

# ZEV Deliveries & Infrastructure Installs

Desktop Workshop 1/10/23



# What's are Types of ZEVs?

## BEVs

### 100% Electricity & Battery

Ranges 100-400+

0 emissions

LD Acquisition Cost 50% more

Charging plentiful & # of models growing

## FCEVs

### 100% Hydrogen & Battery

Ranges 350-450

0 emissions

LD Acquisition Cost 200% higher

Charging Limited (mostly in CA)

Models Limited (likely to take off in long-haul trucking or busing)



## PHEVs

Gasoline + Electricity

All electric range: 20-50

Total Range (on gas): 310-640

15%–55% less tailpipe CO<sub>2</sub>

LD Acquisition Cost 50% more

Models Limited

# Takeaways

- Benefits of ZEVs
- What to expect during a ZEV delivery
- Where to find more information about Teslas
- Maintaining & Operating ZEVs
- How to maximize use of ChargePoint RFID cards
- Who won the 2022 Charging Challenge

# ZEV Deliveries

What to expect when expecting a ZEV delivery

# Questions to ask your FSR before Ordering a ZEV

- How can I publicly charge this vehicle?
- How does weather impact this vehicle?
- What is the range on the vehicle, and will it meet your mission?
- How does this vehicle differ from the conventional fueled version?
- I want infrastructure at my site what do I do?

# Picking Up Your ZEV

- Picking up your ZEV is the same process as any other vehicle
- Discuss with your FSR beforehand to get any special information on your vehicle
  - Do you need to charge up on the way back to your site?
  - Any special features?



# PDI Requirements

Upon delivery a ZEV should have the following:

- 75% charge
- All accessories to include charging cords & adapters (if applicable)
- WEX Card



Need to charge your vehicle at public locations? Reach out to your FSR to request a WEX-enabled ChargePoint RFID Card or learn more at [gsa.gov/evse](https://gsa.gov/evse) under “Other Resources”



# Delivery Days & Options

<u>Vehicle Type</u>	<u>SIN</u>	<u>Model</u>	<u>Shipment Days</u>	<u>Delivery Options</u>
Subcompact Sedan	8E	Nissan Leaf	270 Days	CONUS
		Chevy Bolt	180 Days	CONUS + Alaska, Hawaii, PR
Compact Sedan	9E	Tesla Model 3	270 Days	CONUS + Alaska, Hawaii, PR
Minivan	20P	Chrysler Pacifica	120 Days	CONUS + Alaska, Hawaii, PR, Guam
Cargo Van	34E	Ford e-Transit	180 Days	CONUS + Alaska, Hawaii
4X2 SUV (PHEV)	98P	Ford Escape	285 Days	CONUS + Alaska, Hawaii
4X2 SUV (BEV)	98E	Kona	300 Days	CONUS
		Bolt EUV	180 days	Delivery to Alaska/Hawaii available



# Delivery Days & Options

<u>Vehicle Type</u>	<u>SIN</u>	<u>Model</u>	<u>Shipment Days</u>	<u>Delivery Options</u>
4X2 SUV (BEV)	91E	Mach-E	240 Days	CONUS Alaska + Hawaii
AWD SUV (BEV)	96E	Mach-E	240 Days	CONUS, Alaska + Hawaii
		Tesla Model Y	270 Days	CNS, CNSA/H, DDRH, DDRP
4X4 SUV (PHEV)	99P	Wrangler	90 Days	CONUS, Alaska + Hawaii
	99P	Ford Corsair	150 Days	CONUS, PR, Guam, Alaska + Hawaii
	112P	Wrangler	90 Days	CONUS, Guam, Alaska + Hawaii
4X4 LD Crew Cab	55E	F150 Lightning	240 Days	CONUS, Alaska + Hawaii
4X4 MD Crew Cab	57E	Hummer	275 days	CONUS, Alaska + Hawaii
4X4 MD Crew Cab	57E	Silverado	450 days	CONUS
MD Panel Van	162E	Ford E-Transit	275 days	CONUS & HAWAI
MD Wheelchair Van	281E	Ford E-Transit	365 days	TBD

