THE FUEL CELL CORRIDOR™

Global Center of the Fuel Cell Industry

OFCC

OHIO FUEL CELL COALITION

Annual Merit Review

2020 Regional Hydrogen Infrastructure Panel

The OHIO FUEL CELL COALITION

Mission

The Ohio Fuel Cell Coalition is a united group of industry, academic, and government leaders working collectively to strengthen Ohio's fuel cell industry and to accelerate the transformation of industry to global leadership in fuel cell technology and applications.

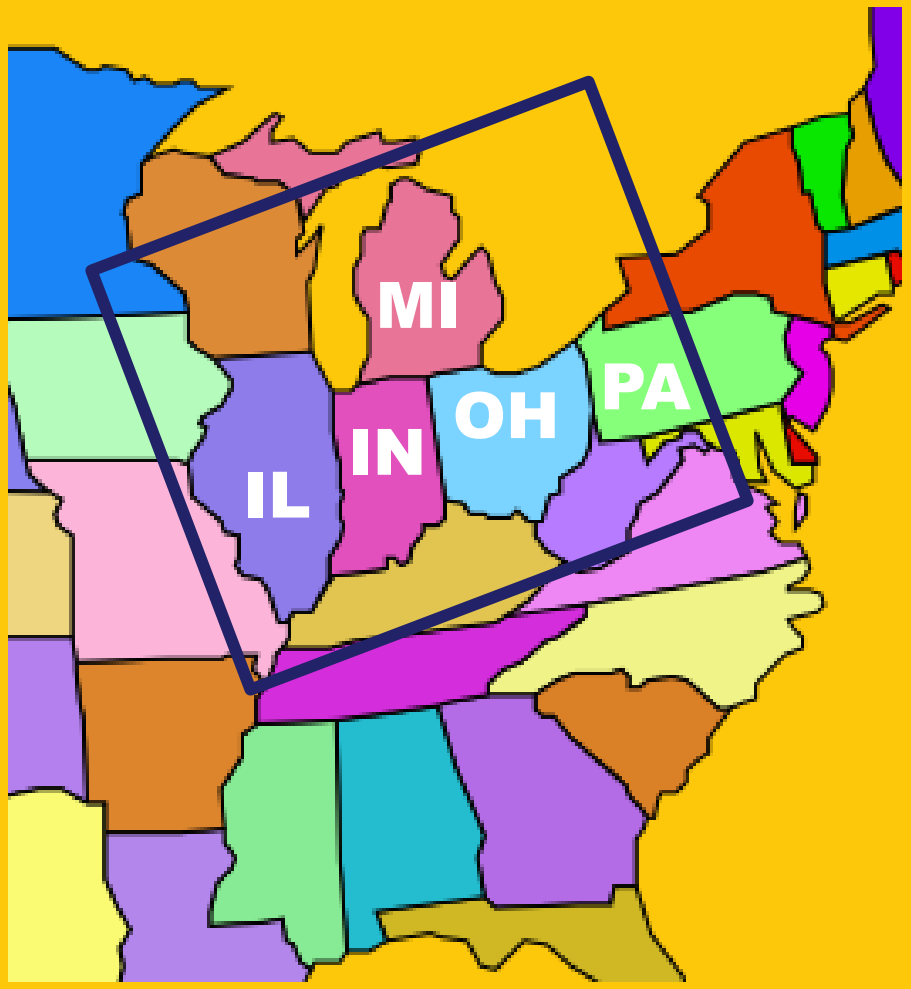
Activities

Supply Chain Assistance
Education
Advocacy
Networking and Collaboration
Marketing and Communications

The MIDWEST Region

Priority States
Regional Clusters
Roadmap for providing 251 stations for 136,000 vehicles :

