console and the electric window controls are flush with the surface, while the viewing screen for the rear-view cameras is integrated discreetly yet effectively.

Fluence Z.E. Concept is not respectful of the environment simply because it runs on electricity. Indeed, the entire car has been thought through to optimize energy use:

- the photovoltaic cells meet part of the car's energy requirements with a view to complementing the power supplied by the battery,
- the headlights use high-performance electroluminescent diodes which deliver an excellent trade-off between efficiency and energy consumption,
- the triple-zone climate control system allows occupants to achieve just the right settings for the two seats at the front and at the rear. The air vents also feature a dynamic lighting code, with blue representing the passage of cold air and red representing warm air,
- the car's aerodynamics have been meticulously honed to minimize drag, including streamlined rear-view mirrors with integrated rearward facing cameras, a completely enclosed underside incorporating a diffuser at the rear, and spiral-form wheel rims,
- Fluence Z.E. Concept runs on low rolling resistance Michelin tyres.

Fluence Z.E. Concept is powered exclusively by an electric motor located near the front axle, in conjunction with a lithium-ion battery positioned between the rear seats and the boot. Renault's designers and engineers worked closely together to develop a safe, practical vehicle capable of accommodating a large enough battery to ensure good range (160km), while also providing sufficient carrying capacity to cater for the requirements of an active family (327dm³).

THREE BATTERY-CHARGING TECHNIQUES

The driver has three options when it comes to 'filling up' on energy:

- **A standard charge:** takes between four and eight hours, via a charging socket situated on the outside of the vehicle.
- **A quick charge:** in 20 minutes, using the same socket at specific charging points.
- **The exclusive 'Quickdrop' system:** three minutes at a rapid battery exchange station.

(For more detailed information concerning charging methods, see the [Range Optimization](#) chapter).

Fluence Z.E. Concept provides a foretaste of the forthcoming electric version of Fluence, and represents a solution to zero-emission motoring in the world of tomorrow.

TECHNICAL DATA

| MOTOR | |
|-----------------------------------|--|
| Type | Electric |
| Transmission type | Direct drive with forward/reverse inverter |
| Maximum power EEC (kW/hp) | 70/95 |
| Maximum torque EEC (Nm) | 226 |
| BATTERY | |
| Type | Lithium-ion |
| Range (km) | 160 |
| STEERING | |
| Power steering | Electric variable-rate power steering |
| DIMENSIONS | |
| Rims (inches) | 21 |
| Length (mm) | 4,820 |
| Width (mm) | 1,882 |
| Height (mm) | 1,520 |
| Wheelbase (mm) | 2,696 |
| Front/rear track (mm) | 1,672/1,672 |
| Front/rear overhang (mm) | 996/1,135 |
| Unladen weight (kg) | 1,600 |
| Tyres | 175/55 R21 |
| Boot volume (dm ³ VDA) | 327 |
| PARTNERS | |
| Body | Protostyle |
| Tyres | Michelin |
| Sealing | Rehau |
| LED lighting | Osram |

KANGOO Z.E. Concept

- Kangoo Z.E. Concept is based on Renault Kangoo and brings zero-emission mobility to the professional road-user.
- Kangoo Z.E. Concept is powered by a 70kW electric motor which delivers 226Nm of torque, in conjunction with a lithium-ion battery. Energy consumption is minimized thanks not only to the careful attention that has been paid to its overall design, but also to the energy optimization solutions it features, without the necessary high standard of comfort suffering in any way.
- Kangoo Z.E. Concept's many information functions make it a particularly user-friendly, efficient and interactive vehicle.

AN URBAN AND SUBURBAN CALLING

Kangoo Z.E. Concept's dimensions (length 3.95m, height: 1.85m) ensure that it is perfectly nimble and manoeuvrable in and about town. Its high torque (226Nm) is instantly available to ensure **responsive** acceleration performance in built-up areas.

ZERO-EMISSION MOBILITY, TOO, FOR THE PROFESSIONAL ROAD-USER

The Kangoo Z.E. Concept provides a foretaste of what mobility promises to resemble in the future for urban-based transporter and delivery companies, while at the same time carrying over the same acclaimed strengths as Kangoo when it comes to travelling comfort, space and safety performance. To facilitate loading, the hatch-type rear door and wide, folding sill ensures that parcels and other types of loads are easy to slide into the boot.

DESIGNED TO OPTIMIZE ENERGY CONSUMPTION

The design of Kangoo Z.E. Concept has been thought through in keeping with its mission as an electric vehicle which needs to minimize energy consumption, yet without losing sight of the need for modern comfort-related refinements.

The use of heat-reflective paint and bodywork featuring large surface areas reduces temperature fluctuations. Indeed, the bodywork functions along the same lines as a Thermos flask and comprises two insulating panels with a sandwich of air in between. This air, which is still the most effective insulant known today, serves to moderate temperature extremes between the exterior and the interior of the car. Thermal insulation is further optimized thanks to special treatment of the glazed surfaces, meaning that less call is made of the climate control and heating systems which are big consumers of energy.

Solar panels positioned on the roof are employed to power a temperature regulation system inside the car. Keeping the cabin cool uses a significant amount of energy, but this system also permits a pleasant temperature to be maintained inside the cabin, even at a standstill or when parking, and avoids having to put the climate control system on boost when first getting in the car on a hot day.

The entire layout of the heating and climate control systems has been developed to achieve a particularly efficient trade-off between performance and energy consumption. For example, the impression of heat is especially felt by the face and hands. Accordingly, if the cabin temperature is, say, 15 C, warmth is channelled as close as possible to these more sensitive zones (in the form of a heated steeringwheel, for example) in order to ensure that the driver feels comfortable, while using less electrical energy.

The conventional drag-producing exterior mirrors have been replaced by streamlined, low-energy cameras which are powered by the roof-mounted solar panels. These cameras provide improved all-round visibility, which is especially practical when manoeuvring. The full-disc aluminium alloy wheels produce less drag, too, while the headlights use light-emitting diodes (LEDs) which are not only long-lasting but also low consumers of energy.

INTERACTIVE AND USER-FRIENDLY

The Kangoo Z.E. Concept enables the driver to communicate with the vehicle with a view to profiting fully from its technology. For example, logos light up to signal that the vehicle recognizes occupants as they approach.

