

NHDES Community Charging Grant Listening Session October 26, 2023

Welcome! We will begin shortly.

This session is being recorded and we will notify you when the recording and slide deck are posted to the NHDES website.

Today's Listening Session Agenda

- ▶ Overview: EV & EV Charging
- ▶ Context: NHDES' programs
- ▶ Guiding Questions & Public Comment:
 - ▶ Comments submitted live
 - ▶ Open Comment Period
 - ▶ Pre-submitted comments
- ▶ Next Steps

Electric Vehicle (EV) & EV Charging Overview



Electric Vehicles (EVs)

Types of Electric Vehicles (EVs)

Battery Electric Vehicles (BEVs) powered solely by an electric battery (aka all-electric)

Plug-in Hybrid Electric Vehicles (PHEVs) powered by a combination of an electric motor and a gasoline engine. Battery can be charged externally and run the vehicle exclusively on battery power for several miles.

Hybrid vehicles (HEVs) powered by a combination of an electric motor and a gasoline engine, but cannot be charged externally.









Benefits of EVs

Environmental Benefits

- Reduced emissions of NOx, greenhouse gases, and other pollutants
- Key strategy for integrating renewables into transportation
- EVs are quieter than gasoline-powered vehicles

Consumer Benefits

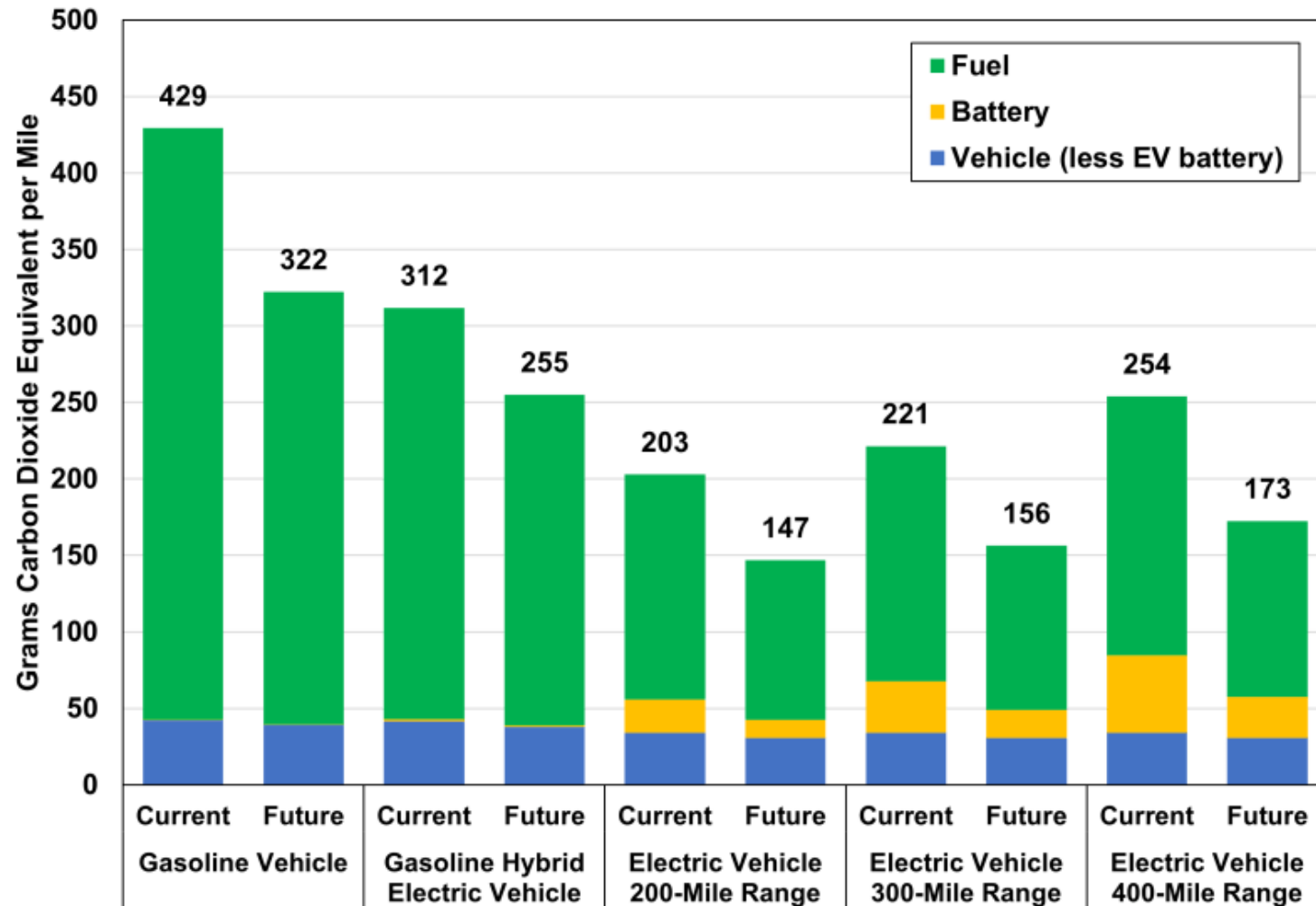
- EVs are fun to drive
- Cheaper to fuel and maintain
- Convenience of charging overnight at home

