



Joint Office of
**Energy and
Transportation**

Vision for the National Charging Network

Innovations in Climate Resilience Conference, Mar 29, 2022

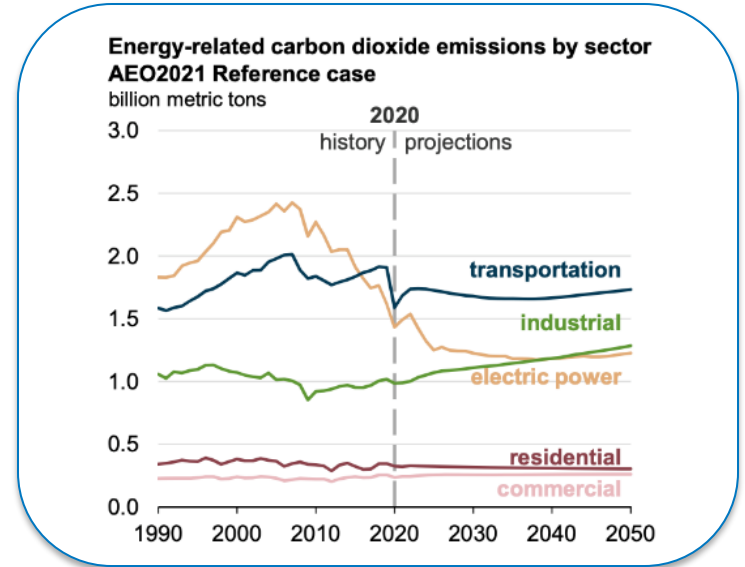
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driveelectric.gov

Transportation Decarbonization

- Transportation is the **largest source of CO₂ emissions**: net-zero by 2050 requires dramatic improvement from transportation
- Transportation also responsible for 50% of **energy expenditures** and **local pollution issues**
- The magnitude of industrial change and direct consumer touch points with transportation require **market-pull solutions**
- Fuel switching and vehicle/system efficiencies will allow us to **support demand for increased mobility options** while **reducing dependence on global oil**
- Enablers for transportation electrification:
 - 100% clean electricity
 - Technology cost reductions
 - **Charging infrastructure deployment**



Source: Energy Information Administration

New Federally Funded Transportation Electrification Programs

The Bipartisan Infrastructure Law funds four major programs related to transportation electrification:



National Electric Vehicle Infrastructure Formula Program (U.S. DOT)

\$5 billion for states to build a national EV charging network along corridors



National Electric Vehicle Infrastructure Discretionary Program (U.S. DOT)

\$2.5 billion in community grants for EV charging, as well as hydrogen, natural gas, and propane fueling infrastructure



Low-No Emissions Grants Program for Transit (U.S. DOT)

