Leading by Example Awarded Grants

Recipient	Technology	Description	Amount Awarded
Salem State University	Feasibility Study (Clean Energy)	In 2020, SSU was awarded a feasibility study grant to fund a study assessing fossil fuel-free heating/cooling options for their North Campus as part of their long-term goal to achieve carbon neutrality by 2050. The study will assess multiple options to achieve this goal, including heat pumps, clean biomass, geothermal, and energy efficiency options.	$100,000
UMass Dartmouth	Feasibility Study (Clean Energy)	In 2020, UMD was awarded a feasibility study grant to fund the development of a Comprehensive Energy Master Plan. UMD intends for the Energy Master Plan to serve as a comprehensive roadmap to help UMD understand the investment and implementation requirements to 1) effectively chart a course to reach the goals established in Executive Order 484 and 2) pursue a more aggressive implementation strategy that targets carbon neutrality by 2030.	$100,000
UMass Lowell	Feasibility Study (Clean Energy)	In 2020, UML was awarded a feasibility study fund the development of a campus-wide renewable energy master plan. UML intends the plan to take a comprehensive and strategic approach to renewable options that will meet existing and future power and heating system needs. The plan would focus on meeting the goals of the campus Climate Action Plan to achieve carbon neutrality by 2050 and develop generation targets to meet interim carbon reduction goals along the way (i.e. 2030, 2040).	$100,000
Quinsigamond Community College	Feasibility Study (Solar Canopy & Storage)	In 2020, QCC was awarded a feasibility study grant to assess the viability of a large-scale solar canopy that includes battery storage at its Worcester campus. The study focused on the impact of interconnecting a large solar canopy system to provide clean energy on-site.	$25,600
Cape Cod Regional Transit Authority	Solar PV	In 2019, Cape Cod RTA was awarded a grant for a third party-owned 360 kW solar canopy at the Hyannis Transportation Center that is expected to generate 388,800 kWh if renewable elctrcity annually. The installation is estimated to save CCRTA thirty-five thousand dollars ($35,000) in Year 1 electricity costs and an estimated $715,000 in electricity costs over the project lifetime. This project also includes 10 new dual-head Level II electric vehicle charging stations, bringing the site total up to 22 charging ports; these charging stations are not funded by the grant but are required for solar canopies seeking funding.	$396,000
UMass Boston	Solar PV	In 2019, UMass Boston was awarded a grant for a third party-owned 644 kW solar canopy and storage system on campus that is expected to generate around 789,900 kWh of renewable electricity annually. The solar plus storage system is expected to provide UMass Boston with an average of over $99,000 per year in project benefits (avoided electricity costs and shared revenue), with estimated 20-year project benefits of approximately $1.9 million. The project also includes 11 single-head electric vehicle charging stations.	$625,000
Massachusetts Emergency Management Agency	Solar PV	In 2019, MEMA was awarded a grant for a 275 kW solar canopy atop its underground bunker in Framingham. Annually, the solar installation is expected to generate 376,000 kWh and provide over $100,000 in avoided electricity costs and revenue annually. The project also includes a dual-head electric vehicle charging station and pre-wiring for additional stations to be added in the future.	$453,750

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Salem State University	Solar PV	In 2018, SSU was awarded a solar installation grant for three rooftop systems totaling 387 kW through a third-party owned power purchase agreement expected to generate 439,000 kWh annually. The installation at the Berry Library (178 kW), Gassett Fitness Center (102 kW), and Marsh Hall (107 kW) will reduce SSU's electricity costs for the portion of electricity generated by these solar arrays by approximately 45% from about $0.14 per kWh to $0.08 per kWh, save $28,500 annually, or $543,000 over 20 years.	$193,500
UMass Amherst	Feasibility Study (Clean Energy)	In 2018, UMA was awarded a feasibility study grant for a clean energy study for clean energy heating and cooling technologies at Memorial Hall as an alternative to replacing a failing steam line that currently feed the thermal needs of the building and to reduce greenhouse gas emissions. Technologies include ground source heat pumps and ductless mini-split air source heat pumps.	$4,400
