



# ELECTRIC VEHICLE CHARGING STATIONS DOWNTOWN GAYLORD

# PRE-CONFERENCE WORKSHOP – MME WINTER INSTITUTE

Electric Vehicle Charging Stations Downtown Gaylord

City of Gaylord

January 28, 2020

Joseph P. Duff, City Manager

Kim Awrey, Assistant City Manager/Clerk

Bethany Tabor, EV Grid Benefits Lead PowerMIDrive Program, Consumers Energy



# IS THERE A NEED?

- Electric Vehicles will grow from 3 million to 125 million by 2030
- GMC expected to have 20 models by 2023
- Ford pledges development
- Mercedes Benz expected 50 EV of all models by 2022
- BMW expected to have 12 models by 2025
- Volkswagen anticipates \$82 billion spending on electric and autonomous vehicles by 2022.

*Source: Jazel Automotive*



# CITY'S INTEREST IN ELECTRIC VEHICLE (EV) CHARGING STATIONS

- Attendance at Michigan Agency for Energy (MAE) Engagement Meeting for EV Charging in Michigan, December of 2018
  - *Found that MSU/MAE Study did not designate Gaylord as Placement Area*
- Staff Initiated benefits to City & DDA District
  - Economic – Opportunity to put people into businesses, restaurants and retail
  - Showcase Downtown – renovations totaling \$2.2 million in 2017
  - Provide stop whereby people are encouraged to return to when traveling north
- Awareness of Consumers Energy PowerMIDrive Program – Launched June 2019
- Began Discussions with POWERHOME Solar – Troy & Grand Rapids August 2019 on Solar Opportunities for the City.
  - EV Charging Stations
  - Solar Array at City Hall – Reduction of Energy Costs
  - Solar Array at WWTP – Reduction of Energy Costs



# REVIEW OF COST PROPOSALS BY POWER HOME SOLAR – SEPTEMBER 2019

- Focusing on EV Charging Stations
  - Potential Funding from PowerMIDrive Program
  - MAE Office – Potential Funding from Charge Up Michigan Program
  - Local Interest expressed by:
    - Gaylord Area Tourism Bureau
    - Gaylord DDA
    - City Funded Component
- Proceeded with funding application from PowerMIDrive and Charge Up Michigan – Submitted by POWERHOME Solar
- Stakeholders Pitch to Tourism Bureau, DDA and City Council for additional funding

