October 12, 2018

RE: Comments Regarding New Jersey Energy Master Plan

The Fuel Cell and Hydrogen Energy Association (FCHEA) appreciates the opportunity to submit comments regarding the New Jersey Energy Master Plan. FCHEA represents the leading companies and organizations that are advancing innovative, clean, safe, and reliable energy technologies. FCHEA drives support and provides a consistent industry voice to regulators and policymakers. Our educational efforts promote the environmental and economic benefits of fuel cell and hydrogen energy technologies.

More information on FCHEA is available on our website at www.fchea.org.

1. **Stationary Fuel Cell Systems Support New Jersey's Energy Resiliency, Reliability, and Security Needs**

As New Jersey develops the 2019 Energy Master Plan (EMP), it should consider the energy reliability, resiliency, and security benefits of further adopting stationary fuel cell systems across the state.

Fuel cell systems can serve as a primary or backup power source in stationary applications, and operate in tandem to, or independent of the electric grid. They are highly efficient, far exceeding the greatest efficiency of traditional fossil fuel electricity sources. Stationary fuel cell technology is highly scalable, with installations today ranging from several kilowatts to multi-megawatts. In addition to producing electricity, combined heat and power (CHP) fuel cell systems can recover heat produced as a byproduct for facility and water heating.[1]

Across the United States, the private sector is increasingly adopting stationary fuel cell systems to power office buildings, distribution facilities, data centers, and more. New Jersey businesses are part of this trend. For example: Verizon has a two-megawatt fuel cell installation powering their headquarters in Basking Ridge, Walmart uses small fuel cell systems to power retail stores in several towns across the state, and Credit Suisse's office and data center in Plainsboro uses a 750-kilowatt fuel cell.[2]

In the public sector, fuel cells are providing a growing share of power to government buildings, municipal operations, communications networks, and more. Local governments use fuel cells to run city halls, jails, public buildings, wastewater treatment plants and transit buses, and are currently testing fuel cells at airports and ports.

[1] http://www.fchea.org/s/Business-Case-tpbh.pdf
[2] http://www.members.fchea.org/members/GAWG/State%20Sheets/New%20Jersey.pdf

Fuel cells' reliability far surpasses conventional grid energy sources; when a grid goes down due to natural or man-made causes, fuel cells will continue to produce power so long as a fuel source is provided.[3] This benefit is crucial to states such as New Jersey, where major weather events in recent years have demonstrated the need for mission critical facilities powered by grid-independent electricity sources. Therefore, policies set forth in the 2019 EMP should promote the further deployment of stationary fuel cells in New Jersey as one solution to the state's current and future energy challenges.

2. Stationary Fuel Cells Support New Jersey's Environmental Goals

The underlying electrochemical reaction, not combustion, to produce electricity within a fuel cell requires hydrogen. Fuel cells are fuel flexible, in that they can be supplied with different fuels that contain hydrogen gas. Because natural gas has the highest hydrogen-to-carbon ratio of any energy source, is widely available in domestic markets, and is relatively inexpensive, most stationary fuel cell systems on the market today use hydrogen derived from it.[4]

Even when using natural gas, because stationary fuel cells are so efficient, the resulting carbon emissions are dramatically lower than an equivalent combustion technology. As a result, California, Connecticut, Delaware, Indiana, Maine, New Hampshire, New York, Ohio, Oklahoma, Pennsylvania, West Virginia, and Puerto Rico classify stationary fuel cells that use natural gas as Class I clean energy power sources due to their high efficiency and resultant low carbon emissions.[5] We strongly urge New Jersey to join these states in classifying natural gas fuel cell systems as Class 1 clean energy power sources with proper guidance in the EMP.

