

Preliminary Asset Map for SE MI AESS Cluster (Sample)

Technology and Market Leaders

A123 Systems, Inc.	Manufactures lithium-ion battery cells, modules, and systems, and provides applications expertise to integrate batteries into customer products
A&D Technology, Inc.	Offers EV and HEV testing applications, including design, project management, and installation, and calendar life and additive evaluation testing
Advanced Battery Concepts, LLC	Develops lead acid battery technology as well as lead-carbon, lithium-ion, and metal-air battery technology
ALTe Powertrain Technologies	Develops range extended electric powertrain technology for fleet vehicles
Asahi Kasei Plastics North America, Inc.	Develops XYRON modified polyphenylene ether engineering resins for battery cases
AVL	Offers testing and benchmarking, thermal and mechanical simulation, battery design engineering and build, and battery management system development
Azure Dynamics, Inc.	Manufactures a <i>Balance</i> hybrid electric drive system, a <i>Transit Connect Electric</i> vehicle, and a <i>Low Emission Electric Power</i> system
Battery Solutions, Inc.	Provides battery recycling kits, systems, and services for corporations, governments, and households
Chrysler Group LLC	Develops fuel efficient technologies, and manufactures vehicles
Cobasys LLC/SB LiMotive North America	NiMH battery system development and manufacture, lithium-ion battery system development, and complete electrified powertrain system design
CSquared Innovations, Inc.	Offers laser-assisted atmospheric plasma deposition technology for the synthesis of nanostructured materials and coatings for lithium-ion battery electrodes and photovoltaic materials
Detroit Edison	Offers wind, solar, and other renewable energy projects, and Smart Grid technology integration
Detroit Testing Laboratory, Inc.	Offers battery charge and discharge lifecycle testing, and durability and abuse testing for cells, modules and packs
Dow Energy Materials (DEM)	Manufactures advanced materials for large lithium-ion battery manufacturers, including anodes and cathodes, with materials screening and optimization
Dow Kokam	Offers advanced nickel manganese cobalt technology, advanced liquid cooling systems, and modular architecture

Eaton Corporation	Offers a Level 2 charging station, <i>DC Quick Charger</i> , <i>Network Manager</i> software, electric vehicle simulator, and other components
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Technology and Market Leaders (continued)

FEV, Inc.	Offers hybrid and electric vehicle testing, and battery system testing and validation
Ford Motor Company	Hybrid and electric vehicle manufacturing
Fortu PowerCell, Inc.	Battery manufacturing of design based on non-flammable electrolyte technology
General Motors Company	Produces battery packs for vehicles using the Voltec powertrain system
Johnson Controls, Inc.	Lithium-ion battery development, advanced lead acid battery manufacturing, battery testing, and battery recycling
LG Chem Power, Inc.	Research, development, engineering, design, and packaging of lithium-ion energy storage solutions
Magna E-Car Systems	Offers E-Powertrains, battery systems, Range Extenders (REX), PHEV, HEV and EV battery packs, battery cells, and testing services
Piston Group (The)	Offers sequenced and non-sequenced sub-assembled components and complex modular assemblies based on customer requirements
Ricardo, Inc.	Offers energy storage system engineering, battery system development, and clean energy research
Sakti3, Inc.	Develops an advanced solid-state rechargeable lithium-ion battery technology
soulbrain MI	Develops electrolyte portion of the lithium-ion battery market segment, and offers an electric alternative fueling station
Toda America, Inc.	Manufactures six varieties of cathode powder for lithium-ion batteries
Xtreme Power, Inc.	Offers <i>PowerCell</i> dry cell battery technology, customizable sizing, power electronics, control systems, and system integration

Notes:

