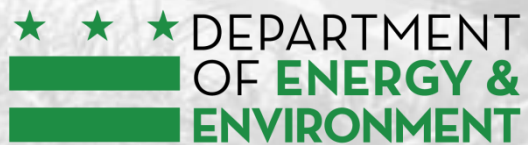


# Lowering Barriers to EV Adoption: Rate Design & Utility Service Upgrades

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GOVERNMENT OF THE  
DISTRICT OF COLUMBIA  
MURIEL BOWSER, MAYOR

# Context: DC Electric Vehicle Registrations

Year	Electric Vehicles* Registered	Growth Over Prior Year	% Increase
2020	2,148	-	-
2021	3,500	1,352	63%
2022	4,749	1,249	36%
2023	6,717	1,968	41%
2024	9,415	2,698	40%

\*Battery Electric Vehicle private passenger cars; excludes plug-in hybrids

- Goal: 25% of all registered vehicles in the District as zero emission by 2030
- There are about ~300,000 total registered vehicles in DC (source: [U.S. DOE Alternative Fuels Data Center](#))
- Significant commuting populations from MD & VA can increase charging needs beyond DC-registered vehicles

# Why is rate design important?

- Utility rates impact the cost of using EVs
- Well-designed utility rates can encourage charging at off-peak times, which in turn helps reduce costs and improve reliability for everyone
  - Avoided infrastructure (local & regional), reduced need for standby powerplants
  - Outdated or poorly designed rates may unintentionally send the wrong price signals
- Utility rates have important equity implications
- Basic principle: The underlying costs for providing electricity vary depending on the time of day and season

# Seasonal and hourly variations

- PJM wholesale energy prices for the Pepco Zone typically peak **from 3-8pm in the summer**
  - The Pepco Zone covers DC and part of MD
- Regional capacity needs (and allocation of costs) in PJM are based on 5 highest system peak hours, which typically fall during **4-6pm in the summer**

Energy supply: Day-Ahead PEPCO Zone Locational Marginal Costs (2023-2024)

