



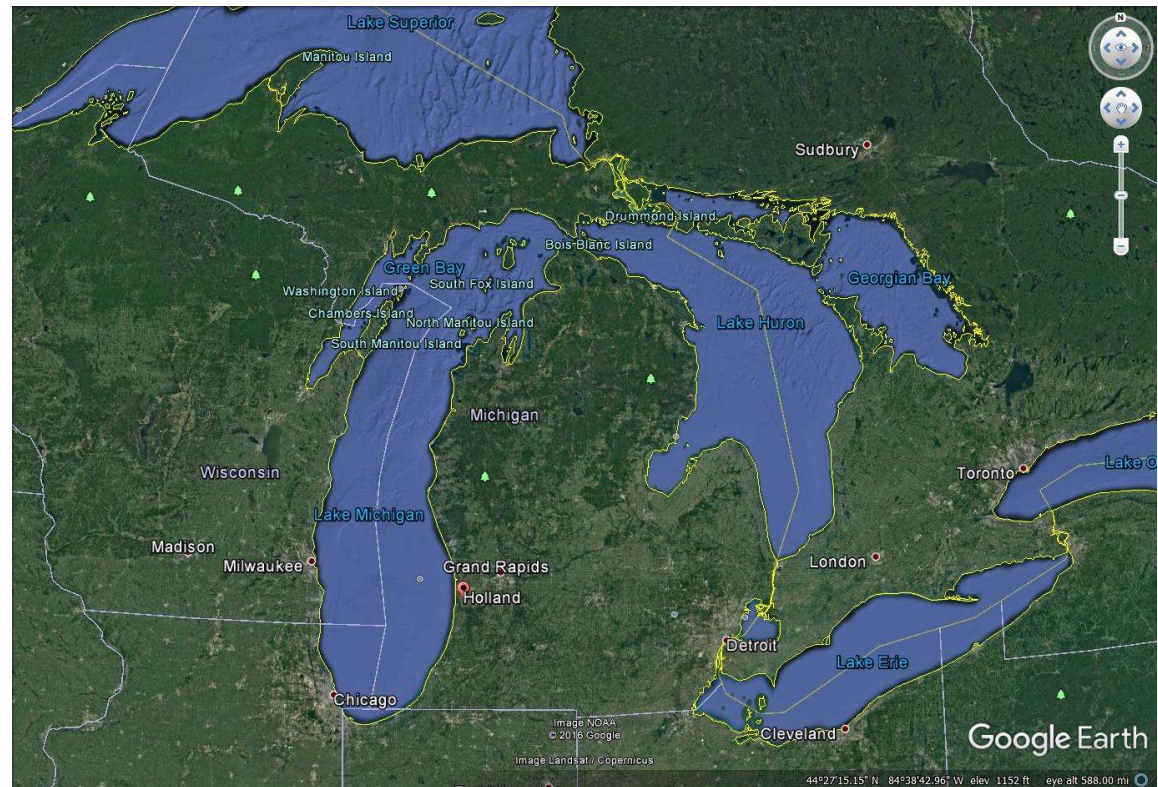
The Past, Present and Future of EV Charging Stations in Holland, MI

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Holland Board of Public Works

- Located in Southwest Michigan
- Provides Electric, Water, Wastewater and Broadband services
- Electric Utility formed in 1893 to provide lighting to the City of Holland
- 28,000 Electric customers in the City and surrounding Townships
- ~ \$80M in annual electric revenue of which 82% comes from Commercial and Industrial customers



Goals

- Increase EV ownership in the electric service territory while not adding to peak usage (incentivize off-peak charging)
- Transfer ownership of existing chargers and continue to build relationships with charging site hosts
- Discontinue free energy for charging stations



Michigan Among the Top 10 States for EV's Sold

	State	Q2'17
1	California	297,859
2	Washington	26,136
3	Florida	24,345
4	Texas	22,208
5	New York	20,873
6	Georgia	20,618
7	Michigan	14,723
8	Oregon	14,013
9	Illinois	13,551
10	New Jersey	12,906