# Tesla Deliveries

Resources & Processes

# Picking up Your New Tesla



- GSA leased vehicles will not require Tesla app to charge
  - DO NOT add the vehicle to your personal Tesla app
- The key cards are used to unlock and start your Tesla
- Review the Tesla Quick Guide and Tesla Guide prior to pick-up or first drive
  - Includes all basic operational functions & how to use the Tesla



# Charging Your Tesla

- You will automatically have access to SuperCharging
  - Plug-in and charge up, nice and easy!
- Charging fees are covered in your mileage rate
- You can access non-Tesla chargers through adapters
  - Keep adapters in your vehicle



# Resources

- Tesla Quick Guide
  - One Pager - PDF handout
  - Receive from your FSR
  - Will be posted on [gsa.gov/afv](https://gsa.gov/afv)
- Tesla Guide - *Coming Soon*
  - Longer form document
    - Will include pictures
    - How-Tos
  - Will be posted on [gsa.gov/afv](https://gsa.gov/afv)
  - Receive from your FSR
- Tesla website
  - For all other questions you may have




GSA Office of Fleet Management

## GSA Tesla Quick Guide

### Setting Up Vehicle

Equipment included with the vehicle:

- 2 Keycards
- J1772 Adapter (To charge at non-Tesla stations)
- Tesla L2 Wall Connector
- WEX Card (Maintenance Only)



Some equipment may not have arrived with your vehicle. It is on backorder, and your FSR will be in contact with you.

### Operating Features

Tesla App functionality is currently unavailable. Please utilize the 2 keycards to operate this vehicle.

To unlock the vehicle, tap the keycard below the camera on the front driver side door.

**Starting the Vehicle:** Place the keycard in the center cup holders, press the brake, and put the vehicle in drive. Once in drive, you may remove the keycard.

Basic operating features are controlled within the touchscreen settings.:

- Climate Controls
- Headlights
- Mirrors
- Etc.

### Roadside Assistance

Within Business Hours (Mon - Fri 7AM to 8PM)

1. Contact the MCC at 866-400-0411
2. Choose "Option 1" when prompted
3. Communicate to the MCC that you are requesting roadside assistance for a Tesla.
4. Have information below ready:
  - a. VIN
  - b. Exact current odometer reading
  - c. Current Range of Vehicle

After Hours

1. Contact the after hours emergency toll free number, 866-WEX-4GSA.
2. A customer service representative will authorize any after hours emergency services up to \$500.00.
3. On the next business day, contact the MCC or servicing Fleet Service

### Charging

#### Tesla Supercharger

Access to Tesla Superchargers is included with GSA leased vehicles. Payment is automatically uploaded via GSA, so a WEX card is not necessary.

See Tesla Charging FAQ for further guidance:  
<https://www.tesla.com/support/home-charging-installation/faq>

#### Idle Fees

Be aware of idle fees when charging at a Tesla Supercharger. Fees occur when at least 50% of the charging docks are utilized. To avoid idle fees unplug your vehicle within 5 mins of it reaching maximum charge. Idle fees will be billed back to the customer.

#### ChargePoint Card

Guidance to utilize non-Tesla public charging stations can be found on the ["Electric Vehicle Charging Stations"](#) page of [gsa.gov](https://gsa.gov) under the "Other Resources" menu.