Connective Organizations

Business Services & Incubators

Automation Alley	Offers business coaching, seed funding, entrepreneurial and second stage resources, international business services, talent initiatives, consultations with PTAC representatives and the U.S. Army National Automotive Center (NAC) liaison, and access to defense programs available in the region
Hollings Manufacturing Extension Partnership (MEP)	Works with small and mid-sized U.S. manufacturers to help them create and maintain jobs, increase profits, and save time and money
Inovo Group, LLC (The)	Offers a wide range of services in support of new business, product and service innovation
Macomb - Oakland University INCubator	Offers leased space and access to professional knowledge, university connections, start-up capital, and training courses and events
Michigan Manufacturing Technology Center (MMTC)	Offers business development and website effectiveness services, cost identification and management, lean business solutions, opportunity tools, and quality management and sustainable manufacturing and environmental systems
Michigan Minority Supplier Development Council (MMSDC)	Provides member businesses with access to quality business partners for improved procurement opportunities
Michigan Small Business Development and Technology Center (SBDTC)	Offers counseling, training, outreach, and investment services for small businesses
NextEnergy	Offers technology demonstration, industry and venture development, and public sector leadership services in the alternative and renewable energy sector
OU INCubator	Offers leased space and access to university resources, decision support technology, business counseling services, and financial/capital acquisition assistance
Procurement Technical Assistance Centers (PTACs) of Michigan	Offers marketing, technical consulting, and training to businesses in Michigan, including contracting and subcontracting opportunities, and bid match for government solicitations
Shepherd Advisors	Offers strategic market analysis and market research methods for clean technology and manufacturing companies in Michigan

Small Business Development Administration (SBA) - MI District Office	Provides free business counseling, government contracting assistance, low-cost training, and loan guaranty programs
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Business Services & Incubators (continued)

Ann Arbor SPARK	Offers multiple locations with leased space and access to entrepreneur education and training, consulting services, funding sources, and other programs
TechTown - Wayne State University Research and Technology Park	Offers leased space and access to legal, financial and business support services
UM Center for Entrepreneurship	Provides connections and grants for students, support for IP transfer processes, development of academic programming, and coordination of on-campus activities
UM TechTransfer	Provides resources for inventors, industry, start-up ventures, and students, including available technologies and metric data

Economic & Workforce Development

Energy Innovation Business Council (EIBC)	Creates partnerships to expand business opportunities, secure access to capital, engage the public and policymakers, advocate and build consensus for policy, and advance energy innovation
Macomb/St. Clair Workforce Development Board	Provides skills training and assessments, youth and welfare-to-work programs, veterans and employer services, and services for individuals with disabilities
Michigan Academy for Green Mobility Alliance (MAGMA)	Provides funding and access to education and training for engineers and technicians in vehicle propulsion and vehicle component design, manufacturing, and maintenance
Michigan Economic Development Corporation (MEDC)	Provides economic development tools and resources to employers and job seekers in Michigan
MichiganWORKS!	Offers convening, training and education services, and market relationships
State of Michigan Workforce Development Agency (WDA)	Provides education, training, and credentialing for careers in Michigan

University Research Corridor (URC)	Disseminates useful information for key stakeholders to enhance outreach and collaborative efforts, speed-up technology transfer and development, and market the competitiveness of the state
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Industry Associations

Detroit Regional Chamber	Offers business attraction efforts, advocacy, strategic partnerships, and valuable benefits to member businesses
Electric Drive Transportation Association (EDTA)	Promotes electric drive as the best means to achieve the highly efficient and clean use of secure energy in the transportation sector
Engineering Society of Detroit (The)	Promotes and celebrates excellence, innovation, cooperation, professional growth, and fellowship in the engineering, scientific, and allied professions
Global Midwest Alliance, LLC	Provides connectivity, benchmarking, marketing, and support for technology commercialization in the Midwest region
International Light Transportation Vehicle Association (ILTVA)	Advocates for safe and increased use of on and off-road light transportation vehicles, and promotes the common business interests of its members
Light Electric Vehicle Association (LEVA)	Represents the strategic interests of light electric vehicle retailers, dealers, distributors, manufacturers, and suppliers to promote the development, sale, and use of LEVs worldwide by providing support and educational resources to members and initiating efforts to influence and adopt legislation, standards, and best practices in the industry
MICHauto	Advocates in Lansing and the Detroit region on behalf of shared automotive-related interests, educates the public on the importance of the automotive sector to the competitiveness of Michigan, and retains and attracts automotive-related business and talent to Michigan
National Center for Manufacturing Sciences (NCMS)	Provides business growth solutions, business-to-business networking, consortium management, facilities, industry surveys, knowledge transfer and training, program and project management, and road-mapping services to manufacturing businesses
National Defense Industrial Association (NDIA)	Provides a legal and ethical forum for the exchange of information between Industry and Government on National Security issues, and advocates for technology development and training

SAE International	Connects students, engineers, practitioners, and companies, attracts, manages, and distributes mobility-related information through education, standards, and technical publications, and creates and sustains beneficial affiliations
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Information Sources

