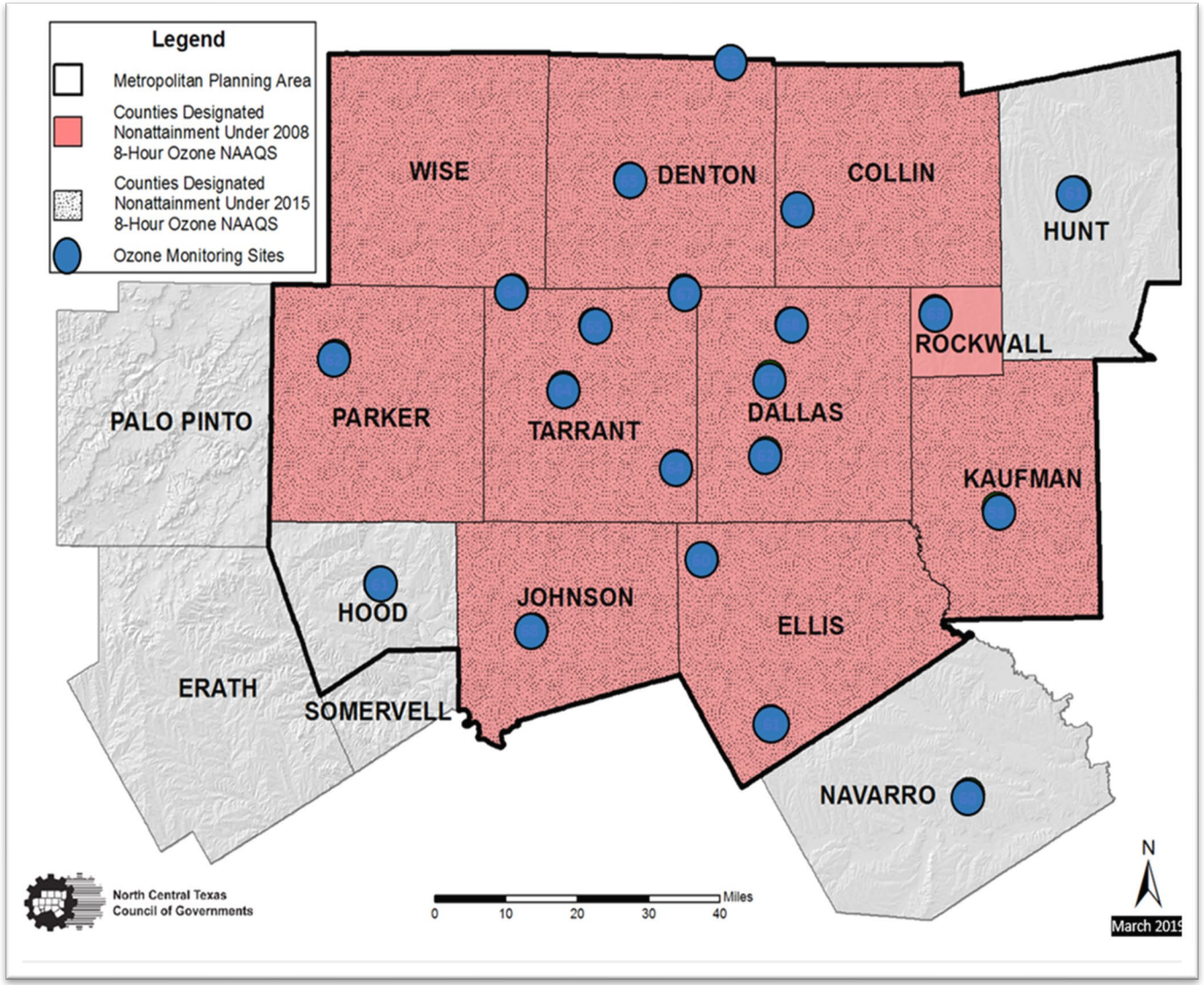
THE ROAD to ELECTRIFYING TRANSPORTATION IN TEXAS

Lori Clark, Program Manager and DFW Clean Cities Coordinator

ITS Texas Annual Meeting

September 29, 2022

Who We Are



North Central Texas Council of Governments

Regional Planning Agency

Regional Transportation Council

Metropolitan Planning Organization (MPO)

Dallas-Fort Worth CLEAN CITIES

Local Clean Cities Coalition

What We Do

Funding Support

Assist with Navigating Programs and Developing Grant Applications

Administer Funding

Technical Assistance

Maintain and Analyze Data

Hold Webinars, Workshops, Peer Exchange

Develop Best Practices and Template Resources

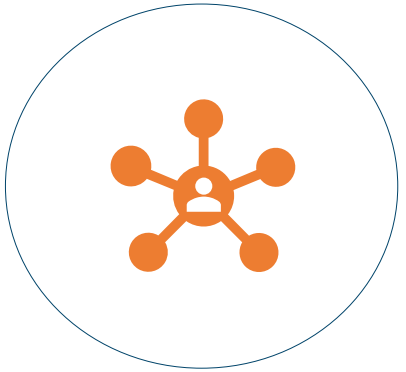
Planning the Future

Alternative Fuel Corridors

Texas EV Charging Plan

ZEV Infrastructure

Organic Waste to RNG Feasibility Study



Raising Awareness

Facilitating Relationships

National Drive Electric Week

Fleet Recognition

Success Stories and Community Events

Market Trends

Over half of new vehicle sales forecasted to be electric by 2030

-*Bloomberg New Energy Finance*, *September 2022*

42% of medium- or heavy-duty truck sales forecasted to be zero emissions by 2030, assuming **economics** drive adoption

-*National Renewable Energy Laboratory*, *Decarbonizing Medium- and Heavy-duty On-ad Vehicles: Zero-Emission Vehicles Cost Analysis*; *March 2022*

To serve projected 22 million electric vehicles by 2030, need 10-fold increase in charging stations

