Building a Global Battery Champion

November 2022
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Any changes in significant parameters relating to our key sales markets, or any significant shifts in exchange rates, energy and other commodities or commodities relevant to PowerCo or the supply with parts, or deviations in the actual effects of the Covid-19 pandemic from the scenario presented will have a corresponding effect on the development of our business. In addition, there may be departures from our expected business development if the assessments of the factors influencing sustainable value enhancement and of risks and opportunities presented develop in a way other than we are currently expecting, or if additional risks and opportunities or other factors emerge that affect the development of our business. We do not update forward-looking statements retrospectively. Such statements are valid on the date of publication and can be superseded.

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PowerCo has a large demand pipeline from key customer Volkswagen Group

The Unified Cell technology allows for low complexity & standardization ...

... and a standard factory design, which all PowerCo gigafactories are set up to

Vertical integration allows for a secure raw material supply chain ...

... with sustainability as an integral part of PowerCo’s DNA

VW talent pool and engineering know-how as important basis to scale operations

Targeting further automotive and non-automotive customers
Fully operational and highly skilled Executive Board

**Frank Blome**
Chief Executive Officer
Prior experience
Continental, Li-Tech Battery, Accumotive

**Sebastian Wolf**
Chief Operating Officer
Prior experience
Bosch, Boston Consulting Group, Farasis

**Kai Alexander Müller**
Chief Financial Officer
Prior experience
Bank of America, Barclays

**Soonho Ahn**
Chief Technology Officer
Prior experience
LG Chem, Samsung SDI, Apple

**Jörg Teichmann**
Chief Purchasing Officer
Prior experience
ZF Friedrichshafen, BMW, Volkswagen AG

**Sebastian Krapoth**
Chief Human Resource Officer
Prior experience
Volkswagen Commercial Vehicles, Volkswagen AG
PowerCo has already reached significant milestones:

- Incorporated as Société Européenne (SE)
- Executive Board and Supervisory Board in place since June 2022
- Started with 350 employees on day 1, now at >500 and growing every day
- Ground breaking of lead plant in Salzgitter on 7th July 2022
- Signed €3bn Umicore JV in September 2022 for cathode material production
Key value drivers for PowerCo
Transitioning into the EV world – significant scaling required across battery industry

Global battery demand is mainly driven by mobility

<table>
<thead>
<tr>
<th>Year</th>
<th>Mobility (GWh)</th>
<th>CAGR % p.a.</th>
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</thead>
<tbody>
<tr>
<td>2021A</td>
<td>0.371</td>
<td>27%</td>
</tr>
<tr>
<td>2030E</td>
<td>3.267</td>
<td>24%</td>
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</table>

Volkswagen Group demand for PowerCo

Source: Bloomberg NEF
Changing the approach – the Unified Cell (UFC) allows for speed & agility

**Current Approach**

The Unified Cell design approach ensures standardization of the battery and fits in >80% of VW Group upcoming BEVs

**The Unified Cell**

- Cell format stays the same, while the chemistry inside determines the capabilities (range and charging speed)
- The Unified Cell design approach ensures standardization of the battery and fits in >80% of VW Group upcoming BEVs
The Unified Cell has a standardized geometry but variable chemistry

- **Entry**: Cost optimum
  - Inexpensive chemistry

- **Volume**: Balanced cost and performance
  - Mainstream chemistry

- **Best in Class**: Performance optimum
  - High-end chemistry for high performance

Variety in cell chemistry
The Unified Cell has clear advantages including a significant cost benefit.

The UFC’s future proof standardized design, coupled with a fully standardized production system is key to take complete advantage of economies of scale.

- Flexibility in chemistry
- High efficiency
- Highest energy density
- Excellent fast charge performance
- Superior safety
The standard factory is a key enabler for our industrialization strategy

**Standard Building Column Grid**
For maximum standardization and land use

**Lean Line Design**
Production lines follow value stream concept from mixing to filling

**Flexible Production Footprint**
Adaptable to different chemistries and formats

**Single Story Production Area**
Minimizing construction times, while maximizing flexibility

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**Up to 50% launch time reduction due to standardization**

**Cost reduction of 30% per GWh compared to benchmark**

**Energy consumption reduction target of up to 30% from process innovations**

**100% green energy sourcing target with dedicated renewable energy support**
Salzgitter is the lead plant and the blueprint for the international rollout.
Raw material prices on a clear upward trend with near term volatility

Battery costs account for up to 40% of the electric vehicle’s total costs

up to 70-80% of the cell price can be materials input costs

...and up to 40% of the cell price can just be raw materials
Raw material investments and contracts are key to secure volumes and competitive pricing...

Long-term contracts serve to secure volumes.

Participations enable more control and potentially lower input prices longer term.

Contracts and investment projects are already under discussion, with some already signed.
... while cathode material processing is a key value driver within the supply chain

Umicore is a leading materials technology and recycling group

Signed Joint Venture in September 2022 for precursor and cathode material production capacities in Europe → largest in the region by 2030e

Joint venture invests € 3 billion to produce battery materials for 160GWh (2.2 million BEVs) per year by the end of the decade
Sustainability is an integral part of PowerCo’s DNA

**Vertical Integration**
- Economies of scale
- Lower costs
- Lower reliance on suppliers
- Ensure quality control

Higher degree of vertical integration provides visibility and allows to shape ESG strategy across the supply chain.

**Energy Sourcing**

100% Renewable Energy*

*if not available done through offsetting

**Closed Loop Approach**
- Battery cell incl. direct scrap recycling
- Recycling
- Battery systems
- Second use
- First use

Volkswagen AG is an active partner in the IRMA initiative, setting standards in the responsible procurement of raw materials.
Targeting further automotive and non-automotive customers

Other OEMs

...via Volkswagen’s platform business

Ford
Mahindra
Others...

Modular Electric Platform (MEB)
Scalable Systems Platform (SSP)

Non-Automotive Customers

...or directly to other OEMs using the UFC

Energy Storage Systems

Busses
Trains
Ships
Trucks

VOLKSWAGEN

PowerCo | Batteries. For generations to come.
Use case: energy storage systems

**Full battery eco-system**
for passenger and commercial vehicles, energy storage systems and charging

**Product diversification**
enables flexibility and reduces automotive cell volume dependency

**Additional volume**
drive economies of scale

**Factory sustainability**
and energy cost improvement potential

6.2 TWh
Yearly green energy lost in Germany due to lack of storage facilities

1,900,000 x
Households (yearly energy demand)

2,700,000 x
Vehicles (yearly energy demand)

Source: Bundesnetzagentur, PowerCo, Destatis, Volkswagen Group, Tesla
PowerCo has made substantial progress since VW PowerDay in March 2021

2021

- Partnership with 24M
  Joint development of SemiSolid™ battery cell production technology

- Signing of Supply agreement with Vulcan Energy
  Supply of CO₂-neutral lithium sourced in Germany

- MoU Joint Venture with Umicore
  European production capabilities of precursor and cathode material

2022

- Announcement of 2nd battery plant in Valencia, Spain
  Construction expected to begin in Q1/2023, with production to commence in 2026

- Volkswagen Group considers battery production in North America
  PowerCo starts site search process to localise in the NAR region

- Ground breaking for construction of battery plant in Salzgitter, Germany
  Production expected to commence in 2025

- MoU with Canadian Government
  To investigate opportunity for Canada to contribute to PowerCo’s global and regional battery supply chains

- Signing of Joint Venture with Umicore
  Joint investment of €3bn to form the largest European production capacity of precursor and cathode material
Speed & Agility
through low complexity and standardization
Thank You!