SEEA

SOUTHEAST ENERGY EFFICIENCY ALLIANCE

Advancing Electric Transportation

How to Leverage Federal Support in the Southeast

Our Speakers

Nick Nigro
Founder
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Communications Coordinator and Energy Analyst
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Josh Cohen
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Greenlots

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Atlas Public Policy

Nick Nigro, Founder
&
Tom Taylor, Policy Analyst

FEDERAL EV INVESTMENTS

A summary of the largest ever proposed U.S. investment in transportation electrification

Nick Nigro and Tom Taylor, Atlas Public Policy

November 2021

ATLAS PUBLIC POLICY

ABOUT ATLAS PUBLIC POLICY

DC-based policy tech firm started in 2015

We equip businesses and policymakers to make strategic, informed decisions that serve the public interest

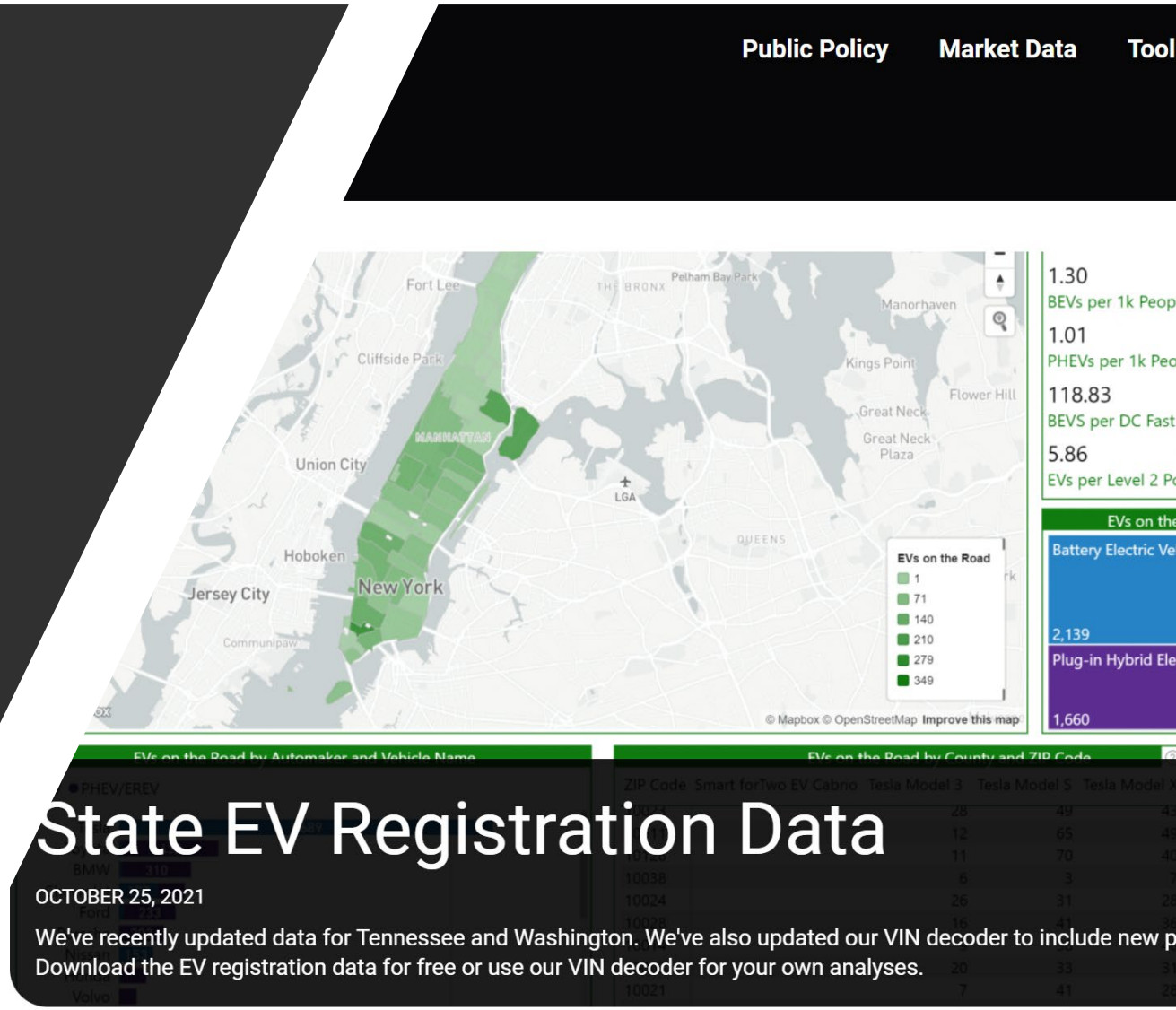
Our Key Focus Areas

- **Access**: Collect and disseminate publicly available information.
- **Interpret:** Create dashboards and tools to spur insights and conduct data-driven analyses.
- **Empower**: Strengthen the ability of policymakers, businesses, and non-profits to meet emerging challenges and identify opportunities that serve the public interest.

ABOUT THE ATLAS EV HUB

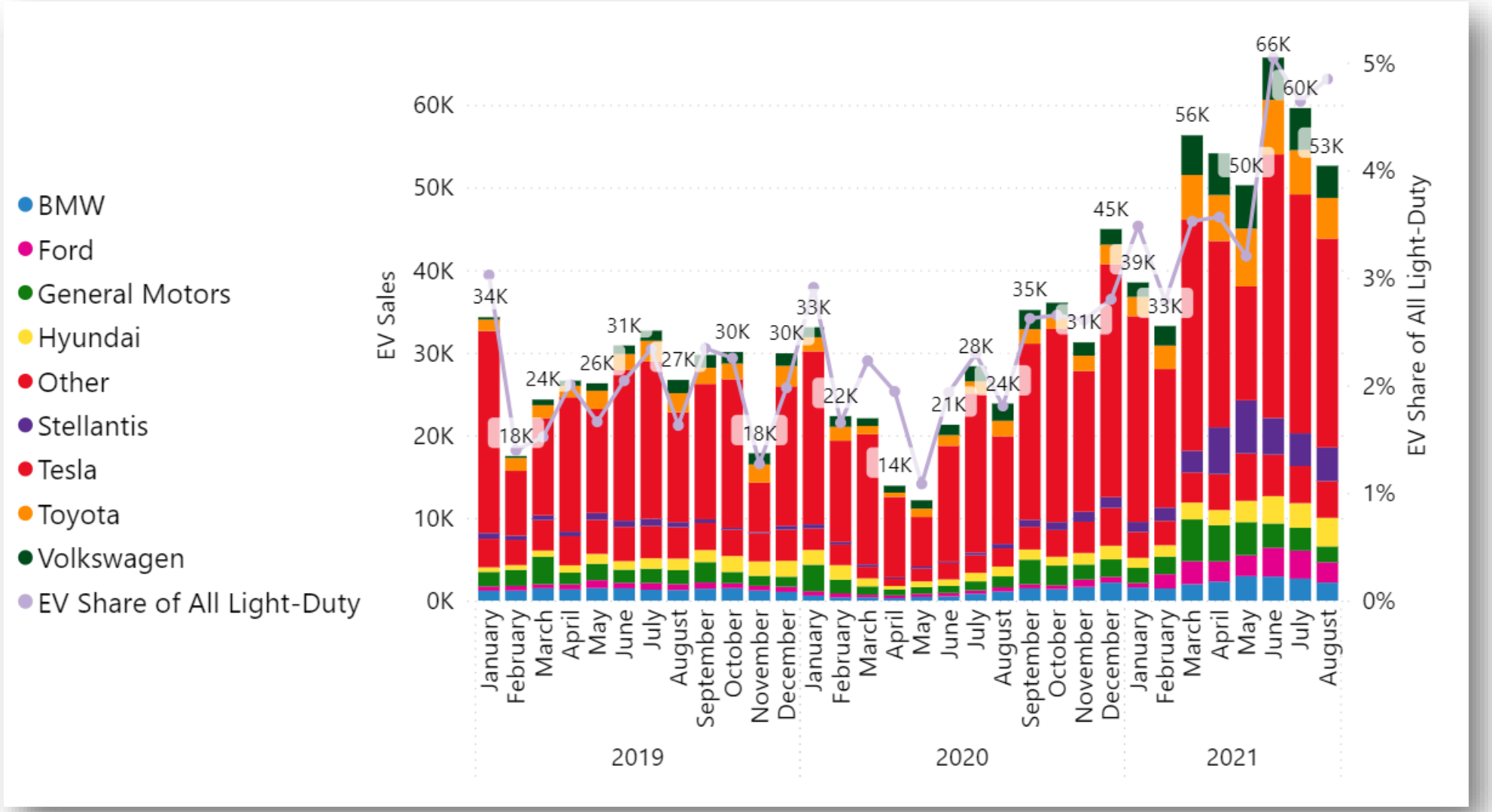
- The EV Hub gives stakeholders from across the EV industry quick access to key data and information on the market, policies and regulations, and activities by the EV community
- A one-stop shop for businesses, policy professionals, and the advocacy community to learn more about what's going on in the EV market
- A comprehensive platform for the EV community: www.atlasevhub.com
- Data drawn from the EV Hub unless otherwise noted

Free access for public agencies and Clean Cities Coordinators!



ABOUT TRANSPORTATION ELECTRIFICATION

Status of transportation electrification around the country



U.S. EV SALES UP 160% IN Q1+Q2

- Monthly sales records in each month of 2021
- Considerable growth in 2021 across the industry
- ~5% of all light duty vehicle sales in Q3 2021

WHO IS INVESTING IN ELECTRIC VEHICLES IN THE UNITED STATES?