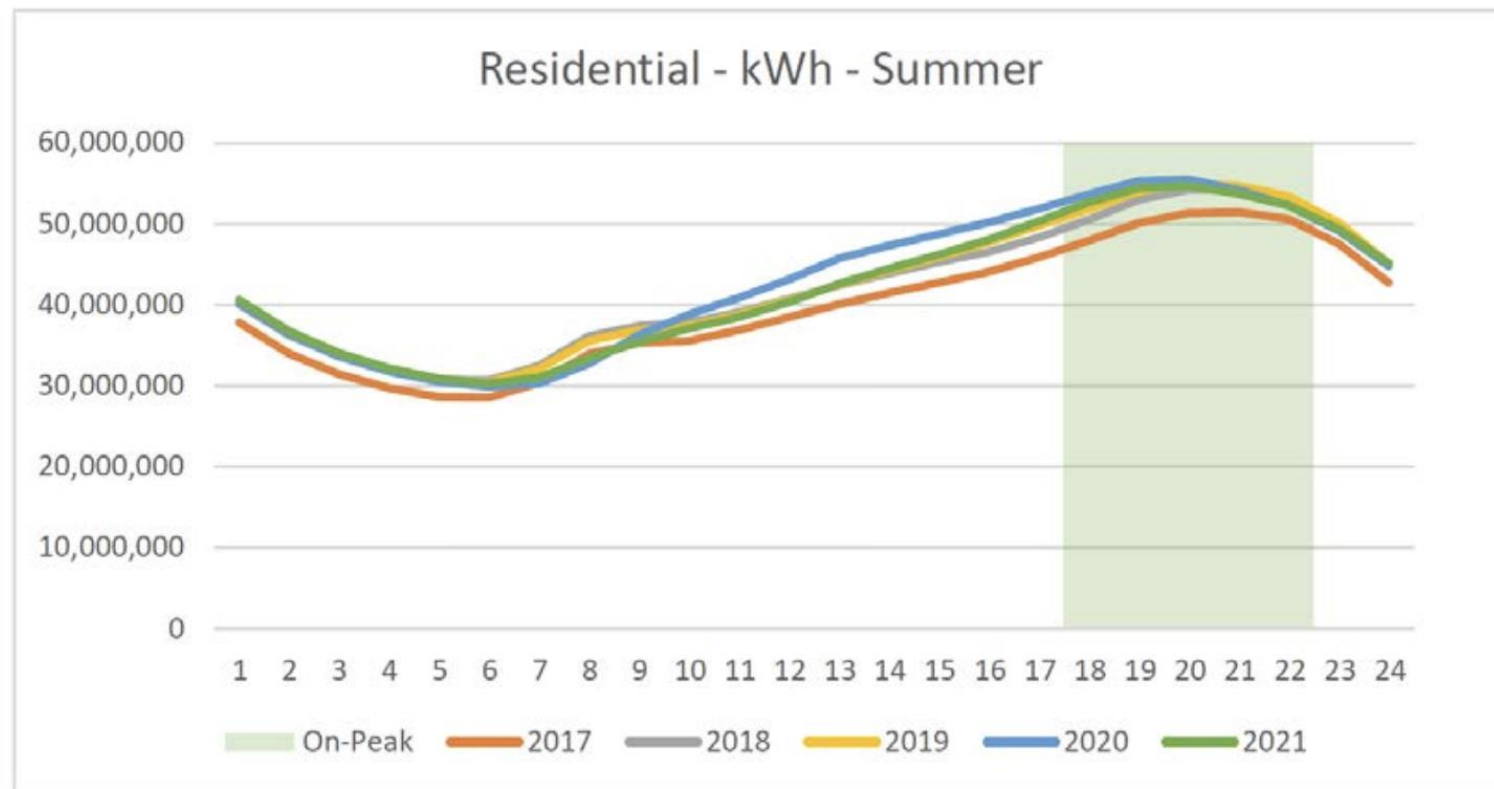
	12:00 AM	1:00 AM	2:00 AM	3:00 AM	4:00 AM	5:00 AM	6:00 AM	7:00 AM	8:00 AM	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM	9:00 PM	10:00 PM	11:00 PM
January	39	38	37	37	39	44	57	68	56	49	47	44	42	40	39	39	45	59	56	54	51	47	43	39
February	24	24	23	24	26	30	41	46	36	32	31	29	27	26	24	25	28	36	41	37	35	32	28	25
March	21	21	20	21	23	28	42	47	34	29	28	27	26	24	23	22	23	26	30	37	35	30	26	23
April	24	24	22	22	23	28	38	37	32	30	30	30	30	30	30	32	34	37	39	47	50	38	31	27
May	25	23	20	19	20	25	29	30	31	33	34	37	40	42	45	49	55	61	59	56	53	43	34	28
June	21	19	17	15	16	18	20	21	23	26	29	33	38	42	47	52	60	64	58	51	43	39	31	25
July	27	23	20	18	17	20	23	25	28	34	39	49	58	67	77	93	109	115	96	75	58	50	38	32
August	24	22	18	17	17	20	23	23	24	28	31	38	44	50	56	65	75	79	69	56	46	39	32	27
September	23	21	18	17	18	22	29	29	27	30	32	35	39	43	46	51	59	69	62	55	45	37	31	26
October	27	26	23	23	25	31	48	62	43	34	33	33	35	36	38	41	49	67	81	72	49	42	37	30
November	27	26	25	26	28	34	51	56	40	33	32	31	30	29	29	31	40	57	48	42	39	35	32	28
December	31	30	29	30	32	36	54	65	43	35	34	32	31	30	29	31	39	53	46	44	42	39	35	31

Capacity costs: PJM 5 CP hours (2018-2024)

	12:00 AM	1:00 AM	2:00 AM	3:00 AM	4:00 AM	5:00 AM	6:00 AM	7:00 AM	8:00 AM	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM	9:00 PM	10:00 PM	11:00 PM
January	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
February	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
March	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
April	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
May	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
June	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
July	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	4	11	2	0	0	0	0	0
August	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	3	5	0	0	0	0	0	0
September	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0
October	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
November	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
December	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

