ZEV Study Overview

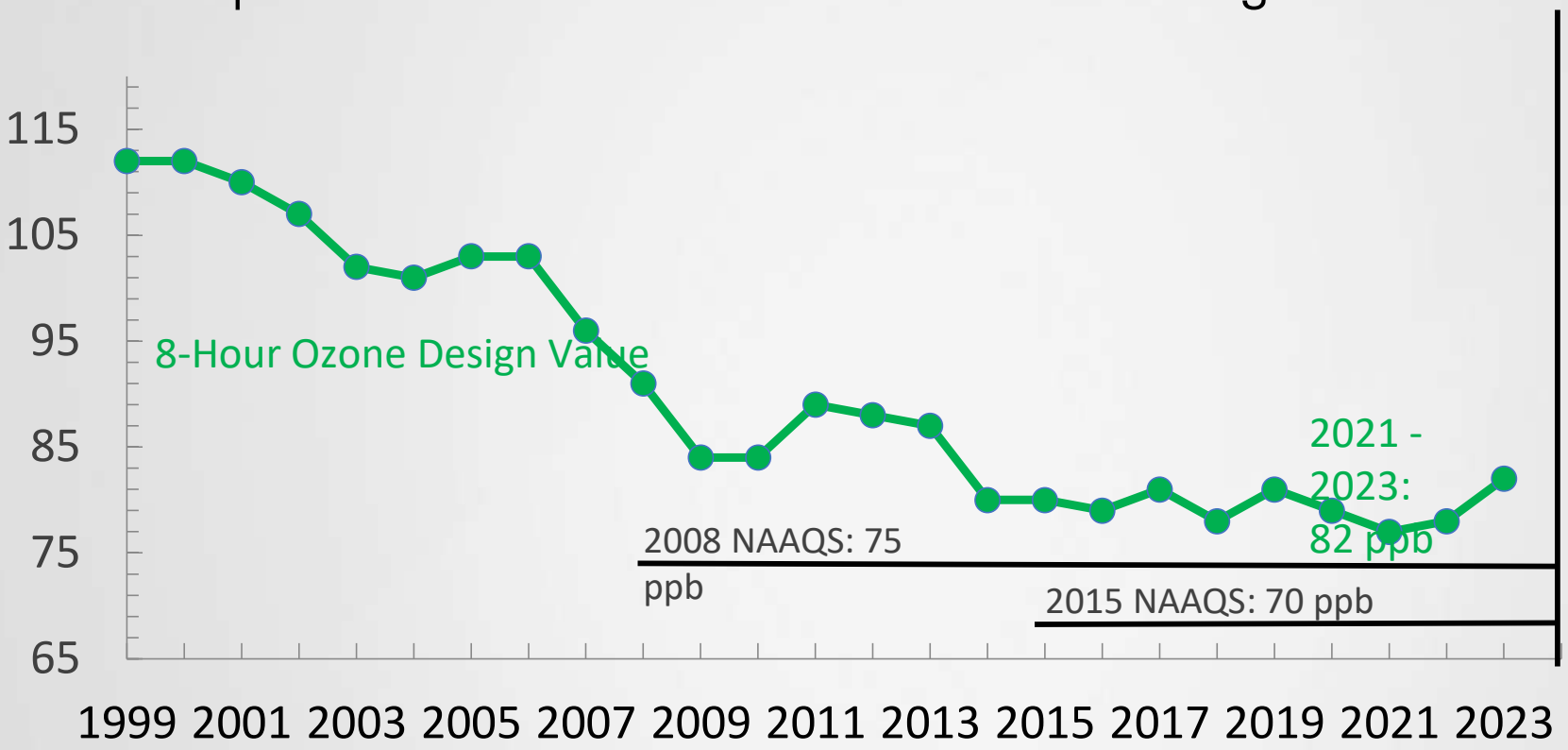
Regional Collaboration • Transportation Planning • Multimodal Mobility

Houston-Galveston Area Council

Regional AQ Issues

HGB Nonattainment Status

- 8 counties (2008 ozone) and 6 counties (2015 ozone)
- The region has had 30 daily exceedances of the 2015 ozone standard this year
- Transportation accounts for 63% of NOx in the region



