Delaware's Strategy For Electric Vehicle Charging Infrastructure (2024)

Meeting Housekeeping

- Want to Provide Comments or Ask Questions?

Tonight, use Zoom's Q&A function, anytime during the presentation and during the question-and-answer period, to offer comments or ask a question

Anytime, fill-out a comment form in the project's virtual room that can be accessed via the plan's website https://deldot.gov/Programs/NEVI/

dotpublic@delaware.gov

Introductions

DelDOT – Transportation Resiliency & Sustainability

- Stephanie Johnson – Transportation Resilience & Sustainability Director
- Tricia Arndt, AICP, CC-P – Transportation Resilience & Sustainability Assistant Director

DNREC – Division of Climate, Coastal and Energy

- Susan Love, AICP - Climate & Sustainability Programs Administrator
- Breanne Preisen – Clean Transportation Program Manager
- Sabrina Shultz – Climate & Transportation Policy Specialist

AECOM

- Joe Hofstee, PE – Project Manager
- Keyleigh Kern, AICP, ASLA – Public Outreach Manager
- Brendan Connelly – Smart Energy Analyst

Agenda

- What is CHARGING FORWARD: Delaware's Strategy for Electric Vehicle Charging Infrastructure?
- Delaware's Existing Electric Vehicle Landscape
- Developing Delaware's CHARGING FORWARD Strategy
- Delaware's Projected Future Conditions
- Delaware's EV Charging Priorities
- Strategy Recommendations and Next Steps
- Questions or Comments

What is CHARGING FORWARD: Delaware's Strategy for Electric Vehicle Charging Infrastructure?

What is CHARGING FORWARD?

- A strategy created by the Delaware Department of Transportation (DelDOT) and the Department of Natural Resources and Environmental Control (DNREC)
- The strategy focuses on:
  - Planning an EV charging network in an equitable, reliable, connected way
  - Educational initiatives
  - Ways to measure success to help improve and enhance the network as needed

Strategy Vision

Enable current and future users of electric vehicles ***to confidently travel*** *in and across Delaware for work, education, recreation, and exploration.*

Strategy Plan Outcome Areas

Equity: ensure that rural, underserved, and disadvantaged communities, including suppliers and contractors, are engaged and realize Strategy benefits

Reliability: develop a reliable, convenient, affordable, and equitable EV infrastructure network in Delaware for all users

Connections: connect Delawareans and travelers in Delaware to EV chargers to support an electric transportation future

Education: develop outreach materials on electric vehicles, good charging habits, station location, station usage, equipment capability, and how to provide feedback on the network; use social media and apps

Evaluation: develop a framework to collect data and evaluate the plan over time; refine and update as needed

Development of Goals

- The planning process looked at existing and future conditions of EV infrastructure in the state.
- The Goals focused on the needs of:
  - Disadvantaged Communities (DAC)
  - Rural Areas
  - Residents of multi-unit dwellings
- Plan goals were revised based on feedback from stakeholders & the public.

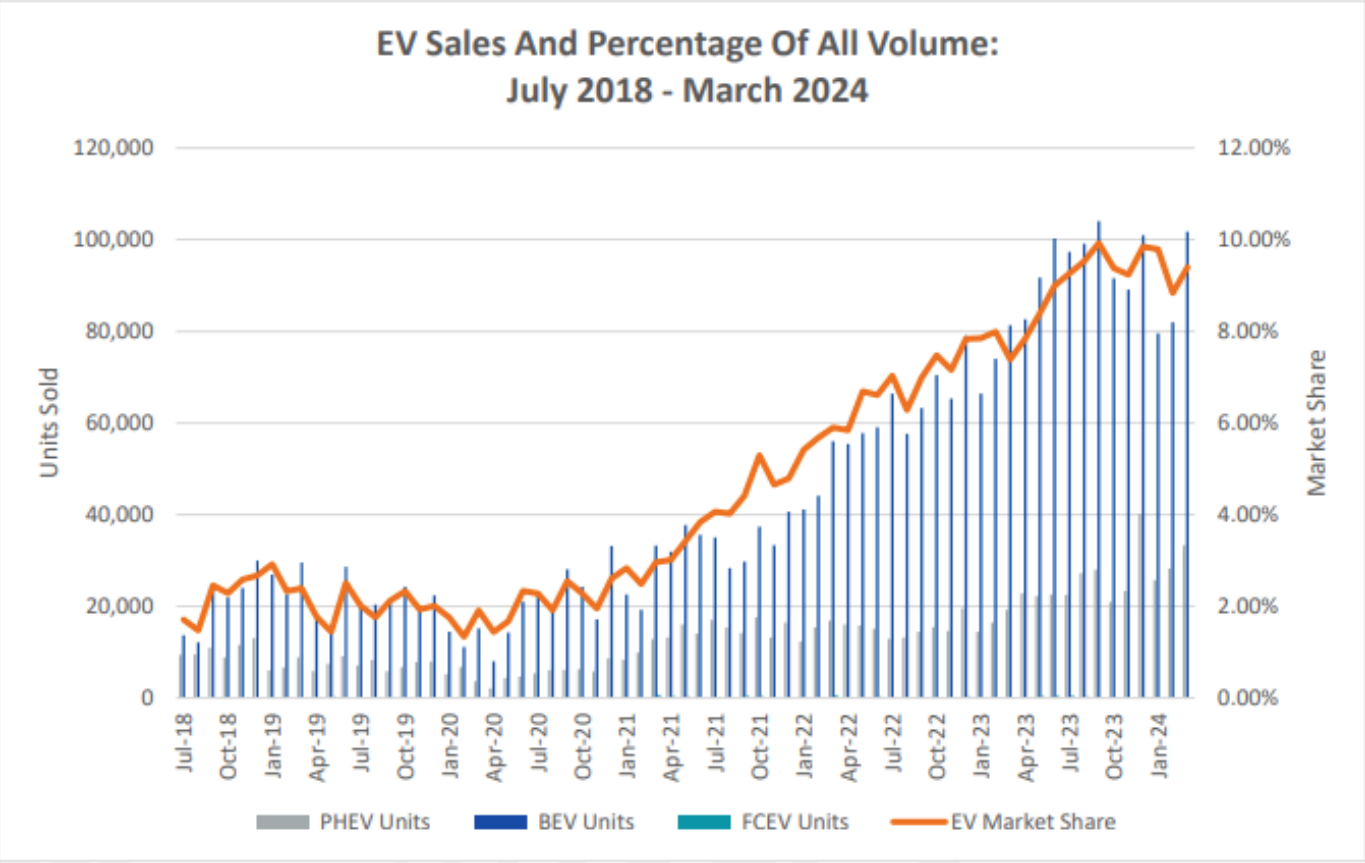
The Strategy Working Group

- DNREC, Climate and Sustainability
- DNREC, Energy Office
- DelDOT, Transportation Resiliency and Sustainability
- Delaware Area Rapid Transit
- Delaware Commute Solutions
- Delaware Electric Vehicle Association
- WILMAPCO
- Dover/Kent MPO
- Salisbury/Wicomico MPO
- Delaware Electric Cooperative
- Exelon/Delmarva Power
- League of Local Governments
- DEMEC
- Delaware Chamber of Commerce
- Office of State Planning Coordination
- Metropolitan Wilmington Urban League
- Delaware Hispanic Commission
- La Esperanza
- First State Community Action Agency
- Latin American Community Center
- League of Women Voters
- Interfaith Power and Light
- Healthy Communities Delaware
- Boys and Girls Club of Delaware
- Route 9 Coalition
- NAACP Delaware
- Delaware Concerned Residents for Environmental Justice
- Sierra Club of Delaware

Delaware's Existing Electric Vehicle Landscape

The Rise of Electric Vehicles

EVs hovered between 2-3% of vehicle sales for years, but after significant investment now represent around 10% of all new vehicles sold.