AutoTech Daily	Online news subscription covering the automotive technology industry
ep Overviews Publishing, Inc.	Delivers energy industry business intelligence from news sources, conferences, and industry players
EV World	Online news subscription covering the electric vehicle industry
Green Car Congress	Provides editorial about energy options, technologies, and policies related to sustainable mobility
Hybrid Cars	Provides car reviews, interactive tools, news, and user forums dedicated to hybrid gas-electric vehicles
MI Electric Auto Association (MEAA)	Provides news and information about the electric vehicle industry and related events
Michigan Energy Forum	Facilitates networking and collaboration among practitioners, policymakers, investors, and talent within the Michigan energy industry
SAE Hybrid Vehicle Technologies Symposium	Provides first-hand knowledge of recent innovations from leaders in the industry through specialized panel discussions and presentations, as well as networking opportunities

Policy and Advocacy

5 Lakes Energy, LLC	Provides knowledge of the technologies, evolving policies, funding opportunities, and key players of the clean and green economy
Anderson Economic Group, LLC	Offers research and consulting in economics, finance, market analysis, and public policy with automotive and energy industry expertise
Center for Automotive Research (CAR)	Provides research on significant issues that relate to the direction of the global automotive industry and strong relationships within the industry

Clean Energy Coalition (CEC)	Builds public-private partnerships to accelerate transitions to clean energy technologies
Corporation for a Skilled Workforce	Manages the Advanced Energy Storage System Initiative (AESSI) of Southeast Michigan
Engineering Society of Detroit (The Institute)	Fosters the communication and credibility necessary for the formation and effective implementation of technical and business initiatives addressing public and private clean energy policy issues
Workforce Intelligence Network (WIN)	Provides labor market intelligence, strengthens and sustains an employer-driven talent system, and improves institutional, local, state and federal talent development policy

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Human Capital

Education and Training

Hybrid Electric Vehicle Technology Center	Offers professional development courses, and consulting and applied research services for mobility
Lawrence Technological University	Offers a M.S. in Automotive Engineering
Macomb Community College	Offers an Associate of Applied Science in Automotive Technology and Electronic Engineering Technology, and a non-degree AES Certificate program
New Perspectives Group	Provides integrative and customized organizational development services and educational training across multiple industries
Society of Automotive Engineers (SAE)	Distributes mobility-related information through educational workshops
University of Detroit Mercy	Offers an Advanced Electric Vehicles Graduate Certificate program
UM – Ann Arbor	Offers undergraduate and graduate degrees, and an Advanced Electric Drive Vehicle Education program
UM – Ann Arbor - Interpro	Offers onsite training in the Design and Control of Hybrid Vehicles
UM – Dearborn	Offers undergraduate and graduate degrees, workshops, and an Advanced Electric Drive Vehicle Education program
UM Ross School of Business	Offers graduate and undergraduate degrees related to entrepreneurship, supply chain management, and business management

Wayne State University	Offers a B.S. in Electric Transportation Technology, an AES Undergraduate Certificate program, a M.S. in Electric Drive Vehicle Engineering, Electric Drive Vehicle Engineering Laboratories, graduate/professional certificates/degrees, and undergraduate certificates/degrees
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Staffing Services

Aerotek	Offers staffing services specializing in automotive, engineering, energy, and manufacturing industries
Diversified Industrial Staffing	Offers staffing services specializing in construction, manufacturing, and logistics industries
Kelly Services Inc.	Offers staffing services specializing in engineering and science industries

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Financial Capital

Advanced Vehicle Battery Manufacturing Tax Credit	Manufacturers of traction battery packs for use in vehicles may qualify for a tax credit from the Michigan Economic Development Corporation for tax years beginning on or after January 1, 2010 and ending before January 1, 2015
Beringea	Provides capital, consultation, and business support for clean technology companies
Detroit Empowerment Zone	Offers industrial and manufacturing developments, and tax incentives for locating inside the Zone
Early Stage Partners	Provides venture capital investment to advanced manufacturing and industrial technologies companies in the Midwest
Energy Revolving Loan Fund for Clean Energy Advanced Manufacturing	Low interest loans up to \$2,000,000 are available to diversify into high growth clean energy sectors and invest in advanced manufacturing of renewable energy and energy efficiency systems and components
Green Detroit Regional Center LLC (GDRC)	Stimulates the economy through job creation and capital investment by foreign investors
InvestMichigan! Program	Offers a series of funds focused on generating strong returns for investors and growing the next generation of Michigan companies
Khosla Ventures	Leverages relationships to build teams and attract partners and customers to build profitable cleantech businesses

