





U.S. Fuel Cell Bus Deployment

Location	Year	Project	Program	Vehicle Details	Range	Max. Speed	Picture
Phoenix, Arizona	Deployed 2007 - present	Ecobus APS Hydrogen Park	Private purchase	- Bus manufacturer and model: New Flyer Invero - Fuel cell manufacturer: Hydrogenics - Fuel cell/ultra capacitor hybrid - 180 kW PEM fuel cell - Compressed hydrogen @ 350 bar	N/a	60 mph/ 97 km/h	
Burbank, California	Deployed in 2010	Burbank – Fuel Cell Battery Dominant, Plug-in Hybrid Bus	DOE Technology Validation/ CARB AFIP	- Bus Manufacturer and model: Proterra HFC25 35-ft - Fuel cell manufacturer: Hydrogenics - Fuel cell/battery dominant plug-in hybrid - 32 kW PEM fuel cell - Compressed hydrogen @ 350 bar	300 mi/ 483 km	60 mph/ 97 km/h	
Coachella Valley, California	2010	SunLine Transit – Advanced Fuel Cell Bus will be placed in regular transit service in 9 cities	CARB ZEB/ DOE Technology Validation	- Bus manufacturer: New Flyer - Fuel cell manufacturer: Ballard - Fuel cell/battery hybrid - 120 kW fuel cell - Compressed hydrogen	N/a	N/a	
Coachella Valley, California	2006 - 2010	SunLine Transit – One bus placed in regular transit service	CARB ZEB/ DOE Technology Validation	- Bus manufacturer and model: Van Hool A330 30-ft - Fuel cell manufacturer: UTC Power - Fuel cell/battery hybrid - 120 kW PEM fuel cell - Compressed hydrogen	300-350 mi/ 483-563 km	N/a	
Oakland, California	2008	Marin Transit Fuel Cell Bus Golden Gate Transit, in partnership with AC Transit, operated the bus in transit service in Feb. & Mar. 2008	N/a	- Bus manufacturer: Van Hool - Fuel cell manufacturer: UTC Power - Fuel cell/battery hybrid	N/a	N/a	
Palm Springs, California	2002 - 2003	SunLine Transit – Thunder Power Fuel Cell Bus – One placed in regular transit service	CARB ZEB	- Bus manufacturer and model: Thor/ El Dorado National EZ Rider low floor bus - Fuel cell manufacturer: UTC Power - Fuel cell/battery hybrid - 60 kW PEM fuel cell - Compressed hydrogen	150-200 mi/ 241-322 km	55 mph/ 88 km/h	
San Francisco, California	Deployed 2010 - present	AC Transit Zero Emission Bay Area Fuel Cell Buses - 12 buses for service in East Bay area, first 5 buses deployed in Dec. 2010	CARB ZEB/ DOE Technology Validation	- Bus manufacturer and model: Van Hool 40-ft - Fuel cell manufacturer: UTC Power - Fuel cell/battery hybrid - PEM fuel cell	N/a	N/a	
San Francisco, California	Deployed 2006 (2 buses out of 3 retired)	AC Transit - HyRoad 3 buses placed in regular transit service in East Bay area	CARB ZEB/ DOE Technology Validation/ FTA National FC Bus Program	- Bus manufacturer and model: Van Hool A330 40-ft - Fuel cell manufacturer: UTC Power - Fuel cell/battery hybrid - 120 kW PEM - Compressed hydrogen @ 5,000 psi	250-300 mi/ 402-483 km	70 mph/ 113 km/h	
San Francisco, California	Deployed 2003 - 2004	AC Transit - HyRoad 1 bus placed in regular transit service in East Bay area	CARB ZEB/ DOE Technology Validation	- Bus manufacturer and model: Thor Thunder Power 30-ft - Fuel cell manufacturer: UTC Power - 60 kW PEM fuel cell engine - Compressed hydrogen @ 3,600 psi	200 mi/ 322 km	N/a	
Santa Clara County, California	2005 - present	Santa Clara VTA/ SamTrans – Zero Emission Bus Demonstration Project 3 buses deployed	CARB ZEB/ DOE Technology Validation	- Bus manufacturer and model: Gillig 40-ft - Fuel cell manufacturer: Ballard - 205 kW PEM fuel cell engine - Compressed hydrogen @ 5,000 psi	N/a	N/a	
Thousand Palms, California	2001	Georgetown University Generation II Bus Program – Georgetown X1 Fuel Cell Bus Prototype, Demonstration	N/a	- Bus manufacturer and model: Nova BUS 40-ft - Fuel cell manufacturer: Ballard - Fuel cell/battery hybrid - 100 kW PEM - Methanol	350 mi/ 563 km	N/a	
Thousand Palms, California	2000 – 2001	SunLine Transit – ZEBus / P4 Bus Tested for 13 months	CARB ZEB	- Bus manufacturer and model: New Flyer P4 bus 40-ft - Fuel cell manufacturer: Ballard - Fuel cell/battery hybrid - 205 kW PEM - Compressed hydrogen @ 3,600 psi	225 mi/ 362 km	N/a	