-*Governing.com*, *December 2021*

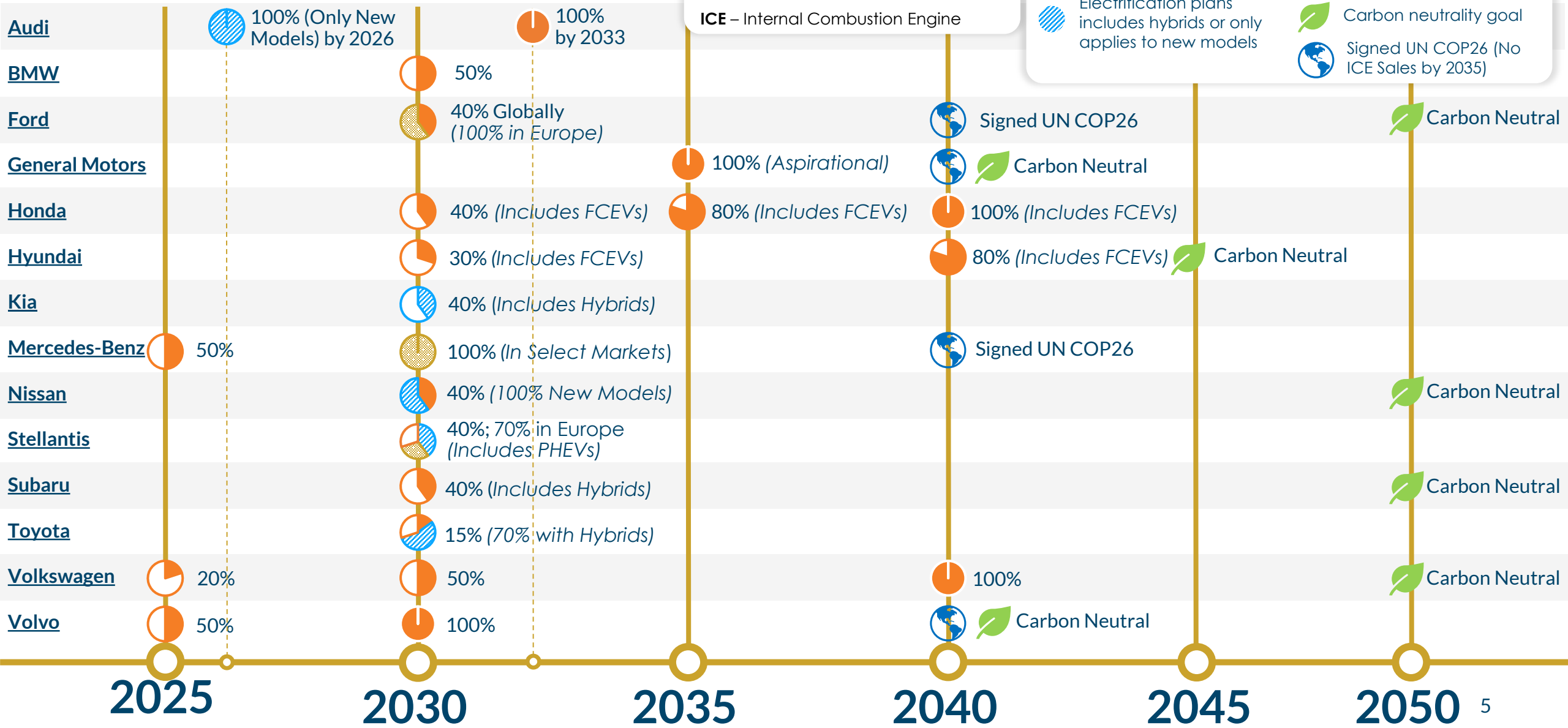
Electrification Transition Goals Of Manufacturers

(% of Sales) | Data as of 11/10/2021

*This list is not comprehensive, and manufacturers are not endorsed by NCTCOG

FCEV – Fuel Cell Electric Vehicle
PHEV – Plug-In Hybrid Electric Vehicle
ICE – Internal Combustion Engine

% of sales that do not use ICEs
Electrification plans includes hybrids or only applies to new models
OEM has phased out ICEs in a region other than the United States
Carbon neutrality goal
Signed UN COP26 (No ICE Sales by 2035)



Regional and National Electric Vehicle Trends

Regional Trends (August 2022)[1]

50,000 EVs Regionwide

32.5% Average Annual Growth in EV Registration 2015-2020

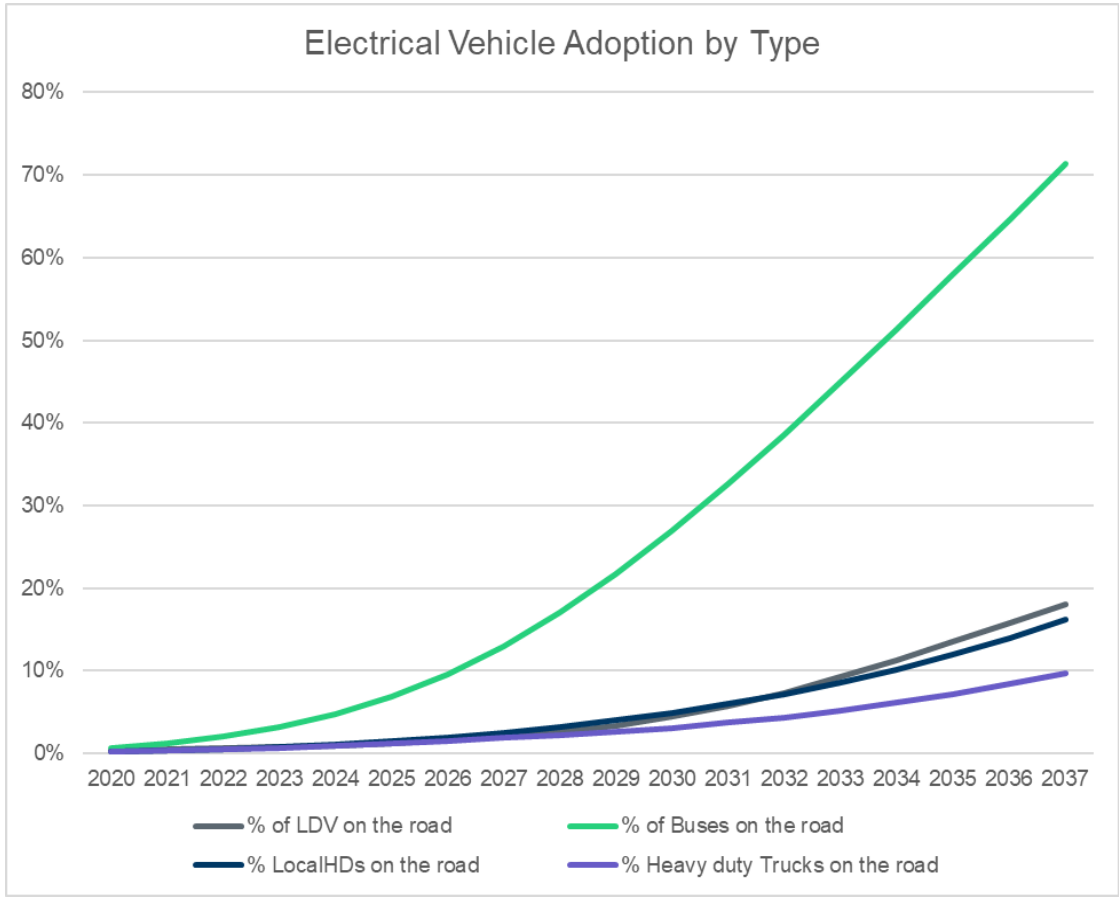
National Trends

EV Fleet Has Doubled in Past 4 Years[2]

