State of Connecticut

FY 2020

Sustainability Performance Plan

Department of Transportation

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Approved by Joseph J. Giulietti
Commissioner

greenergovCT

A Lead by Example Initiative

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

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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.

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DOT and EO 1

DOT's mission

The mission of the Connecticut Department of Transportation is to provide a safe and efficient intermodal transportation network that improves the quality of life and promotes economic vitality for the State and the region.

DOT's FY20 participation overview

DOT participates on 4 Project Teams:
- Energy Efficiency
- Sustainable Materials Management
- Renewable Energy
- Clean and Efficient Transportation

DOT staff involvement in EO 1

Kathy Germain
Jon Andrews
Fred Krauth
Elise Greenberg
Richard Hanley
Jennifer Reilly
Dave Elder
Adam Fox
Amie Maines
Kim Lesay
Jason Coite
Jerry Lukowski

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: Danbury, Southington, West Willington (2), Wallingford, Middletown, North Stonington

Project Type: Structural - Water

Description: Installation completed of hybrid waterless urinals and water conserving faucets at 7 rest areas.

Status: Completed in FY 2020

Benefits Summary: Water usage will be reduced.

2

Location: Putnam, Torrington, Brookfield, East Hampton, Darien

Project Type: Structural - GHG - Building energy efficiency

Description: Green Building Design and Construction. Green Building Designs at maintenance facilities (Putnam Maintenance & Repair facilities and the Torrington Bridge, Signs and Marking facilities). The Department also completed the design of both facilities in 2020. Green building construction at 3 facilities. The construction of the Brookfield maintenance facility began in 2020 and is scheduled to be completed in December 2022. The construction of the East Hampton maintenance facility also began in 2020 and is scheduled to be completed in December of 2021. The construction of the Darien maintenance facility was completed during 2020. Each facility qualified for energy efficiency incentives and rebates due to the specification and installation of energy efficient lighting, lighting controls, HVAC, appliances, windows and insulation.

Status: Construction complete at one facility, 5 other facilities either design complete or in construction.

Benefits Summary: Not known at this time. For lighting alone, it is anticipated that specifying energy efficient lighting with new and renovated DOT facilities will reduce the overall facility energy consumption by 20-25 percent.

3

Location: Bridgeport

Project Type: Structural - GHG - Vehicle/fleet

Description: Deployment of 2 battery electric buses and installation of charging infrastructure

Status: Completed in FY 2020

Benefits Summary: Decrease in GHG and other air pollutant emissions.

4

Location: Numerous locations

Project Type: Structural - GHG - Building energy efficiency

Description: The Department also completed the construction of two large roadway lighting projects that involved the replacement of 1,297 high pressure sodium (HPS) lights with more energy efficient LED type lights.

Status: Completed in FY 2020

Benefits Summary: Not known at this time. It is anticipated that replacing HPS roadway fixtures with LED will reduce energy consumption by 40-50 percent.

Sustainability Projects cont.

5

Location: DOT headquarters, Newington
Project Type: Structural - Combination
Description: Installation completed of on demand hot water system at DOT headquarters, replacing the 25 year old hot water system (1000 gallon hot water storage tank)
Status: Completed in FY 2020
Benefits Summary: Generates less greenhouse emissions and provides energy cost savings.

6

Location: Numerous field locations around the state
Project Type: Structural - Combination
Description: Pollinator Corridors. DOT Maintenance added 18 conservation areas in 2020. The current total is now 80 areas statewide. These comprise approximately 150 acres.
Status: Completed in FY 2020
Benefits Summary: Reduced mowing results in reduced fuel use and reduced GHG emissions; reduced labor costs from reduced mowing and reduced equipment maintenance; germination of wildflower seed bank; increased pollinator habitat.