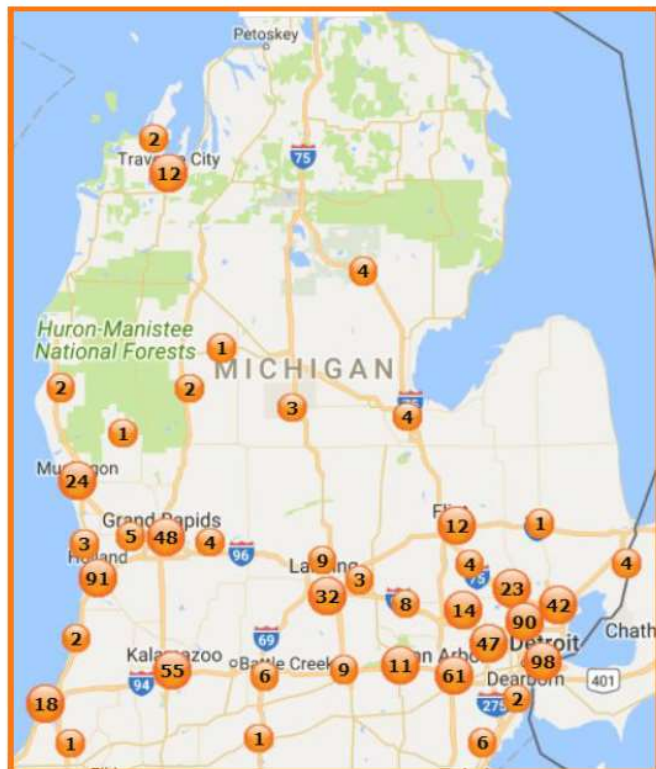


MI has a 41% year over year growth

Source: Polk



Michigan EV Charging Infrastructure



+ ChargePoint spots: 456

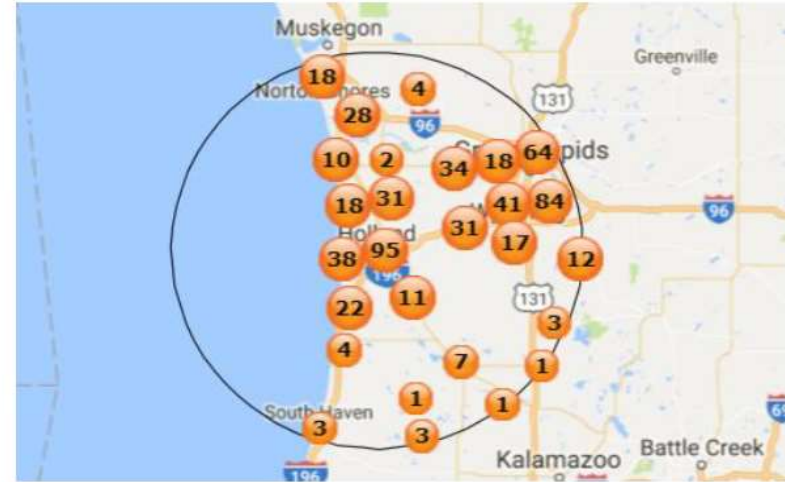
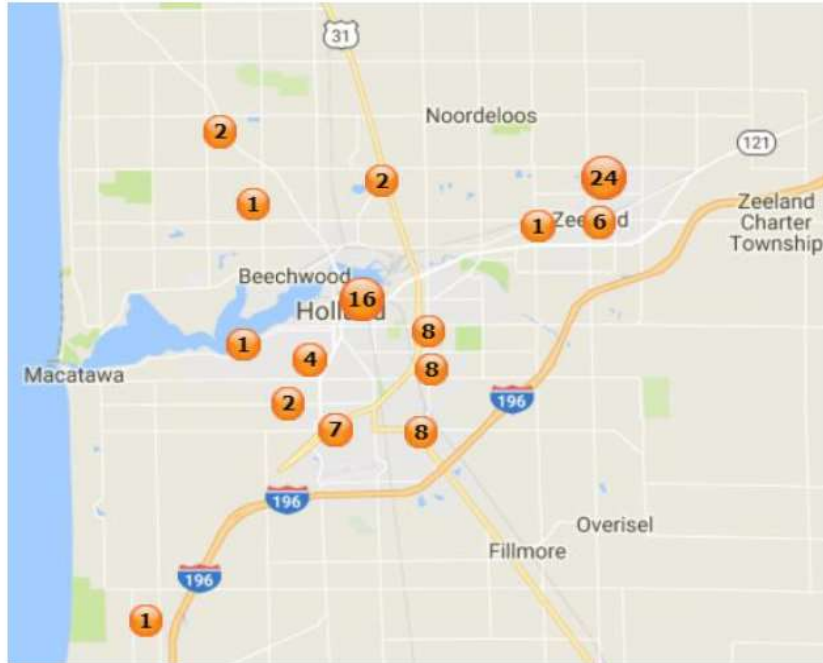
+ Site hosts include:



Source: ChargePoint, Inc.



ChargePoint Presence In Holland



29 ChargePoint Ports in Holland

601 ChargePoint Drivers within 30 mile radius of Holland

Source: ChargePoint, Inc.



EV History in Holland

- HBPW received a grant for 17 EV charging stations from U.S. Department of Energy as part of the American Reinvestment & Recovery Act (ChargePoint American™ Program)
- In 2011 EV charging stations were installed throughout the City on both public and private property
 - required lease agreements with landlords
 - four accounts direct-billed to HBPW
- Provided free charges to vehicle owners
- Provided free energy to landlords via bill credits



Landlords

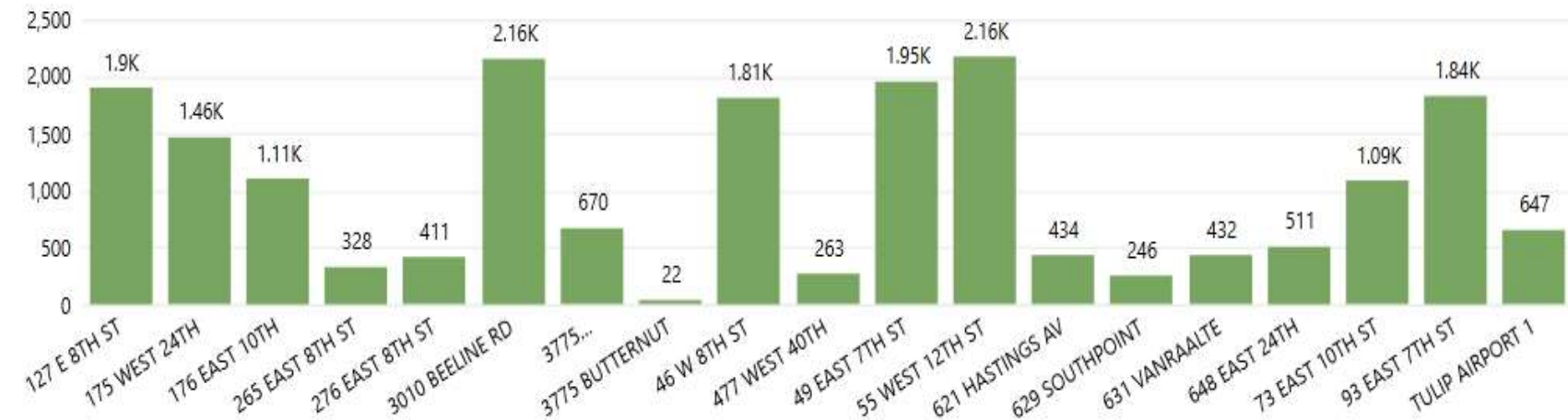
- Schools
 - Holland Christian HS
 - Holland HS
 - West Ottawa HS
 - Hope College
- Hotels
 - Doubletree
 - City Flats
 - Residence Inn
 - Haworth Inn and Conference Center
- Downtown Holland
 - Two street locations
 - Parking garage
- Miscellaneous
 - Train Station
 - Chamber of Commerce
 - Felt Shopping Center
 - City Hall
 - Airport
 - Holland Aquatic Center



