

Hydrogen and Fuel Cell Electric Vehicles

Busworld Academy
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Erik Bigelow
Midwest Director

Center for Transportation
and the Environment

About CTE



Prototype Development & Demonstration

Support technology providers by finding funding for and managing technology research, development, and demonstration programs



Smart Deployment

Support early adopters by providing the best technical solutions for initial deployments



Fleet Transition

Help fleet operators plan for full electrification

- **Mission:** To advance clean, sustainable, innovative transportation and energy technologies
- **501(3)(c) non-profit** engineering and planning firm
- **Portfolio - >\$500 million**
 - Research, demonstration, transition planning, deployment
 - **86 Active Projects Nationwide** Totaling over **\$300 million**
- Focused on **Zero-Emission** Technologies
- **National Presence**
 - Atlanta, Berkeley, Los Angeles, Minneapolis/St. Paul

Fuel Cell Electric and H₂ Projects



- Class 6 Trucks
- Class 8 Drayage Trucks
- Marine Cargo Top Loader
- 40' and 60' Transit Buses
- HD and LD H₂ Stations



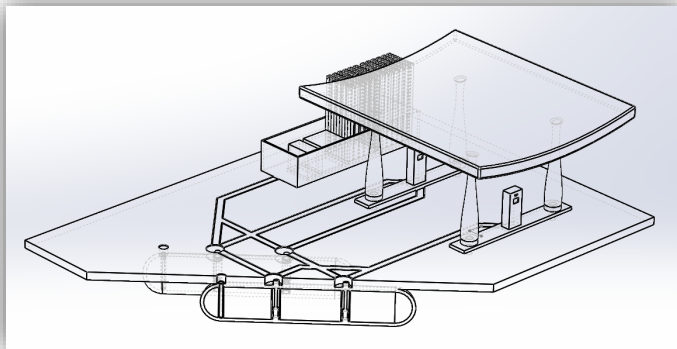
Hydrogen is a Commodity



Hydrogen Delivery



Fueling Station Evolution



Future: Underground LH2 Tanks and Pumps



12- to 15-Bus Capacity; Expand to 30+ Buses

U.S. Fuel Cell Electric Buses



Fuel Cell Transit Buses in the United States



Illinois: 2

Planned: 2 Buses
Champaign-Urbana



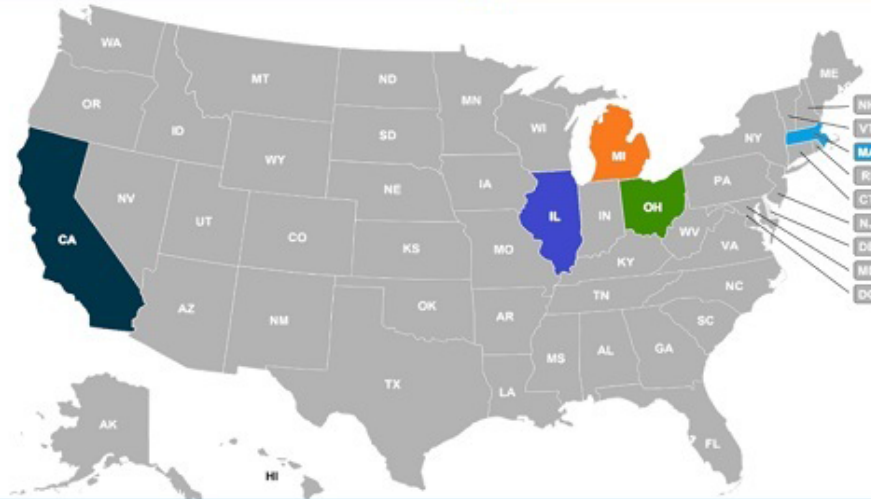
Michigan: 2

Current: 2 Buses
Flint



Massachusetts: 1

Current: 1 Bus
Boston



California: 54

Current: 25 Buses

San Francisco Bay Area (13),
Thousand Palms (10), Santa
Ana (1), Irvine (1).

Planned: 29 Buses

Oakland (11), Santa Ana (10),
Thousand Palms (8).