As a socially responsible car, it is also equipped with polyurethane gel bumpers which deform easily to soak up minor knocks, while customers and pedestrians are reassured by their absorbent aspect.

A linear display on the outside of the door provides an indication of how much range remains even before the driver gets inside the vehicle. This lit display can be likened to the charge indicator of a cell phone.

Innovative navigation system interfaces also contribute to intelligent management of the vehicle's energy requirements.

The idea is to simplify journeys with a view to using as little energy as possible. The Man Machine Interfaces (MMI) inside the car have been designed to provide information concerning the location of the nearest car park or charge station as a function of how much range remains. The car not only warns and calculates, but it also thinks ahead.

Information is communicated to the driver via a cell phone which slots into the dashboard.

Using this cell-phone for the navigation function avoids having to run an energy-consuming in-car computer.

The dashboard itself is divided into distinct functional units which incorporate:

- a new-format minimalist display providing data specifically relating to the electric motor.
- a remotely-positioned control between the seats incorporating a touchpad to facilitate the keying in of data.

Kangoo Z.E. Concept provides a foretaste of the user-friendly, practical and efficient Renault electric utility vehicle of the future.

TWO BATTERY-CHARGING TECHNIQUES

The driver has two options when it comes to 'filling up' on energy:

- **A standard charge:** takes between four and eight hours, via a charging socket situated on the outside of the vehicle,
- **A quick charge:** in 20 minutes, using the same socket at bespoke charge stations.

TECHNICAL DATA

| TECHNICAL DATA | |
|--|-------------|
| Motor | Electric |
| Maximum power EEC (kW/hp) | 70/95 |
| Maximum revs (rpm) | 12,000 |
| Maximum torque EEC (Nm) | 226 |
| Drive train | Electric |
| Batteries | Lithium-ion |
| Tyres | 245/35 R21 |
| DIMENSIONS | |
| Length (mm) | 3,945 |
| Width (mm) | 1,856 |
| Unladen height (mm) | 1,748 |
| Height with hatch open (mm) | 1,902 |
| Wheelbase (mm) | 2,406 |
| Front/rear track (mm) | 1,572/1,572 |
| Front/rear overhang (mm) | 794/745 |
| Weight (kg) | 1,520 |
| PERFORMANCE | |
| Range (km) | 160 |
| Top speed (kph) <i>capped electronically</i> | 130 |
| PARTNERS | |
| Bodywork | D 3 |
| Pilot Sport PS2 tyres | Michelin |
| Samsung F480 cell phone for communicating with the vehicle | Samsung |

ENERGY MANAGEMENT: THREE BATTERY-CHARGING TECHNIQUES AND AN INTELLIGENT NAVIGATION SYSTEM

➤ A **STANDARD CHARGE** using a domestic 220V 10A or 16A socket requires between **six and eight hours** in order to charge an electric vehicle. This method is best suited to a car parked overnight in a private parking area or during the working day in a shared car park. A secure automatic key system will prevent any kind of vandalism from disconnecting the cable during charging. This type of charging point could easily be incorporated in a private garage, or in shared domestic parking areas. The plug socket can be easily adapted to the current grid by an electrician.

For example, in France, EDF and Renault have been working hand in hand since October 2008. They have recently signed an agreement for a system termed 'Power Line Communication' (PLC). This allows confidential data transfer between the charging point and the vehicle while the battery is being charged, such as the vehicle's identity or billing information, for example.

➤ A **QUICK CHARGE** employs a 400V socket capable of operating from 32A to 63A triple phase using infrastructure that is under development. This system will charge a 20kWh battery in just **20 to 30 minutes**, according to the available current. Charging points will be installed close to residential areas, offices or shops.

A group of 20 manufacturers, including Renault, as well as a long list of energy providers, have been working with the German company RWE on the development of a multi-purpose common charge plug that will cover the range of electricity from 230V/16A single phase to 400V/63A triple phase. This specification will allow charging infrastructures to be normalized across Europe, while also taking into account the variable capabilities of the different power grids and electric vehicles. The standard charge plug was launched last April in Hanover and will be suitable for recharging Renault's forthcoming range of electric vehicles. Approval by the usual standardization authorities (ISO, IEC) is currently underway.

➤ An **IMMEDIATE CHARGE** using the exclusive **QUICKDROP** system for **rapid battery exchange**. The Renault-Nissan Alliance has been working for two years in close collaboration with Better Place with a view to developing rapid battery exchange stations.

The automatic battery exchange process takes approximately three minutes – the same amount of time needed to fill the tank at a petrol station. It is also cleaner and more convenient for drivers as they will not need to leave their vehicle. The thinking behind the system is very straightforward and simply involves safely and rapidly removing the empty battery and swapping it for a fully-charged replacement.

The battery exchange station will resemble a car wash, in the sense that the driver will enter the facility and stop the car in a precise location. This will allow the robot positioned underneath the vehicle to easily locate the attachment points of the battery that needs to be replaced.

The system operates with two battery change robots on an automatic conveyor. The first robot takes the fully-charged battery that will be inserted, while the second removes the empty battery. At the end of the process, the conveyor belt transports the empty battery to a storage area where it is recharged in 20 to 30 minutes and then re-employed in another electric vehicle. The battery change robots have been designed to work with varying battery sizes which will allow them to handle different brands of electric vehicle. This is because the first electric vehicles to reach market will be modified versions of internal combustion vehicles. It is expected that fully electric vehicles will be designed around a common battery standard.

The only restriction is the need for a standardized system of battery attachment points to allow the robot to work as quickly as possible.

The battery exchange technology on display today indicates the state of progress of the project, which will be rolled out in Israel initially. Battery exchange stations will be built to enable journeys longer than 150km, or for specific uses such as taxi fleets. For example, the majority of taxis in and around Paris cover between 140 and 200km a day. They would need just one battery change to complete a day's work, or in other words a stop of just three minutes before they're back on the road with a fully-charged battery.

Both at rapid charge points and at rapid battery exchange stations, the intention is to introduce a system which permits automatic recognition either of the charging socket or of the car itself in order to enable automatic billing. Drivers won't even need to get out a credit card.

➤ **AN INTELLIGENT NAVIGATION SYSTEM TO ASSIST RANGE OPTIMIZATION**

Range optimization is the greatest challenge for electric vehicles. This is why Renault is working hard to make the process as simple and efficient as possible by planning for all types of charging needs and methods.