Source: Alliance for Automotive Innovation *Get Connected* Electric Vehicle Quarterly Report Q4

The Rise of Electric Vehicles

The U.S. allocates $54.5 billion towards EV adoption

Auto manufacturers pledge to go fully electric by 2035

15 States adopting Advanced Clean Cars II

Now over 100 models to choose from in 2024 and growing

The Rise of Electric Vehicles

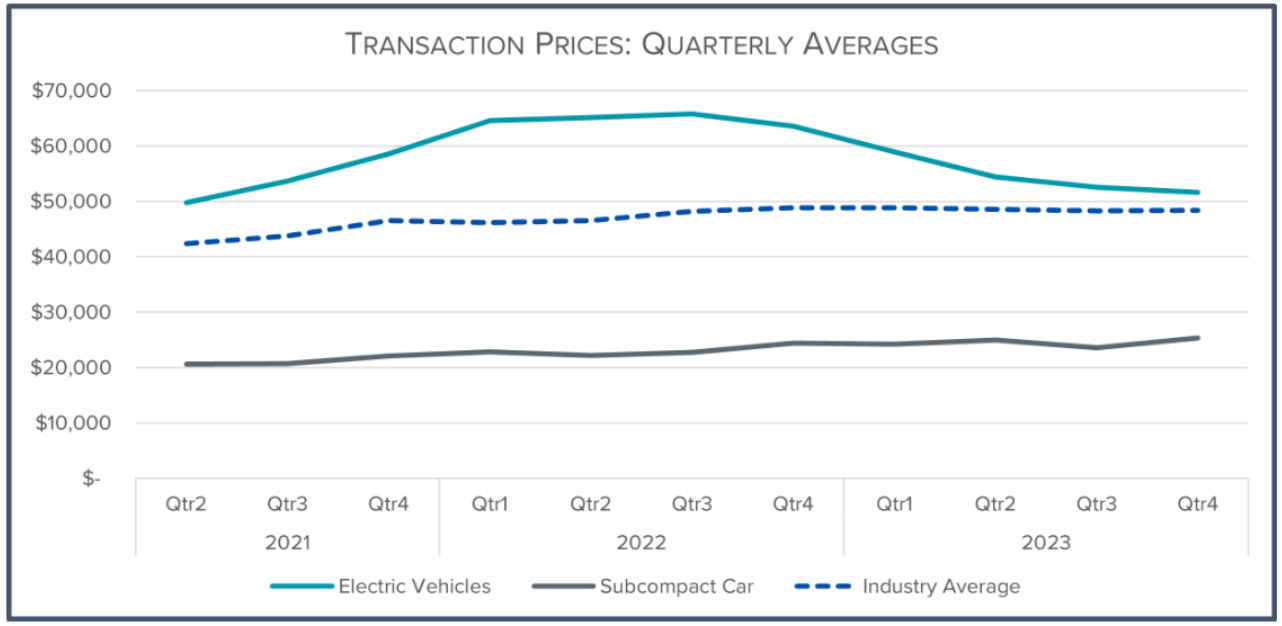
Historically, the cost of EVs has priced many consumers out of the market

Reaching Price Parity

- By Q4 2023, the average transaction price of an EV was $3,300 higher than industry average

Lowering Production Costs

- As manufacturers fortify supply chains and battery technology improves, cost to produce EVs will become lower than ICE vehicles



Source: Alliance for Automotive Innovation *Get Connected* Electric Vehicle Quarterly Report Q4, 2023

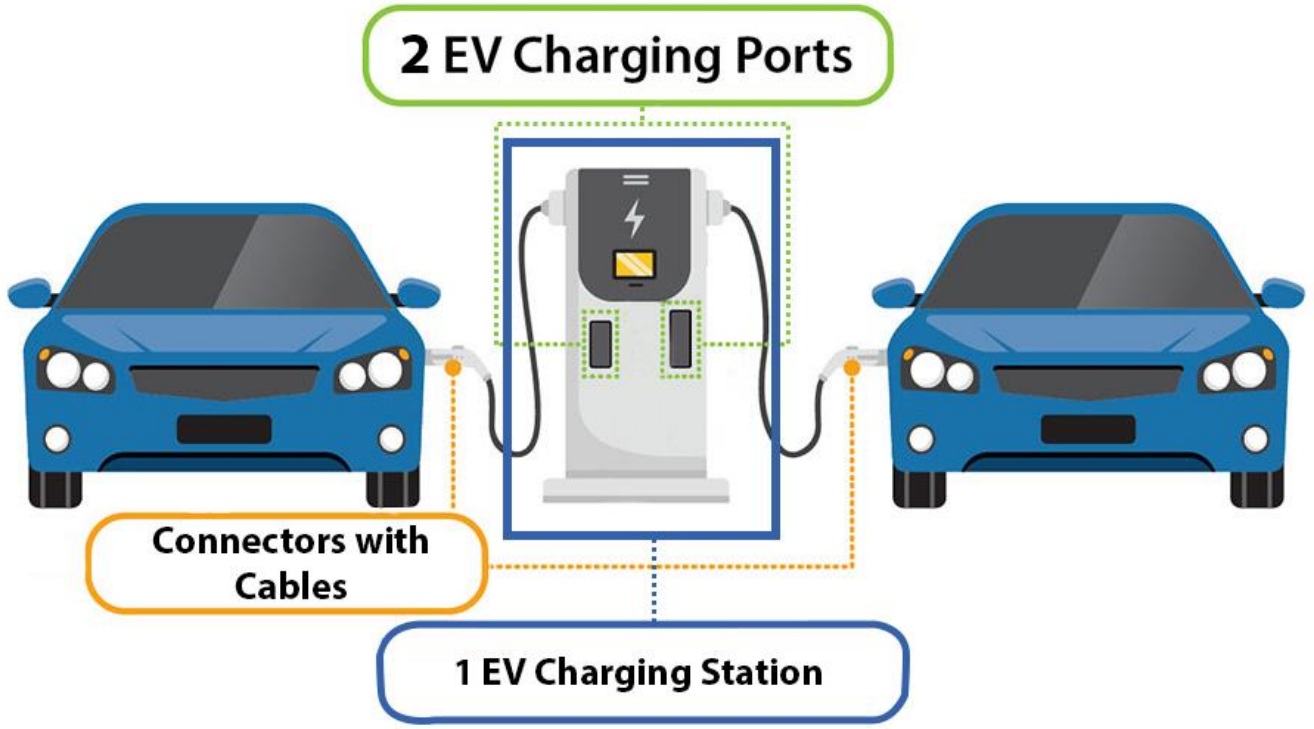
Delaware Electric Vehicle Growth

116%	Increase in Clean Vehicle Rebate Applications between 2022 and 2023.
47%	Increase in Number of EVs registered in Delaware between April 2023 and April 2024
628	Public Level 2 and DC Fast Charging Ports

Ports vs. Station Location

A Charging Port provides power to charge one vehicle at a time.

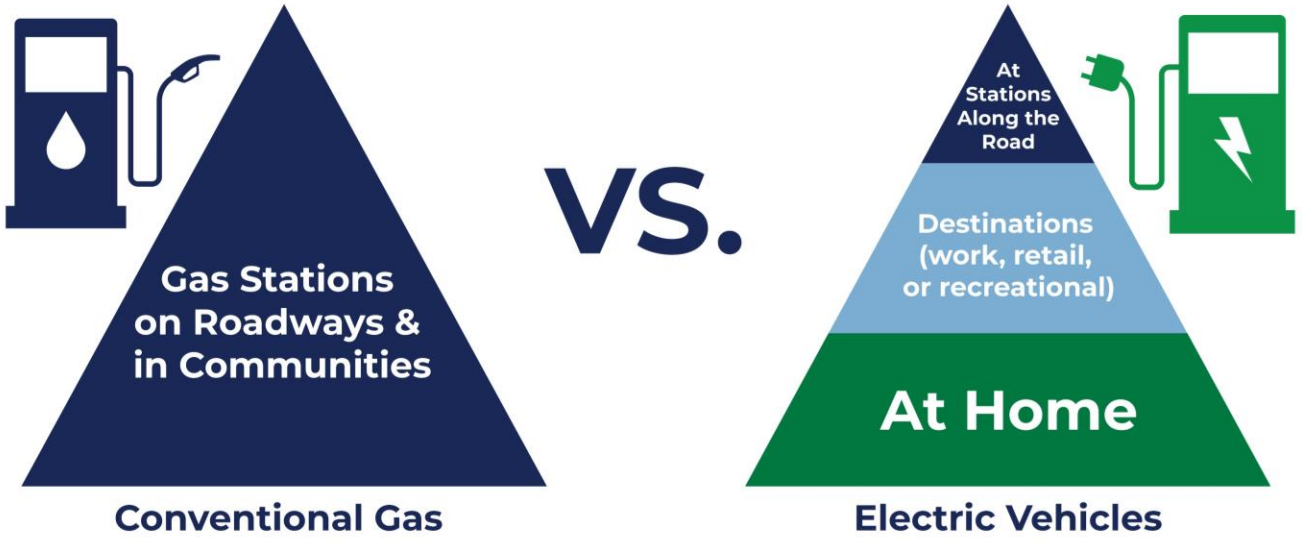
A Station Location is a site with one or more EV charging ports.



Understanding EV Charging Infrastructure

EVs need access to charging stations. Most drivers use at-home charging ports, but charging stations are also provided at workplaces, public destinations, and along heavy-traffic corridors.

How Fueling Cars is Changing with Electricity

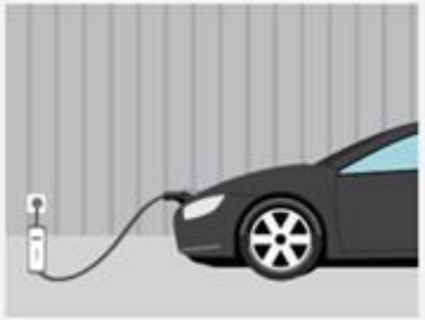


Understanding EV Charging Infrastructure

Level 1 infrastructure provides charging for residential applications.

