

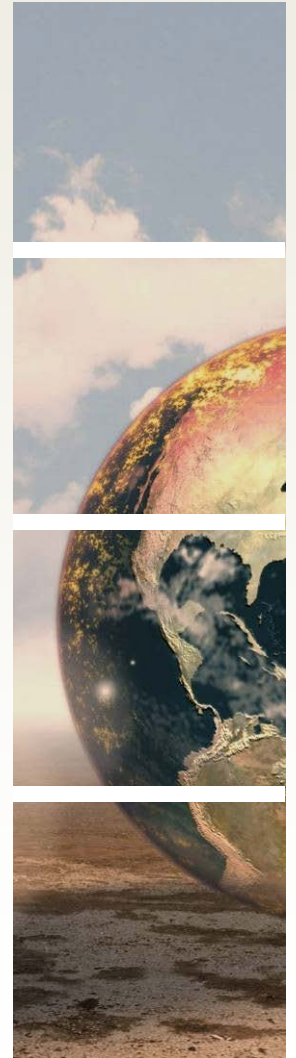
Toda Cathode Materials Production Facility

2013 DOE Vehicle Technologies
Annual Merit Review
May 13-17, 2013

David Han, Yasuhiro Abe
Toda America Inc.

Project ID: ARRAVT017
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Toda America Battle Creek Facility



Project Progression



Phase 1 : 2,000MT/y

STEP 1

LNCA/LNCM

Currently in operation and products are commercially available

STEP 2

LNCM

Planned operation in 2014


Phase 2 : 2,000MT/y

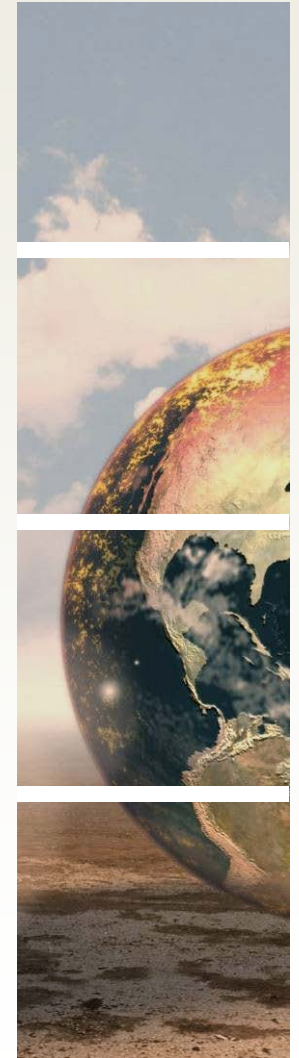
Completion and Operation expected by 2015

Toda North American Facilities



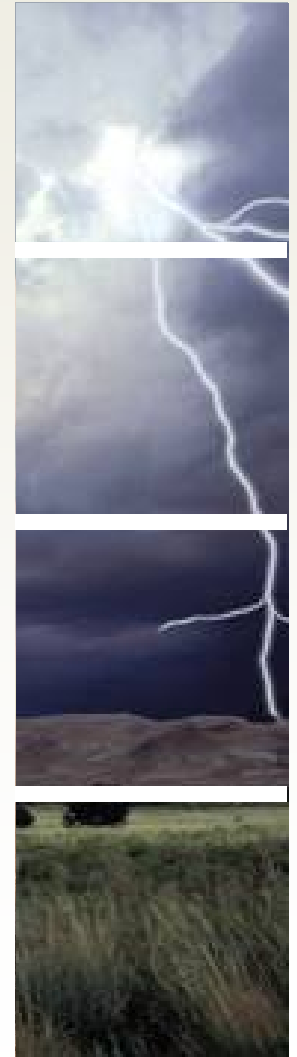
 Precursor
(Toda Advanced Materials)

 Calcination
(Toda America Inc.)