Large-scale fuel cell systems can also operate on hydrogen produced by biogas via anaerobic digestion, resulting in a renewable source of hydrogen with even less emissions than natural gas. Wastewater treatment plants, landfills, and other sources of biogas are already being utilized in California and Connecticut to generate hydrogen for stationary fuel cells. In addition, hydrogen can also be generated from wind and solar power, ensuring a completely zero-emissions energy process.[6]

Once in operation, stationary fuel cells displace massive amounts of greenhouse gases. According to one fuel cell manufacturer, the installation of one megawatt of fuel cells can reduce 60% more carbon per year than the equivalent installation of wind or solar energy.[7] The Northeast Electrochemical Energy Storage Cluster estimates that New Jersey businesses and institutions have the potential to install up to 214 megawatts of electric generation using fuel

[3] http://www.fchea.org/s/2016-Business-Case-ANL-Final-ctfg.pdf
[4] http://neesc.org/wp-content/uploads/2015/01/2018_NJ_H2_Fuel_Cell_Dev_Plan_final4.pdf
[5] http://programs.dsireusa.org/system/program/maps
[6] http://neesc.org/wp-content/uploads/2015/01/2018_NJ_H2_Fuel_Cell_Dev_Plan_final4.pdf
[7] http://www.doosanfuelcell.com/en/fuel-cell-solutions/benefits/clean-and-quiet/

cell technology. This fuel cell generation capacity would have an annual output of 1.8 million megawatt hours while reducing a predicted 240 metric tons of nitrogen oxides (NOx) per year.[8]

In addition, stationary fuel cell systems require significantly less land use than other clean energy technologies, a factor of utmost importance given New Jersey's size and available land for installations. One fuel cell manufacturer estimates that ten megawatts of fuel cell power plants occupies about one acre, while the equivalent annual power output from intermittent solar would require 395 acres.[9] As New Jersey looks to clean sources of energy to power municipalities, the benefits of siting quiet, stationary fuel cell systems on small parcels of land within cities should not be overlooked.

Therefore, to achieve New Jersey's 2030 and 2050 goals of drastically reducing reliance on high-emissions fossil fuel energy sources, the 2019 EMP should promote the deployment of stationary fuel cells as one low-to-zero emissions solution.

3. Stationary Fuel Cells Advance Distributed Generation and Microgrid Technology Innovation

As stakeholders consider the role of distributed energy resources (DER) and microgrids in achieving the 2019 EMP's objectives, it is important to recognize the pivotal role stationary fuel cell systems play in both. FCHEA applauds New Jersey's efforts to assess the feasibility of fuel microgrids that use fuel cells for municipal applications, but the state can further this progress by promoting their adoption in the 2019 EMP.

Around the country, states and municipalities are increasingly adopting fuel cell microgrids as a DER to mitigate grid outages and reduce energy costs from conventional grid sources.[10] California and Connecticut lead this field, but incentive programs and feasibility studies undertaken in New Jersey, New York, and elsewhere means that that fuel cell microgrids can be introduced into municipalities with few significant barriers.[11] [12] [13] Fuel cell microgrids provide another way for New Jersey to take advantage of clean, reliable technologies to power critical infrastructure, while reducing dependence on traditional fossil fuel sources.

[8] http://neesc.org/wp-content/uploads/2015/01/2018_NJ_H2_Fuel_Cell_Dev_Plan_final4.pdf
[9] https://www.fuelcellenergy.com/benefits/easy-to-site/
[10] https://microgridknowledge.com/fuel-cell-microgrids-lower-energy-cost/
[11] http://www.govtech.com/fs/infrastructure/Connecticut-Puts-5M-Toward-Naval-Microgrid-Project.html
[12] https://microgridknowledge.com/fuel-cell-microgrid-high-school/
[13] https://www.bloomenergy.com/newsroom/press-releases/community-energized-city-hartford-constellation-and-bloom-energy-power

4. Any Clean or Zero-Emission Transportation Plan Should be Inclusive of Fuel Cell Vehicles

As New Jersey develops its clean transportation plan, it should ensure that zero-emission fuel cell vehicles are included.