#### Level 1 Chargers

- 110/120V (Same as a standard household plug)
- Full charge in 40-50 hours

#### Level 2 Chargers

- 240V
- Full charge in 4-10 hours

#### Level 3 Chargers

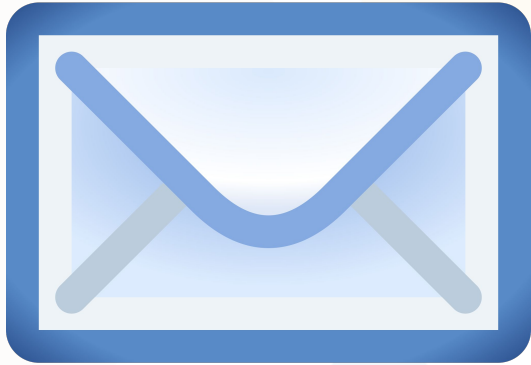
- 480V
- Full charge in 20-60 minutes
- Tesla Superchargers and



# ChargePoint RFID Cards

Request Process & How to Use

# Requesting a ChargePoint RFID Card



Email your FSR with the Tag number and mailing address of the vehicles that need RFID Cards



Your FSR will submit the request on your behalf.



GSA will mail the cards through UPS



# About the ChargePoint RFID Card

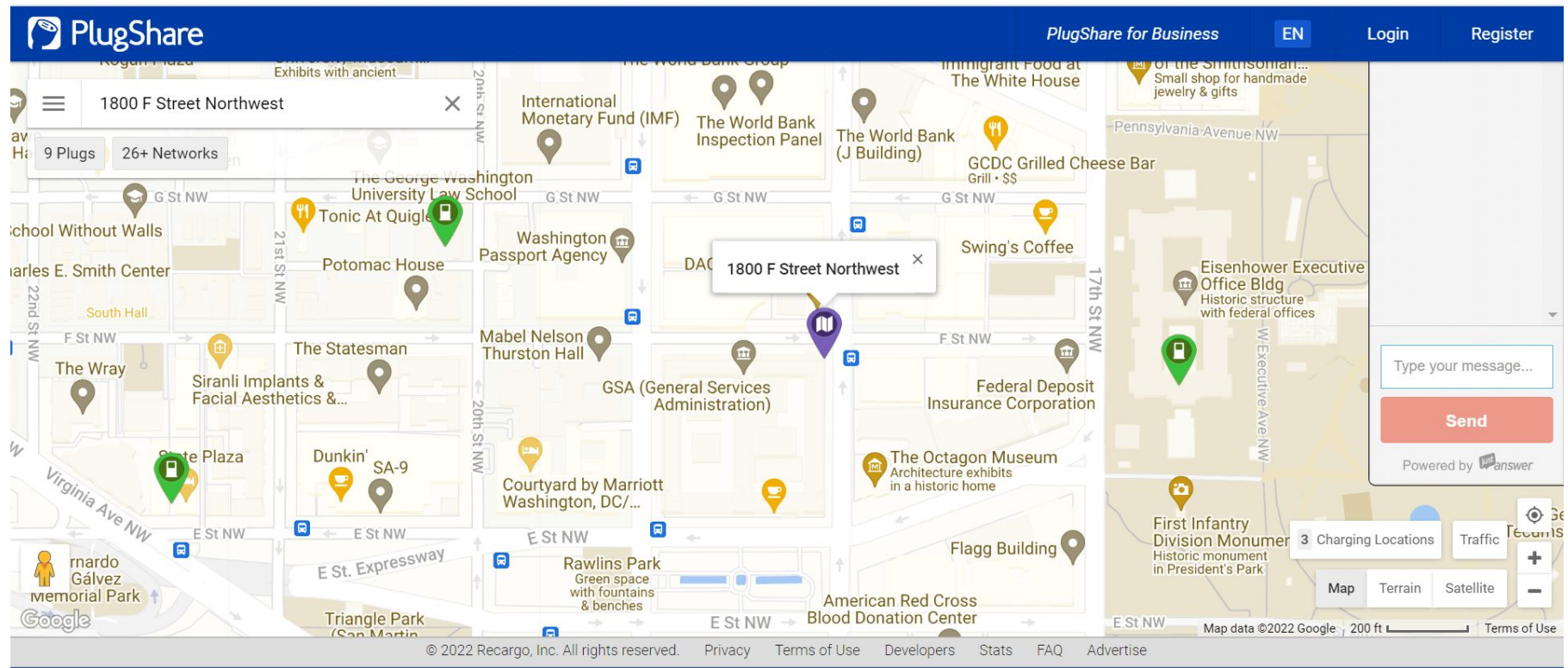
- A ChargePoint RFID Card can be connected to any Plug-in Hybrid or Battery Electric Vehicle
  - This includes Teslas
- The cost for pay-to-use charging is currently covered by GSA Fleet
- Charging data can be found in the Drive-thru FUR reports