Li-ion Cathode Materials Production Facility

<div><div>☐ Timelines</div><ul style="list-style-type: none">➤ Start: February, 2010➤ Finish: 2015 Expected➤ 1st Line Operational February, 2011➤ 2nd Line Scheduled for construction 2013-2014</div>	<div><div>☐ Challenges</div><ul style="list-style-type: none">➤ Investment timing to match with market development➤ Achieving next generation performance</div>
<div><div>☐ Budget</div><ul style="list-style-type: none">➤ \$70MM+ total➤ 50% Cost-shared with U.S. DOE ARRA grant</div>	<div><div>☐ Partners</div><ul style="list-style-type: none">➤ LIB Resources/ITOCHU➤ Argonne National Labs (Li-ion cathode materials license)➤ U.S. DOE/NETL</div>



Company Profile



Toda America Inc.

Foundation: August, 1996

President: Yasuhiro Abe

Shareholders: TODA Kogyo Corp 50%

LIB Resources/ITOCHU 50%

Line of Business: Cathode Manufacturing for Lithium Ion Battery

Plant Location: 4750 W. Dickman Rd. Battle Creek, MI

Planned Capacity: Approx 4,000MT/year

Market Served: North America & Europe



Project Milestones

In commercial production!

Milestone	Status / Target Dates
DOE Award Announcement	August 2009
DOE Award Agreement Signing	February 2010
Site Preparation Completed	March 2010
Phase 1 Construction Start	April 2010
Phase 1 – Step 1 Completion	December 2010
Production Validation Step 1	February 2011
Phase 1 – Step 2 Completion	July 2014
Phase 2 Construction Start	2013/2014
Phase 2 Completion	2015 expected

Completed



ISO 9001 Certified



Application of Toda Products



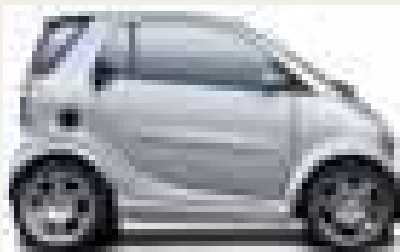
Windpower



Power Tool



NiMeH Consumer

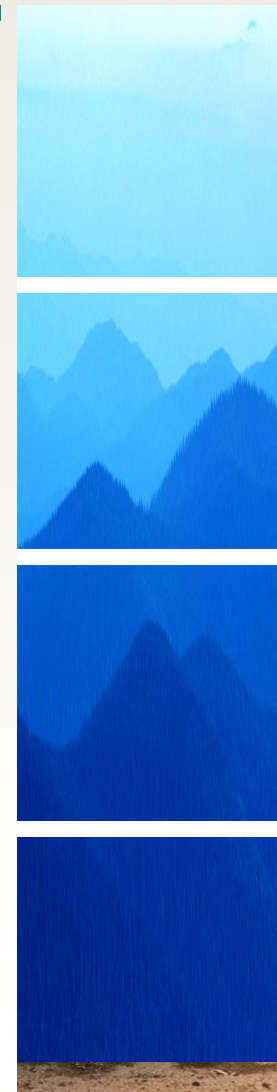
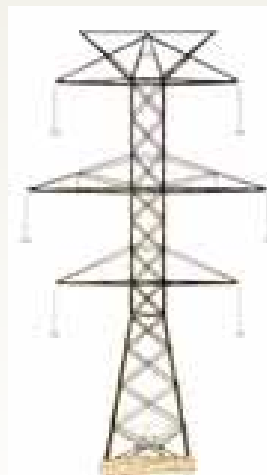