PUBLIC FUNDING

($2.5 BILLION)

UTILITIES

($3.1 BILLION)

VOLKSWAGEN SETTLEMENT

($2.9 BILLION)

INDUSTRY

($143 BILLION)

RECONCILIATION BILL

(UP TO $209 BILLION)

BIPARTISAN BILL

($30.7 BILLION)

PRIVATE INVESTMENT IN EVS

LARGE INCREASES IN INVESTMENT IN EVS AROUND THE WORLD TOTALING **$574 BILLION**

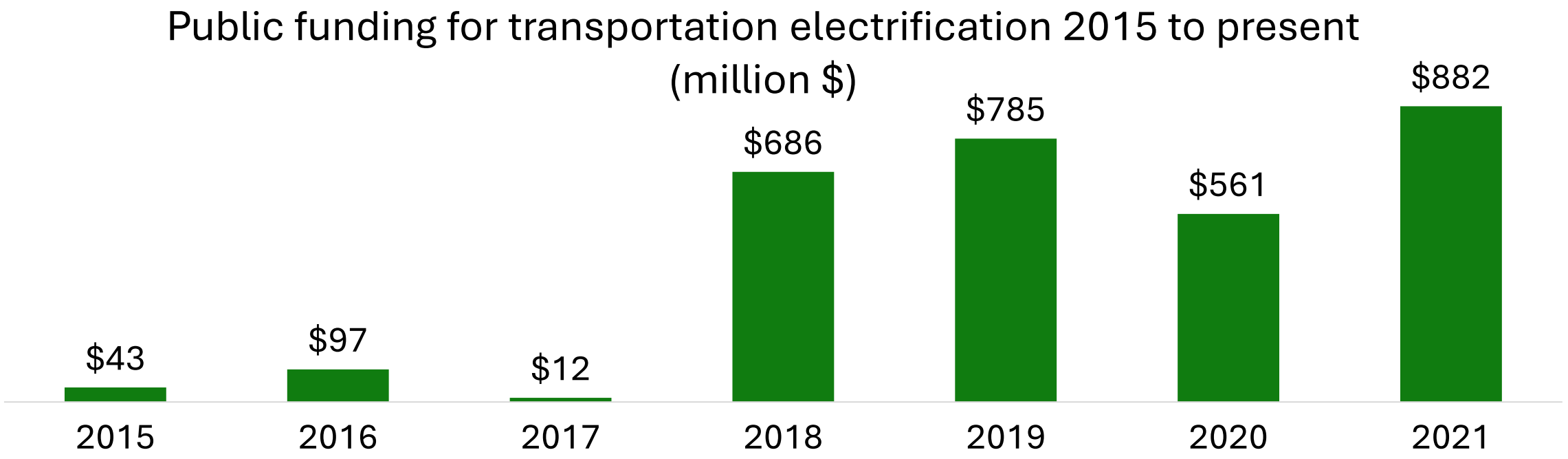
$146 BILLION IN INVESTMENT DIRECTED TOWARDS THE U.S.

FORD PLEDGED **$11 BILLION** IN SEPTEMBER TO BUILD EVS IN THE US INCLUDING IN KENTUCKY AND TENNESSEE

Data from EV Hub as of 11/3/2021

LARGE INCREASE IN PUBLIC FUNDING FOR TRANSPORTATION ELECTRIFICATION

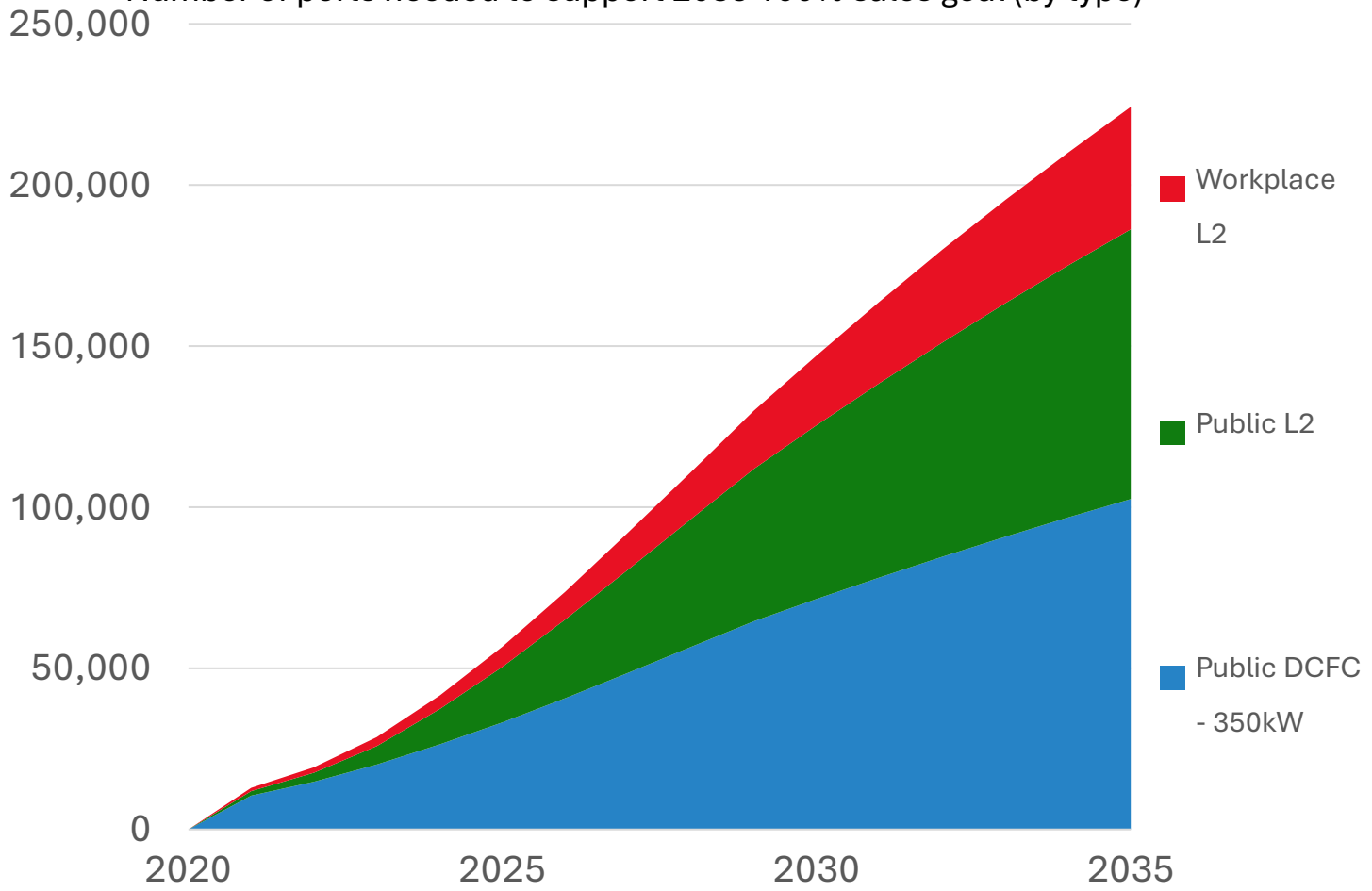
- Public funding for transportation electrification has increased dramatically
- More than $881 million awarded so far in 2021
- Transit bus, charging stations and school buses are the top three funded initiatives



HOW MUCH PUBLIC CHARGING DO WE NEED?

Public Charging Need in SEEA States

Number of ports needed to support 2035 100% sales goal (by type)



Number of ports needed by 2030

State	DCFC	Level 2
Alabama	6,484	7,069
Arkansas	3,450	3,350
Florida	14,149	7,582
Georgia	8,957	5,458
Kentucky	5,168	4,414
Louisiana	4,040	2,812
Mississippi	2,907	8,957
North Carolina	8,684	5,256
South Carolina	4,556	6,454
Tennessee	6,580	7,567

Source: U.S. Passenger Vehicle Electrification Infrastructure Assessment (Atlas 2021)

TWO BILLS IN CONGRESS

Infrastructure Investment and Jobs Act (also known as the Bipartisan Infrastructure Framework)

Build Back Better Act (also known as the Reconciliation Bill)

INFRASTRUCTURE INVESTMENT AND JOBS ACT

- The Bipartisan Bill (HR 3684) passed on November 5
- Total of $30.7 billion in EV *eligible* funding including:
  - $7.7 billion for EV *dedicated* funding
  - $12.7 billion for “clean vehicles”
  - $10.3 billion for grid and batteries