HBPW charging station usage

Transactions by Station

Count of Transaction Date Pacific Time by Station

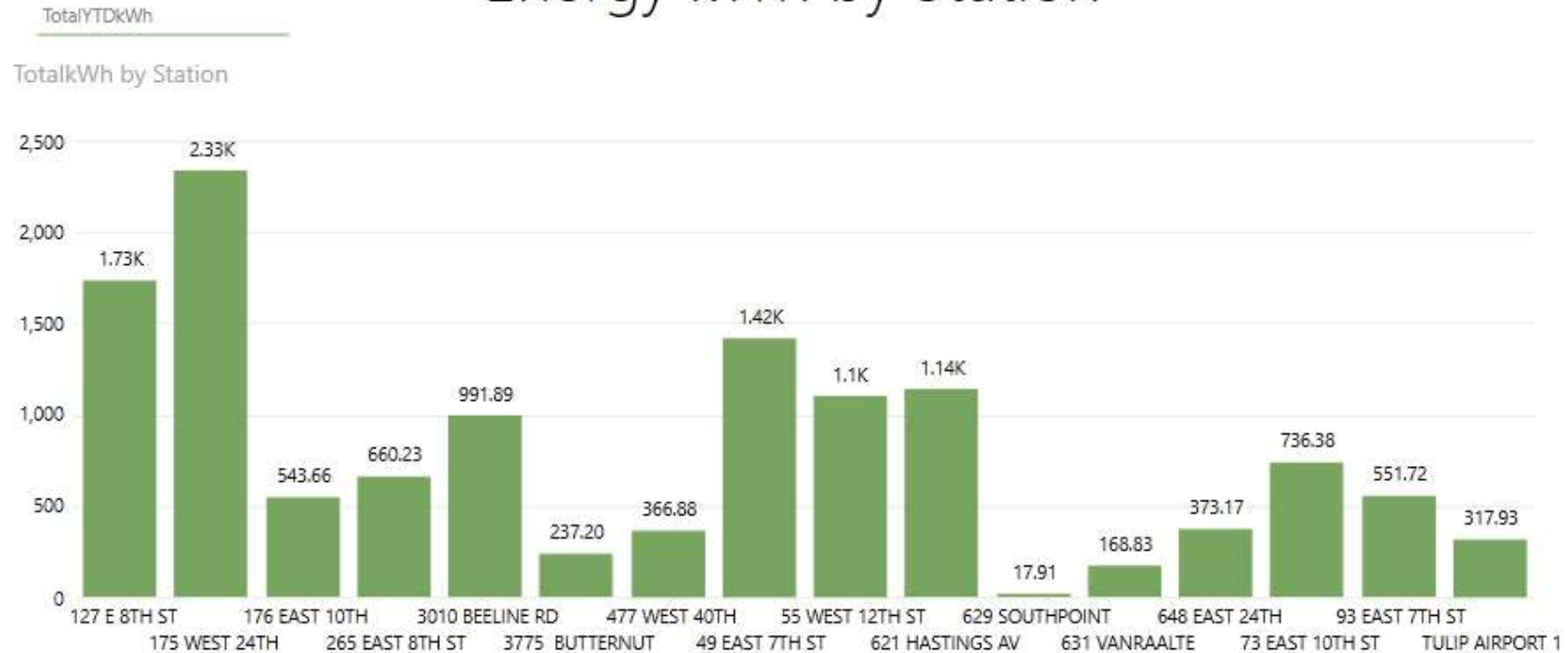


2011-2017



HBPW charging station usage

Energy kWh by Station

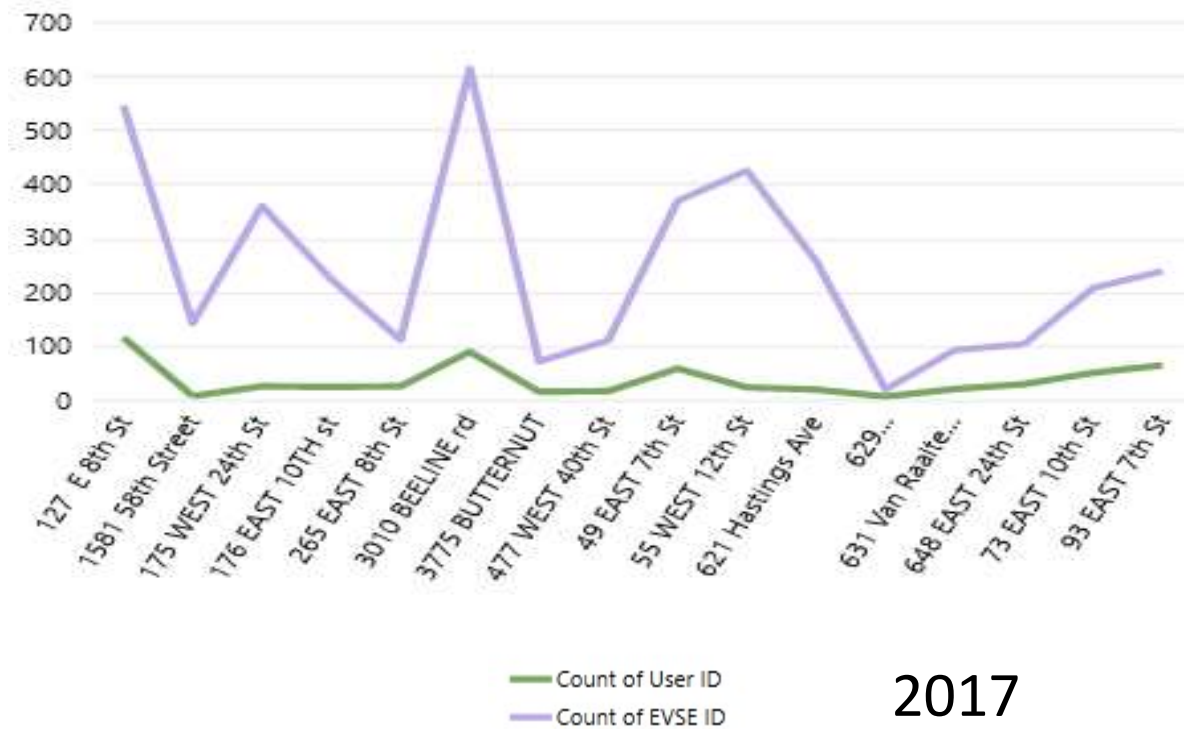


2017



HBPW charging station usage

Count of User ID, and Count of EVSE ID by Address 1



Address 1	Count of User ID
127 E 8th St	115
1581 58th Street	7
175 WEST 24th St	25
176 EAST 10TH st	24
265 EAST 8th St	25
3010 BEELINE rd	89
3775 BUTTERNUT	15
477 WEST 40th St	16
49 EAST 7th St	58
55 WEST 12th St	23
621 Hastings Ave	19
629 Southpointe Ridge Rd	6
631 Van Raalte Ave	20
648 EAST 24th St	29
73 EAST 10th St	50
93 EAST 7th St	64
Total	270

2017



Current Situation

- Total electric credits since inception: \$4,961 or 72,879 kWh (through 2017)
- Current stations are now ~ 7 years old and failing
- Newer stations are approximately 40% - 50% more energy efficient in stand-by mode (Energy Star rated)
- Staff developed internal knowledge of charging stations and is certified by ChargePoint for installations and maintenance of chargers



Actions for Existing HBPW Owned Charging Stations

- Termination of existing landlord leases
- Provide landlords with several options:
 1. \$1000 rebate on replacement station (HBPW labor included to swap out with new)
 2. Keep existing station and assume responsibility for annual network fees, maintenance, and energy use (BPW will help maintain as long as parts are available)
 3. Remove station and restore land at HBPW expense
- Landlords become site hosts and have the flexibility to charge vehicle owners to “fuel” their vehicles as a value-added service

