ENERGY AND RECYCLING ADVISORY COMMITTEE

AGENDA

DATE: September 14, 2016

TIME: 12:00pm

LOCATION: Room 206

12:00 Call to Order

1. 12:01 Approve Past Minutes
2. 12:03 Recycling Center
    a. Update on CTDEEP Recycling Incentive Grant for the Swap Shop
    b. Update on Smoke alarm recycling
    c. Third Grade Tours
    d. AmericaRecyclesDay.org
3. 12:20 Energy Task Force
    a. Energy Audit partnering and promoting
    b. Solar bundling partnering and promoting
    c. Municipal Energy Summit
    d. Status of Municipal Energy Benchmarking
4. 12:40 Darien Library
    a. Update on solar opportunity
    b. Update on ongoing lightbulb swap
    c. Library Planning for the Future
5. 12:58 Marketing, outreach, and education
    a. PR for Energy Audit
6. 12:59 Items to add for next agenda
7. 1:00 Adjourn

Bundled Solar Installation Projects – A Report to The Energy and Recycling Advisory Committee (ERAC)

The Committee, as well as various town officials, has been contacted by a few solar installation firms looking to offer bulk installations of solar panels to Darien residential customers with the aid of the town. Bulk installations offer economies of scale in terms of reduced costs to the end-customer and do not require that the would-be customers live in proximity to one another. Interestingly, while these firms are free to market directly to the potential customers, they are seeking to "partner" with Darien for gathering and educating potential customers. Typically, a "partnership" with the town entails the firm's holding educational and promotional events at town facilities with the implicit town endorsement of the firm and the installation project.

The ad-hoc subcommittee of the ERAC has interviewed several such solar firms and has found that there are two types of firms: (1) independent solar installation firms; and (2) solar "marketing co-ops" that are formed by various independent solar installation firms. Marketing co-ops can come in various different flavors but generally the member firms contribute financially for common marketing, and the firm that is actually selected (with advice from the co-op) by the town for the installation project contributes further into the co-op. Independent installation firms may belong to a co-op or may be truly independent.

Unlike the home energy audit initiative, which the subcommittee recommends that the town of Darien seriously consider, bundled solar installation presents unique challenges: (1) the town would presumably select a single installation firm (otherwise, it defeats the purpose of the project: the economies of scale passed on to the consumer)… which brings up the question of whether that is an appropriate role for the town of Darien; (2) any decision or selection made by the town could have significant consequences, as solar installations are typically in the tens of thousands of dollars per household, as opposed to $124 for a home energy audit; and (3) even if the town, rather than choosing on its own an independent solar installation firm, took a "less risky" approach of choosing a marketing co-op (thereby relying on the co-op to advise on the selection of an installation firm), there may be inherent conflicts of interest in the co-op's advice (the installation firm chosen contributes extra money into the co-op).

We the subcommittee, while embracing the promotion of solar installation in general, would like to understand the town's preliminary stance on the matters discussed in the previous paragraph before proceeding further.

Home Energy Audits – A Report to The Energy and Recycling Advisory Committee (ERAC)

The state of Connecticut has licensed 35+ contractors to perform home energy "audits" (or "checkups" or "assessments") for residential customers for a fee of $99 (to be increased to $124 as of September 1, 2016). The service includes an assessment of critical energy leaks and immediate remedial actions (such as weatherization work) and a recommendation on longer-term energy efficiency improvements (along with information on available financing and rebates). The program is supported by The Connecticut Energy Efficiency Fund (CEEF), which is funded from charges on utilities and natural gas bills.

Several towns in CT have promoted home energy audits under a program in which at least two licensed contractors were chosen to partake in town-sponsored events. In most, if not all cases, the participating contractors were required to donate $25 of the $99 fee to a non-profit organization of the town's choosing.

