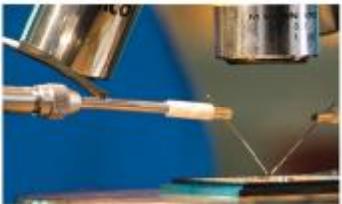




MICHIGAN ECONOMIC DEVELOPMENT CORPORATION  
[MichiganAdvantage.org](http://MichiganAdvantage.org)



**MICHIGAN**  
ECONOMIC DEVELOPMENT CORPORATION  
THE UPPER HAND



# Building on the Battery Initiative in Michigan

**The National Academy of Sciences**  
**February 25, 2010**



## Targeted Industry Clusters: Background

- 3 year research program (initiated in 2007) identifying industry diversification opportunities leveraging MI competitive advantages
  - International/Federal/State trends
  - Market Analysis (size, trajectory, etc.)
  - Partner input
- Worldwide best practice review in industry acceleration programs (Swedish Triple Helix, Cluster Approach)
- Advanced Energy sectors identified and included in MEDC 2008 Strategic Plan (Emerging Sector – Initial Target Clusters)
- Implementation of Cluster teams (biofuels, wind, solar, advanced energy storage, defense)
- Inclusion in Governor Granholm's 2008 "State of the State"

## Targeted Industry Clusters: Strategy

- Focus on industry clusters which promote diversification but also;
  - Leverage MI core industry strengths
  - Leverage MI core assets/resources
- Develop collaborative teams which include partners, industry, appropriate State agencies, University specialists, associations, MEDC research/marketing/attraction etc.
  - Create 'roadmap' recommendation including potential deliverables (includes cluster gap analysis, policy & incentive analysis specific to sector, etc.)
- ***Create, as required, unique incentive tools designed to catalyze new industry clusters***
- ***Identify associated industry value chain and key areas for initial investment (catalyze industry cluster)***
- Continually monitor (MEDC research) viability of target cluster for efficacy (sunset, evolve, continue)
- Continuously monitor industry and economic trends to ID emerging opportunities for new cluster formation.

# Targeted Industry Clusters: Current Industry Strengths

## TRADITIONAL MANUFACTURING

- Tool & Die
- Cereal
- Furniture
  - Office
  - Home

## OTHER ADVANCED MANUFACTURING

- Chemical
- Computer
- Robotics
- Power Generation
- Nano
- Plastics (New)

## AUTOMOTIVE

- Manufacturing
  - OEM's
  - 1<sup>st</sup> & 2<sup>nd</sup> Tier
- R & D
  - Applied Research
  - Product R&D

## AGRICULTURE

- Commodity
  - Forestry
  - Crops
  - Animal
  - Biomass
- Value Add
  - Processing
  - Ag-Tourism

## TOURISM

- Quality of Life
- Economic Impact

## **Targeted Industry Clusters:** **New Michigan Incentive Tools**

- Centers of Energy Excellence
- Anchor Credits
- Advanced Battery Credits
- Photovoltaic Credits
- Technology Collaboration Credits

