MICHIGAN EV ECOSYSTEM

In 2020, Gov. Whitmer created the Office of Future Mobility and Electrification and the Council on Future Mobility and Electrification to continue Michigan's leadership in mobility and electrification, fully leveraging the state's public, private and non-profit sectors to think creatively and support the startup and scale up of emerging technologies and businesses here in Michigan. This effort builds on nearly five years of concentrated investment in mobility and electrification—and the state is just getting started.

The office works as a coordinator and integrator across public and private sectors to create a stronger state economy in Michigan. The office aims to enable safer, more equitable and environmentally conscious transportation for all Michigan residents by accelerating electric vehicle adoption in Michigan, expanding Michigan's smart infrastructure, bolstering Michigan's mobility manufacturing core and more. The council complements these efforts by evaluating state policies on electric vehicles and charging infrastructure, considering key issues such as EV registration, charging on state properties, charging station credits, direct-to-consumer sales, battery supply chain competitiveness, fleet transition incentives and streamlining of charging station installation. Equipped with a direct reporting line to the governor, the office and council steer action and accountability for initiatives born from their close relationship with the key players in the mobility and energy ecosystems.

As part of its work, the state announced an initiative to develop a first-of-its-kind 40-mile driverless vehicle corridor between Detroit and Ann Arbor, designed to improve transportation for communities in southeast Michigan. This initiative will help Michigan build the future of roads while closing long-standing gaps in access to transit and transportation across the region.

To help Michigan capitalize on this generational economic opportunity, the office is charged with developing recommendations for public policy that will ensure Michigan continues its global leadership in future mobility and electrification, including autonomous and connected vehicle technologies, electric powertrain technology and charging infrastructure, and diverse mobility such as shared transportation and transit.

In addition to the office and council, Michigan continues leading the way in future mobility solutions with progress from both private and public sector partners.

- The state's Department of Environment, Great Lakes and Energy's (EGLE) Charge Up Michigan Program offers grants to fund EV DC fast charging stations across the state of Michigan
- The state's two largest utilities, DTE Energy and Consumers Energy, have joined other utilities to create an interstate EV charging network across the Midwest
- A Michigan-based startup company received a $7 million grant from the U.S. Department of Energy to develop infrastructure that protects the electric grid from cyber-attacks on EVs and EV charging systems
- EGLE led a multi-stakeholder initiative to model the placement of DC fast-charging stations across Michigan to support light duty EV travel, working to build out 75 stations with nearly 300 chargers by 2030
- Michigan's Department of Transportation is supporting 2,200 new jobs in Detroit to support infrastructure improvements at General Motors' (GM) Factory ZERO plant, which represents the single largest investment in a plant in GM history and the company's first fully dedicated electric vehicle assembly facility

Michigan's continued focus on forward-thinking innovations around mobility and electrification have attracted a host of battery investments from companies around the world, with one-third of the U.S. battery production and development coming from Michigan. Additionally, as home to the largest deployment of vehicle-to-infrastructure technology in the U.S.—and 600 miles of roadway equipped for connected autonomous vehicle testing—Michigan


AMERICAN CENTER FOR MOBILITY

remains a leader in developing, testing and deploying next generation mobility solutions, while driving innovative programmatic initiatives including:

- **Connecting industry to urban mobility opportunities** by launching projects that focus on strategic areas including EV adoption and charging infrastructure
- **Establish more EV re-skilling and upskilling** by retraining factory talent to build and assemble batteries and electric drivetrains
- **Vehicle-to-grid pilots** via programming for next-generation battery charging by further utilizing Michigan's Volkswagen Diesel settlement funds

Michigan also boasts the world's most diverse collection of autonomous vehicle testing environments for both early- and later-stage technologies, from cold weather environments at Michigan Technological University and commercial drone testing at the Michigan Unmanned Aerial Systems Consortium, to hundreds of acres of urban, suburban and rural testing site environments between the Kettering University GM Mobility Research Center, Mcity and the American Center for Mobility.

Industry Overview

26 OEMS & EV TECHNOLOGY CENTERS IN MICHIGAN

Ford, GM, Stellantis, Subaru, Toyota, Nissan, Rivian, Hyundai, Honda, Volkswagen, GAC Motor, Great Wall Motors, Daimler, Mahindra, Mazda, FAW, Isuzu, SAIC Motor, Hino, Lordstown, Shyft Group, Mitsubishi, Bollinger Motors, Changan, Navistar, Champion

FEATURED EMERGING MOBILITY COMPANIES IN MICHIGAN

Waymo, May Mobility, Nauyo, XLFleet, ELMS

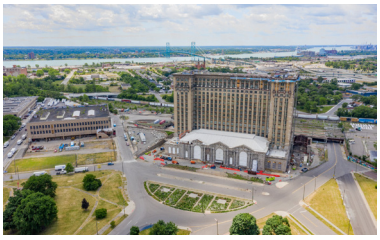
AUTOMOTIVE AND MOBILITY SUPPLY BASE OF 2,200+

Top Mobility and Electrification Investments

LG Energy Solution

Expanded Capacity of Battery Component Production

$1.7 billion investment to quintuple plant capacity in Holland, Mich. providing a strong pipeline to produce battery components in Michigan today and into the future as the electric vehicle (EV) industry grows.



Ford

Michigan Central Innovation District

$7.5 million in funding to Ford Motor Co. to support new programs that accelerate economic development, new technology activation, workforce training and community engagement in the 30-acre Michigan Central Innovation District in Detroit's Corktown neighborhood.

GM

New Electric Vehicle & Battery Center

$7 billion investment includes a $4 billion investment to convert GM's Orion Township assembly plant for the production of full-size EV pickups and up to $2.5 billion to build Ultium's third U.S. battery cell plant in Lansing.

Magna

Electric Vehicle Structures

$70.1 million to construct a new St. Clair facility that will produce structural battery enclosures for electric propulsion vehicles and a commitment of 304 jobs. The company has been awarded a new program for the all-new 2022 GMC Hummer EV, set to begin initial production at GM's Factory Zero.

Stellantis

Hybrid Electric Vehicles

$2.1 billion for the introduction of the Durango mHEV and next generation Grand Cherokee, located in Detroit.

