



**A Self-Financing Energy Saving Performance Contract:
Investing in the Future
Town of Enfield / Enfield Clean Energy Committee**

Most of the Enfield's buildings were constructed more than half a century ago. They show the wear and tear of active use, as well as design features from the middle of the last century – before energy-efficiency was commonly considered by architects, engineers or builders.

In 2015, Enfield spent \$3,450,453 for heating, cooling and electricity. Conservatively, 25-30% of this bill could be avoided with energy-saving upgrades to our buildings and street lights. Enfield's Energy Strategy, endorsed by the Town Council in 2014, calls for taking active steps to reduce this waste of precious resources.

The Council, Public Works and Clean Energy Committees all believe that the best way to secure these savings is by hiring accountable experts through a proven tool, called a Self-Financing Energy Saving Performance Contract. This short document explains why and how.

1. What kinds of improvements are needed?

A great deal of the equipment in Enfield's buildings is nearing the end of its useful life. We need to upgrade heating, cooling and lighting systems in municipal buildings and schools. Virtually all the Town's buildings have limited insulation. Existing boilers, particularly in the schools, are well past their useful lives with a significant amount having been installed in the 1960s. Because of their age, these boilers require more maintenance and consume more energy than modern equivalents. This opens up greater risk of failure. Since boilers are a main source of building heat, a failure during cold winter months could result in building shutdowns.

The upgrade of existing school lighting and building management systems to the latest cutting edge technology will provide improved comfort and optimal learning conditions. These improvements yield significant energy savings and reductions in maintenance requirements.

The Town-owned street lights are also inefficient models from an earlier era. And our buildings lack the modern control systems that can manage the use of heating, cooling and lighting equipment to meet occupants' needs without waste.

ESM No.	ESM Description	Emergency Medical Services	Enfield Senior Center	Pearl Street Library	Central Library	Lamagna Activity Center	Enfield Town Hall	Department of Public Works	Enfield Police Department	Adult Day Care	Family Resource Center	Village Center of Thompsonville	Building and Grounds	JFK Middle School	Eli Whitney School	Harardville Memorial School	Nathan Hale School	Henry Barnard School	Edgar Parkman School	Prudence Crandall School	Enfield Street School	Thomas Alcorn School	Harriet Beecher Stowe School	Head Start	Street Lighting
1	Lighting and Lighting Controls (LED)	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	
2	Street Lighting Upgrades																								X
3	Boiler Replacements & Pump Upgrades				X		X			X				X	X										
4	Replace Multi-Zone AHU and Cooling System				X																				
5	Building Management System Upgrades		X		X	X	X	X		X	X			X	X	X	X	X	X	X	X	X	X	X	X
6	Building Envelope Improvements	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
7	Water Conservation	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X
8	Walk-In Freezer/Cooler Controls													X											
9	Desktop Computer Power Management	X	X	X	X	X	X	X		X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
10	Computer Peripheral Power Management													X	X	X	X	X	X	X	X	X	X	X	
11	Plug Load Power Management													X	X	X	X	X	X	X	X	X	X	X	
12	Pipe Insulation			X		X	X							X	X		X	X	X	X	X	X	X	X	

These improvements could be paid for out of tax revenue. But few citizens would be happy with that. Every month we delay plugging these energy leaks, we are paying an estimated \$70,000 extra in average energy costs. Imagine what Enfield could do with that \$840,000 per year of savings to improve services, retain staff and invest in our future!

2. How does a self-financing energy saving performance contract help?

A self-financing energy-saving performance contract is a legally binding agreement with an approved technical contractor. The contractor commits to specific upgrades of buildings and their associated equipment, so that they use energy much more efficiently and generate specific dollar savings that are guaranteed in the contract. The project bundles together major energy improvements and other needed equipment upgrades (such as replacing obsolete boilers with more efficient ones). That comprehensive package of services creates enduring savings and repays the initial capital cost with those substantial energy savings. Many of the recommended energy saving measures are also eligible for incentive payments through the Energize-CT program, increasing the financial benefits.

The service of saving energy for buildings is a decades-old, \$4.1 billion industry nationwide. Since 1990, performance contracts have led to \$40 billion in completed energy efficiency upgrade projects and \$50 billion in savings for the building owners across the U.S. They have provided 330,000 person-years of direct employment for engineers, technicians, finance and administrative professionals and others. And they have cut CO₂ emissions by 420 million tons.

Case study: Stratford, CT

In Stratford, a \$10.4 million performance contract was developed with Honeywell. It focused on updating HVAC, boiler upgrades, gas conversions and lighting, and installing a computerized system for energy sustainability. Over 53 buildings were audited with 42 in the final scope of work. Town employees were trained during the commissioning phase to operate the new equipment. Stratford was able to defer over \$2M of capital improvements through this program while receiving \$729,000 in incentives from United Illuminating. Stratford also utilized available energy efficiency grants at the time. The project has saved the Town over 25% of their annual energy consumption.