HEV, PHEV, BEV

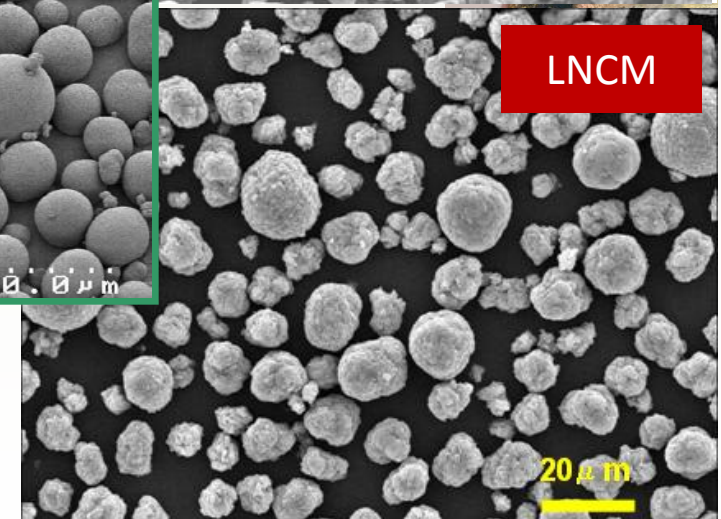
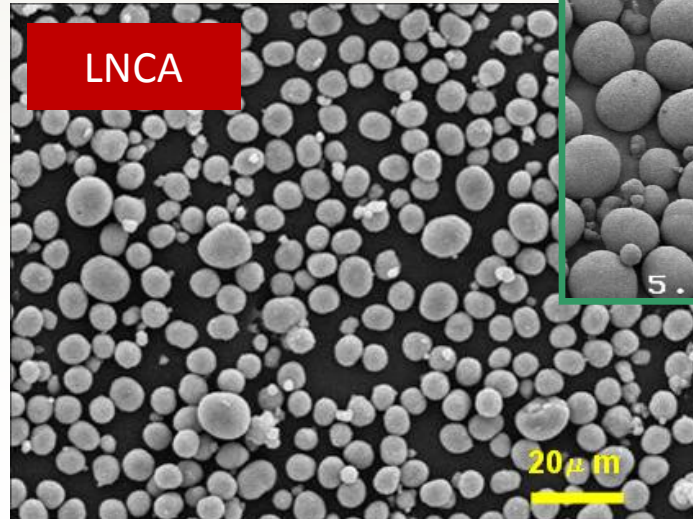
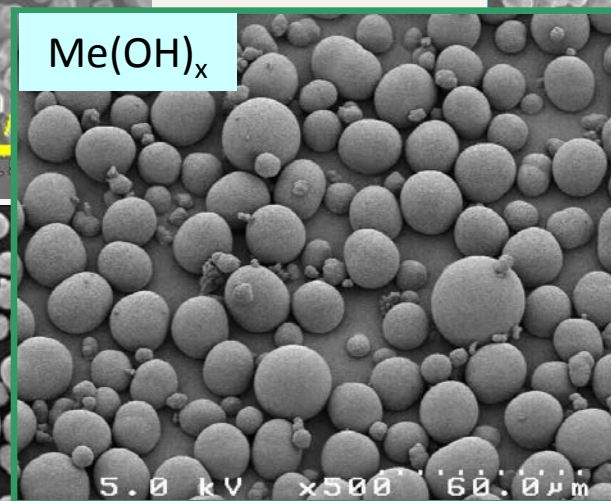
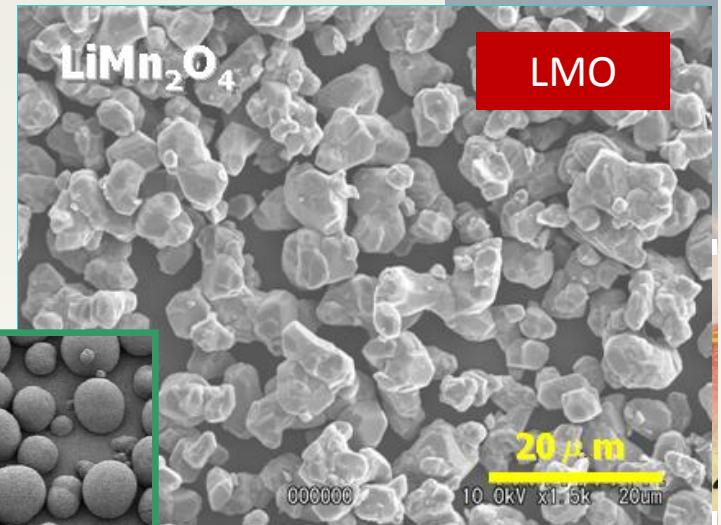
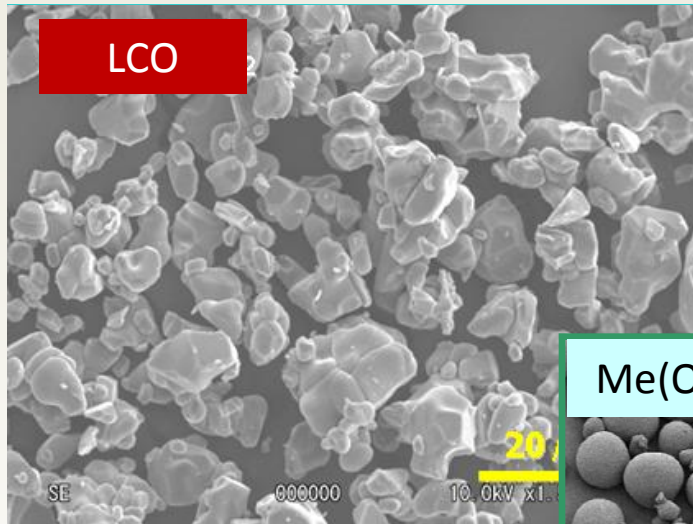