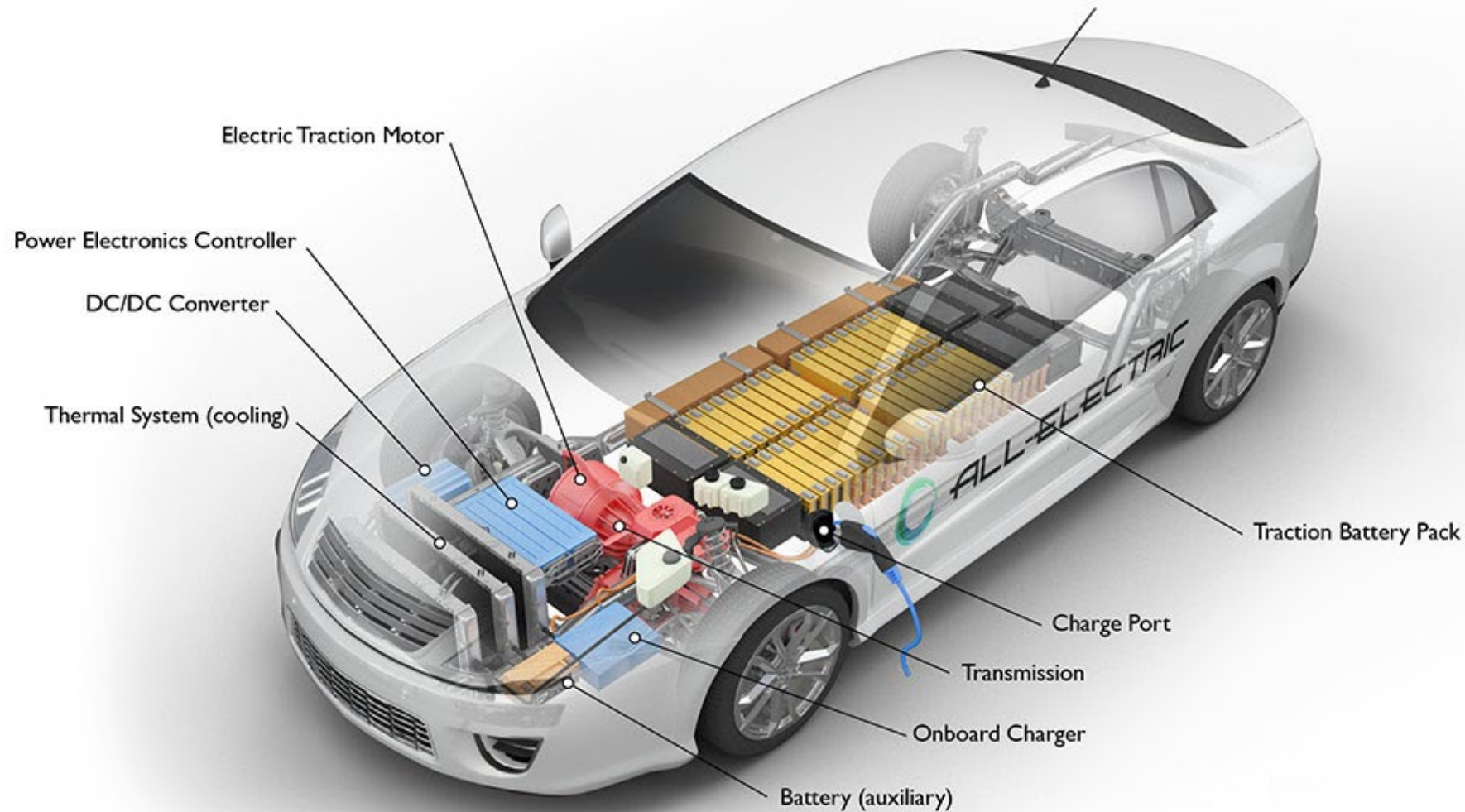
Vehicle	Annual Fuel Use 	Annual Electricity Use 	Annual Fuel/Elec Cost 	Annual Operating Cost 	Cost Per Mile 	Annual Emissions (lbs CO2) 
2023 Ford F-150 Lightning 4WD EV	0 gal	5,618 kWh	\$1,116	\$3,221	\$0.27	2,131
2023 Ford F150 Pickup 4WD Gasoline	600 gal	0 kWh	\$2,213	\$4,471	\$0.37	14,397