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West Sacramento, California	2001	Georgetown University Generation II Bus Program – Georgetown X1 Fuel Cell Bus Prototype, Demonstration	N/a	- Bus manufacturer and model: Nova BUS 40-ft - Fuel cell manufacturer: Ballard - Fuel cell/battery hybrid - 100 kW PEM - Methanol	350 mi/ 563 km	N/a	
Hartford, Connecticut	Deployed in 2010	4-5 buses will be placed in regular transit service at CTTransit	FTA National FC Bus Program	- Bus model: 40-ft. - Fuel cell manufacturer: UTC Power - Fuel cell/battery hybrid - 120 kW PEM	N/a	N/a	
Hartford, Connecticut	Deployed 2007 - present	1 bus in regular transit service at CTTransit	DOE Technology Validation Program	- Bus manufacturer and model: Van Hool A330 40-ft - Fuel cell manufacturer: UCT Power - Fuel cell/battery hybrid 120 kW PEM fuel cell - Compressed hydrogen @ 5,000 psi	N/a	N/a	
Newark, Delaware	2009	University of Delaware – Zero Emission Fuel Cell Hybrid Bus shuttle bus deployed	N/a	- Bus model: 22-ft/22 passenger - Fuel cell manufacturer: Ballard - Fuel cell/plug-in battery hybrid - Two 19.4 kW fuel cells	N/a	N/a	
Newark, Delaware	2007	University of Delaware – Zero Emission Fuel Cell Hybrid Bus shuttle bus deployed	N/a	- Bus model: EBus 22-ft shuttle bus - Fuel cell manufacturer: Ballard - Fuel cell/plug-in battery hybrid - 19.4 kW fuel cell	250 mi/ 402 km	45 mph/ 72 km/h	
Washington, District of Columbia	Project: 1998	Georgetown University Generation II Bus Program – Georgetown/ UTC Fuel Cell Bus Prototype	N/a	- Bus manufacturer and model: Nova BUS 40-ft - Fuel cell manufacturer: UTC Power - Fuel cell/battery hybrid - 100 kW PAFC fuel cells - Methanol	350 mi/ 563 km	N/a	
Washington, District of Columbia	Project: 1994 - 1995	Georgetown University Generation I Bus Program 3 Test Bed Bus prototypes	N/a	- Bus manufacturer and model: BMI 30-ft - Fuel cell manufacturer: Fuji Electric - Fuel cell/battery hybrid - 50 kW PAFC - Methanol	200-250 mi/ 322-402 km	55 mph/ 89 km/h	
Hickam, Hawaii	Deployed 2004 - present	Hickam Air Force Base – Fuel Cell Shuttle Bus 1 bus operates in routine service on- and off-base	DOE Technology Validation	- Bus manufacturer and model: El Dorado National RE-29E 30-ft - Fuel cell manufacturer: Hydrogenics - Fuel cell/plug-in battery hybrid - 20 kW PEM fuel cell - Compressed hydrogen @ 5,000 psi	125 mi/ 200 km	60 mph/ 97 km/h	
Chicago, Illinois	Deployed 1998 – 2000	3 buses deployed in regular transit service by Chicago Transit Authority	N/a	- Bus manufacturer and model: New Flyer 40-ft - Fuel cell manufacturer: Ballard - 205 kW PEM fuel cell engine - Compressed hydrogen	N/a	N/a	
Las Vegas, Nevada	Demo'd in 2001	Electric Fuel Corporation/ General Electric – Zinc Air Fuel Cell Bus On-road demonstration drives by transit agency RTC	N/a	- Bus manufacturer and model: NovaBus. 40-ft - Fuel cell manufacturer: Electric Fuel Corp. - Zinc Air Fuel Cell engine	N/a	N/a	
Schenectady, New York	Demo'd in 2001	Electric Fuel Corporation/ General Electric – Zinc Air Fuel Cell Bus On-road demonstration drives on a test track in Schenectady, New York	N/a	- Bus manufacturer and model: NovaBus. 40-ft - Fuel cell manufacturer: Electric Corp. - Zinc Air Fuel Cell engine	N/a	N/a	
Columbia, South Carolina	Deployed in 2009	Dual Variable Hybrid Fuel Cell Bus Demonstration	FTA National FC Bus Program	- Bus manufacturer: Proterra - Fuel cell manufacturer: Hydrogenics - Fuel cell/battery dominant, plug-in hybrid - 32 kW PEM fuel cell - Compressed hydrogen @ 350 bar	300 mi/ 483 km	60 mph/ 97 km/h	
Austin, Texas	Deployed in 2009	Dual Variable Hybrid Fuel Cell Bus Demonstration	FTA National FC Bus Program	- Bus manufacturer: Proterra - Fuel cell manufacture: Hydrogenics - Fuel cell/battery dominant, plug-in hybrid - 32 kW PEM fuel cell - Compressed hydrogen @ 350 bar	300 mi/ 483 km	60 mph/ 97 km/h	
Austin, Texas	Deployed in 2007	1 bus serving the University	N/a	- Bus manufacturer and model: EBus 22-ft - Fuel cell manufacturer: Ballard - Fuel cell/plug-in battery hybrid - 20 kW PEM fuel cell	200 mi/ 124 km	N/a	