The ad-hoc subcommittee of the ERAC recommends to the Darien Energy and Recycling Advisory Committee that the town of Darien consider a similar promotional program for home energy audits. The biggest obstacle for the wide use of home energy audits is the lack of awareness, and Darien could do its part to spread awareness. The subcommittee has identified three licensed contractors willing to participate (the three were participants at All Things Green in April). While the town would be implicitly recommending the three participating contractors, it would be explicitly stated that consumers are free to engage any of the licensed contractors in CT.

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Currently, interested customers of Eversource and United Illuminating are led to a toll-free number or the EnergizeCT website to sign up for a home energy audit. Contractors are randomly (rotationally) assigned to the customer in this process through EnergizeCT; alternatively, the customer is able to contact a contractor of his/her choosing. http://www.energizect.com/events-resources/energy-basics/energy-assessments

Darien's Portfolio Manager account contains 23 properties. Four properties have been left out of this analysis due to limited use, availability of accurate energy data, and property type. These are Cherry Lawn Park, Tilley Park, Pear Tree Beach and the Sewer Pump Stations. The charts and graphs below show data for 19 municipal buildings.

Between fiscal year 2011 and fiscal year 2015, the total energy usage at these 19 properties has increased by 6%. The portfolio average site energy use intensity (site EUI, measured in total energy usage per square foot) increased by 6%, from 68.5 kbtu/ft^2 to 72.6 kbtu/ft^2. Figures 1 and 2 show the change in total energy and energy use intensity between 2011 and 2015. In order to reach a 20% savings goal, Darien will need to reduce their site EUI to 54.8 kBtu per square foot.