## Michigan Incentives: Centers of Energy Excellence

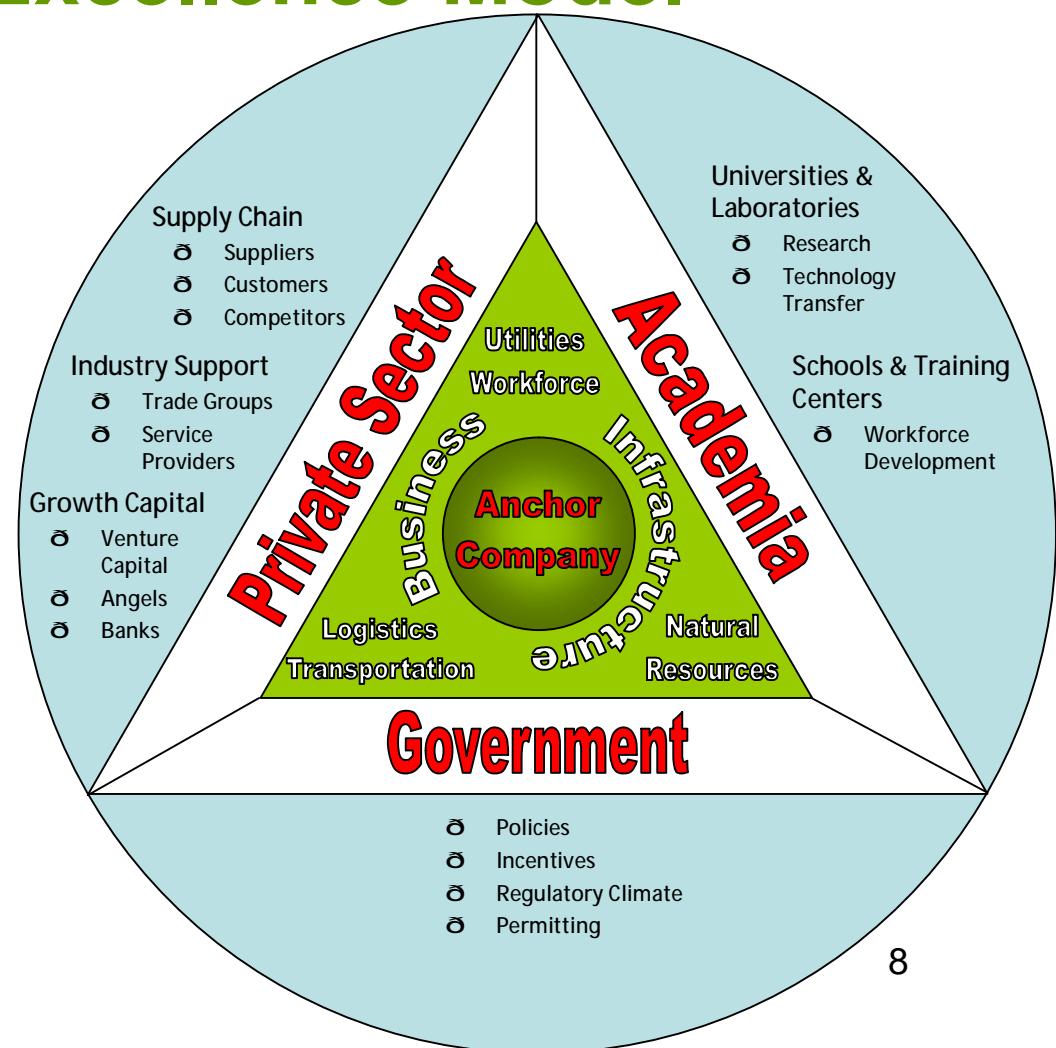
- PA 175 was signed into law July 8, 2008.
- Authorized **\$45 Million** grant program, awards made by the **Michigan Strategic Fund**.
- Objective was to partner private sector, universities, and government to commercialize innovative energy technologies - where Michigan has competitive advantages in such areas as:
  - Workforce
  - Intellectual Property
  - Natural Resources
- Assigned to areas where there are technical or supply chain issues that prevent commercialization.
- Focused on areas which have impact on Michigan's:
  - Energy security
  - Environmental profile
- Potential for significant economic impact.
- Potential to leverage **significant federal dollars**.

# Michigan Incentives: Centers of Energy Excellence: Phase 2

- PA 144 was signed into law November 13, 2009. Authorizes an additional **\$30 Million** grant program to promote the development, acceleration, and sustainability of “energy excellence sectors” in Michigan.
- Grants awarded only to for profit companies.
- Requires inclusion of institution of higher learning or **National Lab**
- Grants only awarded for **all** of the following purposes:
  - Providing up to a 1-for-1 match for **federal funding** of up to 50% of the total project costs.
  - Supplementing in-kind contributions provided by a person or entity other than this state.
  - Accelerating the commercialization of an innovative energy technology or process that will be ready to market within 3 years of the effective date of the agreement.
  - Activities of the center, including, but not limited to, workforce development and technology demonstration.

# Michigan Incentives: Centers of Energy Excellence Model

- Goal is to rapidly grow an industry cluster
- Includes high profile anchor company at the center
- Geographically located in area with strong business infrastructure
- Surrounded by private sector companies, academic institutions, and government entities



