Premium Platform Electric (PPE)

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Audi A6 e-tron concept: The vehicle shown here is a concept car that is not available as a production model.
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Audi’s E-Roadmap is well on track – from 2026, Audi will only launch new all-electric models.

1) Chinese market in evaluation;
Audi RS e-tron GT: Combined electric power consumption in kWh/100 km: 20.2–19.3 (NEDC), 22.5–20.6 (WLTP); combined CO₂ emissions in g/km: 0;
Information on fuel/power consumption and CO₂ emissions in ranges depending on the chosen equipment level of the car.
After establishing Audi as a credible BEV brand with e-tron, Audi is scaling its BEV portfolio with vehicles based on dedicated electric Platforms.
We benefit greatly from the synergies in the Volkswagen Group both in hardware and software: PPE scales high-performance features for the broader market.
With the MEB Audi has effectively realized synergies and achieved substantial cost savings.

Audi Q4 Sportback 50 e-tron quattro: Combined electric power consumption* in kWh/100 km: 20.9 – 17.6 (WLTP); 17.9 – 16.4 (NEDC); Combined CO₂ emissions* in g/km: 0 (NEDC); Information on fuel/power consumption and CO₂ emissions in ranges depending on the chosen equipment level of the car.
Audi e-tron GT and Porsche Taycan are using carry-over parts on a large scale, thanks to J1 platform.
Shared platform is not an obstacle to realize brand-specific vehicle design and characteristics.

Taycan 4S: Combined electric power consumption* in kWh/100 km: 28.7 – 26.2 (NEDC); combined CO₂ emissions* in g/km: 0 (NEDC); Information on fuel/power consumption and CO₂ emissions in ranges depending on the chosen equipment level of the car.

Audi RS e-tron GT: Combined electric power consumption* in kWh/100 km: 20.2–19.3 (NEDC), 22.5–20.6 (WLTP); combined CO₂ emissions* in g/km: 0 (NEDC); Information on fuel/power consumption and CO₂ emissions in ranges depending on the chosen equipment level of the car.
PPE provides high level of flexibility, enabling products in B to D segment across the Volkswagen Group.

- **Variable axle track**: (...) 1641 - 1714mm (...)
- **Variable wheelbase**: (...) 2890 - 3080mm (...)
- **Variable ground clearance**: enabling Sedans & SUV (...) 152 – 217mm (...)

High platform flexibility enables broad range of models.
A6 e-tron concept shows: the PPE platform will enable superior performance.

**Design**
Breathtaking design with a cW value of just 0.22
>700 km WLTP range

**Charging**
800V charging with up to 270 kW
300 km in 10 min
5 → 80% in <25 min

**Performance**
Power output up to 350 kW and a torque of 800 Nm
Audi air suspension with adaptive dampers

Audi A6 e-tron concept: The vehicle shown here is a concept car that is not available as a production model.
With the PPE we scale the high-end performance of the J1 platform and cover a broad range of customer segments.

**Comparative performance**

<table>
<thead>
<tr>
<th>Segment</th>
<th>MEB</th>
<th>PPE</th>
<th>J1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance (kW)</td>
<td>lower</td>
<td>higher</td>
<td>lower</td>
</tr>
<tr>
<td>Torque (Nm)</td>
<td>lower</td>
<td>higher</td>
<td>lower</td>
</tr>
<tr>
<td>Price (€)</td>
<td>lower</td>
<td>higher</td>
<td>lower</td>
</tr>
</tbody>
</table>

**MEB**

**PPE**

**J1**
With the PPE we scale the high-end performance of the J1 platform and cover broad range of customer segments.

**Comparative performance**

- **Range** (km WLTP): lower (MEB), higher (PPE and J1)
- **Voltage level** (Volt): lower (MEB), higher (PPE and J1)
- **Time to charge** (5%-80% in min): quicker (PPE and J1), longer (MEB)
- **Battery gross capacity** (kWh): lower (MEB), higher (PPE and J1)
- **Max charging speed** (kW): lower (MEB), higher (PPE and J1)
- **Range charged in 10 min** (km): lower (MEB), higher (J1)
With the PPE platform we continue to balance differentiation with the use of carry-over parts.

Audi Q6 e-tron vs. Porsche Macan (BEV)

Audi Q6 e-tron vs. Audi A6 e-tron
E-axle development with the design-to-cost approach: reduced variance combined with flexibility in key components enabling highest efficiency and performance.

