

BEGIN

ALTERNATIVE  
FUELS  
CORRIDOR



# Interagency Collaborations: FAST Act Section 1413- Alternative Fuels Corridor Designations

2019 HYDROGEN & FUEL CELLS PROGRAM ANNUAL MERIT REVIEW

APRIL 30, 2019

ARLINGTON, VA

MIKE SCARPINO | U.S. DEPARTMENT OF TRANSPORTATION- VOLPE CENTER



# National Alternative Fuel Corridors



To improve the mobility of alternative fuel vehicles, the U.S. Department of Transportation (DOT) has designated national corridors in strategic locations along major highways for:

- ▶ Plug-in electric vehicle charging
- ▶ Hydrogen fueling
- ▶ Propane (LPG) fueling
- ▶ Natural gas (CNG, LNG) fueling

# Benefits of a National System

## ALTERNATIVE FUELS CORRIDOR

- Allows for inter-city, regional, and national travel using clean-burning fuels
- Addresses range anxiety
- Integrates with existing transportation planning processes
- Accelerates public interest and awareness of alternative fuel availability

# Corridor-Ready Criteria

EV	CNG	LNG	Hydrogen	Propane
DCFC only	150 miles between stations	200 miles between stations	100 miles between stations	150 miles between stations
50 miles between stations	5 miles from highway			5 miles from highway
5 miles from highway	Public stations only	5 miles from highway	5 miles from highway	Public stations only
Public stations only (no Tesla)	Fast fill, 3,600 psi	Public stations only	Public stations only	Primary stations only

# Highway Signage

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## ➤ MUTCD Memorandum – Signing for Designated Corridors

- ✓ Provides guidance to State DOTs
- ✓ First corridor signs installed on I-94 and I-26
- ✓ FHWA developed FAQs to address commonly asked questions (see AFC website)

I-94 (Minnesota)



Pictured from left, Louisiana Department of Natural Resources Secretary Tom Harris, Louisiana Department of Transportation and Development (DOTD) Secretary Shawn Wilson, Gov. John Bel Edwards and [#LDEQ](#) Secretary Chuck Carr Brown.



I-26 (South Carolina)

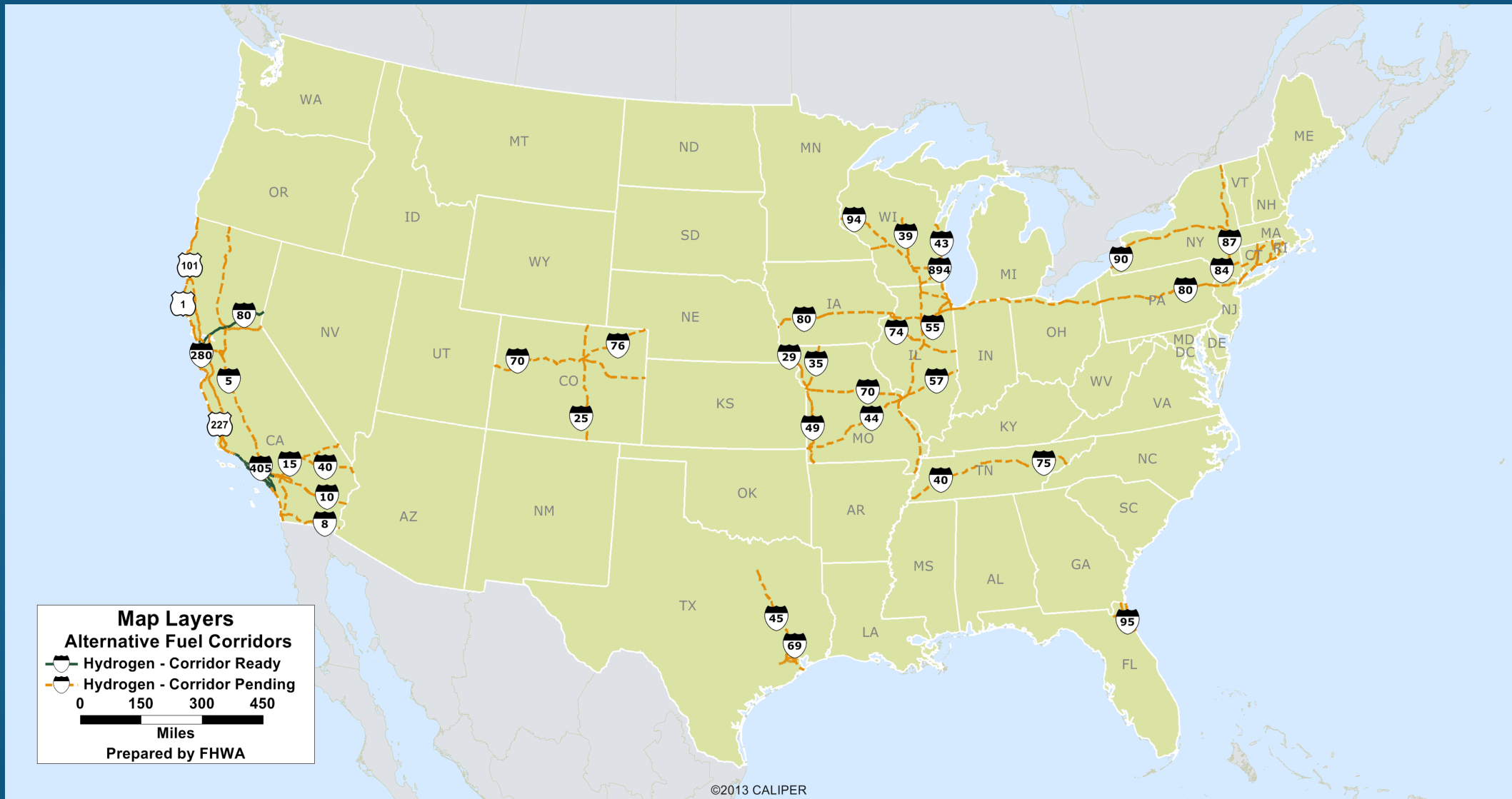
# Combined Results Rounds 1&2

- Designations....
  - ✓ **58** nominations
  - ✓ Includes portions/segments of **84** Interstates, along with **43** US highways/state roads
  - ✓ Comprise **44 states plus D.C.**
  - ✓ Covers **over 100,000** miles of the National Highway System (all fuels combined)