# Center of Energy Excellence Partners: Government, Industries, Universities

Authoritie

**MISTRA**



**SVEASKOG**

End Users

**VOLVO**

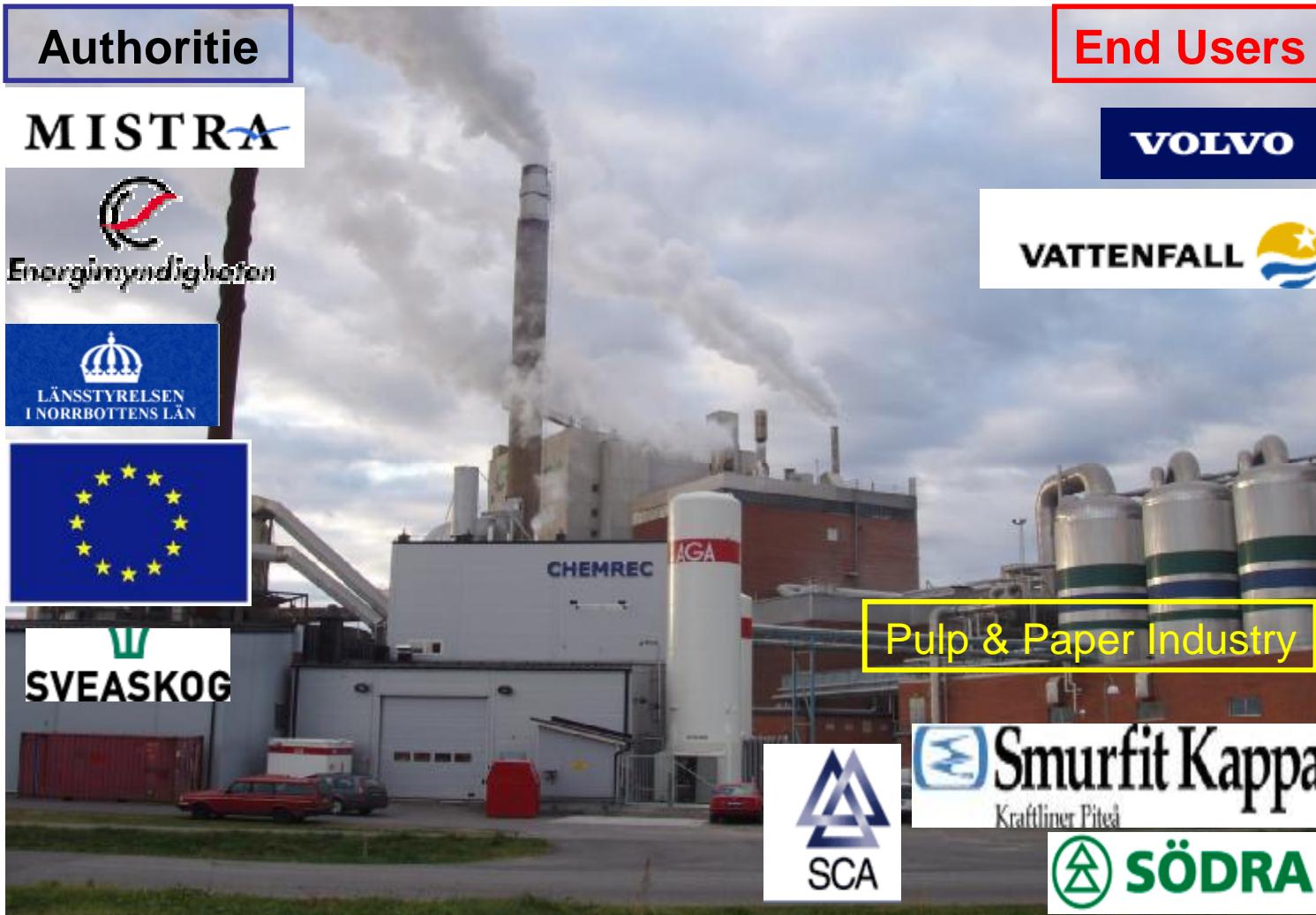


Pulp & Paper Industry



**Smurfit Kappa**  
Kraftliner Piteå

**SÖDRA**



# Michigan Incentives: Centers of Energy Excellence

- Bold initiative to help develop, grow and sustain alternative energy clusters
- Matches private sector with universities, national labs, and the state to accelerate the commercialization of innovative energy technologies
- \$43 Million awarded to Six Centers of Energy Excellence in 2008:



Advanced Batteries:  
\$13 Million



BioEconomy:  
\$30 Million

# Michigan Incentives: Anchor Credits

- Encourages the development of high-technology supply chains in Michigan
- Provides a refundable tax credit to high-technology businesses (“Anchor Companies”) that attract investment to Michigan from their customers or suppliers
- Types of Anchor Credits:
  - **Anchor Jobs Credit:** (2008 SB 1115 (Allen) / PA 92; amended by HB 4674 (Mayes)
    - Refunds a portion of the Personal Income Tax generated by attracted employees to the Anchor Company
  - **Anchor District Credit:** 2008 HB 5858 (Clemente) / PA 88; amended by SB 493 (Allen)
    - Refunds a portion of the attracted investment to the Anchor Company (investment must occur within 10 miles of Anchor Company or at an existing industrial site nearby)

# Michigan Incentives: Advanced Battery Credits

- PA 580 was signed into law January 14, 2009.
- Total value of credits: **\$ 1 Billion**.
- Provides **refundable credits** on the Michigan Business Tax for battery cell manufacturing, vehicle battery pack assembly, and advanced battery engineering, designed to make Michigan the battery capitol of North America.
- The **Michigan Economic Growth Authority** is responsible for entering into agreements for tax credits available through this program.
- Potential to leverage **significant federal dollars**.

