Connecticut Department of Energy and Environmental Protection

Connecticut Department of
ENERGY & ENVIRONMENTAL PROTECTION

Leading By Example: Update on Reducing Energy Use in State Facilities

Overview for Governor's Council on Climate Change

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Bureau of Energy and Technology Policy

March 9, 2017

Sharing Important Information

- ***Key Progress***
- Facts and Opportunities
- Next Steps

Key Progress to Date

- ✓ Put in place electronic data collection, and a web-based **analytical platform** to improve data transparency and accessibility at multiple levels: building, campus, and portfolio
- ✓ **Established tiers of interagency collaboration**
- ✓ **Amended programs** to be inclusive of state facilities
- ✓ **Completed energy efficiency upgrades** at multiple sites
- ✓ Kicked off construction of **comprehensive campus wide efficiency upgrade** at CT Valley Hospital, Middletown

Lead By Example Recent Results

Small Projects: Since 2014, 134 projects planned or completed statewide are expected to result in annual energy cost avoidance over $800,000

Medium Projects: Since 2012, 72 projects financed with General Obligation Bonds

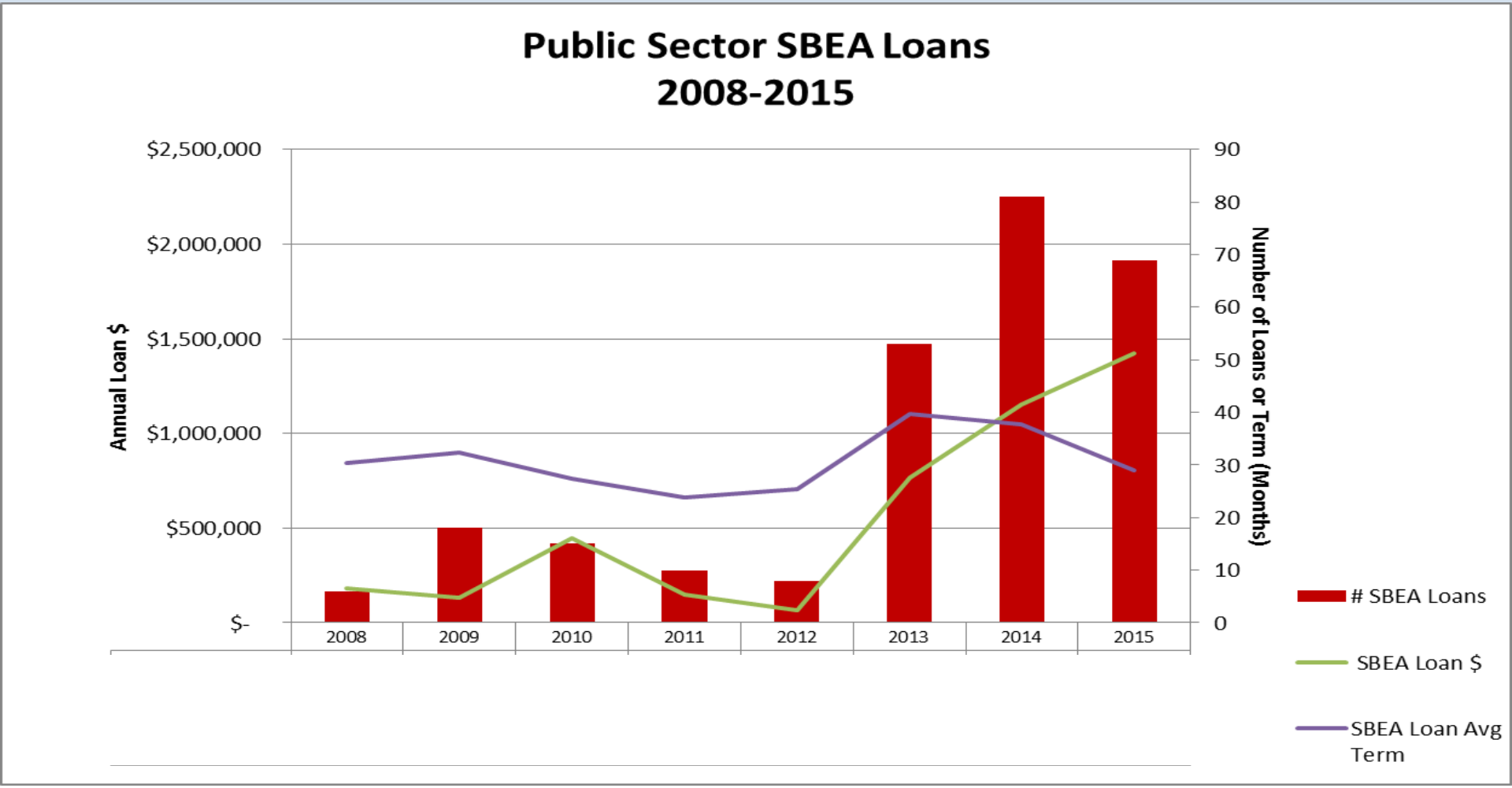
Typical payback period 5.9 years

Almost $3 million annual energy cost avoidance

Large Projects: Currently, one project executed in 2016; two projects in development. Anticipated annual energy cost avoidance for initial three projects, once fully implemented, are $6.0 million.

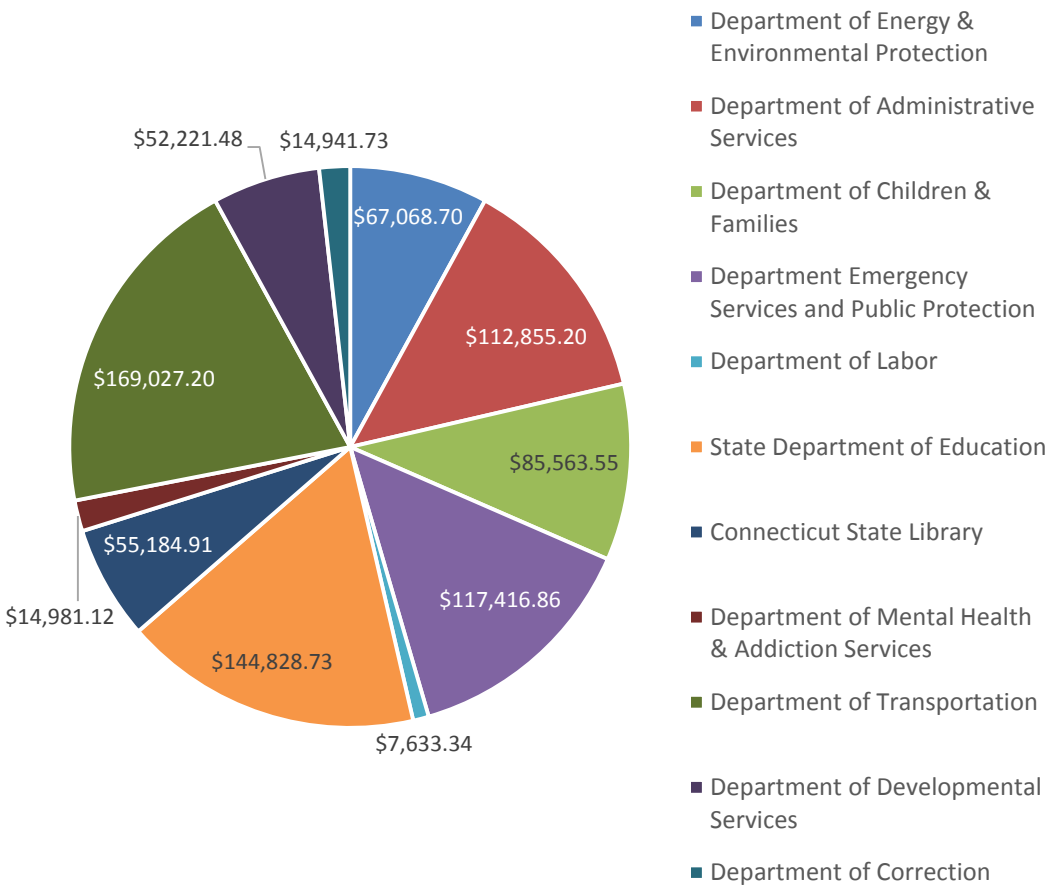
- CVH & DMV, financed with General Obligation Bonds
- DOC, financed with Green Bonds via the Connecticut Green Bank

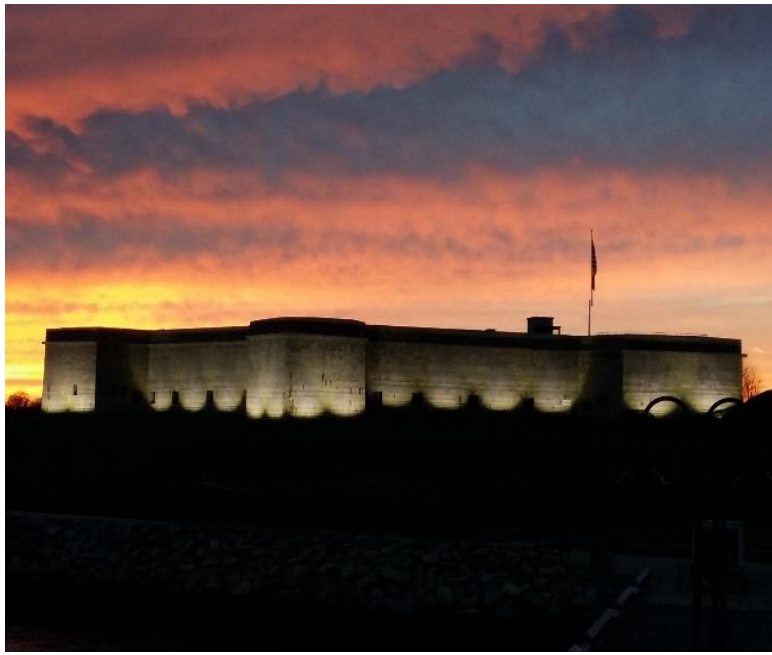
Participation is Catalyzing Savings



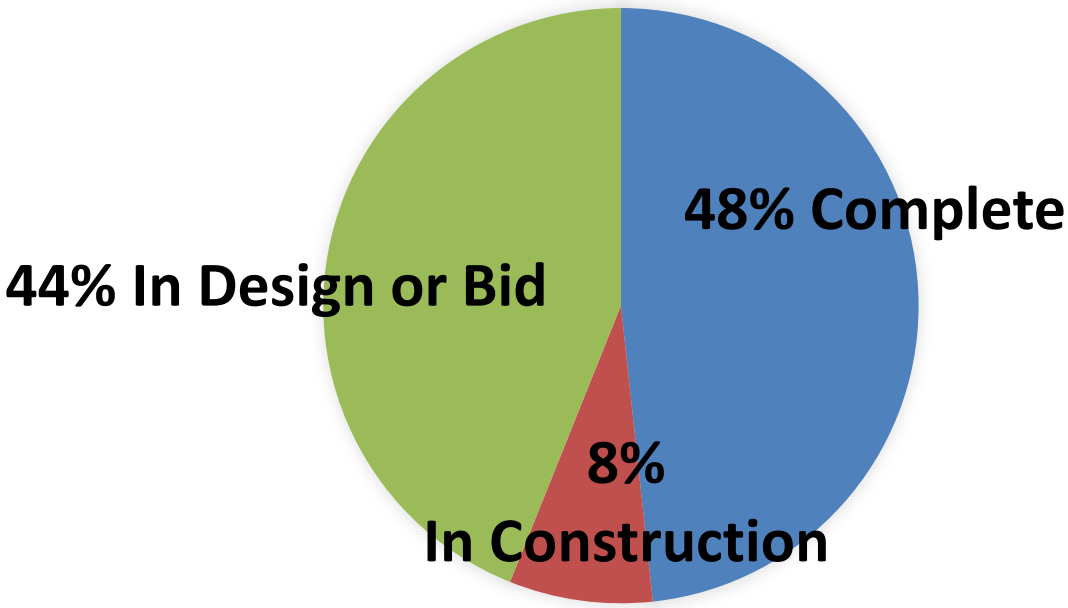
Source: Eversource data analysis 2016

Small-Scale Projects 2014-2016





Medium-Scale Projects 2012-2016



72 Projects approved, resulting in estimated 89.3 billion BTUs reduced and $2.91M savings annually. Average 5.9 year payback

