



FCHEA

Fuel Cell & Hydrogen
Energy Association

**2016 State Policy Wrap Up –
Fuel Cells & Hydrogen**

January 2017



ABOUT THE FUEL CELL AND HYDROGEN ENERGY ASSOCIATION

The Fuel Cell and Hydrogen Energy Association (FCHEA), located in Washington, D.C., 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. Visit us online at www.fchea.org.

For more information on state activities and installations, please see [State of the States: Fuel Cells in America 2016](#).

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PROGRAMS MENTIONED IN THE REPORT

California

[Alternative and Renewable Fuel and Vehicle Technology Program \(ARFVTP\)](#)

[Clean Vehicle Rebate Project \(CRVP\)](#)

[Self-Generation Incentive Program \(SGIP\)](#)

Connecticut

[Connecticut Hydrogen and Electric Automobile Purchase Rebate \(CHEAPR\) Program](#)

Nebraska

[Clean-burning Motor Fuel Development Rebate Program](#)

New Jersey

[Combined Heat & Power \(CHP\) Program](#)

New York

[Clean Fleets New York](#)

[Genesee Region Clean Communities Solicitations](#)

[Municipal Zero Emission Vehicle \(ZEV\) & ZEV Infrastructure Rebate Program](#)

[NYSERDA Renewable Portfolio Solicitations](#)

Pennsylvania

[Alternative and Clean Energy Program \(ACE\)](#)

[Alternative Fuels Incentive Grant \(AFIG\) Program](#)

ABOUT THIS REPORT

The State Policy Wrap Up report examines state policies and funding activities that support the growth of fuel cell vehicles on America's roadways, are growing the number public hydrogen fueling stations, and enable commercial and municipal deployments of distributed fuel cell power generation.

The report highlights 10 states with 2016 fuel cell and hydrogen policy activity. Six of these states (California, Colorado, Connecticut, Massachusetts, New Jersey, and New York) have been recognized as top fuel cell states in the U.S. Department of Energy's report, [*State of the States: Fuel Cells in America 2016*](#). However, 2016 activities in additional states (Nebraska, Pennsylvania, Rhode Island, and Washington) shows that interest in fuel cells and hydrogen extends beyond the top states.

FUEL CELL VEHICLES AND HYDROGEN FUELING INFRASTRUCTURE

Today, more than 1,000 fuel cell vehicles (FCVs) operate on California's roadways and in other select locations in the U.S. Three automakers – Honda, Hyundai and Toyota – sell and lease FCVs in California. These vehicle deployments are supported by a growing number of retail hydrogen stations, with 25 operating in California as of the end of 2016. More hydrogen stations are planned or in development in California, using public funding committed by the state to support an initial network of at least 100 stations. In addition, FCVs will expand to the northeast market in 2017 as Toyota and Air Liquide begin to develop hydrogen stations in the greater Boston and New York City areas.

With these efforts, 2016 was an active year that saw states preparing for increasing numbers of FCVs on their roadways:

- **California** added funding to the Clean Vehicle Rebate Project (CVRP), which offers FCV rebates. The program also increased clean vehicle rebate funding for low income consumers.
- **Connecticut** raised its FCV rebate incentive.
- **New York** implemented a Zero Emission Vehicle (ZEV) rebate program that includes FCVs.

These actions support California, Connecticut, and New York commitments to deploy ZEVs – all three are signatories of a [Memorandum of Understanding \(MoU\)](#) committing the states to at least 3.3 million ZEVs operating on their roadways by 2025.¹ However, states that are not party to the ZEV MOU also took action in 2016 in support of FCVs and hydrogen fueling:

- **Colorado** announced the state is ready for FCVs and hydrogen stations and has implemented rules regarding hydrogen fueling.

¹ Other MoU signatories include Maryland, Massachusetts, Oregon, Rhode Island, and Vermont.



- **Nebraska** launched a vehicle rebate program that includes incentives for FCVs.
- **Pennsylvania** announced a funding opportunity that includes hydrogen-powered vehicles and refueling infrastructure.
- **Washington** exempted clean alternative fuel vehicles, including hydrogen powered vehicles, from sales and use taxes.

In addition, the U.S. Department of Transportation's (DOT) Federal Highway Administration (FHWA) announced routes that will serve as the basis for a national network of alternative fuel corridors, which includes hydrogen corridors across 10 states.