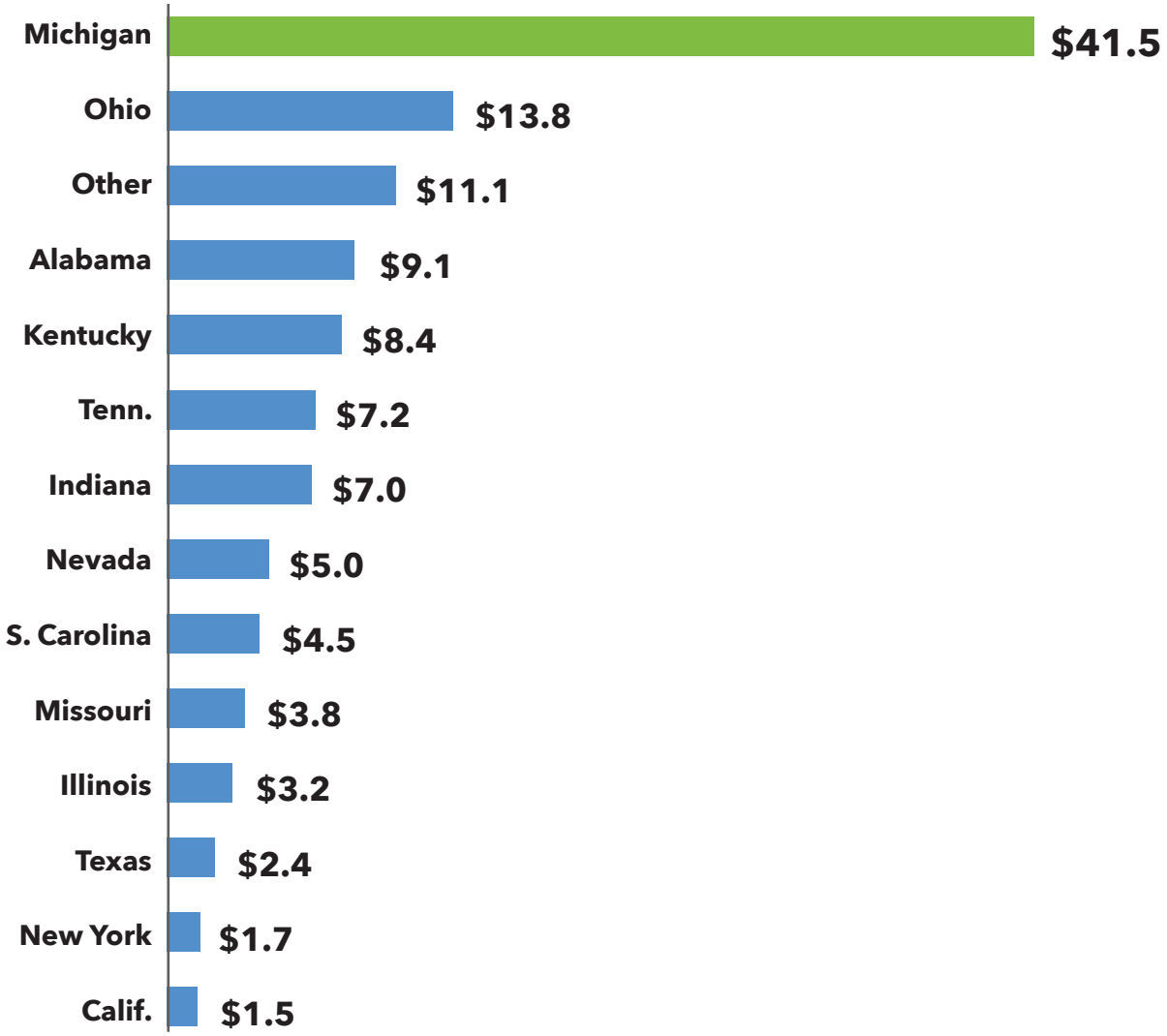
Ford

Expanded EV and ICE Operations

$2 billion investment to create more than 3,200 manufacturing jobs across the company's plants in Michigan, ensuring future opportunity for EV manufacturing growth while securing the company's existing internal combustion engine vehicle operations in the state.