## Michigan Incentives: Photovoltaic Tax Credit

- The Photovoltaic MBT credit provides a tax credit to qualified companies that construct and operate a manufacturing facility related to photovoltaic technology, systems or energy.
- The credit provides qualified companies with a refundable credit equal to 25% of their capital investment.
- The statute makes \$75 million in total credit available until December 31, 2011. The credit is taken in equal installments over two years, once the qualified company has completed at least \$25 million in capital investment. However, the statute does allow for one credit of \$15 million or less to be provided in a single tax year.
- Two types of eligibility
  - **Qualified Taxpayer:** A business that has entered into an agreement with MEGA to create at least 500 qualified full-time new jobs and invest at least \$50 million in capital investment. At least \$25 million must be invested before a credit may be issued. The maximum credit available under this classification is \$15 million.
  - **Eligible Taxpayer:** A business that has entered into an agreement with MEGA to create at least 250 qualified full-time new jobs and invest at least \$100 million in capital investment. At least \$25 million must be invested before a credit may be issued. The maximum credit available under this classification is \$25 million, and only one credit may be issued under this definition.

## Michigan Incentives: Technology Collaboration Tax Credits

- Technology Collaboration Tax Credits (TTC) provides the opportunity to develop strategic partnerships between emerging technology companies and larger established businesses by providing an incentive for the larger companies to invest in the smaller companies
- The investment occurs through funding, support and collaboration in the research and development and technology innovations for emerging markets.
  - The larger company assumes the role of qualified taxpayer proposing to fund the R&D and technology innovation
  - The smaller company is the eligible business engaged in R&D. The company must employ 50 or fewer employees and have gross receipts of less than \$10 million.
- An eligible contribution is the transfer of cash of not less than \$350,000 for the purpose of R&D and technology innovation, excluding contract research. The credit must be used for new strategic relationships and not as an additional investment in a relationship that already exists.
- The TCC credit is available for a three-year period from 2008 to 2010. Thirty percent of the value of the contribution from the qualified taxpayer to the eligible business is eligible with a maximum up to \$300,000.

# Strategy:

## Targeted Industry Clusters

- Targeted industries
- Potential for significant growth
- Leverage state strengths
- Generally not mature
- Gap exists – requires economic assistance



1. **Advanced Energy Storage**
2. **Solar/Photovoltaic**
3. **Wind Turbine Mfg.**
4. **Bioenergy**
5. **Advanced Materials & Manufacturing**
6. **Defense**

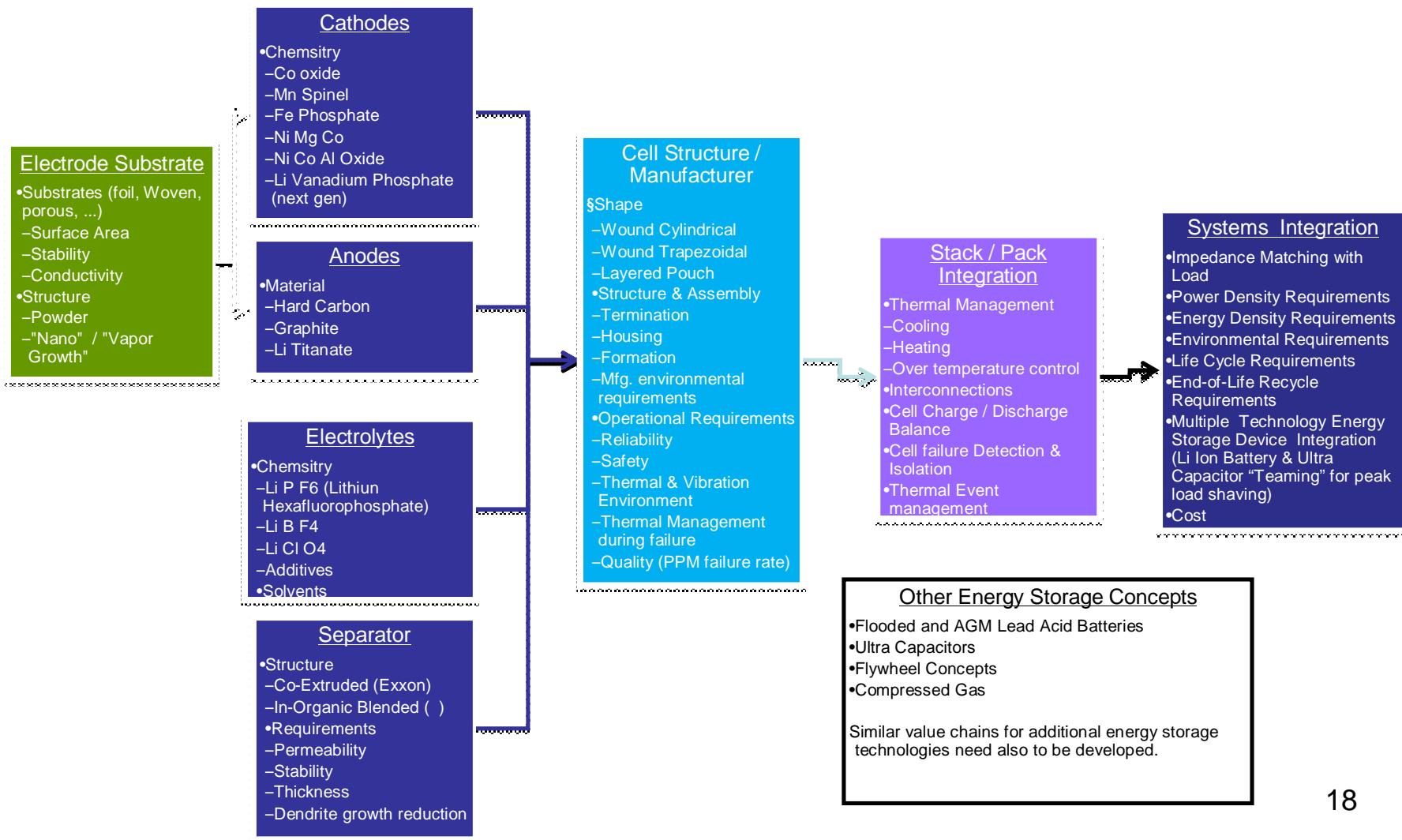
# Advanced Energy Storage: Michigan Overview

