Welcome to the Plymouth Community-Wide EV Charging Forum

Hosted by CERTs and the Great Plains Institute

December 2nd, 2021

1-2:30pm CST

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Agenda

- **Welcome and introduction**
- **Panel with CSG, Plymouth, and Xcel Energy**
  - Jody McDevitt, Sales Manager at Carbon Solutions Group
  - Amy Hanson, Deputy Works Director at City of Plymouth
  - Sarah Coon, Electric Vehicle Project Manger, Xcel Energy
  - OR Justin Durocher, Minnesota Fleet Project Manager, Xcel Energy
- **Q&A**
- **EV Charging Resources for Communities**

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Carbon Solutions Group
&
Energy Management Solutions, Inc.

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CLEAN ENERGY RESOURCE TEAMS

No Cost | No Risk EV Charging Station Program

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DRIVING DECARBONIZATION

About Us

Energy Management Solutions (EMS)

- Independent Provider of Energy Management Products & Services
- Identify, prioritize, and implement strategies that will conserve energy, lower utility bills, and improve clients' bottom line
- EV Charging Stations | Supply Solutions | Rebates & Incentives | Demand Solutions | Renewable Energy | Environmental Attributes | etc..
- Founded in 1998. Headquartered in Excelsior, MN
- Offices in Columbus and Tampa

Carbon Solutions Group (CSG)

- Owner/Operator of Distributed Energy Assets – Solar, Battery Storage and Electric Vehicle Charging Stations
- Aggregator and Marketer of Distributed Energy Environmental Attributes – Renewable Energy Certificates & Carbon Offsets
- Founded in 2006. Headquartered in Chicago
- Offices in San Diego and Portland

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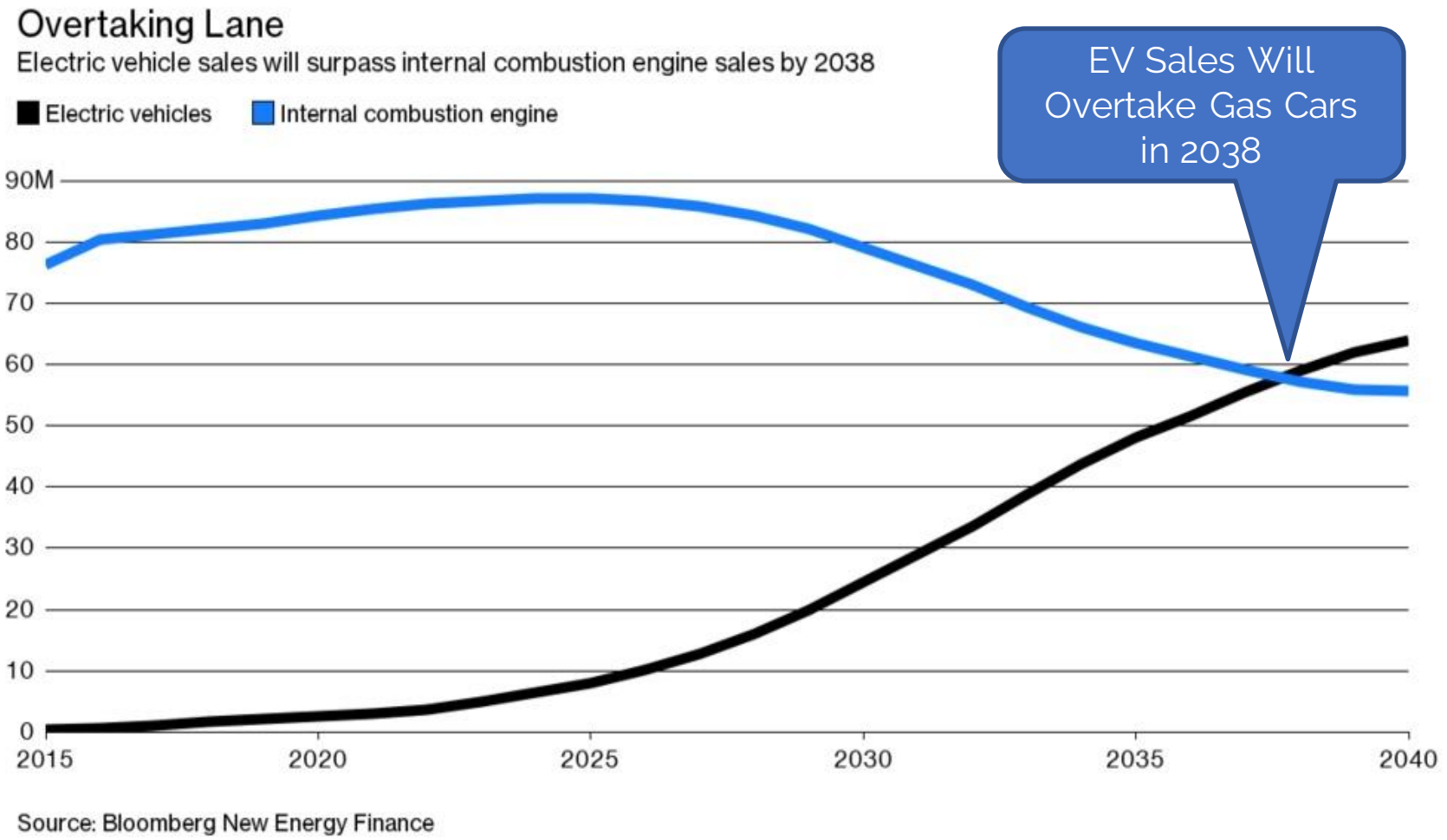
EV Trends



