



STRATHAM ENERGY COMMISSION ANNUAL REPORT

2013

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To The Selectmen

STRATEGIC HIGHLIGHTS

Beginning in August 2012, the commission established clear goals of reducing town costs associated with its own buildings. Using software to benchmark historical costs and site analyses to investigate potential improvements, the commission has identified short and long term goals for the town as it relates to energy consumption.

MISSION STATEMENT

The Stratham Energy Commission will serve as an advisory committee to the Stratham Board of Selectmen on issues related to energy, conservation, greenhouse gas reduction and sustainability. The goal of the SEC is to promote and encourage energy conservation measures for Stratham's residents, businesses and municipal operations. The commission will work with the Town staff to review current energy efficiency practices and possible future actions. The commission's work will be available to the Planning Board as a resource with respect to energy consideration in the next Master Plan update. The commission will also work with non-profit organizations for technical assistance in a variety of areas. Some of the commission's objectives include:

- Increase public awareness and encourage participation in the reduction of energy consumption and carbon emissions; opportunities relating to sustainability and renewable energy sources
- Research energy related issues and actions taken by other Local Energy Commissions in New Hampshire
- Gather educational and informational resources for the use of residents, businesses and the Town
- Develop a plan to address the short and long term energy needs of Stratham. The plan may include projects such as:
 - Assess the Town building energy usage by implementing a benchmarking software program
 - Conduct an energy audit of each municipal building
 - Research energy efficiency standards and regulations being implemented by the State of New Hampshire's Department of Energy and Planning
 - Research grant and rebate opportunities through the local utility company and other sources
 - Develop recommendations to the Board of Selectmen to improve efficiencies in energy and fuel use town wide

OPERATING HIGHLIGHTS

The commission re-established the town's utility billing data in the EPA's analysis software Portfolio Manager, using historical data for each of the town's major buildings. The combination of benchmarking their energy consumption and physically auditing the buildings and their systems allowed the commission

to develop recommendations and observations of the current town building stock. The commission met with representatives from the school board to be able to further this analysis to cover school buildings that also get funding from the town tax base.

The commission has had discussions with the local gas and electric utility to discuss rate options, natural gas expansion, and incentive programs that are applicable to town buildings.

LOOKING AHEAD

While following the successes of its first year, the commission looks to expand its analysis of buildings whose operational costs impact the citizens of Stratham. The commission intends to hold educational gatherings to help interested residents with energy-related technologies and offerings. The commission will continually investigate the opportunities to partner with other groups to look at any programs and projects that will allow the town to benefit from lower operating costs, better energy production technologies, and better education as it relates to the use of energy within the town and region.