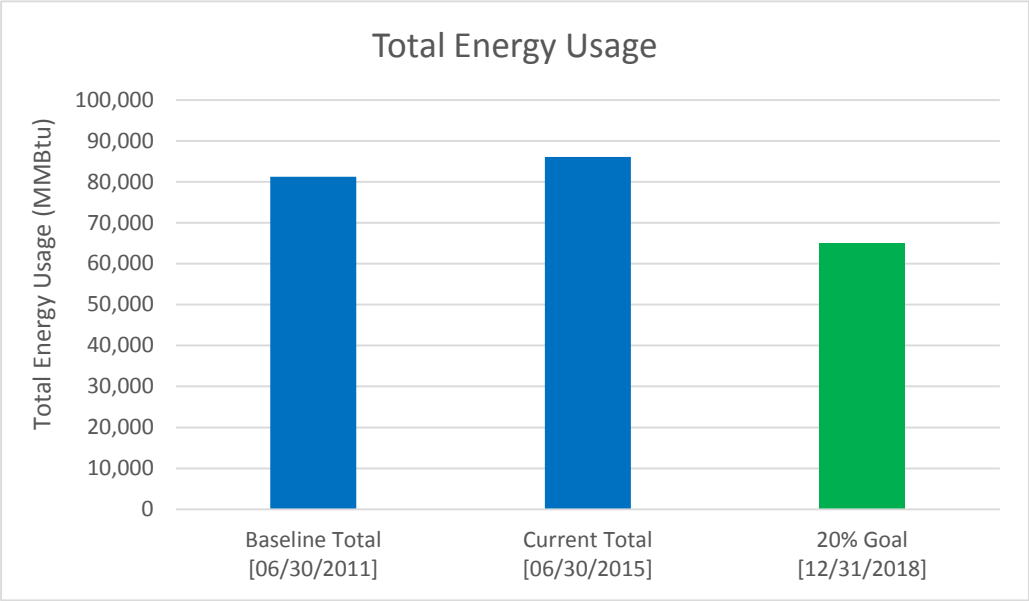

Figure 1

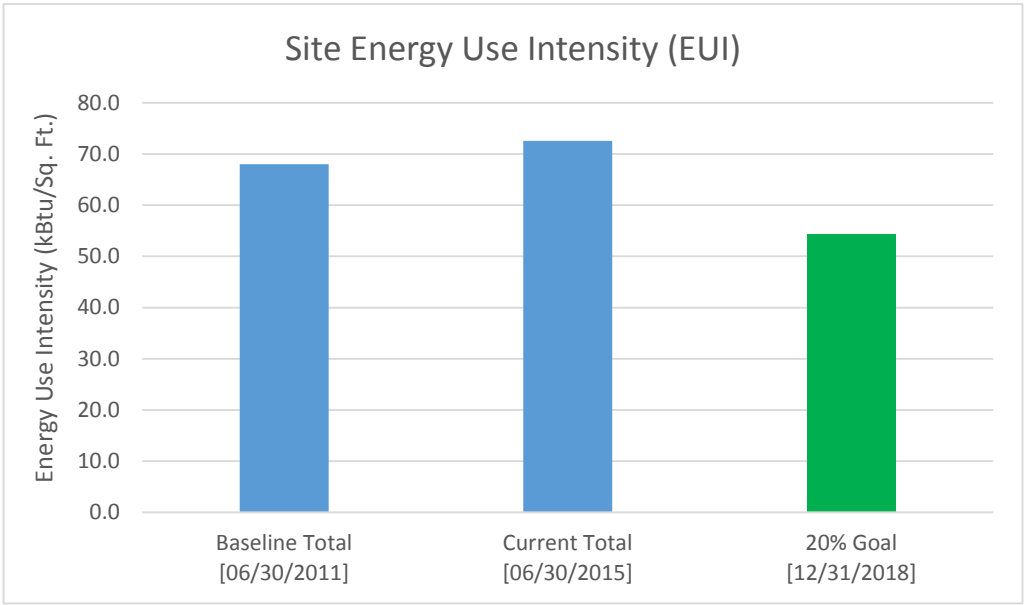

Figure 2

About half of the town's energy is used by three properties: Darien High (~25%), Middlesex MS (~13%) and Town Hall (9%). The following graphs show the top ten largest energy users, with the rest of the properties grouped into the "Other" category for clarity in viewing these graphs. Figures 3 and 4 show the percent of total portfolio energy used by each property in 2011 and 2015. The proportion of energy used by each property did not change significantly between the baseline and current fiscal years.