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Location: Darien
Project Type: Structural - Combination
Description: Construction completed of roundabout
Status: Completed in FY 2020
Benefits Summary: Converting intersections from traffic signals or stop signs to roundabouts reduces injury crashes by about 80% and all crashes by close to 50%, and significantly reduces fatalities. Fewer stops and reduced idling time leads to less pollution, noise, and fuel use. Also, without the hardware, maintenance, and electrical costs associated with traffic signals, roundabouts can save thousands of dollars per year per location.

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Location: Hamden (facility for New Haven) and Stamford
Project Type: Structural - GHG - Vehicle/fleet
Description: Deployment of 12 battery electric buses (10 in New Haven, 2 in Stamford) and installation of charging infrastructure. Battery-Electric Buses and chargers ordered, New Haven and Stamford engineering designs complete, construction bid let.
Status: Commenced in FY 2020
Benefits Summary: Decrease in GHG and other air pollutant emissions

Performance Data

The following data was pulled from EnergyCAP, the state's utility tracking software, on March 15, 2021. Note that utility data on agencies occupying space owned by another state agency may or may not be linked to their EnergyCAP accounts.

Total Utility Costs

		Use			Cost		
Commodity	**Unit**	**FY19**	**FY20**	**Change**	**FY19**	**FY20**	**Change**
Electric & Natural Gas	MMBtu	229,509	242,441	+5.6%	$9,466,168	$9,025,492	-4.7%
Other Building Energy	MMBtu	40,817	26,747	-34.5%	$610,863	$332,345	-45.6%
Vehicle Gasoline	Gal	700,416	760,576	+8.6%	$1,800,069	$1,802,564	+0.1%
Vehicle Diesel	Gal	1,734,010	1,414,600	-18.4%	$5,514,152	$4,187,216	-24.1%
Total GHG Emissions	**mtCO2e**	**42,809**	**39,591**	**-7.5%**	-	-	-
Water	Kgal	21,357	27,591	+29.2%	$118,067	$201,419	+70.6%
Total	-	-	-	-	**$17,509,318**	**$15,549,035**	**-11.2%**

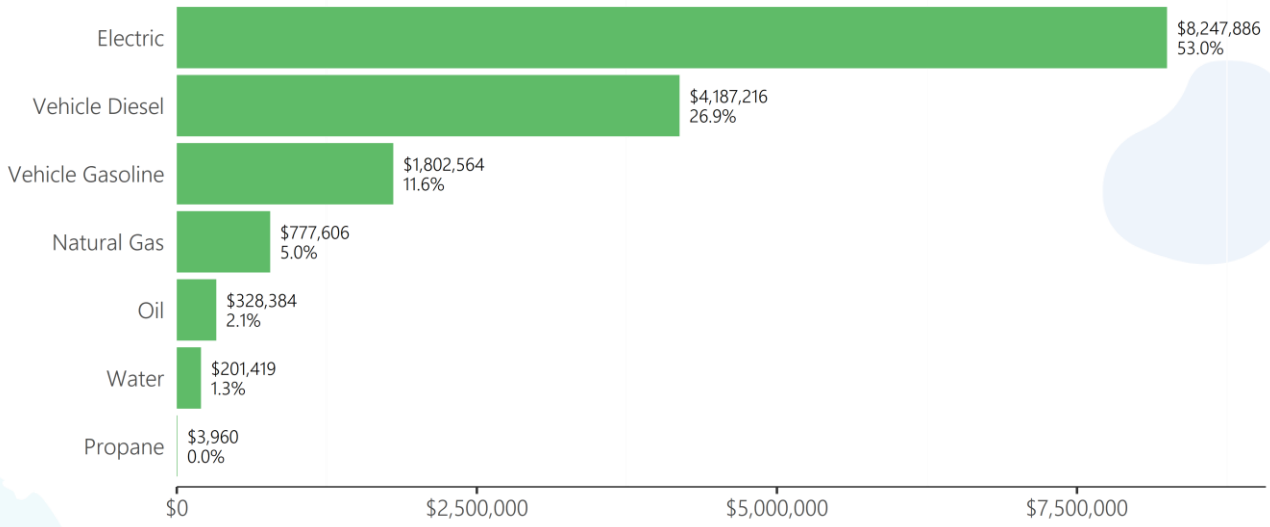
*Gasoline and diesel costs estimated based on average weekly cost from EIA.gov, $2.37 for gasoline and $2.96 for diesel in FY20 and $2.57 for gasoline and $3.18 for diesel in FY19.