- **Michigan Strengths** – Automotive R&D and advanced manufacturing
- **Michigan Tools** – Michigan Advanced Battery Credits and Centers of Energy Excellence
- **Results**
  - Committed Federal investment of \$1.3 Billion
  - Total new business investment of \$5.2 Billion
  - Direct employment creation of ~8,000

## Advanced Energy Storage: Strategy

- Seed MI marketplace with key battery technology players (Centers of Energy Excellence) – be first to market in projected \$20 Billion North American marketplace by 2020.
  - Completed July, 2008
- Develop incentives to attract key anchor/magnet companies to spur value chain growth (Battery Cell/Pack/R&D Credits)
  - Completed
- Develop tools to provide incentives for anchor companies to assist in growing the entire value chain in MI (Anchor Credits)
  - Completed
- Develop incentives that would provide companies cost share in Federal funding opportunities
  - Completed
- Assist OEMs in offsetting the incremental cost of vehicle electrification to minimize consumer impact and ‘dovetail’ IRC 30D credits
  - Completed
- Expose battery companies to market opportunities in grid stability, defense and renewable energy sectors (Alliance Model)
  - Ongoing

# Advanced Energy Storage: Li-Ion Battery Components, Assembly, and Application



# Michigan Advanced Battery Credits: Over \$1 Billion in Refundable Credits

		<u>Status</u>
Pack Manufacturing Credit for manufacture of plug-in traction & Hybrid battery packs	<b>\$255 Million</b>	\$115M GM \$78M Ford \$20M JCS \$42M Available
Vehicle Engineering Credit to support battery integration, prototyping, launch expenses	<b>\$135 Million</b>	\$45M GM \$45M Ford \$45M Chrysler
Advanced Battery Technologies Engineering Credit to support engineering activities	<b>\$30 Million</b>	\$30M Ford
Cell Manufacturing Credit up to 50% capital investment for cell manufacturing facility	<b>\$600 Million</b>	\$100M JCS \$100M Dow Kokam \$100M A123 Systems \$100M LG Chem \$100M Xtreme Power \$100M fortu Power

# Michigan's Stimulus for Advanced Batteries

## \$1 Billion Program

### Cell Manufacturing

Johnson Controls    
\$100 Million

 LG Chem   
\$100 Million

  
\$100 Million

  
\$100 Million

DOW   
\$100 Million

  
\$100 Million

### Pack Manufacturing

  
\$115 Million

  
\$78 Million

Johnson Controls   
\$20 Million

### Battery & Vehicle Engineering

  
\$45 Million

  
\$75 Million

 **CHRYSLER**  
\$45 Million

# Federal Stimulus for Advanced Batteries

## \$1.3 Billion Awarded to Michigan! (August 5, 2009)

### Cells, Batteries, & Materials Manufacturing



\$299 Million



\$151 Million



\$249 Million



\$161 Million



\$106 Million

### Electric Drive Component Manufacturing



\$105 Million



\$63 Million

### Transportation Electrification



\$70 Million

# From COEE to Center of the Battery World

## Battery COEE



## Cell Manufacturers



## Value Chain



TECHNO SEMICHEM CO., LTD.



