



## The Role of Hydrogen in the U.S. Zero-Emission Freight Strategy

April 1, 2024

On March 12, the Joint Office of Energy and Transportation - in collaboration with the U.S. Department of Energy (DOE), Department of Transportation, and the Environmental Protection Agency - released the [National Zero-Emission Freight Corridor Strategy](#). The strategy serves as another tool that federal and state governments, utility and energy providers, fleets and technology providers, ports and freight logistics companies, as well as local communities can use to transition towards zero-emission medium- and heavy-duty vehicles (ZE – MHDV) nationwide, including both battery electric and hydrogen fuel cell electric trucks.

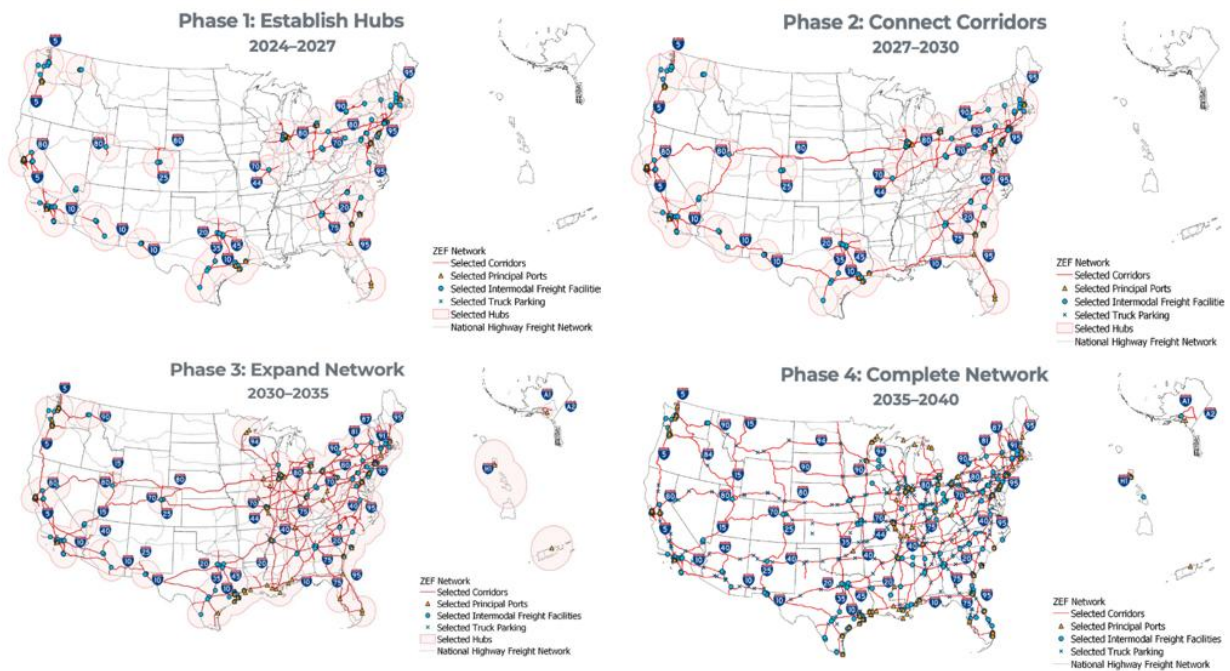
The strategy will be crucial to long-term ZE-MHDV planning. Competitive grant programs administered through federal and state agencies targeting ZE-MHDV and related infrastructure can better guide applicants by prioritizing zero-emission vehicle (ZEV) corridors delineated in the strategy. Energy markets and regulators can reference the strategy to better anticipate the required load on electric charging and hydrogen refueling infrastructure. Industry partners will have increased certainty in investments, planning, and deployment. Finally, local communities seeking zero-emission transportation options can use the strategy to advocate for infrastructure buildout in their region.

