Charging Forward

Stakeholder Discussion

January 2020

Charging Forward was designed with four primary goals in mind

- Help customers **realize the benefits of EVs** and **reduce the barriers to adoption**
- **Efficiently integrate EV load with the distribution system** by actively managing charging times and ensuring the net benefit of EV load accrues to all customers
- Fully subscribe the Charging Infrastructure Enablement component through thoughtful partnerships, **maximizing participants while minimizing necessary infrastructure investments**
- **Improve our understanding of EV load characteristics** and its impact on the distribution system to prepare for widespread EV adoption in the future

The initial proposal for $13.1M included three primary components and was approved by the Michigan Public Service Commission on May 2nd

	Description
Customer Education & Outreach ***$1.6 million***	• **Increase EV awareness** through customer education • Inform and recruit potential site hosts • Engage current EV drivers
Residential Smart Charger Support ***$1.5 million***	• **Provide ~2,800 $500 residential rebates for installation of a Level 2 smart charger** – Requires enrollment in a year-round time-of-use (TOU) rate
Charging Infrastructure Enablement ***$10 million***	• **Deploy ~32 DC fast chargers (DCFCs)** – Primarily along highway corridors – Min 2 chargers per site • **Deploy ~1,000 Level 2 charging ports** – Public, workplace, and multi-unit dwelling locations – Min 4 / Max 20 ports per site; Max 100 ports per customer • **Support deployment of charging infrastructure for fleets** – Public transit, school buses, delivery trucks & shared mobility services

The purpose of today's discussion is to provide a Charging Forward status update and get feedback on recommended modifications

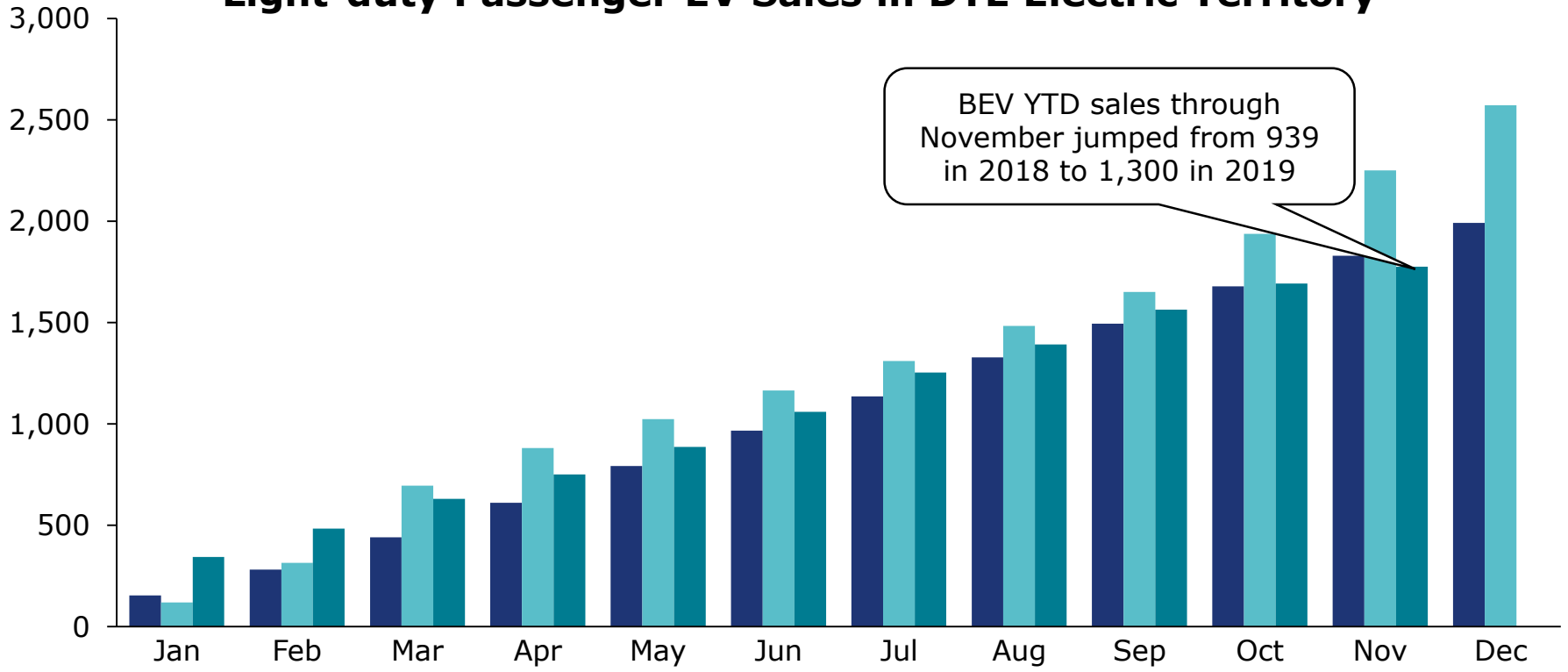
Time	Topic	Lead
1:00-1:10	Introduction & Roll Call	Kelsey Peterson
1:10-1:30	EV Market & Program Update	Brett Steudle
1:30-1:50	Education & Outreach Update	Angela Gust
1:50-2:00	Mass Transit Update	Lynn Felcyn
2:00-2:10	School Bus Update	Milena Marku
2:10-2:50	Proposed Modifications & Feedback	Kelsey Peterson
2:50-3:00	Roundtable & Next Steps	All