Leading By Example: Progress, Ready to Scale Up

CT Valley Hospital, Middletown
2016 Guaranteed Energy Savings Performance Contract

- ✓ $31.9M in guaranteed energy and maintenance savings
- ✓ 35% reduction in energy use
- ✓ Reduced GHG emissions of est. 10,000 metric tons of CO2
- ✓ 2 miles of new steam and condensate pipes
- ✓ 1.5 megawatt Cogen System
- ✓ Solar-Powered electric vehicle charging station

Adopting Current Building Codes

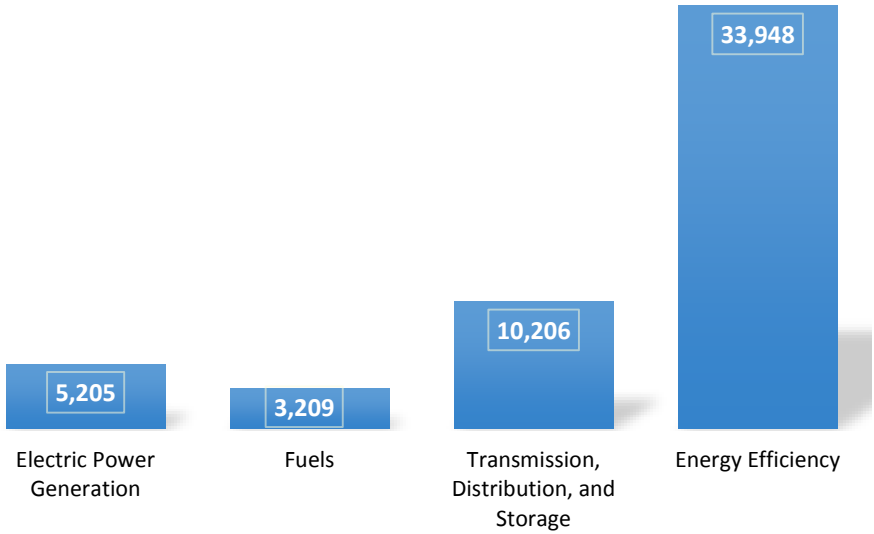
- 2012 IECC incorporated into CT State Building Code [effective October 2016]
- Process to incorporate 2015 IECC into next building code revision has begun
- Details regarding the process and schedule can be found at Code Adoption Webpage.

Training & Workforce Development

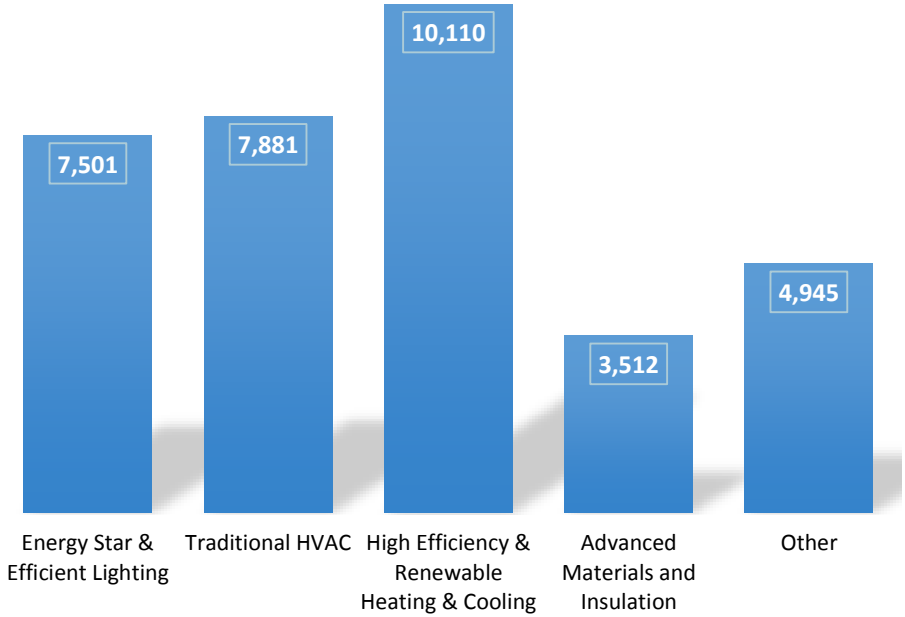
- CT's Technical High Schools
- Energy Management Associate Degree Program offered at Tunxis Community College
- Stackable credentials offered through community colleges, private third party certifications companies, utility companies
- Energy projects in state buildings are expected to create hundreds of jobs for laborers, electricians, and pipefitters
- See www.getintoenergyct.com

Efficiency is Working

CT Employment by Major Energy Technology



CT Energy Efficiency Jobs

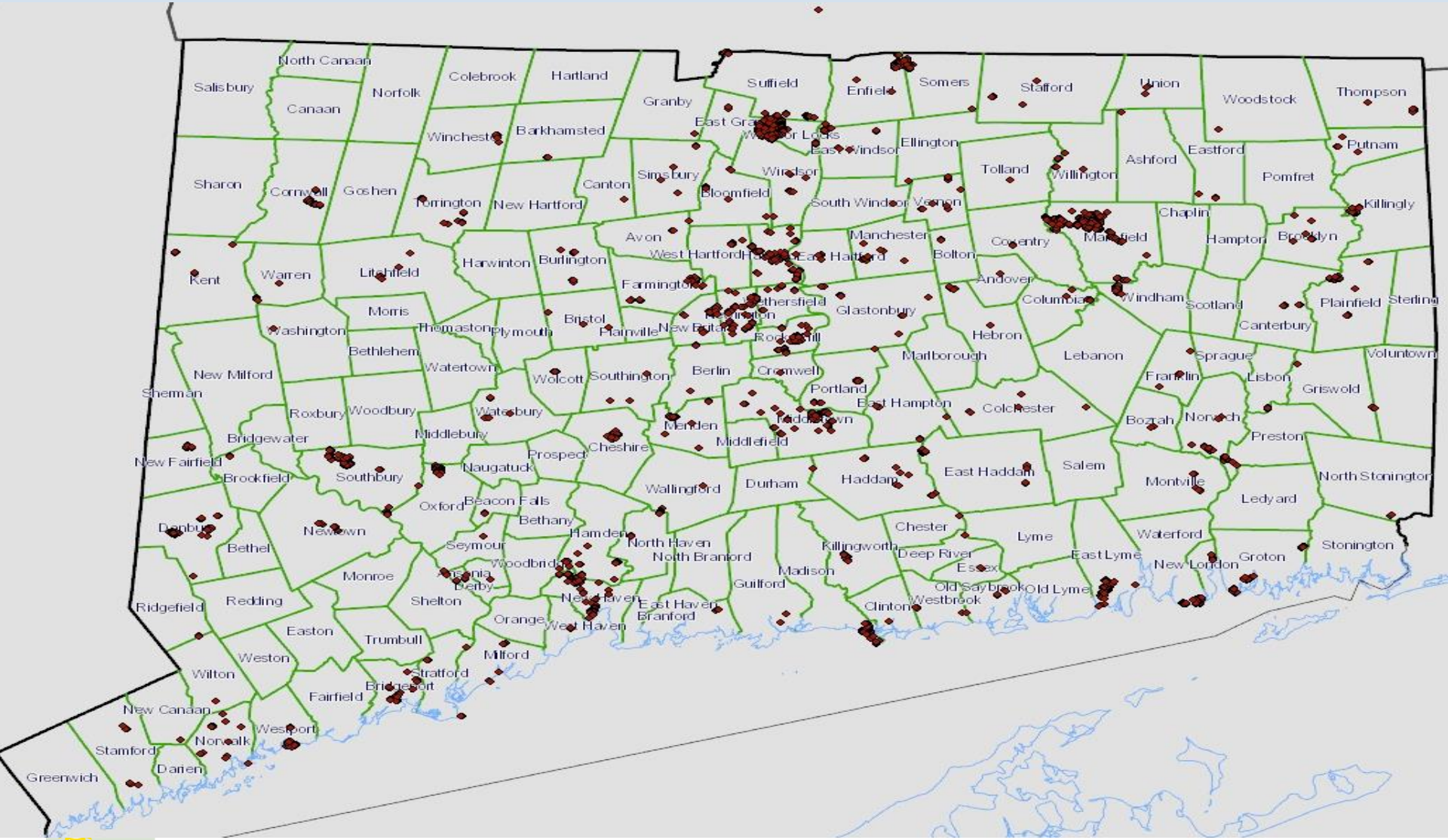


Source: US Dept. of Energy, *Energy and Employment Report*, January 2017

Sharing Important Information

- Key Progress
- ***Facts and Opportunities***
- Next Steps

Many State Facilities = Many Opportunities



Connecticut Department of Energy and Environmental Protection

~70 million square feet of state structures

State Owned Structures (3822)

33 agencies/districts owning structures (i.e., unique agency code numbers)