The strategy assumes that hydrogen fueling infrastructure will initially be located near hydrogen production facilities, undertaken by private developers with additional support from federal programs such as the Regional Clean Hydrogen Hubs. The adoption of hydrogen fuel cell electric vehicles (FCEV) by freight operators may progress on a different timeline than electric vehicles (EV) but is expected to scale rapidly as more hydrogen refueling infrastructure is deployed.

Defining zero-emission freight as those that use either electricity or hydrogen as fuel, the strategy details a four-phased infrastructure buildout based on six deployment factors:

- 1) The most **heavily used freight corridor segments by freight volume** on the National Highway Freight Network (NHFN) (top 25% in Phases 1–3 and top 50% in Phase 4)
- 2) The most **heavily used ports by annual freight tonnage** (top 20% in Phases 1–2, top 40% in Phase 3, and top 60% in Phase 4), intermodal freight facilities, and key truck service facility locations

- 3) **Projected ZE-MHDV volumes that demonstrate optimal total cost of ownership** compared to internal combustion engine trucks (e.g., early markets with first- to last-mile delivery, local and regional haul, and moving toward long-haul transportation)
- 4) **Locations that bear disproportionate environmental and air quality burden** from MHDV transportation and are in nonattainment for criteria air pollutants
- 5) States with **policies that enable ZEV deployment**
- 6) “On-the-ground” planning for ZE-MHDVs through DOE’s **commercial ZEV corridor planning grants**



(Source: Joint Office of Energy and Transportation)

In **Phase 1** of the buildout (2024-2027), priority hubs will be identified based on freight volume in states with regulations and market structures more suitable to zero-emission vehicle deployment. Totalling 12,000 miles, areas prioritized as zero-emission freight (ZEF) corridors in this phase include I-5, I-10, I-25, I-75, I-80, I-95, and the Texas Triangle (I-10, I-45, and I-35). Additional ZEF hubs include the 100-mile freight ecosystems centered around key ports such as the Port Authority of New York and New Jersey, Ports of Long Beach and Los Angeles and the Port of San Diego in California, Ports of Seattle and Tacoma in Washington, Port of Miami in Florida, Houston Port Authority in Texas, and Port of Savannah in Georgia.

**Phase 2** (2027-2030) will see the expansion of 19,000 miles of key (ZEF) corridors to connect the established hubs connected from Phase 1. By supporting private market efforts to build out ZEF infrastructure along I-5, including all ports along the West Coast, I-10 from California to Florida through the Southwest, major segments of I-95 on the East Coast, I-80 through the Midwest, and I-70 from Pittsburgh, Pennsylvania, to St. Louis, Missouri, the infrastructure buildout in Phase 2 will begin to expand beyond

priority states identified from Phase 1. This phase will also see the early introduction of hydrogen fuel cell electric truck technology for longer-distance travel and the construction and ramp-up of DOE's Regional Clean Hydrogen Hubs.

**Phase 3** (2030-2035) will see ZEF corridors expanded another 37,000 miles to include a larger percentage of ports and freight facilities. Corridor connections will expand across the United States along the entirety of I-80, I-95, I-10, and I-70, including access to charging and fueling to all coastal ports and their surrounding freight ecosystems for short-haul and regional operations. This phase will see increased access to hydrogen refueling along freight corridors as well as a ramp-up of hydrogen fuel cell truck technology.

Finally, **Phase 4** (2035-2040) will culminate with the linking of the additional 49,000 miles of class 3-8 ZE-MHDV regional corridors to achieve a national network. By 2035, the Regional Clean Hydrogen Hubs program will be in full production, supplying ample amounts of clean hydrogen transportation fuel to support a fully integrated transportation energy system.

As a next step, the Joint Office intends to issue a request for information related to ZE-MHDV technology, supply chains, infrastructure, and connector standards at a future point in time. FCHEA has many members involved in the sector and looks forward to supporting the industry at large as the buildout of a national ZEF network continues to progress. To stay up to date on the latest industry news, subscribe to FCHEA's free monthly newsletter [here](#).