Agenda

- **EV Market & Program Update | Brett Steudle**
- Education & Outreach Update | Angela Gust
- Fleets Update | Milena Marku & Lynn Felcyn
- Proposed Modifications & Feedback | Kelsey Peterson

Though EV Sales in DTE Electric territory declined in 2019 – as they did nationally, BEV sales in the territory were up 38% compared to 2018

Light-duty Passenger EV Sales in DTE Electric Territory[1]



	Nov YTD	BEV Portion
2017	1,813	26%
2018	2,251	42%
2019	1,775	73%

1. Sales are cumulative within each year and include both all-electric EVs (BEVs) and plug-in hybrid EVs (PHEVs)
Source: 2017-2018: Auto Alliance Sales Dashboard; 2019: IHS Markit Automotive as of 1/21/20 (2-month lag)

DCFC applications have already exceeded our estimate of ~32 for the Charging Forward program

	Approved[1]	In Progress[2]	Other[3]
Residential	112	9	19
Make-Ready Level 2 (L2)	24 sites 101 ports	1 site 4 ports	0 sites 0 ports
Make-Ready DCFC	21 sites 44 chargers	2 sites 4 chargers	8 sites 16 chargers

1. Applications have been reviewed and approved by DTE as meeting all of Charging Forward's required Terms & Conditions
2. Applications have been received and are under review
3. On-hold: Applications with medium or high distribution system costs; Rejected: Applications that do not meet program qualifications; Withdrawn: Applications that have been pulled by the customer

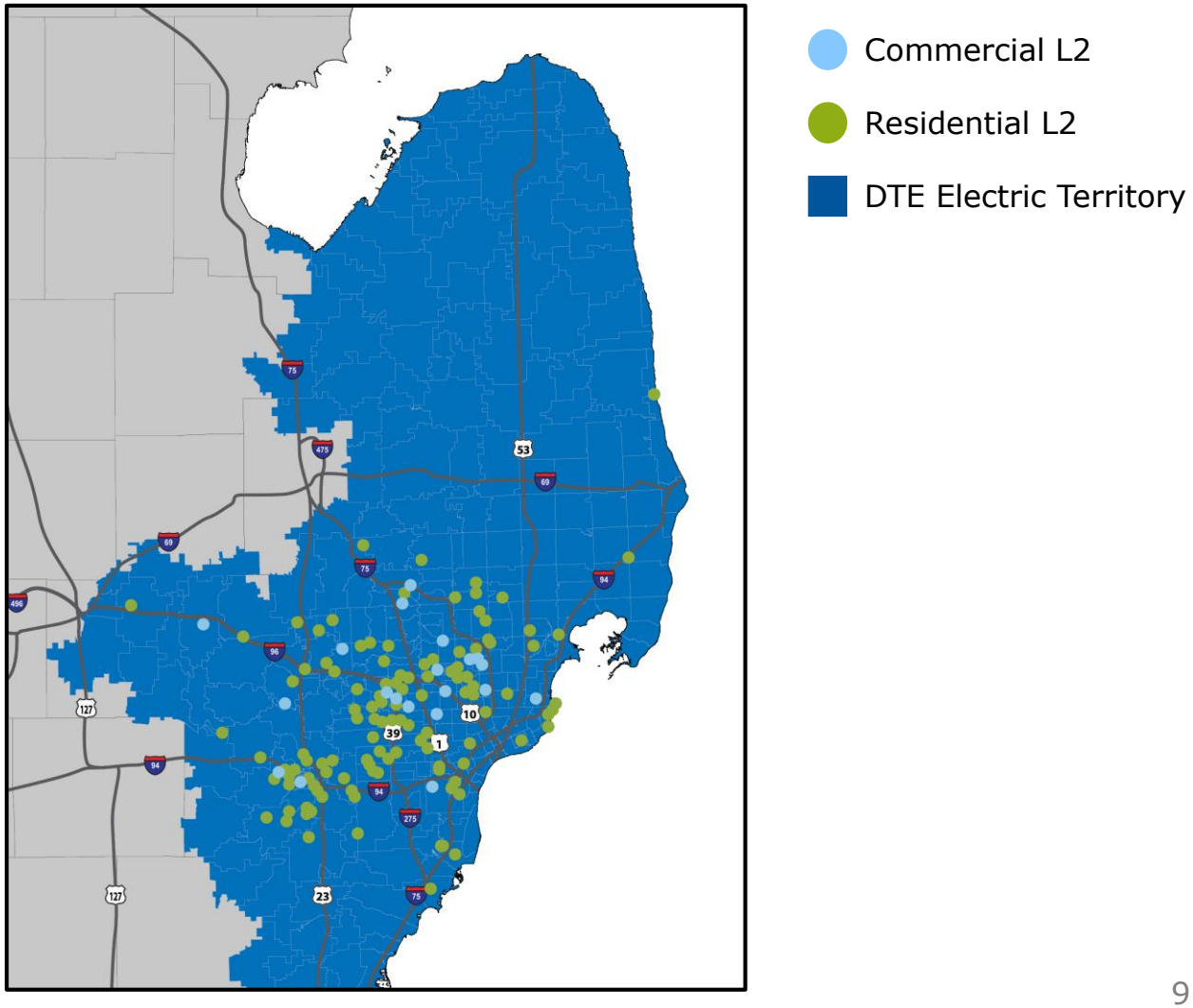
DTE

Charging Forward gained momentum in application approvals across all three categories in the fourth quarter