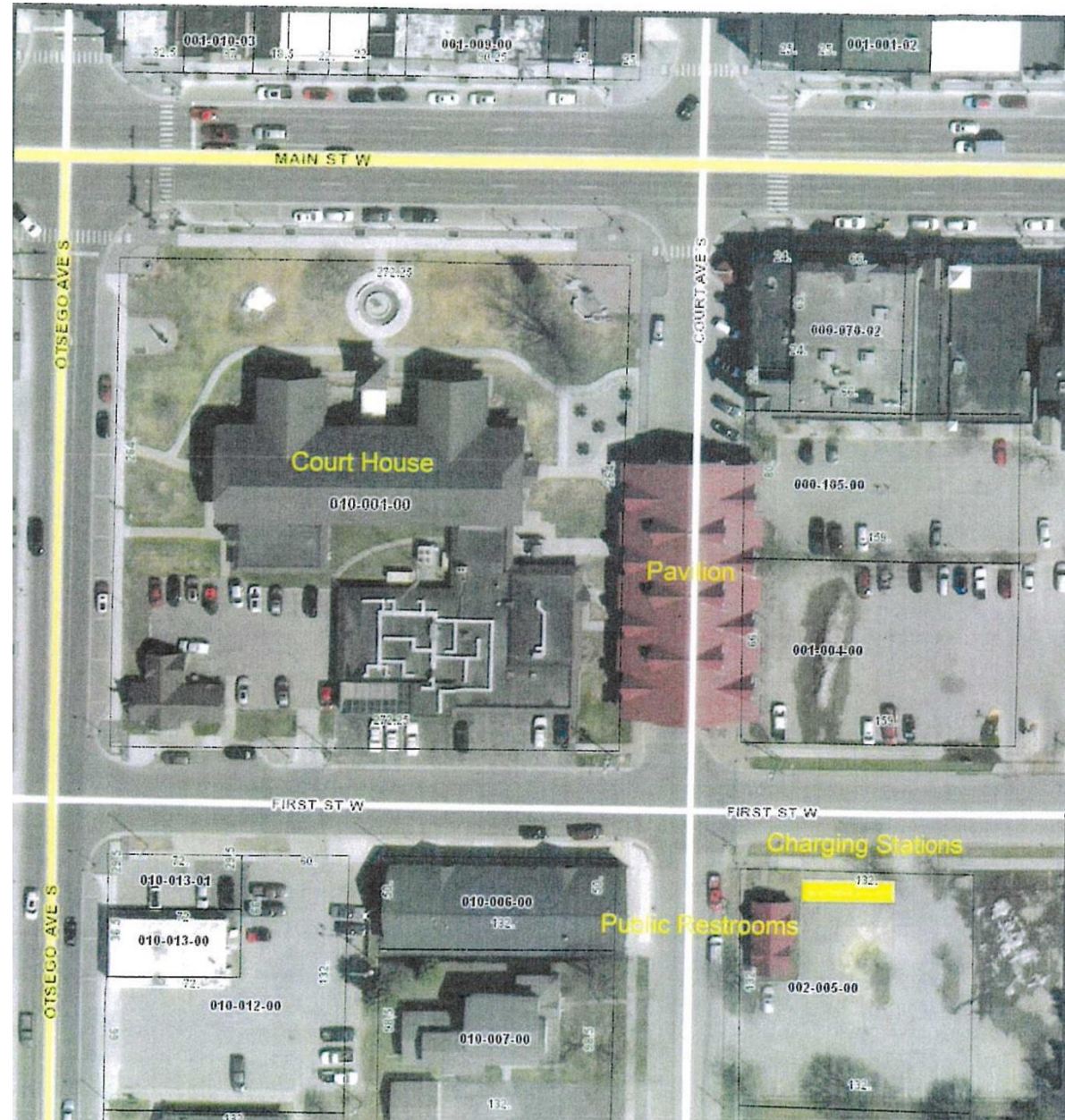


## DETAILED PROJECT DESIRES

- Two level 2 Long Term Charging Stations
- Two Level 3 Fast Charging Stations
- Find Perfect Location



# LOCATION MAP





## LOCATION SELECTED DOWNTOWN BY PAVILION ON COURT

- Heart of Downtown – 0.7 miles from Exit 282 (I-75)
- At Events Area – one block south of M-32 Trunkline
- Vehicle Traffic numbers of 14,000 to 18,000 vehicles per day
- Public Restroom Location – Adjacent to site



# COST SHEET - \$184,089



## SCOPE OF WORK

In accordance with the terms of this Agreement, Contractor agrees to perform the following project on Buyer's behalf (the "Project") and the Project shall consist of Contractor providing all materials (equipment, hardware, and supplies), labor (design, administration, work and supervision), and all building permits / inspections required to complete and put into service the Electric Vehicle (EV) Charging System as specified below (collectively, the "System").

Approximate Start Date: March 20, 2020

Approximate Completion Date: April 20, 2020

QTY	ITEM	DESCRIPTION	UNIT PRICE	LINE TOTAL
<b>ChargePoint Level 2 EV Chargers</b>				
2	CT4021-GW1	Dual Output Gateway Option USA -4021 GWJ Bollard Mount 208/240V @30A With Cord Management	\$9,589.50	\$19,179.00
4	CPCLD-Commercial	5-year Prepaid Commercial Cloud Plan. Designed for employers, businesses and the government, this plan includes 24x7x365 driver support, access control, general reporting, OTA upgrades, payment processing, flexible pricing policies, reservations and more.	\$1,105.00	\$4,420.00
2	CT4000-ASSURE	5 years - Assure Parts and On-Site Labor Warranty	\$2,495.00	\$4,990.00
1	Freight	Freight Add On - Estimate	\$475.00	\$ 475.00
2	Installation	Installation for Bollard Mount Level 2 Charger	\$1,300.00	\$2,600.00
<b>SUB TOTAL</b>				<b>\$ 31,664.00</b>