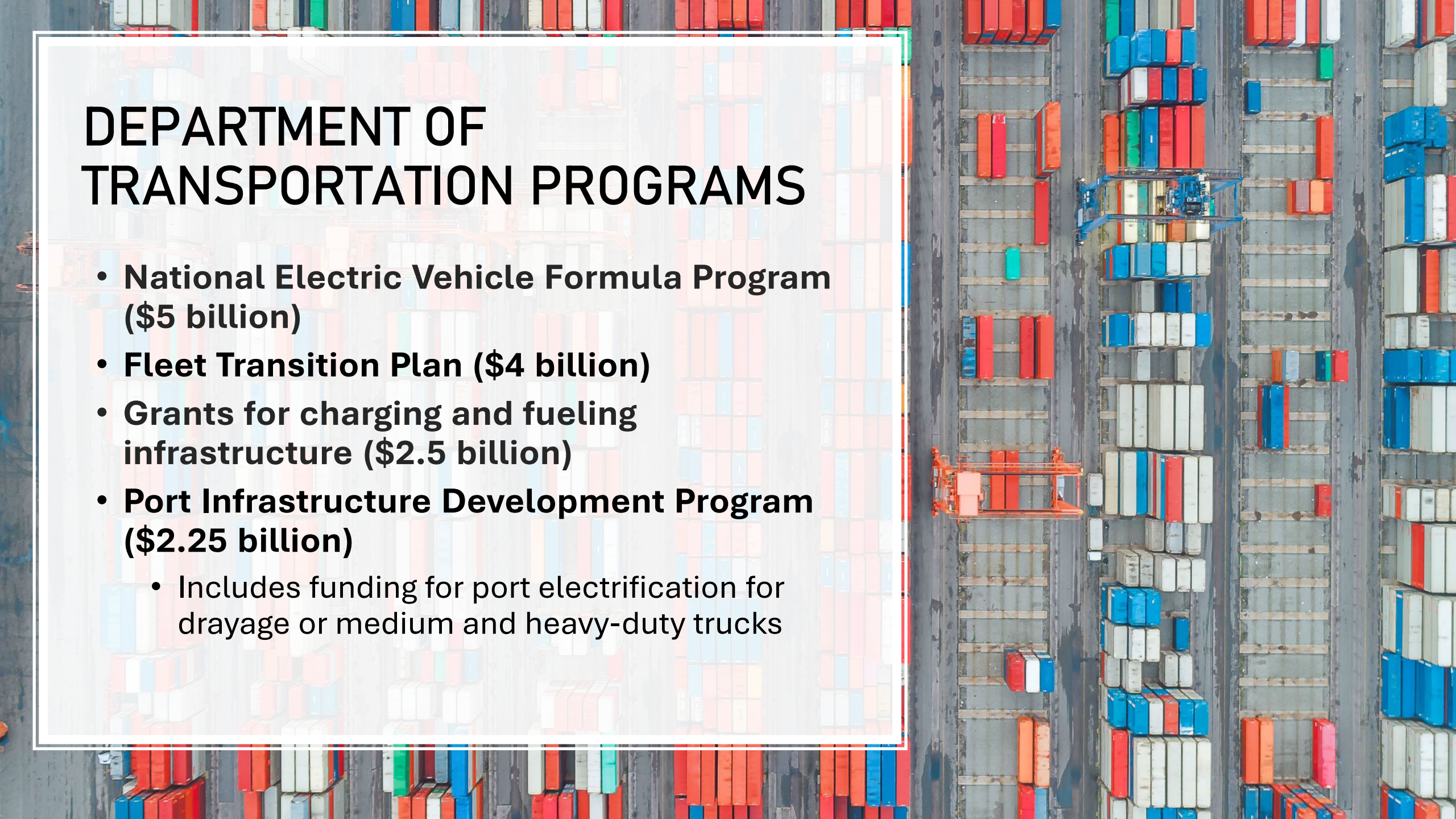
Source: INVEST in America Act tracker on EV Hub

SUMMARY BY DEPARTMENT IN MILLIONS ($)

	DOT	DOE	EPA	Total
Dedicated to Zero Emissions Vehicles	$5,000	$200	$2,500	$7,700
"Clean" Vehicle Eligible	$9,188	$1,000	$2,500	$12,688
Grid & Batteries	$400	$9,885	$0	$10,285
Total Funds EV-Eligible	**$14,588**	**$11,085**	**$5,000**	**$30,673**

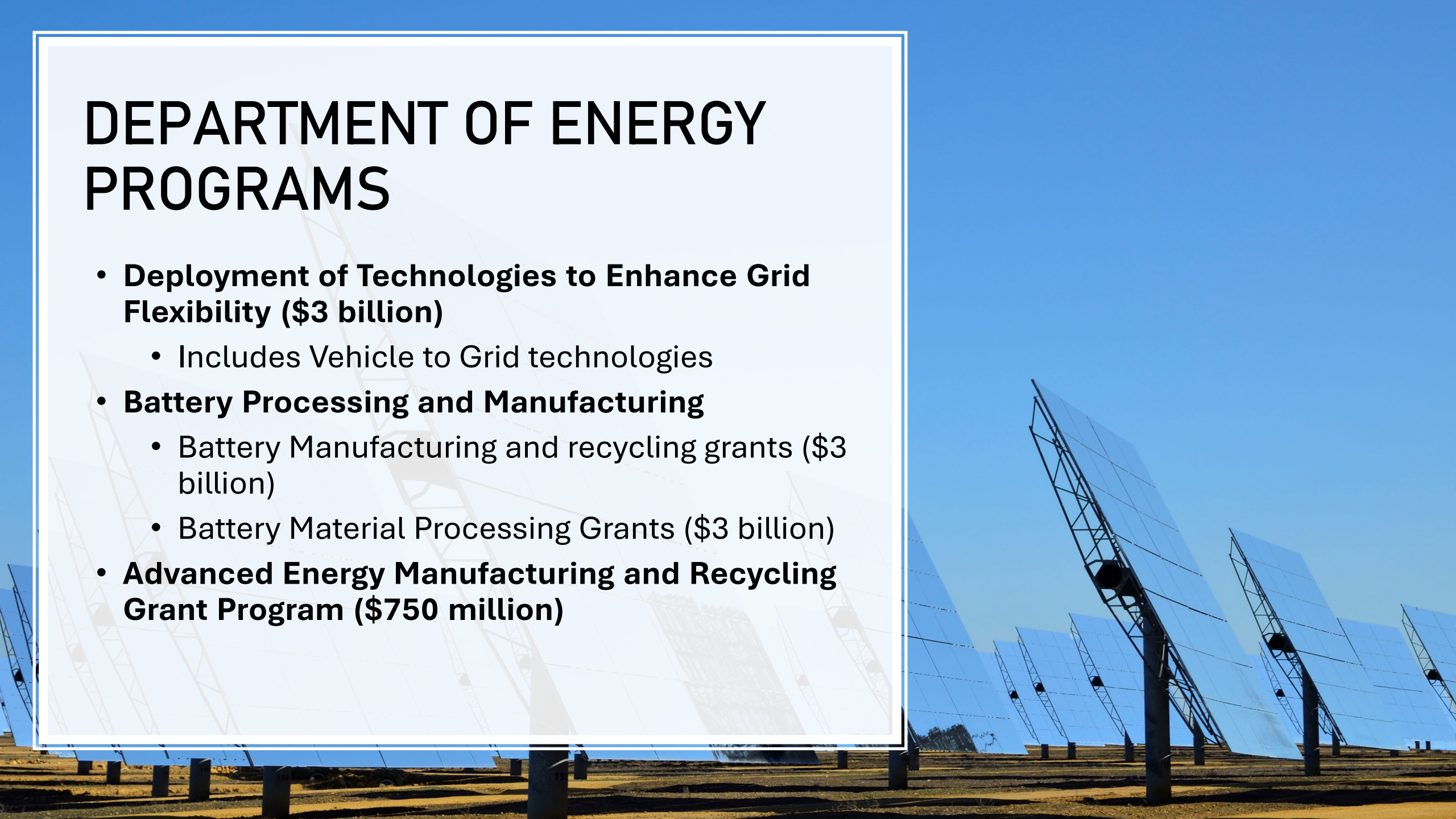
DEPARTMENT OF TRANSPORTATION PROGRAMS

- **National Electric Vehicle Formula Program ($5 billion)**
- **Fleet Transition Plan ($4 billion)**
- **Grants for charging and fueling infrastructure ($2.5 billion)**
- **Port Infrastructure Development Program ($2.25 billion)**
  - Includes funding for port electrification for drayage or medium and heavy-duty trucks



DEPARTMENT OF ENERGY PROGRAMS

- **Deployment of Technologies to Enhance Grid Flexibility ($3 billion)**
  - Includes Vehicle to Grid technologies
- **Battery Processing and Manufacturing**
  - Battery Manufacturing and recycling grants ($3 billion)
  - Battery Material Processing Grants ($3 billion)
- **Advanced Energy Manufacturing and Recycling Grant Program ($750 million)**



ENVIRONMENTAL PROTECTION AGENCY PROGRAMS

- **$2.5 billion for Clean School Bus Program (zero-emission buses only)**
- **$2.5 billion for Clean School Bus Program (zero-emission or lower emission buses)**

THE BUILD BACK BETTER ACT

- The Reconciliation Bill is *under negotiation*
- Text has changed since the original proposal
- Total of $209 billion:
  - $23.98 billion for EV *dedicated* funding
  - $96.2 billion for EV Eligible Tax Credits
  - $88.68 billion for EV *eligible* funding