UMass Medical School	Feasibility Study (Energy Storage)	In 2018, UMMS was awarded a feasibility study grant for an energy storage system in the existing Combined Heat and Power (CHP) plant at UMass Medical. The study includes a comprehensive economic analysis of the energy storage system in conjunction with the CHP to calculate the cost reduction and simple payback from peak demand decrease, energy arbitrage and other operation efficiency optimizations.	$43,500
UMass Amherst	Feasibility Study (Alternative Fuels Analysis)	In 2018, UMA was awarded a feasibility study grant for an alternative fuels analysis for the future expansion of the Central Heating Plant and campus electrical distribution system at UMass Amherst. This includes the study of alternative bio-fuel use in Central Heating Plant, alternative fuels in existing, satellite and/or new buildings, expansion of on-campus solar PV, and enhanced reliability and resiliency.	$100,000
Mass. College of Liberal Arts	Combined Heat and Power (CHP)	In 2018, MCLA was awarded a grant for a 75 kW CHP system for the college's Feigenbaum Center for Science and Innovation in North Adams. The system is expected to reduce the consumption of 624,000 kWh of grid electricity annually, result in $80,000 in energy costs savings and Alternative Energy Credits (AECs) revenue, and reduce greenhouse gas emissions 97 metric tons. It will also provide resiliency benefits, as on-site standby generator capacity will be able to generate power to maintain critical laboratory and public safety loads.	$208,670
Dept. of Correction	Feasibility Study (Solar Canopy)	In 2018, DOC was awarded a feasibility study grant for a solar canopy study of a 67,000 square feet parking area across three parking lots at the Department of Correction's Milford Headquarters.	$30,300
MA National Guard	Solar PV Canopy	In 2017, the MA National Guard was awarded a grant for a 205 kW solar canopy at the Natick Readiness Center in Natick. Annually, the solar installation is expected to generate 260,000 kWh, save $30,000 in energy costs, and produce enough electricity to offset approximately 82 percent of the facility's electricity consumption. The project also includes a dual-head electric vehicle charging station and pre-wiring for additional stations to be added in the future.	$256,250
Dept. of Correction	Vehicle Fleet Efficiency: Hybrid Conversion	In 2017, DOC was awarded a grant for the after-market hybrid conversion of fourteen vans in the agency's fleet, making them approximately 20% more efficient. These conversions are expected to save DOC more than 2,300 gallons of fuel and $5,250 in fuel costs each year, and reduce 20 metric tons in greenhouse gas emissions annually. The conversions will also reduce brake maintenance costs. This conversion with support the agency's efforts to meet the Fuel Efficiency Standard for the State Fleet.	$131,880

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Dept. of Developmental Services	Vehicle Fleet Efficiency: Hybrid Conversion	In 2017, DDS was awarded a grant for the after-market hybrid conversion of nine vans in the agency's fleet, making them approximately 20% more efficient. These conversions are expected to save more than 1,500 gallons of fuel and $3,300 in fuel costs each year, and reduce 13 metric tons in greenhouse gas emissions annually. The conversions will also reduce brake maintenance costs. This conversion with support the agency's efforts to meet the Fuel Efficiency Standard for the State Fleet.	$98,910
Dept. of Youth Services	Vehicle Fleet Efficiency: Hybrid Conversion	In 2017, DYS was awarded a grant for the after-market hybrid conversion of two vans in the agency's fleet, making them approximately 20% more efficient. These conversions are expected to save more than 285 gallons of fuel and $640 in fuel costs each year, and reduce 2.5 metric tons in greenhouse gas emissions annually. The conversions will also reduce brake maintenance costs. This conversion with support the agency's efforts to meet the Fuel Efficiency Standard for the State Fleet.	$21,980