John Dold

Stratham Energy Commission Chair
September 11, 2013

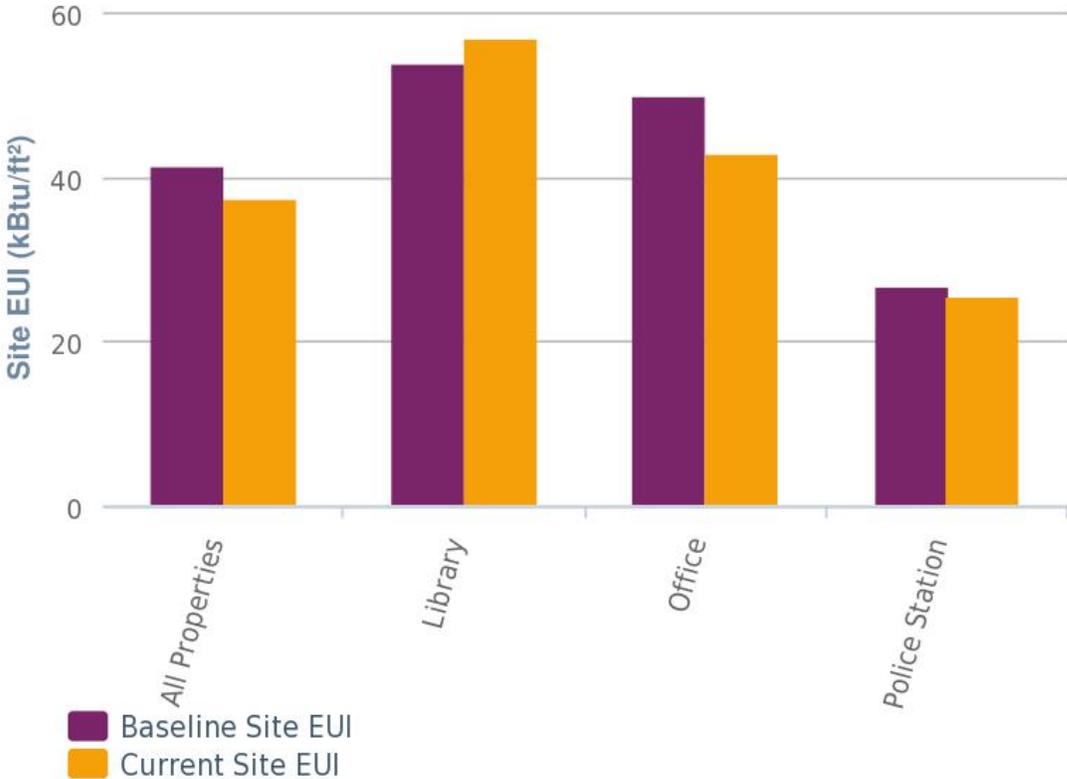
Energy Consumption Summary

ELECTRICITY CONSUMPTION BY CUSTOMER CLASS

		Monthly	Monthly	% of
Class	Meters	Avg kWh	kWh	Stratham
Residential	2956	629	1,859,324	47%
Small C&I	537	2807	1,507,359	38%
Large C&I	3	191649	574,947	15%
			3,941,630	100%

The Energy Utilization Index (EUI) data listed below comes from the EPA software Portfolio Manager.

Site EUI by Property Type



Building Assessments

STRATHAM HISTORICAL SOCIETY (LIBRARY)

- Lighting. Current state. Incandescent lighting. Annual total facility consumption of 6127KWH/year. Recommendations:
 - 5x300W incandescent. Replace w/ energy efficient 68W CFL equivalent. Conventionally available (Home Depot, \$16.47/ea.)
 - 6x100W incandescent. Replace w/ energy efficient equivalent 24W CFL equivalent. Conventionally available.
 - Use NH Saves for these
 - Payback estimated at 1yrs, given ~\$200/year savings
- Air Sealing. Current state: basement has gross pressure boundary air leakage around building rim joist and bulkhead basement door. Recommendations:
 - Bring in certified energy auditor to conduct blower door test. Hire contractor to apply foam / caulking as recommended. Estimated total: \$600. Conservatively estimating a 10% efficiency gain.
 - Explore options for "fuel neutral"
- Heating system. Current state. System not tuned since late 90's. Efficiency was low. Recommendations:
 - Pay contractor to clean and tune heating system to derive efficiency gain. Estimated total \$200.
 - By altering occupant habits, utilize ceiling fans year round (in winter) to better distribute room air, improving building temperature control and reducing heating system burden. \$0 investment.
 - Estimated net energy cost of <\$5,000 / year. Total estimated investment of above recommendations ~ \$1,000. Payback anticipated ~1year.

STRATHAM FIREHOUSE

Current Usage. Small energy dollars spent per unit area, (though this is benefitted by a large footprint which is currently underutilized by design considering future need.)

- Lighting. Current state: we are satisfied, with design, installation and operation. No recommendations. (Long term, may consider LED technology as economics of these are more reasonable.)
- Heating system. Current state: Programmable thermostats installed, though set to "auto" and may be overridden. Not being set back on time schedule. Recommendations
 - Have town contractor Dowling properly program the thermostats to the satisfaction of the fire chief. Give a tutorial to a targeted list of the occupants. Note (Paul): It is not in the contract w/ Dowling to program/maintain the thermostat settings. This is the responsibility of occupants, maintenance staff, building managers.
- Long term: smart thermostat that can be remotely monitored

STRATHAM HIGHWAY BUILDING

Current Usage. Mixed use garage and office space.

- Heating. Current state: High bay areas at night in March set to 65° F / 55° F. Recommendations:
- Set the thermostats in the garage areas to a lower SP.
- Replace (5) programmable thermostats. \$300 / installed each. 1500
- Utilize programmable thermostats.
- find more efficient way to heat garages / high bay areas
- Long term: consider infrared?
- Lighting: current state: interior perimeter light at ~8ft level T12s changing to T8s. Recommendations:
- Relamp and reballasting in office area. Switching exterior lights to LEDs.
- Consider occupancy sensors for interior lighting (Phase 2).
- Reprogram timer for salt shed lights.