QTY	ITEM	DESCRIPTION	UNIT PRICE	LINE TOTAL
<b>CHARGEPOINT LEVEL 3 EV CHARGERS</b>				
2	CPE250C	CPE Express 250: ChargePoint CPE Express 250 Electric Vehicle Charging Station - 50KW	\$47,610.50	\$95,221.00
2	CPE250C 62.5 KW	Software Upgrade to increase to 62.5 KW	\$6,650.00	\$13,300.00
2	CPE 250C - CMT	Mounting Template	\$1,040.00	\$2,080.00
2	CPCLD-Commercial	3-year Prepaid Commercial Cloud Plan. Designed for employers, businesses and the government, this plan includes 24x7x365 driver support, access control, general reporting, OTA upgrades, payment processing, flexible pricing policies, reservations and more.	\$2,418.00	\$4,836.00
2	CT4000-ASSURE	3 years - Assure Parts and On-Site Labor Warranty	\$14,630.00	\$29,260.00
2	CPSUPPORT - Activation	Station Activation & Configuration	\$464.00	\$928.00
2	Freight	Freight Add On - Estimate	\$1,700.00	\$ 3,400.00
2	Installation	Installation for Bollard Mount Level 3 Charger	\$1,700.00	\$ 3,400.00
<b>SUB TOTAL</b>				<b>\$152,425.00</b>
<b>TOTAL</b>				<b>\$184,089.00</b>



# CONFIRMATION OF COMMITMENTS

- Consumers PowerMIDrive Approval – October 15, 2019
  - \$70,000 Level 3 Fast Chargers
  - \$10,000 Level 2 Chargers
  - \$30,000 Power upgrades to site
- MAE Commitment – October / Firm commitment December 2019
  - \$41,213
- Gaylord Area Tourism Bureau – October 2019
  - \$10,000
- Gaylord DDA – October 2019
  - \$10,000
- City of Gaylord – October 2019
  - \$42,876 - Approximate

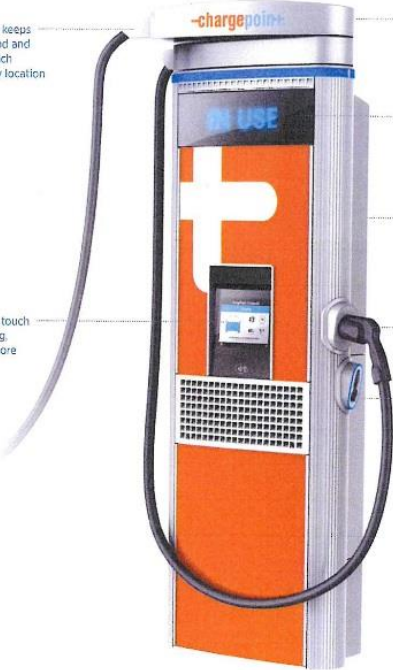
# CHARGING STATION



## Express 250 Station

Cable management keeps cables off the ground and makes it easy to reach charging port in any location

254 mm (10 in) LCD touch display shows pricing, energy usage and more



Dimensions of 2,230 mm x 712 mm x 420 mm (7'4" x 2'4" x 1'4")

508 mm (20 in) LED display shows real-time availability, wait times, state of charge, station pricing and more

Stations can dispense up to 62.5 kW

Supports CHAdeMO, CCS1 and CCS2 connectors; other common connector types will be supported in the future

Configurable with up to two connectors per station

## Power Module

- Self-contained AC to DC power conversion system
- Output range between 200V and 1,000V DC
- Delivers up to 31.25 kW at a max current of 78A
- Sealed units are easily field installed in Express 250 Stations



# CHARGING STATION



## CT4000 Family

ChargePoint® Level 2 Commercial Charging Stations

The CT4000 family is the latest generation of ChargePoint commercial charging stations. Refined yet rugged, these stations set the industry standard for functionality and aesthetics.

