Joint Office of
Energy and
Transportation

Building a Future Where Everyone Can Ride and Drive Sustainability

Richard Ezike
MA Electric Vehicle Infrastructure Coordinating Council
6/22/2023

driveelectric.gov

Key Administration Goals

- 500,000 EV charging ports installed by 2030
- Reduce emissions 50 – 52 percent when compared to 2005 goals by 2030
- Reach net-zero emissions by 2050
- Reach 100 percent clean electricity by 2035

NEVI 90-day program guidance: *https://www.fhwa.dot.gov/environment/alternative_fuel_corridors/nominations/90d_nevi_formula_program_guidance.pdf*
NEVI FAQs: *https://www.fhwa.dot.gov/environment/alternative_fuel_corridors/resources/nevi_program_faqs.pdf*

Joint Office Overview and Priorities

Joint Office Purpose

Established by the Bipartisan Infrastructure Law to address areas of joint interest to the U.S. Departments of Energy and Transportation

$300M

in Fiscal Year 2022 funds to DOT with transfer authority to DOE

9

major areas of emphasis

Areas of emphasis:

1) **Technical assistance for zero emission vehicle charging and refueling infrastructure**
2) Data sharing
3) National and regionalized study vehicle of infrastructure needs
4) Training and certification programs
5) Program to promote renewable energy generation, storage, and grid integration
6) Transmission pilots in interstate rights-of-way
7) Research, strategies, and actions to mitigate effects of climate change
8) Develop streamlined utility accommodations policy for transmission in transportation right-of-way
9) Any other issues the Secretary of Transportation and Secretary of Energy identify as issues of joint interest

Mission and Vision

Joint Office of
Energy and Transportation

Mission

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

Vision

A future where everyone can ride and drive electric.

Infrastructure Investment & Jobs Act (IIJA) Programs Supported by the Joint Office

The Joint Office provides unifying **guidance**, **technical assistance**, and **analysis** to support the following programs:

National Electric Vehicle Infrastructure (NEVI) Formula Program (U.S. DOT)
$5 billion for states to build a national electric vehicle (EV) charging network along corridors

Charging & Fueling Infrastructure Discretionary Grant Program (U.S. DOT)
$2.5 billion in community and corridor grants for EV charging, as well as hydrogen, natural gas, and propane fueling infrastructure

Low or No Emission Vehicle Program (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

NEVI Program

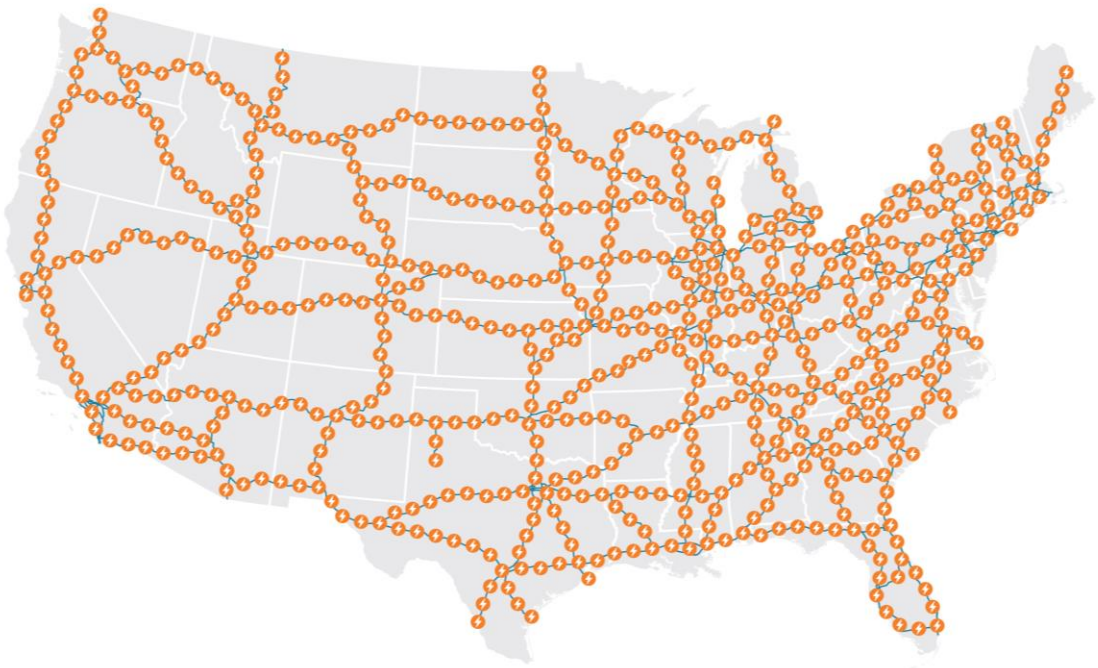
NEVI Formula Program Guidance

Some highlights:

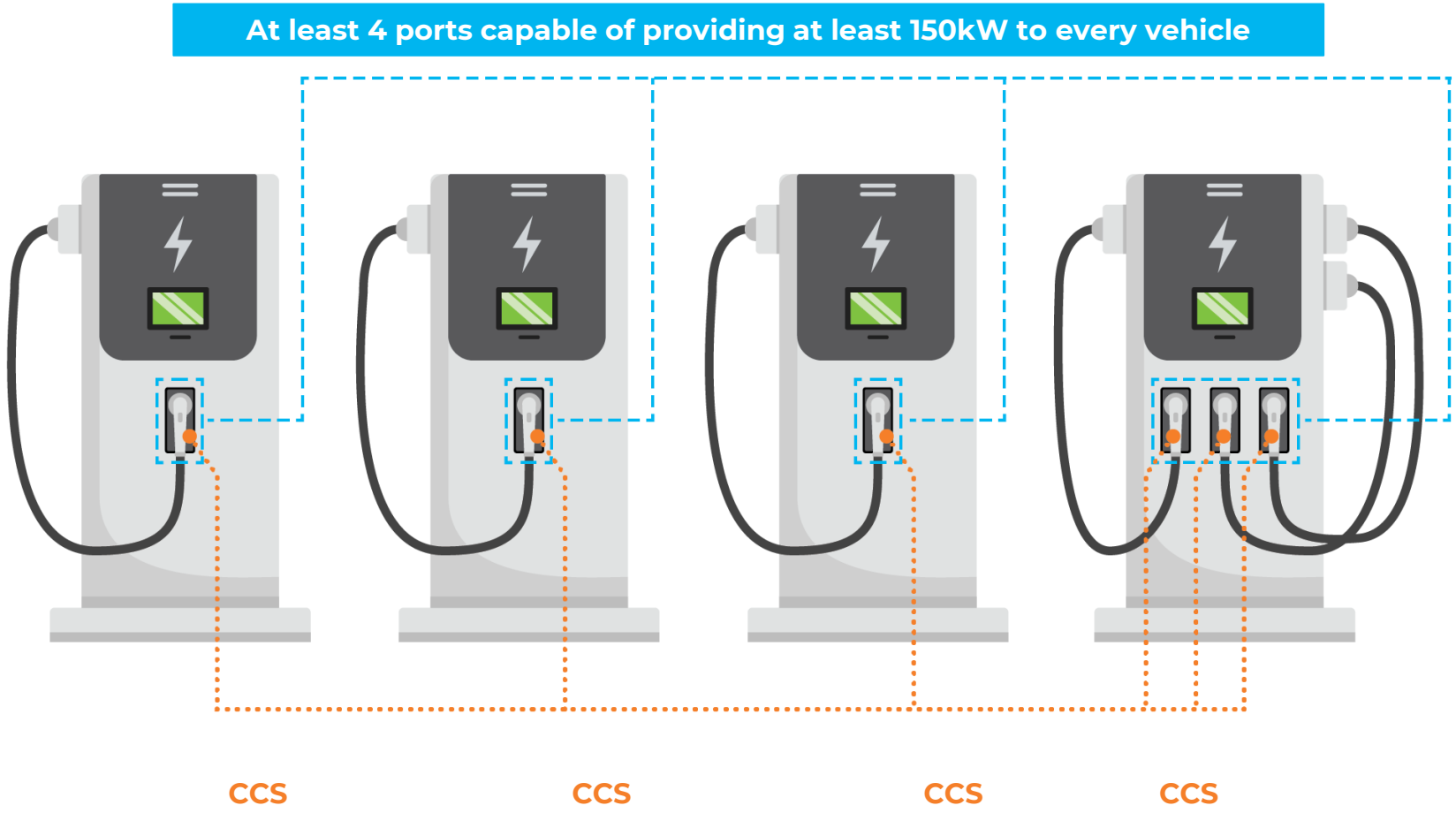
- EV charging stations installed **every 50 miles within 1 travel mile of the highway or Interstate**
- EV charging stations must include **at least four 150kW DC Fast Chargers** with Combined Charging System (CCS) ports capable of simultaneously charging four EVs;
- **State EV Infrastructure Deployment Plans** to include information on state agency coordination, utility consultation, public engagement, labor and workforce considerations, cybersecurity, and equity and Justice40 considerations.

