July 9, 2025

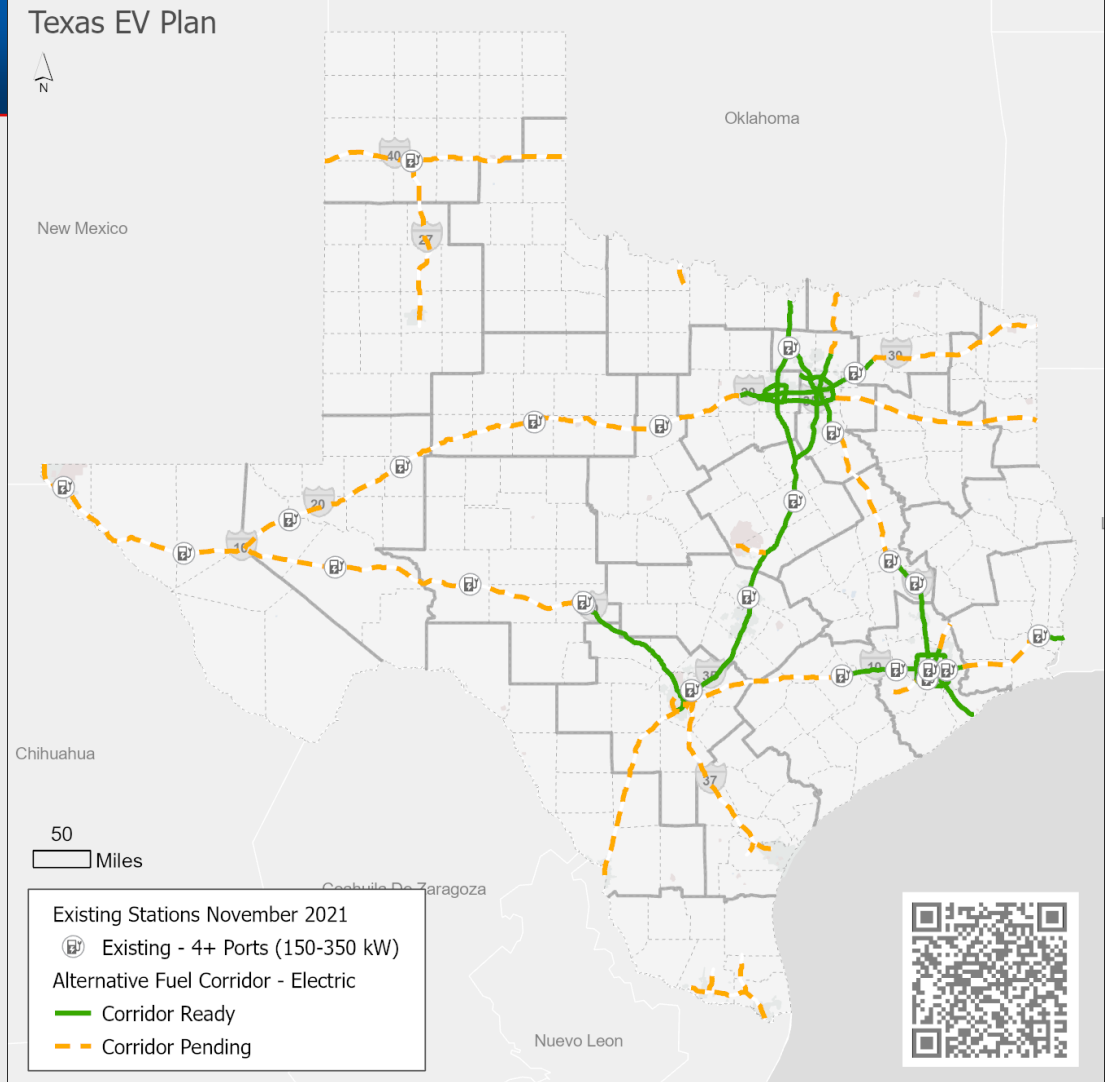
Texas Electric Vehicle Infrastructure Plan

Transportation Planning & Programming Data Management

NEVI Background

In 2021, the Infrastructure Investment and Jobs Act (IIJA) established the National Electric Vehicle Infrastructure Program ("NEVI").