The CT4000 full motion color LCD display instructs drivers and supports dynamic updates of custom branded videos and advertisements.

Intelligent power management options double the number of parking spaces served by allowing two charging ports to share a single circuit. Sites with single port EV stations can upgrade to dual port stations without requiring additional electrical services.

The CT4000 is the first ENERGY STAR® certified EV charger because it charges efficiently and conserves power when not charging. As an ENERGY STAR certified EV charger, the CT4000 uses significantly less energy than a standard EV charger when in standby mode to help you save money on your utility bill.

All CT4000 models offer one or two standard SAE J1772™ Level 2 charging ports with locking holsters, each port supplying up to 7.2kW. With this standard connector, ChargePoint level 2 stations can charge any EV.

Stations are available in bollard and wall mount configurations for easy installation anywhere. All stations are fully software upgradeable remotely over the air.

Stations come in both 6' and 8' tall models with 18' and 23' cords, respectively. With multiple options for size and cord reach, your station can service up to four parking spaces, reach all car models regardless of parking style or car sizes and increase the usability of your EV spots.

### Driver Friendly User Interface

- Instructional video shows how to use the station
- Multi-language: English, French, Spanish
- Touch button interface; works in rain, ice and with gloves
- Backed by ChargePoint's world class 24/7 driver phone support

### Easily Communicate with Your Drivers

Whether you're a retail establishment wanting to advertise your latest product, a workplace looking to communicate with employees or a municipality wanting to welcome visitors, ChargePoint's prominent LCD screen makes it easy to reach EV drivers:

- Daylight readable, with auto brightness control
- 640 X 480 resolution active matrix
- Full motion 30fps video support
- Upload up to 60 seconds of high quality video on a color LCD screen to individual stations as often as desired
- Brand your charging stations to communicate with drivers
- Instructional video in English, Spanish or French

-chargepoint+



The First  
ENERGY STAR®  
Certified EV Charger



## PROJECT POSSIBLE BY

- Consumers Energy PowerMIDrive Program
  - Bethany Tabor (517) 374-2158 [Bethany.tabor@cmsenergy.com](mailto:Bethany.tabor@cmsenergy.com)
- MAE Office
- Local Funding – Gaylord Area Tourism Bureau, DDA, City of Gaylord
- POWERHOME Solar
  - Larry Knight (248) 564-3428 [lknight@powerhome.com](mailto:lknight@powerhome.com)
- *Currently project in Design - March/April Start – May Completion*



**COMPUTERS SEEMED  
WEIRD AT FIRST, TOO.**



Powered by Electrify America, LLC.  
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**Electric cars.  
They're Normal Now.**



Powered by Electrify America, LLC.  
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LAUNCHED JUNE 5, 2019

1. Charging when it benefits the grid and potential for managed charging
2. Increased public charging infrastructure
3. Public education



Three-year program to make it easier for electric vehicles (EV) owners to charge their EVs, and to ensure the electric grid is prepared to capture the benefits for our customers from the growing EV market

Includes:

- **Rate options** to help EV owners maximize the value of their vehicle by charging off peak and at night
- **Education campaign** to build awareness and understanding