FHWA HYDROGEN HIGHWAYS

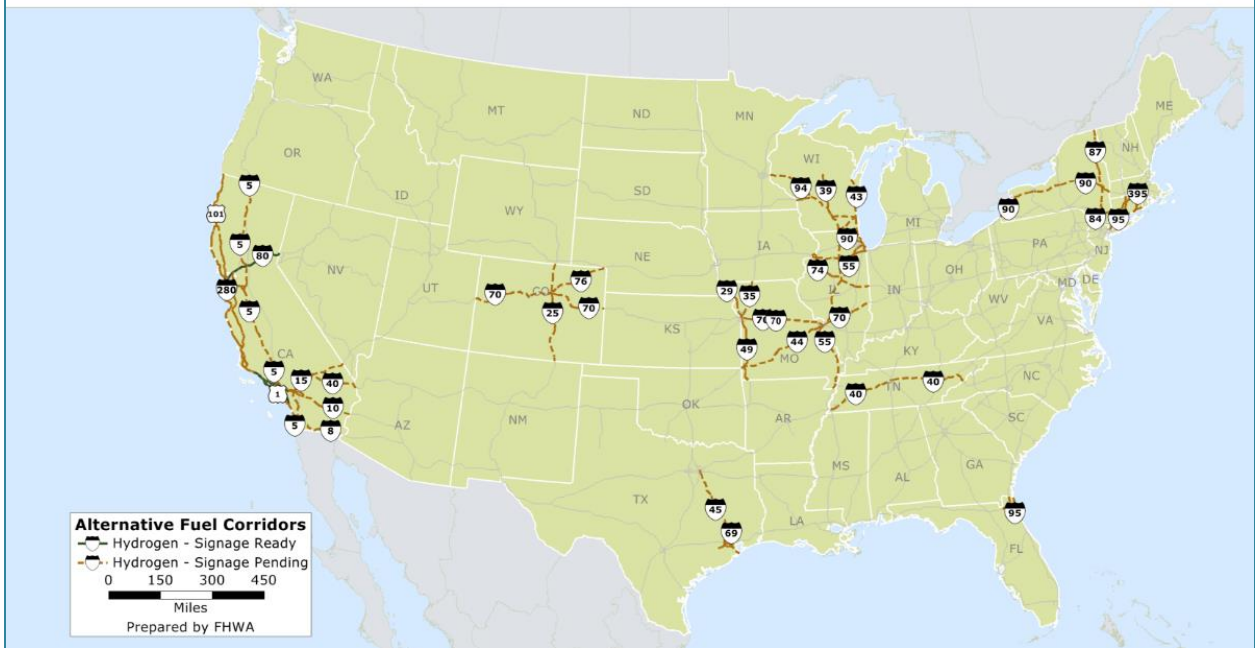
In November, DOT FHWA announced 55 routes that will serve as the basis for an initial national network of [alternative fuel corridors](#) spanning 35 states.

In July, FHWA had called on states to nominate national plug-in electric vehicle charging and hydrogen, propane and natural gas fueling corridors along major highways. These specific alternative fuels were designated by Congress in the [Fixing America's Surface Transportation Act \(FAST Act\)](#), signed into law in December 2015.

The corridors designated as "sign-ready" (where alternative fuel stations are currently operating) will be eligible to feature new signs alerting drivers where they can find fuel for their alternative fuel vehicles.

The initial designated hydrogen highways are shown in the FHWA's map, below, located in 10 states: California, Colorado, Connecticut, Florida, Illinois, Missouri, New York, Tennessee, Texas, and Wisconsin.

Hydrogen Refuelling Map



VEHICLES AND HYDROGEN FUEL – ZEV MOU STATES

California

In June, the [Clean Vehicle Rebate Project \(CVRP\)](#) reported that funding was exhausted and that all applications submitted after June 10, 2016, would be placed on a rebate waitlist. The CVRP provides California residents rebates for the purchase or lease of a new, eligible zero-emission or plug-in hybrid light-duty vehicles, including \$5,000 for the purchase or lease of eligible fuel cell vehicles.



In late August, [state legislators directed](#) \$368 million from the state’s Cap and Trade program to the California Air Resources Board (ARB), allotting \$133 million of this amount for the CVRP.

In October, [ARB announced](#) that, starting November 1, low income residents would be eligible for increased CVRP rebates, including an additional \$2,000 for fuel cell vehicles, for a total fuel cell vehicle rebate amount of \$7,000. To qualify for the increased rebates, applicants must have household incomes less than or equal to 300% of the federal poverty level – gross annual income limit of \$35,640 for an individual, and \$72,900 for a household of four. Higher income consumers are no longer eligible for most CVRP rebates, but these caps do not apply to fuel cell vehicles.



By January 3, 2017, the CVRP has [provided rebates](#) for 775 fuel cell vehicles. In total, more than 1,000 FCVs have been purchased or leased in the state.²

The state is also home to 25 retail [hydrogen stations](#). Assembly Bill 8 specifies that the California Energy Commission's Alternative and Renewable Fuel and Vehicle Technology Program (ARFVTP) must allocate up to \$20 million annually through January 1, 2024, for hydrogen station development until there are at least 100 stations. Through the end of 2016, the Energy Commission has funded 48 hydrogen stations as part of the initial introduction of FCVs in the California marketplace.

In April, the Energy Commission released a new [grant funding opportunity](#) for \$33 million to support hydrogen refueling infrastructure. The proposed awards [will be announced](#) in the first quarter of 2017.

California's Transit Fleet Rule, adopted in 2000, requires transit fleets to transition to alternative fuels or diesel particulate filters and includes a long-term zero emission bus purchase requirement. In 2016, California transit fleets – located in the Coachella Valley; at the University of California, Irvine; in Orange County (a new 2016 deployment); and in the East Bay area – were operating 19 fuel cell buses in regular transit service, with almost a dozen more fuel cell buses planned in the state.³

In 2016, California released its new [Sustainable Freight Action Plan 2016](#) to improve freight efficiency and to transition to zero-emission technologies. The plan indicates that attaining the current standards for the 2023 to 2032 timeframes will require broad deployment of zero and near-zero emission technologies in the South Coast and San Joaquin Valley air basins in vehicles and cargo handling equipment and the supporting infrastructure.