Source: <https://afdc.energy.gov/calc/>

EV vs. Conventional

Cradle to Grave Greenhouse Gas Emissions for a Small SUV



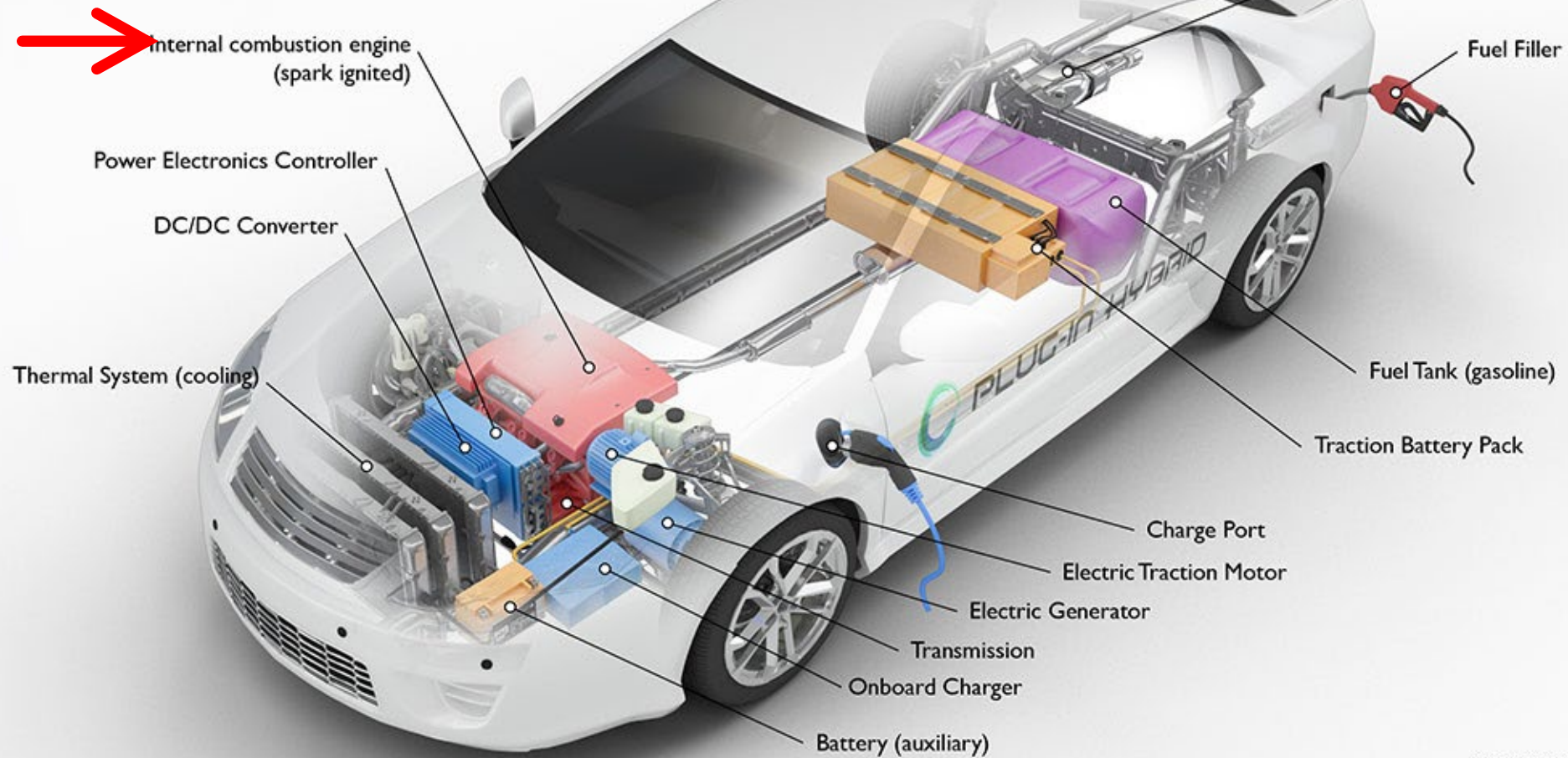


<https://www.afdc.energy.gov>

afdc.energy.gov

70 - 500+ miles of range
Dozens of EV models available

Plug-in Hybrid Electric Vehicle



<http://www.afdc.energy.gov>

afdc.energy.gov

15 - 60+ miles just on electric
Over 50 miles per gallon
Conventional engine for longer trips



Mainstream Automakers are investing in electrification

Today, there are 60+ different models of EVs available in the
Northeast alone – and more on the way!

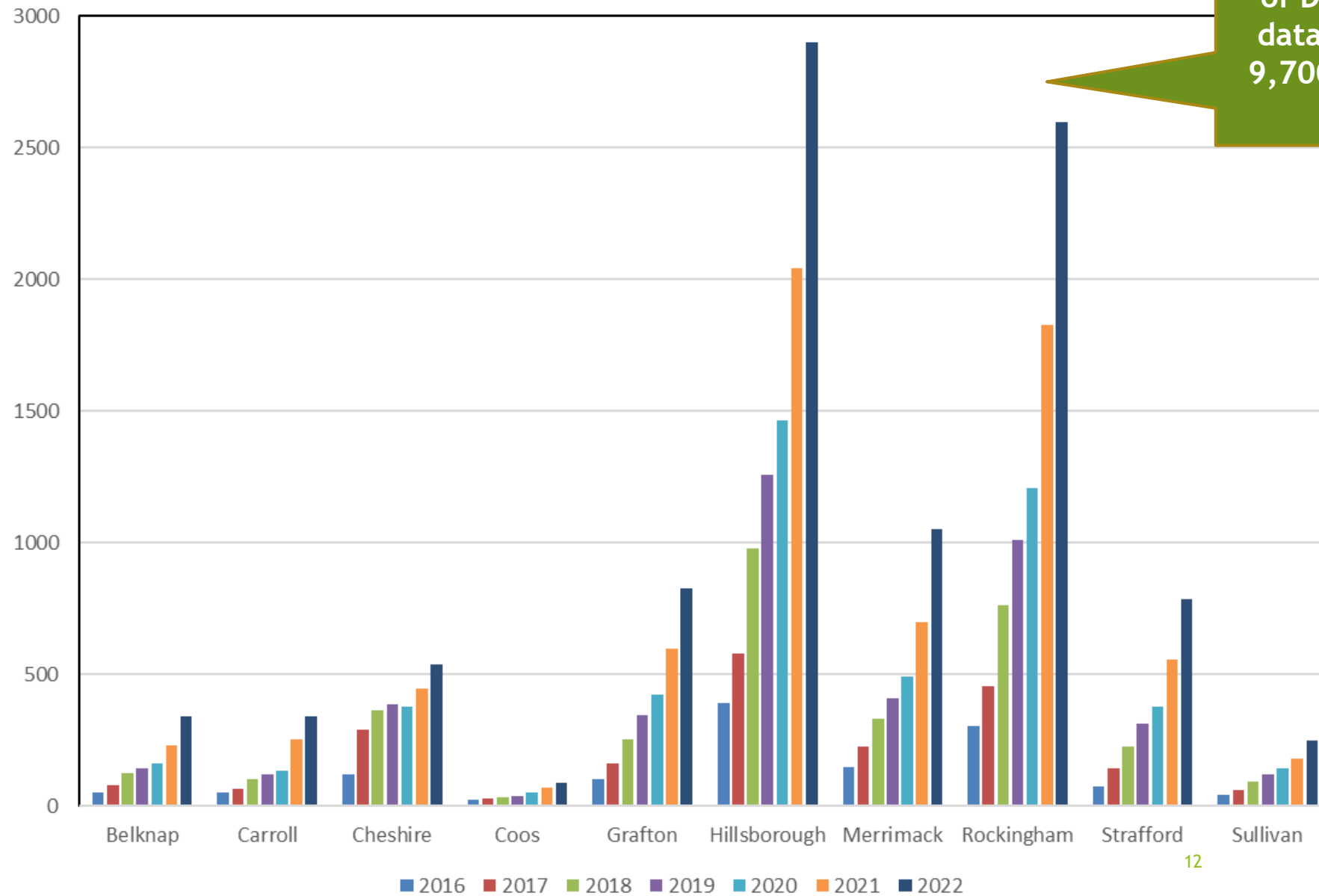
<https://driveelectricus.com/explore-electric-cars/>