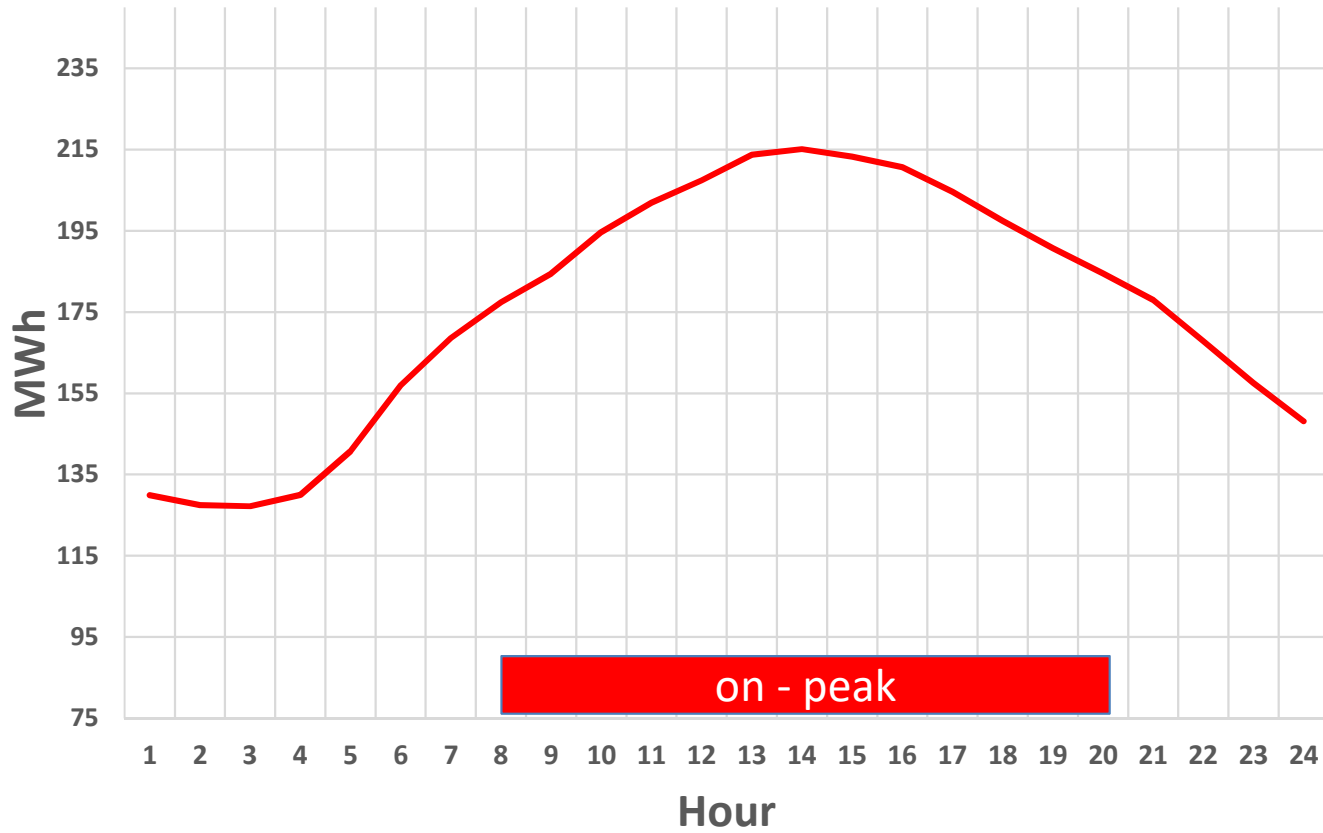


New Rates and Incentives for Home Chargers

- Provide \$300 rebate for “qualified” (WIFI-enabled) charger
 - Approximately ½ of the cost of a new charger
 - Process rebate after evidence of data being transmitted
 - Applied four-year Net Revenue model to calculate rebate
- Require Time-of-Use Rate
 - requires “qualified” charging station (internal meter that can transmit data to HBPW for rate calculation)
 - 10 PM – 8 AM are off-peak hours
 - \$0.035 off-peak / \$0.12 on-peak
 - Applies only to charging station energy use



HBPW Load Profile



Rebate Information

- Rebate program started July 1st
- Three residential rebate applications processed to date (\$300)
- Average installation cost (charger, materials and labor) = \$922



New Rates and Incentives for Commercial and Public Chargers

- Commercial chargers are typically owned by a business for private use of employees/visitors and/or customers
 - Box stores, hotels, schools, work place (private business)
- Public chargers are available to anyone and often along city streets and in shopping districts – “always available”
- Commercial & Public Chargers
 - \$1000 rebate for “qualified” chargers
 - Approximately 1/3 of the cost of a new Charge Point charger
 - Utilize four-year net revenue model
 - Current rate schedules apply (energy and demand)



