

ENERGY CAPITAL IMPROVEMENTS PROGRAM 2017-2024 Update  
TOWN OF LEE, NEW HAMPSHIRE

Prepared for:  
The Lee Energy Committee

By:  
Clay Mitchell, Esq PhD

The Town of Lee has undertaken a summary update of the original Energy Capital Improvements Program (“ECIP”) for municipal buildings. This update supplements the goals and objectives of the original plan with minor changes to calculations and energy data. These changes bring the ECIP current in terms of relevant energy costs – particularly for fuel, which has changed dramatically over the last 5 years. In addition, the updating process helps the Town triangulate and confirm historical energy use for the subject facilities. In turn, this historical data provides increased support for projecting anticipated savings for future projects.

#### Outcome 1: Data Management

Related to Lee’s greatest resource, its committed and dedicated citizen volunteers, is one of most useful but often unrecognized results, which is the Energy Committee’s work in facilitating the coordination and clarification of energy data on all levels from multiple vendors and multiple facilities. With the foundation created in this effort, the Town will be better able to manage costs, track usage and find future opportunities for projects and grants that can support a more economic and environmentally clean energy future.

The following summary provides an insight to the complexity in managing energy data for the Town. The members of the Energy Committee have successfully update the EPA’s Portfolio Manager with this data and have provided an opportunity to unify building names and account identifiers to coordinate all energy use and expenditures.

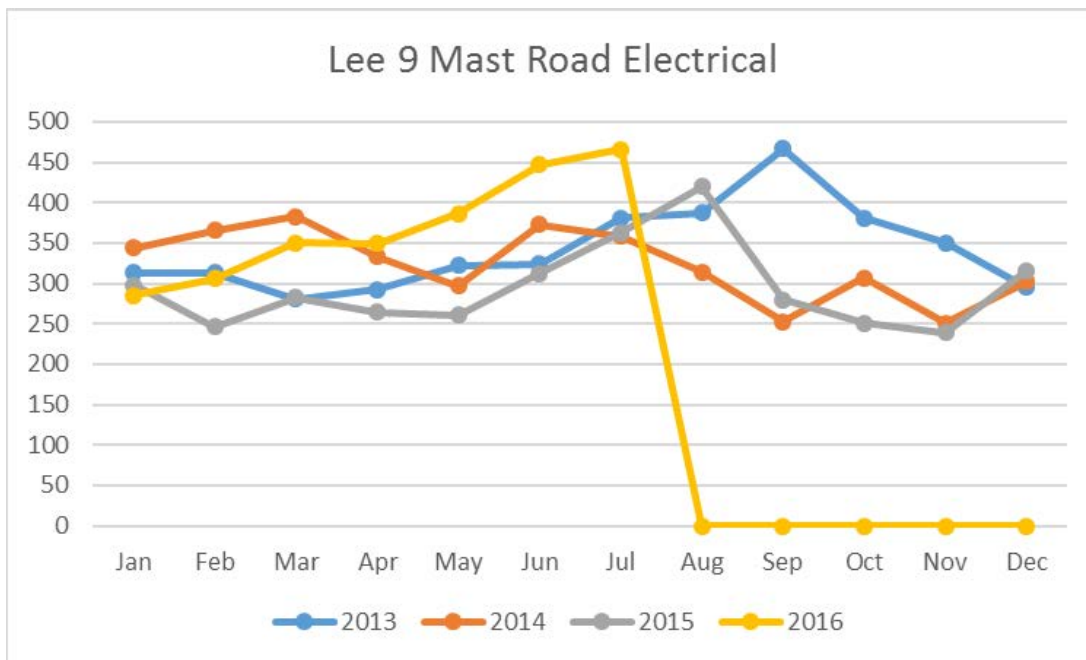
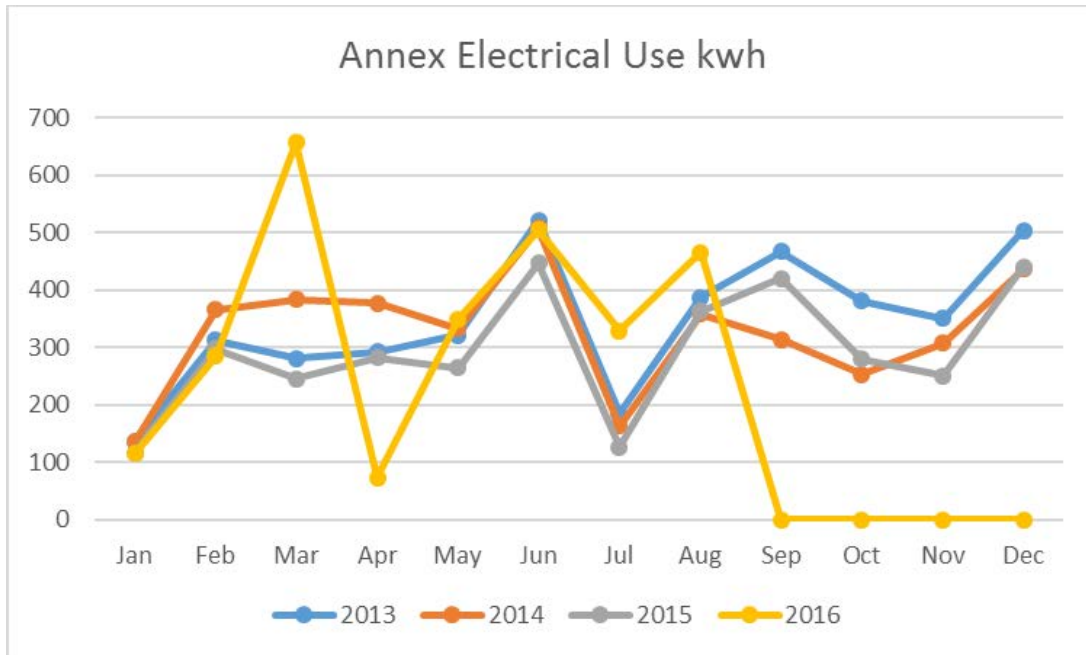
We recommend that the Town adopt, with modifications as needed, a unified system of identifying buildings and accounts for all vendors and for use by all staff and officials to insure ongoing data management. The following table shows some of the different names and facilities that may in the past have caused some confusion over accounts and labeling. This information is from the EPA Portfolio Manager for all accounts in the Town:

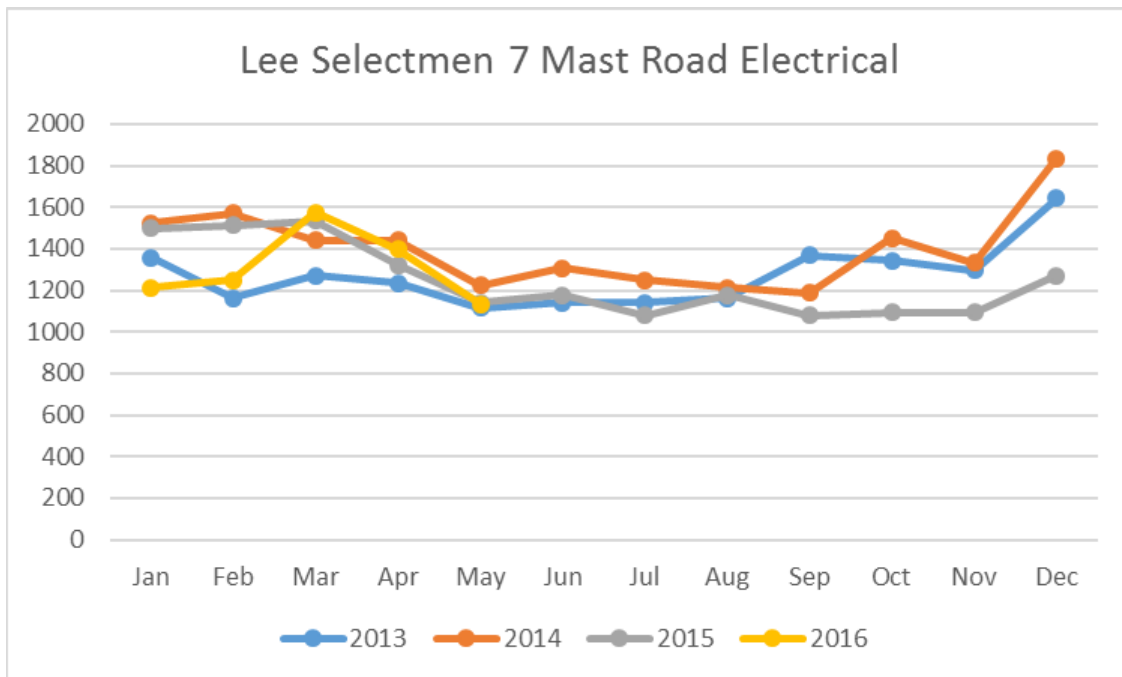
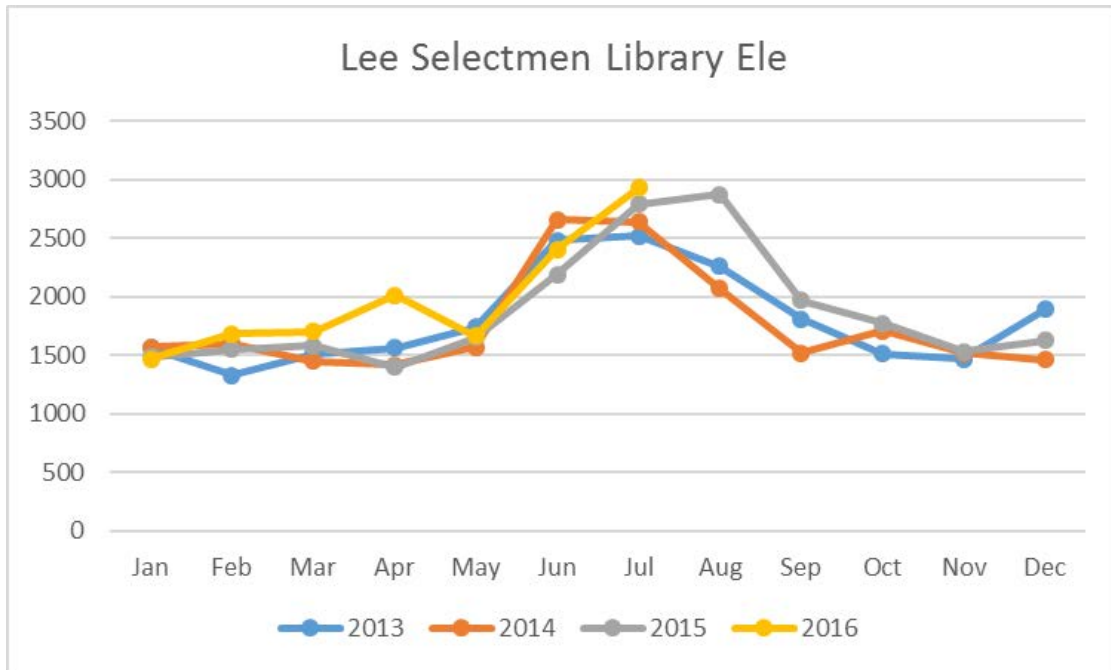
EPA Portfolio Manager Database Information								Provider Invoice Information			Notes
Data Entered into EPA PM	Have Data	Property Name	Property Type	EPA PM ID#	Energy Type	EPA PM Meter ID# (Database meter)	Date Range	Current Provider	Provider Meter ID# (Physical meter)	Account #	
X	X	Highway Dept. - Bldg 1 (Maintenance Garage)	Single building	5038577	Elect - Grid	21406003	01/2007 - 08/2016	NH Elect Coop	688074, 104993	436214510	Data entry complete.
X	X				Heat - Fuel oil No. 2	21406002 (2008), 22452176 (2010-2015)	12/09 - 05/15	Hanscom	N/A	121542	Data entry complete. Two EPA meter #s set up (as directed by EPA) because data missing for 2007 and most of 2009. EPA Meter # 1 (2008); EPA Meter #2 (2010-2015). Will remain 2 meters until data are found. Data for 2008 from previous EPA entry; none provided for this entry.
X	X				Heat - Fuel oil No. 2	22452225 (2015-2016)	10/15 - 09/16	Hartmann	N/A	12646	Data entry complete. Hartmann replaced Hanscom in 7/2015.
X	X	Highway Dept. Annex - Bldg 2 (Old Fire Station)	Single building	5038568	Elect - Grid	22445656	01/2007 - 08/2016	NH Elect Coop	684555, 58707	436214010	Data entry complete.
X	X				Heat - Fuel oil No. 2	22452234 (2010-2012), 22470666 (2014-2015)	01/10 - 03/12; 01/14 - 4/15	Hanscom	N/A	121540	Data entry complete. However, data were given two EPA meter #s (as directed by EPA) because data are missing for 2013. Will remain 2 meters until data found.
X	X				Heat - Fuel oil No. 2	22452285	10/15 - 09/16	Hartmann	N/A	12646	Data entry complete. Hartmann replaced Hanscom in 7/2015.
					Elect - Generators	21405933					Data entry probably unnecessary. Randy says they are gas-powered. Don't know source or how much used.
X	X	Public Safety Complex (PSC)	Single building	5038578	Elect - Grid	21406005	01/2007 - 08/2016	NH Elect Coop	666102, 689928, 113806, 95375	6000843600	Data entry complete.
X	X				Heat - Fuel oil No. 2	22485534 (2009-2012), 22485536 (2013-2015)	12/09 - 04/12; 10/13 - 05/15	Hanscom	N/A	121524	Data entry complete. However, data given two EPA meter #s (as directed by EPA) because data missing for 2012-13. Will remain 2 meters until data found.
X	X				Heat - Fuel oil No. 2	23324832	10/15 - 09/16	Hartmann	N/A	12646	Data entry complete. Hartmann replaced Hanscom in 7/2015.
X	X				Heat - Propane	21406004	12/07 - 05/16	DF Richard	Tank 2	125113	Data entry complete. Tank is shared by Police and Fire Departments.
X	X				Elect - Generator	21406006	01/09 - 01/15	Hanscom	N/A	121524	Data entry complete but may not be necessary to include it in EPA PM. Currently set to be excluded from analyses.
X	X	Town Hall	Single building	5038579	Elect - Grid	21406008	01/2007 - 07/2016	Eversource	\$75341725, G90449950	56721490043	Data entry complete.
X	X	Town Hall Annex	Single building	5038581	Elect - Grid	21406010	01/2007 - 08/2016	Eversource	\$74417099	56469390082	Data entry complete.
X	X	Town Library	Single building	5038584	Elect - Grid	21406023	01/2007 - 08/2016	Eversource	\$75341728	56380490029	Data entry complete.
X	X	Municipal Complex (Town Hall, Annex, Library)	Multiple Buildings (Campus)	5245009	Heat - Propane	23284773	01/2007 - 05/2016	DF Richard	Tank 1	125113	Data entry complete. One propane tank is shared by the three buildings, with cost divided proportionally between the Town Hall, Planning & Zoning (Annex), and the Library.

