

# PREVIEW

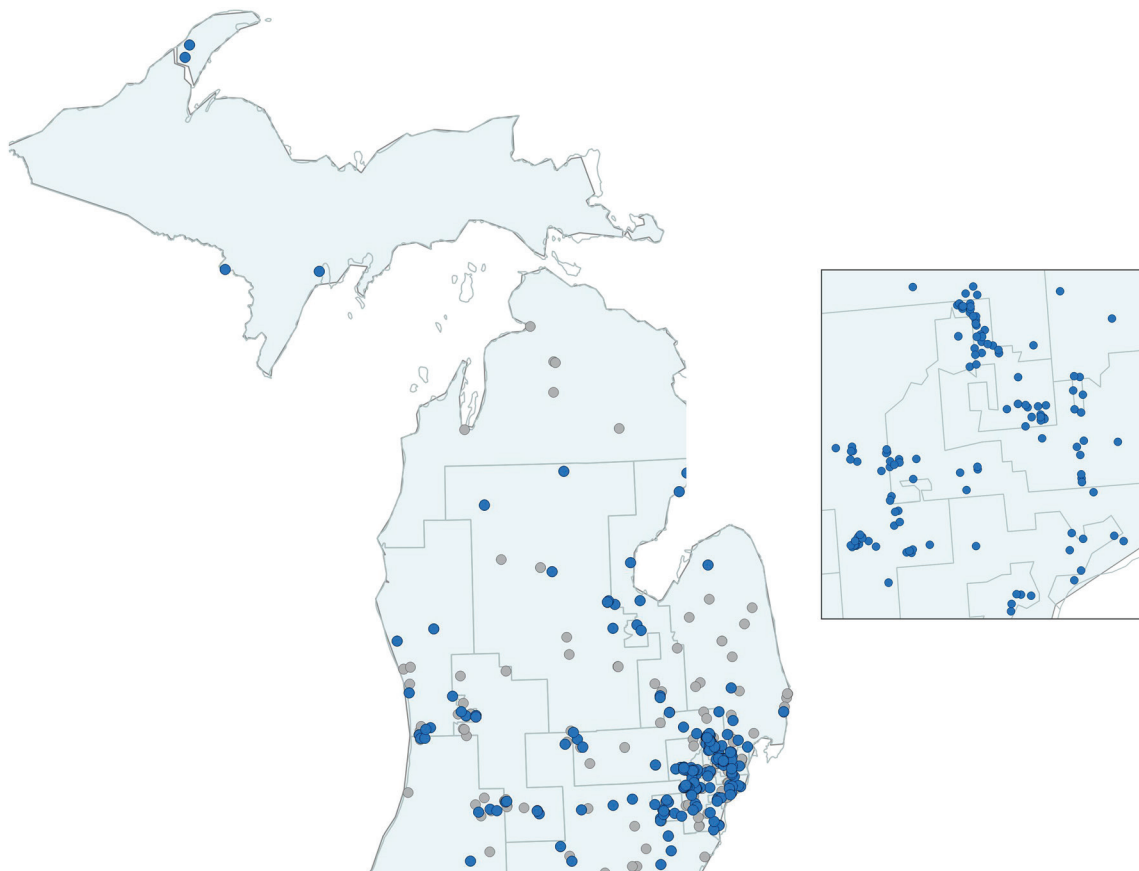
## SUPPLYING INGENUITY II

### Michigan Suppliers of Key Clean, Fuel-Efficient Vehicle Technologies

Across Michigan and across America, thousands of manufacturers—and millions of workers—that make up the auto sector are proving that America can build competitive, cutting edge cars and trucks, save consumers money, cut pollution, and bring back thousands of manufacturing jobs at the same time.

Sound fuel economy and clean vehicle standards have been critical—and remain critical—to this success. This preview of an upcoming report by the BlueGreen Alliance and the Natural Resources Defense Council shows how.

Today, in Michigan alone, we find **224 factories and research facilities** and more than **69,000 workers** are building technology that improves fuel economy for today's innovative vehicles.