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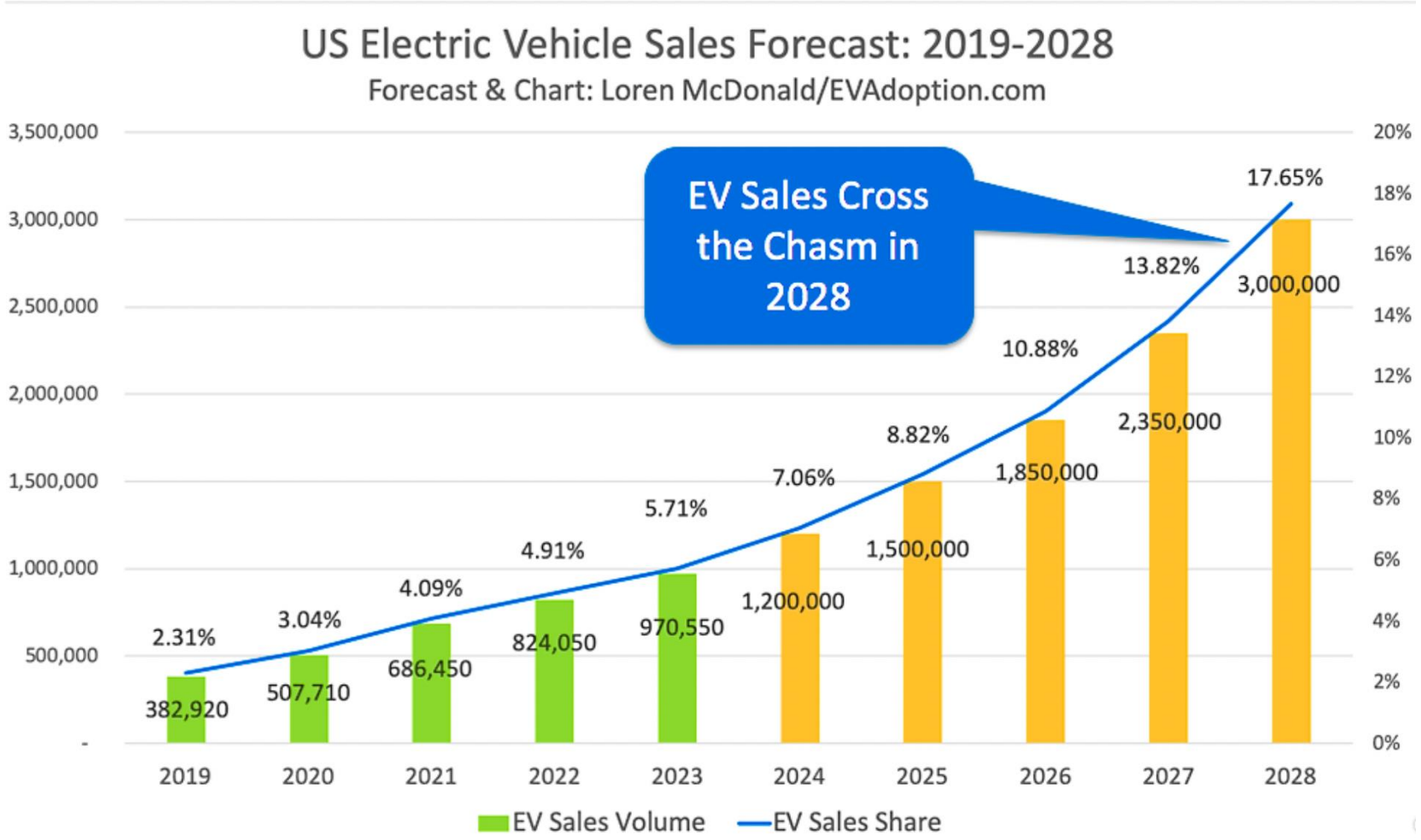
EV Mass Adoption



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EV OEM Market

General Motors plans to exclusively offer electric vehicles by 2035

Volkswagen significantly raises electric car production forecast for 2025

Hyundai Unveils EV Platform, Will Have 23 Global Electric Vehicles by 2025

Mercedes-Benz pushing to go all-electric by 2030

Nissan wants all new car models to be electric by early 2030s, carbon neutrality by 2050

Hertz is buying 100,000 Teslas

Jaguar Land Rover announces electric car investment

BMW plans to double battery electric car sales this year

7 New Cars Coming in Ford's Electric Vehicle Push

Kia teases new electric crossover, details seven-year EV plan

Subaru's first electric model to drop in 2021

"Fastest car ever": Musk says Tesla Model S Plaid now in production

PORSCHE VOWS HALF OF ITS NEW LUXURY VEHICLES WILL BE ELECTRIC BY 2025

Volvo Cars to go all electric

Audi announces an acceleration of its electric vehicle investments to $12 billion through 2025

Challenges for Property Owners

- Costs & Budget
- Driver Support
- Station Health
- Station Maintenance & Updates
- Reports
- Stranded Asset

"..We thought that we wanted to own and operate charging stations. We are a grocery store company; not a charging station company.."

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EV Charging Program Summary

- No Costs
  - Capital
  - Operational
- Revenue Streams
  - Monthly License Fee
  - Profit Sharing
- Level 2 and DCFC
- Upgrades & Expansions
- Meet Sustainability & Carbon Reduction Goals
- Co-Branding
- Complete Turn-Key
- Electric Vehicle Leases
- Amenity to attract & retain the EV driver
- 100% No Risk

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Low-Rate & Long-Term Approach

Expertise & Incentives

- Our EV infrastructure design and engineering expertise allow us to get it right the first time
- We incorporate multiple incentives including tax credits, accelerated depreciation, and low-carbon fuel standard incentives

Aggregate Revenue

- Our forward-looking approach centers on low rates, investing in partnerships, and engaging communities
- We generate revenue from charging a small markups on electricity and leveraging our knowhow in aggregating and monetizing carbon credits

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Equipment: Level 2 Charging Station

ChargePoint CT4000 Dual Port 7.2 kW	
25 Miles of Range Per Hour (RPH)	✔
Electrical Input: 208/240V AC, (split phase, 240V AC, 30A per port)	✔
Electrical Output: 2 x 7.2 kW	✔
Remote Communication Software for Equipment	✔
Energy Star Certified	✔
Custom-Branding	✔
Network to Communicate Via Cellular Network	✔
24/7/365 Continuous Remote Monitoring and Diagnostic Updates	✔

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Equipment: DC Fast Charging Station

ABB Terra DC Wallbox 24 kW	
80 Miles of Range Per Hour (RPH)	✔
Electrical Input: 150 - 920V AC, (single phase; 208V, 60A per port); (single phase; 240V DC, 60A per port)	✔
Electrical Output: 19.5 kW/22.5 kW	✔
Remote Communication Software for Equipment	✔
Energy Star Certified	✔
Custom-Branding	✔
Network to Communicate Via Cellular Network	✔
24/7/365 Continuous Remote Monitoring and Diagnostic Updates	✔

- Pedestal mounted option available*

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Equipment: DC Fast Charging Station

ChargePoint CPE250 62.5 kW	
250 Miles of Range Per Hour (RPH)	✔
Electrical Input: 150 - 920V DC (three phase 408/277V	✔
Electrical Input: 62.5 kW (400V AC, 3-phase, 96A, 50 Hz 480Y/277V AC, 3-phase, 80A, 60 Hz)	✔
Remote Communication Software for Equipment	✔
Energy Star Certified	In process
Custom-Branding	✔
Network to Communicate Via Cellular Network	✔
24/7/365 Continuous Remote Monitoring and Diagnostic Updates	✔