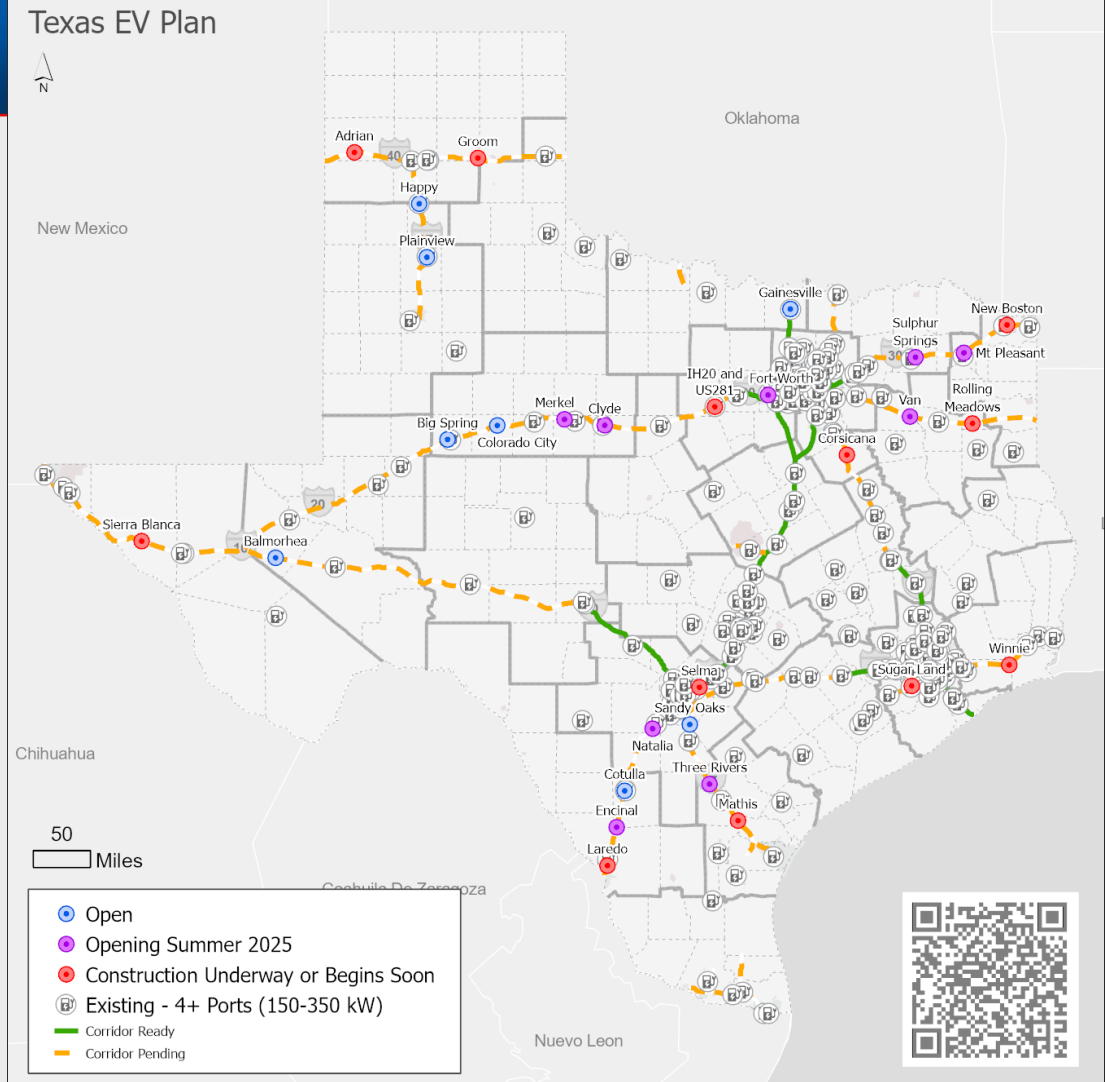
- In 2021, **25** stations met NEVI requirements from 2021



Texas Department of Transportation

Phase 1 – Alternative Fuel Corridors

- Today **478** stations meet NEVI requirements from 2021
- **82** locations as part of the Texas NEVI program
  - **29** Under Construction
  - **53** TIP/STIP Phase (paused)



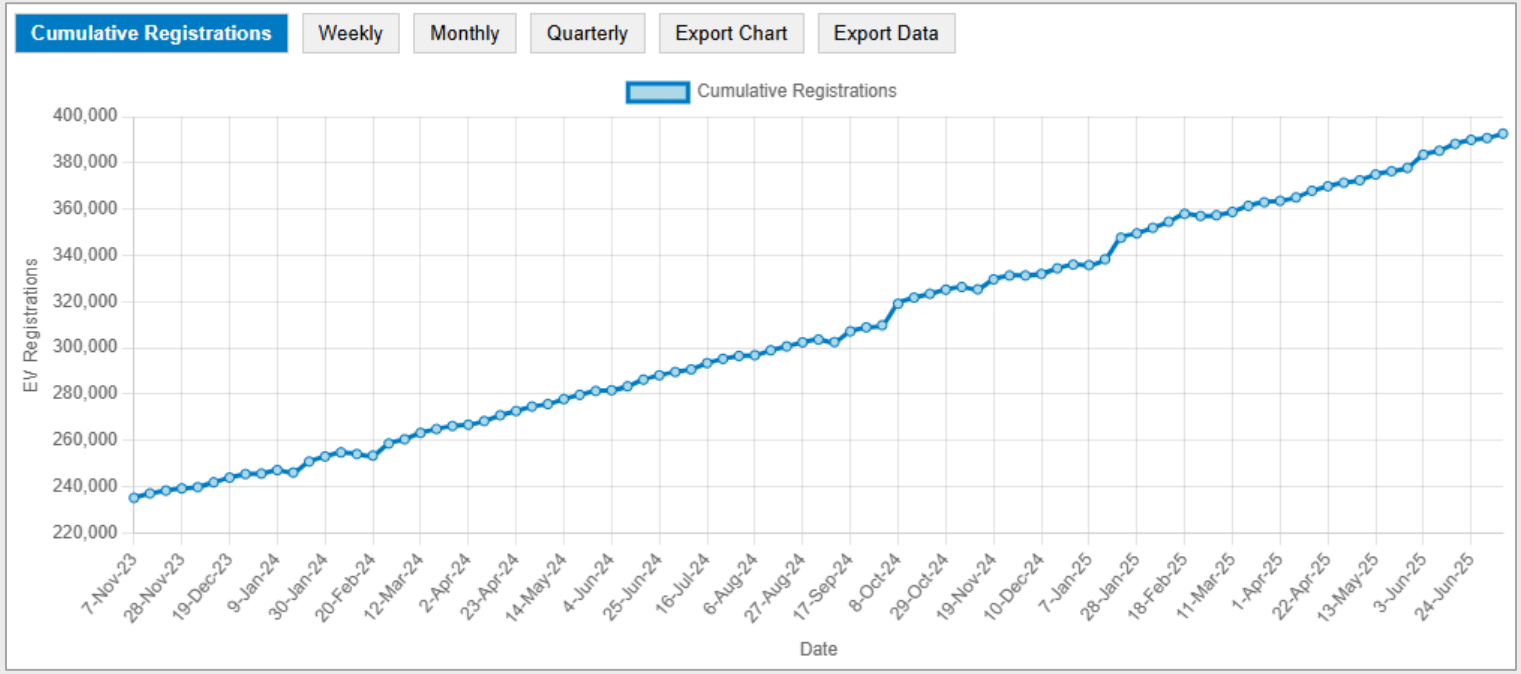
Eight Stations Open





Big Spring, & Sandy Oaks recently opened (Pilot Travel Centers)

