



International Year of
CHEMISTRY
2011

BASF is a
Global Sponsor

Construction of a Li Ion Battery (LIB) Cathode Production Plant in Elyria, Ohio

Project ID# ARRAVT008

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BASF Corporation

May 11, 2011



The Chemical Company

“This presentation does not contain any proprietary, confidential, or otherwise restricted information”

Timeline

- Project Start – April 1, 2010
- Project End – June 30, 2014
- 3-10% Complete

Budget

- \$49,209,564 Million Award
 - 50% DOE (\$24,604,782)
 - 50% BASF (\$24,604,782)
- FY10 Funding Received = \$ 700K
- FY11 Funding Received = \$ 14M

Barriers

- Cycle Life
- Safety
- High Energy Density

Partners

- Various North American Cell Manufactures

Objectives



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- Construct a Lithium-Ion Cathode Manufacturing Facility Capable of Supplying Batteries for 100,000 PHEVs
- Augment the Cathode Manufacturing Facility by Adding Capability to Process Raw Materials

Milestones



Month/Year	Milestone
October 2010	Complete Conceptual Design Phase of Program and Kick-off Construction Program with a Ground Breaking Ceremony. (COMPLETED)
March 2011	Complete Extended Conceptual Design of Program and Obtain BASF Board Approval for Implementation of Phase I of Program, "Cathode Facility". (COMPLETED)
November 2011	Complete Construction of Cathode Facility Building and Begin Installation of Equipment



- Obtain License for the NCM Cathode Materials from Argonne National Lab.
- Complete Construction of Pilot Facility in Beachwood, Ohio and Begin Qualification with Key Global Customers.
- Construct our Production Facility in Elyria, Ohio as Part of the Recovery Act Program.

Accomplishments



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- BASF Completed an exhaustive Market Survey that Confirmed the NMC Cathode Materials are the Choice of Several Major OEMs for Automotive Applications.
- BASF Finalized the Specifications for NCM Materials (NCM 111, 523, 424) and Produces Pilot Samples for Qualification.
- BASF Materials Passed First Stage Qualification at Several Major Global Customers.
- BASF Begins Construction of a Manufacturing Facility to Produce These Important Cathode Materials.



- Technology Transfer: BASF Has Worked Extensively With Argonne National Lab to Transfer Their NCM Technology From Laboratory Scale to Production Scale.
- BASF Continues to Maintain Multiple Global R&D Partnerships to Ensure the Highest Quality Products in Terms of Performance, Reproducibility, Safety, and Cost

May 2011 – May 2012 Project Objectives



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- Complete Construction of our Cathode Facility Building
- Begin Work on our Raw Material Facility for Next Generation Products
- Complete Second Stage Qualification with Target Customers
- Have a Majority of Our Manufacturing Equipment Installed

- BASF Has Successfully Passed Stage 1 Qualification at Several Key Global Customers.
- BASF has Broken Ground on our Production Facility in Elryia, Ohio and Will Complete Building Construction by November 2011.
- BASF is Making Good Progress on our Cathode Facility and is Well Positioned to Enact the Next Year of our Program