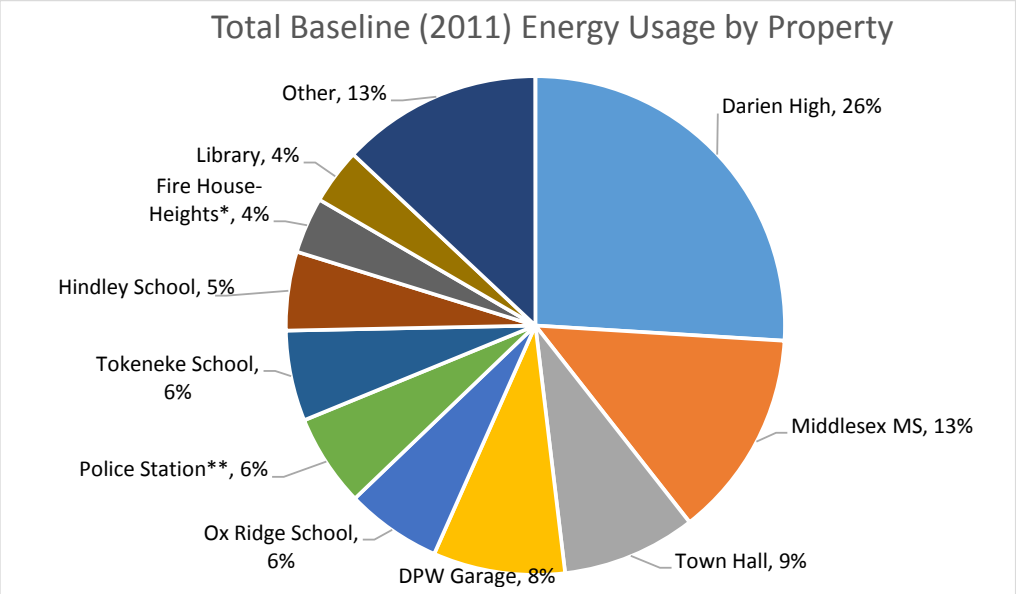

Figure 3

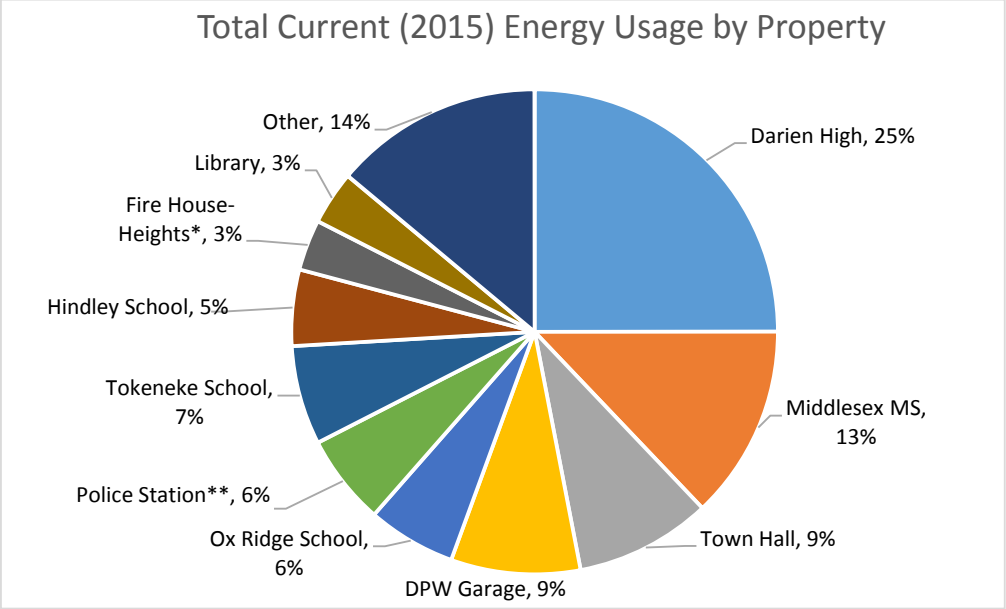

Figure 4

About two-thirds of Darien's energy consumption is heating energy from fuel oil. As shown in Figures 5 and 6, the proportion of fuel oil use in comparison to the distribution of all energy sources decreased between 2011 and 2015, from 60% to 50% of the energy use in Darien. Electricity use decreased from 36% to 34% and natural gas use increased from 4% to 16%. Darien High is the largest user of electricity and fuel oil, followed by Middlesex MS. Overall, the total amount of energy use in Darien increased by 6%.