Level 2 infrastructure provides charging for residential (240V) and commercial applications (208V).

Direct Current (DC) Fast Charging infrastructure provides rapid charging along heavy-traffic corridors.

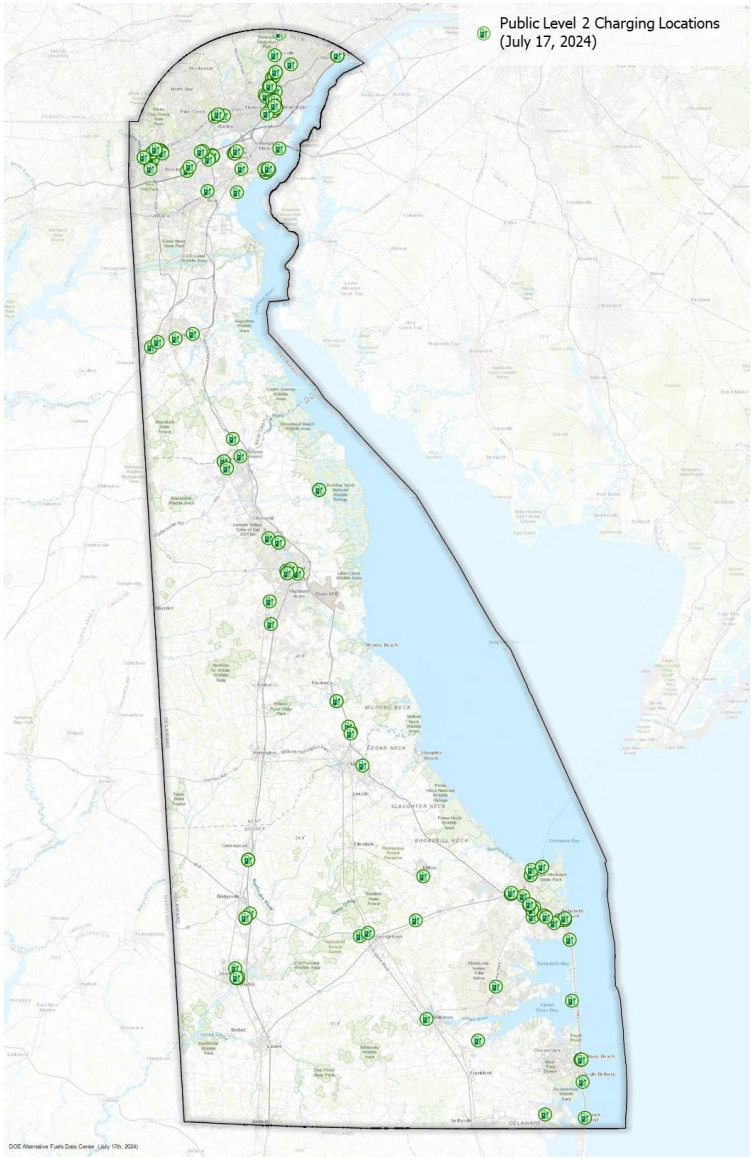
Level 1	Level 2	DC Fast Charge
		
VOLTAGE: 120V 1-Phase AC	**VOLTAGE:** 208V or 240V 1-Phase AC	**VOLTAGE:** 208V or 480V 3-Phase AC
AMPS: 12-16 Amps	**AMPS:** 12-80 Amps	**AMPS:** >100 Amps
CHARGING LOAD: 1.4-1.9 kW	**CHARGING LOAD:** 2.5-19.2 kW	**CHARGING LOAD:** 50-350 kW
CHARGING TIME: 3-5 Miles per Hour	**CHARGING TIME:** 12-60 Miles per Hour	**CHARGING TIME:** 10%-80% in ~30 Minutes

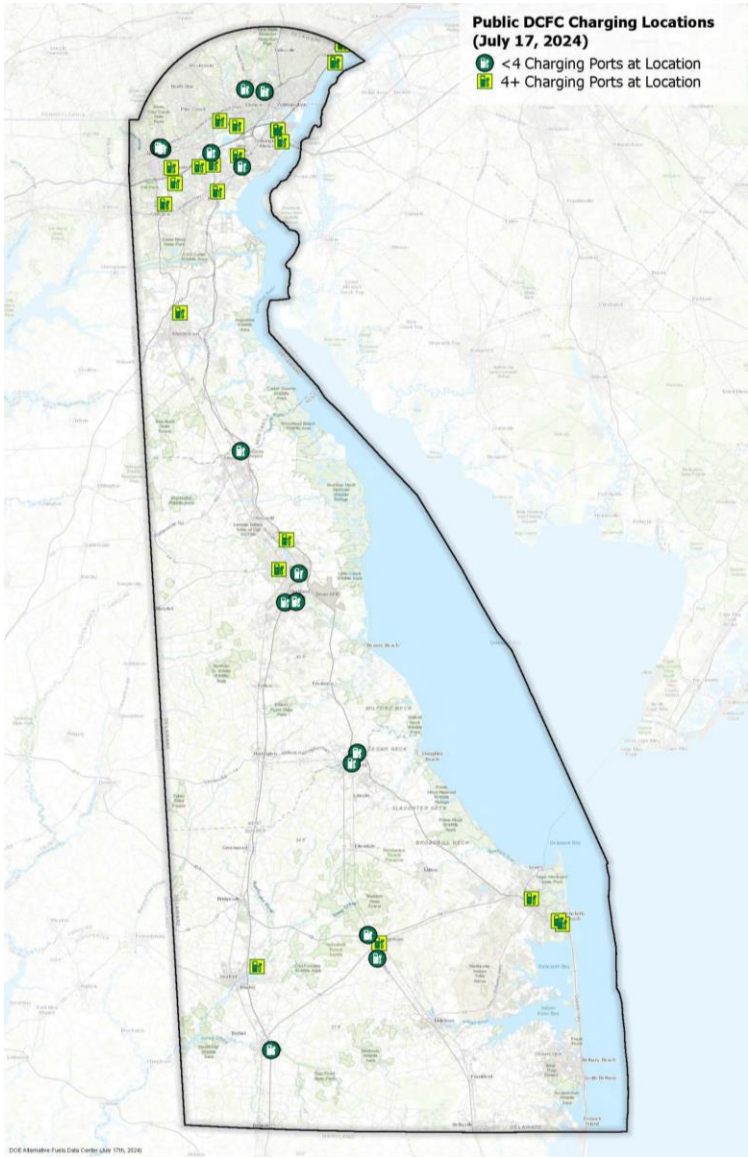
Where are Existing Chargers Located?

As of July 2024, the State of Delaware has:

- 384 Level 2 Charging Ports
- 248 DC Fast Charging Ports

Explore the data yourself





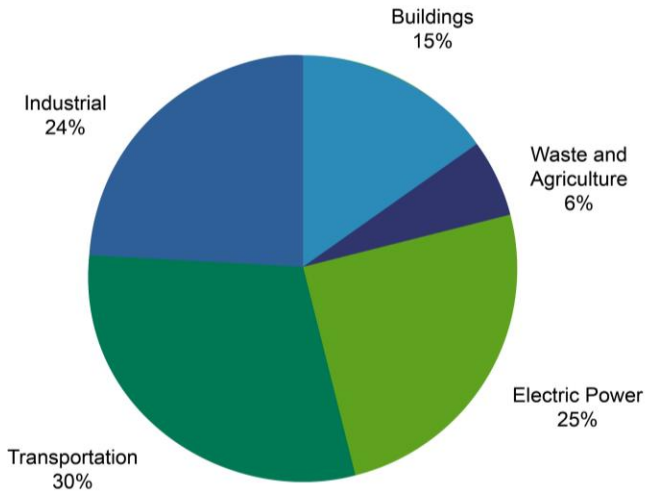
Developing Delaware's CHARGING FORWARD Strategy

Greenhouse Gas Emissions in Delaware

Delaware's transportation sector is the largest source of greenhouse gas (GHG) emissions, accounting for 30% of all emissions.

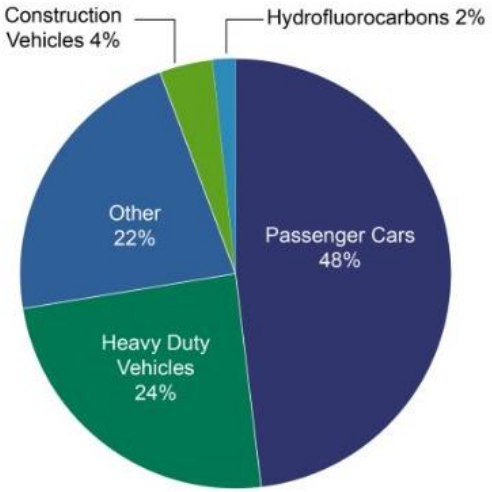
Of those emissions, 48% come from passenger cars.