In addition, the [California Fuel Cell Partnership \(CaFCP\)](#) released a [Medium- and Heavy-duty Action Plan](#) to accelerate development and commercialization of medium- and heavy-duty fuel cell trucks in California. Two categories were selected as being the most feasible near-term vehicle platforms: Class 4-6 urban "last mile delivery" trucks (14,001-26,000 pound gross vehicle weight) and Class 7-8 short haul/drayage trucks (26,001-33,000+ pound gross vehicle weight). The Action Plan includes recommendations to support the commercialization of fuel cell trucks, with the highest priority need being support for fuel cell truck fueling infrastructure development.

² Reported to the authors by the CaFCP.

³ <http://evsummit.org/speakers/presentations/2016/Eudy.pdf> (Slide 5)



FCVs now available in certain regions of California: Toyota Mirai (top) and Hyundai Tucson Fuel Cell (middle), and Honda Clarity (bottom).

Three of California's hydrogen stations (top to bottom) Linde station in West Sacramento, Air Products station in Diamond Bar, and TrueZero station from FirstElement Fuel in Long Beach.

Connecticut

The [Connecticut Hydrogen and Electric Automobile Purchase Rebate \(CHEAPR\)](#) program increased the FCV rebate, as of July 1, 2016, to \$5,000, from \$3,000. In June, the CHEAPR program received an [additional \\$1 million](#) in funding, allowing it to issue rebates for an

additional year. The rebates are available for the purchase or lease new eligible battery electric, fuel cell, or plug-in hybrid electric vehicles with a manufacturer's suggested retail price of no more than





\$60,000. The point-of-sale rebate can be obtained at the dealership. In November, a [subsequent \\$2.7 million](#) in new funding was made available for the CHEAPR program.

In June, [HB-5510: An Act Concerning Electric and Fuel Cell Electric Vehicles](#) was signed into law to prepare electric distribution companies, municipalities, public and private merchants and electrical contractors for electric, zero-emission, and fuel cell vehicles in the state. The law allows parking of fuel cell vehicles under grade level and makes changes regarding labeling of vehicles that carry pressurized gas as fuel, exempting vehicles that are in compliance with all applicable federal codes and standards for light-duty passenger use.

Massachusetts

In December, the governor [announced](#) \$12 million in funding for the [Massachusetts Offers Rebates for Electric Vehicles \(MOR-EV\) program](#), adding to the \$2 million funding commitment by the state's Department of Energy Resources' (DOER) that was made in January. Rebates range from \$750-\$2,500 on the purchase or lease of more than 25 qualifying new electric vehicles, including battery electric, plug-in hybrid electric and FCVs. Eligible FCVs qualify for a \$2,500 rebate.

New York

[SB-6408C](#), signed into law in April 2016, directs the [New York State Energy Research and Development Authority \(NYSERDA\)](#) to develop and administer a Light-Duty Zero Emissions and Plug-In Electric Vehicle Rebate Program that will provide rebates of up to \$2,000 for the purchase or lease of a new eligible vehicle, including electric vehicles, plug-in hybrid electric vehicles, or FCVs. An eligible vehicle must:

- Be a four-wheeled motor vehicle manufactured for use on public streets, roads, and highways,
- Have a gross vehicle weight rating of not more than 8,500 pounds,
- Have a maximum speed of at least 55 mph, and
- Be propelled at least in part by an electric motor and associated power electronics that draws electricity from a hydrogen fuel cell or from a battery that has a battery capacity of at least four kilowatt-hours, and is capable of being charged from an external source of electricity.

NYSERDA will develop the program no later than April 2017.

In September, the Governor announced that the New York Office of Climate Change [Municipal Zero Emission Vehicle \(ZEV\) & ZEV Infrastructure Rebate Program](#) will offer \$3 million in Round 1 funding for the purchase or lease of eligible clean vehicles from a dealership in New York State, and for installation of eligible infrastructure which supports public use of clean vehicles. FCVs are eligible for a \$5,000 rebate and hydrogen infrastructure facilities are eligible for up to a \$250,000 rebate. Additional details are shown in the chart below:

New York State’s Municipal Zero Emission Vehicle (ZEV) & ZEV Infrastructure Rebate Program					
Category	Total Available	Maximum Rebate	Maximum Per Municipality	Match Per Project	State Share Per Project
Clean Vehicle Purchase or Lease	\$750,000	\$5,000 per vehicle (50+ mile electric range); \$2,500 per vehicle (10-50 mile electric range)	\$375,000	Not applicable	Grant amount up to rebate limits
Hydrogen Infrastructure	\$1,000,000	\$250,000 per facility	\$750,000	20% of grant amount	Grant amount up to rebate limits
Electric Vehicle Supply Equipment Infrastructure (EVSE)	\$1,250,000	\$250,000 per facility	\$625,000	20% of grant amount	Up to \$8,000 per port (EVSE); up to \$32,000 per pedestal (Direct Current Fast Charge)

The total available funding in each ZEV and ZEV infrastructure rebate category above is reserved for that category through December 31, 2016. After this date, any remaining funds will be pooled and made available for projects in any rebate category on a first come-first served basis for projects meeting all applicable selection criteria until all funds are exhausted, or until March 31, 2017.

