GLOBAL COMMERCIAL VEHICLE DRIVE TO ZERO™ | A PROGRAM OF CALSTART

Global Green Road Corridors

Prepared for UN ESCAP

Ricardo Garcia Coyne, CALSTART/Drive to Zero

September 2024



CALSTART

CALSTART is a U.S.-based nonprofit organization with a 30+ year track record working nationally and globally to accelerate the transition to zero-emission transportation. CALSTART works with businesses, organizations, governments, and communities to create real-life impacts towards clean air and equitable access to clean transportation for all.

Global MOU

CALSTART's Drive to Zero Program and the Government of the Netherlands co-lead the *Global Memorandum of Understanding on Zero-Emission Medium- and Heavy-Duty Vehicles*.

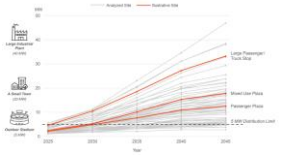
38 Signatory countries

180+ Endorsers

100% New ZE-MHDVs by 2040

Our Value Proposition

Science-based targets and research



270+ member companies



Market accelerator programs

CALIFORNIA HVIP

EnergIIZE COMMERCIAL VEHICLES

Clean Mobility Options

NEW YORK STATE OF OPPORTUNITY. Truck Voucher Incentive Program

CALSTART

Implementation and technology demonstration



Regulatory and policy guidance





GLOBAL MEMORANDUM OF UNDERSTANDING

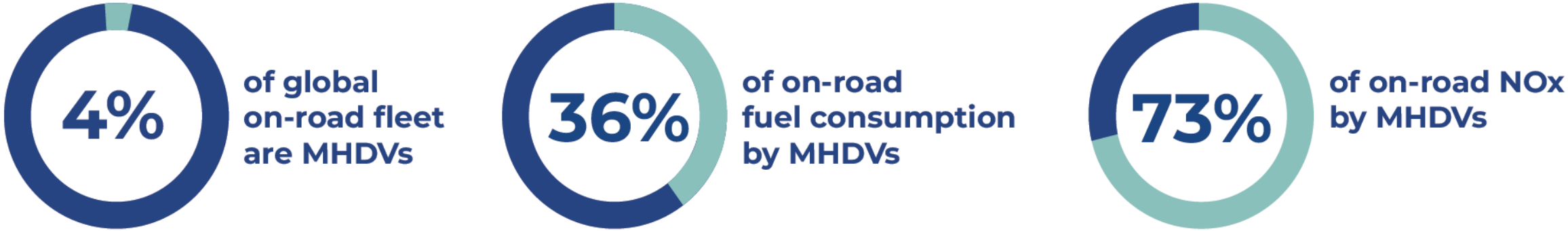
DRIVE TO ZERO



1. **Medium- and Heavy-Duty Vehicles**
2. Long term corridor planning
3. Implementing green road corridors

THE CHALLENGE

Medium- and Heavy-Duty Vehicles (MHDVs) represent a small share of the global fleet, yet contribute disproportionately to fuel consumption and emissions



Source: CALSTART, 2020

THE OPPORTUNITY

ZE-MHDVs offer substantial economic and air pollution benefits

~30% lower fuel and **~60%** lower maintenance costs compared to diesel

IADB, 2022

~$3.4 trillion USD in potential annual ZEV investments globally

McKinsey & Co, 2022

Brent crude oil barrel price
$14 low in 2020
$130 high in 2022

U.S. Energy Information Administration, 2023

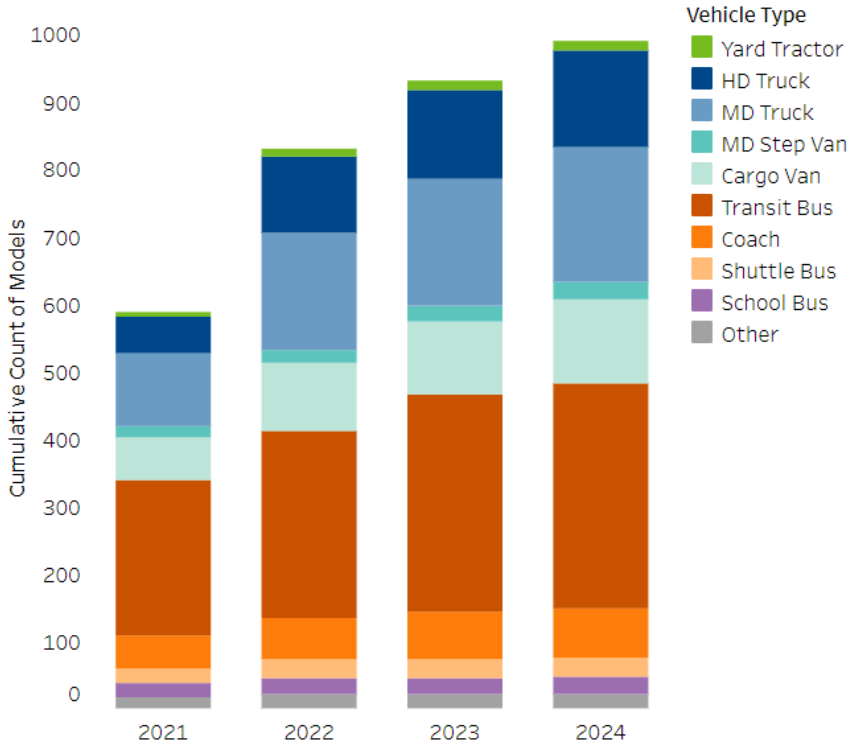
Air pollution | ZE-MHDVs eliminate diesel tailpipe emissions, responsible for **180,000 premature deaths** annually.

