

January 2020

**greenergovCT**

A Lead by Example Initiative

**Executive Order 1**

# 2020 Progress Report

This report summarizes progress on the implementation of Connecticut's state sustainability initiative and meets the reporting requirements of Executive Order No. 1

# Table of Contents

## Overview

Key Successes

Introduction

Planning and Governance

Steering Committee Members

Goals of EO 1

Brand Refresh

Data Dashboard

## Focus Areas

Project Teams

Accounting and Reporting Guidelines

Data Collection

Sustainability Projects

Financing Solutions

Building Audits

## Future Planning

What's Next?

# Key Successes

*The 2020 Progress Report builds on Governor Lamont's commitments in Executive Order 1 and highlights key successes since GreenerGov CT was launched in April 2019. These key areas of progress include:*

## INVESTMENT IN ENERGY EFFICIENCY AND RENEWABLE ENERGY IN STATE BUILDINGS EXPANDED

1. Development of a power purchase agreement for solar deployment at state agency facilities via the CT Green Bank;
2. Renewal of a master agreement allowing state agencies to participate in the utility-administered Conservation and Load Management programs;
3. Allocation of \$1 million in bonds to support ASHRAE Level II energy audits on approximately 35 state properties with high potential for cost-savings through efficiency investments; and
4. Allocation of \$12 million to finance Phase 2 of energy efficiency improvements at the Department of Correction's North District facilities.

## 40 SENIOR SUSTAINABILITY OFFICERS (SSOS) WERE DESIGNATED

at all 29 Executive Branch agencies and 11 Voluntary State Agencies.

## NINE PROJECT TEAMS WERE ESTABLISHED

comprised of over 120 staff and SSOs from 43 state agencies/entities. The teams were tasked with implementing sustainability measures in each of the five "impact" areas (Energy Efficiency, Renewable Energy, Transportation, Water Use, and Materials Management) with support from the four "system" areas (Public Engagement, Process Improvement, Leased Spaces, and Reporting).

## HISTORICAL AND CURRENT UTILITY DATA WAS COLLECTED

to develop a baseline for measuring the state's progress towards GreenerGov CT's energy goals by using EnergyCAP, an online energy management software that centralizes the collection of thousands of state utility payments. Other data collection milestones include:

1. All participating agencies began uploading current utility bills to EnergyCAP with plans to have historical utility bills uploaded by April 2020;
2. Vehicle fuel data for state fleet cars is stored by agency in EnergyCAP; and
3. A baseline of state agency materials management practices is being captured via a survey.

## ACCOUNTING AND REPORTING GUIDELINES WERE RELEASED

that establish the framework for measuring agency progress towards the state sustainability targets. The guidelines clarify important rules about the inclusion of leased spaces, tracking progress towards aggregate targets and goals, accounting for renewable energy credits and biogenic sources, and other topics.

## SUSTAINABILITY PERFORMANCE PLANS WERE PREPARED

by all 29 Executive Branch designated agencies and the 7 voluntary agencies. These plans detailed agency progress on GreenerGov CT initiatives in FY19, barriers towards progress, and future planning to enable progress towards the state sustainability goals.

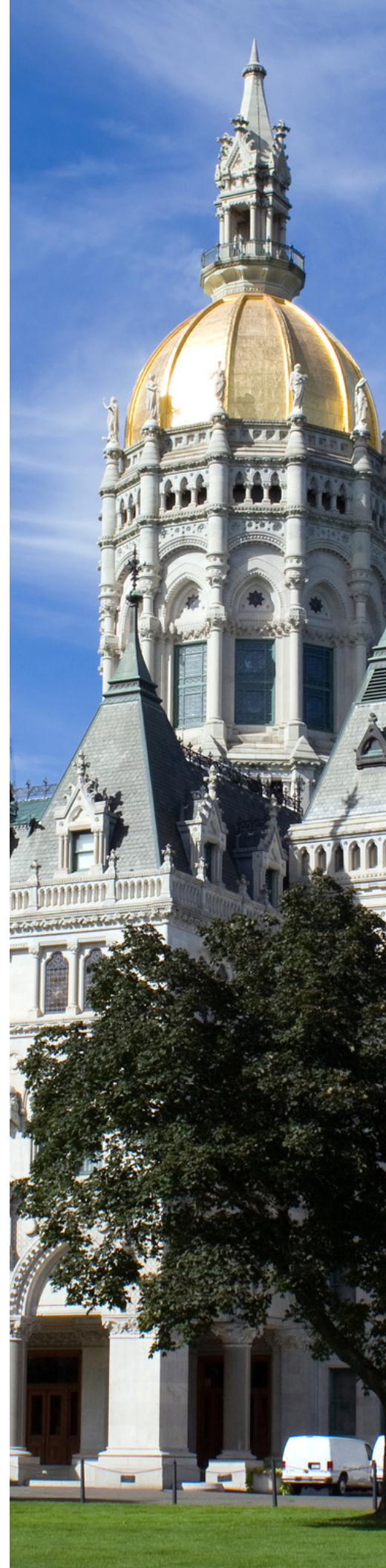
# Introduction

On April 24, 2019, Governor Lamont launched the GreenerGov CT initiative by signing Executive Order No. 1 (EO 1 or the Order) 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. The Order 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.

Since 2011, Connecticut's LBE program has had great success in reducing energy use in state government facilities and operations through energy efficiency initiatives and building management. Through general obligation bond authorizations and the Conservation & Load Management Plan programs administered by utility companies, state agencies completed over 200 energy efficiency projects resulting in over \$5 million in savings annually. These projects developed state agency best practices that encourage clean and efficient energy consumption, enable the state to raise public awareness, and inspire residents and businesses in Connecticut to follow suit.

EO 1 builds on the foundation of the state's LBE program by setting new sustainability goals for Executive Branch agencies and invoking deeper levels of commitment and participation. The Order requires executive agencies to reduce greenhouse gas emissions by 45% below 2001 levels; reduce waste disposal by 25% from a 2020 baseline; and reduce water consumption by 10% from a 2020 baseline by 2030. Meeting these goals will require cross-agency coordination and development of new strategies and operating procedures, both of which are well underway.

This 2020 Progress Report satisfies the EO 1 requirement to issue a "report on the progress in implementing this Order to the Governor and the chairpersons and ranking members of the Environment Committee and the Energy and Technology Committee of the General Assembly no later than February 1, 2020."



# Planning and Governance

To facilitate the cross-agency collaboration necessary to make progress on the goals in EO 1, the Order established the Steering Committee on State Sustainability, co-chaired by the Secretary of the Office of Policy and Management (OPM), the Commissioner of the Department of Administrative Services (DAS), and the Commissioner of the Department of Energy and Environmental Protection (DEEP). The Steering Committee is composed of Senior Sustainability Officers from each Executive Branch agency, designated by their commissioners, who are responsible for leading their agency's efforts to comply with EO 1.

Each month, the co-chairs, or their respective designees, run the Steering Committee meeting. The main objectives of the monthly Steering Committee meetings are to keep SSOs engaged and informed on the next steps of the initiative, to host guest speakers to share important and relevant information, and to maintain regular report-outs from Project Teams.

## Featured Steering Committee presenters have included:

**Andy Brydges, Eversource and Elizabeth Murphy, United Illuminating** - Illustrated the potential of Energy Efficiency in state buildings and how to leverage utility programs to implement projects.

**Keith Epstein, Connecticut State Colleges and Universities (CSCU)** - Provided an overview on the robust energy management initiatives at CSCU's 17 institutions.

**Lynn Gilleland, U.S. EPA** - Discussed WaterSense, a label for water-efficient products and a resource for methods of saving water.

**Steve Link, Department of Corrections (DOC)** - Shared experiences implementing over 15 Energy Efficiency projects at DOC buildings.



OFFICE OF POLICY AND  
MANAGEMENT

**Melissa McCaw**  
Secretary



DEPARTMENT OF  
ADMINISTRATIVE SERVICES

**Josh Geballe**  
Commissioner



DEPARTMENT OF ENERGY AND  
ENVIRONMENTAL PROTECTION

**Katie Dykes**  
Commissioner

**Cheryl Malerba, Department of Transportation Chief of Staff** - Shared strategies on leading stakeholders through periods of change.

**Rich Miller, Director, UConn Sustainability Office** - Shared UConn's insights on implementing water-saving initiatives.

**Chris Nelson, Department of Energy and Environmental Protection** - Provided an overview of the State's materials management program.

# Steering Committee Members

The following list includes the current Senior Sustainability Officers for the participating Connecticut State agencies. Most of these agencies were directed to participate by the Governor while those in **blue** elected to participate voluntarily.

## Agency

- Agriculture Experiment Station
- Capital Region Development Authority
- Connecticut Housing Finance Authority
- CT General Assembly
- CT Green Bank
- CT Innovations
- CT Lottery
- CT State Colleges & Universities
- CT State Library
- Department of Mental Health and Addiction Services
- Department of Administrative Services
- Department of Aging and Disability Services
- Department of Agriculture
- Department of Banking
- Department of Children and Families
- Department of Consumer Protection
- Department of Correction
- Department of Developmental Services
- Department of Economic & Community Development
- Department of Energy & Environmental Protection
- Department of Housing
- Department of Insurance
- Department of Labor
- Department of Motor Vehicles
- Department of Public Health
- Department of Revenue Services
- Department of Social Services
- Department of Transportation
- Department of Veterans Affairs
- Division of Criminal Justice
- Emergency Services & Public Protection
- Judicial Branch
- Military Department
- Office of Early Childhood
- Office of Policy & Management
- Public Defender Services
- State Department of Education
- State Education Resource Center
- UCONN
- UCONN Health

## SSO Name

- Michael Last
- Joseph Geremia
- Maura Martin
- Eric Connery
- Eric Shrago
- Cynthia Petruzello
- Barbara Petano
- Keith Epstein
- Frank Calvi
- Stephen DiPietro
- Noel Petra
- Michelle Provost
- Nathan Wilson
- Jacqueline Shirley
- David Barry and John McCarthy
- Jason Cohen
- Steve Link
- Scott McWilliams
- Susan Shellard
- Dennis Thibodeau
- Rebecca French
- Josh Hershman
- Patrick Tallarita
- Darrell Grant
- Chukwuma Amechi
- Theresa Peterson
- Michael Gilbert
- Suzanne Donlon and Robert Bell
- Joseph Danao
- Carolyn Phang
- Robert Cody
- Elizabeth Graham
- Michael Carragher
- Chris Lyddy
- Paul Hinsch
- Jen Loo
- Keith Norton
- Holly King
- Rich Miller and Michael Jednak
- Thomas Trutter



**PARTICIPATING  
AGENCIES IN EO 1**



**EXECUTIVE BRANCH  
AGENCIES**



**VOLUNTARY STATE  
AGENCY PARTICIPANTS**

# The Goals of EO 1

EO 1 introduced new and specific environmental targets for Connecticut state agencies to achieve. In the past, LBE projects centered mostly on energy efficiency. With the release of EO 1, the targets for agencies have expanded into the broader categories of Greenhouse Gas (GHG) Emissions, Water Consumption, and Waste Disposal.

## 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

In order to reach these targets by the 2030 deadline, state agencies need to integrate a broader subset of sustainability strategies aimed to push agencies toward their environmental, clean energy, and economic goals while reducing the cost of government operations.

Connecticut's efforts to reduce its greenhouse gas emissions by 45 percent below 2001 levels by 2030, primarily from the electric generation, transportation, and building sectors, will put the state on a pathway to achieving its 2050 greenhouse gas emissions reduction target of 80 percent below 2001 levels and help preserve the state's, and our planet's, environment for future generations. Connecticut's water and waste reduction goals emphasize the importance of water conservation and greater environmental stewardship for both natural resource protection and energy use reduction.

# Brand Refresh

With the new momentum of EO 1, one of the first stages of this reignited initiative involved retouching the overall mission and brand of Connecticut's Lead By Example program. The team proposed to expand upon the notoriety that the nationwide Lead by Example initiative provides while clarifying our ultimate goal which is to make Connecticut government more sustainable or "greener."

Redefining the brand of our LBE efforts streamlined our communications with consistent branding and positive imagery. We created a website that is jointly administered by the EO 1 Chairing agencies with the goal to provide a central place for agencies to access all GreenerGov CT resources. The GreenerGov CT website also increases transparency of state actions to the public and facilitates sharing and collaboration with states pursuing similar LBE programs. Lastly, this site created the necessary platform to share how our state government "leads by example" for Connecticut residents, municipalities, organizations, and businesses.

## Website



## Logo



## Wordmark

**greenergovCT**

A Lead by Example Initiative



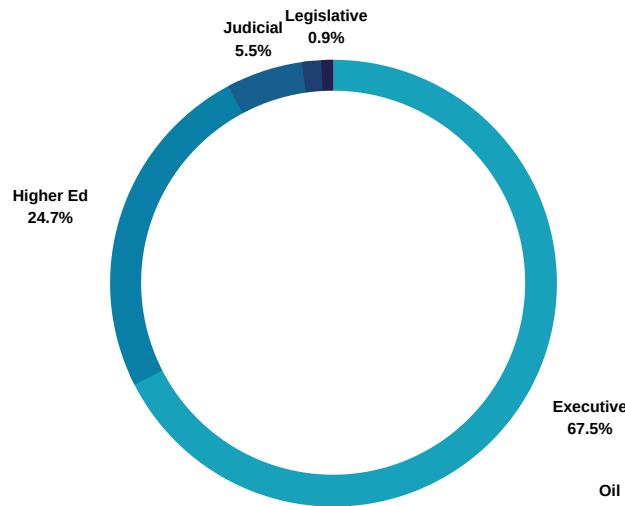
# Data Dashboard

**IMPORTANT NOTE ABOUT THIS DATA:** The data below summarizes the utility use and expenditures data for FY19 for all state agencies participating in EO 1 and was pulled from the state's utility tracking system, EnergyCAP, on November 20, 2019. Baseline data was still being collected at the time this report was submitted and is scheduled to be completed by April 2020. Therefore, the data below may be incomplete and will be updated once data collection has been completed. More information about the data collection process for EO 1 is provided later in this report.

## FY19 UTILITY EXPENDITURES

By Government Branch

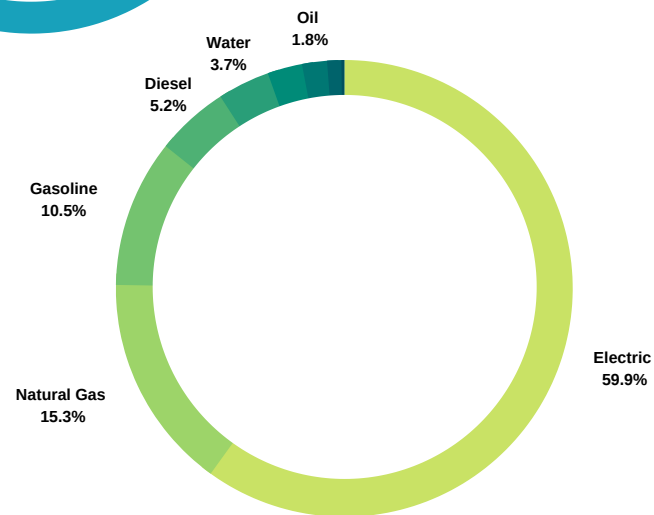
Branch	FY19 Cost
Executive	\$77,354,521
Higher Ed	\$28,313,145
Judicial	\$6,336,605
Quasi-Public	\$1,612,943
Legislative	\$1,002,138
<b>Total FY19</b>	<b>\$114,619,352</b>



## FY19 UTILITY EXPENDITURES

By Commodity

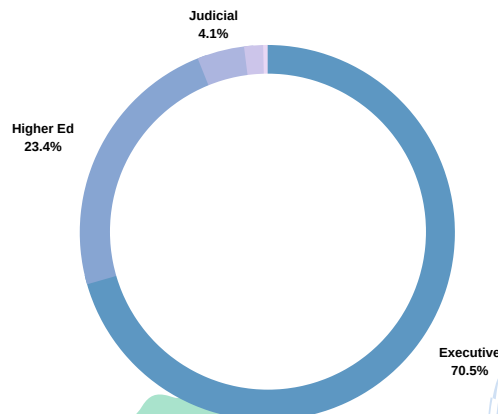
Commodity	FY19 Cost
Electric	\$68,710,692
Natural Gas	\$17,533,458
Gasoline	\$11,986,325
Diesel	\$5,928,791
Water	\$4,230,334
Chilled Water	\$2,823,927
Oil	\$2,022,002
Steam	\$1,151,707
Propane	\$232,116
<b>Total FY19</b>	<b>\$114,619,352</b>



## FY19 GHG EMISSIONS

By Government Branch

Branch	mtCO2e
Executive	200,867
Higher Ed	66,620
Judicial	11,571
Quasi-Public	4,651
Legislative	1,014
<b>Total FY19</b>	<b>284,723</b>



# Data Dashboard Cont.

The data below summarizes the FY19 utility expenditures for Executive Branch agencies. As noted on the previous page, data collection was still underway when this report was submitted, and the data below may be incomplete.

## Agency

## FY19 Utility Costs

Department of Correction	\$18,105,119	
Department of Transportation	\$15,402,147	
Department of Administrative Services	\$8,121,977	
State Department of Education	\$7,270,597	
Emergency Services & Public Protection	\$7,218,387	
Department Mental Health and Addiction Services	\$4,952,077	
Department of Children and Families	\$3,147,879	
Department of Developmental Services	\$3,134,980	
Military Department	\$2,870,833	
Department of Energy & Environmental Protection	\$1,442,195	
Department of Veterans Affairs	\$1,153,546	
Department of Public Health	\$1,133,518	
Department of Motor Vehicles	\$959,807	
Department of Labor	\$723,193	
Department of Social Services	\$364,206	
Division of Criminal Justice	\$309,564	
Agriculture Experiment Station	\$301,265	
Department of Insurance	\$164,948	
CT State Library	\$115,911	
Department of Agriculture	\$115,207	
Department of Consumer Protection	\$105,736	
Department of Aging and Disability Services	\$104,059	
Department of Revenue Services	\$43,042	
Office of Early Childhood	\$37,986	
Department of Banking	\$27,626	
Department of Economic & Community Development	\$25,817	
Department of Housing	\$2,149	
Office of Policy & Management	\$749	

# Project Teams

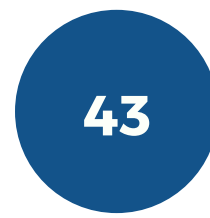
A key focus of GreenerGov CT is to make energy- and cost-saving sustainability practices part of "business as usual" across state facilities and operations. Nine project teams were established to help achieve the goals of the Order. Each of the nine project teams is recognized as an "Impact" or "System" team and is comprised of a combination of executive agency SSOs and other designees as well as voluntary participants from other state agencies and the state's regulated utilities. These teams meet monthly, and minutes from each meeting are shared on the GreenerGov CT website. Additionally, each project team reports out bi-monthly at Steering Committee meetings to share current goals, action steps, and to flag areas where support is needed from other project teams or the steering committee at large.



PROJECT TEAMS



TOTAL PROJECT TEAM  
MEMBERS



AGENCIES/ENTITIES REPRESENTED  
ON PROJECT TEAMS

## Project Team Roles

Each team includes the following leadership roles:

### Team Leader (Project Manager)

Identifies key tasks to meet the Project Team's goals, develops agendas, runs monthly meetings, and delegates work.

### Communications Liaison

Takes notes at each Project Team meeting and circulates them to every Project Team member. Manages reporting back to the Steering Committee.

### Logistics Coordinator

Schedules meetings, reserves rooms, and manages security and parking details prior to meetings.

### Co-Chair Representative

An individual from the chairing agency who maintains accountability to the chairing agency. Ensures timely progress on deliverables and serves as a liaison to the broader EO 1 implementation team.

# Project Teams cont.

## Chaired by DEEP

Energy Efficiency  
Sustainable Materials  
Management  
Public Engagement  
Sustainable Water Use

## Chaired by OPM

Process Improvement  
Reporting

## Chaired by DAS

Renewable Energy  
Sustainability in Leased Spaces  
Clean and Efficient  
Transportation

## The 5 Impact Teams

The Impact Teams are vital to develop the suite of strategies needed to achieve the goals, pilot test state sustainability projects, and create standard operating procedures that will, over time, become "business as usual" for all agencies.

- 1 **Renewable Energy**
- 2 **Energy Efficiency**
- 3 **Sustainable Materials Management**
- 4 **Sustainable Water Use**
- 5 **Clean and Efficient Transportation**

## The 4 System Teams

The System Teams focus on improving processes and developing tools to ensure that the state's sustainability efforts are implemented efficiently, are widely understood by the public, and provide lasting value to state agencies.

- 6 **Process Improvement**
- 7 **Reporting**
- 8 **Public Engagement**
- 9 **Sustainability in Leased Spaces**

An important role of the five impact teams is to develop a suite of sustainability strategies that will ultimately comprise a GreenerGov Handbook. This handbook will list the tools, tips, and resources for how state agencies can integrate sustainability procurement practices and approaches for the five environmental impact areas of GreenerGov CT (energy, renewables, water, waste, and transportation).

Impact teams have been given a deadline of March 1, 2020 to submit protocols for their impact area to be included in the GreenerGov Handbook. These protocols will include strategies that can be adopted by state agencies as part of business as usual. Since August of 2019, the project teams have implemented several successful initiatives that will inform the development of the strategies. The estimated release date for Version 1 of the GreenerGov Handbook is July 2020.

# Renewables on State Buildings

"Our team supported the deployment of Power Purchase Agreements (PPA) for state agencies to utilize in deploying solar voltaic projects. We identified pilot projects at three state agencies. The contract for these projects should be ready for signature by early 2020. This pilot are expected to produce 13.3 megawatts of clean electricity. "

- Steve Link, Department of Correction  
Team Leader



## Energy Efficiency

"The steering committee has already begun to act on one of the team's recommended enabling strategies which is to complete ASHAE Level II Energy Audits on selected enduring facilities."

- Joe Danao, Department of Veterans Affairs  
Team Leader



## Process Improvement

"Our team assigned liaisons to coordinate with and provide support to each impact Project Team. Team members reviewed LEAN 101 training resources and attended a LEAN training event hosted at DOT to expand knowledge of LEAN principles."

- Kimberly Cianci, Judicial Branch  
Communications Liaison





## Public Engagement

"Our team has endeavored to deliver user-friendly tools that will serve to assist project teams with their deliverables for this initiative. Towards that end we developed a GreenerGov Timeline, stakeholder mapping, and a fillable project team report-out form that project teams use to track movement towards goals and share progress with the Steering Committee as a whole."

-Jacquie Shirley, Department of Banking  
Team Leader



## Clean and Efficient Transportation

"We achieved a major milestone by identifying, and working with DOT management to be the first agency that will undertake a transition from internal combustion engine to electric vehicles in its Newington DOT motor pool fleet. The DOT transition will be used as a benchmark for the transition at other pool locations across the state."

-Steve McGirr, Department of Administrative Services  
Team Leader



## Sustainable Water Use

"After securing the necessary funding, our team is in the process of developing a water conservation pilot project for our most water-hungry agency; the Department of Corrections. To get the ball rolling at other agencies, we're also in the process of developing a simple, standardized water audit form targeted for use by our Senior Sustainability Officers and building managers."

-Doug Hoskins, Department of Energy and Environmental Protection  
Co-Chair Representative

## Sustainability in Leased Spaces

"Our team has explored the financing options available for projects on leased sites (with Connecticut Innovations and the Connecticut Green Bank), reviewed the existing DAS State Standard Lease for changes to incorporate sustainability practices, has created a lease summary report from DAS lease database, and provided it to DEEP for further analysis."

- Shane Mallory, Department of Administrative Service  
Co-Chair Representative



## Sustainable Materials Management

"Results from the Materials Management Survey will be used to identify needed resources and where to target support for implementing waste reduction best management practices across state agency facilities. The Team has identified food waste composting as a significant waste reduction pilot project opportunity."

- Rich Pease, Department of Correction  
Team Leader



## Reporting

"The Reporting Team has been working to develop end-uses for the data collected for GreenerGov CT. This year we created the template for the FY 2019 Sustainability Performance Plans and the Agency Snapshots. We are designing these reporting tools to promote openness and transparency and to help agencies track their progress towards meeting our sustainability goals. We will continue to brainstorm metrics and reporting strategies as the baseline data is collected."

-Pauline Zaldonis, Office of Policy and Management  
Team Leader



# Accounting and Reporting Guidelines

The co-chairing agencies developed an Accounting and Reporting Policies and Procedures Guide to formalize the state's approach to key decision points. The guide details the approaches to these issues and provides background information and the rationale behind each approach. The guide aims not only to memorialize consistency with best practices instituted by other organizations, but also to ensure that Senior Sustainability Officers have an on-hand reference to sustainability information relevant to state government.

## Some of the approaches memorialized in the guide include:

- The base year for goals in Executive Order 1,
- Which agencies are included in the EO 1 goals,
- How to include leased spaces in the EO 1 goals,
- Data management and reporting for leased/shared spaces,
- Tracking progress towards aggregate targets and goals,
- Agency-specific goals and subordinate goals,
- Data quality management protocols, and
- Accounting for renewable energy credits and biogenic emissions.

## Some important decisions made in this document include:

**EO 1 GHG Goal:** The EO 1 GHG goal will be translated into a percent reduction from FY19 once the 2018 state-wide Connecticut annual GHG inventory is available. The rationale for this decision was based on the availability of agency data and because Connecticut's state-wide CY2018 serves as a reasonable proxy for FY19 (July 1, 2018-June 30, 2019). Once the state-wide CY2018 GHG inventory becomes available, a more precise reduction target percentage from 2018 (proxy for FY19) to 2030 will be identified and applied to the EO 1 FY19 GHG base year.

**Voluntary Agencies:** Voluntary participants are not subject to the EO 1 goals for 2030, nor are their activities or environmental impacts included in the base year. Voluntary participants are encouraged to set their own targets to match or exceed those set in EO 1.





# Data Collection

Collecting the data necessary to track progress on the sustainability goals of EO 1 has been a key focus in 2019. DEEP has been working closely with agencies and project teams on data collection with baseline data scheduled to be completed by October 2020.

## FY20 Waste Baseline

The Waste Baseline will be created using compactor data from a group of state buildings with compactors. The goal is to develop a per-capita proxy baseline and then extrapolate that baseline compactor data for all state agencies.

Through a survey, the Sustainable Materials Management Project Team has gathered more comprehensive data on materials management that goes beyond just waste. This survey was designed to assess where agency waste reduction and recycling practices can have the most impact. As of this date, 78% of agencies have completed the survey.



## FY20 Water Baseline and FY19 GHG Baseline

Energy and water data is collected in a web-based platform called EnergyCAP, which tracks energy use by state agencies. Each agency is responsible for scanning and uploading their energy invoices into EnergyCAP on a regular basis, with the exception of Eversource, UI, CNG, and SCG invoices. Invoices from these vendors are sent automatically into EnergyCAP via Electronic Data Inflow.



In order to accurately track energy use by agency and by building, EnergyCAP requires that agency buildings are listed and correlated to the appropriate accounts and meters. By tracking energy use data at the building level, agencies can better understand their building by energy costs and consumption and can benchmark their buildings against similar buildings to compare performance. Furthermore, this building-level utility use data can help guide agencies when developing strategic plans for energy efficiency upgrades and renewable energy projects. To this end, DEEP will continue to train agency staff until they become proficient in using the features of EnergyCAP.

In addition to building utility data, vehicle fuel data for state fleet cars has also been integrated into the EnergyCAP database to streamline GHG reporting. DOT is providing vehicle fuel data for state fueling stations, and that data is attributed to the agency whose fob was used for the purchase. Vehicle fuel purchased by Voyager cards at non-state fueling stations is also captured. Both fueling station data and Voyager card data has been integrated into EnergyCAP.

# Data Collection cont.

The steps necessary to achieve the **FY20 Water Baseline** and **FY19 GHG Baseline** were divided into three phases, each with its own due date. The three phases, called Level 1, Level 2, and Level 3, are detailed below.

Four EnergyCAP liaisons at DEEP work closely with agencies to support their data collection efforts. Each agency was assigned an EnergyCAP liaison who helped them develop processes for uploading invoices to EnergyCAP without duplication. The EnergyCAP liaisons provide key support in navigating data collection activities for all agencies, including agencies in shared or leased spaces who may not receive or pay utility bills.

**Level 1** required SSOs to make contact with the agency's liaison and begin uploading current invoices. Some agencies accomplished this step prior to EO 1, but other agencies utilized on-site training for their accounts payable and mailroom staff to learn how to scan and upload the invoices. Level 1 Data Collection was due by September 5, 2019. All agencies met this goal and received Level 1 Completion Certificates.



*Rose Croog*

DEEP Research Analyst  
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**Level 2** Data Collection was due by December 6, 2019. This involved a complicated process of associating utility meters and accounts with the buildings they serve. In certain cases, the agency staff have had to make rounds in the field to identify this information. EnergyCAP liaisons provide technical support when needed, as well as additional training for agencies that need more access to EnergyCAP for their own tracking purposes.



*Nancy Dittes*

DEEP Research Analyst  
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As of December, 25 out of 29 agencies with data in EnergyCAP successfully achieved Level 2. The remaining 4 agencies were granted extensions until February 15, 2020, due to their complex building inventories.



*Kyle Ellsworth*

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**Level 3** Data Collection is due in April 2020. Successful completion of this level requires agencies to scan and upload all historic utility invoices going back to January 2018.



*Ryan Ensling*

DEEP Research Analyst  
Ryan.Ensling@ct.gov

## Future Data Collection

The initial data collection process is scheduled to be completed by October 1, 2020. By this date, FY20 Waste and Water baselines and a fully accurate FY19 GHG Baseline will be developed. Data collection will be an ongoing piece of this initiative and agencies are expected to continue to upload energy and water invoices on a regular basis as they progress towards the 2030 goals

# Sustainability Projects

Executive Order 1 notes the annual \$5.1 million in avoided costs as a result of state agency participation in turn-key utility programs and bond-funded efficiency projects. The Order requires designated agencies to submit Sustainability Performance Plans (SPPs) to the Steering Committee Co-Chairs within 270 days of the issuance date of the Order on April 24, 2019.

A total of 35 participating agencies submitted SPPs. One executive branch agency received an extension and four voluntary participants opted out of preparing an SPP.

In the Sustainability Performance Plans, SSOs detailed the sustainability projects undertaken at their agencies in FY19. SSOs were asked to report the total number of sustainability projects at their agency and provide greater detail on up to nine specific projects. SSOs reported over 280 sustainability projects and provided detail on 129 of these projects. It should be noted that the sum of projects reported may contain duplicates in cases where multiple agencies reported the same project.

**A full breakdown of all projects will be available on the GreenerGov CT website later this quarter.**

**Summarized on the next few pages are some high-level data based on the 129 sustainability projects completed or in progress in FY19 as reported by SSOs from Executive Branch, Judicial Branch, Quasi-Public, and Higher Education institutions in their submitted SPPs.**



129

**SUSTAINABILITY  
PROJECTS**



92

**STRUCTURAL PROJECTS**



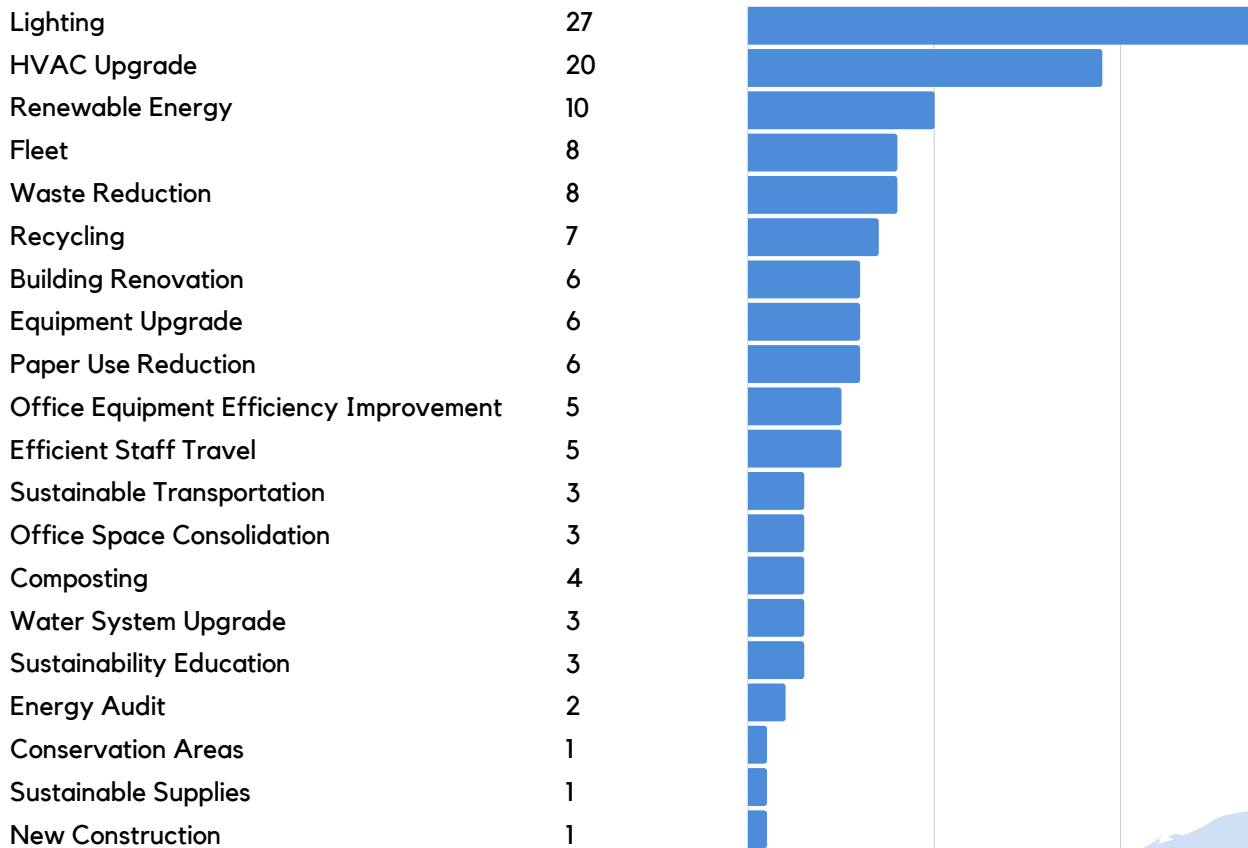
37

**BEHAVIORAL PROJECTS**

# Sustainability Projects cont.

The sustainability projects reported through the Sustainability Performance Plans were grouped into additional categories beyond the three primary goal areas of: GHG reduction, water saving, and waste reduction projects. While the projects can be categorized a number of different ways, the chart below gives one breakdown of the types of sustainability projects reported through the SPPs.

## FY19 State Sustainability Projects by Project Type



# Sustainability Projects cont.

Below are a sample of sustainability projects reported in the Sustainability Performance Plans. Information about all the reported projects are available in the individual agency SPPs, which will be published later this quarter on the GreenerGov CT website.

## WATER-SAVING PROJECTS

The **Department of Economic and Community Development** installed **new sinks and faucets** in the Henry Whitfield Museum in Guilford. The new sinks and faucets were installed to **combat water waste**, and the new units will **prevent dripping and unnecessary water usage**.

The **Department of Veterans Affairs** worked with the **Department of Energy and Environmental Protection** to install a **new water line to five veteran residences and Dinosaur State Park**. This new water line replaced old infrastructure and **will increase water quality and reduce excess water use**.

The **Division of Public Defender Services** began an **education campaign on water reduction and savings strategies**. Using the EPA's WaterSense tools, DPDS is **educating employees on responsible water use across the state**.



## WASTE-REDUCING PROJECTS

The **Department of Administrative Services** is working with all agencies located at 450 Columbus Boulevard in Hartford to **implement composting**. The benefits for this project include **waste reduction**, the ability to **recycle organic material**, and a **reduction in waste services, leading to additional cost savings**.

The **Department of Energy and Environmental Protection (DEEP)** held "office clean out days" during which unused and excess office supplies were collected and donated to the DEEP ReSupply Center, located at 79 Elm Street in Hartford. The clean out days lead to more **organized and productive workspaces, better utilization of office space, cost-savings, and waste diversions achieved through the reuse of office supplies**.

The **Department of Housing**, the **Department of Insurance**, the **Department of Aging and Disability**, and **CT Innovations** all implemented double-sided printing as the default in their offices. These paper reduction initiatives will lead to **greater waste diversion, reducing paper usage, and disposal costs**.



# Sustainability Projects cont.

## GHG-REDUCING PROJECTS

**Connecticut State Colleges and Universities** completed three solar projects totaling **4.4M kWh** of PV cell installations at 3 locations. These projects are projected to save **\$7 million** over the next 20 years, or **\$358,000** annually.

The **Department of Emergency Services and Public Protection (DESPP)** worked with the **Department of Administrative Services** to begin to update the DESPP fleet with hybrid vehicles. Approximately **95** of the **106** new vehicles will have hybrid power trains, which will lead to reduced GHG emissions and gasoline usage.

The **Department of Transportation** is in the process of acquiring **12** battery electric buses (BEB) for CTtransit depots in New Haven and Stamford service territories. The BEB buses will lead to a reduction in GHG emissions and noise, and will promote environmental justice.

The **Department of Public Health** completed lighting upgrades in the Katherine A. Kelly State Public Health Laboratory, installing **1,733** high performance lights, including **115** hallway lights that were converted to an updated LED configuration. This lighting upgrade is expected to save an estimated **185,971 kWh** annually and reduce GHG emissions by **131 MTCO<sub>2e</sub>**.

The **University of Connecticut** completed **60** energy efficiency projects across its Storrs, Avery Point, Stamford, Law School, Hartford, and Waterbury campuses, which included **LED lighting retrofits, repairs and upgrades to steam lines, and adding insulation** to various buildings. As a result of these combined energy efficiency projects, the university anticipates an **annual energy savings of 9,346,036 kWh** worth **\$438,288** and reducing annual GHG emissions by **2,489 MTCO<sub>2e</sub>**.

The **Department of Corrections** renovated the state-owned Hartford Correctional Center by performing a **retrofit of interior and exterior lighting to LED, as well as a kitchen exhaust economizer**. This project anticipates **annual energy savings of 516,029 kWh** worth **\$86,111** and reducing GHG emissions by **365 MTCO<sub>2e</sub>**.



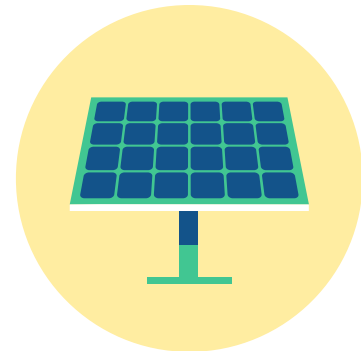
# Financing Solutions

Our state agencies can achieve significant annual cost savings through reductions in the use of energy and water, as well as by reducing solid waste and pollution from the state's vehicle fleet and energy sector. However, achieving these benefits requires up-front financial investments by the State.

In order to implement the sustainability goals for state buildings contained in EO 1, OPM has been consulting with the Office of the Treasurer (OTT), the Office of the State Comptroller (OSC), DEEP, DAS, the Office of Attorney General (OAG), and the Connecticut Green Bank (CGB), as well as private market participants, Connecticut's utilities Avangrid/UI and Eversource, and members of the EO 1 Energy Efficiency Project Team to explore current and potential new financing solutions for projects that can be utilized to tackle all the EO 1 environmental targets, including energy efficiency in facilities, water conservation, electric vehicles and charging infrastructure, renewable energy, and materials management.

## Financing Solar Power on State Buildings

DAS, CGB, and the OAG are currently finalizing a master agreement that will allow agencies to contract with the CGB to buy the power generated by the solar panels installed on state agencies through a Power Purchase Agreement that does not require any up-front investment. This tool is expected to be available to state agencies by the late spring of 2020.



## Financing Options for Energy Efficiency

To date, the financing options explored have focused on enabling energy efficiency retrofits, which require up-front investment, but generally are net-positive and result in significant long-term life-cycle cost savings.\* Historically, Connecticut's Lead by Example (LBE) energy efficiency projects have been funded primarily by state bonding for larger projects, and the utilization of Small Business Energy Advantage (SBEA) loans through our utilities (Eversource and Avangrid/UI) for smaller projects costing up to \$100,000.

\*See Department of Energy and Environmental Protection, Leading by Example: Improving energy Management at State Facilities, 2018, available at <https://portal.ct.gov/GreenerGov/Progress/Reports>

## Financing Options for Energy Efficiency cont.

OPM and OTT, in consultation with others as noted above, identified and evaluated five options, including traditional general obligation (G.O.) bonding (both publicly issued and through private placement), tax exempt lease products (both capital lease with third party and capital lease backed by CGB), and CGB-backed energy savings agreements.\*\*

Additionally, Eversource's proposal to expand the SBEA program by increasing the loan limit from \$100,000 to \$1 million per project was evaluated. The SBEA program offers a financial platform that combines incentives for relevant energy efficiency measures with a zero-percent financing option to state agencies to cover the balance of the energy efficiency project costs. The Co-Chairs endorse the strategic use of the SBEA financing by state agencies, and the increase in the loan cap to \$1 million, as long as the new reporting procedures OPM proposed are implemented to ensure that OPM, OSC and OTT have accurate information on the debt that agencies are undertaking through this program. To this end, once the Master Agreement renewal process for energy retrofit projects is complete, new instructions will be provided to participating agencies to ensure such timely reporting of all SBEA financing.

Finally, the CGB identified an additional opportunity to lower borrowing costs that is available through the Public Utilities Regulatory Authority (PURA) called the Interest Rate Buy Down Program, which was established through Public Act No. 05-01, June Special Session, An Act Concerning Energy Independence. This program utilizes Clean Energy funds administered by PURA to reduce the financing costs by 1% for the first ten years for projects that reduce electric energy usage or add electricity generating capacity. After more than ten years in existence, there currently remains approximately \$23.4 million available for use by municipal and state facilities, as well as non-government entities on a first-come, first-serve basis. This buy-down program can be strategically utilized in conjunction with lease products or the private placement of G.O. bonds to reduce our borrowing costs, keeping in mind that some of these funds should remain eligible for municipalities and other eligible participants to access.

Ultimately, the state will need to utilize multiple financing solutions to meet the environmental targets in EO 1. A combination of G.O. bonding, tax exempt leases, and utilization of utility programs appears to be most the cost-effective and viable strategy. OPM and OTT will continue to consult the CGB on alternative financing options as new products develop. To meet these EO 1 goals, the Governor and OPM will be seeking new authorization to utilize G.O. bond funding for projects, as well as reserving debt issuance to utilize tax exempt lease products. The funding will then be allocated based on the results of the building audit and project prioritization process.

\*\*Energy Savings Performance Contracts (ESPCs) are also an important tool, but technically ESPCs are not a financing solution, but rather a performance contract structure that may or may not be backed by financing. While no capital budget funds are needed on a net basis, because the financing structure relies on future savings from energy bills, capital budget funds may be required. Furthermore up-front financing is still needed to complete all phases of the project, including infrastructure investments that are often needed before energy efficiency upgrades and before energy savings are achieved.



# Building Audits

In light of our goal to use state resources as cost-effectively as possible, the Co-Chairs have implemented a new, data driven process for identifying and prioritizing investment opportunities in retrofit projects that will result in the greatest energy use and cost reductions.

On December 18, 2019, the State Bond Commission allocated \$1 million to conduct ASHRAE Level II Energy Audits on select state buildings. DAS, in consultation with OPM and DEEP, has implemented an auditing plan of approximately thirty-five state properties that are 1) high, and likely inefficient, energy users due to outdated systems, equipment, or infrastructure, 2) that have not had recent energy improvements, and 3) that align with the state facilities plan and broader capital investment goals. This audit process will help us to assess opportunities to bundle projects so that measures with shorter-term payback (such as lighting) can help to average out those with longer-term payback (such as HVAC or windows), thereby forestalling the risks of implementing only the low-hanging fruit measures. The auditing plan also intends to examine water equipment and systems to determine areas for potential water savings.

Once the auditing process is underway, the Co-Chairs, in consultation with the Energy Efficiency Project Team members will move forward and develop a coordinated project deployment and financing plan to update the state's buildings to be more cost-efficient and sustainable.



# What's Next?

In 2019, significant progress was 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 identified a wide variety of 2020 goals and projects in their SPPs to implement at their respective agencies. SPPs will be shared on the GreenerGov CT site later this quarter.

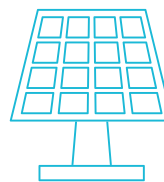
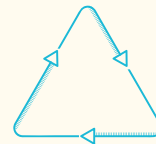
Data collection will continue to be an integral component of state sustainability work. By mid-2020, all state building utility data (including electricity, gas, propane, fuel, oil, water, and sewer) from 2018 to the present will be recorded. Additionally, by July 1, 2020 waste disposal data from key state agencies with trash compactors will be compiled. This wealth of data will help the Steering Committee develop baselines and track progress towards meeting the goals established in EO 1. For example, the Steering Committee will evaluate the prospect of setting near-term intermediary targets to benchmark progress towards meeting the overall EO 1 reduction goals.

The Steering Committee will also consider whether additional data collection is needed to measure secondary goals on topics including:

- GHG emissions from onsite heating and cooling, purchased electricity and/or energy-intensity, vehicle fleets, and other energy end uses;
- materials management;
- water use;
- environmental impacts of land use and grounds management; and
- other impacts from product procurement.

Once the baseline data has been compiled for the three main sustainability goals, the Steering Committee will assess the need for additional strategies to meet more stringent targets than required by EO 1.

Lastly, the Co-Chairs recognize that the sooner investments are made in improving the efficiency of our state buildings, the sooner we will start to see returns on these investments. OPM will continue to lead discussions on the financing needed to create a sustainable investment path for meeting the targets aligned with the EO 1 Project Team's recommended strategies. OPM will also continue to evaluate new financing opportunities as they become available, and work expeditiously to deploy financing to projects identified as cost-effective.



# Thank You

We encourage you to visit our site  
*[portal.ct.gov/greenergov](http://portal.ct.gov/greenergov)*  
to view our progress on this initiative



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