ALT | e



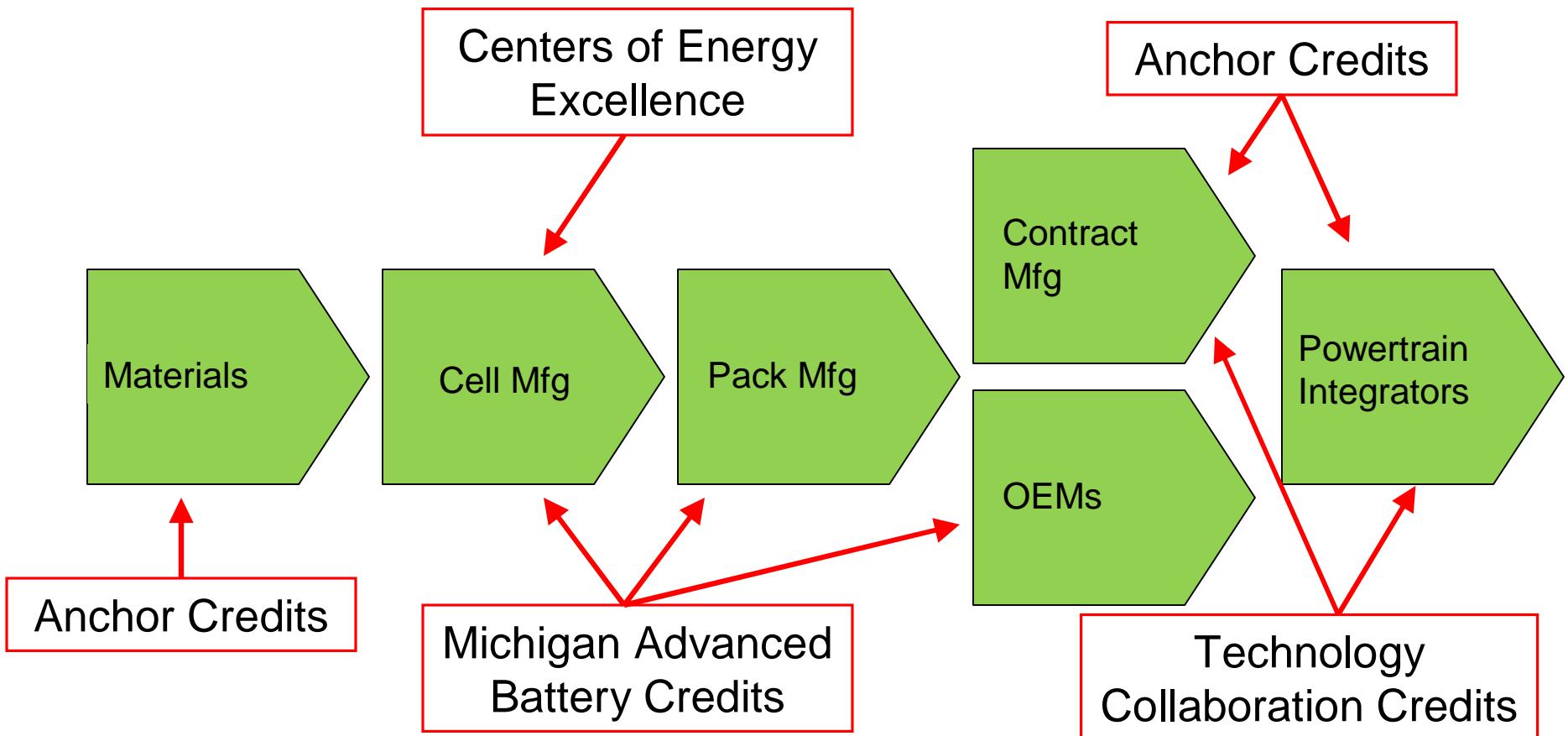
**\$5.2B** 22

**\$13M**

*Announced Investment Since 11/2008*

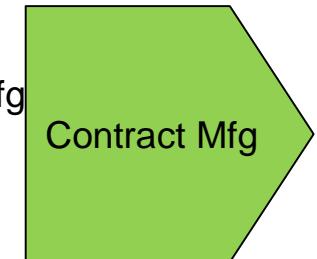
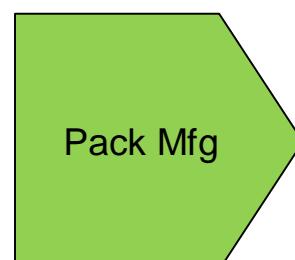
## Vehicle Builds