\$5.6 billion in support of low- and no-emission transit bus deployments

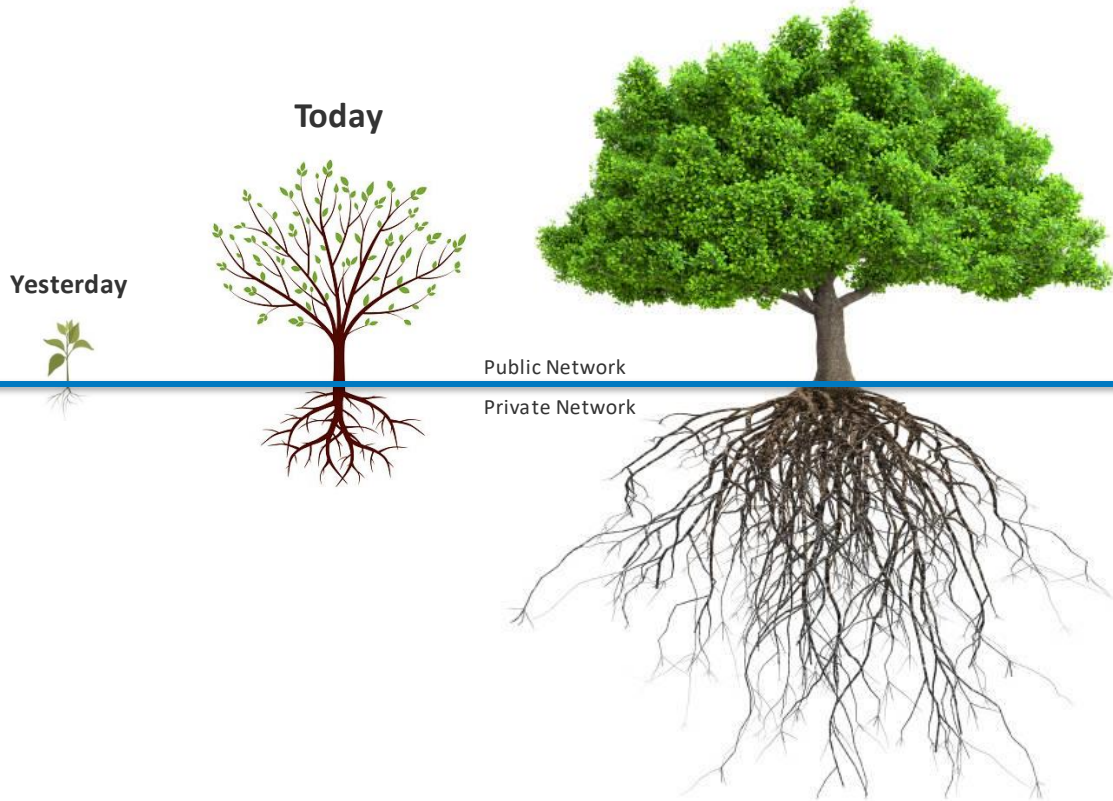


Clean School Bus Program (U.S. EPA)

