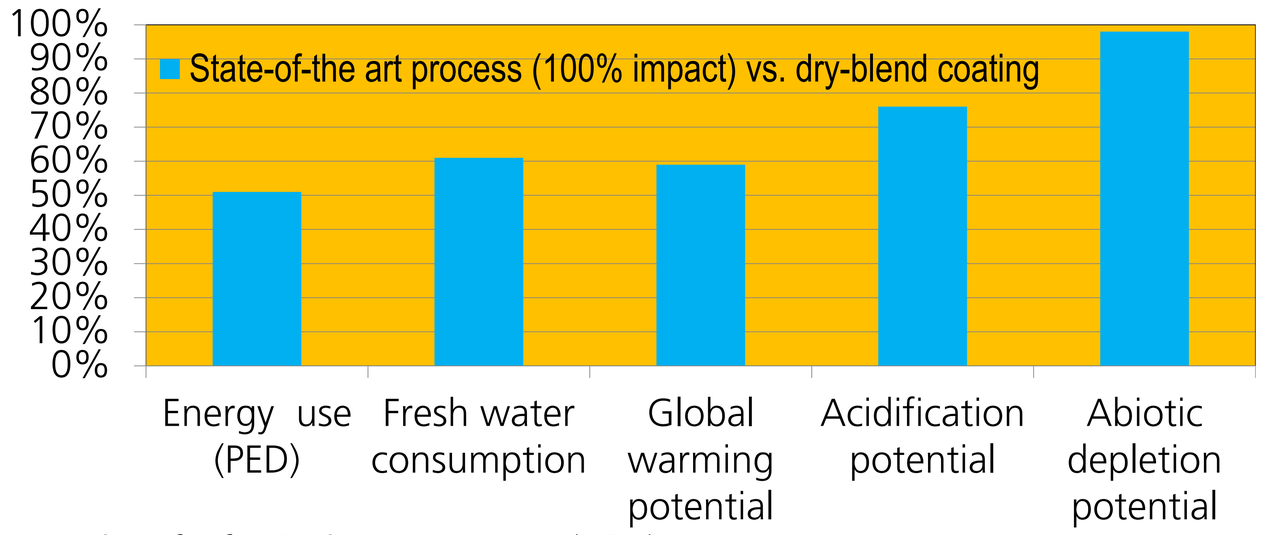
New dry-blend cathode manufacturing process for lithium-ion batteries

The electrode manufacturing process still is a major challenge in battery production for electric vehicles. In the European project "ELIBAMA" a new process is developed to replace the organic solvent based state-of-the-art coating process by a dry-blend coating process.

Life-Cycle Assessment (LCA)

- State-of-the-art electrode manufacturing process (100 % impact) compared to the new dry-blend coating



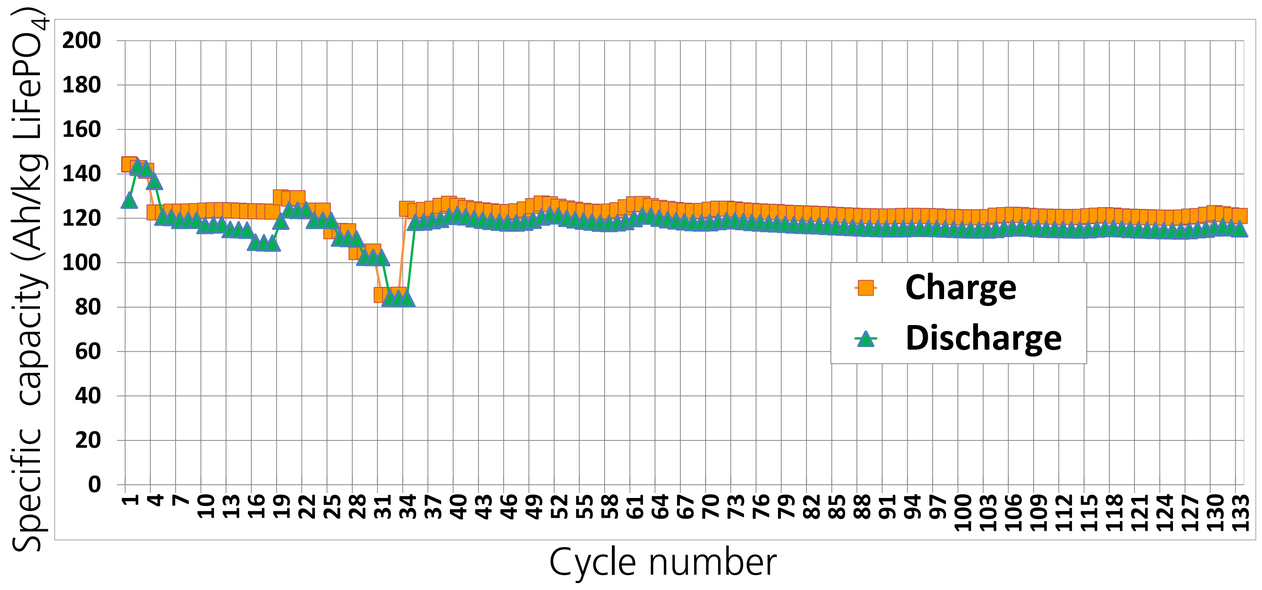
Results of Life-Cycle Assessment (LCA)

