

State of Connecticut
FY 2020

Sustainability Performance Plan

UCONN

Prepared by

Michael Jednak
Associate Vice President of Facilities Operations
Senior Sustainability Officer

Richard Miller
Director, Office of Sustainability
Senior Sustainability Officer

Approved by Scott Jordan
Executive Vice President & Chief Financial Officer



greenergovCT

A Lead by Example Initiative

This report was written in compliance with section 5 of Executive Order 1.

EO 1 Background

On April 24, 2019, Governor Lamont launched the GreenerGov CT initiative by signing Executive Order 1 (EO 1) which directs Executive Branch agencies to advance environmental leadership and cost savings for taxpayers by reducing greenhouse gas emissions and other sustainability objectives in energy use in buildings and vehicles, water use, and waste disposal.

EO 1 calls on agencies to recommit to and expand the state's Lead by Example (LBE) program to reduce the operating costs and environmental impacts of state government facilities and operations. EO 1 builds on the foundation of the state's LBE program by setting new sustainability goals, listed below, for Executive Branch agencies and invoking deeper levels of commitment and participation.

GHG

45% reduction in
GHG emissions
below 2001 levels

WATER

10% reduction in
water consumption
from a FY20 baseline

WASTE

25% reduction in
waste disposal from a
FY20 baseline

Since the GreenerGov CT initiative was launched, significant progress has been made towards laying the groundwork for expanded LBE initiatives in the future: governance structures were established, baseline data was collected, and financing and project strategies were developed. Additionally, agencies reported completing or making progress on 120+ sustainability projects in FY19 in the first annual agency Sustainability Performance Plans. Sustainability Performance Plans are plans drafted each year by Senior Sustainability Officers to detail agency progress and necessary goals, actions, and responsible parties to achieve the targets set in EO 1.

In 2020, the COVID-19 pandemic brought significant changes to the operations of state agencies as agencies responded to the crisis. The impact of the pandemic on the sustainability goals of EO 1 is not yet known, but some effects will be documented in the FY20 Sustainability Performance Plans and the GreenerGov CT Progress Report.

UCONN and EO 1

UCONN's mission

The University of Connecticut is dedicated to excellence demonstrated through national and international recognition. Through freedom of academic inquiry and expression, we create and disseminate knowledge by means of scholarly and creative achievements, graduate and professional education, and outreach. With our focus on teaching and learning, the University helps every student grow intellectually and become a contributing member of the state, national, and world communities. Through research, teaching, service, and outreach, we embrace diversity and cultivate leadership, integrity, and engaged citizenship in our students, faculty, staff, and alumni. As our state's flagship public University, and as a land and sea grant institution, we promote the health and well-being of citizens by enhancing the social, economic, cultural, and natural environments of the state and beyond.

UCONN's FY20 participation overview

UConn participated in the EO 1 and Greener Gov CT initiative as a non-mandated partner in order to continue to drive its on-going energy, water and waste conservation and reduction initiatives while sharing best practices with other state agencies.

UCONN staff involvement in EO 1

Michael Jednak

*Senior Sustainability Officer & Associate Vice
President of Facilities Operations*

Richard Miller

*Senior Sustainability Officer & Director, Office
of Sustainability*

Stanley Nolan

*Director, Utility Operations & Energy
Management, Facilities Operations*

Aris Ristau

Director of Building Services, Facilities Operations

Mark Bolduc

Energy & Compliance Manger, Facilities Operations

Katie Milardo

Water & Compliance Manager, Facilities Operations

Patrick McKee

*Sustainability Program Manager, Office of
Sustainability*

10+

Sustainability Projects

including projects relating to infrastructure improvements or behavioral change that took place in owned, leased, or occupied space and were either in progress or completed in FY20