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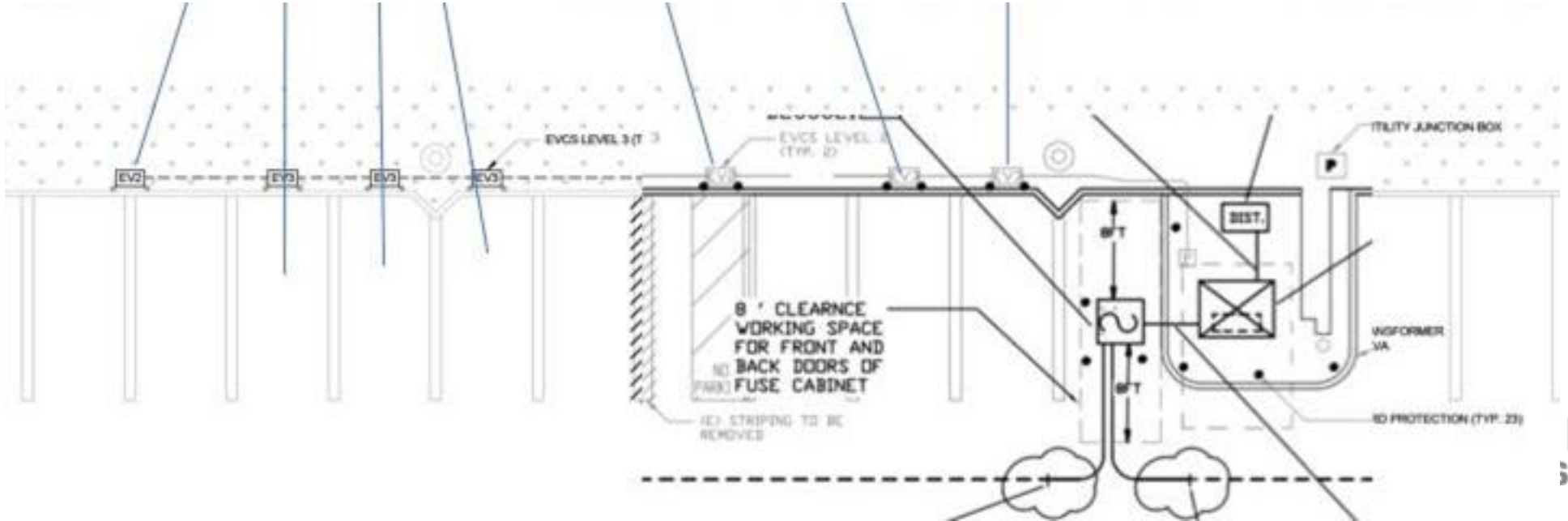
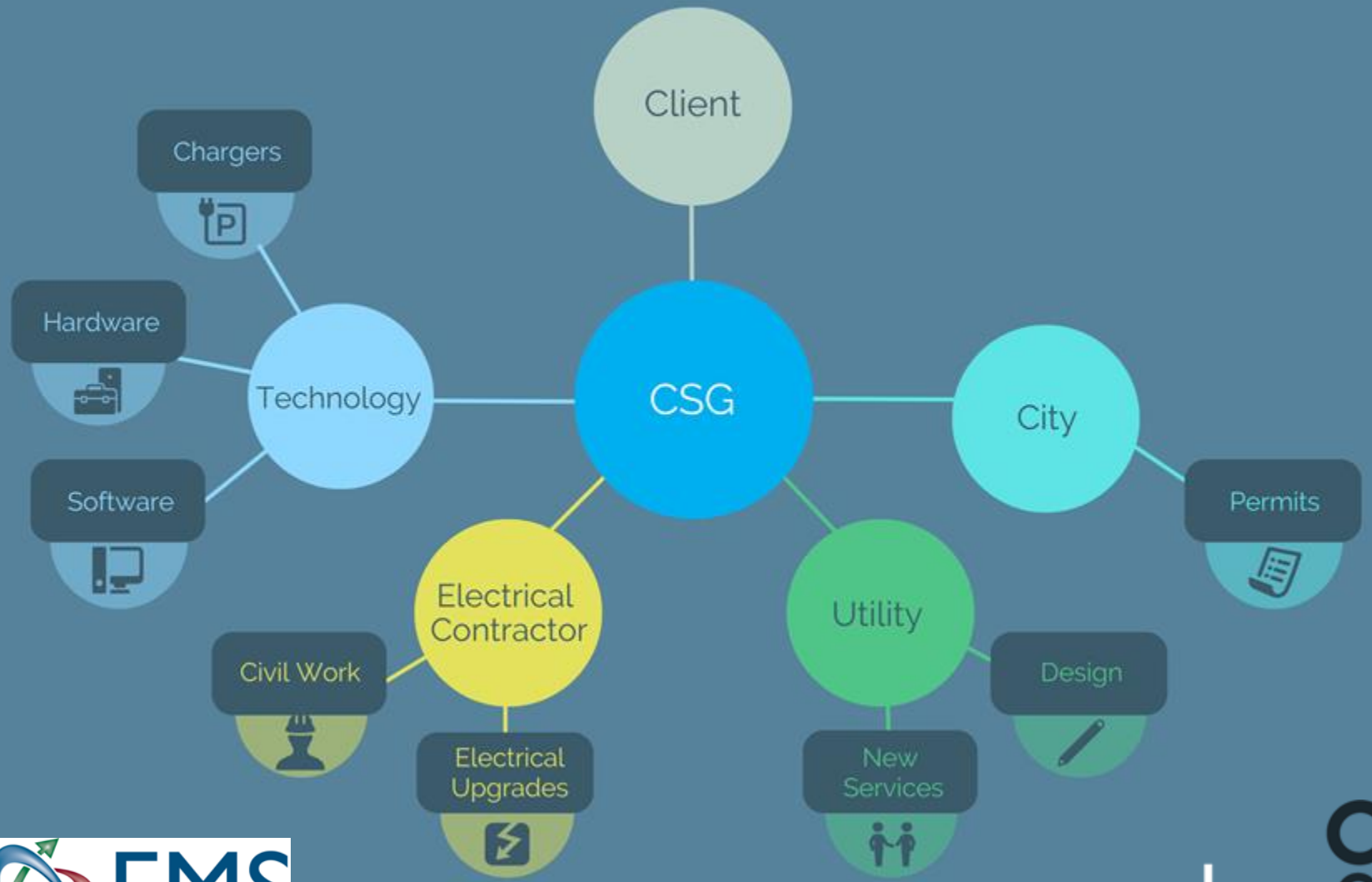
EV Charging Design



CSG Project Management



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Recent work with Public Sector

- **City of Grand Terrace** | Completed project with rebates. Level 2 and DC fast charging stations.
- **City of Boulder** | Current project with rebates. DC fast chargers
- **County of San Diego** | Current project. No rebates. DC fast chargers
- **City of Anaheim** | Current project. No rebates. DC fast chargers
- **City of Palm Springs** | Awarded contract. DC fast charging stations per site. 15 sites total. Potential rebates available.
- **City of Oakland** | Awarded contract. DC fast charging stations in disadvantaged communities. Potential for community rideshare opportunity with fleet vehicles provided by CSG.
- **City of Plymouth** | Current project with rebates. Level 2 and DC fast charging stations across 14 sites. Fleet vehicles provided by CSG.

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Development Timeline

Phase	Weeks
License Agreement	2 - 8
Draft Design & Engineering	2 - 4
Utility Design	4 - 16
Permitting	4 - 16
Construction	4 - 8
Start to Completion	**20 - 48 weeks**

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Additional Questions

Jody McDevitt
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City of Plymouth, MN