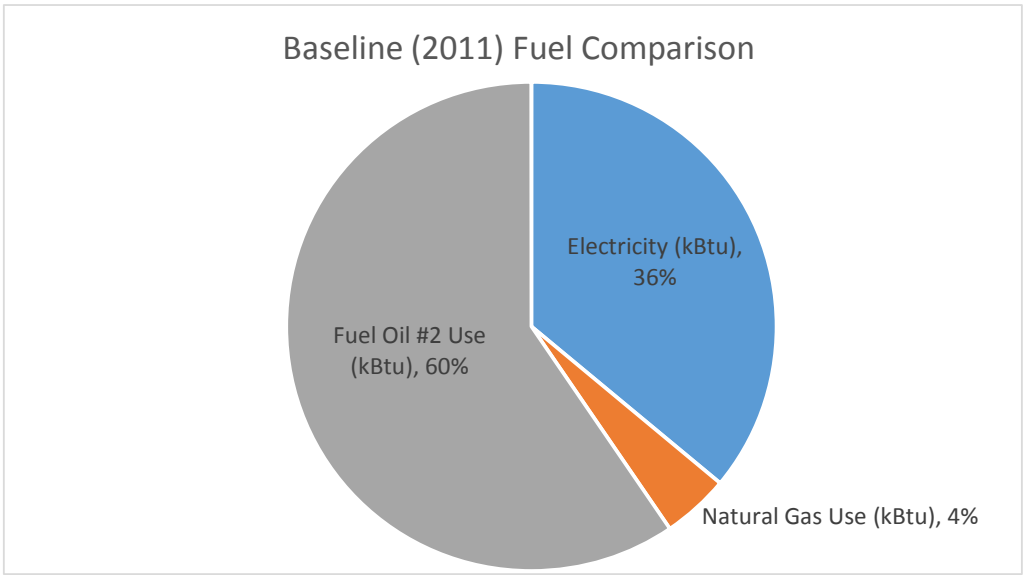

Figure 5

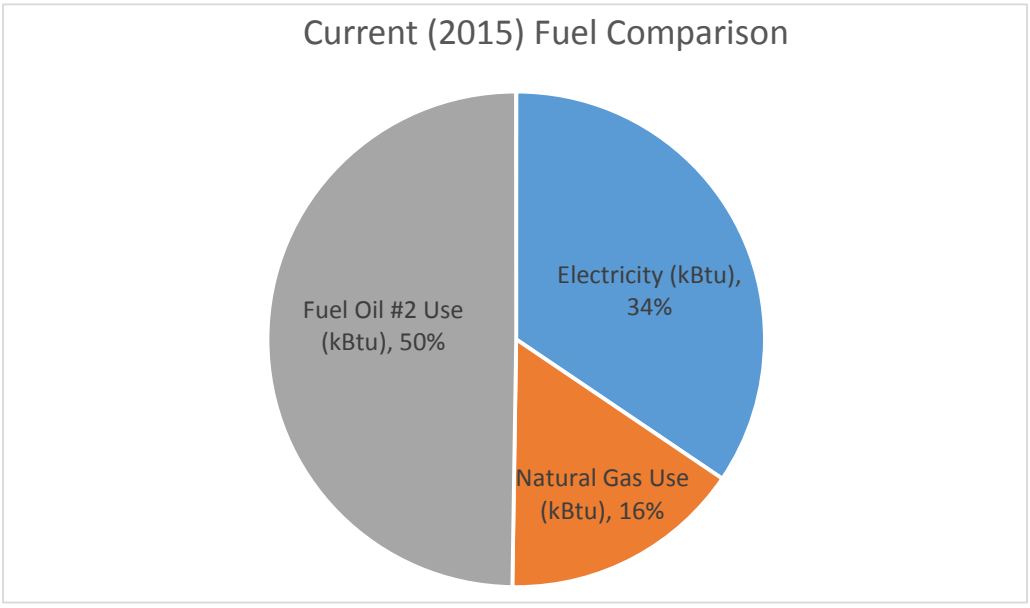

Figure 6

Figure 7 shows the baseline and current total energy usage for all properties and Figure 8 shows the baseline and current site EUI for all properties. Fire Memorial (69%) and Firehouse Heights (1%) have shown energy improvements since 2011. Fire Memorial is not among the top ten energy users, however, so it does not appear in the graphs below. The three buildings with the largest increases in energy usage are Holmes School (-23%), Tokeneke School (-19%), Royle School (-18%) and Recycling Center (-18%). While individually these properties report the largest increases, the charts below combine some of the buildings energy performance in the "Other" category because they are not all among the top ten largest energy users overall.

Based on their total energy usage compared to the whole portfolio and their increase in usage over the past four years, Darien High (-2%), DPW Garage (-6%), Police Station (-7%) and Town Hall (-11%) may present opportunities for improving energy use. The Holmes School, Tokeneke School, Royale School and Recycling Center may also provide opportunities. To select which building will be audited the team will consider the overall energy usage, the largest increases as well as reports of completed efficiency projects.