EVs >5% of all New Car Sales in 3rd Quarter 2021[3]

Bloomberg New Energy Finance Suggests EVs ~20-30% of New Sales by 2025[4]

Executive Order Aims for Half of All New Vehicles Sold in 2030 be Zero-Emission[5]

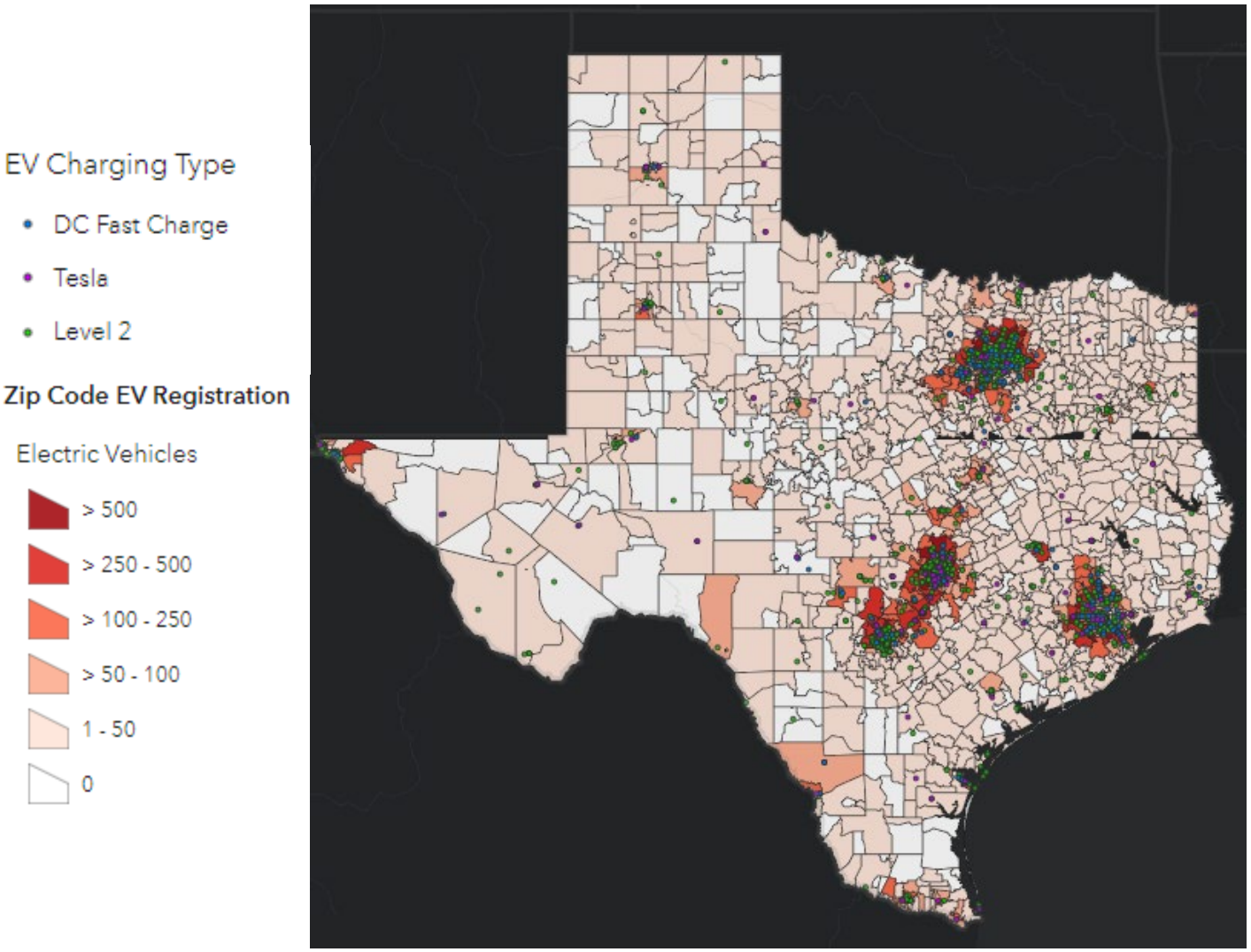


Source: Electric Reliability Council of Texas (ERCOT) Long-Term System Assessment, https://www.ercot.com/gridinfo/planning. Uses an adjusted (delayed) forecast from Bloomberg New Energy Finance Electric Vehicle Outlook (https://about.bnef.com/electric-vehicle-outlook/).

[1] NCTCOG EV Registration Data, based on DMV Registration (https://www.dfwcleancities.org/evsinnorthtexas); [2] EPA Automotive Trends Report (https://www.epa.gov/automotive-trends); [3] Atlas EV Hub (https://www.atlasevhub.com/tools-resources/quarterly-review-of-ev-market/); [4] Zero-Emission Vehicles Factbook (https://assets.bbhub.io/professional/sites/24/BNEF-Zero-Emission-Vehicles-Factbook_FINAL.pdf);

[5] White House News Room (https://www.whitehouse.gov/briefing-room/statements-releases/2021/08/05/fact-sheet-president-biden-announces-steps-to-drive-american-leadership-forward-on-clean-cars-and-trucks/)

Data And Trends



EV Registration Data
www.dfwcleancities.org/evnt -> EVs and Texas
As of September 20, 2022:
~148K EVs in Texas