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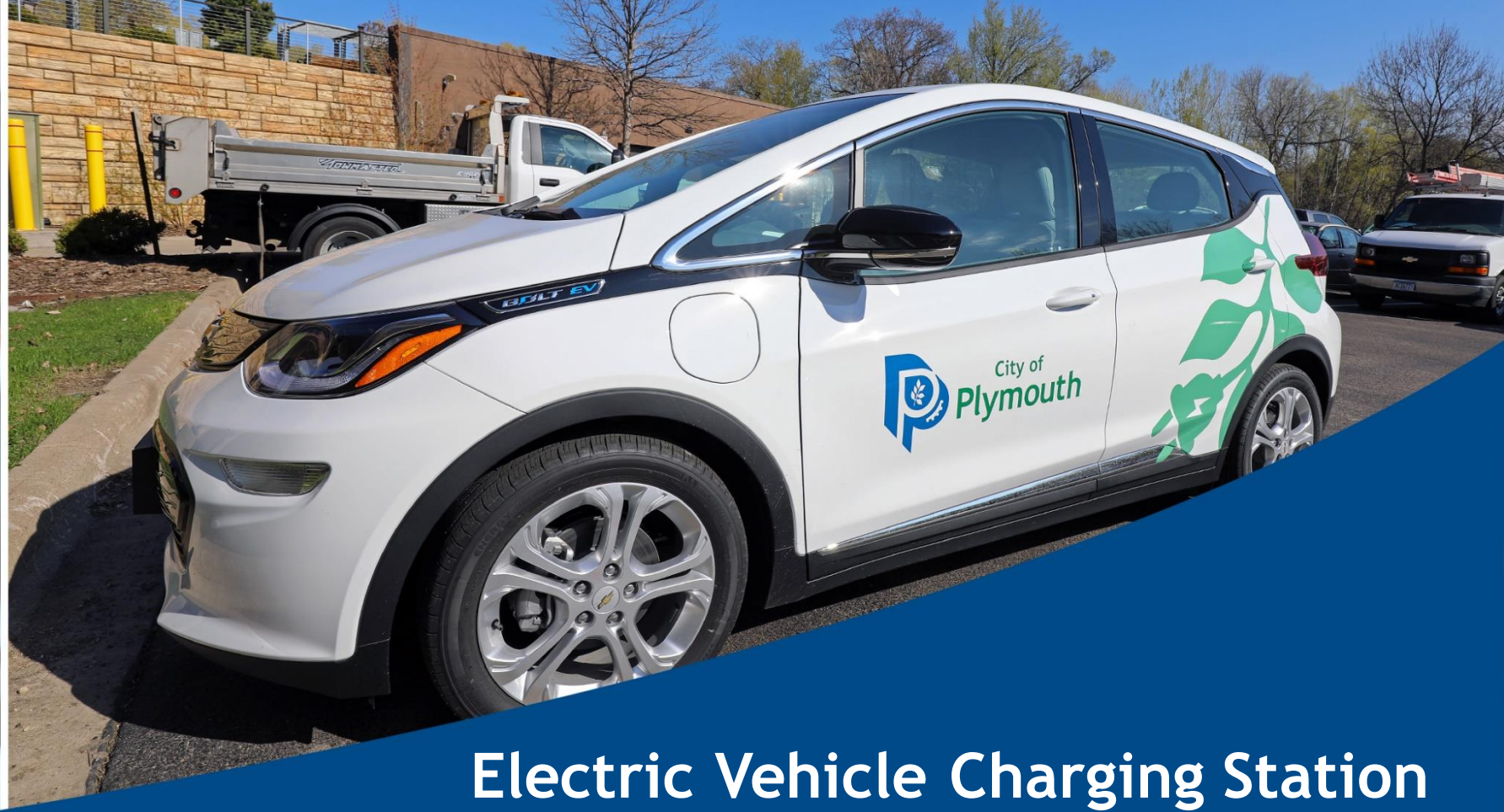
CLEAN ENERGY RESOURCE TEAMS



Electric Vehicle Charging Station

Amy Hanson - Fleet and Facilities Manager

City of Plymouth

Overview of Plymouth Program

No Cost -- No Risk

Avoids a potential $2.0 million

Reduce staff time on implementing internal program

Revenue Driving

Monthly Lease Payments

Profit Sharing

Provide EV Charging Stations

115 parking stalls

14 different city locations

Additional fleet vehicles

3 - 2019 Nissan Leaf

Potential Revenue:

Years: 1- 5

Charger Type	Number of Charging Stations	Monthly License Fee	Annual Fixed Revenue	Bonus @ 20% Utilization	Total Annual Revenue
L2	38	$10	$4,560	$8,550	$13,110
DCFC 24 kW	9	$12	$1,296	$3,375	$4,671
DCFC 180 kW	10	$49.7	$5,964	$7,500	$13,464
Total	**58**	**$71.70**	**$11,820**	**$19,425**	**$31,245**

Years: 6 – 10

Charger Type	Number of Charging Stations	Monthly License Fee	Annual Fixed Revenue	Bonus @ 20% Utilization	Total Annual Revenue
L2	38	$20	$9,120	$8,550	$17,670
DCFC 24 kW	9	$25	$2,700	$3,375	$6,075
DCFC 180 kW	10	$100	$12,000	$7,500	$19,500
Total	**58**	**$145**	**$23,820**	**$19,425**	**$43,245**

Total EV Charger Program Savings

20 Year Savings

Years	Description	Per Year	Total Savings
1-5	EV Charger	$ 31,245	$ 156,225
6-20	EV Charger	$ 43,245	$ 648,675
1-5	3 Lease Car	$ 14,400	$ 72,000
Total 20 Years			**$ 876,900**

Plus the avoided cost of Chargers estimated at $2,000,000

Forecasted Expenses:

Plymouth Annual EV Charger Costs

Utilization Rate **7.5%**

8/10/2021

Location	L2*	L2 kW	DC	DC KW	Utilization	Annual Costs				Est. Install Cost
						Cloud/Network	Warranty	Electric Costs	Total	
Community Center**	10	14.4	0	0	7.5%	$ 3,290	$ 8,170	$ 30,574	$ 42,034	$ 212,000
Total	**10**	**144**	**0**	**0**		**$ 3,290**	**$ 8,170**	**$ 30,574**	**$ 42,034**	

**This represents one L2 Dual Port unit. This has two 7.2 kW power sources for each of the ports.*

***Assumes 5 Level 2 chargers (dual ports) at each of the two phases*

Note: If CSG takes these over, Plymouth will receive an estimated $10,000 of revenue each year (Community Center Only)

Lead Time

Type	kW	Manufacture	Lead Time
L2	7.2	ChargePoint	4 Weeks
DC	62.5	ChargePoint	4 Weeks
DC	24	ABB	16 Weeks

Summary	Year 1	Year 2
Network Fees	$ 3,290	$ 3,389
Warranty	$ 8,170	$ 8,415
Electric Costs	$ 30,574	$ 30,574
Total	**$ 42,034**	**$ 42,378**

Electric Rates

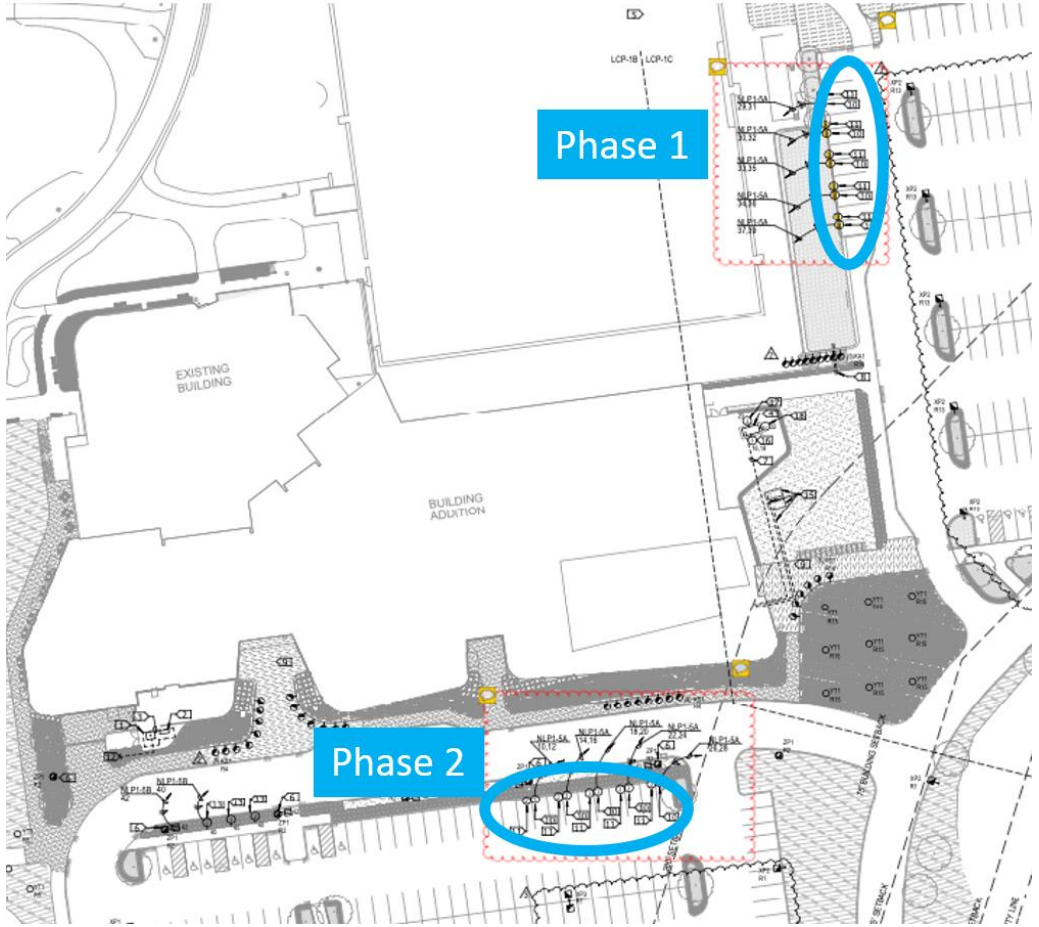
Electric Rates	$/kWh	$/kW Summer	$/kW Winter	Average
On Peak	$ 0.04855	$ 14.79	$ 10.49	$ 11.57
Off Peak	$ 0.02341			
Riders (Est)	$ 0.03000			
FCA	$ 0.0050			
Estimated Average Rate	$ 0.0760		$ 11.92	