Sustainability Projects

1

- Location:** UConn Storrs, Depot, Downtown Hartford, Stamford and Waterbury campuses
- Project Type:** Structural - GHG - Building energy efficiency
- Description:** Various projects across multiple UConn campuses to replace existing lighting with new energy efficient LED fixtures. Since 2008, UConn has utilized an internal revolving green fund to support Energy Conservation Measures and Sustainability Initiatives. This fund is supported solely by CT Class III Renewable Energy Credits generated by our Combined Heat and Power Cogeneration Facility combined with rebates and incentives received through Partnership Agreements with Eversource and Groton Utilities. Most FY-2020 projects also included the installation of lighting controls such as occupancy sensors. Projects were completed by either in-house UConn Trade Shops or outside contractors managed by UConn's Energy Conservation Group. A total of 63 lighting projects were completed in FY 2020 as part of UConn's goal to convert all campuses to LED.
- Status:** Completed in FY 2020
- Benefits Summary:** The implementation of these lighting projects will result in the reduction of energy consumption and greenhouse gas emissions along with annual energy cost savings.
- Energy Savings:** The completion of the lighting projects described above will result in annual energy consumption savings of approximately 2.7 million kWh. These projects will also result in more than 1,500 metric tons of greenhouse gas reductions.
- Cost Savings:** The lighting projects described above will result in over \$288,000 in annual energy avoided costs.

2

- Location:** UConn Storrs, Depot, Avery Point and Law School campuses.
- Project Type:** Structural - GHG - Building energy efficiency
- Description:** Various heating-related projects were completed across multiple UConn campuses. Since 2008, UConn has utilized an internal revolving green fund to support Energy Conservation Measures and Sustainability Initiatives. This fund is supported solely by CT Class III Renewable Energy Credits generated by our Combined Heat and Power Cogeneration Facility combined with rebates and incentives received through Partnership Agreements with Eversource, Yankee Gas, CNG, Groton Utilities, and SCG. Specifically for FY-2020, pipe insulation projects were implemented in over 60 buildings on the Storrs campus. Insulation was also installed at building locations at the Law School. These projects addressed the significant heat loss resulting from bare steam pipes. Second, a boiler optimization project was completed at the Avery Point campus to increase boiler efficiency and reduce energy consumption. Finally, several steam trap survey and repair projects were completed at the Storrs campus which included North and East campus residence hall buildings as well as the Commissary Bakery & Warehouse.
- Status:** Completed in FY 2020
- Benefits Summary:** The implementation of these heating-related projects will result in the reduction of energy consumption and greenhouse gas emissions along with annual energy cost savings.
- Energy Savings:** The completion of the heating-related projects described above will result in annual energy savings of approximately 3.5 million cubic feet of natural gas and 34,000 kWh in electricity. These projects will also result in more than 1,700 metric tons of greenhouse gas reductions.
- Cost Savings:** The heating-related projects described above will result in over \$341,000 in annual energy avoided costs.

Sustainability Projects cont.

3

- Location:** UConn Storrs Campus
- Project Type:** Behavioral - Waste
- Description:** All approximately 8,000 first and second year resident students received a reusable cloth bag for use in transporting recyclables from their rooms to centralized trash and recycling areas on each floor. This program was designed in order to make recycling more convenient for students. Bags also featured educational labeling with instructions on how to sort and recycle materials properly.
- Status:** Completed in FY 2020
- Benefits Summary:** As a result of this program, UConn's waste diversion rate improved by 2% over FY2019. Students have expressed satisfaction with the program. A survey of all first and second year resident students resulted in 80% of the 244 students who responded stating that the recycling bags program made them more likely to recycle on campus. Furthermore, 66% of those students felt that they had a better understanding for what is recyclable at UConn as a result of the program. UConn will work on expanding the response to this survey in the upcoming year.
- Energy Savings:** Diversion rate is the best current metric to evaluate recycling behaviors. As a result of this program, UConn's waste diversion rate improved by 2% over FY2019.