\$5 billion in support of electric school bus deployments

Growing the National Charging Network

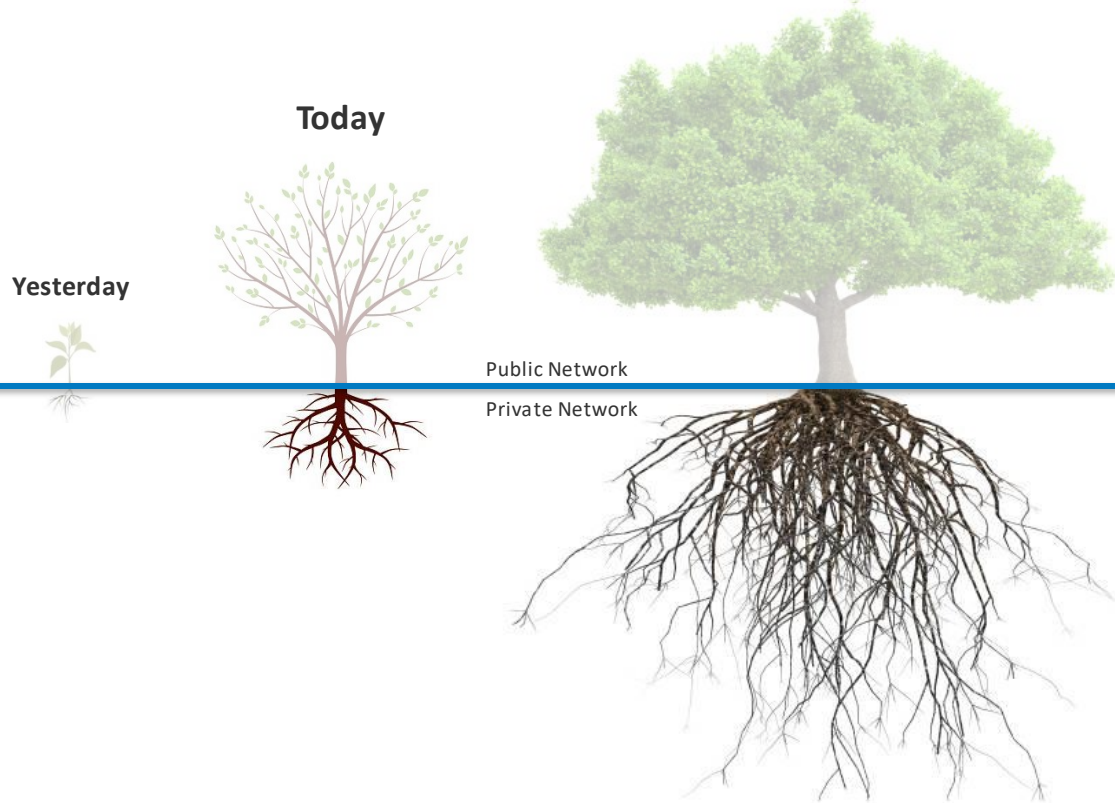
Charging Network of the Future



National network needs to grow over time in a balanced way, staying just ahead of demand

Growing the National Charging Network

Charging Network of the Future



The Roots: Home Charging

(single family, apartments, curbside)

Foundational to the success of EVs

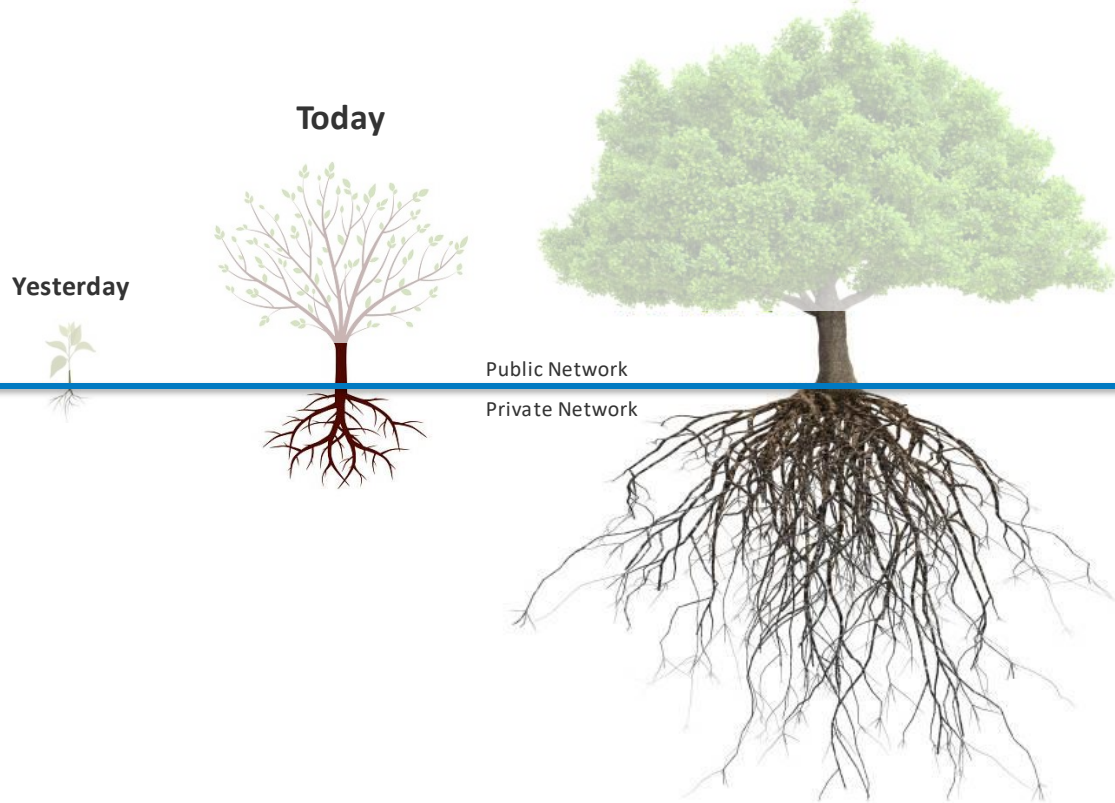
Basis for growth of public charging

Highly distributed (many roots) and often “hidden” (private)