# FY 2018 Request for Nominations

- Round 3 request for nominations - October 2018
- Distributed through FHWA Division Offices
- Nominations due the end of January 2019
- Designations made in spring 2019
- No change in designation criteria
- Some changes in shapefile submissions

# Alternative Fuel National Corridors – *Hydrogen Round 1 & 2*





# Alternative Fuel National Corridors – Round 1 & 2

## Hydrogen Maps – California and Northeast



# Partnering/Collaborations with Department of Energy

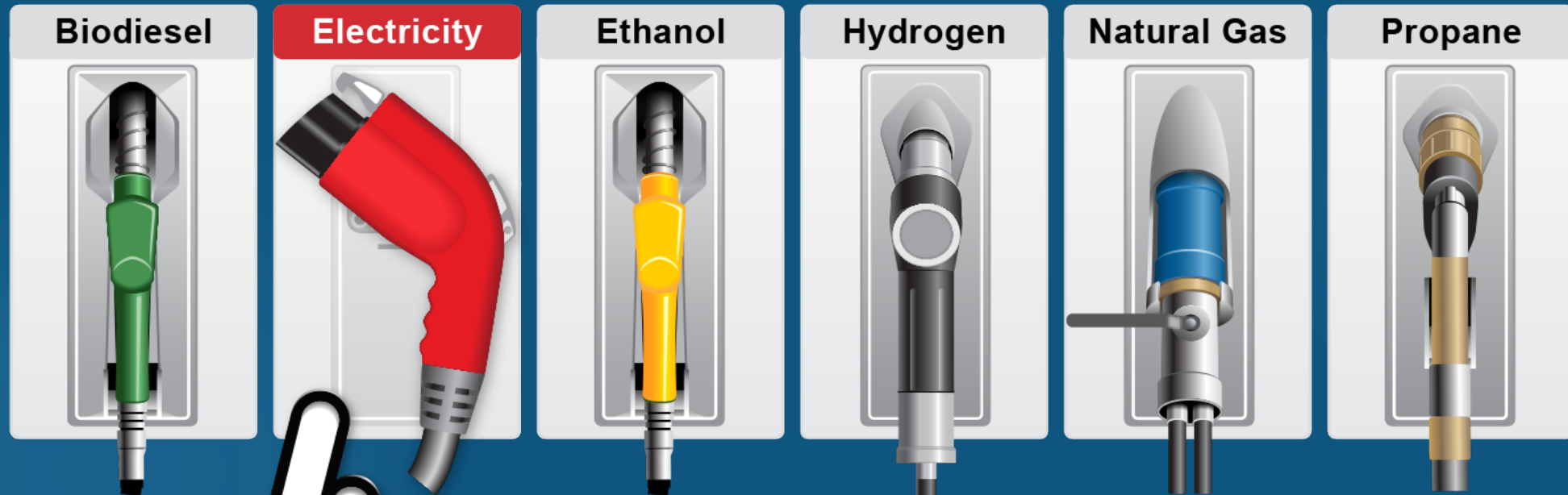
- ▶ Vehicle Technologies Office/Clean Cities:
  - ▶ Technical/Program support
  - ▶ Fund Clean Cities coalition support
  - ▶ Motorweek
- ▶ National Renewable Energy Lab
  - ▶ Maintains database of fueling stations
  - ▶ Develop corridor specific tools & resources
- ▶ Fuel Cells Technologies Office
  - ▶ Coordinating station deployment/corridor efforts on West Coast and Northeast



# Alternative Fuels Data Center

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[afdc.energy.gov](http://afdc.energy.gov)



*The premier information resource for  
alternative fuels and advanced vehicles*

# Embeddable Application

[afdc.energy.gov/corridors](http://afdc.energy.gov/corridors)

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The screenshot shows the 'Alternative Fuels Data Center' website. The header includes the U.S. Department of Energy logo and navigation links. The main content area features a search bar and a 'Locate Stations' button. Below this, there are tabs for 'Find Public Stations', 'Analyze & Download Data', and 'Explore Fuel Corridors'. The 'Explore Fuel Corridors' tab is active, displaying a map of the United States with 3354 designated miles. The map shows 'Complete Corridor' (solid black lines) and 'Planned Corridor' (dashed red lines). A legend in the bottom right corner of the map area identifies these line types. At the bottom of the page, there are links for 'Developer APIs', 'Embed Tool', and 'About the Data'.

1

## Alternative Fuels Data Center

The corridor mapping tool will be available as a third tab on the Alternative Fueling Station Locator.

The screenshot shows the 'Alternative Fuel Corridors' tool on the Federal Highway Administration website. The header includes the U.S. Department of Transportation logo and navigation links. The main content area features a search bar and a 'Locate Stations' button. Below this, there are tabs for 'Find Public Stations', 'Analyze & Download Data', and 'Explore Fuel Corridors'. The 'Explore Fuel Corridors' tab is active, displaying a map of the United States with 3354 designated miles. The map shows 'Complete Corridor' (solid black lines) and 'Planned Corridor' (dashed red lines). A legend in the bottom right corner of the map area identifies these line types. At the bottom of the page, there are links for 'Developer APIs', 'Embed Tool', and 'About the Data'.

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## Federal Highway Administration

The corridor mapping tool can be embedded as a standalone application on the FHWA website or any other website.

