



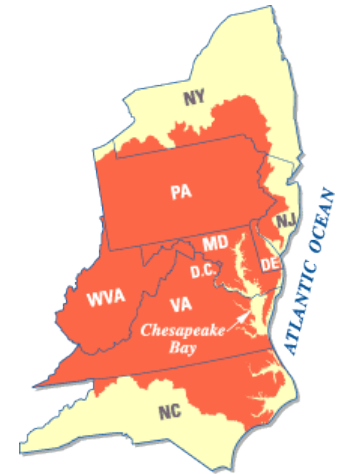
Hydrogen & Fuel Cell Activities in New Jersey and Other Mid-Atlantic States

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Regional Hydrogen Infrastructure Panel
2019 DOE FCTO Annual Merit Review



Location of the Mid-Atlantic Region (red area).

Crystal City, VA
April 30, 2019



The NJ Fuel Cell Coalition

Group of industry, academic, government leaders working collectively to promote deployment of fuel cell and hydrogen technologies, and assist the State in meeting its clean energy and energy resiliency goals

Approaches:

- Educating stakeholders about fuel cells and hydrogen and their economic and environmental benefits.
- Fostering policies to accelerate adoption of the technologies.
- Coordinating fuel cell and hydrogen activities within the State.
- Collaborating and coordinating with the Federal government, other States and organizations.



NJ Hydrogen & Fuel Cell Landscape

- **H2 Stations/FCV Plans: Air Liquide/Toyota collaboration planning two hydrogen stations in northern New Jersey as part of Northeast States hydrogen fueling corridor.**
- **Multiple stationary fuel cell installations for primary and resilient power, including:**
 - AT&T -- 2 MW in Middletown, 600 kW in Freehold, and 700 kW in Trenton.
 - Verizon -- 2 MW at Basking Ridge headquarters.
 - Walmart -- Mays Landing, Washington Township, Williamstown, Woodbury retail stores.
 - FAA Remote Transmitter Receiver in Teterboro.
- **Fuel Cell Forklifts:**
 - Wakefern Food – 180+ at the Newark Farmers Market.
 - FreezPak Logistics – 25+ at cold storage distribution center freezer warehouse in Cateret.

Source: FCTO 2017 State of the States

NJFCC Activities 2017/2018

- **Organized Tours of FCVs at the NY Auto Show, fuel cell forklifts at the NJ Farmers Market/Food Distribution Center in Newark, and the Hydrogen House Project in Freehold.**
- **Provided input to NJ Energy Master Plan and Clean Energy Program through public process.**
- **Provided expert testimony at public hearings for proposed legislation and education on Hydrogen & Fuel Cells.**
- **Learned about new Administration priorities through meetings with the executive office and leadership and staff of energy, environment, transportation and other agencies.**
- **Organized Hydrogen Safety Workshop in collaboration with Rutgers, NJCCC, NEESC, PNNL, and Hydrogen House Project.**

NJ Hydrogen & Fuel Cell Policy

Current

- ZEV Sales Tax Exemption
- EV/HEV HOV lane access on parts of NJ Turnpike
- Toll Discounts on Turnpike for 45mpg+ fuel economy and SULEV
- Clean Energy Program for CHP and fuel cells

Proposed

- Sales & Use Tax Exemption for fuel cell equipment & fuels
- Requiring State agencies to consider fuel cells when purchasing power equipment
- Business Tax Credits FCV purchases
- Directing H2 station installations at toll road service areas
- Urging Administration & Congress to provide funding/incentives to States for FCVs
- Making October 8 Hydrogen & Fuel Cell Day
- Establishing a Fuel Cell Task Force of State and industry leaders to promote adoption



Messages/Challenges in New Jersey

- Many who are unaware of the benefits of hydrogen and fuel cell technologies, skeptical of the technologies in terms of cost and/or performance, and/or sold on other technologies to achieve clean energy and resiliency goals.
- Bridges/Tunnels issue for FCVs
- Lack of knowledge and misinformation on transportation and stationary fuel cells and hydrogen is barrier to new market opportunities
- HOWEVER, there are advocates and requests for more information
 - Some have encouraged the fuel cell community to conduct more education and outreach in NJ, especially relative to the battery electric vehicle coalition.
 - NJFCC and partners focused on creating critical mass to respond to these requests.



Hydrogen & Fuel Cell Landscape in Other Mid-Atlantic States

Delaware

- Fuel cell buses on the University of Delaware campus.
- Delmarva Power -- 30 MW of fuel cells at two substations.

Maryland

- 1.6 MW fuel cell at National Security Agency (NSA) campus at Fort Meade.
- 80+ fuel cell forklifts at USPS National Distribution Center in Capitol Heights.
- 60+ fuel cell forklifts at Whole Foods distribution center in Landover.

Virginia

- 200 kW fuel cell providing 35% of the baseload power at Washington Gas Springfield facility.
- Back-up power fuel cell at FAA Air Traffic Control Tower in Manassas.
- 112 fuel cell forklifts at Sysco's Front Royal redistribution facility; 75 fuel cell forklifts at Stihl's Norfolk warehouse.

Source: FCTO 2017 State of the States

Opportunities and Next Steps

- **Build critical mass with NJFCC members and collaborators.**
- **Resolve the bridge/tunnel issue. Demand will facilitate station builds and support.**
- **Continue outreach on fuel cells and hydrogen to inform NJ Energy Master Plan and implementation.**
- **Educate stakeholders and decision makers on unique attributes of fuel cell systems for resiliency, decarbonization and air quality.**
- **Develop heavy vehicle and port applications, where fuel cell vehicles have a clear advantage over battery electric vehicles.**
- **Enhance messaging to promote FCV market; analysis of market opportunities.**
- **Continue/enhance education and outreach activities within States and collaboration among States. Identify resources.**



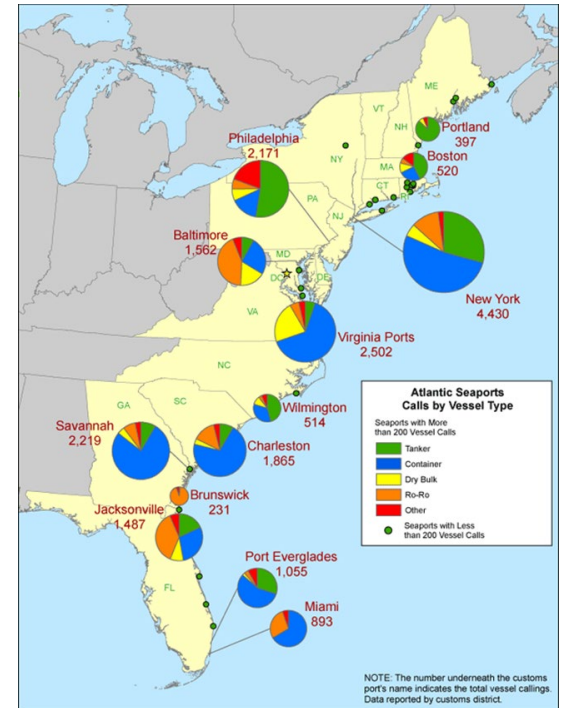
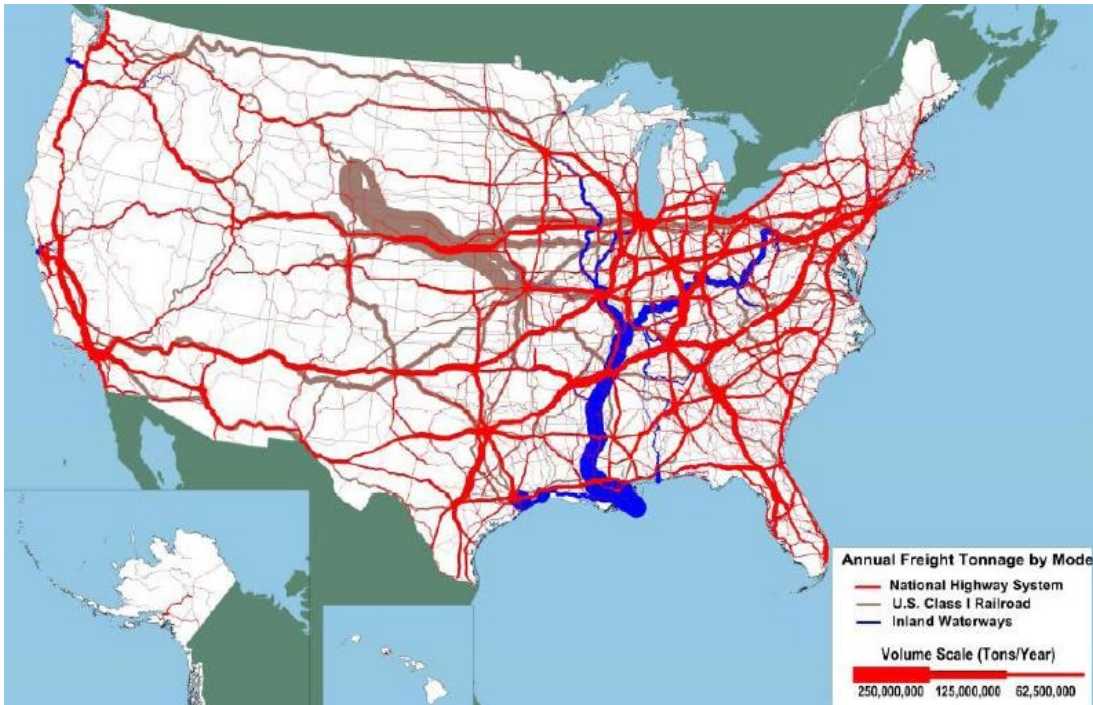
Thank You

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Additional Information

Opportunities – Long Haul Freight & Port Operations





NY Hydrogen & Fuel Cell Landscape

- PSEG/Long Island Power Authority -- 39.8 MW of fuel cells at three locations for resilient, combined cooling, heat and power with small footprint, including Brooklyn, the Bronx and Hempstead.
- >18 MW of stationary fuel cells at retail businesses (including 10 Home Depot stores), corporate buildings, production facilities, residential buildings, the World Trade Center and New York City Hall.
- FAA -- fuel cell provides power for remote air/ground communications (RCAG) equipment in Rockdale.
- Fuel cell forklifts at several distribution centers: Baldor Foods (Bronx), CVS (Chemung), Walmart (263, Johnstown), and Sysco (Long Island).

Source: FCTO 2017 State of the States

PA/NC Hydrogen & Fuel Cell Landscape

Pennsylvania

- URBN (formerly Urban Outfitters) -- 600-kW fuel cell system in Philadelphia.
- Fuel cells providing back-up power at the Society of Cable Telecommunications Engineers (SCTE) in Exton, a Communication Infrastructure Corp. (CIC) remote microwave relay site; and oil and gas exploration equipment at Marcellus pipeline Cathodic Protection stations.
- Fuel cell forklifts: 140 at Procter & Gamble in Mehoopany, 120 at Sysco in Philadelphia), and 136 at Wegman's in Pottsville.

North Carolina

- 10 MW fuel cell system at Apple's Maiden data center.
- Fuel cells providing back-up power at FAA sites, including remote transmitter/receivers (RTR) in Asheville and remote communications air/ground (RCAG) in Hickory.
- Fuel cell forklifts: 40 at Coca-Cola's Charlotte bottling facility; 148 at Procter & Gamble's Greensboro facility.

Source: FCTO 2017 State of the States