Efforts should be made to improve access, particularly at MUDs and curbside

Growing the National Charging Network

Charging Network of the Future



The Trunk: Fast Charging

(150+ kW along corridors and at retail)

The “backbone” of the public network

Relatively small number of ports, but investment is significant

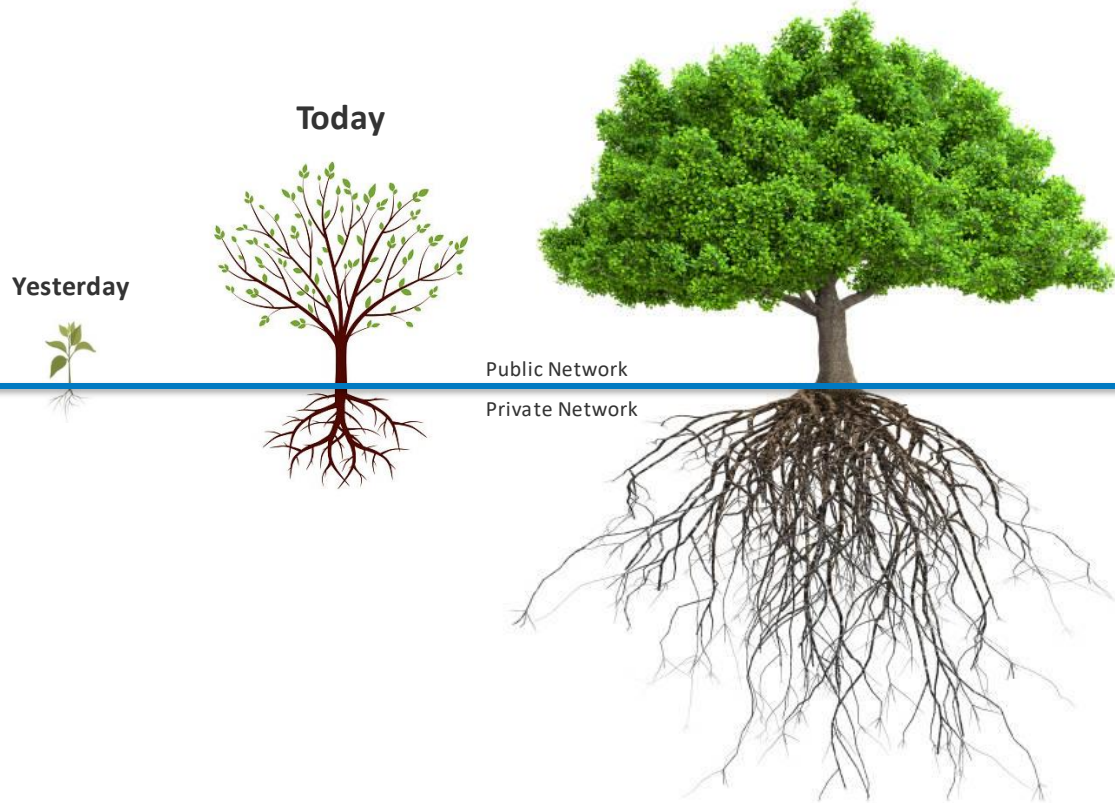
Needs to be convenient, reliable, affordable, and equitable

Basis for long distance travel and support for those w/o home access

Necessary to appease concerns of future EV drivers

Growing the National Charging Network

Charging Network of the Future



The Branches: Destination Charging

(offices, recreation, dining, etc.)