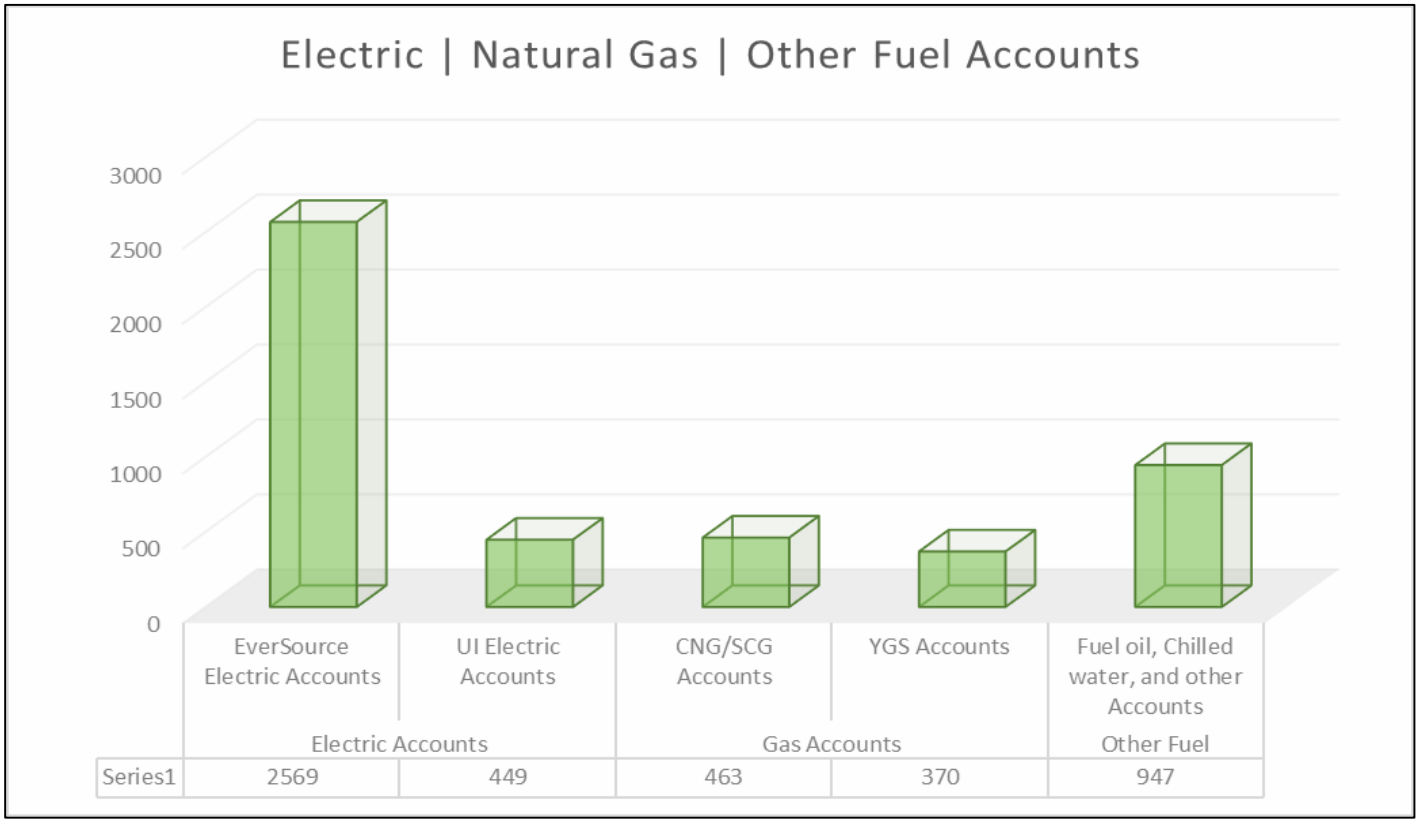
66.9 million total square feet

State Leased Buildings (189)

2.9 million total square feet

Source: CT Office of Policy and Management, JESTIR database 2016

Energy Accounts



Est. 611,370,886 Annual total kWh | 2,516,174 DTh Natural Gas

*Based on Best Estimates from DEEP data available as of 4/28/2016

Better Baseline

Estimating a baseline

- Incomplete estimates of statewide usage used to estimate previous baselines
- Lack of reliable data has hampered past efforts

Data driven decisions require data

- Solution: Complete inventory of state buildings
- Identify all state energy accounts
- Correlate state buildings to energy accounts

Better Inventory

DONE

– Identify all energy accounts paid by state

DONE

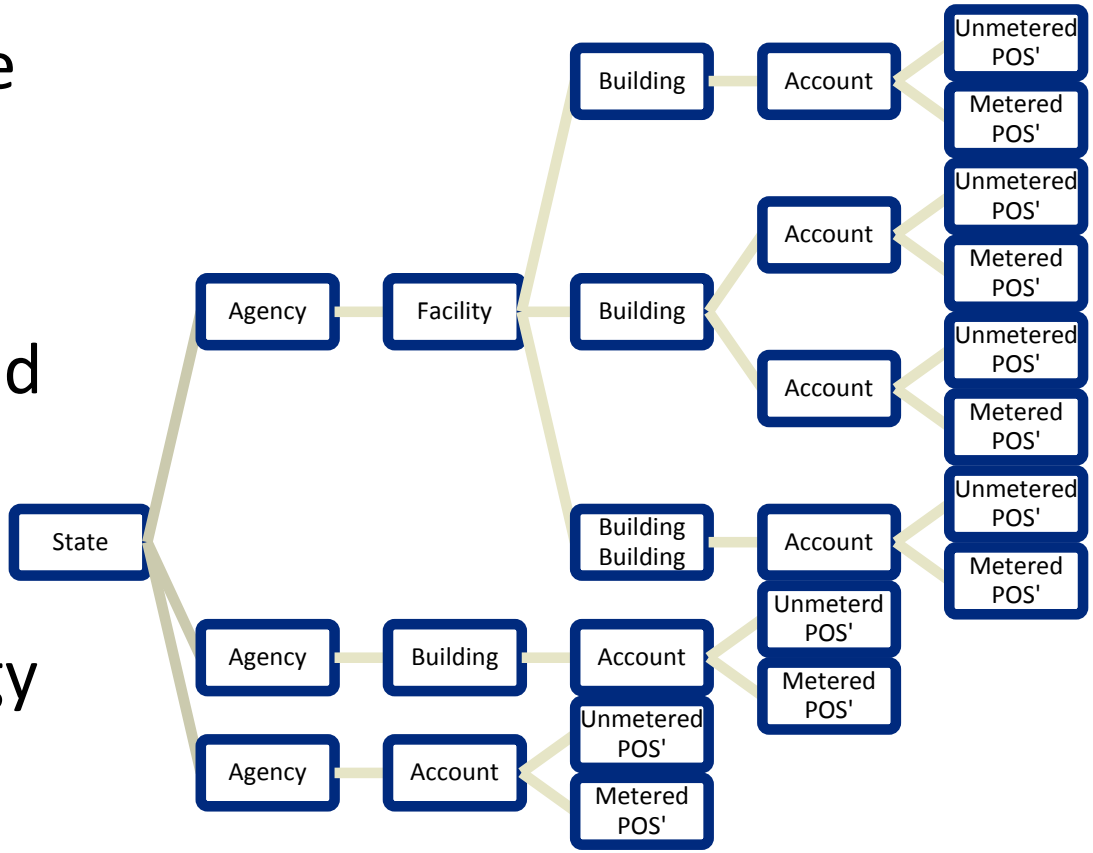
– Identify all state owned and leased buildings from OPM's JESTIR database

NEXT: Correlate accounts to buildings

- to be done by agencies; by end of 2017
- needs coordination between agency Accounts Payable and Facilities units

Better Correlation of Data

- Measuring energy use
- Determining where energy is used
- How energy is invoiced
- Owned and leased state buildings
- Managing state energy data



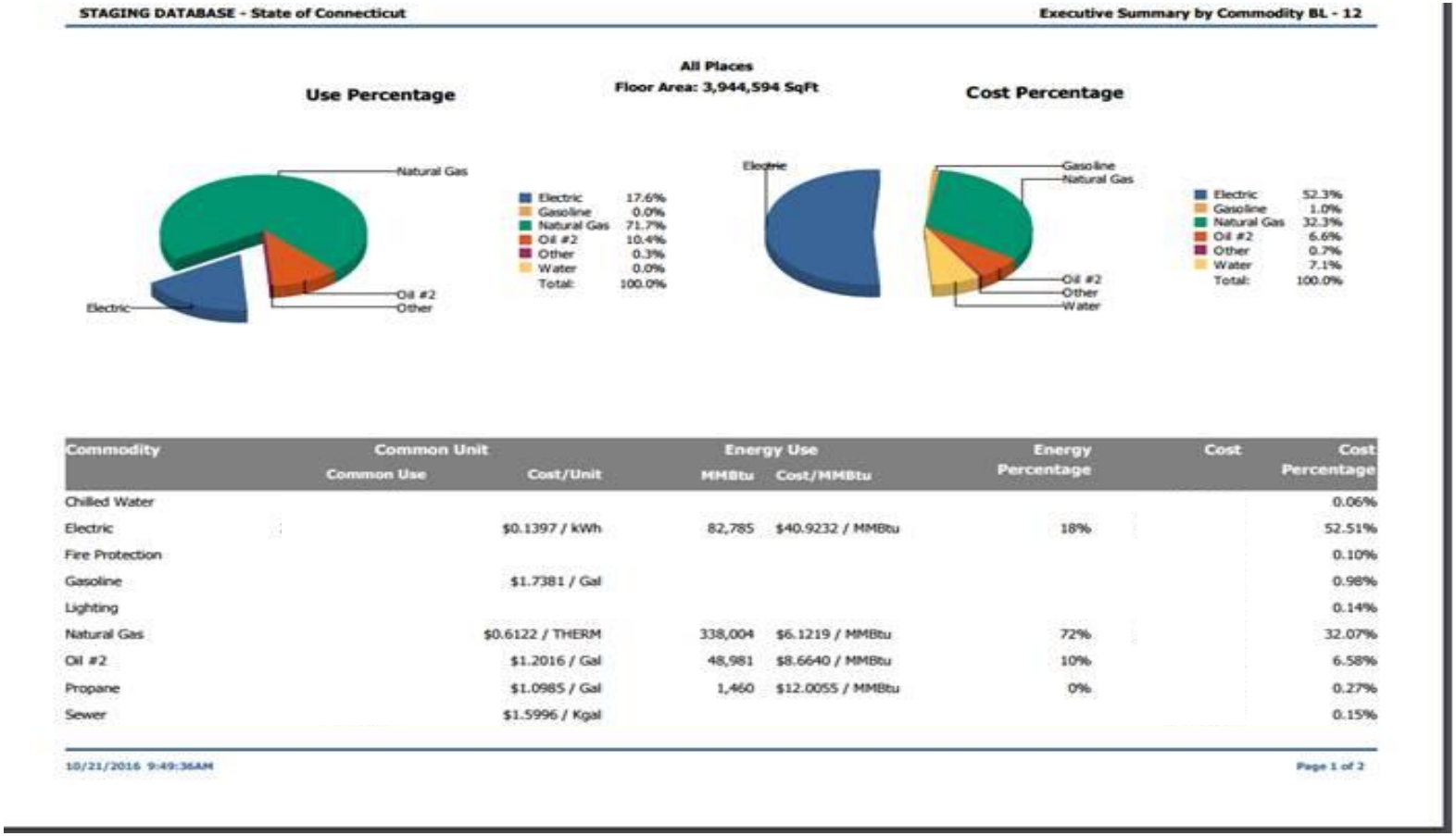
Better Data Collection and Analyses

DEEP has put in place a web-based platform that collects energy consumption data on an individual building basis.