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

***Unavailability of some water bills for FY19 likely decreases the water data for FY19; also, the highway rest areas fully reopened in FY20, leading to increased water use in FY20.

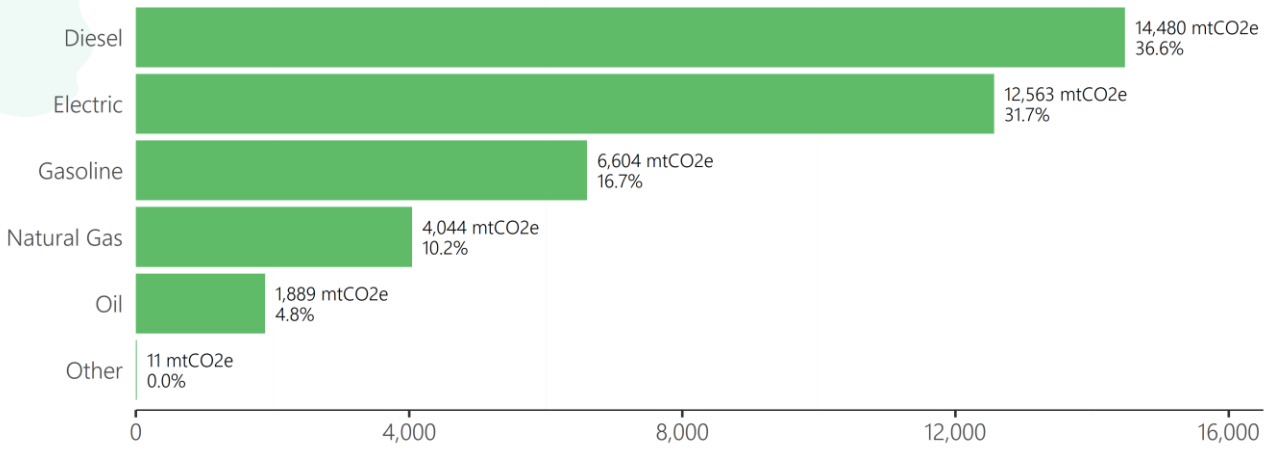
Commodity Cost Breakdown, FY20

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



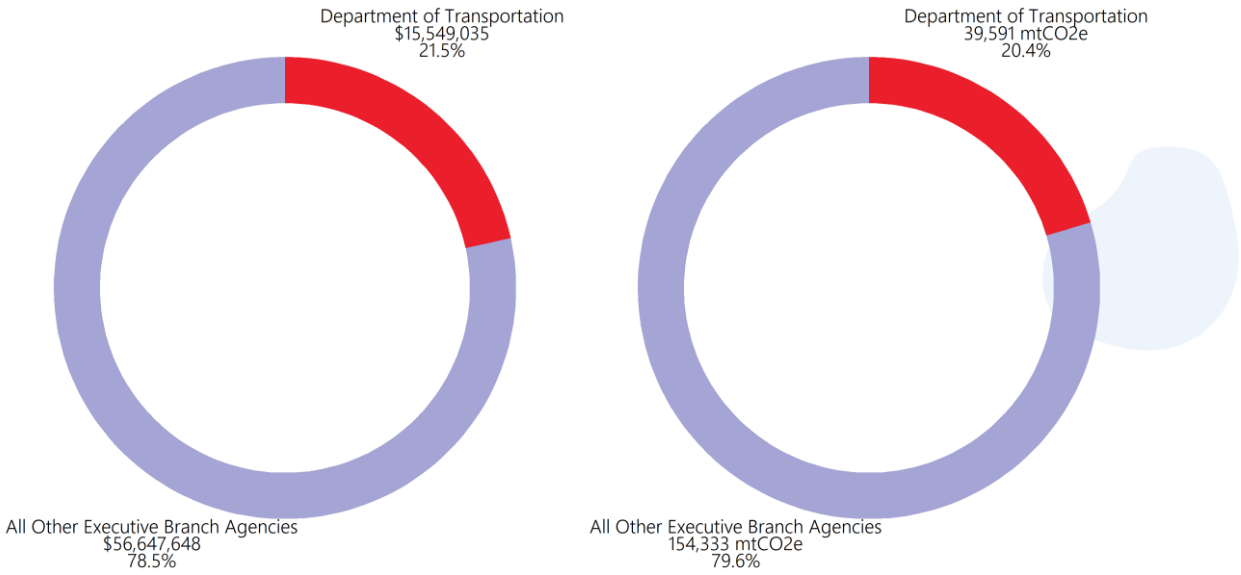
GHG Emissions Breakdown, FY20

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



Share of Utility Costs and GHG Emissions

The two charts below display DOT'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.

✓ **Other: Some projects completed; others made progress.**

Planned FY21 Projects

a. Expand EV charging infrastructure at DOT facilities, for visitors, employees and motor pool/fleet.
b. FY 2021 begin incorporating EVs into fleet. 3 Battery Electric Cars (Chevy Bolts) were ordered for DOT fleet use; delivery expected Spring 2021.
c. Expand Battery Electric Bus procurement, operation and charging infrastructure at bus maintenance garages. Also, Phase 2 at Bridgeport for deployment of 3 additional battery electric buses and installation of charging infrastructure. As well as a new bus depot for one Windham Regional Transit District BEB and two University of Connecticut BEB's (location TBD), plus commencement of a study to electrify 100% of all existing UConn Storrs buses.
d. Bus Garage system-wide assessment for BEB charging.
e. Continue conversion of roadway lights to LED.
f. Plan and procure solar arrays for DOT Headquarters and Hamden Bus Garage through CT Green Bank program.
g. DOT has 14 Roundabouts across the state in various stages of design and construction and will continue to make progress throughout FY21.

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

Complete installation of touchless, automatic shutoff water conserving faucets, and water conserving urinals, at DOT Headquarters and satellite facilities

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

Centralized garbage

COVID-19 Impacts

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

a. Staff capacity is limited: completing COVID-related building upgrades limits time spent on other initiatives
b. COVID upgrades to buildings has accelerated progress on some EO1 initiatives (water reduction- touchless automatic faucets); with few staff in buildings, projects are able to be carried out quicker.
c. Project delays- vendors working on some EO1 projects are also working on COVID upgrades
d. Scarcity of EVs available: OEM vehicle production is down yet demand is up.
e. Initiatives planned for in-person interactions were delayed due to alterations in schedules and social distancing/telework.

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**

No changes to report

Resources Needed

Barriers encountered while making EO 1 progress in FY20

✓ **Funding**

✓ **Staffing**

Technical expertise

No barriers encountered

✓ **Other: Administrative, technical, and legal challenges that take time to analyze and overcome.**

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

Funding affects all conversions/upgrades/initiatives.

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

CTDOT pursues sustainability throughout its transportation programs. CTDOT continued its efforts to enhance public transportation through upgrades to track, rail bridge and other rail components, as well as bus and paratransit services. Significant efforts were made during the Covid-19 pandemic to provide PPE and other safety features for public transportation operators and customers, to keep the services operating and in a safe manner. Also, CTDOT continued to expand active transportation (non-motorized, zero emission) facilities and safety including the Community Connectivity Grant Program (construction grants to municipalities), multi-use trail construction, Complete Streets enhancements through paving programs and road design, to name just a few.