Mobile

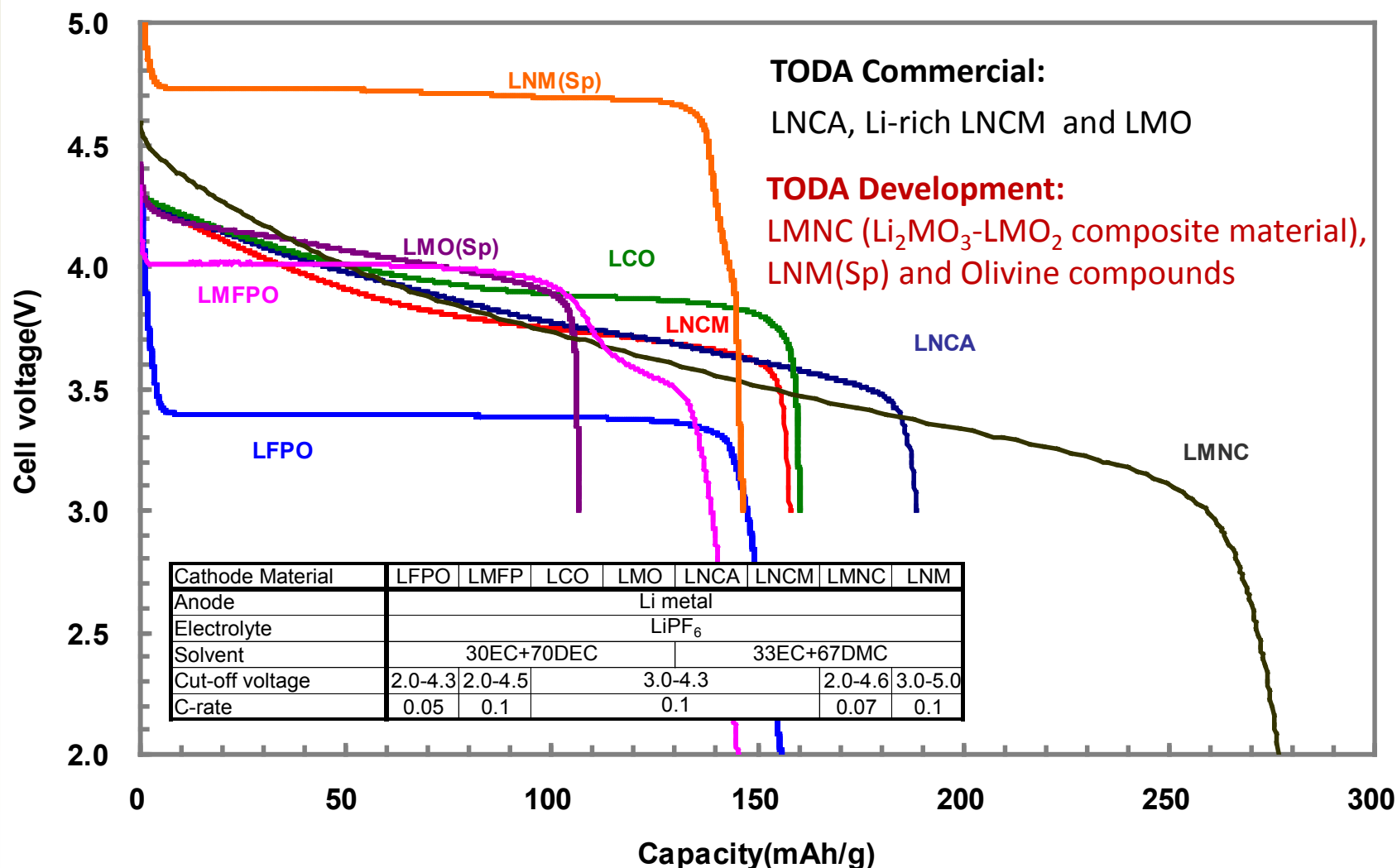
Smart Grid