Michigan facilities that build technology specifically focused on fuel efficiency are shown in blue above. The right hand map shows Southeast Michigan in more detail. These companies are a critical part of an integrated automotive supply chain that includes hundreds of additional facilities (some shown in gray above) building related technologies and assembling these technologies into cars, SUVs, and trucks in showrooms today.

## Examples of Michigan Suppliers of Fuel-Efficient Vehicle Components

### GASOLINE DIRECT INJECTION

Only 8% of new vehicles in 2010, 46% in 2015.

FEV (Auburn Hills), TI Automotive (Auburn Hills)

### CYLINDER DEACTIVATION

Utilization has doubled 2010-2015.

Eaton (Marshall, Southfield), Tula Technology (Plymouth)

### START/STOP COMPONENTS AND SYSTEMS

Not used in 2010, in 7% of new vehicles in 2015, rapidly expanding use. FCA (Auburn Hills)

### TURBOCHARGING

Global market expected to grow 10% per year through 2025. BorgWarner (Auburn Hills), Bosch (Farmington Hills)

### NEW: 48 V MILD HYBRID SYSTEMS

Continental (Dearborn), Delphi (Troy), Valeo (Auburn Hills)

### LIGHTWEIGHT MATERIALS

**High-strength steel:** AK Steel (Dearborn); **Aluminum** Arconic (Farmington Hills), Novelis (Novi) **Carbon fiber:** Plasan Carbon Composites (Walker, Wixom)

### HYBRID POWERTRAIN

TRW (Washington), Continental (Dearborn), Eberspaecher (Novi)

### EV/ PHEV PROPULSION

**Battery systems:** General Motors (Brownstown), LG Chem (Holland)

**Electric Motors:** Magna Electronics (Holly), BorgWarner (Cadillac)

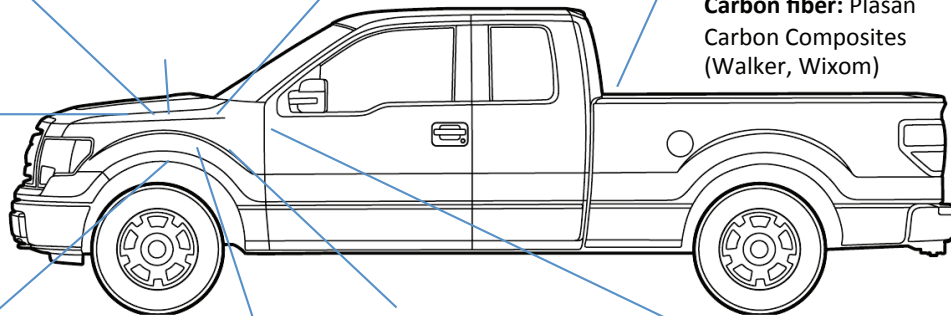
**Electronic Controllers:** Continental (Auburn Hills), Emmeskay (Plymouth)

### 8+ SPEED TRANSMISSIONS

In 2010 companies were adding 6-8 speed transmissions, now 8-10 speeds. Aisin, Ford (Livonia Transmission), General Motors (Romulus Powertrain)

### ELECTRIC POWER STEERING

Nexteer (Auburn Hills, Saginaw), NSK (Ann Arbor), JTEKT (Plymouth)



Michigan companies manufacture a diverse array of advanced vehicle technology. These range from factories manufacturing lightweight automotive steel and aluminum and advanced engines and transmissions, to electric motors and batteries, and many more. They range from facilities owned by major automakers and suppliers employing thousands of people, to small, locally owned manufacturers with just a few employees.

An estimated **167,000 Michiganders** work manufacturing vehicles and the parts that go into them. The Michigan auto sector has brought back almost **71,300 jobs since June 2009**.

Investment in innovation to meet fuel economy standards, plus investments to build these cutting edge technologies in the U.S., have been a critical part of the automotive recovery. Sound long-term clean vehicle and fuel economy standards and manufacturing action remain essential to make sure we secure today's automotive jobs and continue to rebuild American manufacturing and jobs into the future.

[bluegreenalliance.org](http://bluegreenalliance.org)



1300 Godward Street NE, Suite 2625  
Minneapolis, MN 55413

1020 19th Street NW, Suite 600  
Washington, D.C. 20036

369 Pine Street, Suite 700  
San Francisco, CA 94104