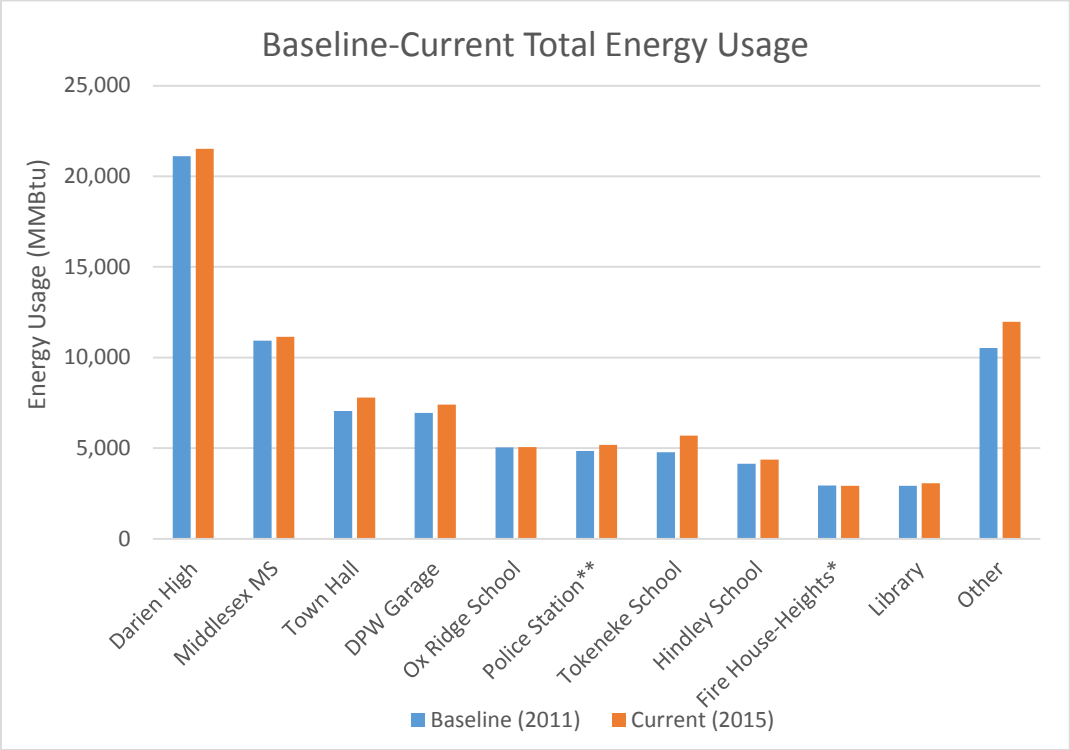

Figure 7

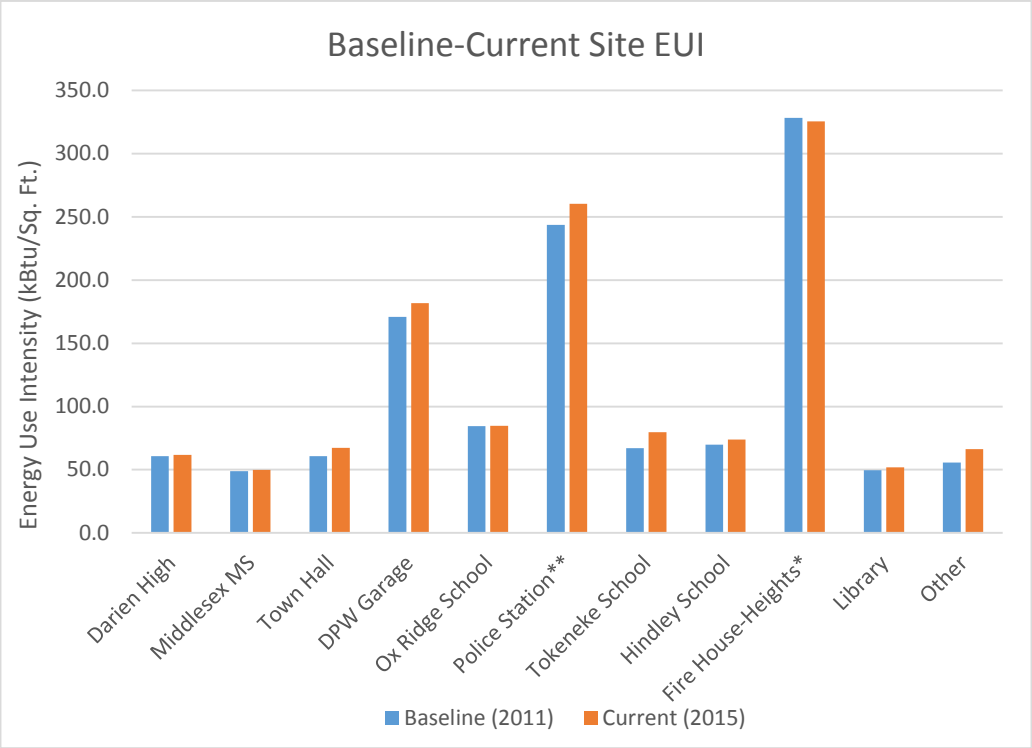
Baseline-Current Site EUI
Energy Use Intensity (kBtu/Sq. Ft.)
350.0
300.0
250.0
200.0
150.0
100.0
50.0
0.0
Darien High
Middlesex MS
Town Hall
DPW Garage
Ox Ridge School
Police Station**
Tokeneke School
Hindley School
Fire House-Heights*
Library
Other
Baseline (2011)
Current (2015)