September 2021:
~93K EVs in Texas

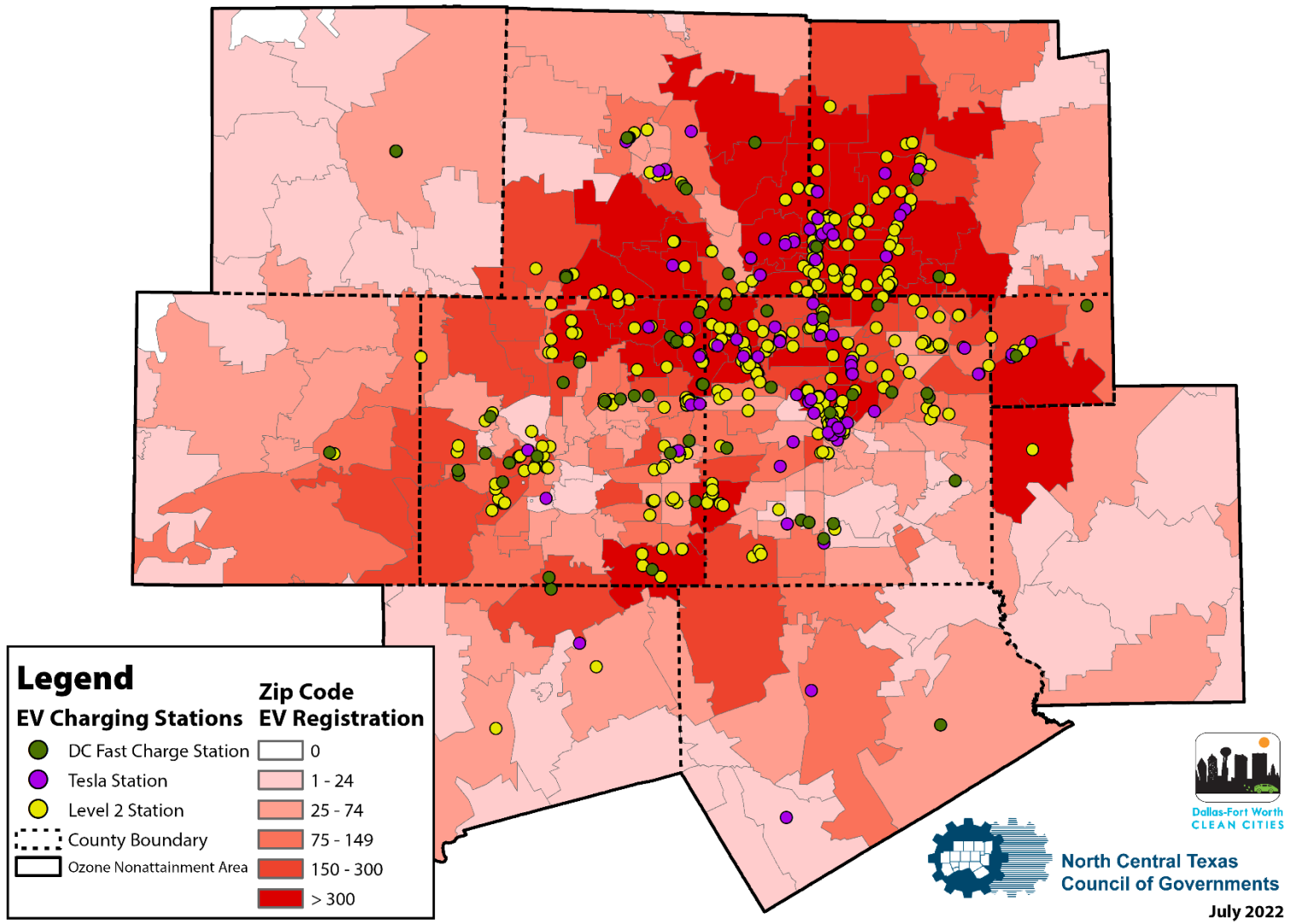
Charging Station Dashboard
https://txdot.mysocialpinpoint.com/tx_ev_plan
As of September 22, 2022:
2,546 Charging Sites Statewide

EV Adoption and Infrastructure Availability

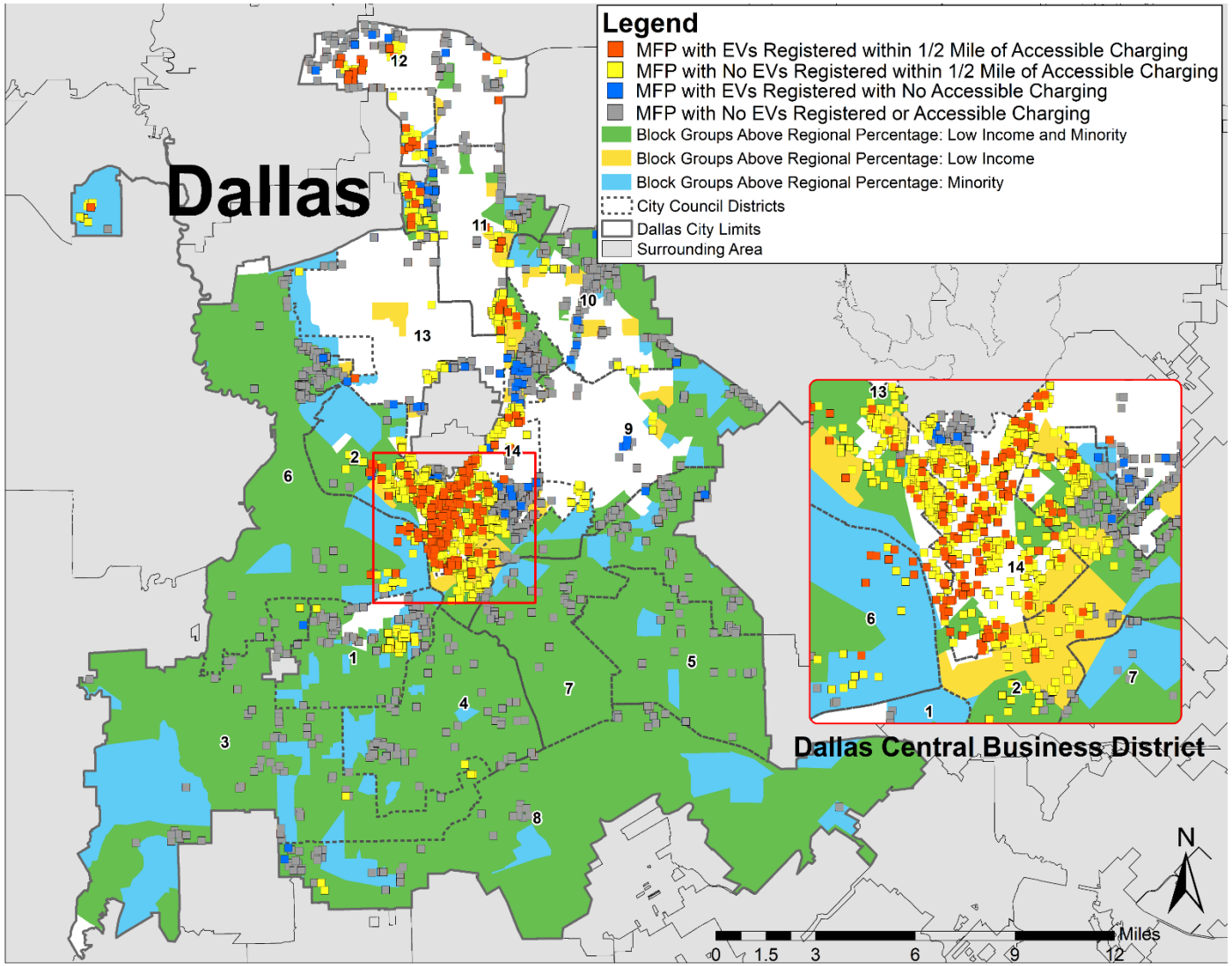
County	Level 2 Plugs*	DC Fast Charge Plugs*
Collin	217	2
Dallas	529	18
Denton	78	15
Ellis	0	4
Johnson	5	1
Kaufman	2	0
Parker	2	1
Rockwall	9	5
Tarrant	313	28
Wise	2	0