ICCT, 2019

THE SOLUTION

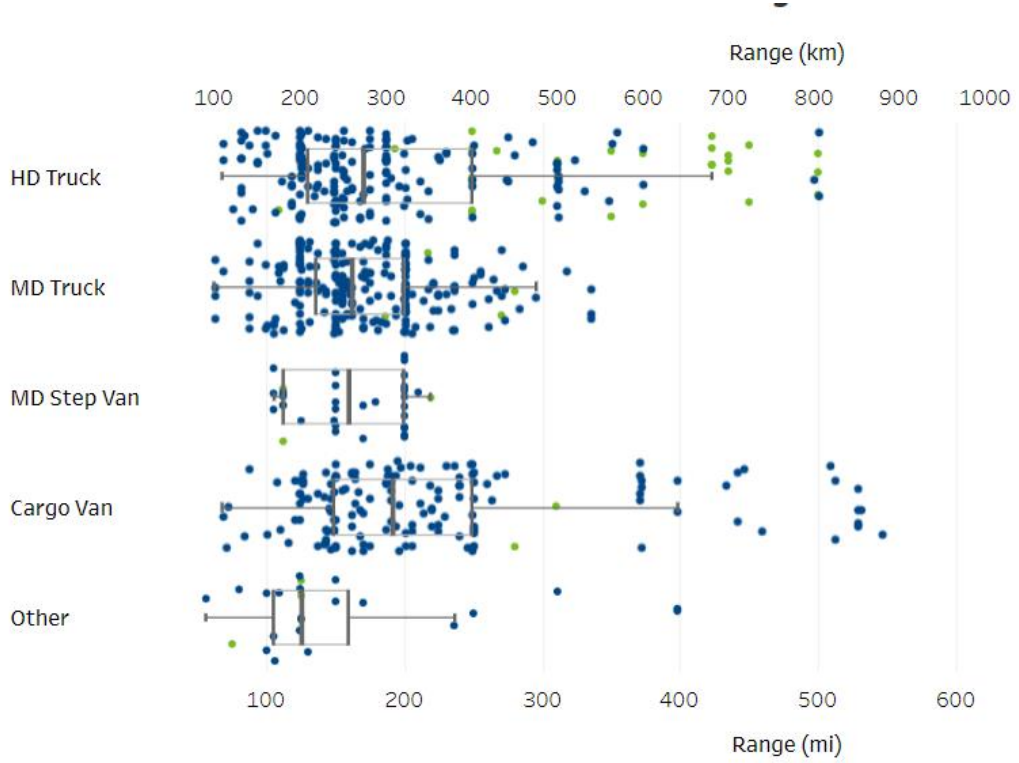
Zero-emission (ZE) technologies have reached maturity across most MHDV segments

More than 960 different ZE-MHDV models are available worldwide



Models Available by Vehicle Type

Current vehicle ranges already **meet or exceed** most fleet needs



Zero-Emission Truck Range by Vehicle Segment

Source: CALSTART'S D2Z Zero-Emission Technology Inventory (ZETI)

THE GLOBAL MOU ON ZE-MHDVs

38 nations, **+180** endorsers, **100%** new ZE-MHDV sales **by 2040**



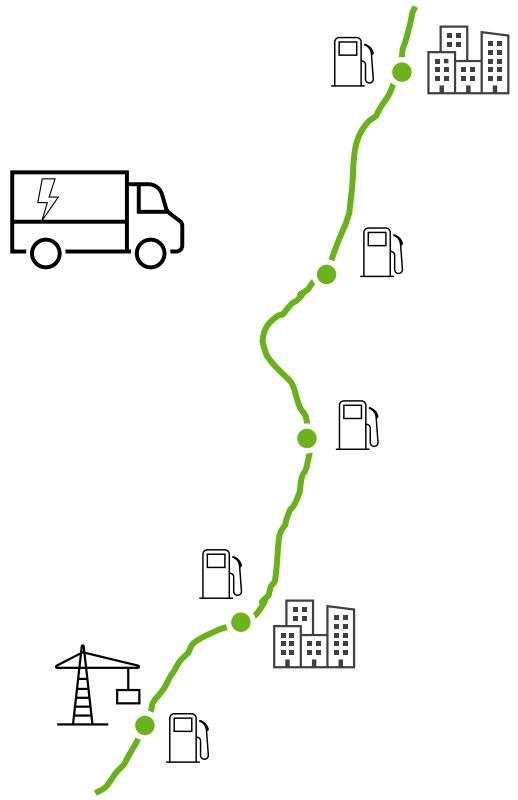


1. Medium- and Heavy-Duty Vehicles
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Green Road Corridors

What is a green road corridor?