The goal:

- National EV charging network that is convenient, reliable, and equitable



NEVI Charging Station Design



Power, Ports, and Connectors for Chargers **Every 50 Miles** Along Alternative Fuel Corridors

EV Charging Minimum Standards

Charging is a predictable and reliable experience, by ensuring that there are consistent plug types, power levels, and a minimum number of chargers capable of supporting drivers' fast charging needs;

Chargers are working when drivers need them to, by requiring a 97 percent uptime reliability requirement;

Drivers can easily find a charger when they need to, by providing publicly accessible data on locations, price, availability, and accessibility through mapping applications;

Drivers do not have to use multiple apps and accounts to charge, by requiring that a single method of identification works across all chargers; and,

Chargers will support drivers' needs well into the future, by requiring compatibility with forward-looking capabilities like Plug and Charge.

CFI Program

Discretionary Grant Program for Charging and Fueling Infrastructure –

Applications are now open!

$700M in FY22 and FY23 funding available!

Program is divided into two distinct **$1.25 billion grant programs:**

- **Corridor** Grant Program
- **Community** Grant Program

Key Requirements of the Corridor Charging Grant

- **Located along a designated AFC;**
  - EV charging within 1 mile and other alternative fuels within 5 miles of the AFC.
- **Must be publicly accessible.**
- **Must use funds to contract with a private entity.**
- **Must address environmental justice.**
- **Must be accessible to and usable by individuals with disabilities.**

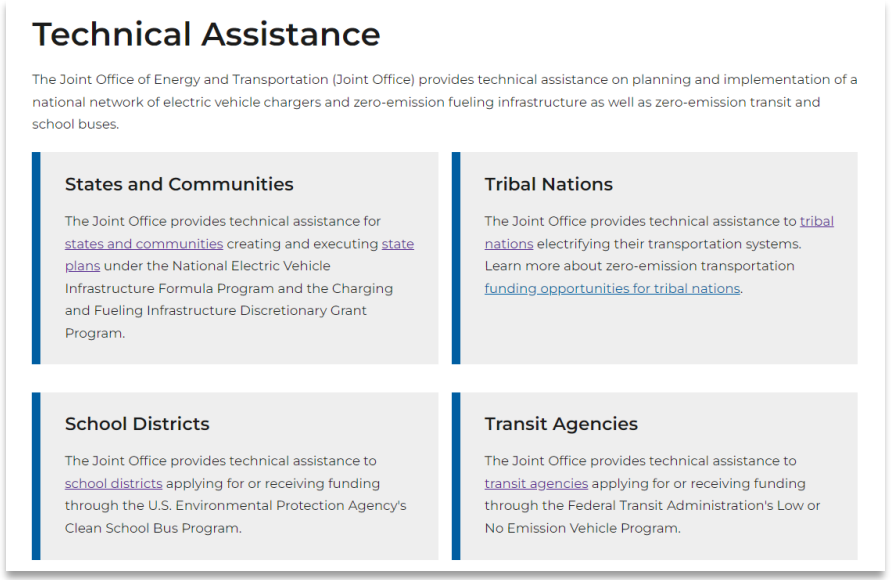
Key Requirements of the Community Charging Grant

- **Located on any public road or in other publicly accessible locations**
  - i.e. parking facilities at public buildings, public schools, and public parks, or in publicly accessible parking facilities owned or managed by a private entity.
- **Must be publicly accessible.**
- **May use funds to contract with a private entity.**
- **Must address environmental justice.**
- **Expected to reduce greenhouse gas emissions and to expand or fill gaps in access to publicly accessible infrastructure.**
- **Must be accessible to and usable by individuals with disabilities.**

Joint Office Technical Assistance, Resources, and Funding Opportunities

Technical Assistance Strategies

- Specialized assistance for **states, communities, Tribal Nations**, **transit agencies**, and **school districts**
- **One-on-one meetings** with states to address questions and concerns related to NEVI Formula Program
- **Concierge service** (phone, email, web form) to efficiently route technical assistance requests for NEVI, electric school buses, and transit buses
- Technical assistance support team has **50 staff members across 10 organizations**.