ZEV as an AQ Opportunity

- Zero Emission Vehicles (ZEV) can help improve regional air quality
  - ZEV vehicles have zero tailpipe emissions
    - Battery Electric Vehicles (BEVs)
    - Fuel Cell Electric Vehicles (FCEVs)
- 25% of Texas EVs are registered in the Houston region (357,334/90,045)
- Abundant hydrogen production and industrial expertise in the region
  - HyVelocity (industry-led partnership) & H2LA (DOE/GTI Energy I-10 Alt. Fuel corridor)
- To adequately account for the expansion of ZEV in the region, H-GAC as the region's MPO is developing planning materials.

Webpage and One-Pagers

- Webpage Link
- One-Pagers

PLUG-IN HYBRID ELECTRIC VEHICLES (PHEV) combine the technology of conventional gasoline vehicles and battery electric vehicles, fueling with both gasoline and electricity. These versatile vehicles offer the familiarity of conventional fueling as well as electric motors that offer sufficient range for many daily driving activities. PHEVs may fit your lifestyle and transportation needs. This fact sheet provides answers to common questions, to aid in informed decision making about PHEVs.

What powers PHEVs?

Both electricity and gasoline. PHEVs have an electric motor with a small battery pack and an internal combustion engine

Do PHEVs generate air pollution?

While operating on electric power, PHEVs produce no tailpipe emissions, contributing to cleaner air and reducing harmful pollutants. Since most trips taken are short and local, they may spend most of their time operating primarily in electric mode without emissions. PHEVs will produce tailpipe emissions when operating on gasoline only.

How are PHEVs different than a conventional hybrid car?

PHEVs are able to charge via an external source and have larger batteries than conventional hybrid cars. The electric motor in conventional hybrid cars usually supports auxiliary functions like air conditioning or aiding acceleration. PHEVs' electrical motor actually powers the vehicle's motion.

Are PHEV chargers different than other electric chargers?

No. They are the same. Level 1 and level 2 chargers will charge the vehicle as they would a full electric vehicle. Due to the smaller battery sizes of PHEVs, Level 3 fast chargers are not typically compatible.

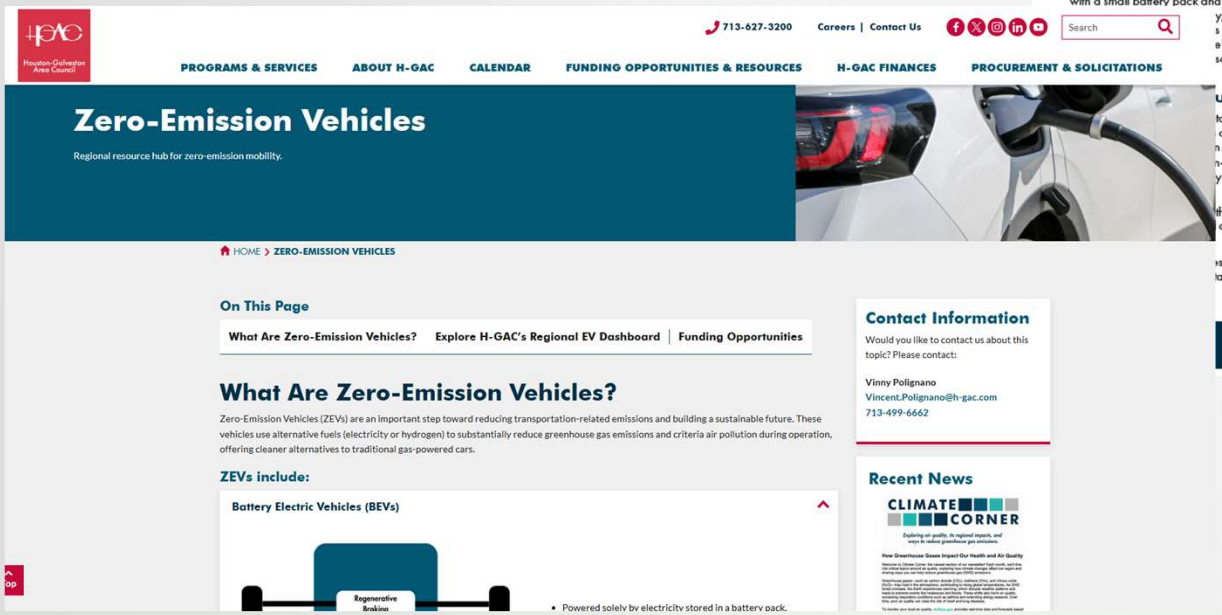
HOW ARE PHEVS REFUELED?