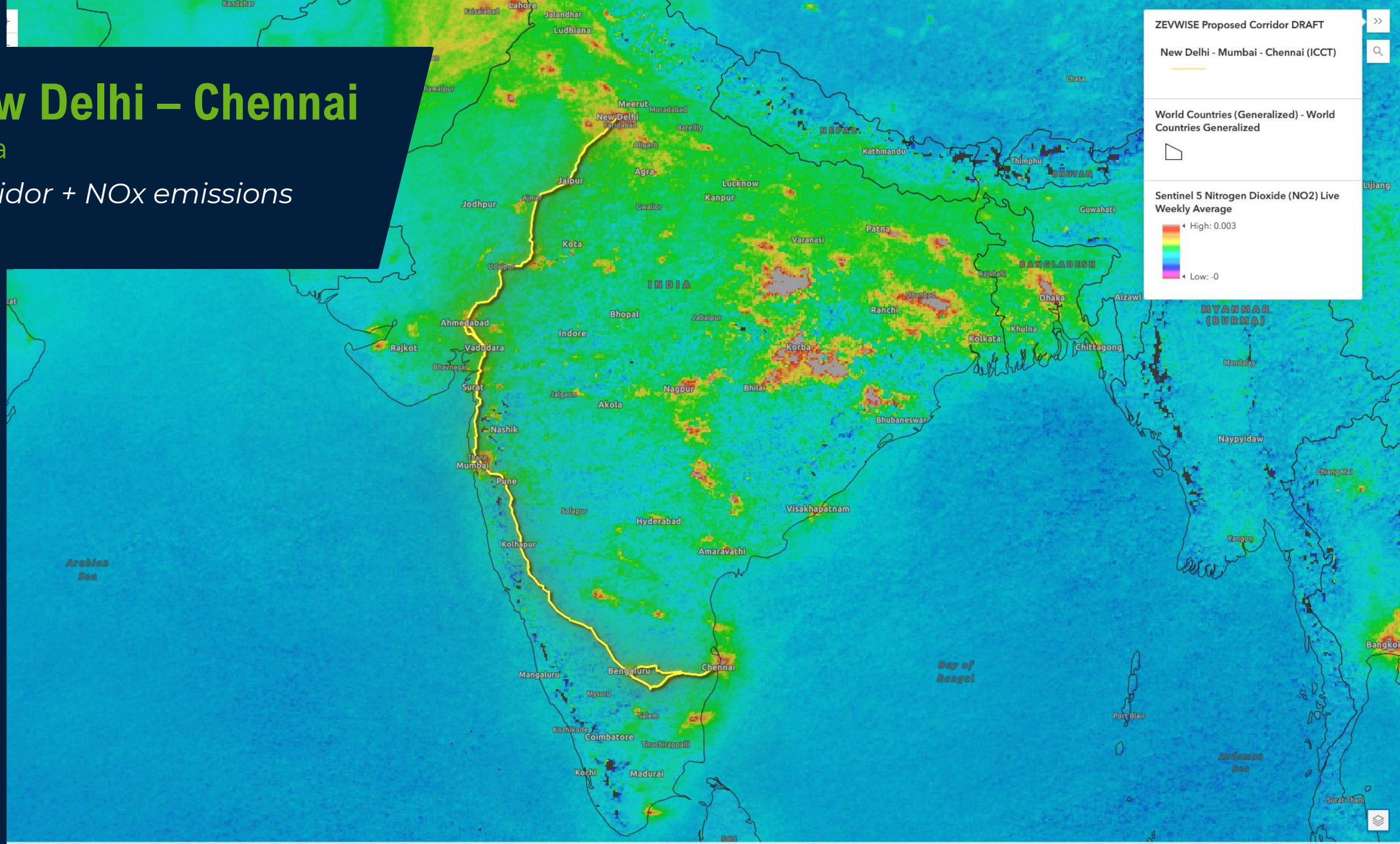
A **green road corridor** is a subsystem of highways that facilitates movement of battery electric and hydrogen fuel cell electric MHDVs by providing adequate, convenient, and reliable access to **electric charging and hydrogen refueling infrastructure** at strategic locations along the network.