driveelectric.gov/technical-assistance

Concierge Service Contact Methods: 833-600-2751 | doe-dot.jo.ta@nrel.gov | driveelectric.gov/contact/

Joint Office Funding Opportunity Announcement

Topics:

1. **Enhancing EV Charging Resiliency**
2. **Equitable Access and Opportunity in Electrification**

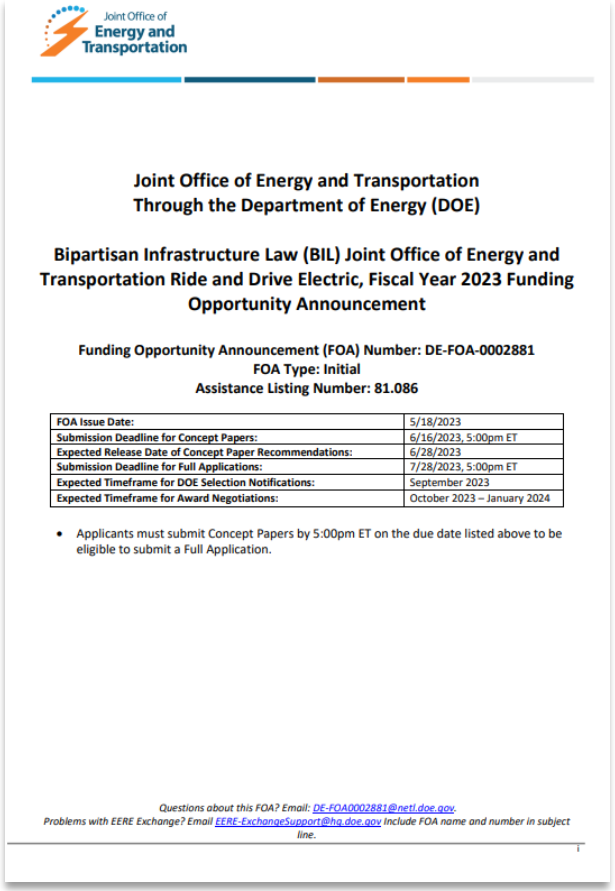
    2a: Community-Driven Models for Electric Vehicle Charging Deployment

    2b: Workforce Development

3. **Improving EV Charging Performance and Reliability**

    3a – Increasing Commercial Capacity for Testing and Certification of High-Power EV Chargers

    3b – Validating High-Power EV Charger Real-World Performance and Reliability



Joint Office of Energy and Transportation

Joint Office of Energy and Transportation
Through the Department of Energy (DOE)

Bipartisan Infrastructure Law (BIL) Joint Office of Energy and Transportation Ride and Drive Electric, Fiscal Year 2023 Funding Opportunity Announcement

Funding Opportunity Announcement (FOA) Number: DE-FOA-0002881
FOA Type: Initial
Assistance Listing Number: 81.086

FOA Issue Date:	5/18/2023
Submission Deadline for Concept Papers:	6/16/2023, 5:00pm ET
Expected Release Date of Concept Paper Recommendations:	6/28/2023
Submission Deadline for Full Applications:	7/28/2023, 5:00pm ET
Expected Timeframe for DOE Selection Notifications:	September 2023
Expected Timeframe for Award Negotiations:	October 2023 – January 2024

- Applicants must submit Concept Papers by 5:00pm ET on the due date listed above to be eligible to submit a Full Application.

Questions about this FOA? Email: DE-FOA0002881@netl.doe.gov.
Problems with EERE Exchange? Email EERE-ExchangeSupport@hq.doe.gov Include FOA name and number in subject line.