The Market is Growing



Total Registered Electric Vehicles By County



Per a recent analysis of DMV registration data there are over 9,700 registered EVs in NH

A photograph of a city street scene featuring a row of parked electric vehicles. In the foreground, a silver Volvo SUV is visible on the left. Behind it, a white Mitsubishi SUV and a dark Chevrolet are parked. Further back, a blue car is also visible. The vehicles are parked on a paved street next to a sidewalk. In the background, there are trees and a multi-story building with many windows. A semi-transparent white rectangular box with a thin blue border is overlaid on the center of the image, containing the text "EVSE: Charging Infrastructure".

EVSE: Charging Infrastructure

Level 1

2 to 5 miles of range
per hour of charging

Standard 120v AC Wall
Outlet

1.4 kW - 2.4 kW

Level 1 Charging



Level 1 Charging - Standard House Outlet

Level 2

15 to 25 miles of range per
hour of charging

Requires 240v outlet and
dedicated 40 amp circuit -
the same kind used by a
clothes dryer or stove

3 kW to 19 kW (Avg 9.6 kW)

Level 2 Charging



ChargePoint/Coulomb Level 2 Charging Station

DCFC

60 to 180 miles of range per
hour of charging depending
on charger and vehicle

Requires three-phase 480v
electric circuit

Needs to be mounted on an
equipment pad

50 kW - 150 kW - 350 kW

DC Fast Charging



Blink DC Fast Charge Station
photo by ECotality



DCFCs typically range from 50 to 350 kilowatts

There are three different plug types that are used by different vehicle manufacturers:



CCS, aka SAE **C**ombined **C**harging **S**ystem (e.g., BMW, GM, VW)



CHAdeMO (e.g., Nissan, Mitsubishi)



NACS/Tesla (currently proprietary to Tesla, but several OEMs are adopting Tesla's North American Charging Standard)

Learn more @ USDOE Resource EV Charger Selection Guide:
https://afdc.energy.gov/files/u/publication/EV_Charger_Selection_Guide_2018-01-112.pdf

DCFC Infrastructure in NH

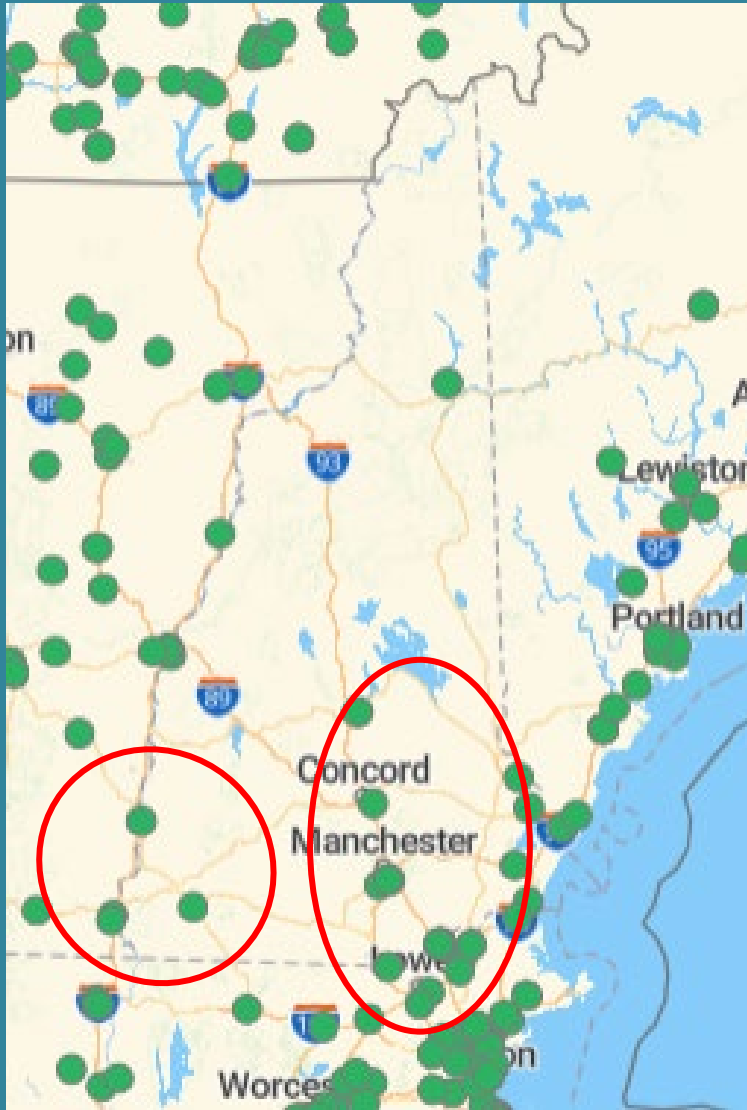
DCFC delivers the fastest charge for EV drivers, which:

- facilitates long distance travel,
- provides an alternative to home charging, and
- allows drivers to “top off”

There are currently **27 universal DCFC locations** and 40 Tesla chargers in New Hampshire.