Considerations when determining locations

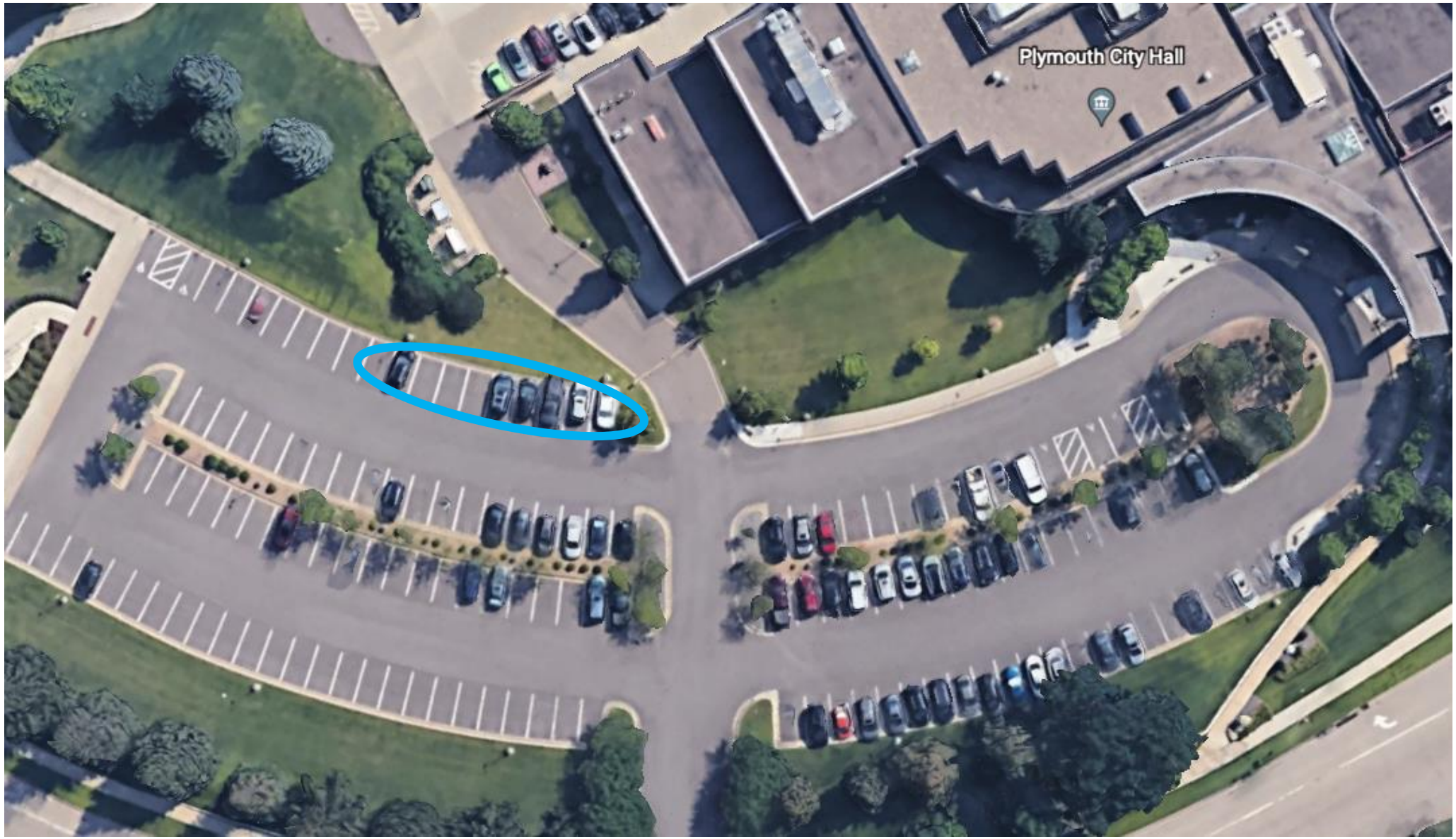
- Proximity to the entrance
- Utility Location
- Required Power Needs
- Utility Incentives
- Demand Rates

Concerns that were mentioned

- Taking prime locations
- Struggles with snow removal
- Damage to the chargers



City Hall - 10 parking spaces



Ice Center - 10 parking spaces

Plymouth Creek A & B – 10 parking spaces

Creek A =
5 parking spaces
Creek B =
5 parking spaces

Xcel Energy

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EV SERVICE PROGRAMS

Justin Durocher, ***Associate Product Portfolio Manager***

December 1, 2021

OUR COMPANY-WIDE EV VISION

1.5 MILLION EVs

On the road in the areas we serve by 2030, replacing gas-powered models

That's **20% of all vehicles**, a **30-fold** increase in EVs

$1 BILLION

In customer fuel savings annually by 2030

An EV would cost **$700 less per year** to fuel than a gas-powered car

$1 OR LESS PER GALLON

To drive an EV when charged with Xcel Energy's low, off-peak electricity prices

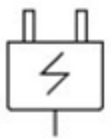
5 MILLION TONS OF CARBON EMISSIONS

Eliminated annually by 2030 with our clean energy

That's about **3 tons of carbon reduction** per vehicle

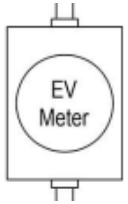
Xcel Energy®

MINNESOTA EV HOME CHARGING PROGRAMS



EV Accelerate At Home (MN) provides customers with a Level 2 charger that we install and maintain. Overnight EV charging billed at lower cost per kWh

- **Rent:** Monthly fee of ~$17 on existing Xcel Energy bill with no upfront cost, lifetime warranty/maintenance for charger a long as customer participates
- **Buy:** ~$7/month, ~$770 upfront, 3-year standard OEM warranty



Time of Day Separate Meter (MN) requires customer investment in separate meter, $4.95/month service charge, with a lower cost per kWh for overnight EV charging. Good option for ~10% of customers.