Consumer understanding of and interest in zero-emission vehicles (ZEVs) is growing.[14] Increasingly, consumers include vehicle efficiency and new vehicle technology features as key characteristics when considering a new purchase. Here, fuel cell vehicles (FCVs) excel, offering 300-400 miles of driving range per tank, refueling in less than five minutes and quiet operation with highly responsive performance characteristics, all with zero tailpipe emissions. FCVs are safe, reliable and require little maintenance.

FCVs are a complementary zero-emission technology to battery electric vehicles (BEV). While BEVs tend towards smaller commuter vehicles, fuel cell vehicles can accommodate larger vehicles, and provide longer range and faster refueling times. In addition, the Union of Concerned Scientists estimates that only 56% of U.S. households can accommodate charging. This means that more than 40% of the population would be excluded from zero-emission transportation if we were to pursue only battery electric vehicles. Zero-emission transportation does not have to be a zero-sum game. Supporting both battery and fuel cell vehicle technologies will further expand the overall availability of ZEVs while increasing consumer choice.

Hydrogen and fuel cell technologies are highly adaptable. In addition to consumer light-duty vehicles, there are a range of other transportation applications for fuel cells. Fuel cell-powered trucks are operating in leading U.S. ports. Fuel cell electric buses (FCEB) are in transit, shuttle, and student operations in twelve states. There are almost 1000 fuel cells power forklifts being used at least five major distribution centers in New Jersey. These fuel cell forklifts provide up to 85% reductions in carbon emissions compared to incumbent battery technology. Additionally, since the batteries do not need to use grid power to be charged they are reducing significant electricity usage. We would encourage fuel cell forklifts be included as a way of providing energy efficiency, energy and emission reductions in the master energy plan. See Appendix A of these comments for more details on automaker commitments to fuel cell vehicles, as well as other fuel cell transportation developments.

The California Air Resources Board stated in its *2016 Annual Evaluation of Hydrogen Fuel Cell Electric Vehicle Deployment and Hydrogen Fuel Station Network Development* that "Successful market launch and continued growth of both FCEVs and California's hydrogen fueling network are essential for the State to meet zero-emission vehicle goals set forth in Governor Brown's

[14] "Monthly Plug-In Sales Scorecard," Inside EVs
http://insideevs.com/monthly-plug-in-sales-scorecard/

Executive Order B-16-2012 as well as greenhouse gas reduction, air quality improvement, and petroleum reduction goals set forth in state and federal laws and programs."[15]

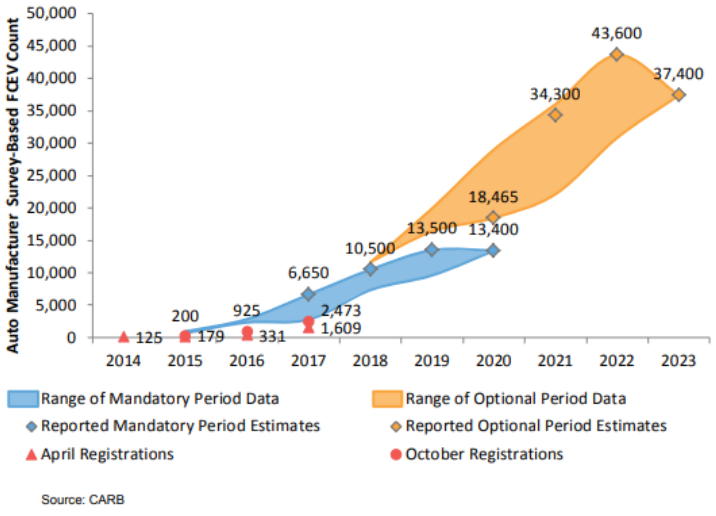
Earlier this year, Governor Murphy announced that New Jersey would join other states in signing onto the Zero-Emission Vehicle Memorandum of Understanding (ZEV MOU) to work collaboratively with other states to support the deployment of at least 3.3 million ZEVs in the states by 2025 and establish a fueling infrastructure to support these vehicles. The ZEV MOU is inclusive of both battery electric cars, as well as hydrogen-powered fuel cell vehicles.[16]

As New Jersey looks to implement a zero-emission transportation plan to meet the goals of the ZEV MOU, the state should look to the successes and lessons learned in California and recognize that fuel cell vehicles and hydrogen will need to play an integral role in any plan.

5. New Jersey Should Implement a Zero-Emission Vehicle Infrastructure Program that Funds Hydrogen Fueling Stations

Funding refueling infrastructure incentivizes continued automaker investment in innovative technologies advancing Zero Emission Vehicles (ZEV) deployment, including FCVs.[17] Currently, Toyota, Honda, and Hyundai sell or lease light-duty FCVs in selected U.S. markets. California, the initial deployment market, nearly 5,200 FCVs are on the road as of September 1, 2018. The California Air Resources Board (CARB) projects 13,000 - 18,000 FCVs will be on the road by 2020; and as many as 43,000 FCVs by 2022 (see chart, below).[18]

Figure 7: FCEV Count Projections



Source: CARB

[15] https://www.arb.ca.gov/msprog/zevprog/ab8/ab8_report_2016.pdf
[16] https://nj.gov/governor/news/news/562018/approved/20180403b_emissions_standards.shtml
[17] See Appendix A
[18] Joint Agency Staff Report on Assembly Bill 8: 2017 Annual Assessment of Time and Cost Needed to Attain 100 Hydrogen Refueling Stations in California
http://www.energy.ca.gov/2017publications/CEC-600-2017-011/CEC-600-2017-011.pdf

Automakers, hydrogen producers and Federal and State agencies are working to advance FCV deployment nationally. Via H_2USA, the public-private partnership promoting U.S. FCV deployment, the Department of Energy's National Renewable Energy Laboratory (NREL) developed a 50-State roadmap describing FCV and hydrogen refueling station deployment.[19]

Among others, the report sites three conclusions deserving special note by State policy-makers. First, robust networks of hydrogen stations must be established in advance of selling large volumes of FCVs into any given urban area. Following the rollout of stations planned for California, by 2025 a total of 320–570 additional stations would be required both in California and nationwide to enable significant FCV market growth. Intensive stakeholder coordination and planning activities should precede the introduction of these initial stations to ensure progress toward a national milestone of "500 in 2025."

Next, there are multiple means of achieving FCV market growth beyond California. Although the ZEV mandate has been a key policy driver in California, high concentrations of early adopters in other cities and states— combined with track records of strong support for advanced vehicles— suggest many other markets are promising for FCV sales and hydrogen station investments.

Large cities with high concentrations of early adopters and strong market support mechanisms, as demonstrated in California, are assumed to be the most promising markets for introducing FCVs and hydrogen station networks. With adequate market support mechanisms in place, these markets could prove to be the most promising options for rapidly achieving vehicle growth and substantial hydrogen demand, thereby reducing the financial risk posed to hydrogen station investors.

It is important to note that hydrogen refueling infrastructure ("networks") can be deployed in a timely manner. Twenty-four months are typically needed to construct a refueling station, according to an analysis by the California Energy Commission.[20] Hydrogen refueling infrastructure does not require significant investment in power and natural gas infrastructure and is not real estate intensive. Given its ability to refuel an FCV in less than five minutes, a single hydrogen dispenser can refuel dozens of cars per day.

State policymakers have ready access to network planning expertise. Station developers with "real world" experience gained from planning and building California's hydrogen station network are available to share best practices. Developers have significant subject matter

[19] "Siting Refueling Stations in the Northeast"
http://h2usa.org/sites/default/files/H2USA_LRWG_NEFactsheet.pdf
"National Hydrogen Scenarios: How may stations, where and when?
http://h2usa.org/sites/default/files/H2USA_LRWG_NationalScenarios2017.pdf

[20] "Joint Agency Staff Report on Assembly Bill 8: 2016 Assessment of Time and Cost Needed to Attain 100 Hydrogen Refueling Stations in California," January, 2017, Page 22
http://www.energy.ca.gov/2017publications/CEC-600-2017-002/CEC-600-2017-002.pdf

expertise regarding fuel cell application and infrastructure design, planning and implementation. FCHEA member companies look forward to sharing their expertise with stakeholders as projects are designed, planned and implemented. The U.S. Department of Energy-affiliated research laboratories provide sophisticated technical services; for instance, network planning tools that model preferred station locations, hydrogen production, and FCV costs.

6. New Jersey Needs to Implement a Positive Regulatory Environment to Support Deployment of Fuel Cell Vehicles

A dynamic regulatory environment is working to accelerate hydrogen fuel cell commercialization. California has set standards for hydrogen metrology and refueling station design, construction, installation and operation that should be considered for New Jersey.[21] National standards for hydrogen quality and refueling station safety have been set that should also be implemented in the state.

Tunnels and bridges in the northeast United States are a particular concern for the industry, as these were designed for internal combustion engines using liquid fuels. Currently there are state and local codes in Boston, New York City, and Baltimore, in addition to Port Authority AHJs, that prevent gaseous-fueled FCVs from traveling on certain bridges and tunnels within these jurisdictions. Without overcoming these regulatory burdens in these markets, fuel cell vehicles will not be commercially viable in these areas.

There are no restrictions within California that prevent consumer light-duty vehicles from traveling on any roads, bridges, or tunnels within the state. Note that there are restrictions associated with bulk hydrogen and liquid hydrogen trailers on certain bridges and tunnels in California.

All fuel cell vehicles meet the strictest safety and quality standards set by both the United States National Highway and Transpiration Administration (NHTSA) Federal Motor Vehicle Safety Standard (FMVSS) and the United Nations Global Technical Regulations (GTR).

There have been past demonstrations of fuel cell vehicles in the New York City area where waivers were provided to allow these vehicles to travel on all bridges and tunnels into the city. There were no incidents related to that demonstration.

New Jersey needs to work with its regulatory partners in New York, as well as the U.S. Department of Energy, to implement a regulatory environment that will allow fuel cell vehicles to safely travel in the bridges and tunnels surrounding New York City.

[21] "Retail Hydrogen Fueling Regulations," 7 CCR 1101-17
http://www.sos.state.co.us/CCR/GenerateRulePdf.do?ruleVersionId=6964

7. Fuel Cell Technologies Advance Sustainability and Innovation and Are Ideal for New Jersey's Clean Transportation Needs

Fuel cell technologies have the demonstrated capabilities to replace on-road and non-road diesel vehicles and engines regularly operating in or near areas that bear a disproportionate share of the air and noise pollution burden. Fuel cells power trucks, buses, cargo tractors and forklifts and successfully operate in ports, airports and warehouse distribution centers. Because these facilities are often located in areas with high population and/or traffic density, use of quiet fuel cell powered engines and vehicles at such sites address those concerns.

Fuel cell technologies are in the forefront of ZEV innovation and sustainability. Seeking to promote innovation in energy supply, leading global energy, transport and industrial companies have pledged to accelerate their investments in hydrogen and fuel cell development and commercialization.[22] In the United States, Department of Energy programs have advanced innovation by successfully generating more than 580 patents, more than 30 commercial technologies, and 65 technologies that are expected to reach commercial scale within the next three to five years.[23]

Hydrogen-powered fuel cells are efficient, using as much as 60 percent of available energy compared to internal combustion engines. Fuel cell electric drivetrains do not emit any greenhouse gases (GHG) during operation. Depending on how the hydrogen is produced, there are substantially fewer or no upstream GHG emissions compared with fossil fuels.[24]

Recently, Toyota Motor North America announced that they are working with Connecticut fuel cell manufacturer FuelCell Energy to construct a tri-generation stationary fuel cell plant that will use biogas sourced from California agricultural waste to generate water, electricity, and hydrogen for Toyota's operations at the Port of Long Beach.[25] The system will be 100% renewable, with the electricity powering Toyota's logistics operations at the Port, and the hydrogen fueling Toyota's Mirai fuel cell vehicles as they offload from marine vessels. According to Toyota, the facility will generate enough hydrogen per day to fuel nearly 1,500 fuel cell vehicles. The tri-generation facility shows that industry continues to advance innovative technologies that allow for cleaner hydrogen fuel production in the transportation sector. New Jersey should look to this progress when considering the environmental, economic, and energy benefits met by hydrogen fuel cell transportation technologies.

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[22] "How Hydrogen Empowers the Energy Transition," The Hydrogen Coalition, January, 2017
http://hydrogencouncil.com/

[23] "Pathways to Commercial Success: Technologies and Products Supported by the Fuel Cell Technologies Office," U.S. Department of Energy, Page 3-2
https://energy.gov/sites/prod/files/2016/02/f29/fcto_2015_pathways_commercial_success.pdf

[24] "Hydrogen Fuel Cell Vehicles," Center for Climate and Energy Solutions
https://www.c2es.org/technology/factsheet/HydrogenFuelCellVehicles

[25] "Toyota to Build the World's First Megawatt-scale 100% Renewable Power and Hydrogen Generation Station"
https://corporatenews.pressroom.toyota.com/releases/toyota+build+worlds+first+megawatt+scale+100+percent+renewable+power+hydrogen+generation+station.htm

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The Fuel Cell and Hydrogen Energy Association (FCHEA) is the trade association dedicated to the commercialization of fuel cells and hydrogen energy technologies. FCHEA member organizations represent the full global supply chain for hydrogen and fuel cells, including automakers; material, component, fuel cell stack and system manufacturers; hydrogen producers and energy companies; utilities; and end users. Our educational efforts promote the environmental and economic benefits of fuel cell and hydrogen energy technologies. For more information, see www.fchea.org.

Appendix A

SIGNIFICANT FUEL CELL ELECTRIC VEHICLE TECHNOLOGY INVESTMENTS
By Vehicle Type and Manufacturer/User

Passenger Vehicles

In June 2018, Hyundai and Audi announced a multi-year patent cross-licensing agreement, covering a broad range of FCEV components and technologies.[26]

In May, 2018, Toyota announced plans to open a hydrogen fuel cell component factory in Japan by 2020, along with other new facilities to expand FCEV production. The facilities will enable Toyota to meet its goal of selling more than 30,000 fuel cell-powered passenger vehicles and commercial passenger vehicles globally each year.[27]

In August, 2017, Hyundai's fuel cell component manufacturing subsidiary completed construction of a facility capable of producing 3,000 fuel cell powertrain modules per year. The company says it will raise the facility's capacity to tens of thousands of modules in the future, depending on market demand.[28]

In April, 2017, Kia announced plans to market an FCEV by 2020.[29]

In January, 2017, Honda and General Motors announced joint plans to construction an $85 million fuel cell manufacturing facility in southeast Michigan. The companies plan to mass-produce an FCEV by 2020.[30] The facility is part of the company's plans to co-develop a next-generation fuel cell and hydrogen storage system.

Since 2012, Toyota and BMW have collaborated on the joint-development of a fuel cell vehicle system (fuel cell stack, tank, motor, battery), aiming for completion in 2020.[31] BMW plans to produce a low-volume fuel cell car in 2021, expanding availability in 2025.[32]

Commercial Trucks and Buses

In June, 2018, Seven-Eleven Japan Co. announced plans to introduce two new compact fuel cell trucks developed by Toyota for restocking outlets in the Tokyo metropolitan area. Seven-Eleven Japan plans to deploy more of the trucks after confirming their performance.[33]