# Pepco DC – Local Distribution Peaks

- Local Pepco distribution peaks for DC usually occur in the **6-9pm range**
- These distribution peaks can change over time
  - Important to track changes in usage and consider whether rates should evolve accordingly



# Current Pepco DC Electricity Rates

- DC’s current electricity rates largely do not reflect underlying time and seasonal variations in costs
- Current Pepco DC commercial rates:
  - Minimal hourly variation
  - Minimal seasonal variation (summer vs. winter)
  - Demand charges can have an outsized impact on costs, particularly for DC Fast Chargers

	GS LV	MGT LV	GT LV
DISTRIBUTION	<100 kW	100-1000 kW	1000+ kW
<b>Volumetric</b>			
Seasonal variation?	Yes	No	No
Time of day variation?	No	No	No
<b>Demand</b>			
Seasonal variation?	No	No	No
Non-coincident vs. time-limited	Non-coincident	Non-coincident	Non-coincident
Magnitude	\$13.10	\$20.97	\$27.12

44% of  
distribution bill

67% of  
distribution bill

68% of  
distribution bill

# What new rate designs should DC consider?

- Rate Design Working Group (DC Public Service Commission)
- DOEE has been working with partner organizations to develop new proposed rate designs:
  - **Residential:** Opt-in time of use rates, whole-house (not technology specific), with seasonal variation for residential customers
    - Consider value and prudence of transitioning to opt-out (default) time of use rates in the future, as California and other utilities have done
  - **Commercial** (two options):
    - (1) Evolve basic commercial rates to reflect time and seasonal variation
    - (2) Retain current basic rate design for commercial rates, but offer new technology-specific EV rates to support EV adoption
      - Specifically target demand charges by reducing demand charges for low, load-factor usage
- We would welcome input and perspectives on rate design



## Project #2: Streamlining Utility Service Upgrades

- Another issue we hear from building owners, fleet owners, and EV charging companies is that the process of getting new utility service or service upgrades can be challenging
- This process is often also called getting a heavy-up or energization
- Several other utilities and jurisdictions have been tackling these issues in different ways, e.g., California (established timelines for energizing EV chargers) and New York (EV Infrastructure Working Group)



# Example: California Energization Timelines

- The California Public Utilities Commission (CPUC) in 2024 established average and maximum timelines for energization
  - Systematic data tracking
  - Regulatory timelines meant to reduce delays
- Broken down by different kinds of utility upgrades, e.g.:
  - Rule 15 covers line extensions from the substation to a secondary transformer
  - Rule 16 covers service line extensions from secondary transformer to the customer's meter.

Energization Type	Average Energization Target (calendar days)	Maximum Energization Target (calendar days)
Rule 15 <sup>1</sup>	182	357
Rule 16 <sup>2</sup>	182	335
Rule 15/16 Combined <sup>3</sup>	182	306
Rule 29/45 <sup>4</sup>	182	335
Application Decision <sup>5</sup>	10	45
Main-Panel Upgrade <sup>6</sup>	30	45

Type of Capacity Upgrade	Maximum Timeline (calendar days)
New or Upgraded Circuit <sup>7</sup>	684
Substation Upgrade <sup>8</sup>	1,021
New Substation <sup>9</sup>	3,242

Source: [Lawrence Berkeley National Laboratory](#) (2025), p. 56

# DOEE Initiatives Around Utility Service Upgrades

- Researching strategies and solutions from other utilities and jurisdictions
  - Let us know if there are tools or approaches from other utilities or jurisdictions that you'd recommend DC and Pepco consider
- DOEE service upgrade survey for Pepco customers:
  - <https://bit.ly/ServiceUpgradeSurvey>
- Likely convening a workshop in September to discuss issues and opportunities to streamline service upgrades, e.g. through:
  - More support for early planning (site assessments for grid capacity)
  - Enhanced public facing resources
  - Improving coordination between Pepco and DC Government permitting processes