A dedicated MMI (man-machine interface) has been developed to inform the driver of the vehicle's remaining level of charge and range. A new navigation system has been developed to meet the requirements of electric vehicles. It gives a precise indication of:

- the location of the nearest charging points or battery exchange stations,
- advance reservation of a charging point,
- the precise remaining range,
- the optimum itinerary, taking into account the vehicle's range and the location of charging points.

RENAULT FLUENCE

FOR TRAVELLING IN STYLE

- Renault is to enhance its range in autumn 2009 with an elegant new saloon: FLUENCE.
 - Renault Fluence was designed with the aim of standing out as the most attractive car of its class and several features set it apart from rivals: beneath its strong, sporting exterior, Fluence features a comfortable cabin and a barrage of useful technological aids.
 - Fluence targets customers looking for a status-enhancing saloon and will be built on the existing assembly line at the Oyak-Renault plant in Bursa, Turkey, where the bootied Megane II was previously produced.
-
- **Passenger comfort is optimized by generous dimensions:**
 - 4,620mm long, 1,809mm wide, 1,479mm high and a wheelbase of 2,702mm,
 - 530dm³ of boot space,
 - more passenger space than any main rival, including 1,480mm of elbow room at the front and 1,475mm at the rear.

 - **An ergonomically sound driving position:**
 - Fluence's dashboard features elegant, flowing lines and key functions fall easily to hand – these include the controls for the navigation and climate control systems, the steeringwheel-mounted radio and telephone fingertip remote controls and the controls for the cruise control/speed limiter,
 - the driver's seat has a huge range of adjustments, 240mm fore or aft and +/-35mm in terms of height; the steering wheel can be adapted for rake and reach, too.

 - **A comfortable, welcoming cabin:**
 - the 60/40-spilt rear seat is wide and comfortable,
 - the cabin features more than 23 litres of stowage space, including an illuminated, refrigerated glovebox (nine litres) and a 2.2-litre centre console cubby,
 - a climate control system with front and rear vents is standard, even on entry-level models; automatic dual-zone climate control is available as an option.

- **A raft of user-friendly, high-tech features more commonly associated with top-of-the range models:**
 - hands-free entry and ignition card with automatic locking of the doors as the card-holder walks away from the vehicle,
 - the new, integrated Carminat TomTom® navigation system for less than €500,
 - a wide range of audio options including the range-topping 3D Sound by Arkamys® system, Bluetooth® telephony and 'Plug & Music' digital connectivity.

- **A blend of outstanding comfort and top-class roadholding embellished by engines which combine punch with fuel economy:**
 - a chassis that aligns efficiency with comfort and driving pleasure,
 - a comprehensive choice of engines, with four petrol and five diesel Renault eco² options.

- **Rigorously designed to meet even the most exacting customer's demands:**
 - a comprehensive range of leading safety features: standard ABS and emergency braking assist, ESC, up to six airbags, three-point seatbelts with pretensioners and load limiters, cruise control with speed limiter, etc.,
 - reliability and durability proven by a ferocious testing regime; our quality control systems are designed with certain markets' most demanding road conditions in mind.

- **A strong environmental stance:**
 - all diesel models in the Fluence range have a CO₂ emissions rating of 119g/km and qualify for the Renault eco² signature,
 - in 2011, the Renault range will be boosted by the introduction of an all-electric version of Fluence – proof that attractive, comfortable, spacious cars are by no means incompatible with respect for the environment.

The Renault Fluence show car unveiled at the Frankfurt show provides a foretaste of a sporting version of the standard model. It is due to go on sale in the course of 2010 and is packed with design cues (front and rear spoilers, specific protective side mouldings, sills, skirt, diffuser and 19-inch wheels) that are sure to appeal to those who crave even more dynamic styling.

1. ELEGANT, FLUID STYLING

Harmonious, modern forms

This new, four-door saloon is 4.62 metres long and its size and generous levels of standard equipment place it **halfway between the C segment, for compact family cars, and the segment immediately above.**

Streamlined headlights herald the start of an elegant waist line which sweeps harmoniously along Fluence's sides to the boot. The surround and chromed grille of the upper air intake embellish the car's front-end looks with a sporting flourish, while Renault Fluence's status-enhancing appeal is heightened by its sculptured wheel arches and long bonnet. At the rear, the horizontal, two-part lights allow a generous boot aperture and reinforce the car's thoroughly modern styling.

Fluence packs several opulent upgrade touches: the lower window and boot trims, foglamp surrounds and door handles are finished in chrome, while the B-pillar uprights are gloss black along with body colour side protective mouldings.

Perceptions of strength and quality

The sense of **strength and safety** is reinforced by the carefully proportioned balance between the windows and the large surface area of the doors, the lower part of which incorporates protective panels. Seen from the side, a distinctive character line flows rearward from the rounded front wings before emphasizing the solid rear haunches.

Renault Fluence creates an impression of quality, and particular attention has been paid to the fit and finish of body panels (windscreen pillars and refuelling flap, for example). The rear bumper incorporates discreet parking sensors. At rest, the windscreen wipers are tucked away behind the bonnet's upper edge, partly for aesthetic reasons, but also to reduce wind noise and improve aerodynamic efficiency.

A simple yet elegantly styled interior

In the cabin, the airy facia design incorporates **taut, uncluttered** lines that are complemented by the sweep of the dashboard trim strip. Essential driving functions and useful accessories all fall easily to hand. They are concentrated around the steeringwheel and centre console with a view to freeing up as much space as possible and to making the car even more user-friendly.

Significant care went into **choosing the ideal materials and finish**: the integrated upper dashboard cowling has a soft-touch finish, yet it is also resistant to everyday knocks and exposure to direct sunlight.

The step-up in range is equally visible in cabin details such as the **chrome finish** applied to door handles, instrument surrounds and gearlever knob, as well as the availability of either light- or dark-hued leather upholstery.

Particular attention has been paid to the decorative trimming to create a **varied range of distinctive ambiances**, and also distinguish between different equipment levels. Customers can choose from a light, elegant interior which exudes a sense of wellbeing, or else something darker, with more sporting overtones.