2020 Delaware GHG Emissions by Sector



Source: Delaware Greenhouse Gas Inventory 2020

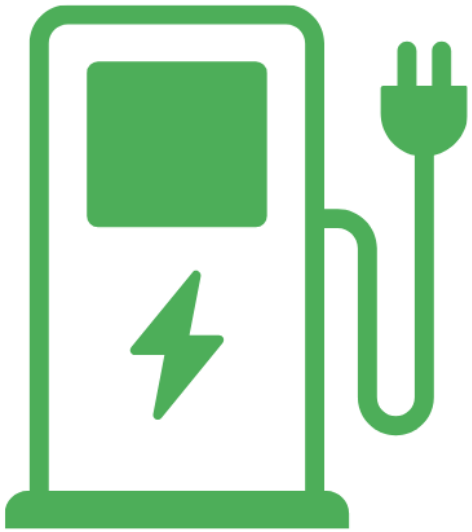
2020 Delaware Transportation GHG Emissions by Source



Source: Delaware Greenhouse Gas Inventory 2020

Reducing Emissions through Electric Vehicles

Battery powered electric vehicles are one of the most effective technologies for reducing emissions from the transportation sector.

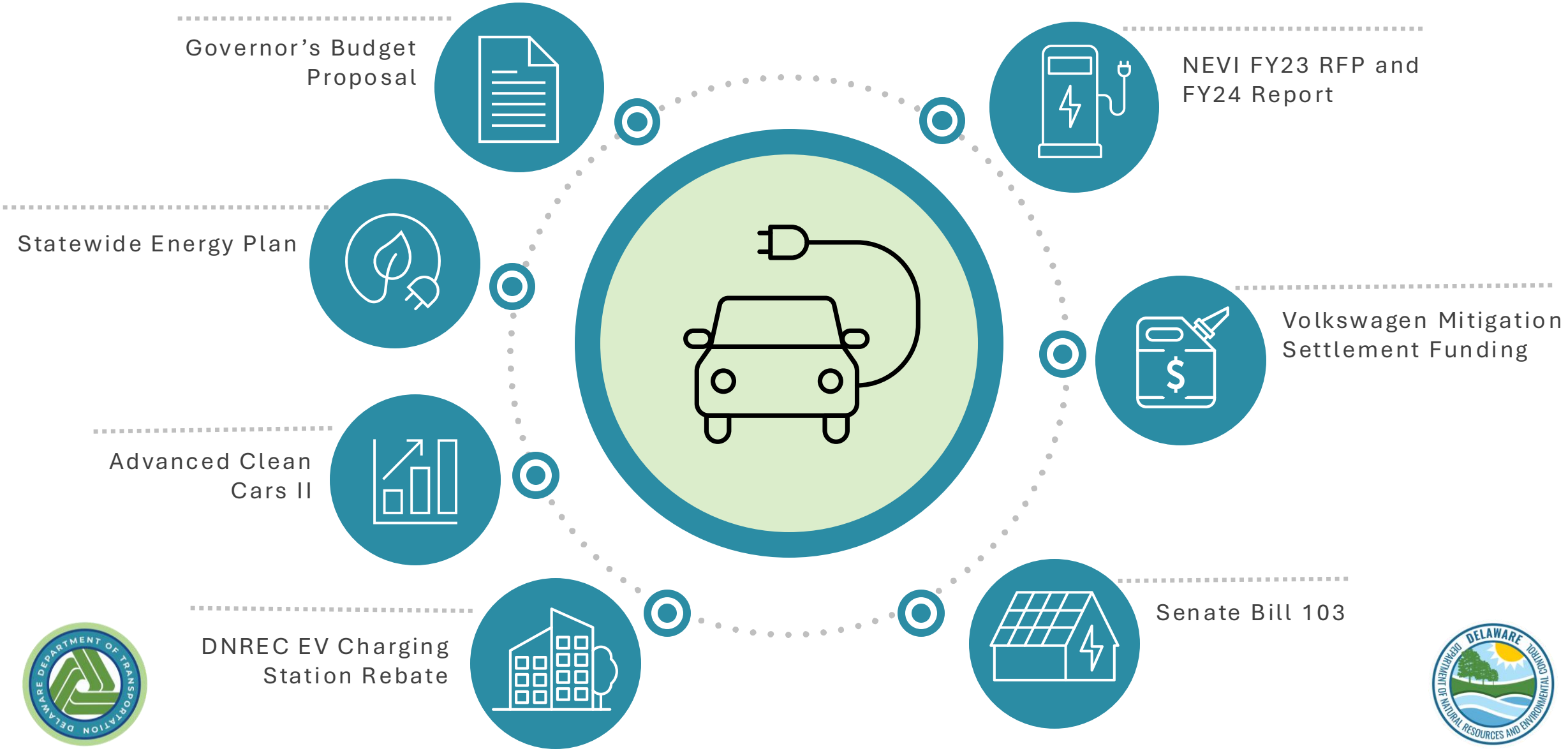


Battery Powered	EV's are powered by batteries which are charged by plugging the vehicle into an electric power source.
No Tailpipe Pollutants	EV's do not release greenhouse gases or other harmful pollutants into the atmosphere while driving.
Efficient	EV's are over 80% efficient while internal combustion engine vehicles are about 20% efficient.
Cost-Effective	Electric vehicles are becoming much cheaper to produce, and cost less to maintain than a gas powered car

State's Role in EV Infrastructure

- Identify areas where governmental policy, regulations, guidelines, or procedures may need to be changed
- Provide funding opportunities to install EV charging
- The state will only own and operate charging stations at state-owned locations.

Delaware Infrastructure Investments



National Electric Vehicle Infrastructure Program (NEVI)

2022

Funds Made Available

The FHWA and Joint Office approved eligible plans; funds were made immediately available for investment

2023

Request for Proposals

DelDOT released RFPs and received applications from vendors interested in owning and operating charging stations along AFC routes *(Rts. 1, 13, 113 and I-95)*

2024

Vendor Selection

DelDOT has accepted bids and contracts are being finalized

Volkswagen Mitigation Settlement

- Volkswagen violated emissions standards and must compensate for environmental damage
- DE received $1.4 million to put towards 14 new DCFC stations with 32 ports

Residential Charging Requirements

August 2023	January 2024	January 2025
Senate Bill 103 is passed and signed into law by Governor Carney	New single-family homes developed must contain at least one electric vehicle capable parking space	New multi-family residences must install charging stations at least 5% of parking spaces. An additional 10% of spaces must be EV capable

Level 2 EV Charging Station Rebate Program

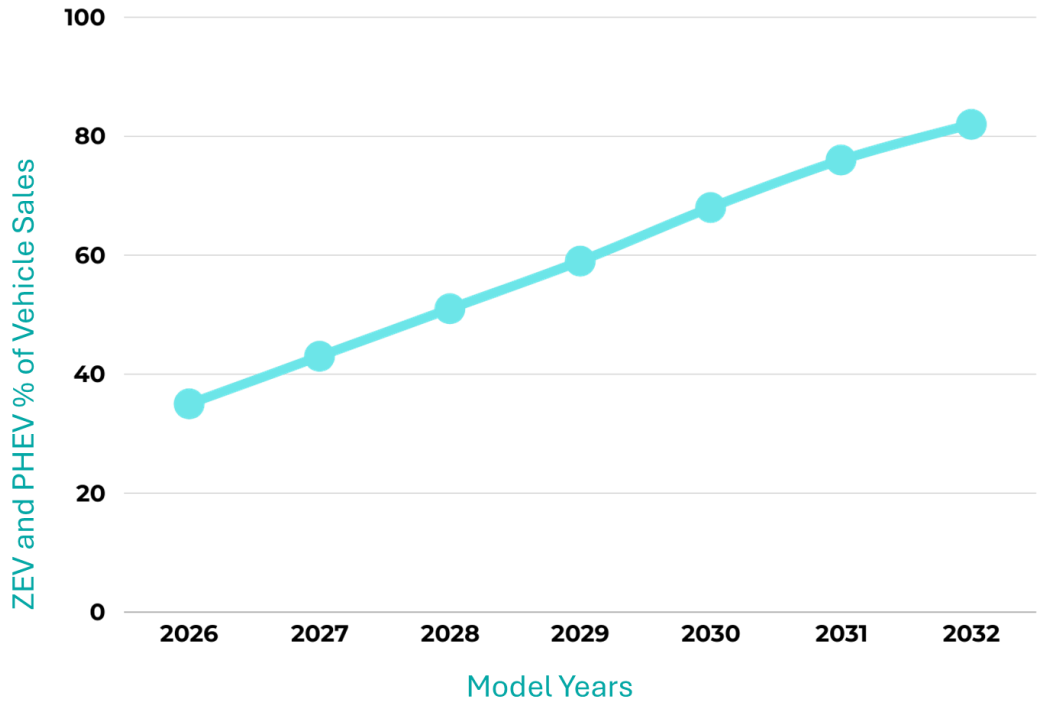
For Multi-Family Dwellings

	Charging Station Rebate	Installation Reimbursement
New Multi-Family Dwelling	75%	N/A
New Multi-Family Dwelling Priority Area	90%	N/A
Existing Multi-Family Dwelling	75%	60%
Existing Multi-Family Dwelling Priority Area	90%	80%

The Level 2 EV Charging Station Rebate Program also includes equipment rebates for public properties and fleets. de.gov/cleancars for more info.