3. How was Enfield's proposal developed?

We planned this project using a \$15,000 Bright Idea Grant earned by the Town through energy saving measures and the work of the Clean Energy Committee. The Town engaged Peregrine Energy Group to take stock of our energy budget and potential for savings. Peregrine performed walk-through assessments of buildings and reviewed patterns of energy expenditures. Based on the condition of our buildings, Peregrine estimated that straightforward efficiency upgrades could save at least 20 - 25% of our energy budget.

These initial recommendations formed the basis for the municipal section of the Enfield Energy Strategy, a comprehensive plan put together by the Clean Energy Committee in collaboration with staff and the Council. The Strategy noted several options for paying for the recommended upgrades. They could be done piecemeal, when affordable in the operating budget. They could be financed through increased taxes. Or they could be implemented in a coherent, rapid manner through an energy-saving performance contract. This strategy was recommended by the Clean Energy Committee and consultant.

To firm up the plan, two studies were conducted in 2015, a Facility Condition Assessment by Strategic Building Solutions, and an Investment Grade Energy Audit by Honeywell. The Council then affirmed its commitment to a Self-Financing Energy Saving Performance Contract as the most cost-effective and thorough approach to the needed building upgrades. Peregrine was brought on board as a "buyer's representative" to help Enfield shop smartly for an Energy Services Company to do the work. Numerous bids were reviewed. The Council approved Honeywell's proposal for a 15 – 18 month project. Our goal is to reduce energy use in Town buildings by at least 18%, in schools by at least 47%, and for street lighting 35%. Proposal documents are available for review here:

<http://www.enfield-ct.gov/876/2015-Municipal-Election-Referendum>

The required investment for these improvements is \$11,200,000, which can be financed through a bond and *recovered out of energy savings* over a 13.8-year term. No tax increases are required as the project is totally self-funding. Additionally, there are approximately \$1.6M in energy incentives from Eversource that can be applied towards this project.

4. How exactly do performance contracts guarantee savings?

Technically, a performance contract can guarantee savings because it is based on an investment-grade audit of the facilities by experienced engineers. This rigorous process gives rise to very specific proposals for technologies and budgets with cash flow modeling through the course of the project term.

Legally, the performance contract guarantees savings by specifying that, if the energy performance of the new buildings and equipment fall short of the stated goals, the contractor will pay the difference. The State of Connecticut has developed model contracts to assist municipalities, and Enfield has taken full advantage of these resources.

5. What is the timeframe for the proposed upgrades?

This spring and summer, the voters of Enfield will have many opportunities to learn more about the Self-Financing Energy-Saving Performance contract through public forums, outreach tables at popular events, articles and social media conversations. The Council must confirm the placement of the referendum on the ballot by August 2016. After approval, the required work is expected to take 15 - 18 months.

6. What buildings are covered, and why?

Buildings were chosen based on potential energy savings, and clarity that the buildings would continue in their current or similar uses for the duration of the 15-year project term. Buildings that are omitted from the Performance Contract can still be upgraded one at a time using state incentives and smaller contracts, without requiring a referendum.

7. How does this proposal fit into an overall long range plan for Enfield's buildings and infrastructure?

This proposal is the foundation for our long-range maintenance and management plan.

8. What happens after the initial 15-year period?

The proposed building improvements include items that will need periodic replacement (like light bulbs and some HVAC equipment). These costs will need to be budgeted on an ongoing

basis. But many of the improvements made during this 15 year period – like insulation and high-efficiency street lights -- will keep on paying for a longer time. By combining these savings in a single package, Enfield’s investment will produce a sharp increase in short-term efficiency and additional savings that will outlast the performance contract period. In addition, the Town will continue to benefit from the energy savings generated by equipment with a lifespan longer than the 15 year contract term.

9. Who in Town government is responsible for this project?

The maintenance and upgrading of Enfield’s buildings and infrastructure is overseen by the Town Manager under the direction of the Town Council. The Public Works and Clean Energy Committees have been active participants in refining this proposal and educating the community on its value. The Council and Town Manager’s office have worked together closely to formulate this proposal over a two-year period, with guidance from the Public Works and Clean Energy Committees.

10. What other Connecticut communities have used performance contracting and where can we learn more about their experiences?

Communities using some form of performance contracting for energy upgrades include Bethel, Bolton, Bridgeport, Bristol, East Hartford, Fairfield, Farmington, Middletown, Milford, Naugatuck, New Britain, Norwalk, South Windsor, Stamford, Stratford, Waterbury, West Hartford, Danbury, New Haven, Monroe and Windham. Several communities have completed many phases on energy performance contracting after completing their first projects. Enfield is one of the first to make use of the added protection of the State’s legal and technical assistance program.

11. What kind of public approval is needed for this investment?

Because of the size of this capital project, the voters need to approve it by referendum which is anticipated in November of 2016.

12. Why now? How urgent is this?

This investment in our buildings is a critical step for the Town of Enfield, one that will begin saving the Town an estimated \$840,000 per year from the time that the work is completed. That is the estimated amount we are now spending on energy unnecessarily.