https://driveelectric.gov/funding-opportunities/

U.S. DOT's Rural and Urban EV Infrastructure Toolkits

Rural EV Toolkit

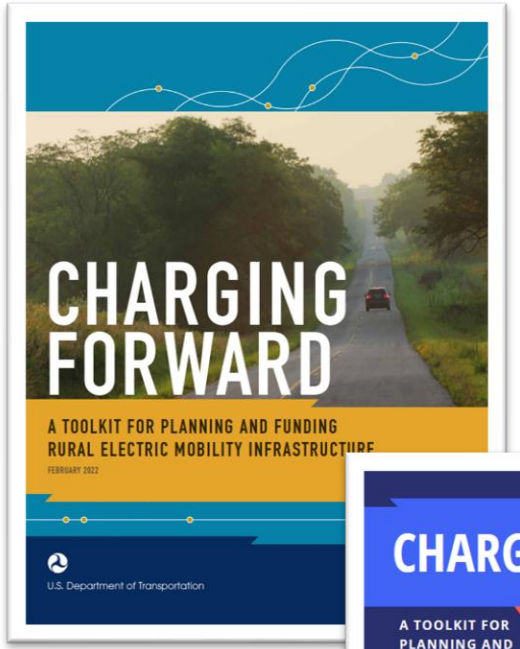
Version 2.0 Now Available!

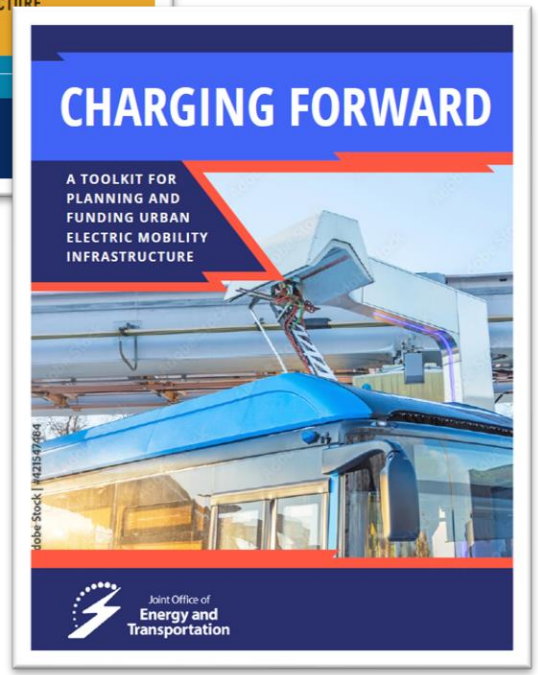
- Expanded content on:
  - Transit vehicles
  - School buses
  - Micromobility
  - Accessible design
- New funding programs, including the Bipartisan Infrastructure Law (BIL)

Urban Toolkit

Preview Version Now Available!

- Reframed for urban (e.g., benefits/challenges, success stories, resources, funding programs)
- Multifamily, building codes, curbside charging, fleet charging (micromobility, ride-hailing, taxi)
- Relevant funding opportunities





Improving the Reliability of Public DC Fast Charging

Today's Public Charging Pain Points

- **Basics**
  - Too few charging stations
  - Too few chargers per station
  - Charging takes too long
- **Charger out of order**
  - Broken hardware
  - No power
  - No communication
- **Cannot start a session**
  - Lacks sufficient prompts
  - Can't read screen (e.g., too dim)
  - No clear way to pay or credit card won't take
  - Problems with the app
  - System too hot, needs time to cool
  - App asks for info that is not apparent (e.g., charger name)
  - Unsure why
- **Session starts but has problems**
  - Charge power lower than expected
  - Ends early
- **Session starts after excessive effort**
  - Must unplug, replug multiple times
  - Spend time on phone with help desk
  - Must download app or have membership card
  - Must pull up on connector during session
- **Poor information**
  - No way to see price, total cost
  - Status of chargers on app is inaccurate
  - Station location on app is inaccurate or lacks directions (e.g., what level in parking garage)
  - Not clear what connectors are available (e.g., CHAdeMO)
  - Unclear whether charger is available for public use
- **Poor charger ergonomics**
  - Excessive insertion force
  - Cable too heavy, too stiff in cold
  - Awkward angles, heights
- **Poor site design**
  - Cable doesn't reach
  - No pull-through for trailer or block other charger
  - Insufficient lighting
  - Poor location for security, visibility
  - No shelter
  - Blocked by non-charging vehicles
  - No place for waiting EVs to stand
- **Lacks amenities**
  - Restrooms, something to do, garbage, windshield washer

Today's Poor DCFC Reliability is an Existential Threat to the EV Industry

Opportunity to help industry to:

- Measure, improve, and maintain reliability
- Ensure interoperability
- Improve the charging experience

...with a continuously increasing number of *new* players, *new* products, and *new* manufacturing facilities

What can the Joint Office do to make an immediate impact?