Michigan: Top Automotive Investment

AUTOMOTIVE INVESTMENT BY STATE, BILLIONS, 2009–2019

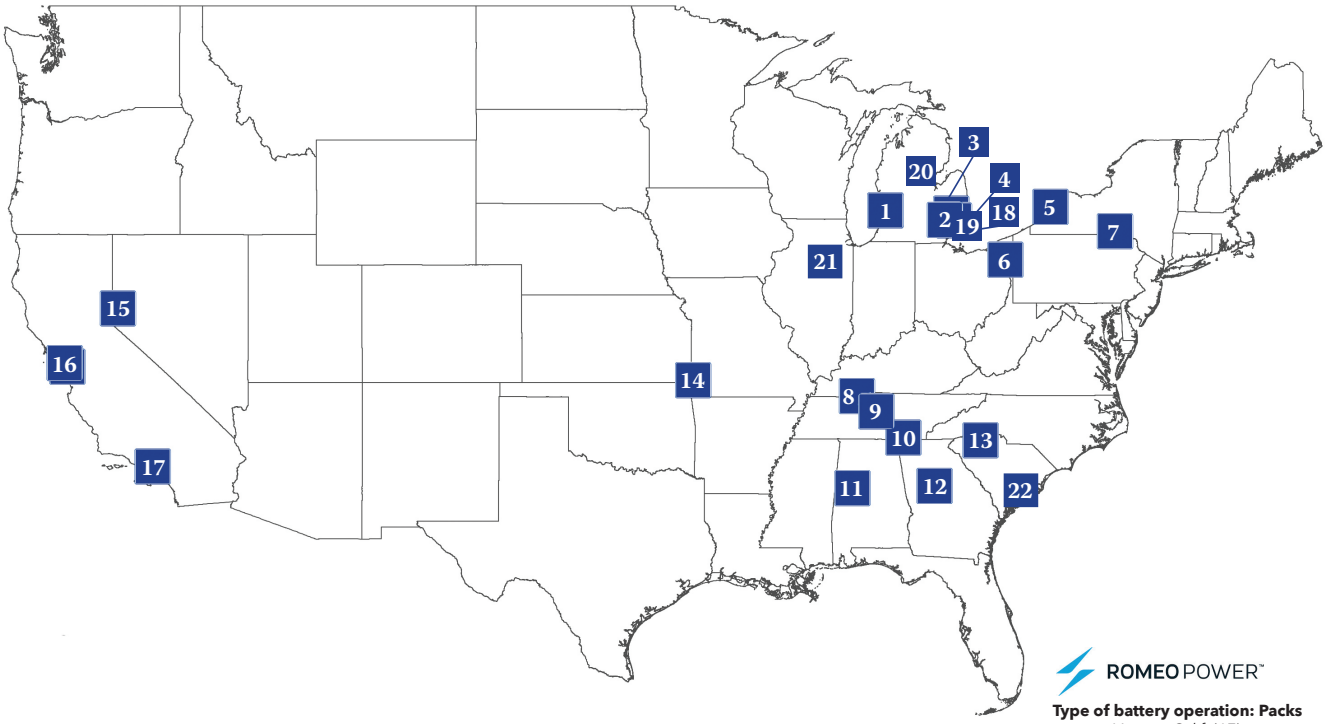


Source: Center for Automotive Research

One-third of U.S. battery production and development is in Michigan

Michigan ranks 6th in the nation for employment in industries related to electric vehicle battery manufacturing, with 1,500 workers employed at various Michigan battery manufacturing and OEM locations.

U.S. CELL AND BATTERY PACK PLANTS AS OF 2020



ROMEO POWER
Type of battery operation: Packs
Vernon, Calif. (17)

CLARIOS
Type of battery operation: Cell
Holland, Mich. (1)

LG Energy Solution
Type of battery operation: Cell
Lordstown, Ohio (6)

SK innovation
Type of battery operation: Cell
Jackson County, Ga. (12)

CATL
Type of battery operation: Cell
TBD

LG Energy Solution Michigan, Inc.
Type of battery operation: Cell, R&D, HQ, Pack
Holland, Troy, Hazel Park, Mich. (1)

iM3
Type of battery operation: Cell
Endicott, N.Y. (7)

BMW
Type of battery operation: Packs
Spartanburg, S.C. (13)

gm
Type of battery operation: Packs
Brownstown, Mich. (18)

A123 SYSTEMS
Type of battery operation: Battery dev.
Novi, Mich. (2)

ATLASBX DYNAMIC POWER
Type of battery operation: Cell
Clarksville, Tenn. (8)

ZF Energy Systems
Type of battery operation: Cell
Joplin, Missouri (14)

Ford
Type of battery operation: Packs
Rawsonville, Mich. (19)

SAMSUNG SDI
Type of battery operation: Cell
Auburn Hills, Mich. (3)

ENVISION
Type of battery operation: Battery prod.
Smyrna, Tenn. (9)

TESLA
Type of battery operation: Cell
Sparks, Nev. (15)

XALT Energy
Type of battery operation: Cell and Packs
Midland, Mich. (20)

AKASOL
Type of battery operation: Cell
Hazel Park, Mich. (4)

Volkswagen
Type of battery operation: Battery prod.
Chattanooga, Tenn. (10)

TESLA
Type of battery operation: Battery prod.
Fremont, Calif. (16)

RIVIAN
Type of battery operation: Battery prod.
Normal, Ill. (21)

TESLA
Type of battery operation: Packs
Buffalo, N.Y. (5)

DAIMLER
Type of battery operation: Battery prod.
Tuscaloosa, Ala. (11)

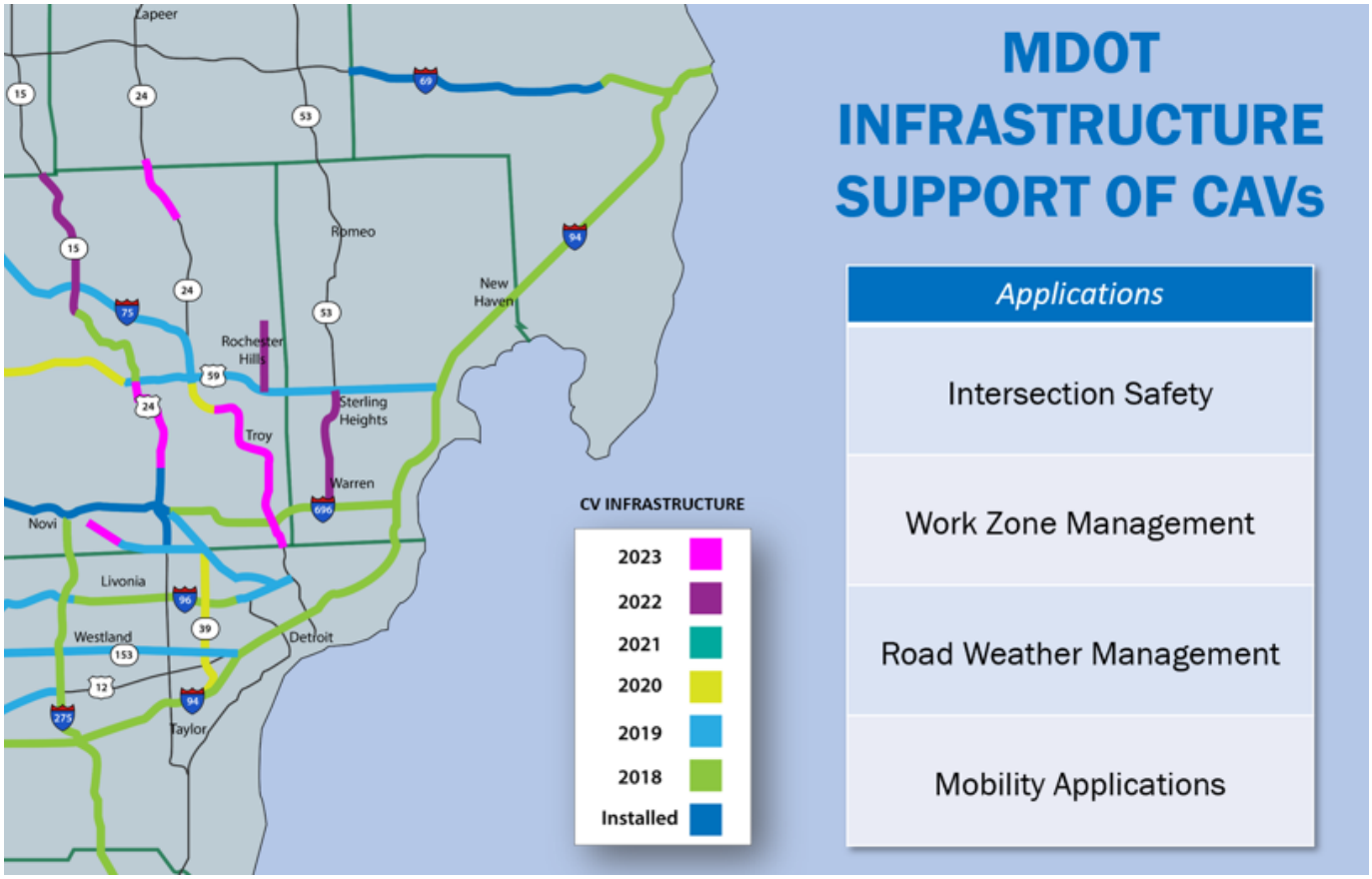
FARASIS
Type of battery operation: Battery prod.
Hayward, Calif. (16)