Allows state agencies to access their energy cost and usage

Informs Data Driven Decisions

Statewide Summary Report



STAGING DATABASE - State of Connecticut — Executive Summary by Commodity BL - 12

All Places
Floor Area: 3,944,594 SqFt

Use Percentage

Electric	17.6%
Gasoline	0.0%
Natural Gas	71.7%
Oil #2	10.4%
Other	0.3%
Water	0.0%
Total:	100.0%

Cost Percentage

Electric	52.3%
Gasoline	1.0%
Natural Gas	32.3%
Oil #2	6.6%
Other	0.7%
Water	7.1%
Total:	100.0%

Commodity	Common Unit		Energy Use		Energy Percentage	Cost	Cost Percentage
	Common Use	Cost/Unit	MMBtu	Cost/MMBtu			
Chilled Water							0.06%
Electric		$0.1397 / kWh	82,785	$40.9232 / MMBtu	18%		52.51%
Fire Protection							0.10%
Gasoline		$1.7381 / Gal					0.98%
Lighting							0.14%
Natural Gas		$0.6122 / THERM	338,004	$6.1219 / MMBtu	72%		32.07%
Oil #2		$1.2016 / Gal	48,981	$8.6640 / MMBtu	10%		6.58%
Propane		$1.0985 / Gal	1,460	$12.0055 / MMBtu	0%		0.27%
Sewer		$1.5996 / Kgal					0.15%

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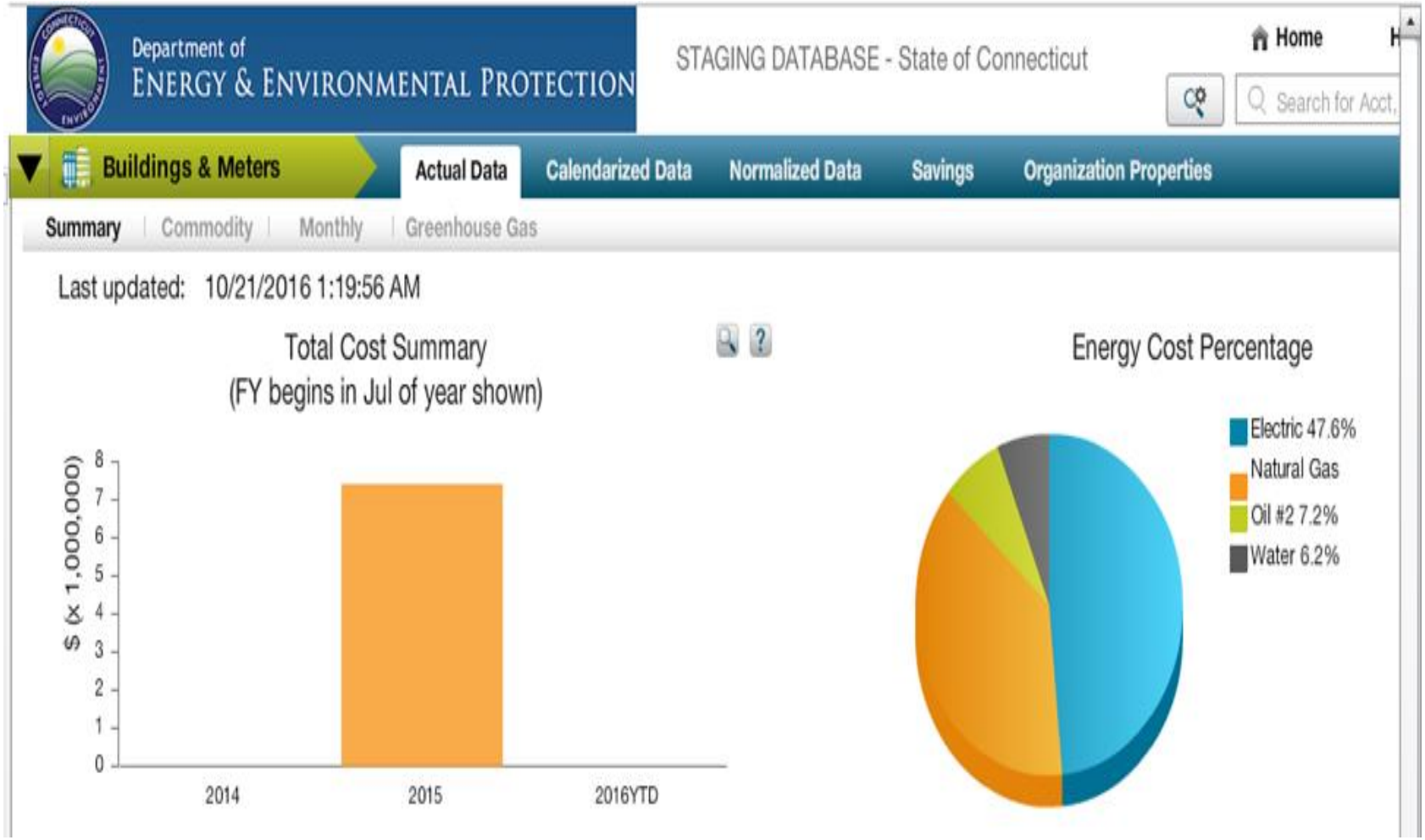
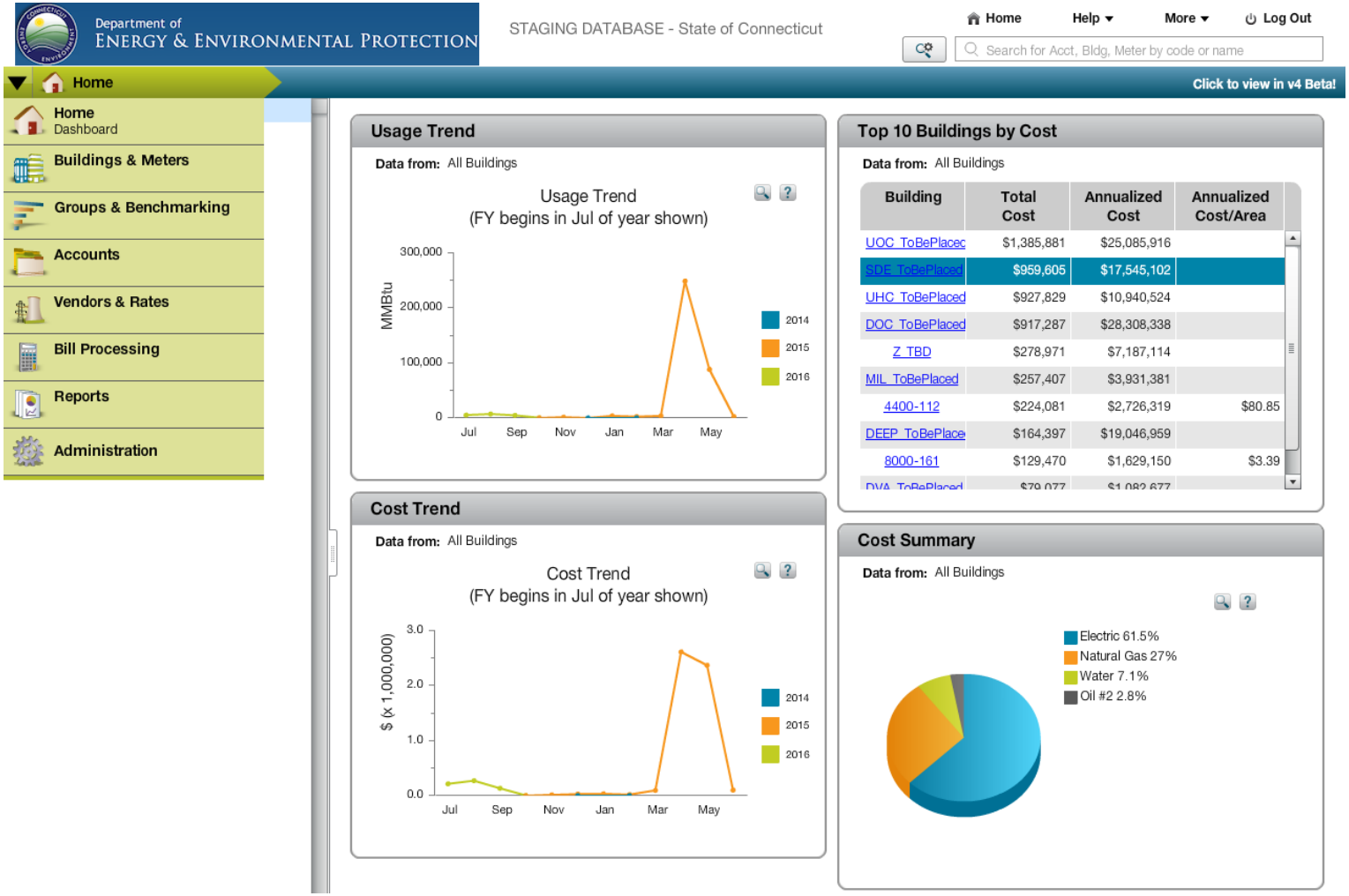
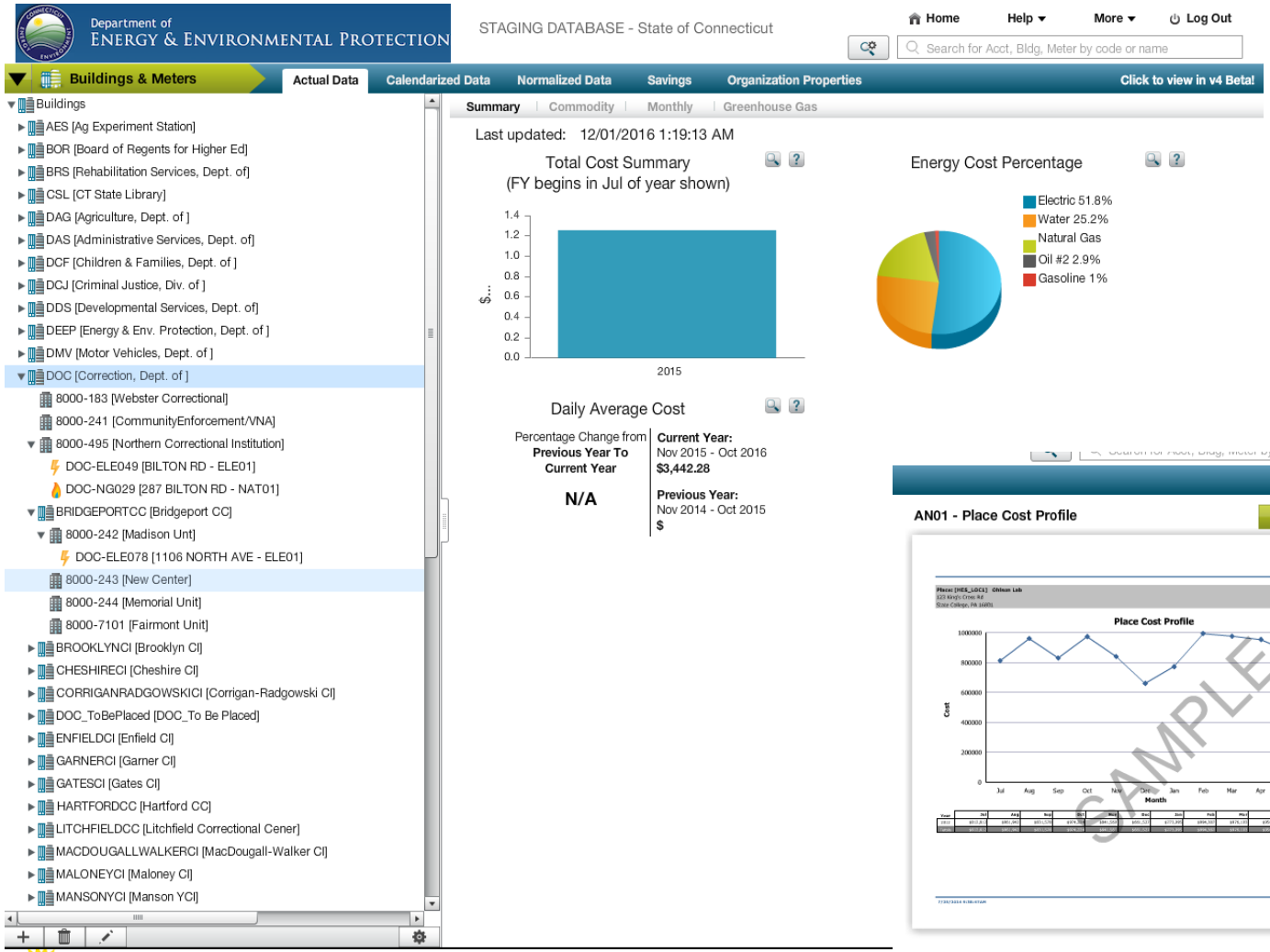
Agency Summary



