



PORSCHE

# How the Taycan will change Porsche as a company

Media workshop



## Heading into the Electric Age

Six billion euros in investments, 1,200 new employees for the launch of the Taycan alone, the ongoing development of Porsche Production 4.0 and an unparalleled knowledge campaign rolled out throughout the entire company: in firmly committing to electric mobility, Porsche is undergoing a process of major change and once again reaffirming its ability to safeguard its future.

The largest sports car producer in the world has always been distinguished by a pioneering spirit and a relentless desire to keep pushing the limits of what is technically feasible. And it has now managed to bring sports car production to an all new level with the development of the Taycan, its first all-electric se-

ries, due to be launched at the end of 2019. It is the people working at Porsche who are the key to these developments. In the next few years, thousands of employees working in production at the site in Zuffenhausen will undergo a huge number of qualification and training programmes, giving them the skills they need to overcome the challenges associated with these technological changes.

The Taycan's influence will be felt throughout the company, and create more jobs than virtually any other project in Porsche's history. It is produced CO<sub>2</sub>-neutrally in a new factory in the middle of the main plant in Zuffenhausen. The new buildings are currently being constructed while the production of two-door

sports cars is running at full capacity. It's like getting changed in a wardrobe. A huge feat based on a clear plan. By 2025, around 50 percent of all Porsche models on the road could be electrified. During this transformation, the company will profit from its extensive experience in the field of electric mobility. Porsche was the first premium-brand manufacturer to offer three plug-in hybrid series: the 918 Spyder supercar, the Panamera S E-Hybrid and the Cayenne S E-Hybrid. And with its 919 Hybrid racing car – which took part in the FIA World Endurance Championship – the sports car manufacturer was able to fully optimise the same 800 V technology that will ultimately be used to power the Taycan.

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**Stuttgart, Germany | Friday, October 12, 2018**

Until  
11:30 am **Individual journeys**  
to Plant IV, Building M71, Lorenz Road 10,  
Zuffenhausen, Germany

11:30 am **Welcome**

11:35 am **E-Mobility@Porsche**

 Robert Meier, Director Complete Vehicle  
Modell Line Taycan, Porsche AG

12:15 pm **Porsche Production 4.0**  
Tour through the pilot center for assembling  
the Taycan

 Bernd Würsching, Head of Assembly Taycan  
Project, Porsche AG

 Gabriele di Furia, Project Head Installations  
Taycan Assembly, Porsche AG

 Sascha Tittelwitz, Project Head for IT and  
Innovation Strategy Production, Porsche AG

1:45 pm **Lunch**

2:45 pm **Bus transfer** to the Porsche Development  
Centre in Weissach

3:30 pm **E-Mobility engineered in Weissach**  
800 volts – technology transfer from  
motorsport to series production

 Malte Huneke, Technical Project Head  
Formula E, Porsche AG

4:00 pm **Charging solutions made by Porsche**  
- At home  
- On the go  
- In the Porsche Centres

 Fabian Grill, Project Head Electromobility,  
Porsche AG

 Erol Güroçak, Project Head Mobility Concepts  
and Infrastructure, Porsche AG

 Michael Kiefer, Head of High-Voltage Systems,  
Porsche Engineering

4:45 pm **Break**

5:00 pm **Round table with members of the Executive Board,  
featuring**

 Lutz Meschke, Deputy Chairman of the Executive  
Board and Member of the Executive Board for  
Finance and IT at Porsche AG

 Andreas Haffner, Member of the Executive Board for  
Human Resources and Social Affairs at Porsche AG

 Albrecht Reimold, Member of the Executive Board  
for Production and Logistics at Porsche AG

6:15 pm **Bus transfer** to Zuffenhausen and end



## Smart, lean and green: Porsche Production 4.0

**The traditional production line has had its day**



We're shaping the future of production through Porsche Production 4.0. It's smart, lean and green. Our approach goes far beyond the field of digitisation alone. The basis for this is to achieve data transparency across the entire value chain, thereby enabling efficiency to be further increased and the sports cars of the future to be produced in a way that saves even more resources. Digitisation and new technologies are helping our employees to produce our highly individual sports cars. Our vision of production is intelligently interconnected and streamlined while also saving on resources. This is our goal both in

## Power at all times

**Quick to drive, quick to charge**

At Porsche, an innovative vehicle concept is only innovative when it goes beyond the vehicle itself. That's why Porsche E-Performance also covers the infrastructure: well-conceived, comprehensive charging options for on the go and at home.