ELECTRICITY
Most PHEV batteries charge via a standard electrical outlet (Level 1). Faster, level 2 charging is also available.

GASOLINE
PHEVs have a 12–15-gallon gasoline tank, which can be refueled at any gas station.

REGENERATIVE BRAKING
A small portion of the energy is recovered through braking, converting motion into electricity.

To learn more visit: www.h-gac.com/go/zev



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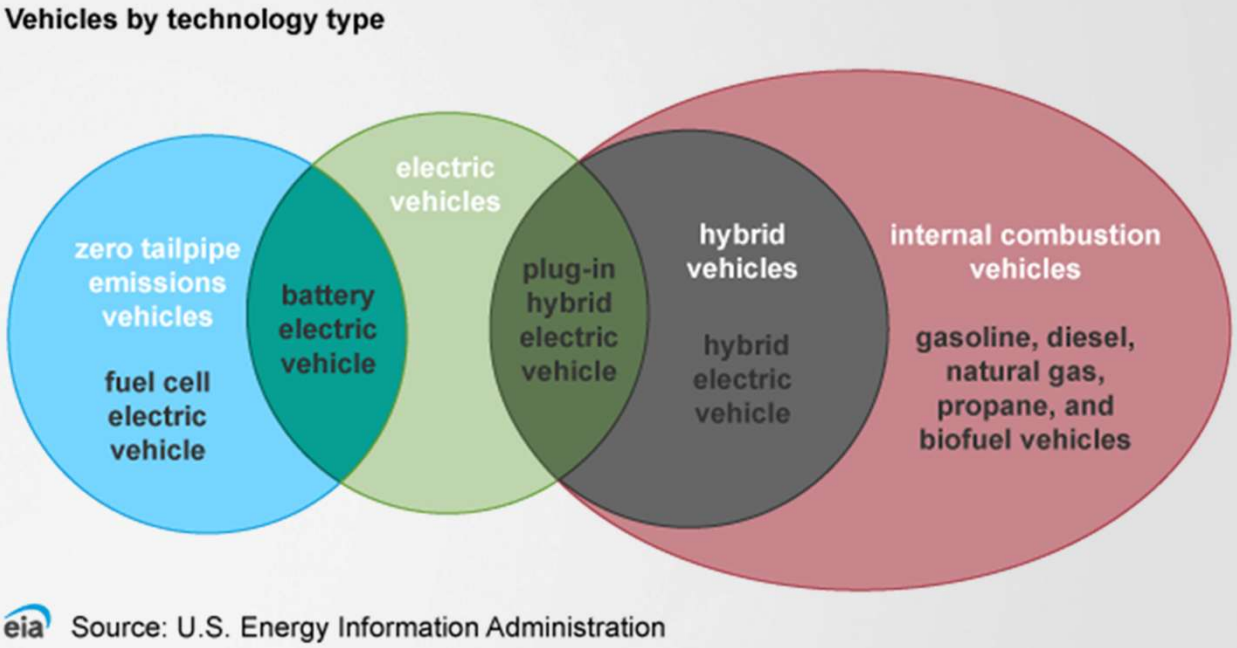
Study Sections

- Introduction
  - Regional Context
- ZEV Background
- County-Level Data
- Recommendations

Background

- Explain alphabet soup
- BEVs
  - Operations & Charging
  - Range, maintenance costs, etc.
- PHEVs
  - How they operate/differences to BEVs
- FCEVs
  - Operation, hydrogen production
  - Least developed market
  - Federal Investment in hydrogen market at large // BIL