# Resources for Nominating Corridors

[afdc.energy.gov/corridors](https://afdc.energy.gov/corridors)

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## Alternative Fuels Data Center

- FUELS & VEHICLES
- CONSERVE FUEL
- LOCATE STATIONS
- LAWS & INCENTIVES
- Maps & Data
- Case Studies
- Publications
- Tools**
- About
- Home

Search the AFDC

EERE > AFDC > Tools

[Printable Version](#) [Share](#)

### Station Data for Nominating Alternative Fuel Corridors

The table below provides station data and shapefiles by state and fuel type. These datasets include public stations with the following filters applied to meet the criteria for nominating alternative fuel corridors:

- **EV charging** – only DC fast electric vehicle (EV) charging stations, excluding Tesla
- **Hydrogen** – only retail stations (Non-retail stations may be used in corridor nominations if the stations are compliant with SAE J2601 standards and meet all of the criteria for a hydrogen corridor.)
- **Propane** – only "primary" liquefied petroleum gas (LPG) stations, which have fuel for vehicles and vehicle-specific fueling services that are consistently offered during business hours
- **CNG** – only fast-fill compressed natural gas (CNG) stations that offer a fill pressure of 3,600 psi
- **LNG** – all liquefied natural gas (LNG) stations

The data downloads are CSVs with current station data pulled automatically from the [Alternative Fueling Station Locator](#). The shapefiles are ZIP downloads with a static snapshot of the stations as of Sept. 5, 2018, including stations outside state borders within 25 miles.

Learn more about corridor designations from the [Federal Highway Administration](#).



### Explore Potential Corridors

Use the prototype mapping tool to explore potential corridors by fuel:

- [EV charging](#)
- [Hydrogen](#)
- [Propane](#)
- [CNG](#)
- [LNG](#)

Stations by State and Fuel Type

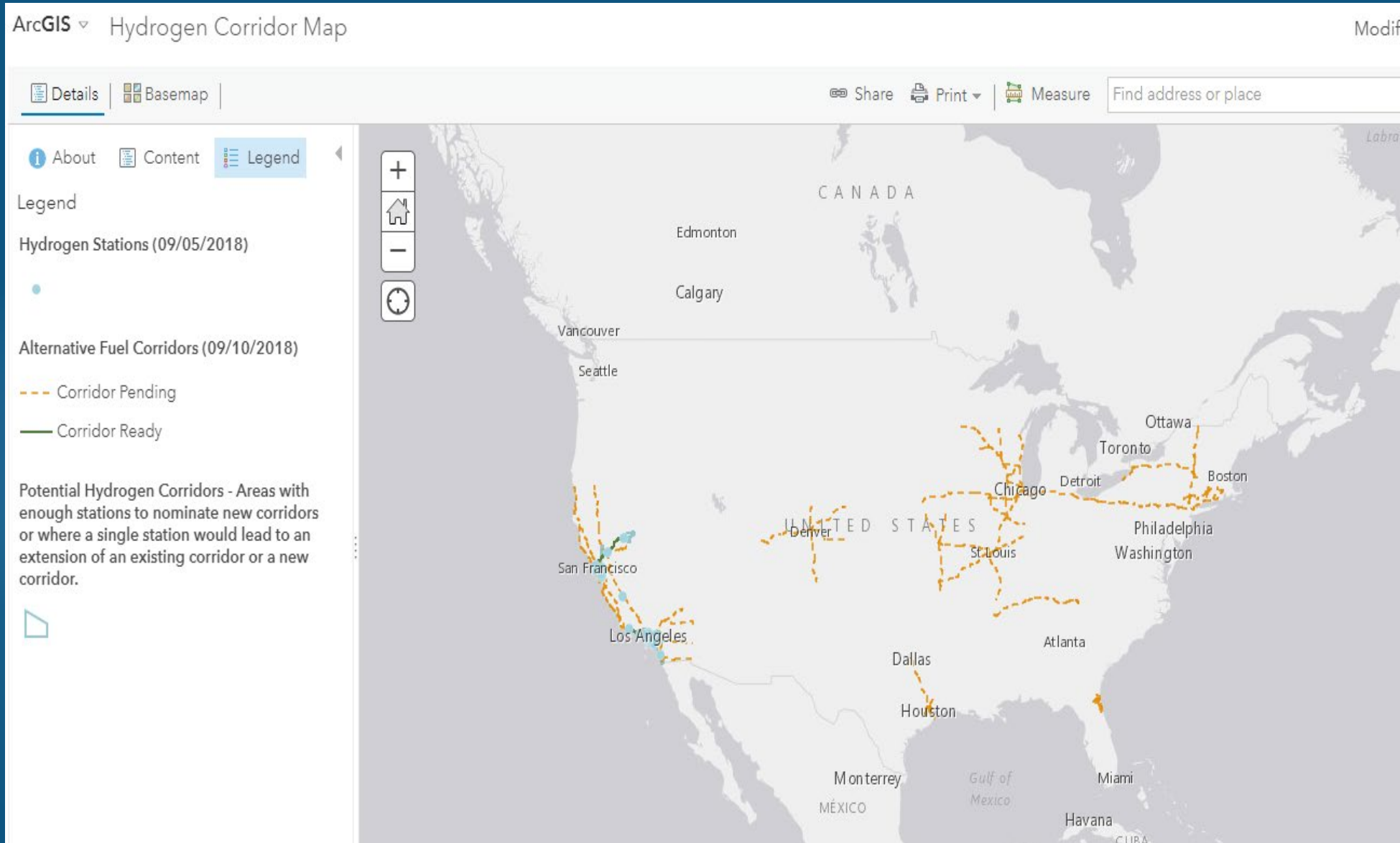
State	EV Charging	Hydrogen	Propane	CNG	LNG
Alabama	<a href="#">data</a>   <a href="#">shapefile</a>	<a href="#">data</a>   <a href="#">shapefile</a>	<a href="#">data</a>   <a href="#">shapefile</a>	<a href="#">data</a>   <a href="#">shapefile</a>	<a href="#">data</a>   <a href="#">shapefile</a>
Alaska	<a href="#">data</a>   <a href="#">shapefile</a>	<a href="#">data</a>   <a href="#">shapefile</a>	<a href="#">data</a>   <a href="#">shapefile</a>	<a href="#">data</a>   <a href="#">shapefile</a>	<a href="#">data</a>   <a href="#">shapefile</a>
Arizona	<a href="#">data</a>   <a href="#">shapefile</a>	<a href="#">data</a>   <a href="#">shapefile</a>	<a href="#">data</a>   <a href="#">shapefile</a>	<a href="#">data</a>   <a href="#">shapefile</a>	<a href="#">data</a>   <a href="#">shapefile</a>
Arkansas	<a href="#">data</a>   <a href="#">shapefile</a>	<a href="#">data</a>   <a href="#">shapefile</a>	<a href="#">data</a>   <a href="#">shapefile</a>	<a href="#">data</a>   <a href="#">shapefile</a>	<a href="#">data</a>   <a href="#">shapefile</a>
California	<a href="#">data</a>   <a href="#">shapefile</a>	<a href="#">data</a>   <a href="#">shapefile</a>	<a href="#">data</a>   <a href="#">shapefile</a>	<a href="#">data</a>   <a href="#">shapefile</a>	<a href="#">data</a>   <a href="#">shapefile</a>
Colorado	<a href="#">data</a>   <a href="#">shapefile</a>	<a href="#">data</a>   <a href="#">shapefile</a>	<a href="#">data</a>   <a href="#">shapefile</a>	<a href="#">data</a>   <a href="#">shapefile</a>	<a href="#">data</a>   <a href="#">shapefile</a>
Connecticut	<a href="#">data</a>   <a href="#">shapefile</a>	<a href="#">data</a>   <a href="#">shapefile</a>	<a href="#">data</a>   <a href="#">shapefile</a>	<a href="#">data</a>   <a href="#">shapefile</a>	<a href="#">data</a>   <a href="#">shapefile</a>