Advanced Clean Cars II

- In November 2023, Delaware formally adopted ACCII
- ACCII rapidly reduces vehicle emissions by requiring increased sale of ZEVs
- Delaware is adopting the regulation through 2032, ending with 82% new ZEV sales



82%

of NEW vehicles delivered for sale in Delaware must be zero-emission vehicles

Statewide Energy Plan

- The DE Climate Change Solutions Act of 2023 requires the state's Energy Plan to be updated every 5 years
- The Governors Energy Advisory Committee meets to discuss plan components which must promote energy conservation and renewable energy sources
- The plan will address changes needed to accommodate a growing number of electric vehicles

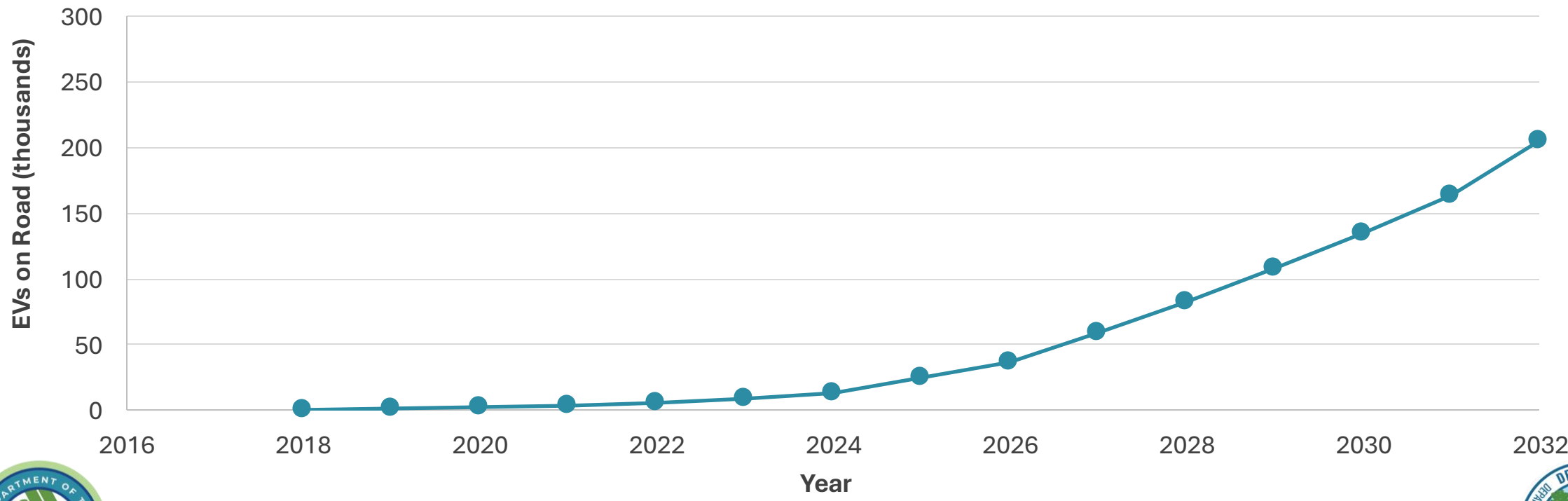
Governor's FY25 Budget Proposal

- As part of Governor Carney's proposed budget for fiscal year 2025, $4 million dollars will be allocated for electric vehicle charging stations in Delaware communities which will fill gaps NEVI doesn't provide

Delaware's Projected Future Conditions

CHARGING FORWARD EV Adoption

Delaware is *expected* to have nearly **60,000 EVs** on the road by 2027 and **205,000 EVs** on the road by 2032.

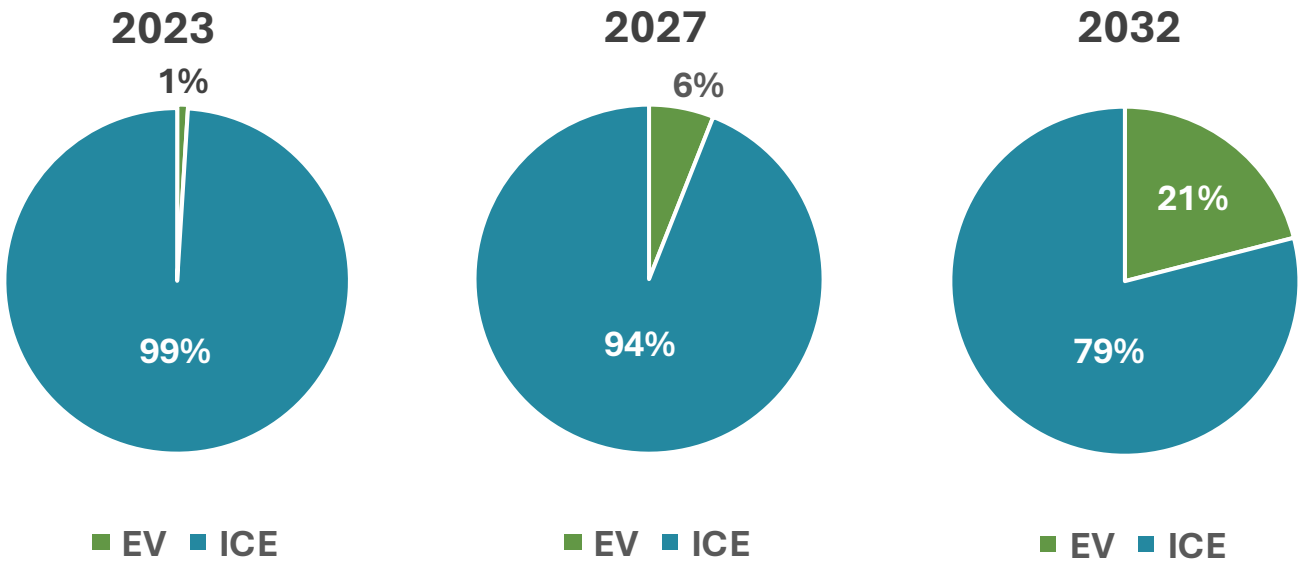


Transition to Electric Vehicles in Delaware

Delaware's electric vehicle (EV) transition will be gradual but consistent.

Full EV transition will take many years due to how long cars stay on the road before being retired.

Projected Share of Electric Vehicles to Internal Combustion Engine Vehicles in Delaware



EV – Electric Vehicles

ICE – Internal Combustion Engine Vehicles

Identifying Priority Charging Areas

Priority charging areas were selected based on four criteria:

EV Charging Network	Early EV Adopters	Land Use	Equity
• Existing EV Charging Locations • Traffic • Seasonal traffic	• EV Adoption Demographics (income, car ownership, education, etc.)	• Multi-family Housing • Population Density	• Unemployment • Social Vulnerability • Pollution Exposure & Asthma • Housing Burden • Public Transportation Accessibility

Where are Existing Chargers Located?