**As of July 2022; Excludes Tesla Stations*

EV Registration and EVSE in Ozone Nonattainment Area



Multi-Family Access to EV Charging



18.2% of Residents in Dallas-Fort Worth-Arlington Urbanized Area Live in Multi-Family Housing

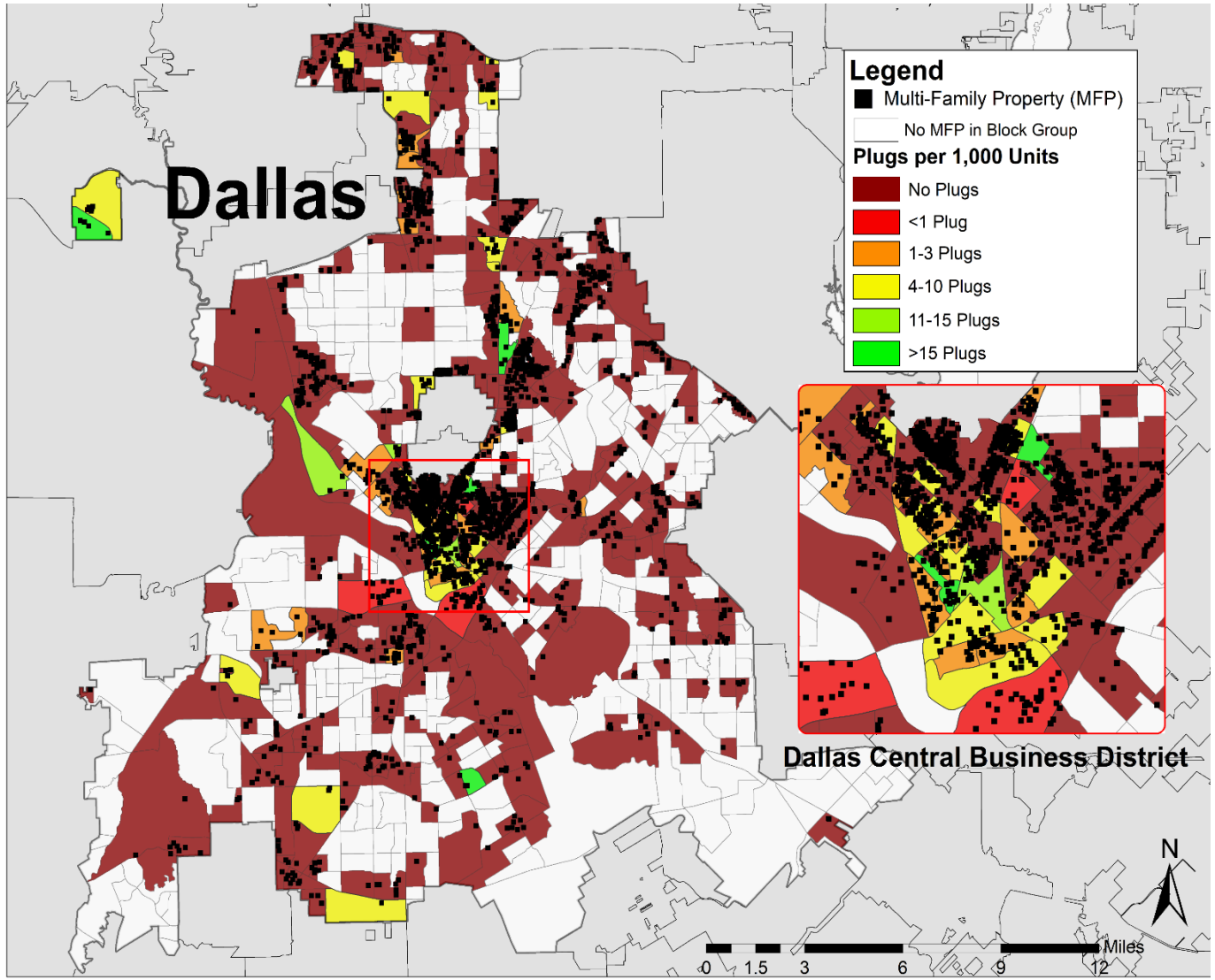
Evaluated Proximity to EV Chargers
54% of Multifamily Properties Citywide Had No Chargers within ½ Mile

Ratio Increases to 67% of Multifamily Properties in NCTCOG Environmental Justice Areas

Analysis Conducted for Dallas and Denton

Replicability Guide, Example Presentations, and Dallas Case Study at www.dfwcleancities.org/multifamily