New Delhi – Chennai

India

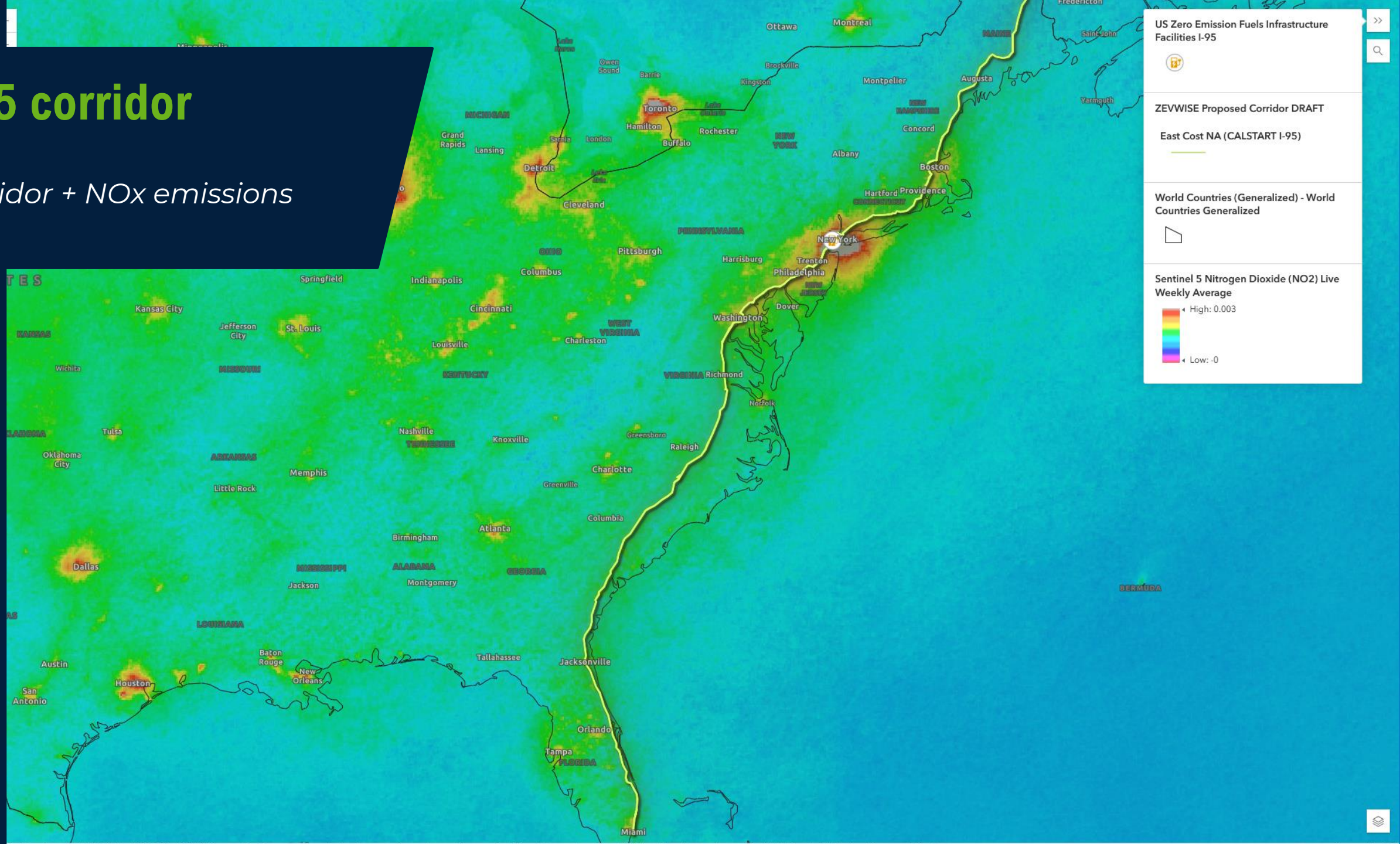
Corridor + NOx emissions



I-95 corridor

USA

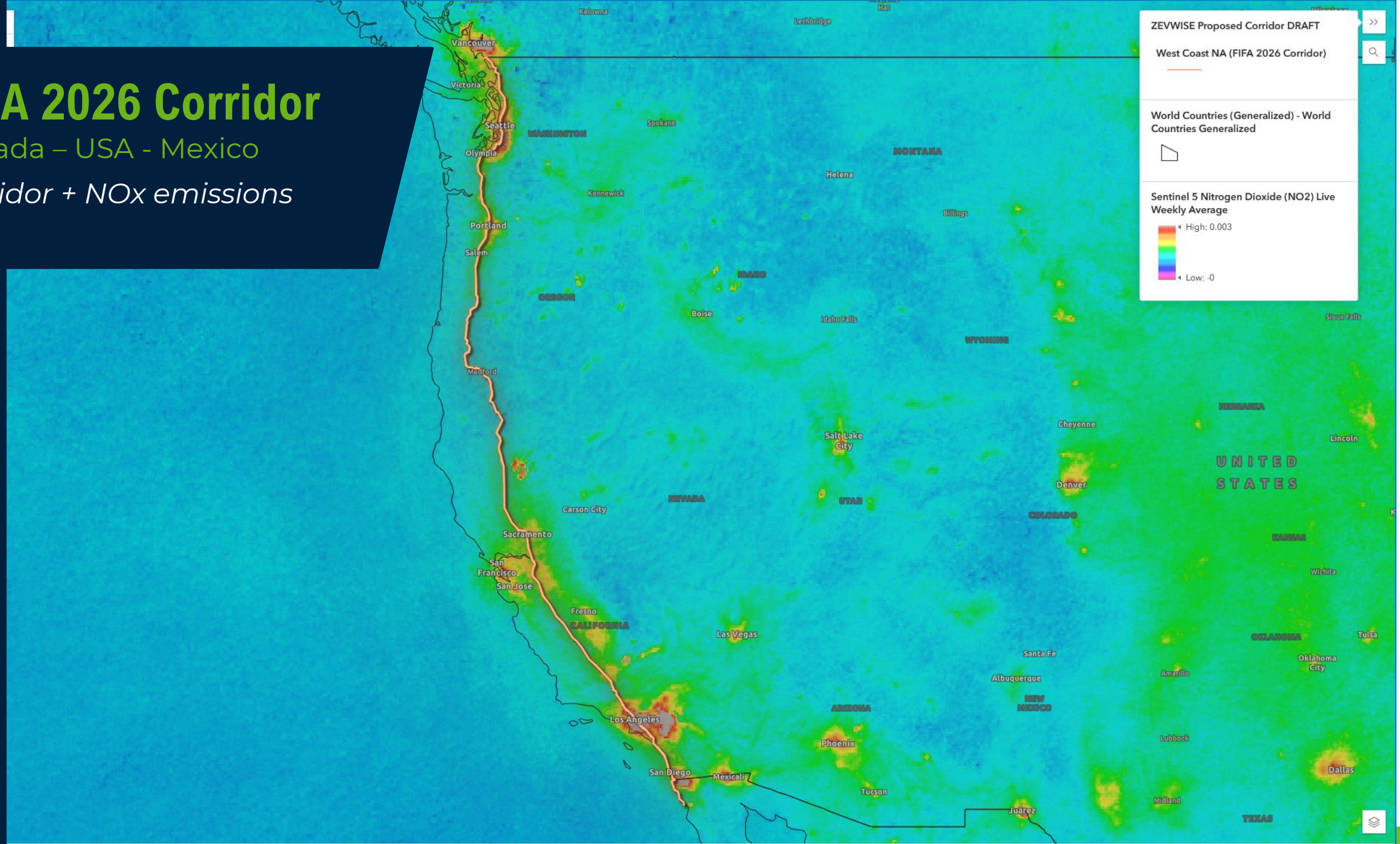
Corridor + NOx emissions



FIFA 2026 Corridor

