GOODHUE COUNTY MINNESOTA

TO EFFECTIVELY PROMOTE THE SAFETY, HEALTH, AND WELL-BEING OF OUR RESIDENTS

COMMITTEE OF THE WHOLE AGENDA

COUNTY BOARD ROOM
GOVERNMENT CENTER
RED WING, MN

MAY 18, 2021
8:30 A.M.

Virtual Meeting Notice

Due to concerns surrounding the spread of COVID-19, it has been determined that in-person meetings or meetings conducted under Minn. Stat. 13D.02 a are not practical or prudent. Therefore, meetings that are governed by the Open Meeting Law will temporarily be conducted by telephone or other electronic means pursuant to Minn. Stat. 13D.021.

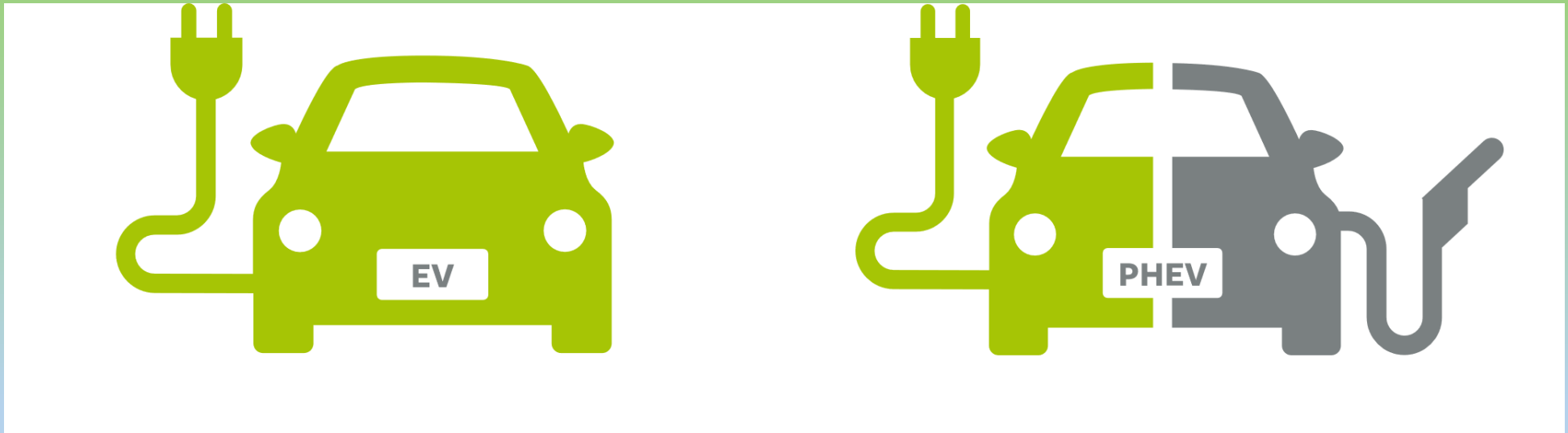
The Goodhue County Board of Commissioners will be conducting a Committee of the Whole meeting pursuant to this section on May 18, 2021 at 8:30 a.m. in the County Board Room. The County Administrator and/or County Attorney will be present at the meeting location. All County Commissioners attending will appear by telephone or other electronic means. The public may monitor the meeting from a remote site by logging into https://global.gotomeeting.com/join/335676421 or calling 1 866 899 4679 OR 1 571 317 3116 any time during the meeting. Access Code: 335-676-421

1. Electric Vehicle Analysis

Documents:

EV Presentation 2021.pdf

Goodhue County Electric Vehicle Analysis



Committee of the Whole

May 18, 2021

Evaluating transportation on the road today

Estimated **296** million total vehicles on the road

269 million passenger cars, SUVs, Pick Ups

2.3 million public owned cars and trucks

~15 million commercial trucks/vans

575K private owned buses

411K public owned buses

8.7 million motorcycles

Electric Passenger Car Adoption

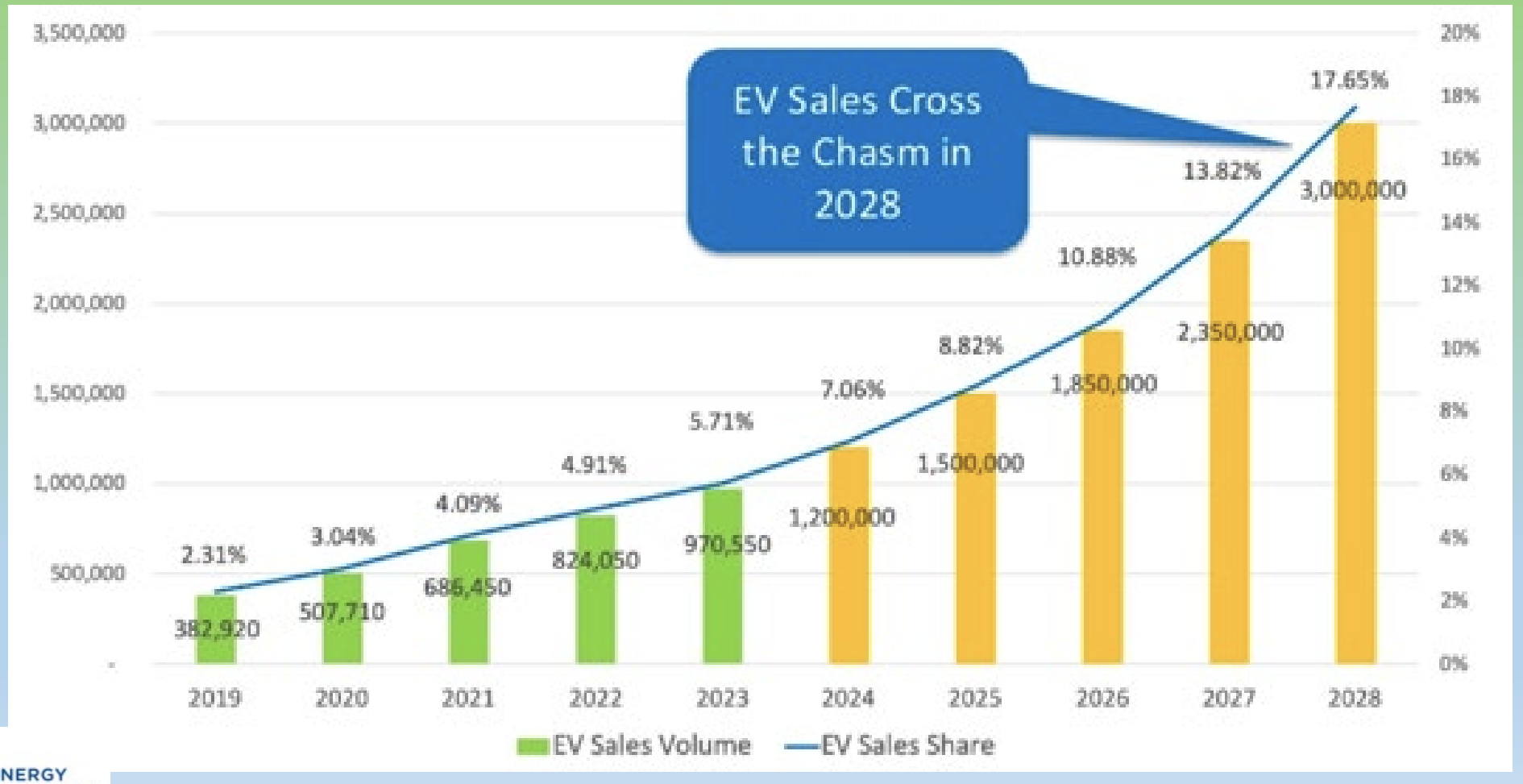
- **2019**: 1.1 million (0.41%)
- **2025**: 5.6-10.3 million (2.1%-3.4%)*
- **2030**: Projected 20,000,000 (7.4%)*