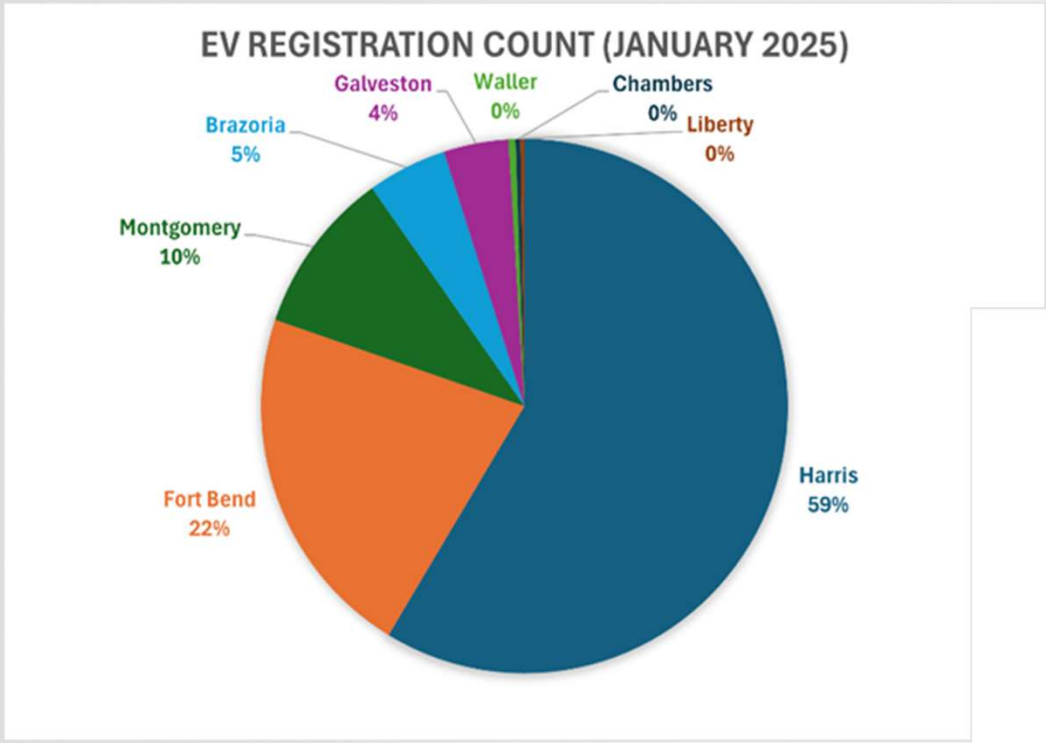
Background (cont'd)

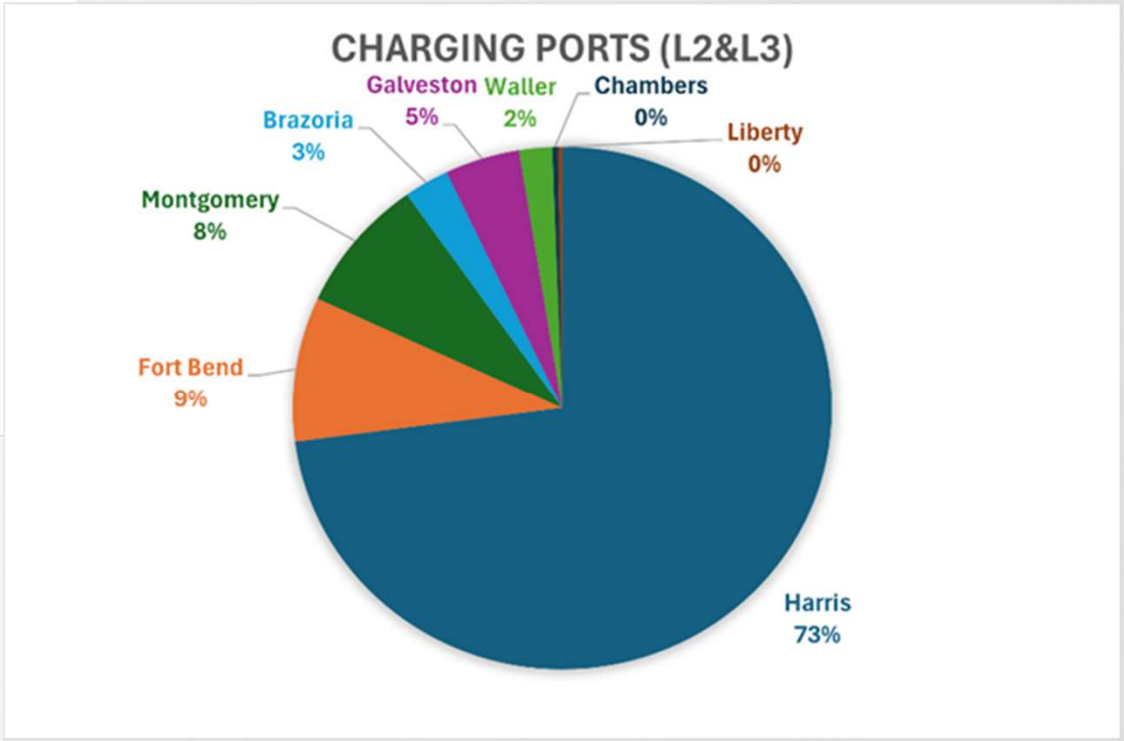
- National and State Trends
  - BEV (LD & MHD) market share/sales
  - Declining costs/ lower cost models
  - FCEV trends (LD low adoption, MHD emerging pilots)
  - Federal Investment
- State Trends
  - Texas 3rd nationwide BEVs – regional discussion later
  - NEVI, grid, charger deployment
  - Mostly with BEVs, some discussion of hydrogen