- Shapefiles
- Interactive maps
- CSV downloads

# Interactive Map

[afdc.energy.gov/corridors](https://afdc.energy.gov/corridors)

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# Stations Layer - CA

[afdc.energy.gov/corridors](http://afdc.energy.gov/corridors)

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ArcGIS ▾ Hydrogen Corridor Map

Details | Basemap |

Share | Print ▾ | Measure | Find address or place

About | Content | Legend

## Legend

### Hydrogen Stations (09/05/2018)



### Alternative Fuel Corridors (09/10/2018)

--- Corridor Pending

— Corridor Ready

Potential Hydrogen Corridors - Areas with enough stations to nominate new corridors or where a single station would lead to an extension of an existing corridor or a new corridor.



### National Highway Network

National Highway Network - Road Shields

Interstates

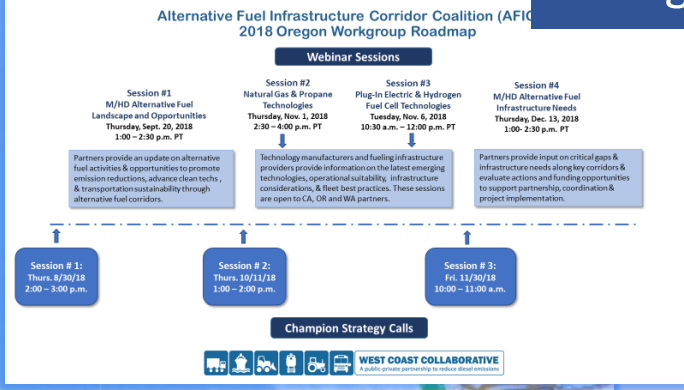


# U.S. EPA Diesel Collaboratives Advancing Alternative Fuel Corridors



Northeast, Southeast, & West Coast Diesel Collaboratives are promoting corridors for Medium – and Heavy-Duty Alternative Fuel Vehicles

- Regional Multistate Public and Private Partnerships
- Discuss Regional Air Quality & Transportation Priorities
- Facilitate Educational Webinars on Advanced Techs
- Evaluate Opportunities for Infrastructure Development
- Explore State, Federal and Private Funding Sources
- Develop Roadmaps to “Fill in the Infrastructure Gap”
- Regularly Convene Partners to Evaluate Progress







# Federal Highway Administration Regional Alternative Fuel Corridor Convenings

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- ▶ Team to hold 5 regional convenings:
  - ▶ To Date: Midwest (MN), Southeast (SC), South Central (TX)
  - ▶ Next Up: Northeast/Mid-Atlantic (RI) and REV West (Salt Lake City)
- ▶ Strengthen coordination b/w states, public and private partners
- ▶ Evaluate regional priorities & needs, programs, and resources to expand corridors
- ▶ Identify critical infrastructure gaps
- ▶ Discuss a regional strategy to promote clean vehicle adoption and corridor growth
- ▶ Foster partnership development

## 2018 Regional Convenings

**Midwest AFC**  
St. Paul, MN  
June 12, 2018



**Southeast AFC**  
Charleston, SC  
September 25, 2018

# Future of AFC Program

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- Request for Nominations on an annual basis under life of FAST Act
- Possible inclusion in the next transportation reauthorization bill or other legislation
- Enhanced coordination efforts with Clean Cities Program/NREL and other Federal/State agencies
- Enhanced collaboration with stakeholders including industry



# For More Information

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## DOT Alternative Fuel Corridor Team Contact Information

### **Diane Turchetta**

U.S. Department of Transportation  
Federal Highway Administration  
202-493-0158  
[diane.turchetta@dot.gov](mailto:diane.turchetta@dot.gov)

### **Mike Scarpino**

U.S. Department of Transportation  
Volpe Center  
617-494-3373  
[michael.scarpino@dot.gov](mailto:michael.scarpino@dot.gov)

### **Stephen Costa**

U.S. Department of Transportation  
Volpe Center  
617-494-3852  
[stephen.costa@dot.gov](mailto:stephen.costa@dot.gov)

## Resources

FHWA Alternative Fuel Corridor website:

[http://www.fhwa.dot.gov/environment/alternative\\_fuel\\_corridors/](http://www.fhwa.dot.gov/environment/alternative_fuel_corridors/)

MUTCD Memorandum – Signing for Designated Alternative Fuel Corridors:

[https://mutcd.fhwa.dot.gov/resources/policy/alt\\_fuel\\_corridors/index.htm](https://mutcd.fhwa.dot.gov/resources/policy/alt_fuel_corridors/index.htm)

DOE/NREL Alternative Fueling Station Locator & Corridor Tools:

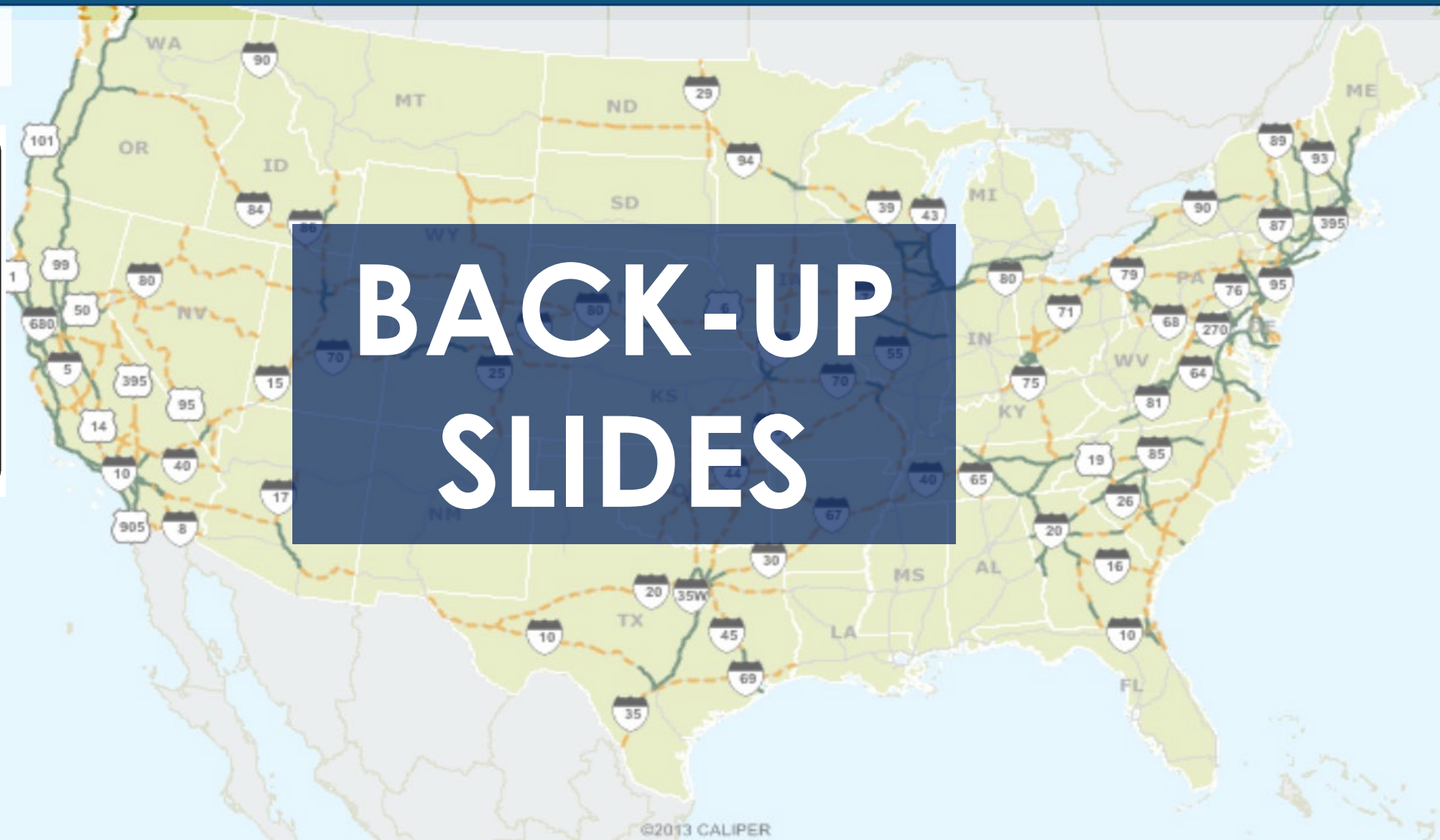
<https://afdc.energy.gov/stations/>  
<https://afdc.energy.gov/corridors>

Motorweek Video Segment on Corridors:

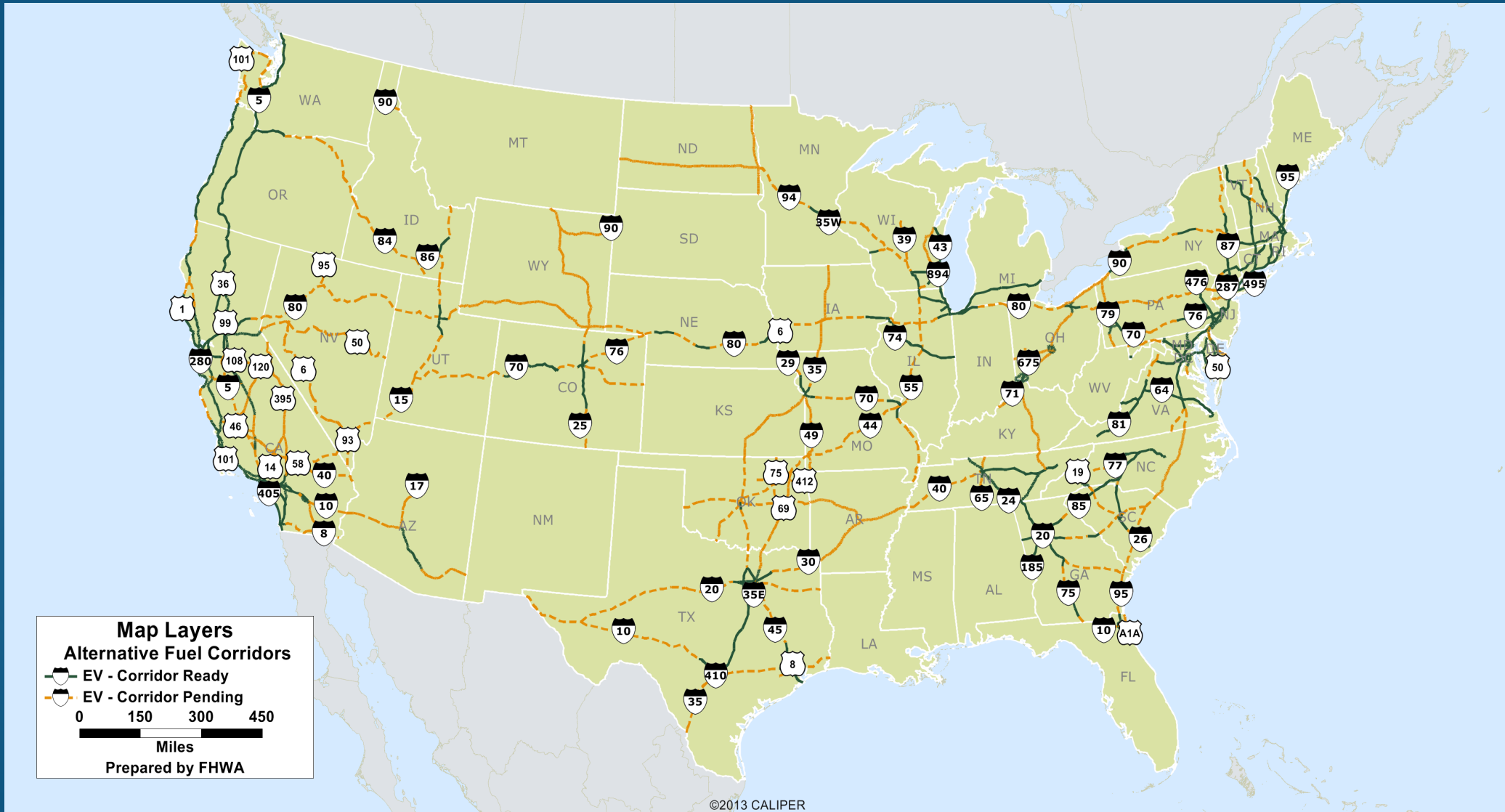
<https://www.youtube.com/watch?v=QZhLFqTXb-g>