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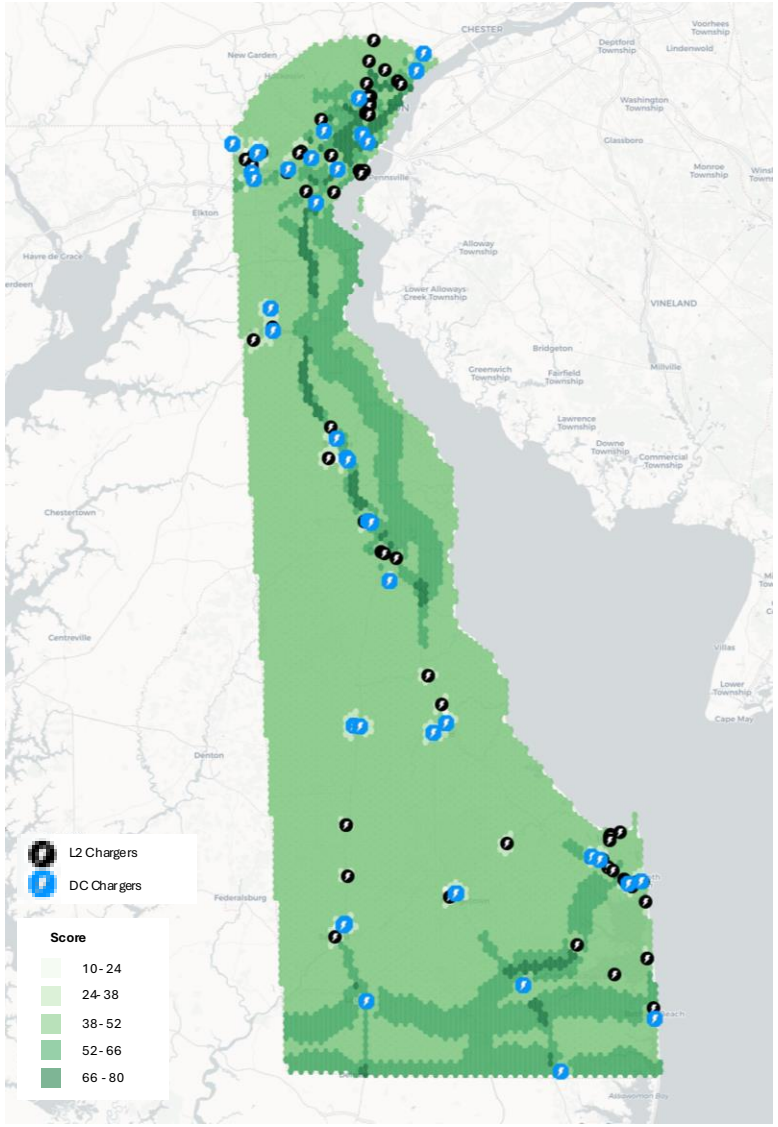
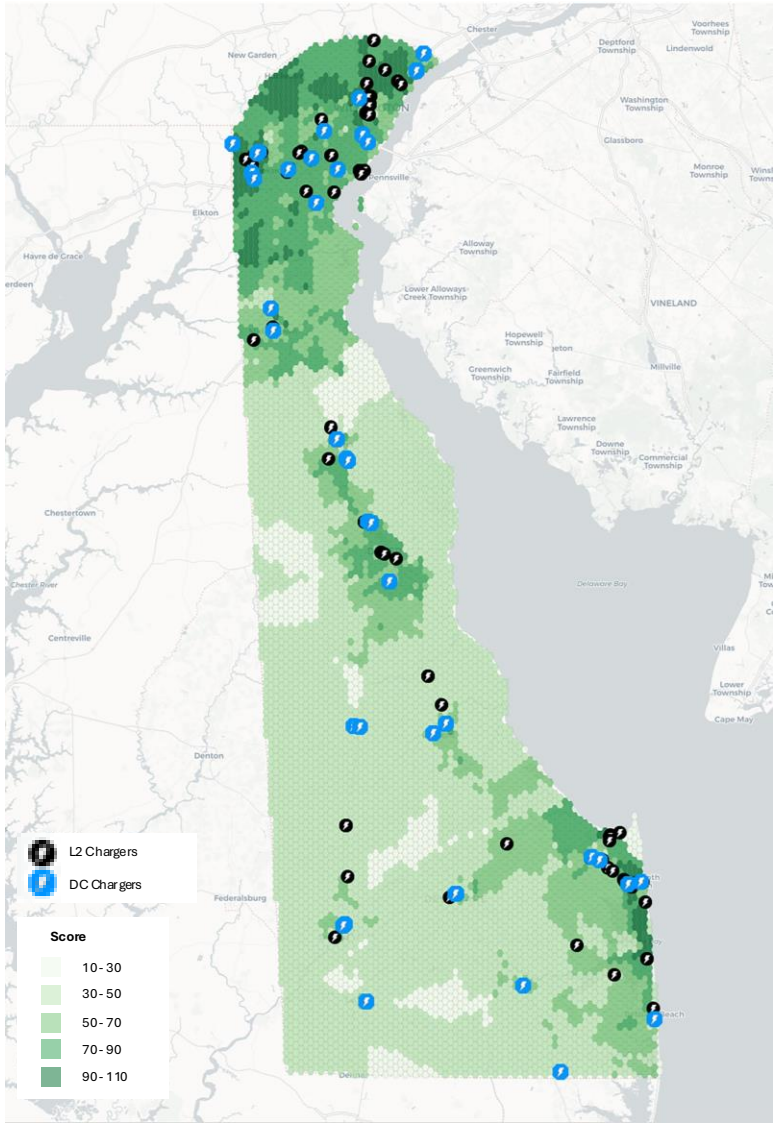


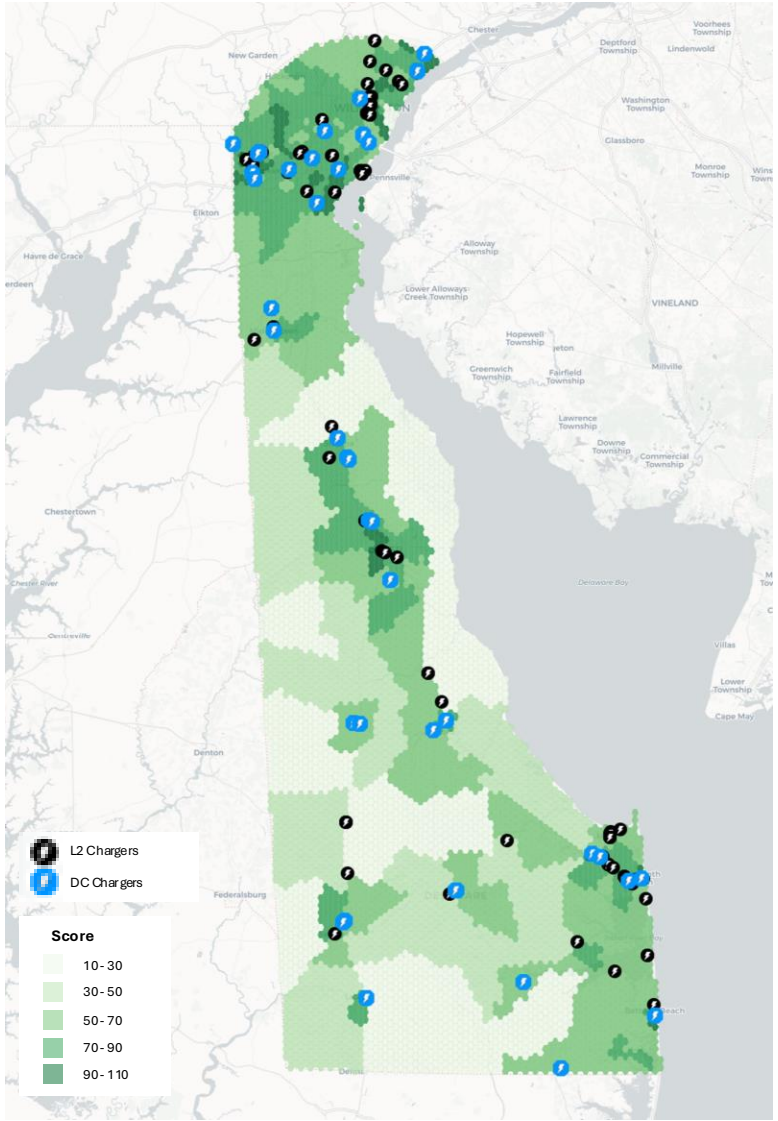
Early EV Adopters

- Early Electric Vehicle (EV) adoption is a priority for potential EV infrastructure investment
- Early EV adoption is likely in areas shown in dark green on the map



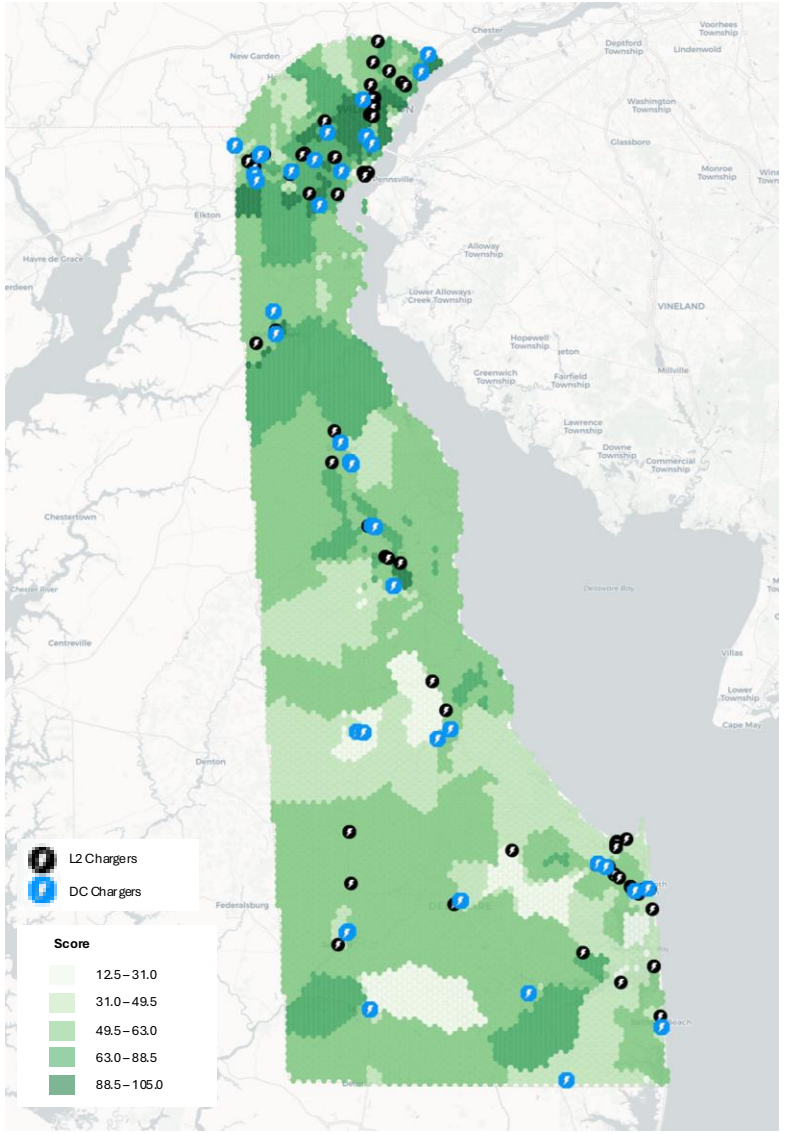
Land Use & Built Environment

- Areas of higher population density are a priority for potential EV infrastructure investment.
- The map highlights areas of highest population density and presence of multi-family housing in dark green.