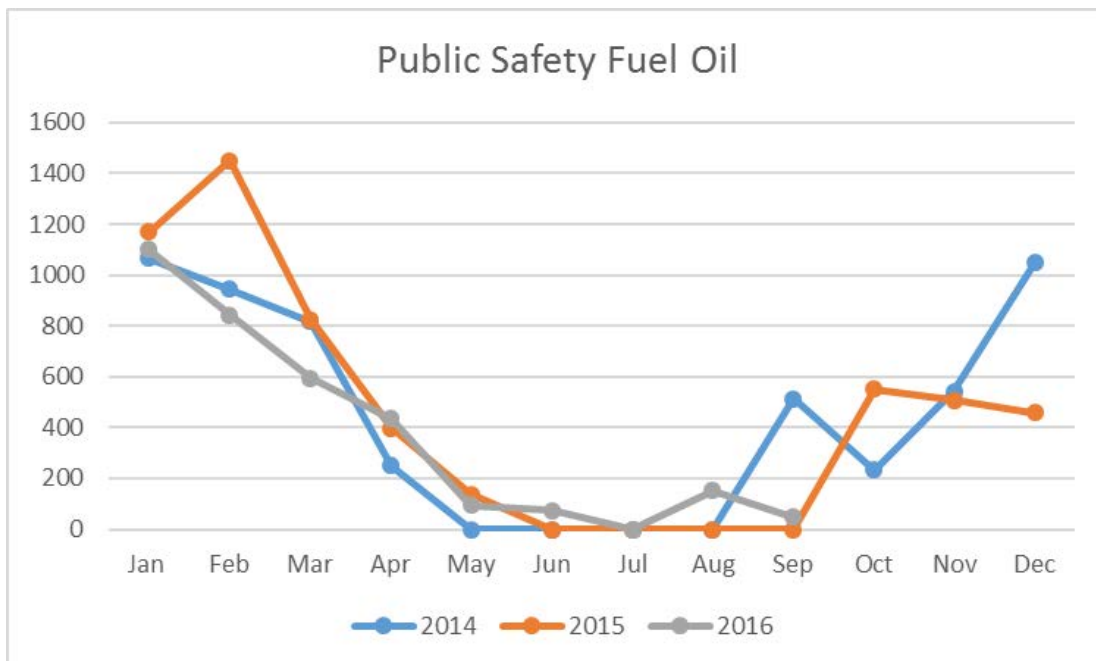
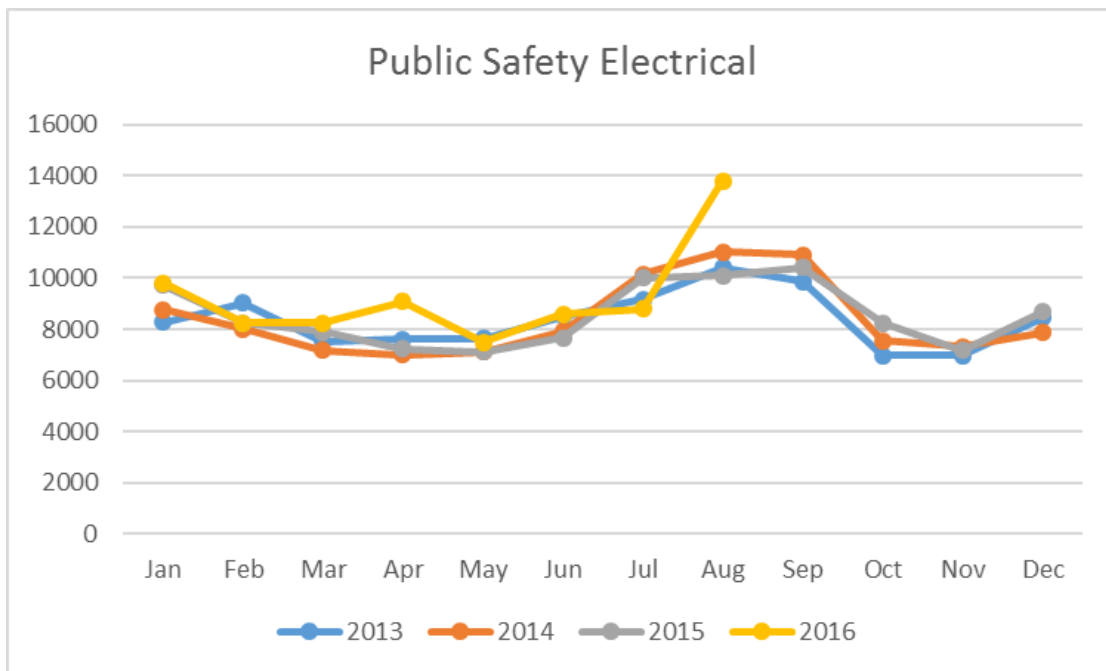
X	X	Transfer Station (Main Bldg & OBB Maintenance Shed)	Single building	5140527	Elect - Grid	23731754	01/2007 - 08/2016	NH Elect Coop	661478, 113946, 99629	60010279	Data entry complete. Meter serves the main office/drive-thru recycling building, the Old Bailer Building maintenance shed, and the small attached office for ticketing which has a small electric wall heater.
X	X			5140527	Heat - Propane	23280512	02/07 - 10/16	DF Richard	Tank 2	244509	Data entry complete. Building has three tanks but apparently only one is used.
				5140527	Heat - Waste oil						Old Bailer Building maintenance shed is heated with waste oil dropped off by residents for recycling.
X	X	Transfer Station Swap Shop	Single building	5138183	Elect - Grid	22450010	01/2007 - 08/2016	NH Elect Coop	690911, 108581	60011520	Data entry complete. Electricity for lights and small floor heater.
		250 LED Flood & Backup Compacter	Single building		Elect - Grid			NH Elect Coop	602718		No data yet.
		Historical Society Bldg	Single building		Elect - Grid			?	?	?	Still need data. Conflicting source and payment information preventing identifying data. Probably included as part of Town Hall Complex but needs confirmation.
					Heat - Propane or Electric			?	N/A	?	Still need data. Conflicting source and payment information preventing identifying data. Probably included as part of Town Hall Complex but needs confirmation.
	X	Little River Park (0 Mast Rd. Rec Dept)	Non-building Energy User		Elect - Grid			Eversource	D94316222, 574346313	56387226053	Have data but not entered. May not be necessary to include it in EPA PM. Provider changed meter # 11/30/15.
	X	Town Christmas Tree	Non-building Energy User		Elect - Grid			Eversource	W65262124	56435564059	Have data but not entered. May not be necessary to include it in EPA PM.
	X	Town Vault Annex (7 Mast Rd.)	Non-building Energy User		Elect - Grid			Eversource	S74417096, G20857279	56057785065	Have data but not entered. May not be necessary to include it in EPA PM.
	X	Caution Light 1	Non-building Energy User		Elect - Grid			NH Elect Coop	690945, 19626	436200510	Have data but not entered. May not be necessary to include it in EPA PM.
	X	Caution Light 2	Non-building Energy User		Elect - Grid			NH Elect Coop	684578, 76711	436204010	Have data but not entered. May not be necessary to include it in EPA PM.
	X	Mast Road Tennis Courts	Non-building Energy User		Elect - Grid			NH Elect Coop	684579, 51162	6000130600	Have data but not entered. May not be necessary to include it in EPA PM.

Once we were able to coordinate accounts and record data as a part of this project, we were able to identify trends in energy use. The raw data is included with this report electronically but summarized in the charts below for easy presentation. As the committee continues to use Portfolio Manager, which we highly recommend continuing, the separate recording of data in spreadsheets will be duplicative. It was completed as a part of this report for analysis.

The following is a sampling of town buildings and their use charts.