During 2016, as part of the [Clean Fleets New York](#) pilot program, New York’s Department of Environmental Conservation, the New York Power Authority, and NYSERDA, among other agencies, committed that at least half of new, administrative-use vehicles would be ZEVs, such as fuel cell, battery electric, or plug-in electric hybrid vehicles.

The [Genesee Region Clean Communities](#) made available \$1 million in alternative fuel grants from the federal government for fleet purchases in the Rochester, New York, area and accepted applications through March 18, 2016. Both private and public fleets with at least five vehicles in the Rochester Nonattainment Area – which includes the counties Monroe, Wayne, Orleans, Genesee, Livingston and Ontario – could apply for the grant, which cover up to 75% of the purchase or conversion of a qualifying vehicle. Hydrogen fuel cell, compressed natural gas, propane autogas, battery electric, bi-fuel, dual-fuel and hybrid drivetrains were eligible for the grant, which was applicable to light-, medium-, and heavy-duty vehicles. The vehicles are required to adhere to the Federal Highway Administration’s Buy America provisions.

FUEL CELLS & HYDROGEN – NON-ZEV-MOU STATES

Colorado

Colorado [amended](#) its definition of fuel products to include hydrogen and required the Division of Oil and Public Safety to promulgate rules concerning retail hydrogen fuel for vehicles, including rules relating to inspections, measurement, and specifications. These rules become effective on January 1,



2017. In addition, Colorado's governor [proclaimed October 8 as National Fuel Cell and Hydrogen Day](#) in Colorado, stating that the state is ready for hydrogen stations and introduction of fuel cell vehicles.

Nebraska

In January, Nebraska launched the [Clean-burning Motor Fuel Development Rebate Program](#) to provide rebates on qualified clean-burning motor vehicle fuel property. Fuel cell vehicles are eligible if purchased; leased vehicles are ineligible. Rebates for the portion of the purchase price of a motor vehicle attributable to the cost of the fuel tank, fuel lines, and exhaust system is 50% of that cost or \$4,500, whichever is less.

Pennsylvania

In 2016, Pennsylvania announced an opportunity to apply for grants under the [Alternative Fuels Incentive Grant \(AFIG\) Program](#), which aims to improve air quality and reduce consumption of imported oil through the use of domestic alternative fuels. Eligible vehicles include but are not limited to: hydrogen, electricity, liquid propane gas, and dedicated, bi-fuel, and dual-fuel LNG or CNG vehicles, with no weight limits.

Washington

Washington [modified](#) the retail sales and use tax exemption for certain clean alternative fuel vehicles, effective July 1, 2016, which include new passenger cars, light duty trucks, and medium duty passenger vehicles powered by hydrogen, electricity, natural gas, or propane. The exemption is applicable for up to \$32,000 of a vehicle's selling price, or the total lease payments made plus the selling price of the leased vehicle. New or leased vehicle purchases are not exempt from sales tax if, at the time of sale or leasing, the lowest manufacturer's suggested retail price for the base model is more than \$42,500.

FUEL CELL-POWERED MATERIAL HANDLING EQUIPMENT

The NY Green Bank, a state-sponsored, specialized financial entity working with the private sector to increase investments into New York's clean energy markets, provided a [\\$25 million senior loan](#) to New York manufacturer Plug Power, a manufacturer of fuel cells for stationary and material handling applications and supplier hydrogen fueling stations for material handling equipment. Plug Power will use the capital to deploy additional hydrogen and fuel cell systems, including sites within New York State. The funds will also enable the creation of additional high-tech jobs.

DISTRIBUTED FUEL CELL POWER GENERATION

States that are supporting deployment of distributed fuel cell power generation do so to achieve a variety of goals, including reduced greenhouse gas (GHG) emissions, improved power reliability, enhanced energy efficiency, and lowered consumer demand on the electric grid. However, in 2016, several states modified their incentive programs to meet revised goals, resulting in changes that will impact new fuel cell and other distributed energy technology projects. These changes were made to:

- The **California Self Generation Incentive Program (SGIP)**, which redirected funding to support energy storage (75% of funding), making less funding (25%) available for generation technologies, which include fuel cells. In addition, incentives will decrease on a step-down basis dependent on the amount of generation resources installed.
- The **New Jersey CHP-Fuel Cell Program** (now renamed the CHP Program), which suspended incentives for fuel cells without heat recovery. Fuel cells with heat recovery continue to be eligible for CHP Program funding.

Also during the year, other states broadened their incentives for fuel cells:

- **New York** and **Rhode Island** added tax exemptions that include fuel cell systems.
- **Massachusetts** added fuel cells to its Alternative Renewable Energy Portfolio Standard as an alternative energy generating source.
- **New York** adopted the State Energy Plan goal that 50% of New York’s electricity be generated by renewable sources by 2030, as well as a Clean Energy Standard (CES) that will include fuel cells as an eligible generation source.
- **New York’s** Long Island Power Authority (LIPA) approved the Fuel Cell Resources Feed-in Tariff IV for interconnection of fuel cell equipment sized from 1 MW to 20 MW.

