

INNOVATION DAY 2016
INTELLIGENT TECHNOLOGIES FOR PLUG-IN VEHICLES

INNOVATION
BY PSA



In its commitment to sustainable development, PSA Group has made "clean cars" a strategic focus of its R&D programme. For the past ten years, PSA Group has ranked among the top three carmakers in terms of low carbon emissions, with emissions levels of 104.4g of CO₂/km putting it firmly in the lead in 2015.

"Leveraging this expertise, our ambition is to reduce emissions to under 100g of CO₂/km for more than 60% of our vehicles on the market by 2020 and to become the leading developer of sustainable mobility solutions. This is why we invest half of our R&D budget in Clean Technologies and have drawn up a clear roadmap to develop these solutions and roll them out across PSA Group vehicles.

In 2019, we will launch electric powertrains (plug-in hybrid vehicles and electric vehicles), which are a response to market changes, more stringent regulations – including zero emission zones – and new customer expectations. These low-carbon technologies will help PSA Group reach its CAFE 2020 objective of bringing emissions down to 91g of CO₂/km.

We have taken an ingenious and competitive approach to developing our future hybrid and electric vehicles by designing efficient, modular and multi-energy platforms. This approach is a key feature of our Core Model and Technology Strategy, which is part of our Push to Pass strategic plan.

In practical terms, plug-in hybrid powertrains will be developed on the EMP2 platform and will equip mid-range and executive models. We will market seven petrol plug-in hybrids by 2021, with the first scheduled for launch in 2019. New-generation electric powertrains will be designed on a small new platform developed with our Chinese partner DFM. They will equip vehicles ranging from small city cars to compact SUVs and core sedans. Four new electric vehicles will be marketed by 2021, with the first scheduled for launch in 2019.

The hybrid and electric technologies deployed on these two flexible, multi-energy platforms will complement the range of next-generation internal combustion engines currently being developed. PSA Group will therefore be able to offer its customers a diverse line-up of technologies that meet all of their sustainable and responsible mobility requirements.

This approach, which was presented at the Group's Innovation Day, demonstrates PSA Group's agility in preparing for the future."

Gilles Le Borgne

Executive Vice-President, Research and Development

PSA GROUP'S PLATFORM STRATEGY

Two modular, efficient and multi-energy platforms from 2019

Cleverly designed platforms

- A shift towards a more sophisticated modular approach to development processes so that fewer platforms can be used to develop vehicles that meet all customer needs and expectations across the world.
- An efficient and clever design that takes manufacturing constraints into account to optimise productivity on assembly lines and in all of the Group's plants.
- Two modular, global platforms in place from 2019 to develop all core models and meet the mobility challenges of the future.

EMP2 and CMP, two complementary platforms to underpin a broad, diversified line-up

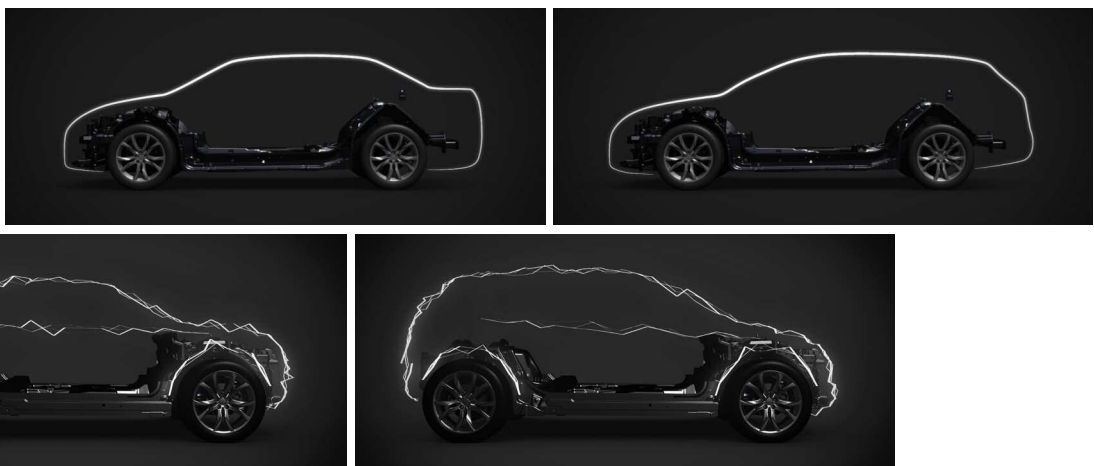
- The EMP2 (Efficient Modular Platform), which was launched at the end of 2013 for the Peugeot 308 and Citroën C4 Picasso models, focuses on developing mid-range vehicles and is capable of providing technologies for executive vehicles.
- The CMP (Common Modular Platform), developed in cooperation with DFM, focuses on developing small city cars and can also manufacture compact SUVs and core sedans.