	2019		2020				Cumulative Total
	Q3	Q4	Q1	Q2	Q3	Q4	
Residential	44	68					112
Make-Ready Level 2 Sites (Ports)	7 (30)	17 (71)					24 (101)
Make-Ready DCFC Sites (Chargers)	3 (6)	18 (38)					21 (44)
						Total Approved Commercial Sites / Ports	45 / 145

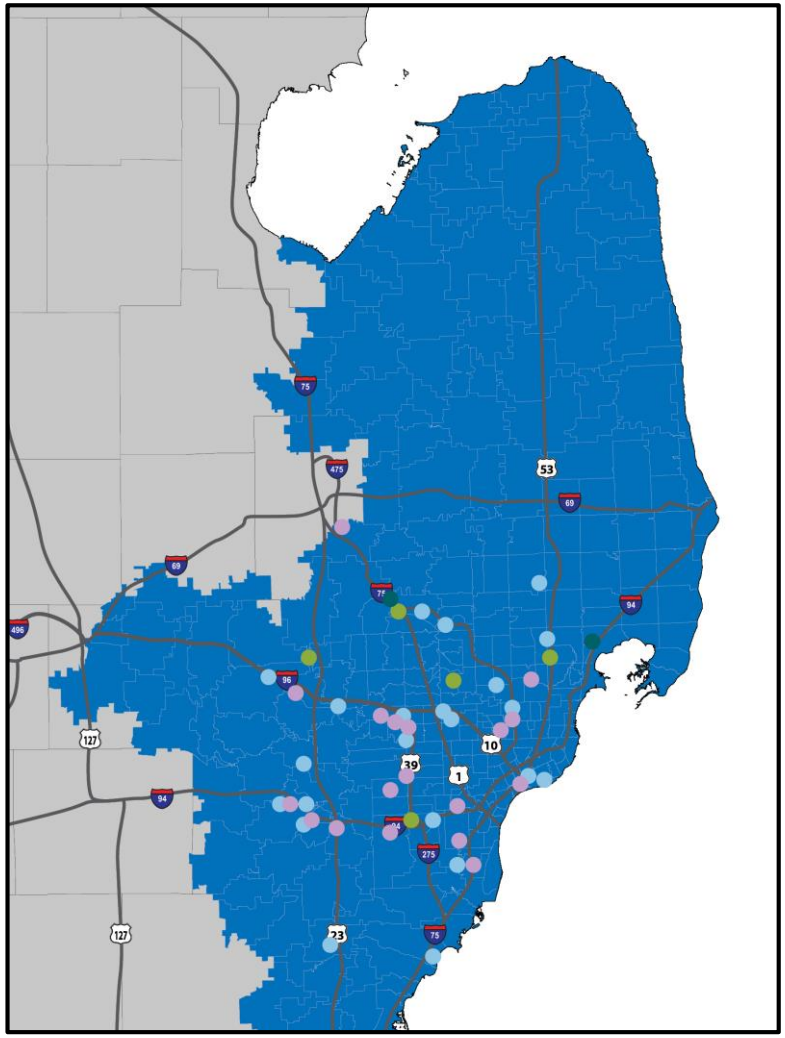
Residential and commercial Level 2 applications are spread across Metro Detroit

Approved and In-Progress Level 2 Sites



We are approving DCFC applications based on location and impact to the distribution system; only low-impact sites have been approved

DCFC Sites

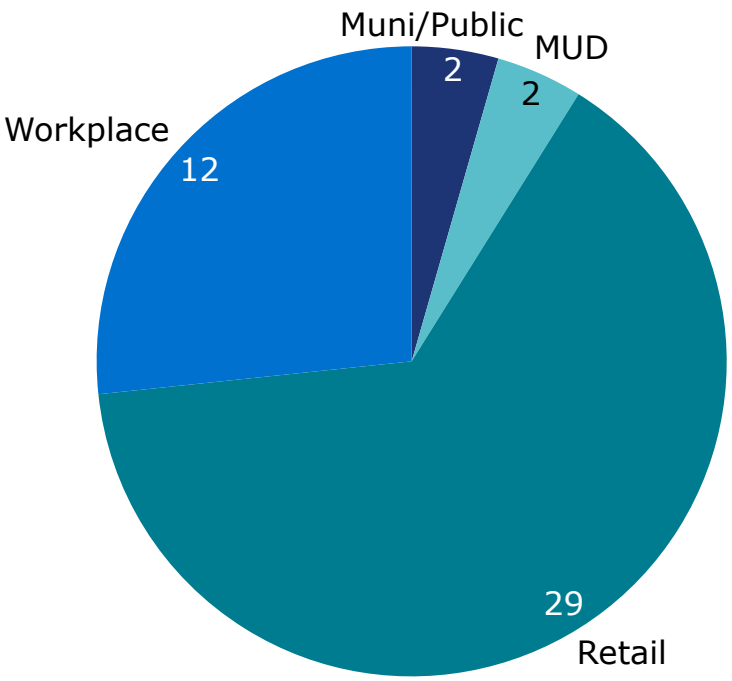


- Existing[1]
- Approved/In-Progress
- On Hold
- Withdrawn
- DTE Electric Territory