Electrochemical activity

- Cycle tests carried out with counter and reference electrode, Li metal 2.5 – 4.2 V vs. Li/Li^+
- Constant current – constant voltage
- CV step until current below 0.05 C or time = 1 h
- Dry-blend coated samples of current collector foils show good results in the cycle tests, compared to those produced with the state-of-the-art process

Cycle	Charge	Discharge
1-3	0.1 C	0.1 C
4-18	0.5, 1, 2, 3, 5 C (3 cycles each)	1 C
19-33	1 C	0.5, 1, 2, 3, 5 C (3 cycles each)
34-….	1 C	1 C

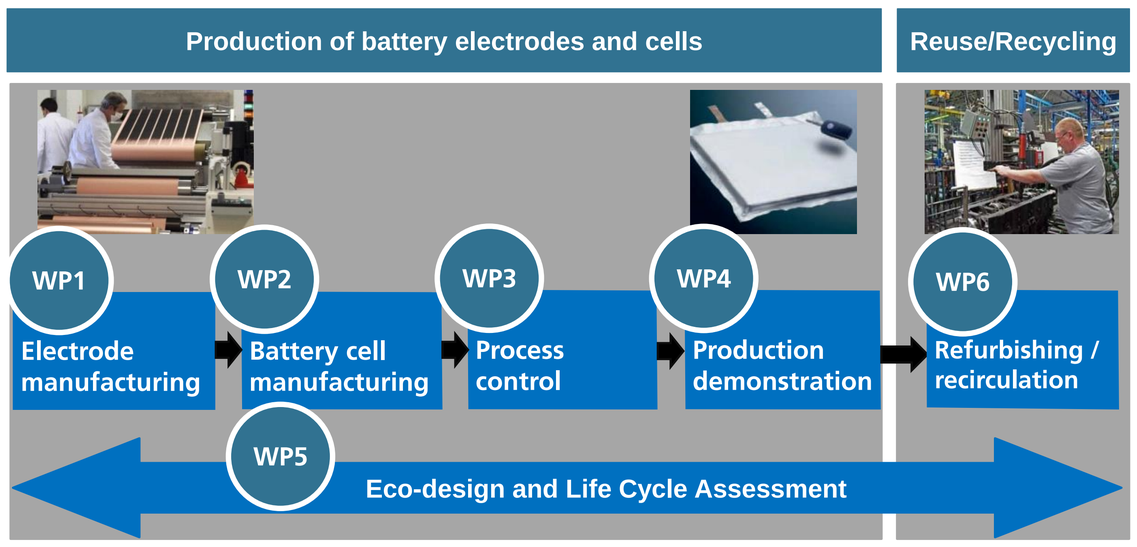
Parameter settings of cycle tests



Results of cycle test

Li-ion battery manufacturing operational work packages

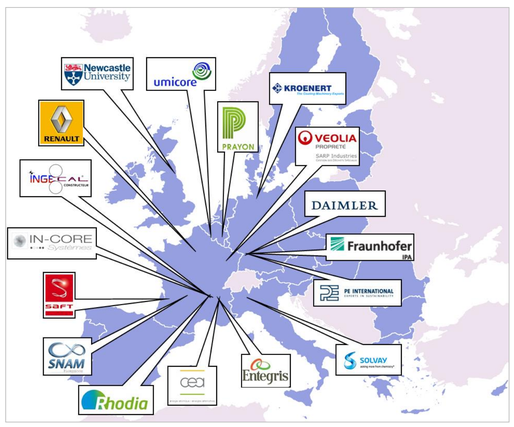
- Improvement of the complete process chain from electrode manufacturing to recycling



Lithium ion battery manufacturing operational work packages

Administrational information about ELIBAMA

- Budget: 15.4 M €
- Duration: 36 months (start: November 2011)
- Partners involved: See on the chart (right side)
- Contact person: Markus Cudazzo
- Phone: +49 711 970-1761
- Mailto: Markus.Cudazzo@ipa.fraunhofer.de



ELIBAMA
European Lithium-Ion Battery Advanced Manufacturing

Fraunhofer IPA