REXEL ENERGY SOLUTIONS

https://www.fhwa.dot.gov/policyinformation/statistics/2017/mv9.cfm

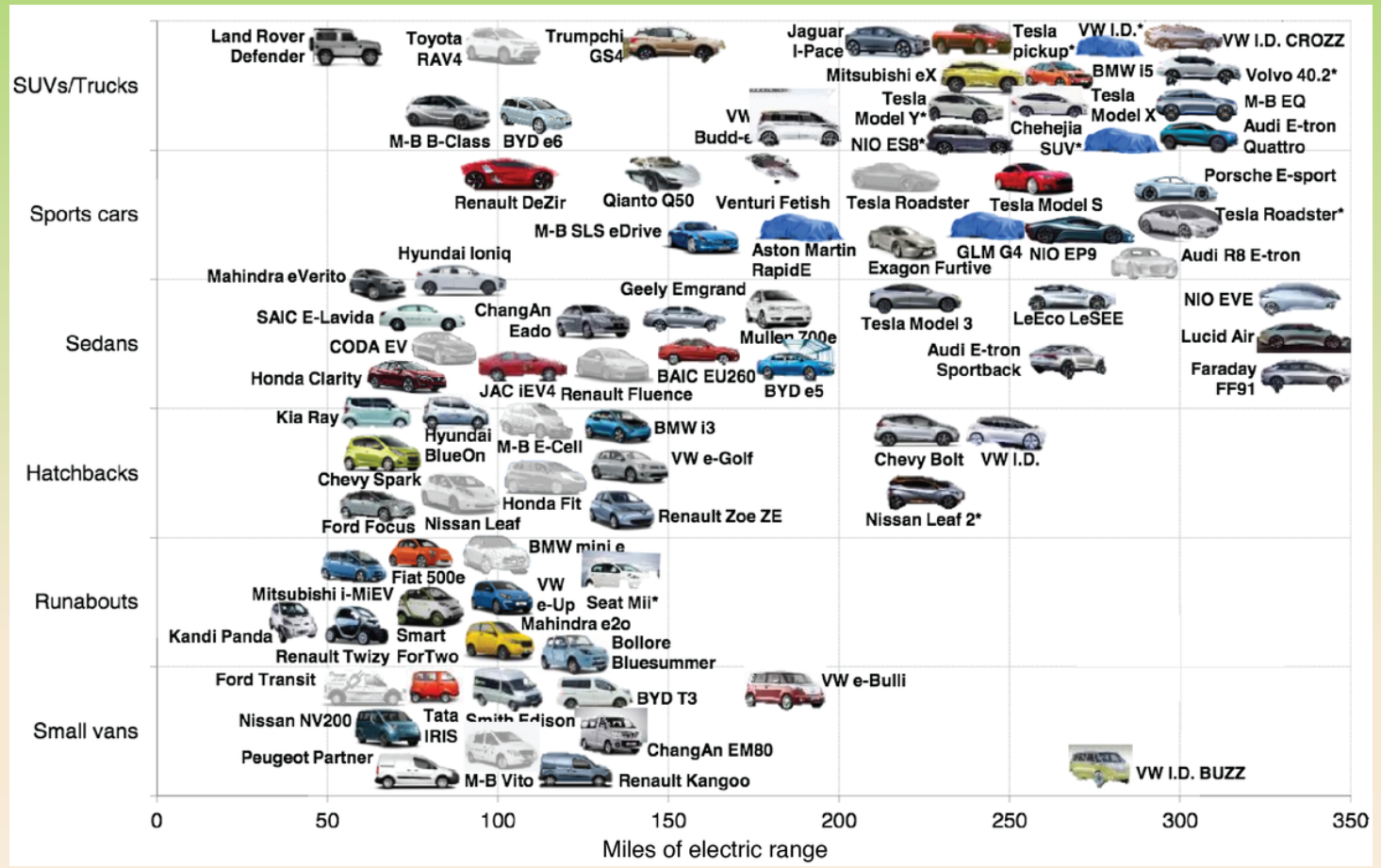
US EV Sales forecast

*2019: 17M annual sales for cars & light trucks (Statista)



REXEL | ENERGY SOLUTIONS

100 + PEV Models in the US by end of 2020



Electric Vehicles

- BEV: Battery Electric Vehicle
  - Battery powered full electric
  - Efficiency rated as MPGe – miles per gallon equivalent (2010 EPA)
  - Vehicles rated by how many kWh/100 miles is used
  - Average EV rating is 30kWh/100m

- PHEV: Plug-In Hybrid Electric Vehicle
  - Battery & gasoline powered
  - Efficiency rated as MPG
  - Battery range much lower than EV
  - Battery assist improves overall MPG

Vehicle Comparisons

.09 per kWh x rating per 100 mi = cost per 100 miles (fueleconomy.gov)

EV - Full Electric Vehicle

Brand	Year	Model	Type	Descrip	Drive	Electric Miles	Batt Warranty	Size	HP	Length	MPGe Combined (2021)	Cost	Contract	Cost per 100 mi
Chevrolet	2022	Bolt EV	Full Elec	5 Dr HB	FWD	259	8/100,000	65 kWh	200	163"	118	$ 30,860.00	Yes	$2.61
Chevrolet	2022	Bolt EUV	Full Elec	5 Dr HB	FWD	250	8/100,000	65 kWh	200	170"	118	$ 33,060.00	Yes	$2.61
Nissan	2022	Leaf S	Full Elec	5 Dr HB	FWD	149	8/100,000	40 kWh	147	176"	111	$ 28,429.00	Yes	$2.70
Nissan	2022	Leaf S Plus	Full Elec	5 Dr HB	FWD	226	8/100,000	62 kWh	214	176"	108	$ 32,992.00	Yes	$2.79

gallons used per 100 miles x $2.65 (fueleconomy.gov)

