MICHIGAN TRANSPORTATION ELECTRIFICATION OVERVIEW

A review of national EV statistics and state-specific travel patterns and transportation electrification metrics

Atlas Public Policy
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ABOUT ATLAS PUBLIC POLICY

• DC-based policy tech firm started in 2015
• We equip businesses and policymakers to make strategic, informed decisions through the greater use of technology that aggregates publicly available information

Our Key Focus Areas

• **Access**: Collect and disseminate publicly available information.
• **Interpret**: Create technology to spur insights and conduct data-driven analyses.
• **Empower**: Strengthen policymakers, businesses, and non-profits’ ability to meet emerging challenges and identify and seize opportunities.
The EV Hub gives stakeholders from across the EV industry quick access to key data and information on the market, policies and regulations, and activities by the EV community.

A one-stop shop for businesses, policy professionals, and the advocacy community to learn more about what’s going on in the EV market.

A comprehensive platform for the EV community: www.atlasevhub.com

Free access for public agencies and Clean Cities Coordinators!
DATA SOURCES

• All national data is collected by Atlas
• State-specific metrics are either statewide or from 2 urban regions in Michigan (Core Based Statistical Area):
  • Detroit (Detroit-Warren-Dearborn, MI)
  • Grand Rapids (Grand Rapids-Wyoming, MI)
• Caveats
  • National Household Travel Survey (NHTS) data is a survey (not population-level data)

Data Sources by Category

National Figures
- Atlas EV Hub Dashboards

State Emissions
- U.S. EPA/EIA
- Union of Concerned Scientists

State Travel Behavior
- Federal Highway Administration
- 2017 National Household Travel Survey (NHTS)

State Mass Transit
- National Transit Database
NATIONAL OVERVIEW

Review of EV sales, government funding, and market developments
The auto market overall saw a 24% decline in the first half of 2020 due to COVID-19.


EV market holding steady around 2% of all light-duty vehicle sales and > 5% of passenger car sales.

Tesla accounts for 60% of sales since 2018.

EV market only down 13% in July compared to 2019.
$9.2 BILLION IN NEW PRIVATE INVESTMENT ANNOUNCED IN THE THIRD QUARTER

- Investors remain bullish on EVs despite recent sales dip due to COVID-19
- $437 billion in global investment
  - $66 billion destined for U.S.
- $9.2 billion in new investment between July and September
- Tesla stocks has risen 8x in last 12 months and split 5-1 in August
$1.2B IN ELECTRIC BUS AND TRUCK FUNDING

• Government programs have provided more than $1.2 billion for electric trucks and buses through August 2020
• Almost 60% going to electric transit buses
• Electric trucks and school buses each claim 20%
• 18% of funding awarded through the VW Settlement

EV Funding

- Transit Bus: $712,304,386 (59%)
- School Bus: $225,134,436 (19%)
- Freight Trucks: $120,532,598 (10%)
- Delivery Trucks: $100,054,075 (8%)
- Other Trucks: $120,532,598 (10%)
- Other: $48,269,635 (4%)
More than 14 new EVs introduced since July 2019
Luxury brands like BMW, Volvo and Porsche claim the most EV models
Ford, GM, and Fiat-Chrysler only claim 5 out of 52 EVs across all brands
Some new EVs have been delayed by COVID-19
Rivian and Tesla electric pickups expected in second half of 2021
Volkswagen ID4 crossover in production in Europe, will be made in U.S. in 2022

More than 30 new models expected in 2021
FAST CHARGING MARKET CONCENTRATED AND GROWING

- More than 18,000 fast charging ports
- More competition for market-leader Tesla
- Electrify America nationwide network reaches coast to coast
- ChargePoint entered the stock market through a reverse merger

* Estimated based on dates stations added to AFDC Station Locator
Source: Atlas EV Hub (www.atlasevhub.com)
Bloomberg New Energy Finance (BNEF) projects EVs to reach 60% of new passenger vehicles sales in the U.S. by 2040.

EVs only expected to account for 4% of new vehicles sales in 2023.

Electric buses and trucks to make up 64% and 15% of global fleets by 2040.

Source: BNEF
MICHIGAN OVERVIEW
Analysis of emissions and EV deployment and funding
Awarded $4 Million from VW Settlement to EV School Buses

$4 Billion in EV Manufacturing Investment

$23 Million in Approved EV Investment from 2 Utilities
MICHIGAN EV STATS THROUGH SEPTEMBER 2020

EV Sales (through June 2020)
• State Total: 23,511 (16th in nation)
• Change 2019-2020 (Jan - June): -38%
• EVs per 1k People: 2.4 (25th in nation)
• Models Offered: 32 out of 52

EV Charging Deployment
• State Level 2 Total: 1,183 ports
• State DCFC Total: 309 ports (20th in nation)
• DCFC per 1k people: 0.03 (39th in nation)

Approved Utility Investment
• State Approved Total: $23 million
• Pending Investment: $14 million

Government Funding for EVs
• State Total since 2018: $17 million
• % of Total Awarded in 2020: 48%
Michigan ranks 10th of 50 states in total CO$_2$ emissions and 30th in energy consumption for all sectors per capita.