Developed on the shoulders of home charging and fast charging

Highly distributed (many branches) and visible to the public

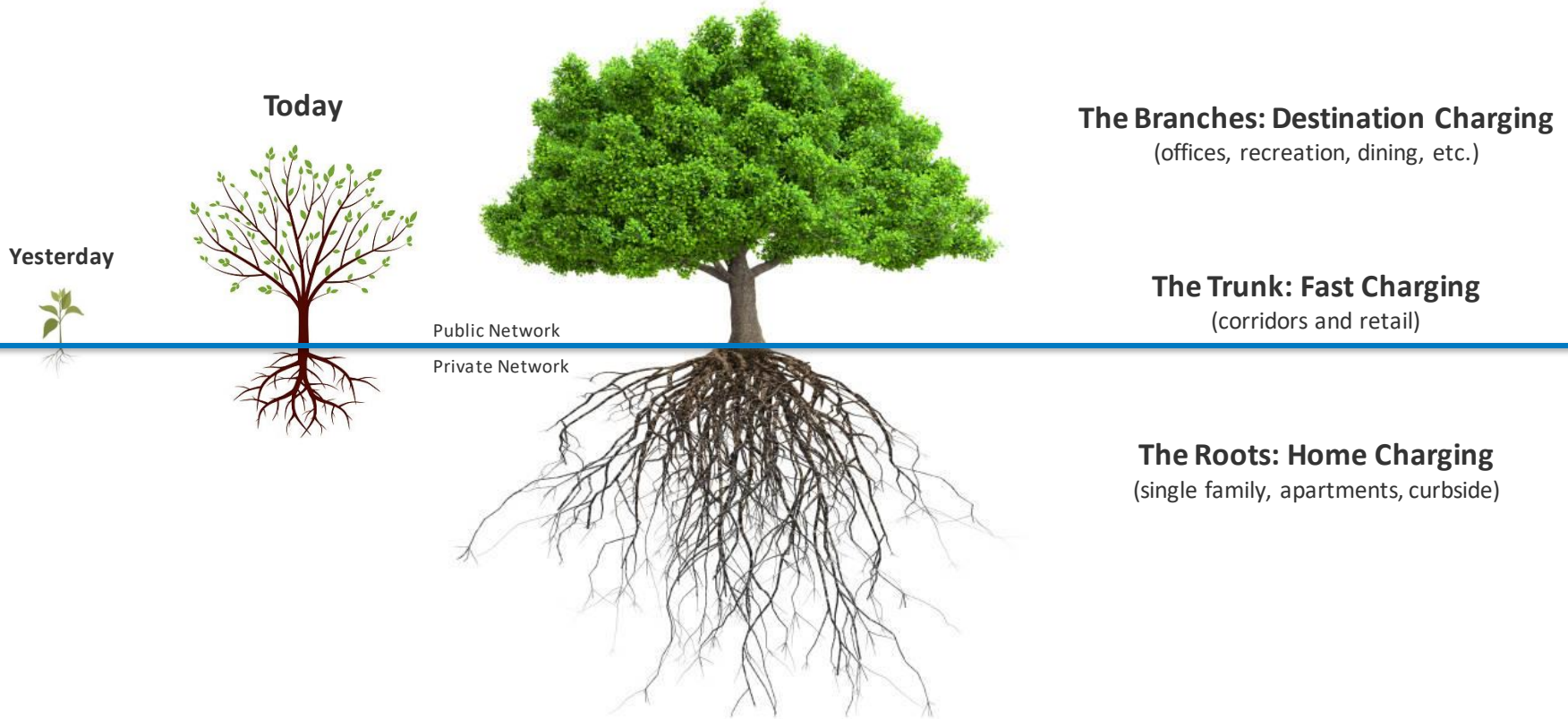
Designed as an amenity, convenience, and means to other activity