## Energy Prices and Energy Project Feasibility

We recognize the importance of projects that have both economic and environmental impacts and due to the dramatic drop in oil prices due to OPEC maneuvers in the global market there are many projects that do not appear to make economic returns considering current pricing.<sup>1</sup> Since the price of crude oil impacts all fossil fuels, we are already seeing slight rebound given recent output cuts from the latest move made by OPEC.<sup>2</sup> The issue for Lee is the challenge in predicting future prices for fossil fuel resources and making a judgment based on the risk associated with investment in a volatile market. We make no recommendation here on future pricing other than to suggest, regardless of the return, based on future fuel prices, reducing the overall exposure to volatility will have a stabilizing effect on energy budgets for Lee. Stability therefore is a consideration, along with savings, that must be included in a comprehensive decision regarding specific projects and an overall policy toward energy efficiency and renewables (as a mechanism for moving away from fossil fuel sources).

For electric-based projects, we find that prices are more consistent and will remain stable with some potential slight upward pressure in the future. This conclusion is supported not by anecdotal news or sound bites from political positions but from our own regional<sup>3</sup> and government agencies responsible for projecting energy costs in the future. The EIA provides objective data and research on this topic and remains consistent with its forecast for stable with some slight rise in electricity costs for the country and the northeast in its latest short-term<sup>4</sup> and long term energy outlook summarized in their report presentation – also showing relatively flat growth in energy consumption as well as price.<sup>5</sup> As such, the timing for projects related to electricity savings and renewable options remain a safer economic investment in conjunction with their obvious environmental benefits.

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<sup>1</sup> The Energy Information Agency (EIA) provides insight into this dynamic at the following site: <http://www.eia.gov/finance/markets/crudeoil/supply-opec.php> (Viewed 01/02/17).

<sup>2</sup> Again, the EIA provides insight into the impact of these moves as well as the relationship between oil and other petroleum products. View these analyses here: [http://www.eia.gov/finance/markets/crudeoil/reports\\_presentations/crude.pdf](http://www.eia.gov/finance/markets/crudeoil/reports_presentations/crude.pdf) (Viewed 01/02/17)

<sup>3</sup> The Independent System Operator for New England provides a very similar insight in their 2016 Regional Energy Outlook (the ISO-NE is a non-profit responsible for managing the grid and planning for future supply and transportation of electricity), their report can be viewed here: [https://www.iso-ne.com/static-assets/documents/2016/03/2016\\_reo.pdf](https://www.iso-ne.com/static-assets/documents/2016/03/2016_reo.pdf) (Viewed 01/02/17)

<sup>4</sup> View the latest Short-term Outlook here: <http://www.eia.gov/outlooks/steo/report/electricity.cfm> (Viewed 01/02/17). Next update scheduled for January 10, 2017.

<sup>5</sup> [http://www.eia.gov/pressroom/presentations/sieminski\\_01052017.pdf](http://www.eia.gov/pressroom/presentations/sieminski_01052017.pdf) (Viewed 01/02/07).

The final consideration within this scope of this effort is the presence of support for public projects that relate to energy efficiency and renewables. New Hampshire has a wide range of technical and financial support for public projects. This support makes these projects more attractive for communities. Recently developments, including but not limited to, the Energy Efficiency Resource Standard, expanding loans and grants from the Community Development Finance Authority (“CDFA”), all point to stable and expanding help for communities, like Lee, who are seeking to manage their energy use and expenditures. The list of opportunities for Lee is beyond the scope of this project but is well known by contractors and other providers who can assist the Town with specific projects. These recent additions complement an already strong suite of support options for communities that are well-recognized and successful programs, such as utility-based programs supported through System Benefits Charges and our participation in the Regional Greenhouse Gas Initiative.

## CDFA – Municipal Energy Reduction Fund

This is the main portal for the CDFA loan program for municipalities:

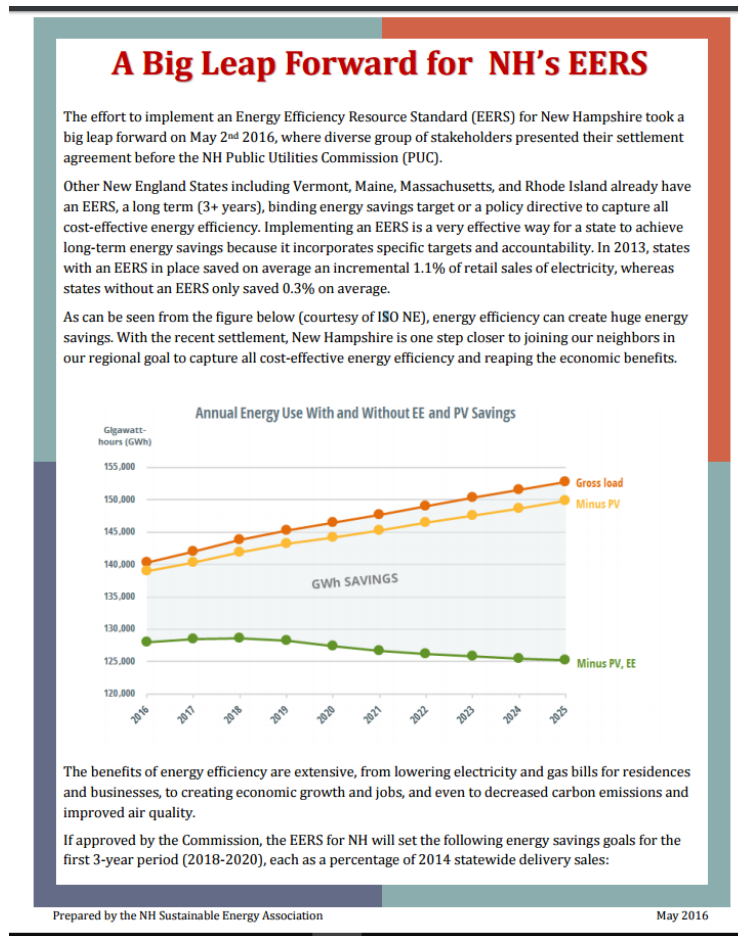
The screenshot shows the CDFA website's 'Municipal Energy Reduction Fund Overview' page. The header includes the CDFA logo, navigation links like 'Manage My Grants', 'Make a Pledge', and 'Apply Online', and a search bar. The main content area is divided into two columns. The left column contains the 'Municipal Energy Reduction Fund Overview' with tabs for 'Municipalities', 'Application', and 'FAQ'. It describes the fund's purpose, program details, eligible activities, and provides a link to the 'NH EnergySmart Schools Program'. The right column lists 'CDFA Events' with details for several meetings, including the 'Meeting of the CDFA Board of Directors' and the 'Meeting of the Finance Committee of the CDFA Board of Directors'. The page also includes social media sharing options at the bottom.

<http://www.nhcdfa.org/energy-efficiency/for-municipalities-overview>



## The Energy Efficiency Resource Standard (EERS)

The EERS is very new and still in development but should be watched carefully for the development of programs to support energy efficiency. The NH Sustainable Energy Association has provided an excellent summary and can be an excellent resource for monitoring the development of EERS-based programs. It would behoove the Energy Committee to become a member of NHSEA to take advantage of their support (NHSEA is member-supported non-profit that has other town energy committees as members). [www.nhsea.org](http://www.nhsea.org)



<http://www.nhsea.org/sites/default/files/EERS%20Summary.pdf>

## Utility CORE Programs

Both Eversource and NH Electric Coop offer programs to assist municipalities. Depending on the account, Lee has the opportunity to work with both utilities to provide support for energy efficiency projects.

Eversource:

EVERSOURCE

[Change Location](#) [Log In](#) [Contact Us](#)  
Your location: New Hampshire

RESIDENTIAL

BUSINESS

ABOUT

My Account

Outages

Save Money & Energy

Programs & Services

Safety

New Hampshire / Business / Save Money & Energy / Smart Energy Solutions / Municipal Smart Start Program

ENERGY SAVINGS PLAN

SMART ENERGY SOLUTIONS

Small Business Energy Solutions

Commercial & Industrial Retrofit Program

Municipal Smart Start Program

New Equipment & Construction


New Equipment & Construction for Schools

Tax Incentives @ SBA.gov

BUSINESS ENERGY SAVING FACTS

ENERGY PROFILER ONLINE

ELECTRIC VEHICLES



## MUNICIPAL SMART START PROGRAM

Our Smart Start Program gives our municipal customers the opportunity to install energy saving measures with no up front costs.

Payment for services and products are made over time with the savings obtained from lower energy costs.

Here's how it works:

- Eversource applies rebates for all eligible retrofit measures.
- Eversource finances the remaining costs associated with the purchase and installation of approved measures.
- A Smart Start Purchase and Installation Charge, calculated to be less than the monthly savings, is added to your monthly electric bill until all costs are repaid.
- The new energy efficient, environmentally friendly equipment you install through this program pays for itself over time.

To enroll, contact the Community Relations Specialist serving your geographic area:

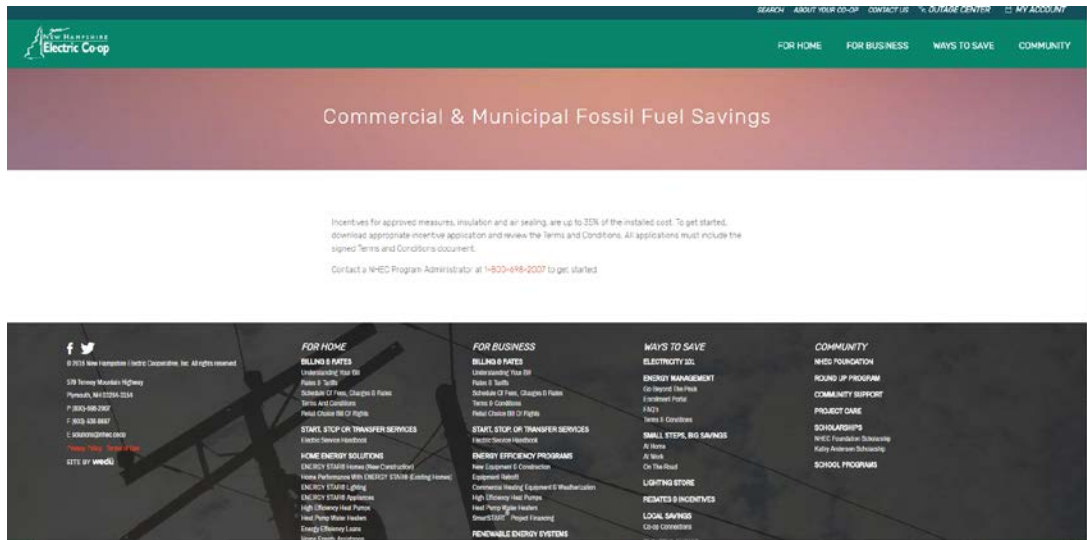
- Northern Region: [Donna Keeley](#)
- Central Region: [Maria Letourneau](#)
- Southern Region: [Elizabeth LaRocca](#)
- Eastern Region: [Catalina Celentano](#)
- Western Region: [Laurel Boivin](#)

Not sure what region you're in? Check out a [map of our service territory](#) in New Hampshire.