Targeted Employment Area (TEA) - EB-5 Investment and Visa Program	Areas that meet the “high unemployment area” definition qualify for the \$500,000 minimum investment threshold as non-rural TEAs for EB-5 program purposes
University of Michigan	Offers the Clean Energy Prize Award Competition
UM Fraunhofer Alternative Energy Technologies for Transportation Program	Awarded \$2 million in seed grants for five alternative energy projects

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Research & Development Institutions

Argonne National Laboratory	Offers a battery research program that spans the continuum from basic materials research and diagnostics to scale-up processes and ultimate deployment by industry
Center for Solar and Thermal Energy Conversion (CSTEC)	Studies complex material structures on the nanoscale to identify key features for their potential use as materials to convert solar energy and heat to electricity
Michigan Molecular Institute (MMI)	Offers contract research in lithium-air battery systems (membranes) and polymers, as well as technology transfer and analytical services
MSU Composite Materials and Structures Center	Offers contract research and testing services with an expertise in processing, design and optimization, materials science, nanocomposite technology, structural analysis, surface science, and failure analysis
MSU Energy and Automotive Research Laboratories	Develops hybrid systems that utilize kinetic energy that would otherwise be wasted in braking and converting it to stored electrical energy and useful mechanical work
MSU Power Electronics and Motor Drives Lab	Focuses on advanced R&D on power conversion technology and motor control for renewable energy, utility and transportation applications
National Institute of Standards and Technology (NIST)	Offers research, measurement, calibration, standards, and database services
Revolutionary Materials for Solid State Energy Conversion (RMSSEC)	Investigates the underlying physical and chemical principles of advanced materials for the conversion of heat into electricity

U.S. Army Tank-Automotive Research, Development & Engineering Center (TARDEC)	Develops, integrates and sustains technology solutions for manned and unmanned DOD ground systems and combat support systems
U.S. EPA National Vehicle and Fuel Emissions Laboratory	Houses the Clean Automotive Technology program, EPA's research initiative for developing cost-effective advanced technology for vehicles
UM – Ann Arbor – Automotive Research Center	Studies and demonstrates the creation of a flexible, agile simulation system that can significantly impact the product development process of military and commercial automotive manufacturers
UM – Ann Arbor – The Energy Storage and Materials Simulation Lab	Research focusing on applications in transportation (battery electric and fuel cell vehicles) and power generation (enabling base-load intermittent sources)

Research and Development Institutions (continued)

UM – Dearborn – Center for Lightweighting Automotive Materials and Processing	Supports curriculum and laboratory development, research projects, seminars, conferences, colloquia, and a materials database, in addition to research and education services pertaining to materials and processes
UM Clean Energy Research Center (CERC) for Clean Vehicles	Brings together academia, national laboratories, and industry into a consortium of intellectual strength and expertise in key engineering, natural science, and social science areas around reducing vehicle greenhouse gas emissions
UM Energy Institute	Engaged in development of lightweight, cost-effective, high energy density batteries and research on hydrogen storage technologies
UM Power Control Laboratory	Engaged in fuel cell control research and testing
UM Transportation Research Institute (UMTRI)	Develops research programs with a strong commitment to mobility safety and sustainability
UM/GM Advanced Battery Coalition for Drivetrains (ABCD) Collaborative Research Lab	Creates multiscale models of batteries, optimizes their performance, and designs new methodologies for controlling their response

UM/GM Engine Systems	Facilitates the exchange of technical personnel between UM and GM, provides research opportunities for graduate students, and develops activities around internal combustion engine systems
UM/GM Smart Materials and Structures	Research, design, invention, application and education pertaining to smart materials and structures for automotive applications
WSU Center for Automotive Research	Conducts interdisciplinary research, and coordinates instructional programs in the automotive arena
WSU National Biofuels Energy Lab	Research, development, education, and communications around biodiesel and fuel blends

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Legal & Regulatory Environment

Bodman PLC	Offers corporate structuring services, financial advice, intellectual property services, and dispute resolution services for High Tech companies
Brinks Hofer Gilson and Lione	Assists with the creation, protection, and commercialization of intellectual property rights of green technology companies
Seyfarth Shaw LLP	Offers corporate structuring services, financial advice, intellectual property services, and dispute resolution services for business clients
Varnum LLP	Offers corporate, employment, real estate, immigration, and regulatory law services to the advanced energy storage industry
MI Public Service Commission (MPSC)	Provides technical assistance and recommendations pertaining to issues within the regulated energy and Smart Grid industries