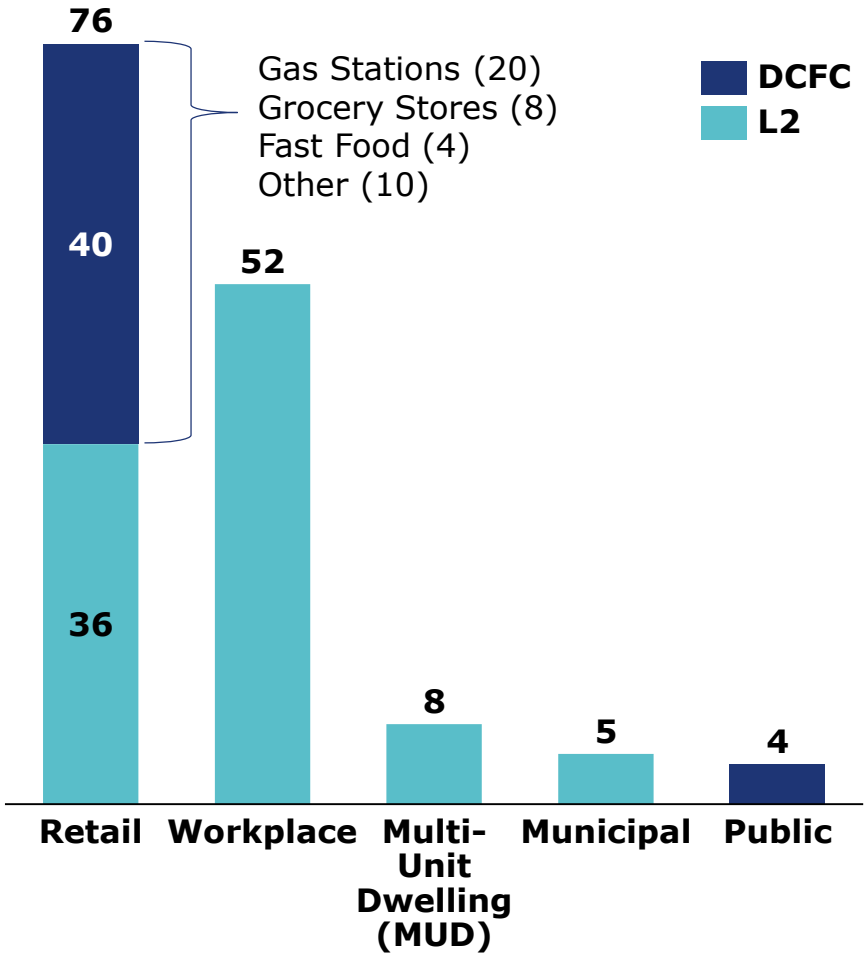
1. Existing infrastructure includes any public, non-Tesla DCFC installed outside of the Charging Forward program
Source: Alternative Fuels Data Center

In addition to geographic spread, we're also tracking Charging Forward applications by site host verticals

45 Commercial Sites by Vertical



145 Commercial Ports by Vertical



The second qualified vendor RFI was completed in October and resulted in a new Network Provider as well as five new chargers

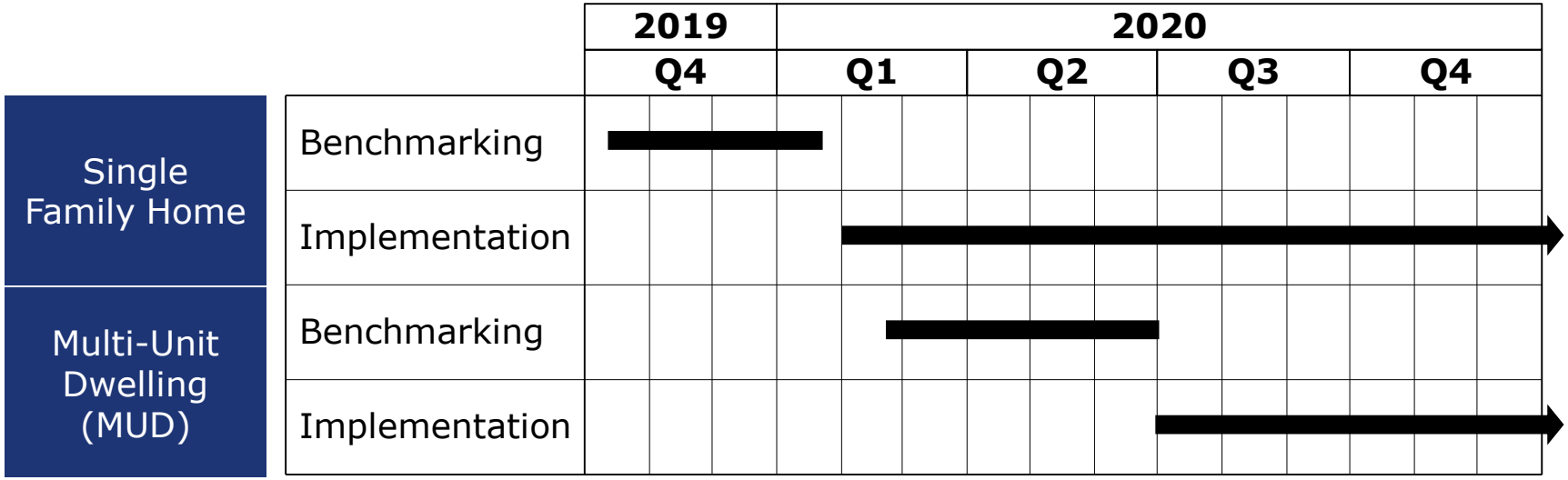
Qualified Charging Forward Network Providers