# Using the ChargePoint RFID Card

- Find a station at [www.plugshare.com](http://www.plugshare.com) or [AFDC Locator](#)
  - ChargePoint has roaming agreements with EVGo, EV Connect, EV Box, Greenlots, and Flo Stations
- Tap your RFID card on the station to initiate a charge
  - All charges are billed to the WEX card connected to the ChargePoint card and included as part of mileage rate



# Finding a Charging Station



# Charging Up!





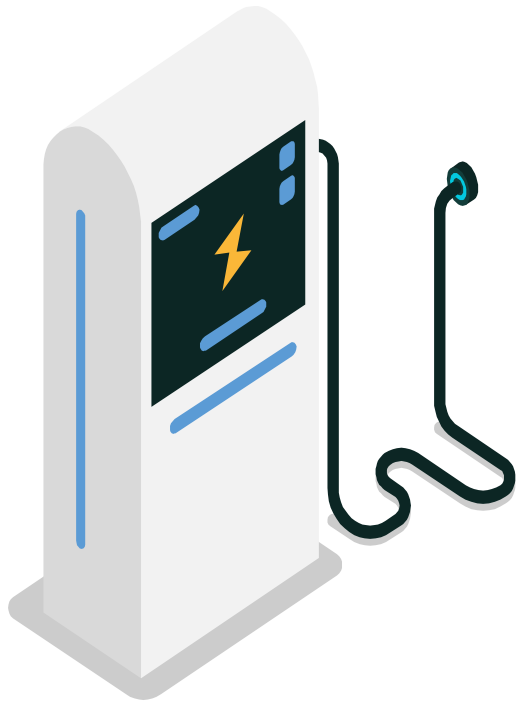
# Do I Need a ChargePoint Card?

Request a ChargePoint card if:

- Your mission means you'll be on the road and need to charge away from garage location
- You need a ChargePoint RFID card to access stations at your garage location

Make sure there are available ChargePoint & roaming options nearby

# Public Charging Best Practices



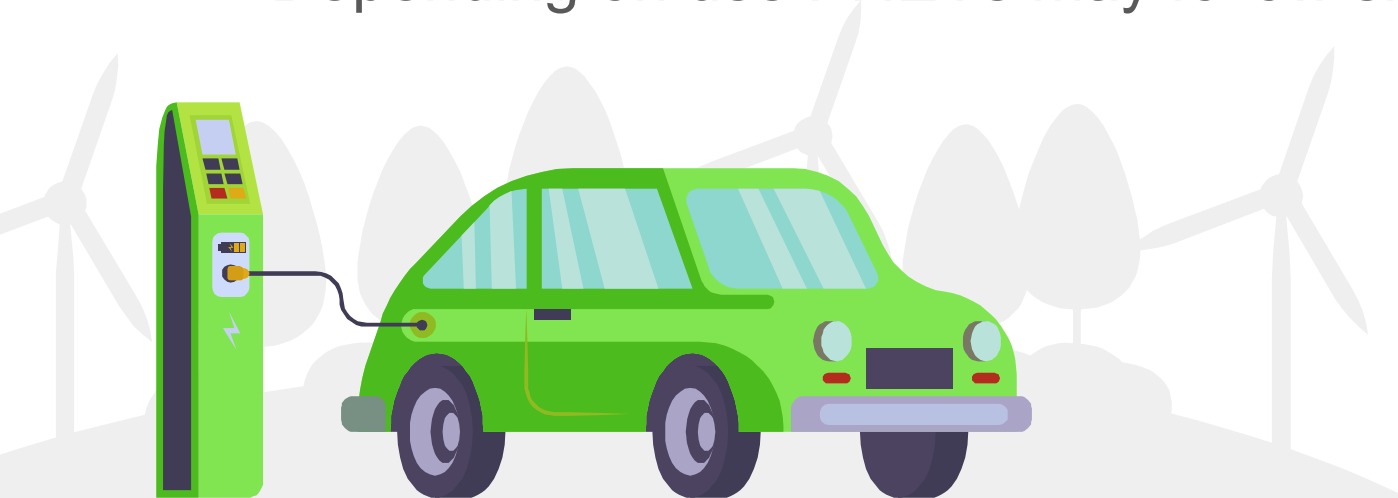
- Let your FSR know early if you plan to utilize pay-for-use charging
- Plan before you go
  - Sites like [abetterrouteplanner.com](https://abetterrouteplanner.com) help you plan for charging on trips
- Keep ChargePoint RFID Card with the WEX Fuel Card