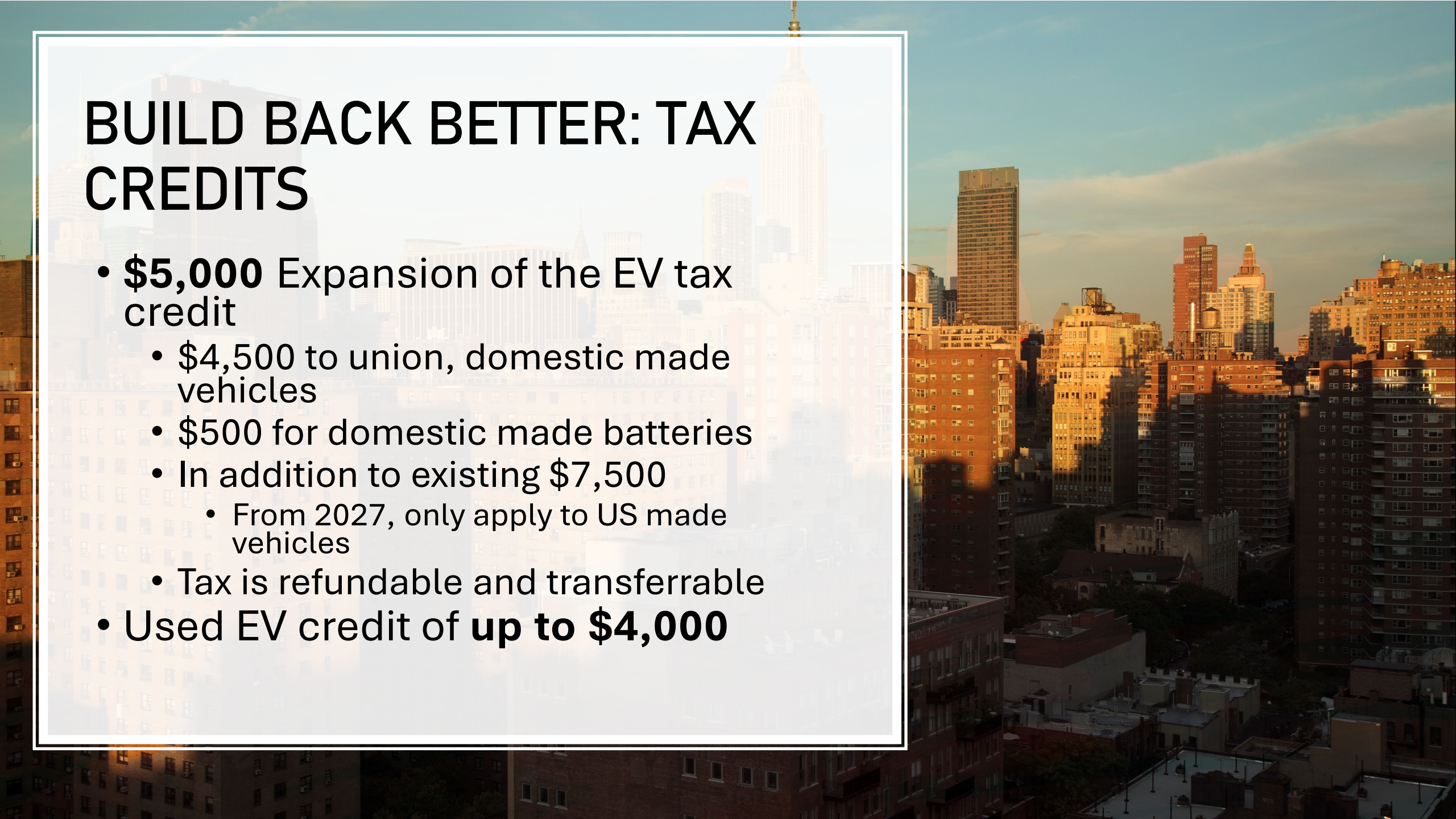
Source: The Reconciliation Bill – Atlas EV Hub

FUNDING SUMMARY BY DEPARTMENT

Lead Department	ZEV Only	ZEV Eligible	Tax Credits	Total
Department of Energy	$4,500	$19,090	$0	$23,590
Environmental Protection Agency	$10,500	$30,110	$0	$40,610
United States Postal Service	$5,985	$0	$0	$5,985
General Services Administration	$2,995	$4,225	$0	$7,220
Department of Transportation	$0	$18,600	$0	$18,600
Department of Housing and Urban Development	$0	$6,000	$0	$6,000
Department of Labor	$0	$5,000	$0	$5,000
Department of Treasury	$0	$0	$96,200	$96,200
Department of Commerce	$0	$5,650	$0	$5,650
Total	**$23,980**	**$88,680**	**$96,200**	**$209,000**

BUILD BACK BETTER: TAX CREDITS

- **$5,000** Expansion of the EV tax credit
  - $4,500 to union, domestic made vehicles
  - $500 for domestic made batteries
  - In addition to existing $7,500
    - From 2027, only apply to US made vehicles
  - Tax is refundable and transferrable
- Used EV credit of **up to $4,000**

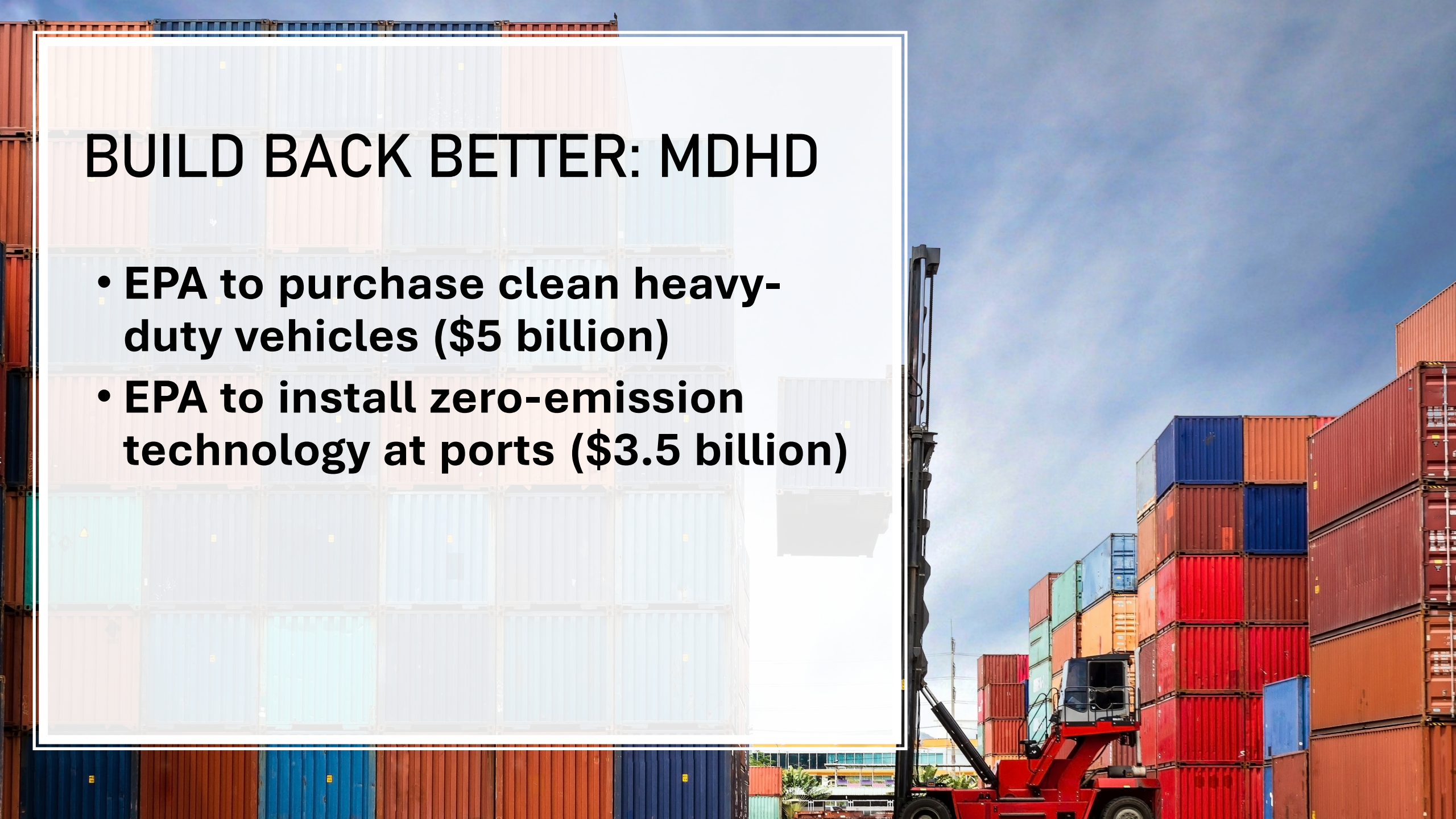


BUILD BACK BETTER: EQUITY

- **Greenhouse gas reduction fund ($29 billion)**
  - $2 billion for EV charging equipment
  - $8 billion for projects in low income or disadvantaged communities
- **Environmental and Climate Justice Block Grants ($3 billion)**
  - Funding for low and zero emissions technologies and infrastructure

BUILD BACK BETTER: MDHD

- **EPA to purchase clean heavy-duty vehicles ($5 billion)**
- **EPA to install zero-emission technology at ports ($3.5 billion)**



BUILD BACK BETTER: FLEET ELECTRIFICATION

- **Federal fleet electrification ($2.995 billion)**
  - Other GSA funding for clean technologies
- **USPS to electrify federal fleets ($5.985 billion)**
  - More than half for charging infrastructure
- **Zero Emissions Vehicle Infrastructure Grants ($1 billion)**
  - Including $200 million for hydrogen fuelling

NEXT STEPS: TIMELINE IS NOT FIRM!