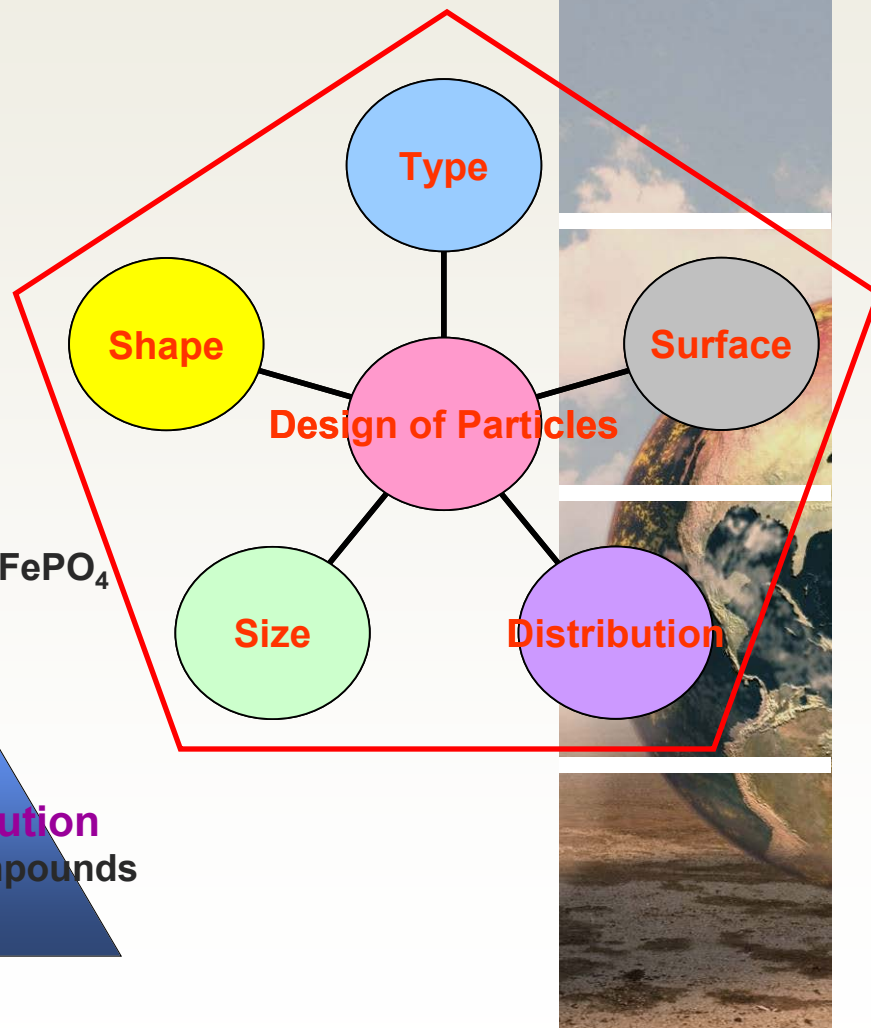
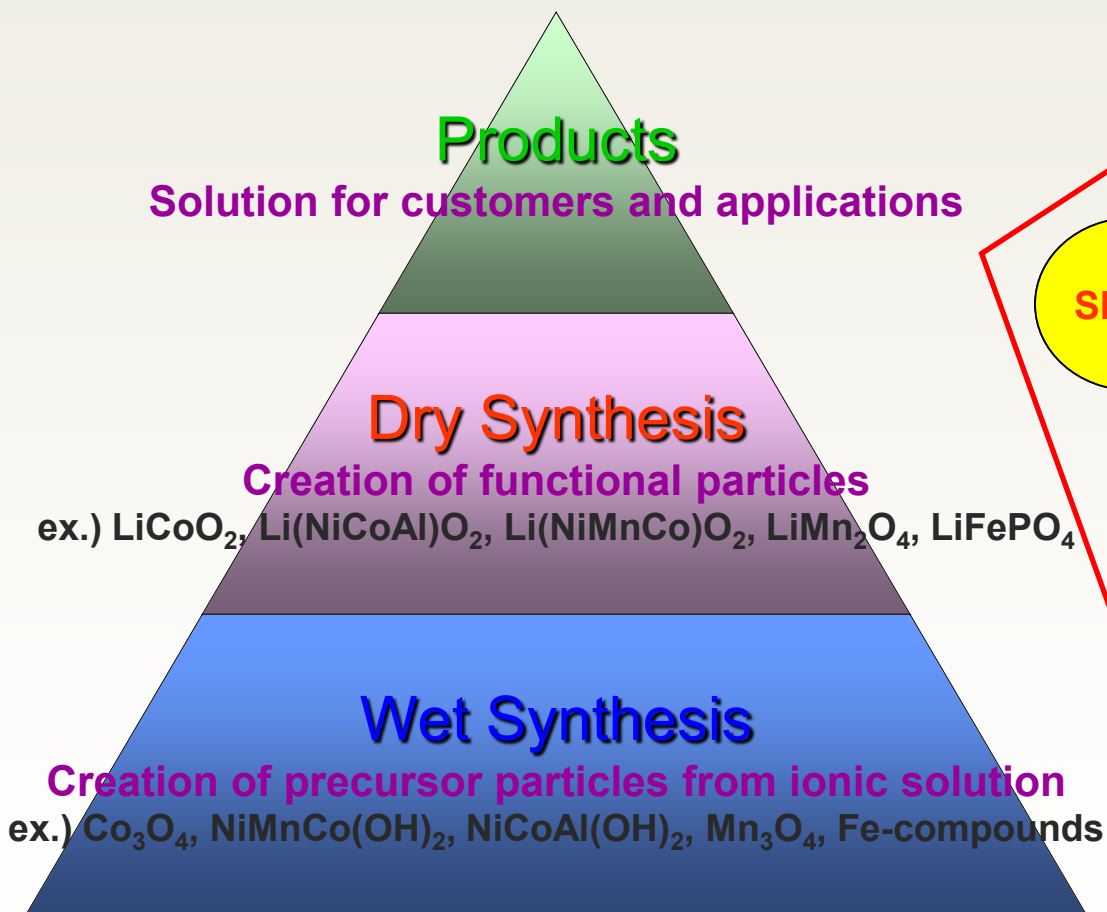
Toda Commercial Products for Cathode Materials