EV Registration Summary (2023-2025) - 392,624 EVs currently in Texas

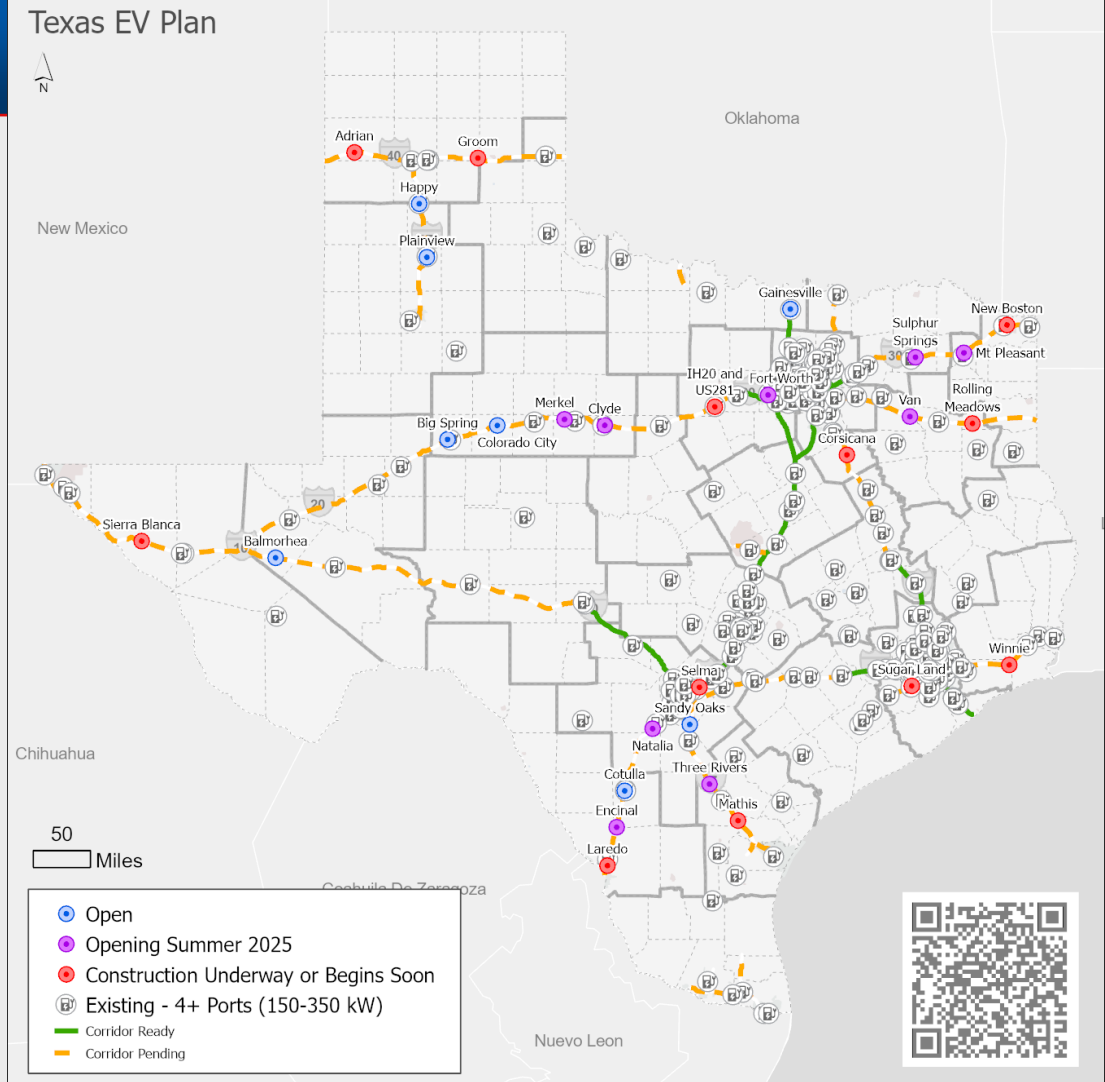


On July 5th, 2022 there were **134,072** EVs in Texas (3x growth).