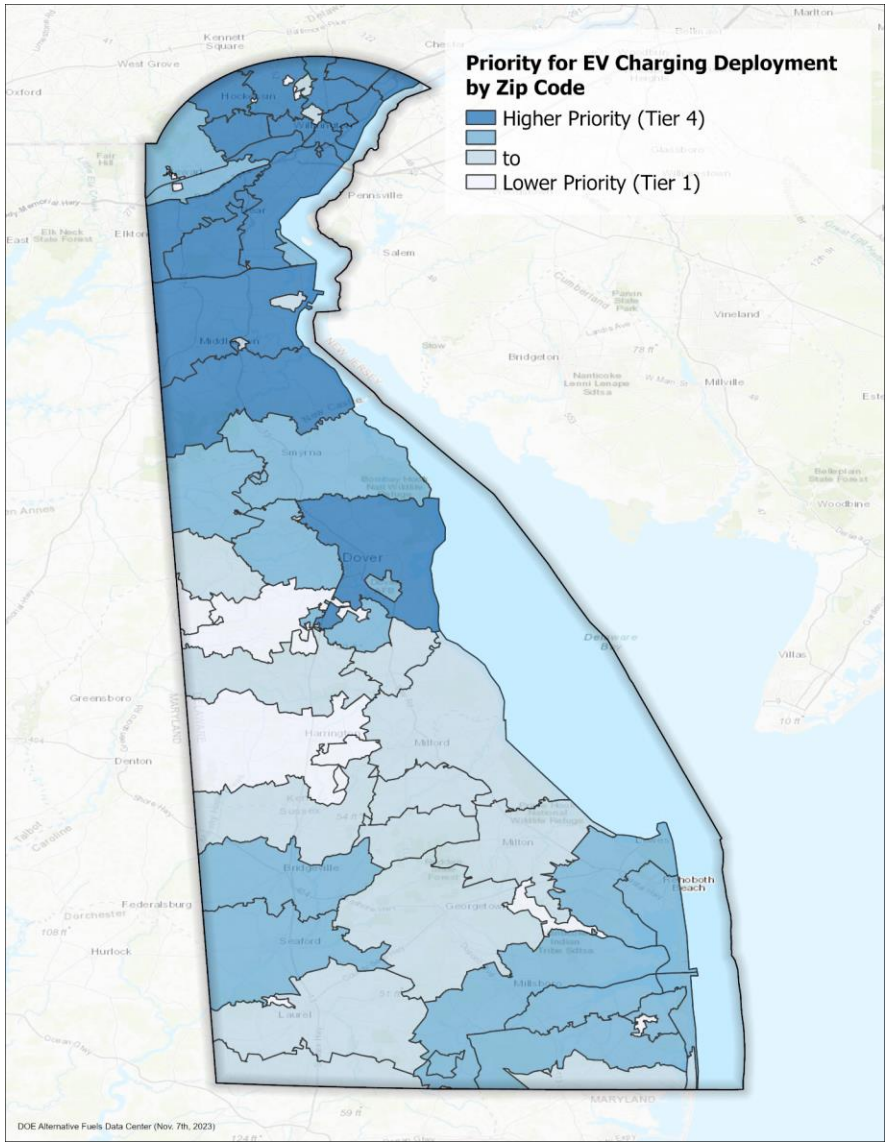
Equity

- The map highlights areas in Delaware with socio-economic and equity disparities in darker green.
- These areas could benefit from targeted EV charging infrastructure investment.



Priority Tiers by Zip Code

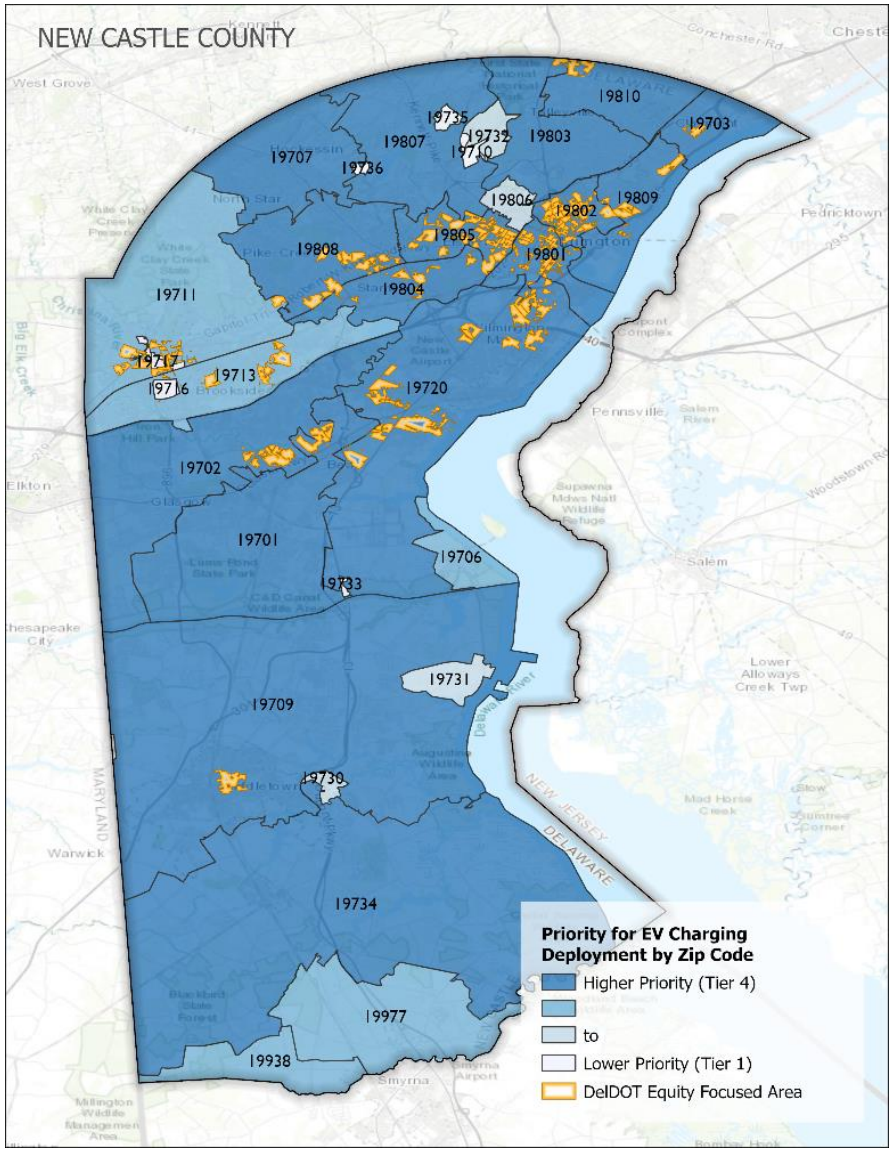
- The priority criteria were used to place each zip code in Delaware in one of four tiers:
  - Tier 4 is the **highest** priority
  - Tier 1 is the *lowest* priority



New Castle County Priority Tiers

- Large areas of New Castle County are highest priority due to:
  - Greater population density
  - More multi-family dwellings
  - The presence of disadvantaged communities