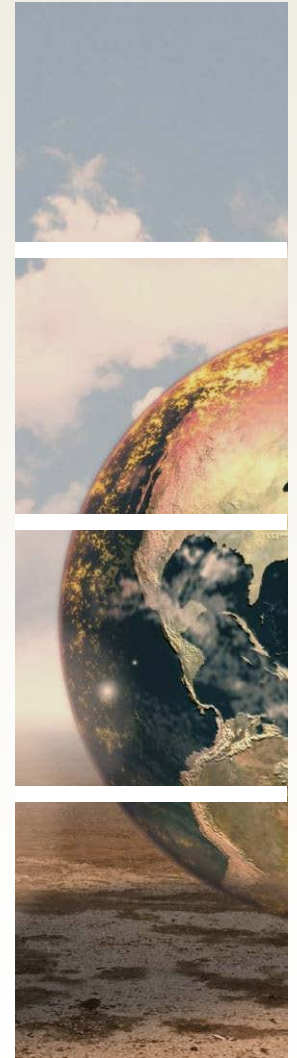
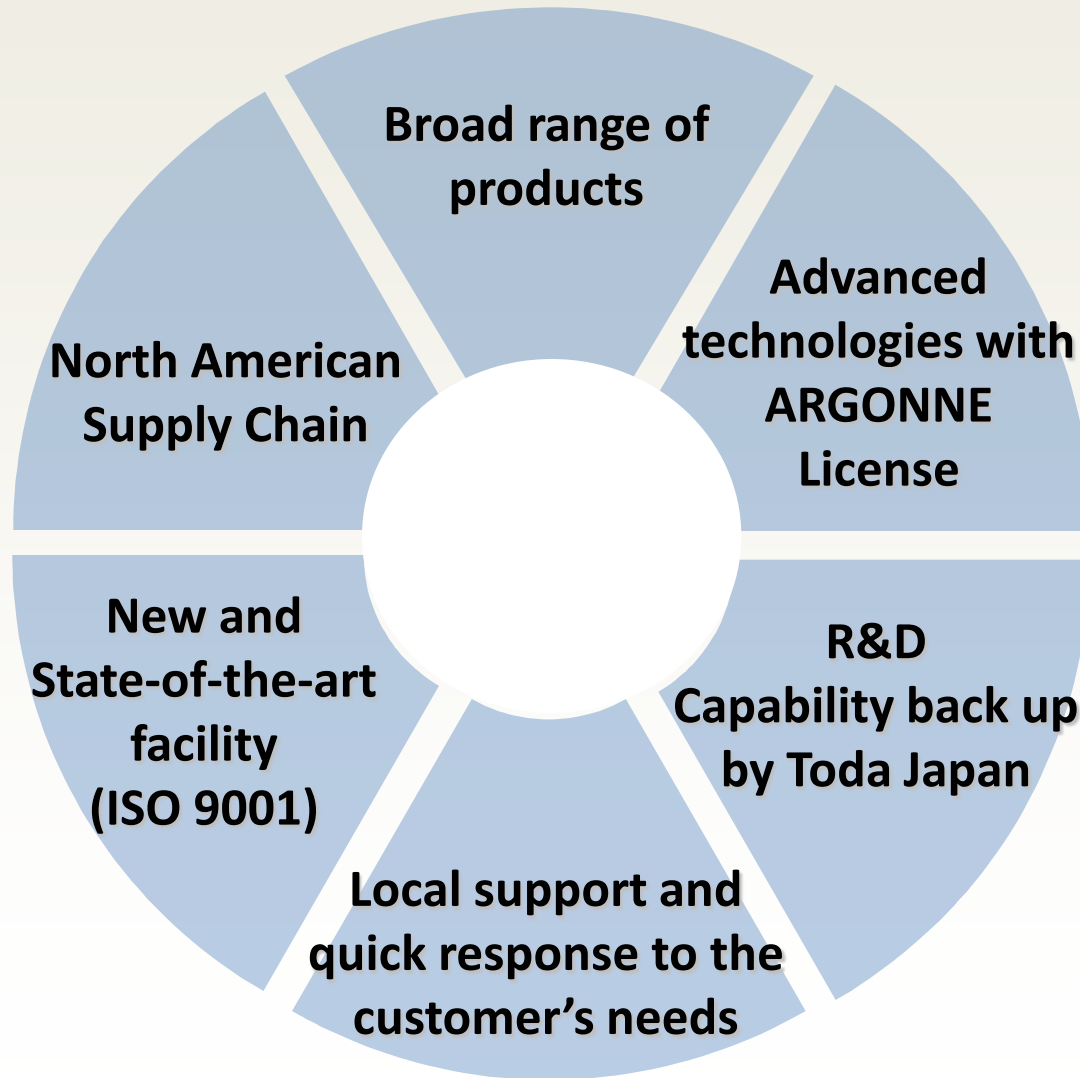
Toda Cathode Material Solutions



Technical Platform for Particle Design



TODA America Advantages



Summary

1. World leading solid state chemistry company with proven experience in scale manufacturing of Li-ion cathode materials
2. Production of DOE ANL's 2nd generation Li-ion technology
3. Building \$70+ million Li-ion Cathode Materials plant with 4000 ton/yr product capacity in Battle Creek, Michigan
4. Step-wise capacity plan: Phase 1 Step-1 completed in 2011, Step-2 completion planned in 2014; and Phase 2 full completion expected by 2015 depending on demand
5. Products produced in Battle Creek Plant:
 - LiNiCoAlO_2
 - LiNiCoMnO_2
6. **Phase 1 construction and Line 1 Commissioning completed in February 2011 on schedule.**
7. **Production and shipments to customers underway!**
8. **Quality Management System ISO 9001 Certified.**
9. **Line 2 construction start planned for Summer 2013.**