Franklin County Sheriff's Office	Solar PV Canopy	Completed in 2018, the Franklin County Sherriff's Office installed a 436 kW solar canopy at the Franklin County Jail and House of Correction in Greenfield. Annually, the solar installation is expected to generate 439,000 kWh and save $92,000 in energy costs. The project includes two electric vehicle charging stations and pre-wiring for an additional three stations to be added at a future date. This is part of a comprehensive DCAMM energy project which includes over 20 additional energy and water conservation measures.	$545,000
MassDOT	Solar PV Canopy	Completed in 2018, MassDOT installed a 490 kW solar canopy at the agency's new research and materials facility. In conjunction with a 40 kW rooftop PV system, the solar systems help offset a substantial portion of the building's electric demand. The project included two dual-head Level II electric vehicle charging stations, is expected to generate 600,000 kWh annually, and was built at no cost to MassDOT through a third-party power purchase agreement.	$245,000
UMass Amherst	Solar PV Canopy	UMA installed a 4.5 MW solar parking canopy over Parking Lots 25 and 44 in 2016. The project, which also includes 1 MW of rooftop arrays, will generate 6 million kWh of clean power annually, will replace about one-fifth of the electricity still purchased from the grid. The project is projected to save UMA $6 million over 20 years. The project includes two electric vehicle charging stations.	$500,000
Dept. of Conservation and Recreation	Air Source Heat Pump (ASHP)	DCR is installing a cold-climate ASHP in the Scusset Beach State Reservation Maintenance Garage in Sandwich. The system is projected to reduce annual electricity consumption by 35,450 kWh, lower GHG emissions by 12 metric tons, and save $5,034 annually. The heat pump will be installed in conjunction with energy conservation measures including insulation and air sealing, and improves thermal comfort.	$41,250
Dept. of Conservation and Recreation	Air Source Heat Pump (ASHP)	DCR is installing the cold-climate ASHP in the Halibut Point Visitor's Center in Rockport. The system is projected to reduce annual electricity consumption by 32,309 kWh, lower GHG emissions by 11 metric tons, and save $4,588 annually. The building's existing ground source heat pumps were reaching the end of their useful life, and ASHP installation will be a more economical replacement.	$45,683
Division of Capital Asset Management and Maintenance (DCAMM)	Real Time Metering and Analytics	DCAMM, in collaboration with DOER, is implementing an interval metering and analytics Commonwealth Building Energy Intelligence (CBEI) program over 3 years. Measuring and analyzing interval energy data at hundreds of state agency and higher-education buildings across more than 20 million square feet, CBEI aims to improve day to day management of energy use through operational efficiencies that will result in significant energy reductions. DOER is providing project funding for 50% of total contract amount.	$3,047,997

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Roxbury Community College	Solar PV Canopy	Completed in 2016, the 937 kW solar canopy over RCC's Parking Lot No.1 is expected to reduce GHG emissions by 369 metric tons per year, produce more than 1 million kWh annually, and reduce energy costs by $5.3 million over twenty years. Part of a larger DCAMM energy project, the site is equipped with three dual-head electric vehicle charging stations and is the largest state solar installation in Boston.	$600,000
Trial Courts	Feasibility Study – Air Source Heat Pump (ASHP)	In 2015, renewable thermal feasibility studies were conducted at the Uxbridge District Court and the Westborough District Court. The studies assessed the technical and economic feasibility of replacing existing electric resistance heating and electric cooling systems with efficient ASHPs. Compared to a replace-in-kind scenario, the ASHPs offered a cheaper, more energy efficient alternative, with projected annual energy cost savings of over $10,000 per site. Currently, the Trial Courts are in the midst of capital planning to determine the future implementation of these projects.	$37,600
Dept. of Conservation and Recreation	Feasibility Study – Biomass and Air Source Heat Pump (ASHP)	Renewable thermal feasibility studies were conducted at eight DCR sites in 2015 and 2016. Five sites – 7 Brush Hill Road, Camp Nihan, Middlesex Fells Botume House, Wompatuck State Park, and Myles Standish – were studied for the potential to replace existing oil heating systems with new biomass systems. Three sites – Quabbin Conference Center, Scusset Beach, and Holyoke Heritage Reservation – were studied for potential ASHP systems to replace existing electric and fossil fuel systems. As a result of this study, a new ASHP system will be implemented in the Scusset Beach Maintenance Garage.	$46,418