VOLVO
Type of battery operation: Packs
Ridgeville, S.C. (22)

Source: Center for Automotive Research

State Infrastructure

Smart infrastructure is a foundational platform that drives business attraction, growth and job creation. Michigan is well-positioned as the home of the largest vehicle-to-infrastructure technology deployment in the U.S.



MICHIGAN'S SMART INFRASTRUCTURE

The state is home to the largest deployment of vehicle-to-infrastructure technology in the U.S., with nearly 600 miles of V2I-enabled roadway

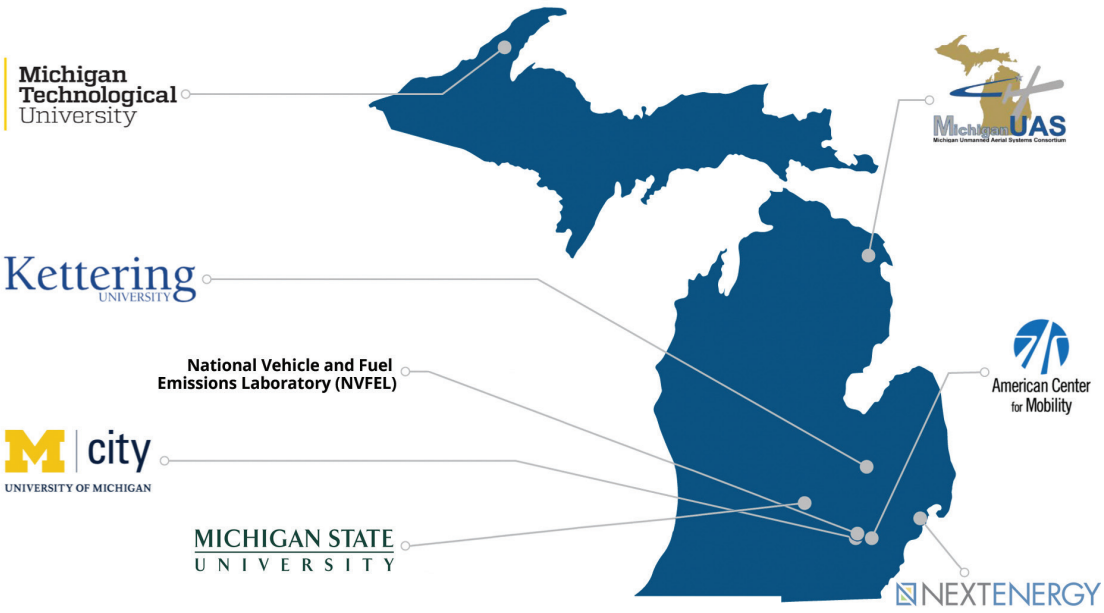
Michigan boasts 120 miles of technology-enabled "smart corridors" helping drivers stay safe, avoid construction and spend less time in traffic

Michigan leads the nation in U.S. Department of Transportation operational or planned connected vehicle deployments

Michigan Department of Transportation maintains and operates nearly 6,000 ITS devices statewide

Mobility and Electrification Assets

Michigan maintains the world's most diverse collection of AV testing environments for both early and later stage technologies.



Michigan Technological University
- Cold weather testing
- 900 acres of ice/snow/off-road routes
- Marine autonomous testing

Kettering University
- 3.25-acre customizable test pad
- Low-speed performance course
- Research annex

National Vehicle and Fuel Emissions Laboratory (NVFEL)
- Located in Ann Arbor, this state-of-the art facility provides emission testing services for motor vehicle, heavy-duty engine, and non-road engine programs in support of rule makings enforcement actions, and test procedures development. The lab audits data from OEM tests and runs their own tests to ensure new vehicle models meet federal fuel emission standards.

University of Michigan/Mcity
- 32-acre artificial urban/suburban testing environment
- Pre-competitive research projects
- Augmented reality lab for traffic simulations
- Onsite autonomous shuttle company (NAVYA)

Spartan Mobility Village
- Home of MSU's mobility labs, where roadways and parking lots can be closed for testing of new technologies. In the future, unoccupied buildings will be used as a background for sensing technologies, including radar clutter simulating the sub/urban environment. Spartan Mobility Village transforms the campus into a live, connected ecosystem focused on integrated systems of communication and controls for autonomous and connected vehicles and their environments, as well as human engagement with autonomous technology.

NextEnergy
- Located in Detroit, NextEnergy works with innovators to accelerate smarter, cleaner, more accessible solutions for communities and cities. NextEnergy hosts workshops and consultation hours designed to connect municipalities and business leaders with the resources needed to make Michigan "EV Infrastructure Ready."

Michigan Unmanned Aerial Systems Consortium
- Commercial drone testing
- 11,000 square miles of airspace
- Long range/medium altitude tests

American Center for Mobility
- The U.S. Department of Energy recently announced more than $7 million in funding for Michigan-based cybersecurity company, The Dream Team LLC, to develop a first-of-its-kind infrastructure that protects the electric grid from cyber-attacks on electric vehicles and charging systems. Once developed, testing of the electric roadways and vehicle-to-grid technology will be conducted at ACM.
- 500-acre urban, suburban and rural testing site
- 700-foot curved tunnel 2.5-mile high-speed loop
- Dedicated cellular network
- Multi-tenant technology park
- Testing standard consortiums, workforce training

Charging Infrastructure

Michigan currently offers 480 publicly accessible charging stations featuring nearly 1,400 charging outlets, in addition to 146 private charging stations throughout the state. Michigan continues to build out this infrastructure to encourage further EV adoption, putting the state within the top 25 percent of states for electric vehicle registrations.