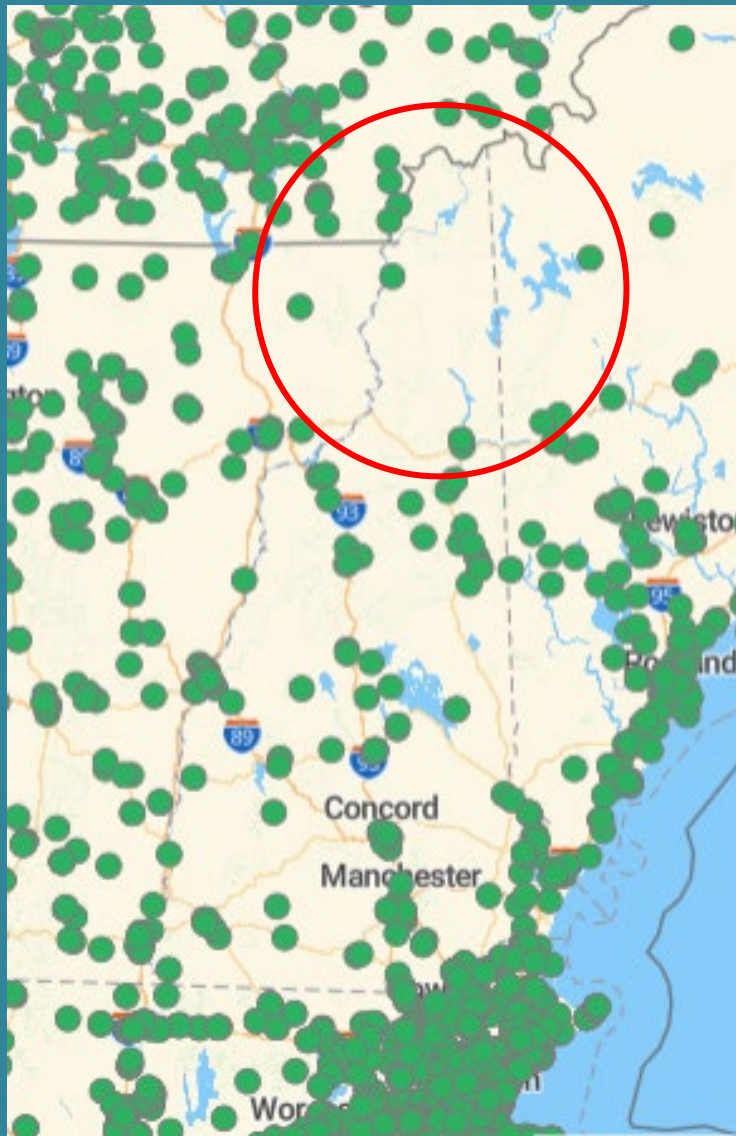
For reference, DCFC infrastructure in neighboring states:

- Vermont – 43 universal, 6 Tesla
- Maine – 61 universal, 18 Tesla
- Massachusetts – 111 universal, 46 Tesla



Current data as of 08/31/2023

Source: <https://afdc.energy.gov/stations/#/find/nearest>



Public Level 2 EVSE in NH

There are currently 170 Level 2 charging locations in NH (*not including Tesla*).

Charging in neighboring states:

- Vermont - 275 locations
- Maine - 332 locations
- Massachusetts - 2,500 locations

Current data as of 08/31/2023

Source: <https://afdc.energy.gov/stations/#/find/nearest>

EVSE Cost & Project Considerations

Equipment

Level 1

\$100 - \$300

Level 2

\$1,400 - \$4,100

DCFC

\$28,400 - \$140,000

Installation

Level 1

\$400 - \$600 if no
existing plug

Level 2

\$680 - \$3,300

DCFC

\$18,000 - \$66,000

Networking (L2 & 3)

- Select hardware that uses the Open Charge Point Protocol (OCPP) version 1.6 or higher
- Access to a wired or wireless internet connection or cellular service

Volkswagen DCFC EVSE RFP

RFP = Request for Proposals
(i.e. funding opportunity)

VW DCFC EVSE RFP (9/17/21-2/25/22)

Applicants

- ▶ 43 eligible EVSE options
- ▶ 14 sites selected
- ▶ Projects are in progress, some set to finish by the end of 2023 or start of 2024
- ▶ Some contracts are still finalizing; these projects would complete probably late 2024 (if approved by NH G&C)



New Hampshire VW Environmental Mitigation Trust
Direct Current Fast Charging Infrastructure
Request for Proposals
RFP # NH-VW-2021-01
New Hampshire Electric Vehicle Supply Equipment Grant Program
September 17, 2021



NHDES NEVI CFI Community Charging Grant Program

(the program we want your feedback on today!)

