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Expansion of Novolyte Capacity for Lithium Ion Electrolyte Production

Ralph D. Wise, P.I.

Project ID: ARRAVT015

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Overview

Timeline

- Phase I Start: April 30th, 2010
- Phase I Complete: June 30th, 2013
- Phase II Start: January 1st, 2013
- Phase II Complete: April 29th, 2015

- Phase I is 7 % complete as of 3/2011

Budget

- Total project funding: \$41,236,094
 - DOE Share: \$20,618,047
 - Novolyte share: \$20,618,047

Barriers and Risks

- Adoption rates and acceptance of xEVs
- Overcapacity due to delayed demand
- Undercapacity due to rapid xEV adoption
- Capital opportunity cost

Partners

- None. Collaborators and partners will be evaluated as specific project requirements dictate.

Objectives / Relevance

- Objectives:
 - Phase I: Expand Novolyte lithium ion electrolyte manufacturing capacity to 4,500 metric tons (MT) by 2013
 - Phase II: Expand Novolyte lithium ion electrolyte manufacturing capacity to 10,000 MT by 2015
- Relevance to Vehicle Technologies and the American Recovery and Reinvestment Act (ARRA) of 2009:
 - Provide an adequate domestic supply of high quality lithium ion electrolyte for the local xEV battery market
 - Maintain and grow jobs: An estimated 18 jobs will be created and 18 will be retained by project completion

Technical Approach

- 2010 – 2013: Completion of Phase 1. Total Cost: \$6,700,000
- Expansion Projects include:
 - Install new large scale raw material storage tank and associated equipment
 - Build new motor control center (MCC) building
 - Upgrade solvents distillation and expand production building
 - Build new control room center and upgrade high voltage transformer
 - Install new steam boiler and new vessel cleaning station
 - Upgrade lab and flammable storage building

Technical Accomplishments and Progress Phase I

- Installed and qualified analytical testing equipment for higher raw material and production volumes
- Upgraded Sample Reactor Material Handling
- Expanded and outfitted containment vessel fleet
- Upgraded Electrolyte Pumping System
- Preliminary Engineering Completed for Process Controls

Technical Approach

- 2013-2015: Completion of Phase 2. Total Cost: \$34,536,095
- Planned Projects include:
 - Evaluation of alternative US sites, if necessary
 - Installation of approximately 60,000 square feet of new buildings, bulk chemical storage, materials purification, mixing and reactors
 - Installation of packaging and quality control/quality assurance capabilities consistent with current and expected product and market requirements

Collaborations and Partnerships

- Project Collaborators:
 - None at present. Will be evaluated as project pace continues.

Future Work: 2011

- Incremental Capacity Expansion Project
- Installation of second larger sample reactor and temperature moderation equipment
- Infrastructure upgrades to material handling, warehouse, storage and concrete and HVAC
- Further expansion of electrolyte shipping vessel fleet

Future Work: 2011-2015

- Begin detailed design for Incremental Expansion 9/1/2011
- Completion of Incremental Expansion 12/31/2011
- Begin site selection for Phase 2, if required 1/2/2012
- Begin engineering for reactor expansion 1/2/2012
- Go/No Go Decision Point on reactor expansion 1/31/2012
- Completion of EA for new site, if required 10/31/2012
- Go/No Go Decision Point on Phase 2 12/1/2012
- Completion of reactor expansion 12/31/2012
- Kick off Phase 2 1/1/2013
- Completion of Phase 1 6/28/2013
- Phase 2 construction completed 12/31/2014
- Phase 2 startup and commissioning completed 1/31/2015
- All spending, re-billing, and reimbursement completed 4/29/2015

Summary

- Novolyte's electrolyte plant capacity expansion is a two phase project, timed to intersect with future market demand.
- Project risk is carefully managed by working closely with domestic customers to forecast and foresee project delays or to accelerate the completion of key tasks, if necessary.
- Phase I is approximately 7% complete and is focused on upgrading and expanding the existing Baton Rouge facility to 4,500 MT.
- Phase II, the expansion of 4,500 MT to 10,000 MT will commence on January 1st, 2013. Site selection activities will begin in January of 2012.



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Novolyte Corporate Headquarters
8001 East Pleasant Valley Road
Cleveland, Ohio 44131 USA
Telephone: (216) 867-1040

www.novolyte.com