Figure 8

DARIEN CT CLEAN ENERGY COMMUNITIES DATA PRELIMINARY REPORT- REVIEW

Terry Gaffney- Darien Energy Commission- 22 August 2016

The report sent to us shows 6% more energy used in FY 2015 than in FY 2011.

My initial reaction was one of dismay and disappointment over this reported increase in usage in spite of some of the energy saving (as opposed to cost saving) initiatives implemented in that four year span.

It was intimated in our conference call last week that the increased use of electricity might be explained by greater use of air-conditioning units. The increase seems counter-intuitive based upon our relatively mild winter in 2015 and for several additional reasons:
1- 2013 and 2014 were (in my recollection) relatively mild summers
2- Construction improvements (new windows, LED Lightbulbs)
3- The report itself states on the page showing figures 5 & 6 "***About two-thirds of Darien's energy consumption is heating energy from fuel oil***".

In an attempt to clarify, confirm or refute the information in this preliminary report I would ask those in the data stream to review the following:

MISSING DATA

1- Data for interim years of 2012, 2013, 2014- This was not included in the report. While the interim figures will not change the numbers for 2011 and 2015, they could be beneficial in helping to identify trend lines in individual buildings and to point out opportunities for potential improvements and existing overloads.
2- Senior Center (Edgerton)- This building was demolished during FY 2015, but used a HUGE amount of energy in 2011 through 2014. The activities in this demolished building have been moved into Town Hall where a significant portion of the building has been repurposed to accommodate those activities. If the Portolio Manager cannot track a demolished building how would we then enter the data into the Town Hall energy profile?
3- Noroton Heights RR Station- significant energy user not in the report
4- Weed Beach- significant energy user not in the report
5- Propane data- not included in report
6- Noroton Heights Fire House 2011 Base line Oil Data- missing; 3,577.3 gallons = 493,667 kBtu
7- Noroton Fire House 2011 Base line Oil Data- missing; 2,797.50 gallons, or 386,055 kBtu
8- Sewer Main Station- missing; significant electricity use (heating, cooling, computers) and Propane usage (generators)
9- Street Lights, Parking Lot Lights, RR Platform Lights- missing; perhaps not part of Portfolio Manager, but still an enormous amount of electricity used.

CONFUSING DATA

1- FUEL OIL #2 USE (kBtu) 2011- Analysis of data shows a 'mis-match' on the kBtu reported for the majority of buildings for 2011. I used the formula listed on the Portfolio Manager Program Sheet formula- (gallons delivered x 138) and came up with markedly different numbers.
2- FUEL OIL #2 USE (kBtu) 2015- In 2015 all the BOE numbers jived, but the DPW Garage figures were wildly off as were both the Noroton and Noroton Heights Fire House numbers.
3- SENIOR CENTER OIL USAGE- I discovered significant errors in the oil consumption use I had previously supplied (44,273.20 aggregate/ 9,193.00 for 2011 initially reported, now corrected to 49,146.20 aggregate/ 12,143 for 2011.