Provides opportunities for affordable and equitable charging

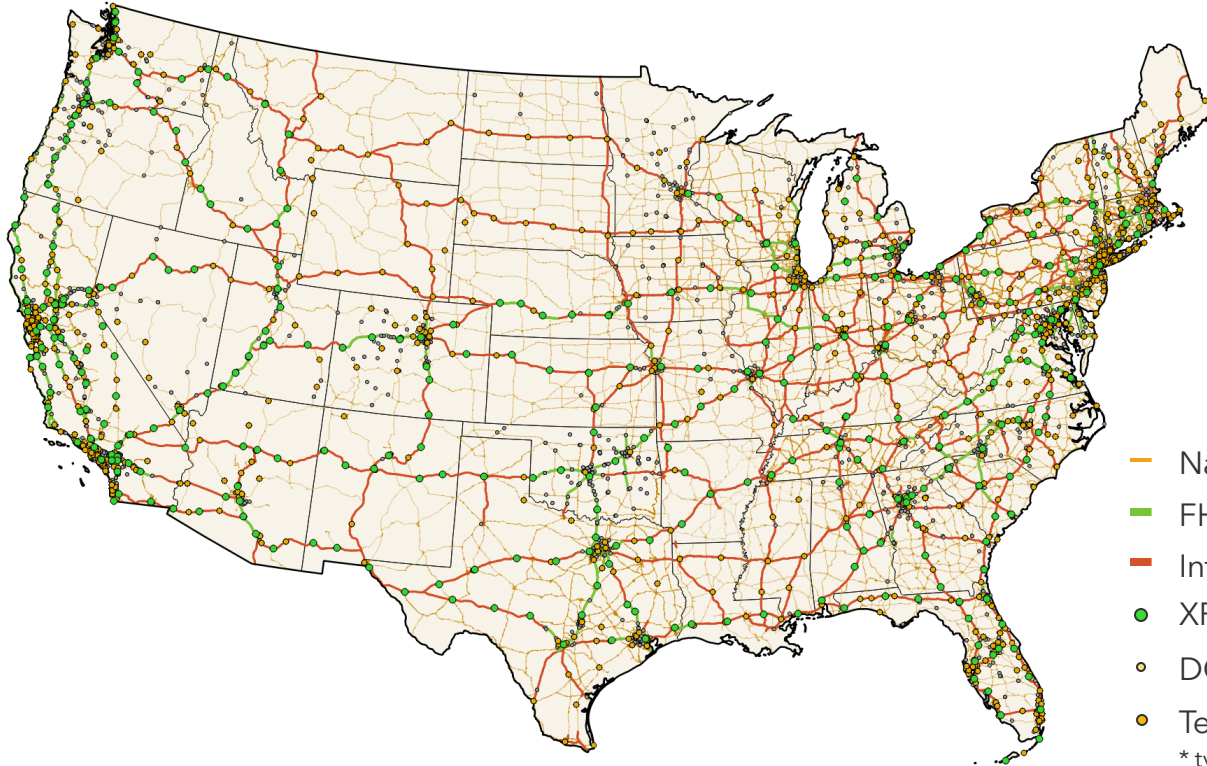
Key to renewable integration
(catches the wind and the sun)

Growing the National Charging Network

Charging Network of the Future



How Much Public Charging Infrastructure Do We Have Today?



	Number of Ports	Number of Stations
Public DC charging	22,725	5,997
Public AC charging	92,046	41,596

[DOE AFDC Station Locator](#) (March 2022)

- National Highway System
- FHWA Alt Fuel Corridor (EV Ready)
- Interstate System
- XFC Stations (at least one 150kW port)
- DCFC Stations
- Tesla Supercharger Stations*

* typically support 150kW to 250kW per port

Focus of the National Electric Vehicle Infrastructure (NEVI) Program

Led by U.S. DOT's Federal
Highway Administration
(FHWA)

The Bipartisan Infrastructure Law makes the most transformative investment in electric vehicle (EV) charging in U.S. history that will:

- Put us on the path to a convenient, reliable, equitable network of up to 500,000 chargers
- Make EVs accessible to all Americans for both local and long-distance trips
- Focus on filling gaps in rural, disadvantaged, and hard-to-reach locations
- Target equity benefits for disadvantaged communities, reducing mobility and energy burdens, and create jobs
- Act as a down payment on the transition to a zero-emission future

See <https://www.whitehouse.gov/briefing-room/statements-releases/2021/12/13/fact-sheet-the-biden-harris-electric-vehicle-charging-action-plan/> and

Joint Office of Energy and Transportation Supporting FHWA NEVI Program

Established in the Bipartisan Infrastructure Law to address areas of joint interest to the Departments of Energy and Transportation