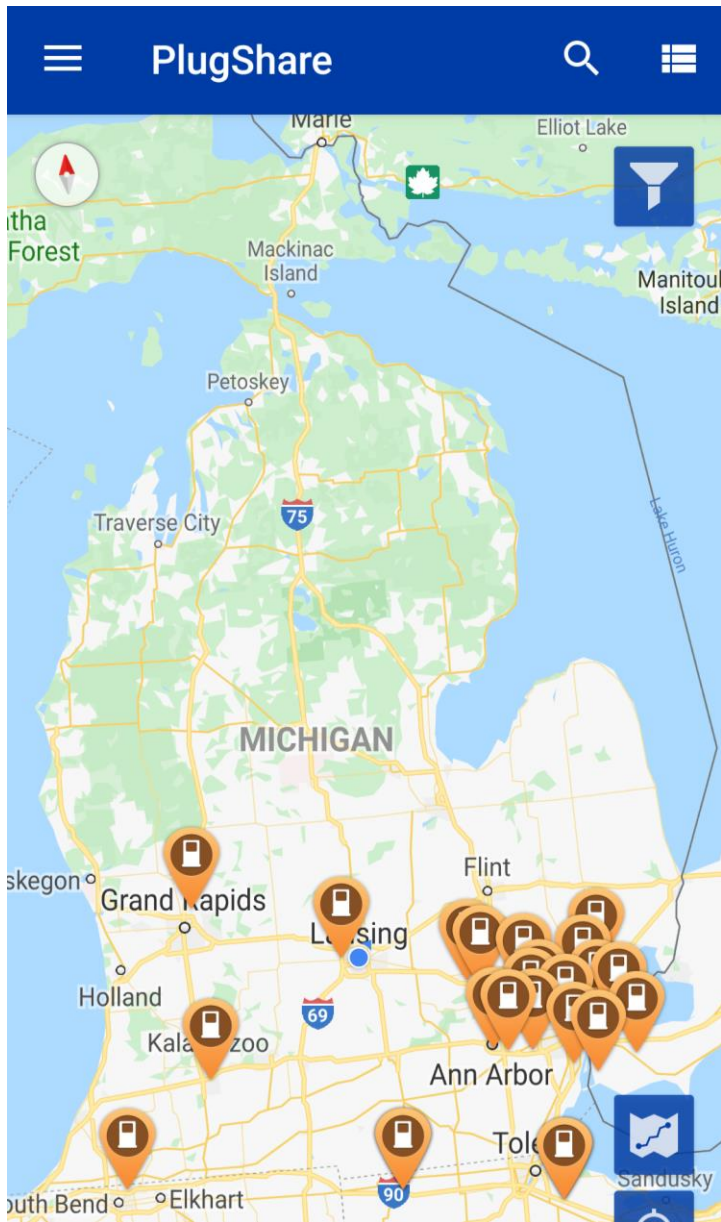
**\$500** for customers who install an approved Level 2 Charger at their residence, and sign up for our EV rate. *Additional savings available to low-income customers.*



**Up to \$5,000** for commercial customers who install an approved Level 2 Charger in public location. *Total number of rebates limited.*



**Up to \$70,000** for commercial customers who install an approved DC Fast Charger in public location. *Total number of rebates limited.*