Dept. of Conservation and Recreation	Solar Thermal and Air Source Heat Pump (ASHP)	In 2016, DCR incorporated two renewable thermal installations, a 65 gallon solar thermal system and cold climate ASHPs, at the new zero net energy Walden Pond Visitors Center in Concord, a DCAMM project. These renewable thermal systems will eliminate the need for fossil fuels at the 5,600 square foot building visited by more than 500,000 people annually and were critical to achieving zero net energy.	$125,000
UMass Amherst	Solar PV Canopy	UMA installed a 192 kW solar canopy in the parking lot adjacent to the Robsham Visitor Center in 2015. Each year, the canopy is projected to generated an estimated 330,000 kWh in clean power, reduce 104 metric tons of GHG emissions, and save $46,000 in energy costs. The structure is equipped with LED lighting, includes three electric vehicle charging stations, and was the first project of its kind in the Amherst area or a UMass campus.	$146,000
UMass Lowell	Solar PV Canopy	In 2016, a 200 kW solar canopy was installed on the top floor of the South Parking Garage at UML as part of a large DCAMM energy project. Atop already developed space, the canopy is estimated to produce 232,000 kWh of renewable electricity, reduce GHG emissions by 109 metric tons, and generate $91,000 in energy savings and SREC revenue on an annual basis.	$150,660
Dept. of Conservation and Recreation	Air Source Heat Pumps (ASHP)	In 2015, DCR installed a new, highly efficiency cold climate ASHP at the Quabbin Conference Center (Belchertown) in 2015. This ductless mini-split system will heat and cool the entire building and will eliminate the use of 1,200 gallons of heating oil annually, reducing greenhouse gas emissions by 7 metric tons. This system will reduce DCR's annual energy costs by $1,600 and was one of the first of its kind in the United States.	$31,300
Division of Fisheries and Wildlife	Air Source Heat Pumps (ASHP)	DFW installed five high-efficiency ASHPs, with propane back-up, providing heating for the laboratory and office spaces at the Plum Island Shellfish Purification Plant in Newburyport. The DCAMM project eliminates 100% of on-site heating oil use, or 1,800 gallons annually, saving an estimated $4,100. It also enhanced thermal consistency in the facility, improving temperature-sensitive lab work and increasing comfort levels for staff.	$44,058

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Bristol Community College	Ground Source Heat Pump (GSHP)	In 2016, the Sbrega Health and Science Building, an innovative lab and science building designed to the zero net energy standard, was completed at BCC in Fall River. Renewable thermal grant funding was awarded for the installation of a 30 well closed-loop ground source heat pump system to provide 100% of the building's heating and 85% of cooling demand. This high performance building, a DCAMM project, is expected to get all of its power from the adjacent solar canopy system and will avoid energy costs of $100,000 annually.	$600,000
Mass. College of Liberal Arts	Combined Heat and Power (CHP)	In 2017, MCLA completed a 197 kW CHP system at the campus heating plant, providing on-site electricity generation and waste heat to be used by the campus. Installed as part of a larger DCAMM energy project, the CHP system is expected to generate an estimated 451,000 kWh annually, reducing greenhouse gas emissions by 78 metric tons, and result in $74,000 in energy costs savings and Alternative Energy Credits (AECs) revenue. Through additional technology, the campus will be able to keep power flowing to residential halls in the event of a grid outage.	$604,000
Department of Conservation and Recreation	Solar PV Canopy	In 2016, DCR completed a 100 kW solar canopy at the new Walden Pond State Reservation Visitor Center in Concord. The canopy is designed to support the adjacent zero net energy Visitor Center by generating renewable energy on-site equivalent to or greater than the building's annual consumption. It is will generate an estimated 127,000kWh annually, reduce GHG emissions by 39 metric tons, reduce energy costs by $533,000 over 20 years, and is equipped with four electric car charging stations.	$52,920