# Maintaining & Operating EVs



# Maintenance on ZEVs

- 8 Years 100,000 miles battery pack warranty
- No oil changes for BEVs; tire pressure, rotate tires flush corrosive materials, replace the cabin air filter and wiper blades, and topping off the washer fluid
- Will vary depending on climate
- Depending on use PHEVs may follow similar schedule to ICE



# Case Study: Side by Side Comparison

**F-150**

**F-150  
LIGHTNING™**

<b>Engine</b>	3.3L V6 Flex-fuel (FFV)	Electric Dual eMotor
<b>Horsepower</b>	290 hp @ 6500 rpm	563 (580 with extended range)
<b>Torque</b>	265 lbs-feet	775 lbs-feet
<b>Curb Weight</b>	4,021	6,015
<b>Payload</b>	1,990	2,235 lbs
<b>Towing</b>	5,000 lbs	7,700 lbs
<b>MPG (city/Hwy/Cmb)</b>	19 / 23 / 20	76 / 61 / 68
<b>Range</b>	437-529 (city-highway)	230 (320 with extended range)
<b>Extras</b>		Frunk! Extended range can power a house for 3 days!

# Keep Requirements in Mind

## Case Study: Towing



Model Year 2023 F150 Lightning

- 7,700 lbs towing
- Towing can lead to ~50% or more loss in range
- Drivers CAN back up into the water and it will NOT ruin the battery (same as a gas vehicle - it's not great for the vehicle, but isn't any worse simply due to the battery)