These program changes and incentives are discussed in further detail on the following pages.



1.4-MW FuelCell Energy fuel cell power plant at a water quality control plant in Riverside, California.

Image source: FuelCell Energy



440-kW Doosan Fuel Cell America system at California State University, San Marcos (CSUSM).

Image source: CSUSM Newsroom



750-kW Bloom Energy rooftop installation at Morgan Stanley’s global headquarters in New York City.

Image source: Bloom Energy

California

In January, CARB granted [contingent certification](#) under the [Low Carbon Fuel Standard \(LCFS\)](#) for FuelCell Energy's renewable hydrogen generation using fuel cells at wastewater treatment facilities. FuelCell Energy's power plants can be configured to generate renewable hydrogen via a tri-generation process, which could provide hydrogen fuel for FCVs using a carbon-neutral and non-polluting process. Each kilogram of renewable hydrogen supplied for vehicle fueling is eligible for a LCFS credit that can be sold or traded to offset carbon-intensive petroleum fuel usage. Final certification is expected following a specified period of operation and review of performance data of a megawatt-class tri-generation system utilizing renewable biogas as the fuel source.

The California Public Utilities Commission's (CPUC's) [Self-Generation Incentive Program \(SGIP\)](#) opened to application submissions in February 2016. The program had been [closed to new projects](#) during program year 2015 due to "an unprecedented number of applications." The SGIP provides financial incentives for new qualifying technologies installed to meet all or a portion of the electric energy needs of a facility in an effort lower GHG emissions, lower grid demand, and reduce customer electricity purchases. The SGIP also enhances electric system reliability through improved transmission and distribution system utilization and promotes market transformation for distributed energy resource technologies. Qualifying technologies include fuel cells, wind turbines, waste heat to power technologies, pressure reduction turbines, internal combustion engines, microturbines, gas turbines, and advanced energy storage systems.

In July, CPUC issued a [decision](#) that implements significant reforms to the SGIP program and allocated \$83 million annually to the program through 2019. Among the staff revision proposals was a recommendation to make electric-only fuel cells ineligible for the program. This proposal was rejected by the CPUC Commissioners and electric-only fuel cells, along with CHP fuel cells continue to be eligible for SGIP funding.

The July revisions, however, made significant changes affecting fuel cells and other generation technologies. The main portion of SGIP's budget (75%) is now directed to incentives for energy storage technologies. The remaining 25% of the budget is allocated to generation technology incentives, with a 40% carve-out for renewable generation projects. In addition:

- Beginning in program year 2017, generation projects using natural gas must use a minimum of 10% biogas to receive an SGIP incentive. The minimum requirement increases to 25% in 2018, 50% in 2019, and 100% in 2020.
- Project developers are capped at a total of 20% of the incentive budget on a statewide basis. This replaces the previous 40% cap that applied to equipment manufacturers.
- All natural gas generation projects must meet the GHG emissions factor adopted in [Decision 15-11-027](#) without the inclusion of biogas in the calculation of emissions. The GHG emissions

threshold for generation technologies was lowered for program year 2016, from 379 kg CO₂/MWh to 350 kg/MWh, averaged over the first 10 years of a project’s operations and will continue to decline to 337 kgCO₂/ MWh for program year 2020.

- Modified incentives reduce the funding amounts as generation resources are installed, similar to the state’s Solar Initiative where subsidies decline in "steps" based on the volume of megawatts of confirmed incentive reservations issued within each utility service territory. The new SGIP generation technologies incentive structure is below.

SGIP’s Adopted Incentives for Generation Technologies						
	STEP 1		STEP 2		STEP 3	
	Incentive per W Capacity	Max Incentive w/ Biogas Adder	Incentive per W Capacity	Max Incentive w/ Biogas Adder	Incentive per W Capacity	Max Incentive w/ Biogas Adder
Wind	\$0.90	n/a	\$0.80	n/a	\$0.70	n/a
Waste Heat to Power	\$0.60	n/a	\$0.50	n/a	\$0.40	n/a
Pressure Reduction Turbine	\$0.60	\$1.20	\$0.50	\$1.10	\$0.40	\$1.00
Internal Combustion CHP	\$0.60	\$1.20	\$0.50	\$1.10	\$0.40	\$1.00
Microturbine CHP	\$0.60	\$1.20	\$0.50	\$1.10	\$0.40	\$1.00
Gas turbine CHP	\$0.60	\$1.20	\$0.50	\$1.10	\$0.40	\$1.00
Fuel Cell CHP	\$0.60	\$1.20	\$0.50	\$1.10	\$0.40	\$1.00
Fuel Cell Electric Only	\$0.60	\$1.20	\$0.50	\$1.10	\$0.40	\$1.00

Note that 40% of the incentives in each step shall be reserved for renewable generation technologies, meaning that natural gas fueled technologies may see their incentives decrease to a lower step while renewable technologies may remain at a higher step if they have not met their 40% carve out.