2. RENAULT FLUENCE PUTS THE ACCENT ON TRAVELLING COMFORT

An ergonomic driving position

It is very easy to feel at home at the wheel of Renault Fluence, thanks to its **sound ergonomics and straightforward interfaces**. On board, every driver will be able to find the ideal seating position thanks to a **wide range of adjustability options**, with all the controls near at hand. In a matter of seconds, he or she can:

- adjust the angle of the seatback and headrest,
- alter the level of lumbar support,
- adapt the steeringwheel for rake and reach¹,
- vary the seat position (it can be moved fore and aft through up to 240mm, and up or down by +/- 35mm).

All essential cockpit functions **fall easily to hand**. These include the controls for the navigation and climate control systems, the steeringwheel-mounted radio and telephone fingertip remote controls and the controls for the cruise control/speed limiter.

Space – and a place – for everything

The sense of onboard comfort is embellished by attention to detail in the realm of **reduced noise levels** and **high standards of interior space**, including class-topping elbow room (1,480mm at the front, 1,475mm at the rear).

Renault Fluence's cabin provides **more than 23 litres of stowage space**, including an illuminated, refrigerated², nine-litre glovebox, a 2.2-litre centre console and a 2.6-litre bin in each front door.

The **530dm³ boot capacity** is one of the biggest in its class. Access is facilitated by a low sill and a large (1,020mm) aperture, which has been made possible by incorporating one part of the rear light cluster within the boot lid.

The 60/40-split folding rear seat enables the load capacity to be increased to suit the needs of the moment. The absence of any steel partition between the cabin and the boot makes this feature particularly useful when long or bulky items need to be carried.

Perfect cabin temperature at all times

No effort has been spared in terms of thermal comfort, either. To ensure maximum efficiency, notably in international markets exposed to fierce heat and humidity, **all versions of Renault Fluence feature climate control as standard equipment – even at entry level**. The system is complemented by air vents positioned:

- at the base of the windscreen, as well as at the centre and both ends of the dashboard for front-seat passengers,
- beneath the front seats and at the rear of the centre console for those sitting at the back.

¹ Depending on market

² On vehicles equipped with automatic climate control

On some models, **automatic dual-zone climate control** is also available. Tried and proven on the Megane range, this system is supremely efficient without being intrusively noisy. It enables the driver and front passenger to select individual temperature and fan-speed preferences via the 'Soft-Auto-Fast' control:

- the 'Auto' mode optimizes thermal and acoustic comfort and swiftly adjusts the system to an appropriate setting,
- the quiet 'Soft' mode places the emphasis on effective distribution,
- the 'Fast' mode ensures rapid ventilation of the whole cabin.

3. ADVANCED TECHNOLOGY TO EASE THE STRAIN OF TRAVELLING AND MOTORING

New, integrated Carminat TomTom® navigation system

Simple to use, the Carminat TomTom® navigation system costs less than €500 and provides:

- clear, precise maps on a large, 5.8-inch screen,
- real-time traffic information and alternative route options,
- notification of speed limits,
- a comprehensive selection of points of interest,
- speed-camera alerts (depending on market),
- a range of functions that can be tailored to suit individual needs or tastes.

The system's integration within the dashboard is a pledge of quality and security.

It is easy to update and extend, too, by simply linking its SD card to the internet. A permanent, dedicated website (<http://www.renault-multimedia.com>) provides up-to-the-minute road network data and enables users to make personalized set-up changes.

A new audio range whose watchwords are 'sound quality' and 'connectivity'

Renault Fluence benefits from the entry level 60-Watt **RadioSat Classic** system which includes an MP3-compatible CD player and an RCA connector.

For customers who crave more refined performance, Renault has worked with Arkamys® to develop the **3D Sound by Arkamys®** system which incorporates:

- a powerful 140W system with eight speakers (four woofers and four tweeters),
- Bluetooth® connectivity,
- Arkamys® digital sonic tuning, which provides three-dimensional surround sound, guarantees precise reproduction and tailors sound to suit the forms of the cabin and the materials employed,
- a double antenna to provide optimal radio reception.

The **Plug & Music** option enables drivers to control auxiliary players (such as an iPod®, or anything with a USB connection) via the steeringwheel-mounted fingertip remote controls. The menu and playlists are displayed on the dashboard screen.

Bluetooth® connectivity also enables the driver to operate the telephone via the steeringwheel-mounted remote control.

Several other similarly practical touches complete this high-tech package (available as standard on some models, or as an option on others). These include a **hands-free entry and ignition card** (with automatic locking of doors as the card-holder walks away from the car) and **cruise control with speed limiter**.

4. SHEER DRIVING PLEASURE

Dynamic handling

Renault Fluence's chassis delivers an **efficient, comfortable and enjoyable ride**. The aim of Renault's engineers was to combine steering and handling precision with minimal noise and vibrations. Fluence's front suspension features MacPherson-type struts with rectangular lower arms, while the rear incorporates a programmed-deflection flexible beam.

Renault Fluence also benefits from a particularly effective braking system, with large discs that provide both outstanding stopping power and durability.

The electric power steering combines precise driver feedback with quick, accurate response to instructions from the wheel. It is easy to use and feels completely natural.

Engines that combine punch with fuel economy

From launch, and depending on market, Renault Fluence will be available with a wide range of thrifty engines which are all a pleasure to drive.

➤ **Two petrol engines, each available in two versions:**

- 1.6 16V 110hp, with automatic transmission or manual gearbox
- 2.0 16V 140hp, with continuously variable transmission (CVT) or manual gearbox

➤ **A choice of five variants of the 1.5 dCi diesel block:**

- dCi 85
- dCi 90 DPF³
- dCi 105
- dCi 110 DPF³
- dCi 110 DPF with the new dual clutch transmission (DCT)⁴

All diesel-engined versions return CO₂ emissions of 119g/km and qualify for the Renault eco² environmental hallmark.

³ Strictly Euro5-compliant versions available in May 2010

⁴ Available at the end of 2010

5. SOLID FOUNDATIONS

Reliability and durability proven by extreme endurance testing – a hallmark of Renault quality

In addition to all the standard tests, Renault has added another 800 quality checks to take into account the demanding road conditions found in the majority of the countries where Renault Fluence will be marketed.

Fluence benefits from Renault's ongoing efforts to reduce the cost of everyday motoring by between 20 and 30 per cent. For instance, oil-change intervals have been extended to 30,000 kilometres (or every two years) on all diesel models (with the exception of the dCi 85: 20,000km/every year), while climate control systems no longer need to be replenished.