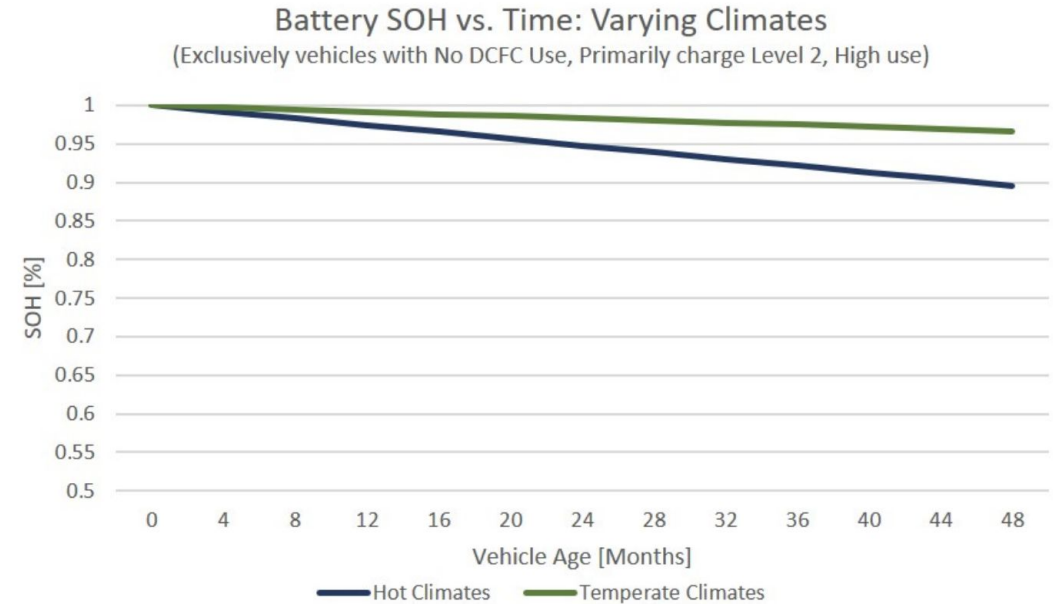
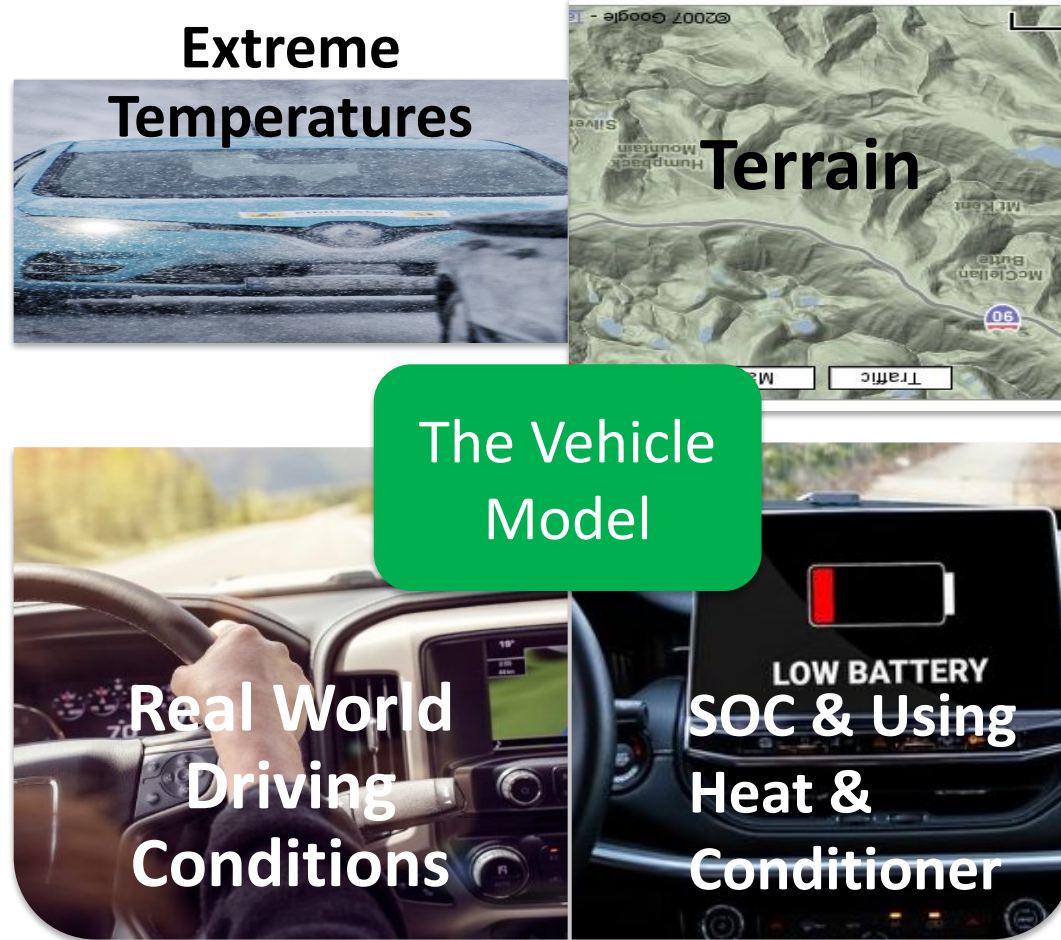
# EV Deployment