The state's Department of Environment, Great Lakes and Energy operates a multi-stakeholder initiative to determine the placement of DC fast-charging stations and other infrastructure needed along Michigan highways and select residential areas to support light-duty electric vehicle travel across the state. The initiative included a partnership with Michigan State University to develop a charging site optimization map to identify precisely where chargers were needed to combat range anxiety and ensure EV drivers are able to utilize their full range after each charge, regardless of where they are in the state. The state is now in the process of securing commitments to build out 75 additional DC fast-charging stations with nearly 300 chargers throughout Michigan by 2030. Additionally, EGLE's Charge Up Michigan Program provides funding of up to $70,000 per charging station to public or private entities in partnership with the host site and local utility for site preparation, installation, signage and network fees. The installations will continue to build out a network of DC fast chargers that EGLE is partially funding at strategic locations around the state to provide drivers' worry-free travel.

Planning and zoning for renewable energy siting is an important step toward creating stronger, more resilient communities. Of the 1,856 jurisdictions in the state, around half have already given consideration to clean energy, including electric vehicle infrastructure, in their zoning ordinances, and that number continues to grow. The Michigan Zoning Database is a free resource to learn more and is part of a larger effort by EGLE's Office of Climate and Energy working with townships, counties, cities and villages in the state to help them become EV ready.

Robust Innovation Ecosystem

Michigan offers a truly diverse innovation ecosystem due to years of deliberate programmatic support from the state. Michigan's ecosystem has a mix of early stage, growth stage and large corporates, as well as innovation activation partners. This unique ecosystem provides unparalleled partnership, commercialization and IP opportunities.

PLUG AND PLAY DETROIT

By launching a location closer to the OEMs and Tier 1 suppliers, Plug and Play aims to involve the business units directly with the startup technologies, ultimately achieving more pilot projects, proof of concepts, strategic partnerships.

"We have five locations focused on automotive mobility. There's one in Silicon Valley, in Stuttgart (Germany) in Europe, in Japan, in Beijing and Shanghai. In the U.S., we felt one location was missing in the automotive industry."

—Sobhan Khani, VP at Plug and Play

U of M DETROIT CENTER FOR INNOVATION

The new facility will eventually serve up to 1,000 graduate and senior-level undergraduate students pursuing advanced degrees in a range of high-tech innovation disciplines, including mobility, artificial intelligence, data science, entrepreneurship, sustainability, cybersecurity, financial technology and more.

"Detroit has always been a leader in innovation and this new center will help ensure that continues to be the case into the future. It also sends a powerful message to our young people about the city we are trying to build together."

—Mike Duggan, Mayor of Detroit

NEWLAB & FORD MOTOR COMPANY COLLABORATION

Innovation studios aimed at solving tomorrow's transportation challenges and preparing cities, regions and industries for a connected, autonomous and electrified future. The first focus of the Mobility Studio is EV charging in the urban context, specifically from a commercial fleet perspective.

"Our studio model will support the overall development of Michigan's startup ecosystem, making the pie bigger for everyone and helping local startups to stay, grow, and thrive here."

—- Shaun Stewart, CEO of Newlab

SMARTZONES

Michigan has 21 SmartZones located throughout the state. These SmartZones provide distinct geographical locations where technology-based companies, entrepreneurs and researchers can access various services including business development mentoring, feasibility studies, business planning, entrepreneurial training, market analysis, technology assessments, technology mining and more.

They also facilitate the commercialization of technologies developed at Michigan universities by partnering with tech transfer offices.

MICHIGAN OFFICE OF FUTURE MOBILITY & ELECTRIFICATION

By launching the Office of Future Mobility and Electrification, Governor Whitmer has reaffirmed Michigan's position as the global leader in developing next-generation transportation technology.

Vision

A stronger state economy through safer, more equitable and environmentally conscious transportation for all Michigan residents.

Recent Results

Self-Driving Vehicle Corridor: 40-mile dedicated self-driving vehicle lane between Detroit and Ann Arbor. Partnership with Alphabet-backed Sidewalk Infrastructure Partners.

Six Core Objectives

1. Grow mobility industry in Michigan
2. Engage more mobility startups
3. Expand Michigan's smart infrastructure
4. Accelerate EV adoption in Michigan
5. Enable Michigan's mobility workforce
6. Bolster Michigan's mobility manufacturing core

$94M
in investments and revenue

93
technology activations

5,604
introductions

2,340
economic development leads

190
attraction/expansion opportunities

Advanced driving systems and electrification issues are no longer tangential workstreams covered by state offices and agencies whose primary objective is something else. State of Michigan now has an entire team of personnel dedicated to work on mobility and electrification issues, develop a common state strategy and coordinate it with the rest of state government and with partners in the private sector.

Program Targets

- **Launch Dynamic Charging Pilot:** Deploy technology that charges public transit vehicles and autonomous shuttles while in-motion through a dynamic charging system embedded into the roadway
- **Lake Michigan Electric Vehicle Circuit:** Initiate development of a vehicle route with reliable charging options along Lake Michigan and key tourism clusters
- **New Mobility and Electrification Credentialing Platforms:** Create new credentials and platforms tailored to future mobility job specifications to grow Michigan's high-tech workforce
- **Lead Creation of Multi-State Midwest Compact on Future of Charging Infrastructure:** Develop corridors for priority deployment of EV charging and best practices for charging site optimization
- **"Flip Your Fleet" Program:** Reaffirm Michigan's commitment to carbon neutrality by incentivizing small businesses and school districts to switch from diesel to electric fleets

Council on Future Mobility and Electrification

The Council on Future Mobility and Electrification serves in an advisory capacity to the Department of Labor and Economic Opportunity, the Office of Future Mobility and Electrification, the Governor, and the legislature, providing annual recommendations on changes in state policy to ensure Michigan continues to be an epicenter of future transportation solutions around mobility and electrification. Topics of consideration could include how to support EV adoption growth, build out of the state's EVSE network to combat range anxiety, develop the EV manufacturing supply chain, grow Michigan's talent pipeline for high-skilled engineers, adapt workforce programming to ensure minimal general labor shortages, 5G, FCC wireless spectrum, drones, post-pandemic transport, cybersecurity, traffic laws, etc.