Real-world safety that meets customers' needs and expectations

Fluence was designed using the same philosophy that applies throughout the Renault range. The company has capitalized on studies conducted by LAB⁵ and also used its extensive engineering expertise to develop **efficient safety systems relevant to the real-world driving conditions** found in all the countries where Fluence is marketed.

Entry-level Fluence models will be equipped with:

- **ABS** with electronic brakeforce distribution,
- **emergency braking assist**, with automatic activation of the hazard warning lights,
- **ESC** (electronic stability control) with **CSV**⁶ understeer control,
- three-point inertia-reel seatbelts, with pretensioners and load limiters for the front seatbelts,
- inertia-reel seatbelts with load limiters for all three rear seats,
- driver and passenger **airbags**⁶, two lateral thorax airbags⁶ and two curtain airbags⁶,
- warning alert if driver or passenger seatbelts are unfastened⁶,
- **three-point Isofix** anchorage for outer rear seats,
- **cruise control with speed limiter**⁶,
- **latest-generation headrests**.

⁵ LAB: the Accident Analysis, Biomechanics and Human Behaviour Laboratory of PSA Peugeot-Citroën and Renault

⁶ Depending on version or market

6. THREE MAIN MARKETS

Renault Fluence goes on sale in Turkey from November and will benefit from the Megane II four-door's fine reputation in three best-selling markets: Turkey, Russia and Romania.

Turkey

Launched in late 2003, the Megane II four-door met with considerable success in Turkey. More than 140,000 cars were sold in six years, making it the most popular car in its class. It annexed more than 20 per cent of sales in its segment and emerged as one of the country's top three sellers overall.

The medium-compact segment continues to expand and accounted for more than 40 per cent of 2008 car sales in Turkey (up from 36 per cent in 2005). Of these, four-door saloons are the dominant choice and account for 70 per cent of sales.

Thanks to the Megane II four-door's powerful, economical 1.5 dCi engine, Turkish drivers had a diesel option in this class for the very first time.

Russia

Launched in 2004, the Megane II four-door has notched up 60,000 sales in Russia to become the brand's third most popular model, after Logan and Symbol. Medium-compact segment sales grew sharply from 2006 to 2008, up from 19 per cent of the market to 25 per cent, while four-door saloons dominated sales.

In Russia, the Renault group gained a one-point market share – up to 4.7 per cent – in the first half of 2009, even though the overall market was down by 48.6 per cent. Despite the impact of the current economic crisis, Russia remains a key market for Renault, with huge growth potential in years to come.

Romania

More than 35,000 four-door Megane IIs have been sold since its launch in September 2003. In 2007, it stood out as the fourth most popular car in Romania, with sales of more than 10,000 units.

The medium-compact segment represents 30 per cent of the national market – and four-door saloons account for half those sales. Until 2007, the Megane II four-door was the best-selling car in its segment. By 2009, despite being six years old, it remained the fourth most popular car in Romania and was second in Renault's domestic sales chart.

7. MANUFACTURED AT THE OYAK-RENAULT PLANT IN BURSA, TURKEY

Built in 1969, the ISO 9001- and ISO 14001-certified Oyak-Renault factory in Bursa, Turkey, deploys the manufacturing standards set out by the Renault Production Way (SPR). Fluence is the fifth model currently built at the plant, alongside New Renault Symbol and the three-door, five-door and estate versions of Clio III.

Renault has invested €110 million in Bursa to build Fluence

Staff at Bursa can call upon plenty of experience, having built two previous generations of the three-box Megane, while further investment has optimized production facilities:

- Almost half the latest investment was spent on providing tooling for suppliers.
- The balance was spent on the factory itself and assigned as follows:
 - o **€35 million** on stamping equipment: 40 sets of tooling, comprising 171 tools, were required to build Renault Fluence's platform and superstructure.
 - o **€21 million** on the body shop: a new, versatile AIMS line (Alliance Industrial Manufacturing System) has been created thanks to a process developed by the Renault-Nissan Alliance. This system enables different car body styles to pass along the same line. Bursa can currently manufacture two different body types on the same platform, and the new procedures will enable the plant to double its capacity. This new line also features dedicated hubs for the preparation of parts, as well as for preparing the assembly tools and welding clamps used by the operators.

45,000 hours of training to prepare factory personnel for Renault Fluence's arrival

Renowned for its excellent build quality, the Bursa factory celebrated the production of its 3,000,000th vehicle in October 2008. Its exemplary standards are assured thanks to a highly qualified workforce: some 420,000 hours were dedicated to staff training in 2008, and 45,000 of those were devoted to production of Renault Fluence.

160 members of staff spent time at Renault's Technocentre in Guyancourt, France: 60 were machine operators and the remaining 100 comprised quality control engineers, AVES quality assessors (Alliance Vehicle Evaluation Standard) and engineering staff who were able to oversee the manufacture of the first batch of Fluence prototypes at the CRPV (Prototype Vehicle Production Centre) and prepare for the car's introduction at the factory.

The Bursa factory has introduced a range of measures in line with the Renault group's commitment to the environment. Bursa was granted ISO 14001 certification in 1999 and benefits from regular investment and training programmes. As a result, it has succeeded in reducing its consumption of energy (per car built) by more than 45 per cent between 2001 and 2008.

High-resolution photos of Renault Fluence can be downloaded from www.media.renault.com > Media Library > Passenger Cars > Fluence

POWERTRAIN RANGE: RENAULT IS PREPARING FOR THE MOBILITY OF TOMORROW AND IS TARGETING ZERO EMISSIONS

- Renault is to pursue its environmental programme, including the Renault eco² hallmark which reasserts the carmaker's determination to reduce the ecological footprint of its vehicles at every stage of their lifecycle (manufacture, on-road use, and end-of-life). The objective is to market environmentally respectful vehicles which are affordable to the majority of motorists.
- Renault is targeting number one status regarding CO₂ emissions by 2015 and is focusing its efforts on two fronts:

New technologies for internal combustion engines and transmissions:

Renault has concrete evidence of this work on display at the Frankfurt Show:

- An all new automatic dual clutch transmission (DCT) which boasts a level of fuel consumption and CO₂ emissions comparable with that of a manual gearbox. This transmission will be available for Megane next spring.
- Significant CO₂ emissions savings have been achieved in the case of five flagship models which are due to be released shortly:

| | |
|---|-----------------------------|
| - Twingo dCi 85 Renault eco ² : | 94g of CO ₂ /km |
| - Clio dCi 90 Renault eco ² : | 99g of CO ₂ /km |
| - Megane Hatchback dCi 110 DCT Renault eco ² : | 119g of CO ₂ /km |
| - Scénic dCi 90 Renault eco ² : | 125g of CO ₂ /km |
| - Laguna dCi 110 Renault eco ² : | 125g of CO ₂ /km |

(Laguna Estate: 127g/km)

An unprecedented commitment to electric motors

The Renault-Nissan Alliance is working on a range of all-electric powertrains. In the case of Renault, these motors will power a comprehensive range of 'zero emission' vehicles with a continuous power output of between 15 and 70kW (20-95hp). The range will begin to be released on the market in 2011 and will be known as the 'Renault Z.E.' range.