- Ohio
- Michigan
- Illinois
- Indiana
- Western Pennsylvania

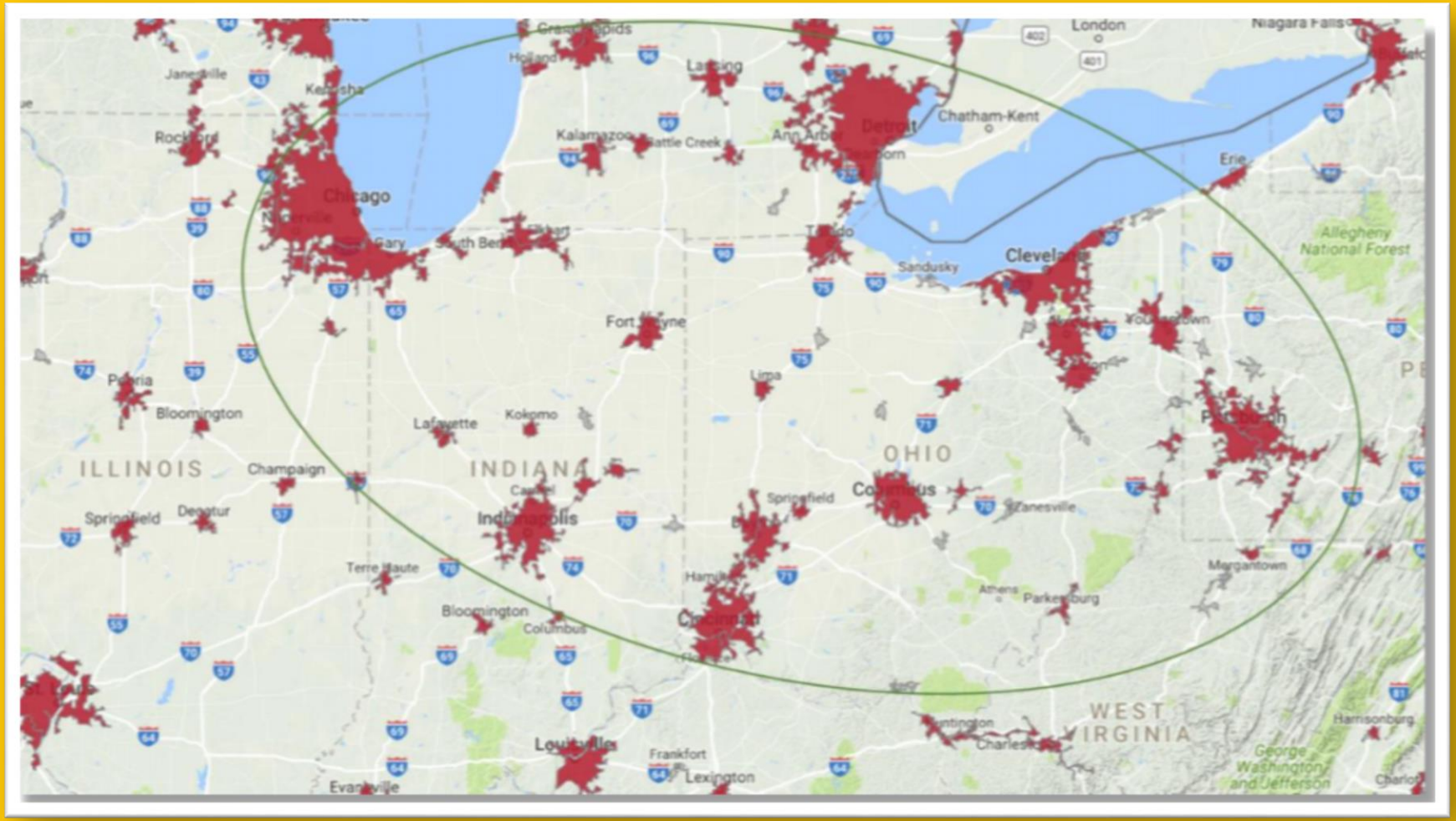


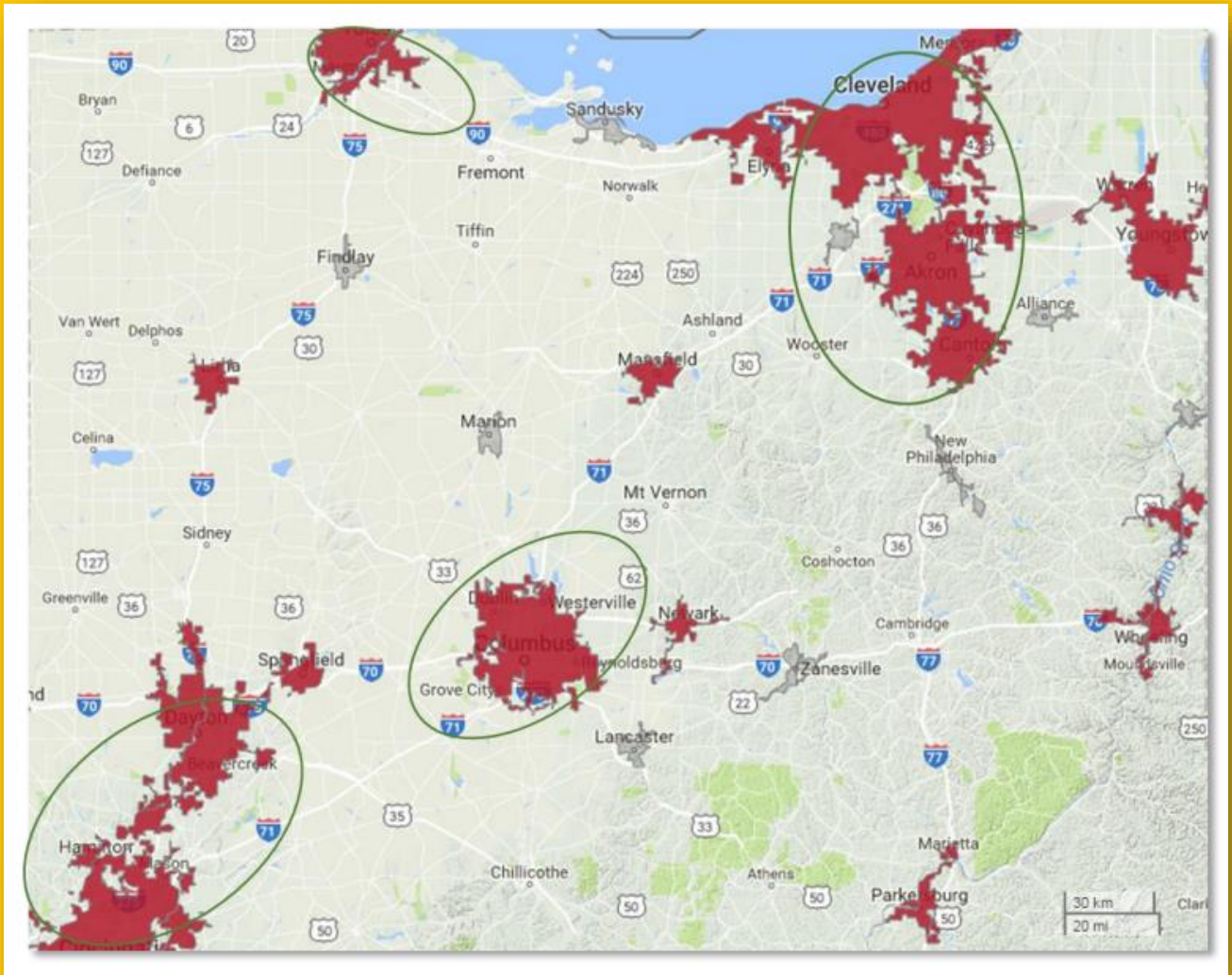
MIDWEST ACTIVITIES

U.S. Dept. of Transportation 2020 BUILD Program

- STARK AREA REGIONAL TRANSIT AUTHORITY's Planning Project Proposal "*Creating a Midwest States Advanced Alternative Fuel Corridor.* This proposal is to develop the groundwork for a two-state implementation of advanced alternative fuel infrastructure that will work to ensure the Midwest continues to be the world leader in advanced transportation vehicle components.

Midwest priority regions for the deployment of hydrogen infrastructure and FCEVs





OHIO

Identified main cluster for deployment of hydrogen infrastructure

- Cleveland-Akron-Canton
- Columbus
- Cincinnati-Dayton
- Toledo

www.midwesthydrogen.org/hydrogen roadmap/CALSTART

BUILD Roadmap Strategy

- Bus & Paratransit - SARTA
- Delivery Vehicles – FedEx, UPS, Prime, DHL
- Light Duty Fuel Cell Electric Vehicles – Municipal and Commercial
- Light Duty Fuel Cell Electric Vehicles - Public
- Development of corridors
  - I-70, I-75 – Ohio, Michigan
  - I-80, I-76 – Indiana, Ohio, Pennsylvania
  - I-71 – Ohio, Kentucky
  - Additional expansion throughout Midwest