# Battery Value Chain Demonstration: Deployment of incentives

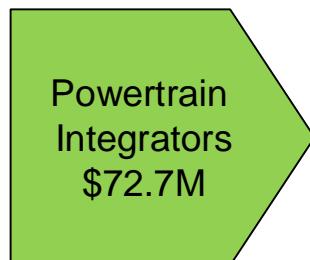


# Battery Value Chain Demonstration: Companies

- Toda America
- Techno Semichem

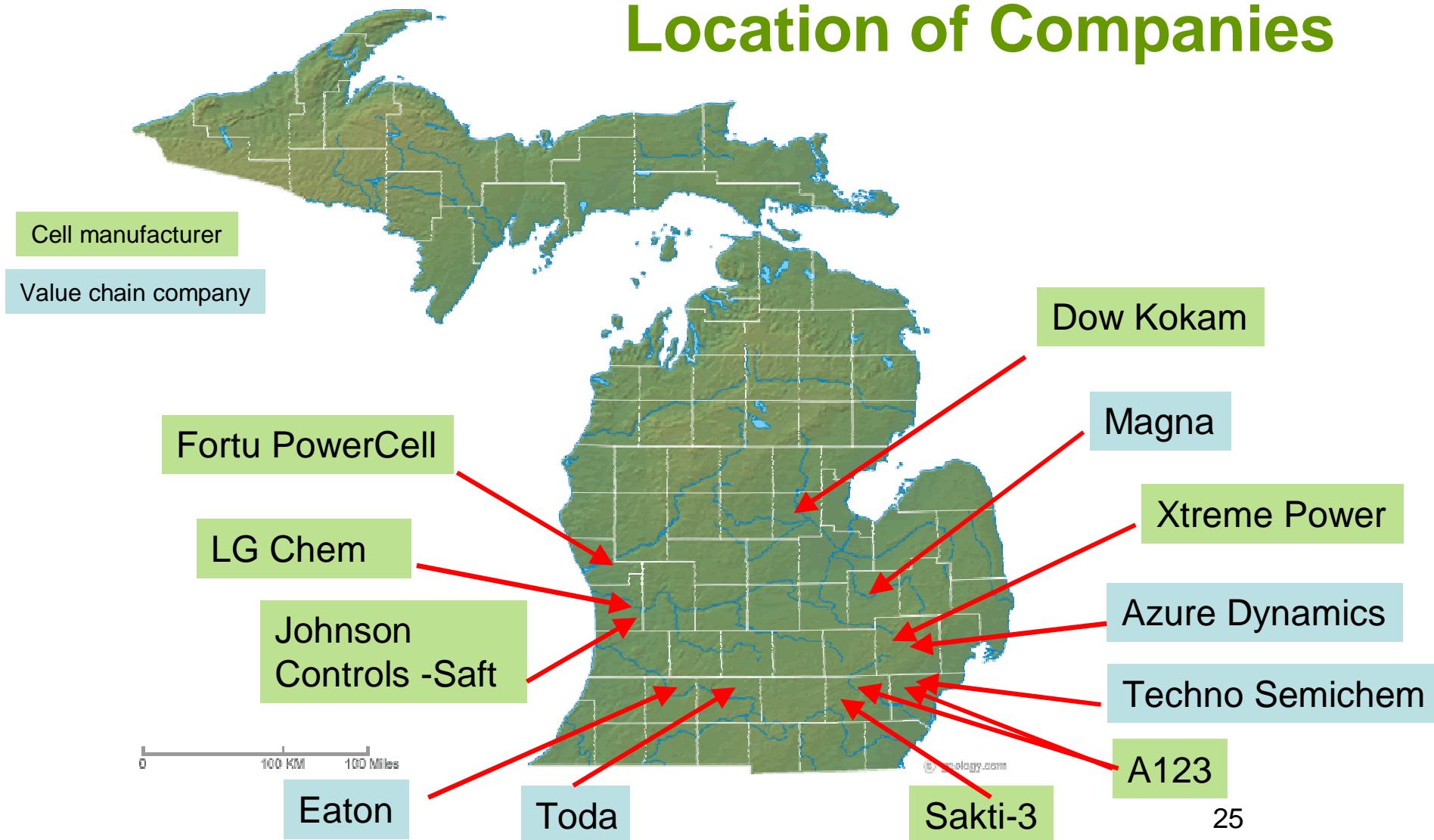


- Eaton
- Magna Electronics
- Azure Dynamics



- Ford
- Chrysler Component Mfg
- GM

# Battery Value Chain: Location of Companies



# Advanced Energy Storage: Status Summary

- **Cell manufacturers ramp up**
  - A123 to occupy Livonia facility by April 1; just announced acceleration of hiring 500+ to support business with Fisker
  - JCS to occupy Holland facility late spring 2010
  - Dow Kokam plans groundbreaking by May 2010
  - LG Chem plans groundbreaking by June 2010
  - All are targeting 2012 ramp up to full production
  - Hiring begins to ramp up in second half of 2010
- **Value Chain pipeline**
  - \$200M+ in projects to close over next 3 months
  - Represents materials, component/system mfg, testing