Multi-Family Access to EV Charging



Evaluated Ratio of Plugs Available per 1,000 Multi-Family Units

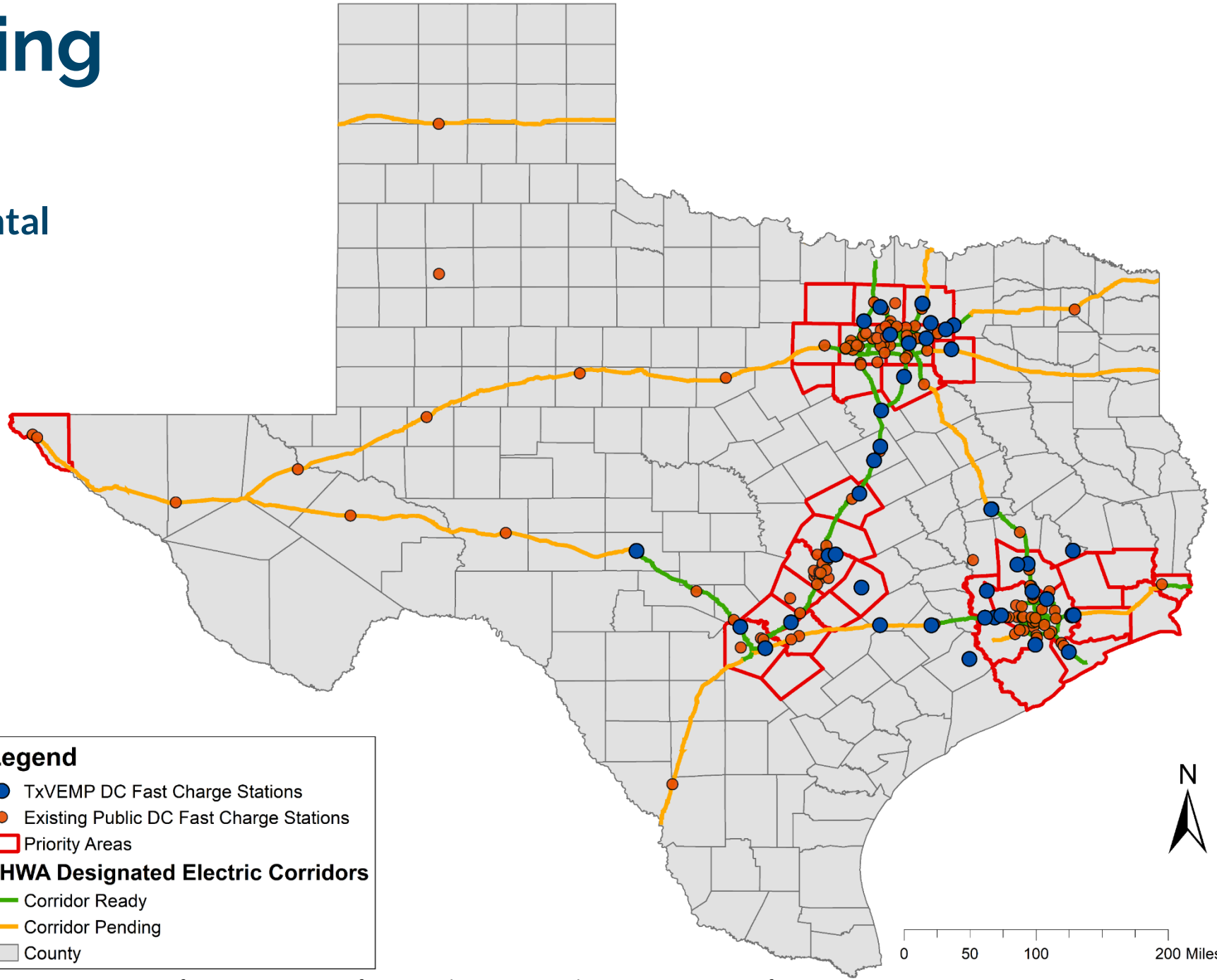
Analysis Conducted for Dallas and Denton

Replicability Guide, Example Presentations, and Dallas Case Study at www.dfwcleancities.org/multifamily

DC Fast Charging Across Texas

Texas Volkswagen Environmental Mitigation Program:

~$20.9 Million DC Fast Charging
170 Plugs at 41 Sites
96% of Funds to Fuel Retailer Sites



The Road to Electrifying Transportation in Texas

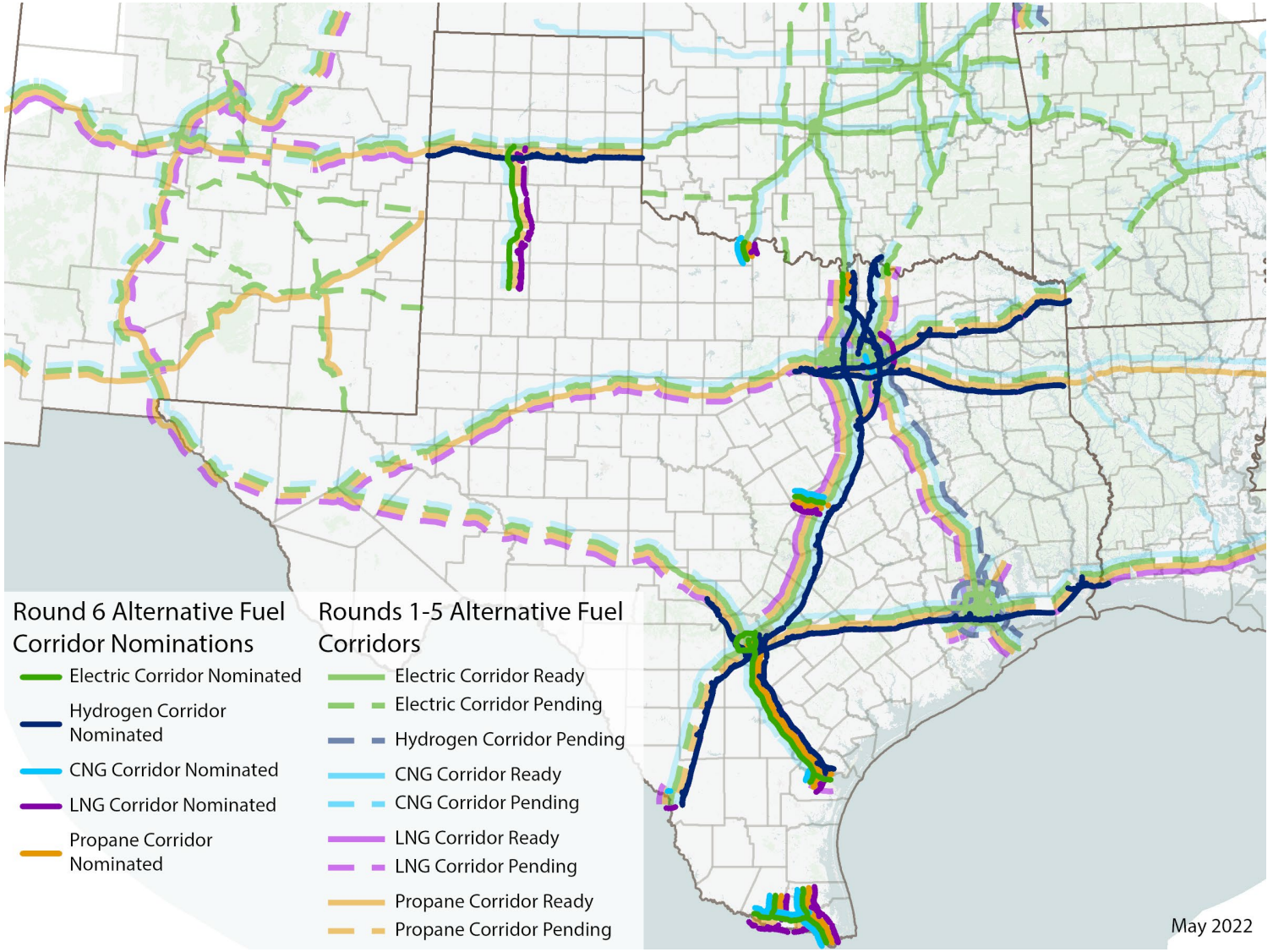
*Existing Station Data from Department of Energy Alternative Fuel Station Locator as of January 2021