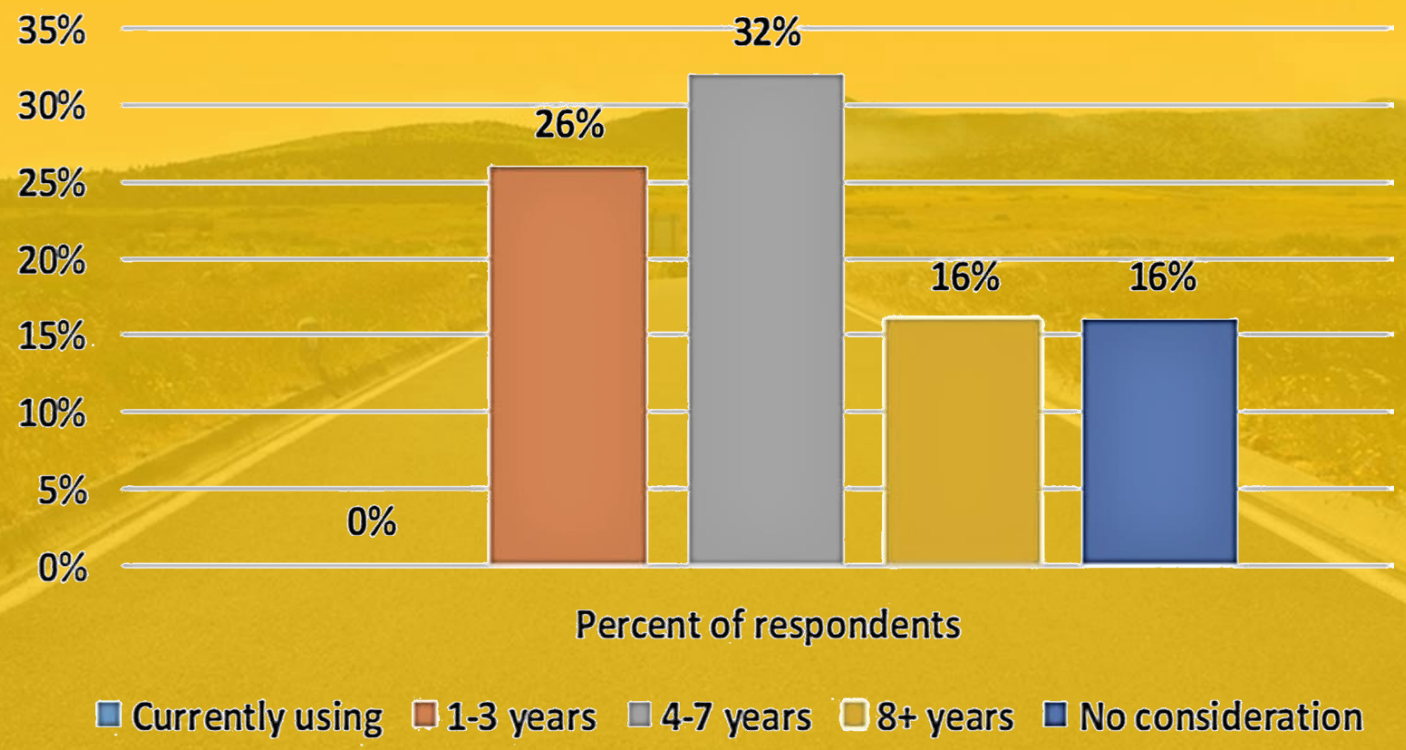
MIDWEST ACTIVITIES
Fleet & Infrastructure Study

A Transportation System Coordination Study was completed on 4/30/20, *"Measuring Interest in Hydrogen Refueling Infrastructure in the Midwest", which surveyed* delivery fleets, heavy-duty trucking and fuel distributors relative to their current and future interest in hydrogen fueling. Key results are as follows:

- Fleet Usage: 74% local and 63% long distance
- Major fuel type: Diesel, followed by CNG/LNG
- Major reasons for delay or non-consideration of hydrogen – limited fueling infrastructure, acquisition and maintenance costs