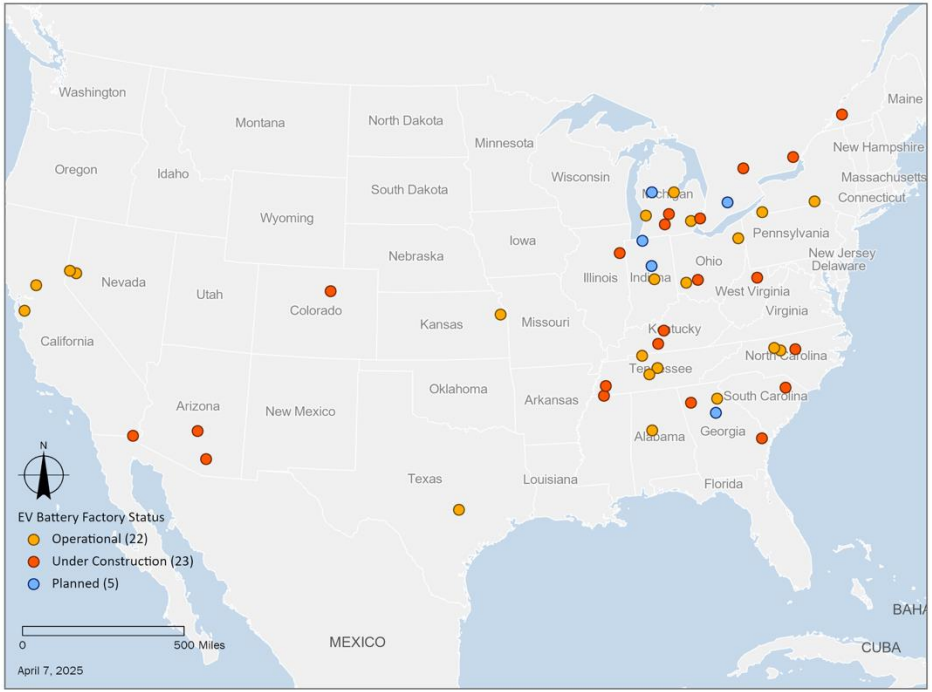
Texas Department of Transportation

Trends

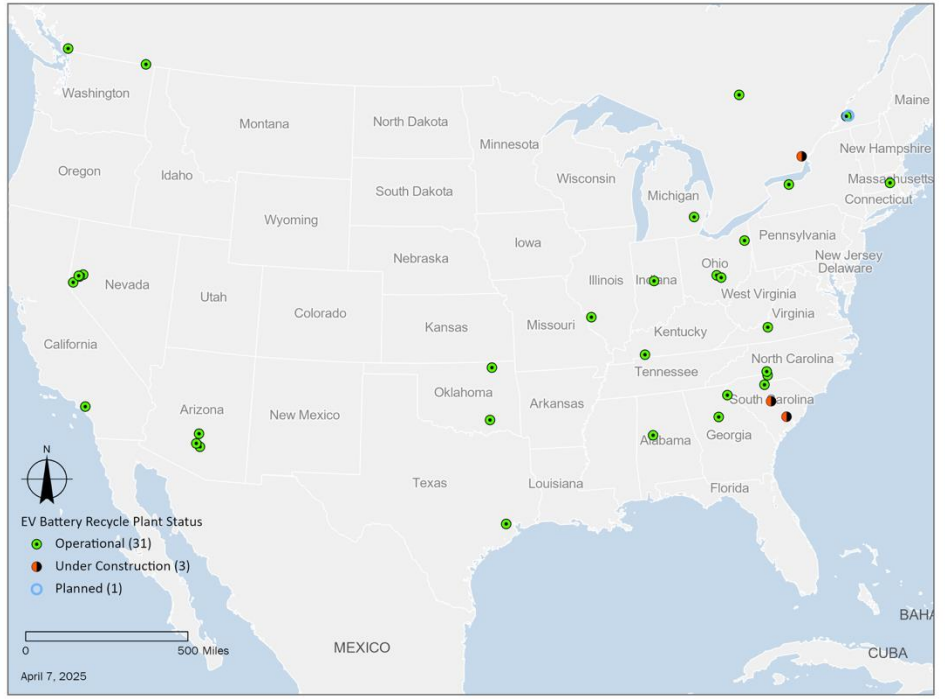
- Texas adding **2,000 +/-** EVs week
- US battery manufacturing capacity est. at **1,128 GWH** year by 2027
  - Capacity for **14.7M** EVs/year
- US 2024 sales **15.9M**
  - **1.27M** EVs
  - **324K** Plug-In Hybrid
  - **1.5M** Mild Hybrid (no plug)
- Peak ICE **17M** in 2017
- An EV has been the best-selling car in the world the last 2 years



Battery Factories



Battery Recycling Factories



Electrical Grid Fuel Mix

Fuel Mix

63.4% Zero Carbon

Last Updated: Jun 2, 2025 10:46 CT

	CURRENT GENERATION	MONTHLY CAPACITY
Solar	22,634 MW (34.6%)	30,637 MW
Wind	13,759 MW (21.0%)	39,759 MW
Hydro	138 MW (0.2%)	556 MW
Power Storage	96 MW (0.1%)	11,372 MW
Other	0 MW (0.0%)	172 MW
Natural Gas	18,670 MW (28.5%)	68,547 MW
Coal and Lignite	5,127 MW (7.8%)	14,713 MW
Nuclear	5,027 MW (7.7%)	5,268 MW

Previous Day | Real-Time | Current Day

Supply/Demand

Supply and Demand

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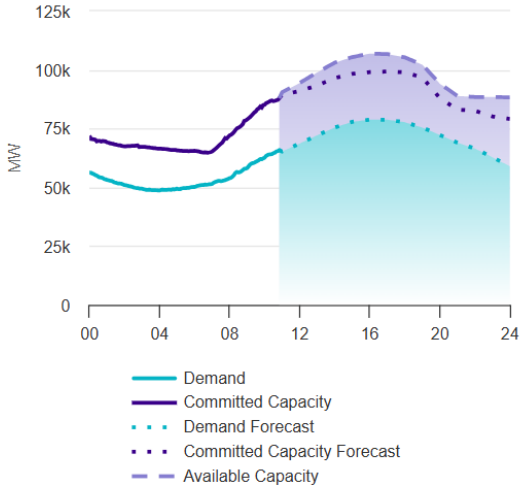

Current Day | 6-Day Forecast

Grid Conditions

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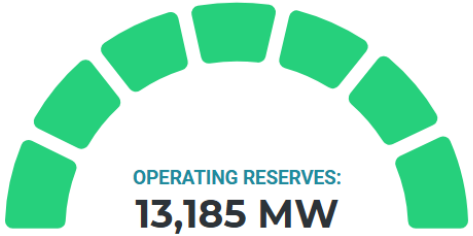


NORMAL CONDITIONS

There is enough power for current demand.

Operating Reserves | Daily PRC

Texas Department of Transportation

Thank You!