Network Provider	Charger Manufacturer(s)	Charger Type	Charging Forward Component
chargepoint	ChargePoint	Level 2 DCFC	Commercial Residential
evconnect	Various[1]	Level 2 DCFC	Commercial
enel x	Enel X	Level 2	Commercial Residential
greenlots	Various[2]	Level 2 DCFC	Commercial
VOLTA	Various[3]	Level 2 DCFC	Commercial

- We released an RFI refresh in Q4 to 30 network providers
- Key results include:
  - Replaced SemaConnect with Volta
  - Added another residential and commercial Level 2 charger
  - Added 3 additional DCFCs
- We will perform an RFI refresh again in Q2

1. ABB, BTC, EV Box, EvoCharge, and Tritium
2. ABB, BTC, CMI, Delta, Efacec, EV Box, EvoCharge, NovaCharge, and Tritium
3. ABB, Evercharge

With Charging Forward off the ground, we will begin to roll-out the EV-Ready Builder Rebate pilot



Pilot Purpose:

- Provide rebates to builders or electricians to "future-proof" new homes for Level 2 EV chargers by installing the wiring for 240V outlets at a much cheaper cost than retrofitting

Single-Family Approach:

- There is almost always space on a customer panel to add a 40A, 240V circuit
- Prices to install this wiring will range from $200-$300
- We will work directly with electricians for the rebate program so builder's bill does not change

MUD Next Steps:

- We received intervening testimony to include MUDs in the EV-Ready Builder Rebate pilot
- Benchmarking with developers and electricians to understand scope of work will begin this quarter
- The rebate amount for each site could vary with different parking arrangements, etc.

DTE

We continue to drive our other EV pilots forward

Category	Objective	Partners	Status
Demand Response (Phase 1)	**Analyze customer behavior** and peak demand shaving value based on different times, incentives, etc.	EPRI, Ford, GM	
ChargeD (Phase 1)	Learn more about fast charging **station utilization** and potential for use as an **education and outreach platform**	City of Detroit, Corrigan Oil Co., chargepoint, planetM	
Battery-Powered Fast Charging	**Determine charge/discharge impact** on battery life and **business cases** for use	meijer, ecamion	
EV-Grid Impact Study	**Simulate load impacts** on our distribution system at varying degrees of EV adoption	BURNS McDONNELL	
Extreme Fast Charging	**Test and develop** fast charging capabilities up to **400 kW**	DELTA, EGLE, NEXTENERGY, VT, GM	
EV-Only TOU Rate	Identify and pilot a technology capable of billing an EV-only time-of-use rate **without the use of a second meter**	TBD	

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- **Education & Outreach Update | Angela Gust**
- Fleets Update | Milena Marku & Lynn Felcyn
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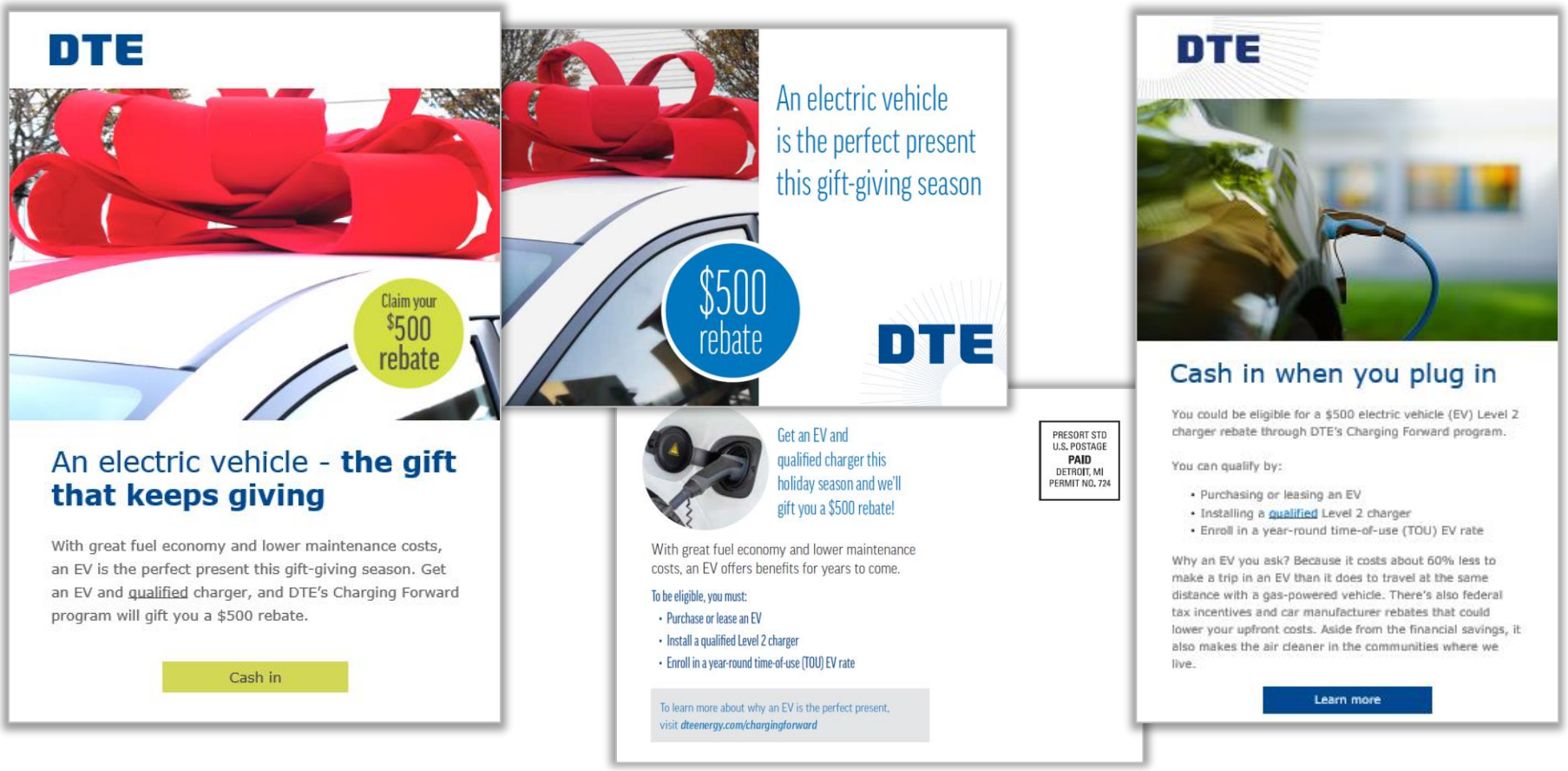
In 2019, Charging Forward executed over 30 tactics across nine channels to increase EV awareness