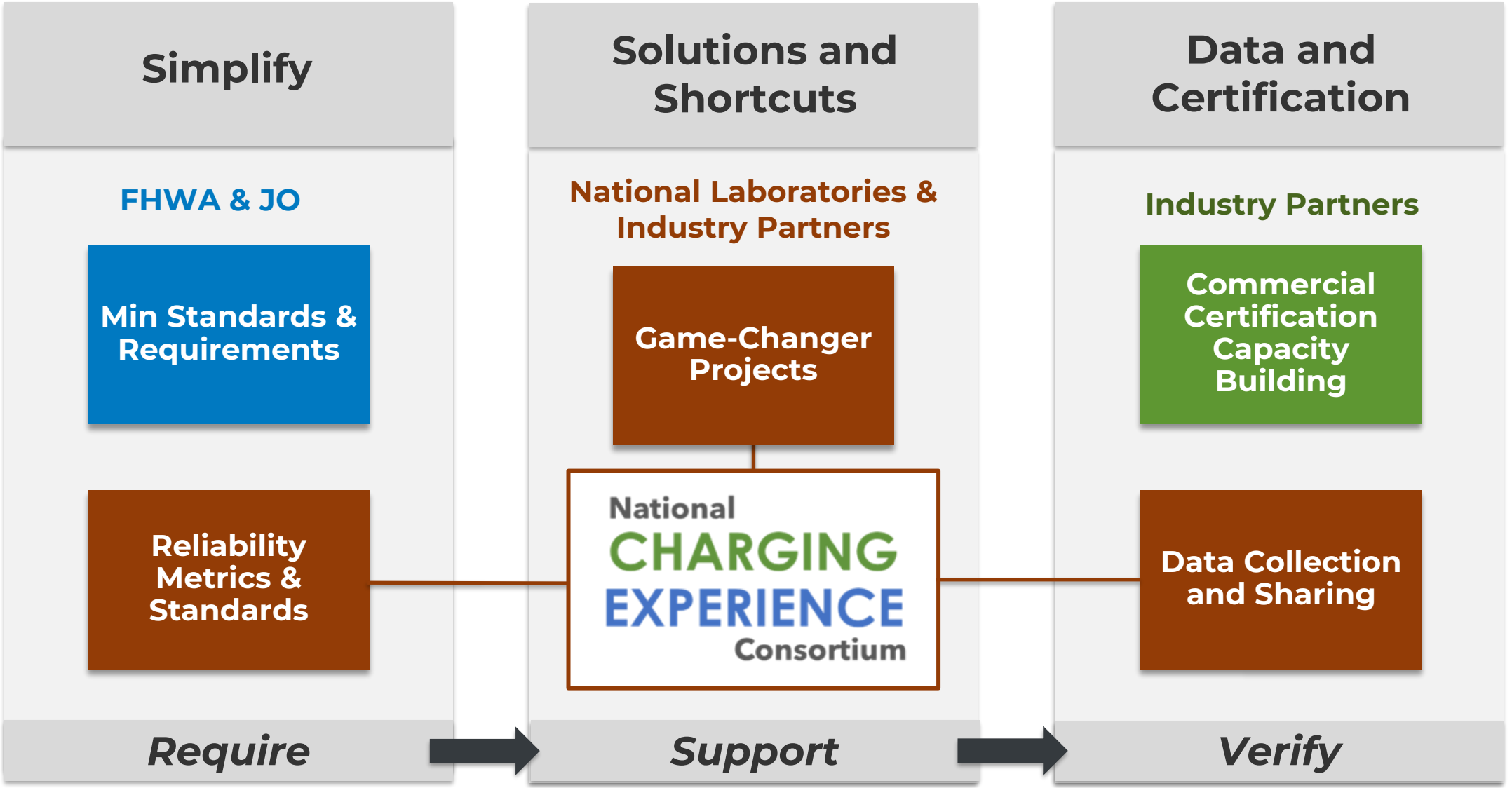
Joint Office Has Three Key Goals for Improving Charging Reliability

1. **Simplify the ecosystem**
   - Innovate within standards
2. **Facilitate reliability standards, data collection, and sharing**
   - Speak a common language
3. **Create game changers and shortcuts**
   - Take advantage of unique capabilities of national labs and select contractors

To improve something, you must be able to measure it

National CHARGING EXPERIENCE Consortium

What are We Doing to Help Industry Get There?