*Only available to Xcel Energy electric customers

FLEET ELECTRIFICATION ADVISORY PROGRAM (FEAP)

Fleet Electrification Advisory Program

Analytics and Advisory Services for Vehicles and Infrastructure

Xcel Energy is partnering with a fleet analytics company to help customers:

- Understand fleet needs and highlight opportunities for electrification
- Collect detailed data of fleet vehicle usage on a day-to-day basis
- Assess which EVs can support existing driving patterns
- Develop infrastructure options and make recommendations on charging locations
- Analyze economics and make recommendations based on fleet needs (including rate options)

MINNESOTA EV SERVICE PILOT PROGRAMS

Program Goal

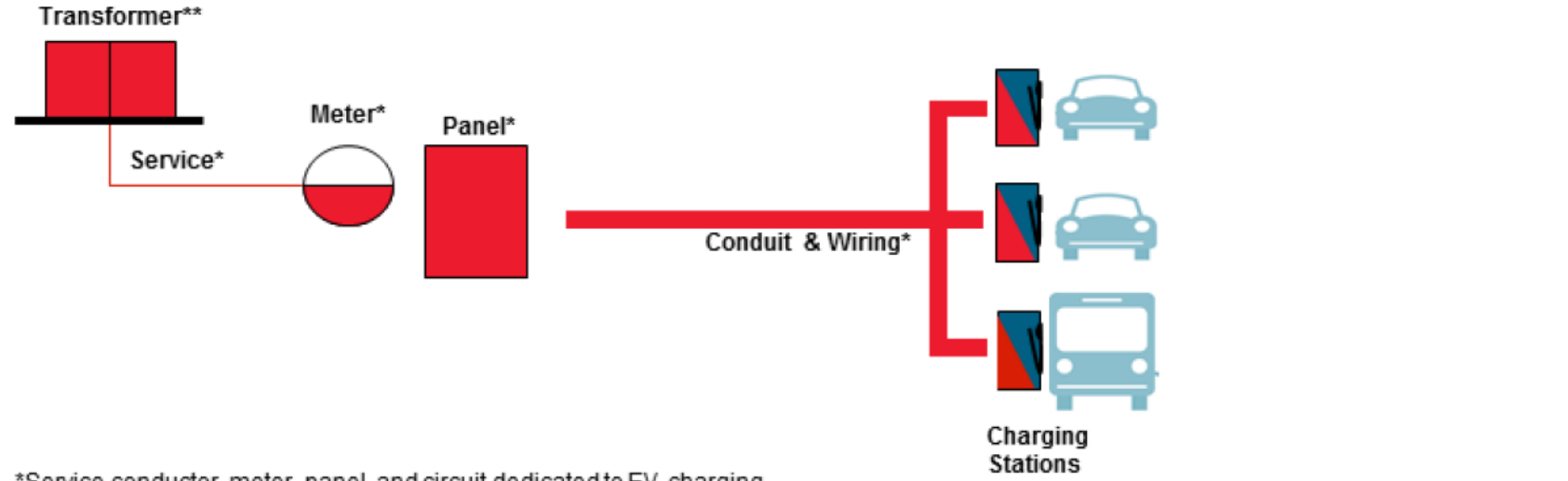
Goal

Provide commercial customers a convenient, affordable way to support infrastructure needed to charge electric transit vehicles and fleets

Approach

Reduce up-front cost of make ready-infrastructure

What is make-ready infrastructure?



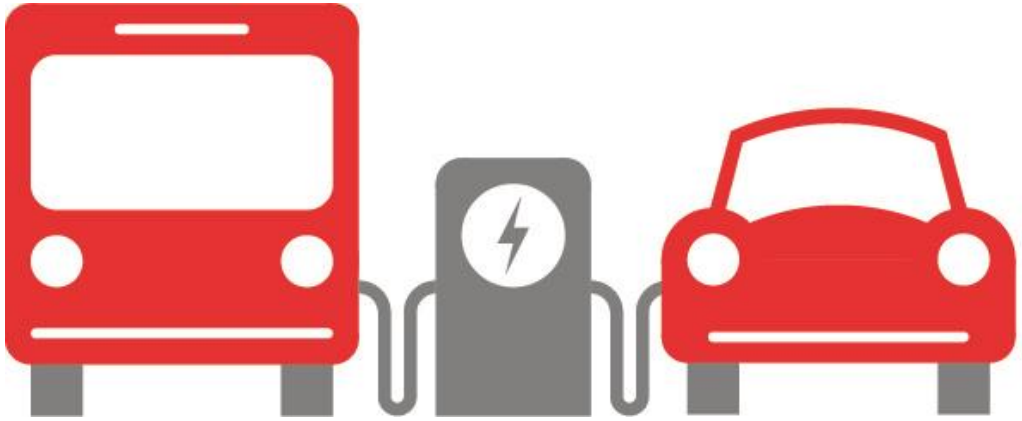
*Service conductor, meter, panel, and circuit dedicated to EV charging
**Can be overhead or underground

Fleet EV Services Pilot

- Infrastructure installed, owned, and maintained by the utility
- Infrastructure owned and maintained by participating customers
- Customer can choose between utility installing, owning, and maintaining or installing, owning and maintaining themselves

Fleet EV Service Pilot

Installation of make-ready charging infrastructure

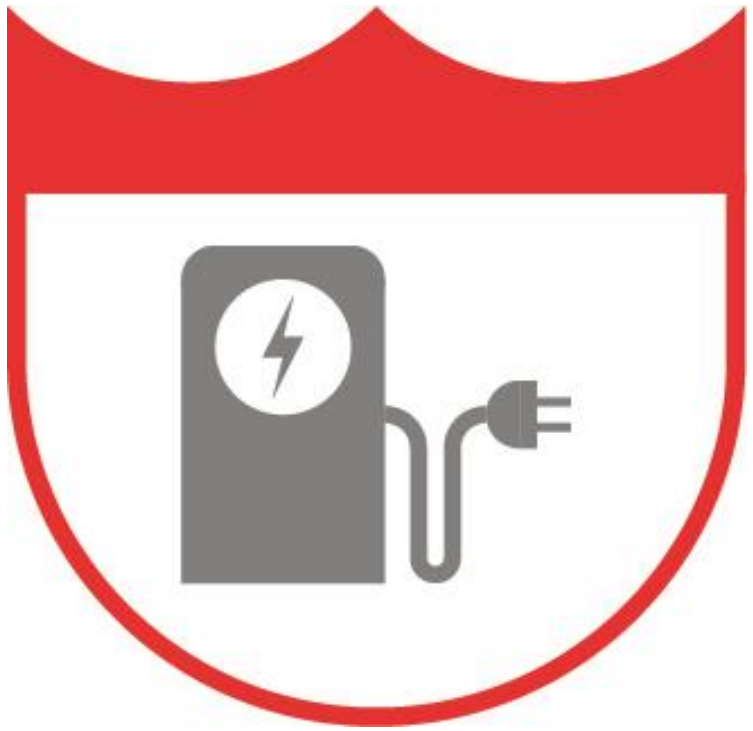


Xcel Energy is helping fleet operators transform their fleet to electric vehicles:

- Eligible customers within local, state, and other public sector or non-profit
- Provide make-ready infrastructure and charging equipment options.
- Installation services and payment options.
- Access to our low-cost EV charging time-of-use rate.
- $14.4M budget over 3-year period
  - Open until July 2022

