



FRAUNHOFER ISIT, ITZEHOE

28 NOVEMBER 2013, 09:30-15:45

BATTERY TECHNOLOGIES FOR ELECTRO MOBILITY AND SMART GRID PURPOSES

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REGIONAL GERMAN-DANISH RESEARCH ACTIVITIES AND BUSINESS DEVELOPMENT OPTIONS

Lithium Ion Batteries in Future Energy Systems



- An important part of future energy systems:
 - *Electro mobility (EVs, PHEVs, HEVs)*: passenger vehicles, busses, trucks, light commercial vehicles, industrial vehicles, cycles, ...
 - *Smart Grids*: home storage, community storage, grid buffering
- Comparative advantages:
 - Relatively high energy densities
 - Acceptable charging possibilities
 - Fairly durable and safe
- Large scale application dependent on:
 - Technical improvements
 - Production related issues
- German-Danish business options exist



Examples: Value Chain Related Challenges



Battery Cells

- *Materials and design:* energy density, charging options, safety
- *Production processes:* costs, quality/safety, energy density

Battery Packages

- *Cell choice and design:* thermal behavior, cost level, application specificity
- *Battery management system:* durability, safety, efficiency, state of health

Battery Applications

- Integration with drive line / grid
- Customer specific solutions / niche market development



Purpose of the Seminar



1. Provide a status on regional German-Danish lithium ion battery technology research and development (R&D) activities
2. Give an overview of business development options and examples of on-going initiatives
3. Networking possibility



Introduction to seminar –
batteries in the energy systems of the future

Agenda (1/2)



Welcome and overview

09:30	Welcome	Prof. Dr.-Ing. Wolfgang Benecke, ISIT, Fraunhofer Institute
09:40	Introduction to seminar - batteries in the energy systems of the future	Jens Sandmeier / Gustav Nebel, WTSH / UdviklingsRåd Sønderjylland

Battery technology research and business in the German-Danish region

09:50	Basics of battery technology and materials/methods for lithium ion battery cell production	Dr. Andreas Würsig / Jannes Ophey, ISIT, Fraunhofer Institute
10:35	<i>Coffee break</i>	
10:50	Potentials in application of advanced materials for lithium ion battery cells	Søren Dahl, Haldor Topsøe A/S
11:05	Production of efficient and high quality lithium ion battery cells	Dr. Detlev Repenning, ECC Repenning GmbH
11:35	Experiences with production and application of battery packages for accessory drives in heavy duty refuse collection vehicles	Poul Erik Seekjær, Banke ApS
12:00	<i>Lunch</i>	



Introduction to seminar –
batteries in the energy systems of the future

Agenda (2/2)



12:40	Fraunhofer Institute - laboratory visit	
13:20	SmartRegion Pellworm application of batteries in the energy system	Dieter Haack, Schleswig-Holstein Netz AG, SmartRegion Pellworm
13:50	Experiences with production of battery packages for Smart Grid solutions	Dr. Gerold Neumann, Dispatch Energy Innovations GmbH
14:10	Battery management systems – the heart of efficient batteries	Adetunji Adebusuyi, Lithium Balance A/S
14:30	Battery lifetime assessment in mobility and energy storage	Kjeld Nørregaard, Danish Technological Institute
14:50	<i>Coffee break</i>	

Which technological challenges and regional business perspectives?

15:10	Panel discussion and summing up on presentations	Moderation: Jens Sandmeier / Gustav Nebel, WTSH / UdviklingsRåd Sønderjylland
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Introduction to seminar –
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Panel Discussion



- Which challenges in relation to lithium ion battery technologies are most important and of highest regional German-Danish interest?
- How can R&D institutions contribute to and improve cooperation concerning lithium ion battery development?
- Which business development options based on the lithium ion battery value chain exist in the German-Danish region and how can they be promoted?