Note: These recommendations were made to the town. The Stratham Board of selectman approved the work, which is currently complete. Phase 2 of including occupancy sensors is underway.

STRATHAM POLICE STATION

Current usage. Highly utilized main floor, minimally utilized 2nd floor.

- Lighting. Current state: Satisfactory, no recommendations.
- Heating. Current state: location of thermostats and control scheme for zoning. Inadequate air balancing, uneven temperature control sensed by occupants. Windows opened. During audit, building was simultaneously being air conditioned in one area, and heated in another. Recommendations:
- Rebalance the building as it's currently laid out. May include relocating thermostats. Rough estimated cost ~\$1000. Payback in dollars small (no open windows), increase to the occupant comfort.
- Set up thermostats to run programs optimally for occupants
- Long term (hwy, police, other) smarter building automation system with centralized control. Estimated cost police \$3000 material; \$TBD install; \$TBD monitor annually (revisit in Aug 2013 SEC meeting). No town facility manager therefore may be bet to contract this with contracted town Maintenance Company. Benefit: allows monitoring and controlling of building temp, learning, improvement, etc.

STRATHAM MUNICIPAL CENTER

Current usage: High utilization of space, highest per unit area demand (\$141/sq. ft.).

- Lighting. Current state: 3yrs old, satisfactory. (Confirm in Aug.)
- Heating. Current state. 15 separate heating and cooling system, mostly rooftop units. Segmented system, piece-meal installed over time. Some AC only, some heat pumps. All are programmable. Many

were set at 72°F during day occupied (75°F in others). Occupants can change or override the program. Night offset was set to 80°F for cooling at night.

- Recommendations: Program the thermostats consistently. Be uniform. Consider higher setback unoccupied to 85°F in cooling mode; 60°F in heating mode. Evaluate leveraging services of town maintenance contractor for this facility and comprehensively across other town buildings. (Common recommendation, see also fire station minutes above.)

Recommendations

While the Historical Society (Old Library) building is by far the least used and smallest of the town facilities, its energy cost is the highest per square foot. A few low cost improvements would yield a high return in savings if implemented.

The town Highway Department facility was identified as having a higher lighting operating cost than normal based on its older technologies and operating schedule. Adding sensors and updated lighting will yield quick return on investment. This improvement has already begun implementation and will utilize leveraged funding from the utility incentive program.

Although the municipal center is an older facility and includes the library, the main recommendations for that facility are similar to what would offer savings at the newer Police and Fire Stations. Better thermostat management and control will yield both energy savings and improve comfort control. The commission recommends that a town employee or subcontractor take responsibility for ensuring that the occupancy schedules are maintained and that a policy is enacted for setting back temperatures during normal unoccupied modes. Having a similar standard for occupied modes will allow for consistency among all town operated facilities and ensure maximum energy savings.

For all facilities, it is important to document age and conditions of existing mechanical equipment as well as following a protocol for replacement as the equipment nears the end of its useful life. Having this plan will allow the town to better prepare for replacement costs as opposed to needing to repair equipment under more urgent conditions.

Goals for the Future

1.1 Expansion of Building Benchmarking

- a. Addition of SAU 16 buildings where impacting Stratham tax base
- b. Exporting of building data to work with DOE's Asset Score program

1.2 Implementation of Efficiency improvements

1.3 Expansion of Natural Gas pipeline to Municipal Center and Police Station

1.4 Implementation of Educational Speaker Series for residents (geared to both children and adults)

1.5 Representation with regional and state working groups, including other SAU community energy commissions

1.6 Set up an educational display at Wiggin Memorial Library:

- a. Refer to the Library's loan program of "Kill-a-Watt" plug meters to monitor home appliance electricity usage.
- b. Provide handouts of local utility incentive programs (NHSAVES).
- c. Demonstration and potential loaning of LED screw in bulbs.
- d. Other home energy saving materials and notices of upcoming educational series.

Contact Information

Name	Title	Year Appointed/Term
John Dold	Chair	2012, 3 years
Michael Welty	Member	2012, 3 years
Matt O'Keefe	Member	2012, 2 years
James Schlough	Member	2012, 2 years
Michael Gorman	Member	2013, 3 years

Stratham Energy Commission

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