# Common Factors Impacting Battery Life and Driving Range

Source: DOE NREL

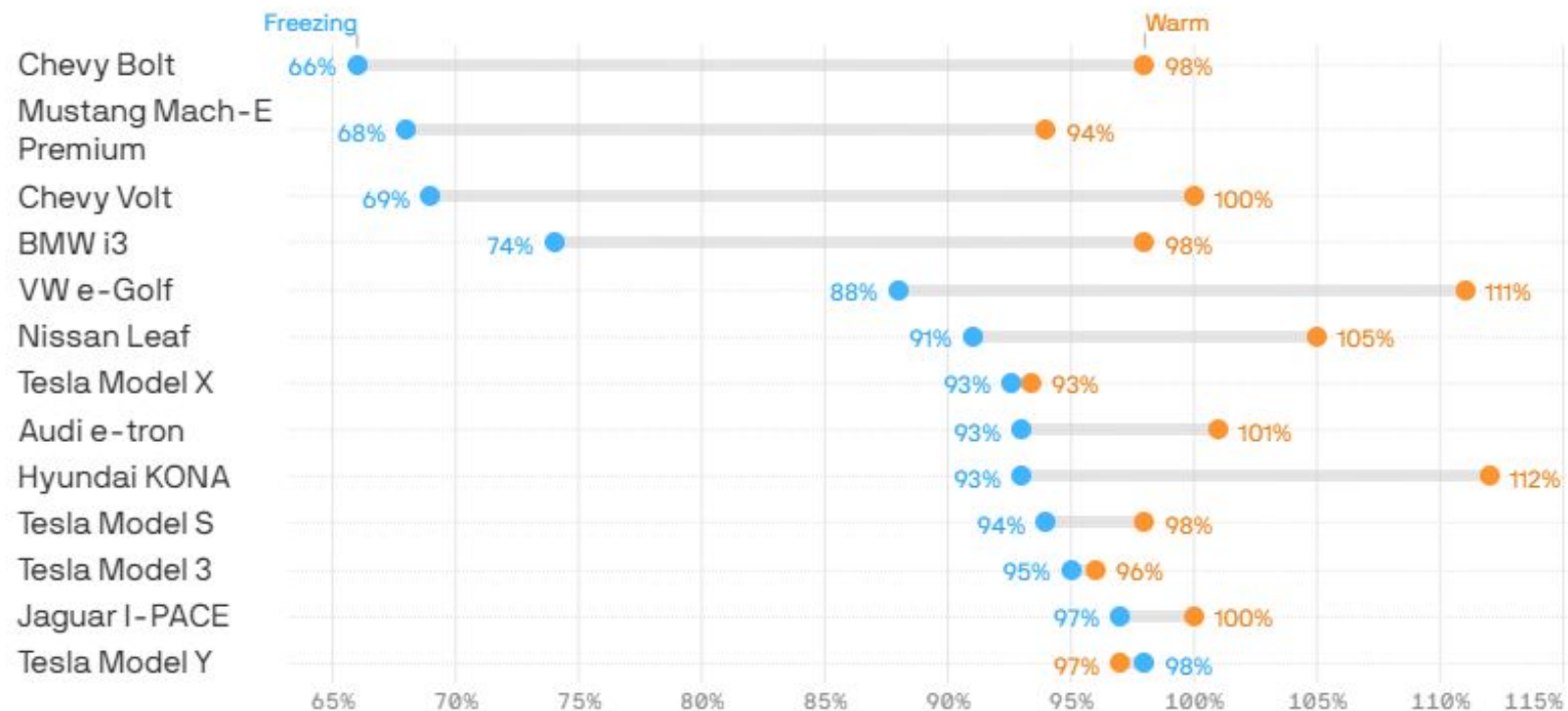


- Temperate (fewer than 5 days per year over 80°F (27°C) or under 23°F (-5°C))
- Hot (more than 5 days per year over 80°F (27°C))