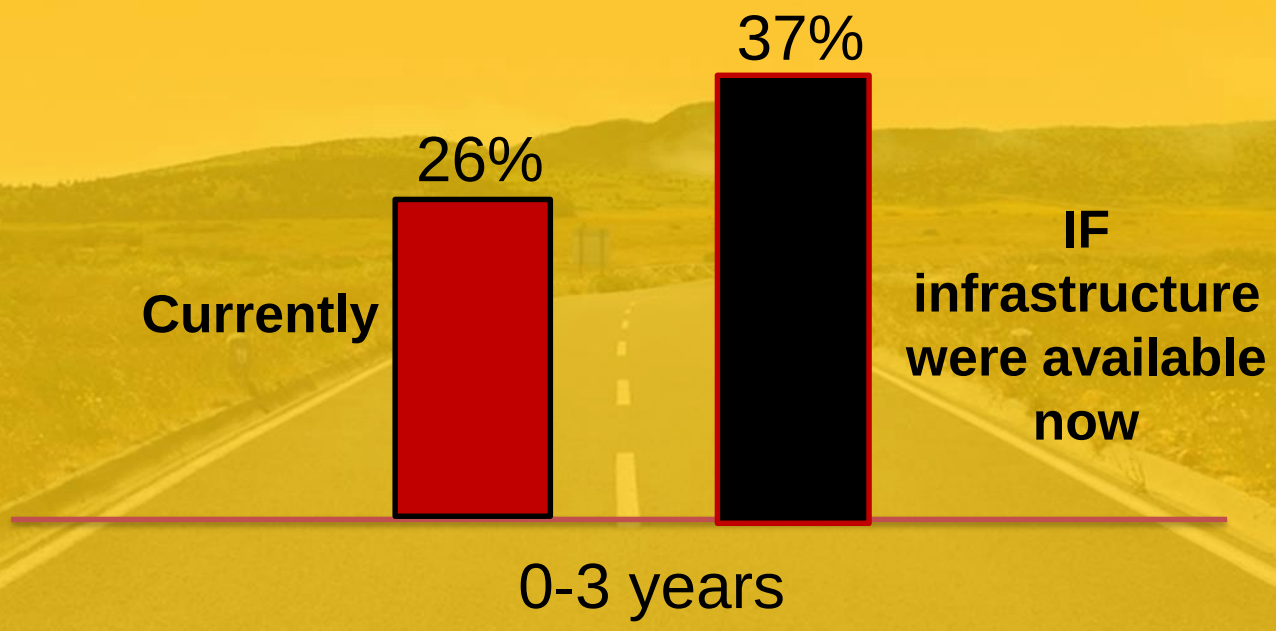
MIDWEST ACTIVITIES
Fleet & Infrastructure Study

Timeframe for Consideration of Hydrogen-Powered Fuel Cell Vehicles – **over 50% within 7 years**



MIDWEST ACTIVITIES
Fleet & Infrastructure Study

Current level of interest in hydrogen-powered vehicles



MIDWEST ACTIVITIES

Davis Besse Nuclear Power Plant

- Davis-Besse nuclear plant in Ottawa County, OH, has been chosen as the site of a $10 million, first-of-its-kind research project to see if nuclear plants can efficiently produce hydrogen for industrial and commercial uses.
- The Davis-Besse project will use a process known a low-temperature electrolysis in which purified water will be cracked in order to separate out the hydrogen molecules from the oxygen molecules.

MIDWEST ACTIVITIES

Hydrogen Refueling Dispensing Nozzle

- With assistance of the Ohio Development Services Agency, Advanced Manufacturing Program, the Ohio Fuel Cell Coalition is the project lead, with OPW Clean Fueling Products as the lead manufacturer, on a project to develop a 350 bar hydrogen refueling dispensing nozzle, to be manufactured in Ohio.
- This nozzle will offer substantial improvements in productivity, performance, and cost savings compared to current state-of-the-art.

MIDWEST ACTIVITIES
Cleveland Cliffs

- Cliffs Natural Resources Inc., Cleveland, Ohio, is currently investing $700 million for the development of its first hot briquetted iron (HBI) production plant in Toledo, OH
- The Plant will use the Midrex process, a gas-based shaft furnace process that converts iron oxides – in the form of pellets or lump ore – into direct reduced iron (DRI).
- The reducing gas, which is primarily **hydrogen** and carbon monoxide, reacts with the iron oxide to reduce (remove the oxygen content) and carburize the material prior to discharge

Expansion of Regional Influence
OFCC, Michigan CALSTART, and Midwest

- Align Midwest resources and build on manufacturing/ related services expertise to be a dominant force in the sustainable energy market; create strong job growth in the process
- Exploring the continued development of regional corridors and supply chain
- Help states in expanded region with mapping, supply chain, strategic planning

Expansion of Regional Influence
OFCC and Midwest

- Additional Areas of Collaboration
  - » Stark Area Regional Transit Authority
  - » Honda/GM joint venture to produce H2 fuel cell systems and proprietary Ultium batteries.
  - » Fleet and Warehouse infrastructure, i.e. FedEx, Home Depot, Amazon, Walmart
  - » Plug Power hydrogen fuel cell tank maintenance and depot remanufacturing in Dayton, OH
  - » Solid Oxide Fuel Cell (SOFC) stakeholders penned a white paper on the future of SOFC.

The Ohio Fuel Cell Coalition
presents the

2020 Ohio Fuel Cell Symposium

Save the Date

Fuel Cell Systems Applications

October 27-28

Stark State College, North Canton, OH

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