ALTERNATIVE  
FUELS  
CORRIDOR

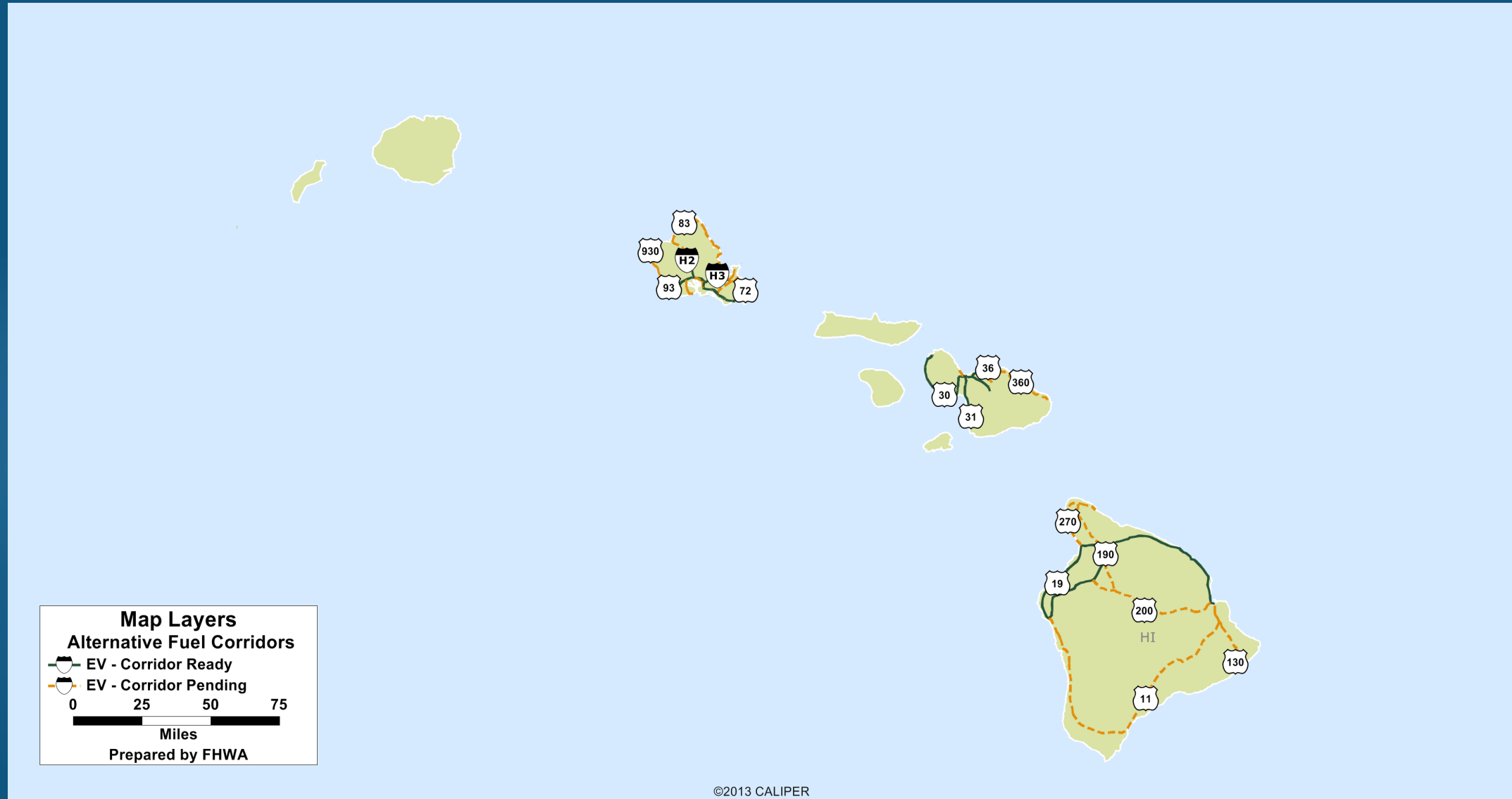
BACK-UP  
SLIDES



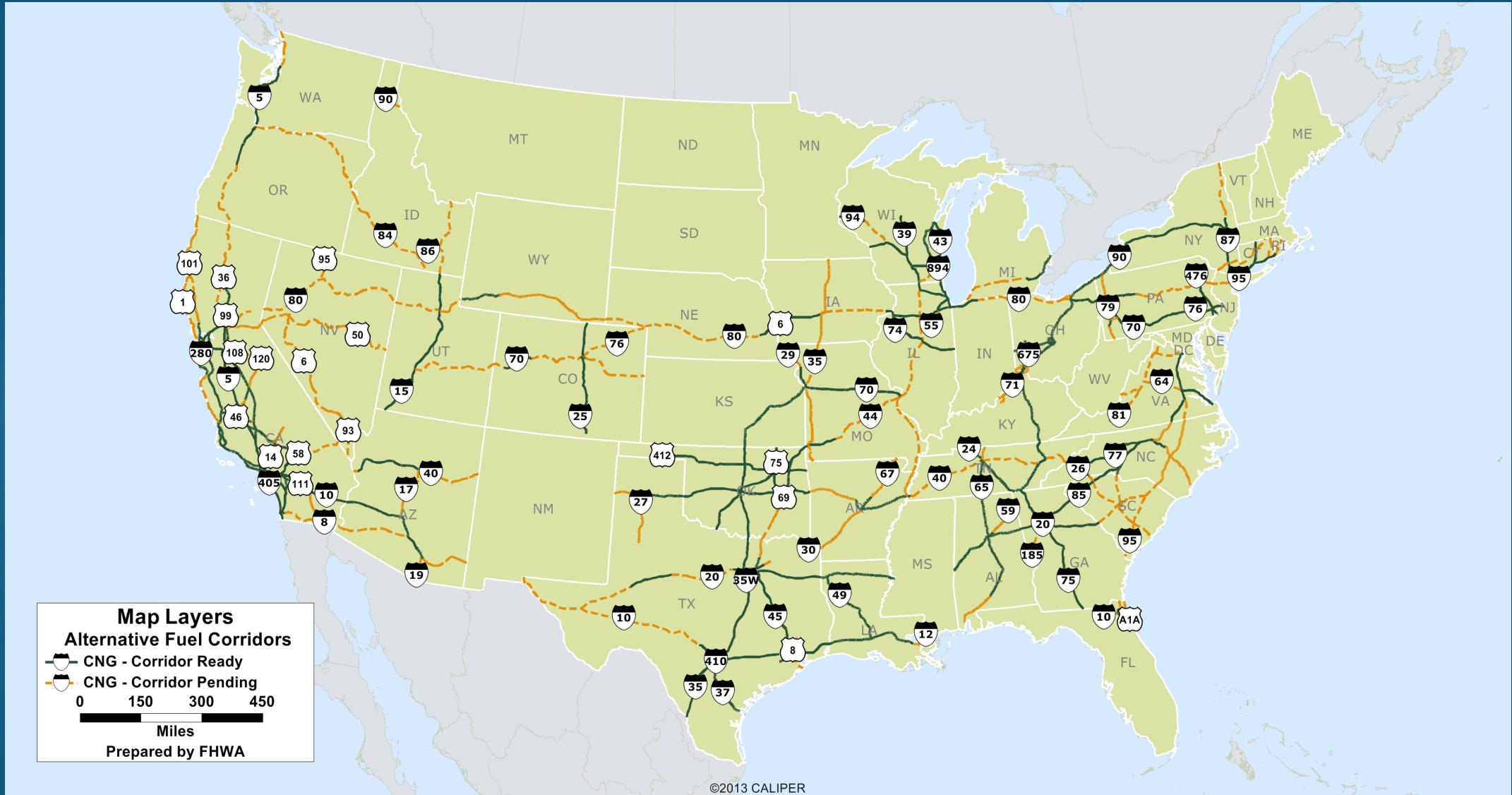