Alternative Fuel Corridors

Round 6 Nominations for Alternative Fuel Corridors Submitted by TxDOT in May

New Bipartisan Infrastructure Law (BIL) Funding Programs Require or Prioritize Projects Along Designated Corridors

- $5 Billion National Electric Vehicle Infrastructure (NEVI) Formula Program
- $2.5 Billion Charging and Fueling Infrastructure for Corridors and Communities Competitive Program



NEVI Formula Funding Impacts to Texas

TxDOT to Receive and Administer ~$408 Million Over Five years to Deploy Electric Vehicle (EV) Charging

Statewide Infrastructure Deployment Plan Required

- Provide at Least One Qualifying Station Every 50 Miles Along Designated Corridors
  - Be Within One Mile of Designated EV Corridor Exit
  - Include at Least Four CCS-type DC Fast Charge Connectors, Minimum 150kW Power Output at All Times
  - Minimum Site Power Capacity 600 kW
- Restrict Funding to Designated EV Corridors until Demonstration that all Designated Highways are “Saturated” With Qualifying Stations

Highlights Of Draft Texas EV Charging Plan

Draft Plan Posted at https://txdot.mysocialpinpoint.com/tx_ev_plan

Year 1	Install DC Fast Chargers Along Alternative Fuel Corridors (Estimated 55 Stations Statewide; $48.51M Federal)
Years 2-5	Work with Counties and Small Urban Areas to Install DC Fast Charge Sites In/Near County Seats (Estimated 190 Locations, $159.7M Federal) Work ***with MPOs*** to Identify Locations and Appropriate Combination of Charging Sites (Number Locations TBD, Estimated $198.92M Federal)
Throughout	Collect Data

For Reference: 183 DC Fast Charging Sites Statewide as of September 22, 2022

Medium- and Heavy-Duty Projects

Public Sector:

Transit Buses: DART and Trinity Metro

School Buses: Everman ISD

Refuse Hauler: City of Plano *(funded)*

Source: NCTCOG

Source: NCTCOG

Private Sector:

$3.43 Million Awarded by NCTCOG to
22 Electric Replacements

- Terminal Tractors
- Short Haul Trucks
- Airport Ground Support Equipment

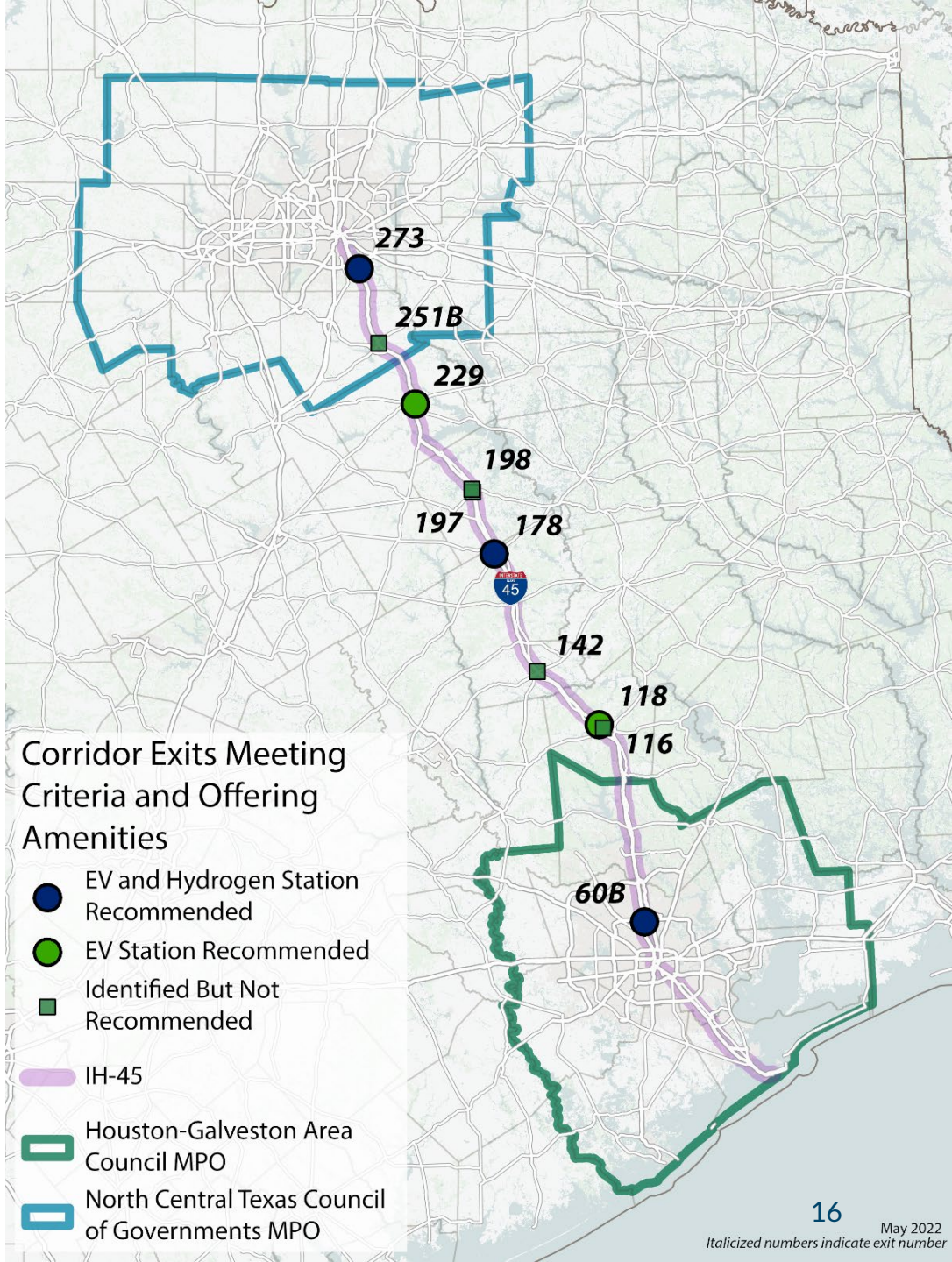
Recommended Infrastructure for Heavy-Duty Vehicles