RENAULT'S POWERTRAIN STRATEGY

Targeting number one status in Europe regarding low CO₂ emissions

Renault is fully aware of the importance of the stakes regarding global warming and has been working for many years on cutting the CO₂ emissions of its models – across their full lifecycle - with a view to reducing the automobile's ecological impact. As it has shown with its environmentally respectful Renault eco² policy, Renault believes that it is essential to make the most effective technologies available to the vast majority of motorists at affordable prices.

Tangible results

Renault's longstanding efforts have resulted in the brand figuring among Europe's three most efficient carmakers in this field today.

In 2008, 60 per cent of the vehicles sold by the group in Europe (Renault and Dacia) emitted less than 140g of CO₂/km (compared with 48 per cent in 2007), while 23 per cent of the vehicles it sold in Europe emitted less than 120g of CO₂/km.

Renault is working on two fronts in its bid to become the best-placed European car manufacturer in terms of CO₂ emissions:

- ➔ **The introduction of new technologies for internal combustion engines and transmissions,**
- ➔ **An unprecedented commitment to electric motors.**

NEW TECHNOLOGIES FOR INTERNAL COMBUSTION ENGINES AND AUTOMATIC TRANSMISSIONS

In parallel with its work on reducing the CO₂ emissions of its engines, Renault is working on:

- **fundamental vehicle characteristics:** mass, aerodynamic performance (CdA), rolling resistance,
- the **management of electrical energy** (battery charging under braking and when decelerating) and **thermal efficiency** (thermal management aimed at enabling engines to climb in temperature more quickly),
- **transverse technologies** such as stop&start, which automatically cuts the engine at a standstill, as well as low pressure E.G.R.,
- **widespread downsizing of the capacity of internal combustion petrol and diesel engines:** smaller, turbocharged engines function more efficiently,
- **latest-generation automatic transmissions** boasting fuel consumption and emissions performance comparable with that of manual gearboxes.

DUAL CLUTCH TRANSMISSION (DCT): THE COMFORT OF AUTOMATIC TRANSMISSION, PLUS FUEL EFFICIENCY ON A PAR WITH THAT OF A MANUAL GEARBOX

Renault has developed a new, six-speed, automatic dual-clutch transmission (DCT) which delivers a standard of fuel consumption and CO₂ emissions performance which marks a significant step forward compared with that of conventional automatic transmissions (a gain of up to 17 per cent, i.e. a saving of approximately 30g/km).

This work has led to:

- the use of a dual dry clutch combined with electric actuators,
- a specification calibrated to minimize fuel consumption.

This DCT will be introduced in the first quarter of 2010 and will initially be available on core-range dCi 110 DPF versions of New Megane. Thanks to their lower CO₂ emissions, these DCT-equipped Meganas will be the brand's first automatic cars to qualify for the Renault eco² signature.

➤ **Advantages of the Renault DCT**

Renault's new DCT is an automatic transmission. There is no need for a clutch pedal, while gearshift control is of the 'P-R-N-D' type, plus an 'up/down' shift mode. Gearshifts are automatic and comfortable, and the ideal gear is selected by an electronic control unit.

To optimize efficiency and minimize fuel consumption, Renault has chosen a dual dry clutch system. The first of the two clutches looks after the odd-number gears (1st, 3rd and 5th), while the second covers the even-number gears (2nd, 4th and 6th), as well as reverse. The gears are carried by four shafts: two concentric primary shafts (each of which is connected to a clutch) and two secondary shafts. Gears are matched by means of synchronizers, as is the case with a manual gearbox. These synchronizers, like the clutches, are operated by electric actuators which are in turn controlled by a control unit.

➤ **Fuel consumption and CO₂ emissions performance comparable with that of vehicles equipped with a manual gearbox**

It was this objective that steered Renault's engineers in their decisions regarding the new transmission's technical specification:

- Dual dry clutch technology was chosen to minimize the parasitic friction associated with wet clutches and the converters of conventional automatic transmissions.
- The two clutches and synchronizers use energy-efficient electric actuators.
- Gearshift calibration has been optimized to achieve low fuel consumption: the system ensures a swift climb up the gears in order to select the highest gear possible for a given speed, thereby minimizing fuel consumption and CO₂ emissions.
- The DCT delivers a level of efficiency similar to that of a manual gearbox.

➤ **Reassuringly smooth and fast gear changes**

As with any automatic transmission, gearshifts are carried out under load, i.e. the transmission of torque from the engine to the wheels is not interrupted.

When the vehicle is moving, one clutch is engaged and transmits engine torque via the selected gear, while the other clutch remains disengaged but connected to the next, pre-selected gear. At the ideal moment, the gearshift takes place by switching from one clutch to the other: the first clutch becomes disengaged at the same time as the second clutch engages, ensuring that traction is not uninterrupted during the shift.

Gear changes are fast and free of jarring to ensure a reassuringly smooth ride.

Instant response to the driver's demands: The electronic control unit takes onboard a number of parameters to select the ideal gear. The system adapts instantaneously to the driver's demands by selecting the gear which delivers the right amount of power the instant it is required.

The driver is free to recover control of the system thanks to the 'up/down' shift mode.

Optimized creep function for smoother starts: As with conventional automatic transmissions, the vehicle pulls away gradually when the brake pedal is released. This feature is particularly appreciable in stop/start traffic or when parking.