# Thank You!

Please reach out to DOEE with any questions or follow-up:

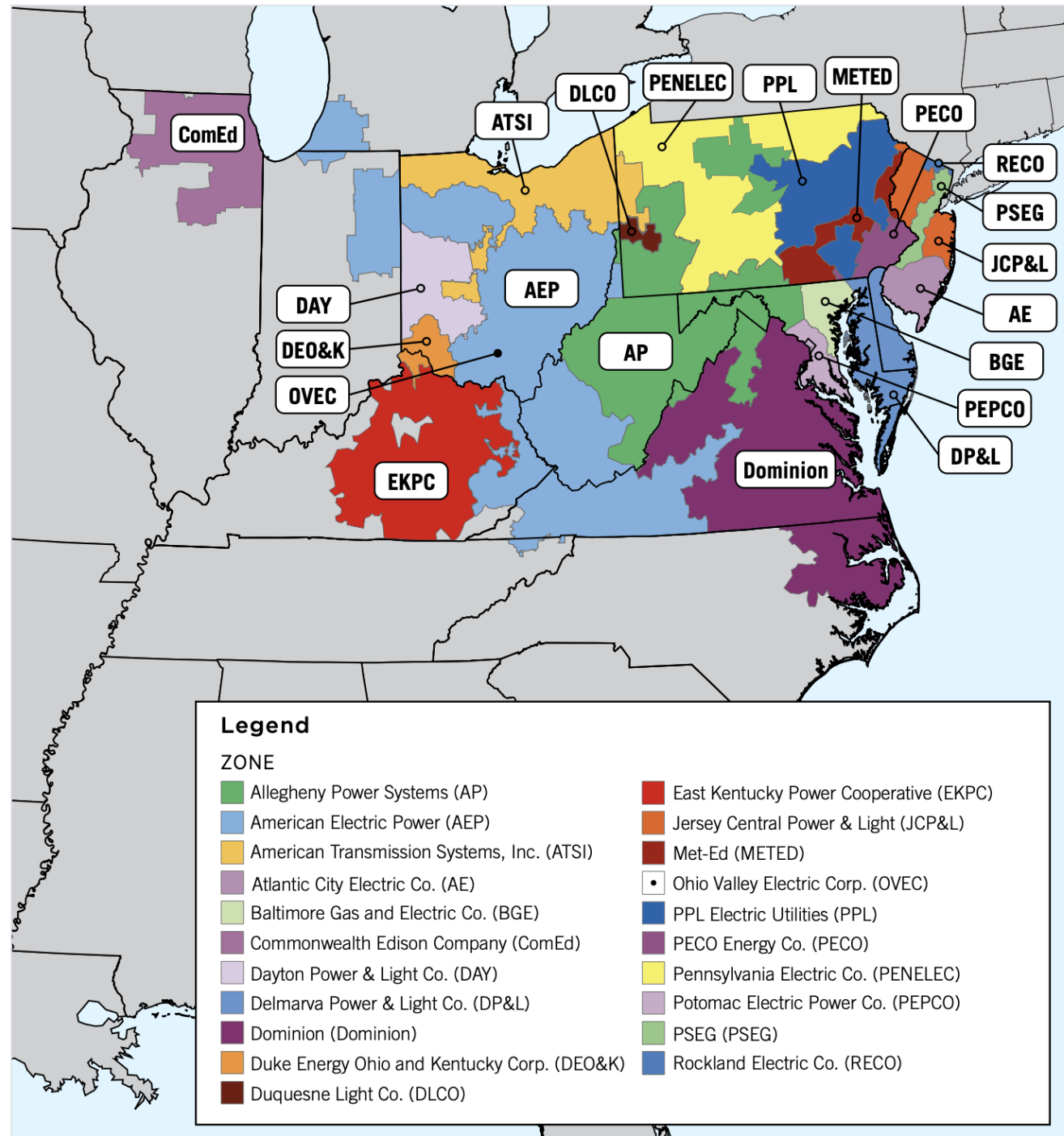
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# Appendix