Interstate 45 Corridor Zero-Emission Infrastructure Plan

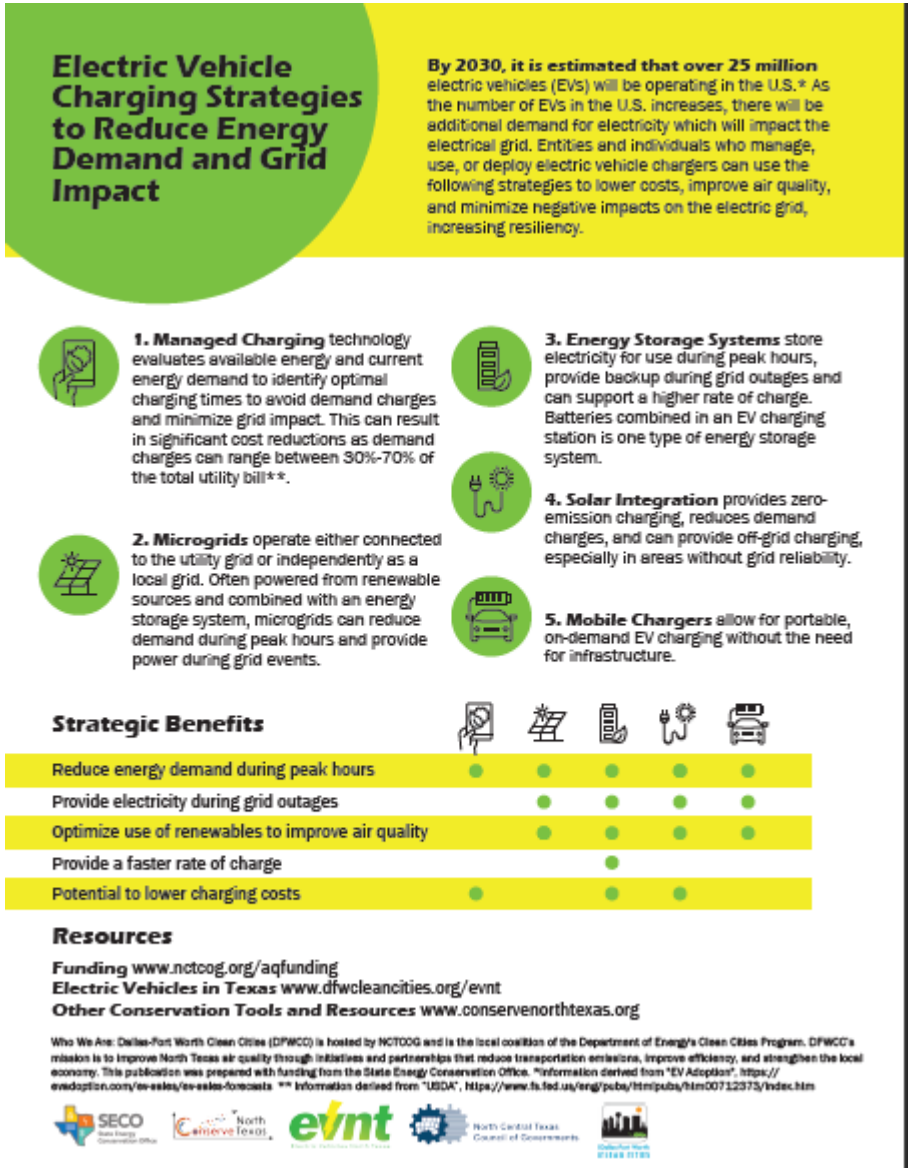
EV Charging Every 50 Miles
Five Sites Proposed

Hydrogen Fueling Every 150 Miles
Three Sites Proposed, Co-Located with EV Charging

www.nctcog.org/IH45-ZEV



Resiliency Strategies for EV Charging



Electric Vehicle Charging Strategies to Reduce Energy Demand and Grid Impact

By 2030, it is estimated that over 25 million electric vehicles (EVs) will be operating in the U.S.* As the number of EVs in the U.S. increases, there will be additional demand for electricity which will impact the electrical grid. Entities and individuals who manage, use, or deploy electric vehicle chargers can use the following strategies to lower costs, improve air quality, and minimize negative impacts on the electric grid, increasing resiliency.

1. Managed Charging technology evaluates available energy and current energy demand to identify optimal charging times to avoid demand charges and minimize grid impact. This can result in significant cost reductions as demand charges can range between 30%-70% of the total utility bill**.

2. Microgrids operate either connected to the utility grid or independently as a local grid. Often powered from renewable sources and combined with an energy storage system, microgrids can reduce demand during peak hours and provide power during grid events.

3. Energy Storage Systems store electricity for use during peak hours, provide backup during grid outages and can support a higher rate of charge. Batteries combined in an EV charging station is one type of energy storage system.

4. Solar Integration provides zero-emission charging, reduces demand charges, and can provide off-grid charging, especially in areas without grid reliability.

5. Mobile Chargers allow for portable, on-demand EV charging without the need for infrastructure.

Strategic Benefits

Reduce energy demand during peak hours	●	●	●	●	●
Provide electricity during grid outages		●	●	●	●
Optimize use of renewables to improve air quality		●	●	●	●
Provide a faster rate of charge			●		
Potential to lower charging costs	●		●	●	

Resources

Funding www.nctcog.org/aqfunding
Electric Vehicles in Texas www.dfwcleancities.org/evnt
Other Conservation Tools and Resources www.conservenorthtexas.org

Who We Are: Dallas-Fort Worth Clean Cities (DFWCC) is hosted by NCTCOG and is the local coalition of the Department of Energy's Clean Cities Program. DFWCC's mission is to improve North Texas air quality through initiatives and partnerships that reduce transportation emissions, improve efficiency, and strengthen the local economy. This publication was prepared with funding from the State Energy Conservation Office. *Information derived from "EV Adoption". https://evadoption.com/ev-sales/ev-sales-forecasts **Information derived from "USDA", https://www.fs.fed.us/eng/pubs/html/pubs/htm00712373/index.htm

SECO · Conserve North Texas · evnt · North Central Texas Council of Governments

- Managed Charging
- Microgrids
- Energy Storage Systems
- Solar Integration
- Mobile Chargers

www.dfwcleancities.org/evnt → EV Charging → Building Resilient EV Infrastructure

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