5 November:
Congress approved the bipartisan bill

From 15 November:

House plans to vote on the Build Back Better bill

TBC

Senate to vote on Build Back Better bill

Sources: *Infrastructure bill passes: What's next for Biden Build Back Better plan (cnbc.com)*

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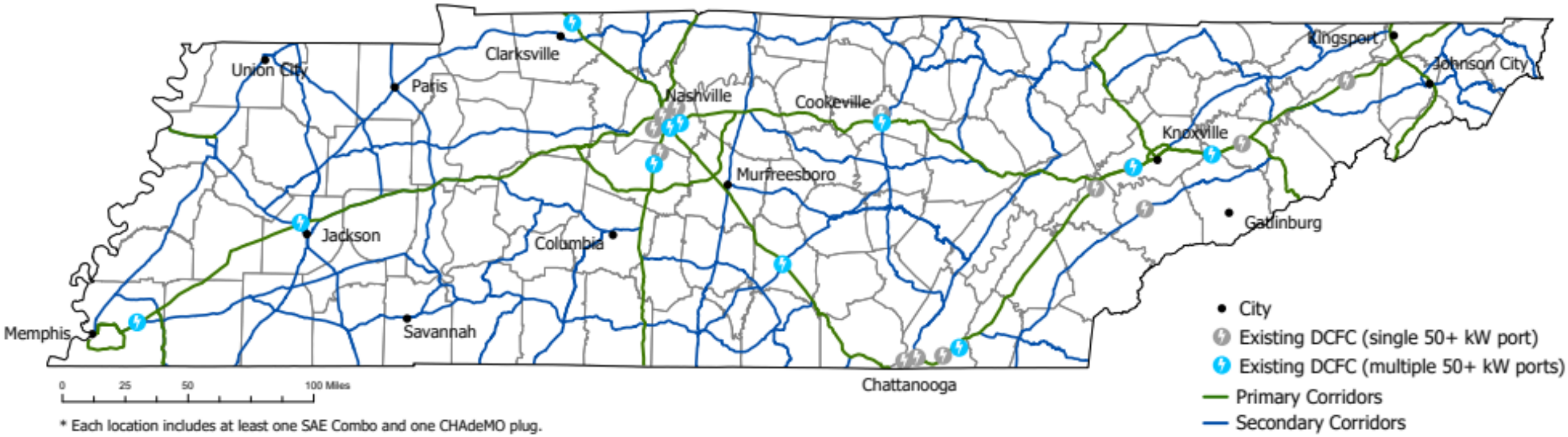
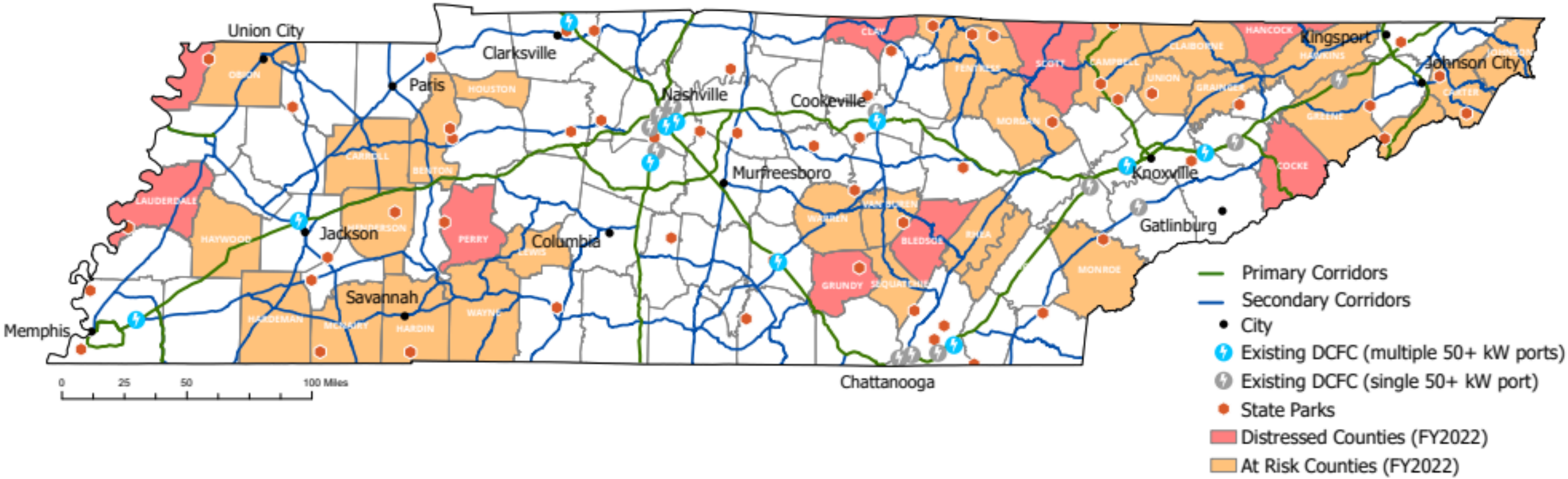
Primary & Secondary Corridors With Existing Electric Vehicle DC Fast Charging Infrastructure (July 2021)

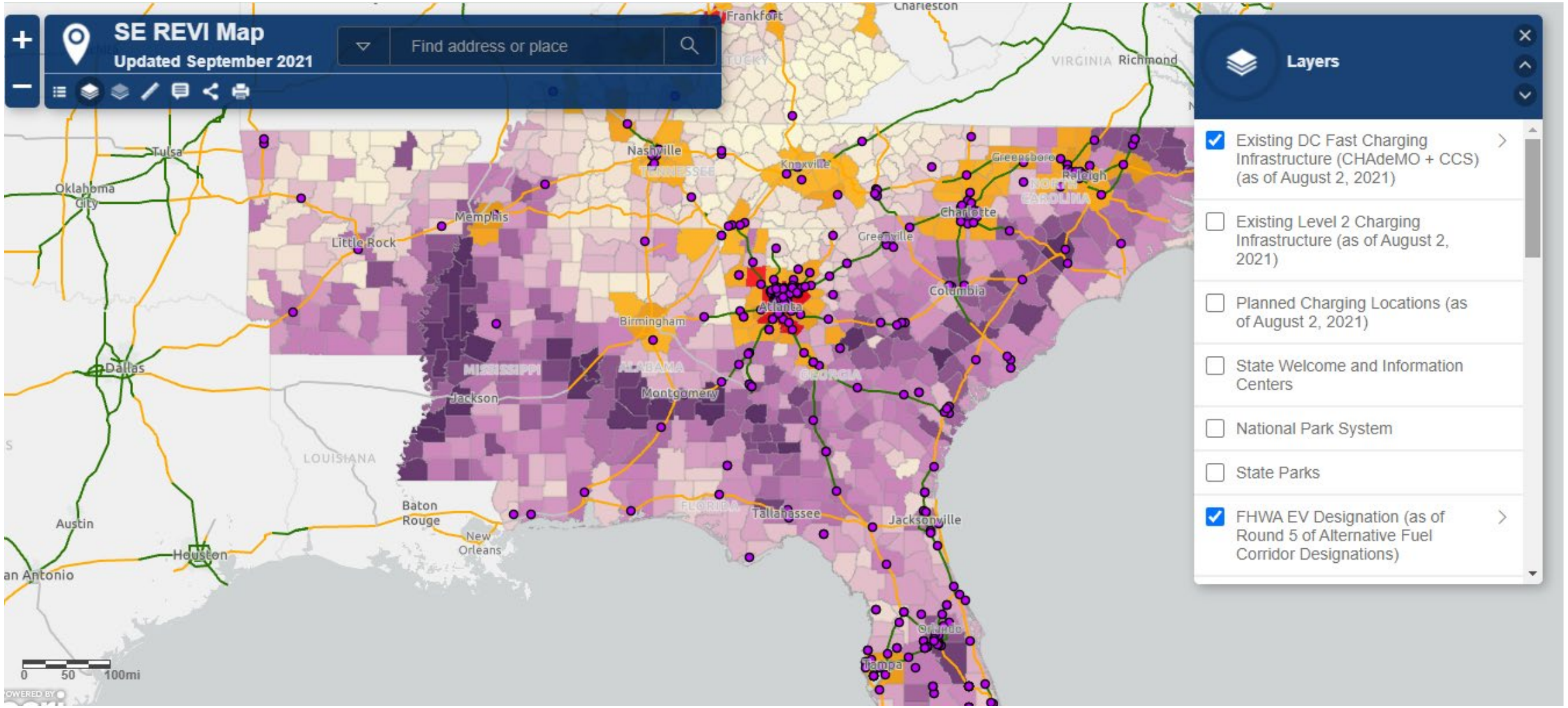


* Each location includes at least one SAE Combo and one CHAdeMO plug.