In September, [AB-1637 Energy: Greenhouse Gas Reduction](#) was signed into law, increasing the SGIP program cap by authorizing 500 MW in addition to the total installed capacity as of January 1, 2017. The bill also increases to 5 MW (from 1 MW) the maximum amount of generation capacity for a fuel cell electrical generation facility in the program. Fuel cell electrical generation facilities are eligible for the tariff if operation is commenced before 2022.

AB-1637 also states that the California Air Resources Board (CARB) must, by March 31, 2017, in consultation with the California Energy Commission (CEC), establish a schedule of annual GHG emission reduction standards for fuel cell electrical generation resources and requires the CPUC to determine if the technology used by the eligible fuel cell customer-generator will achieve those standards. Fuel cell electrical generation resource must comply with emission standards adopted by ARB under the distributed generation certification program. Prior to this change, the law required that the customer-generator use fuel cell technology that the PUC determined would achieve certain reductions in emissions of GHGs.

Since 2001, **more than 450 fuel cell systems** have been installed in California with SGIP support, making California the U.S. leader in the number of stationary fuel cell installations. As of January 3, 2017, the total SGIP fuel cell capacity was 188 MW, about 20% of SGIP's total installed capacity, and comprised of 45.52 MW of CHP fuel cell systems and 142.7 MW of electric-only fuel cells. These statistics are highlighted in the following graphics.

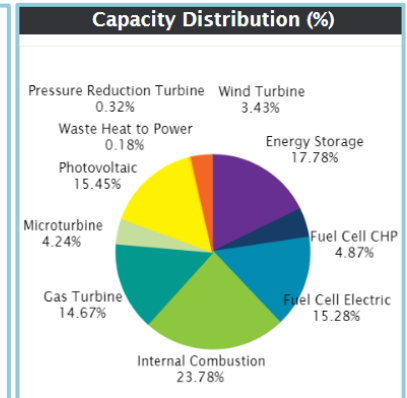
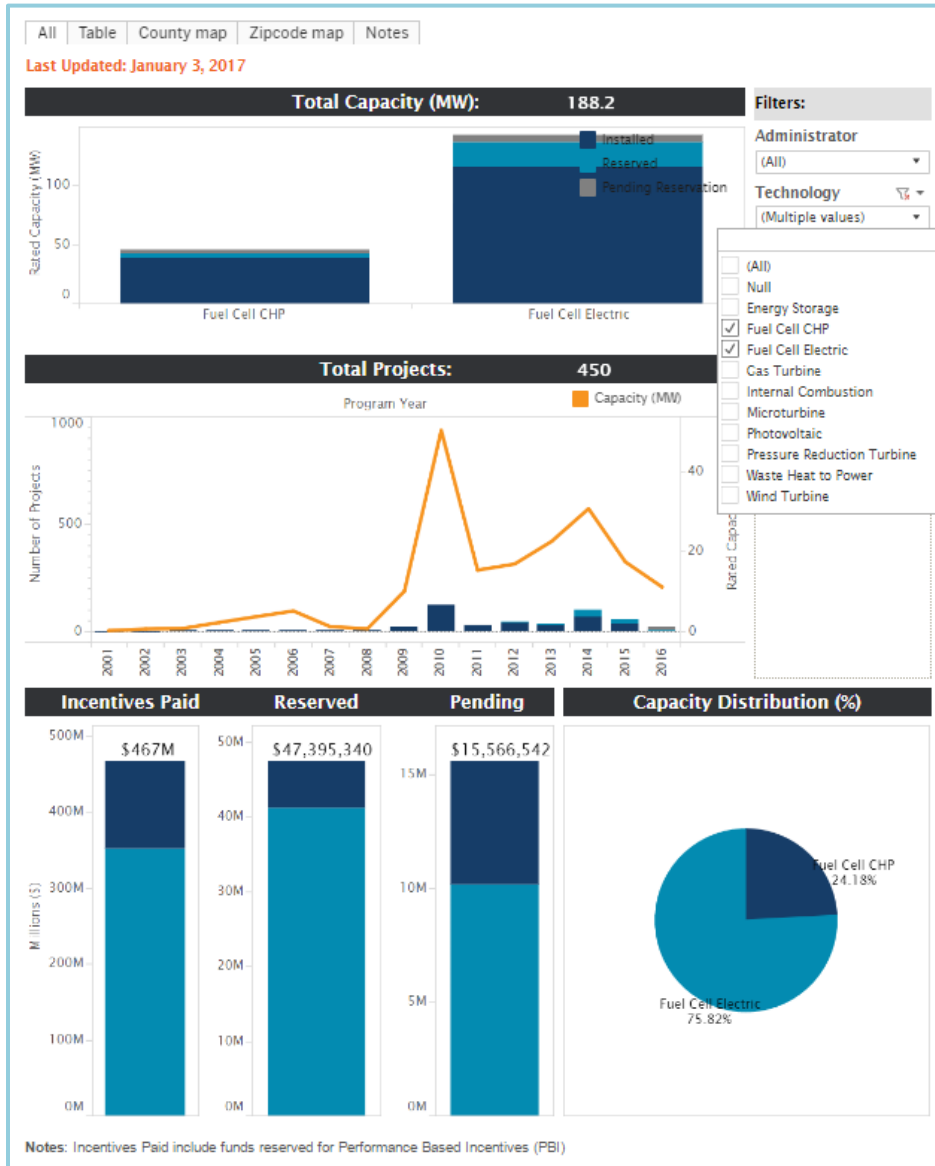


Image source: SGIP Program Statistics <https://energycenter.org/self-generation-incentive-program/program-statistics>

Massachusetts

In August, the governor signed into law, [H-4568: An Act to Promote Energy Diversity](#) which, among other measures, adds fuel cells to the Alternative Renewable Energy Portfolio Standard as an alternative energy generating source.