County BEV Vehicle Registrations and Infrastructure Profiles

County	Number of EV Registrations	Percentage Annual Increase (2019-2025)*	Number of Level 2 EV Ports	Number of Level 3 Ports	EV Public Charging Stations
Harris	51,261	56.3	38	87	87
Fort Bend	18,898	67.8	125	154	255
Montgomery	8.661	62.1	68	147	115
Brazoria	4,290	60.2	116	153	187
Galveston	3,470	60.1	36	108	85
Waller	430	120.5	39	12	27
Chambers	263	120.7	26	N/A	52.6
Liberty	212	83.5	106	N/A	212

County BEV Vehicle Registrations and Infrastructure Profiles (cont'd)





County BEV Vehicle Registrations and Infrastructure Profiles (cont'd)

Montgomery County

Vehicle Registrations

There are **7,852 BEVs and PHEVs registered in Montgomery County**; BEVs and PHEVs account for 76.5% and 23.5% of the total, respectively.

From 2019 to December 2024, **EV registrations increased in Montgomery County by an average of 59.80% each year.** The most sluggish growth year during the period still increased EV stocks in the county by 38.58%.

Year	EV Registrations	Percent Change
2019	488	
2020	891	+82.58%
2021	1,427	+ 60.16%
2022	2,605	+ 82.55%
2023	3,885	+ 49.14%
2024	5,666	+ 45.42%
2025	7,852	+ 38.58%

Montgomery County accounts for 9.89% of electric vehicles registered in the H-GAC 13-county region.

The county-wide rate of EVs per 100 households is 3.5, but dense zip-code pockets in the south exceed that number, 77386 and 77382 (Spring), and 77381 (The Woodlands) have EV rates per 100 households of 7.8, 6.6, and 5.4, respectively.

Charging Infrastructure

There are **645 total EV charging stations** in Montgomery County. There are **509 DCFC ports and 1,586 L2 ports.** A charging station refers to the physical location that has one or more charging ports. A charging port provides power to one vehicle at a time.

	Totals	EVs:Port Ratio
DCFC Ports	72	109
L2 Ports	167	47
Charging Stations	84	93

- Registrations of BEVs and PHEVs
- Year over year percent change
- Notable dense pockets identified
  - Adding commentary about income level of those pockets
- Charging stations (L2 vs. L3)
  - EVs to Ports ratio (benchmark metric)

Recommendations (to H-GAC Leadership)

- Expand and streamline public charging infrastructure deployment
- Foster strategic partnerships through workforce development initiatives
- Develop and distribute public education materials and experiences
- Complete a comprehensive Regional ZEV Infrastructure Plan

Next Steps

- Study published (~2 weeks)
- Promotion of study, webpage, one-pagers
- Presentations to interested groups, committees, etc.
- Scope of Work for Zero-Emission Vehicle Infrastructure Plan
  - In review, RFP and procurement process ~early 2026

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