Vision & Mission

VISION We electrify the future!

MISSION Successfully overcome challenges of energy storage applications
Market & Business Environment

» Forecast global sales of electric vehicles: 301 billion EUR in 2020 and 459 billion EUR in 2030 (McKinsey)

» At least one battery management system per battery pack required for each application

» Positive trend continues to accelerate in 2017 and 2018

» Massive multi billion funding for EV related development and research by the EU

» Germany intends to inject 1.2 billion Euro to promote EVs
Corporate Structure & Business Segments

LION E-Mobility AG

LION E-Mobility North America Inc.

LION Smart GmbH

TÜV SÜD AG

70% JV

30% JV

TÜV SÜD Battery Testing GmbH

Divisions

Batterymanagement-system & Components

Engineering & Prototyping

Consulting & Studies
Open Battery Management System

» Adaptable monitoring system for all types and sizes of lithium-based battery packs
» Modular design of the hardware and software architecture
» Filling the gap between low-tech/low-cost and high-end proprietary systems
» Automatic data acquisition, remote monitoring and cloud based data processing/analytics service
» Flexible framework for scalable battery systems (12 cells per LMM, 16 LMM per LCM)
» Server based data logging and age tracking
» Modular Software Approach
Wireless Open Battery Management System

Features of the wireless BMS

» More reliability due to cable/connector elimination
» Enables more flexible placement of battery modules
» Reduces wiring complexity
» Saves galvanic isolations and connectors
» Easier to assemble and test due to wireless technology
» Better state of charge modelling due to time stamp data

Future benefits

» Lower costs compared to present system
» Module test results while on the line (Industry 4.0) vs. full assembly and test

» Wireless technology promises to significantly improve reliability and simplify the design of automotive battery management systems
Possible Applications OSBMS

» Batteries are used in very different applications, with different technical requirements

» Batteries use a large variety of cells with regards to form factor, capacity or power

» Almost all the battery systems have commonalities and similarities on the electronic and software side of the system

» Battery technology developing much more rapidly compared to traditional industrial automotive products and systems
Engineering & Prototyping

» Innovative engineering services for battery systems

» Developing individual and customized solutions for various applications, e.g. government-funded research project “Effizienzhaus Plus” (BMVBS) - secondary use of BMW MiniE car batteries

» Development of a battery pack for the car research project “Mute” (BMW, Daimler, Siemens, Continental, …)
Consulting & Studies

Network

» European OEMs
» Technical university of Munich (FTM, EES)
» German government (BBSR, BMVBS, BMBF)
» European Commission (Horizon 2020)
» Swiss Federal Institute of Technology in Zurich (ETHZ)

Studies

» Home storage systems market study
» Secondary use of lithium-ion batteries of propulsion systems
» Electric mobility in co-work with Valentum GmbH
» Trend & market research in the field of drive propulsion systems such as lithium-ion storage technology
Joint Venture: TÜV SÜD Battery Testing GmbH

» Successful and synergetic partnership with TÜV SÜD AG
» Turnover increased from 4.30 million EUR in 2015 to 4.76 million EUR in 2016
» Leading battery testing laboratory in Europe
» State-of-the-art testing facilities for automotive and stationary batteries
» TÜV SÜD brand as a multiplier

» LION Smart is an exclusive partner of TÜV SÜD for battery testing in Europe
History of the Company

- 2008: Founding of LION Smart GmbH
- 2009: Founding Joint Venture TÜV SÜD Battery Testing GmbH
- 2010: Founding of LION E-Mobility AG
- 2011: Visio.M: research project
- 2012: Listed on Munich stock exchange
- 2013: Several high power battery packs for different EV projects
- 2014: 296% revenue growth
- 2015: New facilities
- 2016: Founding of LION E-Mobility North America Inc.

Key Highlights:
- Stationary storage - Effizienzhaus Plus
- “Mute” battery pack
- Battery pack for Visio.M
- LION Smart Battery Management System
Management

Daniel Quinger, Corporate CEO LION E-Mobility, President of the Board of Directors

Mr. Quinger is the founder and head of battery-management-systems at LION Smart GmbH and former CTO at TÜV SÜD Battery Testing GmbH from 2011 to 2013. He has extensive experience in the automotive industry, testing of lithium-ion batteries, strategic innovation management and product development. Prior to founding LION Smart GmbH, he worked in different positions for 3M, BMW (Technology Office-USA), EVA Fahrzeugtechnik and ENAX Batteries in Europe, North America and Japan.

Roland Bopp, CEO Americas LION E-Mobility, Member of the Corporate Management

Mr. Bopp has extensive background at senior levels in the telecom, automotive and machinery industry. Prior to joining to LION E-Mobility, he was Chairman, President & CEO of Deutsche Telecom Inc. New York, a subsidiary of Deutsche Telekom AG, Germany and Executive Vice President, and member of the operating board of Mannesmann Corp. in New York, NY and Düsseldorf, Germany, a US$ 20 billion global engineering and telecom service company operating worldwide and publicly traded. During his professional career, he has successfully built established and early stage companies in North America, Europe and Asia.
Hany Magour, Corporate COO/CFO LION E-Mobility, Member of the Board of Directors

Mr. Magour is a versatile, entrepreneurial manager with 20+ years experience in business development & financial management. He has broad international experience in business analysis, strategic planning, marketing, product management, project management, IT and supply chain management in electronic products, fintech, software design, and various other fields.

Tobias Mayer, Corporate CTO LION E-Mobility, Member of the Board of Directors

Mr. Mayer is the founder and the chief technology officer of LION Smart GmbH. He has extensive experience in design, automotive engineering and product development. Prior to founding LION Smart, he worked for BMW in project and quality management. During his studies he was the head of the formula student racing team.
Operating Business & Joint Venture Financials

### LION Smart GmbH

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<th>Year</th>
<th>Employees</th>
<th>Annual revenue (000€)</th>
<th>Net profit after taxes (000€)</th>
<th>Balance sheet total (000€)</th>
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### TÜV SÜD Battery Testing GmbH

<table>
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<th>Year</th>
<th>Employees</th>
<th>Annual revenue (000€)</th>
<th>Net profit after taxes (000€)</th>
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LION E-Mobility AG – Equity Story

1. Market growth
   » Strong market increase of electrified vehicles and energy storages
   » Substitution of lead-acid starter battery
   » Need to store renewable energy

2. Positioning of LMI
   » Growth even in the early phase (development time)
   » Strong demand for battery testing services
   » Expansion abroad possible with the TÜV, e.g. Asia
   » Battery Management System – biggest potential in the future

3. Dividend policy
   » In current growth phase, profits are reinvested in the JV and in the subsidiary
   » In the saturation phase dividend distributions to shareholders are planned

4. Senior management commitment
   » Senior management is the largest shareholder group and thereby ensure credibility and stability
LION E-Mobility AG – Shareholder Structure

**FACTS**

- **Head Office**: Switzerland
- **Industry Sector**: E-Mobility; Segments: Battery-Tests, -Prototyping, -Management-Systems
- **WKN**: A1JG3H
- **ISIN**: CH0132594711
- **Symbol**: LMI
- **Listings**: Xetra, Frankfurt, Munich
- **Internet**: www.lionemobility.com
- **52-Week-Range**: 4.95 – 9.40 EUR
- **Outstanding Shares**: 7.1 Mio.
- **Market Capitalization**: 56.28 Mio. EUR (16.10.2017)

13.10.2016: €5.61
13.10.2017: €7.95

+41% (+ €2.34)

Source: finanzen.net, listing: XETRA
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