Usage and Cost Trends



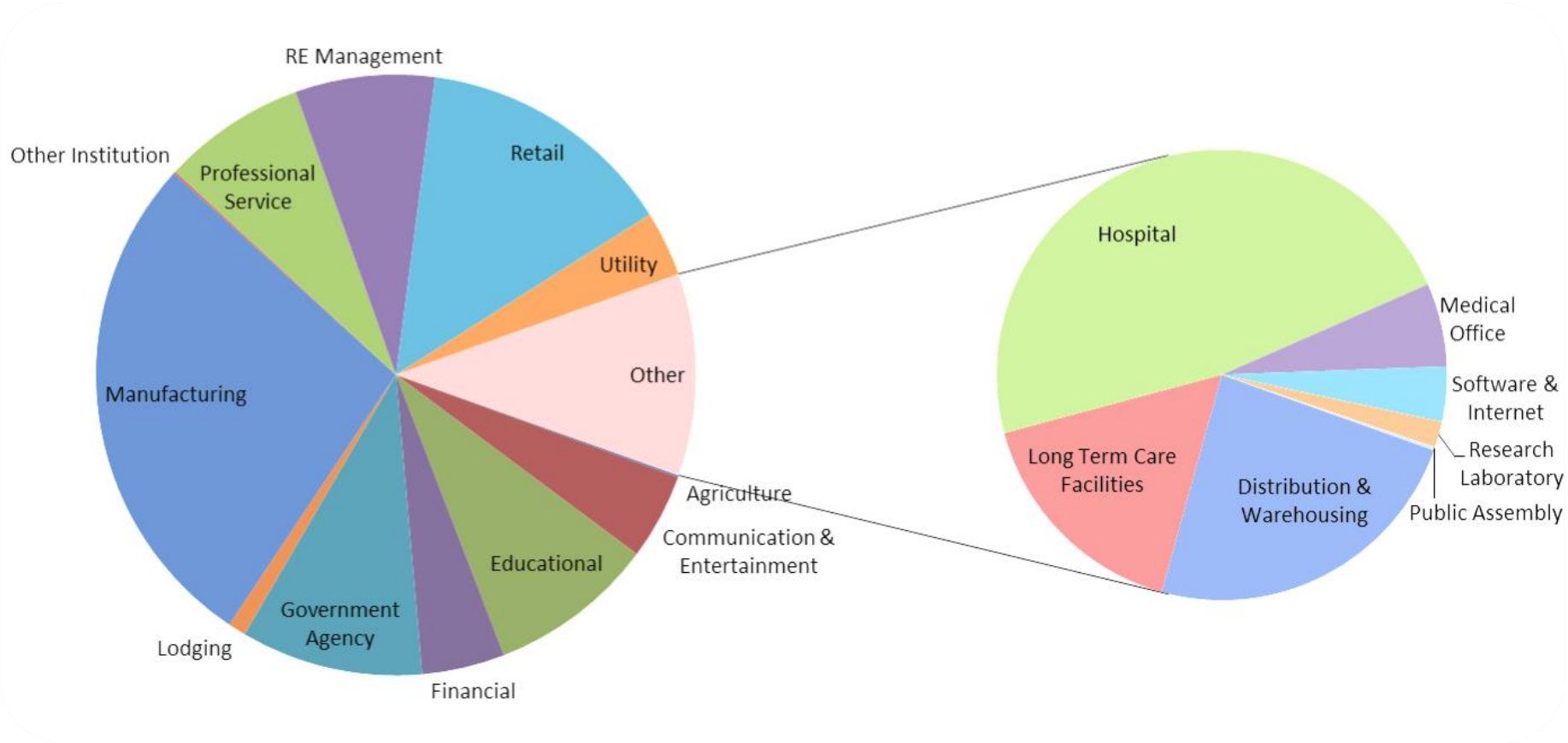
Usage and Cost Trends



Note that DOC is organized by facility, buildings within facilities, and accounts associated with the buildings.

The graphs depict DOC cost breakdown of currently entered data, which is not yet complete.

Context: CT Government buildings are 11-15% of Commercial & Industrial sector

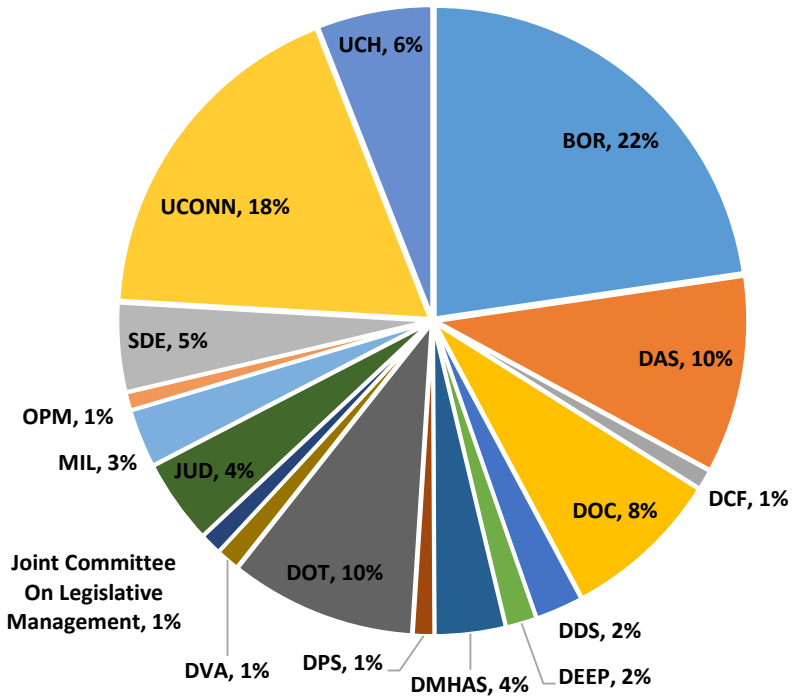


Source: Eversource Data and Graphic, 2015

Connecticut's Opportunity

- Approximately 70 million square feet
- Roughly 3800 buildings
- Nearly ½ are educational facilities

Gross Square Feet of Floor Space by Agency



Source: CT Office of Policy and Management, JESTIR database 2016

Top 100 buildings [For illustration only, data being verified]

Place	Total Use in MMBtu	Place	Total Use in MMBtu	Place	Total Use in MMBtu
[4400-112] Porter Hall	16,499.43	[8000-78] Willard Correctional Institution	451.96	[5000-61] District 3 HQ & Garage	132.55
[7001-15] E.C. Goodwin RVTHS	11,109.48	[7001-3] Bristol Technical Education Center	445.70	[7301-174] 0263 McMahon Hall & Dining Facility	131.84
[5000-4252] Administration Building - HQ	9,079.83	[8000-331] Support Building	444.14	[094-01] 30 Christian Ln Newington	128.95
[7001-20] Albert I. Prince RVTS	8,632.05	[8000-158] Walker Reception and Special Management Unit	433.63	[151-08] 95 Thomaston Avenue	128.10
[7001-7] Ella T. Grasso Southeastern RVTS	7,214.92	[8000-185] Kitchen/Dining/Gym	432.60	[1326-24] 395 West Main Street	113.36
[7001-14] Norwich Regional Vocational Technical School	6,524.97	[1326-488] Office of Chief Medical Examiner	424.89	[4400-336] Capitol Region Mental Health Center	110.92
[1326-491] 38 Wolcott Hill Road	3,705.94	[064-28] 110 Bartholomew Ave	396.13	[083-04A] 2081 S Main St MIddletown	110.76
[8000-161] MacDougall Correctional Institution	3,347.42	[1326-489] 10 Franklin Sq	369.81	[7301-516] 3011 Stamford Downtown Campus Garage	109.76
[8000-46] K Building	2,872.46	[135-03] 780 Summer Street	359.28	[164-03] 20 Meadow Rd Windsor	109.62
[5000-23] Information Systems	2,738.80	[8000-330] Radgowski Annex	355.97	[8000-247] New Haven Correctional Center	106.23
[8000-154] Cybulski Correctional Institution	2,184.92	[1326-8239] Office Building	346.90	[8000-242] Madison Unt	104.85
[064-12] Dept of Insurance	1,784.04	[9001-11] Civil Courthouse	337.19	[9001-29] GA 5 Courthouse	99.95
[1326-486] 470 Capitol Ave	1,419.81	[2201-73] State Armory Westbrook	318.99	[9001-9] Appellate Court	96.66
[1326-480] 25 Sigourney St	1,405.61	[1326-7] Department of Revenue Services	317.04	[5000-276] Office/Warehouse	95.84
[8000-249] Garner Correctional Institution	1,379.17	[2101-5] Hamden Branch	307.77	[9001-22] JD Courthouse	93.65
[1326-481] 505 Hudson St	1,376.00	[83] 249 Thomaston Ave	305.06	[9001-7109] Willimantic Juvenile	90.82
[8000-325] R. L. Corrigan Correctional Inst	1,093.40	[9001-7108] Family Court; Administrative Offices	299.00	[034-04] 342 Main St Danbury	87.51
[1326-8240] Connecticut River Plaza	1,088.61	[9001-7] GA13 and Com On Legal Publications	277.14	[2101-8] Norwalk Branch	85.19
[4400-342] Greater Bridgeport Community Mental Health Center	1,015.71	[8000-65] A Building	258.02	[2101-10] Old Saybrook Branch	85.00
[7302-7817] R - 400 Farmington Ave	1,006.53	[9001-32] Tolland Criminal Court Complex	257.13	[1326-479] Dept. of Environmental Protection	84.92
[1326-8532] 61 Woodland Street	976.60	[9001-25] JD Courthouse	252.14	[7104-4] Middletown Library Service Center	81.83
[1001-2] State Capitol Building	914.34	[1326-554] Medical Building (Campbell)	238.03	[9001-27] JD Courthouse	81.41
[8000-44] H Building Gymnasium	899.39	[9001-2] GA2 Courthouse	224.23		
[059-01] 445 Eastern Point Rd Bldg 230	890.79	[9001-26] Juvenile Matters Courthouse	207.07		
[9001-7104] Hartford Juvenile Detention	888.74	[9001-18] Juvenile Court	199.07		
[8000-495] Northern Correctional Institution	870.83	[2101-9] Norwich Branch	198.32		
[2610-1] Department of Labor	870.37	[9001-483] Hartford Community Court	196.23		
[7001-5] Harvard H. Ellis RVTS	751.90	[1326-534] Nurse's Homes Old and New	195.08		
[7302-7816] P 16 Munson Road	739.67	[9001-19] JD Courthouse	194.43		
[1326-530] Southeastern Mental Health	730.94	[9001-20] GA20 Courthouse	181.03		
[9001-484] New Britain Superior Court	726.26	[1326-36] 30 Trinity St	176.93		
[9001-14] GA9 & JD Courthouse	664.55	[1326-35] 39 Woodland St	165.40		
[1326-32] 79 Elm St	602.14	[9001-30] GA7 And JD Courthouse	164.26		
[1326-7101] Rowland State Government Center	599.68	[1326-7102] Office of the Chief State's Attorney	160.68		
[1326-490] 24 Wolcott Hill Rd	586.00	[9001-17] GA 23 Courthouse	155.00		
[1326-26] State Office Building	580.92	[064-36] Van Block State Library Storage Facility	146.69		
[8000-140] Guard House Front Gate	558.26	[9001-21] GA21 Courthouse	144.17		
[9001-7107] Juvenile Court & Detention	532.09	[4400-482] DMHAS HR Service Center	143.89		
[9001-1] JD Courthouse	493.17	[9001-211326] Administrative Offices	137.61		

Benchmarking & Prioritizing

CTDEEP New Britain Building

10 Franklin Square, New Britain, CT 06050 | Map It
Portfolio Manager Property ID: 3214300
Year Built: 1995
Edit

Apply for ENERGY STAR Certification

ENERGY STAR Score (1-100)

Current Score: 94

Baseline Score: 100

Summary | Details | Energy | Water | Waste & Materials | Goals | Design

Notifications (0)

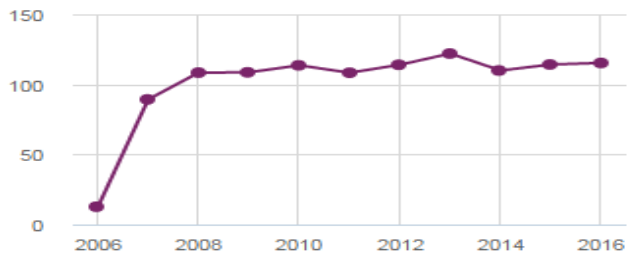
You have no new notifications.