Public Charging EV Service Pilot

Installation of make-ready public charging infrastructure

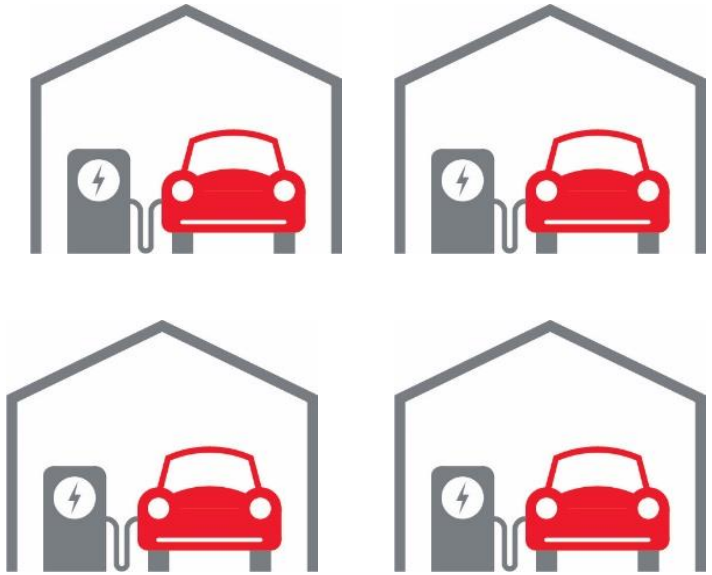


Xcel Energy is increasing access to on-site public charging for electric vehicles:

- Installation of at least one DC fast charger at project sites
  - Within a “high use location”
- XE provides make-ready infrastructure
- Installation maintenance, post-installation
- Access to our low-cost EV charging time-of-use rate.
- Upfront technical assistance.
- $9.2M Budget over 3-year period

MULTI-FAMILY HOUSING PROGRAMS

Installation of make-ready public charging infrastructure



Xcel Energy is increasing access to on-site multi-family housing charging for electric vehicles:

- Shared Parking - Site Host Provided Equipment
  - EVSI & EV Advisor
- Shared Parking – Full Service
  - EVSI & EV Advisor
  - Xcel Energy Provided Charging Equipment
- Assigned Parking – Full Service
  - EVSI & EV Advisor
  - Billing Individual Drivers
  - Xcel Energy Provided Charging Equipment

Xcel Energy®

Learn more by…

Visiting the Fleet website or Public Charging website:

-Contact our team by completing an intake form: https://mn.my.xcelenergy.com/s/business/ev/interest

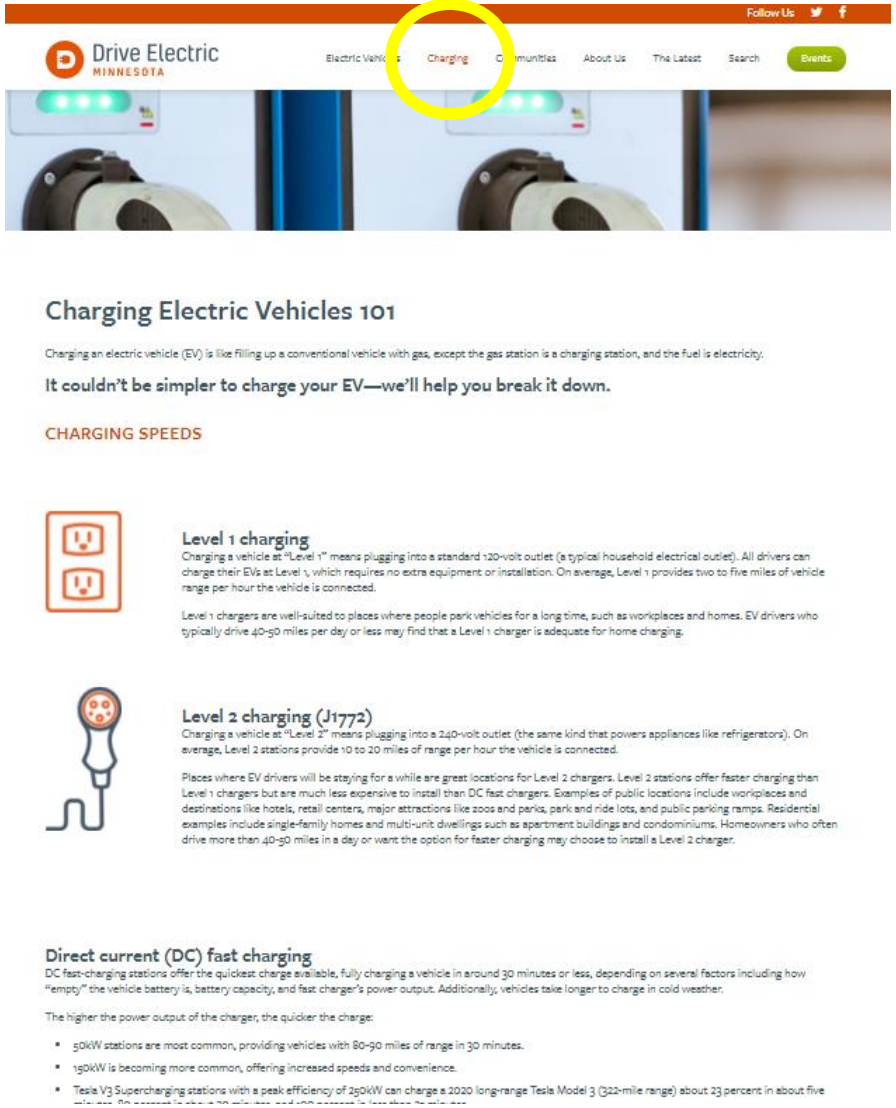
EV Charging Resources

The Drive Electric MN website has toolkits and guides for purchasing a charger, choosing a site, and more!

The new Infrastructure bill will bring $68 million to Minnesota for EV charging infrastructure.

VW settlement: We are currently in phase two, look out for EV and charging opportunities to come on MPCA's VW website.

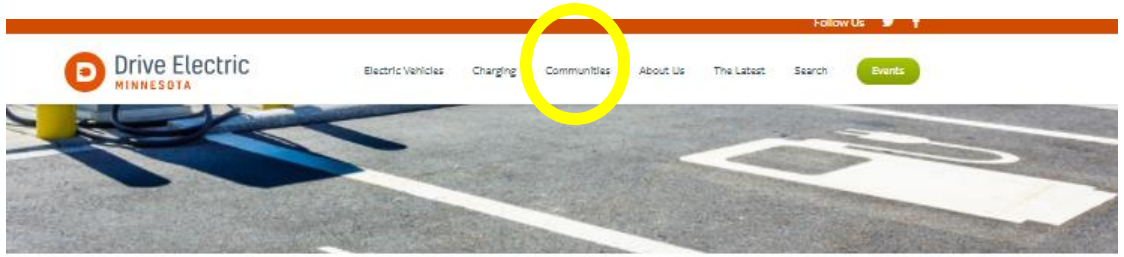
CLEAN ENERGY RESOURCE TEAMS



Drive Electric Minnesota Charging Page

On this page you can find:

- **Overview of charging levels**
- **Electric utility programs**
- **Charging with renewable energy**
- **Frequently Asked Questions**