Tennessee Electric Vehicle Charging Opportunity Map

Primary & Secondary Corridors With State Parks + Distressed & At Risk Counties (July 2021)




SE REVI Map
Updated September 2021
Find address or place
Layers
Existing DC Fast Charging Infrastructure (CHAdeMO + CCS) (as of August 2, 2021)
Existing Level 2 Charging Infrastructure (as of August 2, 2021)
Planned Charging Locations (as of August 2, 2021)
State Welcome and Information Centers
National Park System
State Parks
FHWA EV Designation (as of Round 5 of Alternative Fuel Corridor Designations)
Frankfort
Charleston
Richmond
Nashville
Knoxville
Greensboro
Raleigh
Charlotte
Greenville
Columbia
Atlanta
Birmingham
Memphis
Little Rock
Tulsa
Oklahoma City
Dallas
Jackson
Montgomery
Tallahassee
Jacksonville
Orlando
Tampa
Baton Rouge
New Orleans
Houston
Austin
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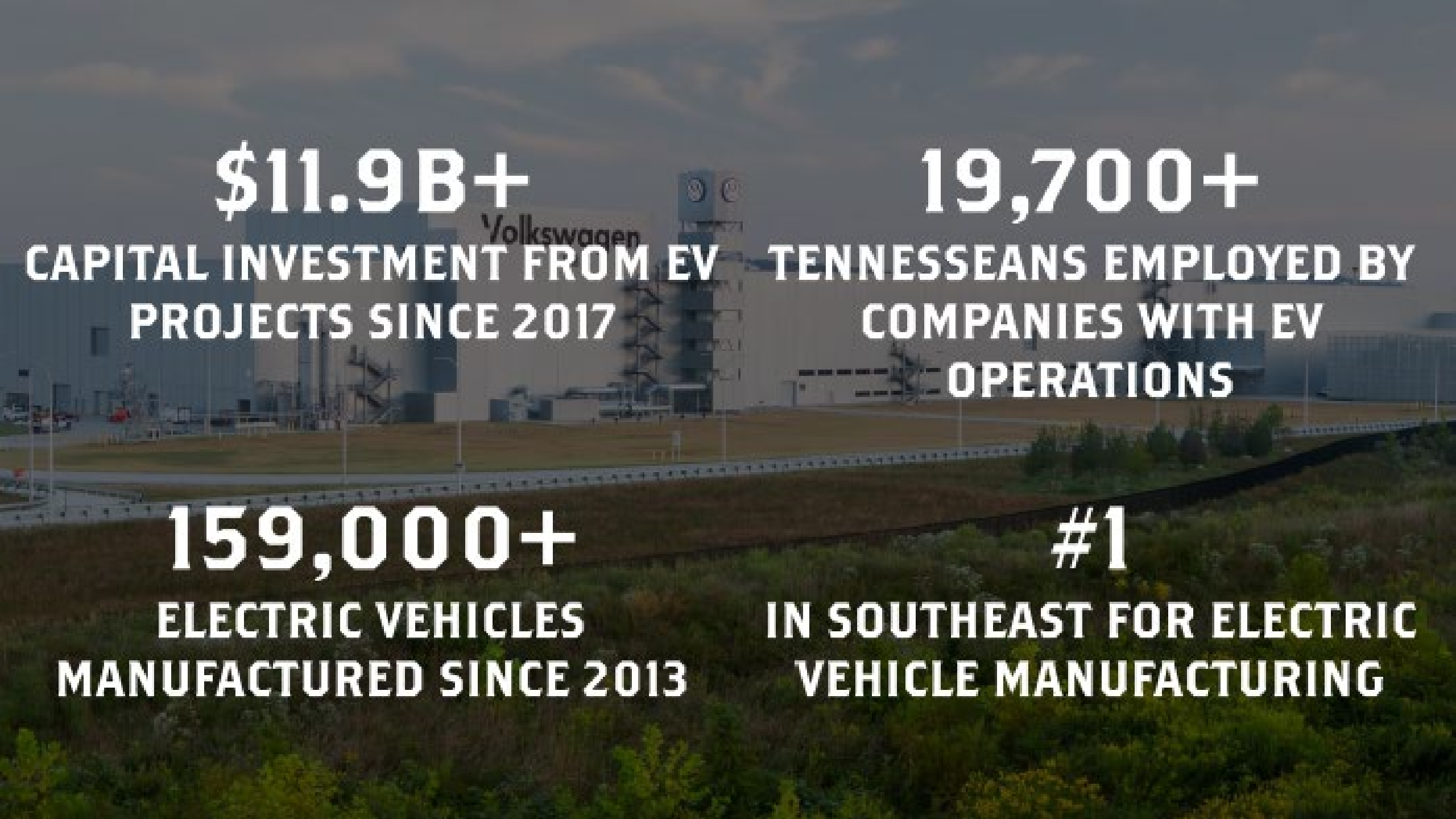
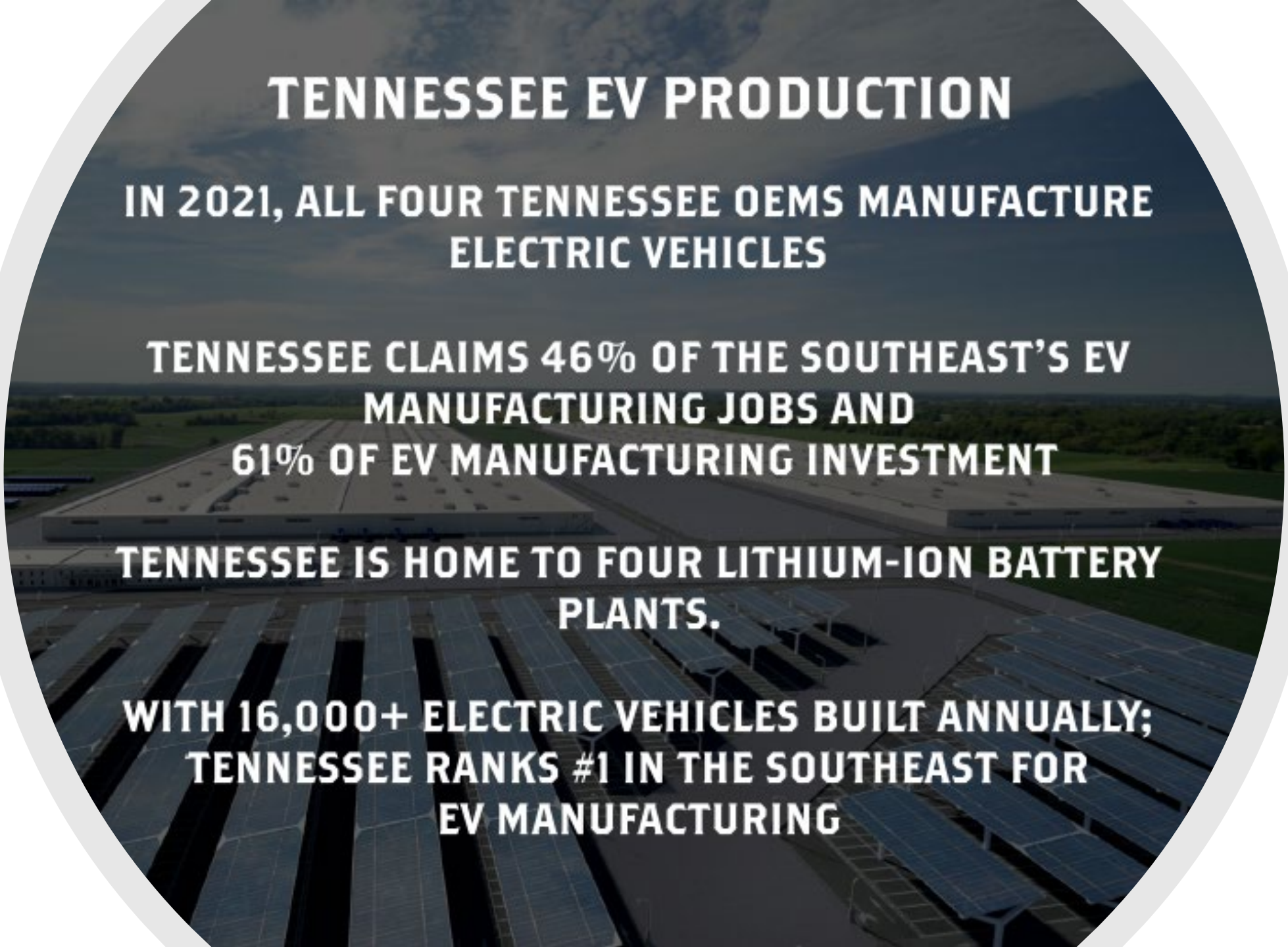
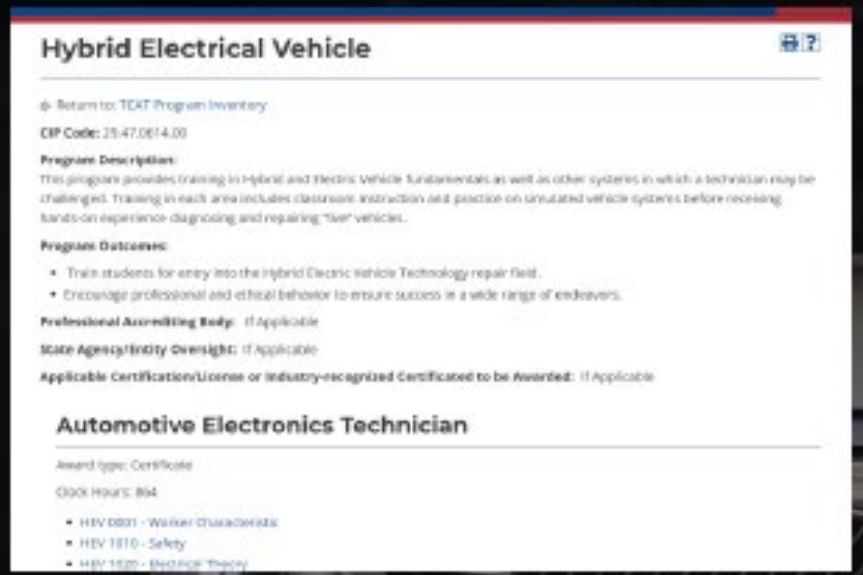