Property Profile

You haven't created a profile for your property yet. Profiles are a way to supplement the information in Portfolio Manager with additional information about your property, including a photo.

Create Profile

Source EUI Trend (kBtu/ft²)



Metrics Summary

Change Time Period

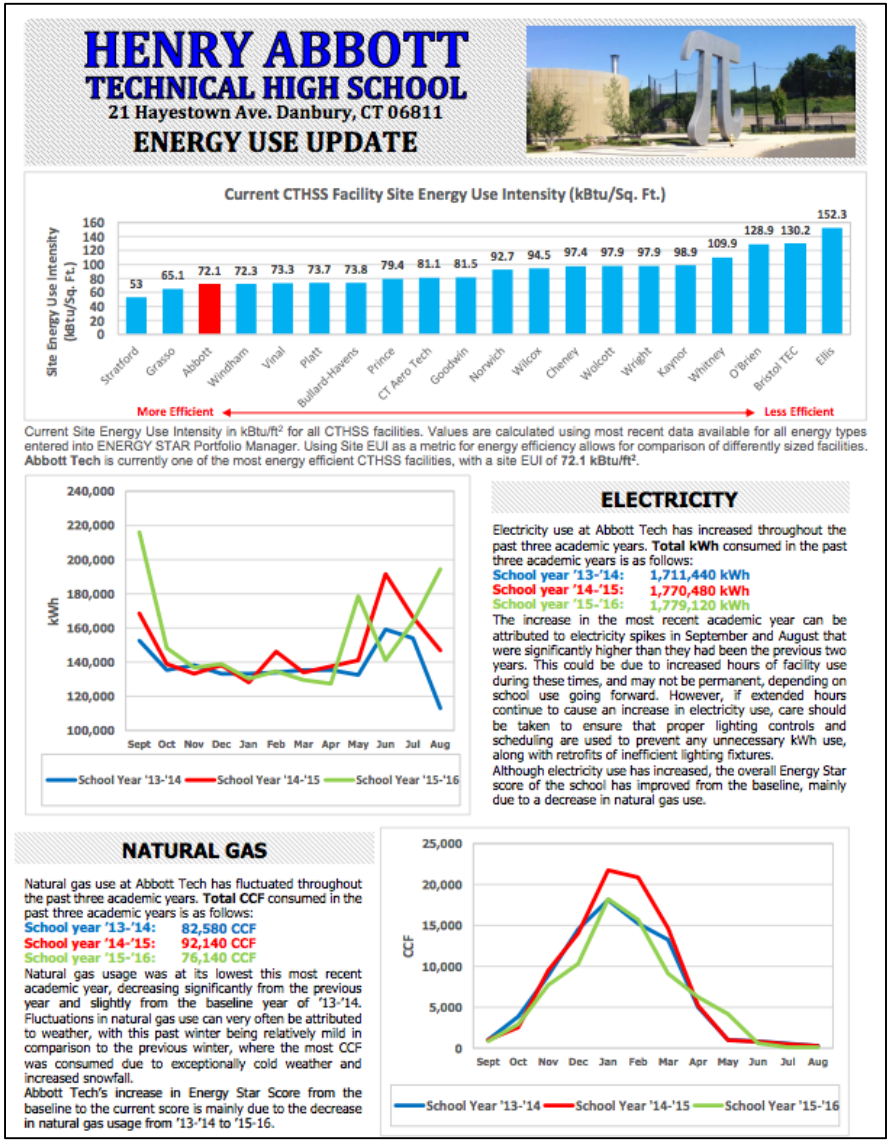
Metric	Jan 2010 (Other)	Jan 2017 (Energy Current)	Change
ENERGY STAR score (1-100)	95	94	-1(-1.1%)
Source EUI (kBtu/ft²)	108.7	114.7	6.0(5.5%)
Site EUI (kBtu/ft²)	34.6	36.5	1.9(5.5%)
Energy Cost ($)	122,054.44	101,049.79	-21004.65(-17.2%)
Total GHG Emissions (Metric Tons CO2e)	177.4	187.2	9.8(5.5%)
Water Use (All Water Sources) (kgal)	Not Available	Not Available	N/A
Total Waste (Disposed and Diverted) (Tons)	Not Available	Not Available	N/A

Check for Possible Data Errors

Run a check for any 12-month time period to see if there are any possible errors found with your data.

Check for Possible Errors

ISE Completed Energy Updates for 20 Technical high Schools



HENRY ABBOTT
TECHNICAL HIGH SCHOOL
21 Hayestown Ave. Danbury, CT 06811
ENERGY USE UPDATE

Current CTHSS Facility Site Energy Use Intensity (kBtu/Sq. Ft.)

Site Energy Use Intensity (kBtu/Sq. Ft.)

Stratford	Grasso	Abbott	Windham	Vinal	Platt	Bullard-Havens	Prince	CT Aero Tech	Goodwin	Norwich	Wilcox	Cheney	Wolcott	Wright	Kaynor	Whitney	O'Brien	Bristol TEC	Ellis
53	65.1	72.1	72.3	73.3	73.7	73.8	79.4	81.1	81.5	92.7	94.5	97.4	97.9	97.9	98.9	109.9	128.9	130.2	152.3

More Efficient ← → Less Efficient

Current Site Energy Use Intensity in kBtu/ft² for all CTHSS facilities. Values are calculated using most recent data available for all energy types entered into ENERGY STAR Portfolio Manager. Using Site EUI as a metric for energy efficiency allows for comparison of differently sized facilities. **Abbott Tech** is currently one of the most energy efficient CTHSS facilities, with a site EUI of **72.1 kBtu/ft²**.

kWh

Sept Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug

School Year '13-'14 School Year '14-'15 School Year '15-'16

ELECTRICITY

Electricity use at Abbott Tech has increased throughout the past three academic years. **Total kWh** consumed in the past three academic years is as follows:

School year '13-'14: 1,711,440 kWh
School year '14-'15: 1,770,480 kWh
School year '15-'16: 1,779,120 kWh

The increase in the most recent academic year can be attributed to electricity spikes in September and August that were significantly higher than they had been the previous two years. This could be due to increased hours of facility use during these times, and may not be permanent, depending on school use going forward. However, if extended hours continue to cause an increase in electricity use, care should be taken to ensure that proper lighting controls and scheduling are used to prevent any unnecessary kWh use, along with retrofits of inefficient lighting fixtures.

Although electricity use has increased, the overall Energy Star score of the school has improved from the baseline, mainly due to a decrease in natural gas use.

NATURAL GAS

Natural gas use at Abbott Tech has fluctuated throughout the past three academic years. **Total CCF** consumed in the past three academic years is as follows:

School year '13-'14: 82,580 CCF
School year '14-'15: 92,140 CCF
School year '15-'16: 76,140 CCF

Natural gas usage was at its lowest this most recent academic year, decreasing significantly from the previous year and slightly from the baseline year of '13-'14. Fluctuations in natural gas use can very often be attributed to weather, with this past winter being relatively mild in comparison to the previous winter, where the most CCF was consumed due to exceptionally cold weather and increased snowfall.

Abbott Tech's increase in Energy Star Score from the baseline to the current score is mainly due to the decrease in natural gas usage from '13-'14 to '15-16.

CCF

Sept Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug

School Year '13-'14 School Year '14-'15 School Year '15-'16

- Abbott Tech HS
- Bristol Tech Educ Center
- Bullard-Havens Tech HS
- Cheney Tech HS
- CT Aero Tech
- Ellis Tech HS
- Goodwin Tech HS
- Grasso Tech HS
- Kaynor Tech HS
- Norwich Tech HS
- O'Brien Tech HS
- Platt Tech HS
- Prince Tech HS
- Stratford School for Aviation
- Vinal Tech HS
- Whitney Tech HS
- Wilcox Tech HS
- Windham Tech HS
- Wolcott Tech HS
- Wright Tech HS

ISE Completed Energy Use Reports for 12 Colleges

Energy Use Profile for
ASNUNTUCK COMMUNITY COLLEGE

Benchmarking 2016

Photo Credit: Asnuntuck Community College

Photo Credit: Asnuntuck Community College

Strategic energy management presents a significant opportunity for campuses throughout Connecticut to improve building energy performance, save money and reduce carbon emissions.

Benchmarking is the process of comparing current energy usage data to previous years' energy usage data for the same facility or to the energy performance of comparable facilities. Benchmarking provides an opportunity to stimulate conversation and deeper inquiry into energy use, opportunities for savings and optimizing building performance.

MANY OF CONNECTICUT'S HIGHER EDUCATION INSTITUTIONS HAVE MADE BOLD CLIMATE CHANGE COMMITMENTS. Higher education, the only sector with a coordinated organizational commitment to carbon neutrality, provides a model for setting and tracking climate targets and accountability in meeting climate commitments.

In Connecticut, 27% of colleges and universities have made commitments to become carbon neutral and have developed greenhouse gas inventories and climate action plans for their campuses. These commitments impact over 44% of the full-time students enrolled at higher education institutions in Connecticut.

Accordingly Connecticut's higher education institutions will provide a strong contribution to meeting Connecticut's goals for reducing greenhouse gas emissions by 80% by 2050.

Connecticut State Colleges and Universities (CSCU) campuses - which include 12 community colleges and 4 state universities - provide opportunities to approach sustainable energy management systemically and make significant contributions toward the state's 20% energy reduction goals. Moreover the CSCU campuses comprise 18% of the total square footage of all state agency buildings and 30% of all higher education students in Connecticut.

This report analyzes energy use and benchmarking data for **Asnuntuck Community College**. It was produced with companion reports for each of the 11 other community colleges in the CSCU system, with the goal of providing data and analysis to inform the CSCU Energy Master Plan and to improve energy management at Asnuntuck Community College specifically.

KEY FINDINGS

84% of Asnuntuck Community College annual total energy cost in 2016 was for electricity, even though only half of its total energy was supplied by electricity.