Both platforms are optimised and lighter (25kg for EMP2 and 40kg for CMP) than current platforms, and offer greater modularity in terms of length, width, height and wheel diameter.

These complementary platforms are used to produce all PSA Group's models and offer a diverse range of technologies for each body style.

Multi-energy platforms

- The EMP2 platform will have a plug-in hybrid petrol engine for two and four wheel drives from 2019.
- The CMP platform has a variant that is compatible with electric engines.
- It includes state-of-the-art technologies compatible with the Group's manufacturing facilities around the world.
- It offers a low-carbon solution for each body style without sacrificing space and optimal performance.



PLUG-IN HYBRID: UNLIMITED DRIVING PLEASURE

A host of technologies combined in an efficient, global offering

Trends behind the innovation

- A focus on energy optimisation to drive down greenhouse gas emissions (CO₂).
- A favourable environment for the development of electric vehicle technologies.
- A growing, global need for sustainable and responsible mobility solutions.

Our technological solution

- A plug-in hybrid powertrain combined with a petrol engine developed on the EMP2 global platform.
- An automatic hybrid gearbox on the front axle.
- An electric motor mounted on the rear axle for mid-range and executive SUVs and CUVs.

Benefits for the customer

- Premium dynamic performance.
- A high-performance 4x4 electric motor for our future SUVs and CUVs.
- A range of 60km* in all-electric mode.
- A still spacious vehicle cabin and boot.
- Limited fuel consumption in city and suburban driving (an average drop of 40% in real use conditions).