VOTING SEATS

Industry/ecosystem seats:

- Academic Seat: Michigan State University
- Academic Seat: University of Michigan
- Electrification Seat: Energy Innovation Business Council
- Industry: Ford, GM, Rivian, Stellantis, Toyota, Waymo
- Workforce Seat: UAW

Department seats:

- Dept. of Labor and Economic Opportunity
- Dept. of Environment, Great Lakes and Energy
- Dept. of Insurance and Financial Service
- Dept. of Transportation
- Michigan State Police
- Michigan Public Service Commission

NON-VOTING SEATS AND ADVISORS

Legislative Seats:

- Michigan Senate Majority Leader
- Michigan Senate Minority Leader
- Michigan House Majority Leader
- Michigan House Minority Leader

WORKING GROUPS AND POLICY TARGETS FOR YEAR ONE

Working groups

- Electrification
- AV tech, infrastructure
- Insurance, regulations, public safety
- Economic development, workforce development

Policy targets

- OFME/EGLE working to create REV-Midwest Compact
- Grow match program for VW settlement funds
- Streamline EV permitting/installation
- Create public EV charger tax credit
- Work to allow charger placement on state properties
- State fleet transition planning

Public and Private EV Programs

Michigan is building public/private partnerships to accelerate investment related to mobility and electrification and continuing to grow the state's leadership role.

MIDWEST CHARGING NETWORK ANNOUNCED

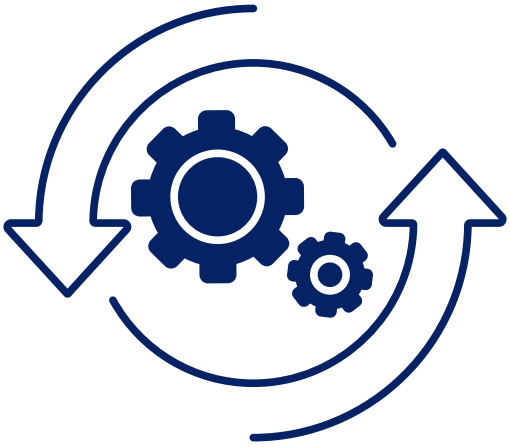
The state's two largest utilities, DTE Energy and Consumers Energy, have joined other utilities to create an interstate electric vehicle (EV) charging network.

GOVERNOR'S CLIMATE ANNOUNCEMENT

A state initiative to achieve carbon neutrality by 2050 through development and implementation of the MI Healthy Climate Plan.

NEW DCFC CHARGERS STATEWIDE

The EGLE Charge Up Michigan Program creates grants to fund EV DC fast charging stations across the state of Michigan.



U.S. CLIMATE ALLIANCE

Michigan is a member of the U.S. Climate Alliance, a coalition of governors working to reduce greenhouse gas emissions, similar to actions being taken under the Paris Agreement.

EGLE FUEL TRANSFORMATION PROGRAM

EGLE has issued $12.9 million for the replacement of school buses. An additional $9.7 million is being spent on light duty vehicle charging stations and infrastructure.

PROTECT ELECTRIC GRID FROM CYBER ATTACKS

$7 million grant from the U.S. DOE for Michigan-based cybersecurity company to develop infrastructure that protects the electric grid from cyber-attacks on electric vehicles (EV) and electric vehicle charging systems.

Utility Company Support of EV

By forming forward-thinking partnerships between the Michigan Public Service Commission and the state's largest private utility companies, Michigan is growing EV adoption through vehicle purchasing rebate programs and charging network buildout initiatives.

Consumers Energy's PowerMIDrive program offers rebates to residential and commercial customers who install Level 2 or DC fast chargers. Residential customers are eligible for up to $500 while commercial customers that install publicly accessible electric vehicle supply equipment (EVSE) may receive up to $5,000 per Level 2 EVSE and up to $70,000 per DC fast-EVSE, and customer credit for make-ready expenses such as transformer and line upgrades. Consumers Energy also offers special time-of-use charging options for plug-in electric vehicle (PEV) owners to encourage non-peak hour charging, which helps increase resiliency in the electrical grid and lowers costs for all ratepayers over time.

The company's **PowerMIFleet Program** is a three year pilot that launched in May of 2021. PowerMIFleet is designed to support business fleet electrification through education, EV strategy consultation, technology and program development in addition to traditional rebate support. This program is comprised of three components:

1. Consultants to support fleet vehicle electrification strategy, identifying the best EV substitute for the ICE vehicle's use, siting optimal charging locations based on the fleet's operations, and provide cost/benefit analysis for total cost of ownership calculation
2. Continuation of the EVSE rebate program for electrifying fleets
3. Vehicle to grid (V2G) testing, such as workplace demand response and bi-directional power flow demonstrations

Consumers Energy has committed itself to achieving 100 percent of light duty vehicle purchases being EVs for their own fleet by 2030, and intends to incorporate heavy-duty models as they become available.

DTE's Charge Forward Program aims to educate customers and provide rebates and assistance for charging infrastructure through its two distinct phases.

Its Charging Forward—Phase 1 emphasizes light-duty vehicles, which aims to help customers:

- Realize the benefits of EVs and reduce barriers to adoption;
- Efficiently integrate EV load with the distribution system by actively managing charging times while ensuring the net benefit of EV load accrues to all customers;
- And improve the company's understanding of EV load characteristics and its impact on the distribution system to prepare for widespread EV adoption in the future.

The initial Charging Forward—Phase 1 proposal approved by the Michigan Public Service Commission was for $13 million and has since expanded by another $1 million. The program provides up to $500 in rebates for the installation of 2,600 Level 2 EVSE at personal residences if the PEV owner enrolls in the company's time-of-use charging incentive program. It also provides up to $55,000 in rebates for deployment of 90 DC fast-EVSEs and rebates of $2,500 per port for deployment of 1,000 Level 2 EVSEs by commercial customers. The program also includes efforts to inform and recruit potential site hosts as well as features to enable equitable access to EVs. The program also includes funding for a unique vehicle to grid (V2G) pilot and impact study, as well as other EV pilots.

DTE's Charging Forward—Phase 2 proposal emphasizes medium- and heavy-duty vehicles, pending regulatory approval. The Charging Forward—Phase 2 program is expanding into five new segments, including mass transit, electric school buses, light- and medium-duty delivery vans and shuttles, heavy-duty regional trucking, and off-road equipment such as forklifts and tarmac equipment.