Channel	Tactic(s)	Residential Qty	Site Host Qty
Media Events	• June Charging Forward launch • September ChargeD launch	*unknown*	
Direct Mail	• 2 residential postcards • 1 site host postcard	156,000	11,000
Email	• 8 residential emails • 7 site host emails	2,600,000	100,000
Messaging on Bills	• October residential bills	1,200,000	-
Press Releases	• Charging Forward launch & program update • ChargeD launch	*unknown*	
Print Materials	• Handouts, brochures, dealership collateral, & magazine ads	44,000	800
Ride & Drives	• July Ride & Drive at DTE Headquarters • National Drive Electric Week Sponsorship	200 at DTE HQ	
Social Media	• 6 residential social media posts • 3 site host social media posts	300,000	
Website Updates	• 4 website improvement updates	-	

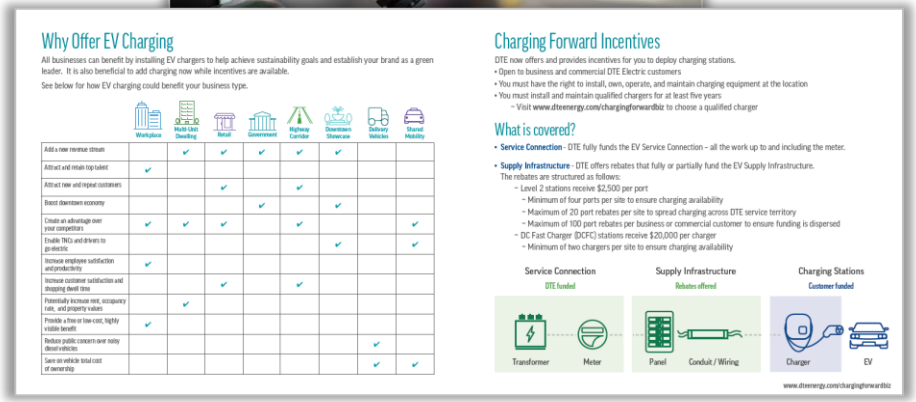
We sent ~4 million Charging Forward emails, postcards, and bill messages to residential customers

Example 2019 Residential Communications



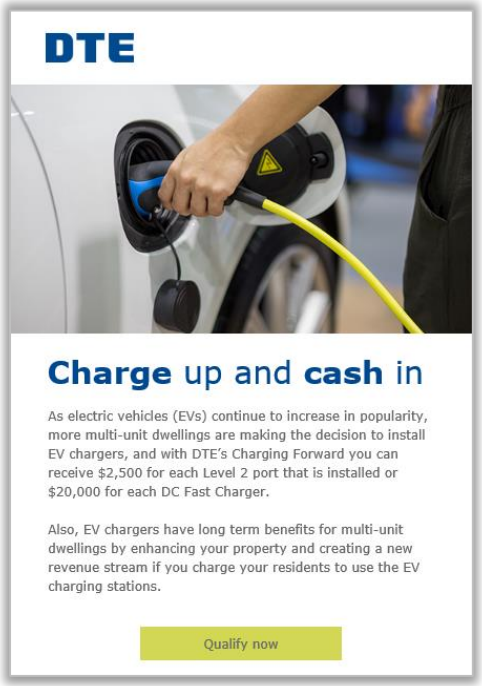
Print collateral has been placed at over 30 dealerships and utilized at Ride & Drives, conferences, and other meetings

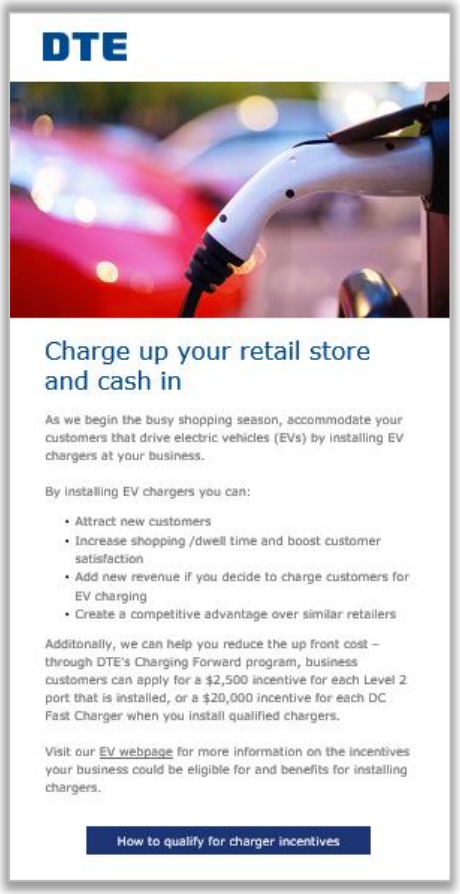
Example 2019 Dealership and Site Host Collateral