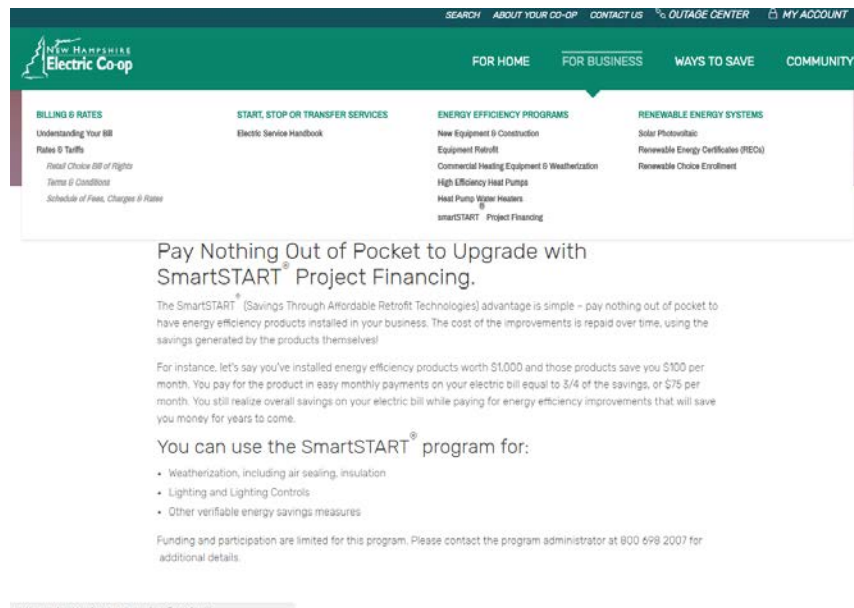
<https://www.eversource.com/Content/nh/business/save-money-energy/programs-incentives/municipal-smart-start-program>

NH Electric Co-op:

NH Electric Co-op has a similar program and also offers support for fuel as well as electrical projects:



For electrical and specific equipment projects the NHEC offers a host of projects under the Business topic – municipalities enjoy the same access as businesses with NHEC – a partial listing is found on the NHEC website and specific contact to the NHEC can be made through [solutions@nhec.com](mailto:solutions@nhec.com) attention: Joe Lajewski. NHEC also offers SmartSTART financing – which is on bill financing for projects:



## Regional Greenhouse Gas Initiative

Funds from RGGI have been redirected to the CDFA MERF program and utility CORE programs – both discussed above. We mention this so that the Town may be informed of the source of these funds that support municipal projects. RGGI is a highly debated issue in Concord and we feel obligated to inform the Town that the funds from RGGI support many municipal opportunities for energy efficiency projects.

### Recommendations:

#### Overall Recommendations

In general, our recommendation is to continue working with Town staff to automate the ongoing reporting of energy usage and costs with the Energy Committee. This will help the Town understand and manage its existing costs and plan for future projects related to energy usage in Lee. We also recommend undertaking electrical projects as soon as reasonable. For thermal projects we recommend taking a more reserved approach and take the chance to plan further given the current low costs for thermal energy. Finally, we recommend seeking out no-cost or very low-costs assistance from UNH students who could gain internship experience to continue assisting the Energy Committee. These recommendations are more clearly laid out below.

#### Data Management.

Apply Consistent Account Labels: There are numerous accounts and providers that relate to energy use in Town. This is common for all municipalities. Agreeing on a system of account names and terms will help insure consistent monitoring of costs and insure that changes in vendors happens seamlessly and that RFPs for service are based on solid data.

- Having solid data foundations also allows for increased effectiveness in planning for grants and projections for savings.
- Consistent data reporting gives the Town security in terms of monitoring vendor deliveries and costs and provides assurance that accounts are paid with the proper line item during budgeting and fiscal planning.

#### Recommendation:

- The Energy Committee has developed a robust history and set of account naming mechanisms that should be presented to the Selectmen and staff for review and potential adoption in accounting software, vendors and budgeting.

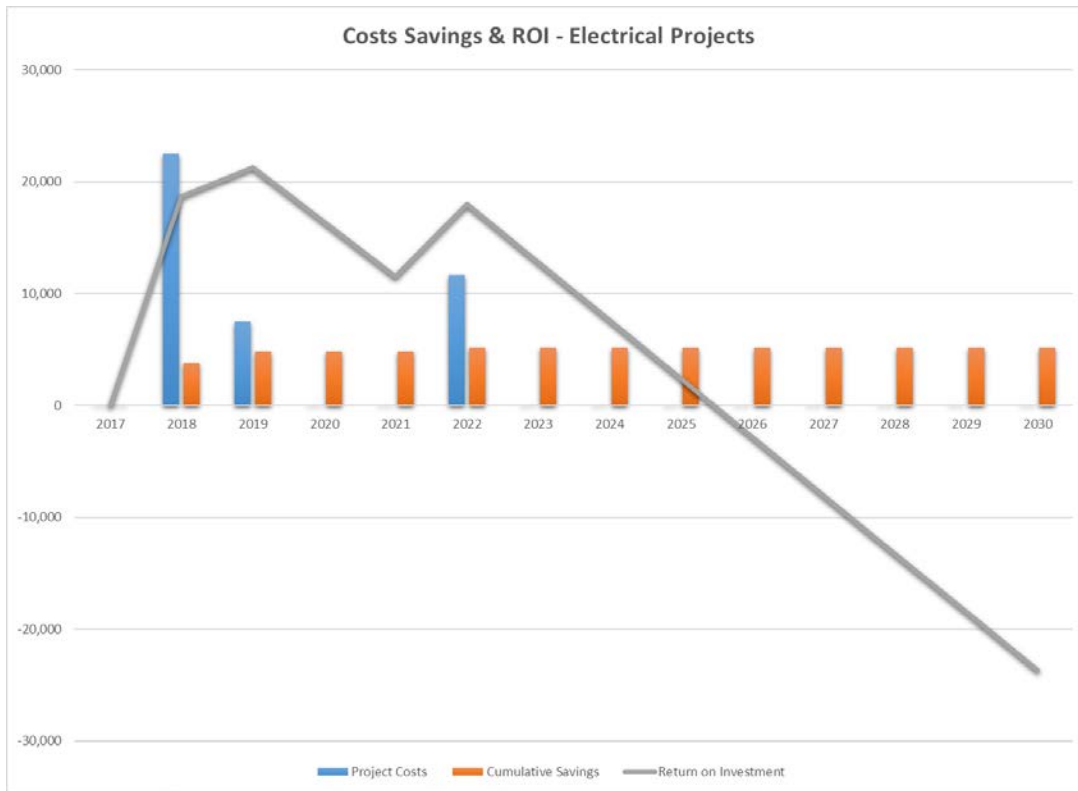
## Electrical Energy Projects.

Consider Electrical Energy Projects Immediately: Several of the electrical energy projects are warranted under current and projected energy costs. These projects are calculated out in the ECIP Table: Electrical Energy Project Planning. These investments can be offset from a host of potential fiscal and technical support opportunities. Even without significant financial support, proper timing for projects could result in cost-neutral savings over a fairly short time frame.

- Financial support programs for projects (listed above) should be reviewed for participation. Application packages will be easy to build from this ECIP and can help in the competitive process for some grants or help modify projects to fit within specific opportunities.
- Specific attention should be given to programs offered by Eversource and NH Electric Co-op (Lee is served by both utilities). It has always been our experience that utilities are always helpful and supportive of community efforts to achieve energy efficiency through these targeted opportunities.

### Recommendation:

- Review the ECIP Electrical Projects and consider the appropriate projects in light of eligible financial support programs in the upcoming fiscal year to coordinate with budgeting for the 2018 cycle.
- Develop a plan for project implementation and grant/assistance applications timed for the 2018 budget cycle so that the Energy Committee can prepare the necessary reports and data to inform the budget process with the Board of Selectmen and Town staff.
- The spreadsheets that generated the support for these recommendations are included in the appendix. The following charts show the projects for electrical project costs, savings over time and a line indicating the return on investment, a negative line indicates cash-flow positive to the Town from the baseline of the project start.



## Internship Support

UNH students provide a source of support for the Town of Lee. In the past, students have worked on conservation, agriculture and other town-related projects. With an increase of student interest in energy-related courses, the opportunity to seek out interns looking for experience is a growing opportunity for the Town. Interns could help with data management; grant applications and research to support the Energy Committee in their efforts.

- Students often seek internships during the semester and summer periods and with faculty guidance and support can complete specific projects and/or standard support for the committee's efforts.
- Initially, most students may source from the Natural Resources department but with greater exposure and connections, business and engineering students could likely be a source for meaningful and innovative internship experiences.
- We believe a qualified intern, with planning and/or energy course experience, could help the Energy Committee prepare the necessary application information for grants and financial support as well as gather other information the Committee needs to present the projects to the Town for consideration.

## Capital Improvement Programming

This update includes the original electronic version of spreadsheets to develop a Capital Improvement Programming approach to projects. In essence, the Planning Board could recommend the Town adopt CIP accounting under NH RSA 674:5 and program the deposits and expenditures over time to achieve a balance between costs and savings to minimize impacts on the tax rate.

By spreading the expenses out over time and matching them to projected savings the immediate impact is minimized and the long-term savings and stability in energy pricing can be achieved. The original report provided to the Town of Lee provides a much more robust description of the CIP process.

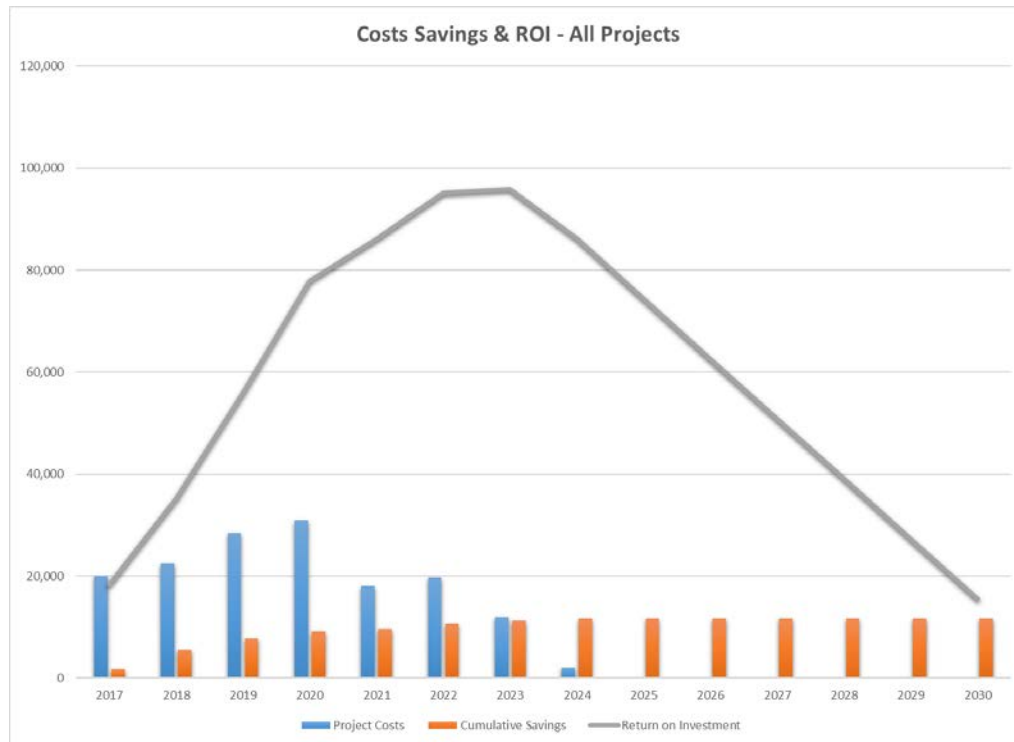
## Thermal Energy Projects

Plan for Thermal Energy Projects. With the suppressed price in fossil fuels (see discussion above), we recommend the Town take a planning effort to prepare for thermal energy projects as costs rise and in conjunction with research on financial support.