PHEV - Plug-in Hybrid Electric Vehicle

Brand	Year	Model	Type	Descrip	Drive	Electric Miles	Batt Warranty	Size	HP	Length	MPG Combined	Cost	Contract	Cost per 100 mi
Ford	2021	Escape SE	Hybrid	5 Dr C/O	FWD	37	8/100,000	2.5L/88kWh	200	181	41	$ 23,565.00	Yes	$6.36
Mitsubishi	2021	Outlander SEL	Hybrid	5 Dr SUV	AWD	24	10/100,000	2.4L/13.8 kWh	221	172"	26	$ 31,970.00	Yes	$9.78
Toyota	2021	Camry LE	Hybrid	4 Dr Sedan	FWD	22	10/150,000	2.5L/1.6 kWh	208	192"	52	$ 27,025.00	Yes	$5.04
Toyota	2021	Prius LE	Hybrid	5Dr HB	FWD	25	10/150,000	1.8L/9kWh	121	180	52	$ 26,110.00	Yes	$5.04

gallons used per 100 miles x $2.65 (fueleconomy.gov)

IC - Internal Combustion Gas Vehicle

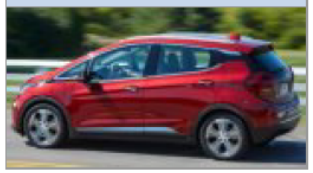
Brand	Year	Model	Type	Descrip	Drive	Electric Miles	Batt Warranty	Size	HP	Length	MPG Combined	Cost	Contract	Cost per 100 mi
Ford	2021	EcoSport S2F	Gas	5 Dr HB	FWD	N/A	N/A	1.0L	123	161"	28	$ 18,751.00	Yes	$9.54
Ford	2021	EcoSport S3F	Gas	5 Dr HB	AWD	N/A	N/A	2.0L	237	161"	26	$ 20,215.00	Yes	$10.60
Ford	2021	Escape SE	Gas	5 Dr C/O	FWD	N/A	N/A	2.0L	181	181"	31	$ 22,962.00	Yes	$8.75
Nissan	2022	Rogue S	Gas	5 Dr C/O	FWD	N/A	N/A	1.5L	181	183"	33.5	$ 22,484.00	Yes	$7.95
Jeep	2021	Latitude	Gas	5 Dr C/O	FWD	N/A	N/A	2.4L	180	173"	26.5	$ 21,568.00	Yes	$10.60
Mitsubishi	2021	Outlander ES-S	Gas	5 Dr SUV	AWD	N/A	N/A	2.0L	148	172"	21	$ 19,999.00	Yes	$10.07
Toyota	2021	Camry LE	Gas	4 Dr Sedan	FWD	N/A	N/A	2.5L	203	192"	32	$ 24,692.00	Yes	$8.22
Chevrolet	2021	Equinox	Gas	5 Dr C/O	AWD	N/A	N/A	1.5L	170	183	27	$ 23,205.00	Yes	$9.81

Existing county vehicle

Full Electric Battery

2021 Chevrolet Bolt EV

Electric Vehicle



Automatic (variable gear ratios)

Electricity

118 MPGe
127 city 108 highway
combined city/highway

29 kWh/100 mi

Electricity

259 miles
Total Range

2021 Nissan Leaf (40 kW-hr battery pack)

Electric Vehicle

Automatic (A1)

Electricity

111 MPGe
123 city 99 highway
combined city/highway

30 kWh/100 mi

Electricity

149 miles
Total Range

2021 Nissan Leaf (62 kW-hr battery pack)

Electric Vehicle

Automatic (A1)