\$300M

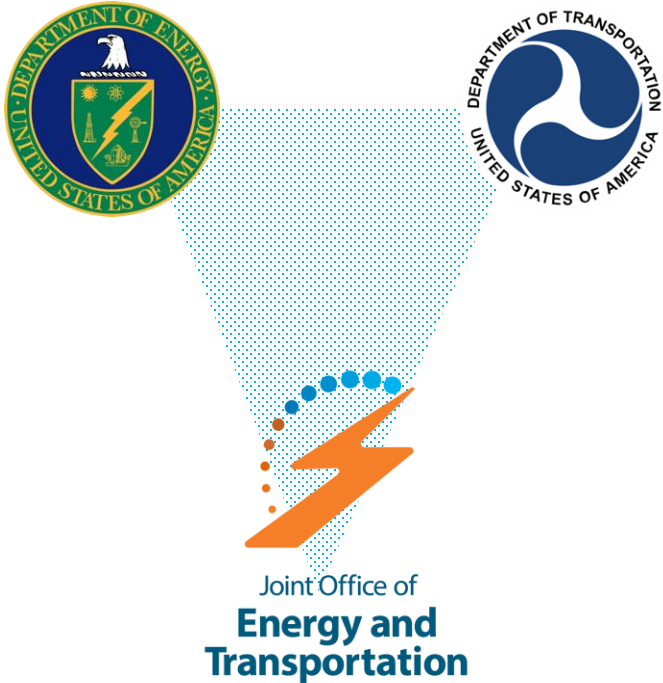
in FY22 funds to DOT
with transfer authority to DOE

9

major areas of emphasis

(1) technical assistance related to the deployment, operation, and maintenance of **zero emission vehicle charging and refueling infrastructure**, renewable energy generation, vehicle-to-grid integration, including microgrids, and related programs and policies; **(2) data sharing** of installation, maintenance, and utilization in order to continue to inform the network build out of zero emission vehicle charging and refueling infrastructure; **(3) performance of a national and regionalized study** of zero emission vehicle charging and refueling infrastructure needs and deployment factors, to support grants for community resilience and electric vehicle integration; **(4) development and deployment of training and certification programs**; **(5) establishment and implementation of a program to promote renewable energy generation, storage, and grid integration**, including microgrids, in transportation rights-of-way; **(6) studying, planning, and funding for high-voltage distributed current infrastructure in the rights-of-way of the Interstate System and for constructing high-voltage and or medium-voltage transmission pilots in the rights-of-way** of the Interstate System; **(7) research, strategies, and actions under the Departments' statutory authorities to reduce transportation-related emissions and mitigate the effects of climate change**; **(8) development of a streamlined utility accommodations policy** for high-voltage and medium-voltage transmission in the transportation right-of-way; and **(9) any other issues** that the Secretary of Transportation and the Secretary of Energy identify as issues of joint interest

Joint Office Mission and Vision



Mission

To accelerate an electrified transportation system that is convenient, affordable, reliable, equitable, and safe.

Vision

A future where everyone can ride and drive electric.

FHWA NEVI Formula Program Guidance

Publication kicks off the
state planning process:

- Funding Features
- State EV Infrastructure
Deployment Plans
- Project Eligibility Provisions
- Program Administration
- Technical Assistance and Tools

National Electric Vehicle Infrastructure Formula Program

Bipartisan Infrastructure Law



Program Guidance

Federal Highway Administration
February 10, 2022

FHWA NEVI Formula Program Features

- EV charging infrastructure to be installed **every 50 miles** along Alternative Fuel Corridors **within 1 travel mile of the highway**, with exceptions
- Each charging station will include:
 - **at least four 150kW DC Fast Chargers with Combined Charging System (CCS) ports** capable of simultaneously charging four EVs
 - Optional on-site distributed energy resources (e.g. solar arrays, energy storage)
- The Joint Office will issue minimum standards and requirements to ensure the national charging network is **convenient, affordable, reliable,** and **equitable**