We recognize that under current pricing, most of these projects may not appear to be financially feasible without outside financing but offer up the source data to be updated as costs rise and to include any funding sources that may help support the projects.

Targeted projects across the town are already feasible both technically and economically, but these may need to be taken on through an individual basis. Such projects include insulating the oil tanks on compressors at the transfer station.

The chart below shows the challenge associated with completion of all identified projects for thermal energy efficiency and is not meant to discourage research or investment. It is merely a summary of all projects and their total impacts. Referring to the original data sets will allow for consideration of individual projects and projects that may have specific support through Eversource, NHEC or other programs listed above.



## Financial Assistance

As detailed above, there are public and private sources for financial support. Many of these sources are potential opportunities for the Town of Lee. Each program has an application process and will require review and research to understand the opportunities for Lee. Working with an intern to complete this preliminary research can help the Committee focus on the opportunities that mesh well with the project outlined herein.

In some cases, projects may become more attractive due entirely to the availability of specific programs to support the Town's efforts. This can be a task suited for an intern or for the Committee members.

We recommend that the initial efforts focus on utility programs given their long-standing existence and the stable funding. Furthermore, the utilities themselves are very helpful in providing assistance to Towns seeking support for these projects.

## Non-traditional Specific Project Recommendations.

There are a few specific items we recommend immediately that fall outside a specific category in this report. These projects represent an opportunity that we believe warrants the Town's immediate consideration given the savings and other benefits to the Town.



- Swap Shop Relocation.

The Swap Shop is a popular option at the Lee transfer station and represents a focal point for waste reduction and community support. The current building has a significant electric bill (for both heating as well as general use). It also has its own service meter – which results in monthly customer charges regardless of the use.

Relocating the swap shop next to the maintenance garage (see photos) would allow the Town to update the swap shop to the proposed location will improve circulation on the site, provide an updated customer-friendly facility attuned to the community's need and provide reduced costs. Connecting the electric load to the existing main account and eliminating the meter serving the swap shop can realize these cost savings. The newly relocated swap shop could also receive heating from the waste oil heater serving the maintenance building, lowering costs for heating overall.

- Meter Elimination Transfer Station.

A 2-phase service meter is currently serving the old compactor equipment. This equipment has been consider a back-up to the main compactors but continues to generate costs for the Town solely for the meter's presence. The Town and staff should consider whether the need for a back-up compactor merits the additional costs for the meter which is generating annual costs.

Another option is to run power from the main facility to this location and unify the electrical under one meter for the whole site.

#### Additional Information.

We have included a complete electronic copy of all pictures, spreadsheets, data sources and other information with this report. The appendices that follow are the major data sources and a presentation of the inspection of Town Hall and the findings and recommendations for the Town Transfer Station. We offer these as part of this update so that the committee may continue building on these templates to complete their work.

Project Schedule - All

Building	Project Description		Total Project Cost	Heating Savings	kwh Savings	2017	2018	2019	2020	2021	2022	2023	2024 Total
Town Hall													
	Lighting		\$3,000		10%		\$3,000						\$3,000
	Door Weatherization	Town	\$150	2%		\$150							\$150
	Window Weatherization	Town	\$500	5%		\$500							\$500
	Foam Air Sealing		\$1,250	5%		\$1,250							\$1,250
	Heat Pipe Insulation	Town	\$250	2%		\$250							\$250
	Wrap Hot Water Tank	Done											
	Ceiling Insulation Interior		\$7,500	12%		\$7,500							\$7,500
	Boiler	No Rec.											
	Boiler Room Retrofit	Partial	\$2,000	5%		\$2,000							\$2,000
	Retro Fit Crawl Space		\$12,500	12%						\$12,500			\$12,500
				43%	10%								
Town Hall Annex													
	Lighting		\$500		7%		\$500						\$500
	Door Weatherization	Town	\$150	3%		\$150							\$150
	Replacement Windows		\$4,000	7%		\$4,000							\$4,000
	Foarm Air Sealing		\$1,500	3%						\$1,500			\$1,500
	Attic Insulation		\$4,000	7%						\$4,000			\$4,000
	Wrap Hot Water Tank	Town	\$50		5%	\$50							\$50
	Boiler Replacement		\$5,000	10%						\$5,000			\$5,000
	Heat Pipe Insulation	Town	\$250	3%		\$250							\$250
				33%	12%								
Library													
	Insulate Basement		\$5,000	5%				\$5,000					\$5,000
	Insulate Children's Room		\$3,500	5%				\$3,500					\$3,500
	Insulate Exterior Walls		\$10,000	10%				\$10,000					\$10,000
	Door Weatherization		\$150	2%		\$150							\$150
	Window Sealing	Town	\$350	5%		\$350							\$350
	Replace AC		\$7,500		10%					\$7,500			\$7,500
	Furnace Replacement		\$4,200		5%					\$4,200			\$4,200
	Insulate Ductwork		\$3,000	5%						\$3,000			\$3,000
	Lighting		\$3,000		12%		\$3,000						\$3,000
				32%	27%								
Public Safety Complex													
	Heat Recovery Ventilation		\$7,000	5%								\$7,000	\$7,000
	Attic Insulation and Sealing		\$12,500	7%					\$12,500				\$12,500
	Fire Garage Insulation/Air Sealing		\$15,000	7%					\$15,000				\$15,000
	Attic Hatch	Town	\$200	1%		\$200							\$200
	Soffit Vents		\$2,000	5%									\$2,000
	Insulate/Seal Equipment Room		\$5,000	3%								\$2,000	\$2,000
	Lighting Sensors		\$12,000		7%		\$12,000				\$5,000		\$5,000
	Insulate Maintenance Room		\$3,500	2%					\$3,500				\$3,500
	Insulate Between Buildings		\$2,500	5%				\$2,500					\$2,500
	Door Weatherization	Town	\$200	2%		\$200							\$200
	Lighting		\$4,000		12%		\$4,000						\$4,000
	Total			37%	19%								
Transfer Station													
	Roof Insulation R2.8 - R30 Office		\$1,250	10%		\$2,500							\$2,500
	Pipe Insulation	Town	\$200	3%		\$200							\$200
	Relocate Swap Shop		\$5,000		8%			\$5,000					\$5,000
	Air Seal Pump Room		\$250	2%		\$250							\$250
	Compactor Crawl Space Insulation		\$2,500		5%			\$2,500					\$2,500
	Total			15%	13%								
			\$152,400			\$19,950	\$22,500	\$28,500	\$31,000	\$18,000	\$19,700	\$12,000	\$2,000 \$153,650

Project Savings - All

				kwh Rate	0.16											
				Propane Rate	1.79											
				No 2 Rate	1.84											
Building	Project Description			Total Project Cost	Heating Savings	kwh Savings	2017	2018	2019	2020	2021	2022	2023	2024 Savings Cumulative	Simple ROI	
Town Hall	kwh	Lighting		\$3,000	0%	10%		\$320	\$320	\$320	\$320	\$320	\$320	\$320	\$2,240	9
20000		Door Weatherization	Town	\$150	2%	0%	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$401	3
Propane	1400	Window Weatherization	Town	\$500	5%	0%	\$125	\$125.30	\$125.30	\$125.30	\$125.30	\$125.30	\$125.30	\$125.30	\$1,002	4
		Foam Air Sealing		\$1,250	5%	0%	\$125	\$125.30	\$125.30	\$125.30	\$125.30	\$125.30	\$125.30	\$125.30	\$1,002	10
	Heat Pipe Insulation	Town	\$250	2%	0%	\$50	\$50.12	\$50.12	\$50.12	\$50.12	\$50.12	\$50.12	\$50.12	\$401	5	
	Wrap Hot Water Tank	Done		0%	0%											
	Ceiling Insulation Interior		\$7,500	12%	0%	\$301	\$300.72	\$300.72	\$300.72	\$300.72	\$300.72	\$300.72	\$300.72	\$2,406	25	
	Boiler	No Rec.		0%	0%											
	Boiler Room Retrofit	Partial	\$2,000	5%	0%	\$125	\$125.30	\$125.30	\$125.30	\$125.30	\$125.30	\$125.30	\$125.30	\$1,002	16	
	Retro Fit Crawl Space		\$12,500	15%	0%					\$375.90	\$375.90	\$375.90	\$375.90	\$1,504	33	
			Total			43%	10%									
Town Hall Annex	kwh	Lighting		\$500	0%	7%		\$43	\$43	\$43	\$43	\$43	\$43	\$43	\$298	12
3800		Door Weatherization	Town	\$150	3%	0%	\$45	\$45	\$45	\$45	\$45	\$45	\$45	\$45	\$361	3
Propane	840	Replacement Windows		\$4,000	7%	0%	\$105	\$105	\$105	\$105	\$105	\$105	\$105	\$105	\$842	38
		Foarm Air Sealing	Town	\$350	3%	0%					\$45	\$45	\$45	\$45	\$180	8
	Attic Insulation		\$4,000	7%	0%					\$105	\$105	\$105	\$105	\$421	38	
	Wrap Hot Water Tank		\$50	0%	5%	\$30	\$30	\$30	\$30	\$30	\$30	\$30	\$30	\$243	2	
	Boiler Replacement		\$5,000	10%	0%						\$150	\$150	\$150	\$451	33	
	Heat Pipe Insulation	Town	\$250	3%	0%	\$45	\$45	\$45	\$45	\$45	\$45	\$45	\$45	\$361	6	
		Total			33%	12%										
	Library	kwh	Insulate Basement		\$5,000	5%	0%			\$215	\$215	\$215	\$215	\$215	\$215	\$1,289
21000	Insulate Children's Room			\$3,500	5%	0%			\$215	\$215	\$215	\$215	\$215	\$215	\$1,289	16
Propane	2400	Insulate Exterior Walls		\$10,000	10%	0%			\$430	\$430	\$430	\$430	\$430	\$430	\$2,578	23
		Door Weatherization	Town	\$150	2%	0%	\$86	\$86	\$86	\$86	\$86	\$86	\$86	\$86	\$687	2
	Window Sealing	Town	\$350	5%	0%	\$215	\$215	\$215	\$215	\$215	\$215	\$215	\$215	\$1,718	2	
	Replace AC		\$7,500	0%	10%						\$336	\$336	\$336	\$1,008	22	
	Furnace Replacement		\$4,200	10%	0%						\$336	\$336	\$336	\$1,008	13	
	Insulate Ductwork		\$3,000	5%	0%						\$215	\$215	\$215	\$644	14	
	Lighting		\$3,000	0%	12%		\$403	\$403	\$403	\$403	\$403	\$403	\$403	\$2,822	7	
		Total			32%	27%										
	Public Safety Complex	kwh	Heat Recovery Ventilation		\$7,000	5%	0%						\$414	\$414	\$828	17
100000	Attic Insulation and Sealing			\$12,500	7%	0%			\$580	\$580	\$580	\$580	\$580	\$2,898	22	
No.2	4500	Fire Garage Insulation/Air Sealing		\$15,000	7%	0%				\$580	\$580	\$580	\$580	\$580	\$2,898	26
		Attic Hatch	Town	\$200	1%	0%	\$83	\$83	\$83	\$83	\$83	\$83	\$83	\$83	\$662	2
	Soffit Vents	Town	\$2,000	5%	0%								\$414	\$414	5	
	Insulate/Seal Equipment Room		\$5,000	3%	0%							\$248	\$248	\$497	20	
	Lighting Sensors		\$12,000	0%	7%		\$1,120	\$1,120	\$1,120	\$1,120	\$1,120	\$1,120	\$1,120	\$7,840	11	
	Insulate Maintenance Room		\$3,500	2%	0%			\$166	\$166	\$166	\$166	\$166	\$166	\$828	21	
	Insulate Between Buildings		\$2,500	5%	0%			\$414	\$414	\$414	\$414	\$414	\$414	\$2,484	6	
	Door Weatherization	Town	\$200	2%	0%	\$166	\$166	\$166	\$166	\$166	\$166	\$166	\$166	\$1,325	1	
	Lighting		\$4,000	0%	12%		\$1,920	\$1,920	\$1,920	\$1,920	\$1,920	\$1,920	\$1,920	\$13,440	2	
		Total			37%	19%										
	Transfer Station	kwh	Roof Insulation R2.8 - R30 Office		\$1,250	10%	0%	\$84	\$84	\$84	\$84	\$84	\$84	\$84	\$84	\$673
50000	Pipe Insulation		Town	\$200	3%	0%	\$25	\$25	\$25	\$25	\$25	\$25	\$25	\$25	\$202	8
Propane	470	Relocate Swap Shop		\$5,000	0%	8%			\$640	\$640	\$640	\$640	\$640	\$640	\$3,840	8
		Air Seal Pump Room		\$250	2%	0%	\$17	\$17	\$17	\$17	\$17	\$17	\$17	\$17	\$135	15
	Compactor Crawl Space Insulation		\$2,500	0%	5%			\$400	\$400	\$400	\$400	\$400	\$400	\$2,400	6	
	Total				15%	13%										
kwh Transfer = Estimate				\$151,250			\$1,678	\$5,484	\$7,797	\$9,122	\$9,648	\$10,685	\$11,348	\$11,762	\$67,523	