Electricity

108 MPGe
118 city 97 highway
combined city/highway

31 kWh/100 mi

Electricity

226 miles
Total Range

2021 Ford Escape FWD HEV

Hybrid Vehicle
Gasoline

2.5 L, 4 cyl, Automatic (variable gear ratios)

Regular Gasoline

41 MPG
44 city 37 highway
combined city/highway

2.4 gal/100mi

2021 Mitsubishi Outlander PHEV

Plug-in Hybrid Vehicle
Gasoline-Electricity

2.4 L, 4 cyl, Automatic (A1)

Plug-in Hybrid Calculator

Elec + Gas **Reg. Gas**

74 MPGe
combined city/highway

.0 gal/100mi of gas
+ 45 kWh/100mi

26 MPG
combined city/highway

3.8 gal/100mi

Gasoline Only

24 miles
Elec + Gas
All Elec: 0-24 mi

320 miles
Total Range

2021 Toyota Camry Hybrid LE

Hybrid Vehicle
Gasoline

2.5 L, 4 cyl, Automatic (AV-S6)

Regular Gasoline

52 MPG
51 city 53 highway
combined city/highway

1.9 gal/100mi

Gasoline

686 miles
Total Range

2021 Toyota Prius

Hybrid Vehicle
Gasoline

1.8 L, 4 cyl, Automatic (variable gear ratios)

MSRP: $25,735 - $32,650

Regular Gasoline

52 MPG
54 city 50 highway
combined city/highway

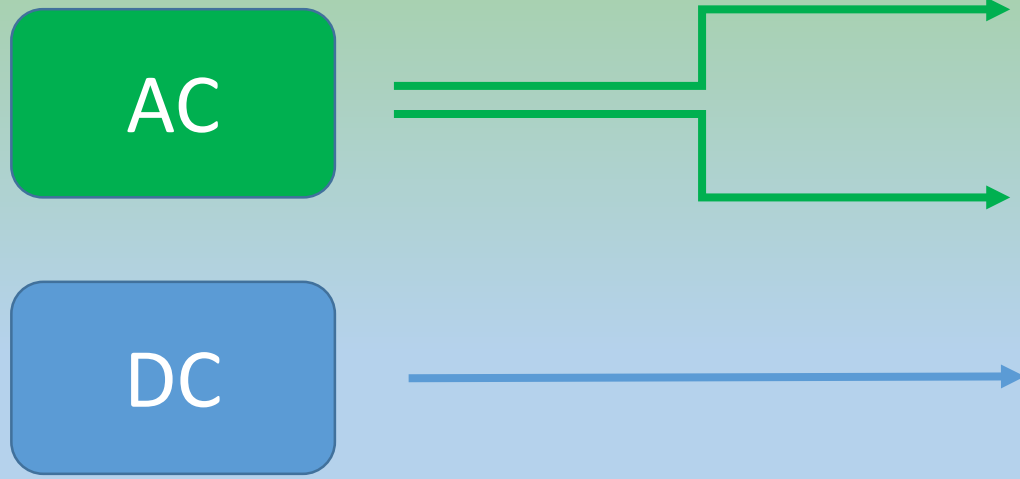
1.9 gal/100mi

Gasoline

588 miles
Total Range

Plug-In Hybrid

Levels of Charging



Level 1

SLOW CHARGING
Residential use
4 miles range per hour

Level 2

FAST CHARGING
Residential/Commercial
25 miles range per hour

Level 3

FASTEST CHARGING
Commercial/Industrial
180 miles range per hour

Types of available chargers - Level 2

Non-Networked

- Standard receptacle
- No networking fees
- No reporting method
- No scheduled charging
- No cord management
- Not secure – anyone can use

RFID Dedicated

- Station assigned to EV/User
- One vehicle per charger
- Networking available
- Reporting available
- Software/maintenance updates
- Power management
- Off-peak/demand charging

Networked

- Can be used buy multiple EV's
- Billing, invoicing & reporting
- Real-time status & monitoring
- Software/maintenance updates
- Visible on Google, Apple, etc.
- Employee or Public use option
- Accepts Credit Card
- Pay % of sales to provider 90/10
- Power management
- Off-peak/demand charging

Fleet Charger Options

Chargepoint CPF50 – RFID Networked

QTY	Item #	Description	Unit Price	Ext Price
1	CPF50-L23-PEDMNT-Dual	Dual Port, Pedestal Mount, 50A, Type 1, Cable 23', Single Phase Charger.	$3,875.00	$ 3,875.00
1	CPGW1-LTE	The ChargePoint Gateway provides connectivity for CPF25 and CPF50 to ChargePoint's Cloud via a cell to Wi-Fi modem	$ -	$ -
2	CPCLD-POWER-5	5yr Prepaid Power Cloud Plan	$ 879.00	$ 1,758.00
2	CPF-ASSURE5	5 Years Parts & labor warranty	$ 675.00	$ 1,350.00
2	CPF-ACTIVE	Initial Station Activation & Configuration Service	$ 100.00	$ 200.00
1	CPSUPPORT-SITEVALID	On-site validation	$ 599.00	$ 599.00
1	CPGW1-LTE	Shipping	$ 210.00	$ 210.00
	Total			$ 7,992.00