As of the closing of books in 2020, DTE's Charging Forward program has made over 19 million educational impressions, and approved rebates for 343 residential chargers, 369 Level 2 chargers, and 72 DCFCs with commercial users.

The Indiana-Michigan Power Company offers its customers special time-of-use charging rate incentives. Municipally owned utilities are also facilitating EV adoption in their service territory. The Holland Board of Public Works offers residential customers a $300 rebate for the purchase of a Level 2 EVSE.

Policies & Laws

Michigan's Progressive Mobility Laws

The governmental mobility and electrification assets here in Michigan include public policies supporting highly automated vehicles and advanced driving systems. In 2016, Michigan passed a slate of the most progressive mobility laws in the country. Since then, those laws have been replicated by several states.

Today, public policies across the several states covering advanced driving systems span the following issues:

1. Allowing testing of autonomous vehicle (AV) technologies.
2. Allowing AV operations on public roads.
3. Allowing AV operations without a human in the vehicle.
4. Allowing AV vehicle platooning.
5. Allowing on-demand AV operations.
6. Requiring of liability protections for AV users.
7. Having a state entity advising on advanced mobility issues.
8. Requiring an official report to policymakers regarding the intersections of the mobility sector and public policy.
9. Specifically allowing automated delivery devices, separately from a more overreaching AV law.
10. Preempting local government regulations and fees on advanced driving systems, or identifying the state as the sole oversight authority.
11. Allowing AV testing, but only through an official, arduous permitting process.
12. Allowing AV testing, but only in limited geographic areas or application case.
13. Requiring specifically, and separately from an otherwise overarching and controlling state law, the reporting of automobile crashes involving AV technologies and that individuals and vehicles remain at the scene.
14. Requiring data sharing by AV companies.

Michigan is the only state to have implemented items 1–8 of this list.

Registration and Emission Policy

Michigan does not require emission testing or similar activities for zero-emission vehicles, which in turn helps to increase access and reduce challenges for ownership. Michigan currently has a modest registration fee for electric vehicles, ranging from
$30 to $200 depending on Gross Vehicle Weight Rating, which is within the range of 18 other states that also require EV specific registration fees. This fee is slated to increase $5 per $0.01 increase of the fuel tax over $0.019 per gallon. Notably, at a rate of $0.12/kWh for electricity and $2.50 per gallon of gasoline, the owner of the BEV will yield ownership cost reduction benefits after about 3,000 miles, far below the national average of vehicle miles per year. This chained relationship to the fuel tax also provides an alternative tax revenue source for State of Michigan, making it even more
cost effective for the state to continue embracing EV adoption policies and initiatives.

Michigan is currently considering policies to amend the registration fees for hybrid and fully electric vehicles, by dedicating a portion of the fees collected to support financing for new charging stations and collecting a permit fee for the stations.

Policies & Laws – Electrification in Michigan

The governmental mobility and electrification assets here in Michigan include public policies supporting the electrification of vehicles. There are currently several resources and initiatives in place to support the advancement of this industry within the state and beyond.

Current initiatives

- $25M Mobility Futures Initiatives: $25 million in funding approved to help Michigan retain its global leadership position in mobility by making investments in EV manufacturing workforce; EV charger manufacturing, installation, and maintenance workforce; supporting communities' transition to electrified mobility and related economic impacts; and support more mobility and electrification innovation.
- Lake MI EV Circuit Tour: A multistate project between Michigan, Illinois, Indiana and Wisconsin intended to create an eco-tourism road trip attraction with an EV charging network around Lake Michigan. The goal is to create a long-distance (1,100 miles) road trip route that can be driven entirely by an EV.
- REV-Midwest compact: A multistate collaboration established in 2021 between Michigan, Illinois, Indiana, Minnesota and Wisconsin. The states will work together on EV adoption and charger expansion in the Midwest, while also promoting economic growth in the mobility sector. The compact has a specific focus on futureproof interstate commerce and regional economic vibrancy.
- MI Healthy Climate Plan: Led by the Michigan Department of Environment, Great Lakes and Energy, the MI Healthy Climate Plan is designed to help Michigan reach an economy-wide carbon neutrality by 2050. The plan focuses on actions between now and 2030 that can promote and expand electrification and decarbonization, all while protecting state land and water. The plan includes a statewide goal of deploying enough chargers to support two million EVs in Michigan by 2030.
- The EV Jobs Academy: Governor Whitmer and the Michigan Department of Labor & Economic Opportunity awarded a $5 million grant to Southeast MI Community Alliance (SEMCA). The grant will be used to establish and expand employer-led collaboratives designed to develop and initiate academies focused on closing industry-based skills gaps.
- NEVI: The state of Michigan is currently developing its National Electric Vehicle Infrastructure plan with an aim to have the subsequent operated program(s) improve EV adoption, eliminate range anxiety, support economic development and green the transportation sector.
- North America's first wireless, dynamic charging road pilot: A public-private partnership pilot project headed by MDOT and Electreon to build a public wireless in-road charging system on a 1-mile section of road in Detroit.
- Ford/Detroit/Google/MI Transportation Innovation Zone (MI Central Innovation District): A partnership between Ford, Google, the state of Michigan and the city of Detroit to create an innovation hub in Detroit's Corktown community. MI Central Innovation District will focus on economic, workforce and community development while supporting innovative mobility and electrification technology.
- EV chargers at all Michigan state parks: Through a public-private partnership between the Michigan Department of Natural Resources and Rivian, EV chargers will be deployed at every state park in Michigan.
- National Parks Service partnership: A partnership between the Michigan Outdoor Recreation Office, other state agencies and the National Parks Service, intended to address mobility issues taking

place in Michigan's national parks, including electrification and emissions, safety and visitor access. The goal is to make the National Parks safer and more accessible for visitors.

- Detroit Smart Parking Lab: A parking structure used for real-world testing of parking-related mobility technologies, including EV charging, made possible through a partnership between Bosch, MEDC, Bedrock and Ford, and operated by ACM.
- Electric Robot Delivery Service pilot with Kiwibot: A pilot project between OFME, Corktown Business Association and Michigan Central. The project tests electric, semiautonomous robots for food delivery as a more affordable alternative to other third-party delivery services, like Uber Eats, Grubhub and Doordash.
- EGLE's Charge Up Michigan program: An EV charger placement program that aims to build DCFC infrastructure. Funding is used for site preparation, equipment installation, networking fees and signage.
- EGLE's Fuel Transformation Program: A $30 million EGLE program designed to transition in-state diesel fleets to low-emission or electric. The first phase focuses on the electrification of on-road vehicles, the second phase focuses on marine vehicles and equipment, and the third phase focuses on airport equipment.