Potential workplace, multi-unit dwelling (MUD), and retail site hosts have received messaging through email, direct mail, and social media customized to their specific charging needs

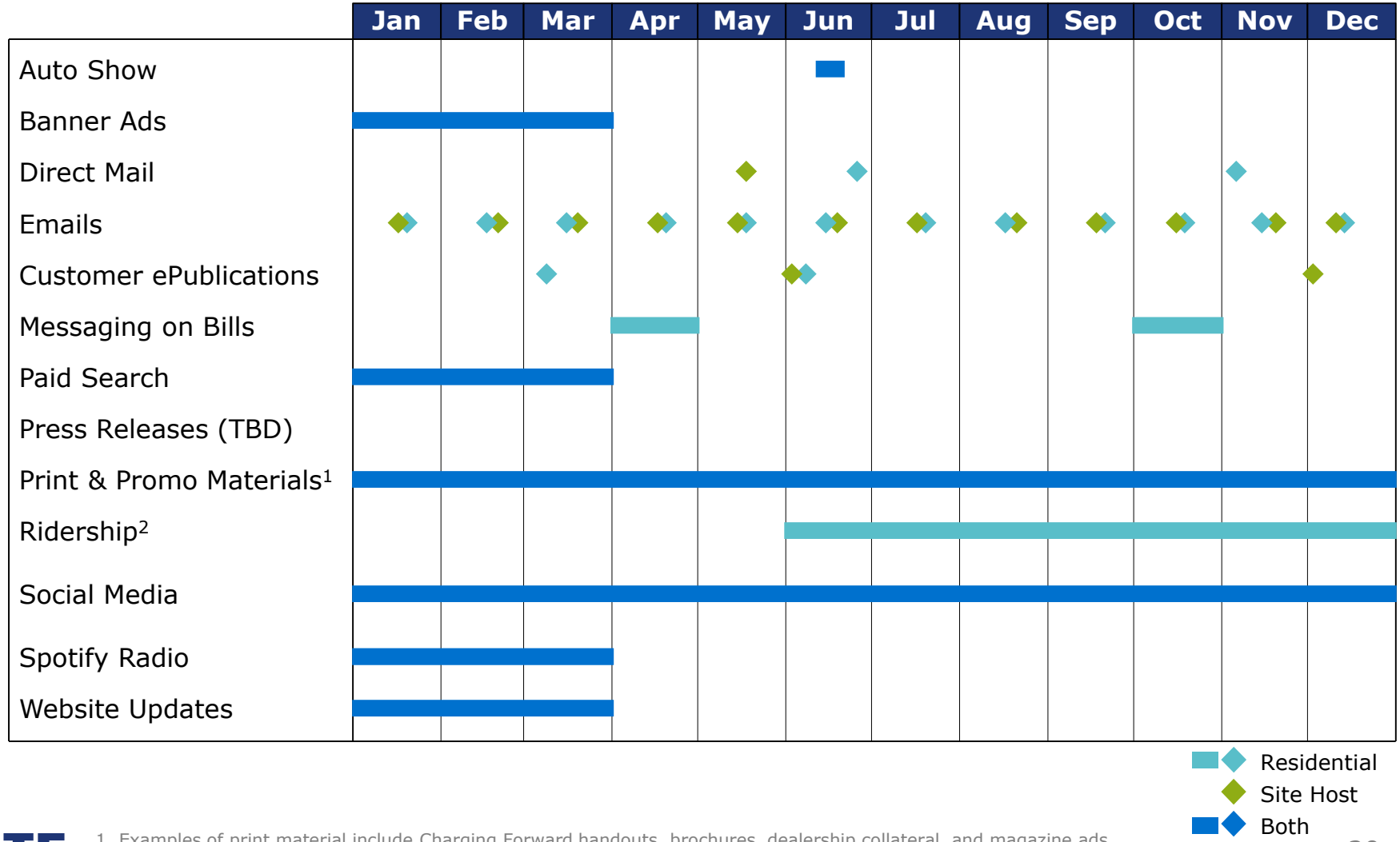
Example 2019 Site Host Vertical Collateral





2020 Education & Outreach will focus on raising awareness of EV benefits and addressing barriers to adoption

2020 Charging Forward Tactical Calendar



1. Examples of print material include Charging Forward handouts, brochures, dealership collateral, and magazine ads
2. Ridership refers to multiple opportunities such as Ride & Drive events or shared mobility services partnerships

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DTE has partnered with three regional transit authorities to secure grants and fund the make-ready portion of charging infrastructure

Public Transit Electric Bus (e-Bus) Pilots

Blue Water Area Transit is deploying two e-Buses in Port Huron - funding announced ($2M)

Detroit Department of Transportation (DDOT) is deploying two e-Buses in Detroit - funding announced ($11M)