FHWA NEVI Formula Program Selected Rules

- 80% federal cost share for acquisition, installation, upgrading, operation, and maintenance of charging infrastructure
- After a State's Alternative Fuel Corridors for EVs are fully built out, States may install
“charging infrastructure on any public road or in other publicly accessible locations that are **open to the general public or to authorized commercial motor vehicle operators from more than one company.**”

FHWA NEVI Formula Program- Important 2022 Dates

Feb 10:

- NEVI Formula Program Guidance
- Alternative Fuel Corridor Round 6 Request for Nominations

May 13:

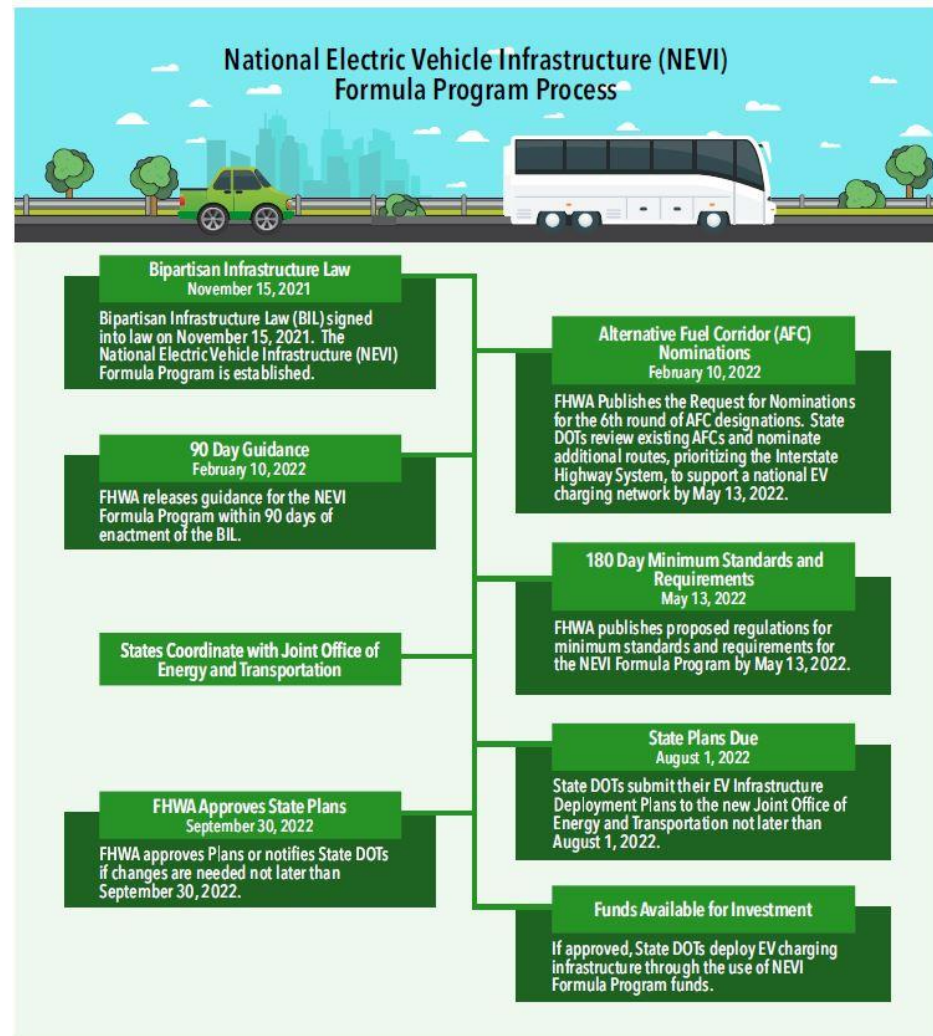
- 180-Day Minimum Standards published
- Round 6 Nominations Due

Aug 1:

- State Plans Due

Sept 30:

- Federal Highway Administration (FHWA) Approves State Plans





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For more information, visit [DriveElectric.gov](https://driveelectric.gov)

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