Division of Fisheries and Wildlife	Biomass	DFW installed a wood pellet boiler system at the McLaughlin Fish Hatchery (Belchertown) in 2017, displacing an oil heating system. The renewable thermal project is estimated to reduce the location's fuel oil use by 94%, or 6,500 gallons annually, reduce GHG emissions by 66 metric tons each year and save $11,400 in energy costs.	$278,573
Worcester State University	Combined Heat and Power (CHP)	The Mass. State College Building Authority installed a 60 kW CHP system in WSU's Sheehan Residence and Dining Hall in 2014. This co-generation system uses natural gas to generate electricity and provide heat and hot water. The project is projected to reduce the university's grid electricity use by 184,000 kWh and energy costs by $16,000 annually.	$100,000
UMass Amherst	Solar Thermal	The solar hot water system completed in 2016 and located on the roof of UMA's Central Heating Plant is designed to preheat a 50,000 gallon condensate tank associated with the plant's steam boiler system. UMA's first commercial-scale solar thermal project is projected to save 2,800 therms of natural gas and $5,000 in energy costs annually. The project also received funding from the Mass. Clean Energy Center.	$74,718
Division of Fisheries and Wildlife	Feasibility Study – Biomass and Air Source Heat Pump (ASHP)	This feasibility study in 2014 considered replacing existing oil heating systems in the McLaughlin Fish Hatchery (Belchertown), the Central Wildlife District Office (West Boylston), the Northeast Wildlife District Office (Ayer), and the Plum Island Shellfish Purification Plant (Newburyport). The first three locations considered implementing pellet fueled biomass systems, and the Shellfish Purification Plant considered a system of ASHPs. Projects at McLaughlin Fish Hatchery and Plum Island were implemented.	$50,000

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Mass. Water Resources Authority	Hydro	In 2017, MWRA completed the installation of a 4,000 foot gravity-fed water pipeline-and inline hydroelectric turbine that will bring fresh cold water from the Chicopee Valley Aqueduct to the McLaughlin Fish Hatchery in Belchertown. When the turbine is fully operational, it will generate an estimated 400,000 kWh of electricity annually and virtually eliminate the Hatchery's need to pump water from the Swift River, resulting in reduced consumption of 588,000 kWh. Annually, the Hatchery will save an estimated $70,000 in electricity costs, and the MWRA will earn an estimated $40,000 from exporting clean energy to the grid. The project will also improve conditions at the hatchery and minimize any environmental impacts to the Swift River ecosystem. MWRA also received grant funding from the Mass. Clean Energy Center.	$288,500
UMass Amherst	Combined Heat and Power (CHP) - Cooling	In 2013, UMA installed an inlet air cooling system on the gas turbine in the campus Central Heating Plant. The system improves the efficiency of the existing heating system and reduces summer peak demand, by enabling the gas turbine to generate an additional 1MW of electricity during hot and humid conditions. The system saves an estimated 1.6 million kWh and $190,000 annually, with additional savings from reduced steam use.	$387,000
Department of Conservation and Recreation	Biomass	DCR installed a pellet biomass boiler in the Wachusett Mountain Visitor's Center in 2014 to replace an inefficient oil heating system. Annually, the project reduces energy costs an estimated $10,000, eliminates 5,000 gallons of fuel oil use, and decreases greenhouse gas emissions 51 metric tons.	$165,000
Quinsigamond Community College	Solar Thermal	In 2013, QCC in Worcester installed a solar hot water system on the roof of the campus Administration Building. This 10 panel flat plate collector system preheats water for domestic use in the building. Annually, the project is expected to save 485 therms of natural gas, reduce GHG emissions by almost 3 metric tons. The project also received funding from the Mass. Clean Energy Center.	$38,300
Middlesex Community College	Ground Source Heat Pump (GSHP)	In 2012, MCC in Bedford, working with DCAMM, installed a GSHP system in the Trustees House. The estimated annual savings include 27,965 kWh, 39 metric tons of greenhouse gas emissions, and more than $9,000 in energy costs.	$75,514