Michael Chamberlain

Texas Department of Transportation

Michael.Chamberlain@txdot.gov

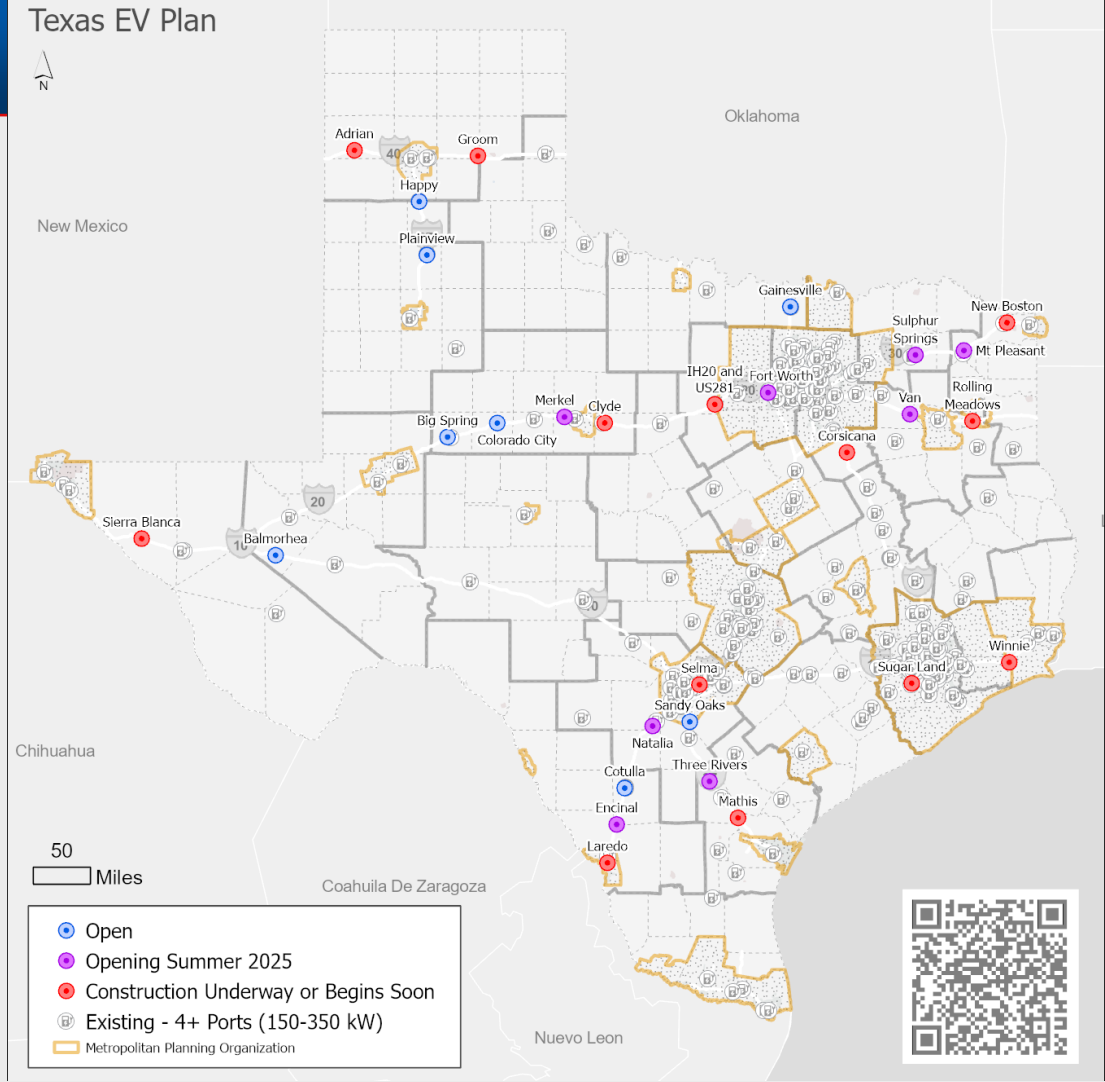
512.851.9039

Program Email Address:

TxDOT_NEVI@txdot.gov

Much more found here:

EV Program Landing Page



The University of Texas at Austin
Center for Electromechanics

Introduction to CEM

and Hydrogen Research

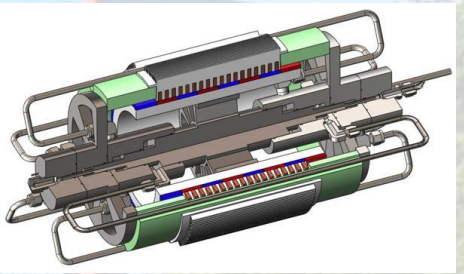
MICHAEL LEWIS
(512) 232-5715
MCLEWIS@CEM.UTEXAS.EDU

University Organized Research Unit

CEM is an Organized Research Unit (ORU) within the Cockrell School of Engineering at The University of Texas at Austin

Operate under Sponsored Research Agreements with Government and Industry

- Often using industry funding/support as cost share to federal funding
- Past and current programs with DOD, DOE, and DOT



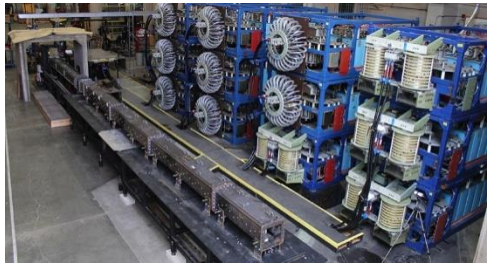
Full-time research staff (engineers/scientist and technicians) with traditionally no faculty appointments

- Approximately 30 staff members + faculty and staff

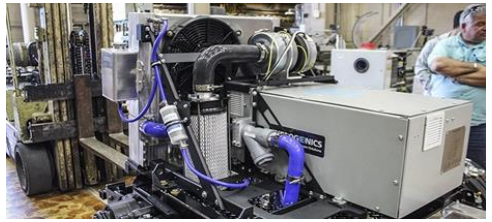
Research Program Areas

Electromechanical Systems

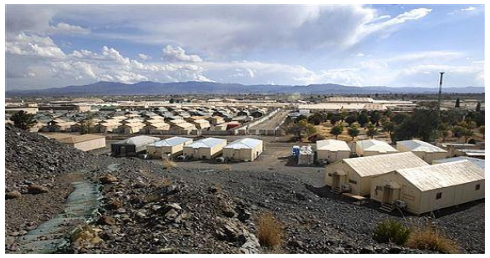
Rotating Machines



Electromagnetic Launch



Hybrid Vehicles



Grid Solutions

Hydrogen Energy Systems

Faculty Collabs

Gas Turbine Testing

Additive Manufacturing

High Voltage Power Electronics

CEM Facilities

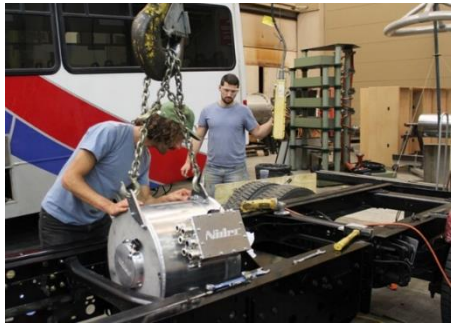
CEM houses extensive fabrication, assembly, and testing facilities in a 140,000 sq ft air-conditioned high-bay space. The 70 ft. tall High-Bay features two 25 ton cranes with an additional 25 ton crane servicing a machine shop area. The Center also has 10,000 sq ft of air-conditioned space available in eight additional lab spaces, and a 1,200 sq ft welding shop.