DATA ERRORS

1- DARIEN RR STATION SQUARE FOOTAGE- Report only has square footage for the waiting room. It does not include the RR Switch Shed and the elevators which are all lit, air-conditioned and heated. N.B.- Platforms/overpasses that are lit, and contain some computerized equipment are purposefully excluded as per previous dialogue.
2- RECYCLING CENTER SQUARE FOOTAGE- does not take into account square footage of satellite buildings on site that draw heat, light and air conditioning from same accounts.
3- DPW GARAGE / RECYCLING CENTER 2011 Base Line Electric Figures reported figures reported are identical… one is wrong; which one?
4- 2011 and 2015 Fuel Oil #2 Use (kBtu) Figures for DPW Garage- Figures shown for both years are identical, and this figure is ***WAY*** off for both years… I show for 2011- 8,321.9 gallons/ 1,148,422kBtu and for 2015- 11,738.2 gallons /1,619,872kBtu

QUESTIONS

1- How does BTU efficiency of natural gas compare to that of #2 Heating Oil?
2- Was summer of 2011 abnormally mild?
3- Was winter of 2011-12 abnormally mild?

Lots more 'small stuff' but I trust you see a review of the data by all those who have a handle on the data is in order.

From: Stevenson, Jayme
To: Craig Flaherty; Gentile, Edward
Subject: FW: There are savings to be had.....
Date: Wednesday, August 24, 2016 9:04:44 AM

FYI

From: Connecticut Council of Small Towns [mailto:kdube@ctcost.org]
Sent: Wednesday, August 24, 2016 8:33 AM
To: Stevenson, Jayme
Subject: There are savings to be had.....

MUNICIPAL ENERGY SUMMIT 2016

Thursday, September 22
8:00 am to 1:00 pm
Courtyard by Marriott, Cromwell CT

Don't miss this opportunity to hear about current and emerging energy savings opportunities for your town. Take part in a policy discussion with key decision-makers and legislators on future renewable energy initiatives impacting municipalities and the renewable energy industry in Connecticut. View agenda here.

CLICK HERE TO REGISTER

Registration Fee: $65.00

For more information contact Kathryn Dube at kdube@ctcost.org.

Municipal Energy Summit 2016
Program Schedule

8:00 a.m.	**REGISTRATION & CONTINENTAL BREAKFAST**
8:25 a.m.	**WELCOMING REMARKS** *Betsy Gara, COST Executive Director*
8:30 a.m.	**FUEL CELLS** *Doosan Fuel Cell America* *Fuel Cell Energy**
9:00 a.m.	**SOLARIZE TOWNS** *John Elsesser, Town Manager, Coventry* *Laura Francis, First Selectman, Durham* *Peter Stevenson, AllGreenIt Solar* *Kate Donnelly, SmartPower*
9:30 a.m.	**ENERGIZE CT - INSTITUTIONAL RENEWABLE ENERGY & ENERGY EFFICIENCY PROGRAMS** *Mackey Dykes, CT Green Bank* *Randy Vagnini, Eversource* *Patrick McDonnell, Avangrid*
10:00 a.m.	**ENERGY PERFORMANCE CONTRACTING** *James Daylor, Ameresco* *Chris Halpin, Celtic Energy* *Vincent Masciana, Chief Operating Officer, Cheshire*
10:30 a.m.	**VIRTUAL NET METERING** *Paul Michaud, REEBA Executive Director* *Claudia Baio, Mayor, Rocky Hill* *Fred Hurley, Public Works, Newtown* *Brendan Reed, SolarCity*
11:00 a.m.	**POLICY PANEL** *DEEP Deputy Commissioner Katie Dykes* *Senator Paul Doyle* *Senator Paul Formica* *Representative Tim Ackert* *Representative Lonnie Reed*
11:40 a.m.	**NETWORKING AND EXHIBITOR FAIR**
12:30 p.m.	**LUNCHEON**
1:00 p.m.	**RENEWABLE WRAP-UP**