U.S. Planned Fuel Cell Bus Deployments

Location	Year	Project	Program	Vehicle Details	Range	Max. Speed	Picture
Birmingham, Alabama	Planned	Ecobus - University of Alabama. Will be operated by the Birmingham-Jefferson County Transit Authority in Alabama	FTA National Fuel Cell Bus Program	- Bus manufacturer and model: EVAmerica 30 ft - Fuel cell manufacturer: Ballard - Fuel cell/battery dominant plug-in hybrid - 32 kW PEM fuel cell	N/a	N/a	
Coachella Valley, California	Planned	SunLine Transit 1 bus will be placed in regular transit service	CARB ZEB/ FTA National Fuel Cell Bus Program	- Bus manufacturer and model: Thor/ El Dorado National EZ Rider low floor - Fuel cell manufacturer: Ballard - Fuel cell/battery hybrid - 75 kW PEM fuel cell - Compressed hydrogen	N/a	N/a	
Newark, Delaware	Planned 2011	University of Delaware – Zero Emission Fuel Cell Hybrid Bus Phase 3 fuel cell hybrid bus is in development	N/a	- Bus model: 30-ft, 32 passenger - Fuel cell/battery hybrid - Two 19.4 kW fuel cells	N/a	N/a	
Newark, Delaware	Planned	University of Delaware – Zero Emission Fuel Cell Hybrid Bus Phase 4 fuel cell hybrid bus is in development	N/a	- Bus model: 30-ft, 32 passenger	N/a	N/a	
Hawaii Volcanoes National Park, Hawaii	Planned 2011	Plug-in hybrid fuel cell shuttle bus	N/a	N/a	N/a	N/a	
Chicago, Illinois	Planned	Fuel Cell Bus 1 bus deployed in regular transit service by Chicago Transit Authority	FTA National Fuel Cell Bus Program	- Fuel cell manufacturer: Ballard - Fuel cell/battery hybrid	N/a	N/a	
Boston, Massachusetts	Planned	Massport/Logan Airport Fuel Cell Bus	FTA National FC Bus Program	- Bus model: 40-ft - Fuel cell manufacturer: Nuvera - Fuel cell/battery hybrid - 82 kW fuel cell	N/a	N/a	
Flint, Michigan	Planned in 2012	Flint Mass Transportation Authority fuel cell bus	In partnership with Kettering University	- Fuel cell/battery hybrid - Compressed hydrogen	N/a	N/a	
Traverse City, Michigan	Planned	Georgetown University Generation III Bus Program in revenue service	N/a	- Bus manufacturer: EVAmerica - Fuel cell manufacturer: Nucellsys - Fuel cell/battery hybrid - Methanol	N/a	N/a	
Albany, New York	Planned in 2011 for a 4-yr. demo	Battery-Dominant Lightweight Fuel Cell Bus Project 1 bus will be deployed with GE Research	FTA National FC Bus Program	- Fuel cell manufacturer: Hydrogenics - Fuel cell/battery hybrid - 50 kW fuel cell	N/a	N/a	