Community Charging Grant (CCG) - Priorities

Goals

- ▶ Enable NH residents to charge EVs and enable travelers to charge at their destinations
- ▶ Encourage EV drivers to drive to walkable down-town areas
- ▶ Enable residents without their own garages or driveways to charge EVs
- ▶ Support historically underserved & often overlooked communities

Priority Locations

- ▶ Commerce or culture centers
- ▶ Rural locations
- ▶ Nearby multi-unit dwellings
- ▶ Tourist attractions
- ▶ Parks and public spaces
- ▶ Nearby transit hubs

Remember: please **DO NOT** provide suggestions for locations/sites!

Federal Minima and Restrictions

- ▶ All sites must support charging at least 4 vehicles simultaneously
 - ▶ But this can be Level 2, DCFC, or both!
- ▶ All DCFC must provide each vehicle a minimum of 150 kW
 - ▶ Level 2 has a minimum of 6 kW with the caveat to allow drivers to accept even slower charging to reduce demand
- ▶ All DCFC must have CCS1 charging plugs
 - ▶ Two of our questions today pertain to other charging plugs - stay tuned!
- ▶ Certain technical NEPA, Buy America, and point-of-sale restrictions that we won't get into today

Administrative and Funding Structure

Administrative Structure

- ▶ Projects must submit for competitive scoring
- ▶ Projects must await selection by NHDES and then approval by NH G&C before proceeding
- ▶ Status reports required throughout project
- ▶ Applicants are welcome to propose *any* sites in New Hampshire

Programmatic Structure

- ▶ Project partners are necessary, but only the Lead Entity can be reimbursed and is ultimately responsible for the entire project
- ▶ NHDES is considering funding some amount of infrastructure upgrades (amount TBD)
- ▶ Funding is reimbursement only

Listening Session Procedure

- ▶ We will ask a guiding question and then launch a poll to collect responses - your response will be anonymous. If you wish to comment further, please do so using the “chat” feature.
- ▶ We will read responses and comments submitted through the chat. Comments which are similar to or echoing previously submitted comments may not be individually read.
- ▶ Commenters who wish to speak their comments aloud should include a brief summary of their comment and use the “raise hand” function to indicate that you would like to expound further (*We can’t guarantee everyone will get to speak due to time constraints*)
- ▶ As time allows, we will read (consolidated) written responses to these guiding questions which were submitted to the public comment form that was open from 09/20 - 10/06/23.

Listening Session Procedure (cont.)

- ▶ Please be sure to include which Question you are responding to with your comment (e.g. #1, #2) or mark it as a general comment
- ▶ Please “thumbs-up” comments you see that you agree with or want to echo. You can also reply to such comments in the chat directly to consolidate your reply
- ▶ Please do not suggest individual sites
- ▶ Please keep comments constructive and respectful

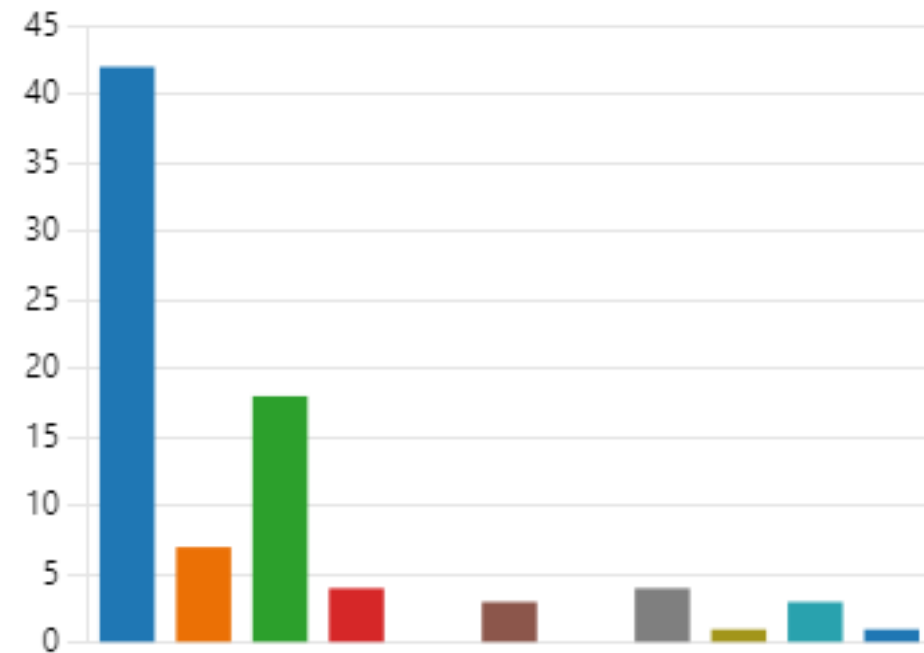
NHDES will not necessarily address all comments. Not all comments will necessarily inform program development. Our intent is to learn from you.

Results from public comment form that was open from 09/20 - 10/06/23:

Please select the sector that you best represent

[More Details](#)

Individual NH resident	42
Community organization	7
Local government	18
State or regional government	4
Federal government	0
Energy/environmental consulta...	3
Utility	0
EV charging company	4
Solar/other electric service com...	1
Private business interested in be...	3
Other	1



A photograph of a city street scene featuring a row of cars parked on a cobblestone sidewalk. In the foreground, a silver Volvo SUV is prominent, with a black license plate that reads "LOVERING VOLVO", "LOVERING", "LOVERINGAUGROUP.COM", and "LOVERING YOURS.COM". Behind it are several other vehicles, including a silver sedan and a blue car. In the background, a multi-story brick building with many windows is visible, along with a green awning that says "Better Homes & The Real Estate Group". A semi-transparent white rectangular box with a thin blue border is centered over the image, containing the text "Guiding Questions & Public Comment".