Performance Data

Total Utility Costs

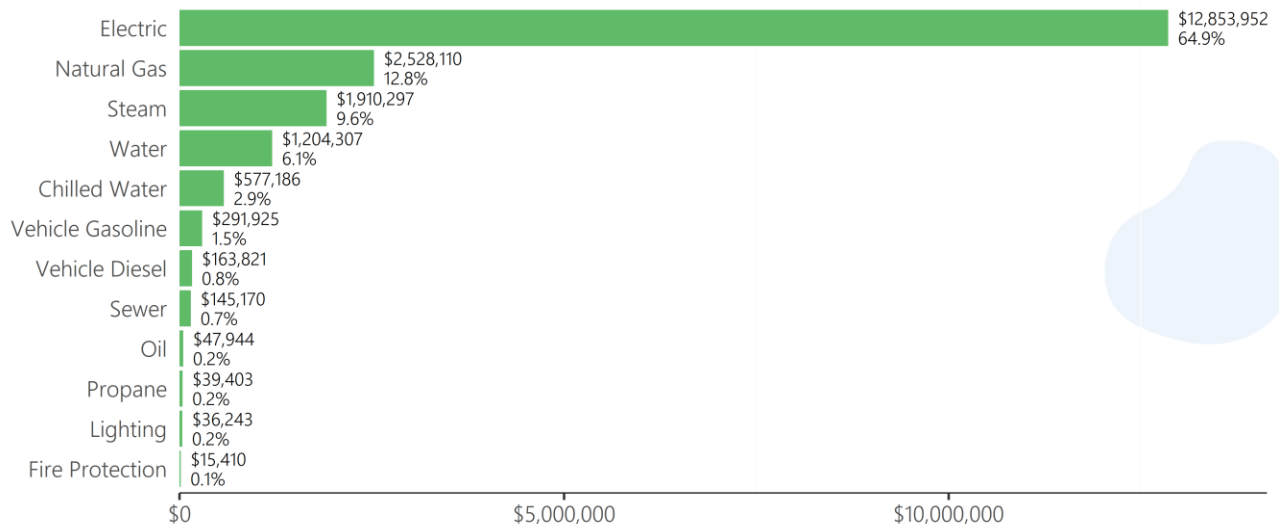
Commodity	Unit	Use			Cost		
		FY19	FY20	Change	FY19	FY20	Change
Electric & Natural Gas	MMBtu	860,379	841,168	-2.2%	\$16,722,149	\$15,418,305	-7.8%
Other Building Energy	MMBtu	932,778	963,863	+3.3%	\$3,643,722	\$2,574,829	-29.3%
Vehicle Gasoline	Gal	168,441	137,054	-18.6%	\$358,779	\$291,925	-18.6%
Vehicle Diesel	Gal	110,202	87,605	-20.5%	\$206,078	\$163,821	-20.5%
Total GHG Emissions	MTCO2e	114,300	112,668	-1.4%	-	-	-
Water/Sewer/Fire Protection	Kgal	275,407	274,110	-0.5%	\$1,393,572	\$1,346,481	-3.4%
Total	-	-	-	-	\$22,324,299	\$19,795,362	-11.3%

* Vehicle gasoline and diesel data was estimated based on motor pool actual recorded use and unit costs obtained from a representative bill.