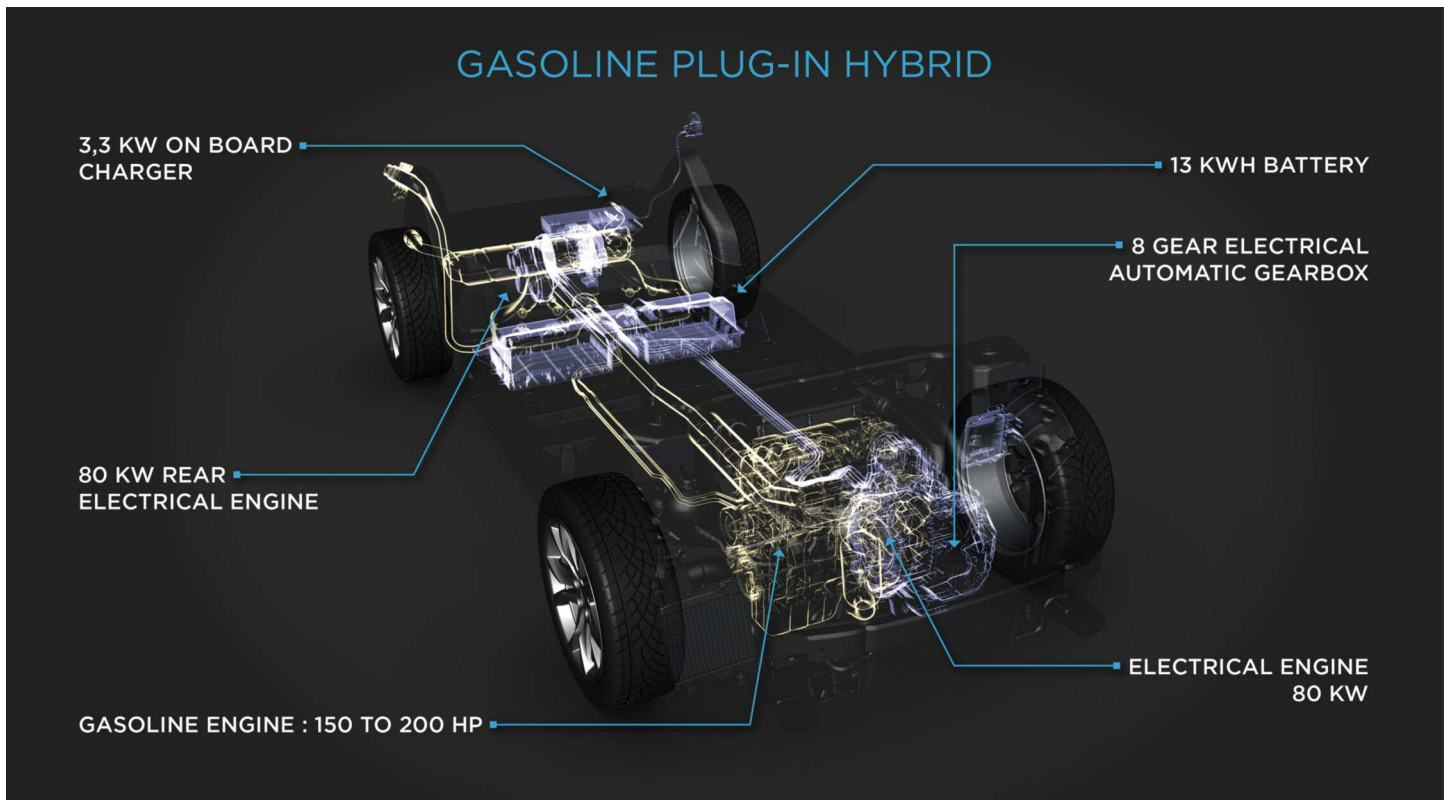
Milestones

- Simultaneous launch in Europe and China by the DS brand from 2019.
- Seven DS, Peugeot and Citroën models available in 2021.

* NEDC

PLUG-IN HYBRID: UNLIMITED DRIVING PLEASURE

1 - A SMART HYBRID POWERTRAIN



A next-generation eight-gear automatic gearbox

- Hybrid front axle with an electric motor for state-of-the-art levels of performance and driveability.
- Laterally positioned between the internal combustion engine and electric motor.

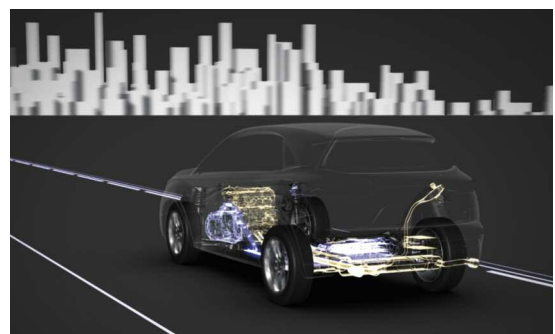
Electrically powered rear axle for 4x4 versions

- Technology underpinned by our expertise in hybrid powertrains offering a highly satisfactory level of electric power for the 4x4 version (three times higher than the first-generation hybrid4 or hybrid diesel powertrains).
- A performance comparable to traditional 4x4s thanks to the power of the electric machines used.

2 - EXCEPTIONAL PERFORMANCES

An enjoyable driving experience

PSA Group's plug-in petrol hybrid delivers an exceptional, dynamic performance thanks to the additional energy provided by the electric motor (up to 80kW). The cumulative available power (up to 300 hp) improves the car's smoothness and responsiveness for optimal driving pleasure.



PLUG-IN HYBRID: UNLIMITED DRIVING PLEASURE

The highest level of premium performance

	4x2	4x4	Market (combustion engine vehicle)	
			4x2	4x4
1,000m from a standing start	28	27.5	27.5 à 28.3	26.7 à 27.5
80 to 120km/h (seconds)	4.5	4	4.2 à 4.7	3.9 à 4.2
Torque (Nm)	360	> 450		
Power (hp EEC)	250	300		

3 - LONGER RANGE, EASY TO USE

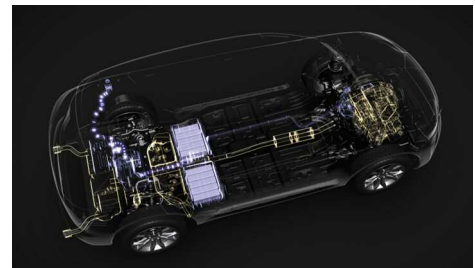
Range of up to 60km* in electric mode

- Use of a 12-13kWh battery, 20% to 30% more powerful than the closest competitors.
- Optimised aerodynamics and energy efficiency:
 - controlled air intakes,
 - regenerative braking system: technology to recover energy during deceleration.