Guiding Questions & Public Comment

Guiding Question #1 – Multiple Rounds?

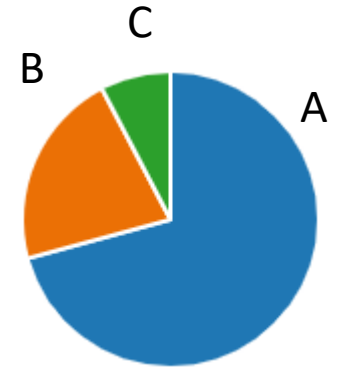
We are asking...

NHDES is considering **multiple, subsequent rounds** of the request for proposals and **scoring each round individually**. *For example, if proposals were due December 1, February 1, and April 1, then: proposals received by December 1 would be scored together, then proposals received between December 1 and February 1 would be scored together, etc.* This would let us start the contract phase for projects earlier and help communities sooner, although it may mean funds are used up before the final period. **What do you think about this method?**

- A. Yes** - NHDES should set up multiple submission periods, allowing NHDES to potentially start contracting projects earlier.
- B. No** - NHDES should consider all eligible projects at the end of the request period, allowing all applicants the full period to submit their materials.
- C. Other?**

Guiding Question #1 – Multiple Rounds? Feedback

You've responded...



- More chargers needed as soon as possible the need is now
- Getting consensus and planning permissions will take time
- Build around town budget and town meeting timelines
- Multiple submission periods / staggered grant rounds / rolling out in stages will allow for broader participation, quicker deployment, and opportunities to learn from initial difficulties rather than all projects hitting simultaneous stumbling blocks
- Allocate funds equally among the multiple rounds so as not to penalize applicants in resource-poor communities that might take longer to prepare their proposal

Guiding Question #2 – NACS/Tesla?

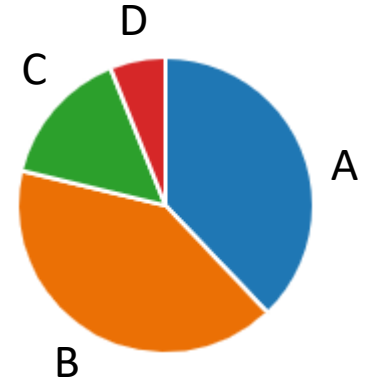
We are asking...

The NEVI standards require that all ports include CCS1 charging plugs, but they do not prohibit the inclusion of other charging plugs. While many vehicle manufacturers have signed on to produce NACS-capable vehicles, Tesla chargers throughout the state may already serve these vehicles. Taking this into account, which of the following would you recommend?

- A. NHDES **requires** NACS plugs **in addition to** CCS1 plugs.
- B. NHDES **may fund** NACS plugs **in addition to** CCS1 plugs, but not require them.
- C. NHDES **should not fund** NACS plugs whatsoever.
- D. **Other?** (Please clarify in the chat)

Guiding Question #2 – NACS/Tesla? Feedback

You've responded...



- There are enough NACS plugs available now / the majority of unmet need is CCS1
- Automaker support is still evolving
- Having the most accessibility EARLY in the roll out of the stations will enable a good reputation for the charger program.
- NHDES should require every charging station to support NACS and CCS1 for at least the next 5 years of funding.
- Build for the future / the evidence is clear that NACS will be the future standard.
- Requiring CCS1 for backwards compatibility for the time being makes sense, but all chargers should include NACS as well.
- Give applicants the flexibility to submit applications given their unique needs.

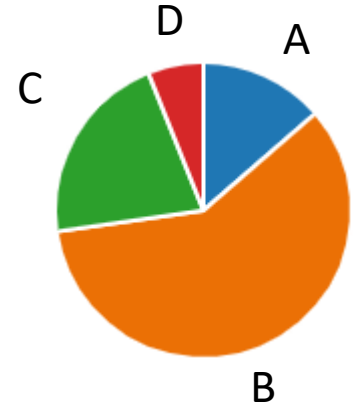
Guiding Question #3 – CHAdeMO?

We are asking...

While the CHAdeMO charging system has become less common on newly announced vehicles, it may still be necessary for legacy EVs and used EVs. Like the previous question, which of the following would you recommend?

- A. NHDES **requires** CHAdeMO plugs in addition to CCS1 plugs.
- B. NHDES **may fund** CHAdeMO plugs in addition CCS1 plugs, but **not require** them.
- C. NHDES **should not fund** CHAdeMO plugs whatsoever.
- D. **Other?** (Please clarify in the chat)

Guiding Question #3 – CHAdeMO? Feedback



You've responded...

- Many people can't afford to purchase a newer EV
- Only because there are some legacy CHAdeMO vehicles out there should you consider including them. I'd also be perfectly fine with excluding those few vehicles from this funding program.
- CHAdeMO is not used by any cars and is should be phased out.
- Used EVs are going to be most accessible to low income people, and need charging more often, so having these plugs available will be important for equity and keeping cars in service for longer / adapters might be the solution here.
- I own a Leaf with CHAdeMO. I am aware it is a dying standard in the U.S. The vehicles are limited in range overall. We should have some chargers available but not invest heavily.
- Give applicants as much open-ended opportunity as possible to make the case.

Guiding Question #4 – Availability?