** Other Building Energy sources include oil, propane, steam, and chilled water.

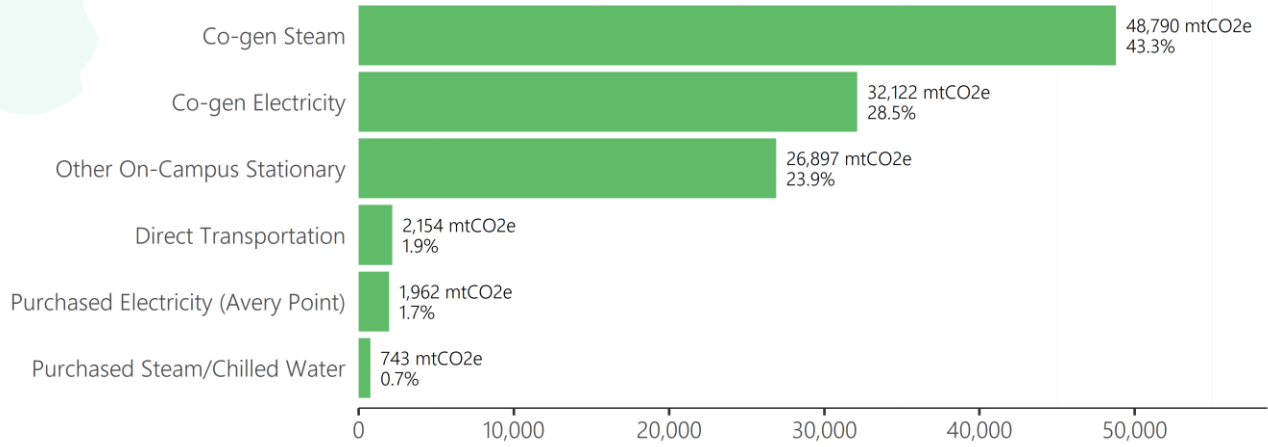
Commodity Cost Breakdown, FY20

The chart below represents the breakdown of commodity costs at UCONN in FY20.



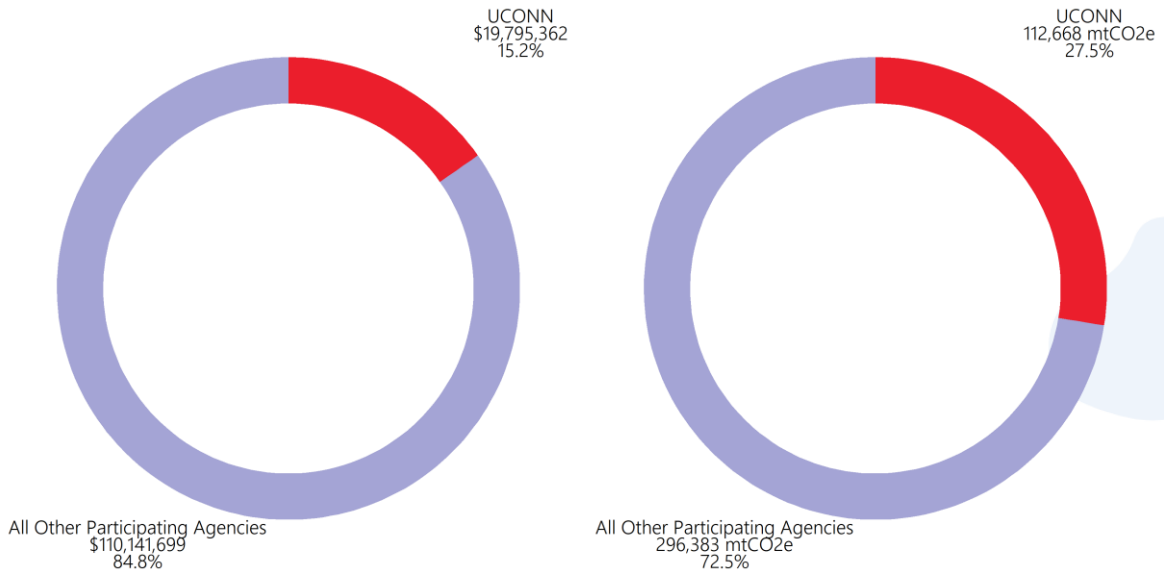
GHG Emissions Breakdown, FY20

The chart below represents the breakdown of GHG emissions by commodity at UCONN in FY20.



Share of Utility Costs and GHG Emissions

The two charts below display UCONN's proportion of the FY20 total utility cost and the total GHG emissions of all agencies participating in EO 1.



Future Planning

GHG Reduction (energy/fleet related)

Status of FY19 Plans

✓ **Progress has been made.**

Progress has stalled.

Plans have been completed.

Stated plans no longer a priority.

Planned FY21 Projects

Energy Conservation Projects – Subject to the availability of funding, UConn will continue to execute energy conservation projects in FY-2021 across multiple campuses to complete LED lighting retrofits with lighting controls, building retro-commissioning, boiler optimization, HVAC control upgrades, piping insulation installations as well as steam trap surveys and repairs. In addition, UConn has an on-going program to conduct ASHRAE level energy audits in all campus buildings to identify potential energy conservation project savings. At date, approximately 30 building audits have been completed resulting in the planning of numerous energy savings projects which will start in FY-2021. These FY-2021 projects will result in energy savings of over 442,000 kWh, over 4,000 kilo-pounds of steam, 300,000 cubic feet of natural gas, \$66,000 in annual energy avoided costs and 440 metric tons of greenhouse gas reductions.

Vehicle Fleet Conversion - UConn has an on-going program of replacing existing light duty fleet vehicles with hybrid vehicles at the Storrs campus. Subject to the availability of funding this program will continue in FY-2021. To date, UConn has 39 electric/hybrid vehicles and carts on the Storrs campus which is a little over 10% of the overall light duty vehicle fleet.

Bike Friendly University Committee - UConn has formed a committee tasked with developing a plan to address and improve bicycling infrastructure at UConn. This committee will provide its recommendations to the Transportation Advisory Council in FY 2021.

Solar PV Installation – UConn will break ground in FY 2021 for its new Science I building which will feature a 520 kW solar PV array covering its rooftop when complete. Additional Solar PV installations are being evaluated for parking lots, garages, and roof tops.

Future Planning cont.

Water Use Reduction

Status of FY19 Plans

- ✓ **Progress has been made.**
- Progress has stalled.
- Plans have been completed.
- Stated plans no longer a priority.

Planned FY21 Projects

Water Fixture Retrofit Project – UConn plans to complete a water conservation project which includes the installation of new low-flow water fixtures (toilets and sinks) in the following buildings at the Storrs Campus – Whetton Graduate Center, Lakeside Building, Commissary and Bakery, William Health Service Building, Jorgenson, Budds, Field House and Hawley Armory. This includes 90 new toilet fixtures, 24 toilet flush valve retrofits, 32 urinal flush valve retrofits and 165 sink faucets resulting in an estimated water savings of approximately 2,900 gallons per day.

Water Metering Project – UConn has set a goal to upgrade or install water meters in buildings which use significant amounts of water. The metering project will improve leak detection and allow for leaks to be repaired sooner. 139 locations for metering upgrades have been targets with 32% complete to date. Continued progress will be made on this project in FY-2021 to address the remaining locations.

Waste Reduction

Status of FY19 Plans

- ✓ **Progress has been made.**
- Progress has stalled.
- Plans have been completed.
- Stated plans no longer a priority.

Planned FY21 Projects

RecycleThon & EcoMadness - Educating and evaluating recycling behaviors in residence halls will expand by three (3) halls in FY-2021 thanks in part to a commitment from Residence Life to employ year-round "EcoCaptains" to serve as point persons for sustainability in their residence halls. These competitions which include audits of recycling and trash containers, helps to drive good recycling behaviors through education and incentives.

Expansion of Food Waste Recovery – UConn sends its food waste from all eight (8) dining halls at its Storrs campus to an anaerobic digestion facility, Quantum Biopower, in Southington. UConn diverted 124 tons of food waste to Quantum Biopower in FY-2020. This program will be expanded in FY-2021 to address food waste at smaller dining operations on campus which may result in diverting several additional tons to Quantum Biopower. Additionally, one residence hall is piloting food waste recovery amongst its residents.

COVID-19 Impact

Impact of COVID-19 on agency's ability to make progress on the goals of EO 1 in FY20

- The ability for UConn to make progress in achieving its goals was put on hold and/or slowed initially as UConn worked through how to deal with the pandemic.
- Working remotely and working on site socially distanced greatly slowed the implementation of the goals.
- Gathering data, inspections on site for verification and compliance matters and performing substantive reviews of historical documentation are significantly more challenged. All completion should be extended to allow better quality results.
- Budgetary concerns related to addressing the pandemic have also resulted in projects being put on hold or delayed while UConn works through those issues.
- Reduced occupancy on campus resulted in decreased output from our CHP Cogeneration Facility and purchased energy in turn limiting future funding of the internal revolving green fund.

COVID-19 changes that have led to a positive sustainability outcome that will continue after the pandemic

- ✓ **Strategically evaluating building footprint needed for agency work**
 - ✓ **Reassessing agency fleet**
 - ✓ **Holding virtual meetings as a more regular practice**
 - ✓ **Increased telework as a regular practice**
 - ✓ **Other: Decreased domestic and international travel**
- No changes to report

Resources Needed

Barriers encountered while making EO 1 progress in FY20

- ✓ **Funding**
 - ✓ **Staffing**
 - ✓ **Technical expertise**
- No barriers encountered

Other barriers encountered while making progress on EO 1 in FY20

Since 2008, UConn has utilized an internal revolving green fund to support Energy Conservation Measures and Sustainability Initiatives. This fund is supported solely by CT Class III Renewable Energy Credits generated by our Combined Heat and Power Cogeneration Facility combined with rebates and incentives received through Partnership Agreements with Eversource, CNG, and Groton Utilities. Reduced on campus population allowed lower energy usage during the pandemic which in turn reduced the future funds available to support EO-1 goals. State contracts are not in place for many of the initiatives. For example, only one vendor EVSE is available under state contract to install EV charging systems. For others, such as Energy Conservation and ESPC, we have several vendors under contract and available to advise. More effort is needed in this area to enable quick implementation of the Goals. Also, in many locations the Eversource and UI grids cannot support the electrification and added load that is required to meet the Goals. Resilience and Reliability of the grid is problematic in areas designated or to be designated as micro-grids, shelter in severe weather events, etc. Individual agencies cannot maintain the required standards of performance and reliability until and unless the electric grid infrastructure is hardened. Texas is a recent example of this failure to have adequate resiliency and reliability, and the recent CT Two Storm Panel addresses many of these shortcomings in ISO-NE that have not been fully resolved to date.

Additional detail on barriers encountered in FY20

DEEP should recognize the added value of Class III CHP and Demand Reduction credits in Renewable Portfolio Standards (RPS) to enable implementation of EO-1 goals as agencies transition to more renewable methods. Class III requirements should increase in parallel with Class I and Class II to provide a stable market which can continue to fund Energy Conservation Measures and Sustainability Initiatives.

Specific type of support or resources needed to make progress on future sustainability projects

Moving forward, UConn's sustainability priorities may change as a result of recommendations made by the President's Working Group on Sustainability and the Environment. Securing alternative funding to our internal Revolving Green Fund and additional funding may be required to implement any of the new goals set by the Working Group. Priorities may shift away from Energy Conservation measures currently being implemented to the installation of renewable energy sources on campus. These shifting priorities may require additional staffing, training and contract methods to fully implement and achieve set goals. Also, understanding the States ranking and prioritization of competing goals (e.g., Protection of open space and farmland versus developing solar farms) would be helpful in the planning of future sustainability projects.

Additional info on UCONN's participation in EO 1 during FY 2020

UConn would like to see a Cost Benefit Analysis for the Goals and Financial Impact Analysis on a Town by Town and Agency by Agency basis. Climate justice should require such analysis to determine to whom and when to allocate funding resources.