17% more energy (as measured in site energy use intensity) is being used by Asnuntuck Community College in 2016, as compared to

$30,800 in annual potential savings could be realized if Asnuntuck Community College reduced its building energy use by 10%.

Prepared by the Institute for Sustainable Energy at Eastern Connecticut State University * http://www.easternct.edu/sustainenergy/

Energy Use Profile for
CAPITAL COMMUNITY COLLEGE

Benchmarking 2016

Photo credit: Capital Community College

Photo credit: Capital Community College

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carbon neutrality,

meeting climate co

In Connecticut,

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Accordingly, Con

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campuses - which

4 state universities

KEY FIND

46%

of Capital Comm

total energy cos

chilled water, ev

of its total energ

chilled water.

Prepared by the Institute for Sustainable

Energy Use Profile for
GATEWAY COMMUNITY COLLEGE

Benchmarking 2016

Photo Credit: Gateway Community College

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Prepared by the

Energy Use Profile for
HOUSATONIC COMMUNITY COLLEGE

Benchmarking 2016

Photo Credit: Housatonic Community College

Strategic energy management presents a significant opportunity for campuses throughout Connecticut to improve building energy performance, save money and reduce carbon emissions.

Benchmarking is the process of comparing current energy usage data to previous years' energy usage data for the same facility or to the energy performance of comparable facilities. Benchmarking provides an opportunity to stimulate conversation and deeper inquiry into energy use, opportunities for savings and optimizing building performance.

MANY OF CONNECTICUT'S HIGHER EDUCATION INSTITUTIONS HAVE MADE BOLD CLIMATE CHANGE COMMITMENTS. Higher education, the only sector with a coordinated organizational commitment to carbon neutrality, provides a model for setting and tracking climate targets and accountability in meeting climate commitments.

In Connecticut, 27% of colleges and universities have made commitments to become carbon neutral and have developed greenhouse gas inventories and climate action plans for their campuses. These commitments impact over 44% of the full-time students enrolled at higher education institutions in Connecticut.

Accordingly, Connecticut's higher education institutions will provide a strong contribution to meeting Connecticut's goals for reducing greenhouse gas emissions by 80% by 2050.

Connecticut State Colleges and Universities (CSCU) campuses - which include 12 community colleges and 4 state universities - provide opportunities to approach sustainable energy management systemically and make significant contributions toward the state's 20% energy reduction goals. Moreover, the CSCU campuses comprise 18% of the total square footage of all state agency buildings and 30% of all higher education students in Connecticut.

This report analyzes energy use and benchmarking data for **Housatonic Community College**. It was produced with companion reports for each of the 11 other community colleges in the CSCU system, with the goal of providing data and analysis to inform the CSCU Energy Master Plan and to improve energy management at Housatonic Community College specifically.

KEY FINDINGS

90% of Housatonic Community College's annual total energy cost in 2016 was for electricity, even though only 57% of its total energy was supplied by electricity.

7% less energy (as measured in site energy use intensity) is being used by Housatonic Community College in 2016, as compared to 2013.

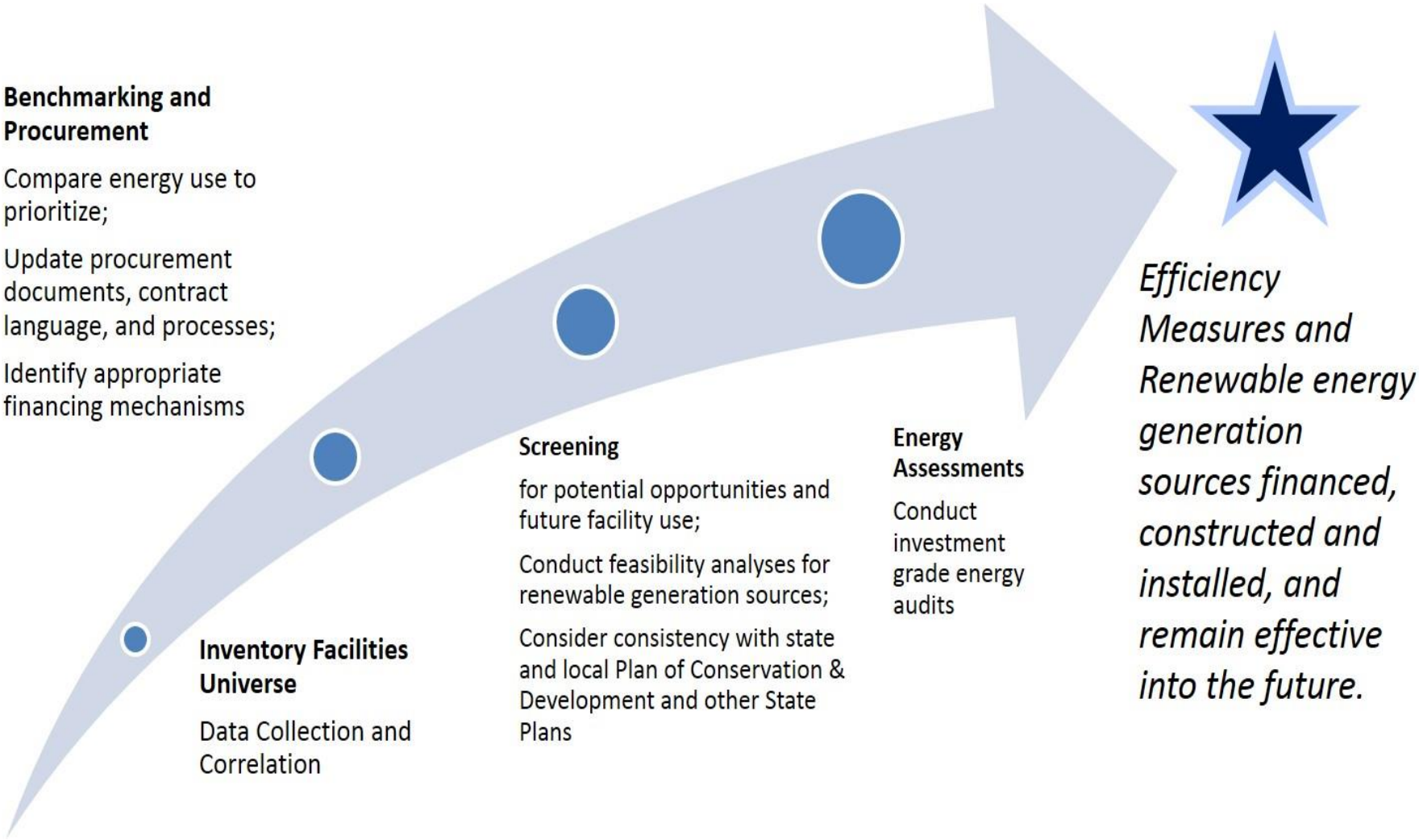
$81,750 in annual potential savings could be realized if Housatonic Community College reduced its building energy use by 10%.

Prepared by the Institute for Sustainable Energy at Eastern Connecticut State University * http://www.easternct.edu/sustainenergy/

Sharing Important Information

- Key Progress
- Facts and Opportunities
- ***Next Steps***

Path to Energy Savings & Cost Reduction



Scale Up ESPC: Value Proposition

Immediate Value of ESPC:

- Guaranteed Savings and Monitoring
- Operation and Maintenance Included
- Equipment upgrades and/or replacement for present need

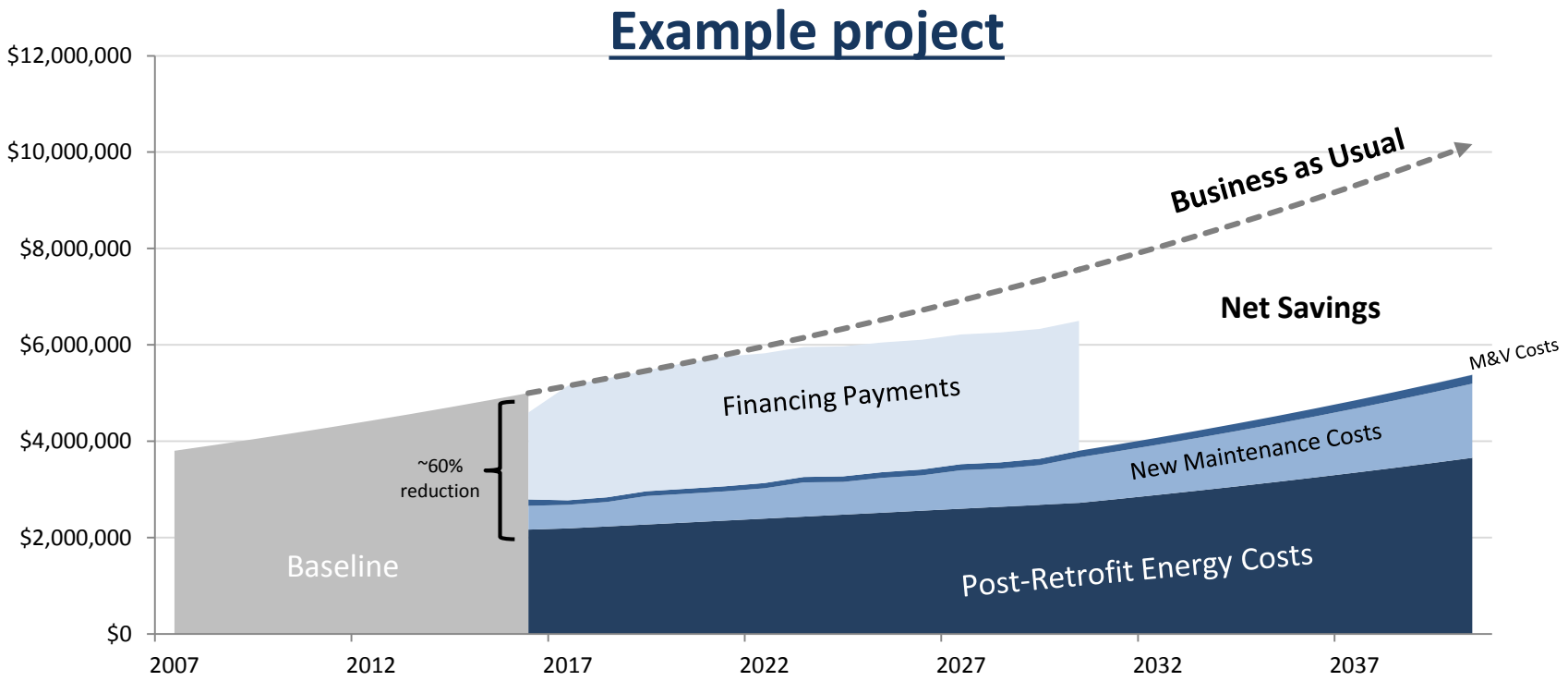
Long Term Value:

- Measurement and Verification of ongoing energy saving measures
- Reduced cost and impact of failing infrastructure needs
- Reduced unexpected equipment failure (minimizing need for emergency funds)

Overall:

- Increased financial stability both present and in future
- Reallocation of utility costs for energy efficient upgrades
- Reduction of energy usage = cost savings

ESPC: Project Lifetime Economics



National ESPC Model Adopted

Attributes of successful ESPC programs have been identified since 2007.
CT has put in place the majority of successful program elements:

- ✓ Enabling Legislation
- ✓ Strong Governor's Level Support
- ✓ Legal
- ✓ Procurement
- ❑ Finance
- ✓ Program Administration
- ✓ Program Funding
- ✓ Pre-approved contract instruments
- ✓ Pre-approved providers
- ✓ Benchmarking
- ❑ ESC State Chapter
- ❑ Awards and Recognition

CT ESPC Progress to Date

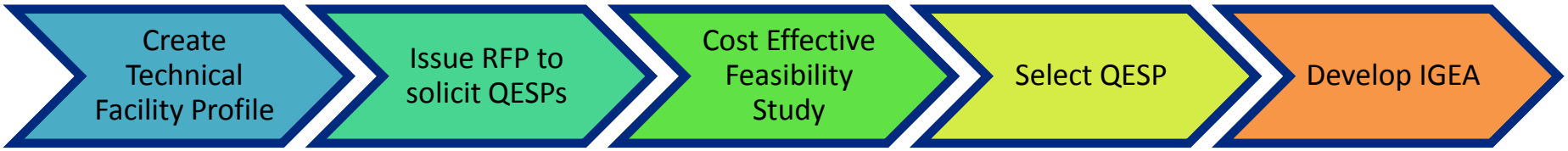
- Critical Inter-Agency Coordination:
  1. Procurement
     - ☑ Enabling Legislation as alternative means of procurement
     - ☑ Pre-Approved list of Energy Services Companies
  2. Legal – Attorney General's Office
     - ☑ Standardized Contracts
  3. Landlord Agency – DAS-Division of Construction Services
     - ☑ Defining the DCS role for the 3 inaugural projects
     - ☑ Defining DCS role for future ESPC projects
  4. Financial – Office of Policy and Management/Treasurer/CGB
     - ☐ Plan for money movement and budgetary support
     - ☐ Application of Utility Incentives
     - ☐ Source of Funds for Future Projects

Next Step: Financing

- Small Scale Projects: Recapitalize Small Business utility payment plan financing program
- Medium Scale Projects: Expand Small projects approach; requesting bond authorizations
- Large Scale Projects:
  - CT Department of Correction will be first Executive Branch agency financed for an Energy Savings Performance Contract using CT Green Bank-issued Green Bond or alternate financing mechanism
  - Green Bank developing financing for future projects

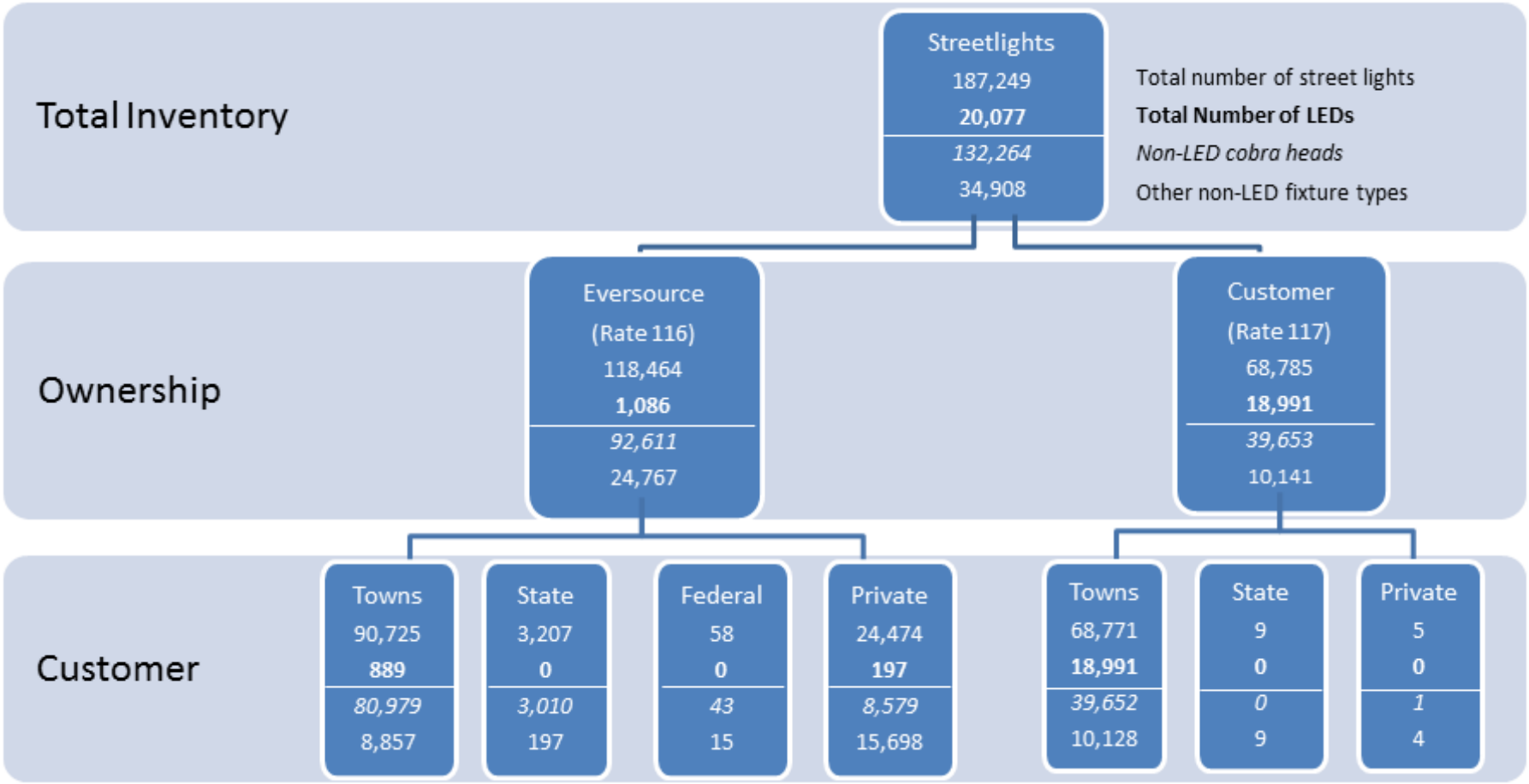
With Financing, Can Scale up Use of ESPC

- Clear path for advancing a project forward, if financing is available
- Standard templates pre-negotiated and available for use statewide
  - www.ct.gov/deep/leadbyexample
- Pre-qualified list of energy service professionals for state agencies and municipalities to request services
  - Pre-Approved Qualified Energy Services Providers (QESPs)
    Pre-Approved Technical Service Providers



Next Step: Converting Streetlights

Many state and municipal streetlights being converted to LED in next 2-3 years

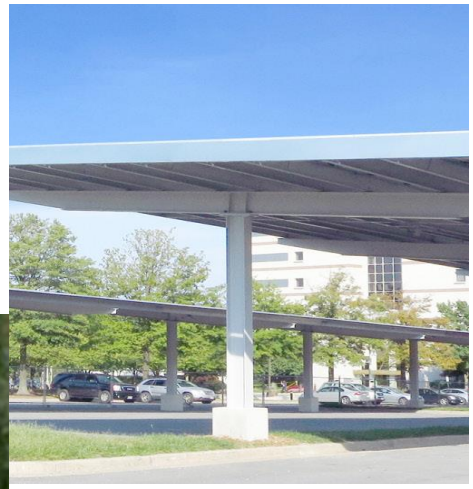


Source: Eversource July 2016

Next Step: Aggregated Procurement

- Spring 2017: DEEP/DAS will issue a Request for Proposal for the firm supply of electricity for state government operations
  - Executive Branch agencies,
  - Judicial Branch,
  - Office of Legislative Management, and
  - some additional entities
- Supply equivalent to basic service product
- Supply must be consistent with Connecticut's Renewable Portfolio Standards
- Will likely request pricing options for the electricity supply to include percentages of renewable generation above the Renewable Portfolio Standards

Next Step: Increasing Scale of Renewables at State Facilities



Ongoing Plan for Reducing Energy Use in State Buildings 2016-2020

Strategy/Task	From (In progress)	To (Goal)	2016-2017	2018-2020
Document baseline energy use in all state buildings	Scattered information in non-consistent formats across state agencies	Standard reporting platform for all agencies. With a few clicks, reports can be generated (by any user) to show energy consumption and costs – by state, agency, facility, building	Continue to work with all agencies to inventory buildings and populate EnergyCAP with energy invoices; continue to train and encourage all agencies to use EnergyCAP; finalize electronic data feeds from utility companies for electricity & natural gas	Agencies continue to feed EnergyCAP monthly, and continue to help correlate buildings to accounts and meters; update as accounts close/open
Prioritize needs for energy efficiency upgrades and retrofits	Agencies struggling to find capital $ to replace failing/inefficient equipment – often band-aided and not able to do the most energy-efficient comprehensive approach	Program is readily available for all necessary energy-efficient upgrades for more comprehensive projects.	Educate, inform, notify state agencies of the LBE programs. Expand C&LM programs. Use baseline data to determine/define projects with the greatest relative energy reductions on the most needed upgrades.	Expand the LBE & C&LM programs to include more than just the most critical projects. Allow for more comprehensive projects
Prioritize opportunities for solar	Need feasibility analysis on where solar can be installed	Complete feasibility analysis for solar installation at agencies. All agencies that have appropriate roofs can get solar. Agencies can enter a PPA.	Preliminary analysis done for DEEP locations for solar installation using GIS. Work with the Green Bank on a PPA for agencies to install renewables	Agencies will be able to enter into a Power Purchase Agreement to install solar at their facilities.

Ongoing Plan for Reducing Energy Use in State Buildings 2016-2020 Continued

Strategy/Task	From (In progress)	To (Goal)	2016-2017	2018-2020
Prioritize opportunities for other renewables (anaerobic digestion, geothermal)	Need feasibility analysis on where renewables can be installed	Complete feasibility analysis for renewables installation at agencies. All agencies that have appropriate spaces can get renewables. Agencies can enter a PPA	Work with the Green Bank on a PPA for agencies to do install renewables	Agencies will be able to enter into a Power Purchase Agreement to install renewables at their facilities.
Establish ongoing financing mechanism(s)	Currently using GO Bonds, capital $ & Utility Based Incentive Program to fund EE projects	Use the Green Bank to fund EE projects	Continue to work with DAS, OPM, Green Bank, OTT, DEEP, AGO to establish an ongoing financing mechanism for EE projects.	Standardized and streamlined process and mechanism exist for agencies who present viable energy efficiency project proposals, without need for rationing
Generate and prioritize a pipeline of energy efficiency projects	Agencies submit project request forms for various EE upgrades to their facilities	Using feasibility analysis and benchmarking to prioritize the largest energy users for EE upgrades. Top 20 facilities	Continue to work with DAS, OPM, Green Bank, OTT, DEEP, AGO to establish an ongoing structure for assessing and prioritizing projects	Standing inter-agency body functions semi-autonomously to support the pipeline of projects – prioritizing and facilitating financing

Resources

Pre-Approved Qualified Energy Services Providers (QESPs)
Pre-Approved Technical Service Providers

Find standardized ESPC Documents and Templates at
www.ct.gov/deep/leadbyexample, for example:
Contract for Energy Savings Performance Contracting Services
and multiple exhibits to the contract
Letter of Interest
Master Lease Agreement
Master Financing Agreement

ESPC Resources and Documents also at EnergizeCT.com, specifically:
www.energizect.com/your-town/solutions-list/performance-contracting

Thank you!

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Presentation available at:
www.ct.gov/deep/leadbyexample