### Charging at home:

With charging power of 22kW the Porsche Energy Manager is a quick, convenient way to charge the Taycan at home overnight. Inductive charging is an innovative technology allowing the vehicle to be charged at home without the use of cables. The positioning assistant uses WiFi to calibrate the inductive

charging process for optimum results, enabling a capacity of up to 11kW to be achieved. In addition, the home charge manager ensures intelligent charge management in the event that multiple electricity consumers are connected at the same time.

### Charging on the go:

In Europe, Porsche founded the joint venture IONITY together with BMW, Daimler and Ford to develop the quick-charging infrastructure network. By the end of 2019, quick-charging stations with a capacity of 350kW per charging point are planned to be installed at 400 sites throughout Europe. In the USA, the



the production of the Taycan and at all of our production sites.

To produce the Taycan, Porsche is dispensing with rigidly interlinked belt installations, instead ushering in a new era in vehicle production. As far as the Taycan is concerned, the traditional production line has had its day. Porsche will be the first vehicle producer to use FTS (driverless transport systems) in final assembly as a continuous flow. This will enable us to combine the advantages of the traditional principle of continuous production with the flexibility offered by versatile assembly. It will also increase the number of work cycles using the same amount of space. We can then use this enhanced degree of flexibility to respond to customer desires even more quickly. This is also something that is embodied by our Porsche production philosophy.

VW Group initiative Electrify America will see the installation of charging infrastructure (capacity of up to 350kW) at 300 motorway stations from 2019. At destinations such as hotels the Porsche Destination Charging network plans to cover over 2000 AC chargers in up to 20 markets in the run-up to the Taycan's launch. Customers will be able to gain access to the Porsche charging network via the Porsche charging service. This is a Europe-wide solution with access to a huge array of charging stations managed by different service providers. Porsche will take care of all billing centrally.

### Charging at the Porsche Centre:

From the end of 2019, it will be possible to charge the Taycan at any Porsche Centre in just a few minutes. Porsche dealers around the world will install quick-charging stations with a capacity of up to 350kW. This allows a vehicle to be recharged in approximately four minutes, giving it a range of up to 100 kilometres. The network of Porsche turbo chargers able to charge the Taycan to its full 800 V capacity will therefore grow steadily in the next few years.

# 800 V technology in the fast lane

## Motorsport: a prime way to speed up development in e-mobility



The racing circuit: Porsche's most essential laboratory for advanced developments and ground-breaking solutions knows no limits and leaves no room for compromise. This has been the case since the company was founded – and the new Porsche Taycan is no exception: the brand's first all-electric sports car benefits from developments that enabled the Porsche 919 Hybrid to win the 24 Hours of Le Mans three times between 2015 and 2017. Its upcoming involvement in the ABB FIA Formula E Championship will continue this strategy.

Like the 919, the Taycan is powered by innovative 800 V technology. This was one of the most essential decisions for the 919, as the voltage level effectively sets the course for the entire electric drivetrain: from the battery to the layout of the electronics and the e-machines to the capacity of the charging process. In adopting a pioneering approach and specifically developing suitable 800 V components, Porsche pushed the limits of what is technically feasible – including with regard to the liquid-cooled lithium-ion battery. Amid the intensely competitive environment of motorsport, Porsche has continued to develop its technologies. The brand has now achieved a power density the likes of which have never been seen before. For the Taycan this means: the 800 V architecture in

the vehicle guarantees that the lithium-ion battery can be recharged in just four minutes, providing enough energy to drive 100 kilometres (according to NEDC).

The permanently activated electric synchronous motor in the Porsche 919 Hybrid also survived its baptism of fire during the Le Mans race. It is similar to the two modules that work together to provide more than 600 hp (440kW) in the Taycan.

Sharing expertise, methods and measurement technologies in particular allows technology to be transferred between racing and series production. The developers of the Taycan benefit from the infrastructure and empirical data gained during test bed trials

involving high-speed e-machines as part of the LMP project.

From autumn 2019, Porsche will enter an all-electric racing car in the Formula E Championship. The sports car manufacturer is expecting to receive valuable input from this undertaking, too, that it will be able to apply to future series models. The focus will be on energy management and the ongoing development of key technologies such as the electric motor, converter, gearbox, differential, brake-by-wire system, control unit and cooling system. Porsche's high voltage laboratory, which was set up for the LMP programme, has an important role to play in this. In the laboratory, racing car and series developers work in close cooperation to seek out the most lightweight and efficient components. As the Technical Project Manager, Malte Huneke has a good overview of preparations for the Formula E season: "The challenge lies in getting the driver to exploit the available volume of energy with maximum efficiency in terms of hardware, software and manual management." The types of issue encountered on the race track and on the road are virtually the same. This means motorsport will, in future, serve as an unforgiving test laboratory for new technologies and detailed solutions.



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