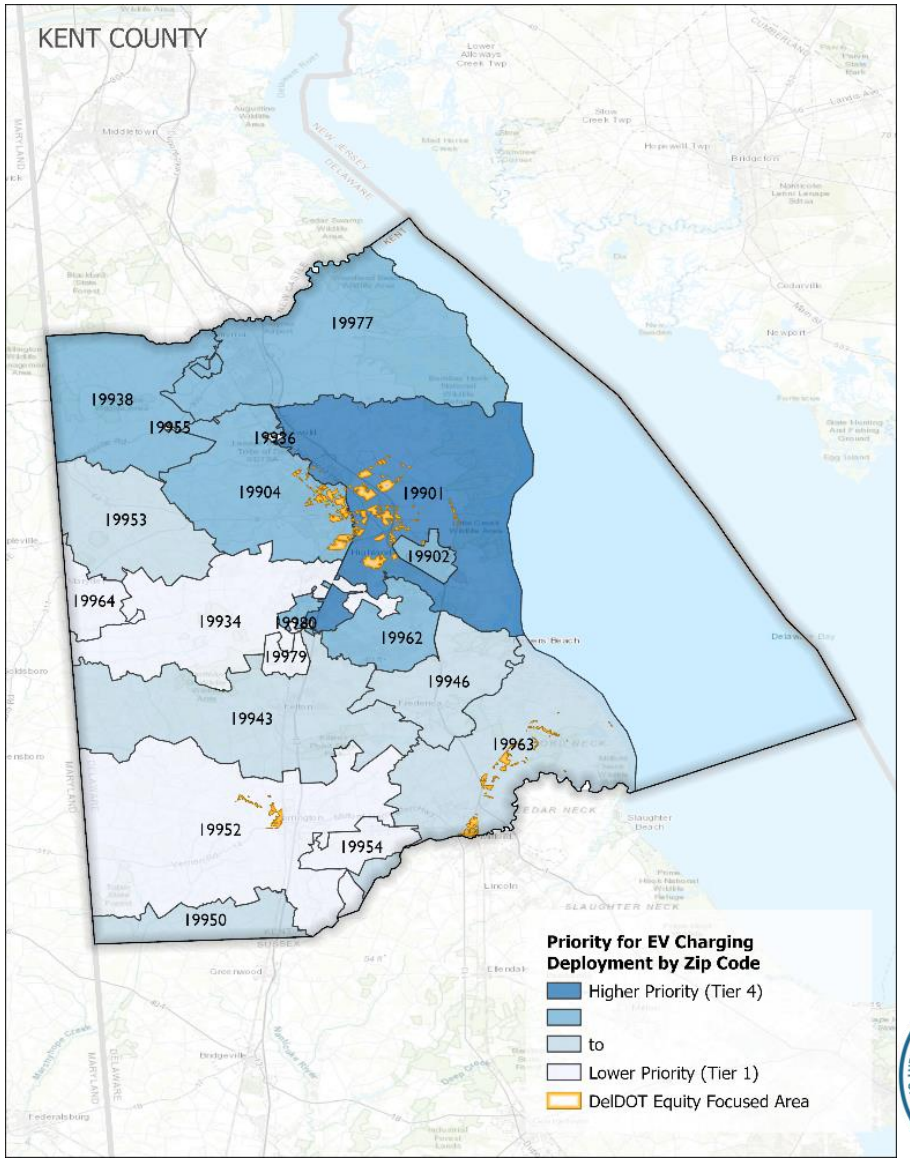
321 more DCFC ports and 6,221 L2 ports are needed by 2032 to meet future demand.



Kent County Priority Tiers

- Much of Kent County falls into Tier 2 and 3.
- Only the east side of Dover is Tier 4, which includes the heavily trafficked DE-1 and US-13 routes.

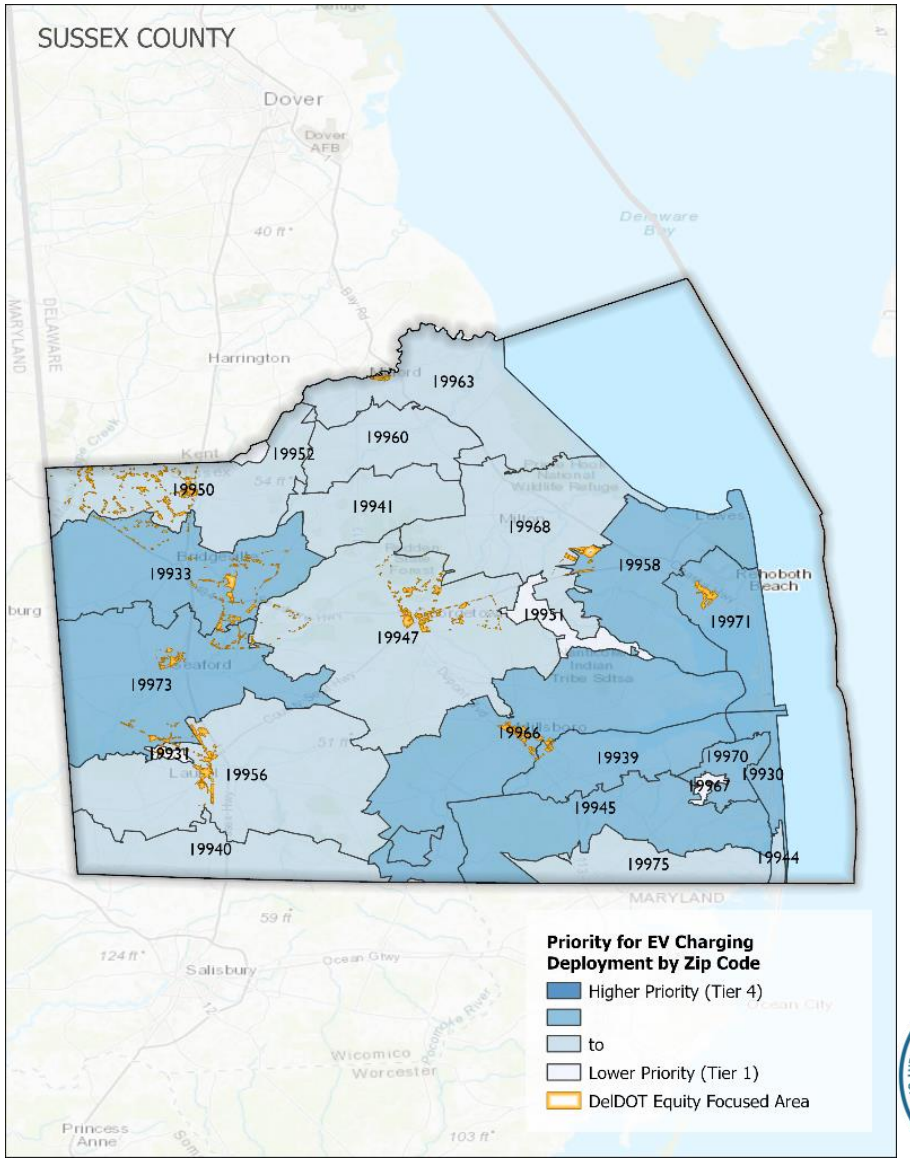
127 more DCFC ports and 2,101 L2 ports are needed by 2032 to meet the future.



Sussex County Priority Tiers

- Much of Sussex County falls into Tier 2 and 3.
- The southeast part of the county received higher priority due to seasonal beach traffic.

198 more DCFC ports and 3,705 L2 ports are needed by 2032 to meet the future



Strategy Recommendations and Next Steps

CHARGING FORWARD Key Strategies

- **Develop programs that encourage the deployment of EV charging stations** through funding, technical assistance, or other incentives
- Encourage local jurisdictions to leverage information from this Strategy for **federal funding opportunity applications**
- Coordinate with utility companies to **streamline charging installations** in high priority zip codes, particularly in disadvantaged communities and high multi-family density areas.
- Work with the electric utilities to develop new **electric demand consumption management programs**
- Ensure **data tracking and transparent data** sharing between government entities of EV registrations and charging locations

Short-Term Recommendations

0-3 Years

Allocate funds to support priority installations in Tier 3 and Tier 4 zip codes to advance equity and support residents facing the largest barriers to EV adoption.

The state is encouraged to work with local jurisdictions to pursue federal funding opportunities to reduce upfront costs.

Coordinate with developers to advance EV charging infrastructure installation. Sites of interest are:

- Public parking lots
- Tourist destinations
- Local businesses
- Workplaces
- Multi-family housing sites

Medium and Long-Term Recommendations

Medium-Term Recommendations (3-5 years)

Allocate funds to support EV charging infrastructure installation in Tier 2 and 1 areas.

Consider innovative policies to drive or streamline installation at local businesses and workplaces.

Long-Term Recommendations (5+ years)

Re-assess where charging gaps existing in the current network and where state intervention is needed.

Questions or Comments

Use Zoom’s Q&A function

How to Stay Involved

Visit & View

- Visit the EV plan's website, https://deldot.gov/Programs/NEVI/
- View the displays in the EV plan’s virtual room

EV Plan Website

EV Virtual Meeting Room

Complete or Send

- Complete an online comment form in the virtual room and include your email address
- Send an email with a comment, suggestion or question to dotpublic@delaware.gov

Thank you for joining the Online Informational Meeting on the Delaware Statewide EV Infrastructure Plan!

The next presentation will begin at 6:00pm.

Visit the EV Infrastructure Plan's website at
https://deldot.gov/Programs/NEVI/