$11.9B+
CAPITAL INVESTMENT FROM EV PROJECTS SINCE 2017
19,700+
TENNESSEANS EMPLOYED BY COMPANIES WITH EV OPERATIONS
159,000+
ELECTRIC VEHICLES MANUFACTURED SINCE 2013
#1
IN SOUTHEAST FOR ELECTRIC VEHICLE MANUFACTURING


TENNESSEE EV PRODUCTION
IN 2021, ALL FOUR TENNESSEE OEMS MANUFACTURE ELECTRIC VEHICLES
TENNESSEE CLAIMS 46% OF THE SOUTHEAST'S EV MANUFACTURING JOBS AND 61% OF EV MANUFACTURING INVESTMENT
TENNESSEE IS HOME TO FOUR LITHIUM-ION BATTERY PLANTS.
WITH 16,000+ ELECTRIC VEHICLES BUILT ANNUALLY; TENNESSEE RANKS #1 IN THE SOUTHEAST FOR EV MANUFACTURING

EV-Specific Workforce Training

Tennessee is focused on creating an environment for continued, rapid growth of electric vehicle production and is proactively working with industry to develop comprehensive workforce training programs. Areas of focus include:

- **supply chain,**
- **waste management**
- **automotive assembly**
- **manufacturing of the electric vehicle battery + electric motor**



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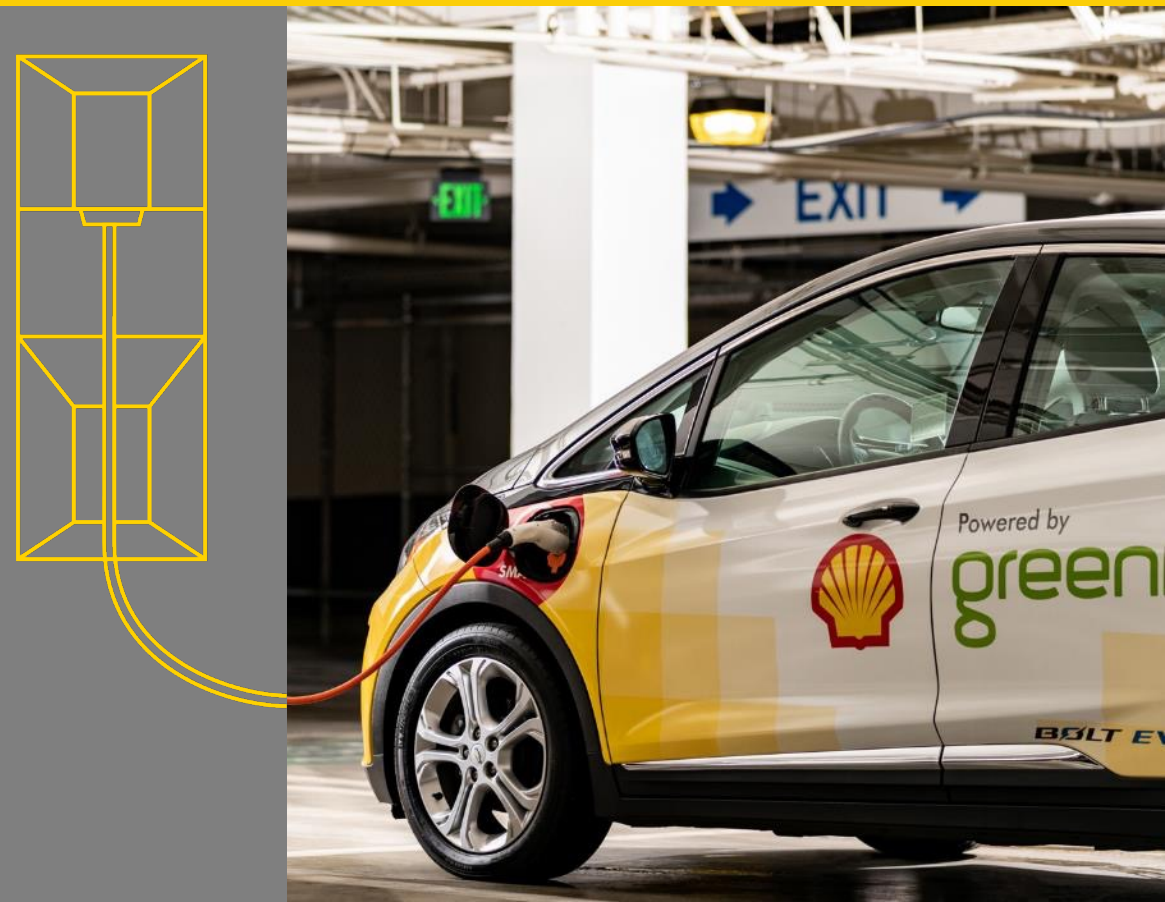
Josh Cohen
Director, Policy

Nov. 10, 2021

Pathways for Federal Investment to Advance Transportation Electrification in the Southeast

Southeast Energy Efficiency Alliance



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A Member of the Shell Group

About Greenlots

Together with Shell and our partners, Greenlots is powering the transformation to electric mobility to create a more sustainable future. Our industry-leading software and services equip drivers, site hosts and network operators to efficiently deploy, manage, and leverage EV charging infrastructure at scale.

We provide what our customers need: expertise, solutions, and support to transition to electric and flexible solutions that deliver economically effective, reliable charging at scale.

Founded in **2008** with over a decade of experience

Headquartered in **Los Angeles,** California

Acquired by **Shell Renewables and Energy Solutions** in January 2019

Global footprint with offices throughout the US and in Canada, India, Singapore, and Southeast Asia

Over **200 Employees** and contractors worldwide

Working with utilities, cities, automakers, fleet and retail customers across the US and the world

Themes

1. Plan and budget for O&M
2. Software unlocks value
3. Collaborative planning will enable success
4. Partnerships are key

1. Plan and budget for O&M

- Station uptime is critically important to support a positive driver experience
- For fleets, uptime is mission critical to ensure vehicles can dispatch as needed
- A hardware warranty is only part of the picture—an enhanced maintenance contract can help assure uptime
- Take advantage of funding opportunities to cover O&M up front

Lesson Learned:
ARRA Stimulus projects that leveraged federal dollars to deploy EVSE but lacked a plan and funding source for ongoing O&M often resulted in abandoned chargers left in disrepair

2. Software unlocks value

- Electrification is more than just buying vehicles and chargers
- Software enables data collection, access control and pricing
- Rethinking operations can yield efficiencies and savings
- Resilience can entail on-site energy solutions
- Reliability requires end-to-end testing, validation and support
- The grid impacts and electricity costs of EV charging at scale make software-based managed charging an imperative

Lesson Learned:
Software-enabled chargers that support open communication standards and interoperability minimize the risk of stranded assets.

Leverage software to manage load and costs

Smart charging enables “set it and forget it” load optimization

EV Charging Load Sharing

Benefit:

Eliminate or reduce the need for infrastructure upgrades and install more EV chargers than the site’s transformer capacity would allow

Working mechanism:

Automatic sharing of available power between EV chargers when charging load is expected to go beyond its limit

EV Charging Load Scheduling

Benefit:

Reduce electricity costs by preventing or curtailing charging sessions during hours with high electricity costs

Working mechanism:

Based on utility tariffs, site hosts can manually set the maximum site load for specific hours during a day when the cost of electricity is high

Integrated DER & Storage

Benefit:

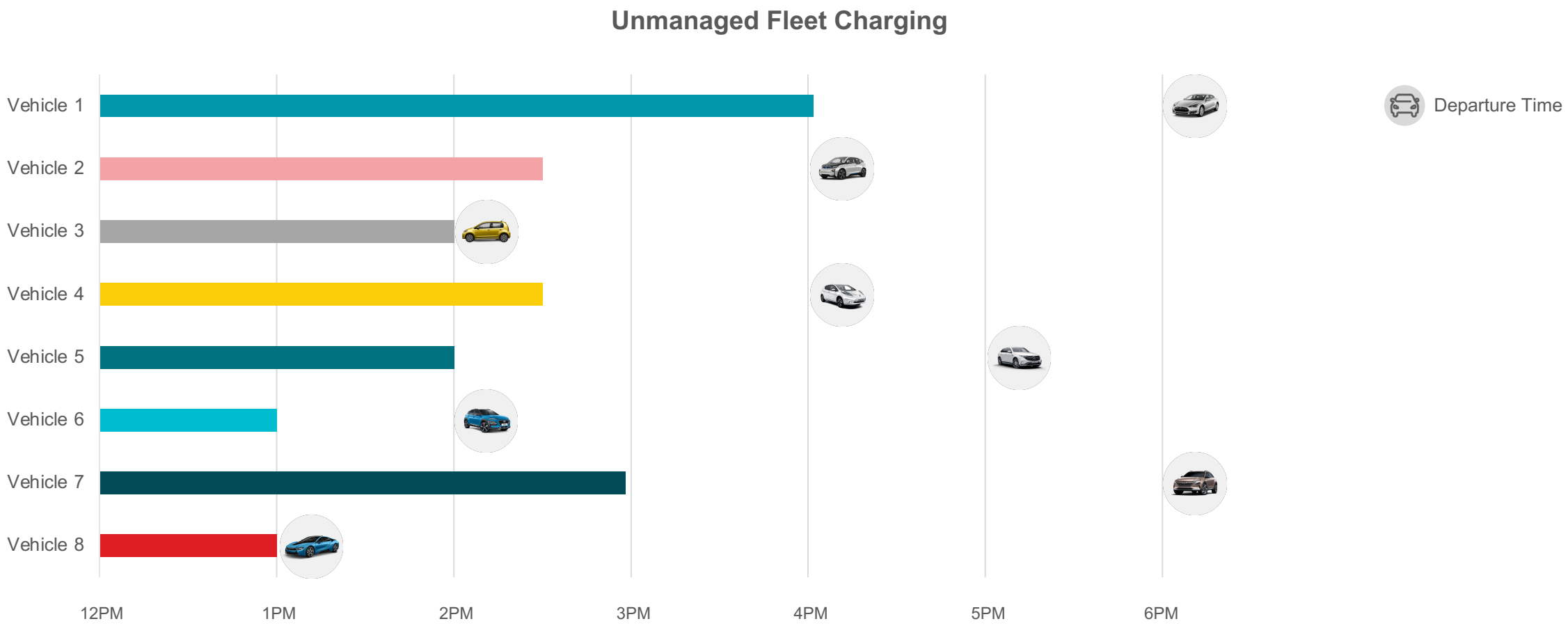
Reduce utility bills by pulling energy from the Distributed energy resources (DER), rather than the grid during peak demand charges