140,000 sqft High-Bay
w/ Fabrication Capabilities

Composite Winding and
Fabrication

MW Capable Microgrid Test Bed

Hydrogen Research



Began hydrogen research in 2006 with the first and only hydrogen fueling station and commercial fuel cell vehicle in Texas.

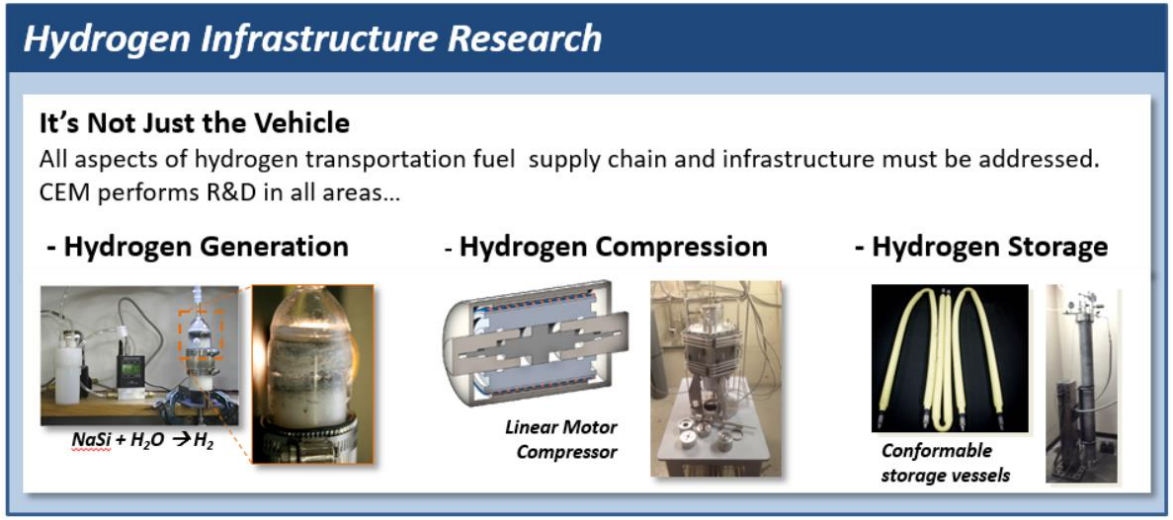
- **Leveraging expertise in hybrid vehicle powertrains**

National Fuel Cell Bus Program demos

Prototype fuel cell vehicle demos

- **Ultra light-duty to heavy-duty**

Other hydrogen infrastructure technologies



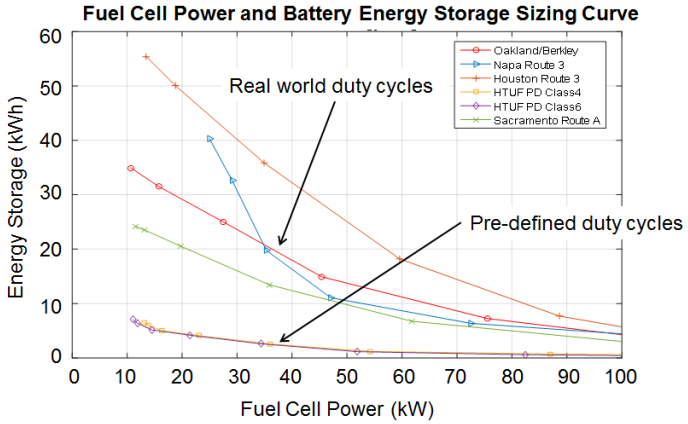
Hydrogen Fuel Cell Delivery Van

Sponsor: Department of Energy, California Energy Commission, South Coast Air Quality Management District

Partners: Center for Transportation and the Environment, Unique Electric Solutions, Valence Technologies, Hydrogenics, United Parcel Service

Objective: Develop and demonstrate a hydrogen fuel cell delivery van

Goal: Deploy 16 zero emissions fuel cell delivery vans in California to accelerate commercialization of medium-duty hydrogen trucks