Chargepoint CT4000 - Networked

QTY	Item #	Description	Unit Price	Ext Price
1	CT4021-GW1	Dual Output, Gateway, Bollard Unit - 208/240V @30A with Cord Management	$7,210.00	$ 7,210.00
1	CT4001-CCM	Bollard Concrete Mounting Kit.	$ 95.00	$ 95.00
1	CT4000-PMGMT	CT4000 Power Management Kit	$ 50.00	$ 50.00
2	CPCLD-COMMERCIAL-5	5yr Prepaid Commercial Cloud Plan	$1,319.00	$ 2,638.00
1	CPSUPPORT-SITEVALID	On-site validation	$ -	$ -
1	CPSUPPORT-ACTIVE	Initial Station Activation & Configuration Service	$ -	$ -
1	CT4000-ASSURE5	5 Years Parts & labor warranty	$2,495.00	$ 2,495.00
1		Shipping	$ 210.00	$ 210.00
	Total			$ 12,698.00

Initial Investment

Level 2 Fleet RFID Charger/BEV	
CPF50	7,992.00
Electrical Install	5962.00
Bolt EUV or Leaf S Plus	33,000.00
Total	46,954.00

Level 2 Commercial Charger/BEV	
CT4021	12,698.00
Electrical Install	5962.00
Bolt EUV or Leaf S Plus	33,000.00
Total	51,660.00

Points to consider

- To take advantage of the efficiency, EV should be used to it’s effective range
- Plan for effective range of 200 miles or less during warm months
- Range reduced by up to 40% in winter months for electric heat, defrost, warm up (CR)
- Should EV be designated to a specific department that falls into these estimated ranges?
- Are there commercial DC fast chargers throughout our service area to top off if needed?
- Is there an anticipation that employees or public will use installed chargers now or in the future?
- What service and repair options are available locally?

Current Vehicles

Motor pool Miles

- 2019 – 226,070
- 2020 – 116,788 (Covid impact)
- YTD – 36,471

- With current usage we are not budgeting to replace any motor pool vehicles until 2023.
- Will the way we conduct business change?

Personal Mileage Reimbursement Paid

- YTD – 13,139 miles reimbursed @.56/per mile
- Includes mileage paid to Board members

Car #	Year	Vehicle	Location	
1811	2018	Silver Dodge Caravan	Citizens Bldg	
1815	2018	Gold Fusion	Citizens Bldg	
1911	2019	Brown Equinox AWD	Citizens Bldg	
1914	2019	White Equinox AWD	Citizens Bldg	
2012	2020	Silver Equinox AWD	Citizens Bldg	
2014	2020	Red Dodge Caravan	Citizens Bldg	
2017	2020	Chev Traverse - AWD	Citizens Bldg	
1711	2018	Silver Impala	Govt Center	
1813	2018	Silver Equinox AWD	Govt Center	
1814	2018	Blue Fusion	Govt Center	
1912	2019	F150 Truck	Govt Center	
1915	2019	Silver Equinox AWD	Govt Center	Assigned to LUM
2013	2020	Silver Dodge Caravan	Govt Center	
2018	2020	Chev Traverse - AWD	Govt Center	
1812	2018	Silver Equinox AWD	Justice Center	Assigned to Court Services
1913	2019	Dark Gray Equinox AWD	Justice Center	Assigned to Court Services
1712	2018	Dark Gray Impala	LEC Parking Lot	assigned to ADC
1312	2013	White Taurus	Public Works	
2011	2019	Blue Equinox - AWD	Public Works	
2015	2020	Silver Dodge Caravan	Veterans	
2016	2020	Blue Dodge Caravan	Veterans	

Funding & Incentives

- 2021 Capital Plan includes the following:
  - $33,000 for Electric Vehicle
  - $15,000 for Charging station

- Is now the right time?
  - No 2021 options available on State Contract. 2022 is the soonest we could purchase on State Contract.
  - The above dollars could be carried over into 2022

- Are there plans for expansion of the EV fleet in the future? When? How many?
- Xcel Fleet Programs require 4 ports per site & 5 vehicle minimum
- No other current Xcel Energy incentives or rebate opportunities
- Future incentives or funding sources beyond 2021?

Questions?