Commercial Charger



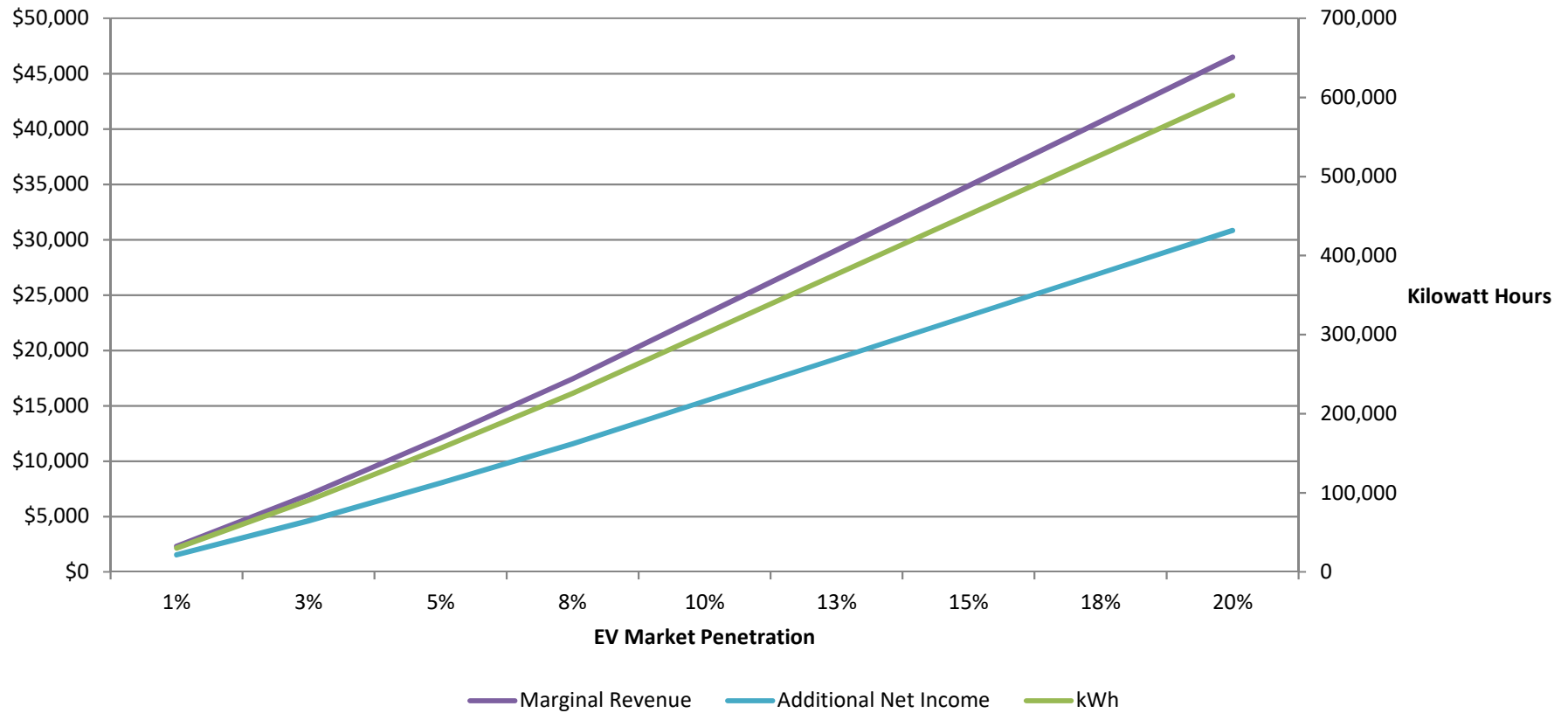
Michigan IOUs

- Currently DTE (\$13M) and Consumers Energy (\$7.5M) have EV strategy and rate cases at the Michigan Public Service Commission
- Propose rebates for EV purchase
- Propose rebates for EV charger purchase and installation (residential and commercial)
- Propose TOU rates for EV chargers
- Propose installation of DC fast chargers (utility owned)
- Paid for by rate increase for existing customers