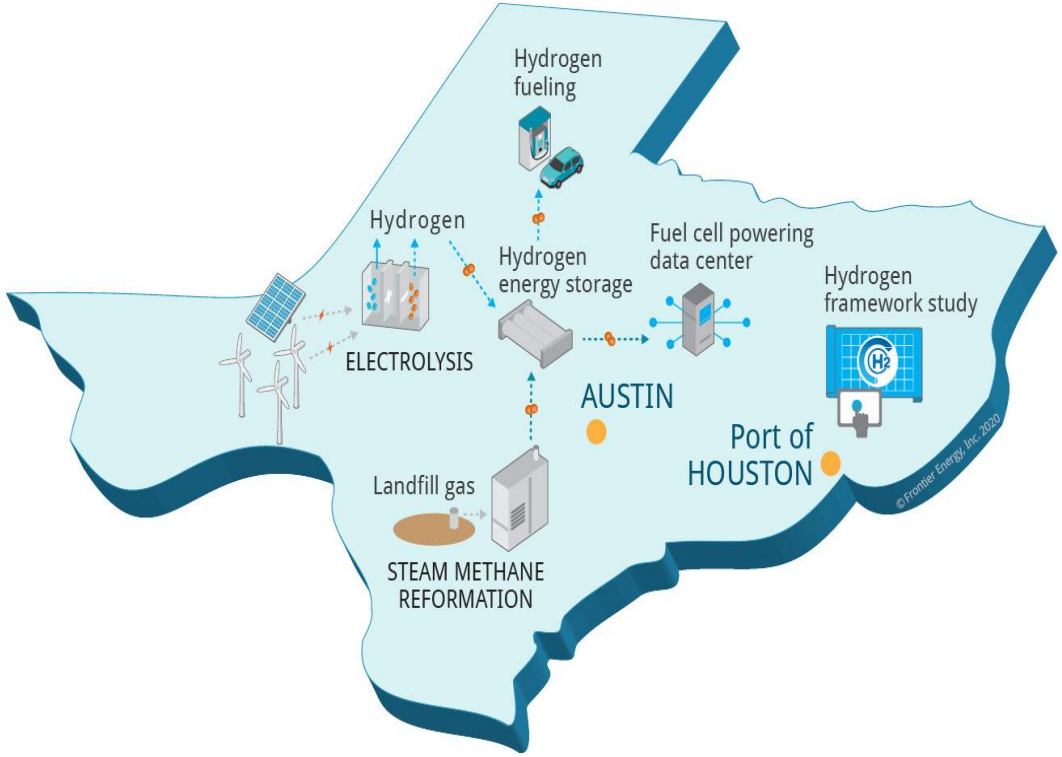


Demonstration and Framework for H2@Scale in Texas and Beyond

Two unique RD&D tracks to understand the potential of integrating hydrogen with multiple co-located platforms and existing resources

- Demonstrate multiple RH_2 generation options, co-located with vehicle fueling and a large base load consumer to enable cost-effective H_2 energy solutions

- Develop framework for actionable H_2@Scale pilot plans in Texas, Port of Houston and Gulf Coast region, including energy storage



Project Timeline and Partners

Timeline

- Project Start Date: July 2020
- Project End Date: June 2025

Currently in the demonstration phase and aiming to wrap up DOE deliverables this year.

Partners

- Frontier Energy
- UT Austin
- GTI
- Air Liquide
- Centerpoint
- Chart Ind.
- Chevron
- ConocoPhillips
- Hitachi Energy
- LCRI
- McDermott
- Mitsubishi Heavy Industries
- ONEGas
- ONEOK
- Shell
- SoCal Gas
- TCEQ
- Toyota
- Waste Management

H2@Scale Hydrogen R&D Facility – also known as the “ProtoHub”

First-of-its-kind hydrogen R&D facility with multiple forms of hydrogen generation and use cases

Scheduled to wrap up the DOE project in July 2025

Future work and vision is to be a training site and proving ground for new H2 technologies

Demonstration activities at UT

~100% renewable H_2 generation

- 30-80 kg/day Steam Methane Reformation using Renewable Natural Gas
- 40 kg/day PEM electrolyzers using wind and solar power profiles

Large scale, industry H_2 user

- 100kW fuel cell powering Texas Advanced Computing Center

Vehicle refueling

- 350 bar and 700 bar fueling
- Published SAE J2601-4 fueling of 3 Toyota Mirai's (1 public Hyundai Nexo)

Understanding Hydrogen Infrastructure and Deployment

Infrastructure remains a challenge. Understanding where to deploy hydrogen production and how to deliver it to markets is critical.

Hydrogen Optimization with Deployment of Infrastructure (HOwDI) model

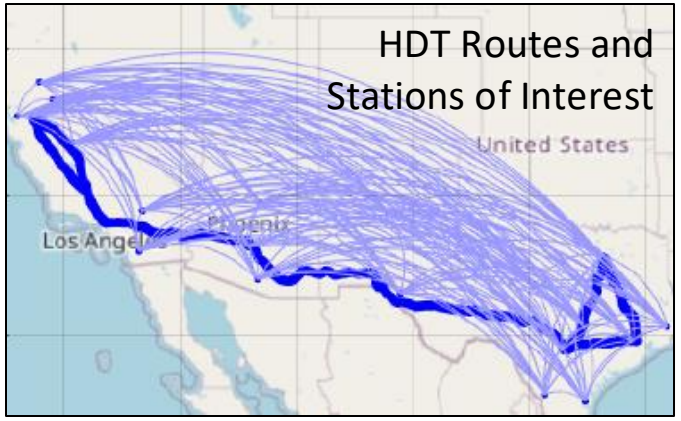
- The University of Texas at Austin H2@UT researchers have developed a general framework for modeling the supply, distribution, and demand of hydrogen among various economic sectors
- User specifies locations and costs
- Model determines production sites, delivery methods, and levelized cost of hydrogen

A single run of HOwDI model determines cost-optimal hydrogen infrastructure across Texas

Sample outputs of model – spatially resolved hydrogen production and distribution infrastructure

Houston to Los Angeles (H2LA) I-10 Hydrogen Corridor Project

Develop a flexible and scalable blueprint plan for an investment-ready hydrogen fueling and heavy-duty freight truck network from Houston to LA (H2LA) along I-10, including the Texas Triangle region



Hydrogen Research Outlook

Develop H2 ProtoHub into a Training and Education facility

- Engineering students, skills and trades, regulatory officials and AHJs, first responders, legislators, communities

Set the stage for the H2 ProtoHub to serve as a "proving ground" for emerging hydrogen technologies

- Generation, storage, transport, or end use
- Hydrogen blending applications on the research campus
- Hydrogen emissions testing
- eFuels and ammonia