The law also allows the Department of Energy Resources to establish a carbon reduction research center at the University of Massachusetts to advance the state’s carbon reduction goals. The research center may include, but not be limited to, any of the following research initiatives: fuel cells, energy storage technology, residential property assessed clean energy programming, commercial property assessed clean energy programming, increased efficiency of existing small domestic energy production, and increased efficiency of and cleaner use of traditional fossil-based fuels.

New Jersey

In August, New Jersey made several to the [Combined Heat & Power \(CHP\) Program](#) including the suspension of incentives for fuel cells without heat recovery. Fuel cells with heat recovery continue to be eligible under the program, receiving an incentive of \$350/kW. Projects must be sized >3 MW. The total cost cap per project is 30%, with a dollar cap of \$3 million per project. This total cap per project will be increased to 40% where a cooling application is used or included with the CHP system (e.g. absorption chiller). All projects applying for incentives under the program must demonstrate a simple payback of 10 years or less.

[Program records](#) show that New Jersey’s CHP Program (and the former CHP-Fuel Cell Program) have committed or pending fuel cell incentives that include:

New Jersey CHP Program (or the former CHP-Fuel Cell Program) Committed or Pending Incentives for Fuel Cells			
Application Made in Calendar Year	Total Funding	# of Fuel Cell Systems	Power (Aggregate)
2014	> \$5.2 million	3	2.6 MW
2015	> \$4.4 million	7	2.2 MW
2016	> \$7.3 million	4	3.25 MW

New York

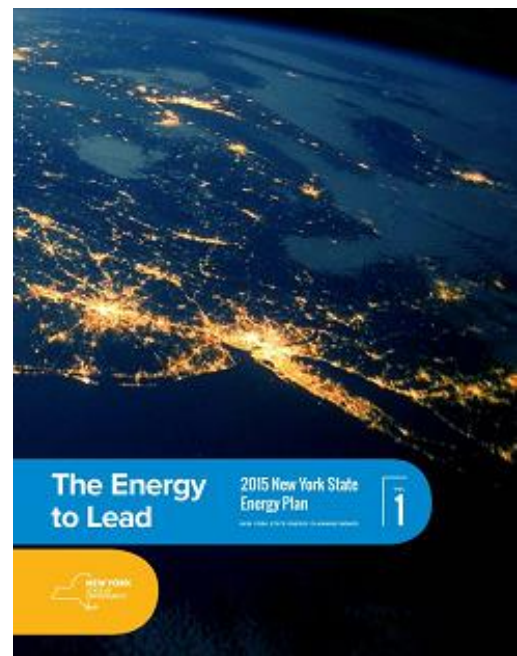
In April, New York’s governor announced [\\$150 million in funding](#) to support large-scale renewable energy projects under the [Reforming the Energy Vision \(REV\)](#) strategy to ensure the state meets its goal of 50%



renewable electricity by 2030. This funding is made available through NYSERDA in a final solicitation under the state's Renewable Portfolio Standard (RPS) – [RFP 3257 - Renewable Portfolio Standard Program Purchase of Renewable Energy Attributes](#).

The competitive solicitation supports private investment in renewable energy sources, including fuel cells, with contracts awarded for terms of up to 20 years. Under the program, New York's Clean Energy Fund, administered by NYSERDA, will give anaerobic digester gas, small wind, and fuel cells traditional incentives through 2016, before these programs transition away from relying principally on incentives in favor of a selection process to source and support projects and strategies that offer potential for cost reductions and/or unique value demonstration.

In August, the New York Public Service Commission [adopted the State Energy Plan \(SEP\) goal](#) that 50% of New York's electricity be generated by renewable sources by 2030 as part of a strategy to reduce statewide GHGs by 40% by 2030. To further this goal, the Commission also adopted a [Clean Energy Standard \(CES\)](#) that will include program and market structures to encourage consumer-initiated clean energy purchases or investments; obligations on load serving entities to financially support new renewable generation resources to serve their retail customers; and a requirement for regular renewable energy credit (REC) procurement solicitations. Eligible generation sources include fuel cells, biogas, biomass, liquid biofuels, hydroelectric, solar, tidal/ocean, and wind.