Working mechanism:

Integrate DER, such as energy storage or solar PV, into EV charging systems

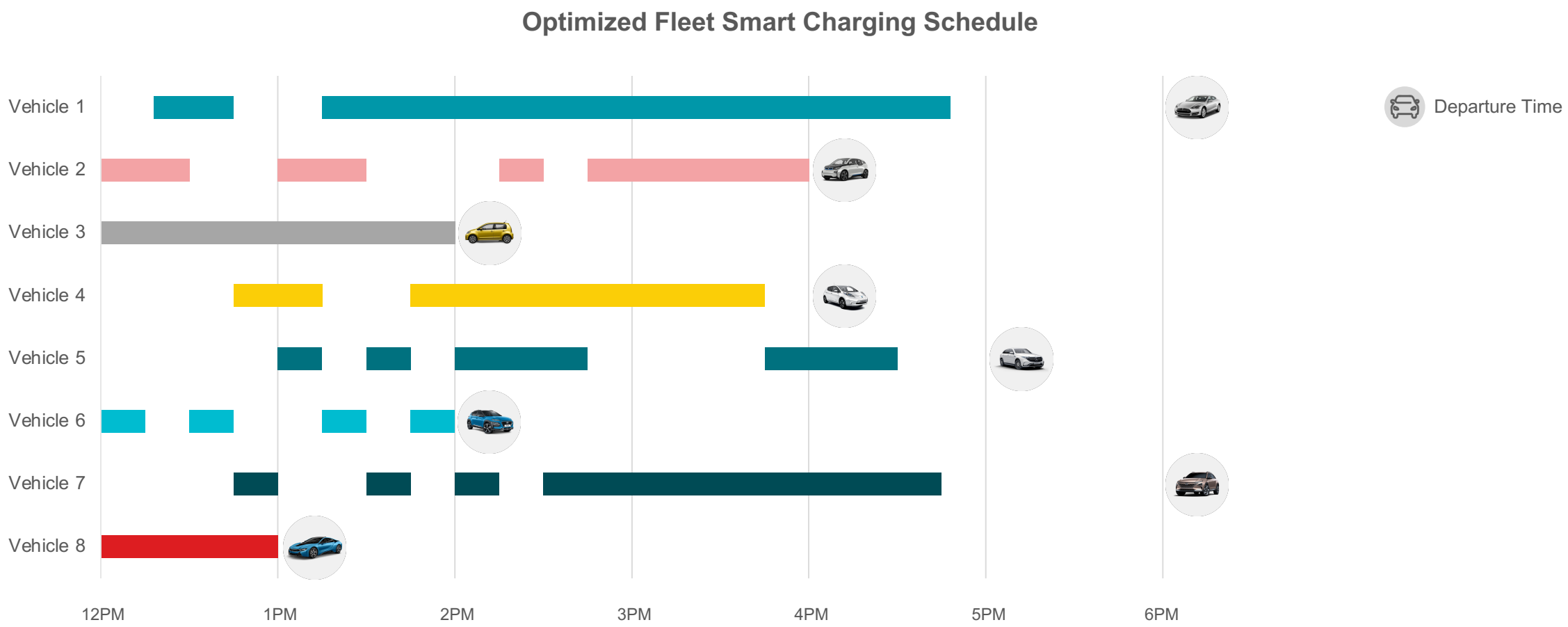
Example: non-optimized fleet charging

Vehicles start charging as soon as they are connected. Extended periods where vehicles are connected but are not charging



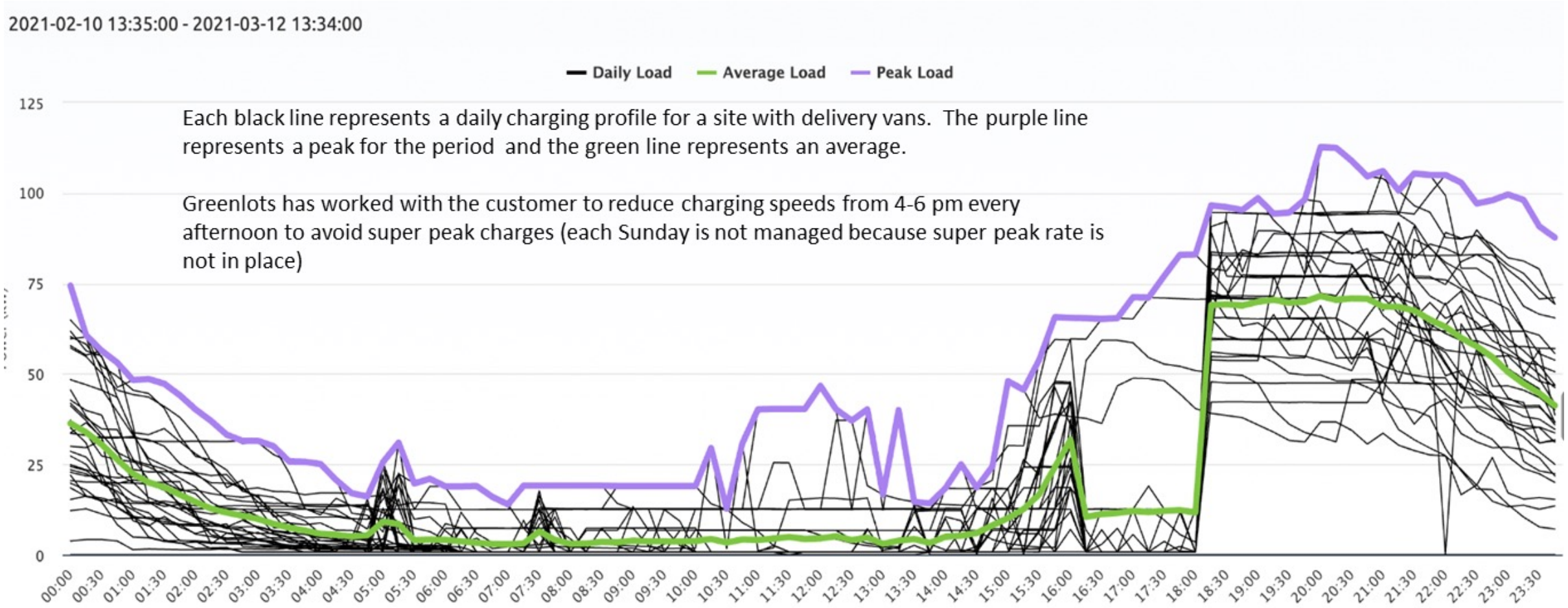
Example: optimized fleet smart charging

Vehicles don’t start charging as soon as they are connected. The load limit and the schedule will determine when the vehicle is to be charged.



Case study: smart charge management

Minimizing charging speeds when utility rates are higher – or to avoid peak rates – while ensuring that fleet vehicles can meet their delivery obligations



3. Collaborative planning will enable success

- For state and local governments: have goals and timelines for EVs and EV infrastructure
- Establish collaborative plans that implicate public agencies and private partners to support those goals
- Pursue funding opportunities that support those goals and leverage collaborative partners

<u>Lesson Learned</u>:
States that waited to develop VW mitigation plans have lagged behind in deployment.

4. Partnerships are key

- Leverage federal funding to support EV infrastructure deployment
- Engage stakeholders across utilities, installers, hardware and software providers, site hosts and others
- Engage the local utility early and throughout the process to understand grid constraints and optimize rates and tariffs

Case Study: Volvo LIGHTS

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Case Study: Volvo LIGHTS

16 Public & private organizations collaborating

23 Battery Electric Heavy-Duty Trucks

29 Battery Electric Equipment

58 Public & Private Chargers

2 Electric Truck After Market Service Centers

2 Colleges Designing Electric Truck Maintenance Programs

1.8 Solar Energy Generation

million kWh

2 Ports Providing Infrastructure Planning

Thank you!

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Discussion with Panelists

Thank You to Our Speakers

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Thank you!

We'd like to hear from you. Please give us your feedback on today's webinar.
https://forms.office.com/r/wY7xaCVjzn

Join us for *Electric Vehicle Programs: How to strike a balance between excitement and execution*
Wednesday, December 15, 2021 | 1 p.m. ET
Register at seealliance.org/events

Become a member! Contact Pamela Fann, director of membership and diversity integration at pfann@seealliance.org or visit us at seealliance.org/membership for more information.

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