Hill-start assist: When starting on a slope, the system continues to apply pressure to the brakes to keep the vehicle immobilized for a few seconds as the driver lifts off the brake pedal. Coupled with the creep function system, this prevents the car from rolling backwards to ensure safe hill starts by giving the driver sufficient time to press on the accelerator pedal before the vehicle begins to move backwards.

This new dual clutch transmission (DCT) will initially be available for 1.5 dCi 110 DPF diesel versions of the Renault Megane range. With this automatic transmission, New Megane Hatchback will emit just 119g of CO₂/km. DCT-equipped Megane will be the first automatic models to qualify for the Renault eco² signature.

LOWER CO₂ EMISSIONS LEVELS FOR RENAULT CORE RANGE MODELS

Renault is to introduce five Euro 5-compliant vehicles to serve as flagships for the brand's Renault eco² policy. Two of these vehicles claim CO₂ emissions of less than 100g/km:

- Twingo dCi 85 Renault eco² 94g of CO₂/km
- Clio dCi 90 Renault eco² 99g of CO₂/km
- Megane dCi 110 DCT Renault eco² 119g of CO₂/km *
- Scénic dCi 90 Renault eco² 125g of CO₂/km
- Laguna dCi 110 Renault eco² 125g of CO₂/km

(Laguna Estate: 127g/km)

* The Renault range also includes a version of Megane dCi 110 with a six-speed manual gearbox with low CO₂ emissions (114g de CO₂/km).

These reductions in CO₂ emissions have been obtained thanks to various engine and vehicle design evolutions.

POWERTRAIN → Longer ratios for all gears; less engine and transmission friction thanks to low-viscosity lubricants; work on the geometry and finish of bottom-end and timing components. These developments will be extended to all Euro 5-compliant 1.5 dCi engines.

VEHICLE DESIGN → Enhanced aerodynamic efficiency (specific lip spoiler for Twingo and Clio); reduced rolling resistance (low fuel consumption tyres).

All these cars qualify for the Renault eco² signature which is a tangible indication of Renault's commitment regarding the environment. This hallmark enables customers to identify those models of the Renault range which are the most respectful of the environment across their entire lifecycle by confirming that they meet the three following criteria:

Production: Renault eco² vehicles must be manufactured in ISO 14001-certified factories. This certification testifies to a plant's ongoing efforts to lessen the impact of its activity on the environment.

On the road: Renault eco² vehicles must claim CO₂ emissions that are less than or equal to 140g/km, or else they must run on agro-fuels.

Recycling: five per cent of the plastic components the vehicle contains must be sourced from recycling. The vehicle must also be 95 per cent end-of-life recoverable (by weight).

| | Twingo dCi 85 Renault eco² | Clio dCi 90 Renault eco² | Megane Hatchback dCi 110 DCT Renault eco² | Scénic dCi 90 Renault eco² | Laguna Estate dCi 110 Renault eco² |
|---|--|--|---|--|--|
| PRODUCTION | | | | | |
| ISO 14001- certified factory | Novo Mesto (Slovenia) | Flins (France), and Bursa (Turkey) | Palencia (Spain) | Douai (France) | Sandouville (France) |
| ON THE ROAD | | | | | |
| CO₂ emissions | 94g/km | 99g/km | 119g/km | 125g/km | 127g/km |
| RECYCLING | | | | | |
| Weight of plastic content sourced from recycling | 15kg | 15.5kg | 23kg | 34kg | 33kg |
| Percentage of vehicle's weight | 9% | 10% | 11.5% | 14% | 16% |
| End-of-life recoverability | More than 95% | More than 95% | More than 95% | More than 95% | More than 95% |

A genuine technological clean break

In parallel to the introduction of technologies which achieve CO₂ emissions gains of 10, 20 and even 30g/km, Renault is developing a solution which marks a clean break with the past, namely the 'zero emission', all-electric vehicle which will be marketed under the appellation 'Renault Z.E.'.

Renault Z.E. vehicles generate neither CO₂ emissions, polluting emissions nor noise during their use on the road. Renault's ambition is to become the number one producer of **mass-marketed electric vehicles**.

The Renault-Nissan Alliance is working on a comprehensive range of all-electric powertrains. In the case of Renault, the continuous power output of these motors oscillates from 15 to 70kW (20 to 95hp). The first all-electric powertrains are poised to equip Renault Fluence Electric and a Kangoo-type utility vehicle from 2011.

The 4 concept cars on display at Frankfurt provide a preview of Renault's upcoming range of electric vehicles and testify to the brand's commitment to this new means of mobility.

How an all-electric motor works

➤ **Motor-reducer unit**

Electric motors comprise a stator which creates a rotating magnetic field, which in turn enables a rotor to rotate around the motor's shaft. The motor itself is coupled to a reducer with a single output ratio which transmits torque to the wheels. This assembly is known as the motor-reducer unit and ensures linear, stepless acceleration. It can never stall, since there is no clutch. Reverse is obtained by simply making the rotor turn in the opposite direction. Electric motors boast outstanding energy efficiency (90 per cent) which is far superior to the 25 per cent of internal combustion engines.

➤ **Power electronics unit**

Electrical energy is transmitted to the motor-reducer unit via a power electronics unit which incorporates a **controller**. This transforms the 400V direct current into three-phase alternating current to power the stator. Situated near the controller, the **converter** converts the 400V DC stored in the traction battery into 12V DC to supply the vehicle's conventional onboard electrics and auxiliary functions (interior and exterior lighting, audio system, electric windows, etc.).

➤ **Junction box**

It is the **junction box** which distributes the power current to the motor functions (battery, climate control and heating systems). This junction box also includes the charger which converts the 220V AC into 400V DC for battery charging purposes.

➤ **Latest-generation lithium-ion battery**

The electric motor is powered by a lithium-ion technology battery, the specification of which is dictated by the type of vehicle on which it is to be used. For example, the battery that equips Kangoo be bop Z.E. – which was recently made available for test drives – comprises 48 power modules, each of which incorporates four elementary cells. It is inside these cells that the electrochemical reactions take place, enabling electrical current to be produced or energy to be stored. Modules are similar in size to a laptop computer and are positioned in two rows, side by side. The four

cells of each module store 8.4V each, making a combined total of 400V for the 48 modules which make up the battery.

In a year and a half's time, production Renault electric vehicles will be equipped with a battery that will deliver a real-world range of 160km.