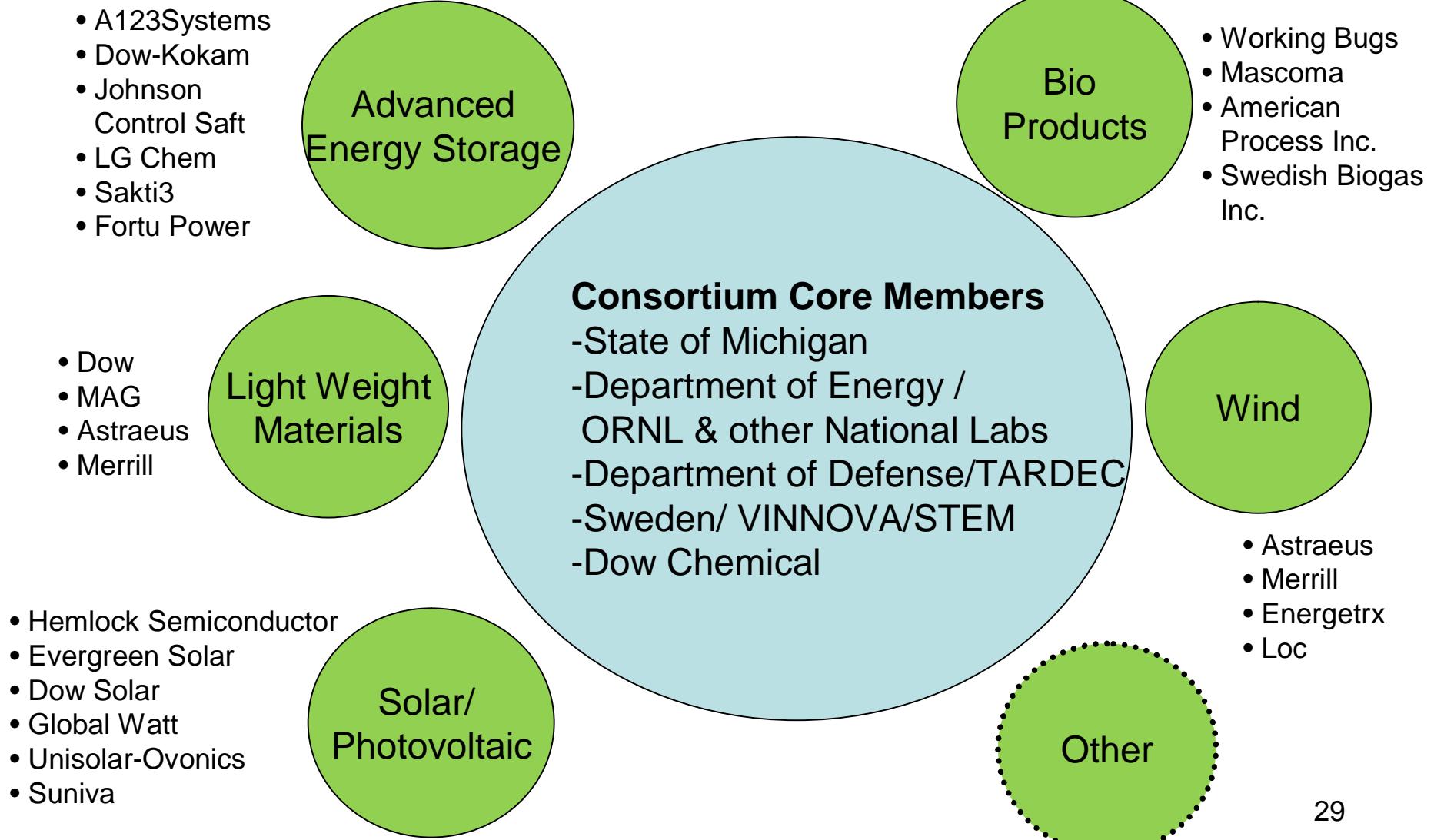
## Advanced Energy Storage: Status Summary (cont.)

- **Federal opportunities**
  - ~\$900M in outstanding federal loan program applications
    - DOE Advanced Technology Vehicles Manufacturing (ATVM)
    - DOE 1703/1705 loan/loan guarantee program
  - ARPA-E grants
    - DOE grants for advanced battery technologies
    - Award size is \$3M to \$5M
    - Multiple MI companies are applying
    - Early application review period ends in March

## Advanced Energy Storage: Next Steps

- Continue to recruit value chain
- Expose companies to multiple market opportunities via the Alliance (TARDEC and Oak Ridge National Labs)
- Serve as facilitator to newly-formed battery manufacturers workgroup
- Coordinate resources to assist projects contingent on Federal Awards

## Emerging Energy Clusters



# Thank You

**Michigan Economic Development Corporation**

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