North Central Texas Council of Governments

Dallas-Fort Worth CLEAN CITIES

TIA Deep Dive
NCTCOG CFI Corridor Award

Jared Wright, Senior Air Quality Planner

July 9, 2025

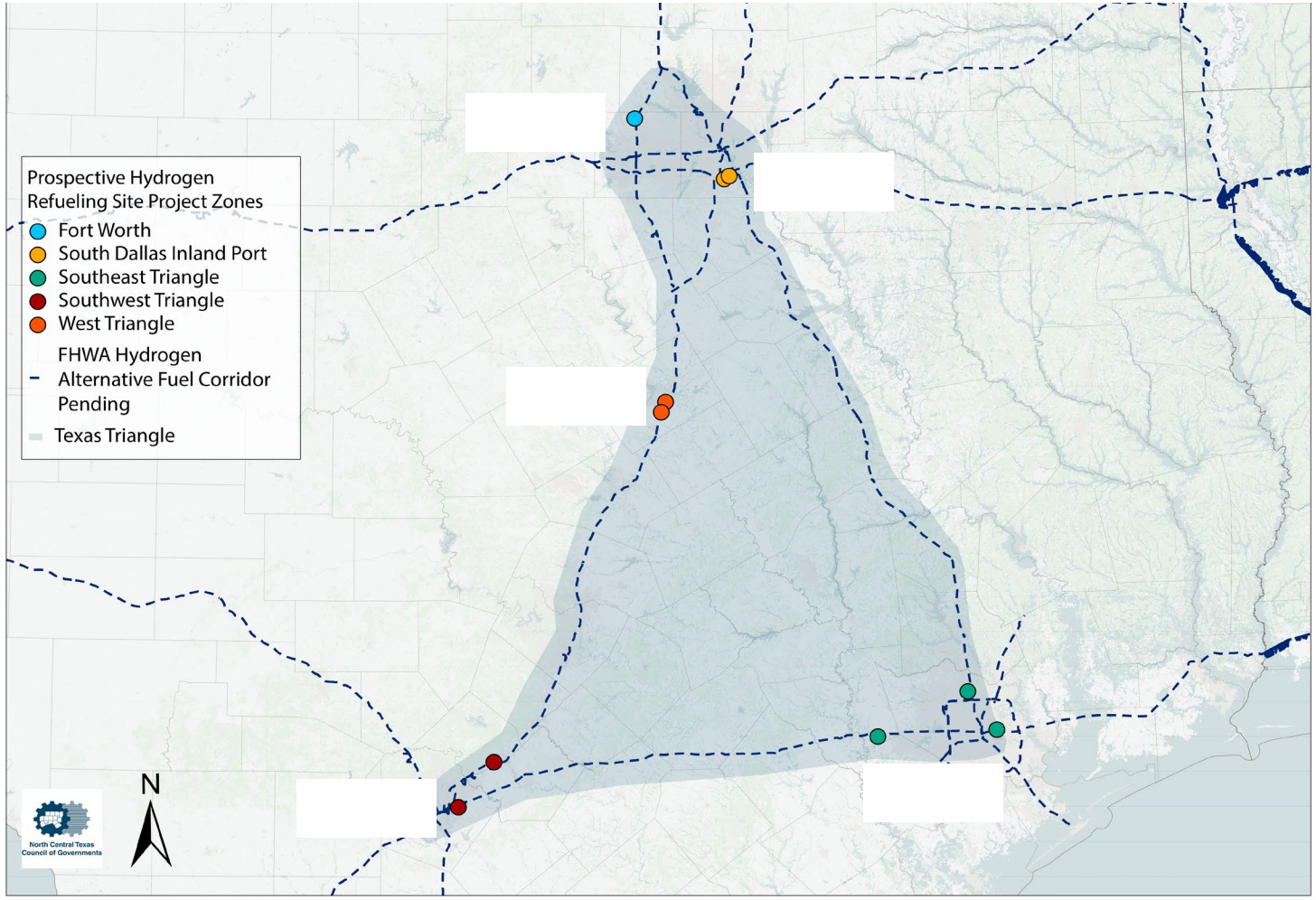
CFI Corridor Project Overview

$70 million award to construct up to 5 medium-/heavy-duty hydrogen refueling stations

~$31 million currently obligated

Zone 1	City of Fort Worth (1)
Zone 2	City of Dallas (2)
Zone 3* (Houston-Galveston Area Council)	City of Brookshire (1) or City of Houston (2)
Zone 4* (Alamo Area MPO, Alamo Area COG)	City of San Antonio (1) or City of New Braunfels (1)
Zone 5* (Waco MPO)	City of Waco (1) or City of Robinson (1)

Potential Hydrogen Fueling Site Locations
(Will Select 5 of 10 "Short-Listed" Existing Sites)



January 2024

Award Timeline

February 2023
FHWA released $350 million opportunity to build alternative fuel infrastructure along highway corridors

March-April 2023
NCTCOG administered Call for Partners to secure private sector partners ahead of developing proposal

May 2023
NCTCOG submitted application to FHWA CFI Corridor Program

January 2024
FHWA announced award selection

September 2024
Received National Environmental Policy Act (NEPA) Categorical Exclusion for all locations and approval of Transportation Improvement Program (TIP) listings for two locations

December 2024
NCTCOG signed agreement with FHWA and received obligation of $31M

June 2025
NCTCOG executed agreement with station developer

Next Steps

Final project locations within each zone selected by fall 2025

Coordinating with local governments in potential project areas

- Project needs to be reflected in Metropolitan Planning Organization (MPO) Regional Transportation Plan (RTP) and TIP to obligate remaining funding

Conducting outreach and engagement for the planned infrastructure

- Ensure local fleets are aware of the upcoming infrastructure
  - Complementary opportunities such as NCTCOG's EPA Clean Heavy-Duty Vehicle Award
- Host public engagement events for communities in project areas
- Ensure first responders are aware and educated on the project

Sites will have staggered construction, with first site beginning in 2027 and operational in 2028

Contact Us

Lori Clark
Senior Program Manager
& DFWCC Director
lclark@nctcog.org

Jared Wright
Senior Air Quality Planner
jwright@nctcog.org

North Central Texas Council of Governments

Dallas-Fort Worth CLEAN CITIES

dfwcleancities.org

cleancities@nctcog.org

@NCTCOGTrans

linkedin.com/dfwcleancities/