**Gear box**
- flexible gear ratios
- acoustics optimization

**Power electronics**
- flexible semiconductor technology

**E-motor**
- flexible motor technology
- fixed diameter, variable length
- acoustics optimization

**Castings**
- separate small castings ensure procurement flexibility
The key components in the PPE e-axle kit follow a strict modular logic with a high level of carry-over parts.

**Electric motors**
- same diameter / 3 different lengths

- 200mm PSM
- 150mm PSM
- 100mm PSM & ASM

**Power electronics**
- semiconductors Si & SiC

**Gearbox**
- up to 4 different gear ratios realized via 1st reduction stage

i = 8.5

i = 11.0

1) PSM: Permanenterregte Synchron Maschine (permanent synchronous motor); 2) ASM: Asynchron Maschine (asynchronous motor)
Technological advances and comprehensive system optimization lead to improved efficiency and performance.

- **800V HV system**
  - ultra fast charging capability

- **Silicon carbide semiconductors**
  - highest efficiency in power electronics

- **Oil system for gears and e-motor with electric oil pump and dry sump lubrication**
  - low friction and enhanced efficiency

- **E-motor with hairpin winding and direct oil cooling for stator and rotor**
  - high power density / reduction of rare earths
Major improvements in e-axle parameters result from know-how ramp up thanks to in-house development and industrialization.

- e-axle box dimensions: -30%
- e-axle weight: -20%
- e-motor dimensions: -35%
- e-axle efficiency losses: halved
- System performance: +33%
- Drivetrain costs: -15%
- Energy consumption: -30%

1) Based on the full vehicle, including efficiency improvements in other components.
PPE battery system is “best of two worlds” – combines high performance with industrialization benefits and ensures capabilities to integrate new technology.

**J1 battery system**
- 800V
- 93kWh (gross)
- 32 modules (pouch)
- Performance: 475kW
- Charging power: 270kW
- High-tech thermal management
- Vehicle specific design
- Low volume manufacture

**MEB battery system**
- 400 V
- 82kWh (gross)
- 12 modules (prismatic & pouch)
- Performance: 220kW
- Charging power: 125kW
- Compact design
- High volume
- Industrialization

**PPE battery system**
- 800V
- 100 kWh (gross)
- 12 modules (prismatic)
- Performance: ~ 475kW
- Charging power: 270kW
- High-tech thermal management
- Compact design
- High volume
- Industrialization
Premium customer experience: Transition from single option to focused option packages enables reduction of complexity.

Today

Single options

Option packages

Q6 e-tron example

- Packages definition based on customer experiences
- Convenient decision making by customer
- Sustainable premium look and feel through point-based evaluation
- Stable residual values
The Chinese market plays an important role in leveraging scale advantages – Audi FAW NEV Company will be a major pillar.

Audi FAW New Energy Vehicle Company

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End-to-end electronics architecture E³ 2.0 is the key technology on the way to a software enabled car company.

E³ 2.0 Architecture

Focus on **seamless hardware & software**

Worldwide scalable from **A0 to D segment**

Basis for new business models

Over-the-air updates & upgrades enable continuous extension and advancement in customer experience

Innovative customer functions such as **highly automated driving L4** and **Digital Assistant**

Big Loop foundation by data collection
The next stage in the Volkswagen Group battery strategy will be the unified cell.

**Value chain CO₂ emissions optimization**
Supplier/partner selection takes CO₂ emissions into account e.g. Northvolt

**Know-how build up and new technology readiness**
Technical possibility of integration of new cell chemistries in the unified cell

**Cost & complexity reduction**
80% of VW Group applications covered by unified cell by 2030

- **Cost reduction**
  - Cell design: -15%
  - Production process: -10%
  - Cathode/anode material: -20%
  - Battery system concept: -5%
The integration of hard- and software will be complete with the SSP (Scalable Systems Platform).

Modular Toolkit

- Q6 e-tron
- A6 e-tron
- “Artemis”

Scalable Systems Platform

- E3 1.2
- E3 2.0

Schematic representation does not reflect number of modules.
“Vorsprung” ready for the next level.

Transforming our claim of technological leadership for the future

Focus on the ecosystem beyond the vehicle

Software competence thanks to close alliance with CARIAD

Volkswagen Group-wide synergetic end-to-end approach: systems engineering
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