Canada – USA - Mexico

Corridor + NOx emissions

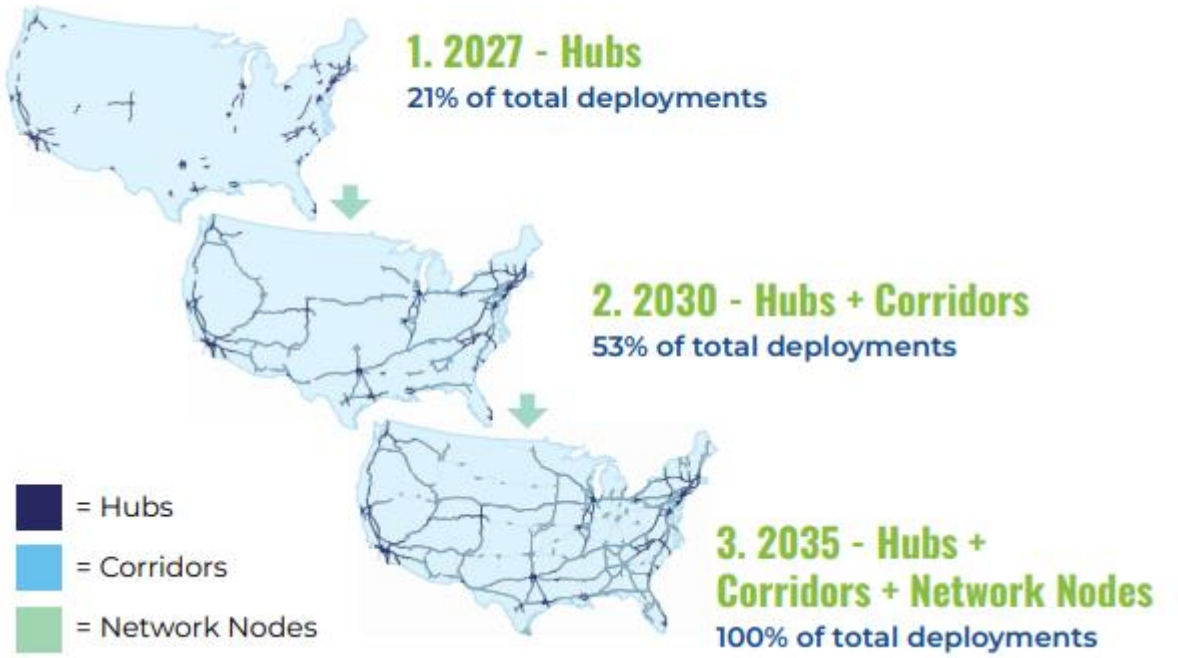


PHASE-IN INFRASTRUCTURE STRATEGY

You can’t build everything, everywhere, all at once

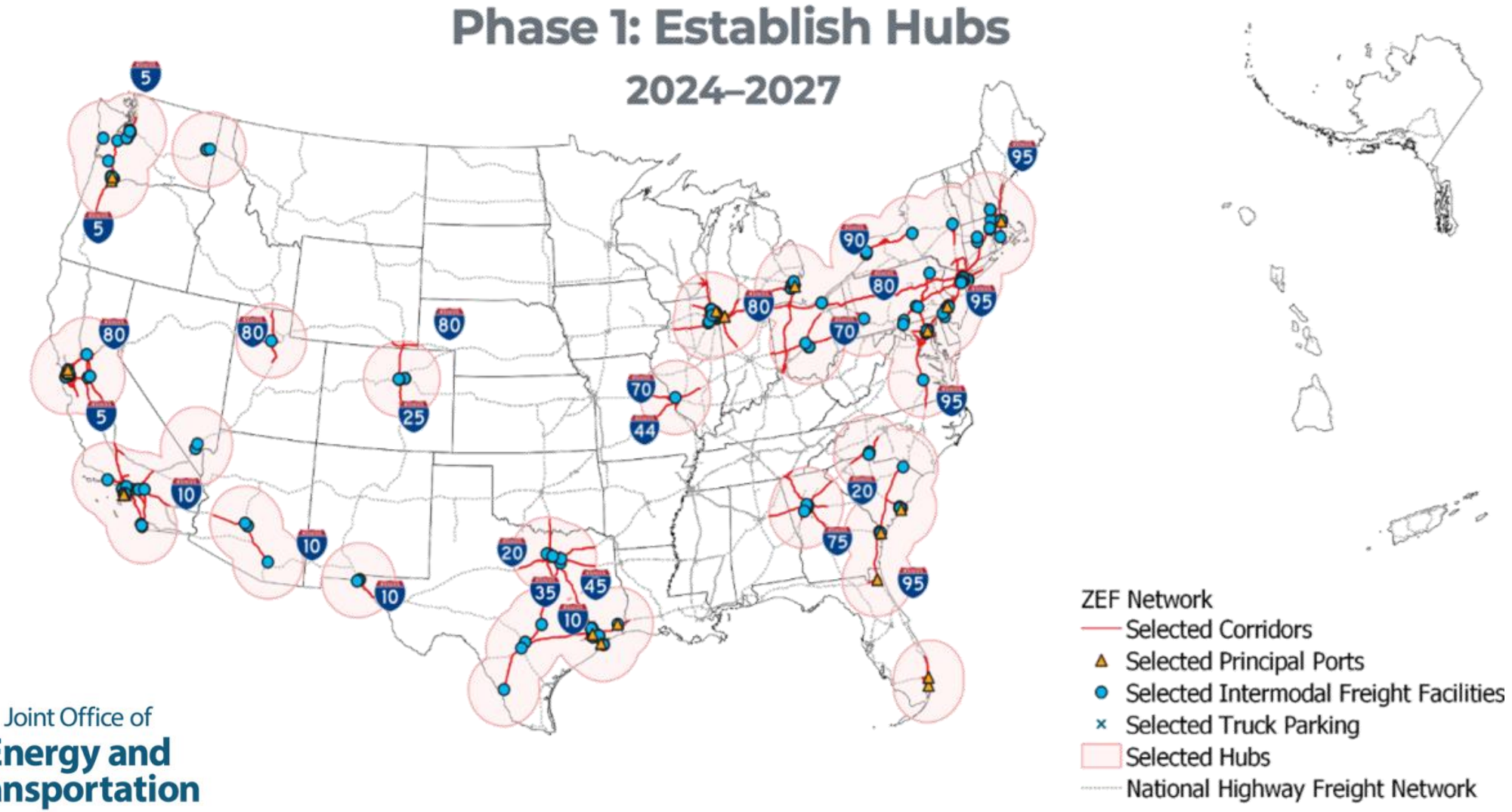
Key factors

1. Where vehicles operate
2. How fast will they transition (Global MOU)
3. How much energy will be needed
4. Which areas are prioritized for investment (Global MOU)
5. Where are grid improvements likely