Ohio: 12

Current: 6 Buses
Canton, Columbus

Planned: 6 Buses
Canton

Source: DOE and NREL

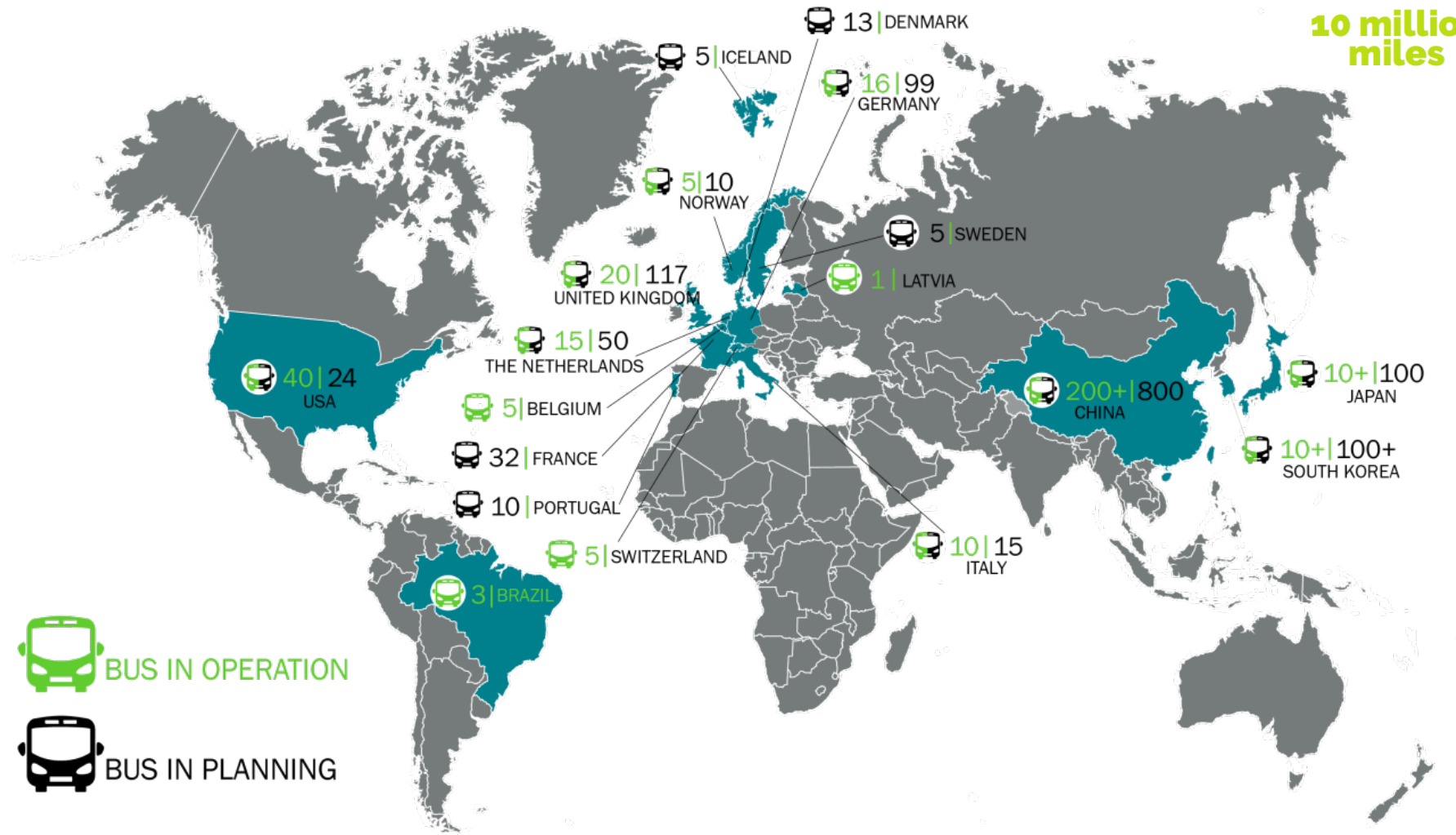
Worldwide Acceptance: 2,000 by 2020

FUEL CELL BUSES WORLDWIDE

300+ | 2000+

10 million miles

Over 10 million miles of proven service worldwide; 3 million miles at AC Transit and over 1 million at SunLine Transit.



BUS IN OPERATION

BUS IN PLANNING