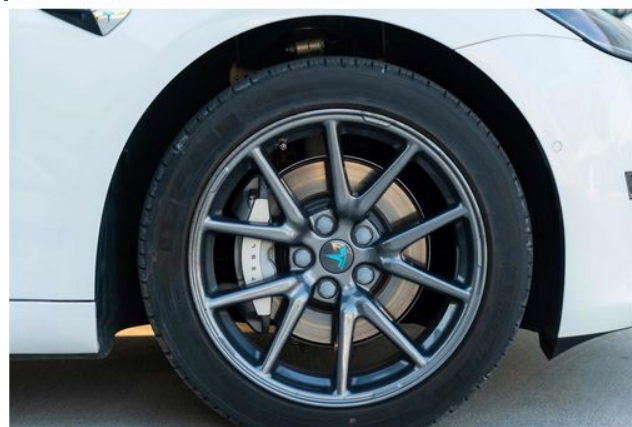
# Effects of Temperature

## How weather affects EV battery range

Percentage of EPA range in freezing (20-30°F) and warm (70°F) weather



Data: [Recurrent](#); Chart: Baidi Wang/Axios



# Tips to Minimize Range Loss

1. Park your car in a garage.
2. Heat the passenger, not the car.
3. If you need to heat or cool the car, make time to “pre-heat” or cool down the inside of the vehicle while still connected to the charger.

Inflate your tires.

4. Activate the “eco” mode.
5. Smooth driving habits.

Remember:

- High vehicle use does not equal higher battery degradation.
- EVs on average lose 20% of their range in colder climate - can be up to 35%!
- EVs charge more slowly in cold temperatures.
- Lower-power charging methods promote longer battery health.
- Try to charge up to just 80% unless you need the full 100% range



# Utilizing the EVSE BPA

# GSA's EVSE Solutions

Infrastructure is a critical first step to successfully electrify the Federal Fleet

## BPAs

EVSE Hardware, Software, Managed Charging, Site Assessments, Consulting Services & More

## IDIQs

Construction, Design & Build, Feasibility Studies & Assessment, Repair & Alterations, Electrical Upgrades, Testing, Commissioning & Utility Coordination

Self-Service, Assisted Acquisition or Hybrid Offerings

# Ordering Path Options



## GSA/PBS Awards & Manages

For buildings in or not in GSA's Building Portfolio:

Agency submits requirements & funding through eRETA



## GSA/PBS Provides Contract Support



## Self-Service Design & Construction



## Self-Service for EVSE BPAs

For buildings not in GSA's Building Portfolio:

Agency submits requirements & funding through eRETA

Agency requests GSA Delegation of Procurement authority from GSA

Agency views offerings on [gsa.gov/evse](https://gsa.gov/evse) & orders from BPA Holder

# 2022 Charging Challenge

# Charging Challenge Measures



## When?

October 1st - December 31, 2022

## The Challenge

Agencies competed against other agencies operating ZEVs in their fleet. Categories included:

- Most Improved Agency (highest % increase in utilization)
- Most All-Electric Miles Driven (BEVs only)
- Highest Percent of Electric Use for PHEVs (highest MPG)

## Overall Results:

- More than a 1,000% increase in ZEV utilization!
- 105,173 all-electric miles driven!
- Overall average of 52 MPG for PHEVs!

# Charging Challenge Winners

## → Most Improved Agency

- ◆ Environmental Protection Agency - Over a 4,000% increase in ZEV utilization over the same period last year!

## → Most All-Electric Miles Driven (BEVs only)

- ◆ Department of Energy - 46,360 fully electric miles driven during the challenge period!

## → Highest Percent of Electric Use for PHEVs

- ◆ Department of Homeland Security - Average of 73 MPG for their PHEVs during the challenge!

# Resources

## Website

→ [gsa.gov/ElectrifyTheFleet](https://gsa.gov/ElectrifyTheFleet)

## Contact Us

→ [GSAFleetAFVteam@gsa.gov](mailto:GSAFleetAFVteam@gsa.gov)

◆ (ZEVs, EVSE & ZEV deployment)

→ [PBS-EVSE-Solutions@gsa.gov](mailto:PBS-EVSE-Solutions@gsa.gov)

◆ (EVSE Design, Construction & Install)







Fleet<sup>®</sup>