New York	Planned	New York Power Authority (NYPA) Fuel Cell Bus Project New York demonstration sites (sites not yet determined)	FTA National FC Bus Program	- N/a	N/a	N/a	
Cleveland, Ohio	Planned	NASA Glenn consortium fuel cell bus powered by H2 from Lake Erie water. To be operated by Cleveland's GCRTA transit agency	Consortium	- Fuel cell engine	N/a	N/a	
Columbus, Ohio	Planned	ECO Saver IV Hybrid Electric Fuel Cell Bus	FTA National FC Bus Program	- Bus manufacturer: DesignLine - Fuel cell manufacture: Ballard - Fuel cell/battery hybrid	N/a	N/a	
Columbia, South Carolina	Planned	Advanced Composite Fuel Cell Bus 1 bus operated by Central Midlands Regional Transit Authority (CMRTA)	FTA National Fuel Cell Bus Program	- Bus manufacturer and model: Proterra's advanced 35' fuel cell hybrid bus - Fuel cell manufacturer: Ballard - Fuel cell/battery hybrid	N/a	N/a	

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Chattanooga, Tennessee	Planned	Georgetown University Generation III Bus Program in revenue service	N/a	- Bus manufacturer: EVOAmerica - Fuel cell manufacturer: Nucellsys - Fuel cell/battery hybrid - Methanol	N/a	N/a	
Austin, Texas	Planned in 2011	University of Texas - Fuel Cell Hybrid Bus 1 bus	N/a	- Bus manufacturer and model: Proterra 35 ft - Fuel cell/plug-in battery hybrid	N/a	N/a	
Tacoma, Washington	Planned	Fort Lewis/Dept. of Defense fuel cell bus pilot project. Bus will transport staff around Ft. Lewis and between Ft. Lewis and McChord AFB	Defense Logistics Agency's H2 Fuel Cell R&D Program	- Bus manufacturer and model: Proterra 35-ft. bus - Fuel cell manufacturer: Hydrogenics - Plug-in battery-electric bus with fuel cell range extender - Two 16 kW PEM fuel cells	N/a	N/a	

U.S. Buses with Fuel Cell Auxiliary Power Units (APUs)

Location	Year	Project	Program	Vehicle Details	Range	Max. Speed	Picture
San Francisco, California	Deployed Dec. 2010	Compound Hybrid Fuel Cell Bus. Will use a fuel cell APU coupled with diesel engine. 1 year demo planned a MUNI.	FTA-National Fuel Cell Bus Program	- Bus manufacturer and model: Daimler Orion 40-ft - Fuel cell manufacturer: Hydrogenics - Fuel cell APU - Two 12 kW or 16 kW PEM fuel cells	N/a	N/a	