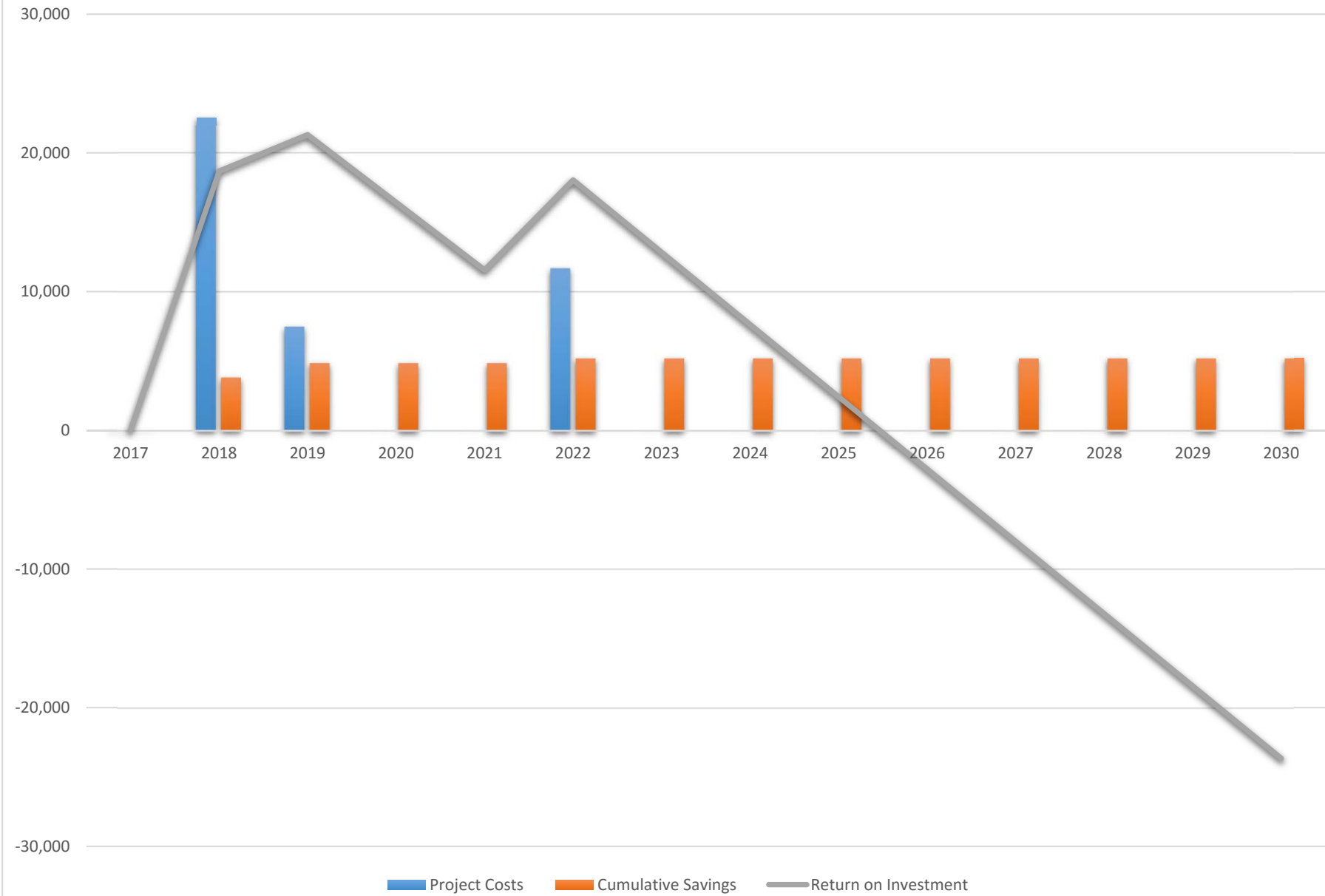
Project Schedule - Electric

Building	Project Description		Total Project Cost	Heating Savings	kwh Savings	2017	2018	2019	2020	2021	2022	2023	2024 Total
Town Hall													
	Lighting		\$3,000		10%		\$3,000						\$3,000
	Door Weatherization	Town	\$150	2%									\$0
	Window Weatherization	Town	\$500	5%									\$0
	Foam Air Sealing		\$1,250	5%									\$0
	Heat Pipe Insulation	Town	\$250	2%									\$0
	Wrap Hot Water Tank	Done											
	Ceiling Insulation Interior		\$7,500	12%									\$0
	Boiler	No Rec.											
	Boiler Room Retrofit	Partial	\$2,000	5%									\$0
	Retro Fit Crawl Space		\$12,500	12%									\$0
				43%	10%								
Town Hall Annex													
	Lighting		\$500		7%		\$500						\$500
	Door Weatherization	Town	\$150	3%									\$0
	Replacement Windows		\$4,000	7%									\$0
	Foarm Air Sealing		\$1,500	3%									\$0
	Attic Insulation		\$4,000	7%									\$0
	Wrap Hot Water Tank	Town	\$50		5%	\$50							\$50
	Boiler Replacement		\$5,000	10%									\$0
	Heat Pipe Insulation	Town	\$250	3%									\$0
				33%	12%								
Library													
	Insulate Basement		\$5,000	5%									\$0
	Insulate Children's Room		\$3,500	5%									\$0
	Insulate Exterior Walls		\$10,000	10%									\$0
	Door Weatherization		\$150	2%									\$0
	Window Sealing	Town	\$350	5%									\$0
	Replace AC		\$7,500		10%						\$7,500		\$7,500
	Furnace Replacement		\$4,200		5%						\$4,200		\$4,200
	Insulate Ductwork		\$3,000	5%									\$0
	Lighting		\$3,000		12%		\$3,000						\$3,000
				32%	27%								
Public Safety Complex													
	Heat Recovery Ventilation		\$7,000	5%									\$0
	Attic Insulation and Sealing		\$12,500	7%									\$0
	Fire Garage Insulation/Air Sealing		\$15,000	7%									\$0
	Attic Hatch	Town	\$200	1%									\$0
	Soffit Vents		\$2,000	5%									\$0
	Insulate/Seal Equipment Room		\$5,000	3%									\$0
	Lighting Sensors		\$12,000		7%		\$12,000						\$12,000
	Insulate Maintenance Room		\$3,500	2%									\$0
	Insulate Between Buildings		\$2,500	5%									\$0
	Door Weatherization	Town	\$200	2%									\$0
	Lighting		\$4,000		12%		\$4,000						\$4,000
	Total			37%	19%								
Transfer Station													
	Roof Insulation R2.8 - R30 Office		\$1,250	10%									\$0
	Pipe Insulation	Town	\$200	3%									\$0
	Relocate Swap Shop		\$5,000		8%			\$5,000					\$5,000
	Air Seal Pump Room		\$250	2%									\$0
	Compactor Crawl Space Insulation		\$2,500		5%			\$2,500					\$2,500
	Total			15%	13%								
			\$152,400			\$50	\$22,500	\$7,500	\$0	\$0	\$11,700	\$0	\$0 \$41,750