THE NATIONAL ZERO-EMISSION FREIGHT CORRIDOR STRATEGY

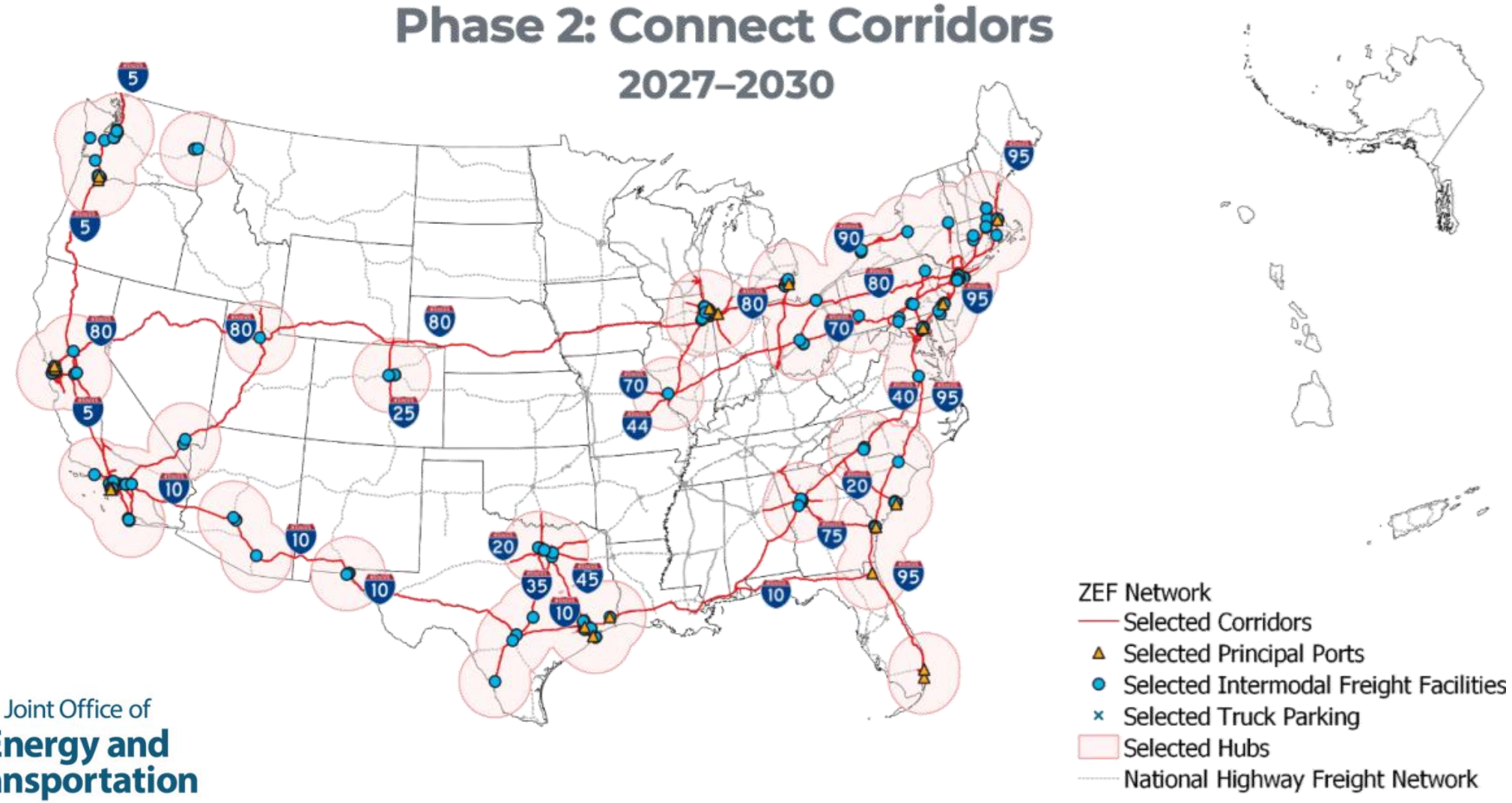
U.S. Example



Joint Office of Energy and Transportation

THE NATIONAL ZERO-EMISSION FREIGHT CORRIDOR STRATEGY

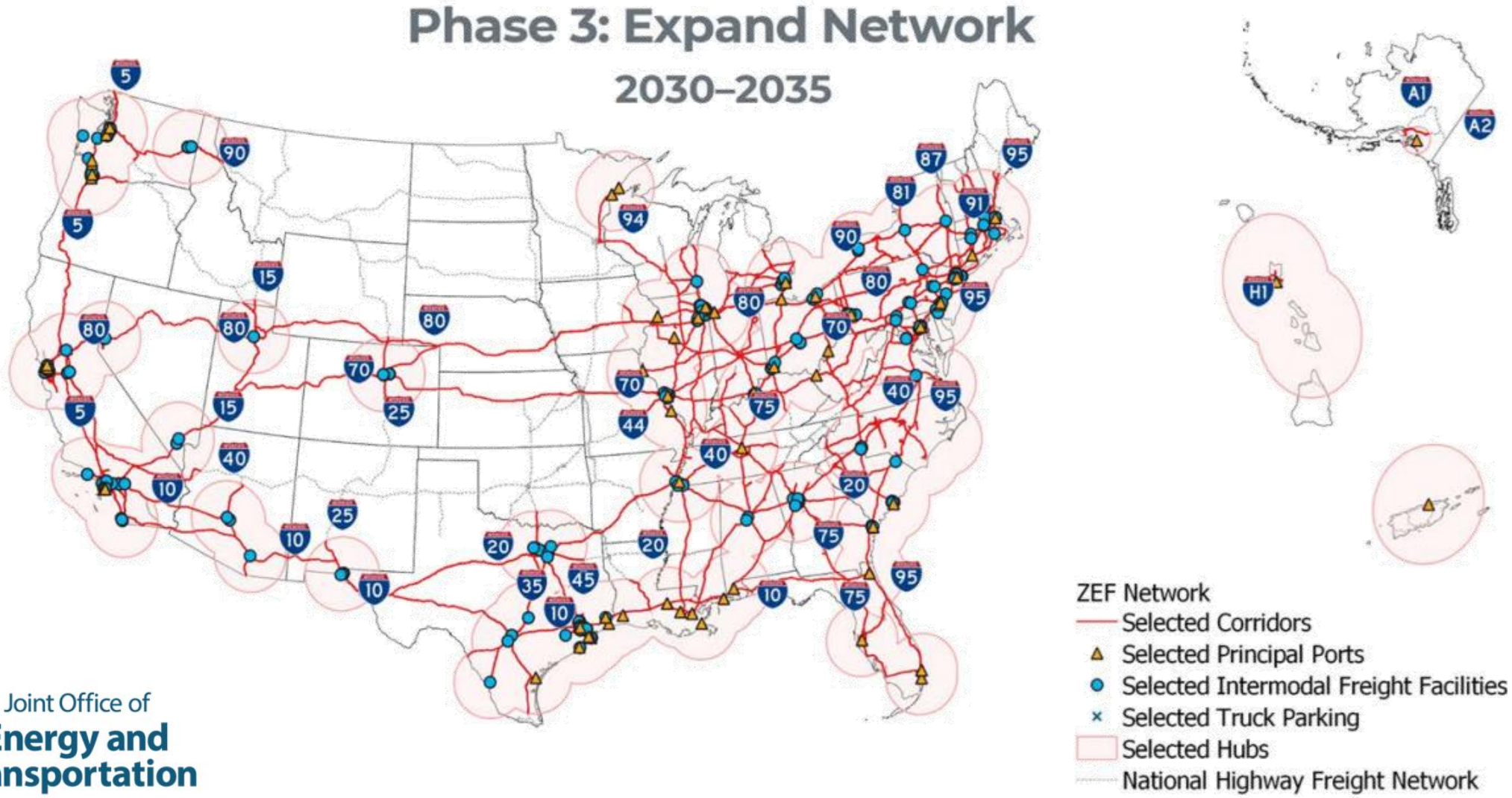
U.S. Example



Joint Office of Energy and Transportation

THE NATIONAL ZERO-EMISSION FREIGHT CORRIDOR STRATEGY

U.S. Example



Joint Office of Energy and Transportation



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THE GLOBAL GREEN ROAD CORRIDORS INITIATIVE

Deploy. Learn. Share. Scale.