DDOT is also spending grant funds on reconstruction of their Coolidge terminal, which will be EV-capable

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SMART is deploying four buses in the Metro Detroit area - funding announced ($1.3M)

Students in two Michigan school districts will soon be riding some of the first zero-emission electric school buses in the nation

DTE secured $1.5M in Volkswagen grants for Ann Arbor and Roseville school districts to purchase electric school buses and charging equipment. It is also funding the make-ready portion of charging infrastructure through Charging Forward

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Exceptional
ANN ARBOR PUBLIC SCHOOLS

ROSEVILLE COMMUNITY SCHOOLS
Roseville, Michigan

As the overall project management lead, DTE has developed a comprehensive project management plan across the 6-way consortium of OEM and school partners

We are currently facilitating bi-weekly project status calls tracking the projected deployment of six all electric school buses by August of 2020

STEM
SCIENCE, TECHNOLOGY, ENGINEERING & MATHEMATICS

DTE also partnered with a state agency to develop STEM curriculum educational programs about the innovations the buses employ

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Based on the first six months of implementation, we recommend two key program requirement modifications

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Customer Education & Outreach ***$1.6 million***	• **Increase EV awareness** through customer education • Inform and recruit potential site hosts • Engage current EV drivers
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We also have refined our cost estimates and recommend shifting funds from Level 2 to support a larger DCFC deployment with the same overall cost bucket

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Customer Education & Outreach ***$1.6 million***	• **Increase EV awareness** through customer education • Inform and recruit potential site hosts • Engage current EV drivers
Residential Smart Charger Support ***$1.5 million***	• **Provide ~2,800 $500 residential rebates for installation of a Level 2 smart charger** – Requires enrollment in a year-round TOU rate
Charging Infrastructure Enablement ***$10 million***	• **Deploy up to 90 DC fast chargers** – Primarily along highway corridors – Min 2 chargers per site • **Deploy up to 1,000 Level 2 charging ports** – Public, workplace, and multi-unit dwelling locations – Min 2 / Max 20 ports per site; Max 100 ports per customer • **Support deployment of charging infrastructure for fleets** – Public transit, school buses, delivery trucks, governmental, & shared mobility services

DTE

Lastly, we recommend shifting funds from Residential Rebates to build in a low-income element to Education & Outreach through a partnership with Lyft

	Description
Customer Education & Outreach ***$1.8 million***	• **Increase EV awareness** and engage current EV drivers • Inform and recruit potential site hosts • **Enable equitable access to EVs**
Residential Smart Charger Support ***$1.3 million***	• **Provide up to 2,600 $500 residential rebates for installation of a Level 2 smart charger** – Requires enrollment in a year-round TOU rate
Charging Infrastructure Enablement ***$10 million***	• **Deploy up to 90 DC fast chargers** – Primarily along highway corridors – Min 2 chargers per site • **Deploy up to 1,000 Level 2 charging ports** – Public, workplace, and multi-unit dwelling locations – Min 2 / Max 20 ports per site; Max 100 ports per customer • **Support deployment of charging infrastructure for fleets** – Public transit, school buses, delivery trucks, governmental, & shared mobility services

DTE

Deploying 100 EVs in Lyft's Detroit fleet significantly increases EV experiences while providing equitable access to EVs for Metro Detroit residents and visitors

Lyft Boundaries for Detroit

Customer Education & Outreach

- Once all 100 vehicles are deployed, there could be **~10k EV experiences per week** from ridership, or ~520k per year[1]
  - This equates to a cost of $0.90/rider vs. ~$200/rider for a Ride & Drive event
- Lyft would share driver data and have educational materials in the EVs

Equitable Access to EVs

- **51% of Detroit region Lyft rides start or end in low-income areas**
- Detroit Lyft drivers have a median income of ~$38.7k (compared to $54.5k for Detroit residents)
- 52% of Lyft drivers in Detroit identify with a minority group (compared to 36% of Detroit residents)

1. Assumes 80 rides per week and 1.25 passengers per ride; Lyft will share driver data with us as part of the program

Source: Lyft

There are three additional elements that were not included in the initial Charging Forward proposal but are currently in-progress

	Program Element	Expectation for May Annual Status Filing
	EV-Grid Impact Study	Results
	EV-Only TOU Pilot	Pilot Scope & Timeline
	EV-Ready Builder Rebate	Progress to Date

We believe the proposed modifications support our four learning goals, and we will report in detail on Charging Forward in the first Annual Status Report in May

	Approved with U-20162	Proposed Modifications
Customer Education & Outreach ***$1.8 million***	• $1.6M to increase EV awareness, engage EV drivers, and recruit site hosts	• Increase by $0.2M to build in low-income component through Lyft partnership
Residential Smart Charger Support ***$1.3 million***	• $1.5M to provide ~2,800 $500 rebates for L2 installation and TOU enrollment	• Decrease by $0.2M (or ~200 rebates) to accommodate low-income component
Charging Infrastructure Enablement ***$10 million***	• $10M to: – Provide service connection and rebates for ~32 DCFCs and ~1,000 L2s – Support charging for buses, delivery vehicles, and shared mobility services	• Shift L2 service connection funds to accommodate up to 90 DCFC rebates • Reduce L2 minimum to 2 • Add support for governmental fleets
Additional Elements ***TBD***		• Add EV-Grid Impact Study • Add EV-Only TOU Pilot • Add EV-Ready Builder Rebate

Questions?