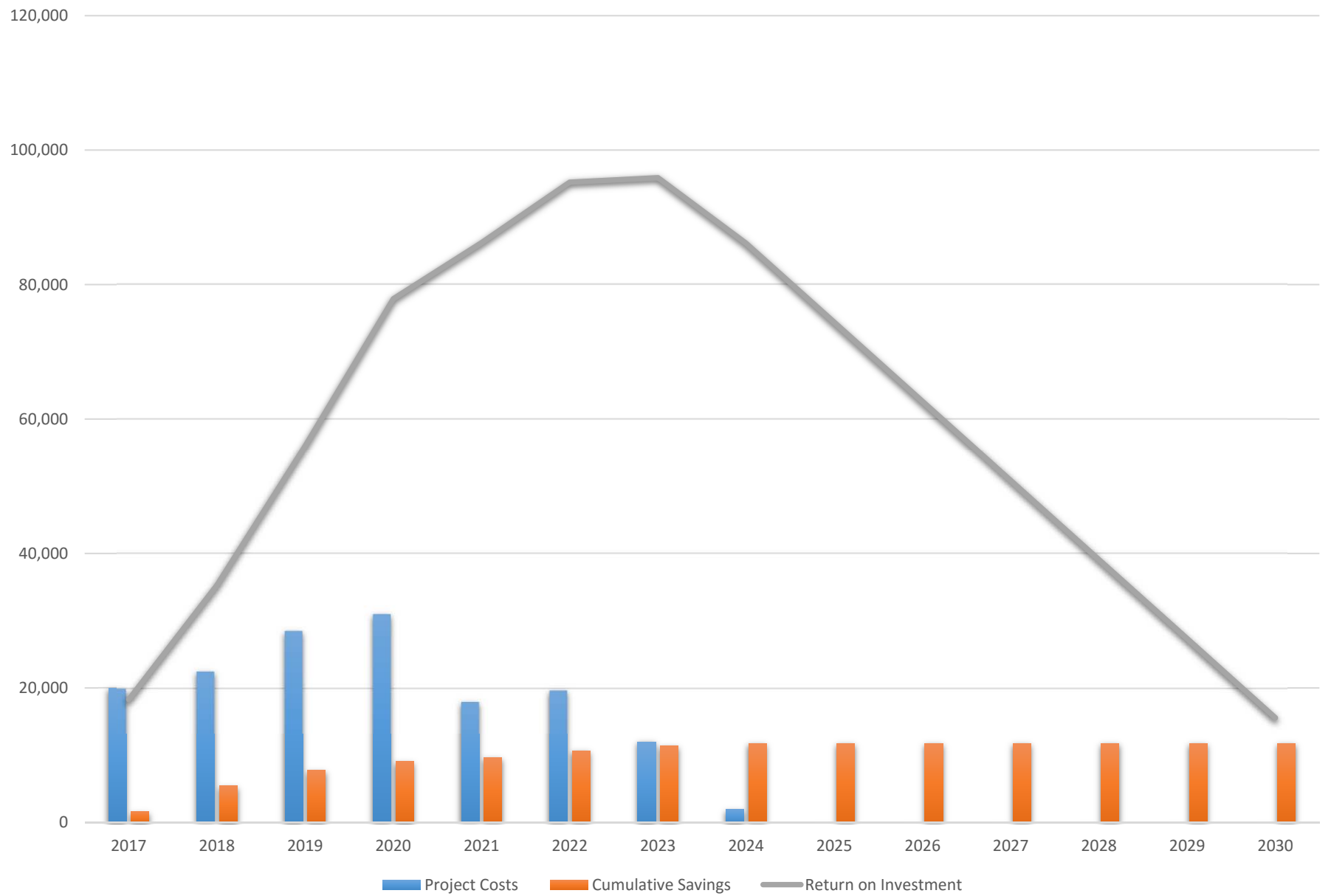
Savings Electric

			kwh Rate		0.16										
			Propane Rate		1.79										
			No 2 Rate		1.84										
Building	Project Description		Total Project Cost	Heating Savings	kwh Savings	2017	2018	2019	2020	2021	2022	2023	2024	Savings Cumulative	Simple ROI
Town Hall	Lighting		\$3,000	0%	10%										
kwh	20000 Door Weatherization	Town	\$150	2%	0%		\$320	\$320	\$320	\$320	\$320	\$320	\$320	\$2,240	9
Propane	Window Weatherization	Town	\$500	5%	0%										
	1400 Foam Air Sealing		\$1,250	5%	0%										
	Heat Pipe Insulation	Town	\$250	2%	0%										
	Wrap Hot Water Tank	Done		0%	0%										
	Ceiling Insulation Interior		\$7,500	12%	0%										
	Boiler	No Rec.		0%	0%										
	Boiler Room Retrofit	Partial	\$2,000	5%	0%										
	Retro Fit Crawl Space		\$12,500	15%	0%										
	Total			43%	10%										
Town Hall Annex	Lighting		\$500	0%	7%		\$43	\$43	\$43	\$43	\$43	\$43	\$43	\$298	12
kwh	3800 Door Weatherization	Town	\$150	3%	0%										
Propane	Replacement Windows			7%	0%										
	840 Foarm Air Sealing	Town	\$350	3%	0%										
	Attic Insulation			7%	0%										
	Wrap Hot Water Tank		\$50	0%	5%	\$30	\$30	\$30	\$30	\$30	\$30	\$30	\$30	\$243	2
	Boiler Replacement			10%	0%										
	Heat Pipe Insulation	Town	\$250	3%	0%										
	Total			33%	12%										
Library	Insulate Basement			5%	0%										
kwh	21000 Insulate Children's Room			5%	0%										
Propane	Insulate Exterior Walls			10%	0%										
	2400 Door Weatherization	Town	\$150	2%	0%										
	Window Sealing	Town	\$350	5%	0%										
	Replace AC		\$7,500	0%	10%					\$336	\$336	\$336	\$336	\$1,008	22
	Furnace Replacement			5%	0%										
	Insulate Ductwork			5%	0%										
	Lighting		\$3,000	0%	12%		\$403	\$403	\$403	\$403	\$403	\$403	\$403	\$2,822	7
	Total			32%	27%										
Public Safety Complex	Heat Recovery Ventilation			5%	0%										
kwh	100000 Attic Insulation and Sealing			7%	0%										
No.2	Fire Garage Insulation/Air Sealing			7%	0%										
	4500 Attic Hatch	Town	\$200	1%	0%										
	Soffit Vents	Town	\$2,000	5%	0%										
	Insulate/Seal Equipment Room			3%	0%										
	Lighting Sensors		\$12,000	0%	7%	\$1,120	\$1,120	\$1,120	\$1,120	\$1,120	\$1,120	\$1,120	\$1,120	\$7,840	11
	Insulate Maintenance Room			2%	0%										
	Insulate Between Buildings			5%	0%										
	Door Weatherization	Town	\$200	2%	0%										
	Lighting		\$4,000	0%	12%	\$1,920	\$1,920	\$1,920	\$1,920	\$1,920	\$1,920	\$1,920	\$1,920	\$13,440	2
	Total			37%	19%										
Transfer Station	Roof Insulation R2.8 - R30 Office			10%	0%										
kwh	50000 Pipe Insulation	Town	\$200	3%	0%										
Propane	Relocate Swap Shop			0%	8%			\$640	\$640	\$640	\$640	\$640	\$640		
	470 Air Seal Pump Room			2%	0%										
	Compactor Crawl Space Insulation		\$2,500	0%	5%			\$400	\$400	\$400	\$400	\$400	\$400	\$2,400	6
	Total			15%	13%										
kwh Transfer = Estimate			\$60,550			\$30	\$3,836	\$4,876	\$4,876	\$4,876	\$5,212	\$5,212	\$5,212	\$30,292	

Costs Savings & ROI - Electrical Projects



## Costs Savings & ROI - All Projects



Costs vs Savings

Savings vs Costs over time

Project Costs	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Project Costs	19,950	22,500	28,500	31,000	18,000	19,700	12,000	2,000	0	0	0	0	0	0
Cumulative Savings	1,678	5,484	7,797	9,122	9,648	10,685	11,348	11,762	11,762	11,762	11,762	11,762	11,762	11,762
Return on Investment	18,272	35,288	55,991	77,869	86,221	95,236	95,888	86,127	74,365	62,604	50,842	39,080	27,319	15,557
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Project Costs	50	22,500	7,500	0	0	11,700	0	0	0	0	0	0	0	0
Cumulative Savings	30	3,836	4,876	4,876	4,876	5,212	5,212	5,212	5,212	5,212	5,212	5,212	5,212	5,212
Return on Investment	20	18,683	21,307	16,431	11,555	18,043	12,831	7,618	2,406	-2,806	-8,018	-13,230	-18,442	-23,654



# LEE ENERGY CIP UPDATE

## GOALS

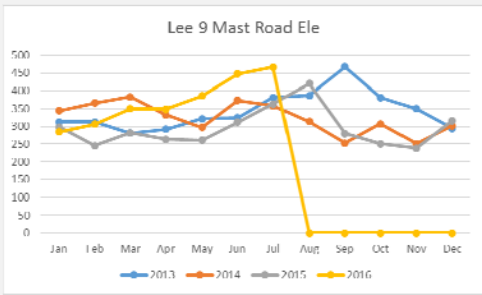
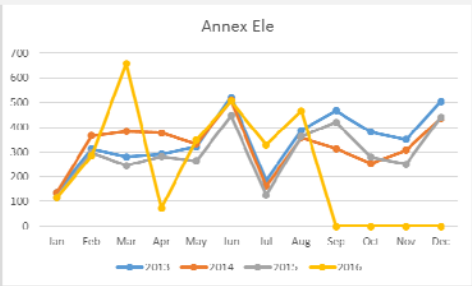
- Update data.
- Check on completed projects.
- Create sharable files for future use.
- Create spreadsheet for future use.
- Interview key staff on projects.
- Tour key facilities.
- This presentation.

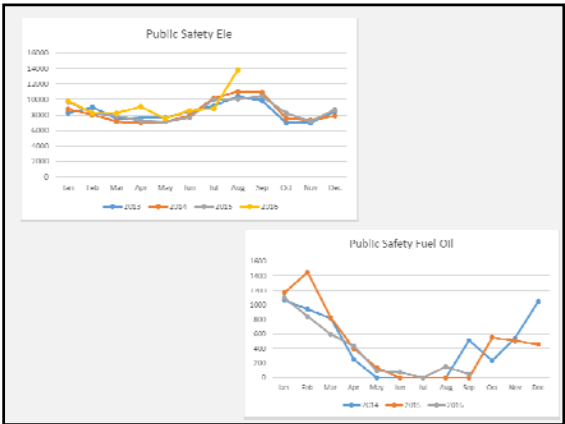
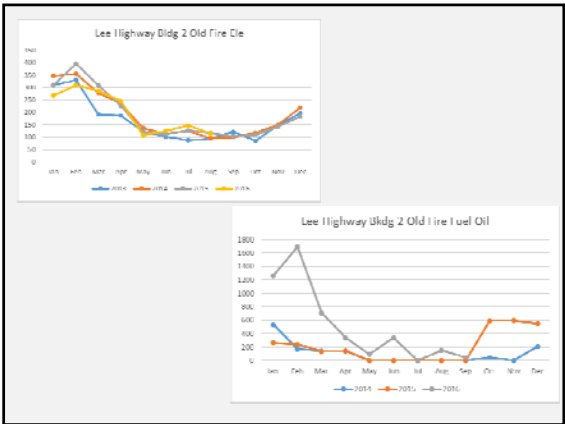
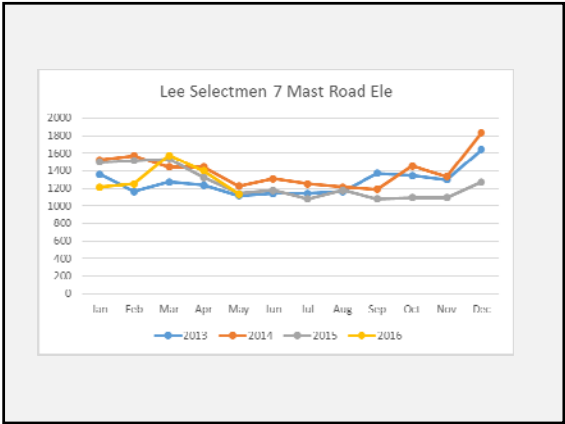
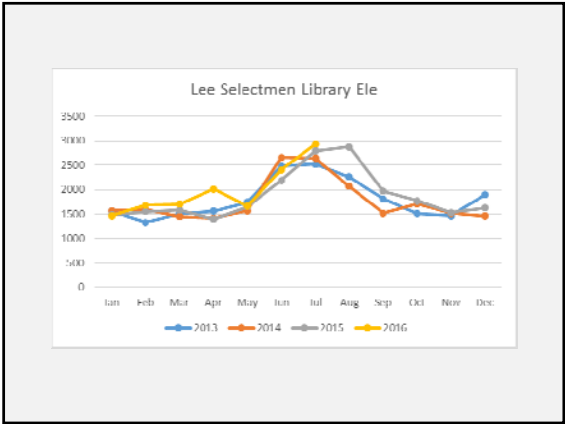
## CHALLENGES

- Technical:
  - Town using new contractors and AP/AR software.
  - Some data gaps.
  - 30 hours to complete project.
- Project based.
  - Low fuel energy costs currently (kwh rate slight rise).
  - Propane 3.27 → 1.79
  - Oil 3.60 → 1.84

## RECOMMENDATIONS

- Develop protocols for data management and recording.
- Complete "town" projects with volunteers and others.
- Develop scenarios for future projects.
- Consider a wait and see approach for when energy prices rise.
- Pursue electric projects through RGGI program and other sources – CDFA.
  - Secure UNH intern to research funding options for electric projects.