In September, the Long Island Power Authority (LIPA) approved the [Fuel Cell Resources Feed-in Tariff IV](#) for interconnection of fuel cell equipment sized from 1 MW to 20 MW. The solicitation for standardized bids from eligible generation projects began on October 1, 2016 and the Authority will continue to accept bids through January 31, 2017. Eligibility is limited to projects attached to the system at or within a beneficial area, which are outlined in the project documents. Fuel cell generating technology that uses less than 100% renewable energy sources are eligible to participate. Fuel cell generation projects that qualify under and satisfy all the requirements of the Tariff including the Smart Grid Small Generator Interconnection Procedures will enter into a Fuel Cell Power Purchase Agreement for the Fuel Cell Feed-in Tariff.

New York also added new [sales and use tax exemptions](#) for commercial fuel cell electricity generating system equipment, applying to sales made and services rendered on or after June 1, 2016. It includes an exemption for receipts from the retail sale of commercial fuel cell electricity generating system



equipment and also provides an exemption for the services of installation and maintenance of the equipment, so long as the fuel cell system is installed on nonresidential premises. Additionally, the state provides an exemption from the 4% state and the 3/8% Metropolitan Commuter Transportation District sales and use taxes imposed on sales of nonresidential electricity and hydrogen gas.

Pennsylvania

Pennsylvania's [Alternative and Clean Energy Program \(ACE\)](#) accepted loan and grant applications from February 1, 2016 - Apr. 1, 2016 under the latest round of funding. ACE provides grants and loans for alternative and clean energy projects to eligible businesses, economic development organizations, or political subdivision including municipalities, counties, and school districts. These include:

- Loans for manufacturers of alternative or clean energy generation equipment or components up to \$40,000 for every new job created within three years after approval of the loan.
- Loans up to \$5 million for any alternative energy production or clean energy project, or 50% of the total project cost, whichever is less.
- Grants for manufacturers of alternative and/or clean energy generation equipment or components, up to \$10,000 for every job projected to be created by the business within three years after approval of the grant.
- Grants of up to \$2 million for any alternative energy production or clean energy project, or 30% of the total project cost, whichever is less.

Eligible technologies include, but are not limited to, fuel cells, waste coal, biomass, wind energy, geothermal technologies, clean coal technologies, waste energy technologies, large-scale or low-impact hydro, biologically derived methane gas, coal mine methane, or by-products of the pulping and wood manufacturing process, installed in a new or existing building. A matching investment of at least \$1 for every \$1 of program funds awarded is required.

Projects receiving funds through earlier rounds of the ACE program include a fuel cell system located at Urban Outfitters' headquarters in the Navy Yard (Philadelphia) and a fuel cell at the TJX Philadelphia Distribution Center.

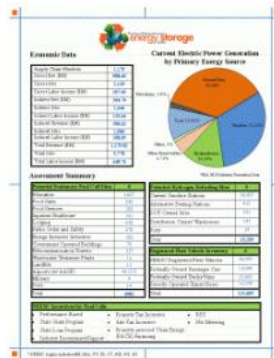
Rhode Island

[H.B. 8354](#), enacted in July, includes provisions that exempt from taxes eligible renewable energy resources and associated equipment used in residential systems, as well as renewable energy resources employed by a manufacturer. Qualifying renewable energy resources include fuel cells using renewable resources.

The Database of State Incentives for Renewables and Energy (DSIRE) [points out](#) that the tax exemption does not include renewable energy equipment in commercial facilities, but believes that H.B. 8343, which added renewable energy equipment to qualify for tax stabilization, may apply to commercial facilities.

ROADMAPS

The Northeast Electrochemical Energy Storage Cluster (NEESC) posted [summaries](#) of the Hydrogen and Fuel Cell Development Plans (“Roadmaps”) it developed for New York, New Jersey and each of the states in New England, developed as single page monographs for each state and for the region. The summaries focus on economic impact, current electric power generation, and target assessment.



NEESC Region

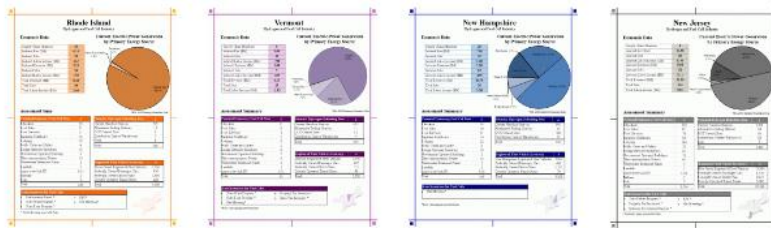


Massachusetts

Connecticut

New York

Maine



Rhode Island

Vermont

New Hampshire

New Jersey

ADDITIONAL RESOURCES

- [Alternative Fuels Data Center \(AFDC\)](#)
- [California Air Resources Board \(ARB\)](#)
- [California Energy Commission \(CEC\)](#)
- [California Fuel Cell Partnership \(CaFCP\)](#)
- [Connecticut Hydrogen-Fuel Cell Coalition \(CH-FCC\)](#)
- [Database of State Incentives for Renewable & Efficiency \(DSIRE\)](#)
- [Fuel Cell and Hydrogen Energy Association \(FCHEA\)](#)
- [Northeast Electrochemical Energy Storage Cluster \(NEESC\)](#)
- [Ohio Fuel Cell Coalition \(OFCC\)](#)
- [U.S. Department of Energy \(DOE\) Fuel Cell Technologies Office \(FCTO\)](#)