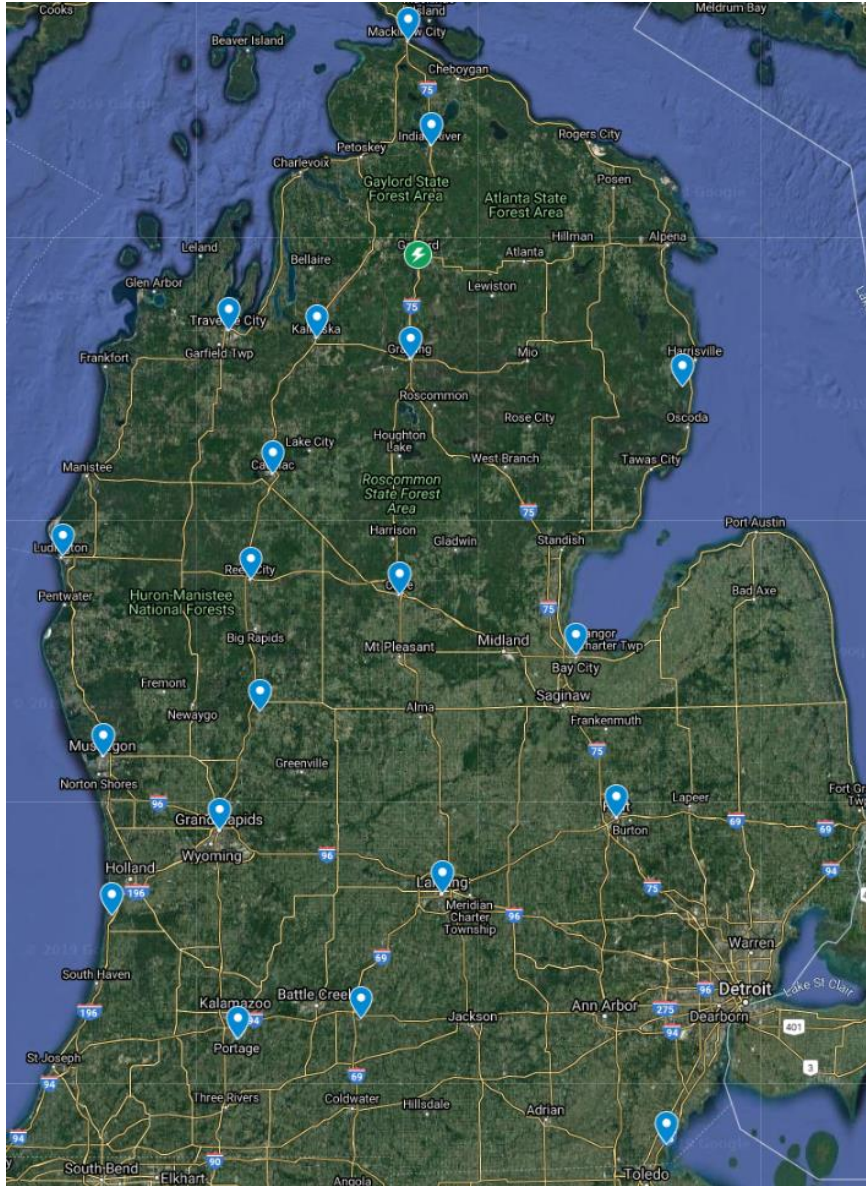


## NON-TESLA DC FAST CHARGERS & THE NEED FOR PUBLIC INFRASTRUCTURE

# DC FAST & LEVEL 2 CHARGING COMING SOON TO GAYLORD!

## Participating in the PowerMIDrive Program:

- Rebate Application
- Choosing Great Site Host Candidates
- Electrical Upgrade Assessment
- Total Project Cost & Rebate Incentives
- Ongoing Operation of Chargers