Physical Infrastructure

Detroit Region Aerotropolis	Provides companies with a comprehensive, integrated offering of facilities, amenities and services to conduct business on a global scale
Pinnacle Aeropark	Located in a Michigan SmartZone and Local Development Finance Authority / Tax Increment Financing district, it allows for specialized business and infrastructure investment
Consumers Energy	Offers wind, solar, and other renewable energy projects, and Smart Grid technology integration

Notes:

Industrial Base Organizations

Alternative Energy Industry

Accio Energy, Inc.	Manufactures aerovoltaic wind technology
Astraeus Wind Energy, Inc.	Offers manufacturing automation and materials development services for the wind energy industry
Cascade Engineering, Inc.	Develops wind and solar energy projects by offering funding, management, technology, and construction solutions
Fives Cinetic Automation Corp.	Offers engineering, testing, training, and development services for automotive and wind technology companies
KUKA Systems Corp. North America	Offers assembly line products, products for the photovoltaic industry, and products for industrial solutions

MAG Industrial Automation Systems	Testing and manufacturing solutions for wind and solar energy technology and automotive companies
Orisol Energy US, Inc.	Develops utility-scale wind and solar energy projects

Automotive Industry

AM General, LLC	Develops and offers vehicles, engine products, parts and logistics services
Autoline Industries Ltd.	Offers product engineering and manufacturing engineering services for automotive clients
Delphi Corporation	Manufactures and tests a wide range of products for the automotive industry
Metaldyne Corporation	Designs and supplies metal-formed components and assemblies for automotive powertrain applications
Nissan Technical Center North America, Inc.	Offers vehicle and unit development, plus supporting functions

Notes:

Battery Industry

Alpine Power Systems	Offers battery recycling, installation, maintenance, and testing services
Comau Inc.	Offers adaptive manufacturing solutions for alternative and renewable energy technologies, including batteries
EnerDel	Manufactures lithium-ion battery cells, modules, and systems for Smart Grid and government applications
Spider9	Provides advanced control systems that increase energy output, affordability and reliability of large-scale advanced battery systems
Trans-Matic	Manufactures precision deep drawn components and assemblies for the power storage and automotive industry

Facility Construction Industry

AE Equities Group LLC	Builds industrial manufacturing facilities
Barton Malow	Offers construction services with a focus on energy and industrial facility construction

Electric Vehicle Industry

Denso International America, Inc.	Supplies advanced automotive technology, systems, and electric and hybrid vehicle components
Hitachi Automotive Systems Americas	Manufactures drivetrains, electric vehicle inverters, and electric vehicle motors
Hyundai America Technical Center, Inc.	Offers engineering, evaluation, and planning services pertaining to hybrid vehicle manufacturing
PEP Stations, LLC	Distributes Level 2 (208-240V/30A) commercial electric charge stations that come standard with two J1772 connectors

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Energy Industry

Hemlock Semiconductor Group	Manufactures semiconductor and solar wafers for power generating applications
Inmatech, Inc.	Commercializes next generation supercapacitors and systems based on nanostructured materials
Lear Corporation	Designs and manufactures electrical power management systems, including charging systems
Nextek Power Systems, Inc.	Manufacture of energy-efficient power servers
Ultra Electronics AMI	Designs, tests and manufactures solid oxide fuel cell technology
Wolverine Energy Solutions and Technology, Inc. (WEST)	Designs and develops new organic materials to fabricate new devices that will revolutionize the energy storage (capacitors) markets

General Manufacturing Industry

ABB Flexible Automation	Develops power and automation technologies for utility and industry customers
Dowding Industries, Inc.	Offers stamping, laser, assembly, machining, and welding services
Freudenberg-NOK	Offers a wide range of precision molded sealing products to the automotive and chemical industries
ITOCHU Chemicals America, Inc.	Distributes and markets inorganic, organic, functional and specialty chemicals
North American Assembly	Offers prototype and production plastic welding, assembly and testing to a variety of industries
Tricor Metals	Fabricates metal components, including anodes and cathodes, for a wide range of applications

Testing Industry

Disher Design and Development	Offers project management, engineering, supplier identification, machine design, prototyping, and consumer research services for manufacturing and engineering companies
IBR, Inc.	Provides testing services for the detection and analysis of particulate contamination and verification of filtration performance in automotive applications
Impact Analytical	Provides polymer and material characterization, quality control, stability, and regulatory testing, method development, and consulting services for the plastics and automotive industries
TUV SUD America, Inc.	Offers battery testing services and training for the automotive and wind energy industries

Notes: