OCTOBER STEERING COMMITTEE MEETING

OCT 4, 2019

GINA MCCARTHY AUDITORIUM

greenergovCT

A Lead by Example Initiative

TODAY'S AGENDA

Welcome and Energy Efficiency Day Overview (10 min)

Project Team updates (20 min)

Status update on data collection (5 min)

Potential for energy efficiency in state buildings (25 min)

State building energy audit (15 min)

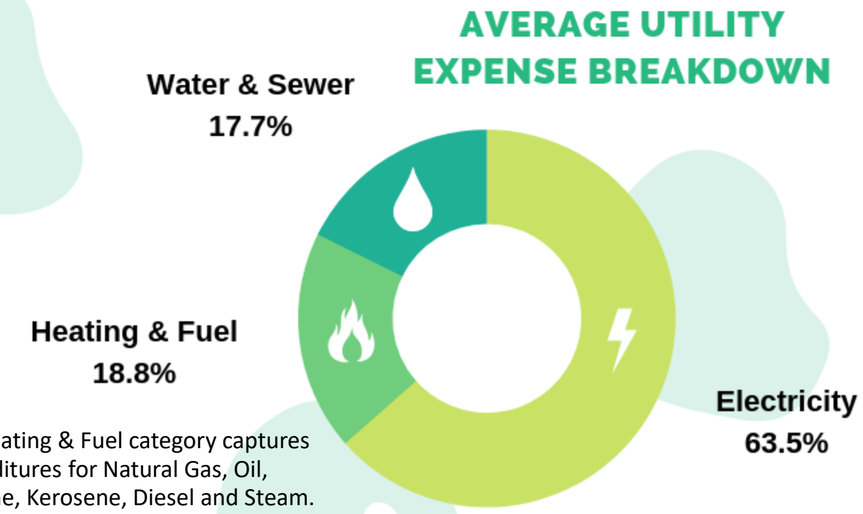
Hartford Building Energy Challenge (10 min)

Next steps before November Steering Committee Meeting (5 min)

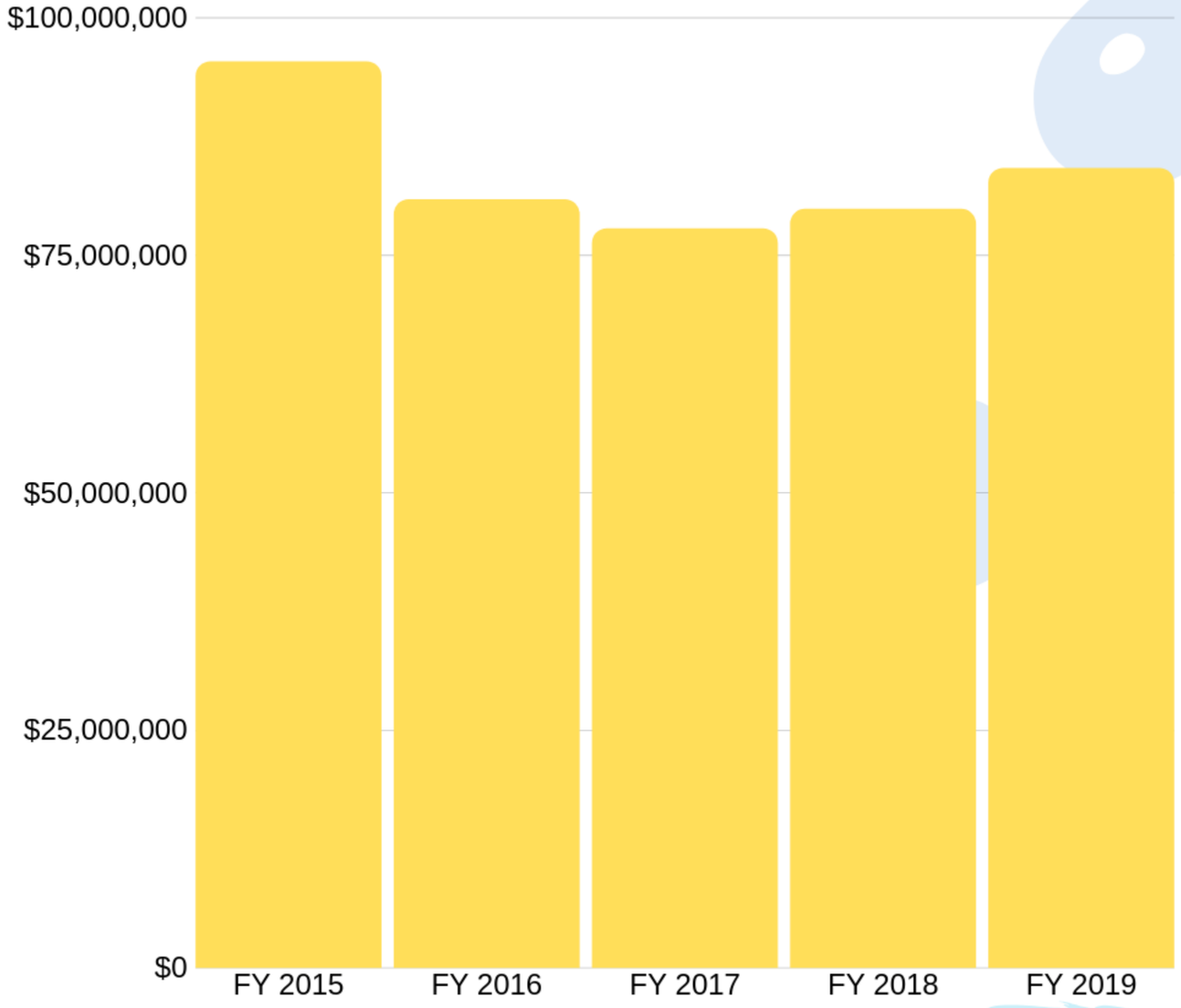
OPPORTUNITIES WITH ENERGY EFFICIENCY

Over the last 5 years, the state has spent over $417 million on utility expenses

The average annual expenditure per year was **$84M**



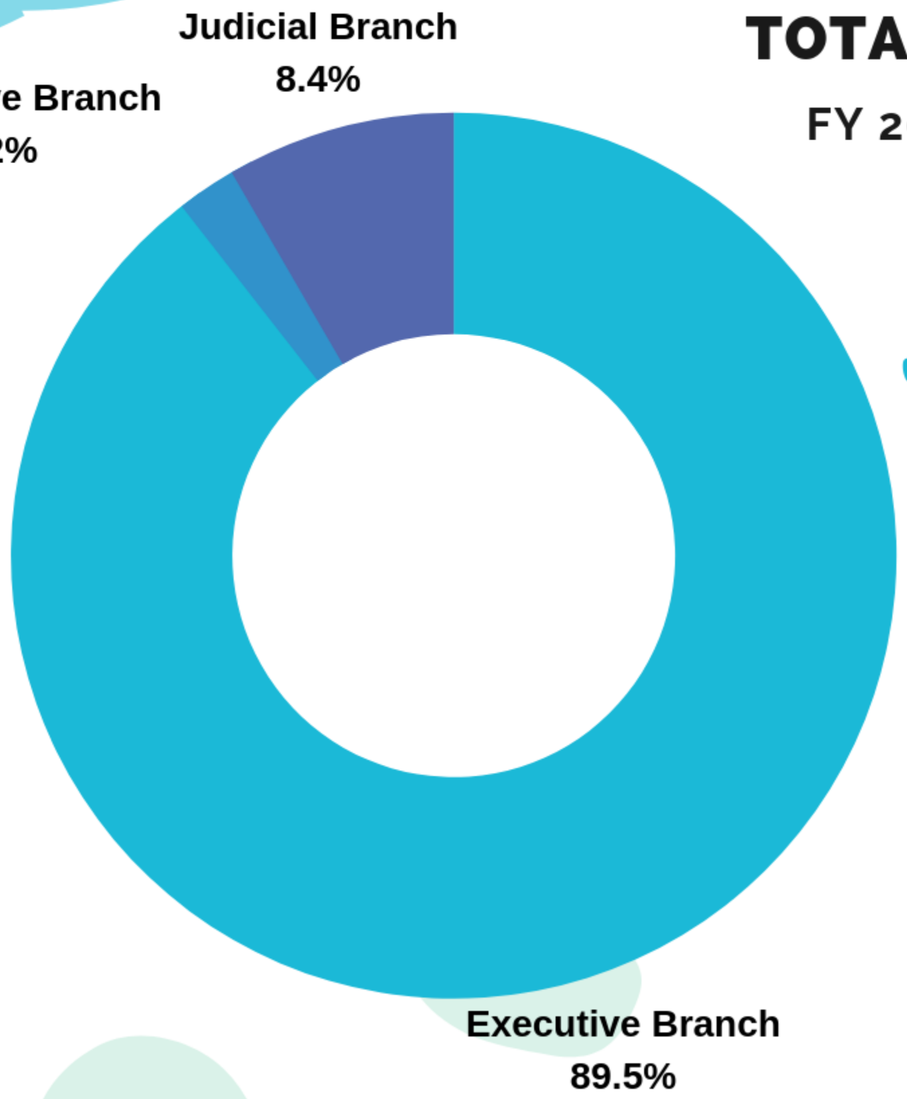
The Heating & Fuel category captures expenditures for Natural Gas, Oil, Propane, Kerosene, Diesel and Steam.



Amounts shown are expenditures from appropriated funds for the Executive (excluding higher education), Legislative and Judicial branches for state fiscal years 2015 through 2019. Expenditure data was drawn from Core-CT on October 2, 2019 and does not include utility expenditures charged to federal and other non-appropriated funds.

TOTAL ENERGY COSTS

FY 2018 State Government
$66,207,620 Total



ENERGY COSTS BY COMMODITY

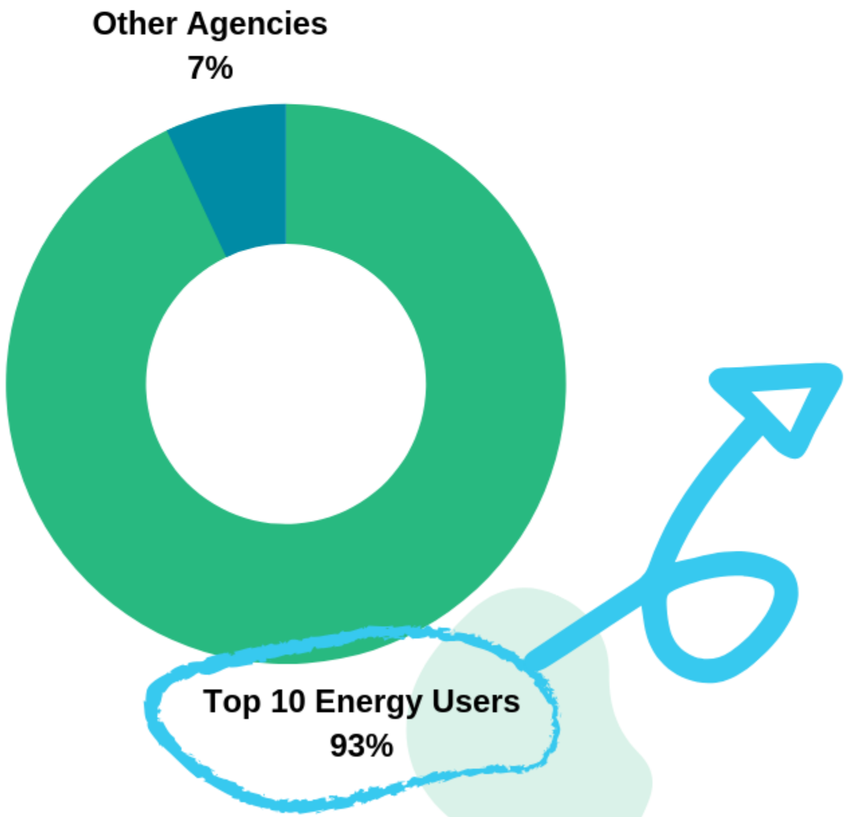
FY 2018 Executive Branch

ELECTRICITY $42,654,113	72%
HEATING AND FUEL $16,581,625	28%

Disclaimer: This data is continually being updated as part of the data collection process

ENERGY COSTS

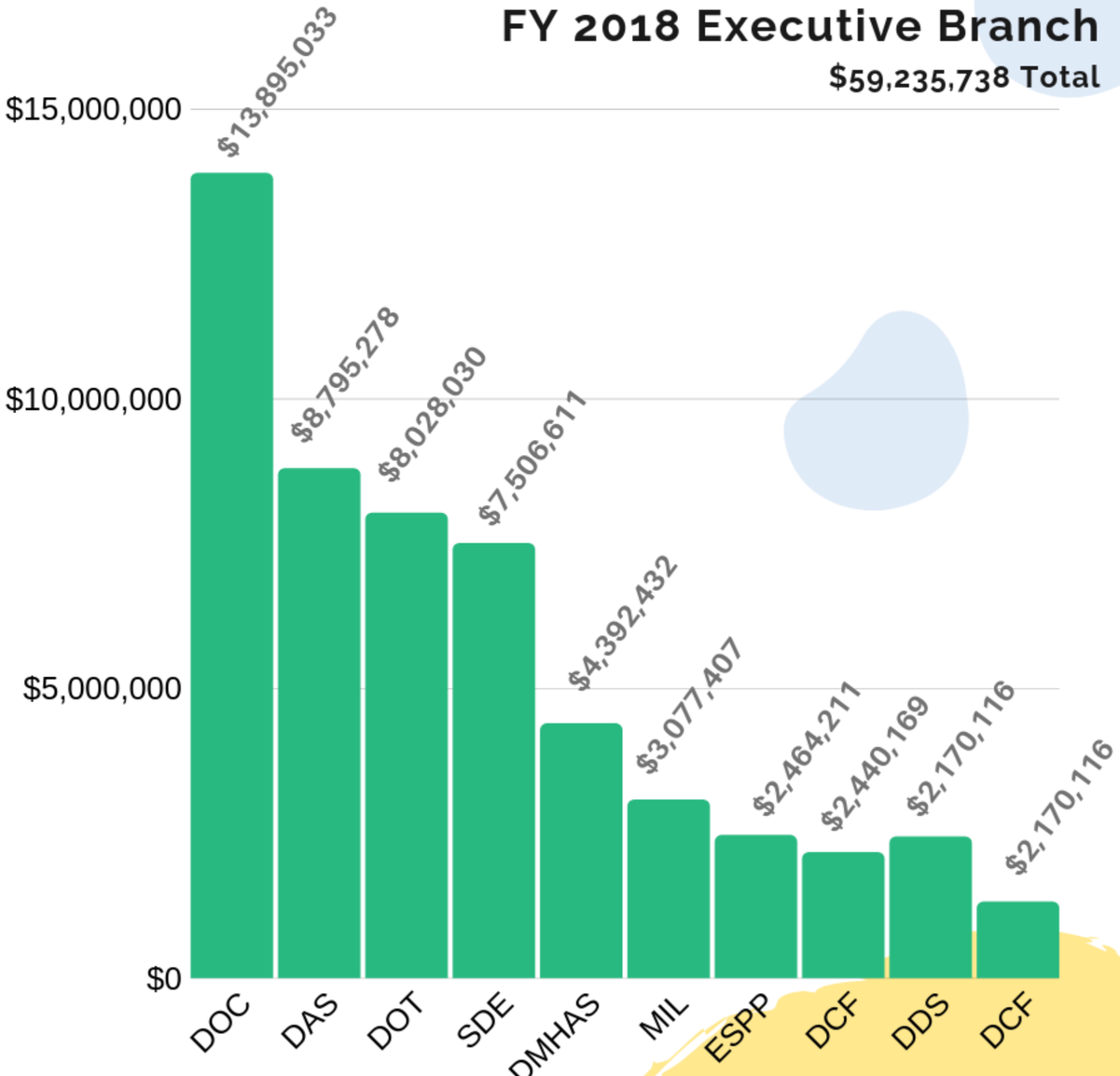
FY 2018 Executive Branch



TOP 10 ENERGY USERS

FY 2018 Executive Branch

$59,235,738 Total



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ENERGY EFFICIENCY IN THE EO 1 IMPACT AREAS

ELECTRIC VEHICLES

Benefits of EVs

Efficient Use of Energy

EVs convert about 59%–62% of the electrical energy from the grid to power at the wheels. Conventional gasoline vehicles only convert about 17%–21% of the energy stored in gasoline to power at the wheels. US Department of Energy's Office of Energy Efficiency and Renewable Energy

Lower Fuel Costs

The cost of "fueling" an electric vehicle is $0.44 cheaper per gallon/eGallon than fueling a similar vehicle with gasoline (Connecticut Energy eGallon Data)

Enhanced Energy Security

"In 2017, the United States imported about 19% of the petroleum it consumed and transportation accounts for nearly three-fourths of total U.S. petroleum consumption," More energy efficient "vehicles can have a direct impact on energy security.

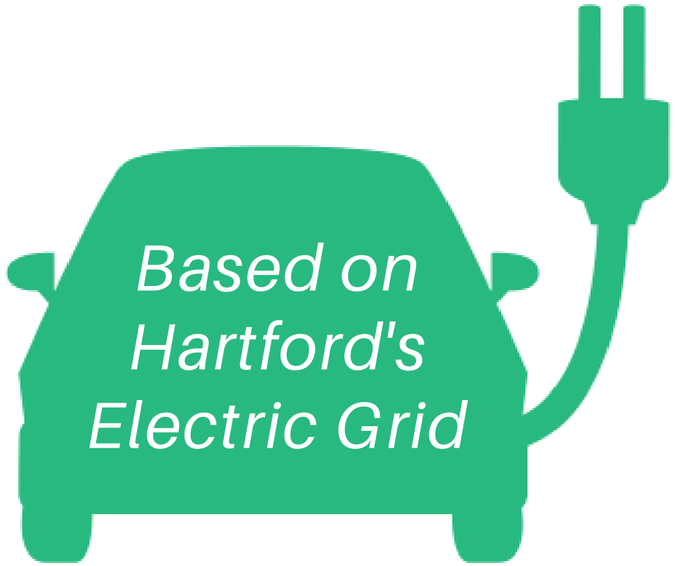
US DOE Alternative Fuels Data Center

EVs Decrease Emissions

EV Emissions Tool: https://www.ucsusa.org/clean-vehicles

The exact emissions from charging an EV depend on the electricity sources used to charge it.

The higher number of CO2e emissions = more global warming pollution.



AVERAGE EMISSIONS IN 06106

GASOLINE-ONLY

381 GRAMS OF CO_2e PER MILE

That's like driving a car that gets 29 miles per gallon.

Conventional cars run on gasoline and tend to be dirtier and more expensive to fuel than EVs.

PLUG-IN HYBRID ELECTRIC

181 GRAMS OF CO_2e PER MILE

That's like driving a car that gets 60 miles per gallon.

Plug-in hybrids use both gasoline and electricity and can be recharged from an outlet.

BATTERY ELECTRIC

102 GRAMS OF CO_2e PER MILE

That's like driving a car that gets 107 miles per gallon.

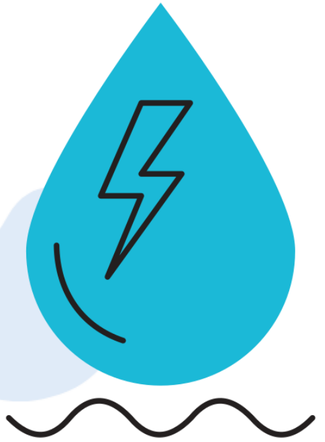
Battery electric vehicles run on electricity and are some the cleanest and cheapest cars to drive.

WATER

PROVIDING FRESHWATER USES ENERGY AND PRODUCING ENERGY USES WATER

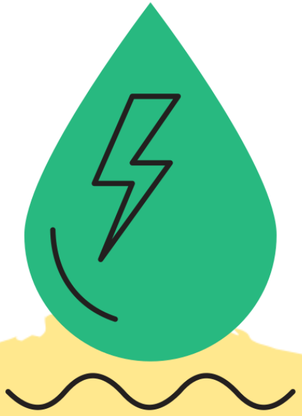
ENERGY USE IN THE WATER SECTOR

- Electricity used to extract, move, and treat water and wastewater
- Gas/oil to heat water
- Diesel used for irrigation pumps
- Gas used in desalination plants

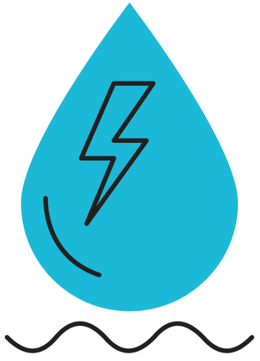


WATER USE IN THE ENERGY SECTOR

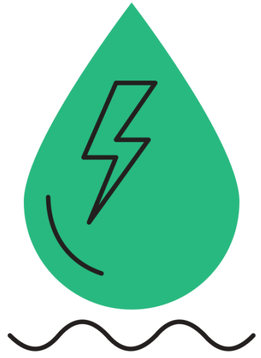
-Cooling in electricity generation
-Extracting fossil fuels through mining and production
-Hydroelectric power plants
- Feedstock for biofuel conversion
- Drilling and mining of natural gas, coal, oil, and uranium



SAVING ENERGY SAVES WATER AND VICE VERSA



13% of the nation's energy consumption is water related (The River Network, 2009)



13% of the world's water consumption and withdrawals is related to the energy sector (WEO, 2018)

How much energy **varies by region and even by individual utilities** due to different water/energy sources, geography and cost structures

Closer coordination between the water and energy sectors can result in **better efficiencies/cost savings**

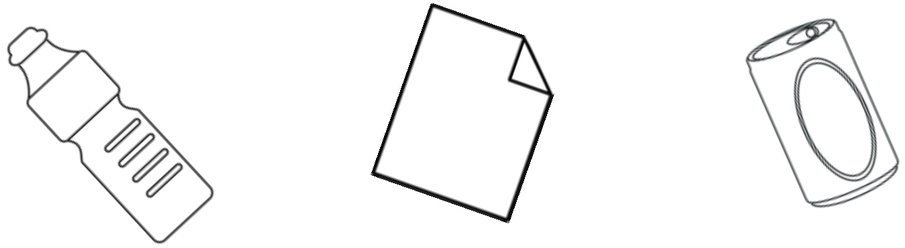
THIS ENERGY-WATER NEXUS IS EXPECTED TO GROW SIGNIFICANTLY

By 2040, the amount of energy used in the water sector is projected to **more than double** (WEO 2018)

Over the same period the amount of water consumed by the energy sector is projected to **increase by almost 60%** (WEO 2018)

WASTE

WASTE REDUCTION IS ENERGY REDUCTION UPSTREAM AND DOWNSTREAM



HOW?

Through waste reduction and reuse, less energy is used in recycling and end of life management of materials.

By recycling, less materials are extracted and used in the production of new products.

ENERGY SAVINGS FROM USING RECYCLED CONTENT VS. VIRGIN MATERIALS (EPA):

60-74% for recycled steel and tin cans

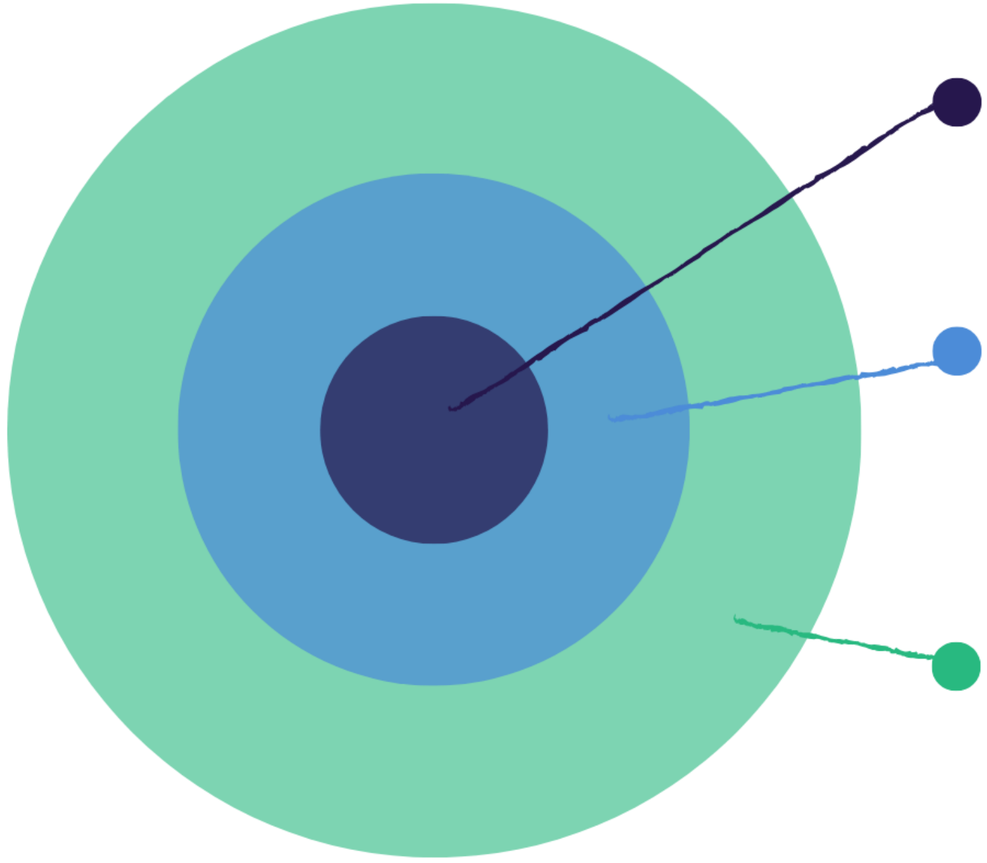
40% for recycled paper

30% for recycled plastic

95% for recycled aluminum

PUBLIC ENGAGEMENT

STAKEHOLDER MAPPING



INTERNAL STAKEHOLDERS

Co-Chairs
SSOs
Implementation Team
Project Teams

STEERING COMMITTEE UPDATES

CONNECTED STAKEHOLDERS

Commissioners
Data Uploaders
Property Owners
Property Managers
Facilities Managers/Engineers

DATA COLLECTION UPDATES

EXTERNAL STAKEHOLDERS

Legislators
Governor
E & T committee
General Public
State Employees
Municipalities
Other State Governments

IMPORTANT GREENER GOV UPDATES

PROGRESS AND TIMELINE COMMUNICATION

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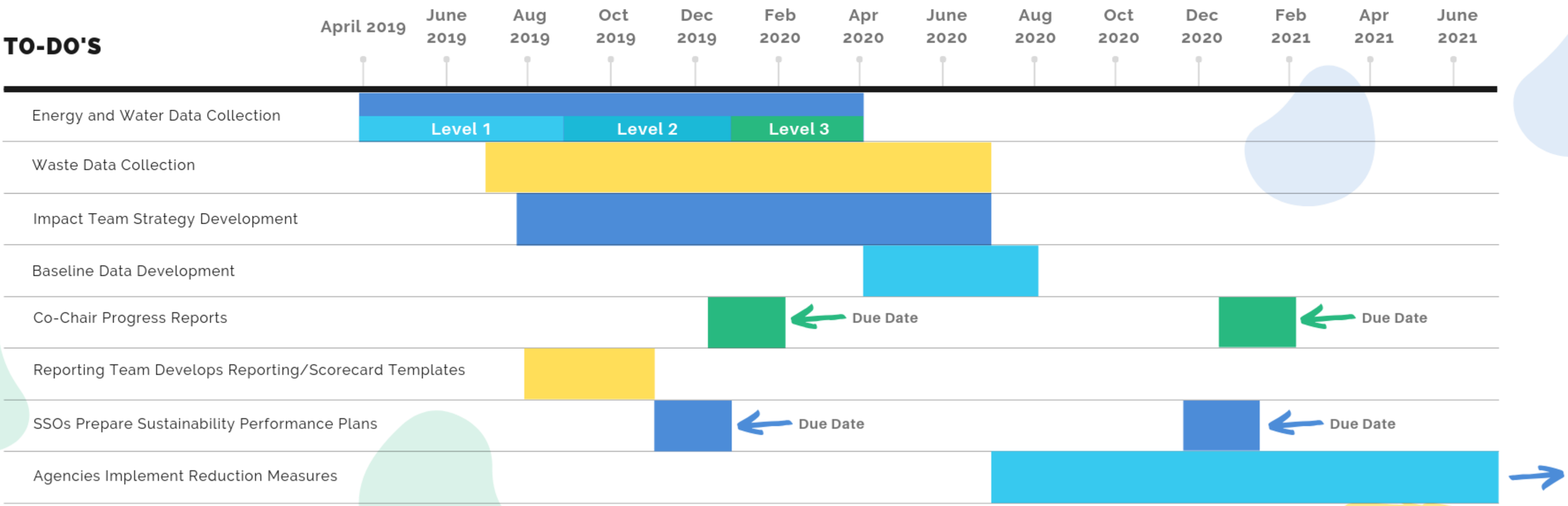
Timeline

TO-DO'S



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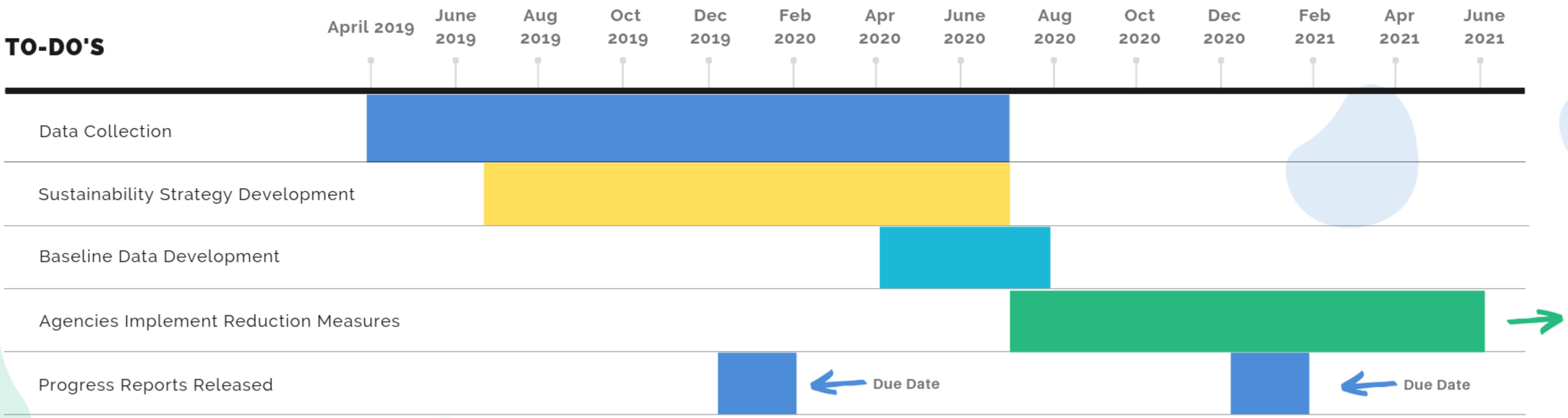
Timeline

TO-DO'S



PROJECT TEAM SHARING

PROJECT TEAMS

MINUTES TO DATE

Renewable Energy

- Sep 24, 2019 Meeting Minutes
- Aug 27, 2019 Meeting Minutes

Energy Efficiency

- Sep 25, 2019 Meeting Minutes
- Aug 28, 2019 Meeting Minutes
- Aug 28, 2019 Utilities Presentation

Sustainable Materials Management

Sustainable Water Use

- Sep 3, 2019 Meeting Minutes

Clean and Efficient Transportation

- Sep 19, 2019 Meeting Minutes
- Aug 22, 2019 Meeting Minutes

Process Improvement

- Sep 26, 2019 Meeting Minutes
- Aug 26, 2019 Meeting Minutes

Reporting

- Sep, 26 2019 Meeting Minutes
- Aug 22, 2019 Meeting Minutes
- Aug 1, 2019 Meeting Minutes

Public Engagement

- Sep 23, 2019 Meeting Minutes
- Sep 9, 2019 Meeting Minutes

Sustainability in Leased Spaces

PROJECT TEAM MEETINGS

CURRENT ACTION ITEMS

What are your team's 2-3 current action items and the interim goal(s) associated with them?

TOOLS/GUIDANCE NEEDED?

How can the steering committee/project teams/other assist in the interim goals for your actions items?

LIST OF PROJECT TEAMS

1. Renewable Energy
2. Energy Efficiency
3. Sustainable Materials Management
4. Sustainable Water Use
5. Clean and Efficient Transportation
6. Process Improvement
7. Reporting
8. Public Engagement
9. Sustainability in Leased Spaces

DATA COLLECTION UPDATES

100% COMPLIANCE RATE

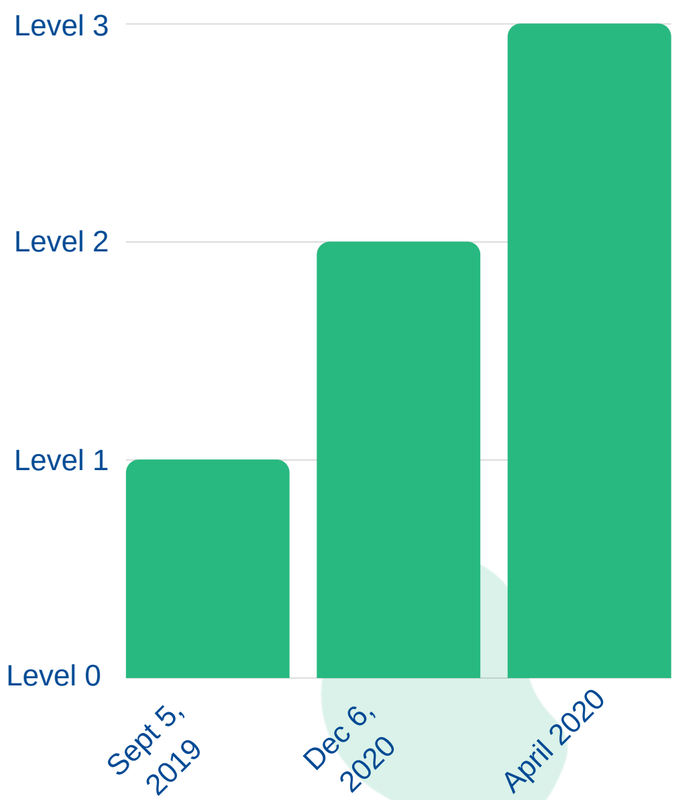
LEVEL 1 DOESN'T END HERE!

Agencies must continuously upload utility bills into EnergyCAP as they receive them.

Don't worry, we will send a monthly reminder.

CERTIFICATES WILL BE POSTED ON WEBSITE

UTILITY DATA COLLECTION DEADLINES



SEP. 6TH
SSO MEETING

All agencies have completed Level 1 – uploading current invoices

DEC. 6TH
SSO MEETING

All agencies have completed Level 1 and 2 – forming an accurate building inventory

APRIL 2020
SSO MEETING

All agencies have completed Level 1, 2, and 3 – uploading past invoices to Jan 2018

100% of all agencies

at level 3 certification by April 2020

QUICK BUILDING INFO REQUEST

APPLIES TO ALL AGENCIES WHO WERE NOT PART OF LEVEL 1

For agencies that do not receive utility invoices for buildings they lease/occupy

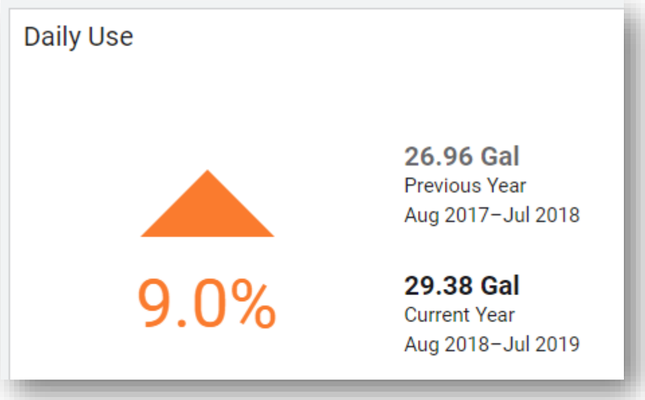
PLEASE SEND AN EMAIL TO YOUR ENERGYCAP LIAISON WITH:

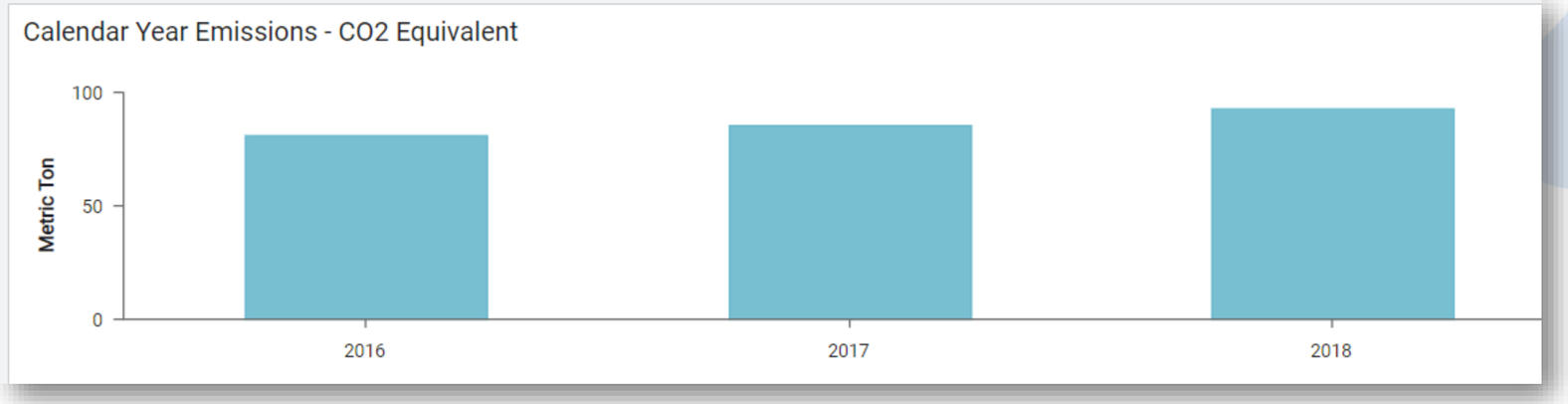
1. A list of all leased buildings/spaces your agency **occupies/conducts work in**
2. What entity your agency leases that space from
3. Any other useful information

WHY IS THIS NECESSARY?

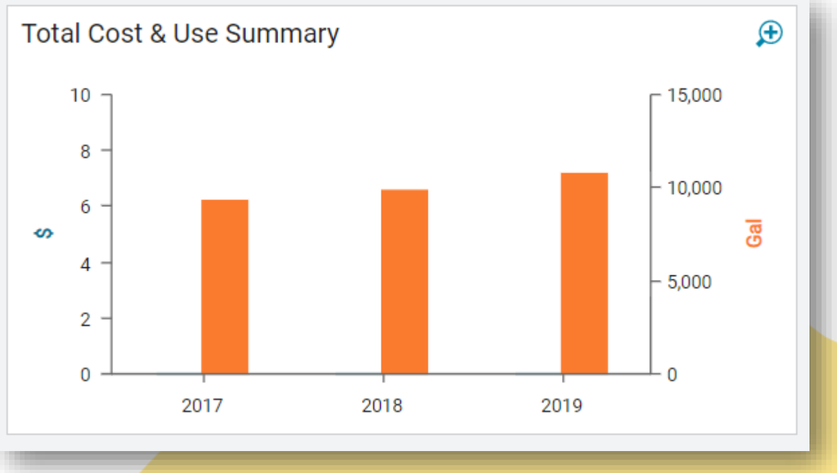
This will allow us to verify completeness of our state building database and construct dashboards for agency use in annual reporting

VEHICLE FUEL DATA SAMPLE





- Banking, Dept. of [DOB]
  - DOB Fuels [DOB_FUELS]
    - DOB FuelMaster [DOB_FUELMASTER]
      - Department of Banking-DIE [2402-DIE]
      - Department of Banking-GAS [2402-GAS]
    - DOB Voyager [DOB_VOYAGER]



STATE BUILDING ENERGY AUDITS

STATE BUILDING ENERGY AUDITS

WHY ARE WE AUDITING?

in order to gear up for energy projects to support EO 1, our first action is to identify candidate buildings that will be most helpful in achieving our goals.

WHAT BUILDINGS WILL BE AUDITED?

We are Identifying 50 buildings over 50k sf as our target for energy audits.

HOW WILL THE AUDITS HAPPEN?

By utilizing existing contracts, DAS will administer task letters to firms to implement audits. Our goal is to begin ASAP.

We will be reviewing projects that agencies have in the queue, even for buildings less than 50k sf.

Please provide any relevant data Paul.Hinsch@ct.gov on any energy projects your agency is looking to complete.

HARTFORD BUILDING ENERGY CHALLENGE

NEXT STEPS BEFORE NOVEMBER MEETING

1. PROJECT TEAMS: IDENTIFY PILOT PROJECTS AND PILOT OBJECTIVES
2. COMPLETE BUILDING INVENTORY SHEETS
3. REVIEW ACCOUNTING AND REPORTING DOCUMENT