# PJM Zone Map



# DC EV Charging Infrastructure

## Public Chargers

Level 1		Level 2		DC Fast Charge (L3)	
stations	ports	stations	ports	stations	ports
1	2	319	1,015	9	58

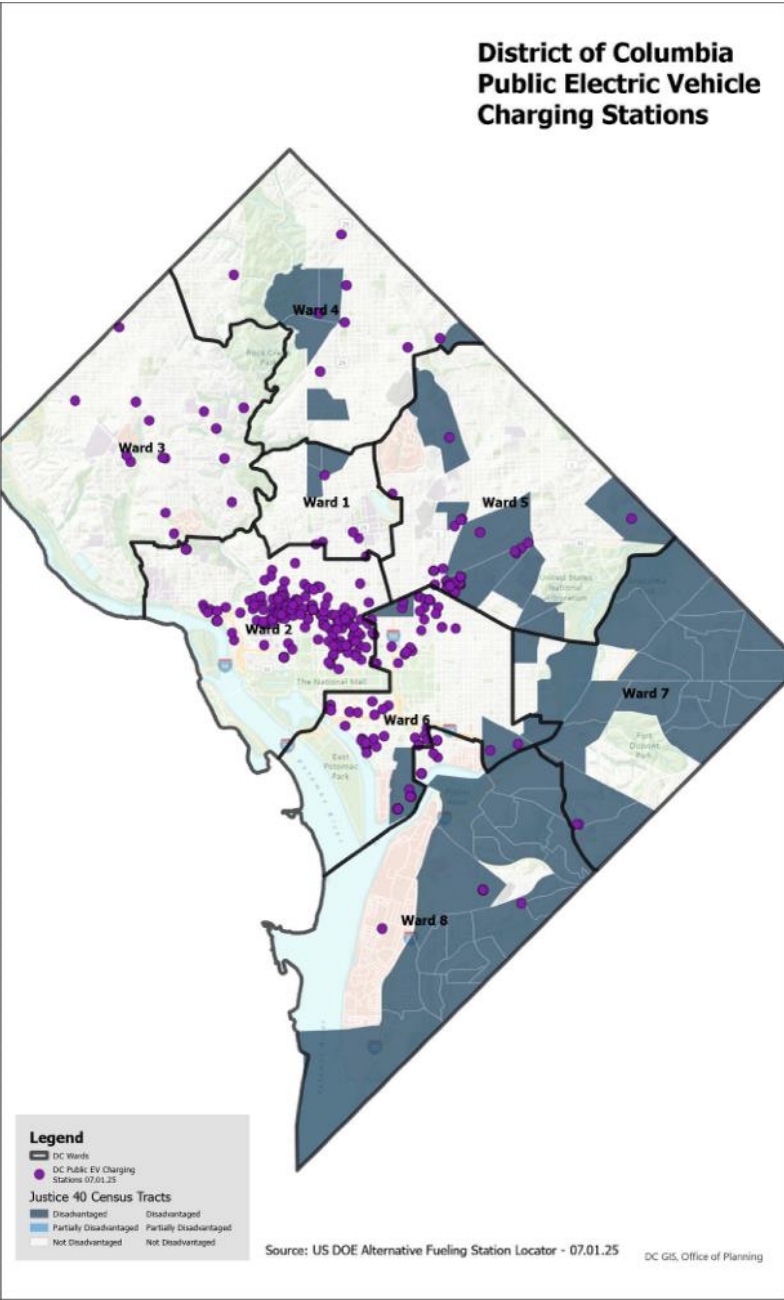
Total Stations	326
Total Ports	1,075