Li-Ion battery features	Pack 1 (sedan)	Pack 2 (SUV & CUV)
Total energy	12kWh	13kWh
Power	80kW	90kW
Voltage	210 - 350V	240 - 400V
Dimensions (YxXxZ)	1,150 x 400 x 230	1,150 x 400 x 300
Weight	110kg	120kg

Rechargeable in a few hours

PSA Group's plug-in hybrid vehicle offer will be available with a standard system for charging in four and a half hours and an optional ultra-easy solution for charging in under two and a half hours, thanks to a 6.6kW charger adapted to 32 A sockets. The recharge system will be designed to adapt to the different regulatory requirements and available infrastructures in each region of the world.



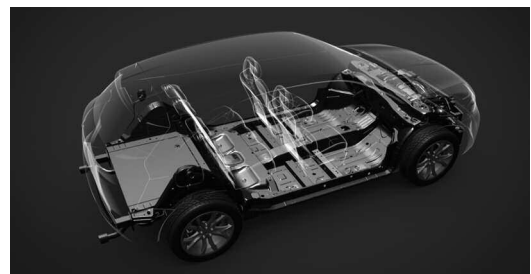
*NEDC

4 - A STILL SPACIOUS INTERIOR

A unique and cleverly designed architecture

- A laterally positioned electric gearbox – a world first.
- A compact battery located under the vehicle cabin allowing the rear axle to be powered by an electric motor without sacrificing on space.

• Vehicle cabin comfort and differentiating boot volume



AN ELECTRIC SOLUTION THAT MAKES LIFE EASIER

A new generation of electric vehicles offering increased range, designed on a new modular global platform

Trends behind the innovation

- An energy transition intended to reduce greenhouse gas emissions.
- A growing electric vehicle market, which will cover new segments by 2020 (expected breakdown: 20% for segment B and 60% for segment C).
- A shift in mobility and electric vehicle needs towards greater flexibility.

Our technological solution

- The addition of an electric drive train variant on the Common Modular Platform (CMP).
- A clever design of the vehicle's functional and physical architecture.
- The use of state-of-the-art battery technology.

A one-of-a-kind global electric platform offering a new generation of flexible electric vehicles with high operating ranges (from small city cars to compact SUVs and core sedans) for all types of use.

Benefits for the customer

- Increased range: up to 450km* depending on the driving mode.
- Easy and quick to charge: faster home charging system and ultra-fast charging solution for long journeys and intensive use.
- A still spacious interior and boot.
- Quieter in all-electric mode.

Milestones

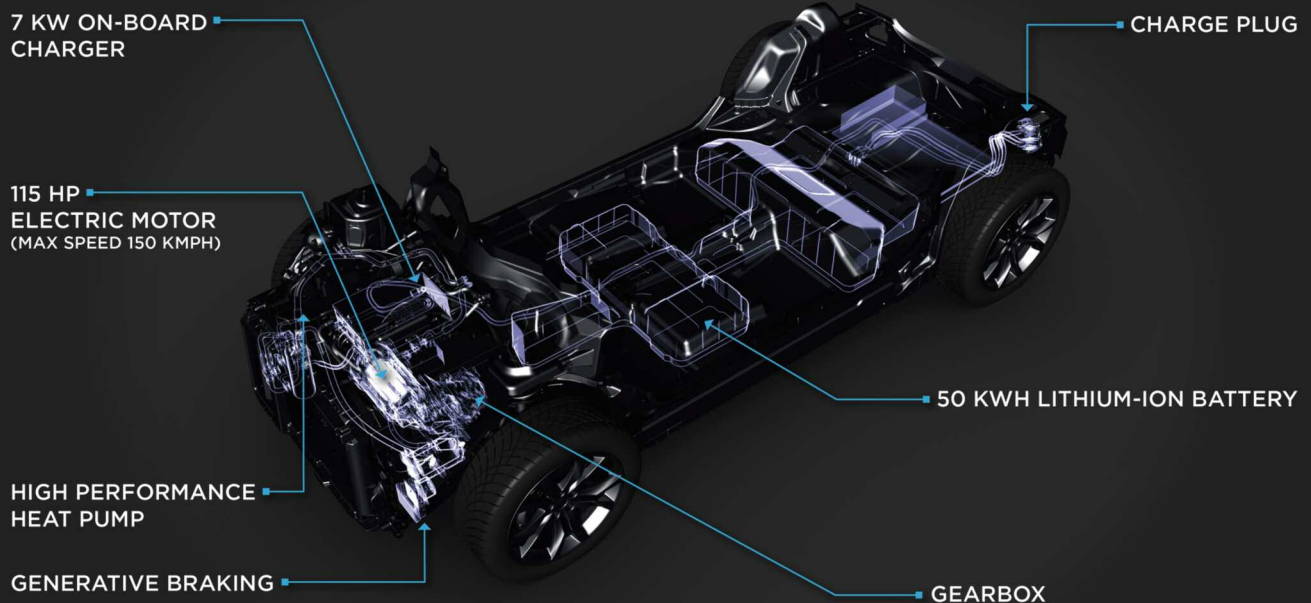
- Simultaneous launch in Europe and China in 2019.
- Four Peugeot, Citroën and DS models available in 2021.