Light-duty vehicles account for 58% of the state’s mobile emissions of criteria air pollutants.

Sources: EIA State Carbon Dioxide Emissions Data, EIA State Profiles
Urban areas of the state fall in RFCM grid region.

Driving an EV charged in SRVC region produces emissions comparable to a 49-mpg vehicle.

This puts the state well below the national average of 88 mpg.

The grid is mixed in the upper peninsula of the state where driving an EV is either equivalent to a gas vehicle with 39-mpg or 56-mpg.

Source: Union of Concerned Scientists
• 23k EVs sold in Michigan through June 2020
  • 16th out of 50 states
• 2.4 EVs per 1,000 people
  • 25th out of 50 states
• Sales down 38% in Q1 and Q2 compared to 2019
• Most Popular EVs since 2019:
  • Tesla Model 3 (1,863)
  • Chevy Bolt (738)
  • Ford Fusion Energi (388)
$17M awarded for EVs and EV charging in Michigan through August 2020

$6M from VW Settlement

EVs account for 100% of awards made through VW Settlement

90% of state’s VW Settlement allocation unspent

State working with utilities to deploy electric school buses

Program includes V2G pilots

### MICHIGAN EV FUNDING

**EV Awards**

- **Transit Bus**
  - $10,993,031 (65%)
- **Charging Station**
  - $4,218,668 (25%)
- **School Bus**
  - $1,700,000 (10%)
DETOUR 3 AUTOMAKERS ELECTRIFYING MANUFACTURING IN MICHIGAN

- Ford, GM, and Fiat-Chrysler have committed more than $37 billion to EV investment in the United States
  - GM: $22 billion
  - Ford: $10.5 billion
  - Fiat-Chrysler: $4.5 billion
- $21 billion of this is specified for specific EV manufacturing facilities supporting more than 38,000 jobs
- $4.2 billion has been committed to produce EVs at specific facilities in Michigan
  - Supports almost 4,000 direct EV manufacturing jobs
  - Likely an underestimate as some investment announcements did not include job estimates
- EV startup Rivian is also headquartered in Michigan and has committed almost $6 billion to EV investment in the United States
A review of vehicle miles traveled (VMT) statewide and travel choices in two primary metro regions using data from the 2017 National Household Travel Survey
PASSENGER VEHICLES ACCOUNT FOR 70% OF VMT IN MICHIGAN

• Trucks, including light-duty, account for 29% of all VMT in the state
  • Drivers in Michigan’s largest metro regions reported an average 13,072 annual VMT
    • This is higher than the average of 11,620 annual VMT across all of the 52 most populous metros

In urban Michigan, personal vehicles made up 97% of reported annual VMT. The average across the 52 major U.S. metro areas* was 90%. Compared to the average across these 52 metro areas, urban drivers in Michigan drive more SUVs and pickups.

* Combined Statistical Areas with a population of more than 1 million

Source: https://nhts.ornl.gov/
People in urban Michigan travel less than half as much on transit buses compared to other major metro areas.

Michigan has no reported train travel.

**MICHIGAN METRO BELOW NATIONAL AVERAGE VMT ACROSS ALL NON-CAR TRAVEL MODES**

- People in urban Michigan travel less than half as much on transit buses compared to other major metro areas.
- Michigan has no reported train travel.
A review of transit patterns in major urban areas using data from the National Transit Database
Detroit sees significant per-person usage of light rail and streetcars.

People in Grand Rapids travel more miles per person compared to Detroit.

Source: https://www.transit.dot.gov/ntd/transit-agency-profiles
ELECTRIC TRANSIT BUSES ADDED SINCE 2018

- Transit agencies awarded $11 million for electric transit bus procurement since 2018
- Neither Detroit nor Grand Rapids reported passenger miles on battery electric transit in 2018
- 90% of transit miles in Detroit are from diesel vehicles
- Both cities operate LPG shuttle buses
- Grand Rapids had a wider fuel mix compared to Detroit

GRAND RAPIDS HAS THE MOST MIXED BUS FLEET

- Only Grand Rapids reported diesel hybrid transit buses in their fleet
- CNG transit buses make up 30% of the total vehicle fleet in Grand Rapids
- Almost all the buses in Detroit are diesel or biodiesel fueled based on data reported by the two primary transit agencies, the Suburban Mobility Authority for Regional Transportation and City of Detroit Department of Transportation

Note: The Suburban Mobility Authority for Regional Transportation in Detroit has not reported bus fleet data to APTA since 2011

Source: https://www.apta.com/research-technical-resources/transit-statistics/vehicle-database