These compact, innovative lithium-ion batteries are produced by AESC (Automotive Electric Supply Corporation), a Nissan-NEC joint venture founded in April 2007. Their performance compared with former-generation nickel metal hydride batteries is superior in every domain, including **range, performance, reliability, safety and profitability**. Lithium-ion batteries do not suffer from the so-called memory effect resulting from incomplete charge cycles which can ultimately lead to a fall-off in capacity in the case of conventional batteries. AESC batteries are maintenance-free and are expected to deliver between 80 and 100 per cent of their original capacity for an average duration of six years. It will also be possible to charge them for short cycles with no adverse effect on capacity. Air-cooling systems for batteries will be adapted to the type of vehicle and market.

Finally, lithium-ion batteries are recyclable and the Renault-Nissan Alliance is actively working on establishing recycling processes and infrastructures suited to automotive batteries. It is important to remember that lithium-ion batteries – which are made up of non-toxic materials (lithium, manganese oxide or iron phosphate, and graphite) – do not present any danger for the environment, unlike former nickel-cadmium batteries. Also, to put the demand for lithium supplies into perspective, our 250kg batteries contain just 3kg of lithium. According to the mining companies Chemetall and SQM, lithium reserves are currently estimated to be between 14 and 17 million tonnes.

NEW MEGANE RENAULT SPORT: CHIC AND SPORTY

New Megane R.S. stands out in the Megane range through its sporty character which is expressed by both its looks and on-road performance credentials.

New Megane R.S. goes on sale this autumn, with a choice of two chassis:

- a Sport chassis for everyday driving enjoyment,
- a Cup chassis for even more exhilarating performance round a circuit.

New Megane R.S. is powered by a 2.0-litre turbocharged engine which boasts a power output of 250hp and a particularly broad useful rev band. 340Nm of torque is available from as low down as 3,000rpm to deliver a level of performance that can be enjoyed both on the road and on a race-track.

New Megane R.S. benefits fully from the experience acquired during the development of the New Megane programme. New Megane R.S. is manufactured at the Palencia plant in Spain.

A SPORTY, PERFORMANCE-ENHANCING DESIGN

New Megane R.S. carries over the styling cues of New Megane Coupé to which it adds sporty looks which take their inspiration from the world of motor sport. Its front bumper incorporates an aerodynamic blade which is reminiscent of the low-slung noses seen in Formula 1. The diffuser, lip spoiler and centrally-positioned exhaust tailpipe all add to the newcomer's undeniable character, while at the same time enhancing its aerodynamic performance. The LED daytime running lights are a key part of the car's styling signature. Inside, New Megane R.S. combines sporty appointments and comfort thanks to features such as:

- height- and fore/aft-adjustable front seats with extra side support, or optional Recaro seats,
- height- and reach-adjustable steeringwheel with incorporated thumbrests,
- aluminium pedal covers,
- uncluttered dashboard design incorporating analogue instruments.

R.S. badging is to be found on the grille, hatch, headrests, dashboard and rev-counter background.

TECHNOLOGIES AIMED AT CONTRIBUTING TO TRAVELLING COMFORT AND SPORTY DRIVING ENJOYMENT

New Megane Renault Sport benefits from a raft of technological equipment already available for the New Megane range, including automatic dual-zone climate control, a hands-free card with automatic locking of doors as the card-holder walks away from the vehicle, the high-end 3D Sound by Arkamys audio system and a choice of two navigation systems: Carminat Bluetooth DVD® and Carminat TomTom®.

New Megane R.S. boasts two specific features aimed at heightening the enjoyment delivered by the vehicle's sporty ride:

- **Renault Sport Dynamic Management:** enables one of three modes for the ESC to be selected: 'On' (default mode), 'Sport' (for less intrusive ESC action) and 'Off' (for unfettered enjoyment, notably round a circuit).
- **the Renault Sport Monitor:** this fun, useful technology takes its inspiration from the world of motor sport, with a central dashboard display that provides information about:
 - the demands made of the main engine functions,
 - real-time engine performance,
 - gearchange warning,
 - calibration and display of the throttle pedal mapping,
 - lateral acceleration,
 - acceleration times,
 - lap times.

A CHOICE OF TWO CHASSIS, FOR OPTIMAL ROAD-HOLDING IN ALL SITUATIONS

As the latest in a long line of Renault sporting models which have carved out a unique reputation thanks notably to the performance of their chassis, New Megane R.S. features the same innovative independent steering axis front suspension arrangement first seen on Megane Renault Sport in 2004. This layout totally separates the suspension and steering functions to ensure an exceptionally high standard of handling and traction performance.

In response to customer demand, New Megane R.S. is available with a choice of two chassis:

- a **Sport chassis** which delivers the ideal trade-off between sports performance and comfort in everyday use,
- a **Cup chassis** which combines with a limited slip differential to deliver outstanding on-track performance.

250HP OF SHEER PLEASURE

New Megane R.S. is powered by the new-generation 2.0-litre 16V Turbo engine which delivers 250hp (184kW) at 5,500rpm and peak torque of 340Nm available at 3,000rpm. The sum of the different improvements that have been made to this engine has resulted in a gain of 20hp (30Nm) over Megane R26.R, which has itself earned benchmark status in the world of performance hatches. Thanks to its twin-scroll turbo, the Renault Sport 2.0 T engine is exceptionally responsive and is particularly flexible at low revs, with 80 per cent of maximum torque available from 1,900rpm. Its broad useful rev-band makes it a genuine joy to drive in everyday use, and the pleasure remains all the way up to the rev-limiter. The engine of New Megane R.S. drives through a six-speed manual gearbox.

Last but not least, the acoustics of the Renault Sport 2.0 T engine have been tailored to produce a telltale sporty pitch which is audible inside the cabin when accelerating.

NEW MEGANE R.S. BENEFITS FROM RENAULT SPORT TECHNOLOGIES' EXTENSIVE EXPERTISE WHEN IT COMES TO MANUFACTURING PRODUCTION SPORTING MODELS

Renault Sport Technologies has combined its experience of motor sport with its production expertise to develop a unique range of sporting models. The hallmarks of Renault Sport cars are their high-performance engine and efficient chassis which deliver an undeniably high standard of sports performance, as testified by the reputations enjoyed by Renault Megane F1 Team R26 and Renault Megane R26.R which were voted 'Sporting Car of the Year' in 2007 and 2008 respectively.