* NEDC

AN ELECTRIC SOLUTION THAT MAKES LIFE EASIER

1 - A SMART MULTI-BODY STYLE POWERTRAIN

NEW BATTERY ELECTRIC VEHICLES GENERATION

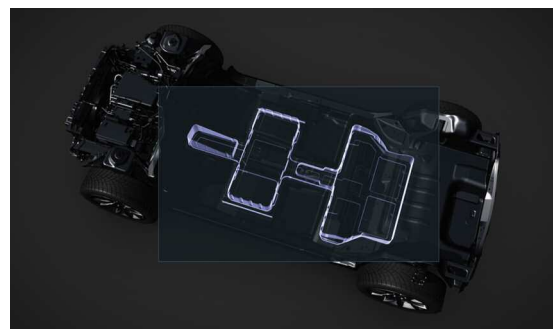


2 - INCREASED RANGE OF UP TO 450KM*

Use of a state-of-the-art battery

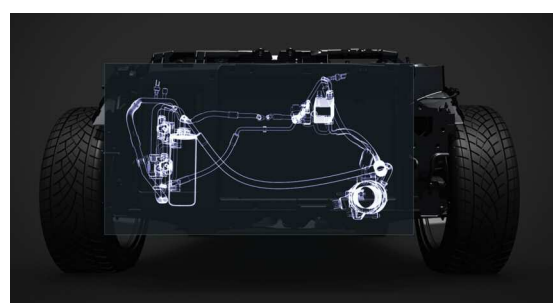
A battery pack using Lithium-ion technology:

- 300kg,
- 200litres,
- 50kWh of onboard energy capacity.



• Use of a next-generation heat pump

A heat pump capable of functioning over a wide range of temperatures. The principle is based on thermodynamic exchange between external air flow and refrigerant fluid, which is compressed and expands as part of a heat recovery process. This system greatly reduces the energy required for heating compared to a standard heating system, thus providing a 50km gain in operating range.



* NEDC

AN ELECTRIC SOLUTION THAT MAKES LIFE EASIER

3 - EASY CHARGING SOLUTIONS

Consumers will decide whether to buy an electric vehicle based on the availability of charging solutions and their speed. PSA Group will offer two easy-to-use charging solutions:

- **Ultra-fast charging: recharges 80% of the battery in 30 minutes for day-to-day ease of use for the customer.**
Range of up to 12km per minute of charging.
- **Fast home charging thanks to a next-generation onboard charger (7kW):**
 - range of up to 100km in 90 minutes,
 - completely charging (8h).

Necessary equipment: wallbox.

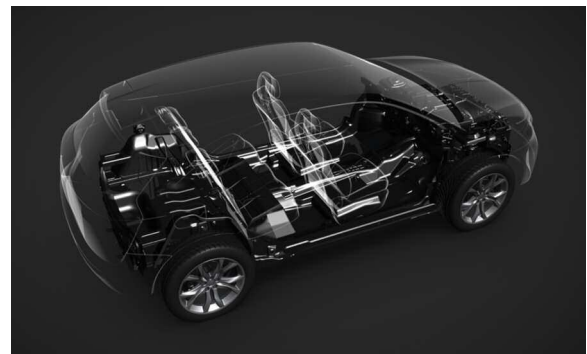


4 - A STILL SPACIOUS INTERIOR

The clever location of the battery pack frees up more space in the cabin compared with the current electric offering.

Passenger comfort is preserved and the generous boot has a handy and easily accessible storage space for the charging cable.

- Real comfort for all passengers.
- Real boot space for all customer storage needs.



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