## Private Chargers (fleet & federal)

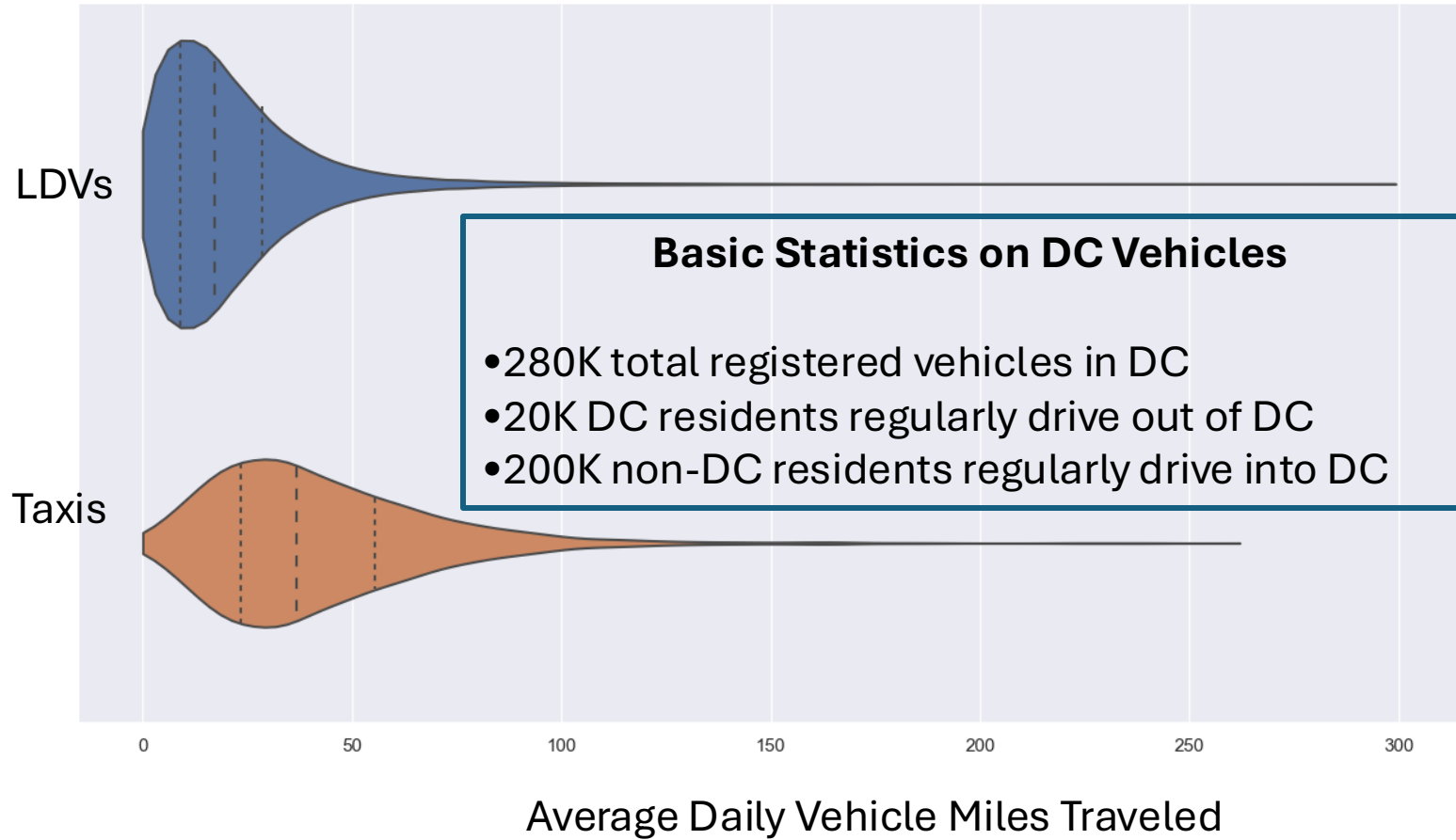
Level 1		Level 2		DC Fast Charge (L3)	
stations	ports	stations	ports	stations	ports
6	20	44	126	1	2

Total Stations	47
Total Ports	148

Source: US DOE Alternative Fueling Locator, 1/12/2025



# VMT profile of DC drivers



LDV = Light Duty Vehicle