To support EV charging reliability, the Joint Office has funded the ChargeX Consortium

Leadership

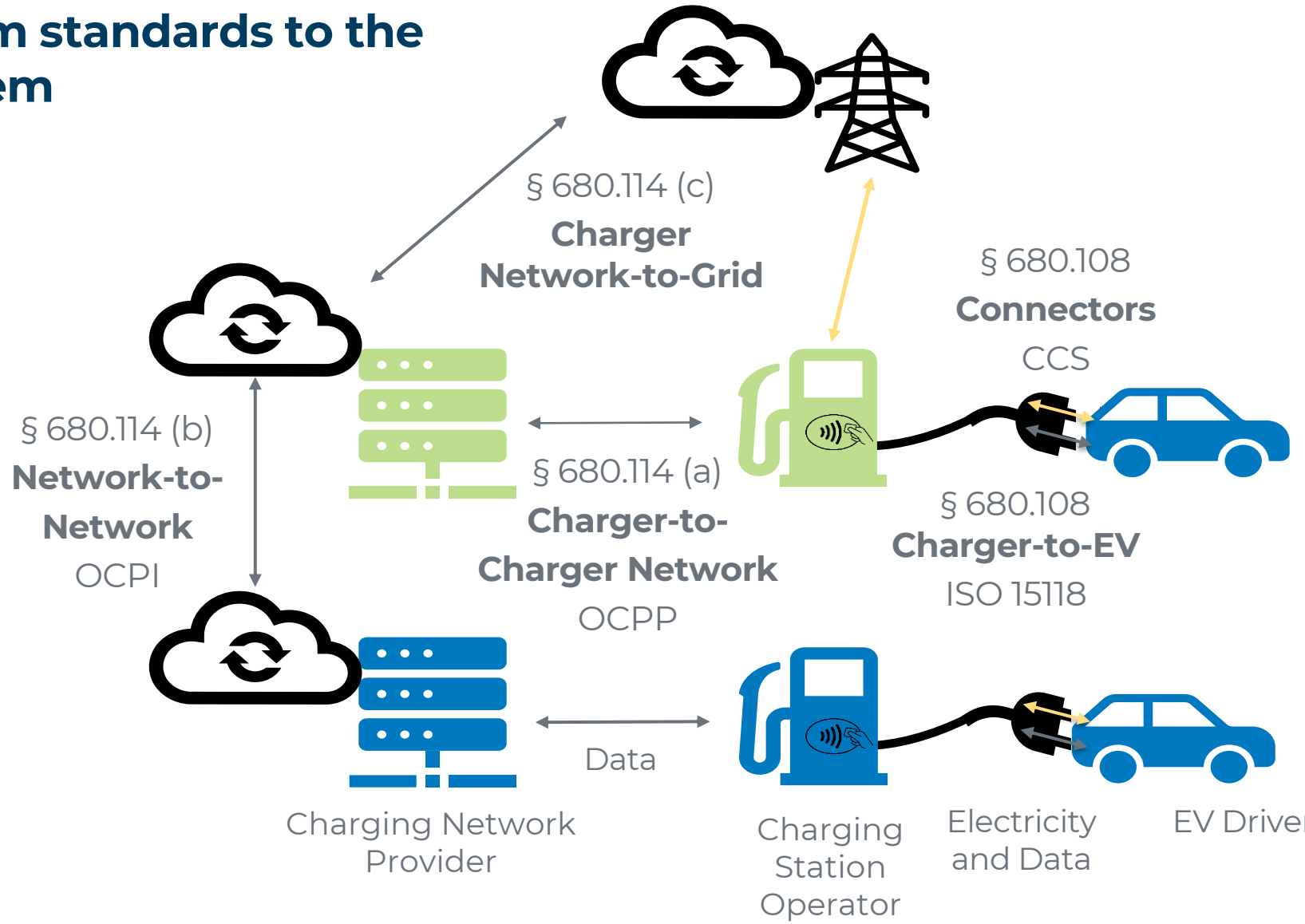
Committed Organizations*

ABB E-mobility
ampUp
Blink Charging
BMW of North America
BTC Power
ChargePoint
ChargerHelp!
Cool the Earth
Electric Power Research Institute
Electrify America
Energetics
EV Connect
EVgo
Flo
Ford Motor Company
Francis Energy
General Motors
InCharge Energy
J.D. Power & Associates
KIGT
New York Power Authority
Plug in America
Rivian Automotive
SAE Sustainable Mobility Solutions
Siemens
Stellantis
Switch
Tesla
Tritium