TOWN HALL

Virtual tour.



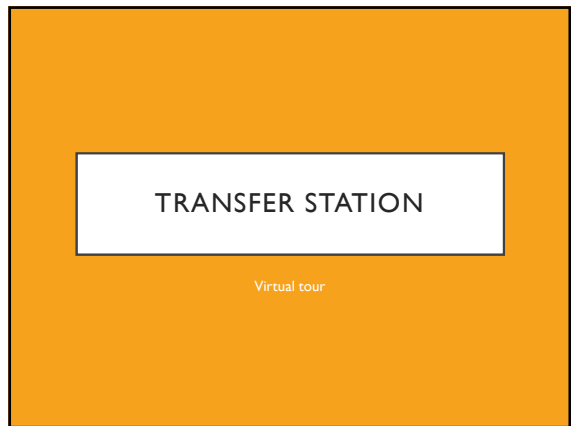




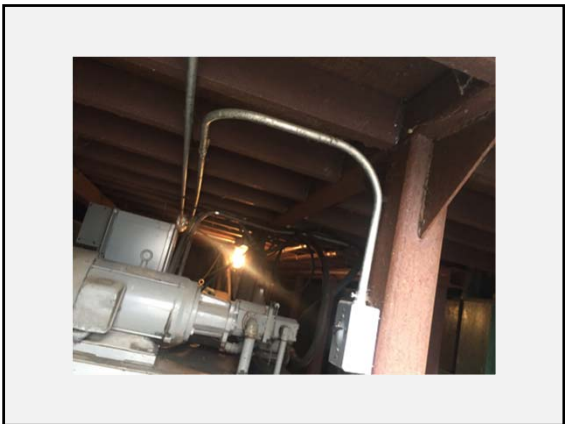
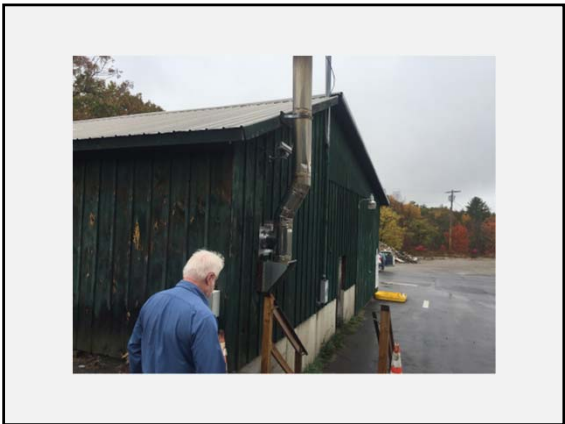
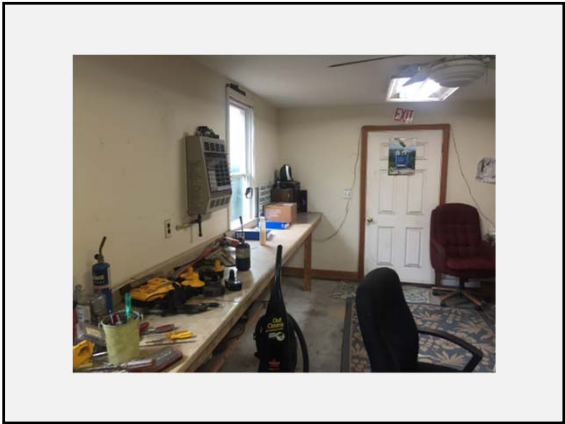




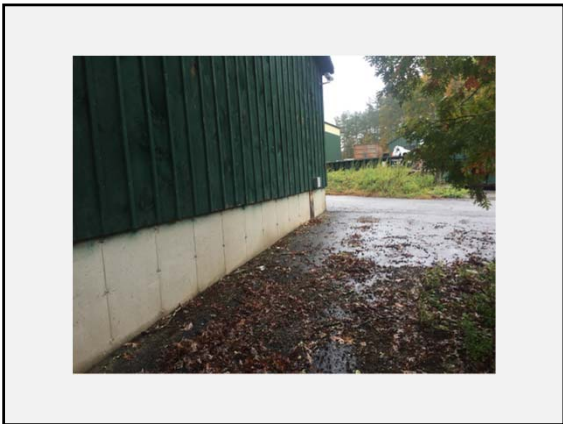
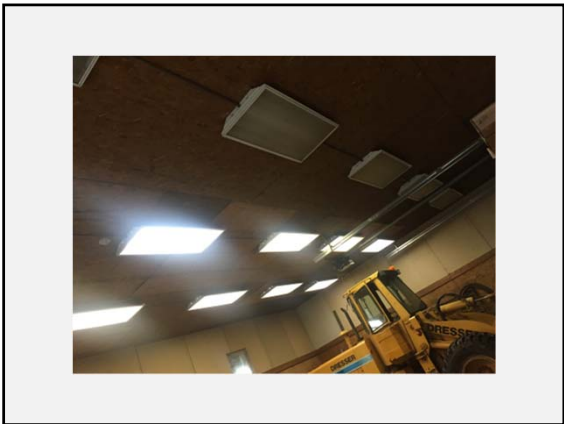
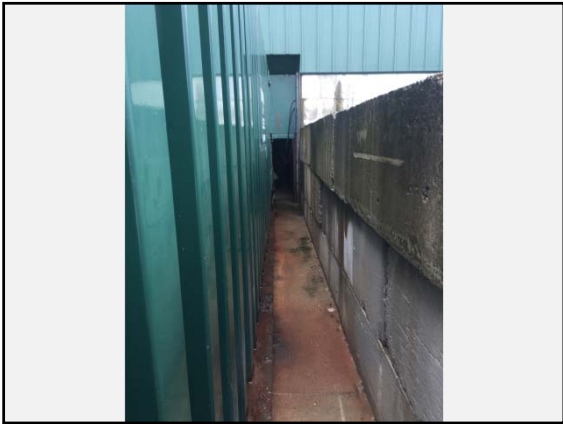
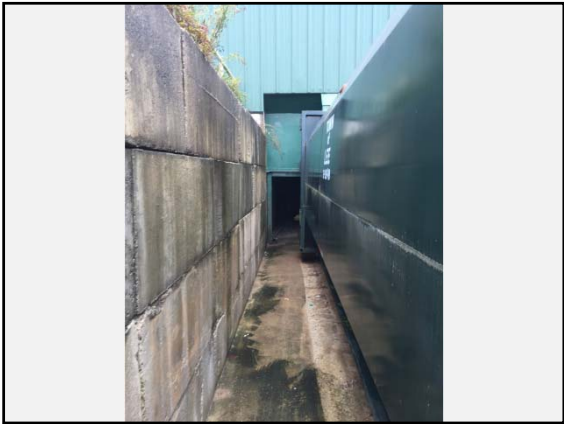


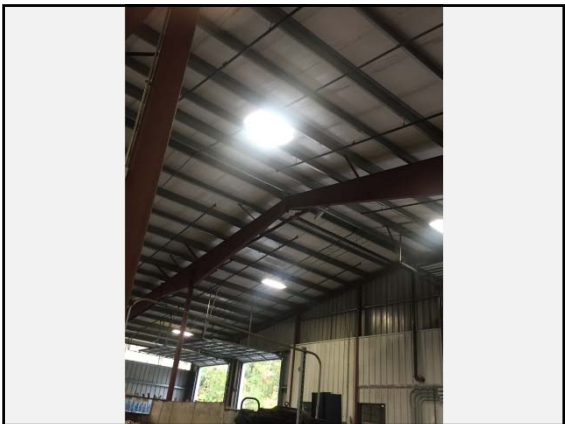














## THINGS TO DO.

- Meet with Barb.
- Correct the transfer station data.
- Compare results.
- Incorporate some updated information on transfer station.
- Tour Safety Complex.
- Issue final report with completed text and updated tax information.
- Find UNH intern to work with Energy Committee.

Building	Project Description	Total Project Cost	Heating Savings	Each Savings	2017	2018	2019	2020	2021	2022	2023	2024	Total
Green Hall	Lighting	\$1,000	0%	100%	\$1,000								\$1,000
	Door Weatherstriation	Town	\$100	2%		\$100							\$100
	Window Weatherstriation	Town	\$200	1%		\$200							\$200
	Frame Air Sealing		\$1,200	1%		\$1,200							\$1,200
	Heat Pipe Insulation	Town	\$200	2%		\$200							\$200
	Wing Hot Water Tank	Close	\$7,500	12%		\$7,500							\$7,500
	Ceiling Insulation Interior												
	Boiler	No Rec.	\$2,000	1%		\$2,000							\$2,000
	Boiler Room Retrofit	Partial	\$2,000	1%		\$2,000							\$2,000
	Refrigerated Cold Space		\$12,500	12%						\$12,500			\$12,500
				40%	100%								

Building	Project Description	Total Project Cost	Heating Savings	Each Savings	2017	2018	2019	2020	2021	2022	2023	2024	Savings Cumulative	Simple Payback
Green Hall	Lighting	\$1,000	0%	100%	\$1,000	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$2,400	4
	Door Weatherstriation	Town	\$100	2%		\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$400	3
	Window Weatherstriation	Town	\$200	1%		\$125	\$125	\$125	\$125	\$125	\$125	\$125	\$500	4
	Frame Air Sealing		\$1,200	1%		\$125	\$125	\$125	\$125	\$125	\$125	\$125	\$500	4
	Heat Pipe Insulation	Town	\$200	2%		\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$400	5
	Wing Hot Water Tank	Close	\$7,500	12%		\$900	\$900	\$900	\$900	\$900	\$900	\$900	\$3,600	2
	Ceiling Insulation Interior													
	Boiler	No Rec.	\$2,000	1%		\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$800	2
	Boiler Room Retrofit	Partial	\$2,000	1%		\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$800	2
	Refrigerated Cold Space		\$12,500	12%		\$1,562	\$1,562	\$1,562	\$1,562	\$1,562	\$1,562	\$1,562	\$6,250	2
				40%	100%									

Building	Project Description	Total Project Cost	Heating Savings	Each Savings	2017	2018	2019	2020	2021	2022	2023	2024	Savings Cumulative	Simple Payback
Green Hall	Lighting	\$1,000	0%	100%	\$1,000	\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$2,400	4
	Door Weatherstriation	Town	\$100	2%		\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$400	3
	Window Weatherstriation	Town	\$200	1%		\$125	\$125	\$125	\$125	\$125	\$125	\$125	\$500	4
	Frame Air Sealing		\$1,200	1%		\$125	\$125	\$125	\$125	\$125	\$125	\$125	\$500	4
	Heat Pipe Insulation	Town	\$200	2%		\$100	\$100	\$100	\$100	\$100	\$100	\$100	\$400	5
	Wing Hot Water Tank	Close	\$7,500	12%		\$900	\$900	\$900	\$900	\$900	\$900	\$900	\$3,600	2
	Ceiling Insulation Interior													
	Boiler	No Rec.	\$2,000	1%		\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$800	2
	Boiler Room Retrofit	Partial	\$2,000	1%		\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$800	2
	Refrigerated Cold Space		\$12,500	12%		\$1,562	\$1,562	\$1,562	\$1,562	\$1,562	\$1,562	\$1,562	\$6,250	2
				40%	100%									