# Rounds 1 & 2 EV Map – Corridor Ready and Pending



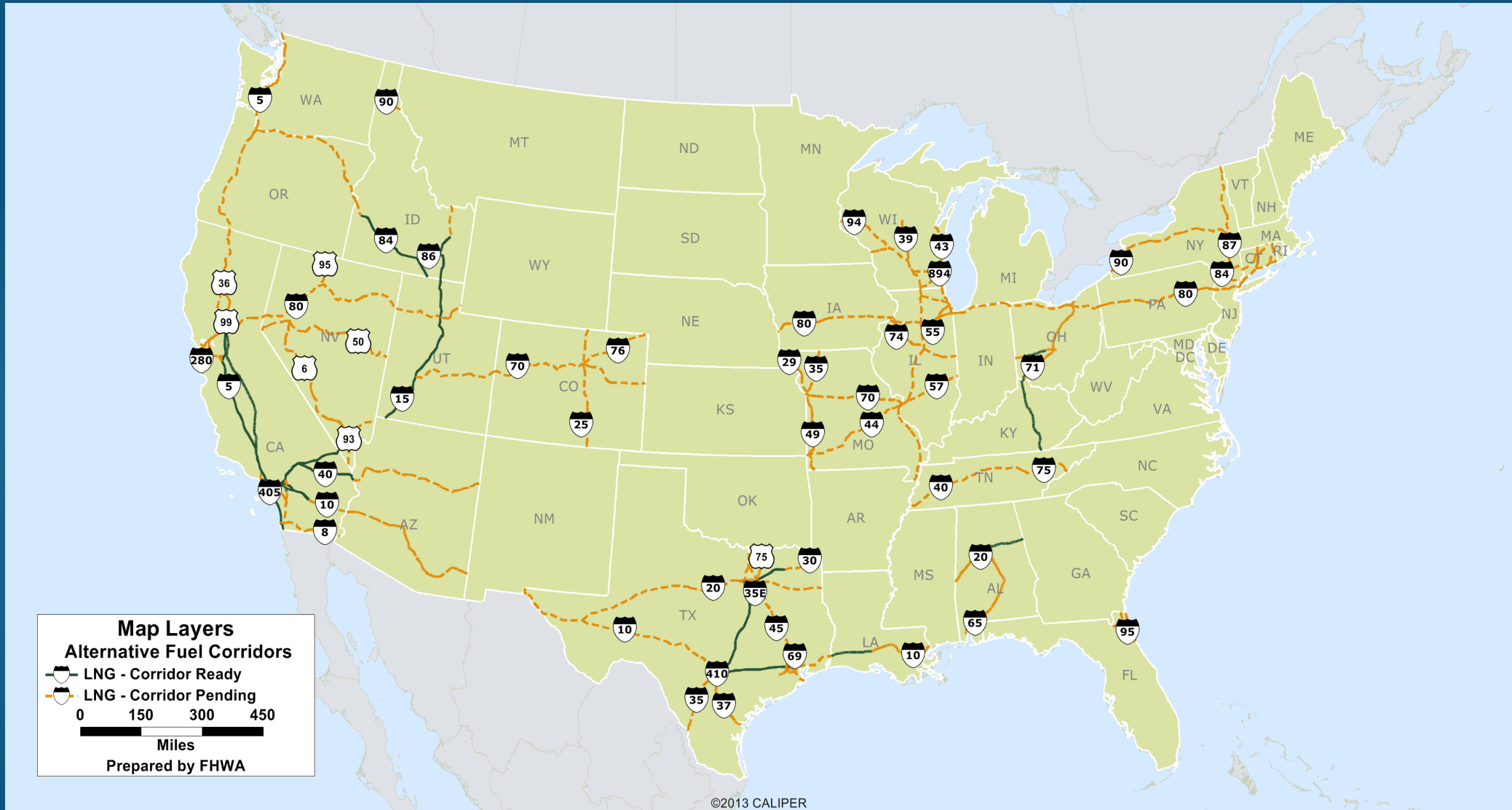
# Rounds 1 & 2 EV Map for HI - Corridor Ready and Pending