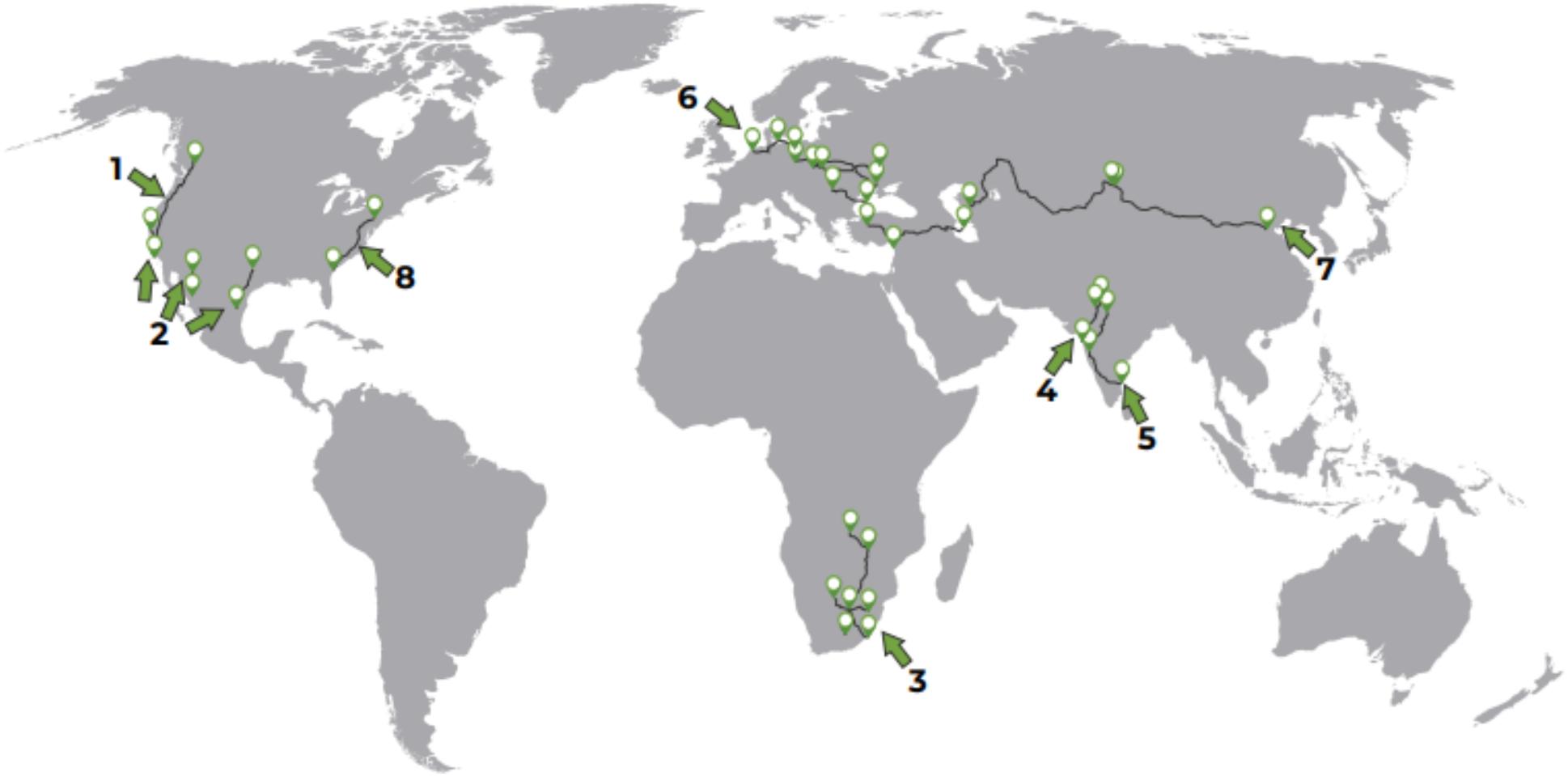
THE GLOBAL GREEN ROAD CORRIDORS INITIATIVE

Advance at least **10** global ZE-MDHV corridors by 2026

THE WORLD BANK · U.S. DEPARTMENT OF ENERGY · Department for Energy Security & Net Zero · International Transport Forum · UN environment · icct THE INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION · GLOBAL COMMERCIAL VEHICLE DRIVE TO ZERO · Smart Freight Centre · Government of the Netherlands · CALSTART · ELECTRIC VEHICLES INITIATIVE AN INITIATIVE OF THE CLEAN ENERGY MINISTERIAL · wbcsd

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THE GLOBAL GREEN ROAD CORRIDORS INITIATIVE

Deploy. Learn. Share. Scale.

Strategy

- Targeted collaboration
- Knowledge aggregation
- Streamlined practice-based approach
- Capital provider engagement
- Replication and scale

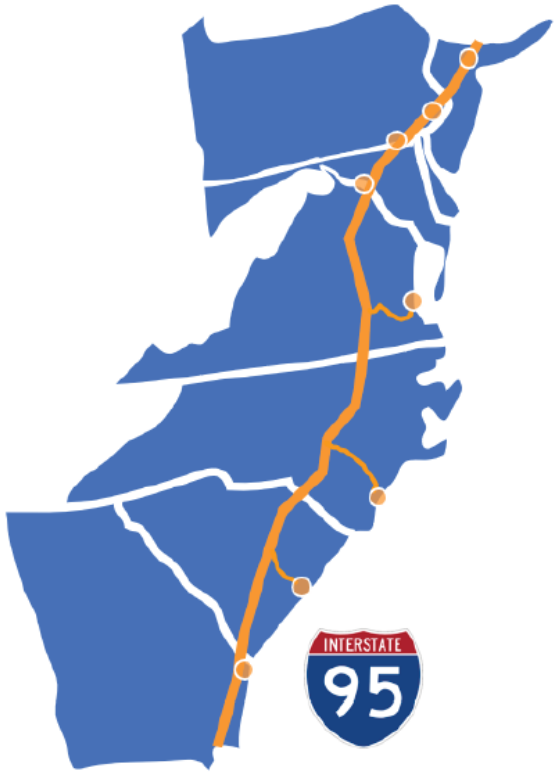
Outcomes

Demonstrate that even the hardest road transport segments can be **decarbonized today**

Catalyze a **just, global transition** to a zero-emission transportation future

THE I-95 EAST COAST COMMERCIAL ZEV CORRIDOR

U.S. Example



New Jersey to Georgia

Funder | U.S. Department of Energy

Lead | CALSTART

Key objectives

- Develop strategic plan for commercial ZEV infrastructure
- Build consortium
- Identify key freight nodes
- Identify policies and incentives to accelerate the market, promote technical assistance, and develop the workforce
- Guide investment

MOVE FORWARD

Targets and collaboration. Long-term planning. Corridor deployments.

GLOBAL MEMORANDUM OF UNDERSTANDING

Define a timebound target that makes long-term planning possible

Collaborate with government peers

Receive technical support



Develop an infrastructure phase-in plan that guides investment

THE GLOBAL GREEN ROAD CORRIDORS INITIATIVE

Work with and learn from partners to move from plan to implementation

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September 2024

SITE CONFIGURATIONS

Corridors require multiple configurations that meet fleets needs



Hub
Return-to-base infrastructure near ports and in industry clusters either private, shared, or multi-use



Corridor Connector
Private and public shared or pull-through sites on key routes, enabling point-to-point operations



National Network Node
Sites linking key corridors and leveraging public investment to make access ubiquitous