Current Proposed Policies

MI New Economy Proposal:

- $40 million EV Friendliness Program: A $40 million investment to ramp up EV adoption in Michigan. The money will be used to fund EV infrastructure expansion, EV testing and innovation projects, and provide resources to vulnerable communities for EV maintenance and expansion.
- Global Center for Excellence for Battery Innovation: A $185 million investment from Ford established the Ford Ion Park in southeast Michigan. Ford Ion Park will conduct EV battery research and development, while also bolstering Michigan's economy and attracting talent to the state.

CFME's 2021 report recommendations:

- Consumer incentives for EVs and Chargers: CMFE has suggested that Michigan should implement personal-use consumer incentive programs for both residential and commercial EV owners. The existing EV charging incentives offered by EGLE and investor-owned electric utilities have been successful, but they lack funding. CMFE calls for long-term, fully funded incentive programs that can help support EVs and EV charger deployment.
    - Governor Whitmer subsequently proposed a $1,500 EV and $500 EV charger incentive program in her 2022 State of the State address, and included funding for it in her proposed state budget that same year. The rebates can be combined with the $7,500 credit, which means that MI families can save up to $10,000 when they purchase a new EV.
- $45 million bus electrification pilot: CMFE has recommended that the state should work to electrify medium- and heavy-duty vehicles, including buses. The pilot project will use $45 million to deploy electric school and public transit buses and the appropriate infrastructure to public school and transit agencies across the state. The program will also provide training to staff members to ensure they understand how to properly maintain and operate electric vehicles.
- Adopt a Low Carbon Fuel Standard: A low carbon fuel standard would create valuable incentives for EV adoption, and support the state's transition to renewable energy at the same time.
- EV Ready Community Guide: CMFE has recommended the state develops and markets an EV-Ready Community Playbook that will guide local communities in creating and expanding their EV charging networks as they prepare for the increased adoption of EVs.

Licensing and Permitting

The licenses and permitting required vary based on the industry, location and other factors that are all project specific. The Michigan Economic Development Corporation and the local economic development organizations are ready to serve as your concierge including introductions and meeting facilitation with the Michigan Department of Environment, Great Lakes, and Energy (EGLE). Michigan has delegated authority for federal air quality and is one of two states with delegated authority for federal water permitting. Below are some links to provide a look at the resources available to help get you started.

- **Michigan Guide to Environmental Regulations** to help businesses navigate the variety of environmental obligations they may face.
- **Self-Assessment Survey** can help you identify which regulations are applicable to your specific operation.
- The **Air Permit to Install (PTI)** is one of the regulatory requirement that are pre-construction and therefore it is important to understand if you are required to apply for a PTI, and when you should do so before beginning construction (so it's issued before you begin construction, and it fits in the company's timeline). The timeline is averaging just under 90 days for an administratively complete PTI application to be reviewed/approved (for what we consider a minor source of air emissions).
- If the business is determined to be a major source of air emissions then there are **federal Title V requirements** (also known as a renewable operating permit in the state of Michigan) that exist and EGLE has a statutory requirement of 180 days.

Federal Delegation

Michigan's government leaders understand what is at stake when it comes to the environment, between our U.S. Congressional delegation and former Michigan Governor Jennifer Granholm now serving as the U.S. Secretary of Energy. Michigan's leaders in D.C. recognize and the need to reduce carbon emissions, are working to create opportunities to formulate jobs in renewable energy and advocating for the policies critical to workforce and manufacturing in the United States, and Michigan specifically.

U.S. Senator Debbie Stabenow

Key Committee Assignments

- Chairwoman, Committee on Agriculture, Nutrition, and Forestry
- Senior member of the Senate Finance Committee
  - » Subcommittee on International Trade and Global Competitiveness
- Senate Committee on Environment and Public Works
- Co-chair of the Senate Great Lakes Task Force

Key Issues

- Senator Stabenow authored the Great Lakes Restoration Initiative to clean up lakes and waterways across Michigan and the nation.
- Senator Stabenow authored the bipartisan Farm Bill that includes the most ambitious climate-smart agriculture and forestry policies to date and has authored bipartisan bills to ensure that the United States is the global leader on advanced transportation technologies like electric and hydrogen vehicles.
- Senator Stabenow's Apprenticeship and Jobs Training Act would provide businesses with a tax cut up to $5,000 for each new employee enrolled in a federal or state-registered apprenticeship program.

U.S. Senator Gary Peters

Key Committee Assignments

- Chairman, Homeland Security & Governmental Affairs Committee
- Commerce, Science, & Transportation Committee
- Member of the Senate Great Lakes Task Force

Key Issues

- Senator Peters coauthored legislation to expand and extend the Manufacturing USA program, which supports public/private advanced manufacturing partnerships—including the LIFT Institute headquartered in Detroit.
- Senator Peters has proposed a National Institute of Manufacturing: an agency that will take the dozens of federal manufacturing programs that are currently strewn across the federal government and put them all under one roof—led by a chief manufacturing officer who can help improve program efficiencies, cooperation, and accountability.
- As ranking member of the Homeland Security and Governmental Affairs Committee, Senator Peters published a report highlighting the cost of climate change to taxpayers—and the need to invest in resilient infrastructure that will withstand increasing extreme weather events.
- Senator Peters introduced the Vehicle Innovation Act to improve advanced vehicle technology R&D that will boost fuel economy, save energy and reduce greenhouse gas emissions.

Key Committee Assignments of Michigan's U.S. House of Representative delegation:

House Committee on Energy and Commerce

- U.S. Representative Fred Upton
- U.S. Representative Debbie Dingell (subcommittee on the Environment & Climate Change)

House Committee on Education and Labor

- U.S. Representative Andy Levin (Vice Chair)

House Committee on Science, Space & Technology

- U.S. Representative Dan Kildee
- U.S. Representative Haley Stevens (chairwoman, Subcommittee on Research & Technology)
- U.S. Representative Peter Meijer