*Additional organizations are invited to express their interest in joining the ChargeX Consortium by visiting **chargex.inl.gov**

ChargeX Helps to Simplify the Charging Ecosystem

Mapping minimum standards to the charging ecosystem

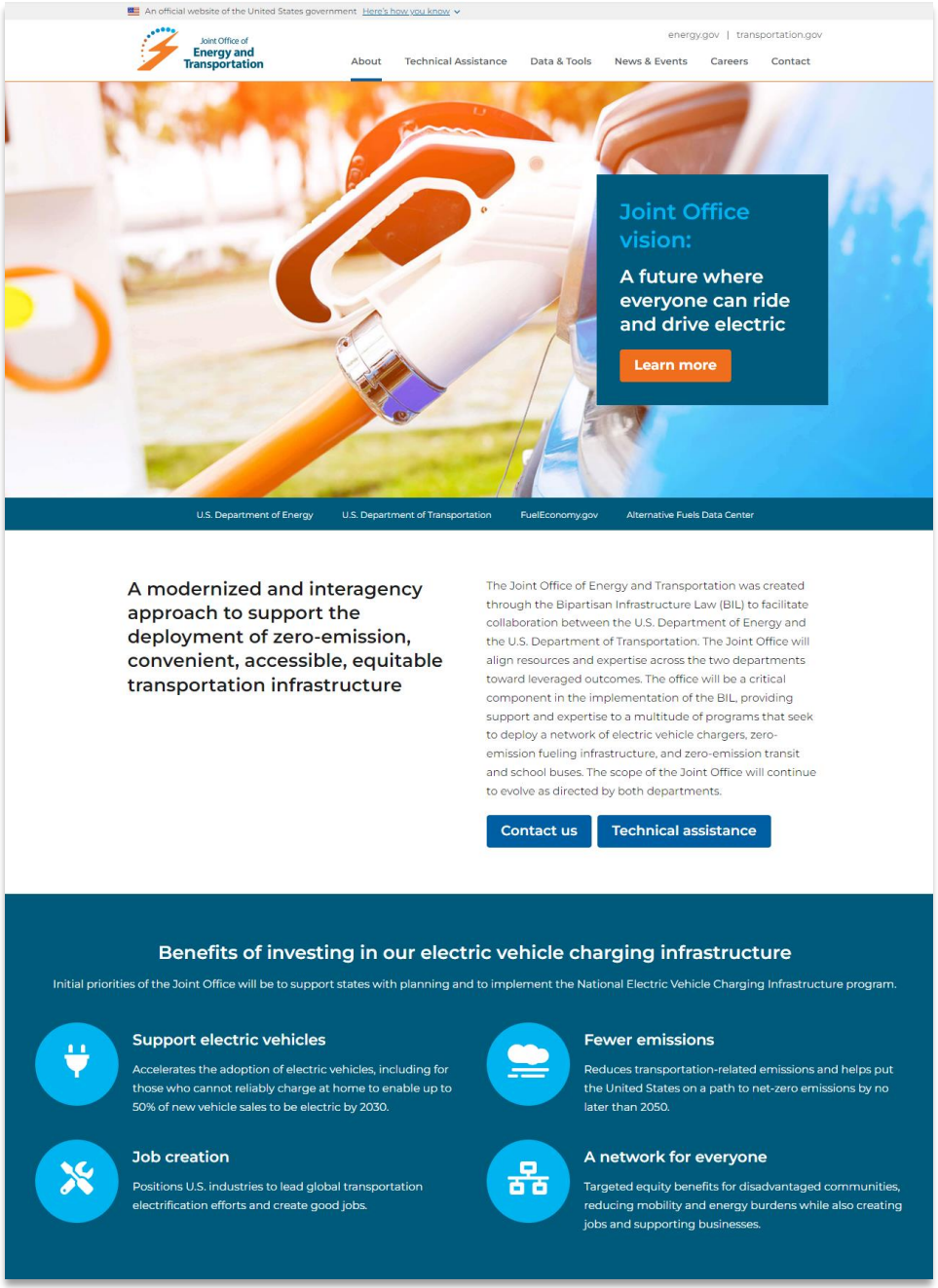


Follow the Joint Office

DriveElectric.gov

Website connects stakeholders to resources, including:

- Infrastructure planning and implementation guidance
- Data and tools
- News and events
- Technical assistance request form



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Thank you!

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