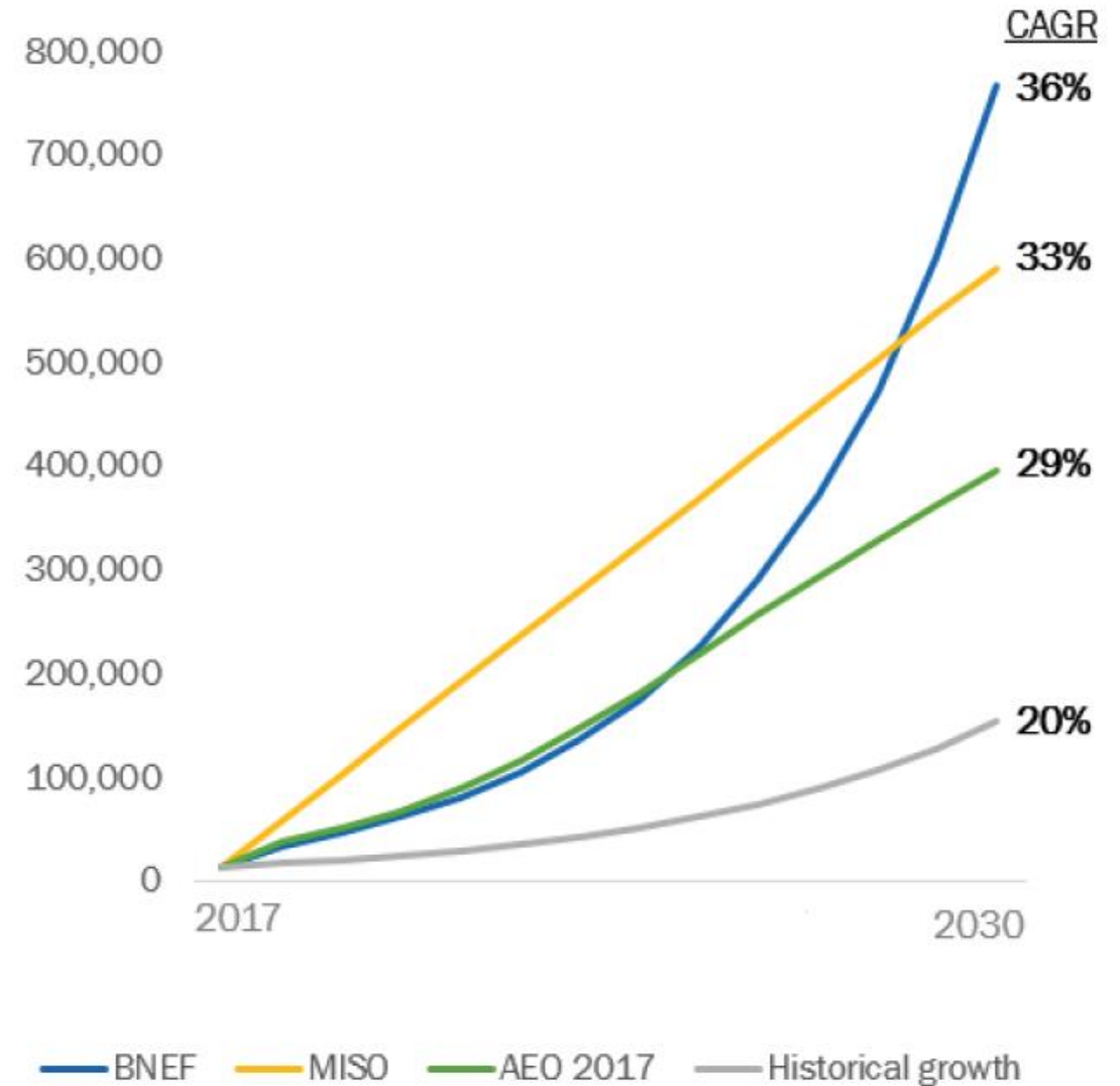


 MSU/MAE Fast Charger Placement Study

 Gaylord Fast Charger Site

# MI EV FORECAST

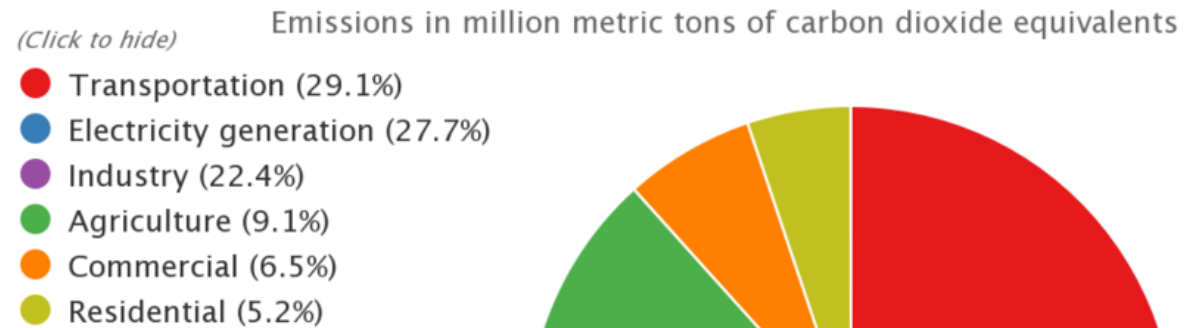
- GM committed to a 100% EV future
- Ford going “all in” in the Mustang Mach-E
- Tesla sales continue to increase
- New players emerging (e.g. Rivian)