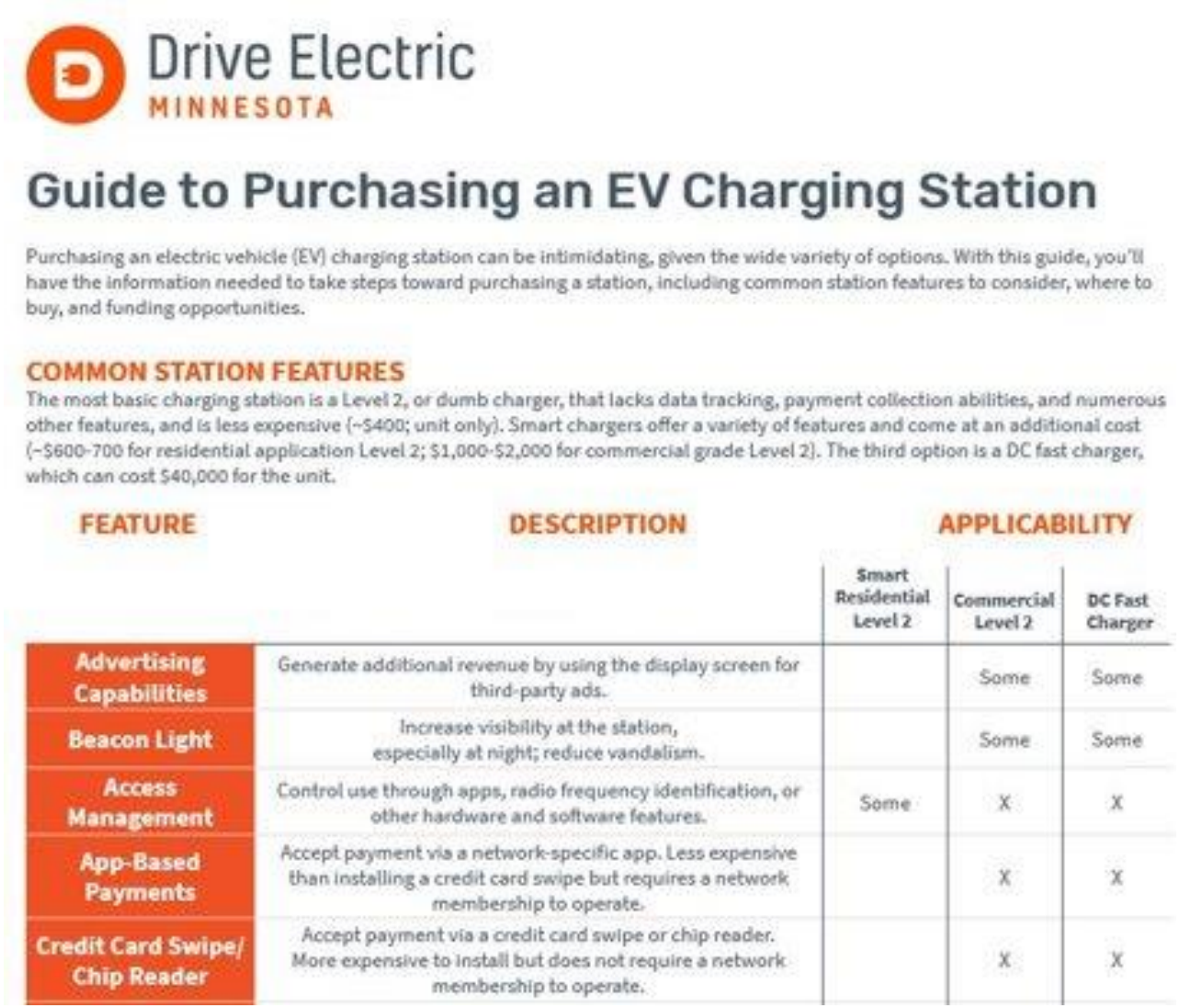


Drive Electric Minnesota Communities Tab – Charging Guidance

On this page you can find:

- Survey monkey to help determine what kind of charger you should get
- Siting considerations (Prezi)
- The Guide to Purchasing an EV Station
- Assorted Checklists

Guide to Purchasing Chargers



Drive Electric
MINNESOTA

Guide to Purchasing an EV Charging Station

Purchasing an electric vehicle (EV) charging station can be intimidating, given the wide variety of options. With this guide, you'll have the information needed to take steps toward purchasing a station, including common station features to consider, where to buy, and funding opportunities.

COMMON STATION FEATURES

The most basic charging station is a Level 2, or dumb charger, that lacks data tracking, payment collection abilities, and numerous other features, and is less expensive (~$400; unit only). Smart chargers offer a variety of features and come at an additional cost (~$600-700 for residential application Level 2; $1,000-$2,000 for commercial grade Level 2). The third option is a DC fast charger, which can cost $40,000 for the unit.

FEATURE	DESCRIPTION	APPLICABILITY		
		Smart Residential Level 2	Commercial Level 2	DC Fast Charger
Advertising Capabilities	Generate additional revenue by using the display screen for third-party ads.		Some	Some
Beacon Light	Increase visibility at the station, especially at night; reduce vandalism.		Some	Some
Access Management	Control use through apps, radio frequency identification, or other hardware and software features.	Some	X	X
App-Based Payments	Accept payment via a network-specific app. Less expensive than installing a credit card swipe but requires a network membership to operate.		X	X
Credit Card Swipe/ Chip Reader	Accept payment via a credit card swipe or chip reader. More expensive to install but does not require a network membership to operate.		X	X

This will guide you through topics to consider when purchasing an EV charging station such as common station feature to consider, where to buy, and funding opportunities.

Link

Cooperative Purchasing

DEPARTMENT OF ADMINISTRATION

State Contract

- https://mn.gov/admin/government/purchasing-contracting/

Sourcewell

Formerly National Joint Powers Alliance (NJPA)

- https://www.sourcewell-mn.gov/cooperative-purchasing/how-it-works

Drive Electric Minnesota Communities Tab – Resources

Educate your Community

ELECTRIC VEHICLE TOP 10

- Here are ten key electric vehicle (EV) messages designed to help you educate people in your community about the benefits of EVs and talk through perceived barriers. While not intended to serve as a public handout, this long-form textual document is useful for anyone who wants to start digging into the world of EVs.

Download the EV Top 10→

THE TOP FIVE THINGS TO KNOW ABOUT ELECTRIC VEHICLE BATTERIES

- As electric vehicles (EVs) become more popular, many questions have surfaced regarding their batteries, environmental impact, and ethics. There's no doubt that the increasing demand for EVs will increase the demand for components that make up the vehicles, like batteries. The following talking points address common questions surrounding the impact EV batteries have and identify progress being made in this space. Each talking point is followed with references from studies and articles for those that want to dive deeper.

EV Batteries Top Five→

ELECTRIC VEHICLE CONTENT SHARING KIT FOR COMMUNITIES

- Content needed to get you started sharing information and resources about electric vehicles with your community. You can cut and paste information and resources onto your website, your newsletter, and use it in a press release to local media. You should customize the content to include activities your city is doing, too.

Electric Vehicle Content Kit →

On this page you can find:

- **Information to help communicate about EVs to your community**
- **EV quizzes that are fun to use with social media to engage your community**
- **The Guide to Purchasing an EV Station**
- **Assorted Checklists**

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EV-Ready Communities Pilot Program

- **Technical assistance and certification pilot program**
- **Will support Tribal Nations and cities to achieve their EV-readiness goals**
- **Six main categories of action:**
  - EV policy, goals, and metrics
  - Regulation
  - Utility engagement
  - Education and incentives
  - Public sector leadership
  - Shared mobility
- **Launching in early 2022**

CLEAN ENERGY RESOURCE TEAMS

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THANK YOU

Diana McKeown

Metro CERT Director

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