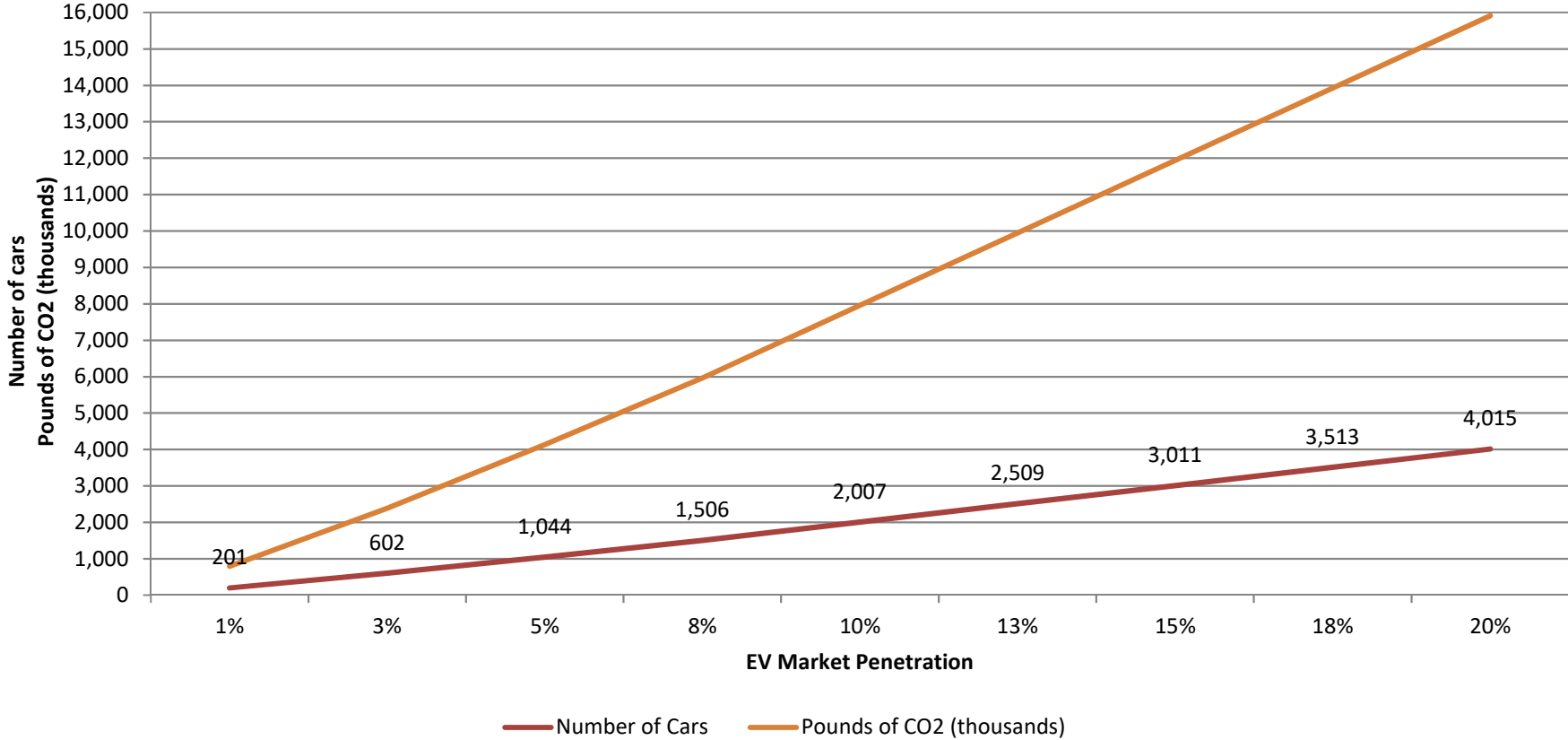
How will EV's affect the HBPW?

Monthly Impact on Revenue, Net Income and Energy



How will EV's affect the HBPW?

Annual Impact on Vehicle Market & Carbon Reduction for the HBPW Service Area



Next Steps

- Develop marketing rollout plan for rebates
- Establish process to handle rebates (complete)
- Update website to educate public on Evs (complete)
- EV TA Team meet annually to evaluate strategy and adjust when needed