# CLEAN TRANSPORTATION FUELED BY CLEAN ENERGY

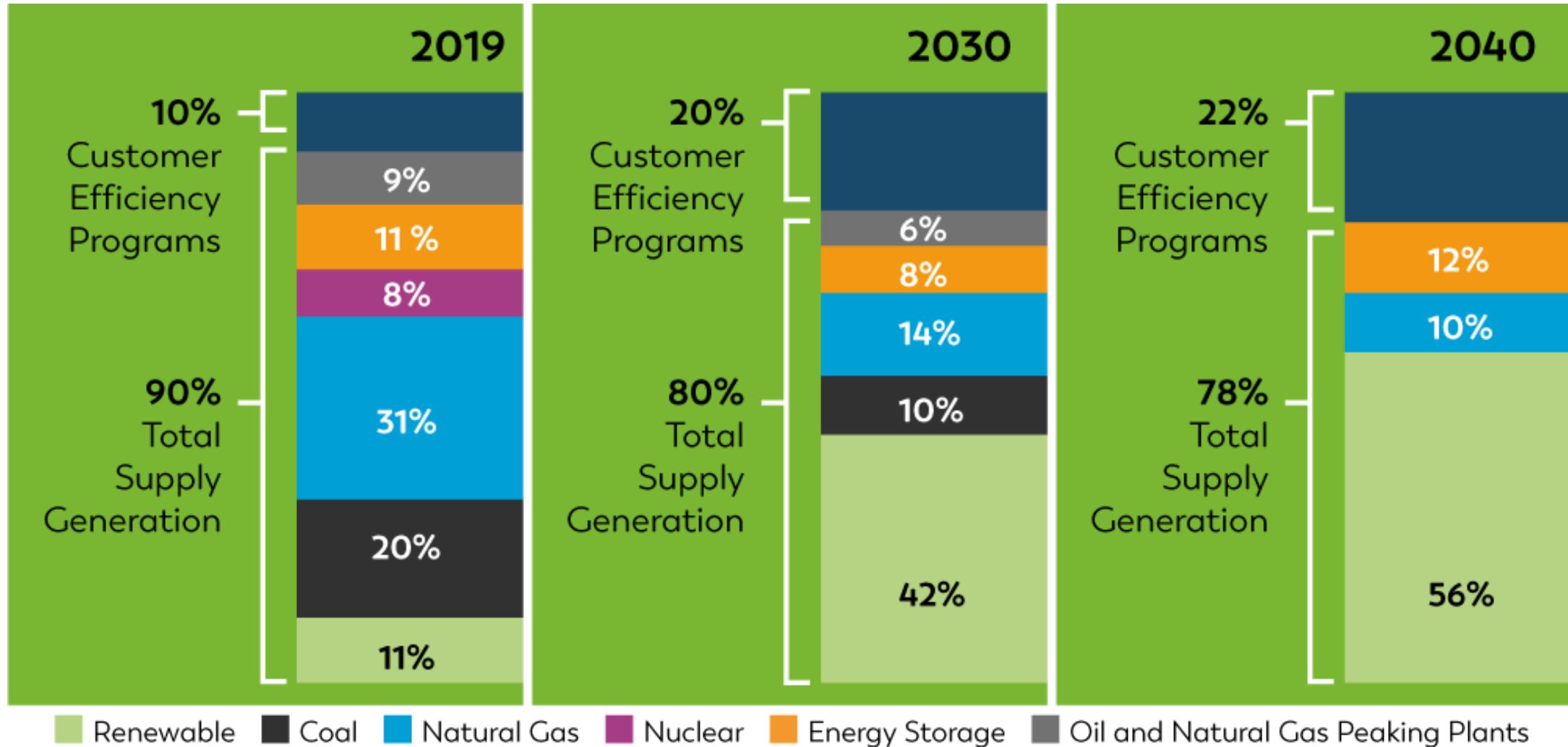
## U.S. Greenhouse Gas Emissions by Economic Sector, 2017



Source: U.S. EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2017.  
<https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks>



# CONSUMERS ENERGY GENERATION MIX



# THANK YOU!