# Rounds 1 & 2 CNG Map – Corridor Ready and Pending

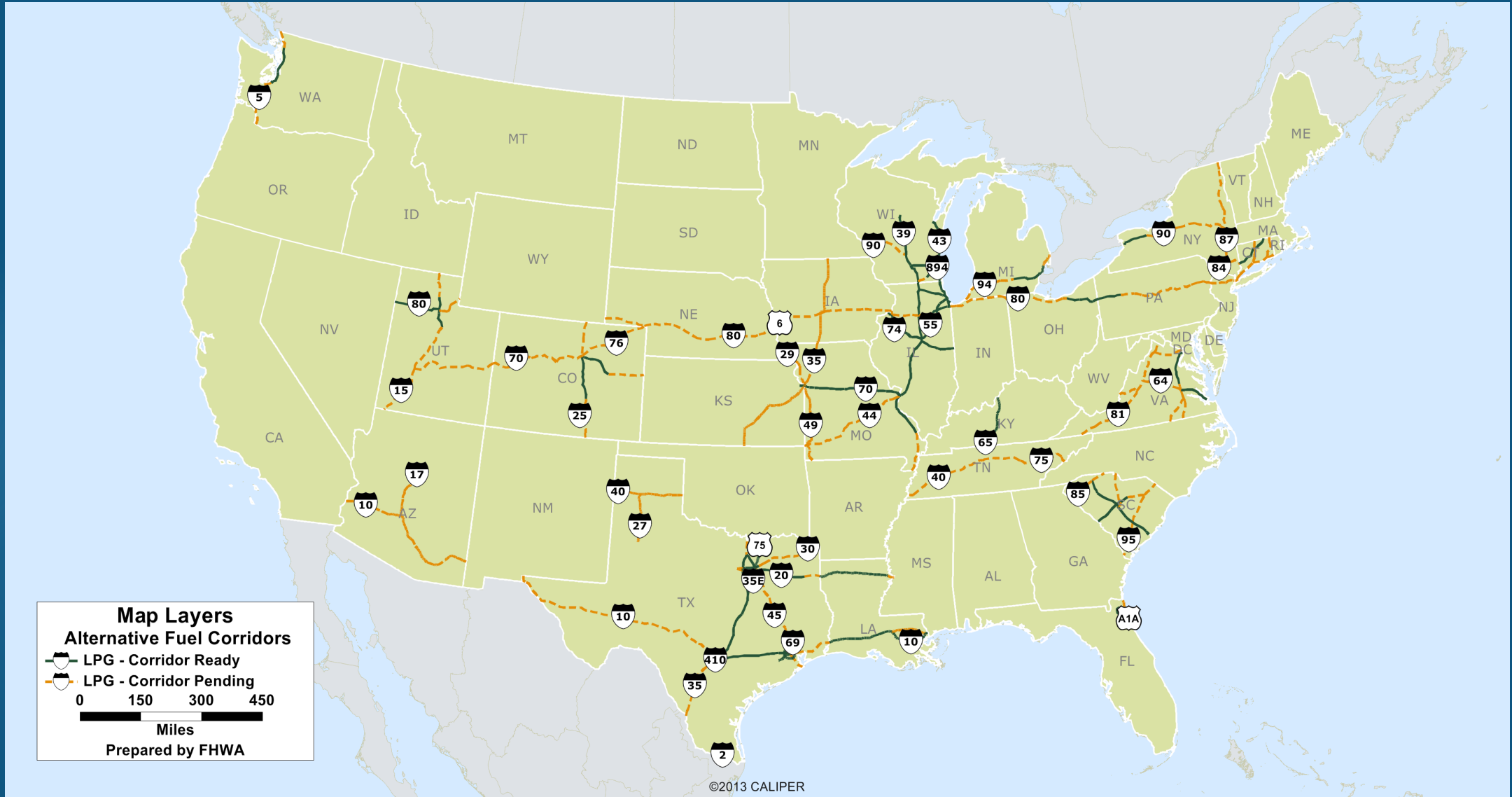


# Rounds 1 & 2 LNG Map – Corridor Ready and Pending





# Rounds 1 & 2 LPG Map – Corridor Ready and Pending



# Rounds 1 & 2 HYD Map – Corridor Ready and Pending