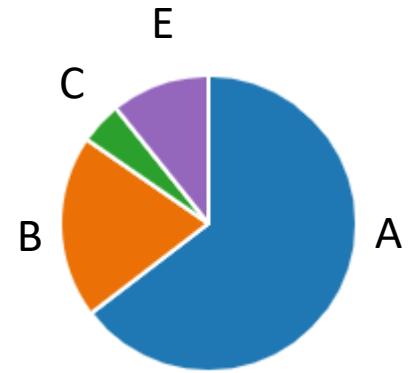
We are asking...

The CFI guidance for community programs states that chargers must be available at least as frequently as the business hours of the site they are installed upon. *In our VW DCFC RFP, we required 24/7 availability and access.* NHDES is considering requiring 24/7 availability for chargers funded under this grant as well. **What do you think of this?**

- A. NHDES should require all chargers to be open 24/7.
- B. Chargers should be open at least as frequently as business hours but NHDES should favor projects proposing more availability.
- C. NHDES should require DCFC to be open 24/7, but not Level 2 chargers.
- D. NHDES should require Level 2 chargers to be open 24/7, but not DCFC.
- E. **Other?** (Please clarify in the chat)

Guiding Question #4 – Availability?

Feedback



You've responded...

- Off-grid solar power provides daytime charging only. Any Level 2 sites requiring 24/7 coverage should include funding for external batteries.
- We're never going to get full EV acceptance until more chargers are available at ALL hours of the day. As an EV owner for 10 years, the charger availability is becoming a HUGE problem as more EVs hit the road / accessibility is paramount for EV users.
- Simplicity - and most chargers are not going to require on-site management.
- Some workers start early or finish late. Others work shifts. / some people travel overnight
- 24/7 could open the chargers up to potential security issues. / Cameras may be a solution
- DCFC are frequently used during longer trips and by out of state visitors, and should be available 24/7 to accommodate - they are the destination themselves. By contrast, level 2 chargers are (with the exception of ones located at a hotel or overnight destination) "nice to haves" at a destination the EV driver is visiting. Therefore, the level 2 charger is mostly going to see demand when the business/attraction it is attached to is being visited.
- Some places don't allow overnight parking / consider winter parking bans.

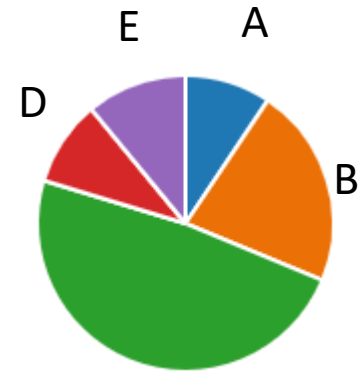
Guiding Question #5 – Infrastructure?

We are asking...

While chargers can be expensive, the cost of infrastructure upgrades and other site-work (sometimes called “make-ready” costs) can cost even more. Some sites may need more upgrades than others. NHDES could fund some degree of these costs, but at the expense of the total number of projects funded. **How do you believe NHDES should balance these two priorities?**

- A. NHDES **should maximize funding** of make-ready costs, even if this means minimizing the number of projects that get funded.
- B. NHDES **should fund much** of the make-ready costs, even if this means reducing the number of projects selected.
- C. NHDES **should fund some** of the make-ready costs, ensuring more projects can be funded.
- D. NHDES **should fund minimal** make-ready costs, ensuring the maximum number of projects can be funded.
- E. **Other?** (Please clarify in the chat)

Guiding Question #5 – Infrastructure? Feedback



You've responded...

- We are behind in infrastructure and need whatever it takes to get it in place
- A two-tiered approach could be applied: no coverage of "make ready" costs for Level 2 EV chargers that can be installed and scaled up quickly; with "make ready" cost coverage reserved for Level 3 EV chargers that take longer to deploy and face costlier future upgrades.
- Selected sites should be chosen for available utility/cost effectiveness....not pay to bring utilities to a non-developed site. Setting some make-ready cost ceiling or limits will ensure that this program funds destination/downtown sites with existing power supplies.
- On one hand, the make ready costs are a heavier burden in small, rural, resource-poor communities. On the other, having more charging stations is critical for rural residents to be able to access the benefits of EV ownership. / The state should decide how much to cover on a case-by-case basis with more money being reserved for more rural and lower income areas and for lower income businesses.
- Covering make-ready will increase the likelihood that applicants will invest in DCFC.

General Input?

We are asking...

Do you have any other feedback or input you'd like to add?

Please post your comments in the chat or raise your hand to speak.
(Remember: do **not** provide us with site suggestions)

General Input (Pre-Submitted Comments)

- You've responded...

- Remain flexible as new advances are made
- Incentivize cost-effective destination chargers
- Level 2 is a cost-effective good fit - glad to see DCFC is encouraged but not required in this program
- Provide technical support and assistance
- Ensure that funded projects are disbursed throughout the state and regions including rural vs. urban settings.
- Renters/multi-family housing/dense commercial areas need reliable Level 2
- Prioritize volume (of drivers) and accessibility (of new and existing charging sites).
- Priority should be given to more rural / less developed locations. Private interests will first install charging stations where users congregate.
- We need safe, well lit charging locations.
- Applicants should be scored on cost optimization and specifically, cost per stall, vs project cost-share.

What happens next?

- ▶ After both listening sessions, we will consolidate comments received, post the recordings and slide-deck, and post our responses on the NHDES website. Please be patient!
- ▶ We will consider the comments received and develop some programmatic standards.
- ▶ Hopefully, we get funding. If we do, we'll publish a Request for Proposals.
- ▶ Sign up for our Transportation Infrastructure (NEVI) mailing list to stay up to date!
- ▶ Contact us at ms-grants@des.nh.gov if you have questions about this slide deck.