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[26] https://www.detroitnews.com/story/business/autos/general-motors/2017/01/30/general-motors-honda-fuel-cell/97235454/
[27] https://www.reuters.com/article/us-toyota-fuelcell/toyota-to-ramp-up-hydrogen-fuel-cell-vehicle-sales-around-2020-idUSKCN1IP0JU
[28] http://english.yonhapnews.co.kr/news/2017/08/08/0200000000AEN20170808008300320.html
[29] https://www.cnet.com/roadshow/news/expect-a-hydrogen-fuel-cell-kia-by-2020/
[30] https://www.detroitnews.com/story/business/autos/general-motors/2017/01/30/general-motors-honda-fuel-cell/97235454/
[31] https://www.press.bmwgroup.com/global/article/detail/T0136503EN/bmw-group-and-toyota-motor-corporation-deepen-collaboration-by-signing-binding-agreements?language=en
[32] http://www.bmwblog.com/2017/03/29/bmw-produce-low-volume-hydrogen-fuel-cell-car-2021/
[33] https://www.japantimes.co.jp/news/2018/06/07/business/seven-eleven-use-toyota-fuel-cell-trucks-deliveries-next-year/#.WzP1CtJKi70

In May, 2018, Plug Power, a hydrogen and fuel cell technology company, and Workhorse, an equipment manufacturer, announced delivery to FedEx Express of a fuel cell-powered Class 5 delivery vehicle. [34]

In May, 2018, Nikola Motor Company, a Phoenix truck manufacturer, announced it had received an order for 800 fuel cell-powered truck tractors from Anheuser-Busch. The brewer seeks to add the vehicles to its fleet by 2020. The Anheuser-Bush order boosts Nikola's total orders to more than 8,000 units.[35]

In January, 2018, Kenworth demonstrated a fuel cell-powered Class 8 truck tractor for use in drayage operations at the Port of Long Beach, California.[36]

In May, 2017, US Hybrid, a California-based company, and Jiangsu Dewei Advanced Materials Co., a China-based company, announced a joint venture expanding fuel cell power system production capacity in the U.S. and China. The expansion will enable the companies to build and to deliver 2,000 systems annually in the U.S. and 2,000 systems annually in China."[37]

In May, 2017, UPS announced plans to deploy a prototype extended range fuel cell-powered Class 6 delivery van in the Sacramento, California area. The vehicle meets the same route and range requirements UPS has established for its conventional fuel vehicles.[38]

In April, 2017, Toyota began testing a fuel cell-powered Class 8 truck tractor for use in drayage operations at the Port of Long Beach, California.[39] In July 2018, Toyota unveiled its second-generation fuel cell truck for demonstration at the Port of Long Beach.[40]

In September 2018, the California Air Resources Board gave preliminary approval to a $41.1 million grant for fuel cell-powered vehicles and hydrogen refueling stations at the Port of Los Angeles. Kenworth and Toyota will collaborate to build 10 hydrogen-powered Class 8 cargo trucks for the project, with hydrogen stations to be deployed by Shell.[41]

In September 2018, Hyundai announced an order for 1,000 commercial fuel cell trucks to be operated in Switzerland beginning in 2019.[42]

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[34] http://www.ir.plugpower.com/Press-Releases/Press-Release-Details/2018/Plug-Power-and-Workhorse-Provide-FedEx-Express-With-First--ProGen-Fuel-Cell-Powered-Electric-Delivery-Van/default.aspx
[35] https://www.trucks.com/2018/05/07/anheuser-busch-nikola-truck-order-hydrogen-highway/
[36] https://www.kenworth.com/news/news-releases/2018/january/t680-zect/
[37] https://ushybrid.com/us-hybrid-announces-china-fuel-cell-joint-venture-and-unveils-class-8-fuel-cell-port-drayage-truck-for-san-pedro-ports/
[38] https://www.pressroom.ups.com/pressroom/ContentDetailsViewer.page?ConceptType=PressReleases&id=1493730807330-217
[39] http://corporatenews.pressroom.toyota.com/releases/toyota+zero+emission+heavyduty+trucking+concept.htm
[40] https://www.trucks.com/2018/07/30/toyota-advanced-fuel-cell-truck/
[41] https://www.truckinginfo.com/313429/carb-awards-41-million-for-hydrogen-electric-truck-project
[42] https://www.truckinginfo.com/313429/carb-awards-41-million-for-hydrogen-electric-truck-project

Fuel cell systems for buses are manufactured by Hyundai, New Flyer, Toyota, Wrightbus, and Ballard Power Systems.